

Ref: BHE/PW/PUR/NTPRT-CVL-CHP-PKG--I/2219/PKG-II /2220/Corg 01

Date: 04/11/2019

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To

ALL BIDDERS,

**Sub: Corrigendum-01: Issuance of Clarification, Revised Chapter-XI (BOQ & Percentage Weightages) and Extension of due date of offer submission.**

**Job:** Civil & Architectural works of CHP Package-I & Package-II at 3X800 MW PVUNL Patratu, Jharkhand

**Reference:**

1. E-TENDER SPECIFICATION NUMBER: BHE/PW/PUR/NTPRT-CVL-CHP-PKG--I/2219/PKG-II /2220

Bidders to kindly take note of the following:

**AA) ISSUANCE OF CLARIFICATIONS:**

Sl. No.	Reference clause of Tender doc	Existing provision	Bidder's query	BHEL's Clarification
1.	Chapter XI-2219-BOQ & % weightages of TCC	% Weightages towards some the item coming out to be zero due rounding up.	% Weightages to some items not provided. whether these items are part and parcel of the BOQ or else you have to revise the % weightage of package.	Revised "Chapter-XI-BOQ and Percentage Weightages-2219 (Corg-01)" issued having % Weightages rounded up to 15 Decimal digit to facilitate consideration of small value item. Accordingly, revised Excel sheet also issued for calculation purpose only.

**BB) ISSUANCE OF REVISED CHAPTER-XI-BOQ AND % WEIGHTAGES:**

CHAPTER XI – BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS of Vol-I Technical Conditions of Contract (TCC) has been revised and issued along with this corrigendum as file titled “CHAPTER XI – BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS (Revision-01 dated 04/11/2019)”

Bidders to note that Total Lump-sum Price for the entire scope of work should be submitted in line with revised CHAPTER XI – BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS Rev-01 of Vol-I TCC.

In case any bidder who has submitted their offer prior to issuance of this corrigendum, such bidder should submit their offer according to the revised Chapter-XI Rev-01 of Vol-I TCC as detailed above within scheduled date of offer submission.

Further, Revised calculation sheet in excel format also has been issued along with this corrigendum as file titled “Excel sheet for calculation purpose only- Rev-01”.

पावर सेक्टर- पश्चिमी क्षेत्र Power Sector-Western Region  
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BHEL PAN: AAACB4146P

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### **CC) Extension of Due Date of offer Submission:**

The last date for submission of Tender has been re-scheduled to  
**11/11/2019, 15.00 hrs.**

Technical Bid shall be opened on **11/11/2019 at 16.00 hrs.**

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All other Terms and conditions of the Tender Specification shall remain unaltered unless expressly amended by BHEL in writing. Bidders are requested to submit as a part of their offer, a copy of this corrigendum duly Digitally countersigned by the authorized signatory as a token of Bidder's unqualified acceptance of this corrigendum.

BIDDERS MAY PLEASE NOTE THAT SUBJECT TENDER IS E-TENDER AND THE OFFER IS TO BE SUBMITTED ONLY IN E-PROCUREMENT PORTAL→ [www.bhel.abcprocure.com](http://www.bhel.abcprocure.com)

BIDDERS WHO HAVE ALREADY SUBMITTED THEIR OFFERS PRIOR TO ISSUANCE OF THIS CORRIGENDUM IN E-TENDER PORTAL ARE REQUIRED TO RE-SUBMIT THEIR OFFER AFTER TAKING COGNIZANCE OF THIS CORRIGENDUM.

Thanking you,

Yours faithfully

AGM (Purchase)

### **Enclosures: -**

1. Chapter-XI-BOQ and % Weightages-2219-Rev-01 dated 04/11/2019 (21 Pages)
2. Revised Excel Sheet for Calculation Purpose Only (Separate File)

E-Tender Specification No: BHE/PW/PUR/NTPRT-CVL-CHP-PKG-I/2219				
<b>PART B (Rev-01): % weightage for amount of individual items of Schedule of quantity w.r.t. the total price (as quoted by the bidder in the E-Procurement Portal titled as "Part-C of Vol-II Price Bid".)</b>				
<b>Scope of Work: PACKAGE-I: CIVIL &amp; ARCHITECTURAL WORKS FOR CHP AREA AT 3X800 MW PVNL PATRATU, JHARKHAND.</b>				
<b>This BOQ &amp; % Weightages is for 'Package-I' only. The BOQ &amp; % Weightages for 'Package-II' is exactly same as that for 'Package-I'.</b>				
ST NO	Item Description	Unit	Quantity for PKG-I	% Weightage of PKG-I
100	<b>EARTH WORK: Earth work In excavation, backfilling and disposal including all labour, equipments etc complete as per specification, drawing and as directed by engineer-in-charge for the following.</b>			
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 1Km, 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	<b>89413</b>	1.259479021946600
b	Depth exceeding 2 m but not exceeding 4 m	CUM	<b>46395</b>	0.818977522837800
c	Depth exceeding 4 m but not exceeding 6 m	CUM	<b>43568</b>	0.963274212118600
d	Depth exceeding 6 m but not exceeding 8 m	CUM	<b>11862</b>	0.327834931547300
e	Depth exceeding 8 m but not exceeding 10 m	CUM	<b>250</b>	0.008294540161700
f	Depth exceeding 10 m but not exceeding 15 m	CUM	<b>250</b>	0.009539363343900
g	Depth exceeding 15 m but not exceeding 20 m	CUM	<b>250</b>	0.011451816739400
h	Depth exceeding 20 m but not exceeding 25 m	CUM	<b>250</b>	0.013747679159000
i	Depth exceeding 25 m but not exceeding 30 m	CUM	<b>250</b>	0.016503816517400
103	<b>Earth work in excavation in soft rock</b> (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 1 Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.		<b>0</b>	-
a	Depth from ground level but not exceeding 2 m	CUM	<b>17578</b>	0.366698030351700
b	Depth exceeding 2 m but not exceeding 4 m	CUM	<b>17344</b>	0.434179647122000
c	Depth exceeding 4 m but not exceeding 6 m	CUM	<b>20571</b>	0.617957789220600
d	Depth exceeding 6 m but not exceeding 8 m	CUM	<b>31665</b>	1.141501366592400
e	Depth exceeding 8 m but not exceeding 10 m	CUM	<b>37500</b>	1.554583461755200
f	Depth exceeding 10 m but not exceeding 15 m	CUM	<b>58682</b>	2.676000303283700
g	Depth exceeding 15 m but not exceeding 20 m	CUM	<b>4482</b>	0.245362451432000
h	Depth exceeding 20 m but not exceeding 25 m	CUM	<b>990</b>	0.065061855242100
i	Depth exceeding 25 m but not exceeding 30 m	CUM	<b>25</b>	0.001972360315100
105	<b>Earth work in excavation in hard rock requiring controlled blasting</b> including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, necessary licenses/statutory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.		<b>0</b>	-
a	Depth from ground level but not exceeding 2 m	CUM	<b>11276</b>	0.556905089972000
b	Depth exceeding 2 m but not exceeding 4 m	CUM	<b>10116</b>	0.598842360055100
c	Depth exceeding 4 m but not exceeding 6 m	CUM	<b>1611</b>	0.114290309847300
d	Depth exceeding 6 m but not exceeding 8 m	CUM	<b>1118</b>	0.095287363148600
e	Depth exceeding 8 m but not exceeding 10 m	CUM	<b>2523</b>	0.247426122321600
f	Depth exceeding 10 m but not exceeding 15 m	CUM	<b>3039</b>	0.327832256959500
g	Depth exceeding 15 m but not exceeding 20 m	CUM	<b>25623</b>	3.318161224586400
h	Depth exceeding 20 m but not exceeding 25 m	CUM	<b>6124</b>	0.952064041822800
i	Depth exceeding 25 m but not exceeding 30 m	CUM	<b>50</b>	0.009331597189700
106	Earth work in excavation upto any depth below ground level in hard rock requiring chiselling including wedging, line drilling, pre shearing etc as required for grading, setting out, levelling, dewatering (wherever required), dressing the sides & bottom, all lifts, stacking/disposal of surplus excavated material within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.		<b>0</b>	-
a	Depth from ground level but not exceeding 2 m	CUM	<b>50</b>	0.009476956294000
b	Depth exceeding 2 m but not exceeding 4 m	CUM	<b>50</b>	0.011375913670000
c	Depth exceeding 4 m but not exceeding 6 m	CUM	<b>50</b>	0.013649313345400
d	Depth exceeding 6 m but not exceeding 8 m	CUM	<b>50</b>	0.016377392955900
e	Depth exceeding 8 m but not exceeding 10 m	CUM	<b>50</b>	0.018838013781100
f	Depth exceeding 10 m but not exceeding 15 m	CUM	<b>50</b>	0.020719140571300
g	Depth exceeding 15 m but not exceeding 20 m	CUM	<b>50</b>	0.021809621654000
h	Depth exceeding 20 m but not exceeding 25 m	CUM	<b>50</b>	0.022957496477900
i	Depth exceeding 25 m but not exceeding 30 m	CUM	<b>50</b>	0.024165785766200

