

TENDER SPECIFICATION

BHEL PSSR SCT 1348

**GENERAL CIVIL WORKS FOR MAIN PLANT &
AUXILLARY PLANT BUILDINGS**

FOR

2 X 600 MW TPS

FOR

**TAMIL NADU ELECTRICITY BOARD
At
NORTH CHENNAI TPS – STAGE II
ATHIPATTU, TAMIL NADU**

VOLUME - III

RATE SCHEDULE

BOOK NO



**BHARAT HEAVY ELECTRICALS LIMITED
(A GOVERNMENT OF INDIA UNDERTAKING)
POWER SECTOR – SOUTHERN REGION
690, ANNA SALAI, NANDANAM, CHENNAI – 600 035**

BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India Undertaking)
POWER SECTOR – SOUTHERN REGION,
690, ANNA SALAI, NANDANAM, CHENNAI – 600 035.

TENDER SPECIFICATION No. BHEL PSSR SCT 1348

NAME OF THE WORK

Construction of General Civil works for Main plant & Auxiliary plant buildings for
2 x 600 MW at North Chennai TPS, TamilNadu.

Volume III
RATE SCHEDULE

DATE:

Issued to
M/s.

For and on behalf of
BHARAT HEAVY ELECTRICALS LTD

AGM / CONTRACTS

The tender documents are not transferable.

Place: Chennai-600035
Date:

PREAMBLE FOR THE SCHEDULE OF QUANTITIES

PREAMBLE TO THE SCHEDULE OF QTS. (SOQ)

- 1) Details of the items in this Schedule shall be read in conjunction with the corresponding TNEB specifications, drawings and other documents and shall have precedence over any contrary statement mentioned any where in this document.
- 2) The work shall be carried out as per construction drawings, specifications, the description of the items in this schedule and/or Engineer's instructions., The layout, sizes and details of the building, structures and foundations shown in tender drawings may vary at a large extent during actual construction. Final drawings will be issued progressively during the execution of the work.
- 3) Items of work provided in this schedule but not covered in the specifications shall be executed strictly as per instructions of the Engineer.
- 4) Unless specifically mentioned otherwise in the contract, the bidder shall quote his rates for the finished items and shall provide for the complete cost towards fuel, tools, tackle, equipment, constructional plant , temporary works, labour, materials, levies , taxes , transport, layout, repairs, rectification, maintenance till handing over, supervision, shops, establishments, services , temporary roads, revenue expenses, contingencies, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the works according to the contract.
- 5) The rate quoted shall be inclusive of cleaning the site of any vegetations, dressing and leveling etc., required for commencement of site activities. No separate payment will be made towards the same.
- 6) The rate shall also be inclusive of carrying out survey of site to establish levels and coordinates at suitable intervals, form existing grid levels and coordinates furnished by the owner, establish bench marks, setting out the location and levels of the proposed structures, constructions and making references , pillars and other identification marks etc. No separate payment will be made towards the same.
- 7) The quantities of the various items mentioned in the schedule are approximate and may vary up to any extent or be deleted altogether. The quoted rates of each item shall remain firm as long as the variation in the total value of the works remain within +/- 30% (thirty percent) of the Bid Price of the work. The variation clause will be applicable as stipulated in the General conditions of contract, Volume 1 of this tender.
- 8) Rates shall be quoted both in figures and in words in clear legible writing. No over writing is allowed. All scoring and cancellation should be counter signed by the bidder. In case of illegibility, the interpretation of the engineer shall be final. All entries shall be in English language.

- 9) Engineers decision shall be final and binding on the contractors regarding clarification of items in this schedule with respect to the other section of the contract.
- 10) Unless otherwise specified in the schedule of items structural and reinforcement steel will be issued by BHEL as FREE ISSUE as specified elsewhere in this tender document.
- 11) In case of any discrepancy between item description, relevant drawing and/or specification clarification shall be sought at tender stage itself. Otherwise it shall be assumed that the bidder has quoted for the more stringent requirement.

HIERARCHY

In case of any conflict/deviations amongst various documents, the order of precedence shall be as follows

- Items in Schedule of quantities
- Statutory Regulations
- TNEB specification
- BHEL's standard specification (with prior approval of Engineer-in-charge).
- IS/BS standards


GENERAL:

The following points to be taken care while submitting the offer in this tender specification

Technical requirements in Volume- II should be read in conjunction with BOQ in Volume – III and other sections of the tender / contract. In case of any conflict between the contents of BOQ in Volume – III and Technical Requirements in Volume – II, BOQ will prevail over Technical requirements.

In case of any conflict between Technical requirements in Volume – II – Book 1 (Customer specification) and standard technical specification in Volume – II – Book 2, Technical specification in Volume – II – Book 1 (Customer specification) will prevail over standard technical specification in Volume – II – Book 2.

Volume-II-Technical specification consists of Customer Technical specification and BHEL specification and BHEL specification is for the total Project of 2x600MW EPC tender (reproduced).

 2X600 MW NORTH CHENNAI		TENDER SPECIFICATION			BHEL:PSSR:SCT1348
BILL OF QUANTITIES FOR UNIT - 1					
General Civil Works for Main Plant & Aux. Plant Buildings					
Sl. No	DESCRIPTION	UNIT	Qty	RATE	VOLUME III AMOUNT
				In figures	Rs.
100	EARTH WORK IN EXCAVATION, BACKFILLING AND DISPOSAL AS PER SPECIFICATION AND DRAWINGS				
101	Excavation in all types of soils, soft rock and weathered rock except hard rock which requires blasting either by manual using crow bars, pick axe, etc., or machineries including trimming of excavation bottom, removal of loose materials to receive concrete bed as per std specifications drawings and instructions of the engineer. The rate shall include disposal of excavated materials within an initial lead upto 1KM and initial lift upto 2M , stacking,levelling, grading, etc., complete.				
i)	In all types of soils, soft rock and wethered rock not requiring chiselling, chemical grouting and blasting.	CUM	65000		
102	Extra over item 101 above, for all types of soil/rock, for additional lifts beyond the initial lift of 2 meters (included in item 1 above) all complete as per specifications, drawings and instructions of the engineer for the following lift. Rate quoted shall be for the quantity specified for particular lift only.				
i)	In all types of soils, soft rock and wethered rock				
a	beyond 2 m and upto 4 m	CUM	29000		
b	beyond 4 m and upto 7 m	CUM	5000		
c	beyond 7 m and upto 10 m	CUM	1000		
103	Extra over item No 101 for excavation & other filling works below ground water table by de-watering using well-point/suitable method for lowering of ground water table to maintain dry working conditions for all activities up to filling/testing, water proofing all complete as per specifications, drawings and instructions of the engineer in charge. The payment shall be on the basis of earth work excavation involved in that particular area.	CUM	35000		
104	Extra over item 101 above for Disposal/carriage of all types of excavated materials beyond the initial lead of 1KM as per specifications, drawings and instructions of the engineer for the following leads				
i)	Carriage beyond an initial lead of 1KM (Rate for every ONE KM)	CUM	20000		

SIGNATURE OF THE BIDDER

Sl. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
105	Filling using selected excavated materials in trenches, plinths, sides of foundations and other underground structures, pipes, are levelling etc. in layers not exceeding 250 mm thickness for all leads and all lifts and including loading from stock pile, carting, unloading, filling, watering and compacting/ramming each layer, all complete as per specifications, drawings and as directed by the engineer to achieve the following densities:				
i)	Ordinary manual compaction	CUM	2000		
ii)	90% Standard Proctor density	CUM	15000		
105A	Filling using selected excavated materials directly from excavation area in trenches, plinths, sides of foundations and other underground structures, pipes, area levelling etc. in layers not exceeding 250 mm thickness including all lifts, filling, watering and compacting/ramming each layer, all complete as per specifications, drawings and as directed by the engineer to achieve the following densities:				
i)	Ordinary manual compaction	CUM	1000		
ii)	90% Standard Proctor density	CUM	10000		
105B	Filling using selected materials in trenches, plinths, sides of foundations, in the space below the grade level slab and other under ground structures, pipes etc. in layers not exceeding 250 mm in thickness including all lifts and including excavating, loading, unloading, carting, filling, watering and compacting/ramming each layer, all complete as per specifications, drawings and as directed by the engineer for the following works				
i)	With selected soil brought from borrow areas arranged by contractor, including royalties, fees etc.for all leads and compacted to following densities				
a)	Ordinary manual compaction	CUM	500		
b)	90% Standard Proctor density	CUM	10000		
106	Filling with good river sand including royalties and all other statutories and compacting to 85% relative density, etc., for all leads.	CUM	1000		
107	Filling in trenches, plinths, area paving and other underground structures with stone (63 mm down graded), in layers including breaking of boulders to required sizes, filling the interstices with good river sand, watering and machanical compactoion for all leads and lifts, etc., complete as per instructions of engineer-in-charge.	CUM	6000		
108	Filling in transformer pits etc. , with clean 40 mm nominal size stone aggregate including all labour, materials, royalties, equipments etc. complete as per instructions of engineer in charge.	CUM	500		
109	Bulldozing earth for grading of ground including removal of vegetation complete including disposal of debris upto 5 kms.	CUM	1000		

