



भारत हेवी इलेक्ट्रिकल्स लिमिटेड

(भारत सरकार का उपक्रम)

BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India Undertaking)

TCN - 03

Ref: PSER:SCT: NKP-C1629:TCN-03

Date: 19-12-2014

Sub	Tender Change Notice (TCN) - 03.	
Job	(i) PACKAGE A - Civil, Structural and Architectural works etc. of BTG area for Unit # 1 & 3 for 3X660 MW North Karanpura STPP, Jharkhand. (ii) PACKAGE B - Civil, Structural and Architectural works etc. of BTG area for Unit # 2, Boundary wall in two phases and watch towers for 3X660 MW North Karanpura STPP, Jharkhand.	
Ref	1.0	Tender no PSER:SCT:NKP-C1629:14
	2.0	BHEL's NIT, vide reference no PSER:SCT:NKP-C1629:4090 Date: 25-11-2014
	3.0	BHEL's TCN-01, vide reference no PSER:SCT: NKP-C1629:TCN-01 Date: 03-12-2014
	4.0	BHEL's TCN-02, vide reference no PSER:SCT: NKP-C1629:TCN-02 Date: 11-12-2014
	5.0	Other References, if any.

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

- 1) Modifications/Clarifications/Introduction is attached vide [Annexure-A to TCN-03](#).
- 2) BOQ cum Price Schedule format "VOLUME-III - PRICE SCHEDULE (PACKAGE-A) , REV-01 and VOLUME-III-PRICE SCHEDULE (PACKAGE-B), REV-01" has been revised as "[VOLUME-III-PRICE SCHEDULE \(PACKAGE-A\),REV-02](#) and [VOLUME-III- PRICE SCHEDULE \(PACKAGE-B\), REV-02](#)" which is enclosed herewith.
Bidders are requested to submit their offer as per revised BOQ/Price Schedule only and quote their price accordingly. Offer from bidders in superseded price schedules (Vol-III-Price schedule (Package-A)-REV-01 & Vol-III- Price schedule (Package-B)-REV-01) shall not be considered. Bidders are also requested to submit a declaration in techno-commercial offer that they have submitted their price bid in sealed envelopes as per REVISED Price Schedule format.
- 3) Revised '[No deviation certificate](#)' is attached. Bidder to submit 'No deviation certificate' as per attached format only.
- 4) All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully,
for BHARAT HEAVY ELECTRICALS LTD

Sr.Engineer (SCT)

Encl: As Above.

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 : 23211798/ 1691

ANNEXURE-A TO TCN-03

(i) PACKAGE A - Civil, Structural and Architectural works etc. of BTG area for Unit # 1 & 3 for 3X660 MW North Karanpura STPP, Jharkhand. & (ii) PACKAGE B - Civil, Structural and Architectural works etc. of BTG area for Unit # 2, Boundary wall in two phases and watch towers for 3X660 MW North Karanpura STPP, Jharkhand. (Tender no PSER:SCT:NKP-C1629:14)

MODIFICATIONS/CLARIFICATIONS/INTRODUCTION

SL. NO.	REFERENCE CLAUSE OF TENDER	EXISTING PROVISION	REVISED PROVISION
1	Clause No. 24.4A.20 of TCC	1 no. portable automatic concrete batching plant (Output 30 cum/ hr)	1 no. portable/fixed automatic concrete batching plant (Output 30 cum/ hr)
2	24.4B.20 of TCC	1 no. portable automatic concrete batching plant (Output 15 cum/ hr)	1 no. portable/fixed automatic concrete batching plant (Output 15 cum/ hr)
3	24.7.19 of TCC	portable automatic concrete batching plant (Output 15 cum/ hr)	portable/fixed automatic concrete batching plant (Output 15 cum/ hr)

SL. NO.	REFERENCE CLAUSE OF TENDER	PROVISION/ BIDDER'S QUERY	BHEL'S CLARIFICATION
1	Package B	Package B is inclusive of Sch-4 Phase I & II BOUNDARY WALL, where item No.213 & 213A is precast and prestressed concrete items which are to be factory manufactured and transported to site for installation. We would like to inform you that on enquiring from various places viz Bangaluru, Hyderabad, Jamshedpur, Ranchi etc it was found that the parties manufacturing precast units either do not manufacture prestressed precast units or they have declined to produce & supply the units as per the technical specification. Under the circumstances we will request you to kindly provide us with VENDOR list or allow us to manufacture the precast units at site. A line of confirmation in this regard will highly be appreciated.	Shall be as per tender.
2	ST-508(A) of BOQ- Concrete Flooring Tiles	Size of tiles should be 250x250 / 300x300 mm of thickness 20 mm in place of 600x600 mm considering availability of Tiles as-well-as easy handling. Please confirm.	BOQ/Price schedule item modified. Refer Price Schedule - Volume-III-Rev-02.

INTRODUCTION

1	Introduction of Clause No 24.8 under Clause no 24.0 of TCC		Batching plant to be deployed by the contractor must have digitalized recording system, which shall be calibrated with NABL/NPL traceable weights. The batching plant shall have the facility of obtaining the digitalized output giving details of the various constituents (cement, aggregate, water, admixtures, fly ash etc.) in each batch of concrete being produced.
---	--	--	---

**VOLUME-III
PRICE SCHEDULE, REV-02
PACKAGE-A**

JOB: PACKAGE A - CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS ETC. OF BTG AREA FOR UNIT # 1 & 3 FOR 3X660 MW NORTH KARANPURA STPP, JHARKHAND.

TENDER NO. PSER:SCT:NKP-C1629:14

SL. No.	PREAMBLE
1	This preamble forms part of tender document and schedule of items. The tenderer should read this preamble carefully before filling in rates for various items. Clauses under this preamble shall be read in conjunction with Volume-IB, ID, IE , Volume – IF and other tender sections as applicable and shall have precedence over any contrary statement mentioned any where in this document.
2	The work shall be carried out strictly as per specifications, description of the items in these schedule and / or engineer's instructions. Drawings enclosed with the tender are only preliminary and for tender purposes and giving some idea of the work involved. The work is to be executed as per drawings & documents, which shall be furnished during execution.
3	Items of work provided in this schedule but not covered in this specification shall be executed strictly as per instruction of the engineer.
4	Unless specifically mentioned otherwise in the tender document, the tenderer shall quote for the finished items and shall provide for the complete cost towards power, fuel, tools, tackles, equipment, constructional plants, temporary works, labour, dismantling of all temporary piping, structures, valves, pumps, tanks & other misc. equipment, strengthening of roads/culverts/bridges etc. including arranging all clearances etc. required for carrying out different activities & tests, materials, levies, taxes(except service tax), transport, layout, repairs, rectification, maintenance till handing over, supervisions, colonies, shops, establishments, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the work according to the complete tender document and this schedule.
5	The quantities of the various items mentioned in this schedule of items are approximate, based on very preliminary information and may vary to any extent or be deleted altogether. The quoted rates of each item will remain firm throughout the period of execution including extension, for reasons whatsoever, as long as variation in the total value of work executed under any part of this contract including extra items, if any but excluding any price variation remains, within fifteen percent ($\pm 15\%$) of the awarded price as per LOI .
6	Prior written approval of BHEL shall be sought by the contractor in case quantity variation of any item crosses +50% (plus fifty percent) limit during execution and approval to be obtained before execution of further quantity for this item.
7	In case Sealed /Paper Price Bids are opened for finalisation of the tender, for any Item Rate/BOQ based contract, possibility of variation of quantity/ addition/deletion of items can not be ruled out. Under such circumstances, after execution of work, if it is observed that standing as L-1 is changed based on actual quantity executed, the bidder shall give suitable rebate to maintain your standing as L-1. Since this aspect can be assessed at the end of execution, necessary adjustment will be effected at the end of execution in final bill. This condition shall not be applicable where the tender is finalised through Reverse Auction.
8	BHEL reserve the right to rationalize the rates, quoted by L-1 bidder against unit rate items and/ or other optional items with respect to item-wise lowest rates (amongst the participating bidders), before placement of order.
9	The rates quoted shall be inclusive of cleaning of site of any vegetation, dressing , clearing of old structures and leveling etc. including fixing of grid pillars, benchmarks etc. required for commencement of site activities. No separate payment will be made towards the same. However, if separate rate for such item is available in the rate schedule, the same shall be considered.
10	Rates shall be quoted in figures and in words in clear legible writing. No overwriting is allowed. All scoring and cancellations should be countersigned and in case of illegibility the interpretation of engineer shall be final. All entries shall be in English language.
11	All works item wise shall be measured upon completion and paid for at the rates quoted and accepted as per BHEL approved payment schedule/billing break-up.
12	The tender shall be deemed to have visited site and made himself aware of all the site conditions, studied the specifications and details of work to be done within the time schedule attached and to have acquainted himself of the conditions prevailing at site.
13	No splitting of the job is envisaged. Decision of BHEL in this regard shall be final and binding to the bidders.
14	Bidders are not allowed to alter the Price Schedule format including item description, quantity etc. and the offer is liable for rejection if the bidders submit their prices in Price Schedules modified by them. BHEL reserves the right to reject the offers of bidders who submit offers in Price Formats which are modified/ altered by them.
15	Bidders to note that for Civil &/Structural packages, against a particular item against a ST No. appearing in more than one schedule of the BOQ, same rate must be quoted in all schedules for that particular items with same descriptions. If by error, different rates are quoted in different schedules for same ST No. (i.e. item with same description), then the higher of the rates shall be considered for evaluation but awarding shall be done with the lower rate ,if the bidder becomes L-1."
16	In case of Lumpsum contracts, addition or deletion of the scope beyond the variation limit specified shall be derived from the quoted Lumpsum price and the tendered scope of work considering the allowable variation limit.
17	Engineer's decision shall be final and binding on the contractor regarding clarification of items in the schedule with respect to the other sections/volumes of the contract.
18	In case of tender for Civil and/or Structural works , the Non-schedule items are not quoted by the bidder, it will be treated at par with rate of corresponding item of CPWD/PWD/DSR schedule as prescribed in the tender/BOQ cum Rate Schedule.
19	Size and weights of various items are mentioned in the attached BOQ cum rate/price schedule for reference purpose only & these shall not be taken into consideration for quoting/calculating amount in the rate schedule. These shall be utilised as per relevant sections of tender. Bidders shall quote for each item in the rate column, taking unit as mentioned in the quantity column. Rates shall be filled in both figures and words. Amount shall be calculated based upon these rates multiplied by the mentioned quantity for the respective items.
20	Bidder's Grand Total price shall be considered for evaluation unless stated otherwise.
21	In case of BOP packages, if Bidder does not quote/indicate the price for freight charges against indicated rate schedule, the same shall be considered as 2% of basic price and adjusted with the total quoted price against each item keeping the total quoted price unaltered.

**VOLUME-III
PRICE SCHEDULE, REV-02
PACKAGE-A**

**JOB: PACKAGE A - CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS ETC. OF BTG AREA FOR UNIT # 1 & 3 FOR 3X660 MW NORTH
KARANPURA STPP, JHARKHAND.**

TENDER NO. PSER:SCT:NKP-C1629:14

SCH-1 - TOTAL PRICE

SL NO	DESCRIPTION	AMOUNT (Rs.)
1.0	TOTAL PRICE OF SERVICE (PART-1) (SCH-2).	
2.0	TOTAL PRICE OF SUPPLY (PART-2) (SCH-3).	
3.0	GRAND TOTAL PRICE	

NOTE

1.0	Bidder's quoted total price at sl no 3.0 above shall be taken into account for evaluation. However, bidder shall furnish break-up of grand total price for various systems in the respective schedules and shall be complete in all respects as per provision of tender and technical specification.
2.0	Bidder shall furnish item-wise break-up of above grand total price in the respective schedule as per following. Total of prices of various schedules shall match with above total price.
2.1	SCH-2 - SERVICE (PART-1).
2.2	SCH-3 - SUPPLY (PART-2).
3.0	Bidder shall quote their rates/ prices against all components as per the schedules & terms & conditions of tender.
4.0	Schedule of Equipment has been indicated for reference only. All electrical items/accessories required for completeness of Chimney Electrical System shall be supplied by the contractor.
5.0	BHEL reserve the right to rationalize the rates, quoted by L-1 bidder against non schedule items (As per ST. No. B (1a, 1b, 1c) of SCH- 2 with respect to item-wise lowest rates (amongst the participating bidders) , before placement of order.

VOLUME-III
PRICE SCHEDULE, REV-02
PACKAGE-A

JOB: PACKAGE A - CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS ETC. OF BTG AREA FOR UNIT # 1 & 3 FOR 3X660 MW NORTH KARANPURA STPP, JHARKHAND.

TENDER NO. PSER:SCT:NKP-C1629:14

SCH-2 - SERVICE PART

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
100 EARTH WORK					
Earth work In excavation, backfilling and disposal including necessary men/women, materials, equipment, loading, transportation, unloading, dewatering etc as per specification, drawing and as directed by engineer- in-charge for the following.					
101	Earth work in excavation in all types of soil including ash which can be excavated by any means including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 500 m, spreading/levelling of disposed materials etc all complete for following depths below ground level.				
a	Depth from ground level but not exceeding 2 m	CUM	96,000		
b	Depth exceeding 2 m but not exceeding 4 m	CUM	56,900		
c	Depth exceeding 4 m but not exceeding 6 m	CUM	3,260		
d	Depth exceeding 6 m but not exceeding 8 m	CUM	240		
103	Earth work in excavation in soft rock (weathered/fractured rock including shale, siltstone etc.) which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc but does not require chiselling or blasting including setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 500 m, spreading / levelling of disposed materials etc all complete for following depths below ground level. Each subitem includes lift from specified level to top of ground.				
a	Depth from ground level but not exceeding 2 m	CUM	58,600		
b	Depth exceeding 2 m but not exceeding 4 m	CUM	67,400		
c	Depth exceeding 4 m but not exceeding 6 m	CUM	59,200		
d	Depth exceeding 6 m but not exceeding 8 m	CUM	25,200		
e	Depth exceeding 8 m but not exceeding 10 m	CUM	4,600		
104	Earth work in excavation in hard rock requiring blasting (but excluding controlled blasting) including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (wherever required), dressing the sides & bottom, obtaing necessary licenses/statutory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 500m, spreading / levelling of disposed materials etc all complete for following depths below ground level. Each subitem includes lift from specified level to top of ground.				
c	Depth exceeding 4 m but not exceeding 6 m	CUM	3,220		
d	Depth exceeding 6 m but not exceeding 8 m	CUM	2,580		
e	Depth exceeding 8 m but not exceeding 10 m	CUM	1,280		
105	Earth work in excavation in hard rock requiring controlled blasting adjacent to existing structure including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, necessary licenses/statutory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 500m, spreading / levelling of disposed materials etc all complete for following depths below ground level. Each subitem includes lift from specified level to top of ground.				
c	Depth exceeding 4 m but not exceeding 6 m	CUM	800		
d	Depth exceeding 6 m but not exceeding 8 m	CUM	900		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
106	Earth work in excavation in hard rock requiring chiselling including wedging, line drilling, pre shearing etc as required, setting out, levelling, deawtering (wherever required), dressing the sides & bottom, stacking/disposal of surplus excavated material within a lead upto 500m, spreading / levelling of disposed materials etc all complete for following depths below ground level. Each subitem includes lift from specified level to top of ground.				
c	Depth exceeding 4 m but not exceeding 6 m	CUM	750		
d	Depth exceeding 6 m but not exceeding 8 m	CUM	800		
107	Back filling upto any depth below ground level around foundations, plinths, trenches, drains, roads etc to proper grade and level in layers not exceeding 250 mm thickness using/with selected materials from compulsorily excavated soil available within a lead upto 500m and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.				
a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	175,000		
108	Back filling upto any depth below ground level around foundations, plinths, trenches, drains,roads etc to proper grade and level in layers not exceeding 250 mm thickness using/with selected materials directly from excavation and compacted as specified including watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.				
a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	30,860		
109	Extra over ST No. 101 and 103 to 107 for carriage of excavated earth/selected materials for every 1 km or part thereof beyond an initial lead of 500m.	CUM	157,400		
110	Back filling upto any depth below ground level around foundations, plinths, trenches, drains,roads etc to proper grade and level in layers not exceeding 250 mm thickness using/with approved borrowed soil (borrowed soil to be arranged by the bidder) and compacted as specified including supplying borrowed soil, royalty (if any), watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.				
a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	102,000		
b	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	760		
110A	Filling of excavated rock alongwith earth upto any depth below ground level and rolling to proper grade and level in layers not exceeding 250 mm thickness including watering, ramming/compaction by manual/mechanical means, dressing etc all complete .	CUM	20,000		
111	Supplying and filling sand upto any depth under floors, around foundations, plinths etc. in layers not exceeding 250 mm thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	CUM	9,900		
200 CONCRETE WORKS					
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) with mechanised equipments like batching plant, transit mixer, concrete pump etc. complete as per drawing, specifications and as per direction of engineer in charge for the following. (CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)					
201	Concrete of grade M7.5 (1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume) as filling course Lean concrete at any depth below finished floor level, under and around foundations/floors, mass fill etc.	CUM	3,930		
202	Concrete of grade M10 (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc.	CUM	1,310		
204	Concrete under floors, paving, plinth protection, pipe encasing,roads etc complete with 20 mm nominal size graded aggregate at any depth below finished floor level for the following grades.				
a	M15 Grade	CUM	530		
b	M20 Grade	CUM	640		
205	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size in foundations/substructure, grade slab, paving, drains, under floors etc at any level below finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following.				
a	M20 Grade	CUM	1,400		
b	M25 Grade	CUM	51,470		
c	M30 Grade	CUM	1,090		
206	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size in superstructure at any level above finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following.				
a	M25 Grade	CUM	6,900		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
b	M30 Grade	CUM	1,000		
207	Providing and laying Design Mix cement concrete confirming to IS:456 & IS 10262-2009 for reinforced concrete works of grade M-30 Grade in machine foundations for TG, Gas Turbine, ID/FD/PA fans, BFP, Coal mills at all elevations below/above finished floor level except TG deck and top decks supported over vibration isolation system including addition of suitable plasticizer conforming to IS 9103(latest) to achieve a slump more than 125mm in concrete as per manufacturer's recommendation with 20 mm nominal size graded aggregate in concrete all complete as per specification & drawing.	CUM	15,060		
208	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 of grades mentioned below for reinforced concrete works using graded aggregate in top decks of all machine foundations supported/unsupported on vibration isolation system (excluding supply and installation of vibration system) and top deck of TG foundation at all levels including addition of suitable plasticizers conforming to IS9103 to achieve a slump more than 125 mm in concrete as per manufacturers recommendation, preparation of scheme for concreting, getting it approved by engineer, labour, materials, equipment, handling, batching, transporting, mixing, pumping, placing, leveling, vibrating, compacting, curing, testing, cleaning and rendering the exposed surface with cement sand mortar to give a smooth and even surface, maintaining and submitting records of concreting, petrographic examination and potential reactivity of aggregate etc. all complete as per specification, drawing and instructions of engineer, including UPV testing as directed by engineer in charge (UPV test to be paid separately under item 210), 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. Payment terms - a) After casting 75% ; b) After receipt of ultrasonic test report - 25%.				
a	M35 grade (with 20mm nominal size graded stone aggregate)	CUM	2,840		
209	Extra over St. No. 205 to 208 for controlling of temperature of fresh concrete to less than 23 degree centigrade using ice, including all related arrangements for providing, storing and mixing of ice with water, cooling of aggregates etc. All complete as per specification, drawing and instruction of engineer in charge.	CUM	7,760		
210	Extra over ST Nos. 205 to 208 for conducting UPV test for concrete at all levels including all equipments, making necessary arrangements, staging, submission of report etc. all complete as directed by engineer in charge and as per specification.	CUM	4,900		
211	Providing and encasing of structural steel member with concrete using nominal aggregate size of 12.5mm down. Encased member shall be wrapped with welded wire mesh/chicken wire mesh with proper lap etc. complete as per specification for the following grades. (Payment of welded wire mesh, chicken wire mesh shall be made separately)				
a	M25 grade	CUM	100		
b	M30 grade	CUM	1,000		
212	Screed concrete conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5mm/6 mm nominal size on the roof at any level or thickness, drains etc complete as per following.				
a	1:2:4 (1 part cement, 2 part sand, 4 parts of aggregate by volume)(not less then M-10)	CUM	60		
b	1:1.5:3 (1 part cement, 1.5 part sand, 3 parts of aggregate by volume)(Not less then M-20)	CUM	440		
213	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in precast works like roof slabs/trench covers, fins, lintels, chajas, 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 adjacent precast units with M30 grade 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) and as per specification and drawing for following grades.				
a	M 25 grade	CUM	1,000		
b	M 30 grade	CUM	800		
214	Providing and laying Design Mix cement concrete as per IS:456, IS 3370 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in water retaining/conveying structures including addition of suitable plasticizer cum waterproofing cement additives conforming to IS 9103 latest to achieve a slump more than 125 mm in concrete as per manufacturers recommendation and conforming to limits of permeability as per IS 2545 and specification with 20 mm nominal size graded aggregate for following grades.				
b	M 25 grade	CUM	200		
c	M 30 grade	CUM	200		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
215	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.				
a	Plain cement concrete of all grades	CUM	40		
b	Reinforced cement concrete of all grades	CUM	60		
216	Chipping of concrete in reinforced concrete work, cutting pockets, making openings at all levels and according to shapes, disposal of waste materials upto a lead of 2 km as directed by engineer including equipment, safety precautions, making good the broken surface etc all complete as per specification, drawing, instructions of engineer in charge but excluding cutting of reinforcement .	CUM	60		
217	Extra over and above St No 216 for cutting of reinforcement , all sizes and types including labour, equipment, return of cut reinforcement to store etc all complete as per specification, drawings and instructions of engineer in charge. Measurement shall be on the cross sectional area of reinforcement cut.	SQCM	290		
218	Cutting Reinforced concrete with mechanised tools like Core drilling machine etc. for cutting pockets, holes, cores in slab, beam, column or foundation as per direction of engineer in charge.	CUM	30		
219	Providing and applying curing compound of approved make where ever required as per manufacturer's specification.	SQM	900		
300 FORM WORKS					
Providing, fixing and removing formwork at any elevations for all structures, as per specifications and including all labour, material, scaffoldings and centering complete including pockets etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.					
301A	Fairface form work with good quality water proof ply wood with film face of required thickness and smooth surface below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.	SQM	65,760		
302A	Fairface form work with good quality water proof ply wood with film face of required thickness and smooth surface above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches, circular overhead tanks etc. for all heights.	SQM	21,000		
303A	Plywood Formwork with filmface of required thickness and smooth surface for TG superstructure (above base raft level) including preparation of scheme, designing, submission and approval of staging drawing with sufficient props, braces and ties at every tier of height of approx. 4m for all heights.	SQM	12,860		
304	Providing, fixing and removing formwork in block-outs/pockets and openings (below 0.1 sqm plan area) 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 in charge.				
a	Upto 150 mm depth	Each	110		
b	Pockets of depths more than 150mm and upto 300 mm depth	Each	1,420		
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	140		
d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	600		
e	Pockets of depths more than 1000mm and upto 1500 mm depth	Each	200		
304A	Providing, fixing and removing formwork having film face in block-outs/pockets and openings (below 0.1 sqm plan area) 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 in charge.				
a	Upto 150 mm depth	Each	2,460		
b	Pockets of depths more than 150mm and upto 300 mm depth	Each	450		
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	600		
d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	600		
e	Pockets of depths more than 1000mm and upto 1500 mm depth	Each	520		
400 REINFORCEMENT					
401	Transporting, straightening, cutting, bending, placing in position at any level, binding of mild steel reinforcements conforming to grade 1 of IS:432 (part 1 or grade IS-2062) in concrete including cost of reinforcement and binding wire, labour, scaffolding, transportation to & from stores etc. all complete as per specifications & drawings.	MT	25		
402	Providing, straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of TMT steel of grade Fe-500 HYSD confirming to IS:1786 including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. (STEEL WILL BE SUPPLIED BY BHEL FREE OF COST)	MT	7,950		
500 WATER PROOFING WORKS					

PAGE 6 OF 41

PRICE SCHEDULE

VOLUME-III, REV-02

PACKAGE-A

SCH-2-SERVICE

TENDER NO : PSER:SCT:NKP-C1629:14

SIGNATURE WITH SEAL OF THE BIDDER

0

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
Water proofing works including all labour, material, equipment, transportation, handling, curing, sampling, testing etc at any level as per specification, drawings and as directed by engineer - in - charge. (CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)					
501	Providing and laying underbed grading plaster with cement mortar 1:4 (1 cement : 4 sand) and average thickness as specified below including preparation of surface, batching, mixing, leveling etc. all complete.				
a.	Average 15 mm thickness	SQM	16,200		
502	Providing and laying in-situ light weight foam concrete insulation as per relevant IS Code in suitable panels over roofs followed by a layer of 15 mm thick cement sand plaster 1:5 (1 cement: 5 coarse sand) after the curing period of laid foam concrete and providing of expansion joint at intervals as per the recommendation of manufacturer. The insulating properties shall be such that the thermal conductivity shall not exceed 0.125 Kcal/sqm-hr deg C. Cost shall include making of fillets, cleaning & preparation of surface, expansion joints at suitable intervals etc all complete for following.				
a	Average 50 mm thickness	SQM	260		
b	Average 75 mm thickness	SQM	260		
506	Providing and applying PU based water proofing treatment with one coat of polyurethane or any other equivalent material based primer with an application rate of minimum 6 sq.m per litre and two successive liquid coatings of high solids content urethane pre-polymers or equivalent material based finish coats as per relevant IS/ASTM standards to form an elastomeric membrane with overall dry film thickness 1.5 mm subject to minimum 500 gm/sqm/coat application rate. Item includes surface preparation, polyscrim cloth /fabric for edges, joints & vulnerable points etc all complete as per specifications and directions of engineer in charge.	SQM	16,200		
507	Providing and laying wearing course consisting of 25mm thick plain cement concrete of grade M15 (1:2:4) with graded aggregate of 12.5mm size cast in panels of maximum size 1.2mx1.2m and reinforced with 0.56 mm dia. galvanised chicken wire mesh and sealing of expansion joints (in grooves of 6mm X 6mm) using polysulphide sealant (cost of material & application of polysulphide sealant is included in this item) etc all complete.	SQM	2,000		
508 A	Providing and laying Pressed cement concrete flooring tiles of 22mm thickness and size 300X300 mm conforming to IS 13801 with 15 mm thick 1:4 cement mortar over the top most layer of roofing treatment with fine joints including sealing of expansion joints with polysulphide sealant (cost of material & application of polysulphide sealant is included in this item) etc all complete. (Water proofing paid elsewhere)	SQM	26,480		
509	Providing and applying two coats of bitumen grade 85/25 as per IS 702 (@ 1.7kg/sqm)with 1% antistripping compound conforming to IS 6241 in foundation, wall, column etc on concrete surfaces exposed to soil / ash including surface preparation etc. all complete.	SQM	63,340		
512	Anti termite and Anti weeds chemical treatment of soil with Chloropyrifos emulsifiable or equivalents, concentrates (1%) conforming to IS :8944 all complete.	SQM	779		
600 JOINTS AND FILLERS					
Joints & fillers including all labour, material, equipment, transportation, handling etc at any level as per specification, drawings and as directed by engineer - in - charge.					
601	Supplying & installation of bitumen impregnated fibre board conforming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete.				
a	12 mm wide joints.	SQM	970		
b	20 mm wide joints.	SQM	750		
c	25 mm wide joints	SQM	100		
d	50 mm wide joints	SQM	60		
602	Providing and applying polysulphide based sealant conforming to IS:12118 in expansion joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete for following size grooves:				
a	12mm X 25mm	RM	3,500		
c	25mmX25mm	RM	400		
d	50mmX25mm	RM	150		
603	Supplying and filling in position hot applied bitumen sealing compound (Grade A) conforming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.				
a	10mm X 40mm	RM	40		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
b	12mm X 25mm	RM	490		
c	20mmX25mm	RM	640		
604	Supplying and filling in position hot applied bitumin sealing compound (Grade B) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.				
a	10mm X 40mm	RM	32		
b	12mm X 25mm	RM	32		
c	20mmX25mm	RM	32		
605	Providing and sealing of joints with premium grade silicon sealant (Silpruf of GE silicon or approved equivalent) including cleaning of joints, raking out groove, joint filler tapes, application of primer, curing, scaffolding etc. all complete as per manufacturer's recommendation for following size groove:				
a	25mmX25mm	RM	3,800		
b	50mmX25mm	RM	800		
606	Providing and fixing PVC water stops in joints conforming to IS 12200 & IS 15058 all complete for the following:				
a	150 mm wide and 8 mm thick	RM	60		
b	230 mm wide and 8 mm thick	RM	100		
c	150 mm wide and 6 mm thick	RM	60		
d	230 mm wide and 6 mm thick	RM	60		
607	Providing and fixing copper water stops in joints of deep underground structure all complete for the following:				
a	150 mm wide and 8 mm thick	RM	60		
b	230 mm wide and 8 mm thick	RM	60		
607A	Providing and Sealing of joints/leacage direct in touch with soil or structure with Chemical injection grouting using water soluble monomer based chemical (confirming to IS: 2645) and cement slury by pressure pump with arrangement as per IS: 6494 and drawings all complete.	RM	800		
608	Supply and instalation of Polystyrene flexible board confirming to IS 4671 (density between 25Kg/Cum to 30 Kg/Cum) as joint filler at joint of concrete including nailing, coating of both faces with coal tar pitch /butimen etc. all complete.				
a)	100mm thick	SQM	4,460		
700 MS EMBEDMENTS					
Embedments including all labour, material, equipment, transportation, handling etc. at any level as per specification, drawings and as directed by engineer - in - charge.					
701	Transporting, fabricating and fixing of mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. including welding, bolting, cutting, drilling, scaffolding, setting etc. all complete.	MT	90		
702	Same as above with BHEL supplied material free of cost including loading, transportation, unloading etc. all complete from BHEL store to plant site.	MT	29		
703	Fixing of embedments, inserts, pipe sleeves, angle pieces, anchor bolts of various diameters, plates of dimensions as required etc. including scaffolding, setting in position, transportation from BHEL site stores to work spot etc. all complete.	MT	90		
704	Fabrication, transportation, delivery at site and erection, installation and alignment of mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc. including welding, cutting, grinding, threading, drilling etc. all complete.	MT	40		
705	Transporting, fabricating, erecting and installing following items in concrete/brickwall for all kind of works, including setting material in concrete, layout, scaffolding, cutting, forming, grinding, drilling, bolting, welding, jointing, testing etc. all complete.				
a	MS pipes of all diameters	Quintal	13		
b	PVC pipes / conduits of all diameters	Quintal	10		
c	UPVC pipes / conduits of all diameters	Quintal	13		
d	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for brick work with expansion sleeve of A6 polyamide:				
i	Upto 250 kg	Each	10		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
ii	Beyond 250 Kg and upto 500 kg	Each	13		
iii	Beyond 500 Kg and upto 750 kg	Each	13		
e	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with expansion sleeve of stainless steel:				
i	Upto 250 kg	Each	129		
ii	Beyond 250 Kg and upto 500 kg	Each	129		
iii	Beyond 500 Kg and upto 750 kg	Each	129		
800 GROUTING					
Grouting including all labour, material, equipment, roughening surface, cleaning, ramming, curing etc. at any level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge.					
801	Providing & grouting with cement slurry mix of approved ratio using pressure pump for water retaining concrete structures as per approved procedure including cost of nipples/ nozzles, cement, admixture, curing, pressure pumps, slurry agitator etc. all complete. Cost shall include fixing of nipples at minimum 500 mm centre to centre spacing, cutting of nipples after completing of grouting, making good of the nipple hole with appropriate non-shrink cement paste, water tightness test etc. all complete wherever specified in the drawing. (CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)	CUM	32		
802	Providing & grouting of pocket holes, pipe sleeves under base plates, machinery, pipe supporting structures etc. with mix 1:1 (1 cement :1 sand) using non shrink admixture etc. all Complete. (CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)	CUM	65		
803	Providing & grouting of pocket holes, pipe sleeves and under base plate of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with mix 1:1:2 (1 cement : 1 coarse sand : 2 aggregate of 6 mm down graded stonechips) using non shrink admixture. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor). (CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)	CUM	60		
804	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with ConbextraGP-1 or equivalent . (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).(NOTE:Minimum characteristic strength of grouting shall be as per detail drawing all complete)	CUM	16		
805	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing, etc. all complete with Conbextra GP-2 or equivalent . (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor)(NOTE:Minimum characteristic strength of grouting shall be as per detail drawing all complete).	CUM	120		
900 DOORS, WINDOWS, VENTILATORS, LOUVERS					
Doors, windows, ventilators, louvers, roof ventilators, rolling shutters, partitions including all labour, material, equipments, transportation, handling, preparation of working drawings etc. at any level as per specification, drawings and as directed by engineer - in - charge.					
901	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 including sand paper smoothing, hold fasts, beading, primer and finish painting / polishing etc. all complete with proper wood joinery, accurately set to required lines or levels and rigidly secured in place. (Finish painting / polishing paid separately)	CUM	32		
902	Providing and fixing teakwood frame panel door shutter as per IS 1003 with 35 mm x 150 mm vertical rail & 35mm x 125 mm horizontal rail and 12 mm thick interlocked panels of teakwood with proper wood joinery including beading, preparation of working drawings,godrej or equivalent make mortice lock with handels on both sides,approved ISI mark anodised fittings like door stopper,300mm long tower bolts,16x300mm long aldrops ,125mm long handles on both sides etc. butt hinges, sliding bolt ,knobs, (all fitting shall be anodised aluminium color dyed), screws, primer and finish painting / polishing etc. all complete. (Finish painting / polishing paid separately)	SQM	16		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
903	Transporting, fitting and fixing solid core flush door shutter as per IS 2202 part II, 35mm thick homogenous particle board bonded with BWP type phenolformaldehyde synthetic resin, particle board core conforming to IS 3087 type I, 35x12 mm thick teakwood beading all around including preparation of working drawings. godrej or equivalent make mortice lock with handles on both sides, approved ISI mark anodised fittings like door stopper, 300mm long tower bolts, 16x300mm long aldrops, 125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fittings shall be anodised aluminium color dyed), finish flat oil paint conforming to IS: 137 over primer, screws etc. all complete as per drawing, specification and instruction of engineer in charge. with commercial faces and teak wood edges. (Finish painting paid separately)	SQM	60		
904	Transporting and fixing single or double steel door shutters with 35 mm thk flush design shutter 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 centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	SQM	194		
906	Transporting, fitting and fixing anodized extruded aluminium doors (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 3mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 (minimum anodized coating of grade AC15). fixed with rawl plugs, expansion fasteners, SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be clear float glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately)	SQM	32		
906A	Transporting and fixing anodized extruded aluminium doors (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 2 mm wall thickness as per IS:1285, IS:733 and anodized(15 micron coating thickness) and electro color dyed of required shade as per IS 1868 (minimum anodized coating of grade AC15). fixed with rawl plugs, expansion fasteners, SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be clear toughened glass of 10 mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately)	SQM	970		
907	Transporting and fixing fire proof steel doors (single or double shutter) with panic devices having 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.	SQM	236		
908	Providing and fixing steel windows/ventilator with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision. including all fittings, metal beadings, hold fasts, shop and final painting, glazing etc. all complete. (Glazing shall be paid separately)				
a	openable type	SQM	116		
b	fixed type	SQM	116		
909	Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing etc with extruded standard tubular and other sections including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, anodised and electro color dyed to required shade according to IS 1868 (minimum anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-metallic protection etc. including preparation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid separately). Weight of aluminium section only shall be measured.	Kg	10,640		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
910	Providing and fixing of aluminium composite panel(ACP) of following thickness for external wall cladding at all heights and elevations consisting of 3mm thick thermoplastic core of anti oxidant LDPE sandwiched between 2 skins of 0.5mm thick aluminum alloy sheet making a total panel thickness of 4mm. The surface shall be finished with PVDF based coating of minimum 30 micron on the top & sides and polymer paint on reverse side. Coating shall conform to ECCA or AAMA.the surface shall be protected with self adhesive peel of masking foil. The system shall be designed to withstand a wind pressure of 200kg/Sqm and shall be fixed to the Masonry/RC walls with necessary clamps, brackets and anchor fasteners. All clamps and brackets shall be Hot dip galvanized minimum 80 microns thick and shall conform to IS: 4759-1996. The extruded aluminum section shall be anodized in approved colour with a anodic coating of minimum 20 microns. Extruded section shall be 6063 T5 or T6 alloy conforming to ASTM B221. Any other festering straps, nuts, bolts, rivets, washers, etc. shall be in stainless steel SS304 grade. EPDM gaskets, open cell polyethylene backer rods, weather sealant etc. shall be provided as per requirement. Item shall include aluminium base frame with all fixing arrangements to wall/RC members, fastening material and hardware(festering straps, nuts, bolts, rivets, washers etc.), EPDM gaskets, open cell polyethylene backer rods, weather sealant, scaffolding, approach to all height, material handling, transportation, labour, T&P, preparation of working drawings etc. all complete as per drawing, specification & instructions of engineer in charge. Measurement of payment shall be outer finished area of ACP panel.				
a	4mm	SQM	1,680		
910A	Providing and fixing of aluminium composite panel(ACP) of following thickness for internal encasement at all heights and elevations consisting of 3mm thick II B fire rated LDPE core mixed with mineral fibre sandwiched between 2 skins of 0.5mm thick aluminum alloy sheet making a total panel thickness of 4mm. The surface shall be finished with PVDF based coating of minimum 30 micron on the top & sides and polymer paint on reverse side. Coating shall conform to ECCA or AAMA.the surface shall be protected with self adhesive peel of masking foil. The system shall be designed to withstand a wind pressure of 200kg/Sqm and shall be fixed to the Masonry/RC walls with necessary clamps, brackets and anchor fasteners. All clamps and brackets shall be Hot dip galvanized minimum 80 microns thick and shall conform to IS: 4759-1996. The extruded aluminum section shall be anodized in approved colour with a anodic coating of minimum 20 microns. Extruded section shall be 6063 T5 or T6 alloy conforming to ASTM B221. Any other festering straps, nuts, bolts, rivets, washers, etc. shall be in stainless steel SS304 grade. EPDM gaskets, open cell polyethylene backer rods, weather sealant etc. shall be provided as per requirement. Item shall include aluminium base frame with all fixing arrangements to wall/RC members, fastening material and hardware(festering straps, nuts, bolts, rivets, washers etc.), EPDM gaskets, open cell polyethylene backer rods, weather sealant, scaffolding, approach to all height, material handling, transportation, labour, T&P, preparation of working drawings etc. all complete as per drawing, specification & instructions of engineer in charge. Measurement of payment shall be outer finished area of ACP panel.				
a	4 mm	SQM	500		
911	Providing and fixing of door closers as per IS 3564 ,of approved make & quality all complete of following type :				
a	Over head hydraulic door closures	Each	200		
b	Floor mounted Hydraulic door closers	Each	200		
912	Providing and fixing pressed steel frames fabricated from 16 gauge M.S sheet mortised, reinforced drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars ,paintings etc all complete as per specifications.	Kg	4,600		
913	Transporting and fixing in position rolling shutter of hot rolled double dipped galvanised steel lath section of 18 SWG tested mild steel strips at 75mm rolling centres 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 and outside locking with push and pull operation including wire springs, top cover, primer & shop coats of approved enamel paint etc, all complete as per IS 6248 and specification of approved make of following types: The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.(partly coiled and lath/full lath).				
a	Hand Operated	SQM	20		
b	Mechanically Operated	SQM	40		
c	Electrically operated	SQM	150		
914	Providing and fixing PVC doors(25 thk double skin) of sintex or equivalent make including all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	SQM	19		
915	Transporting, Fixing and fitting of glazing of first grade class in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete as per Specification for the followings				
a	4 mm thick clear sheet glass	SQM	129		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
b	4 mm thick clear float glass	SQM	130		
ba	5 mm thick tinted float glass	SQM	160		
c	5.5 mm thick clear float glass	SQM	60		
d	6 mm thick wired glass	SQM	60		
e	6mm thick Polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges.	SQM	390		
ea	2mm thick Polycarbonate sheet with profile matching with metal sheeting of building.The Polycarbonate sheets shall be fire and u/v resistant, and suitable for continuous use up to a temperature of 1000C including cost of Suitable aluminium beading . Open ends of the sheet shall be sealed as per manufacturer's recommendations.	SQM	260		
g	6 mm thick tinted heat reflecting type float glass	SQM	129		
h	6 mm thick clear toughened safety glass	SQM	1,260		
i	10 mm thick clear toughened glass	SQM	220		
ia	8 mm thick clear toughened glass	SQM	220		
j	Two nos. 6 mm thick clear toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	160		
k	Two nos. 6 mm thick tinted toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	190		
l	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).	SQM	190		
l (a)	composite double glazing, 24 mm thick, with one outer 6mm thick tinted heat-reflecting type toughened glass and one inner 6mm thick clear toughened glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).Outer glass of 6mm thickness shall have following technical characteristics: Solar factor 25% or less, U-value less than 2.268 W/ SQMK,VLT min 30%: The glass to be used should be from the manufacturers of glass like Glavebel (Belgium), Saint Gobain (France) or Fort (USA) Or equivalent. The glass should be free from distortion and thermal stress.	SQM	1,090		
l(b)	composite double glazing, 24 mm thick, with one outer 6mm thick tinted fire resistant type toughened glass and one inner 6mm thick plane fire resistant glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).The glass to be used should be from the manufacturers of glass like Glavebel (Belgium), Saint Gobain (France) or Fort (USA) Or equivalent. The glass should be free from distortion and thermal stress.	SQM	700		
m	6 mm thick laminated glass	SQM	60		
n	4 mm thick heat reflecting type float glass	SQM	60		
o	6 mm thick Ground glass	SQM	60		
p	Two nos. 6 mm thick low-e glass harmetically selaed and separated by 12mm thick air gap insulation.only single elevation area to be measured	SQM	60		
q	6mm thk. reflective toughened glass, with Solar factor 45% or less, U-value less than 5.7 W/m2.K, VLT min 40%. Glass shall be of Saint Gobain (India) or ASAHI (India) or equivalent make and shall be free from distortion and thermal stress	SQM	841		
r	Fixing Glass block masonry work with approved glass blocks of size 190 x 190 x 90 (min), jointed with suitable adhesive complete as per drawing, specification and instructions of engineer in charge.	SQM	129		
916	Supplying and fixing weather stripping of approved make and quality to doors as per instructions of engineer in charge and specification complete.	RM	1,620		
917	Providing and fixing 12 mm thick BWP particle board , decorative veneer (prelaminated) on both sides, as panels in aluminium framed door shutter, fixed with necessary snap-on-beading etc. all complete (excluding aluminium works).	SQM	190		
918	Providing and fixing steel louvered window with ISMC 100 frame all round including verticals with 18G pressed steel louvers, painting etc. all complete.	SQM	160		
919	Providing and fixing 1 mm thk. MS sheet sliding shutters with frame and diagonal braces of 50X50X6 angle iron, 3 mm MS gusset plates at junction and corners, 25 mm dia pulley, 50X50X6 angle and T-iron guide at the top and bottom respectively including painting etc. all complete.	SQM	60		
920	Providing & erecting Polycarbonate sheet dome/pyramidal shape skylight in atrium with 6mm thick multi (twin) wall fire retardant and ultra violet resistant polycarbonate sheet. Joints shall be properly sealed with sealent, screws with pvc cap, self tapping screws, EPDM rubber gasket.etc all complete as per detailed drawing and specification. Necessary anodised aluminium framing arrangement shall be provided for fixing of skylight and payment of Aluminium framing shall be made separately under item 909.	SQM	320		