## BILL OF QUANTITY AND % WEIGHTAGES FOR ITEM RATES W.R.T TOTAL LUMPSUM PRICE

E-Tender Specification No: BHE/PW/PUR/NTPRT-CVL-CHP-PKG-I/2219				
<b>PART B (Rev-01): % weightage for amount of individual items of Schedule of quantity w.r.t. the total price (as quoted by the bidder in the E-Procurement Portal titled as "Part-C of Vol-II Price Bid".)</b>				
<b>Scope of Work: PACKAGE-I: CIVIL &amp; ARCHITECTURAL WORKS FOR CHP AREA AT 3X800 MW PVNL PATRATU, JHARKHAND.</b>				
<b>This BOQ &amp; % Weightages is for 'Package-I' only. The BOQ &amp; % Weightages for 'Package-II' is exactly same as that for 'Package-I'.</b>				
ST NO	Item Description	Unit	Quantity for PKG-I	% Weightage of PKG-I
A107	Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 300 mm thickness using/with selected materials from <b>compulsorily excavated earth available within a lead upto 1 Km</b> and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.		0	-
a	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	127340	2.020786635723900
b	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	31835	0.561960328473800
A108	Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 300 mm thickness using/with <b>selected earth directly from excavation within a lead upto 1Km</b> and compacted as specified including <b>re-excavation of stacked earth</b> , watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.		0	-
a	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	127340	1.203389794307500
b	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	31835	0.312200182485400
109	<b>Extra over ST No. 101 and 103 to 108 for carriage</b> of material/earth for every 500m or part thereof beyond an initial lead of 1km.		0	-
a	Carriage for stacking/ backfilling of serviceable material/ earth	CUM	52850	0.065964251758600
b	Carriage for disposal of serviceable/unserviceable material/ earth	CUM	56750	0.070832001651900
110	Earth work in backfilling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness so as to achieve required compaction with approved borrowed soil (borrowed soil to be arranged by the bidder) and compacted as specified including supplying boorowed soil, royalty/seignorage fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing, all lead and lifts etc all complete as per specification, drawing and as directed by the engineer for the following:		5	0.000178305856900
A111	<b>Supplying and filling sand</b> upto any depth under floors, around foundations, plinths etc. in layers not exceeding 300 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.		50	0.006356603798300
200	<b>CONCRETE WORK: Providing and placing concrete work including cost of labour, materials (unless otherwise specified in BOQ/contract specification) 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.</b>		0	-
201	<b>Concrete of grade M7.5</b> (1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume) as <b>mass filling course</b> , lean concrete, levelling course, mud mat under and around foundations/floors, at any depth below finished floor level etc. (BHEL will supply Cement free of Cost as per TCC)	CUM	2300	1.124155129149400
202	<b>Concrete of grade M10</b> (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as <b>lean concrete, levelling course</b> , mud mat under and around foundations/floors at any depth below finished floor level etc. (BHEL will supply Cement free of Cost as per TCC)	CUM	2000	0.977526199260300
203	<b>Concrete of grade M15</b> (1 part cement, 2 part sand, 4 parts of 40 mm graded aggregate by volume) as <b>lean concrete, levelling course</b> , mud mat under and around foundations/floors at any depth below finished floor level etc. (BHEL will supply Cement free of Cost as per TCC)	CUM	1922	0.939402677489200
204	<b>Concrete of grade M20</b> (1 part cement, 1.5 part sand, 3 parts of 20 mm graded aggregate by volume) under floors, paving, plinth protection, pipe encasing etc complete.(BHEL will supply Cement free of Cost as per TCC)	CUM	895	0.424037939847600
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 <b>in foundations/substructure, grade slab, paving, drains, under floors etc</b> at all 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.(BHEL will supply Cement free of Cost as per TCC)		0	-
a	M 25 Grade	CUM	14000	7.646486197708900
b	M 30 Grade	CUM	50	0.027540676891500
206	Providing and laying Design Mix cement concrete of grade conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size <b>in superstructure at all level above finished floor level</b> , 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.(BHEL will supply Cement free of Cost as per TCC)		0	-
a	M 25 Grade	CUM	3700	2.043947675005400
b	M 30 Grade	CUM	175	0.097484492493700
209	Extra over St. No. 205 to 208 for <b>controlling of temperature of fresh concrete to less than 23 degree centigrade</b> 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. (Where it will be used)	CUM	1250	0.151782860682600
210	Extra over ST Nos. 205 to 208 for conducting <b>UPV test for concrete at all levels</b> including all equipments, making necessary arrangements, staging, submission of report etc. all complete as directed by engineer in charge and as per specification.	CUM	5	0.000310252191000
211	Providing and <b>encasing of structural steel</b> 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)(BHEL will supply Cement free of Cost as per TCC)		0	-
a	M 20	CUM	50	0.024438154981500
b	M 25	CUM	50	0.024438154981500
212	<b>Scree concrete</b> conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5mm/6 mm nominal size on the roof at all level or thickness, drains etc complete as per following.(BHEL will supply Cement free of Cost as per TCC)		0	-
a	01:02:04	CUM	1415	0.691599785976700