SIGNATURE OF THE BIDDER

SI. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
116	Providing, stacking and laying 250mm thick boulder pitching (single stone) on the slopes of earth fill/cut with approved quality of rock fragments including necessary excavation (if any) compaction etc all complete as per specification, drawing and as directed by the engineer.	CUM	500		
	ANTI TERMITE TREATMENT				
117	Providing anti termite treatment in column pits,wall trenches,foundations, under floors etc. with chloropyrifos emulsifiable concentrate (1%) confirming to IS - 8944 as per specifications.	SQM	25000		
200	PROVIDING AND PLACING CONCRETE WORK INCLUDING COST OF LABOUR, MATERIALS AND EQUIPMENT FOR HANDLING, TRANSPORTATION, BATCHING, MIXING, PLACING, VIBRATING AND CURING INCLUDING COST OF PLASTICIZER CONFORMING TO SPECIFICATIONS FOR STRUCTURAL CONCRETE WHEREVER REQUIRED (EXCLUDING COST OF CENTERING, SHUTTERING AND REINFORCEMENT) COMPLETE AS PER DRAWING AND SPECIFICATIONS UNLESS SPECIFIED OTHERWISE FOR THE FOLLOWING:				
201	Concrete of grade 1:3:6 as filling course at any level below finished floor level, under and around foundations/floors, mass dumps etc with 40 mm nominal size graded aggregate.	CUM	500		
202	Concrete of grade M15 as levelling course , under and around foundations/floors etc with 40 mm nominal size graded aggregate.	CUM	4000		
203	Concrete of grade M20 in foundations, under floors, paving, plinth protection, pipe encasing etc. complete with 20 mm nominal size graded aggregate.	CUM	1000		
203A	Concrete of grade M15 in foundations, under floors, paving, plinth protection, pipe encasing etc. complete with 20 mm nominal size graded aggregate.	CUM	350		
204	Concrete of grade M-25 in foundations, under floors, pipe encasement etc complete with 20 mm nominal size graded aggregate.	CUM	10000		
205	Concrete of grade M-25 in superstructure above finished floor level complete at all heights with 20 mm nominal size graded aggregate	CUM	15000		
206	Concrete of grade M-30 in Machine foundations / Decks, Sub structure of Machine Foundations etc at all heights from finished floor level 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.	CUM	1000		

SI. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
206a	Providing and laying Design Mix M35 grade for reinforced concrete works using 20mm graded aggregate in top decks of machine foundations, TG deck etc, at all levels including addition of suitable plastisizers conforming to IS9103 to achieve a slump more than 125 mm in concrete as per manufacturers recomendation, preperation of scheme for concreting, getting it approved by engineer, labour, materials, equipment, handling, batching, transporting, mixing, pumping, placing, leveling, vibrating, compacting, curing, testing, cleaning 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, but excluding formwork, staging, reinforcement, embeddments, UPV test and temperature control of concrete.	CUM	2500		
207	Providing and laying Design Mix M40 grade for reinforced concrete works using 20mm graded aggregate in top decks of machine foundations, TG deck etc, at all levels including addition of suitable plastisizers conforming to IS9103 to achieve a slump more than 125 mm in concrete as per manufacturers recomendation, preperation of scheme for concreting, getting it approved by engineer, labour, materials, equipment, handling, batching, transporting, mixing, pumping, placing, leveling, vibrating, compacting, curing, testing, cleaning 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, but excluding formwork, staging, reinforcement, embeddments, UPV test and temperature control of concrete.	CUM	1000		
207a	Extra over item no 206, 206a & 207 above for conducting UPV testing as per IS: 13311 (Part-1). as directed by engineer in charge, including submission of test reports foure copies.Rate to includes all labour charges,staging and other miscellaneous charges etc complete as per specification.If any defect found in UPV test, the same shall be grouted with epoxy pressure grout as directed by the Enginner incharge. ,	CUM	2500		
207b	Extra over It. No. 206, 206a & 207 above, for controlling of temperature of freshly laid 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	2500		
208	Screed concrete 1:2:4 conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5mm/6 mm nominal size on the roof, underbed of flooring at any level or thickness complete.	CUM	1600		

SIGNATURE OF THE BIDDER

Sl. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
209	Concrete of grade M-25 in precast works like drain/trench covers, lintels, beams, roof slabs, etc.at all levels in all kinds of work including formwork/moulds, curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transpoting, all leads, erection without damage, setting in position with cement sand mortar (1:3), filling the gaps between adjusant precast units with M30 concrete or cement sand mortar (1:3) and including making of holes for bolts for fixing, welding etc.complete with graded aggregate (20/12.5/10 mm).	CUM	150		
212	Dismantling concrete work for all types of structures at all levels including disposal upto a lead of 1 km, cutting of reinforcement, labour, equipment, safety precautions etc all complete as per drawings, specification and instructions of engineer in charge.				
i)	Plain cement concrete of all grades	CUM	50		
ii)	Reinforced cement concrete of all grades	CUM	50		
212a	Applying Curing Compound of Approved make & Quality to a fresh concrete surface as per standard specification.	SQM	20000		
213	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 1 km as directed by engineer including equipment, safety precautions etc all complete as per specification, drawing, instructions of engineer in charge but excluding cutting of reinforcement	CUDM	100		
214	Extra over and above St No 213 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.	SQM	200		
300	SUPPLYING, FIXING AND REMOVING FORMWORK AT ANY ELEVATIONS FOR ALL STRUCTURES, AS PER SPECIFICATIONS AND INCLUDING ALL LABOUR MATERIAL, SCAFFOLDINGS AND CENTEREING COMPLETE INCLUDING POCKETS ETC. FOR THE FOLLOWING:				
301	Ordinary form work below finished ground floor level for foundations, footings, bases of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.	SQM	12000		
302	Fairface form work below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc. for exposed concrete works.	SQM	20000		
303	Ordinary form work above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches etc. for all heights.	SQM	15000		

SIGNATURE OF THE BIDDER

Sl. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
304	Fairface form work above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches etc. for all heights.	SQM	25000		
305	Fairface formwork for Machine foundations/Decks like MDBFP, TDBFP etc at all heights from finished floor level..	SQM	1500		
305 A	Staging and destaging required for all decks like TG & ID etc including submission & approval of design/drawings as per specifications and including all labour, staging materials etc complete.	MT	200		
305 B	Ornamental/curved shuttering using fairface formwork	SQM	1000		
306	Providing, fixing and removing formwork in block-outs/pockets and openings (below 0.1 sqm contact surface area with concrete) 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.				
i)	Upto 300 mm depth	NOS	4000		
ii)	From 301 mm upto 600 mm depth	NOS	200		
iii)	From 601 mm upto 1000 mm depth	NOS	100		
400	REINFORCEMENTS				
402	Straightening, cutting, bending, placing at any level, binding in position high yield strength steel reinforcements in concrete including cost of binding wire, labour, transportation of reinforcement steel from BHEL stores within the plant boundary to work spot, loading, unloading etc. complete all as per specifications & drawings.	MT	2700		
402 a	Extra over item 402 for providing FUSION BONDED EPOXY COATING. The bidder to transport the steel from BHEL site stores to Vendor plant and bringing back to site and special handling during straightening, cutting, bending, placing and providing PVC coated binding wire.	MT	500		
500	WATER PROOFING AS PER SPECIFICATIONS. (Contractor has to furnish a guarantee for material and workmanship for a minimum period of 20 years.)				
501	Providing and fixing roof water proofing water treatment consisting of nine course of extra heavy duty bitumen felt (type 3 Gr. 1 as per IS:1322 or IS:9918) water proofing. Water proofing will be laid over 100mm thick foam concrete insulation of density 400 kg/cu.m minimum resistivity of 1.17 as per IS:6598 and of required thermal conductivity. This shall be finished with 20mm thick pressed pre-cast concrete tiles on 15mm thick cement sand (1:4) mortar under bed. Rate to include bitumen felt, underbed, foam concrete, finishing layer, material, labour all complete as per specification.	SQM	12000		