PAGE 12 OF 41

PRICE SCHEDULE
VOLUME-III, REV-02
PACKAGE-A

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
920a	Providing and erecting Roof skylight structure with 4mm thick embossed clear translucent polycarbonate IR sheet, both side UV resistant coated, minimum 55% light transmission, solar control, approved make, texture and shade, fixed to powder coated Aluminium section with 60mm width top & bottom with EPDM rubber gasket in approved shape like dome, pyramidal etc, sealing of joints with sealant, screws with pvc cap, self tapping screws, EPDM rubber gasket.etc as per drawing, standards, specification, instruction of engineer in charge etc all complete. Payment shall be made for projected surface area of skylight and cost of powder coated aluminium is deemed to be part of the composite item.	SQM	220		
921	Providing & fixing Fully Glazed non load bearing fixed partition with valid fire test certificate from national or international lab for 120 minutes Fire Rating. Partition Frame shall be manufactured from minimum 2.0mm galvanized steel sheet pressed to form a profile of nominal size 60mm x 70 mm & fixed to the supporting construction by means of M 10 X 120 or bigger steel bolts at 300mm from the edges & every 500mm c/c. The frame shall be finished with etch primer for scratch resistance and shall be powder coated of approved shade and color. The glass panels shall be minimum 11mm thick, 120 minute fire rated, with 15 minute full insulation non wired toughened glass having a sound reduction of greater than 37dB, light transmission of 87% and compliant to class 1B1 category of impact resistance as per EN 12600. The glass shall be held in position with minimum 1.6mm G.I Beading, clamped or bolted to the frame profile by 4mm x 35mm steel screws at every 250 mm c/c and a ceramic tape of cross section of 5mm x 20mm on both sides of the glass. The item shall include in-tumescent putty and fire resistant acrylic sealants and the total assembly shall satisfy the fire resistance criteria of stability, integrity & partial insulation. Shop drawings for the item with all construction and anchoring details along with fire rating test reports shall be got approved from Engineer-in-Charge before execution.	SQM	330		
922	Transporting and fixing electrically operated, self operable/closing, approved anodized aluminium framed glass door with 10 mm thk. tinted glass, all complete. Automatic Sliding operating system comprising of Advanced DC brushless motor, Automatic Reversing Safety Device, Suitable for door weight 100 kg, Opening speed : 90-110cm /sec (adjustable), Closing Speed : 40-110cm/sec (adjustable), opening time : within 1-9 seconds after door stopped in opening, controller : 8 Bit micro computer, Motor (Dortexor equivalent) : DC12V, 35W brushless motor, Power Voltage : AC 110V - 240V. 50Hz - 60Hz, Power Consumption : 45W including Infra Red Sensors 2 Nos both sides, rails & top & bottom as required, any other accessories as required etc. all complete of best make and quality as approved by Engineer in charge. The door shall be double panel sliding door of approx. area 5 sq.m. to 7.5 sq.m. each	Nos.	4		
1000 BRICKWORK					
Brickwork masonry including all labour, material, equipment, transportation, handling, scaffolding etc. at all levels as per specification, drawings and as directed by engineer - in - charge. (CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)					
1001	Providing brick work in cement mortar 1:6 (1 part cement 6 parts coarse sand) in walls, chambers etc. in thickness varying from 230mm to 460mm at all depths, places and positions below plinth including raking out joints, curing, scaffolding etc. complete excluding plastering and painting.				
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 50 kg/cm ²	CUM	60		
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	19		
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	CUM	40		
1002	Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 230mm at all heights, places and position above plinth including raking out joints, curing, scaffolding etc complete excluding plastering and painting.				
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 50 kg/cm ²	CUM	2,000		
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	20		
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	CUM	2,000		
1003	Providing brick work in cement mortar 1:4 (1 cement 4 coarse sand) in partition walls , chambers etc. in thickness 115mm at all heights, places and position above or below plinth/graded level including providing two nos. 6 mm diameter MS bars at every third layer, raking out joints, curing, scaffolding etc complete excluding plastering and painting as per specification.				
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 50 kg/cm ²	SQM	620		
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	SQM	620		
1004	Providing brick soling including spreading of earth, ramming, watering including 25mm thick cushion of sand complete but excluding excavation and disposal of surplus earth (excavation and disposal of surplus earth shall be measured under applicable item). Using brick on edge.				
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm ²	SQM	200		
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	SQM	129		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
1005	Providing brick soling including spreading of earth, ramming, watering including 25mm thick cushion of sand complete but excluding excavation and disposal of surplus earth (excavation and disposal of surplus earth shall be measured under applicable item.)- Using flat bricks.				
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm ²	SQM	160		
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	SQM	160		
1006	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.	CUM	100		
1009	Making openings in existing brick wall or partition wall including making good the broken edges/surface with cement mortar etc. complete.	CUM	70		
1010	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.	SQM	70		
1011	Filling existing brick wall/ partition wall opening at all level including making good the broken edges/surface with cement mortar, painting, finishing to match with existing finishing, scaffolding/supporting at any level, removal of debris upto a lead of 1 km including loading, unloading, transportation etc. all complete.	SQM	50		
1012	Providing and filling brick bats in soak pits all complete.	CUM	32		
1000A	Providing Autoclave Areated concrete blocks in cement mortar 1:4 (1 part cement 6 parts coarse sand) confirming to (IS: 2185 Pt-3) in walls, chambers etc. in thickness 200mm at all depths, places and positions below/above plinth including raking out joints, curing, scaffolding etc. complete excluding plastering and painting all complete as per specification and drawing..	CUM	2,200		
1000B	Providing factory made composite modular light weight aerated concrete panels of minimum fire rating, thickness as per specification, consisting of two fiber reinforced cement sheets(min. 4 mm thick) on either side of light weight concrete core, having min. compressive strength of 35 Kg/Cm ² and density in the range of 700-900 Kg/Cu.M. to provide external wall and internal partition at all levels. The panels shall be fixed in position through tongue and groove jointing system by screwing the panels to top & bottom U channels(channels min. 1.25 mm thick and galvanized to min. grade 180 as per IS:277), fixing U profiled top & bottom channels to concrete/primary steel members which are placed at max vertical spacing of 4.5 M with the help of galvanized steel expansion fasteners, filling the joints from both faces with silicon acrylic paste and making the same water tight by covering with fiber glass tape(min. 50 mm wide & min. 0.5 mm thick) or by any other suitable material, so as to ensure that entire construction done is weather proof and panel surfaces are fush for painting, creating opening for doors/windows/ventilators/ducts/pipes/fans/AC etc. and finishing the opening with same U profiled galvanized steel channel which is used at top & bottom. The wall must be capable of sustaining wind pressure of 4.5 M height within limiting deflection of span/250.	SQM	780		
1000C	Providing Hollow concrete blocks in cement mortar 1:4 (1 part cement 6 parts coarse sand) confirming to (IS: 2185 Pt-1)in walls, chambers etc. in thickness 200mm at all depths, places and positions below/above plinth including raking out joints, curing, scaffolding etc. complete excluding plastering and painting.	CUM	50		
1100 DAMP PROOF COURSE					
Damp proof course including all labour, material, equipment, transportation, handling, shuttering, centering, curing etc at any level as per specification, drawings and as directed by engineer - in - charge.					
1101	Providing Damp Proof Course 50mm thick 1:1.5:3 concrete (10mm and down graded aggregate) with 2% of approved admixture of water proofing compound all complete. Two layers of hot bitumen coating 85/25 grade as per IS:702 @ 1.7Kg./sqm shall be applied one before & one after the DPC. (CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)	SQM	240		
1200 CEMENT MORTAR PLASTER					
Cement mortar plaster including making grooves wherever required including all labour, material, scaffolding, curing etc at any level as per specification, drawings and as directed by engineer - in - charge. (CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL)					
1201	Providing 18mm thick plaster in two layers outside the building/boundary wall in cement mortar 1:6 on walls, finished to a smooth finish including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete.	SQM	9,250		
1202	Providing 12mm thick plaster inside the building/boundary wall in cement mortar 1:6 on walls finished to a smooth finish as per specification all complete.	SQM	29,500		
1203	Providing 12mm thick plaster in cement mortar 1:6 on walls with rough finish all complete.	SQM	2,460		
1204	Providing 6mm thick plaster on ceiling in cement mortar 1:4 finished to a smooth all complete.	SQM	500		
1207	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 in charge.	RM	4,400		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
1208	Providing drip coarse of min. width 25 mm 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 in charge.	RM	320		
1209	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 chicken wire mesh 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 engineer in charge (chicken wire mesh to be paid separately)	SQM	129		
1210	Ruled pointing in masonry in CM 1:3 (1 cement and 3 fine sand) including raking out joints, curing etc. complete.	SQM	129		
1300 FINISHES TO CONCRETE / PLASTERED SURFACES					
Finishes, painting to concrete, plastered surfaces including all labour, material, equipment, surface preparation, scaffolding etc. at any level as per specification, drawings and as directed by engineer - in - charge.					
1301	Two or more coats of white wash/ colour wash as per IS 627 of approved brand and manufacture to give an even shade including a priming coat as per specifications.	SQM	500		
1302	Two or more coats of Exterior masonry paint (water or solvent base) of special resins, adhesives and additives mixed with fine, hard stone aggregate and suitable pigment. The paint shall be applied on a coat of primer over dried, prepared plaster surface as manufacturers guidelines. The final finished coating shall be fungus resistant, UV resistant, water repellent, alkali resistant and extremely durable with color fastness as per specification.	SQM	300		
1302A	Two or more coats of Solvent based (100% pure Acrylic Co- polymer resin based) for exterior use without any water sensitive ingredient. Paint shall be applied on a coats of primer over dried prepared plaster surface as per manufacturer guidelines. The final finished coating shall be fungus resistant, UV resistant water resistant, Alkali resistant, and extremely durable with colour and shed as per specification	SQM	100		
1303	Providing and applying two or more coats of oil bound distemper 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.	SQM	5,050		
1304	Two or more coats of acrylic distemper of approved brand and manufacture to give an even shade including a priming coat with distemper primer complete as per IS 428.	SQM	16,900		
1305	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 as per manufacturers guideline.	SQM	710		
1305A	Providing and applying two or more coats of low VOC (volatile organic compound) 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 as per manufacturers guideline.	SQM	8,601		
1306	Providing and applying 2 or more coats of acid/alkali chemical 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 and as approved by engineer, at all heights above or below grade level, complete as per specifications.	SQM	5,820		
1306A	Providing and applying of two or more coats of Oil resistant paint of approved brand and Manufacturer to give an even shade on surface all complete as per specification	SQM	1,649		
1307	Two or more coats of fire resistant transparent paint as per IS 162 on all woodwork over french polish as per IS 348 or flat oil paint as per IS 137 of approved grade and manufacture to give an even shade as per specifications.	SQM	330		
1308	Two or more coats of black anti-corrosive bitumastic painting of approved brand and manufacture to give an even shade complete.	SQM	160		
1309	Two or more coats of synthetic enamel paint of approved make made from synthetic resins and drying oil with rutile titanium dioxide and other selected pigments to give smooth, hard, durable & glossy finish to all interior and exterior surfaces complete.	SQM	260		
1310	Providing and applying 3 coats of water proof cement paint of approved make and color on exterior surface at all heights including material, labour, scaffolding, curing etc including primer coat complete as per specification.	SQM	1,360		
1311	Providing and applying resin bonded granular textured finish (Two or more coats), for external applications consisting of crushed stone/quartz chips of .5 mm to 2.5 mm size and of approved natural color/shade and bonded with synthetic resins, adhesives and additives altogether in a single pack mix, applied on cured and dried plaster surface with a dry film thickness of minimum 2 mm. 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.	SQM	129		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
1311A	Providing and applying resin bonded granular textured/Flake finish, for external applications , consisting of crushed stone/quartz chips of 2.5 mm size and of approved natural color/shade and bonded with synthetic resins, adhesives and additives altogether in a single pack mix, 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.	SQM	7,440		
1311B	Providing and applying Resin Bonded Granular/flake textured finish for internal applications consisting of of crushed sand/quartz chips of 1.2mm size and of approved colour/sheds and bonded with synthetic resins, adhesives and additives altogether in a single pack mix, applied on cured and dried plaster surface . The final finish shall have UV resistance, fungus, bacterial resistance properties all complete with grooves filled with polysulfide sealant of matching color and shade as per specification/drawing/approval of engineer in charge.	SQM	2,781		
1311C	Providing and applying washed stone Cement plaster in two layers,under layer 12mm cement plaster 1:4 (1 Cement,4 Sand) following the under layer with scratching tool, applying grey cement slurry on the under layer @ 2kg/m2, top layer 75mm with cement plaster 1:1/2:2 (1 cement, 1/2 sand, 2 marble chips 10 mm normal size) in panel with groov all around as per approved pattern including scabbing ,forming groovs of uniform size 12mmx12mm up to 20mmx15mm in plastered surface as per approved pattern using wooden batton etc, complete as per specification including approving of finish floor to start of work.The finish shall be fungus resistant,UV resistant,Water repellent,alkali resistant, and extremely durable (CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)	SQM	100		
1311D	Providing and fixing, Stone work for wall lining (Veneer work) with Black polished granite stone slabe 18mm thk/ polished sadarhally grey granite slab 18mm thk over 20mm thk bed of cement mortar 1:3 (1 cement, 3 sand) and jointed with gray cement slurry @ 3.3kg/m2 including rubbing, polishing etc, all complete as per specification. (CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)	SQM	30		
1311E	Providing and applying low VOC (volatile organic compound) resin bonded granular textured finish, for external applications shall consist of crushed stone/quartz chips of .5 mm to 2.5 mm size and of approved natural color/shade and bonded with synthetic resins, adhesives and additives altogether in a single pack mix, applied on cured and dried plaster surface with a dry film thickness of minimum 2 mm. 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.	SQM	1,400		
1312	Providing and applying 2 mm thick plaster of paris punning on walls with Oil resistant property including preparation of surface, staging, etc. to achieve a smooth even surface all complete as per specification and as directed by Engineer.	SQM	60		
1313	Providing and applying ready made Epoxy Paint over areas other than steel structure with suitable pigments of approved shade as per specification and direction of Engineer. The epoxy paint shall be a two pack material and shall be resistant to water, splash, spillage & acidic environment. The epoxy paint coating shall be of 150micron thickness over epoxy primer.	SQM	100		
1314	Providing and applying Synthetic plaster for external applications 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 Paint 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.	SQM	40		
1315	Providing and applying two or more coats of Acrylic based weather coat paint of approved brand and manufacture and required shade over one coat of primer after necessary cleaning/ washing, preparing the surface using coir brush/ wire brush, sand paper, including filling of cracks with putty wherever required etc. all complete to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guidelines. The final finished coating shall be fungus resistant, UV resistant, water repellent and extremely durable with color fastness as per specification.	SQM	40		
1315A	Two or more coats of taxtured cement paint of approved quality confirming to IS: 5410 as (Sandtax Matt or equivalent) of approved colour and shade to give an even shade on surface with all in complete.	SQM	40		
1400 FLOORING AND SKIRTING					
Flooring and skirting at any level including base layer, labour, material, equipments, transportation, handling, curing, polishing etc. at any level as per specification, drawings and as directed by engineer - in - charge. (CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)					

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
1401	Providing and laying 50 mm thick heavy duty cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 38mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardener mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips):	SQM	35,300		
1402	Providing and laying 25 mm thick heavy duty cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates) flooring with metallic hardener pigmented topping of 10 mm thick uniform graded treated iron particles in skirting and dado complete as per specification.	SQM	70		
1403	Providing and laying precast polished heavy duty cement concrete tiles (Carborundum topping) of size 300X300X25 thick of approved shade as per IS 1237, including cement mortar bedding of 1:3 (1 cement : 3 sand) jointed with neat cement slurry etc. all complete with pigment to match the shade of the tiles including rubbing, curing, grinding and polishing complete with laying as per IS 1443 etc. all complete for following:				
a	Laid in floors	SQM	4,000		
b	Laid in skirting	SQM	129		
1404	Providing and laying interlocking M35 Grade concrete blocks in paving with approved colour and pattern and should be laid on the subbase and bedding as per specifications and recommendations of manufacturer.				
a	60mm	SQM	100		
b	75mm	SQM	30		
1406	Providing and laying polished Kota stone 18mm to 20mm thk in flooring . Under bed shall average 30mm thk of 1 cement : 2 sand : 4 stone aggregates by volume and brought to proper level. The kota stone slabs/tiles 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, granite polishing etc. all complete.	SQM	129		
1408	Providing polished Kota stone 18mm to 20mm thk in skirting projecting 6mm from adjacent plaster including cutting brickwall upto the required depth, edging, finishing etc. all complete.	SQM	30		
1410	Marble stone Flooring laid in 50mm overall thickness with 18-20mm thick marble slabs (grade -1) with minium 30mm thick underbed of 1 cement : 2 sand : 4 stone aggregate by volume and brought to proper level.The marbel slabs/tiles laid over underbed with mortar 1:3, 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, granite polishing etc. all complete.	SQM	2,330		
1411	Marble stone Flooring laid in 50mm overall thickness with 14 -16mm thick marble slabs (grade -1) with minium 35mm thick underbed of 1 cement : 2 sand : 4 stone aggregate by volume and brought to proper level.The marbel slabs/tiles laid over underbed with mortar 1:3, 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, granite polishing etc. all complete.	SQM	70		
1412	Providing and laying 18-20mm thick polished Granite stone of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 30mm thk of 1 cement : 2 sand : 4 stone aggregate by volume and brought to proper level. The granite stone slabs/tiles 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, granite polishing etc. all complete.	SQM	1,230		
1412A	Providing and laying 18-20mm thick shot blasted Granite stone in flooring of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 30mm thk of 1 cement : 2 sand : 4 stone aggregate by volume and brought to proper level. The granite stone slabs/tiles 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, granite polishing etc. all complete.	SQM	4,000		
1414	Providing and laying polished Granite stone 18-20mm thk in skirting and dado with 6mm thick projection from adjacent plaster including mortar ,cement slurry ,pigments, curing, grinding,moulding, granite polishing etc. all complete.	SQM	240		
1414A	Providing and laying shot blasted Granite stone 18-20mm thk in skirting and dado with 6mm thick projection from adjacent plaster including mortar ,cement slurry ,pigments, curing, grinding,moulding, granite polishing etc. all complete.	SQM	240		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
1416	Providing and laying vitrified ceramic tiles of polished variety of size 600x600 from reputed / approved manufacturer, complete including underbed of cement mortar 1:3 with neat cement slurry etc. all complete for following				
b	10mm thick tiles In flooring	SQM	1,000		
c	7mm thick tiles In skirting and dado upto specific height	SQM	100		
d	10mm thick tiles In skirting and dado upto specific height	SQM	400		
1417	Providing and laying vitrified ceramic tiles of matt finish of size 600x600mm from reputed / approved manufacturer including underbed of cement mortar 1:3 with neat cement slurry etc. all complete for following.				
b	10mm thick tiles In flooring	SQM	940		
c	7mm thick tiles In skirting and dado upto specific height	SQM	100		
1416A	Providing and laying vitrified ceramic tiles of polished variety of size 800x800 from reputed / approved manufacturer, complete including underbed of cement mortar 1:3 with neat cement slurry etc. all complete for following				
b	10mm thick tiles In flooring	SQM	100		
c	7mm thick tiles In skirting and dado upto specific height	SQM	50		
1417A	Providing and laying vitrified ceramic tiles of matt finish of size 800x800mm from reputed / approved manufacturer including underbed of cement mortar 1:3 with neat cement slurry etc. all complete for following.				
b	10mm thick tiles In flooring	SQM	2,600		
c	7mm thick tiles In skirting and dado upto specific height	SQM	60		
d	10mm thick tiles In skirting and dado upto specific height	SQM	990		
1417B	Laminated wooden flooring	SQM	770		
1418	Providing and laying 10 mm thk non-skid fully vitrified tiles of make 'MARBONITE' or 'FERRASTONE of BOSS Profile limited' or equivalent in flooring and skirting 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				
a	400X400 mm	SQM	240		
b	600X600 mm	SQM	240		
1419	Providing and laying granite stone slab of 20mm thickness single piece for wash basin / sink slab /facia of black or approved colour with cutting,making corners,moulding and opening etc. all complete.	SQM	20		
1420	Providing and laying Heavy Duty dust pressed Ceramic Tiles of 7mm thick of reputed manufacturer of approved finish shade and colour including underbed of cement mortar 1:3 with neat cement slurry etc. all complete.				
a	300X300 mm	SQM	80		
b	600X600 mm	SQM	40		
1420A	Providing and laying Heavy Duty dust pressed Ceramic Tiles of of size 600x600 of reputed manufacturer of approved finish shade and colour including underbed of cement mortar 1:3 with neat cement slurry etc. all complete.				
a	10mm thick tiles In flooring	SQM	401		
1422	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 and IS: 4860 in flooring/Dado and shall be laid over bitumastic lining of min 12mm thick (to be laid in layers of 6mm each). The tiles shall be applied with 6mm thick Potassium Silicate bedding mortar as per IS:4441, 4443 & 4832 and including preparation of surface, application of bitumen primer, curing etc. all complete for following thicknesses. The tiles should be abrasion resistant & durable.				
a	20mm thick	SQM	80		
b	38mm thick	SQM	100		
1422A	Providing and fixing Acid/Alkali resistant (Chemical resistant) 38 mm thk bricks confirming to IS: 4860 in flooring, Dado laid over bitumen primer confirming IS: 158, bitumestic lining of minimum 12 mm thk (to be laid in layer of 6mm each) confirming to IS : 9510 and 6 mm thk potassium silicate bedding mortar as per IS : 4832 and pointing joint of bedding 20mm deepx6mm wide with epoxy/Furane mortar including curring etc, complete as per specification	SQM	1,360		
1422B	Extra over Item No 1422A, for providing diamond patern expanded metal steel sheet confirming to IS: 412 in between two bitumastic lining for dado more then 2m hight	SQM	780		
1422C	Providing and fixing Acid/Alkaly resistant (chemical resistant) 75 mm bricks confirming to IS: 158 , Bitumastic lnying of minimum 18mm thk (To be laid in layer of 9mm each) confirming to IS: 9510, 6mm thk potassium silicate bedding mortar as per IS: 4832 and pointing joint of 20mm deepx6mm wide with epoxy/furane mortar including curring etc all complete.	SQM	200		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
1422D	Providing and fixing Acid/Alkaly resistant (chemical resistant) 115 mm bricks confirming to IS: 158 , Bitumastic lining of minimum 18mm thk (To be laid in layer of 9mm each) confirming to IS: 9510, 6mm thk potassium silicate bedding mortar as per IS: 4832 and pointing joint of 20mm deepx6mm wide with epoxy/furane mortar including curring etc all complete.	SQM	270		
1422E	Providing and appling Acid/Alkali oil resistant epoxy resin on floor/dado of approved manufacturer, over epoxy primer etc all complete as per specification.	SQM	129		
1423	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado beded and jointed with epoxy mortar/Furane (minimum 20mm deep and 6mm thk.) all complete for following thicknesses. The tiles should be abrasion resistant & durable.				
a	20mm thick	SQM	60		
b	38mm thick	SQM	160		
1424	Providing & fixing chemical resistant (AR)(Acid / Alkali) bricks (75mm thick) conforming to IS:4860 in the floor of neutralization pit . Surface on which lining to be applied shall be prepared in accordance with IS:2395. Bitumen primer as per IS:158 followed by 18mm thick bituminastic followed by 6mm thick 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 sealing shall be done with bituminastic AR bricks shall be laid with 6mm wide & 50mm deep pointing (epoxy / furnace / CNSL) & acid curing shall be done all complete as per specification.	SQM	200		
1425	Providing and laying polished Marble slabs (Aranga white or equivalent approved shade/color /design) 20 mm thk in staircase landing/skirting and corridors over minimum 20 mm thick underbed of 1 cement : 2 sand : 4 stone aggregates by volume mixed with sufficient water to form a stiff workable mass. The marble slabs shall be 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 moulded marbel nosing, pigments, curing, grinding, making corners, granite polishing etc. complete.	SQM	200		
1426	Providing and laying marble skirting /dado (Aranga white or approved shade/color /design) equivalent of minimum 20mm thickness projecting 6mm from adjacent plaster all complete including underbed cement mortar 1:3, scaffolding etc. all complete.	SQM	129		
1427	Providing and fixing glazed designer ceramic tiles of approved color and design of size 200x300mm / 300x300mm in dado of approved size , projecting 6mm uniformly from adjacent plaster or wall finish. The mix for underbed plaster shall consist of 1part cement and 3 parts sand by weight. fairly moist but firm, tiles shall be pressed over under bed by applying cement slurry including pigments, curing etc all complete for following thicknesses:				
a	5mm thick	SQM	180		
b	7mm thick	SQM	40		
1428	Providing and laying 2mm thick antistatic PVC flooring / skirting of approved shade,as per IS:3462 and laying as per IS:5318 all complete.	SQM	60		
1429	Providing and fixing removable type flooring system consisting of fire resistant particle board of size 600X600X35 mm with 0.05 mm thick aluminium foil lining at bottom and with 2 mm thick anti static PVC topping including proprietary floor supporting system complete as per specification.	SQM	200		
1430	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 in charge.				
a	Glass strips 40 mm wide and minimum 6 mm thick.	RM	1,880		
b	Aluminium strips 40 mm wide and minimum 3 mm thick	RM	27,400		
1431	Providing and laying wodden panel flooring and skirting of PERGO or equivalent of approved color,shade all complete as per manufacturer specification.	SQM	60		
1432	Providing and fixing decorative murals in tiles(glass mosaic tiles of minimum size 24mm X 24mm X 3.8 mm thick) from reputed / approved manufacturer as per specification, drawing & instruction of engineer in charge.	SQM	250		
1433	Providing and fixing decorative murals in ACP(Aluminium Composite Panels) from reputed / approved manufacturer as per specification, drawing & instruction of engineer in charge.	SQM	150		
1500	ROOFING/SIDE CLADING				
Roofing / side cladding work including all labour, material, equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at any level as per specification, drawings and as directed by engineer - in - charge.					