## BILL OF QUANTITY AND % WEIGHTAGES FOR ITEM RATES W.R.T TOTAL LUMPSUM PRICE

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<b>PART B (Rev-01): % weightage for amount of individual items of Schedule of quantity w.r.t. the total price (as quoted by the bidder in the E-Procurement Portal titled as "Part-C of Vol-II Price Bid".)</b>				
<b>Scope of Work: PACKAGE-I: CIVIL &amp; ARCHITECTURAL WORKS FOR CHP AREA AT 3X800 MW PVNL PATRATU, JHARKHAND.</b>				
<b>This BOQ &amp; % Weightages is for 'Package-I' only. The BOQ &amp; % Weightages for 'Package-II' is exactly same as that for 'Package-I'.</b>				
ST NO	Item Description	Unit	Quantity for PKG-I	% Weightage of PKG-I
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 <b>precast works</b> 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), 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. (BHEL will supply Cement free of Cost as per TCC)		0	-
a	M25	CUM	13	0.010542668112500
b	M30	CUM	363	0.307417907962300
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 <b>Concrete in water retaining/conveying structures</b> including addition of suitable plastisizer cum waterproofing cement additives confirming to IS 9103 latest to achieve a slump more than 125 mm in concrete as per manufacturers recommendation and conforming to limits of permeability as per IS 2545 and specification with 20 mm nominal size graded aggregate for following grades. Watertightness is to be ensured including structural grouting if required. (BHEL will supply Cement free of Cost as per TCC)		0	-
a	M25	CUM	25	0.016471672177700
b	M30	CUM	20375	13.369918097328800
c	M35	CUM	20375	13.333588278986300
215	<b>Dismantling concrete work</b> for all types of structures at all levels including stacking of serviceable material to a lead of 500 m and disposal of unserviceable 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.		0	-
a	Plain cement concrete of all grades	CUM	25	0.003784541812600
b	Reinforced cement concrete of all grades	CUM	50	0.010974725491900
216	<b>Chipping of concrete</b> 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.	CUDM	3	0.000018722115000
217	Extra over and above St No 216 for <b>cutting of reinforcement</b> , 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	3	0.000001337293900
218	Cutting Reinforced concrete with mechanised tools like <b>Core drilling</b> machine etc. for cutting pockets, holes, cores in slab, beam, column or foundation as per direction of engineer in charge.	CUDM	3	0.000124368335200
219	Providing and applying curing compound (water based) of approved make where ever required as per manufacturer's specification.	SQM	250	0.003655270066400
220	Providing & laying <b>Plum cement concrete 1:3:6</b> with 75% graded metal of maximum size 40 mm and 25% plums of maximum size 150 mm. (BHEL will supply Cement free of Cost as per TCC)	CUM	250	0.105964941930000
222	Cutting of groove of 10mm X 40mm size with groove cutting machine in concrete paving all complete.	RM	5	0.000032986583500
223	Cutting of existing concrete/ RCC slab (total thickness upto 250mm including floor finsih & deck sheet if any) inside control room/ pump house or anywhere inside boundary using power tools of (DD2E of HILTI/ BOSCH make or equivalent) with low noise and dust including cutting reinforcements, removing the rubbish within a lead of 1 km, including making good the broken edges/ surface with cement mortar, painting, finishing to match with existing finishing, scaffolding/ supporting at all level, all complete and as directed by Engineer (measurements shall be taken as per cutting surface area).	SQM	50	0.012838021696500
300	<b>FORMWORK:</b> Providing, fixing and removing formwork at all elevations for all structures, as per specifications and including all labour, material, scaffoldings and centereing etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.		0	-
A301	Fairface form work with good quality water proof ply wood with <b>film face</b> of required thickness and smooth surface <b>below finished ground floor level</b> for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc. (Please refer corrigendum-01 dated 21/01/2019)	SQM	93500	6.668639047906200
A301(a)	Extra over A301 for depth exceeding 6 m but not exceeding 12 m	SQM	26250	0.187221149740700
A301(b)	Extra over A301 & A301(a) for depth exceeding 12 m but not exceeding 18 m	SQM	26250	0.205943264714800
A301(c)	Extra over A301,A301(a), A301(b), for depth exceeding 18 m but not exceeding 24 m	SQM	5000	0.043150017368800
A301(d)	Extra over A301 A301(a), A301(b), & A301(c) for depth exceeding 24 m but not exceeding 30 m	SQM	5000	0.047465019105700
A302	Fairface form work with good quality water proof ply wood with <b>film face</b> of required thickness and smooth surface <b>above finished ground floor level</b> for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.	SQM	30700	2.611093137797700
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.		0	-
a	Upto 150 mm depth	EACH	225	0.007101030750900
b	Pockets of depths more than 150mm and upto 300 mm depth	EACH	338	0.018655250277700
c	Pockets of depths more than 300mm and upto 600 mm depth	EACH	625	0.063521461519200
d	Pockets of depths more than 600mm and upto 1000 mm depth	EACH	1013	0.164106024217300
e	Pockets of depths more than 1000mm and upto 1500 mm depth	EACH	23	0.005319755240500
f	Pockets of depths more than 1500mm and upto 2000 mm depth	EACH	23	0.007044864406000
305	Extra over item no.301 and 302 for curved form work for foundations, footings, beams, walls, trenches, domes, arches etc as per specification.		0	-
a	Extra for Curve Shuttering for Item No. 301	SQM	3	0.000035661171400
b	Extra for Curve Shuttering for Item No. 302	SQM	3	0.000042347641000