Sl. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
501b	The membrans used for watering underground structures shall be 7 layered membrane similar to 5 layered roofing membrane, but reinforced with a non-oven polyster mat of minimum 140g/sq.m for additional mechanical strength and covered with additional layer of polymeric asphalt. product to be used shall be MULTIPLAS HYPER or approved equivalent all complete as per specification.	SQM	1000		
502	Providing and laying chequered concrete tiles over water proofing of minimum size 200 X 200 and minimum thickness 20 mm confirming to IS 13801 including 15 mm thick cement mortar (1:4) bedding. (water proofing paid else where)	SQM	500		
503	Providing two coats of bituminous paint on concrete surfaces in contact with soil in water retaining structures, of grade 85/25 conforming to IS: 702 @ 1.7 kg/sqm for two coats..	SQM	6000		
600	SUPPLYING & INSTALLATION OF JOINT FILLER AND SEALING COMPOUND:				
601	Supplying & installation of bitumin impregnated fibre board confirming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin, labour, material, equipments etc all complete at all levels as per specification, drawings and instruction of engineer in charge:				
a	12mm thick joints.	SQM	125		
b	20mm thick joints.	SQM	10		
c	25mm thick joints.	SQM	65		
d	50mm thick joints.	SQM	10		
602	Supplying and filling in position hot applied bitumin sealing compund(Grade A) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing copmpound in gaps in joints at all levels including application of primer, labour, material, equipments etc. all complete as per specification/drawing, instruction of engineer in charge.	KGS	550		
700	M.S. EMBEDMENTS				
701	Supply, fabricating and fixing of embedments MS inserts, pipe sleeves, guide rails, angle pieces, foundation bolts, anchor bolts, rungs of various diameters, plates of dimensions as required including cost of all labour, materials and equipment, transportation, loading, unloading, handling, welding, bolting, cutting, drilling, scaffolding and setting as per specifications and drawings.	MT	40		
702	Fixing of embedments, MS inserts, pipe sleeves, rails, guide rails angle pieces, anchor bolts of various diameters, plates of dimensions as required including cost of all labour, materials and equipment for fixing in position, scaffolding and setting in position, transportation from BHEL stores within the plant boundary to work spot , loading, unloading etc. complete as per specifications and drawings. (Only embedments will be provided by BHEL at free of cost)	MT	70		

SIGNATURE OF THE BIDDER

Sl. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
703	Providing, fabricating, transporting, erecting and installing at all elevations miscellaneous steel/PVC pipes, expansion fasteners in concrete/brickwall, for all kind of works, including the cost of labour, material and equipment, setting material in concrete, layout, scaffolding, handling at site, cutting, forming, grinding, drilling, bolting, welding, jointing, testing etc. all complete as per drawings and specifications and instructions of engineer.				
i	MS pipes of all diameters	KGS	2000		
ii	Expansion fasteners (galvanised) of HILTI make or equivalent of safe tension capacity as specified below:				
a	250 kg	EACH	125		
b	500 kg	EACH	100		
c	750 kg	EACH	75		
704	Supply, fabrication, transportation, delivery at site, erection, installation and alignment of MS foundation bolt (Grade-A of IS:432 & IS:2062) assembly in concrete along with nuts, lock nuts (IS:1363, IS:1364 & IS:3138), anchor plates, stiffner plates, protective tape etc. including labour, materials, equipments, welding, cutting, grinding, threading, drilling, pipe sleeves etc. all complete as per specification, drawing and instruction of the engineer.	MT	10		
705	Providing all assistance for pre compressing, placing, locking and releasing of vibration isolation system over foundations at all elevations including transportation from BHEL stores , providing necessary staging, platforms,alignment all complete as per drawing and instructions of engineer in charge.	NOS	20		
800	GROUTING AS PER SPECIFICATION FOR THE FOLLOWING:				
801	Providing & grouting cement slurry mix at any elevation/depth with pressure pump for water retaining concrete structures, including fixing nozzles, cost of approved cement, admixture, curing, etc all complete as per specification and as directed by the Engineer.	CUM	5		
802	Providing and grouting of pocket holes, pipe sleeves of any shape and size under base plates after erection of necessary structural steel work, machinery with mix 1:1:2 (one part Cement : 1part Sand : 2 parts of 6mm down graded stone chips) at any elevation including roughening surface, cleaning, ramming, curing etc complete (non-shrink hand grout using approved admixture) as per specification and as directed by the Engineer.	CUM	10		
803	Providing & grouting of pocket holes, pipe sleeves of any shape and size under base plates after erection of necessary structural steel work, machinery with mix 1:1(1 part cement : 1part sand) at any elevation including roughening surface, cleaning, ramming, curing etc complete (non-shrink flowable grout as per specification using approved admixture) as per specification and as directed by the Engineer.	CUM	10		

SI. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
804	Providing & grouting of pocket holes, pipe sleeves of any shape and size under base plate after erection and alignment if necessary, structural steel work, machinery at any elevations including roughening surface, cleaning, ramming, curing, etc with Sika grout-104/ Anchor NSG/CobextraGP-2/CobextraGP-1/Pidigrout10/Pagel or equivalent all complete as per specifications. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor).	CUM	10		
900	DOORS, WINDOWS, VENTILATORS, LOUVERS, ROOF VENTILATORS, ROLLING SHUTTERS, PARTIONS ETC. COMPLETE AT ALL ELEVATION INCLUDING FRAMING, KICK PLATES, STOPPERS AS PER SPECIFICATION AND DRAWINGS (all steel doors, windows and rolling shutters etc shall be blast cleaned to near white metal surface (Sa 2 1/2), painted with two coat of red oxide zinc primer and finished with two coats of synthetic enamel paint confirming to IS2074)				
901	Providing, fitting and fixing solid core flush door shutter as per IS2202 part II, 45 mm thick homogeneous particle board (decorative veneer prelamated on both sides) bonded with BWP type phenol formaldehyde synthetic resin, particle board core conforming to IS3087 type I, teak wood beading all around including preparation of working drawings, doors frame, shutter, butt hinges, tower bolt, sliding bolt handles, knobs, door stoppers (all fitting shall be anodised aluminium color dyed), screws etc complete as per drawing, specification and instructions of engineer in charge.	SQM	100		
901A	Providing and fixing 12 mm thick particle board , decorative veneer (prelaminated) on both sides, as panels in aluminium framed door shutter, fixed with necessary snap-on-beading (excluding the cost of aluminium works).	SQM	100		
902	Providing and fixing openable/fixed steel windows and ventilators with steel sections as per IS:1361 including wire mesh, painting with minimum 2 coats of synthetic enamel paint on primer complete.	SQM	600		
903	Providing and fixing steel single or double door shutters. Shutters shall be 45mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers side, top, bottom edges of shutter shall be of pressed steel channels of 1.2mm thk voids to be filled with mineral wool (48 kg/cum density) confirming to IS-1038& IS-4351 including all fittings like tower bolts, handles, stoppers, aldrops etc. and painting with minimum 2 coats of synthetic enamel paint on primer complete.	SQM	310		