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
1501	METAL DECK SHEET Type-I, Transporting and fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour over roof purlins for cast-in-situ roof slab as per relevant IS code and Grade as per specification. Bare metal thickness(BMT) of deck plate shall be minimum 0.8mm with minimum trough depth of 44 mm having minimum yield strength of 250 MPa and shall serve as permanent shuttering to the roof slab 40mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 450 kg/sqm (for two span condition) during construction between beams as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to beams, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyster(SMP silicon content 30%-50%) paint or super polyster paint of minimum 20 micron DFT on exposed surface (facing operating floor) and minimum 5 micron on other face over epoxy primer of 5 micron applied over coating (deginated class Z275), including fixing of sheet to top flange of beam with drawn arc welding of headed shear anchor studs @ 260mm c/c in the trough and stich screws between two adjacent sheets and sealing with epoxy sealant.The shear anchor studs shall confirm to type B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 19 mm dia & 100 mm length manufactured from cold drawn round steel bars confirming to ASTM A 29 of grade designation 1010 through 1020 of standard quality with either semi killed or killed welded by drawn arc stud welding through metal deck sheet.				
a	Span Upto 1800mm	SQM	8,000		
b	Span Exceeding 1800mm and upto 2500 mm	SQM	320		
1501A	METAL DECK SHEET type-II, Transporting and fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour over roof purlins for cast-in-situ roof slab as per relevant IS code and grade as per specification. Bare metal thickness(BMT) of deck plate shall be minimum 0.8 mm with minimum trough depth of 44 mm having minimum yield strength of 350 MPa and shall serve as permanent shuttering to the roof slab 100mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 450 kg/sqm (for two span condition) during construction between beams as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to beams, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyster(SMP silicon content 30%-50%) paint or super polyster paint of minimum 20 micron DFT on exposed surface (facing operating floor) and minimum 5 micron on other face over epoxy primer of 5 micron applied over coating (deginated class Z275), including fixing of sheet to top flange of beam with drawn arc welding of headed shear anchor studs @ 260mm c/c in the trough and stich screws between two adjacent sheets and sealing with epoxy sealant.The shear anchor studs shall confirm to type B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 19 mm dia & 100 mm length manufactured from cold drawn round steel bars confirming to ASTM A 29 of grade designation 1010 through 1020 of standard quality with either semi killed or killed welded by drawn arc stud welding through metal deck sheet.				
a	Span Upto 1800mm	SQM	650		
b	Span Exceeding 1800mm and upto 2500 mm	SQM	320		
1501 C	METAL DECK SHEET Type-IV, Transporting and fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour over floor beams for cast-in-situ roof slab as per relevant IS code and Grade as per specification. Bare metal thickness(BMT) of deck plate shall be minimum 0.8mm with minimum trough depth of 51 mm having minimum yield strength of 250 MPa and shall serve as permanent shuttering to the roof slab 150mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 550 kg/sqm (for two span condition) during construction between beams as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to beams, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyster(SMP silicon content 30%-50%) paint or super polyster paint of minimum 20 micron DFT on exposed surface (facing operating floor) and minimum 5 micron on other face over epoxy primer of 5 micron applied over coating (deginated class Z275), including fixing of sheet to top flange of beam with drawn arc welding of headed shear anchor studs @ 260mm c/c in the trough and stich screws between two adjacent sheets and sealing with epoxy sealant.The shear anchor studs shall confirm to type B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 19 mm dia & 100 mm length manufactured from cold drawn round steel bars confirming to ASTM A 29 of grade designation 1010 through 1020 of standard quality with either semi killed or killed welded by drawn arc stud welding through metal deck sheet. Measurement of profile sheeting shall be of the plan area of roof covered by MS trough metal decking. The SMP and polyster paint shall confirm to product type 4 as per AS/NZS 2728				
a	Span Upto 1800mm	SQM	38,900		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
b	Span Exceeding 1800mm and upto 2500 mm	SQM	1,540		
1502	Providing and fixing shear connectors of mild steel studs having 16mm dia and minimum 75 mm projected length above purlin passing through metal decking as per relevant IS codes and specification.	QUINTAL	70		
1502A	Providing and fixing shear connectors of mild steel studs having 19 mm dia and minimum 100 mm projected length above purlin passing through metal decking as per relevant IS codes and specification.	QUINTAL	400		
1503	Transporting and fixing SINGLE SKIN, PROFILED, PERMANENT COLOR COATED M.S. CLADDING SHEET :TYPE-I of approved shade and color, (ON EXTERNAL VERTICAL FACE OF BUILDINGS) of 0.6mm bare metal thickness(BMT) having minimum yield strength OF GRADE SS255 AS PER ASTM A653M/GRADE G250 AS PER AS 1397 COATED WITH ZINC OF CLASS DESIGNATION Z275 as per specification including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing etc. all complete as per specification.The sheet shall be permanently coated with silicon modified polyester(SMP silicon content min. 30%) paint or super polyester paint of minimum 20 micron DFT on exposed surface (facing operating floor) and minimum 5 micron on other face over epoxy primer of 5 micron applied over coating (designated class Z275). The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability. The SMP and polyester paint shall confirm to product type 4 as per AS/NZS 2728.	SQM	27,360		
1505	Transportation and erection of permanent colour coated sandwiched insulated metal cladding: TYPE III of approved color comprising of trough zinc-aluminium alloy coated (both sides) M.S. sheet of 0.60 mm min thickness to be used on external face of the cladding system. The sheet shall be coated with zinc of class designation Z275 as per ASTM A653M.The exposed face of the sheet to be permanently color coated with silicon modified polyester paint (SMP with silicon content of 30% to 50%) or super polyester paint of minimum 20 microns (nominal) dry film thickness over primer coat of 5mm (nominal) thickness. Inner side of external sheet to be provided with SMP or super polyester paint of 5 microns DFT (nominal) over 5 microns thick (nominal) primer coat. Galvanised M.S. sheets of minimum 0.6 mm thickness to be used as inner liner (internal face) of cladding system. The exposed face to be permanently colour coated with silicon modified polyester paint or super polyester paint of DFT 20 microns (minimum) over primer. The rate of galvanising not to be less than 275gm / sq.m.The sheets shall be of approved profile and shall have such section modulus and moment of inertia per metre width that deflection of sheets is limited to span/250 under design wind pressure for two span conditions. No increase in allowable stresses under wind load condition is allowed. The cladding shall have siphoning feature to prevent leakage The inner sheet shall be fixed to the structure by self drilling fasteners and concealed clips (including sub-girts of size 50X50X50 mm manufactured out of 16G GI 'Z' shape) to connect the external sheet (without penetrating the external sheet) including flashings complete as per specification.v. The insulation shall be of bonded mineral wool of minimum thickness 50mm conforming to IS:8183, having a density of 32 Kg/cu.m. for glass wool & 48 Kg/cu.m. for rock wool and is included in this item.	SQM	10,340		
1506	Providing and fixing insulation of resin bonded mineral wool of 50 mm nominal thickness conforming to IS 8183 having a density of 32 kg/cum glass wool or 48 kg/cum for rock wool, for cladding/under deck insulation including application of glue and tying with lacing wire, for glass/rock wool as per manufacturer's recommendations.	SQM	2,200		
1507	Providing and fixing insulation of resin bonded mineral wool of 50 mm nominal thickness conforming to IS 8183 having a density of 32 kg/cum glass wool or 48 kg/cum for rock wool, for cladding/under deck insulation including wrapping in black polythene black supported over weld mesh 75X75X1.6 MM dia to hold in position and application of glue & tying with lacing wire, for glass/rock wool as per manufacturer's recommendation.	SQM	4,200		
1508	Providing and installing under deck insulation using minimum 0.05 mm thick aluminium foil on exposed surface followed by 0.60 mm dia and 25 mm mesh GI wire netting, fixed at various elevations with rawl plugs including clips, and 2mm wire ties with roof but excluding cost of insulation.	SQM	4,120		
1508A	Providing and installing over deck insulation of minimum 40 mm thick impervious sprayed close cell free rigid Polyurethane foam conforming to IS: 12432 Part-III, with density of foam 40 TO 45 KG/ cum. Overdeck insulation shall be fixed over a coat of polyurethane primer applied @ 6 to 8 litre/ sqm, applied over cleaned surface of cement sand mortar (1:4) screed (laid for the part of Roof Water Proofing Treatment).400 Gauge polythene sheet shall be laid over polyurethane spray. The top of the polyurethane foam shall be finished with 20 mm thick cement: sand (1:4) mortar with chicken wire mesh and broken white glazed tiles of 5 mm thickness laid over mortar at green stage.	SQM	2,580		
1509	Providing and fixing non metal opaque PVC sheet similar to ONDEX roofing or equivalent including all fixing accessories.	SQM	450		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
1510	Providing and fixing 1 mm thick corrugated/semicorrugated G.I. sheet in roofs, cladding of minimum galvanisation of 275 gsm total on both sides with minimum 150mm overlapping, 8 dia G.I. hook bolts or 'J' Bolts and nuts @305 mm c/c along with G.I. and bitumen washers including cutting of sheets for opening etc. all complete.	SQM	250		
1510 A	Providing and fixing (FINSIH as approved) finished Acoustical Lattice wooden wall paneling consisting of base frame treated with anti-termite chemical of approved make. Panels to be installed as per specification. The Timber melamine effect acoustic wall panels made out of Fire Rated MDF core material. The acoustic wall panels shall be in size of 128x2440x18mm (thk). The back of timber melamine panels shall be laminated with Soundtex black acoustic tissue to provide NRC not less than 0.8. The acoustic timber wall panels shall be with tongue and groove detailing along the length of panels, with square edges on 2 sides along the width of panels. The wall panels shall be clipped into aluminum channels and clips Keel and Fastener system at 600mm c.c. Density -800kg /m3, R.H 70, Fire Rated Euro Class B and C formerly Class 0 and Class 1 BS476 part 6 and 7 respectively. Perforated panels having perforation to 25/30 mm diameter holes, at 32/35 mm c/c at the back face, and front of the panels to have cut with grooves of 3mm at 16mm c/c.	SQM	160		
1600 FALSE CEILING					
False ceiling including all labour, material, equipment, transportation, handling, suspension system etc at any level as per specification, drawings and as directed by engineer - in - charge.					
1601	Providing and fixing tapered/square edge glass fibre reinforced gypsum board (GRG) ceiling (having gypsum core mixed with glass fibre) system confirming to IS:2095 having fine texture finish and consisting of light weight galvanized steel member(min. 0.8 mm thick and galvanized as per IS 277) having maximum grid size of 1200 mm X 600 mm for supporting panels of specified size, suspended from RCC slab/structural steel or catwalkway grid above with 4 mm (minimum) galvanized 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.				
aa	12.5mm thick GRG board confirming to IS: 2095 with galvanized light gauge steel load bearing supporting GI frame (minimum 0.8mm thk and grid size of 600x1200mm.) and finished flat (seamless).	SQM	230		
1602	Providing, fixing and laying light weight mineral fiber board false ceiling in the form of tile of minimum thickness 15 mm and exposed surface semi-perforated with depth of perforation as 4 mm and humid resistance of 95% RH and fire performance of class 0/1 as per BS 476 with metal suspension grid system with galvanized Tees of section 24 X 38 mm for main runners of approved colour and make as per specification including 50mm thick mineral wool insulation (density48kg/cum) 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. A.C. ducts etc. suitable M.S. channel (minimum MC 75 @ 1.2m) grid shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. complete with cut-outs etc.The size of tiles shall be 600 X 600 mm or 600 X 1200 mm. Required MS channel shall be measured & paid extra under respective item unit rate.	SQM	320		
1602A	Providing fixing and laying Calcium Silicate Board of 'HILUX' or equivalent with suspension system as per manufacturer detail including supporting grid system, expansion fastener for suspension arrangement from RCC with necessary opening provision as per drawing all complete	SQM	190		
1603	Providing and fixing permanently colour coated aluminium false ceiling of approved colour and Luxalon 84 C or approved equivalent with corrosion resistant aluminium alloy panels of minimum thickness 0.5mm including 50mm thick mineral wool insulation(density 48 kg/cum) conforming to 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, A.C. ducts etc all complete. Suitable M.S. channel grid with minimum MC 75 shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (supply, fabrication & erection of structural platform grid made up of MS Channels/ Beams / Angles shall be paid separately under ST No 2301B and is not included in this item)	SQM	3,200		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
1604	Providing, fixing and laying permanently colour coated aluminium false ceiling of approved colour with stove enamel finish of approved make in LINEAR and SQUARE type 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. A.C. 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. (supply, fabrication & erection of structural platform grid made up of MS Channels/ Beams / Angles shall be paid separately under ST No 2301B and is not included in this item)	SQM	320		
1604A	Providing, fixing and laying Pre-painted coil coated steel false ceiling system consisting of 0.5mm thick galvanised as per IS: 277 of approved make in LINEAR and SQUARE type 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. A.C. 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. (supply, fabrication & erection of structural platform grid made up of MS Channels/ Beams / Angles shall be paid separately under ST No 2301B and is not included in this item)	SQM	1,750		
1606	Providing and Fixing 12mm thick Gypsum board plain/perforated false ceiling tiles(600x600mm) of India Gypsum or equivalent make in plan or elevation with aluminium grid, metal suspension system, anchor fastener adjustable hangers etc. including two or more coats of acrylic emulsion paint of approved colour to give an even shade with smooth finish all complete.as per architectural design and detail.metal suspension system as per ASTM C-635 shall be hot dipped M.S.galvanized (grade 180 as per is :277) nominal size of T-section shall be 24 x 38 mm or 24 x 25 mm cross runners. 24mm wide exposed flange surface shall be permanently color coated.suspension system shall be as per manufacturer's specification supported over movement platform.The work to be complete as per specifications, drawings and direction of engineer. (supply, fabrication & erection of structural platform grid made up of MS Channels/ Beams / Angles shall be paid separately under ST No 2301B and is not included in this item)	SQM	129		
1700 RAIN WATER DOWN TAKE PIPES					
Rain water down take pipes including all labour, material, transportation, 2 coats of approved paint over one primary coat, fixtures, accessories etc at any level as per specification, drawings and as directed by engineer - in - charge.					
1702	Fixing galvanised MS down take pipes of 100 mm dia- Medium quality as per IS:1239(part-I) / IS:3589 all complete.	RM	129		
1704	Fixing galvanised MS down take pipes of 150 mm dia- Medium quality as per IS:1239(part-I) all complete.	RM	4,600		
1706	Fixing UPVC down take pipes of 160mm diameter- Class 3 as per IS:4985 all complete.	RM	320		
1707	Fixing GI down take pipes conforming to IS:1239 /IS:3589 of medium duty all complete for following diameters.				
a	150 mm Dia	RM	650		
1708	Fixing HDPE down take pipes conforming to IS:4984 as per specification of following diameters.				
b	160 mm Dia	RM	320		
1800 MISCELLANEOUS WORKS					
Miscellaneous works including all labour, material, equipment etc. at any level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge.					
1801	Providing and Filling in trenches, plinths, area paving and other underground structures with graded stone aggregate of size range 63 mm to 45 mm in layers not exceeding below mentioned thickness including breaking of stone boulders to required sizes, filling the interstices with selected sand and compacting to 85 % of original volume of stone stack for all lifts etc. all complete. Payment shall be made for the measurement of the volume of the compacted fill.				
a	275 mm	CUM	16,600		
b	400 mm	CUM	1,400		
1803	Anti termite chemical treatment of soil with Chlorpyrifos/Lindane E.C. 20% with 1% concentration conforming to IS:8944 and as per IS 6313 all complete. (Plinth area of building at ground floor only shall be measured for payment)	SQM	1,099		
1804	Installation of approved 25mm thick vibration damping resilient pads on/around foundation of vibrating equipment and at other locations all complete.	SQM	129		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
1805	Providing 50mm thick premix carpet surfacing laid to slope in two layers 30mm and 20mm respectively with 12mm downgraded stone chips mixed with 80/100 grade bitumen @ 52 Kg/Cu.M including compaction etc. all complete.	SQM	65		
1806	Providing 50mm thick anti corrosive layer laid to required slope consisting of clean & well graded coarse sand mixed with A90 grade bitumen for softening point upto 45 degree Celcius or A65 grade bitumen for softening point above 45 degree celcius as per IS: 73 or its equivalent quality 8 to 10% by volume and rolled or compacted all complete.	SQM	65		
1807	Providing and fixing G.I strips minimum 1.5mm thk and 150mm wide including fixing accessories etc. all complete.	Kg	20		
1808	Providing and fixing aluminium strips minimum 18 SWG thk and 300mm wide over expansion joints with minimum lap of 50mm length including brass / aluminium screws, rawl plugs etc. all complete.	Kg	50		
1808A	Providing and fixing of 3mm thick stainless steel stripe as mat ,or buff finished confirming to IS:3414 for expansion joint all complete as per construction drawing and specification	SQM	129		
1809	Providing Chemical injection grouting with pressure pump for water retaining concrete structures conforming to IS:6494, including fixing nozzles, cost of approved cement, admixture, curing etc. all complete . Payment shall be made as per the consumption of chemical grout.	Kg	20		
1810	Transporting, laying and fixing rails and guide rails in concrete for transformer, rail track including cutting of rails, joining of rails, anchoring lugs etc all complete.	MT	29		
1811	Providing and fixing weep holes in Drains consisting of 100 mm dia HDPE pipe sleeves with single side covering for the pipe mouth with galvanised welded wire fabric of 20 mm sq. opening covered with 40 mm downgraded aggregates in 300 X 300 mm sq. and 300 mm deep size all complete.	EACH	640		
1812	Laying of earthing mats/rods including risers, transportation from yard stores, loading, unloading, cutting to length, welding, protective painting of joints etc. all complete. (Excavation & Back filling shall be paid separately under respective item of earth work. Earthing mats/rods shall be supplied by BHEL free of cost)	MT	280		
1813	Providing Earthing pit as per drawing with charcoal & salt, GI pipes, GI earth electrodes, GI wire, GI strips, brick chamber with covers including associated earthwork etc. all complete.	EACH	140		
1814	Construction of below ground earthing system test pits as per drawing/ sketches including brickwork, plaster, concreting, reinforcement, formwork, providing & fixing GI strips/pipes, GI wires, covers etc as per drawing & specification including associated earthwork.	EACH	140		
1815	Providing and fixing GI rungs in concrete/brick walls having zinc coating of minimum 900 g/sqm etc. all complete.	Kg	30		
1816	Providing and fixing PVC pressure release valve of minimum dia 90mm in water retaining structure including 160 mm dia housing pipe of minimum length 3.75 m with perforation as per IS4558, nylon jali, perforated end plug, collar, graded filter, excavation, fixing in concrete slab/wall etc. all complete.	EACH	60		
1817	Providing and fixing HDPE pipes in concrete/ brick work of following sizes including cutting, fixing and levelling in position etc. all complete.				
a	200 mm dia	RM	970		
1818	Providing and laying dry stone pitching of 230 mm thickness for slope protection in cement mortar 1:6 including hammer dressing, raking of joints, pointing, preparing the bedding surface and voids filling with stone aggregate etc. all complete.	SQM	290		
1822	Cutting of groove of 10mm X 40mm size with groove cutting machine in concrete paving all complete.	RM	129		
1823	Fire proofing of steel structures with VERMICULITE cementious coating including supply of all materials for vermiculite materials, reinforcement mesh (3mm thick wire, 50x50 size mesh) , nuts, tie wires, weldings, surface preparation, curing, staging, compatible paintings etc. all complete.	CUM	40		
1824	Supply & fixing expanded metal steel sheet conforming to IS:412. Size of mesh shall be 10mmX40mm with strands of 2.5mm width and 1mm thickness to the structural steel for facilitating fireproofing works.	SQM	70		
1825	Supply and laying approved quality Stone aggregate 40mm size in transformer yards.	CUM	620		
1826	Supply and laying approved quality rounded pebbles / gravels of 40mm size in transformer yards.	CUM	1,480		
1827	Supply and laying fire clay refractory brick work with fire clay mortar conforming to IS: 6 & 195 including curing etc. all complete on tank pads & in building walls.	CUM	60		
1828	Dismantling old existing reinforced/non-reinforced brickwork/blockwork/stone masonry work in mud/lime/ cement mortar at any level including clearing/cleaning, stacking the serviceable materials at plant site and disposal of unserviceable materials within a lead upto1km all complete.	CUM	30		
1829	Dismantling old existing plain/re-inforced concrete work at any level including clearing/cleaning, stacking the serviceable materials at plant site and disposal of unserviceable materials within a lead upto 1km all complete.	CUM	30		

PAGE 24 OF 41
PRICE SCHEDULE

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
1830	Dismantling old existing structural steel work at any level including plates, bolts, cutting rivets, welding, dismembering and stacking the dismantled materials within a lead upto 1km etc all complete.	MT	10		
1832	Providing & filling 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.	CUM	30		
1833	Supply & fixing FRP (fibre reinforced plastic) sheets 2 mm thick including GI hooks/ J or L bolts, nuts, washers, bitumen washers etc. complete including overlap 100mm .	SQM	60		
1833A	providing and placing in position at various levels, building paper (kraft paper) as per IS:1397 between concrete surface including the cost of labour, material, etc complete as per drawing and instruction of the engineer.	SQM	260		
1834	Providing and fixing anodised aluminium grill (anodised transparent or dyed to required shade according to IS: 1868 with minimum anodic coating of grade AC 15) of approved design/pattern, with approved standard section and fixed to the existing window frame with C.P. brass/ stainless steel screws @ 200 mm centre to centre, including cutting the grill to proper opening size for fixing and operation of handles and fixing approved anodised aluminium standard section around the opening, all complete as per requirement and direction of Engineer-in-charge. (Only weight of grill to be measured for payment).				
a	Fixed to steel windows by welding	kg	70		
b	Fixed to openings /wooden frames with rawl plugs screws etc.	kg	70		
1835	Supplying and installing dry wall gypsum partitions upto ceiling height consisting of G.I. frame and required board, including providing and fixing of frame work made of special section power pressed/ roll form G.I. sheet with zinc coating of 120 gms/sqm(both side inclusive), consisting of floor and ceiling channel 50mm wide having equal flanges of 32 mm and 0.50 mm thick, fixed to the floor and ceiling at spacing of 610 mm centre to centre with dash fastener of 12.5 mm diameter, 50 mm length or suitable anchor fastener or metal screws with nylon plugs and the studs 48 mm wide having one flange of 34 mm and other flange 36 mm and 0.50 mm thick fixed vertically within flanges of floor and ceiling channel and placed at a spacing of 610 mm centre to centre by 6 mm dia bolts and nuts, including fixing of studs along both ends of partition fixed flush to wall with suitable anchor fastener or metal screws with nylon plugs at spacing of 450 mm centre to centre, and fixing of boards to both side of frame work by 25 mm long dry wall screws on studs, floor and ceiling channels at the spacing of 300 mm centre to centre. The boards are to be fixed to the frame work with joints staggered to avoid through cracks, M.S. fixing channel of 99 mm width (0.9 mm thick having two flanges of 9.5 mm each) to be provided at the horizontal joints of two boards, fixed to the studs using metal to metal flat head screws, including jointing and finishing to a flush finish with recommended jointing compound, jointing tape, angle beads at corners (25 mm x 25 mm x 0.5 mm), joint finisher and two coats of primer suitable for board as per manufacture's specification and direction of engineer in charge all complete.				
a	75 mm overall thickness partition with 12.5 mm thick double skin fire rated board conforming to IS: 2095: part I	SQM	200		
b	75mm overall thickness partition with 12.5 mm thick double skin tapered edged plain Gypsum board conforming to IS: 2095: part I	SQM	70		
2000 FENCING AND GATES					
Fencing and gates including all labour, material, equipment etc at any level as per specification, drawings and as directed by engineer - in - charge.					
2003	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 75mm x 75mm. The diameter of the hot dip galvanised steel wire for chain link fencing excluding PVC coating shall not be less than 12 gauge. Concertina of height of 600 mm at top of chain link fencing shall be provided with all accessories. Concertinal shall be from tensile serrated galvanised wire (HTSW) made with wire diameter of 2.5 mm which will be stretched to 6m and attached on two strands of galvanised HTSSW (high tensile spring steel wire) of 2.5mm dia by means of clips at 1m interval. These two HTSSW strands will be attached to the fence posts/ angles with 12 mm security fasteners. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 25X6 mm GI flat stretcher bar at end posts etc. all complete. (Structural post shall be separately under ST No. 2007)	RM	110		
2006	Supplying and fixing 600mm high concertina on top of boundary wall including GI tension wires, clips, anchors, accessories etc. all complete. Concertinal shall be from tensile serrated galvanised wire (HTSW) made with wire diameter of 2.5 mm which will be stretched to 6m and attached on two strands of galvanised HTSSW (high tensile spring steel wire) of 2.5mm dia by means of clips at 1m interval. These two HTSSW strands will be attached to the fence posts/ angles with 12 mm security fasteners. (Structural post shall be separately under ST No. 2007)	RM	260		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
2007	Supply and fixing of hot dip galvanised mild steel posts for fencing. Rate of zinc coating shall not be less than 710 g/m2 on steel posts.	MT	13		
2008	Supply, fabrication and fixing of mild steel posts for fencing including painting etc all complete as per specification.	MT	10		
2009	Supply, fabrication and installing in position and testing galvanised MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete.	MT	10		
2009A	Two or more coats of chlorinated rubber paint (as per IS: 13467) over a suitable primer of approved quality colour and shade to give an even shade on surface with all in complete.	SQM	32		
2010	Supply, fabrication and installing in position and testing MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete.	MT	10		
2100 WATER SUPPLY					
Water supply work including men, material, equipment etc. at any level as per specification, drawings and as directed by engineer - in - charge.					
2101	Providing and fixing in position tested heavy duty type chromium plated (CP) brass long neck bib cocks including sockets, union, nuts etc all complete - 15mm nominal bore.	EACH	10		
2102	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc all complete - 15mm nominal bore.	EACH	10		
2103	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality including all specials etc all complete for following sizes:				
a	25mm nominal bore.	EACH	10		
b	50mm nominal bore.	EACH	10		
2104	Providing and fixing GI pipes class B medium class conforming to IS:1239 pipes shall be concealed and painted with anticorrosive paint, complete for internal works with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc all complete for following sizes:				
a	15 mm nominal bore.	RM	40		
b	20 mm nominal bore.	RM	40		
c	25 mm nominal bore.	RM	40		
2105	Providing and fixing GI pipes class B complete for external work with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete for following sizes:				
a	15 mm nominal bore.	RM	40		
b	20 mm nominal bore.	RM	40		
c	25 mm nominal bore.	RM	40		
d	50 mm nominal bore.	RM	40		
2106	Providing and fixing 610mmx453mmx6mm thk mirror from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete.	EACH	40		
2106A	Providing and fixing of 900x600x6 THK Locking mirror from reputed manufacturer, mirror shall be mounted with teak wood bedding and minimum 12mm thk plywood backing including CP bracket,etc all complete	EACH	30		
2107	Providing and fixing 610mmx127mmx6mm thk clear glass with C.P Guard rails and mounted on C.P. brackets etc all complete.	EACH	40		
2108	Providing and fixing 25 mm diameter stainless steel towel rails (600mm X 25mm) all complete.	EACH	40		
2108A	Providing and fixing 600x20 mm diameter stainless steel towel rails including SS screw all complete.	EACH	40		
2109	Providing and fixing 20mm dia chromium plated M.S. pipes wall mounted towel rod with C.P. Brackets etc all complete.	EACH	60		
2110	Providing and fixing C.P. soap holder mounted with C.P. screws etc all complete.	EACH	70		
2111	Providing and fixing stainless steel / C.P. liquid soap dispenser . Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc all complete.	EACH	70		
2112	Providing and fixing glazed vitreous wall mounted paper holder with suitable cover cum cutter fitted with CP screws etc. sll complete.	EACH	60		
2113	Providing and fixing chromium plated brass shower rose with 15 or 20 mm inlet all complete.	EACH	6		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
2114	Providing & fixing in position P.V.C. water tank of Syntex or approved equivalent including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete for following capacities. GI pipes shall be paid separately under ST No. 2105.				
a	1000 litres capacity	EACH	6		
b	2000 litres capacity	EACH	3		
2115	Providing and fixing approved stainless steel sink with integrated drainboard as per IS:13983 of size 915x460x178mm with CI brackets, stainless steel chain with rubber plug 40mm, cp brass waste trap with necessary union complete including painting the fittings, cutting and making good the wall where required etc. all complete.	EACH	10		
2115A	Providing and fixing approved stainless steel Pantry sink as per IS: 13983 of size 610x510mm, bowl depth 200mm with drain board of at least 450 length with trap, heavy duty CP and cold mixer, including CI brackets, stainless steel chain with rubber plug, 40mm dia CP brass waste trap, with necessary union complete with painting of fittings, cutting and making good the wall where required including required notching in counter grating slab etc, complete.	EACH	10		
2200 SANITARY WORKS					
Sanitary work including all labour, material, equipment etc. at any level as per specification, drawings and as directed by engineer - in - charge.					
2201A	Supply and fixing coloured glazed vitreous oval shape chain wash basin 450x550mm confirming to IS: 2556 mounted over 20 mm thk granite beveled edge counter. The Basin shall be fitted with approved shape bib cock photo-voltic control system for water control, bottle trap with necessary union including cutting of notch in granite counter slab etc complete as per specification	EACH	70		
2202	Providing and fixing approved vitreous china laboratory sink of size 600x400x200mm conforming to IS:2556 (part-5) with R.S. or C.I. brackets, chromium plated brass chain with rubber plug 40mm, CP brass waste and 40mm CP brass trap with necessary union complete including painting the fittings, cutting and making good the wall where required etc. all complete.	EACH	10		
2203	Providing and fixing stainless steel kitchen sink of size 610x510x200mm conforming to IS: 13983 including all fittings etc. all complete.	EACH	10		
2204A	Providing and fixing wall mounted coloured glazed vitreous water closet with PV flushing system, water faucet, Toilet paper holder, open front solid plastic seat and plastic cover, including necessary CP connection etc all complete.	EACH	32		
2205A	Providing and fixing Coloured glazed vitreous china orissa pan (580x440mm) water closet with PV flushing system, toilet paper holder as per IS: 2556 including all finishing complete as per specification.	EACH	32		
2206	Providing and fixing white flat back glazed vitreous china urinals of size 440x265x355 mm with photo voltaic control flushing system as per IS:2556 (part 6, section 1) with flush pipes, lead pipes, gratings, traps and necessary C.P. fittings etc. all complete.	EACH	90		
2208	Providing, laying light duty non pressure NP3 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc all complete for following.				
a	200mm dia	RM	70		
b	450mm dia	RM	70		
2214	Providing and fixing square mouth S.W Gully trap grade 'A' complete with 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 etc all complete for following sizes:				
a	100x100mm P or S Type.	EACH	8		
b	150x100mm P or S Type.	EACH	8		
c	150x150mm P or S Type.	EACH	8		
2215	Providing and fixing C.I. floor traps with C.P jalli all complete.	EACH	10		
2216	Providing and fixing heavy duty UPVC floor traps with C.P jalli all complete.	EACH	10		
2217C	Providing and installing approved brand energy efficient Geyser of 25L capacity including fittings all complete as per drg.	EACH	1		
2218A	Providing and installing approved brand single tap water efficient water cooler of 150 L cooling capacity all complete.	EACH	1		
2219	Providing and fixing white vitreous urinal partitions of size 675x325x85mm all complete.	EACH	4		
2220	Providing and fixing eye and face drinking water fountain (combined unit with receptacle conforming to IS: 10592) all complete as per specification.	EACH	3		
2221	Providing and fixing polished 18mm thk beveled edge granite slab of required size fitted over counters including 1:3 mortar bed facia, all complete as per specification	SQM	32		