## BILL OF QUANTITY AND % WEIGHTAGES FOR ITEM RATES W.R.T TOTAL LUMPSUM PRICE

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<b>This BOQ &amp; % Weightages is for 'Package-I' only. The BOQ &amp; % Weightages for 'Package-II' is exactly same as that for 'Package-I'.</b>				
ST NO	Item Description	Unit	Quantity for PKG-I	% Weightage of PKG-I
400	REINFORCEMENT WORK : Reinforcement work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge for the following:		0	-
401	Providing, straightening, cutting, bending, placing in position at all level, binding of <b>mild steel reinforcements</b> conforming to grade 1 of IS:432 part 1 in concrete including cost of reinforcement steel, binding wire, labour, scaffolding, transportation to & from stores etc. all complete as per specifications & drawings.	MT	25	0.263587854343600
403	Transportation, straightening, cutting, bending, placing in position at all level, binding in position of steel reinforcements of TMT steel of grade Fe-500D or 500EQR confirming to IS:1786 including cost of reinforcement steel, binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. (BHEL will supply TMT free of cost as per TCC)	MT	6875	9.272350323228400
405	Providing & fixing of Rebar in existing concrete surface by inserting reinforcement bar with Epoxy based suitable bonding compound of Hilti or equivalent make (HIT-RE-500 of Hilti or equivalent make) for interconnection of new R.C. structure with existing R.C. structure. Depth of drilled hole should be suitable to develop maximum recommended strength as per approved manufacturer's recommendation. This item includes supply of all materials including bonding chemicals, T&P required to execute the work, cost of all labour, transportation of chemical, staging to reach work place etc. all complete as directed by Engineer - in - Charge. Random Pull out non destructive test as directed by engineer shall be conducted to ensure strength of bond and same is included in this item. Reinforcement bar shall be paid separately under item no. 402, 403, 405 as applicable.		0	-
a	12mm Reinforcement bar	Nos.	1	0.000028796395900
b	16mm Reinforcement bar	Nos.	1	0.000045467993500
c	20mm Reinforcement bar	Nos.	1	0.000064011802600
A406	Supply and fixing <b>reinforcement bar couplers</b> (of approved manufacturer's as per the relevant IS code) in position for steel reinforcements of <b>TMT steel of grade Fe-500D or 500EQR confirming to IS:1786</b> including , labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer.(Agency has to supply reinforcement bar couplers).		0	-
d	25mm dia	Nos.	1	0.000025854349200
e	28mm dia	Nos.	1	0.000039227288500
f	32mm dia	Nos.	1	0.000046359522800
g	36mm dia	Nos.	1	0.000057771097600
407	Providing, straightening cutting, bending, placing in position at any level, binding of <b>mild steel reinforcements</b> in <b>brickwork</b> including cost of reinforcement and binding wire, labour, scaffolding etc. complete all as per specifications & drawings.	MT	3	0.025040846162600
408	Providing, straightening, cutting, bending, placing in position at any level, binding in position <b>high yield strength steel TMT reinforcements</b> in <b>brickwork</b> including cost of reinforcement and binding wire, labour, scaffolding etc. complete all as per specifications & drawings.	MT	3	0.026358785434400
500	Roof Treatment works: Roof treatment works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, curing, sampling, testing etc at all level as per specification, drawings and as directed by engineer - in - charge.(Material used for roof treatment shall be CFC & HCFC free. The contractor shall submit documentary proof to GRIHA consultant in support of same).		0	-
501	Providing and laying <b>underbed grading plaster with cement mortar 1:4 (1 cement : 4 sand) and average thickness of 25 mm</b> including preparation of surface, batching, mixing, leveling etc. all complete.(BHEL will supply Cement free of Cost as per TCC)	SQM	1425	0.016261494148900
502	Providing and laying <b>underbed grading plaster with cement mortar 1:4 (1 cement : 4 sand) and average thickness of 15 mm</b> including preparation of surface, batching, mixing, leveling etc all complete. (BHEL will supply Cement free of Cost as per TCC)	SQM	25	0.000222882321100
A503	Providing and laying roof insulation with <b>40 mm</b> thick impervious sprayed, closed cell free <b>Rigid Polyurethane foam over deck insulation</b> conforming to IS - 12432 Pt. III (density of foam being 40-45 kg / cum), over a coat of polyurethane primer applied @ 6-8 sqm per litre, laying 400 G polythene sheet over PU spray and providing a wearing course of 40 mm thick cement screed 1: 2 : 4 (1 cement : 2 coarse sand : 4 stone aggregate 20 mm nominal size) in chequered rough finish, in panels of 2.5 m x 2.5 m and embedding with 24 G wire netting and sealing the joints with polymerized mastic, all complete as per direction of Engineer-in-Charge(BHEL will supply Cement free of Cost as per TCC)	SQM	3	0.000741395753000
A506	Providing and applying <b>PU based water proofing treatment with one coat of polyurethane</b> or any other equivalent material based primer with an application rate of minimum 6 sq.m per litre and two successive liquid coatings of <b>high solids content urethane pre-polymers</b> 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, <b>polyscrim cloth / fabric</b> , polymerised mortar base preparation, etc all complete as per specifications and directions of engineer in charge.(The water proofing compound shall have VOC content limit less than 250 grams per litre as prescribed by GRIHA. All necessary documentation (certificates, manufacturer declarations ) to be provided by the contractor to green building consultant.).	SQM	1425	0.177097834715400
507	Providing and laying wearing course consisting of <b>25 mm thick plain cement concrete of grade M15 (1:2:4)</b> 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 joints (in grooves of 6mm X 6mm) using silicon /elastomeric compound etc all complete.(BHEL will supply Cement free of Cost as per TCC)	SQM	1425	0.133395069190200
A507	Providing and laying wearing course consisting of <b>20 mm thick plain cement concrete of grade M15 (1:2:4)</b> with graded aggregate of 12.5mm size cast in panels of maximum size 1.2mx1.2m and <b>reinforced with 0.56 mm dia. galvanised chicken wire mesh</b> and sealing of joints (in grooves of 6mm X 6mm) using silicon /elastomeric compound etc all complete.(BHEL will supply Cement free of Cost as per TCC)	SQM	13	0.001143564613200
A510	Providing and laying <b>Pressed Precast cement concrete flooring tiles</b> of 20mm 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 joints (silicon/elastomeric sealant) etc all complete. (Water proofing paid elsewhere)	SQM	1425	0.101396346765900
B510	Providing and laying <b>Heat Resistant Terrace light coloured Vitrified tiles of MIN. 300X300X20MM</b> from johnson, varmora, Qutone or equivalent reputed / approved manufacturer with SRI (solar reflective index)>78, solar reflection>0.70 and initial emittance > 0.75 on waterproof and sloped surface of terrace <b>and skirting along parapet</b> , laid on 20mm thick cement sand mortar in the ratio of 1:4 (1 cement : 4 coarse sand) and grouting the joints with mix of white cement & marble powder in ratio of 1:1 including rubbing and polishing of the surface all complete, NOTE: All ceramic tiles to be used should be with appropriate % of recycled content.The contractor should provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in manufacturing of ceramic tiles to be used).(BHEL will supply Cement free of Cost as per TCC)	SQM	13	0.002573547867900