SI. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
904	Providing and fixing fire proof steel doors (single or double shutter) with panic devices shall be 45mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers including all fittings, shop painting with approved post office/signal red color fire resistant paint and mineral wool insulation (64 kg/cum density) complete and shall be fire proof as per IS:3614, TAC requirements and as per specification. Minimum ratings shall be 2 Hrs.	SQM	250		
905	Providing and fixing anodised aluminium work for doors, windows, ventilators and partitions etc with extruded standard tubular and other sections including all fittings & fixtures and accessories, swing type or sliding type 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, screws or with fixing clips, including necessary fillinf 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 (hydraulic door closers, Glazing and panelling shall be paid seperately).	SQM	2500		
906	Providing and fixing of over head hydraulic door closers confirming to IS-3564 of approved make & quality as directed by Engineer.	NOS	300		
907	Providing and fixing floor mounted Hydraulic door closer confirming to IS-3564 of approved make & quality as directed by engineer	NOS	20		
908	Providing and fixing pressed steel frames fabricated from 18 gauge M.S sheet mortised, reinforced strikes, hold fasts, adjustable floor anchors, floor tiles/weather bars etc. confirming to IS-4351 complete as per specifications.	KGS	9000		
909	Providing and fixing in position rolling shutters of approved make as per IS 6248, made of 75 x18g M.S laths interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation including wire springs top cover, 3coats of approved enamel paint etc., all complete as per specification- Hand operated .	SQM	500		

Sl. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
910	Providing and fixing in position rolling shutters of approved make as per IS 6248, made of 75 x18g M.S laths interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation including wire springs top cover, 3coats of approved enamel paint etc., all complete as per specification- Mechanically operated.	SQM	100		
911	Providing and fixing in position rolling shutters of approved make as per IS 6248, made of 75 x18g M.S laths interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation including wire springs top cover, 3 coats of approved enamel paint etc., all complete as per specification- Electrically operated.	SQM	100		
912	Providing, fabricating and fixing in position window grills as per approved design pattern at all elevations and of all sizes including with or without openings for operating window handles with all labour, material. Handling, equipment complete etc as per specification, drawing and instructions of engineer in charge.				
i)	Made of anodised aluminium sections	SQM	150		
913	Providing, fitting and fixing of glazing including poly carbonate sheet of superior (selected) quality, first grade class, at various elevations, where required, cleaning after fixing, with all labour and material etc. complete as per specification, drawing and instructions of engineer in charge.				
i)	4 mm ground/frosted glass	SQM	300		
ii)	5.5 mm flat transparent sheet glass as per IS:2835	SQM	100		
iii)	5.5 mm clear float glass as per IS:2835	SQM	1200		
iv)	6 mm wired glass as per IS: 5437	SQM	1100		
v)	6 mm thick polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges.	SQM	200		
vi)	5.5 mm tinted glass	SQM	120		
vii)	Two nos. 6 mm thick clear toughened safety glass conforming to IS: 2553 hermetically sealed and seperated by 12 mm thick gap for thermal insulation.	SQM	400		
914	Providing, fitting and fixing heavy duty minimum six lever mortised lock of godrej or equivalent make with handles or knobs to single and double leaf door (wooden/steel/aluminium) with duplicate set of keys and masterkeyed locks, openable from one side by the key and from the other side by the handle etc. all complete as per drawing, specification and instruction of engineer in charge.	EACH	50		
915	Providing and fixing PVC doors of sintex or equivalent make including all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	SQM	150		

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Sl. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
1000	BRICKWORK MASONRY INCLUDING SUPPLY OF MATERIAL, COST OF LABOUR ETC. COMPLETE, AS PER SPECIFICATIONS.				
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.(Bricks shall be of class designation 50kg/Sq cm of nominal dimensions as per IS-1077 .)	CUM	5000		
1001a	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.(Fly ash Bricks shall be of min 50kg/Sq cm of nominal dimensions as per IS-12894.)	CUM	500		
1002	Providing brick work in cement mortar 1:5 (1 cement 5 coarse sand) in walls, chambers etc. in thickness 254mm at all heights, places and position above plinth including raking out joints, curing, scaffolding etc complete excluding plastering and painting. (Bricks shall be of class designation 50kg/Sq cm of nominal dimensions as per IS-1077.)	CUM	2000		
1004	Providing brick work in cement mortar 1:4 (1 cement 4 coarse sand) in partition walls , chambers etc. in thickness 127mm at all heights, places and position above or below plinth/graded level including reinforcing with 2nos 8mm rod at every 4th course , raking out joints, curing, scaffolding etc complete including materials, labour etc, excluding plastering and painting as per specification.(Bricks shall be of class designation 50kg/Sq cm of nominal dimensions as per IS-1077.)	SQM	1500		
1004 a	Providing brick work in cement mortar 1:4 (1 cement 4 coarse sand) in partition walls , chambers etc. in thickness 127mm at all heights, places and position above or below plinth/graded level including reinforcing with 2nos 8mm rod at every 4th course , raking out joints, curing, scaffolding etc complete including materials, labour etc, excluding plastering and painting as per specification.(Fly ash Bricks shall be of min 50kg/Sq cm of nominal dimensions as per IS-12894.)	SQM	500		
1008	Breaking of existing brick work with plastering at all levels including plastering, removing the rubbish up to a distance of 1KM including transportation, loading, unloading etc. all complete as directed by the engineer.	CUM	100		
1009	Breaking of existing brick partition wall with plastering at all levels including plastering, cutting of reinforcement, removing the rubbish up to a distance of 1KM including transportation, loading, unloading etc. all complete as directed by the engineer.	SQM	100		

Sl. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
1010	Providing and encasing of structural steel member with masonry work around flanges, webs etc. and filling the gap between steel and masonry by minimum 12mm thick mortar. Encased member shall be wrapped with checken wire mesh with 50mm lap etc. complete as per specification.	CUM	100		
1012	Making openings in existing brick wall or partition wall at all heights including making good the broken edges/surface with cement mortar etc. complete.	CUM	100		
1013	Supply and placing in position mild steel wire fabric/ GI wall ties of square mesh 25 mm/GI wall ties 4mm thick, 50mm wide & 200mm long and wire diameter of 2 mm/GI wall ties for encasing of steel sections/bonding masonry units with concrete or steel columns in concrete including cutting, bending, fixing etc. complete.	SQM	3000		
1014	Providing and filling brick bats in under plinth protection, soak pits etc.	CUM	1000		
1100	DAMP PROOF COURSE INCLUDING ALL MATERIALS LABOUR, SHUTTERING, CENTERING, CURING ETC., COMPLETE WITH THICKNESS AS SPECIFIED/SHOWN ON DRAWINGS.				
1101	Damp Proof Course 50 mm thk. 1:1.5:3concrete (6mm down aggregate) with 2% of approved admixture of water proofing compound. Hot bitumen @ 1.7Kg./sqm shall be applied before & after the DPC as per specification.	SQM	1000		
1200	CEMENT MORTOR PLASTER INCLUDING ALL MATERIALS SCAFFOLDING, CURING ETC. COMPLETE AS PER SPECIFICATION				
1201	Providing 12 mm thick plaster in cement mortar 1:6 on the even side of internal walls, finished to a smooth finish as per specification.	SQM	25000		
1202	Providing 18 mm thick plaster in cement mortar 1:6 on the uneven side of internal walls, with a smooth finish as per specification.	SQM	7000		
1204	Providing 20 mm thick plaster in two layers, under layer 14 mm thick in cement mortar 1:6 and top layer 6 mm thick in cement mortar 1:4 with approved water proofing compound on walls finished to a wooden float/smooth/rough finish as per specification.	SQM	20000		
1205	Providing 6mm thick plaster in cement mortar 1:4 on ceilings finished to a smooth finish as per specification.	SQM	12000		
1206	Providing and making decorative plaster over existing plastered surface of all types and design on walls, ceilings, arcs, columns with various thickness upto 20 mm including finishing all complete.	SQM	1100		
1207	Providing Plaster of Paris 2 mm thick punning over finished plaster surface and finished with smooth surface as per specification.	SQM	1000		
1208	Providing screed/grading plaster of average 20 mm thickness in ratio 1:6 nominal by volume including finishing smooth and even etc. all complete at all levels above or below grade level.	SQM	15000		