PAGE 27 OF 41

PRICE SCHEDULE
VOLUME-III, REV-02
PACKAGE-A

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
2222A	Providing, laying and jointing sand cast iron pipes of following diameter with lead joint conforming to IS: 1729 including bends,branches, and all other necessary fittings, M.S holder bats,clamps, cutting and marking on the walls and floor ,jointing, testing etc. all complete .				
i	150 mm dia	RM	30		
ii	100 mm dia	RM	130		
2223	Providing and fixing Electric operated hand dryer of approved make with pv control and all fittings including testing etc.in fully operating condition all complete as per specification	EACH	6		
2300 STRUCTURAL STEEL					
Structural steel works including all labour, material, equipments, transportation, handling etc. at any level as per specification, drawings and as directed by engineer - in - charge.					
2301	Transportation, fabrication and erection of Coal Bunkers (cylindrical shell & conical hopper) and ring beam at site with structural steel of grade E250 conforming to IS:2062, connection design & preparation of fabrication drgs, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 20° C for welding over 20 mm and upto 40 mm & 66° C for welding over 40 mm and upto 63 mm & 110° C for thickness over 63 mm & use of low hydrogen/ radiogenic electrodes), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, rectification, blast cleaning of steel surface, application of primer, intermediate, final and final finish coat of paint etc all complete, as per drawing, specification & instructions of engineer in charge. Blast cleaning of steel surface , application of primer and paint including supply shall be paid separately as per Item No.2302A, 2304A, 2304B & 2304C. (STRUCTURAL STEEL WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)	MT	3,200		
2301 A	Transportation, fabrication and erection of high strength structural steel (E300) in rolled/built up section conforming to IS:2062, in columns, beams, struts, monorails, stays, safety chains, ladders, gantry girders, roof trusses, portals, laced purlins, space frames, hangers, wall beams, sheeting runners, brackets, stiffeners, stub columns, bracings, cleats, base plates, splice plates,gussets, end plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs,stringers, treads, landings, decking and seal plates, galleries etc including blast cleaning, providing & applying primer,providing and applying intermediate, final and final finish coat of paint (blast cleaning,primer and paint shall be paid separately as per item no 2302A, 2304A, 2304B & 2304 C), connection design & preparation of fabrication drgs, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 20o C for welding over 20 mm and upto 40 mm & 66o C for welding over 40 mm and upto 63 mm & 110o C for thickness over 63 mm & use of low hydrogen/ radiogenic electrodes), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), etc all complete. (STRUCTURAL STEEL WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)	MT	300		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
2301B	Transportation, fabrication and erection of structural steel of grade E 250 in rolled/ built up section conforming to IS:2062, mild steel rounds in columns, beams, struts, monorails, stays, safety chains, ladders, MS gratings, gantry girders, roof trusses, portals, laced purlins, space frames, hangers, wall beams, sheeting runners, brackets, stiffeners, stub columns, bracings, cleats, base plates, splice plates, gussets, end plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, decking and seal plates, galleries etc including blast cleaning, providing & applying primer, providing and applying intermediate, final and final finish coat of paint (blast cleaning, primer and paint shall be paid separately as per item no 2302A, 2304A, 2304B & 2304 C), connection design & preparation of fabrication drgs, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts and nuts not payable), assembly, edge preparation, preheating / post heating if required, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), etc all complete. (STRUCTURAL STEEL WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)	MT	300		
2301C	Transportation, fabrication and erection of ERW GI pipe section of minimum grade Yst 240 conforming to IS:1161, in columns, beams, ties, struts, bracings, roof truss, connections to other members (tubular/non-tubular), special connections if required etc. including blast cleaning, providing & applying primer, providing and applying intermediate, final and final finish coat of paint (blast cleaning, primer and paint shall be paid separately as per item no 2302A, 2304A, 2304B & 2304 C), connection design & preparation of fabrication drgs, cutting, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts & nuts not payable), assembly, edge preparation, preheating/post heating if required, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, inspection and testing, erection scheme, protection against damage in transit, stability of structures, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, installation of temporary structures (scaffolding, access ladders, working platforms etc.) if required, dismantling and removal of temporary structures after completion of work (weight of temporary structures not payable), etc all complete. Payment shall be made for weight of structure but not for Nuts & Bolts/washers, gusset plates, stiffeners, special connections etc.	MT	200		
2301D	Transportation, fabrication and erection of galvanized Hollow steel sections (square & rectangular) of minimum grade Yst 240 conforming to IS:4923, in ties, struts, bracings, roof truss, connections to other members (tubular/non-tubular) etc. including blast cleaning, providing & applying primer, providing and applying intermediate, final and final finish coat of paint (blast cleaning, primer and paint shall be paid separately as per item no 2302A, 2304A, 2304B & 2304 C), connection design & preparation of fabrication drgs, cutting, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating if required, post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, inspection and testing, erection scheme, protection against damage in transit, stability of structures, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, installation of temporary structures (scaffolding, access ladders, working platforms etc.) if required, dismantling and removal of temporary structures after completion of work (weight of temporary structures not payable), etc all complete. Payment shall be made for weight of structure but not for Nuts & Bolts/washers, gusset plates, stiffeners, special connections etc.	MT	200		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
2301E	Bolted Erection of structural steel [of mild steel/High strength steel rolled section / built up section / combination of both conforming to IS:2062, pipe sections] true to line, level, plumb & dimension, rectification if any, including collection of factory fabricated parts from BHEL store and assembly, installation of erection/connection bolts and application of final finish paint coat(Payment for final coat of payment shall be made separately as per Item No. 2304C) as per approved drawing, specification and approval of engineer in charge. Erection joints shall be mostly bolted with HSFG bolts/washer/nut, which will be paid separately under item 2301 & 2311. Erection bolts shall be arranged by the bidder and is not payable. the work shall be satisfactorily completed with required tightening of HSFG bolts along with DTI (DIRECT TENSION INDICATOR) washers to be supplied by the bidder(Cost of DTI washer is included in this item and not payable separately). Welding required for erection/seating shall be included in this item. The prefabricated structure shall be supplied in variable length to the maximum length of 10 meters -12 meters and all erection work on ground or at any elevation is included in this item. Payment shall be made for weight of permanent structure, HSFG nuts, bolts & splice plate, DTI washers, gusset plates, stiffeners but not for erection bolts & nuts, etc.	MT	16,800		
2301F	Providing welded splices for joining pre-fabricated structural parts (Beams, columns, roof trusses, struts, ties, bracings etc.) supplied by BHEL including welding of main structural members as per drawing, cutting if required, grinding, machining, preparing smooth surface for splicing, welding splice over welded structural member etc complete as per fabrication drawing, electrodes and other consumables for welding, alignment, manual/blast cleaning, providing and application of primer, paint etc. all complete. Weight of splice plates along with weight of structural members on either side of joint to maximum extent of 3 meters length or actual length (if lesser than 3 m) shall be payable. Manual/blast cleaning of steel surface, application of primer and paint including supply shall be paid separately as per Item No.2303A/2302A, 2304A, 2304B & 2304C. (STRUCTURAL STEEL WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)	MT	300		
2301G	Welded erection of structural steel [of mild steel/High strength steel rolled section / built up section / combination of both conforming to IS:2062, pipe sections] for fabricated structural sections supplied by BHEL, true to line, level, plumb & dimension, rectification if any, including collection of factory fabricated parts from BHEL store and assembly, installation of erection/connection bolts and application of final finish paint coat(Payment for final coat of payment shall be made separately as per Item No. 2304C) as per approved drawing, specification and approval of engineer in charge. Erection bolts shall be arranged by the bidder and is not payable. Welding required for erection/seating shall be included in this item. The prefabricated structure shall be supplied in variable length to the maximum length of 10 meters -12 meters and all erection work on ground or at any elevation is included in this item. Payment shall be made for weight of permanent structure. Welding shall be done with use of low hydrogen/ radiogenic electrodes), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), etc all complete as per specification.	MT	250		
2302A	Extra over ST NO. 2301/2301A/2301B/2301C/2301D for blast cleaning of steel structures to near white metal surface(Sa 2 1/2) and providing & applying coat of self curing inorganic zinc ethyle Silicate primer (solid by volume Minimum 62+/-2% & zinc dust % on dry film minimum 80 %). Zinc dust pigment shall be as per specifications. Primer of minimum 60 micron DFT shall be applied over shot blast cleaned surface including touch-up painting etc all complete. Primer coat shall be applied in Shop immediately after blast cleaning by airless spray technique.	MT(of steel)	4,200		
2303A	Extra over ST NO. 2301F for Manual cleaning of steel structures and applying providing & applying coat of self curing inorganic zinc ethyle Silicate primer (solid by volume Minimum 62+/-2% & zinc dust % on dry film minimum 80 %). Zinc dust pigment shall be as per specifications. Primer of minimum 60 micron DFT shall be applied over shot blast cleaned surface including touch-up painting etc all complete.	MT(of steel)	270		
2303B	Extra over ST NO. 2301A to 2301E for Manual cleaning of steel structures embedded in concrete and applying Primer Coat of Chlorinated Rubber based Zinc Phosphate primer of 50 micron (DFT).	MT(of steel)	30		
2304A	Providing and applying (with airless spray technique) intermediate coat of Polyamide cured pigmented Micaceous Iron Oxide (MIO content minimum 30 %) Epoxy based Paint (solid by volume Minimum 62+/-2%) of minimum 75 micron total DFT and of approved make in Shop after an interval of Minimum overnight over steel sections already having primer coats including protection and cleaning, scaffolding etc. all complete as per specification for all structures .	MT(of steel)	4,500		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
2304B	Providing and applying (with airless spray technique) polyamide cured color pigmented epoxy based paint (solid by volume Minimum 60%) as Finish coating of minimum 75 micron total DFT and of approved make and shade after an interval of Minimum overnight over steel sections already having intermediate coats including protection and cleaning, scaffolding etc. all complete as per specification for all structures .	MT(of steel)	4,500		
2304C	Providing and applying Polyurethane based colour pigmented paint (solid by volume Minimum 55+/-2%) as Final finish coating of minimum total DFT 50 micron for all structure as per specification of approved make and shade to achieve an even shade over steel sections already having finish coats including protection and cleaning, scaffolding etc. all complete. Coat to be applied with brush/airless spray.	MT(of steel)	20,590		
2307	Transportation, fabrication, erection and alignment of factory made electroforged galvanised grating units with mild steel (having minimum galvanisation of 610 g/sqm) conforming to IS:2062 in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete. (Bolts, nuts, washers shall be paid separately under item 2310 & 2311 as applicable)	MT	430		
2308 A	Transportation, fabrication, erection and alignment of factory made chequered plates conforming to IS 3502 with mild steel of grade E250, quality BR, semi killed, conforming to IS:2062 or equivalent grade conforming to ASTM & BS standards only in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including 2 coats of redoxide zinc-chromate primer (one coat at shop and one coat after erection), fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete. Min. thickness of chequered plate shall be 6 mm excluding projection.	MT	70		
2309	Extra over above ST NO. 2301A/2301B for finishing the ladders units with hot dipped galvanisation @ 610 gm/sqm over blast cleaned steel surfaces all complete.	MT	30		
2310	Transporting and fixing in position 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 etc all complete.	Quintal	10		
2311	Transporting 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 etc all complete.	Quintal	450		
2312	Dismantling of steel structure , lowering of material and carriage of the dismantled material up to field fabrication shop / 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), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	30		
2313	Addition to, alterations in and/or modification of " Erection Marks " including cutting of parts, gauging 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) etc all complete for the following:				
a	In erected position	MT	32		
b	In fabrication yard	MT	65		
2314	Re-erection of dismantled fabricated structural steel members 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), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	65		
2315A	Supply, fabrication and erection of minimum 4.0 mm thick stainless steel liner of grade SS:304(as manufactured by SAIL Finish Grade 2B (Cold rolled, Annealed & Pickled and Skin passed)) on M.S. plate for inside surfaces of bunkers including fixing with stainless steel studs, bolting (including countersunk), welding with electrode classification E308L for welding of stainless steel to stainless steel and E309 for stainless steel to mild steel etc. all complete. Supply of bolts, studs is included in this item. (STAINLESS STEEL WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)	MT	180		

PAGE 31 OF 41

PRICE SCHEDULE

VOLUME-III, REV-02

PACKAGE-A

SCH-2-SERVICE

TENDER NO : PSER:SCT:NKP-C1629:14

SIGNATURE WITH SEAL OF THE BIDDER

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
2317	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 ± 50 mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads.				
a	20 Tons	EACH	3		
b	25 Tons	EACH	3		
c	40 Tons	EACH	3		
d	50 Tons	EACH	3		
e	60 Tons	EACH	4		
f	80 Tons	EACH	8		
g	100 Tons	EACH	8		
h	120 Tons	EACH	3		
2318	Providing and fixing flexible open ended bellow strap of neoprene of minimum thickness 2 mm and minimum width 200 mm with aluminium stripped edges as sealing below top of bunker and bottom of tripper floor to avoid the coal dust nuisance all complete.	RM	510		
2319	Transportation, fabrication and fixing of stainless steel pipe hand railing of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete..	MT	13		
2320	Supply, fabrication and fixing of GI pipe hand railing (900 mm high) of 32 mm/40 mm dia (Medium Grade) including transportation, loading/unloading, painting etc. all complete. (GI PIPE WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)	MT	60		
2321	Conducting radiography test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	360		
2322	Conducting ultasonic test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	360		
2323	Conducting ultasonic test on steel plates as per ASTM-A578 level B-S2 or equivalent wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	SQM	360		
2324	Conducting magnetic particle test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	360		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
2325	Conducting dye penetration test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges etc. all complete (over and above the work already specified in the specifications.)	RM	360		
	MISCELLANEOUS				
2401	Preparation of sub grade by excavating earth to required depth for all types of soil/ rock, dressing to camber and consolidating the base including making good the undulation etc and disposal of surplus earth within a lead upto 1 km etc. all complete.	CUM	1,900		
2405	Providing & laying water bound macadam base course in layers of required thickness with stone aggregate 63mm to 45mm size, stone screening and blinding material including screening sorting, spreading to template and consolidation with road roller including carriage, spreading and consolidation of blinding material moorum etc all complete.	CUM	900		
2406	Providing & Laying water bound macadam base course with stone aggregate 53mm to 22.4mm size stone screening & binding material including screening, sorting, spreading to template & consolidation with road roller including carriage spreading & consolidation of blinding material moorum etc all complete.	CUM	300		
2412A	Supplying and laying 450mmx250mmx500mm deep precast concrete kerb stone of grade M-25 with 20 mm nominal size stone aggregate and of shape as per detailed drawing including fixing with cement mortar (1:6) in 13mm thick joints, finishing of joints with neat cement paste, making drainage opening where required etc all complete. (CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)	RM	850		
2412B	Supplying and laying 300mmx250mmx150mm deep precast concrete kerb stone of grade M-25 with 20 mm nominal size stone aggregate and of shape as per detailed drawing including fixing with cement mortar (1:6) in 13mm thick joints, finishing of joints with neat cement paste, making drainage opening where required etc all complete. (CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)	RM	450		
	Providing and placing concrete work including cost of labour, materials and equipment for handling, transportation, batching, mixing, placing, vibrating, shuttering, formwork and curing (excluding cost of reinforcement), with mechanised equipments like batching plant, transit mixer, concrete pump etc. complete as per drawing, specification and as per direction of engineer in charge for the following(Item No 2418 & 2419).(CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)				
2418	Providing and laying cement concrete of grade M35 using 20 mm nominal size stone aggregate with approved admixture (if required) with mechanical paver, provision for necessary joints including compaction, finishing to lines and grades, curing and providing & fixing forwork etc. all complete in road work. (Excluding the cost of reinforcement and dowel bar)	CUM	1,200		
2419	Providing & laying dry lean cement concrete of grade M10 (in pavement/shoulders) with 20 mm nominal size graded stone aggregate with mechanical paver over granular sub-base including compaction by vibratory roller, finishing, curing etc all complete.	CUM	750		
2420	Providing and fixing in position MS dowel bar reinforcement including surface painted with bitumen and greasing, dowel end caps with cotton fills etc all complete as per specification, drawing and as directed by Engineer for road work.	MT	1		
2425A	Providing & laying polythene sheet of specified thickness (min. 125 micron), above dry lean concrete sub base, before laying of concrete slab pavement.	SQM	4,800		
2425	Providing and laying debonding strip/tape , 25 mm wide & 5 mm thk. before applying sealant including cleaning etc all complete as per specification, drawing and as directed by Engineer.	RM	1,940		
2426A	Providing & laying 80 mm thick precast interlocking concrete pavers of grade M-35 of approved colour and pattern as per specification and recommendation of manufacturer.	SQM	17,500		
2427	Providing and laying 50mm thick sand layer below concrete pavers including compaction etc all complete as per specification, drawing and as directed by Engineer.	SQM	4,520		
2427A	Providing and laying 20mm thick sand layer below concrete pavers including compaction etc all complete as per specification, drawing and as directed by Engineer.	SQM	2,580		
	TOTAL				

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE	AMOUNT (INR)
B	MISC ITEM Quote % above or % below or at par for items not covered as above of this schedule. The rate shall be derived from Delhi schedule of rate 2013.				
1a)	Rate of complete item			____%	
1b)	Rate of supply of material at site only			____%	
1c)	Rate for execution complete excluding supply of materials.			____%	

**VOLUME-III
PRICE SCHEDULE, REV-02
PACKAGE-A**

JOB: PACKAGE A - CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS ETC. OF BTG AREA FOR UNIT # 1 & 3 FOR 3X660 MW NORTH KARANPURA STPP, JHARKHAND.

TENDER NO. PSER:SCT:NKP-C1629:14

SCH-3-SUPPLY PART

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
400 REINFORCEMENT					
401	Supplying mild steel reinforcements conforming to grade 1 of IS:432 (part 1 or grade IS-2062) as per specifications & drawings.	MT	25		
700 MS EMBEDMENTS					
Embedments including all labour, material, equipment, transportation, handling etc. at any level as per specification, drawings and as directed by engineer - in - charge.					
701	Supply of mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. all complete.	MT	90		
704	Supply of mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc. all complete.	MT	40		
705	Supplying, following items in concrete/brickwall for all kind of works, all complete.				
a	MS pipes of all diameters	Quintal	13		
b	PVC pipes / conduits of all diameters	Quintal	10		
c	UPVC pipes / conduits of all diameters	Quintal	13		
d	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for brick work with expansion sleeve of A6 polyamide:				
i	Upto 250 kg	Each	10		
ii	Beyond 250 Kg and upto 500 kg	Each	13		
iii	Beyond 500 Kg and upto 750 kg	Each	13		
e	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with expansion sleeve of stainless steel:				
i	Upto 250 kg	Each	129		
ii	Beyond 250 Kg and upto 500 kg	Each	129		
iii	Beyond 500 Kg and upto 750 kg	Each	129		
900 DOORS, WINDOWS, VENTILATORS, LOUVERS					
Doors, windows, ventilators, louvers, roof ventilators, rolling shutters, partitions including all labour, material, equipments, transportation, handling, preparation of working drawings etc. at any level as per specification, drawings and as directed by engineer - in - charge.					
903	Providing, solid core flush door shutter as per IS 2202 part II, 35mm thick homogenous particle board bonded with BWP type phenolformaldehyde synthetic resin, particle board core conforming to IS 3087 type I, 35x12 mm thick teakwood beading all around including preparation of working drawings. godrej or equivalent make mortice lock with handels on both sides, approved ISI mark anodised fittings like door stopper, 300mm long tower bolts, 16x300mm long aldrops, 125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fittings shall be anodised aluminium color dyed), finish flat oil paint confirming to IS: 137 over primer, screws etc. all complete as per drawing, specification and instruction of engineer in charge. with commercial faces and teak wood edges. (Finish painting paid separately)	SQM	60		
904	Providing single or double steel door shutters with 35 mm thk flush design shutter 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 centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	SQM	194		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
906	Providing anodized extruded aluminium doors (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 3mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 (minimum anodized coating of grade AC15). fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be clear float glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately)	SQM	32		
906A	Providing anodized extruded aluminium doors (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 2 mm wall thickness as per IS:1285, IS:733 and anodized(15 micron coating thickness) and electro color dyed of required shade as per IS 1868 (minimum anodized coating of grade AC15). fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be clear toughened glass of 10 mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately)	SQM	970		
907	Providing fire proof steel doors (single or double shutter) with panic devices having 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.	SQM	236		
913	Providing rolling shutter of hot rolled double dipped galvanised steel lath section of 18 SWG tested mild steel strips at 75mm rolling centres 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 and outside locking with push and pull operation including wire springs, top cover, primer & shop coats of approved enamel paint etc, all complete as per IS 6248 and specification of approved make of following types: The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.(partly coiled and lath/full lath).				
a	Hand Operated	SQM	20		
b	Mechanically Operated	SQM	40		
c	Electrically operated	SQM	150		
915	Supply of glazing of first grade class in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete as per Specification for the followings				
a	4 mm thick clear sheet glass	SQM	129		
b	4 mm thick clear float glass	SQM	130		
ba	5 mm thick tinted float glass	SQM	160		
c	5.5 mm thick clear float glass	SQM	60		
d	6 mm thick wired glass	SQM	60		
e	6mm thick Polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges.	SQM	390		
ea	2mm thick Polycarbonate sheet with profile matching with metal sheeting of building.The Polycarbonate sheets shall be fire and u/v resistant, and suitable for continuous use up to a temperature of 1000C including cost of Suitable aluminium beading . Open ends of the sheet shall be sealed as per manufacturer's recommendations.	SQM	260		
g	6 mm thick tinted heat reflecting type float glass	SQM	129		
h	6 mm thick clear toughened safety glass	SQM	1,260		
i	10 mm thick clear toughened glass	SQM	220		
ia	8 mm thick clear toughened glass	SQM	220		
j	Two nos. 6 mm thick clear toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	160		
k	Two nos. 6 mm thick tinted toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	190		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
l	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).	SQM	190		
l (a)	composite double glazing, 24 mm thick, with one outer 6mm thick tinted heat-reflecting type toughened glass and one inner 6mm thick clear toughened glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).Outer glass of 6mm thickness shall have following technical characteristics: Solar factor 25% or less, U-value less than 2.268 W/ SQMK,VLT min 30%: The glass to be used should be from the manufacturers of glass like Glavebel (Belgium), Saint Gobain (France) or Fort (USA) Or equivalent. The glass should be free from distortion and thermal stress.	SQM	1,090		
l(b)	composite double glazing, 24 mm thick, with one outer 6mm thick tinted fire resistant type toughened glass and one inner 6mm thick plane fire resistant glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).The glass to be used should be from the manufacturers of glass like Glavebel (Belgium), Saint Gobain (France) or Fort (USA) Or equivalent. The glass should be free from distortion and thermal stress.	SQM	700		
m	6 mm thick laminated glass	SQM	60		
n	4 mm thick heat reflecting type float glass	SQM	60		
o	6 mm thick Ground glass	SQM	60		
p	Two nos. 6 mm thick low-e glass harmetically selaed and saperated by 12mm thick air gap insulation.only single elevation area to be measured	SQM	60		
q	6mm thk. reflective toughened glass, with Solar factor 45% or less, U-value less than 5.7 W/m2.K, VLT min 40%. Glass shall be of Saint Gobain (India) or ASAHI (India) or equivalent make and shall be free from distortion and thermal stress	SQM	841		
r	providing Glass block masonry work with approved glass blocks of size 190 x 190 x 90 (min), jointed with suitable adhesive complete as per drawing, specification and instructions of engineer in charge.	SQM	129		
922	Supply of electrically operated, self operable/closing, approved anodized aluminium framed glass door with 10 mm thk. tinted glass, all complete. Automatic Sliding operating system comprising of Advanced DC brushless motor, Automatic Reversing Safety Device, Suitable for door weight 100 kg, Opening speed : 90-110cm /sec (adjustable), Closing Speed : 40-110cm/sec (adjustable), opening time : within1-9 seconds after door stopped in opening, controller : 8 Bit micro computer, Motor (Dortexor equivalent) : DC12V, 35W brushlees motor, Power Voltage : AC 110V - 240V. 50Hz - 60Hz, Power Consumption : 45W including Infra Red Sensors 2No both sides, rails & top & bottom as required, any aother accessories as required etc. all complete of best make and quality as approved by Engineer in charge. The door shall be double panel sliding door of approx. area 5 sq.m. to 7.5 sq.m. each	Nos.	4		
1500	ROOFING/SIDE CLADING				
	Roofing / side cladding work including all labour, material, equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at any level as per specification, drawings and as directed by engineer - in - charge.				
1501	METAL DECK SHEET Type-I, Designing & supplying permanently color coated galvanised MS troughed metal sheet decking plate of approved colour over roof purlins for cast-in-situ roof slab as per relevant IS code and Grade as per specification. Bare metal thickness(BMT) of deck plate shall be minimum 0.8mm with minimum trough depth of 44 mm having minimum yield strength of 250 MPa and shall serve as permanent shuttering to the roof slab 40mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 450 kg/sqm (for two span condition) during construction between beams as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to beams, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyster(SMP silicon content 30%-50%) paint or super polyster paint of minimum 20 micron DFT on exposed surface (facing operating floor) and minimum 5 micron on other face over epoxy primer of 5 micron applied over coating (deginated class Z275), including fixing of sheet to top flange of beam with drawn arc welding of headed shear anchor studs @ 260mm c/c in the trough and stich screws between two adjacent sheets and sealing with epoxy sealant.The shear anchor studs shall confirm to type B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 19 mm dia & 100 mm length manufactured from cold drawn round steel bars confirming to ASTM A 29 of grade designation 1010 through 1020 of standard quality with either semi killed or killed welded by drawn arc stud welding through metal deck sheet.				

PAGE 37 OF 41

PRICE SCHEDULE
VOLUME-III, REV-02
PACKAGE-A

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
a	Span Upto 1800mm	SQM	8,000		
b	Span Exceeding 1800mm and upto 2500 mm	SQM	320		
1501A	METAL DECK SHEET type-II, Designing & supplying permanently color coated galvanised MS troughed metal sheet decking plate of approved colour over roof purlins for cast-in-situ roof slab as per relevant IS code and grade as per specification. Bare metal thickness(BMT) of deck plate shall be minimum 0.8 mm with minimum trough depth of 44 mm having minimum yield strength of 350 MPa and shall serve as permanent shuttering to the roof slab 100mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 450 kg/sqm (for two span condition) during construction between beams as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to beams, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyester(SMP silicon content 30%-50%) paint or super polyester paint of minimum 20 micron DFT on exposed surface (facing operating floor) and minimum 5 micron on other face over epoxy primer of 5 micron applied over coating (designated class Z275), including fixing of sheet to top flange of beam with drawn arc welding of headed shear anchor studs @ 260mm c/c in the trough and stich screws between two adjacent sheets and sealing with epoxy sealant.The shear anchor studs shall confirm to type B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 19 mm dia & 100 mm length manufactured from cold drawn round steel bars confirming to ASTM A 29 of grade designation 1010 through 1020 of standard quality with either semi killed or killed welded by drawn arc stud welding through metal deck sheet.				
a	Span Upto 1800mm	SQM	650		
b	Span Exceeding 1800mm and upto 2500 mm	SQM	320		
1501 C	METAL DECK SHEET Type-IV, Designing and supplying permanently color coated galvanised MS troughed metal sheet decking plate of approved colour over floor beams for cast-in-situ roof slab as per relevant IS code and Grade as per specification. Bare metal thickness(BMT) of deck plate shall be minimum 0.8mm with minimum trough depth of 51 mm having minimum yield strength of 250 MPa and shall serve as permanent shuttering to the roof slab 150mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 550 kg/sqm (for two span condition) during construction between beams as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to beams, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyester(SMP silicon content 30%-50%) paint or super polyester paint of minimum 20 micron DFT on exposed surface (facing operating floor) and minimum 5 micron on other face over epoxy primer of 5 micron applied over coating (designated class Z275), including fixing of sheet to top flange of beam with drawn arc welding of headed shear anchor studs @ 260mm c/c in the trough and stich screws between two adjacent sheets and sealing with epoxy sealant.The shear anchor studs shall confirm to type B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 19 mm dia & 100 mm length manufactured from cold drawn round steel bars confirming to ASTM A 29 of grade designation 1010 through 1020 of standard quality with either semi killed or killed welded by drawn arc stud welding through metal deck sheet. Measurement of profile sheeting shall be of the plan area of roof covered by MS trough metal decking. The SMP and polyester paint shall confirm to product type 4 as per AS/NZS 2728				
a	Span Upto 1800mm	SQM	38,900		
b	Span Exceeding 1800mm and upto 2500 mm	SQM	1,540		
1503	Designing and supplying SINGLE SKIN, PROFILED, PERMANENT COLOR COATED M.S. CLADDING SHEET :TYPE-I of approved shade and color, (ON EXTERNAL VERTICAL FACE OF BUILDINGS) of 0.6mm bare metal thickness(BMT) having minimum yield strength OF GRADE SS255 AS PER ASTM A653M/GRADE G250 AS PER AS 1397 COATED WITH ZINC OF CLASS DESIGNATION Z275 as per specification including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing etc. all complete as per specification.The sheet shall be permanently coated with silicon modified polyester(SMP silicon content min. 30%) paint or super polyester paint of minimum 20 micron DFT on exposed surface (facing operating floor) and minimum 5 micron on other face over epoxy primer of 5 micron applied over coating (designated class Z275). The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability. The SMP and polyester paint shall confirm to product type 4 as per AS/NZS 2728.	SQM	27,360		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
1505	Design and supply of permanent colour coated sandwiched insulated metal cladding: TYPE III of approved color comprising of trough zinc-aluminium alloy coated (both sides) M.S. sheet of 0.60 mm min thickness to be used on external face of the cladding system. The sheet shall be coated with zinc of class designation Z275 as per ASTM A653M. The exposed face of the sheet to be permanently color coated with silicon modified polyester paint (SMP with silicon content of 30% to 50%) or super polyester paint of minimum 20 microns (nominal) dry film thickness over primer coat of 5mm (nominal) thickness. Inner side of external sheet to be provided with SMP or super polyester paint of 5 microns DFT (nominal) over 5 microns thick (nominal) primer coat. Galvanised M.S. sheets of minimum 0.6 mm thickness to be used as inner liner (internal face) of cladding system. The exposed face to be permanently colour coated with silicon modified polyester paint or super polyester paint of DFT 20 microns (minimum) over primer. The rate of galvanising not to be less than 275gm / sq.m. The sheets shall be of approved profile and shall have such section modulus and moment of inertia per metre width that deflection of sheets is limited to span/250 under design wind pressure for two span conditions. No increase in allowable stresses under wind load condition is allowed. The cladding shall have siphoning feature to prevent leakage. The inner sheet shall be fixed to the structure by self drilling fasteners and concealed clips (including sub-girts of size 50X50X50 mm manufactured out of 16G GI 'Z' shape) to connect the external sheet (without penetrating the external sheet) including flashings complete as per specification. v. The insulation shall be of bonded mineral wool of minimum thickness 50mm conforming to IS:8183, having a density of 32 Kg/cu.m. for glass wool & 48 Kg/cu.m. for rock wool and is included in this item.	SQM	10,340		
1700 RAIN WATER DOWN TAKE PIPES					
Rain water down take pipes including all labour, material, transportation, 2 coats of approved paint over one primary coat, fixtures, accessories etc at any level as per specification, drawings and as directed by engineer - in - charge.					
1702	Supplying galvanised MS down take pipes of 100 mm dia- Medium quality as per IS:1239(part-I) / IS:3589 all complete.	RM	129		
1704	Supplying galvanised MS down take pipes of 150 mm dia- Medium quality as per IS:1239(part-I) all complete.	RM	4,600		
1706	Supplying UPVC down take pipes of 160mm diameter- Class 3 as per IS:4985 all complete.	RM	320		
1707	Supplying GI down take pipes conforming to IS:1239 /IS:3589 of medium duty all complete for following diameters.				
a	150 mm Dia	RM	650		
1708	Supplying HDPE down take pipes conforming to IS:4984 as per specification of following diameters.				
b	160 mm Dia	RM	320		
1800 MISCELLANEOUS WORKS					
Miscellaneous works including all labour, material, equipment etc. at any level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge.					
1804	Supply of approved 25mm thick vibration damping resilient pads on/around foundation of vibrating equipment and at other locations all complete.	SQM	129		
1810	Supplying rails and guide rails in concrete for transformer, rail track including cutting of rails, joining of rails, anchoring lugs etc all complete.	MT	29		
2300 STRUCTURAL STEEL					
Structural steel works including all labour, material, equipments, transportation, handling etc. at any level as per specification, drawings and as directed by engineer - in - charge.					

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
2301C	Supply of ERW GI pipe section of minimum grade Yst 240 conforming to IS:1161, in columns, beams, ties, struts, bracings, roof truss,connections to other members(tubular/non-tubular), special connections if required etc. including blast cleaning, providing & applying primer,providing and applying intermediate, final and final finish coat of paint (blast cleaning,primer and paint shall be paid separately as per item no 2302A, 2304A, 2304B & 2304 C), connection design & preparation of fabrication drgs,cutting,grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts & nuts not payable), assembly, edge preparation, preheating/post heating if required, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, inspection and testing, erection scheme, protection against damage in transit, stability of structures,surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, installation of temporary structures(scaffolding, access ladders, working platforms etc.) if required, dismantling and removal of temporary structures after completion of work (weight of temporary structures not payable), etc all complete. Payment shall be made for weight of structure but not for Nuts & Bolts/washers, gusset plates, stiffeners, special connections etc.	MT	200		
2301D	Supply of galvanized Hollow steel sections (square & rectangular) of minimim grade Yst 240 conforming to IS:4923, in ties, struts, bracings,roof truss, connections to other members(tubular/non-tubular) etc. including blast cleaning, providing & applying primer,providing and applying intermediate, final and final finish coat of paint (blast cleaning,primer and paint shall be paid separately as per item no 2302A, 2304A, 2304B & 2304 C), connection design & preparation of fabrication drgs,cutting,grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating if required, post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, inspection and testing, erection scheme, protection against damage in transit, stability of structures,surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, installation of temporary structures(scaffolding, access ladders, working platforms etc.) if required, dismantling and removal of temporary structures after completion of work (weight of temporary structures not payable), etc all complete. Payment shall be made for weight of structure but not for Nuts & Bolts/washers, gusset plates, stiffeners, special connections etc.	MT	200		
2307	Supply of factory made electroforged galvanised grating units with mild steel (having minimum galvanisation of 610 g/sqm) conforming to IS:2062 in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete. (Bolts, nuts, washers shall be paid separately under item 2310 & 2311 as applicable)	MT	430		
2308 A	Supplying factory made chequered plates confirming to IS 3502 with mild steel of grade E250, quality BR, semi killed, conforming to IS:2062 or equivalent grade conforming to ASTM & BS standards only in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including 2 coats of redoxide zinc-chromate primer (one coat at shop and one coat after erection), fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete. Min. thickness of chequered plate shall be 6 mm excluding projection.	MT	70		
2310	Supply 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 etc all complete.	Quintal	10		
2311	Supply 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 etc all complete.	Quintal	450		
2319	Supply of stainless steel pipe hand railing of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete..	MT	13		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
2600	Supply, installation, erection, testing, commissioning, operation & maintenance of electronic road weigh bridge pitless type, 60Tx100kg with platform size of 16 Mx3 M with necessary supporting structures, control room with proper digital indicator, recorder, printer, PC with keyboard, display unit (15"), UPS (500VA), accuracy $\pm 0.25\%$ of actual weight, minimum graduation 10kg, maximum weight 60T, AVERY or equivalent make. Payment terms - a) On receipt of Weigh Bridge materials at site - 50%; b) On successful installation, commissioning & on submission of certificate from statutory authorities regarding calibration etc - 10%; c) Balance 40% will be paid on prorata monthly basis throughout contract period. (Civil works to be paid separately as per relevant items of schedule for service)	SET	1		
	TOTAL				

**VOLUME-III
PRICE SCHEDULE, REV-02
PACKAGE-B**

JOB: PACKAGE B - CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS ETC. OF BTG AREA FOR UNIT # 2, BOUNDARY WALL IN TWO PHASES AND WATCH TOWERS FOR 3X660 MW NORTH KARANPURA STPP, JHARKHAND.