## BILL OF QUANTITY AND % WEIGHTAGES FOR ITEM RATES W.R.T TOTAL LUMPSUM PRICE

E-Tender Specification No: BHE/PW/PUR/NTPRT-CVL-CHP-PKG-I/2219				
<b>PART B (Rev-01): % weightage for amount of individual items of Schedule of quantity w.r.t. the total price (as quoted by the bidder in the E-Procurement Portal titled as "Part-C of Vol-II Price Bid".)</b>				
<b>Scope of Work: PACKAGE-I: CIVIL &amp; ARCHITECTURAL WORKS FOR CHP AREA AT 3X800 MW PVNL PATRATU, JHARKHAND.</b>				
<b>This BOQ &amp; % Weightages is for 'Package-I' only. The BOQ &amp; % Weightages for 'Package-II' is exactly same as that for 'Package-I'.</b>				
ST NO	Item Description	Unit	Quantity for PKG-I	% Weightage of PKG-I
C510	Providing and laying cement concrete chequered flooring tiles of 22 mm thickness and size 200x200 mm conforming to IS 13801 with 8 mm thick 1:4 cement mortar over the top most layer of roofing treatment in pathway or entire area with fine joints including sealing of joints (silicon/elastomeric sealant) and providing expansion gap in both directions including underbed (as per drawings) filled up with (silicon/elastomeric) joint sealant etc all complete. (Water proofing paid elsewhere)(including cost of cement for tiles making)(BHEL will supply Cement free of Cost as per TCC for cement sand mortar only)	SQM	<b>1425</b>	0.127805180576600
511	<b>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.</b>	SQM	<b>1425</b>	0.024646327069400
512	Providing and applying water proofing with blown bitumen bonding material conforming to IS:702 of 65/25 grade in Basements, ducts, pits, tunnels etc below the ground level on the concrete surfaces exposed to soil / ash and up to 150 mm above ground level on outside of walls and top of RCC slab including preparation of surface, brick lining single brick thick with 1:4 cement mortar etc. all complete with following number of layers of bitumen felts:		<b>0</b>	-
a	2 Layers of felt for depth up to 5m below ground level for floors	SQM	<b>50</b>	0.000802376356000
b	3 Layers of felt for depth beyond 5m below ground level for walls	SQM	<b>50</b>	0.001185733948400
A513	Providing and mixing <b>superplastisizer cum water proofing compound</b> conforming to IS:2645/ 9103 in concrete or cement mortar all complete.	KG	<b>50</b>	0.000329865835300
B514	Providing and applying <b>two component transparent polyamide cured epoxy sealer coating</b> (having solid by volume minimum 40% ±2%) of minimum 50 micron DFT followed by <b>epoxy phenolic coating</b> (solid by volume minimum 63%) of minimum 400 micron DFT. This coat shall be applied after an interval of minimum 24 hours (from the application of primer coat) by airless spray technique on beams,wall, column, slab, basin floor, basin wall, fill supporting beams and columns, internal surfaces of fan stack, underside of fan deck roof slab etc on concrete surfaces as per IS 9862 and IS 3384 complete all as per specifications & drawings.	SQM	<b>3</b>	0.000260326551100
D514	Providing and applying <b>Food grade epoxy coating complying to FDA Title 21, Part 175.300</b> of minimum <b>400 micron DFT</b> over absolutely dry, clean and dust free surface of water heating structures storing drinking water. This coat shall be applied by airless spray technique and shall conform to as per IS 9862, complete as per specifications & drawings.	SQM	<b>3</b>	0.000295987722400
517	Providing and laying <b>foam concrete blocks in the toilets/sunken slab</b> etc. complete as directed by engineer in charge.	CUM	<b>50</b>	0.014629995558300
518	<b>Anti termite and Anti weeds chemical treatment of soil</b> with Chloropyrifos emulsifiable or equivalents, concentrates (1%) conforming to IS:3944 all complete.	SQM	<b>8</b>	0.000649389930800
600	<b>JOINTS AND FILLERS: Joints &amp; fillers including all labour, material, equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge.</b>		<b>0</b>	-
601	Supplying & installation of <b>bitumen impregnated fibre board</b> 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.		<b>0</b>	-
a	12 mm wide joints.	SQM	<b>5</b>	0.000510846280000
c	25 mm wide joints	SQM	<b>750</b>	0.125571899718900
d	50 mm wide joints	SQM	<b>200</b>	0.064903331910100
603	Providing and applying <b>polysulphide based sealant</b> conforming to IS:12118 in joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete for following size grooves:		<b>0</b>	-
a	25mmX25mm	RM	<b>2000</b>	0.071322342758400
b	50mmX25mm	RM	<b>50</b>	0.003236251302700
A603	Providing and applying <b>polysulphide based sealant</b> with VOC content limited to 250 grams per litre as prescribed by GRIHA, 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:		<b>0</b>	-
a	25mmX25mm	RM	<b>5</b>	0.000178305856900
b	50mmX25mm	RM	<b>5</b>	0.000323625130300
A604	Supplying and filling in position <b>hot applied bitumin sealing compound (Grade A)</b> conforming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.(The sealant should have VOC content limited to 250 grams per litre as prescribed by GRIHA. All necessary documentation (certificates, manufacturer declarations ) to be provided by the contractor to green building consultant.		<b>0</b>	-
b	12mm X 25mm	RM	<b>5</b>	0.000023179761400
c	20mmX25mm	RM	<b>5</b>	0.000027637407800
A605	Supply and instalation of <b>Polystyrene flexible board</b> confirming to IS 4671 as joint filler at joint of comcrete including nailing, coating of both faces with coal tar pitch /butimen etc. all complete.		<b>0</b>	-
a)	100mm thick	SQM	<b>5</b>	0.001173965761800
b)	50mm thick	SQM	<b>5</b>	0.000586992880900
608	Supplying and filling in position <b>hot applied bitumin sealing compound (Grade B)</b> confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.		<b>0</b>	-
a	10mm X 40mm	RM	<b>5</b>	0.000024962820000
b	12mm X 25mm	RM	<b>5</b>	0.000023179761400
c	20mmX25mm	RM	<b>5</b>	0.000027637407800
A609	Providing and sealing of joints with <b>premium grade silicon sealant ( Silpruf of GE silicon or approved equivalent)</b> 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:Note: The sealant should have VOC content limited to 250 grams per litre . All necessary documentation (certificates, manufacturer declarations ) to be provided by the contractor to engineer in charge.		<b>0</b>	-
a	12mmX25mm	RM	<b>5</b>	0.000074442695300
b	25mmX25mm	RM	<b>5</b>	0.000148885390500
c	50mmX25mm	RM	<b>5</b>	0.00026575726800