Sl. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
1209	Providing and making decorative interior plaster of heritage finish over existing plastered surface of all types and design on walls, ceilings, arcs, columns including finishing all complete.	SQM	1000		
1210	Forming groove of uniform size from 12X12 mm upto 20X15 mm in plastered surface as per approved pattern, using wooden battens nailed to the under layer, including removal of wooden battons, repair of the edges of plaster panel and finishing the groove etc. complete as per specification, drawing and the instructions of engineer in charge.	RM	1000		
1212	Providing and laying encasement to box type steel beams at all levels with lath plaster 20 mm nominal thickness with cement plaster (1:4) over galvanised hexagonal chicken wire of 0.9 mm wire diameter and 19 mm mesh size as per IS3150 including all labour, materials, equipment, handling, transporting, mixing, placing, leveling, curing and cleaning, finishing the exposed surfaces etc including centering and shuttering all complete as per specification, drawing and instructions of engineer in charge (rate shall include the cost of GI chicken wire mesh)	SQM	1000		
1300	FINISHES, PAINTING TO CONCRETE, PLASTERED SURFACES, SURFACE PREPARATION INCLUDING ALL MATERIALS, LABOUR, SCAFFOLDING ETC. ALL COMPLETE				
1301	Providing and applying Two or more coats of white wash with lime to give an even shade including a priming coat on ceilings as per specifications.	SQM	6000		
1302	Providing and applying Two or more coats of water bound distemper of approved brand and manufacture to give an even shade including a priming coat on ceilings as per specifications.	SQM	10000		
1303	Providing and applying two 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 including plaster of paris punning minimum 2 mm.	SQM	15000		
1306	Providing and applying two coats of acid/alkali resistant chlorinated rubber paint of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying bitumen primer confirming 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	1000		
1307	Providing and applying two coats of fire resistant transparent paint as per IS: 162 over french polish as per IS: 348 on all woodwork as per specifications.	SQM	750		
1308	Providing and applying Two coats of oil resistant paints epoxy based 150 micron over primer of approved grade and manufacture to give an even shade.	SQM	1500		
1309	Providing and applying two 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 including plaster of paris punning minimum 2 mm.	SQM	4000		

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Sl. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
1310	Providing and fixing terracota tiles of thickness 6 to 8mm over the wall as per approved and of approved size, colour and make as per specification and drawings.	SQM	300		
1311	Providing and applying 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	1500		
1312	Providing and applying three coats of water proof cement paint of approved make and color on exterior surface at all heights including material, labour, scaffolding, curing etc complete as per specification.	SQM	10000		
1400	FLOORING AND SKIRTING INCLUDING ALL MATERIALS, LABOUR, CURING, POLISHING, FINISHING, EXPANSION JOINTS, GROOVES, ETC. COMPLETE IN ALL RESPECTS AS SHOWN ON DRAWINGS AND DESCRIBED IN SPECIFICATIONS. (Under bed to be paid seperately under relevant item)				
1401	Providing and laying 50 mm thick granolithic flooring (cement concrete flooring in 1:1:2) with non metallic hardener pigmented topping of 12 mm thick in flooring complete as per specification.	SQM	5000		
1402	Providing and laying 25 mm thick granolithic flooring (cement concrete flooring in 1:1:2) with non metallic hardener pigmented topping of 10 mm thick in skirting and dado complete as per specification.	SQM	2000		
1403	Providing and laying precast polished heavy duty cement concrete tiles (Carborundum) of size 300X300X25 thick of approved shade as per IS 1237, laid in floors and landings , jointed with neat cement slurry with pigment to match the shade of the tiles including rubbing and polishing complete with laying as per IS 1443.	SQM	1000		
1404	Providing and laying precast polished heavy duty cement concrete tiles (Carborundum) of size 300X300X25 thick of approved shade as per IS 1237, laid in skirting and dado , jointed with neat cement slurry with pigment to match the shade of the tiles including rubbing and polishing complete with laying as per IS 1443.	SQM	200		
1405	Providing and laying interlocking M30 concrete blocks of thickness 60 mm as paving of approved colour and pattern and should be laid on the subbase and bedding as per specifications and recommendations of manufacturer.	SQM	500		

SIGNATURE OF THE BIDDER

Sl. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
1406	Providing and laying removable false flooring with fire resistant particle board panels bonded by phenol formaldehyde of size 600x600x35mm with all panel edges finished to a tolerance of +/- 0.2 mm including 2 mm thick anti static PVC top and lipping, supporting arrangement as per specification, drawings and engineer in charge.	SQM	1000		
1407	Providing & fixing chemical resistant (Acid & Alkali) Tiles as per IS 4860 of minimum thickness 38 mm thick in flooring/Dado . The tiles shall be abrasion resistant and durable. The potassium silicate 6 mm thick mortar as per IS 4832 used for setting or for under bed shall be durable strong and chemical resistant epoxy mortar including pointing etc. after laying bitumen primer as per IS 158 and 12 mm thick bitumastic as per IS 9510 and IS 412 complete as per specification.	SQM	1200		
1408	Providing & fixing chemical resistant (Acid & Alkali) Tiles as per IS 4457 of minimum thickness 25 mm thick in flooring/Dado . The tiles shall be abrasion resistant and durable. The potassium silicate as per IS 4832, 6 mm thick mortar used for setting or for under bed shall be durable strong and chemical resistant epoxy mortar including pointing etc. after laying bitumen primer as per IS 158 and 12 mm thick bitumastic complete as per IS 9510 and IS 412 and as per specification.	SQM	500		
1409	Providing & fixing chemical resistant (Acid & Alkali) bricks (75 mm thk) as per IS 4860 in the floor of neutralization pit. Surface on which lining has to be applied shall be prepared in accordance with IS 2395. Bitumen primer as per IS 158 followed by 18 mm thk Bituminastic followed by 6 mm thk potassium silicate mortar bedding shall be provided before laying AR bricks. The joints between AR bricks shall be filled with resin type of mortar confirming to IS 4832, Part II. Seal coat of readymade epoxy paint shall be provided on joints to cover up any porosity that may be left in mortar. End ceiling shall be done with bitumastic. A.R. bricks shall be laid with 6 mm wide and 20 mm deep pointing (epoxy/furane/CNSL) and acid curing shall be done complete as per specification.	SQM	500		
1410	Providing & fixing chemical resistant (Acid & Alkali) bricks (115 mm thk) as per IS 4860 in the walls of neutralization pit. Surface on which lining has to be applied shall be prepared in accordance with IS 2395. Bitumen primer as per IS 158 followed by 18 mm thk Bituminastic followed by 6 mm thk potassium silicate mortar bedding shall be provided before laying AR bricks. The joints between AR bricks shall be filled with resin type of mortar confirming to IS 4832, Part II. Seal coat of readymade epoxy paint shall be provided on joints to cover up any porosity that may be left in mortar. End ceiling shall be done with bitumastic. A.R. bricks shall be laid with 6 mm wide and 20 mm deep pointing (epoxy/furane/CNSL) and acid curing shall be done complete as per specification.	SQM	750		

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Sl. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
1412	Providing and laying polished Kota stone 20 mm thk in flooring . 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. complete.	SQM	500		
1413	Providing polished Kota stone 20 mm thk in skirting projecting 6mm from adjacent plaster all complete .	SQM	100		
1414	Providing and laying polished Granite stone/thandur blue slab of approved color and texture 20 mm thk in flooring. The granite stone slabs laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. complete .	SQM	3000		
1415	Providing and laying polished Granite stone/thandur blue slab 20 thk in skirting, facia and dado including pigments, curing, grinding, granite polishing etc. complete.	SQM	500		
1416	Providing and laying 7 mm thk Vitrified/heavy duty ceramic tiles of matt finish of size 300x300mm from reputed manufacturer in approved shade and colour, complete as per specification.	SQM	1000		
1416 A	Providing and laying 7 mm thk Vitrified/heavy duty ceramic tiles of matt finish of size 600x600mm from reputed manufacturer in approved shade and colour, complete as per specification.	SQM	1200		
1417	Providing and laying min 5 mm thk glazed tiles in dado as per IS: 777 from reputed manufacturer, complete as per specification.	SQM	1000		
1420	Providing and laying granite stone slab of 20mm thickness single piece for wash basin slab, wall of black or approved colour with cutting and opening complete.	SQM	75		
1422	Providing and laying decorative colored Ceramic Tiles 5mm thick in dado of reputed manufacturer of approved finish shade and colour.	SQM	1200		
1423	Providing and laying 50 mm thick granolithic flooring (cement concrete flooring in 1:1:2) without hardener complete as per specification .	SQM	20000		
1425	Providing and laying of PVC floor tiles & skirting of minimum thickness 2 mm anti static flexible tiles as per IS 3462 and IS 5318 including preparation of surface to receive pvc floor tiles.	SQM	1500		
1428	Providing and laying terrazo tiles of size 250x250x20 mm of approved shade with marble chips of sizes upto 6 mm laid in floors, skirtings and landings, jointed with neat cement slurry with pigment to match the shade of tiles including rubbing and polishing complete.	SQM	1500		