TENDER NO. PSER:SCT:NKP-C1629:14

SL. No.	PREAMBLE
1	This preamble forms part of tender document and schedule of items. The tenderer should read this preamble carefully before filling in rates for various items. Clauses under this preamble shall be read in conjunction with Volume-IB, ID, IE, Volume – IF and other tender sections as applicable and shall have precedence over any contrary statement mentioned any where in this document.
2	The work shall be carried out strictly as per specifications, description of the items in these schedule and / or engineer's instructions. Drawings enclosed with the tender are only preliminary and for tender purposes and giving some idea of the work involved. The work is to be executed as per drawings & documents, which shall be furnished during execution.
3	Items of work provided in this schedule but not covered in this specification shall be executed strictly as per instruction of the engineer.
4	Unless specifically mentioned otherwise in the tender document, the tenderer shall quote for the finished items and shall provide for the complete cost towards power, fuel, tools, tackles, equipment, constructional plants, temporary works, labour, dismantling of all temporary piping, structures, valves, pumps, tanks & other misc. equipment, strengthening of roads/culverts/bridges etc. including arranging all clearances etc. required for carrying out different activities & tests, materials, levies, taxes(except service tax), transport, layout, repairs, rectification, maintenance till handing over, supervisions, colonies, shops, establishments, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the work according to the complete tender document and this schedule.
5	The quantities of the various items mentioned in this schedule of items are approximate, based on very preliminary information and may vary to any extent or be deleted altogether. The quoted rates of each item will remain firm throughout the period of execution including extension, for reasons whatsoever, as long as variation in the total value of work executed under any part of this contract including extra items, if any but excluding any price variation remains, within fifteen percent ($\pm 15\%$) of the awarded price as per LOI.
6	Prior written approval of BHEL shall be sought by the contractor in case quantity variation of any item crosses +50% (plus fifty percent) limit during execution and approval to be obtained before execution of further quantity for this item.
7	In case Sealed /Paper Price Bids are opened for finalisation of the tender, for any Item Rate/BOQ based contract, possibility of variation of quantity/ addition/deletion of items can not be ruled out. Under such circumstances, after execution of work, if it is observed that standing as L-1 is changed based on actual quantity executed, the bidder shall give suitable rebate to maintain your standing as L-1. Since this aspect can be assessed at the end of execution, necessary adjustment will be effected at the end of execution in final bill. This condition shall not be applicable where the tender is finalised through Reverse Auction.
8	BHEL reserve the right to rationalize the rates, quoted by L-1 bidder against unit rate items and/ or other optional items with respect to item-wise lowest rates (amongst the participating bidders), before placement of order.
9	The rates quoted shall be inclusive of cleaning of site of any vegetation, dressing, clearing of old structures and leveling etc. including fixing of grid pillars, benchmarks etc. required for commencement of site activities. No separate payment will be made towards the same. However, if separate rate for such item is available in the rate schedule, the same shall be considered.
10	Rates shall be quoted in figures and in words in clear legible writing. No overwriting is allowed. All scoring and cancellations should be countersigned and in case of illegibility the interpretation of engineer shall be final. All entries shall be in English language.
11	All works item wise shall be measured upon completion and paid for at the rates quoted and accepted as per BHEL approved payment schedule/billing break-up.
12	The tender shall be deemed to have visited site and made himself aware of all the site conditions, studied the specifications and details of work to be done within the time schedule attached and to have acquainted himself of the conditions prevailing at site.
13	No splitting of the job is envisaged. Decision of BHEL in this regard shall be final and binding to the bidders.
14	Bidders are not allowed to alter the Price Schedule format including item description, quantity etc. and the offer is liable for rejection if the bidders submit their prices in Price Schedules modified by them. BHEL reserves the right to reject the offers of bidders who submit offers in Price Formats which are modified/altered by them.
15	Bidders to note that for Civil &/Structural packages, against a particular item against a ST No. appearing in more than one schedule of the BOQ, same rate must be quoted in all schedules for that particular items with same descriptions. If by error, different rates are quoted in different schedules for same ST No. (i.e. item with same description), then the higher of the rates shall be considered for evaluation but awarding shall be done with the lower rate, if the bidder becomes L-1."
16	In case of Lumpsum contracts, addition or deletion of the scope beyond the variation limit specified shall be derived from the quoted Lumpsum price and the tendered scope of work considering the allowable variation limit.
17	Engineer's decision shall be final and binding on the contractor regarding clarification of items in the schedule with respect to the other sections/volumes of the contract.
18	In case of tender for Civil and/or Structural works, the Non-schedule items are not quoted by the bidder, it will be treated at par with rate of corresponding item of CPWD/PWD/DSR schedule as prescribed in the tender/BOQ cum Rate Schedule.
19	Size and weights of various items are mentioned in the attached BOQ cum rate/price schedule for reference purpose only & these shall not be taken into consideration for quoting/calculating amount in the rate schedule. These shall be utilised as per relevant sections of tender. Bidders shall quote for each item in the rate column, taking unit as mentioned in the quantity column. Rates shall be filled in both figures and words. Amount shall be calculated based upon these rates multiplied by the mentioned quantity for the respective items.
20	Bidder's Grand Total price shall be considered for evaluation unless stated otherwise.
21	In case of BOP packages, if Bidder does not quote/indicate the price for freight charges against indicated rate schedule, the same shall be considered as 2% of basic price and adjusted with the total quoted price against each item keeping the total quoted price unaltered.

**VOLUME-III
PRICE SCHEDULE, REV-02
PACKAGE-B**

JOB: PACKAGE B - CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS ETC. OF BTG AREA FOR UNIT # 2, BOUNDARY WALL IN TWO PHASES AND WATCH TOWERS FOR 3X660 MW NORTH KARANPURA STPP, JHARKHAND.

TENDER NO. PSER:SCT:NKP-C1629:14

SCH-1 - TOTAL PRICE

SL NO	DESCRIPTION	AMOUNT (Rs.)
1.0	TOTAL PRICE OF SERVICE (PART-1) (SCH-2).	
2.0	TOTAL PRICE OF SUPPLY (PART-2) (SCH-3).	
3.0	TOTAL PRICE OF BOUNDARY WALL PHASE I & PHASE-II (PART-3) (SCH-4).	
4.0	GRAND TOTAL PRICE	

NOTE

1.0	Bidder's quoted total price at sl no 4.0 above shall be taken into account for evaluation. However, bidder shall furnish break-up of grand total price for various systems in the respective schedules and shall be complete in all respects as per provision of tender and technical specification.
2.0	Bidder shall furnish item-wise break-up of above grand total price in the respective schedule as per following. Total of prices of various schedules shall match with above total price.
2.1	SCH-2 - SERVICE (PART-1).
2.2	SCH-3 - SUPPLY (PART-2).
2.3	SCH-4 - BOUNDARY WALL PHASE I & PHASE-II (PART-3).
3.0	Bidder shall quote their rates/ prices against all components as per the schedules & terms & conditions of tender.
4.0	Schedule of Equipment has been indicated for reference only. All electrical items/accessories required for completeness of Chimney Electrical System shall be supplied by the contractor.
5.0	BHEL reserve the right to rationalize the rates, quoted by L-1 bidder against non schedule items (As per Sl. No. B (1a, 1b, 1c) of SCH-2 with respect to item-wise lowest rates (amongst the participating bidders) , before placement of order. Item B 1a, 1b, 1c of SCH 2 of Package B shall be applicable for SCH-4 also.
6.0	Bidder to note that Against a particular item against a ST No. appearing in more than one schedule of the BOQ of an individual Package, same rate must be quoted in all schedules for that particular items with same descriptions . Schedules have been classified only for the purpose of identification of the quantum of job involved in different areas of execution. Further, if by error, different rates are quoted in different schedules for same ST No. i.e. item with same description, then the higher of the rates shall be considered for evaluation but awarding shall be done with the lower rate ,if the bidder becomes L-1."

PAGE 2 OF 49

PRICE SCHEDULE
VOLUME-III, REV-02
PACKAGE-B

SCH-1 -GRAND TOTAL PRICE
TENDER NO : PSER:SCT:NKP-C1629:14

SIGNATURE WITH SEAL OF THE BIDDER

**VOLUME-III
PRICE SCHEDULE, REV-02
PACAKGE-B**

JOB: PACKAGE B - CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS ETC. OF BTG AREA FOR UNIT # 2, BOUNDARY WALL IN TWO PHASES AND WATCH TOWERS FOR 3X660 MW NORTH KARANPURA STPP,

TENDER NO. PSER:SCT:NKP-C1629:14

SCH-2-SERVICE PART

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
100 EARTH WORK					
Earth work In excavation, backfilling and disposal including necessary men/women, materials,					
101	Earth work in excavation in all types of soil including ash which can be excavated by any means including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 500 m, spreading/levelling of disposed materials etc all complete for following depths below ground level.				
a	Depth from ground level but not exceeding 2 m	CUM	55,590		
b	Depth exceeding 2 m but not exceeding 4 m	CUM	29,200		
c	Depth exceeding 4 m but not exceeding 6 m	CUM	1,630		
d	Depth exceeding 6 m but not exceeding 8 m	CUM	120		
103	Earth work in excavation in soft rock (weathered/fractured rock including shale, siltstone etc.) which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc but does not require chiselling or blasting including setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 500 m, spreading / levelling of disposed materials etc all complete for following depths below ground level. Each subitem includes lift from specified level to top of ground.				
a	Depth from ground level but not exceeding 2 m	CUM	31,650		
b	Depth exceeding 2 m but not exceeding 4 m	CUM	35,400		
c	Depth exceeding 4 m but not exceeding 6 m	CUM	29,600		
d	Depth exceeding 6 m but not exceeding 8 m	CUM	12,600		
e	Depth exceeding 8 m but not exceeding 10 m	CUM	2,300		
104	Earth work in excavation in hard rock requiring blasting (but excluding controlled blasting) including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (wherever required), dressing the sides & bottom, obtaing necessary licenses/statuatory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 500m, spreading / levelling of disposed materials etc all complete for following depths below ground level. Each subitem includes lift from specified level to top of ground.				
c	Depth exceeding 4 m but not exceeding 6 m	CUM	1,610		
d	Depth exceeding 6 m but not exceeding 8 m	CUM	1,290		
e	Depth exceeding 8 m but not exceeding 10 m	CUM	640		
105	Earth work in excavation in hard rock requiring controlled blasting adjacent to existing structure including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, necessary licenses/statuatory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 500m, spreading / levelling of disposed materials etc all complete for following depths below ground level. Each subitem includes lift from specified level to top of ground.				
c	Depth exceeding 4 m but not exceeding 6 m	CUM	160		
d	Depth exceeding 6 m but not exceeding 8 m	CUM	320		
106	Earth work in excavation in hard rock requiring chiselling including wedging, line drilling, pre shearing etc as required, setting out, levelling, deawtering (wherever required), dressing the sides & bottom, stacking/disposal of surplus excavated material within a lead upto 500m, spreading / levelling of disposed materials etc all complete for following depths below ground level. Each subitem includes lift from specified level to top of ground.				
c	Depth exceeding 4 m but not exceeding 6 m	CUM	160		

PAGE 3 OF 49

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
d	Depth exceeding 6 m but not exceeding 8 m	CUM	320		
107	Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with selected materials from compulsorily excavated soil available within a lead upto 500m and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.				
a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	90,300		
108	Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with selected materials directly from excavation and compacted as specified including watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.				
a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	21,010		
109	Extra over ST No. 101 and 103 to 107 for carriage of excavated earth/selected materials for every 1 km or part thereof beyond an initial lead of 500m.	CUM	80,450		
110	Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with approved borrowed soil (borrowed soil to be arranged by the bidder) and compacted as specified including supplying borrowed soil, royalty (if any), watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.				
a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	54,600		
b	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	380		
110A	Filling of excavated rock alongwith earth upto any depth below ground level and rolling to proper grade and level in layers not exceeding 250 mm thickness including watering, ramming/compaction by manual/mechanical means, dressing etc all complete .	CUM	10,000		
111	Supplying and filling sand upto any depth under floors, around foundations, plinths etc. in layers not exceeding 250 mm thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	CUM	5,120		
200 CONCRETE WORKS					
Providing and placing concrete work including cost of labour, materials and equipment for handling,					
201	Concrete of grade M7.5 (1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume) as filling course Lean concrete at any depth below finished floor level, under and around foundations/floors, mass fill etc.	CUM	2,130		
202	Concrete of grade M10 (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course , mud mat under and around foundations/floors at any depth below finished floor level etc.	CUM	805		
204	Concrete under floors, paving, plinth protection, pipe encasing etc complete with 20 mm nominal size graded aggregate at any depth below finished floor level for the following grades.				
a	M15 Grade	CUM	175		
b	M20 Grade	CUM	135		
205	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size in foundations/substructure, grade slab, paving, drains, under floors etc at any level below finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following.				
a	M20 Grade	CUM	700		
b	M25 Grade	CUM	26,650		
c	M30 Grade	CUM	545		
206	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size in superstructure at any level above finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following.				
a	M25 Grade	CUM	4,725		
b	M30 Grade	CUM	500		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
207	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works of grade M-30 Grade in machine foundations for TG, Gas Turbine, ID/FD/PA fans, BFP, Coal mills at all elevations below/above finished floor level except TG deck and top decks supported over vibration isolation system including addition of suitable plasticizer conforming to IS 9103(latest) to achieve a slump more than 125mm in concrete as per manufacturer's recommendation with 20 mm nominal size graded aggregate in concrete all complete as per specification & drawing.	CUM	7,530		
208	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 of grades mentioned below for reinforced concrete works using graded aggregate in top decks of all machine foundations supported/unsupported on vibration isolation system (excluding supply and installation of vibration system) and top deck of TG foundation at all levels including addition of suitable plasticizers conforming to IS9103 to achieve a slump more than 125 mm in concrete as per manufacturers recommendation, preparation of scheme for concreting, getting it approved by engineer, labour, materials, equipment, handling, batching, transporting, mixing, pumping, placing, leveling, vibrating, compacting, curing, testing, cleaning and rendering the exposed surface with cement sand mortar to give a smooth and even surface, maintaining and submitting records of concreting, petrographic examination and potential reactivity of aggregate etc. all complete as per specification, drawing and instructions of engineer, including UPV testing as directed by engineer in charge (UPV test to be paid separately under item 210), rectification of the defects in concreting observed by ultra-sonic pulse velocity (UPV) testing by cement/epoxy grout etc, but excluding formwork, staging, reinforcement, embedments and temperature control of concrete. Payment terms - a) After casting 75% ; b) After receipt of ultrasonic test report - 25%.				
a	M35 grade (with 20mm nominal size graded stone aggregate)	CUM	1,420		
209	Extra over St. No. 205 to 208 for controlling of temperature of fresh concrete to less than 23 degree centigrade using ice, including all related arrangements for providing, storing and mixing of ice with water, cooling of aggregates etc. All complete as per specification, drawing and instruction of engineer in charge.	CUM	3,880		
210	Extra over ST Nos. 205 to 208 for conducting UPV test for concrete at all levels including all equipments, making necessary arrangements, staging, submission of report etc. all complete as directed by engineer in charge and as per specification.	CUM	2,450		
211	Providing and encasing of structural steel member with concrete using nominal aggregate size of 12.5mm down. Encased member shall be wrapped with welded wire mesh/chicken wire mesh with proper lap etc. complete as per specification for the following grades. (Payment of welded wire mesh, chicken wire mesh shall be made separately)				
a	M25 grade	CUM	50		
b	M30 grade	CUM	500		
212	Screed concrete conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5mm/6 mm nominal size on the roof at any level or thickness, drains etc complete as per following.				
a	1:2:4 (1 part cement, 2 part sand, 4 parts of aggregate by volume)(not less than M-10)	CUM	100		
b	1:1.5:3 (1 part cement, 1.5 part sand, 3 parts of aggregate by volume)(Not less than M-20)	CUM	222		
213	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in precast works like roof slabs/trench covers, fins, lintels, chajas, 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 adjacent preacast units with M30 grade 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) and as per specification and drawing for following grades.				
a	M 25 grade	CUM	500		
b	M 30 grade	CUM	400		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
214	Providing and laying Design Mix cement concrete as per IS:456, IS 3370 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete 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 conforming to limits of permeability as per IS 2545 and specification with 20 mm nominal size graded aggregate for following grades.				
b	M 25 grade	CUM	100		
c	M 30 grade	CUM	100		
215	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.				
a	Plain cement concrete of all grades	CUM	20		
b	Reinforced cement concrete of all grades	CUM	30		
216	Chipping of concrete in reinforced concrete work, cutting pockets, making openings at all levels and according to shapes, disposal of waste materials upto a lead of 2 km as directed by engineer including equipment, safety precautions, making good the broken surface etc all complete as per specification, drawing, instructions of engineer in charge but excluding cutting of reinforcement .	CUM	30		
217	Extra over and above St No 216 for cutting of reinforcement , all sizes and types including labour, equipment, return of cut reinforcement to store etc all complete as per specification, drawings and instructions of engineer in charge. Measurement shall be on the cross sectional area of reinforcement cut.	SQCM	145		
218	Cutting Reinforced concrete with mechanised tools like Core drilling machine etc. for cutting pockets, holes, cores in slab, beam, column or foundation as per direction of engineer in charge.	CUM	15		
219	Providing and applying curing compound of approved make where ever required as per manufacturer's specification.	SQM	450		
300 FORM WORKS					
Providing, fixing and removing formwork at any elevations for all structures, as per specifications and including all labour, material, scaffoldings and centering complete including pockets etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.					
301A	Fairface form work with good quality water proof ply wood with film face of required thickness and smooth surface below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.	SQM	35,300		
302A	Fairface form work with good quality water proof ply wood with film face of required thickness and smooth surface above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches, circular overhead tanks etc. for all heights.	SQM	19,000		
302B	Fairface form work with good quality water proof ply wood with film face of required thickness and smooth surface above finished ground floor level for sloped roof (Approx. slope of 1 in 10, sloping on two directions from middle of roof, however no extra payment shall be admissible on account of variation in this slope) for all heights of watch tower.	SQM	300		
303A	Plywood Formwork with filmface of required thickness and smooth surface for TG superstructure (above base raft level) including preparation of scheme, designing, submission and approval of staging drawing with sufficient props, braces and ties at every tier of height of approx. 4m for all heights.	SQM	6,430		
304	Providing, fixing and removing formwork in block-outs/pockets and openings (below 0.1 sqm plan area) 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 in charge.				
a	Upto 150 mm depth	Each	55		
b	Pockets of depths more than 150mm and upto 300 mm depth	Each	710		
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	70		
d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	300		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
e	Pockets of depths more than 1000mm and upto 1500 mm depth	Each	100		
304A	Providing, fixing and removing formwork having film face in block-outs/pockets and openings (below 0.1 sqm plan area) 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 in charge.				
a	Upto 150 mm depth	Each	1,230		
b	Pockets of depths more than 150mm and upto 300 mm depth	Each	225		
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	300		
d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	300		
e	Pockets of depths more than 1000mm and upto 1500 mm depth	Each	260		
400 REINFORCEMENT					
401	Transporting, straightening, cutting, bending, placing in position at any level, binding of mild steel reinforcements conforming to grade 1 of IS:432 (part 1 or grade IS-2062) in concrete including cost of reinforcement and binding wire, labour, scaffolding, transportation to & from stores etc. all complete as per specifications & drawings.	MT	10		
402	Providing, straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of TMT steel of grade Fe-500 HYSD confirming to IS:1786 including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. (STEEL WILL BE SUPPLIED BY BHEL FREE OF COST)	MT	4,145		0
500 WATER PROOFING WORKS					
Water proofing works including all labour, material, equipment, transportation, handling, curing, sampling, testing etc at any level as per specification, drawings and as directed by engineer - in - charge. (CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)					
501	Providing and laying underbed grading plaster with cement mortar 1:4 (1 cement : 4 sand) and average thickness as specified below including preparation of surface, batching, mixing, leveling etc. all complete.				
a.	Average 15 mm thickness	SQM	10,250		
502	Providing and laying in-situ light weight foam concrete insulation as per relevant IS Code in suitable panels over roofs followed by a layer of 15 mm thick cement sand plaster 1:5 (1 cement: 5 coarse sand) after the curing period of laid foam concrete and providing of expansion joint at intervals as per the recommendation of manufacturer. The insulating properties shall be such that the thermal conductivity shall not exceed 0.125 Kcal/sqm-hr deg C. Cost shall include making of fillets, cleaning & preparation of surface, expansion joints at suitable intervals etc all complete for following.				
a	Average 50 mm thickness	SQM	130		
b	Average 75 mm thickness	SQM	130		
506	Providing and applying PU based water proofing treatment with one coat of polyurethane or any other equivalent material based primer with an application rate of minimum 6 sq.m per litre and two successive liquid coatings of high solids content urethane pre-polymers or equivalent material based finish coats as per relevant IS/ASTM standards to form an elastomeric membrane with overall dry film thickness 1.5 mm subject to minimum 500 gm/sqm/coat application rate. Item includes surface preparation, polyscrim cloth /fabric for edges, joints & vulnerable points etc all complete as per specifications and directions of engineer in charge.	SQM	10,250		
507	Providing and laying wearing course consisting of 25mm thick plain cement concrete of grade M15 (1:2:4) with graded aggregate of 12.5mm size cast in panels of maximum size 1.2mx1.2m and reinforced with 0.56 mm dia. galvanised chicken wire mesh and sealing of expansion joints (in grooves of 6mm X 6mm) using polysulphide sealant (cost of material & application of polysulphide sealant is included in this item) etc all complete.	SQM	2,950		
508 A	Providing and laying Pressed cement concrete flooring tiles of 22mm thickness and size 300X300 mm conforming to IS 13801 with 15 mm thick 1:4 cement mortar over the top most layer of roofing treatment with fine joints including sealing of expansion joints with polysulphide sealant (cost of material & application of polysulphide sealant is included in this item) etc all complete. (Water proofing paid elsewhere)	SQM	13,300		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
509	Providing and applying two coats of bitumen grade 85/25 as per IS 702 (@ 1.7kg/sqm)with 1% antistripping compound conforming to IS 6241 in foundation, wall, column etc on concrete surfaces exposed to soil / ash including surface preparation etc. all complete.	SQM	34,500		
512	Anti termite and Anti weeds chemical treatment of soil with Chloropyrifos emulsifiable or equivalents, concentrates (1%) conforming to IS :8944 all complete.	SQM	390		
600 JOINTS AND FILLERS					
Joint & fillers including all labour, material, equipment, transportation, handling etc at any level as per specification, drawings and as directed by engineer - in - charge.					
601	Supplying & installation of bitumen 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 etc. all complete.				
a	12 mm wide joints.	SQM	591		
b	20 mm wide joints.	SQM	375		
c	25 mm wide joints	SQM	50		
d	50 mm wide joints	SQM	30		
602	Providing and applying polysulphide based sealant conforming to IS:12118 in expansion joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete for following size grooves:				
a	12mm X 25mm	RM	2,000		
c	25mmX25mm	RM	250		
d	50mmX25mm	RM	100		
603	Supplying and filling in position hot applied bitumen sealing compound (Grade A) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.				
a	10mm X 40mm	RM	20		
b	12mm X 25mm	RM	245		
c	20mmX25mm	RM	320		
604	Supplying and filling in position hot applied bitumin sealing compound (Grade B) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.				
a	10mm X 40mm	RM	16		
b	12mm X 25mm	RM	16		
c	20mmX25mm	RM	16		
605	Providing and sealing of joints with premium grade silicon sealant (Silpruf of GE silicon or approved equivalent) including cleaning of joints, raking out groove, joint filler tapes, application of primer, curing, scaffolding etc. all complete as per manufacturer's recommendation for following size groove:				
a	25mmX25mm	RM	2,900		
b	50mmX25mm	RM	995		
606	Providing and fixing PVC water stops in joints conforming to IS 12200 & IS 15058 all complete for the following:				
a	150 mm wide and 8 mm thick	RM	30		
b	230 mm wide and 8 mm thick	RM	50		
c	150 mm wide and 6 mm thick	RM	30		
d	230 mm wide and 6 mm thick	RM	30		
607	Providing and fixing copper water stops in joints of deep underground structure all complete for the following:				
a	150 mm wide and 8 mm thick	RM	30		
b	230 mm wide and 8 mm thick	RM	30		
607A	Providing and Sealing of joints/lecase direct in touch with soil or structure with Chemical injection grouting using water soluble monomer based chemical (confirming to IS: 2645) and cement slury by pressure pump with arrangement as per IS: 6494 and drawings all complete.	RM	400		

PAGE 8 OF 49

VOLUME-III

PRICE SCHEDULE, REV-02

PACKAGE-B

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
608	Supply and instalation of Polystyrene flexible board confirming to IS 4671 (density between 25Kg/Cum to 30 Kg/Cum) as joint filler at joint of comcrete including nailing, coating of both faces with coal tar pitch /butimen etc. all complete.				
a)	100mm thick	SQM	2,230		
700 MS EMBEDMENTS					
Embedments including all labour, material, equipment, transportation, handling etc. at any level as per specification, drawings and as directed by engineer - in - charge.					
701	Transporting, fabricating and fixing of mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. including welding, bolting, cutting, drilling, scaffolding, setting etc. all complete.	MT	45		
702	Same as above with BHEL supplied material free of cost including loading, transportation, unloading etc. all complete from BHEL store to plant site.	MT	15		
703	Fixing of embedments, inserts, pipe sleeves, angle pieces, anchor bolts of various diameters, plates of dimensions as required etc. including scaffolding, setting in position, transportation from BHEL site stores to work spot etc. all complete.	MT	45		
704	Fabrication, transportation, delivery at site and erection, installation and alignment of mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc. including welding, cutting, grinding, threading, drilling etc. all complete.	MT	20		
705	Transporting, fabricating, erecting and installing following items in concrete/brickwall for all kind of works, including setting material in concrete, layout, scaffoling, cutting, forming, grinding, drilling, bolting, welding, jointing, testing etc. all complete.				
a	MS pipes of all diameters	Quintal	6		
b	PVC pipes / conduits of all diameters	Quintal	5		
c	UPVC pipes / conduits of all diameters	Quintal	6		
d	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for brick work with expansion sleeve of A6 polyamide:				
i	Upto 250 kg	Each	5		
ii	Beyond 250 Kg and upto 500 kg	Each	6		
iii	Beyond 500 Kg and upto 750 kg	Each	6		
e	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with expansion sleeve of stainless steel:				
i	Upto 250 kg	Each	65		
ii	Beyond 250 Kg and upto 500 kg	Each	65		
iii	Beyond 500 Kg and upto 750 kg	Each	65		
800 GROUTING					
Grouting including all labour, material, equipment, roughening surface, cleaning, ramming, curing etc. at any level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge.					
801	Providing & grouting with cement slurry mix of approved ratio using pressure pump for water retaining concrete structures as per approved procedure including cost of nipples/ nozzles, cement, admixture, curing, pressure pumps, slurry agitator etc. all complete. Cost shall include fixing of nipples at minimum 500 mm centre to centre spacing, cutting of nipples after completing of grouting, making good of the nipple hole with appropriate non-shrink cement paste, water tightness test etc. all complete wherever specified in the drawing. (CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)	CUM	16		
802	Providing & grouting of pocket holes, pipe sleeves under base plates, machinery, pipe supporting structures etc. with mix 1:1 (1 cement :1 sand) using non shrink admixture etc. all Complete. (CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)	CUM	132		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
803	Providing & grouting of pocket holes, pipe sleeves and under base plate of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with mix 1:1:2 (1 cement : 1 coarse sand : 2 aggregate of 6 mm down graded stonechips) using non shrink admixture. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor). (CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)	CUM	115		
804	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with ConbextraGP-1 or equivalent . (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).(NOTE:Minimum characteristic strength of grouting shall be as per detail drawing all complete)	CUM	25		
805	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing, etc. all complete with Conbextra GP-2 or equivalent . (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor)(NOTE:Minimum characteristic strength of grouting shall be as per detail drawing all complete).	CUM	120		
900 DOORS, WINDOWS, VENTILATORS, LOUVERS					
Doors, windows, ventilators, louvers, roof ventilators, rolling shutters, partitions including all labour, material, equipments, transportation, handling, preparation of working drawings etc. at any level as per specification, drawings and as directed by engineer - in - charge.					
901	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 including sand paper smoothing, hold fasts, beading, primer and finish painting / polishing etc. all complete with proper wood joinery, accurately set to required lines or levels and rigidly secured in place. (Finish painting / polishing paid separately)	CUM	16		
902	Providing and fixing teakwood frame panel door shutter as per IS 1003 with 35 mm x 150 mm vertical rail & 35mm x 125 mm horizontal rail and 12 mm thick interlocked panels of teakwood with proper wood joinery including beading, preparation of working drawings, godrej or equivalent make mortice lock with handles on both sides, approved ISI mark anodised fittings like door stopper, 300mm long tower bolts, 16x300mm long aldrops ,125mm long handles on both sides etc. butt hinges, sliding bolt ,knobs, (all fitting shall be anodised aluminium color dyed), screws, primer and finish painting / polishing etc. all complete. (Finish painting / polishing paid separately)	SQM	8		
903	Transporting, fitting and fixing solid core flush door shutter as per IS 2202 part II, 35mm thick homogenous particle board bonded with BWP type phenolformaldehyde synthetic resin, particle board core conforming to IS 3087 type I, 35x12 mm thick teakwood beading all around including preparation of working drawings. godrej or equivalent make mortice lock with handles on both sides, approved ISI mark anodised fittings like door stopper, 300mm long tower bolts, 16x300mm long aldrops ,125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fittings shall be anodised aluminium color dyed), finish flat oil paint conforming to IS: 137 over primer, screws etc. all complete as per drawing, specification and instruction of engineer in charge. with commercial faces and teak wood edges. (Finish painting paid separately)	SQM	40		
904	Transporting and fixing single or double steel door shutters with 35 mm thk flush design shutter 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 centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	SQM	97		
905	Providing and fixing single or double steel door shutters with 18 gauge M.S. sheets shutter presenting a flush surface on the outside and inside stiffened with semitubular edge and central stiffening rail which shall convey the lock including fixtures, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	SQM	35		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
906	Transporting and fixing anodized extruded aluminium doors (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 3mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 (minimum anodized coating of grade AC15). fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be clear float glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately)	SQM	16		
906A.i	Transporting and fixing anodized extruded aluminium doors (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 2 mm wall thickness as per IS:1285, IS:733 and anodized(15 micron coating thickness) and electro color dyed of required shade as per IS 1868 (minimum anodized coating of grade AC15). fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be clear toughened glass of 10 mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately)	SQM	515		
906A.ii	Transporting and fixing anodized extruded aluminium doors (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 2 mm wall thickness as per IS:1285, IS:733 and anodized(15 micron coating thickness) and electro color dyed of required shade as per IS 1868 (minimum anodized coating of grade AC15). fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc., glazing/MDF board including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing/MDF board shall be paid separately and not included in this item)	SQM	30		
907	Transporting and fixing fire proof steel doors (single or double shutter) with panic devices having 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.	SQM	135		
908	Providing and fixing steel windows/ventilator with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision.including all fittings, metal beadings, hold fasts, shop and final painting ,glazing etc. all complete. (Glazing shall be paid separately)				
a	openable type	SQM	123		
b	fixed type	SQM	58		
909	Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing etc with extruded standard tubular and other sections including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, anodised and electro color dyed to required shade according to IS 1868 (minimum anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-mettalic protection etc.including preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid seperately).Weight of aluminium section only shall be measured.	Kg	7,730		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
910	Providing and fixing of aluminium composite panel(ACP) of following thickness for external wall cladding at all heights and elevations consisting of 3mm thick thermoplastic core of anti oxidant LDPE sandwiched between 2 skins of 0.5mm thick aluminum alloy sheet making a total panel thickness of 4mm. The surface shall be finished with PVDF based coating of minimum 30 micron on the top & sides and polymer paint on reverse side. Coating shall conform to ECCA or AAMA.the surface shall be protected with self adhesive peel of masking foil. The system shall be designed to withstand a wind pressure of 200kg/Sqm and shall be fixed to the Masonry/RC walls with necessary clamps, brackets and anchor fasteners. All clamps and brackets shall be Hot dip galvanized minimum 80 microns thick and shall conform to IS: 4759-1996. The extruded aluminum section shall be anodized in approved colour with a anodic coating of minimum 20 microns. Extruded section shall be 6063 T5 or T6 alloy conforming to ASTM B221. Any other festering straps, nuts, bolts, rivets, washers, etc. shall be in stainless steel SS304 grade. EPDM gaskets, open cell polyethylene backer rods, weather sealant etc. shall be provided as per requirement. Item shall include aluminium base frame with all fixing arrangements to wall/RC members, fastening material and hardware(festering straps, nuts, bolts, rivets, washers etc.), EPDM gaskets, open cell polyethylene backer rods, weather sealant, scaffolding, approach to all height, material handling, transportation, labour, T&P, preparation of working drawings etc. all complete as per drawing, specification & instructions of engineer in charge. Measurement of payment shall be outer finished area of ACP panel.				
a	4mm	SQM	840		
910A	Providing and fixing of aluminium composite panel(ACP) of following thickness for internal encasement at all heights and elevations consisting of 3mm thick II B fire rated LDPE core mixed with mineral fibre sandwiched between 2 skins of 0.5mm thick aluminum alloy sheet making a total panel thickness of 4mm. The surface shall be finished with PVDF based coating of minimum 30 micron on the top & sides and polymer paint on reverse side. Coating shall conform to ECCA or AAMA.the surface shall be protected with self adhesive peel of masking foil. The system shall be designed to withstand a wind pressure of 200kg/Sqm and shall be fixed to the Masonry/RC walls with necessary clamps, brackets and anchor fasteners. All clamps and brackets shall be Hot dip galvanized minimum 80 microns thick and shall conform to IS: 4759-1996. The extruded aluminum section shall be anodized in approved colour with a anodic coating of minimum 20 microns. Extruded section shall be 6063 T5 or T6 alloy conforming to ASTM B221. Any other festering straps, nuts, bolts, rivets, washers, etc. shall be in stainless steel SS304 grade. EPDM gaskets, open cell polyethylene backer rods, weather sealant etc. shall be provided as per requirement. Item shall include aluminium base frame with all fixing arrangements to wall/RC members, fastening material and hardware(festering straps, nuts, bolts, rivets, washers etc.), EPDM gaskets, open cell polyethylene backer rods, weather sealant, scaffolding, approach to all height, material handling, transportation, labour, T&P, preparation of working drawings etc. all complete as per drawing, specification & instructions of engineer in charge. Measurement of payment shall be outer finished area of ACP panel.				
a	4 mm	SQM	250		
911	Providing and fixing of door closers as per IS 3564 ,of approved make & quality all complete of following type :				
a	Over head hydraulic door closures	Each	130		
b	Floor mounted Hydraulic door closers	Each	130		
912	Providing and fixing pressed steel frames fabricated from 16 gauge M.S sheet mortised, reinforced drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars ,paintings etc all complete as per specifications.	Kg	3,365		
913	Transporting and fixing in position rolling shutter of hot rolled double dipped galvanised steel lath section of 18 SWG tested mild steel strips at 75mm rolling centres 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 and outside locking with push and pull operation including wire springs, top cover, primer & shop coats of approved enamel paint etc, all complete as per IS 6248 and specification of approved make of following types: The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.(partly coiled and lath/full lath).				