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<b>Scope of Work: PACKAGE-I: CIVIL &amp; ARCHITECTURAL WORKS FOR CHP AREA AT 3X800 MW PVNL PATRATU, JHARKHAND.</b>				
<b>This BOQ &amp; % Weightages is for 'Package-I' only. The BOQ &amp; % Weightages for 'Package-II' is exactly same as that for 'Package-I'.</b>				
ST NO	Item Description	Unit	Quantity for PKG-I	% Weightage of PKG-I
610	Providing and fixing PVC water stops in joints conforming to IS 12200 & IS 15058 all complete for the following: (Bulb or Kicker type)		0	-
d	230 mm wide and 6 mm thick	RM	8963	0.271671261213000
612	Providing and applying approved fire retardant sealant in joints/openings including cleaning of joints/openings, raking out groove, application of primer, scaffolding etc. all complete.		0	-
a	25mmX25mm	RM	5	0.001060028319200
b	50mmX25mm	RM	5	0.002087070055000
615	Providing and fixing 300 mm wide Stainless steel strips ( Grade SS 316) over expansion joints with minimum lap of 50mm length including stainless steel screws, rawl plugs etc. all complete.	Kg	13	0.000675333433000
700	<b>MS EMBEDMENTS: Embedments including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.</b>		0	-
701	Supply, fabricating and fixing of <b>mild steel embedments</b> , 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	5	0.056464115703200
702	Supply, Fabrication, transportation, delivery at site and erection, installation and alignment of <b>mild steel foundation bolt</b> 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, stiffener plates, protective tape, pipe sleeves, templates etc. including welding, cutting, grinding, threading, drilling etc. all complete.	MT	30	0.415577460667200
703	Same as above items 701 & 702 with BHEL supplied material free of cost including loading, transportation, unloading etc. all complete from BHEL store to plant site.		0	-
A	Mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc.	MT	3	0.006667301754000
B	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, stiffener plates, protective tape, pipe sleeves, templates etc.	MT	5	0.013073385427600
704	Supplying, 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.		0	-
a	MS pipes of all diameters	kg	1000	0.010163433843100
b	PVC pipes / conduits of all diameters	kg	125	0.007979187096100
c	UPVC pipes / conduits of all diameters	kg	125	0.008580969363100
d	Expansion anchor fasteners (galvanised) of HILTI make(HRD Universal Fastners) or equivalent of safe tensile capacity as specified below for brick work with expansion sleeve of A6 polyamide:		0	-
i	8mm Dia	Nos	5	0.000051708698500
ii	10mm Dia	Nos	5	0.000055274815600
iii	12mm Dia	Nos	10	0.000124814099800
IV	14MM Dia	Nos	13	0.000176077033700
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:		0	-
i	HST3 M8	Nos	3	0.000052600227800
ii	HST3 M10	Nos	3	0.000074888459900
iii	HST3 M12	Nos	3	0.000133283628000
iv	HST3 M16	Nos	3	0.000230014555400
v	HST3 M20	Nos	3	0.000469835932900
vi	HST3 M24	Nos	3	0.000783208476400
f	Chemical Expansion fasteners (galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with anchoring rod,nuts,washers,chemicals all complete,etc:		0	-
i	HAS-E5.8 M8	Nos	3	0.000142198920900
ii	HAS-E5.8 M10	Nos	3	0.000166715976200
iii	HAS-E5.8 M12	Nos	3	0.000222436556500
iv	HAS-E5.8 M16	Nos	3	0.000375333828800
v	HAS-E5.8 M20	Nos	3	0.000597770385200
vi	HAS-E5.8 M24	Nos	3	0.000774738948200
705	Placing, locking and releasing of Vibration Isolation spring modules over the foundation at all elevations including providing all assistance under the supervision of the supplier, transportation from BHEL store, necessary staging, platforms, leveling, alignment etc. all complete.	Nos	3	0.000420801822300
706	Supply and installation of approved 25mm thick vibration damping resilient pads on/around foundation of vibrating equipment and at other locations all complete.	SQM	5	0.001239225705400
707	Providing, laying and fixing rails(52kg/rm) and guide rails in concrete for transformer, rail track including cutting of rails, joining of rails, anchoring lugs etc all complete.	MT	3	0.034349286037100
ISG 707	Laying and fixing rails(52kg/rm) and guide rails in concrete for transformer, rail track including cutting of rails, joining of rails, anchoring lugs etc all complete.(Rails will be supplied by BHEL)	MT	43	0.113344129817700
800	<b>GROUTING: Grouting including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, roughening surface, cleaning, ramming, curing etc. at all level , drawings and as directed by engineer - in - charge.</b>		0	-

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ST NO	Item Description	Unit	Quantity for PKG-I	% Weightage of PKG-I
801	Providing and applying Chemical Injection Grouting by fixing minimum, 12 mm dia (NB) threaded nozzle of suitable length, over the surface and along the construction joint line wherever specified, Fixing of nozzle shall be in a grid pattern at a spacing not exceeding 1.5 m c / c. Nozzles shall be fixed in set concrete by drilling suitable size holes preferably by using repercussive hammer drill electrically operated, in grid pattern and grouting nozzles shall be fixed in these holes including applying neat cement slurry admixed with water soluble non - shrink polymer / monomer based chemical shall be injected through the network of nozzles with low pressure grout pumps at a pressure of about 2.0 Kgs. / cm <sup>2</sup> , preparing cement slurry by mixing cement with non-shrink polymer/monomer @ 500 gm/50 kg bag of cement and water, ensuring that Water: Cement ratio does not exceed 2 (by weight). Wetter the structure, lesser should be the water cement ratio. (The property of the polymer/monomer should be such that when it is mixed with water @0.5% by weight of water, the viscosity of the resultant solution water and polymer/monomer should not be more than 1.2 centipoises. Plasticizing agent shall be added wherever required) The grouting shall be started at very low pressure and increased gradually to a required pressure. The grouting shall continue, till the hole refuses to take any further grout, even at an increased pressure. Applied pressure shall not be more than the designed strength of the concrete. After completion of grouting operation, the nozzles shall be sealed properly to the satisfaction of the Engineer. Quoted rate shall be all inclusive. (BHEL will supply Cement free of Cost as per TCC)	SQM	<b>17500</b>	1.360473688115600
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. (BHEL will supply Cement free of Cost as per TCC)	CUM	<b>5</b>	0.013270413399500
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 as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor). (BHEL will supply Cement free of Cost as per TCC)	CUM	<b>5</b>	0.012361053529300
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 <b>ConbextraGP-1</b> or equivalent as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	<b>1</b>	0.005945430492300
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 <b>Conbextra GP-2</b> or equivalent as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	<b>50</b>	0.318721719201400
806	Providing Chemical (epoxy) injection grouting with pressure pump for water retaining concrete structures conforming to IS:6494, including fixing nozzles, cost of approved chemical, admixture, curing etc. all complete . Payment shall be made as per the consumption of chemical grout.	Kg	<b>5</b>	0.001103713254200
807	Providing and laying 50 mm thick P. C. C. (1 : 2 : 4 with 10 mm nominal size stone aggregates), shall be provided under the raft i.e. over the lean concrete, followed by polymer modified cementitious coating in two layers ( slurry mix application ) as per manufacturer's specification. 50 mm thick P. C. C. ( 1 : 2 : 4 ) with 10 mm nominal size stone aggregates shall then be laid over the polymer modified cementitious coating before laying the raft. For Slurry Mix: A minimum of 2 coats shall be applied on the surface. The first coat being applied, when the surface is still damp and left to harden for 4 to 6 hours. After 4 to 6 hours of the application of second coat, it shall be finished by rubbing down with a soft dry sponge. The coverage shall not be less than 1 : 1 Kgs. / m <sup>2</sup> in the 2 coats. A lap of 75 mm shall be provided at the joints. The coating shall be air dried for 4 to 6 hours and, thereafter, cured for 7 days after the application of last coat. The rate quoted should be all inclusive. (BHEL will supply Cement free of Cost as per TCC)	Sqm	<b>13313</b>	0.880166743748700
900	<b>DOORS &amp; WINDOWS:</b> Doors, windows, ventilators, louvers, roof ventilators, rolling shutters, partitions including all labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, preparation of working drawings etc. at all level as per specification, drawings and as directed by engineer - in - charge.		<b>0</b>	-
A903	Providing, 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 aldrrops ,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) (Note: All particle board shall have recycled content. The bidder is required to provide material cutsheet sample/ declaration from manufacturer mentioning the percentage of recycled content used in manufacturing of particle board to the engineer in charge)	SQM	<b>3</b>	0.001246803704300
A904	Providing and fixing single or double steel door shutters with 35mm (min) 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	<b>150</b>	0.113830459042300
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	<b>25</b>	0.021213939324200
A906	Providing 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. <b>Glazing shall be clear toughened glass of 8/10/12 mm thickness</b> 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)	KG	<b>250</b>	0.018855844366700
A907	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 panic bar,panic trim, 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.all hardware used in the door should be fire rated and from approved manufacturer. Minimum ratings shall be 2 Hrs. 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	<b>25</b>	0.067963060414400