Sl. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
1429	Providing and laying 25 mm thick cast in situ terrazo finish consisting of marble chips of size 1 mm to 12 mm nominal size laid in white/grey cement or mixture of both in propotion 1:1.5 (1 part cement, 1.5 parts chips) with marble powder 3:1 (3 parts cement, 1 part marble powder) in propotion mix dry in cement including pigments, rubbing, grinding, polishing etc in floors, skirtings, treads, risers and landings complete.	SQM	300		
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.				
i)	Glass strips 40 mm wide and minimum 6 mm thick.	RM	50		
ii)	Aluminium strips 40 mm wide and min 3 mm thick	RM	50		
iii)	Brass strips 20 mm wide and minimum 4 mm thick.	RM	250		
1500	PROVIDING AND ERECTING ROOFING/SIDE CLADDING INCLUDING LAPS, SCAFFOLDING HOOKS, WASHERS, CORNER PIECES, ETC. COST OF ALL MATERIAL, LABOUR, EQUIPMENT, CLEATS, SHEETING RUNNER, RAILS MILD STEEL WIND TIES (HORIZONTAL/VERTICAL) AND ANY OTHER STEEL WORKS ETC. COMPLETE FOR THE FOLLOWING:				
1501	Designing, providing and fixing permanently color coated galvanised MS troughed metal sheet decking plate with silicon modified polyster paint of DFT 20 micron on the exposed face over roof purlins as per relevant IS code and specification. Thickness of deck plate shall be 0.5 to 0.8mm with minimum trough depth of 38mm to 44mm and shall serve as permanent shuttering to the cast-in-situ roof slab 100mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads during construction spanning between purlins as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to purlins, side lapping, end lapping etc.complete as per engineers approval and specification. (height of trough required as per design should be included in the cost). M.S. Trough decking plate shall be connected to the top surface of the purlin, top chord of truss with self tapping self drilling white zinc plated heat treated high carbon steel screws of min 5.6mm diameter at spacing of 390mm C/c in the trough and sealing it with epoxy sealent including all material, labour, tools, etc complete. Measurement shall be of the plan area of roof covered by MS trough metal decking.	SQM	6000		

Sl. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
1502	<p>Designing, providing and fixing permanently color coated galvanised MS troughed metal sheet decking plate with silicon modified polyster paint of DFT 20 micron on the exposed face over roof purlins as per relevant IS code and specification. Thickness of deck plate shall be 0.8 to 1 mm with minimum trough depth of 38 to 75 mm and shall serve as permanent shuttering to the cast-in-situ intermediate slab 100mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads during construction spanning between purlins as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to purlins, side lapping, end lapping etc.complete as per engineers approval and specification.</p> <p>(height of trough required as per design should be included in the cost). M.S. Trough decking plate shall be connected to the top surface of the purlin, top chord of truss with self tapping self drilling white zinc plated heat treated high carbon steel screws of min 5.6mm diameter at spacing of 390mm C/c in the trough and sealing it with epoxy sealent including</p> <p>all material, labour, tools, etc complete. Measurement shall be of the plan area of roof covered by MS trough metal decking.</p>	SQM	1000		
1503	<p>Design supply & erection of permanent colour coated thermally insulated sandwiched metal cladding for external walls with troughed galvanised MS sheeting of 0.6mm thickness and 275 g/sqm of galvanisation or Hi tensile steel (550 Mpa) 0.5 mm thick, coated with zinc aluminium alloy @ 150 g/sqm. Outer exposed face shall be permanently colour coated with PVF2 of DFT 20 microns over primer having life span sustenance against weathering action, inner side of external sheeting shall have 7 micron of precoating. sandwiched Insulation of minimum 50mm thick bonded mineral wool blanket conforming to IS 8183 (minimum density of 32 kg/cum for glass wool and 48 kg/cum for rock wool or 40-45 Kg/cum for polyuretene foam(fire retardants and non-toxic) confirming to IS 12436 , Inner sheet shall consist of 0.6 mm thick galvanised, MS permanently colour coated sheet with 20 micron DFT coating of silicone modified polymer paint on exposed face and 7 microns DFT coating on inner face and rate of galvanising as 150 gm/sqm , cladding shall be fixed to</p> <p>supports/rails by concealed fixing system with corrosion resistant self tapping/self drilling type fasteners provided with suitable cap. Flashing shall have the same material and minimum overlap of 100 mm.</p>	SQM	5300		

SI. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
1504	Design supply & erection of permanent colour coated non insulated metal cladding for external walls with troughed galvanized MS sheeting of 0.6mm thickness and 275 g/sqm of galvanization or Hi tensile steel (550 Mpa) 0.5 mm thick, coated with zinc aluminium alloy @ 150 g/sqm. Outer exposed face shall have PVF2 coating of DFT 20 microns over primer having life span sustenance against weathering action, inner side shall be coated with same paint of minimum DFT 12 microns over primer. Cladding shall be fixed to supports/rails by concealed fixing system with corrosion resistant self tapping/self drilling type fasteners provided with suitable cap. Flashing shall have the same material and minimum overlap of 100 mm.	SQM	5600		
1505	Providing and installing under deck insulation comprising of 50 thick resin bonded mineral wool insulation mat conforming to IS: 8183. This mat shall be backed with minimum 0.05 mm thick aluminium foil and 24Gx25 mm wire mesh netting. This shall be fixed to ceiling or wall as the case may be with 100x50x6 slotted mild steel plate welded to MS plate inserts embedded at the soffit of the slab at 600 mm c/c and 14 G steel wire drawn through slots and fixed to wire netting as per specification, drawing and instructions of engineer in charge.	SQM	4200		
1506	Providing and laying of Translucent sheeting where required to be fixed on the walls with suitable laps, sealant & leak proof as per specification, drawing and instructions of engineer in charge.	SQM	500		
1600	PROVIDING AND FIXING FALSE CEILING INCLUDING SUPPLY OF CEILING MATERIAL, WORKING LAYOUT DRAWINGS AND DETAILS, SUSPENSION SYSTEM AND ALL OTHER MATERIALS REQUIRED FOR THE WORK INCLUDING MAKING RECESS FOR LIGHT FIXTURES, ALUMINIUM DIFFUSERS, FIRE ALARMS ETC., POLISHING/PAINTINGS, LABOUR ETC., ALL COMPLETE AS PER SPECIFICATION.				
1601	Providing and fixing cement bonded particle board false ceiling system consisting of 600x600x12 mm board with one coat of primer and two coats of acrylic emulsion paint with suspension system consisting of 6 mm dia galvanised steel rods suspended from ceiling supporting aluminium grid of 38x25x1.5 mm and cross tie of 25x25x1.5mm and aluminium angle of 25x25x1.5 mm suspended from RCC slab/structural steel or catwalkway grid above 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.	SQM	1500		
1601-a	with 12mm thick gypsum board and balance specification as per 1601	SQM	500		