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
a	Hand Operated	SQM	10		
b	Mechanically Operated	SQM	20		
c	Electrically operated	SQM	75		
914	Providing and fixing PVC doors(25 thk double skin) of sintex or equivalent make including all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	SQM	10		
915	Transporting, Fixing and fitting of glazing of first grade class in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete as per Specification for the followings				
a	4 mm thick clear sheet glass	SQM	65		
b	4 mm thick clear float glass	SQM	160		
ba	5 mm thick tinted float glass	SQM	80		
c	5.5 mm thick clear float glass	SQM	30		
d	6 mm thick wired glass	SQM	30		
e	6mm thick Polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges.	SQM	195		
ea	2mm thick Polycarbonate sheet with profile matching with metal sheeting of building.The Polycarbonate sheets shall be fire and u/v resistant, and suitable for continuous use up to a temperature of 1000C including cost of Suitable aluminium beading . Open ends of the sheet shall be sealed as per manufacturer's recommendations.	SQM	130		
g	6 mm thick tinted heat reflecting type float glass	SQM	65		
h	6 mm thick clear toughened safety glass	SQM	845		
i	10 mm thick clear toughened glass	SQM	210		
ia	8 mm thick clear toughened glass	SQM	160		
j	Two nos. 6 mm thick clear toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	80		
k	Two nos. 6 mm thick tinted toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	95		
l	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).	SQM	95		
l (a)	composite double glazing, 24 mm thick, with one outer 6mm thick tinted heat-reflecting type toughened glass and one inner 6mm thick clear toughened glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).Outer glass of 6mm thickness shall have following technical characteristics: Solar factor 25% or less, U-value less than 2.268 W/ SQMK,VLT min 30%: The glass to be used should be from the manufacturers of glass like Glavebel (Belgium), Saint Gobain (France) or Fort (USA) Or equivalent. The glass should be free from distortion and thermal stress.	SQM	560		
l(b)	composite double glazing, 24 mm thick, with one outer 6mm thick tinted fire resistant type toughened glass and one inner 6mm thick plane fire resistant glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).The glass to be used should be from the manufacturers of glass like Glavebel (Belgium), Saint Gobain (France) or Fort (USA) Or equivalent. The glass should be free from distortion and thermal stress.	SQM	350		
m	6 mm thick laminated glass	SQM	30		
n	4 mm thick heat reflecting type float glass	SQM	30		
o	6 mm thick Ground glass	SQM	30		
p	Two nos. 6 mm thick low-e glass harmetically selaed and saporated by 12mm thick air gap insulation.only single elevation area to be measured	SQM	30		
q	6mm thk. reflective toughened glass, with Solar factor 45% or less, U-value less than 5.7 W/m2.K, VLT min 40%. Glass shall be of Saint Gobain (India) or ASAHl (India) or equivalent make and shall be free from distortion and thermal stress	SQM	420		
r	Fixing Glass block masonry work with approved glass blocks of size 190 x 190 x 90 (min), jointed with suitable adhesive complete as per drawing, specification and instructions of engineer in charge.	SQM	65		
s	18 mm thick mdf board of exterior grade confirming to IS 12406:2003	SQM	50		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
916	Supplying and fixing weather stripping of approved make and quality to doors as per instructions of engineer in charge and specification complete.	RM	810		
917	Providing and fixing 12 mm thick BWP particle board , decorative veneer (prelaminated) on both sides, as panels in aluminium framed door shutter, fixed with necessary snap-on-beading etc. all complete (excluding aluminium works).	SQM	95		
918	Providing and fixing steel louvered window with ISMC 100 frame all round including verticals with 18G pressed steel louvers, painting etc. all complete.	SQM	80		
919	Providing and fixing 1 mm thk. MS sheet sliding shutters with frame and diagonal braces of 50X50X6 angle iron, 3 mm MS gusset plates at junction and corners, 25 mm dia pulley, 50X50X6 angle and T-iron guide at the top and bottom respectively including painting etc. all complete.	SQM	30		
920	Providing & erecting Polycarbonate sheet dome/pyramidal shape skylight in atrium with 6mm thick multi (twin) wall fire retardant and ultra violet resistant polycarbonate sheet. Joints shall be properly sealed with sealant, screws with pvc cap, self tapping screws, EPDM rubber gasket.etc all complete as per detailed drawing and specification. Necessary anodised aluminium framing arrangement shall be provided for fixing of skylight and payment of Aluminium framing shall be made separately under item 909.	SQM	160		
920a	Providing and erecting Roof skylight structure with 4mm thick embossed clear translucent polycarbonate IR sheet, both side UV resistant coated, minimum 55% light transmission, solar control, approved make, texture and shade, fixed to powder coated Aluminium section with 60mm width top & bottom with EPDM rubber gasket in approved shape like dome, pyramidal etc, sealing of joints with sealant, screws with pvc cap, self tapping screws, EPDM rubber gasket.etc as per drawing, standards, specification, instruction of engineer in charge etc all complete. Payment shall be made for projected surface area of skylight and cost of powder coated aluminium is deemed to be part of the composite item.	SQM	110		
921	Providing & fixing Fully Glazed non load bearing fixed partition with valid fire test certificate from national or international lab for 120 minutes Fire Rating. Partition Frame shall be manufactured from minimum 2.0mm galvanized steel sheet pressed to form a profile of nominal size 60mm x 70 mm & fixed to the supporting construction by means of M 10 X 120 or bigger steel bolts at 300mm from the edges & every 500mm c/c. The frame shall be finished with etch primer for scratch resistance and shall be powder coated of approved shade and color. The glass panels shall be minimum 11mm thick, 120 minute fire rated, with 15 minute full insulation non wired toughened glass having a sound reduction of greater than 37dB, light transmission of 87% and compliant to class 1B1 category of impact resistance as per EN 12600. The glass shall be held in position with minimum 1.6mm G.I Beading, clamped or bolted to the frame profile by 4mm x 35mm steel screws at every 250 mm c/c and a ceramic tape of cross section of 5mm x 20mm on both sides of the glass. The item shall include in-tumescent putty and fire resistant acrylic sealants and the total assembly shall satisfy the fire resistance criteria of stability, integrity & partial insulation. Shop drawings for the item with all construction and anchoring details along with fire rating test reports shall be got approved from Engineer-in-Charge before execution.	SQM	165		
922	Transporting and fixing electrically operated, self operable/closing, approved anodized aluminium framed glass door with 10 mm thk. tinted glass, all complete. Automatic Sliding operating system comprising of Advanced DC brushless motor, Automatic Reversing Safety Device, Suitable for door weight 100 kg, Opening speed : 90-110cm /sec (adjustable), Closing Speed : 40-110cm/sec (adjustable), opening time : within 1-9 seconds after door stopped in opening, controller : 8 Bit micro computer, Motor (Dortexor equivalent) : DC12V, 35W brushless motor, Power Voltage : AC 110V - 240V. 50Hz - 60Hz, Power Consumption : 45W including Infra Red Sensors 2No both sides, rails & top & bottom as required, any other accessories as required etc. all complete of best make and quality as approved by Engineer in charge. The door shall be double panel sliding door of approx. area 5 sq.m. to 7.5 sq.m. each	Nos.	2		
1000 BRICKWORK					
Brickwork masonry including all labour, material, equipment, transportation, handling, scaffolding etc. at all levels as per specification, drawings and as directed by engineer - in - charge. (CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)					

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
1001	Providing brick work in cement mortar 1:6 (1 part cement 6 parts coarse sand) in walls, chambers etc. in thickness varying from 230mm to 460mm at all depths, places and positions below plinth including raking out joints, curing, scaffolding etc. complete excluding plastering and painting.				
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 50 kg/cm2	CUM	55		
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	40		
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	CUM	20		
1002	Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 230mm at all heights, places and position above plinth including raking out joints, curing, scaffolding etc complete excluding plastering and painting.				
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 50 kg/cm2	CUM	1,326		
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	10		
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	CUM	1,326		
1003	Providing brick work in cement mortar 1:4 (1 cement 4 coarse sand) in partition walls chambers etc. in thickness 115mm at all heights, places and position above or below plinth/graded level including providing two nos. 6 mm diameter MS bars at every third layer, raking out joints, curing, scaffolding etc complete excluding plastering and painting as per specification.				
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 50 kg/cm2	SQM	730		
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	SQM	730		
1004	Providing brick soling including spreading of earth, ramming, watering including 25mm thick cushion of sand complete but excluding excavation and disposal of surplus earth (excavation and disposal of surplus earth shall be measured under applicable item). Using brick on edge.				
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2	SQM	100		
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	SQM	65		
1005	Providing brick soling including spreading of earth, ramming, watering including 25mm thick cushion of sand complete but excluding excavation and disposal of surplus earth (excavation and disposal of surplus earth shall be measured under applicable item.)- Using flat bricks.				
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2	SQM	80		
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	SQM	80		
1006	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.	CUM	50		
1009	Making openings in existing brick wall or partition wall including making good the broken edges/surface with cement mortar etc. complete.	CUM	35		
1010	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.	SQM	35		
1011	Filling existing brick wall/ partition wall opening at all level including making good the broken edges/surface with cement mortar, painting, finishing to match with existing finishing, scaffolding/supporting at any level, removal of debris upto a lead of 1 km including loading, unloading, transportation etc. all complete.	SQM	25		
1012	Providing and filling brick bats in soak pits all complete.	CUM	16		
1000A	Providing Autoclave Areated concrete blocks in cement mortar 1:4 (1 part cement 6 parts coarse sand) confirming to (IS: 2185 Pt-3) in walls, chambers etc. in thickness 200mm at all depths, places and positions below/above plinth including raking out joints, curing, scaffolding etc. complete excluding plastering and painting all complete as per specification and drawing..	CUM	1,100		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
1000B	Providing factory made composite modular light weight aerated concrete panels of minimum fire rating, thickness as per specification, consisting of two fiber reinforced cement sheets(min. 4 mm thick) on either side of light weight concrete core, having min. compressive strength of 35 Kg/Cm ² and density in the range of 700-900 Kg/Cu.M. to provide external wall and internal partition at all levels. The panels shall be fixed in position through tongue and groove jointing system by screwing the panels to top & bottom U channels(channels min. 1.25 mm thick and galvanized to min. grade 180 as per IS:277), fixing U profiled top & bottom channels to concrete/primary steel members which are placed at max vertical spacing of 4.5 M with the help of galvanized steel expansion fasteners, filling the joints from both faces with silicon acrylic paste and making the same water tight by covering with fiber glass tape(min. 50 mm wide & min. 0.5 mm thick) or by any other suitable material, so as to ensure that entire construction done is weather proof and panel surfaces are fush for painting, creating opening for doors/windows/ventilators/ducts/pipes/fans/AC etc. and finishing the opening with same U profiled galvanized steel channel which is used at top & bottom. The wall must be capable of sustaining wind pressure of 4.5 M height within limiting deflection of span/250.	SQM	390		
1000C	Providing Hollow concrete blocks in cement mortar 1:4 (1 part cement 6 parts coarse sand) conforming to (IS: 2185 Pt-1)in walls, chambers etc. in thickness 200mm at all depths, places and positions below/above plinth including raking out joints, curing, scaffolding etc. complete <u>excluding plastering and painting.</u>	CUM	25		
1100 DAMP PROOF COURSE					
Damp proof course including all labour, material, equipment, transportation, handling, shuttering, centering, curing etc at any level as per specification, drawings and as directed by engineer - in - charge.					
1101	Providing Damp Proof Course 50mm thick 1:1.5:3 concrete (10mm and down graded aggregate) with 2% of approved admixture of water proofing compound all complete. Two layers of hot bitumen coating 85/25 grade as per IS:702 @ 1.7Kg./sqm shall be applied one before & one after the DPC. (CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)	SQM	230		
1200 CEMENT MORTAR PLASTER					
Cement mortar plaster including making grooves wherever required including all labour, material, scaffolding, curing etc at any level as per specification, drawings and as directed by engineer - in - charge. (CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL)					
1201	Providing 18mm thick plaster in two layers outside the building/boundary wall in cement mortar 1:6 on walls, finished to a smooth finish including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete.	SQM	7,190		
1202	Providing 12mm thick plaster inside the building/boundary wall in cement mortar 1:6 on walls finished to a smooth finish as per specification all complete.	SQM	18,000		
1203	Providing 12mm thick plaster in cement mortar 1:6 on walls with rough finish all complete.	SQM	1,230		
1204	Providing 6mm thick plaster on ceiling in cement mortar 1:4 finished to a smooth all complete.	SQM	3,500		
1207	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 in charge.	RM	4,000		
1208	Providing drip coarse of min. width 25 mm 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 in charge.	RM	440		
1209	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 chicken wire mesh 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 in charge (chicken wire mesh to be paid separately)	SQM	65		
1210	Ruled pointing in masonry in CM 1:3 (1 cement and 3 fine sand) including raking out joints, curing etc. complete.	SQM	65		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
1300 FINISHES TO CONCRETE / PLASTERED SURFACES					
Finishes, painting to concrete, plastered surfaces including all labour, material, equipment, surface preparation, scaffolding etc. at any level as per specification, drawings and as directed by engineer - in - charge.					
1301	Two or more coats of white wash/ colour wash as per IS 627 of approved brand and manufacture to give an even shade including a priming coat as per specifications.	SQM	250		
1302	Two or more coats of Exterior masonry paint (water or solvent base) of special resins, adhesives and additives mixed with fine, hard stone aggregate and suitable pigment. The paint shall be applied on a coat of primer over dried, prepared plaster surface as manufacturers guidelines. The final finished coating shall be fungus resistant, UV resistant, water repellent, alkali resistant and extremely durable with color fastness as per specification.	SQM	150		
1302A	Two or more coats of Solvent based (100% pure Acrylic Co- polymer resin based) for exterior use without any water sensitive ingredient. Paint shall be applied on a coat of primer over dried prepared plaster surface as per manufacturer guidelines. The final finished coating shall be fungus resistant, UV resistant, water resistant, Alkali resistant, and extremely durable with colour and shed as per specification	SQM	50		
1303	Providing and applying two or more coats of oil bound distemper 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.	SQM	2,525		
1304	Two or more coats of acrylic distemper of approved brand and manufacture to give an even shade including a priming coat with distemper primer complete as per IS 428.	SQM	14,350		
1305	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 as per manufacturers guideline.	SQM	1,540		
1305A	Providing and applying two or more coats of low VOC (volatile organic compound) 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 as per manufacturers guideline.	SQM	5,150		
1306	Providing and applying 2 or more coats of acid/alkali chemical 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 and as approved by engineer, at all heights above or below grade level, complete as per specifications.	SQM	2,910		
1306A	Providing and applying of two or more coats of Oil resistant paint of approved brand and Manufacturer to give an even shade on surface all complete as per specification	SQM	825		
1307	Two or more coats of fire resistant transparent paint as per IS 162 on all woodwork over french polish as per IS 348 or flat oil paint as per IS 137 of approved grade and manufacture to give an even shade as per specifications.	SQM	165		
1308	Two or more coats of black anti-corrosive bitumastic painting of approved brand and manufacture to give an even shade complete.	SQM	80		
1309	Two or more coats of synthetic enamel paint of approved make made from synthetic resins and drying oil with rutile titanium dioxide and other selected pigments to give smooth, hard, durable & glossy finish to all interior and exterior surfaces complete.	SQM	130		
1310	Providing and applying 3 coats of water proof cement paint of approved make and color on exterior surface at all heights including material, labour, scaffolding, curing etc including primer coat complete as per specification.	SQM	680		
1311	Providing and applying resin bonded granular textured finish (Two or more coats), for external applications consisting of crushed stone/quartz chips of .5 mm to 2.5 mm size and of approved natural color/shade and bonded with synthetic resins, adhesives and additives altogether in a single pack mix, applied on cured and dried plaster surface with a dry film thickness of minimum 2 mm. 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.	SQM	430		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
1311A	Providing and applying resin bonded granular textured/Flake finish, for external applications , consisting of crushed stone/quartz chips of 2.5 mm size and of approved natural color/shade and bonded with synthetic resins, adhesives and additives altogether in a single pack mix, 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.	SQM	3,720		
1311B	Providing and applying Resin Bonded Granuler/flake textured finish for internal applications consisting of of crushed sand/quartz chips of 1.2mm size and of approved colour/sheds and bonded with synthetic resins, adhesives and additives altogether in a single pack mix, applied on cured and dried plaster surface . The final finish shall have UV resistance, fungus, bacterial resistance properties all complete with grooves filled with polysulfide sealant of matching color and shade as per specification/drawing/approval of engineer in charge.	SQM	1,390		
1311C	Providing and applying washed stone Cement plaster in two layers,under layer 12mm cement plaster 1:4 (1 Cement,4 Sand) following the under layer with scratching tool, applying grey cement slurry on the under layer @ 2kg/m2, top layer 75mm with cement plaster 1: 1/2:2 (1 cement, 1/2 sand, 2 marble chips 10 mm normal size) in panel with groov all around as per approved pattern including scrabbing ,forming grooves of uniform size 12mmx12mm up to 20mmx15mm in plastered surface as per approved pattern using wooden batton etc, complete as per specification including approving of finish floor to start of work.The finish shall be fungus resistant,UV resistant,Water repellent,alkali resistant, and extremely durable (CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)	SQM	50		
1311D	Providing and fixing, Stone work for wall lining (Veneer work) with Black polished granite stone slabe 18mm thk/ polished sadarthally grey granite slab 18mm thk over 20mm thk bed of cement mortar 1:3 (1 cement, 3 sand) and jointed with gray cement slurry @ 3.3kg/m2 including rubbing, polishing etc, all complete as per specification.	SQM	15		
1311E	Providing and applying low VOC (volatile organic compound) resin bonded granular textured finish, for external applications shall consist of crushed stone/quartz chips of .5 mm to 2.5 mm size and of approved natural color/shade and bonded with synthetic resins, adhesives and additives altogether in a single pack mix, applied on cured and dried plaster surface with a dry film thickness of minimum 2 mm. 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.	SQM	700		
1312	Providing and applying 2 mm thick plaster of paris punning on walls with Oil resistant property including preparation of surface, staging, etc. to achieve a smooth even surface all complete as per specification and as directed by Engineer.	SQM	30		
1313	Providing and applying ready made Epoxy Paint over areas other than steel structure with suitable pigments of approved shade as per specification and direction of Engineer. The epoxy paint shall be a two pack material and shall be resistant to water, splash, spillage & acidic environment. The epoxy paint coating shall be of 150micron thickness over epoxy primer.	SQM	50		
1314	Providing and applying Synthetic plaster for external applications 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 Paint 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.	SQM	20		
1315	Providing and applying two or more coats of Acrylic based weather coat paint of approved brand and manufacture and required shade over one coat of primer after necessary cleaning/ washing, preparing the surface using coir brush/ wire brush, sand paper, including filling of cracks with putty wherever required etc. all complete to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guidelines. The final finished coating shall be fungus resistant, UV resistant, water repellent and extremely durable with color fastness as per specification.	SQM	20		
1315A	Two or more coats of taxtured cement paint of approved quality confirming to IS: 5410 as (Sandtax Matt or equivalent) of approved colour and shade to give an even shade on surface with all in complete.	SQM	20		
1400 FLOORING AND SKIRTING					

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
	Flooring and skirting at any level including base layer, labour, material, equipments, transportation, handling, curing, polishing etc. at any level as per specification, drawings and as directed by engineer - in - charge. (CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)				
1401	Providing and laying 50 mm thick heavy duty cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 38mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips):	SQM	19,550		
1402	Providing and laying 25 mm thick heavy duty cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates) flooring with metallic hardener pigmented topping of 10 mm thick uniform graded treated iron particles in skirting and dado complete as per specification.	SQM	90		
1403	Providing and laying precast polished heavy duty cement concrete tiles (Carborundum topping) of size 300X300X25 thick of approved shade as per IS 1237, including cement mortar bedding of 1:3 (1 cement : 3 sand) jointed with neat cement slurry etc. all complete with pigment to match the shade of the tiles including rubbing, curing, grindig and polishing complete with laying as per IS 1443 etc. all complete for following:				
a	Laid in floors	SQM	2,000		
b	Laid in skirting	SQM	65		
1404	Providing and laying interlocking M35 Grade concrete blocks in paving with approved colour and pattern and should be laid on the subbase and bedding as per specifications and recommendations of manufacturer.				
a	60mm	SQM	50		
b	75mm	SQM	15		
1406	Providing and laying polished Kota stone 18mm to 20mm thk in flooring . Under bed shall average 30mm thk of 1 cement : 2 sand : 4 stone aggregates by volume and brought to proper level. The kota stone slabs/tiles 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, granite polishing etc. all complete.	SQM	65		
1408	Providing polished Kota stone 18mm to 20mm thk in skirting projecting 6mm from adjacent plaster including cutting brickwall upto the required depth, edging, finishing etc. all complete.	SQM	15		
1410	Marble stone Flooring laid in 50mm overall thickness with 18-20mm thick marble slabs (grade -1) with minium 30mm thick underbed of 1 cement : 2 sand : 4 stone aggregate by volume and brought to proper level.The marbel slabs/tiles laid over underbed with mortar 1:3, 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, granite polishing etc. all complete.	SQM	1,165		
1411	Marble stone Flooring laid in 50mm overall thickness with 14 -16mm thick marble slabs (grade -1) with minium 35mm thick underbed of 1 cement : 2 sand : 4 stone aggregate by volume and brought to proper level.The marbel slabs/tiles laid over underbed with mortar 1:3, 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, granite polishing etc. all complete.	SQM	35		
1412	Providing and laying 18-20mm thick polished Granite stone of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 30mm thk of 1 cement : 2 sand : 4 stone aggregate by volume and brought to proper level. The granite stone slabs/tiles 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, granite polishing etc. all complete.	SQM	615		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
1412A	Providing and laying 18-20mm thick shot blasted Granite stone in flooring of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 30mm thk of 1 cement : 2 sand : 4 stone aggregate by volume and brought to proper level. The granite stone slabs/tiles 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, granite polishing etc. all complete.	SQM	2,000		
1414	Providing and laying polished Granite stone 18-20mm thk in skirting and dado with 6mm thick projection from adjacent plaster including mortar ,cement slurry ,pigments, curing, grinding,moulding, granite polishing etc. all complete.	SQM	120		
1414A	Providing and laying shot blasted Granite stone 18-20mm thk in skirting and dado with 6mm thick projection from adjacent plaster including mortar ,cement slurry ,pigments, curing, grinding,moulding, granite polishing etc. all complete.	SQM	120		
1416	Providing and laying vitriified ceramic tiles of polished variety of size 600x600 from reputed / approved manufacturer, complete including underbed of cement mortar 1:3 with neat cement slurry etc. all complete for following				
b	10mm thick tiles In flooring	SQM	730		
c	7mm thick tiles In skirting and dado upto specific height	SQM	50		
d	10mm thick tiles In skirting and dado upto specific height	SQM	200		
1417	Providing and laying vitriified ceramic tiles of matt finish of size 600x600mm from reputed / approved manufacturer including underbed of cement mortar 1:3 with neat cement slurry etc. all complete for following.				
b	10mm thick tiles In flooring	SQM	515		
c	7mm thick tiles In skirting and dado upto specific height	SQM	50		
1416A	Providing and laying vitriified ceramic tiles of polished variety of size 800x800 from reputed / approved manufacturer, complete including underbed of cement mortar 1:3 with neat cement slurry etc. all complete for following				
b	10mm thick tiles In flooring	SQM	230		
c	7mm thick tiles In skirting and dado upto specific height	SQM	25		
1417A	Providing and laying vitriified ceramic tiles of matt finish of size 800x800mm from reputed / approved manufacturer including underbed of cement mortar 1:3 with neat cement slurry etc. all complete for following.				
b	10mm thick tiles In flooring	SQM	1,375		
c	7mm thick tiles In skirting and dado upto specific height	SQM	70		
d	10mm thick tiles In skirting and dado upto specific height	SQM	495		
1417B	Laminated wooden flooring	SQM	385		
1418	Providing and laying 10 mm thk non-skid fully vitriified tiles of make 'MARBONITE' or 'FERRASTONE of BOSS Profile limited' or equivalent in flooring and skirting 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				
a	400X400 mm	SQM	120		
b	600X600 mm	SQM	120		
1419	Providing and laying granite stone slab of 20mm thickness single piece for wash basin / sink slab /facia of black or approved colour with cutting,making corners,moulding and opening etc. all complete.	SQM	20		
1420	Providing and laying Heavy Duty dust pressed Ceramic Tiles of 7mm thick of reputed manufacturer of approved finish shade and colour including underbed of cement mortar 1:3 with neat cement slurry etc. all complete.				
a	300X300 mm	SQM	145		
b	600X600 mm	SQM	20		
1420A	Providing and laying Heavy Duty dust pressed Ceramic Tiles of of size 600x600 of reputed manufacturer of approved finish shade and colour including underbed of cement mortar 1:3 with neat cement slurry etc. all complete.				
a	10mm thick tiles In flooring	SQM	200		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
1422	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 and IS:4860 in flooring/Dado and shall be laid over bitumastic lining of min 12mm thick (to be laid in layers of 6mm each). The tiles shall be applied with 6mm thick Potassium Silicate bedding mortar as per IS:4441, 4443 & 4832 and including preparation of surface, application of bitumen primer, curing etc. all complete for following thicknesses. The tiles should be abrasion resistant & durable.				
a	20mm thick	SQM	40		
b	38mm thick	SQM	50		
1422A	Providing and fixing Acid/Alkali resistant (Chemical resistant) 38 mm thk bricks confirming to IS:4860 in flooring, Dado laid over bitumen primer confirming IS: 158, bitumestic lining of minimum 12 mm thk (to be laid in layer of 6mm each) confirming to IS : 9510 and 6 mm thk potassium silicate bedding mortar as per IS : 4832 and pointing joint of bedding 20mm deepx6mm wide with epoxy/Furane mortar including curring etc, complete as per specification	SQM	680		
1422B	Extra over Item No 1422A, for providing diamond patern expanded metal steel sheet confirming to IS: 412 in between two bitumastic lining for dado more then 2m hight	SQM	390		
1422C	Providing and fixing Acid/Alkaly resistant (chemical resistant) 75 mm bricks confirming to IS: 158 , Bitumastic lnyng of minimum 18mm thk (To be laid in layer of 9mm each) confirming to IS: 9510, 6mm thk potassium silicate bedding mortar as per IS: 4832 and pointing joint of 20mm deepx6mm wide with epoxy/furane mortar including curring etc all complete.	SQM	100		
1422D	Providing and fixing Acid/Alkaly resistant (chemical resistant) 115 mm bricks confirming to IS: 158 , Bitumastic lnyng of minimum 18mm thk (To be laid in layer of 9mm each) confirming to IS: 9510, 6mm thk potassium silicate bedding mortar as per IS: 4832 and pointing joint of 20mm deepx6mm wide with epoxy/furane mortar including curring etc all complete.	SQM	135		
1422E	Providing and applng Acid/Alkali oil resistant epoxy resin on floor/dado of approved manufacturer, over epoxy primer etc all complete as per specification.	SQM	65		
1423	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado beded and jointed with epoxy mortar/Furane (minimum 20mm deep and 6mm thk.) all complete for following thicknesses. The tiles should be abrasion resistant & durable.				
a	20mm thick	SQM	30		
b	38mm thick	SQM	80		
1424	Providing & fixing chemical resistant (AR)(Acid / Alkali) bricks (75mm thick) conforming to IS:4860 in the floor of neutralization pit. Surface on which lining to be applied shall be prepared in accordance with IS:2395. Bitumen primer as per IS:158 followed by 18mm thick bituminastic followed by 6mm thick 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 sealing shall be done with bituminastic AR bricks shall be laid with 6mm wide & 50mm deep pointing (epoxy / furnace / CNSL) & acid curing shall be done all complete as per specification.	SQM	100		
1425	Providing and laying polished Marble slabs (Aranga white or equivalent approved shade/color /design) 20 mm thk in staircase landing/skirting and corridors over minimum 20 mm thick underbed of 1 cement : 2 sand : 4 stone aggregates by volume mixed with sufficient water to form a stiff workable mass. The marble slabs shall be 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 moulded marbel nosing, pigments, curing, grinding, making corners, granite polishing etc. complete.	SQM	100		
1426	Providing and laying marble skirting /dado (Aranga white or approved shade/color /design) equivalent of minimum 20mm thickness projecting 6mm from adjacent plaster all complete including underbed cement mortar 1:3, scaffolding etc. all complete.	SQM	65		
1427	Providing and fixing glazed designer ceramic tiles of approved color and design of size 200x300mm / 300x300mm in dado of approved size , projecting 6mm uniformly from adjacent plaster or wall finish. The mix for underbed plaster shall consist of 1part cement and 3 parts sand by weight. fairly moist but firm, tiles shall be pressed over under bed by applying cement slurry including pigments, curing etc all complete for following thicknesses:				
a	5mm thick	SQM	145		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
b	7mm thick	SQM	65		
1428	Providing and laying 2mm thick antistatic PVC flooring / skirting of approved shade, as per IS:3462 and laying as per IS:5318 all complete.	SQM	30		
1429	Providing and fixing removable type flooring system consisting of fire resistant particle board of size 600X600X35 mm with 0.05 mm thick aluminium foil lining at bottom and with 2 mm thick anti static PVC topping including proprietary floor supporting system complete as per specification.	SQM	100		
1430	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 in charge.				
a	Glass strips 40 mm wide and minimum 6 mm thick.	RM	940		
b	Aluminium strips 40 mm wide and minimum 3 mm thick	RM	14,350		
1431	Providing and laying wooden panel flooring and skirting of PERGO or equivalent of approved color, shade all complete as per manufacturer specification.	SQM	30		
1432	Providing and fixing decorative murals in tiles (glass mosaic tiles of minimum size 24mm X 24mm X 3.8 mm thick) from reputed / approved manufacturer as per specification, drawing & instruction of engineer in charge.	SQM	125		
1433	Providing and fixing decorative murals in ACP (Aluminium Composite Panels) from reputed / approved manufacturer as per specification, drawing & instruction of engineer in charge.	SQM	100		
1500	ROOFING/SIDE CLADING				
Roofing / side cladding work including all labour, material, equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at any level as per specification, drawings and as directed by engineer - in - charge.					
1501	METAL DECK SHEET Type-I, Transporting and fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour over roof purlins for cast-in-situ roof slab as per relevant IS code and Grade as per specification. Bare metal thickness(BMT) of deck plate shall be minimum 0.8mm with minimum trough depth of 44 mm having minimum yield strength of 250 MPa and shall serve as permanent shuttering to the roof slab 40mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 450 kg/sqm (for two span condition) during construction between beams as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to beams, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyster(SMP silicon content 30%-50%) paint or super polyster paint of minimum 20 micron DFT on exposed surface (facing operating floor) and minimum 5 micron on other face over epoxy primer of 5 micron applied over coating (designated class Z275), including fixing of sheet to top flange of beam with drawn arc welding of headed shear anchor studs @ 260mm c/c in the trough and stitch screws between two adjacent sheets and sealing with epoxy sealant. The shear anchor studs shall confirm to type B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 19 mm dia & 100 mm length manufactured from cold drawn round steel bars confirming to ASTM A 29 of grade designation 1010 through 1020 of standard quality with either semi killed or killed welded by drawn arc stud welding through metal deck sheet.				
a	Span Upto 1800mm	SQM	4,000		
b	Span Exceeding 1800mm and upto 2500 mm	SQM	160		
1501A	METAL DECK SHEET type-II, Transporting and fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour over roof purlins for cast-in-situ roof slab as per relevant IS code and grade as per specification. Bare metal thickness(BMT) of deck plate shall be minimum 0.8 mm with minimum trough depth of 44 mm having minimum yield strength of 350 MPa and shall serve as permanent shuttering to the roof slab 100mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 450 kg/sqm (for two span condition) during construction between beams as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to beams, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyster(SMP silicon content 30%-50%) paint or super polyster paint of minimum 20 micron DFT on exposed surface (facing operating floor) and minimum 5 micron on other face over epoxy primer of 5 micron applied over coating (designated class Z275), including fixing of sheet to top flange of beam with drawn arc welding of headed shear anchor studs @ 260mm c/c in the				