## BILL OF QUANTITY AND % WEIGHTAGES FOR ITEM RATES W.R.T TOTAL LUMPSUM PRICE

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This BOQ & % Weightages is for 'Package-I' only. The BOQ & % Weightages for 'Package-II' is exactly same as that for 'Package-I'.				
ST NO	Item Description	Unit	Quantity for PKG-I	% Weightage of PKG-I
B907	Providing and fixing <b>Acoustic Wooden Fire Door of Single / Double Leaf both side laminated finish</b> fully insulated wooden fire door of 120 min. fire rating, of min.50mm thickness, comprising of 75mm x 50mm hardwood internal timber frame work, with infill of 96 kg/m <sup>3</sup> , ceramic fiber blankets, coated with FR intumescence coating on both sides for insulation. The coated insulation shall be sandwiched between 12mm thick, Matrix Mineral Engineered Boards on both sides (edge to edge on internal Hardwood frame) and cladded with 3mm ply on both sides, with 55mm x 14mm teak wood lipping all round the shutter the main door frame will be made out of Hardwood of section 120 x 70mm and coted with Fire retardant Primer.The rebate shall be of 20mm x 57mm in Door Frame to accommodate the shutter in frame.Both frame and shutter shall be fitted with fire & smoke intumescence seal of size 20 x 4mm on all the three sides except bottom. The pasting of the ply/veneer/laminate should be done using automatic machine and should be free from any nails or perforations. The doors shall be provided with Pyroswiss Extra" or equivalent vision panel of 300mm x400mm. Test certificate for fire rating from International testing facility shall be provided by its relevant manufacturer. Provisions/ reinforcement for fixing all fixtures shall be built in on the doors prior to the supply. The rate should be inclusive of all fire rated hardware door handle 32X1200 H shape, door closer, dead lock, etc complete as per manufacturer spec. (The rate should be inclusive of door frame)	SQM	<b>13</b>	0.050817169215300
C907	Providing and fixing <b>automatically closing fire proof steel door satisfying LPA regulations</b> (single or double shutter) with panic devices shall be minimum 44mm 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 center to center including all fittings, vision glass, 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, LPA requirements and as per specification. Minimum ratings shall be 2 Hrs. All hardware fittings shall be fire rated.	SQM	<b>13</b>	0.033981530207200
908	Providing and fixing <b>steel windows/ventilator</b> 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)		<b>0</b>	-
a	Openable type	SQM	<b>300</b>	0.089224250790700
b	fixed type	SQM	<b>465</b>	0.088881903545500
A909	Providing and fixing <b>anodised aluminium work of Jindal, Hindalco or other equivalent</b> approved make for door frames, windows, ventilators, partitions, railing,grills 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 raw 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 bimetallic 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 measure.All aluminium frames to be used shall have recycled content meeting required strength criteria for frame work as per engineer in charge. The contractor should provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in maufacturing of frames.	Kg	<b>250</b>	0.017161938726200
A910	Providing, fabricating, supplying and fixing of Aluminium composite panel cladding (ACP) in pan shape in solid or metallic colour of approved shades made out of 4mm thick aluminium composite panel (weight of panel should be 7.5 kg/sqm) material consisting of 3mm thick Fire Retardant mineral filled Core comprising of around 70% Inorganic compound which is 100% non-combustible mineral and balance 30% is food grade virgin polymer Class B1 as per EN 13501,mineral core sandwiched between two Aluminium sheets (each 0.5mm thick).The aluminium composite panel cladding sheet shall be coil coated, with Kynar 500 based PVDF conforming to AAMA 2605 or Lumiflon based fluoropolymer resin coating of approved colour and shade on face # 1 and polymer (Service) coating on face # 2 as specified using stainless steel screws, nuts, bolts, washers, cleats, weather silicon sealant, backer rods etc. The top coated surface of ACP shall comply with the "specification for coated coil for the exterior building application" issued by ECCA (European Coil Coating Association). The aluminium composite panel top and bottom skin should conform to Aluminium Alloy 5005 (AlMg 1) marine grade series and H 22/24 temper with mechanical properties conforming to EN 485-2 standard. The ACP product must conform to either BS 476 part 6 & 7 or ASTM E 84 standards along with EN-13501-1. The manufacturer must furnish Class 1A certificate for this ACP produced in the plant from which it is going to be supplied. The panel shall be designed for 12mm groove in horizontal & in verticals with close joint system. Vertical & Horizontal groove shall be filled by non-staining high performance weather sealant. ACP panel shall have sub frame all around panel and aluminium stiffener profile as per structural requirements.	SQM	<b>25</b>	0.015348434432200
911	Providing and fixing of door closers as per specification ,of approved make & quality all complete of following type :		<b>0</b>	-
a	<b>Over head hydraulic door closures as per IS 3564</b>	Each	<b>3</b>	0.000621395911300
b	<b>Floor mounted Hydraulic door closers as per IS 6315</b>	Each	<b>3</b>	0.001030607852900
912	Providing and fixing <b>pressed steel frames fabricated from 16 gauge M.S sheet</b> 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	<b>25</b>	0.000476968167200