Sl. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
1602	Providing and fixing Aluminium false ceiling system comprising of 75mm or 150 mm wide and 12.5 mm deep, 5m panel length closed type plain panels of approved colour, roll formed out of 0.5 mm thick corrosion resistant aluminium alloy AA3005- 131mm wide strip fixed on roll formed carriers, suspended from RCC slab/structural steel or catwalkway steel channel grid above with 4mm (minimum) galvanised wires (rods) with special height adjustment clips, including preparation of working drawings, providing openings for AC ducts, return air grills, light fixtures etc but excluding the cost of catwalkway all complete as per drawings, specifications and instructions of engineer	SQM	3000		
1700	PROVIDING AND FIXING RAIN WATER DOWN TAKE PIPES INCLUDING 2 COATS OF APPROVED PAINT OVER A PRIMARY COAT, ALL SPECIALS AND ACCESSORIES ETC. COMPLETE AS PER SPECIFICATION.				
1701	GI down take pipes conforming to IS1239/IS3589 as per specification of following dia.				
i)	100 mm dia	RM	50		
ii)	150 mm dia	RM	75		
iii)	200 mm dia	RM	100		
1702	HDPE down take pipes conforming to IS4984 as per specification of following dia.				
i)	100 mm dia	RM	150		
ii)	150 mm dia	RM	4000		
iii)	200 mm dia	RM	1500		
1800	MISCELLANEOUS				
1801	Providing and fixing PVC water stops 225mm wide, 10 mm thick.	RM	500		
1802	Supplying and installation of 25mm thick vibration damping, resilient pads around foundation of vibrating equipment and other locations as directed by the Engineer-in-charge including cost of all materials labour equipment etc. complete as per drawing and specifications.	SQM	25		
1803A	Providing 75mm thick anticorrosive layer laid to slope consisting of compacted crushed stone screenings, fine gravel, clean sand or similar material as directed by the Engineer, mixed in hot asphalt 10% by volume and rolled or compacted complete as per drawings and specifications, below fuel oil tanks and at such other places as per specifications and as directed by the Engineer.	CUM	500		
1804	Providing and fixing G.I strips minimum 1.5mm thk and 150mm wide unless specified otherwise in water retaining structure. Galvanising as per relevant I.S. codes and as per specifications.	RM	50		
1805	Providing and fixing aluminium strips minimum 18 SWG thk and 300mm wide over expansion joints with minimum lap of 50mm length including aluminium screws, rawl plugs all complete as per specification.	RM	150		
1807	Transporting from BHEL store, laying and fixing transformer rails including guide rails in concrete including joining of rails. Anchoring lugs etc. complete as per specification.(Only Rails will be supplied by BHEL at free of cost)	MT	90		

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Sl. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
1808	Laying of earthing mats/rods including transportation from BHEL stores, loading, unloading, cutting to length, welding etc. complete as per specification and as directed by Engineer-in-charge.(only Earth mat rod will be supplied by BHEL at free of cost)	MT	200		
1810	Providing and fixing GI rungs in concrete/brick walls at all elevations including @ zinc coating shall not be less than 900 g/sqm all complete.	KGS	3000		
1811	Design, supply, fabrication, erection of stoplog gates/Sluice gates in CW/RW and other Pump houses as per specification including SS liner as per drawing with embedments required, lifting beams, special tools & plants, spare parts for three years, machining, casting, all materials such as structural steel, cast steel, stainless steel, brass used for seals, rubber seals, gears, ball and roller bearing, branch bushings, greasing, bolts, nuts, lugs, threaded fastners etc., cleaning, sand blasting, hot double dip galvanised with minimum coating of zinc 750 gms/sqm., following by an application of etching primer and dipping in black bitumen as per B.S. 3416, erection along with a second stage concreting to true plumb and levels, submission of drawings / fabrication drawings for engineers approval etc., all complete as per specifications and approved drawings. The leakage through rubber seal shall not be more than 5 lit/min/metre length of seal under maximum head.(only weight of structural steel including embedments shall be considered for payment purpose)	MT	2		
1812	Supplying, fabricating, erecting in position including MS liner as per drawing and testing / examining bolted and / or welded structural steel work at all levels for stationary screens made out of rolled sections and / or plates including cutting, straightening if required, edge preparation, bolting / welding of joints, cleaning, sand blasting, hot double dip galvanised with minimum coating of zinc as 750 gms./sqm. followed by application of an etching primer and dipping in black bitumen as per BS 3416, complete as per drawing and directed.	MT	1		
1814	Providing and fixing PVC pressure release valve of minimum dia 90mm in water retaining structure including 160 mm dia housing pipe of minimum length 2 m with perforation as per IS4558, nylon jali, perforated end plug, collar, graded filter, excavation, fixing in concrete slab/wall all complete as per specification, drawing and instruction of engineer in charge.	NOS	25		
1815	Providing and fixing ms vent pipes with cowls as per specifications, drawings and instructions of engineer in charge	KGS	50		
1816	Providing and fixing HDPE pipes in cable duct banks, openings in RCC work at all elevations of following sizes including cutting, fixing and levelling in position as per drawings, specifications all complete.				
	i) 100 mm dia	RM	200		
	ii) 150 mm dia	RM	3000		
	iii) 200 mm dia	RM	500		

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Sl. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
2000	FENCING AND GATES.				
2001	Supplying and erecting in position 2.4 m high PVC coated gavanised chain linked fencing of minimum 8 gauge (including PVC coating) of mesh size 75 mm and galvanised concertina. The diameter of the steel wire for chain link fencing excluding PVC coating shall not be less than 12 gauge. GI barbed wire fencing confirming to IS 298 at top of chain link fencing shall be provided with 4 stands of height of 600 mm including all accesories as per specification all complete.	SQM	2000		
2002	Supplying and fixing G.I. barbed wire in fencing including G.I clips etc. complete as per specification	KGS	3000		
2003	Supply, fabrication and installing in position and testing galvanised MS Gates out of channels, joists, angles, flats, plates, pipes & sheets including stiffners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, ball bearing arrangements, castor wheels,etc. all complete as per drawing, specification and as directed by Engineer-in-charge with 600mm high GI barbed wire fencing at top all complete.	MT	10		
2100	WATER SUPPLY				
2101	Providing and fixing in position tested heavy duty type chromium plated brass long neck bib cocks including sockets, union, nut etc. complete 15mm nominal bore.	NOS	100		
2102	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc. complete as directed by Engineer 15mm nominal bore.	NOS	100		
2103	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality 25mm nominal bore.	NOS	50		
2104	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality 50mm nominal bore.	NOS	25		
2105	Providing and fixing GI pipes complete with GI sockets, unions, elbows, tees, nipples etc. and clamps including cutting and making good the walls etc. complete (internal work) 15 mm nominal bore.	RM	500		
2106	Providing and fixing GI pipes complete with GI fittings a clamps including cutting and making good the walls etc. complete (internal work) 20 mm nominal bore.	RM	400		
2107	Providing and fixing GI pipes complete with GI sockets, unions, elbows, tees, nipples etc. and clamps including cutting and making good the walls etc.complete (internal work) 25 mm nominal bore (N.B).	RM	200		
2108	Providing and fixing GI pipes complete with GI sockets, unions, elbows, tees, nipples etc. including trenching & refilling anti-corrosive paint etc. complete (external work) 15mm nominal bore (N.B).	RM	300		
2109	Providing and fixing GI pipes complete with GI sockets, unions, elbows, tees, nipples etc. including trenching & refilling anti-corrosive paint etc.complete (external work) 20mm nominal bore (N.B).	RM	300		
2110	Providing and fixing GI pipes complete with GI sockets, unions, elbows, tees, nipples etc. including trenching & refilling anti-corrosive paint etc.complete (external work) 25mm nominal bore (N.B).	RM	300		

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Sl. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
2111	Providing and fixing GI pipes complete with GI sockets, unions, elbows, tees, nipples etc. including trenching & refilling anti-corrosive paint etc. complete (external work) 50mm nominal bore (N.B).	RM	200		
2112	Providing and fixing 610mmx453mmx6mm thk mirror from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets etc. complete with CP screws as per specification.	NOS	25		
2113	Providing and fixing 610mmx127mmx6mm thk clear glass with C.P Guard rails and mounted on C.P. brackets etc. complete as per specification.	NOS	25		
2114	Providing and fixing 600x20mm dia stainless steel pipe wall mounted towel rod with stainless steel brackets etc. all complete as per specification.	NOS	50		
2116	Providing and fixing stainless steel liquid soap dispenser . Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on stainless steel brackets etc. complete as per specification.	NOS	50		
2117	Providing and fixing glazed vitreous wall mounted paper holder with suitable cover cum cutter fitted with CP screws etc. complete as per specification	NOS	50		
2118	Providing and fixing chromium plated brass shower rose with 15 or 20 mm inlet all complete.	NOS	30		
2119	Providing & fixing P.V.C. water tank (Syntex or equivalent) in position of following capacity . The work to including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc. all complete as per specification at all heights and levels				
a	1000 liters	NOS	5		
b	2000 liters	NOS	15		
c	5000 liters	NOS	2		
2200	SANITARY WORKS				
2201	Supply and fixing vitreous china wash basin size 600x450 with R.S. or C.I. brackets painted white, 15mm chromium plated pillar tap, chromium plated brass chain with rubber plug and waste of standard pattern, 32mm dia chromium plated brass trap unions, plastic connection pipe with chromium plated nuts, cutting and making good the walls where required etc. complete as per specifications	NOS	30		
2202	Providing and fixing approved vitreous china acid/alkali resistant laboratory sink of size 600x450x200mm with R.S. or C.I. brackets, chromium plated brass chain with rubber plug 40mm, CP brass waste with necessary union complete including painting the fittings, cutting and making good the wall where required as per specification.	NOS	5		
2202A	Providing and fixing approved stainless steel kitchen sink as per IS: 13983 of size 915x460x178 mm with C.I. 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 as per specification.	NOS	10		