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
	trough and stich screws between two adjacent sheets and sealing with epoxy sealant.The shear anchor studs shall confirm to type B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 19 mm dia & 100 mm length manufactured from cold drawn round steel bars confirming to ASTM A 29 of grade designation 1010 through 1020 of standard quality with either semi killed or killed welded by drawn arc stud welding through metal deck sheet.				
a	Span Upto 1800mm	SQM	325		
b	Span Exceeding 1800mm and upto 2500 mm	SQM	160		
1501 C	METAL DECK SHEET Type-IV, Transporting and fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour over floor beams for cast-in-situ roof slab as per relevant IS code and Grade as per specification. Bare metal thickness(BMT) of deck plate shall be minimum 0.8mm with minimum trough depth of 51 mm having minimum yield strength of 250 MPa and shall serve as permanent shuttering to the roof slab 150mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 550 kg/sqm (for two span condition) during construction between beams as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to beams, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyster(SMP silicon content 30%-50%) paint or super polyster paint of minimum 20 micron DFT on exposed surface (facing operating floor) and minimum 5 micron on other face over epoxy primer of 5 micron applied over coating (deginated class Z275), including fixing of sheet to top flange of beam with drawn arc welding of headed shear anchor studs @ 260mm c/c in the trough and stich screws between two adjacent sheets and sealing with epoxy sealant.The shear anchor studs shall confirm to type B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 19 mm dia & 100 mm length manufactured from cold drawn round steel bars confirming to ASTM A 29 of grade designation 1010 through 1020 of standard quality with either semi killed or killed welded by drawn arc stud welding through metal deck sheet. Measurement of profile sheeting shall be of the plan area of roof covered by MS trough metal decking. The SMP and polyster paint shall confirm to product type 4 as per AS/NZS 2728				
a	Span Upto 1800mm	SQM	19,450		
b	Span Exceeding 1800mm and upto 2500 mm	SQM	770		
1502	Providing and fixing shear connectors of mild steel studs having 16mm dia and minimum 75 mm projected length above purlin passing through metal decking as per relevant IS codes and specification.	QUINTAL	35		
1502A	Providing and fixing shear connectors of mild steel studs having 19 mm dia and minimum 100 mm projected length above purlin passing through metal decking as per relevant IS codes and specification.	QUINTAL	200		
1503	Transporting and fixing SINGLE SKIN, PROFILED, PERMANENT COLOR COATED M.S. CLADDING SHEET :TYPE-I of approved shade and color, (ON EXTERNAL VERTICAL FACE OF BUILDINGS) of 0.6mm bare metal thickness(BMT) having minimum yield strength OF GRADE SS255 AS PER ASTM A653M/GRADE G250 AS PER AS 1397 COATED WITH ZINC OF CLASS DESIGNATION Z275 as per specification including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing etc. all complete as per specification.The sheet shall be permanently coated with silicon modified polyster(SMP silicon content min. 30%) paint or super polyster paint of minimum 20 micron DFT on exposed surface (facing operating floor) and minimum 5 micron on other face over epoxy primer of 5 micron applied over coating (deginated class Z275). The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability. The SMP and polyster paint shall confirm to product type 4 as per AS/NZS 2728.	SQM	13,680		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
1505	<p>Transportation & erection of permanent colour coated sandwiched insulated metal cladding: TYPE III of approved color comprising of trough zinc-aluminium alloy coated (both sides) M.S. sheet of 0.60 mm min thickness to be used on external face of the cladding system. The sheet shall be coated with zinc of class designation Z275 as per ASTM A653M. The exposed face of the sheet to be permanently color coated with silicon modified polyester paint (SMP with silicon content of 30% to 50%) or super polyester paint of minimum 20 microns (nominal) dry film thickness over primer coat of 5mm (nominal) thickness. Inner side of external sheet to be provided with SMP or super polyester paint of 5 microns DFT (nominal) over 5 microns thick (nominal) primer coat. Galvanised M.S. sheets of minimum 0.6 mm thickness to be used as inner liner (internal face) of cladding system. The exposed face to be permanently colour coated with silicon modified polyester paint or super polyester paint of DFT 20 microns (minimum) over primer.</p> <p>The rate of galvanising not to be less than 275gm / sq.m. The sheets shall be of approved profile and shall have such section modulus and moment of inertia per metre width that deflection of sheets is limited to span/250 under design wind pressure for two span conditions. No increase in allowable stresses under wind load condition is allowed. The cladding shall have siphoning feature to prevent leakage. The inner sheet shall be fixed to the structure by self drilling fasteners and concealed clips (including sub-girts of size 50X50X50 mm manufactured out of 16G GI 'Z' shape) to connect the external sheet (without penetrating the external sheet) including flashings complete as per specification. The insulation shall be of bonded mineral wool of minimum thickness 50mm conforming to IS:8183, having a density of 32 Kg/cu.m. for glass wool & 48 Kg/cu.m. for rock wool and is included in this item.</p>	SQM	5,170		
1506	Providing and fixing insulation of resin bonded mineral wool of 50 mm nominal thickness conforming to IS 8183 having a density of 32 kg/cum glass wool or 48 kg/cum for rock wool, for cladding/under deck insulation including application of glue and tying with lacing wire, for glass/rock wool as per manufacturer's recommendations.	SQM	1,100		
1507	Providing and fixing insulation of resin bonded mineral wool of 50 mm nominal thickness conforming to IS 8183 having a density of 32 kg/cum glass wool or 48 kg/cum for rock wool, for cladding/under deck insulation including wrapping in black polythene black supported over weld mesh 75X75X1.6 MM dia to hold in position and application of glue & tying with lacing wire, for glass/rock wool as per manufacturer's recommendation.	SQM	2,100		
1508	Providing and installing under deck insulation using minimum 0.05 mm thick aluminium foil on exposed surface followed by 0.60 mm dia and 25 mm mesh GI wire netting, fixed at various elevations with rawl plugs including clips, and 2mm wire ties with roof but excluding cost of insulation.	SQM	2,060		
1508A	Providing and installing over deck insulation of minimum 40 mm thick impervious sprayed close cell free rigid Polyurethane foam conforming to IS: 12432 Part-III, with density of foam 40 TO 45 KG/ cum. Overdeck insulation shall be fixed over a coat of polyurethane primer applied @ 6 to 8 litre/ sqm, applied over cleaned surface of cement sand mortar (1:4) screed (laid for the part of Roof Water Proofing Treatment). 400 Gauge polythene sheet shall be laid over polyurethane spray. The top of the polyurethane foam shall be finished with 20 mm thick cement: sand (1:4) mortar with chicken wire mesh and broken white glazed tiles of 5 mm thickness laid over mortar at green stage.	SQM	1,290		
1509	Providing and fixing non metal opaque PVC sheet similar to ONDEX roofing or equivalent including all fixing accessories.	SQM	225		
1510	Providing and fixing 1 mm thick corrugated/semicorrugated G.I. sheet in roofs, cladding of minimum galvanisation of 275 gsm total on both sides with minimum 150mm overlapping, 8 dia G.I. hook bolts or 'J' Bolts and nuts @305 mm c/c along with G.I. and bitumen washers including cutting of sheets for opening etc. all complete.	SQM	125		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
1510 A	Providing and fixing (FINSIH as approved) finished Acoustical Lattice wooden wall paneling consisting of base frame treated with anti-termite chemical of approved make. Panels to be installed as per specification. The Timber melamine effect acoustic wall panels made out of Fire Rated MDF core material. The acoustic wall panels shall be in size of 128x2440x18mm (thk). The back of timber melamine panels shall be laminated with Soundtex black acoustic tissue to provide NRC not less than 0.8. The acoustic timber wall panels shall be with tongue and groove detailing along the length of panels, with square edges on 2 sides along the width of panels. The wall panels shall be clipped into aluminum channels and clips Keel and Fastener system at 600mm c.c. Density -800kg /m ³ , R.H 70, Fire Rated Euro Class B and C formerly Class 0 and Class 1 BS476 part 6 and 7 respectively. Perforated panels having perforation to 25/30 mm diameter holes, at 32/35 mm c/c at the back face, and front of the panels to have cut with grooves of 3mm at 16mm c/c.	SQM	80		
1600 FALSE CEILING					
False ceiling including all labour, material, equipment, transportation, handling, suspension system etc at any level as per specification, drawings and as directed by engineer - in - charge.					
1601	Providing and fixing tapered/square edge glass fibre reinforced gypsum board (GRG) ceiling (having gypsum core mixed with glass fibre) system conforming to IS:2095 having fine texture finish and consisting of light weight galvanized steel member(min. 0.8 mm thick and galvanized as per IS 277) having maximum grid size of 1200 mm X 600 mm for supporting 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.				
aa	12.5mm thick GRG board confirming to IS: 2095 with galvanised light gauge steel load bearing supporting GI frame (minimum 0.8mm thk and grid size of 600x1200mm.) and finished flat (seamless).	SQM	155		
1602	Providing, fixing and laying light weight mineral fiber board false ceiling in the form of tile of minimum thickness 15 mm and exposed surface semi-perforated with depth of perforation as 4 mm and humid resistance of 95% RH and fire performance of class 0/1 as per BS 476 with metal suspension grid system with galvanized Tees of section 24 X 38 mm for main runners of approved colour and make as per specification including 50mm thick mineral wool insulation (density 48kg/cum) 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. A.C. ducts etc. suitable M.S. channel (minimum MC 75 @ 1.2m) grid shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. complete with cut-outs etc. The size of tiles shall be 600 X 600 mm or 600 X 1200 mm. Required MS channel shall be measured & paid extra under respective item unit rate.	SQM	465		
1602A	Providing fixing and laying Calcium Silicate Board of 'HILUX' or equivalent with suspension system as per manufacturer detail including supporting grid system, expansion fastener for suspension arrangement from RCC with necessary opening provision as per drawing all complete	SQM	115		
1603	Providing and fixing permanently colour coated aluminium false ceiling of approved colour and Luxalon 84 C or approved equivalent with corrosion resistant aluminium alloy panels of minimum thickness 0.5mm including 50mm thick mineral wool insulation(density 48 kg/cum) conforming to 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, A.C. ducts etc all complete. Suitable M.S. channel grid with minimum MC 75 shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (supply, fabrication & erection of structural platform grid made up of MS Channels/ Beams / Angles shall be paid separately under ST No 2301B and is not included in this item)	SQM	1,600		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
1604	Providing, fixing and laying permanently colour coated aluminium false ceiling of approved colour with stove enamel finish of approved make in LINEAR and SQUARE type 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. A.C. 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. (supply, fabrication & erection of structural platform grid made up of MS Channels/ Beams / Angles shall be paid separately under ST No 2301B and is not included in this item)	SQM	160		
1604A	Providing, fixing and laying Pre-painted coil coated steel false ceiling system consisting of 0.5mm thick galvanised as per IS: 277 of approved make in LINEAR and SQUARE type 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. A.C. 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. (supply, fabrication & erection of structural platform grid made up of MS Channels/ Beams / Angles shall be paid separately under ST No 2301B and is not included in this item)	SQM	875		
1606	Providing and Fixing 12mm thick Gypsum board plain/perforated false ceiling tiles(600x600mm) of India Gypsum or equivalent make in plan or elevation with aluminium grid, metal suspension system, anchor fastener adjustable hangers etc. including two or more coats of acrylic emulsion paint of approved colour to give an even shade with smooth finish all complete.as per architectural design and detail.metal suspension system as per ASTM C-635 shall be hot dipped M.S.galvanized (grade 180 as per is :277) nominal size of T-section shall be 24 x 38 mm or 24 x 25 mm cross runners. 24mm wide exposed flange surface shall be permanently color coated.suspension system shall be as per manufacturer's specification supported over movement platform.The work to be complete as per specifications, drawings and direction of engineer. (supply, fabrication & erection of structural platform grid made up of MS Channels/ Beams / Angles shall be paid separately under ST No 2301B and is not included in this item)	SQM	65		
1700 RAIN WATER DOWN TAKE PIPES					
Rain water down take pipes including all labour, material, transportation, 2 coats of approved paint over one primary coat, fixtures, accessories etc at any level as per specification, drawings and as directed by engineer - in - charge.					
1702	Fixing galvanised MS down take pipes of 100 mm dia- Medium quality as per IS:1239(part-I) / IS:3589 all complete.	RM	185		
1704	Fixing galvanised MS down take pipes of 150 mm dia- Medium quality as per IS:1239(part-I) all complete.	RM	3,035		
1706	Fixing UPVC down take pipes of 160mm diameter- Class 3 as per IS:4985 all complete.	RM	160		
1707	Fixing GI down take pipes conforming to IS:1239 /IS:3589 of medium duty all complete for following diameters.				
a	150 mm Dia	RM	325		
1708	Fixing HDPE down take pipes conforming to IS:4984 as per specification of following diameters.				
b	160 mm Dia	RM	160		
1800 MISCELLANEOUS WORKS					
Miscellaneous works including all labour, material, equipment etc. at any level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge.					
1801	Providing and Filling in trenches, plinths, area paving and other underground structures with graded stone aggregate of size range 63 mm to 45 mm in layers not exceeding below mentioned thickness including breaking of stone boulders to required sizes, filling the interstices with selected sand and compacting to 85 % of original volume of stone stack for all lifts etc. all complete. Payment shall be made for the measurement of the volume of the compacted fill.				
a	275 mm	CUM	8,675		
b	400 mm	CUM	800		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
1803	Anti termite chemical treatment of soil with Chlorpyriphos/Lindane E.C. 20% with 1% concentration conforming to IS:8944 and as per IS 6313 all complete. (Plinth area of building at ground floor only shall be measured for payment)	SQM	550		
1804	Installation of approved 25mm thick vibration damping resilient pads on/around foundation of vibrating equipment and at other locations all complete.	SQM	65		
1805	Providing 50mm thick premix carpet surfacing laid to slope in two layers 30mm and 20mm respectively with 12mm downgraded stone chips mixed with 80/100 grade bitumen @ 52 Kg/Cu.M including compaction etc. all complete.	SQM	32		
1806	Providing 50mm thick anti corrosive layer laid to required slope consisting of clean & well graded coarse sand mixed with A90 grade bitumen for softening point upto 45 degree Celcius or A65 grade bitumen for softening point above 45 degree celcius as per IS: 73 or its equivalent quality 8 to 10% by volume and rolled or compacted all complete.	SQM	32		
1807	Providing and fixing G.I strips minimum 1.5mm thk and 150mm wide including fixing accessories etc. all complete.	Kg	10		
1808	Providing and fixing aluminium strips minimum 18 SWG thk and 300mm wide over expansion joints with minimum lap of 50mm length including brass / aluminium screws, rawl plugs etc. all complete.	Kg	25		
1808A	Providing and fixing of 3mm thick stainless steel stripe as mat ,or buff finished confirming to IS:3414 for expansion joint all complete as per construction drawing and specification	SQM	65		
1809	Providing Chemical injection grouting with pressure pump for water retaining concrete structures conforming to IS:6494, including fixing nozzles, cost of approved cement, admixture, curing etc. all complete . Payment shall be made as per the consumption of chemical grout.	Kg	10		
1810	Transporting, laying and fixing rails and guide rails in concrete for transformer, rail track including cutting of rails, joining of rails, anchoring lugs etc all complete.	MT	15		
1811	Providing and fixing weep holes in Drains consisting of 100 mm dia HDPE pipe sleeves with single side covering for the pipe mouth with galvanised welded wire fabric of 20 mm sq. opening covered with 40 mm downgraded aggregates in 300 X 300 mm sq. and 300 mm deep size all complete.	EACH	320		
1812	Laying of earthing mats/rods including risers, transportation from yard stores, loading, unloading, cutting to length, welding, protective painting of joints etc. all complete. (Excavation & Back filling shall be paid separately under respective item of earth work. Earthing mats/rods shall be supplied by BHEL free of cost)	MT	140		
1813	Providing Earthing pit as per drawing with charcoal & salt, GI pipes, GI earth electrodes, GI wire, GI strips, brick chamber with covers including associated earthwork etc. all complete.	EACH	70		
1814	Construction of below ground earthing system test pits as per drawing/ sketches including brickwork, plaster, concreting, reinforcement, formwork, providing & fixing GI strips/pipes, GI wires, covers etc as per drawing & specification including associated earthwork.	EACH	70		
1815	Providing and fixing GI rungs in concrete/brick walls having zinc coating of minimum 900 g/sqm etc. all complete.	Kg	15		
1816	Providing and fixing PVC pressure release valve of minimum dia 90mm in water retaining structure including 160 mm dia housing pipe of minimum length 3.75 m with perforation as per IS4558, nylon jali, perforated end plug, collar, graded filter, excavation, fixing in concrete slab/wall etc. all complete.	EACH	30		
1817	Providing and fixing HDPE pipes in concrete/ brick work of following sizes including cutting, fixing and levelling in position etc. all complete.				
a	200 mm dia	RM	485		
1818	Providing and laying dry stone pitching of 230 mm thickness for slope protection in cement mortar 1:6 including hammer dressing, raking of joints, pointing, preparing the bedding surface and voids filling with stone aggregate etc. all complete.	SQM	145		
1822	Cutting of groove of 10mm X 40mm size with groove cutting machine in concrete paving all complete.	RM	65		
1823	Fire proofing of steel structures with VERMICULITE cementious coating including supply of all materials for vermiculite materials, reinforcement mesh (3mm thick wire, 50x50 size mesh) , nuts, tie wires, weldings, surface preparation, curing, staging, compatible paintings etc. all complete.	CUM	20		
1824	Supply & fixing expanded metal steel sheet conforming to IS:412. Size of mesh shall be 10mmX40mm with strands of 2.5mm width and 1mm thickness to the structural steel for facilitating fireproofing works.	SQM	35		
1825	Supply and laying approved quality Stone aggregate 40mm size in transformer yards.	CUM	310		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
1826	Supply and laying approved quality rounded pebbles / gravels of 40mm size in transformer yards.	CUM	740		
1827	Supply and laying fire clay refractory brick work with fire clay mortar conforming to IS: 6 & 195 including curing etc. all complete on tank pads & in building walls.	CUM	30		
1828	Dismantling old existing reinforced/non-reinforced brickwork/blockwork/stone masonry work in mud/lime/ cement mortar at any level including clearing/cleaning, stacking the serviceable materials at plant site and disposal of unserviceable materials within a lead upto 1km all complete.	CUM	15		
1829	Dismantling old existing plain/re-inforced concrete work at any level including clearing/cleaning, stacking the serviceable materials at plant site and disposal of unserviceable materials within a lead upto 1km all complete.	CUM	15		
1830	Dismantling old existing structural steel work at any level including plates, bolts, cutting rivets, welding, dismembering and stacking the dismantled materials within a lead upto 1km etc all complete.	MT	5		
1832	Providing & filling 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.	CUM	15		
1833	Supply & fixing FRP (fibre reinforced plastic) sheets 2 mm thick including GI hooks/ J or L bolts, nuts, washers, bitumen washers etc. complete including overlap 100mm .	SQM	30		
1833A	providing and placing in position at various levels, building paper (kraft paper) as per IS:1397 between concrete surface including the cost of labour, material, etc complete as per drawing and instruction of the engineer.	SQM	130		
1834	Providing and fixing anodised aluminium grill (anodised transparent or dyed to required shade according to IS: 1868 with minimum anodic coating of grade AC 15) of approved design/pattern, with approved standard section and fixed to the existing window frame with C.P.brass/ stainless steel screws @ 200 mm centre to centre, including cutting the grill to proper opening size for fixing and operation of handles and fixing approved anodised aluminium standard section around the opening, all complete as per requirement and direction of Engineer-in-charge. (Only weight of grill to be measured for payment).				
a	Fixed to steel windows by welding	kg	35		
b	Fixed to openings /wooden frames with rawl plugs screws etc.	kg	35		
1835	Supplying and installing dry wall gypsum partitions upto ceiling height consisting of G.I. frame and required board, including providing and fixing of frame work made of special section power pressed/ roll form G.I. sheet with zinc coating of 120 gms/sqm(both side inclusive), consisting of floor and ceiling channel 50mm wide having equal flanges of 32 mm and 0.50 mm thick, fixed to the floor and ceiling at spacing of 610 mm centre to centre with dash fastener of 12.5 mm diameter, 50 mm length or suitable anchor fastener or metal screws with nylon plugs and the studs 48 mm wide having one flange of 34 mm and other flange 36 mm and 0.50 mm thick fixed vertically within flanges of floor and ceiling channel and placed at a spacing of 610 mm centre to centre by 6 mm dia bolts and nuts, including fixing of studs along both ends of partition fixed flush to wall with suitable anchor fastener or metal screws with nylon plugs at spacing of 450 mm centre to centre, and fixing of boards to both side of frame work by 25 mm long dry wall screws on studs, floor and ceiling channels at the spacing of 300 mm centre to centre. The boards are to be fixed to the frame work with joints staggered to avoid through cracks, M.S. fixing channel of 99 mm width (0.9 mm thick having two flanges of 9.5 mm each) to be provided at the horizontal joints of two boards, fixed to the studs using metal to metal flat head screws, including jointing and finishing to a flush finish with recommended jointing compound, jointing tape, angle beads at corners (25 mm x 25 mm x 0.5 mm), joint finisher and two coats of primer suitable for board as per manufacture's specification and direction of engineer in charge all complete.				
a	75 mm overall thickness partition with 12.5 mm thick double skin fire rated board conforming to IS: 2095: part I	SQM	100		
b	75mm overall thickness partition with 12.5 mm thick double skin tapered edged plain Gypsum board conforming to IS: 2095: part I	SQM	35		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
2000 FENCING AND GATES					
Fencing and gates including all labour, material, equipment etc at any level as per specification, drawings and as directed by engineer - in - charge.					
2003	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 75mm x 75mm. The diameter of the hot dip galvanised steel wire for chain link fencing excluding PVC coating shall not be less than 12 gauge. Concertina of height of 600 mm at top of chain link fencing shall be provided with all accessories. Concertinal shall be from tensile serrated galvanised wire (HTSW) made with wire diameter of 2.5 mm which will be stretched to 6m and attached on two strands of galvanised HTSSW (high tensile spring steel wire) of 2.5mm dia by means of clips at 1m interval. These two HTSSW strands will be attached to the fence posts/ angles with 12 mm security fasteners. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 25X6 mm GI flat stretcher bar at end posts etc. all complete. (Structural post shall be separately under ST No. 2007)	RM	55		
2006	Supplying and fixing 600mm high concertina on top of boundary wall including GI tension wires, clips, anchors, accessories etc. all complete. Concertinal shall be from tensile serrated galvanised wire (HTSW) made with wire diameter of 2.5 mm which will be stretched to 6m and attached on two strands of galvanised HTSSW (high tensile spring steel wire) of 2.5mm dia by means of clips at 1m interval. These two HTSSW strands will be attached to the fence posts/ angles with 12 mm security fasteners. (Structural post shall be separately under ST No. 2007)	RM	130		
2007	Supply and fixing of hot dip galvanised mild steel posts for fencing. Rate of zinc coating shall not be less than 710 g/m2 on steel posts.	MT	6		
2008	Supply, fabrication and fixing of mild steel posts for fencing including painting etc all complete as per specification.	MT	5		
2009	Supply, fabrication and installing in position and testing galvanised MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete.	MT	5		
2009A	Two or more coats of chlorinated rubber paint (as per IS: 13467) over a suitable primer of approved quality colour and shade to give an even shade on surface with all in complete.	SQM	16		
2010	Supply, fabrication and installing in position and testing MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete.	MT	8		
2100 WATER SUPPLY					
Water supply work including men, material, equipment etc. at any level as per specification, drawings and as directed by engineer - in - charge.					
2101	Providing and fixing in position tested heavy duty type chromium plated (CP) brass long neck bib cocks including sockets, union, nuts etc all complete - 15mm nominal bore.	EACH	5		
2102	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc all complete - 15mm nominal bore.	EACH	5		
2103	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality including all specials etc all complete for following sizes:				
a	25mm nominal bore.	EACH	5		
b	50mm nominal bore.	EACH	5		
2104	Providing and fixing GI pipes class B medium class conforming to IS:1239 pipes shall be concealed and painted with anticorrosive paint, complete for internal works with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc all complete for following sizes:				
a	15 mm nominal bore.	RM	20		
b	20 mm nominal bore.	RM	20		
c	25 mm nominal bore.	RM	20		
2105	Providing and fixing GI pipes class B complete for external work with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete for following sizes:				

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
a	15 mm nominal bore.	RM	20		
b	20 mm nominal bore.	RM	20		
c	25 mm nominal bore.	RM	20		
d	50 mm nominal bore.	RM	20		
2106	Providing and fixing 610mmx453mmx6mm thk mirror from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete.	EACH	20		
2106A	Providing and fixing of 900x600x6 THK Locking mirror from reputed manufacturer, mirror shall be mounted with teak wood bedding and minimum 12mm thk plywood backing including CP bracket,etc all complete	EACH	15		
2107	Providing and fixing 610mmx127mmx6mm thk clear glass with C.P Guard rails and mounted on C.P. brackets etc all complete.	EACH	20		
2108	Providing and fixing 25 mm diameter stainless steel towel rails (600mm X 25mm) all complete.	EACH	20		
2108A	Providing and fixing 600x20 mm diameter stainless steel towel rails including SS screw all complete.	EACH	20		
2109	Providing and fixing 20mm dia chromium plated M.S. pipes wall mounted towel rod with C.P Brackets etc all complete.	EACH	30		
2110	Providing and fixing C.P. soap holder mounted with C.P. screws etc all complete.	EACH	35		
2111	Providing and fixing stainless steel / C.P. liquid soap dispenser . Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc all complete.	EACH	35		
2112	Providing and fixing glazed vitreous wall mounted paper holder with suitable cover cum cutter fitted with CP screws etc. sll complete.	EACH	30		
2113	Providing and fixing chromium plated brass shower rose with 15 or 20 mm inlet all complete.	EACH	3		
2114	Providing & fixing in position P.V.C. water tank of Syntex or approved equivalent including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete for following capacities. GI pipes shall be paid separately under ST No. 2105.				
a	1000 litres capacity	EACH	4		
b	2000 litres capacity	EACH	2		
2115	Providing and fixing approved stainless steel sink with integrated drainboard as per IS:13983 of size 915x460x178mm with CI brackets, stainless steel chain with rubber plug 40mm, cp brass waste trap with necessary union complete including painting the fittings, cutting and making good the wall where required etc. all complete.	EACH	5		
2115A	Providing and fixing approved stainless steel Pantry sink as per IS: 13983 of size 610x510mm, bowl depth 200mm with drain board of at least 450 length with trap, heavy duty CP and cold mixer, including CI brackets, stainless steel chain with rubber plug, 40mm dia CP brass waste trap, with necessary union complete with painting of fittings,cutting and making good the wall where required including required notching in counter grating slab etc. complete.	EACH	5		
2200 SANITARY WORKS					
Sanitary work including all labour, material, equipment etc. at any level as per specification, drawings and as directed by engineer - in - charge.					
2201A	Supply and fixing coloured glazed vitreous oval shape chain wash basin 450x550mm confirming to IS: 2556 mounted over 20 mm thk granite beveled edge counter.The Basin shall be fitted with approved shape bib cock photo-voltic control system for water control,bottle trap with necessary union including cutting of notch in granite counter slab etc complete as per specification	EACH	35		
2202	Providing and fixing approved vitreous china laboratory sink of size 600x400x200mm conforming to IS:2556 (part-5) with R.S. or C.I. brackets, chromium plated brass chain with rubber plug 40mm, CP brass waste and 40mm CP brass trap with necessaary union complete including painting the fittings, cutting and making good the wall where required etc. all complete.	EACH	5		
2203	Providing and fixing stainless steel kitchen sink of size 610x510x200mm conforming to IS: 13983 including all fittings etc. all complete.	EACH	5		
2204A	Providing and fixing wall mounted coloured glazed vitreous water closet with PV flushing system,water faucet ,Toilet paper holder, open front solid plastic seat and plastic cover,including necessary CP connection etc all complete.	EACH	16		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
2205A	Providing and fixing Coloured glazed vitreous china orissa pan (580x440mm) water closet with PV flushing system, toilet paper holder as per IS: 2556 including all finishing complete as per specification.	EACH	16		
2206	Providing and fixing white flat back glazed vitreous china urinals of size 440x265x355 mm with photo voltaic control flushing system as per IS:2556 (part 6, section 1) with flush pipes, lead pipes, gratings, traps and necessary C.P. fittings etc. all complete.	EACH	45		
2208	Providing, laying light duty non pressure NP3 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc all complete for following.				
a	200mm dia	RM	35		
b	450mm dia	RM	35		
2214	Providing and fixing square mouth S.W Gully trap grade 'A' complete with 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 etc all complete for following sizes:				
a	100x100mm P or S Type.	EACH	7		
b	150x100mm P or S Type.	EACH	7		
c	150x150mm P or S Type.	EACH	7		
2215	Providing and fixing C.I. floor traps with C.P jalli all complete.	EACH	5		
2216	Providing and fixing heavy duty UPVC floor traps with C.P jalli all complete.	EACH	5		
2219	Providing and fixing white vitreous urinal partitions of size 675x325x85mm all complete.	EACH	5		
2220	Providing and fixing eye and face drinking water fountain (combined unit with receptacle conforming to IS: 10592) all complete as per specification.	EACH	2		
2221	Providing and fixing fixing polished 18mm thk beveled edge granite slab of required size fitted over counters including 1:3 mortar bed facia, all complete as per specification	SQM	16		
2222A	Providing, laying and jointing sand cast iron pipes of following diameter with lead joint conforming to IS: 1729 including bends,branches, and all other necessary fittings, M.S holder bats,clamps, cutting and marking on the walls and floor ,jointing, testing etc. all complete .				
i	150 mm dia	RM	15		
ii	100 mm dia	RM	65		
2223	Providing and fixing Electric operated hand dryer of approved make with pv control and all fittings including testing etc.in fully operating condition all complete as per specification	EACH	3		
2300 STRUCTURAL STEEL					
Structural steel works including all labour, material, equipments, transportation, handling etc. at any level as per specification, drawings and as directed by engineer - in - charge.					
2301	Transportation, fabrication and erection of Coal Bunkers (cylindrical shell & conical hopper) and ring beam at site with structural steel of grade E250 conforming to IS:2062, connection design & preparation of fabrication drgs, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 20° C for welding over 20 mm and upto 40 mm & 66° C for welding over 40 mm and upto 63 mm & 110° C for thickness over 63 mm & use of low hydrogen/ radiogenic electrodes), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, rectification, blast cleaning of steel surface, application of primer, intermediate, final and final finish coat of paint etc all complete, as per drawing, specification & instructions of engineer in charge. Blast cleaning of steel surface , application of primer and paint including supply shall be paid separately as per Item No.2302A, 2304A, 2304B & 2304C. (STRUCTURAL STEEL WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)	MT	1,600		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
2301 A	Transportation, fabrication and erection of high strength structural steel (E300) in rolled/built up section conforming to IS:2062, in columns, beams, struts, monorails, stays, safety chains, ladders, gantry girders, roof trusses, portals, laced purlins, space frames, hangers, wall beams, sheeting runners, brackets, stiffeners, stub columns, bracings, cleats, base plates, splice plates,gussets, end plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs,stringers, treads, landings, decking and seal plates, galleries etc including blast cleaning, providing & applying primer,providing and applying intermediate, final and final finish coat of paint (blast cleaning,primer and paint shall be paid separately as per item no 2302A, 2304A, 2304B & 2304 C), connection design & preparation of fabrication drgs, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 20o C for welding over 20 mm and upto 40 mm & 66o C for welding over 40 mm and upto 63 mm & 110o C for thickness over 63 mm & use of low hydrogen/ radiogenic electrodes), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), etc all complete. (STRUCTURAL STEEL WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)	MT	150		
2301B	Transportation, fabrication and erection of structural steel of grade E 250 in rolled/ built up section conforming to IS:2062, mild steel rounds in columns, beams, struts, monorails, stays, safety chains, ladders, gantry girders, roof trusses, portals, laced purlins, space frames, hangers, wall beams, sheeting runners, brackets, stiffeners, stub columns, bracings, cleats, base plates, splice plates,gussets, end plates, steel frame grid over false ceiling, walkway platforms, ladders, MS grating, stairs,stringers, treads, landings, decking and seal plates, galleries etc including blast cleaning, providing & applying primer,providing and applying intermediate, final and final finish coat of paint (blast cleaning,primer and paint shall be paid separately as per item no 2302A, 2304A, 2304B & 2304 C), connection design & preparation of fabrication drgs, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts and nuts not payable), assembly, edge preparation, preheating / post heating if required, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), etc all complete. (STRUCTURAL STEEL WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)	MT	150		
2301C	Supply, fabrication and erection of ERW GI pipe section of minimum grade Yst 240 conforming to IS:1161, in columns, beams, ties, struts, bracings, roof truss,connections to other members(tubular/non-tubular), special connections if required etc. including blast cleaning, providing & applying primer,providing and applying intermediate, final and final finish coat of paint (blast cleaning,primer and paint shall be paid separately as per item no 2302A, 2304A, 2304B & 2304 C), connection design & preparation of fabrication drgs,cutting,grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts & nuts not payable), assembly, edge preparation, preheating/post heating if required, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, inspection and testing, erection scheme, protection against damage in transit, stability of structures,surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, installation of temporary structures(scaffolding, access ladders, working platforms etc.) if required, dismantling and removal of temporary structures after completion of work (weight of temporary structures not payable), etc all complete. Payment shall be made for weight of structure but not for Nuts & Bolts/washers, gusset plates, stiffeners, special connections etc.	MT	100		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
2301D	Supply, fabrication and erection of galvanized Hollow steel sections (square & rectangular) of minimim grade Yst 240 conforming to IS:4923, in ties, struts, bracings, roof truss, connections to other members (tubular/non-tubular) etc. including blast cleaning, providing & applying primer, providing and applying intermediate, final and final finish coat of paint (blast cleaning, primer and paint shall be paid separately as per item no 2302A, 2304A, 2304B & 2304 C), connection design & preparation of fabrication drgs, cutting, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating if required, post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, inspection and testing, erection scheme, protection against damage in transit, stability of structures, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, installation of temporary structures (scaffolding, access ladders, working platforms etc.) if required, dismantling and removal of temporary structures after completion of work (weight of temporary structures not payable), etc all complete. Payment shall be made for weight of structure but not for Nuts & Bolts/washers, gusset plates, stiffeners, special connections etc.	MT	100		
2301E	Bolted Erection of structural steel [of mild steel/High strength steel rolled section / built up section / combination of both conforming to IS:2062, pipe sections] true to line, level, plumb & dimension, rectification if any, including collection of factory fabricated parts from BHEL store and assembly, installation of erection/connection bolts and application of final finish paint coat (Payment for final coat of payment shall be made separately as per Item No. 2304C) as per approved drawing, specification and approval of engineer in charge. Erection joints shall be mostly bolted with HSFG bolts/washer/nut, which will be paid separately under item 2301 & 2311. Erection bolts shall be arranged by the bidder and is not payable. the work shall be satisfactorily completed with required tightening of HSFG bolts along with DTI (DIRECT TENSION INDICATOR) washers to be supplied by the bidder (Cost of DTI washer is included in this item and not payable separately). Welding required for erection/seating shall be included in this item. The prefabricated structure shall be supplied in variable length to the maximum length of 10 meters -12 meters and all erection work on ground or at any elevation is included in this item. Payment shall be made for weight of permanent structure, HSFG nuts, bolts & splice plate, DTI washers, gusset plates, stiffeners but not for erection bolts & nuts, etc.	MT	8,400		
2301F	Providing welded splices for joining pre-fabricated structural parts (Beams, columns, roof trusses, struts, ties, bracings etc.) supplied by BHEL including welding of main structural members as per drawing, cutting if required, grinding, machining, preparing smooth surface for splicing, welding splice over welded structural member etc complete as per fabrication drawing, electrodes and other consumables for welding, alignment, manual/blast cleaning, providing and application of primer, paint etc. all complete. Weight of splice plates along with weight of structural members on either side of joint to maximum extent of 3 meters length or actual length (if lesser than 3 m) shall be payable. Manual/blast cleaning of steel surface, application of primer and paint including supply shall be paid separately as per Item No. 2303A/2302A, 2304A, 2304B & 2304C. (STRUCTURAL STEEL WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)	MT	150		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
2301G	Welded erection of structural steel [of mild steel/High strength steel rolled section / built up section / combination of both conforming to IS:2062, pipe sections] for fabricated structural sections supplied by BHEL, true to line, level, plumb & dimension, rectification if any, including collection of factory fabricated parts from BHEL store and assembly, installation of erection/connection bolts and application of final finish paint coat(Payment for final coat of payment shall be made separately as per Item No. 2304C) as per approved drawing, specification and approval of engineer in charge. Erection bolts shall be arranged by the bidder and is not payable. Welding required for erection/seating shall be included in this item. The prefabricated structure shall be supplied in variable length to the maximum length of 10 meters -12 meters and all erection work on ground or at any elevation is included in this item. Payment shall be made for weight of permanent structure. Welding shall be done with use of low hydrogen/ radiogenic electrodes), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), etc all complete as per specification.	MT	125		
2301 H	Supply, fabrication and erection of caged mild steel ladder , min. 600mm wide, including post, rung, cage hoops, fixing brackets, nuts and bolts , other accessories etc. as per drawing supplied by bidder and approved by BHEL/NTPC and specification all complete. The cage ladder will be used to climb from ground to watch tower platform at min. 6 m height at an inclination shown in watch tower drawing issued by BHEL. The ladder, rungs, posts, hoops etc. shall be galvanised at a rate of 610 gms / SqM. as per IS : 4736.The top of the ladder shall extend at least 1 M above the end of the ladder to provide protection at the top rung. Bottom of the cage shall start at a distance of at least 2 M from ground. ALL MATERIALS TO BE SUPPLIED BY CONTRACTOR	kg	4,000		
2302	Supply, Fabrication & erection of Mild steel cover with frame over slab opening in RCC platform of watch tower including fixing to floor with hinges, lugs, provision of latches, fixtures, handle etc., manual cleaning of steel structure, providing and applying two coats of self curing inorganic zinc ethyle silicate primer(Min. 60 micron DFT), providing and applying intermediate coat of polyamide cured pigmented micaceous Iron Oxide(min. 75 micron total DFT), providing and applying polyamide cured epoxy based paint as finish coat (min. 75 micron total DFT) and providing and applying polyurethane based color pigment paint as final finish coat (min. total DFT 50 micron) as per approved drawing, specification and engineer incharge all complete. ALL MATERIALS TO BE SUPPLIED BY CONTRACTOR	Kg	500		
2302A	Extra over ST NO. 2301/2301A/2301B/2301C/2301D for blast cleaning of steel structures to near white metal surface(Sa 2 1/2) and providing & applying coat of self curing inorganic zinc ethyle Silicate primer (solid by volume Minimum 62+/-2% & zinc dust % on dry film minimum 80 %). Zinc dust pigment shall be as per specifications. Primer of minimum 60 micron DFT shall be applied over shot blast cleaned surface including touch-up painting etc all complete. Primer coat shall be applied in Shop immediately after blast cleaning by airless spray technique.	MT(of steel)	2,100		
2303A	Extra over ST NO. 2301F for Manual cleaning of steel structures and applying providing & applying coat of self curing inorganic zinc ethyle Silicate primer (solid by volume Minimum 62+/-2% & zinc dust % on dry film minimum 80 %). Zinc dust pigment shall be as per specifications. Primer of minimum 60 micron DFT shall be applied over shot blast cleaned surface including touch-up painting etc all complete.	MT(of steel)	135		
2303B	Extra over ST NO. 2301A to 2301E for Manual cleaning of steel structures embedded in concrete and applying Primer Coat of Chlorinated Rubber based Zinc Phosphate primer of 50 micron (DFT).	MT(of steel)	15		
2304A	Providing and applying (with airless spray technique) intermediate coat of Polyamide cured pigmented Micaceous Iron Oxide (MIO content minimum 30 %) Epoxy based Paint (solid by volume Minimum 62+/-2%) of minimum 75 micron total DFT and of approved make in Shop after an interval of Minimum overnight over steel sections already having primer coats including protection and cleaning, scaffolding etc. all complete as per specification for all structures .	MT(of steel)	2,250		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
2304B	Providing and applying (with airless spray technique) polyamide cured color pigmented epoxy based paint (solid by volume Minimum 60%) as Finish coating of minimum 75 micron total DFT and of approved make and shade after an interval of Minimum overnight over steel sections already having intermediate coats including protection and cleaning, scaffolding etc. all complete as per specification for all structures .	MT(of steel)	2,250		
2304C	Providing and applying Polyurethane based colour pigmented paint (solid by volume Minimum 55+/-2%) as Final finish coating of minimum total DFT 50 micron for all structure as per specification of approved make and shade to achieve an even shade over steel sections already having finish coats including protection and cleaning, scaffolding etc. all complete. Coat to be applied with brush/airless spray.	MT(of steel)	10,295		
2307	Transportation, fabrication, erection and alignment of factory made electroforged galvanised grating units with mild steel (having minimum galvanisation of 610 g/sqm) conforming to IS:2062 in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete. (Bolts, nuts, washers shall be paid separately under item 2310 & 2311 as applicable)	MT	215		
2308 A	Transportation, fabrication, erection and alignment of factory made chequered plates confirming to IS 3502 with mild steel of grade E250, quality BR, semi killed, conforming to IS:2062 or equivalent grade conforming to ASTM & BS standards only in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including 2 coats of redoxide zinc-chromate primer (one coat at shop and one coat after erection), fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete. Min. thickness of chequered plate shall be 6 mm excluding projection.	MT	35		
2309	Extra over above ST NO. 2301A/2301B for finishing the ladders units with hot dipped galvanisation @ 610 gm/sqm over blast cleaned steel surfaces etc. all complete.	MT	15		
2310	Transporting 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 etc all complete.	Quintal	5		
2311	Transporting 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 etc all complete.	Quintal	225		
2312	Dismantling of steel structure , lowering of material and carriage of the dismantled material up to field fabrication shop / 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), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	15		
2313	Addition to, alterations in and/or modification of " Erection Marks " including cutting of parts, gauging 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) etc all complete for the following:				
a	In erected position	MT	16		
b	In fabrication yard	MT	32		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
2314	Re-erection of dismantled fabricated structural steel members 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), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	32		
2315A	Supply, fabrication and erection of minimum 4.0 mm thick stainless steel liner of grade SS:304(as manufactured by SAIL Finish Grade 2B (Cold rolled, Annealed & Pickled and Skin passed)) on M.S. plate for inside surfaces of bunkers including fixing with stainless steel studs, bolting (including countersunk), welding with electrode classification E308L for welding of stainless steel to stainless steel and E309 for stainless steel to mild steel etc. all complete. Supply of bolts, studs is included in this item. (STAINLESS STEEL WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)	MT	90		
2317	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 ±50 mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads.				
a	20 Tons	EACH	2		
b	25 Tons	EACH	2		
c	40 Tons	EACH	2		
d	50 Tons	EACH	2		
e	60 Tons	EACH	2		
f	80 Tons	EACH	4		
g	100 Tons	EACH	4		
h	120 Tons	EACH	1		
2318	Providing and fixing flexible open ended bellow strap of neoprene of minimum thickness 2 mm and minimum width 200 mm with aluminium stripped edges as sealing below top of bunker and bottom of tripper floor to avoid the coal dust nuisance all complete.	RM	255		
2319	Transportation, fabrication and fixing of stainless steel pipe hand railing of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete..	MT	6		
2320	Supply, fabrication and fixing of GI pipe hand railing (900 mm high) of 32 mm/40 mm dia (Medium Grade) including transportation, loading/unloading, painting etc. all complete.. (GI PIPE WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC)	MT	30		
2321	Conducting radiography test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	180		
2322	Conducting ultrasonic test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	180		
2323	Conducting ultrasonic test on steel plates as per ASTM-A578 level B-S2 or equivalent wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	SQM	180		
2324	Conducting magnetic particle test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	180		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
2325	Conducting dye penetration test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges etc. all complete (over and above the work already specified in the specifications.)	RM	180		
MISCELLANEOUS					
2425	Providing and laying debonding strip/tape , 25 mm wide & 5 mm thk. before applying sealant including cleaning etc all complete as per specification, drawing and as directed by Engineer.	RM	970		
2426A	Providing & laying 80 mm thick precast interlocking concrete pavers of grade M-35 of approved colour and pattern as per specification and recommendation of manufacturer.	SQM	8,780		
2427	Providing and laying 50mm thick sand layer below concrete pavers including compaction etc all complete as per specification, drawing and as directed by Engineer.	SQM	2,260		
2427A	Providing and laying 20mm thick sand layer below concrete pavers including compaction etc all complete as per specification, drawing and as directed by Engineer.	SQM	1,290		
TOTAL					
B	MISC ITEM Quote % above or % below or at par for items not covered as above of this schedule. The rate shall be derived from Delhi schedule of rate 2013.				
1a)	Rate of complete item			____%	
1b)	Rate of supply of material at site only			____%	
1c)	Rate for execution complete excluding supply of materials.			____%	

VOLUME-III
PRICE SCHEDULE, REV-02
PACAKGE-B

JOB: PACKAGE B - CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS ETC. OF BTG AREA FOR UNIT # 2, BOUNDARY WALL IN TWO PHASES AND WATCH TOWERS FOR 3X660 MW NORTH KARANPURA STPP, JHARKHAND.

TENDER NO. PSER:SCT:NKP-C1629:14

SCH-3-SUPPLY PART

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
400 REINFORCEMENT					
401	Supplying mild steel reinforcements conforming to grade 1 of IS:432 (part 1 or grade IS-2062) as per specifications & drawings.	MT	10		
700 MS EMBEDMENTS					
Embedments including all labour, material, equipment, transportation, handling etc. at any level as per specification, drawings and as directed by engineer - in - charge.					
701	Supply of mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. all complete.	MT	45		
704	Supply of mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc. all complete.	MT	20		
705	Supplying following items in concrete/brickwall for all kind of works, including setting material in concrete, layout, scaffolding, cutting, forming, grinding, drilling, bolting, welding, jointing, testing etc. all complete.				
a	MS pipes of all diameters	Quintal	6		
b	PVC pipes / conduits of all diameters	Quintal	5		
c	UPVC pipes / conduits of all diameters	Quintal	6		
d	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for brick work with expansion sleeve of A6 polyamide:				
i	Upto 250 kg	Each	5		
ii	Beyond 250 Kg and upto 500 kg	Each	6		
iii	Beyond 500 Kg and upto 750 kg	Each	6		
e	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with expansion sleeve of stainless steel:				
i	Upto 250 kg	Each	65		
ii	Beyond 250 Kg and upto 500 kg	Each	65		
iii	Beyond 500 Kg and upto 750 kg	Each	65		
900 DOORS, WINDOWS, VENTILATORS, LOUVERS					
Doors, windows, ventilators, louvers, roof ventilators, rolling shutters, partitions including all labour, material, equipments, transportation, handling, preparation of working drawings etc. at any level as per specification, drawings and as directed by engineer - in - charge.					
903	Providing solid core flush door shutter as per IS 2202 part II, 35mm thick homogenous particle board bonded with BWP type phenolformaldehyde synthetic resin, partical board core conforming to IS 3087 type I, 35x12 mm thick teakwood beading all around including preparation of working drawings. godrej or equivalent make mortice lock with handels on both sides,approved ISI mark anodised fittings like door stopper,300mm long tower bolts,16x300mm long aldrops ,125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fittings shall be anoidised aluminium color dyed), finish flat oil paint confirming to IS: 137 over primer, screws etc. all complete as per drawing, specification and instruction of engineer in charge. with commercial faces and teak wood edges. (Finish painting paid separately)	SQM	40		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
904	Providing single or double steel door shutters with 35 mm thk flush design shutter 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 centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	SQM	97		
906	Providing anodized extruded aluminium doors (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 3mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 (minimum anodized coating of grade AC15). fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be clear float glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately)	SQM	16		
906A	Providing anodized extruded aluminium doors (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 2 mm wall thickness as per IS:1285, IS:733 and anodized(15 micron coating thickness) and electro color dyed of required shade as per IS 1868 (minimum anodized coating of grade AC15). fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be clear toughened glass of 10 mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately)	SQM	515		
906A.ii	Providing anodized extruded aluminium doors (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 2 mm wall thickness as per IS:1285, IS:733 and anodized(15 micron coating thickness) and electro color dyed of required shade as per IS 1868 (minimum anodized coating of grade AC15). fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc., glazing/MDF board including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing/MDF board shall be paid separately and not included in this item)	SQM	30		
907	Providing fire proof steel doors (single or double shutter) with panic devices having 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.	SQM	135		
913	Providing in position rolling shutter of hot rolled double dipped galvanised steel lath section of 18 SWG tested mild steel strips at 75mm rolling centres 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 and outside locking with push and pull operation including wire springs, top cover, primer & shop coats of approved enamel paint etc, all complete as per IS 6248 and specification of approved make of following types: The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.(partly coiled and lath/full lath).				
a	Hand Operated	SQM	10		
b	Mechanically Operated	SQM	20		
c	Electrically operated	SQM	75		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
915	Supply of glazing of first grade class in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete as per Specification for the followings				
a	4 mm thick clear sheet glass	SQM	65		
b	4 mm thick clear float glass	SQM	160		
ba	5 mm thick tinted float glass	SQM	80		
c	5.5 mm thick clear float glass	SQM	30		
d	6 mm thick wired glass	SQM	30		
e	6mm thick Polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges.	SQM	195		
ea	2mm thick Polycarbonate sheet with profile matching with metal sheeting of building.The Polycarbonate sheets shall be fire and u/v resistant, and suitable for continuous use up to a temperature of 1000C including cost of Suitable aluminium beading . Open ends of the sheet shall be sealed as per manufacturer's recommendations.	SQM	130		
g	6 mm thick tinted heat reflecting type float glass	SQM	65		
h	6 mm thick clear toughened safety glass	SQM	845		
i	10 mm thick clear toughened glass	SQM	210		
ia	8 mm thick clear toughened glass	SQM	160		
j	Two nos. 6 mm thick clear toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	80		
k	Two nos. 6 mm thick tinted toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	95		
l	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).	SQM	95		
l (a)	composite double glazing, 24 mm thick, with one outer 6mm thick tinted heat-reflecting type toughened glass and one inner 6mm thick clear toughened glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).Outer glass of 6mm thickness shall have following technical characteristics: Solar factor 25% or less, U-value less than 2.268 W/ SQMK,VLT min 30%: The glass to be used should be from the manufacturers of glass like Glavebel (Belgium), Saint Gobain (France) or Fort (USA) Or equivalent. The glass should be free from distortion and thermal stress.	SQM	560		
l(b)	composite double glazing, 24 mm thick, with one outer 6mm thick tinted fire resistant type toughened glass and one inner 6mm thick plane fire resistant glass hermetically sealed and seperated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).The glass to be used should be from the manufacturers of glass like Glavebel (Belgium), Saint Gobain (France) or Fort (USA) Or equivalent. The glass should be free from distortion and thermal stress.	SQM	350		
m	6 mm thick laminated glass	SQM	30		
n	4 mm thick heat reflecting type float glass	SQM	30		
o	6 mm thick Ground glass	SQM	30		
p	Two nos. 6 mm thick low-e glass harmetically selaed and saporated by 12mm thick air gap insulation.only single elevation area to be measured	SQM	30		
q	6mm thk. reflective toughened glass, with Solar factor 45% or less, U-value less than 5.7 W/m2.K, VLT min 40%. Glass shall be of Saint Gobain (India) or ASahi (India) or equivalent make and shall be free from distortion and thermal stress	SQM	420		
r	Providing Glass block masonry work with approved glass blocks of size 190 x 190 x 90 (min), jointed with suitable adhesive complete as per drawing, specification and instructions of engineer in charge.	SQM	65		
s	18 mm thick mdf board of exterior grade confirming to IS 12406:2003	SQM	50		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
922	Supply of electrically operated, self operable/closing, approved anodized aluminium framed glass door with 10 mm thk. tinted glass, all complete. Automatic Sliding operating system comprising of Advanced DC brushless motor, Automatic Reversing Safety Device, Suitable for door weight 100 kg, Opening speed : 90-110cm /sec (adjustable), Closing Speed : 40-110cm/sec (adjustable), opening time : within 1-9 seconds after door stopped in opening, controller : 8 Bit micro computer, Motor (Dortexor equivalent) : DC12V, 35W brushless motor, Power Voltage : AC 110V - 240V. 50Hz - 60Hz, Power Consumption : 45W including Infra Red Sensors 2No both sides, rails & top & bottom as required, any other accessories as required etc. all complete of best make and quality as approved by Engineer in charge. The door shall be double panel sliding door of approx. area 5 sq.m. to 7.5 sq.m. each	Nos.	2		
1500	ROOFING/SIDE CLADDING				
	Roofing / side cladding work including all labour, material, equipment, transportation, handling, scaffolding, lags, hooks, washers, corner pieces etc. at any level as per specification, drawings and as directed by engineer - in - charge.				
1501	METAL DECK SHEET Type-I, Designing & supplying permanently color coated galvanised MS troughed metal sheet decking plate of approved colour over roof purlins for cast-in-situ roof slab as per relevant IS code and Grade as per specification. Bare metal thickness(BMT) of deck plate shall be minimum 0.8mm with minimum trough depth of 44 mm having minimum yield strength of 250 MPa and shall serve as permanent shuttering to the roof slab 40mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 450 kg/sqm (for two span condition) during construction between beams as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to beams, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyester(SMP silicon content 30%-50%) paint or super polyester paint of minimum 20 micron DFT on exposed surface (facing operating floor) and minimum 5 micron on other face over epoxy primer of 5 micron applied over coating (designated class Z275), including fixing of sheet to top flange of beam with drawn arc welding of headed shear anchor studs @ 260mm c/c in the trough and stitch screws between two adjacent sheets and sealing with epoxy sealant. The shear anchor studs shall conform to type B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 19 mm dia & 100 mm length manufactured from cold drawn round steel bars confirming to ASTM A 29 of grade designation 1010 through 1020 of standard quality with either semi killed or killed welded by drawn arc stud welding through metal deck sheet.				
a	Span Upto 1800mm	SQM	4,000		
b	Span Exceeding 1800mm and upto 2500 mm	SQM	160		
1501A	METAL DECK SHEET type-II, Designing & supplying permanently color coated galvanised MS troughed metal sheet decking plate of approved colour over roof purlins for cast-in-situ roof slab as per relevant IS code and grade as per specification. Bare metal thickness(BMT) of deck plate shall be minimum 0.8 mm with minimum trough depth of 44 mm having minimum yield strength of 350 MPa and shall serve as permanent shuttering to the roof slab 100mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 450 kg/sqm (for two span condition) during construction between beams as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to beams, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyester(SMP silicon content 30%-50%) paint or super polyester paint of minimum 20 micron DFT on exposed surface (facing operating floor) and minimum 5 micron on other face over epoxy primer of 5 micron applied over coating (designated class Z275), including fixing of sheet to top flange of beam with drawn arc welding of headed shear anchor studs @ 260mm c/c in the trough and stitch screws between two adjacent sheets and sealing with epoxy sealant. The shear anchor studs shall conform to type B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 19 mm dia & 100 mm length manufactured from cold drawn round steel bars confirming to ASTM A 29 of grade designation 1010 through 1020 of standard quality with either semi killed or killed welded by drawn arc stud welding through metal deck sheet.				

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
a	Span Upto 1800mm	SQM	325		
b	Span Exceeding 1800mm and upto 2500 mm	SQM	160		
1501 C	METAL DECK SHEET Type-IV, Designing & supplying permanently color coated galvanised MS troughed metal sheet decking plate of approved colour over floor beams for cast-in-situ roof slab as per relevant IS code and Grade as per specification. Bare metal thickness(BMT) of deck plate shall be minimum 0.8mm with minimum trough depth of 51 mm having minimum yield strength of 250 MPa and shall serve as permanent shuttering to the roof slab 150mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 550 kg/sqm (for two span condition) during construction between beams as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to beams, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyester(SMP silicon content 30%-50%) paint or super polyester paint of minimum 20 micron DFT on exposed surface (facing operating floor) and minimum 5 micron on other face over epoxy primer of 5 micron applied over coating (designated class Z275), including fixing of sheet to top flange of beam with drawn arc welding of headed shear anchor studs @ 260mm c/c in the trough and stich screws between two adjacent sheets and sealing with epoxy sealant.The shear anchor studs shall confirm to type B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 19 mm dia & 100 mm length manufactured from cold drawn round steel bars confirming to ASTM A 29 of grade designation 1010 through 1020 of standard quality with either semi killed or killed welded by drawn arc stud welding through metal deck sheet. Measurement of profile sheeting shall be of the plan area of roof covered by MS trough metal decking. The SMP and polyester paint shall confirm to product type 4 as per AS/NZS 2728				
a	Span Upto 1800mm	SQM	19,450		
b	Span Exceeding 1800mm and upto 2500 mm	SQM	770		
1503	Designing & supplying SINGLE SKIN, PROFILED, PERMANENT COLOR COATED M.S. CLADDING SHEET :TYPE-I of approved shade and color, (ON EXTERNAL VERTICAL FACE OF BUILDINGS) of 0.6mm bare metal thickness(BMT) having minimum yield strength OF GRADE SS255 AS PER ASTM A653M/GRADE G250 AS PER AS 1397 COATED WITH ZINC OF CLASS DESIGNATION Z275 as per specification including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing etc. all complete as per specification.The sheet shall be permanently coated with silicon modified polyester(SMP silicon content min. 30%) paint or super polyester paint of minimum 20 micron DFT on exposed surface (facing operating floor) and minimum 5 micron on other face over epoxy primer of 5 micron applied over coating (designated class Z275). The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability. The SMP and polyester paint shall confirm to product type 4 as per AS/NZS 2728.	SQM	13,680		
1505	Design & supply of permanent colour coated sandwiched insulated metal cladding: TYPE III of approved color comprising of trough zinc-aluminium alloy coated (both sides) M.S. sheet of 0.60 mm min thickness to be used on external face of the cladding system. The sheet shall be coated with zinc of class designation Z275 as per ASTM A653M.The exposed face of the sheet to be permanently color coated with silicon modified polyester paint (SMP with silicon content of 30% to 50%) or super polyester paint of minimum 20 microns (nominal) dry film thickness over primer coat of 5mm (nominal) thickness. Inner side of external sheet to be provided with SMP or super polyester paint of 5 microns DFT (nominal) over 5 microns thick (nominal) primer coat. Galvanised M.S. sheets of minimum 0.6 mm thickness to be used as inner liner (internal face) of cladding system. The exposed face to be permanently colour coated with silicon modified polyester paint or super polyester paint of DFT 20 microns (minimum) over primer.	SQM	5,170		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
	The rate of galvanising not to be less than 275gm / sq.m. The sheets shall be of approved profile and shall have such section modulus and moment of inertia per metre width that deflection of sheets is limited to span/250 under design wind pressure for two span conditions. No increase in allowable stresses under wind load condition is allowed. The cladding shall have siphoning feature to prevent leakage. The inner sheet shall be fixed to the structure by self drilling fasteners and concealed clips (including sub-girts of size 50X50X50 mm manufactured out of 16G GI 'Z' shape) to connect the external sheet (without penetrating the external sheet) including flashings complete as per specification. The insulation shall be of bonded mineral wool of minimum thickness 50mm conforming to IS:8183, having a density of 32 Kg/cu.m. for glass wool & 48 Kg/cu.m. for rock wool and is included in this item.				
1700 RAIN WATER DOWN TAKE PIPES					
Rain water down take pipes including all labour, material, transportation, 2 coats of approved paint over one primary coat, fixtures, accessories etc at any level as per specification, drawings and as directed by engineer - in - charge.					
1702	Supplying galvanised MS down take pipes of 100 mm dia- Medium quality as per IS:1239(part-I) / IS:3589 all complete.	RM	185		
1704	Supplying galvanised MS down take pipes of 150 mm dia- Medium quality as per IS:1239(part-I) all complete.	RM	3,035		
1706	Supplying UPVC down take pipes of 160mm diameter- Class 3 as per IS:4985 all complete.	RM	160		
1707	Supplying GI down take pipes conforming to IS:1239 /IS:3589 of medium duty all complete for following diameters.				
a	150 mm Dia	RM	325		
1708	Supplying HDPE down take pipes conforming to IS:4984 as per specification of following diameters.				
b	160 mm Dia	RM	160		
1800 MISCELLANEOUS WORKS					
Miscellaneous works including all labour, material, equipment etc. at any level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge.					
1804	Supply of approved 25mm thick vibration damping resilient pads on/around foundation of vibrating equipment and at other locations all complete.	SQM	65		
1810	Supplying rails and guide rails in concrete for transformer, rail track including cutting of rails, joining of rails, anchoring lugs etc all complete.	MT	15		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
2300 STRUCTURAL STEEL					
Structural steel works including all labour, material, equipments, transportation, handling etc. at any level as per specification, drawings and as directed by engineer - in - charge.					
2301C	Supply of ERW GI pipe section of minimum grade Yst 240 conforming to IS:1161, in columns, beams, ties, struts, bracings, roof truss,connections to other members(tubular/non-tubular), special connections if required etc. including blast cleaning, providing & applying primer,providing and applying intermediate, final and final finish coat of paint (blast cleaning,primer and paint shall be paid separately as per item no 2302A, 2304A, 2304B & 2304 C), connection design & preparation of fabrication drgs,cutting,grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts & nuts not payable), assembly, edge preparation, preheating/post heating if required, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, inspection and testing, erection scheme, protection against damage in transit, stability of structures,surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, installation of temporary structures(scaffolding, access ladders, working platforms etc.) if required, dismantling and removal of temporary structures after completion of work (weight of temporary structures not payable), etc all complete. Payment shall be made for weight of structure but not for Nuts & Bolts/washers, gusset plates, stiffeners, special connections etc.	MT	100		
2301D	Supply of galvanized Hollow steel sections (square & rectangular) of minimim grade Yst 240 conforming to IS:4923, in ties, struts, bracings,roof truss, connections to other members(tubular/non-tubular) etc. including blast cleaning, providing & applying primer,providing and applying intermediate, final and final finish coat of paint (blast cleaning,primer and paint shall be paid separately as per item no 2302A, 2304A, 2304B & 2304 C), connection design & preparation of fabrication drgs,cutting,grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating if required, post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, inspection and testing, erection scheme, protection against damage in transit, stability of structures,surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, installation of temporary structures(scaffolding, access ladders, working platforms etc.) if required, dismantling and removal of temporary structures after completion of work (weight of temporary structures not payable), etc all complete. Payment shall be made for weight of structure but not for Nuts & Bolts/washers, gusset plates, stiffeners, special connections etc.	MT	100		
2307	Supply of factory made electroforged galvanised grating units with mild steel (having minimum galvanisation of 610 g/sqm) conforming to IS:2062 in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete. (Bolts, nuts, washers shall be paid separately under item 2310 & 2311 as applicable)	MT	215		
2308 A	Supplying factory made chequered plates confirming to IS 3502 with mild steel of grade E250, quality BR, semi killed, conforming to IS:2062 or equivalent grade conforming to ASTM & BS standards only in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including 2 coats of redoxide zinc-chromate primer (one coat at shop and one coat after erection), fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete. Min. thickness of chequered plate shall be 6 mm excluding projection.	MT	35		
2310	Supply 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 etc all complete.	Quintal	5		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE (INR)	AMOUNT (INR)
2311	Supply 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 etc all complete.	Quintal	225		
2319	Supply of stainless steel pipe hand railing of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete..	MT	6		
	TOTAL				

VOLUME-III
PRICE SCHEDULE, REV-02
PACAKGE-B

JOB: PACKAGE B - CIVIL, STRUCTURAL AND ARCHITECTURAL WORKS ETC. OF BTG AREA FOR UNIT # 2, BOUNDARY WALL IN TWO PHASES AND WATCH TOWERS FOR 3X660 MW NORTH KARANPURA STPP,
JHARKHAND.

TENDER NO. PSER:SCT:NKP-C1629:14

SCH-4- BOUNDARY WALL PHASE I & PHASE-II

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY for Phase I	QUANTITY for Phase II	TOTAL QUANTITY FOR Phase I & Phase II	RATE (INR)	AMOUNT (INR)
100 EARTH WORK							
Earth work In excavation, backfilling and disposal including necessary men/women, materials, equipment, loading, transportation, unloading, dewatering etc as per specification, drawing and as directed by engineer- in-charge for the following.							
101	Earth work in excavation in all types of soil including ash which can be excavated by any means including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 500 m, spreading/levelling of disposed materials etc all complete for following depths below ground level.						
a	Depth from ground level but not exceeding 2 m	CUM	32,000	65,000	97,000		
b	Depth exceeding 2 m but not exceeding 4 m	CUM	5,000	12,200	17,200		
103	Earth work in excavation in soft rock (rock without any recovery of excavated materials in the form of hard stone/boulder) including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc but does not require chiselling or blasting including setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 500 m, spreading / levelling of disposed materials etc all complete for following depths below ground level.						
a	Depth from ground level but not exceeding 2 m	CUM	5,000	15,000	20,000		
107	Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with selected materials from compulsorily excavated soil available within a lead upto 500m and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.						
a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	20,200	43,500	63,700		
108	Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with selected materials directly from excavation and compacted as specified including watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.						
a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	20,190	43,500	63,690		
200 CONCRETE WORKS							

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY for Phase I	QUANTITY for Phase II	TOTAL QUANTITY FOR Phase I & Phase II	RATE (INR)	AMOUNT (INR)
	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) with mechanised equipments like batching plant, transit mixer, concrete pump etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.						
201	Concrete of grade M7.5 (1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume) as filling course Lean concrete at any depth below finished floor level, under and around foundations/floors, mass fill etc. CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC	CUM	450	950	1,400		
204	Concrete in plinth protection around boundary wall, PCC below columns in boundary wall etc. complete with 20 mm nominal size graded aggregate at any depth below finished floor level for the following grades. CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC						
a	M20 Grade	CUM	450	1,000	1,450		
205	Providing and laying Design Mix cast in situ cement concrete of required slump, conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size in boundary wall foundations at any level below finished ground/floor level, any shape, position or thickness etc complete as per specification & drawing for following grades . CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC						
a	M30 Grade	CUM	1,000	2,500	3,500		
b	M25 grade	CUM	400	500	900		
212a	Engineering, Design and drawing of Prestressed precast boundary wall as per specification and general arrangement(GA) of boundary wall furnished by BHEL, submission of design calculations and drawings to BHEL/NTPC, incorporation of comments in submitted drawings/calculations to finally obtain approved design calculations/drawings from BHEL/NTPC for construction at site. Preliminary general arrangement of boundary wall is enclosed along with tender document for information only. Actual general arrangement shall be furnished to successful bidder during detail engineering and no extra claim by the bidder shall be entertained on account of variation between actual GA & GA furnished with tender.- FOR PHASE I	Lumpsum	1	NA	1		
212b	Engineering, Design and drawing of Prestressed precast boundary wall as per specification and general arrangement(GA) of boundary wall furnished by BHEL, submission of design calculations and drawings to BHEL/NTPC, incorporation of comments in submitted drawings/calculations to finally obtain approved design calculations/drawings from BHEL/NTPC for construction at site. Preliminary general arrangement of boundary wall is enclosed along with tender document for information only. Actual general arrangement shall be furnished to successful bidder during detail engineering and no extra claim by the bidder shall be entertained on account of variation between actual GA & GA furnished with tender.- FOR PHASE II	Lumpsum	NA	1	1		

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY for Phase I	QUANTITY for Phase II	TOTAL QUANTITY FOR Phase I & Phase II	RATE (INR)	AMOUNT (INR)
213	Providing and laying factory manufactured Prestressed precast Reinforced concrete columns as per approved design and drawing submitted by bidder with design Mix cement concrete of grade M30 as per IS:456 & IS 10262-2009 using graded aggregate for Concrete in precast boundary-wall works . The work shall include cost of formwork/moulds , provision of suitable grooves/matching key/pockets for fixing of wall panels, Y shaped MS posts for cocertina etc., curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transpoting for all leads, erection with required T&P without damage, setting in position inside foundation collar with M30 grade cement concrete with 10 mm down stone aggregates, etc all complete with graded aggregate (20/12.5/10 mm) and as per specification and drawing.(Pockets/embedded plates for fixing of Y shaped MS posts for concertina shall be provided as per drawing, embedded plates, concertina and Y shaped MS post to be paid separately as per item no 2006). Bidder has to manufacture precast columns at factory equipped with required prsestreessing equipment and transport to site & store at location identified by BHEL/NTPC. Cost of transportaion from factory to site etc. is included in this item. ALL MATERIALS TO BE SUPPLIED BY CONTRACTOR FOR FACTORY MANUFACTURED PRE-CAST WORKS.	CuM	1,000	2,100	3,100		
213A	Providing and laying factory manufactured Precast Reinforced concrete wall panels, copings, architectural features etc. as per approved design and drawing submitted by bidder with design Mix cement concrete of grade M30 as per IS:456 & IS 10262-2009 using graded aggregate for Concrete in precast boundary-wall works . The work shall include cost of formwork/moulds , provision of suitable grooves/key for interlocking of panels after erection, curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transpoting for all leads, erection with required T&P without damage, setting in position with cement sand mortar (1:3), filling the gaps with cement sand mortar (1:3) , etc all complete with graded aggregate (20/12.5/10 mm) and as per specification and drawing. Bidder has to manufacture precast items at factory and transport to site & store at location identified by BHEL/NTPC. Cost of transportaion from factory to site etc. is included in this item. Logo of NTPC as per their standard design shall be inbuilt in upper wall panels as per approved design and formwork shall be made suitably to incorporate NTPC logo in mould. ALL MATERIALS TO BE SUPPLIED BY CONTRACTOR FOR FACTORY MANUFACTURED PRE-CAST WORKS.	CUM	1,500	2,950	4,450		
213B	Providing and laying Design Mix cement concrete as per IS:456 for cast in situ reinforced concrete works using graded aggregate for boundary-wall works (column, wall panels, copings, architectural features as per drawing etc. all complete) , curing, rendering the top exposed surface with cement sand mortar (1:3), etc all complete with graded aggregate (20/12.5/10 mm) and as per specification and drawing for following grades.(Pockets/embedded plates for fixing of Y shaped MS posts for concertina shall be provided as per drawing, embedded plates, concertina and Y shaped MS post to be paid separately as per item no 2006) CEMENT WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC						
a	M 30 grade	CUM	700	1,300	2,000		
300 FORM WORKS							
Providing, fixing and removing formwork at any elevations for all structures, as per specifications and including all labour, material, scaffoldings and centering complete including pockets etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.							

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY for Phase I	QUANTITY for Phase II	TOTAL QUANTITY FOR Phase I & Phase II	RATE (INR)	AMOUNT (INR)
301	Fairface form work with good quality water proof ply wood of required thickness and smooth surface below finished ground floor level for foundations/footings, of boundary wall all complete.	SQM	7,000	13,300	20,300		
400 REINFORCEMENT/HTS WIRE							
402	Providing, straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of TMT steel of grade Fe-500 HYSD confirming to IS:1786 including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. REINFORCEMENT STEEL WILL BE SUPPLIED FREE OF COST BY BHEL AS PER TCC	MT	435	600	1,035		
402A	Providing, straightening, stretching, placing in position as per drawing, cutting after casting of concrete etc. of uncoated stress relieved strands (diameter, length, ply and number as per drawing) of minimum 0.2 percent proof load of 32460 N confirming to IS:6006 in precast wall panels, columns etc. complete all as per specifications, drawings and as directed by Engineer. ALL MATERIALS TO BE SUPPLIED BY CONTRACTOR	MT	15	30	45		
2006	Supplying and fixing 600mm high concertina on top of boundary wall as per specification with Y shaped MS angle (maximum loop spacing of 125mm) including GI tension wires, clips, anchors, accessories, embedded plates etc. all complete. Concertina shall be from tensile serrated galvanised wire (HTSW) made with wire diameter of 2.5 mm which will be stretched to 6m and attached on two strands of galvanised HTSSW (high tensile spring steel wire) of 2.5mm dia by means of clips at 1m interval. These two HTSSW strands will be attached to the fence posts/ angles with 12 mm security fasteners. All nuts, bolts, fasteners, clamping strips, clamps, clips etc. shall be galvanized(@610 gm/sq.m.). MS angle posts, embedded plates etc. shall be painted with chlorinated rubber paint provided over 50 micron thick chlorinated rubber based zinc phosphate primer coat. cost of galvanization/painting etc. is included in this item.	RM	6,000	13,000	19,000		
2304	Providing and applying 60 micron thick self curing inorganic Zinc ethyle silicate primer coat over blast cleaned MS angle posts, embedded plates etc.followed by minimum 75 micron DFT of Intermediate Coat of Polyamide Cured pigmented Micaceous Iron Oxide (MIO content minimum 30%) Epoxy based Paint (Solid by Volume Minimum 62+2%) as intermediate coat . Intermediate Coat shall be followed with the application of Finish Coat of Polyamide Cured colour pigmented Epoxy based Paint (Solid by Volume Minimum 60%) of Minimum 75 Micron DFT. Finish Coat shall be followed with the application of Final Finish Coat of Polyurethane based colour pigmented Paint of minimum 50 micron DFT. cost of primer and paint is included in this item.	MT (of steel)	20	40	60		
2304A	Providing and applying two coats of total 60 micron DFT red oxide primer coat over manually cleaned MS angle posts, embedded plates etc.followed by two coats of minimum 75 micron total DFT of synthetic enamel paint.	MT (of steel)	16	34	50		
TOTAL							

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	(i) PACKAGE A - Civil, Structural and Architectural works etc. of BTG area for Unit # 1 & 3 for 3X660 MW North Karanpura STPP, Jharkhand. (ii) PACKAGE B - Civil, Structural and Architectural works etc. of BTG area for Unit # 2, Boundary wall in two phases and watch towers for 3X660 MW North Karanpura STPP, Jharkhand.	
Ref	1.0	Tender no PSER:SCT:NKP-C1629:14
	2.0	BHEL's NIT, vide reference no PSER:SCT:NKP-C1629:4090 Date: 25-11-2014
	3.0	BHEL's TCN-01, vide reference no PSER:SCT: NKP-C1629:TCN-01 Date: 03-12-2014
	4.0	BHEL's TCN-02, vide reference no PSER:SCT: NKP-C1629:TCN-02 Date: 11-12-2014
	5.0	BHEL's TCN-03, vide reference no PSER:SCT: NKP-C1629:TCN-03 Date: 19-12-2014
	6.0	All other pertinent issues till date.

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/ issued by you and in case of such 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. We hereby confirm our unqualified acceptance to all terms & conditions, unqualified compliance to technical specification, integrity pact (if applicable) and acceptance to reverse auctioning process.

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 in accordance with tender instructions and as per aforesaid references.

Thanking you,

Yours faithfully,

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

<p>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 : 23211798/ 1691</p>