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Sl. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
2203	Providing and fixing colour European type water closet with siphon, open front solid plastic seat and plastic cover, low level 10 litre PVC water flushing cistern with valveless fittings, necessary C.P connections etc. complete as per specification.	NOS	30		
2204	Providing and fixing glazed vitreous china pan (IWC) with foot rests and high level 10 litre PVC flushing cistern with valveless fittings, necessary C.P connections, foot rests shall be made of white glazed vitreous china with chequered surface all complete with C.I brackets etc. as per specification.	NOS	50		
2205	Providing and fixing wall type glazed vitreous china urinals with photovoltaic control flushing system as per IS:2556 (part6, sec1) all complete as per specifications.	NOS	50		
2206	Supply, laying and jointing 75mm dia heavy duty cast iron pipes including bends, branches and all other necessary fittings, lead cocking, a coat of bitumenous paint, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc. all complete and as per specifications.	RM	250		
2207	Supply, laying and jointing 100mm dia heavy duty cast iron pipes including bends, branches and all other necessary fittings, lead caulking, a coat of bitumenous paint, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc. all complete and as per specifications.	RM	300		
2208	Supply, laying and jointing 150mm dia heavy duty cast iron pipes including bends, branches and all other necessary fittings, a coat of bitumenous paint, M.S holder bats/clam lead caulking, a coat of bitumenous paint, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc. all complete and as per specifications.	RM	150		
2209	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. complete 150mm dia, as per specifications.	RM	250		
2210	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. complete 200mm dia, as per specifications.	RM	300		
2211	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. complete 250mm dia, as per specifications.	RM	500		
2212	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. complete 300mm dia, as per specifications.	RM	1500		
2213	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. complete 500mm dia, as per specifications.	RM	50		
2214	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. complete 600mm dia, as per specifications.	RM	100		

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Sl. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
2215	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. complete 900mm dia , as per specifications.	RM	50		
2216	Providing, laying light duty non pressure NP2 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc. as per specifications for dia:				
i)	150mm	RM	200		
ii)	250mm	RM	400		
iii)	300mm	RM	500		
iv)	400mm	RM	30		
v)	500mm	RM	40		
vi)	600mm	RM	20		
vii)	750mm	RM	20		
2218	Providing and fixing C.I Manhole cover of size 600mmx450mm including frame from reputed manufacture all complete as per specifications.	NOS	30		
2219	Providing and fixing circular heavy duty man hole cover of 600mm dia with frame all complete as per specification.	NOS	50		
2220	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber and watertight CI grating, brick masonry chamber and watertight CI cover with 300x300mm (inside) the weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg as per drawing and specifications etc. all complete size 100x100mm P or S Type.	NOS	25		
2221	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber and watertight CI grating, brick masonry chamber and watertight CI cover with 300x300mm (inside) the weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg as per drawing and specifications etc. all complete size 150x100mm P or S Type.	NOS	30		
2222	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber and watertight CI grating, brick masonry chamber and watertight CI cover with 300x300mm (inside) the weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg as per drawing and specifications etc. all complete size 150x150mm P or S Type.	NOS	20		
2223	Providing and fixing C.I. floor traps with C.P jalli complete as per specification.	NO	75		
2224	Providing and installing approved brand single tap water cooler of 80 L cooling capacity complete in all respect.	NOS	20		
2225	Providing and installing approved brand single tap water cooler of 150 L cooling capacity complete in all respect.	NOS	10		
2226	Providing and fixing white vitreous urinal partitions all complete as per specification.	NOS	50		
2227	Providing and fixing eye and face fountain (combined unit with receptacle) conforming to IS:10592 all complete as per specification.	NOS	5		

Sl. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
2300	STRUCTURAL STEEL WORKS				
	Transporting from BHEL store, fabrication and erection of miscellaneous steel structural works at various elevations,including welding,gas cutting,painting (2 coats with 1 coat primer) etc complete as per drawing and specification.(Only structural steel will be provided by BHEL at free of cost)	MT	50		
2400	ROAD WORK INCLUDING SUPPLY OF MATERIAL, COST OF LABOUR, MACHINERY ETC ALL COMPLETE AS PER SPECIFICATION, DRAWING, RELEVANT IRC & IS CODES AND AS DIRECTED BY THE ENGINEER-IN-CHARGE FOR THE FOLLOWING.				
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 plant boundary all complete as per specification.	CUM	4050		
2402	Providing, stacking and laying granular morrum for shoulder including watering, compaction with road roller to required camber etc. complete as per specification.	CUM	2025		
2404	Providing &Laying water bound macadam base course in layers of required thickness with stone aggregate 63mm to 40mm 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. including cost of material labour all complete.	CUM	1215		
2405	Laying water bound macadam base course with stone aggregate 50mm to 20mm size stone screening and binding material including screening, sorting , spreading to template and consolidation with road roller including carriage spreading and consolidation of blinding material moorum etc. Including cost of material labour. All complete.	CUM	1215		
2406	Providing and applying Tack coat of low viscosity liquid bitumen of a suitable approved grade confirming to IS 73, 217 or 454 as applicable @ 10 kg/10sqm for an untreated WBM surface including scraping, cleaning with compressed air etc. complete.	SQM	8100		
2407	Providing, mixing and laying of compacted 75 thk. Bituminous Macadam Course. Bitumen shall be of a suitable grade complying with IS 73 and aggregates, binder material as specified in specification including hot mixing, hot laying, rolling all complete.	SQM	8100		
2408	Providing, mixing and laying premix carpet (as per IRC-14) of compacted 25mm thickness in a single course composed of suitable small size aggregate premixed with a bituminous binder on a prepared base. Mixing applying rolling as per IRC specification.	SQM	8100		
2409	Providing and applying liquid seal coat comprising of an application of a layer of bituminous binder at the rate of 9.8kg/10sqm followed by a cover of stone chips at the rate of 0.09 cum/10sqm including rolling as per specification all complete.	SQM	8100		

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SI. No	DESCRIPTION	UNIT	Qty	RATE	AMOUNT
2410	Supply and laying (400mm x 100mm X 375mm deep) precast concrete kerb stone of grade M15 with 20 mm aggregate and of shape as per detailed drawing including fixing in 13mm thk. cement mortar 1:2 in joints, finishing of joints with neat cement paste, making drainage opening where required etc. complete as per spec.	RM	3600		
2410a	Providing & laying cement concrete 1:2:4 of 20mm size nominal aggregate in kerbs, edging, dwarf wall etc. including making opening for pipes etc complete excluding the cost of centering and shuttering.	CUM	200		
2411	Providing and laying 230 mm wide bricks , with crushing strength of 50 kg/cm ² , on edge for protection including fixing in 13mm thk. cement mortar 1:6 complete.	RM	3600		
2412	Dismantling of existing road consisting of premix carpet, curb stone/ brick on edge, bitumen macadem course, WBM, preparing subgrade to receive new WBM including camber consolidation including disposal of debris within a lead of 1 Km etc. complete and as directed by Engineer.	SQM	300		
2413	Providing 25mm thick premix carpet on existing/damaged road surfaces (as per IRC-14) of compacted 25mm thickness in a single course composed of suitable small size aggregate premixed with a bituminous binder on the existing base including tack coat, cleaning of existing surface, mixing applying rolling as per IRC specification.	SQM	500		
2414	Concrete of grade M-30 in roads etc complete with 20 mm nominal size graded aggregate complete as per specification.	CUM	500		
2415	Filling below concrete roads with stone (63 mm down graded), in layers not exceeding 200 mm thickness including breaking of boulders to required sizes, filling the interstices with selected sand and compacting to 85 % of original volume of stone stack for all lifts all complete as per instructions of engineer-in-charge.	CUM	500		
		TOTAL			

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