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ST NO	Item Description	Unit	Quantity for PKG-I	% Weightage of PKG-I
913	Providing and fixing in position <b>rolling shutter of hot rolled double dipped galvanised steel</b> 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 riveted with stiffening angles.(partly coiled and lath/full lath).		0	-
a	Hand Operated	SQM	50	0.014995522564900
b	Mechanically Operated	SQM	100	0.040707227129300
c	Electrically operated	SQM	35	0.015501911198500
914	Providing and fixing <b>PVC doors (25 thk double skin)</b> of sintex or equivalent make including all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	SQM	13	0.005268938071300
915	Providing, fixing and fitting of <b>glazing of first grade class in steel/aluminium/wooden frames</b> , where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete.		0	-
a	4 mm thick clear sheet glass	SQM	50	0.008505189373900
e	6mm thick Polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges.	SQM	50	0.017081701090600
f	4 mm thick ground glass	SQM	25	0.005429413342500
g	6 mm thick tinted heat reflecting type float glass	SQM	25	0.006227332052100
h	6 mm thick clear toughened safety glass	SQM	13	0.003697617707400
h (a)	6 mm thick clear <b>reflective toughened safety glass</b> of Saint Gobain(India) or Asahi (India) or equivalnet make and should have solar factor 25% or less, Maximum U-value 3.3W/SQMk, VLT min 30%, light reflection internal 10 to 15%, light reflection external 10 to 20%, shading coefficient (0.25-0.28)	SQM	50	0.012838021696500
i(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 Glavelbel (Belgium), Saint Gobain (France) or Fort (USA) Or equivalent. The glass should be free from distortion and thermal stress.	SQM	25	0.019841875755400
i(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 Glavelbel (Belgium), Saint Gobain (France) or Fort (USA) Or equivalent. The glass should be free from distortion and thermal stress.	SQM	50	0.039683751510700
i(c)	One outer 6mm thick tinted heat-reflecting type toughened glass and one inner 6mm thick plain float glass hermetically sealed and separated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).The glazing to be used in all exterior walls shall be of Asahi (India) Glavelbel (Belgium), Saint Gobain (France) or Fort (USA) Or equivalent.The glazing to be used should comply to mentioned standards VLT (Visible Light Transmittance)≤ 59 %, SHGC/ SF (Solar Heat Gain Coefficient/ Solar Factor) 0.2 ≤ 0.32 and U- Value 1.2 to 2.5 W /MSq K,The properties of performance and colour of glass shall be as per detail design values as approved by Architect and engineer incharge.The glass should be free from distortion and thermal stress	SQM	50	0.039655222573600
k(a)	One inner 6mm thick clear float glass and one outer 6mm thick reflective toughened glass hermetically sealed and separated by 12 mm thick gap for thermal insulation . Glass to be used shall be of make Saint Gobain(India),Asahi (India) or equivalent.Outer glass should have solar factor 25% or less, Maximum U-Value of 1.8 to 3.3W/SQMk, VLT min 47%, light reflection internal 10 to 15%, light reflection external 10 to 20%, shading coefficient (0.25-0.28).The properties of performance glass shall be as per detail design values. (only single elevation area to be measured).	SQM	50	0.025676043393000
l	6 mm thick laminated glass	SQM	13	0.002627782566000
I(a)	10 mm thick laminated glass	SQM	13	0.004379637610000
m	6 mm thick clear <b>toughened safety glass</b>	SQM	13	0.003697617707400
n	8 mm thick clear <b>toughened safety glass</b>	SQM	25	0.009860313886300
o	10 mm thick clear <b>toughened safety glass</b>	SQM	25	0.012325392357900
p	12 mm thick <b>toughened safety glass</b>	SQM	25	0.014790470829500
916	Supplying and fixing weather stripping of approved make and quality to doors as per instructions of engineer in charge and specification complete.	RM	75	0.001872211497400
917	Providing and fixing <b>12 mm thick BWP particle board, decorative veneer (prelaminated) on both sides</b> , as panels in aluminium framed door shutter, fixed with necessary snap-on-beading etc. all complete (excluding aluminium works).	SQM	50	0.011812763019400
918	Providing and fixing <b>steel louvered window with ISMC 100 frame all round including verticals with 18G pressed steel louvers, painting etc. all complete.</b>	SQM	1000	0.352154067369400
919	Providing and fixing <b>1 mm thk. MS sheet sliding shutters with frame</b> 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	10	0.005190483494200
A919	Providing and fixing <b>12 mm thick double leaf automatic toughened glass sliding door</b> of approved brand and manufacture, including fixtures, all necessary arrangement,sensor, motor, air curtain, frames, finshes, mechanical systems, electrical systems, warranty all inclusive in working condition, all complete as per specifications.	SQM	10	0.008701325816500
920	Roof skylight structure for atrium with <b>6mm thick Polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant</b> with sealed open edges for sky light for approved shape like dome, pyramidal etc. Joints are properly sealed with sealant, screws with pvc cap, self tapping screws, epdm rubber gasket,etc all complete as per detailed drawing and specification.	SQM	3	0.001064040201000
A920	Providing and erecting <b>Roof skylight structure with 4mm thick embossed clear translucent polycarbonate IR sheet</b> , both side UV 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.	SQM	3	0.002780144920700

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ST NO	Item Description	Unit	Quantity for PKG-I	% Weightage of PKG-I
A921	Providing & fixing Fully Glazed Fire Rated partitions with minimum 25mm thick Hermetically sealed double glass (DGU) consisting of Fire resistant glass of minimum 11mm thick or more, clear, toughened interlayered glass, with 120 minutes' fire rated for both integrity & radiation control, and 6mm thick toughened tinted glass with 8mm gap or more as per manufacturer specification. The partitions shall be 120 minutes Fire Rated, Fully Glazed non-load bearing fixed partition with valid fire test certificate from national or international lab with Partition Frame manufactured from 1.6 mm galvanized steel sheet (zinc coating not less than 120 gm/sqm) pressed to form a suitable profile to accommodate the glass & fixed to the supporting construction by means of M 10 X 120 or bigger steel bolts at 150 mm from the edges & every 500mm c/c. The frame shall be finished with etch primer for scratch resistance and shall be powder coated of min. 30 micron of approved shade and colour. The glass panels shall be minimum 11mm thick, clear, toughened, interlayer 120-minute fire rating for both integrity & radiation control (EW120), with 20-minute full insulation, Non-Wired Toughened glass having a sound reduction of greater than 37dB, light transmission of 87% and compliant to class 2(B)2 category of impact resistance as per EN 12600. The manufacturer has to give test report /certification of glass fire rated glass and glass should have the stamp showing the value of E, EW AND EI. The glass should be manufactured in UL & TUV audited Facility and including UL-EU Certification. The glass shall be held in position with minimum 1.6 mm 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 intumescent putty and fire resistant acrylic sealants and the total assembly shall satisfy the fire resistance criteria of stability, integrity & radiation control and partial insulation (EW120) complete all respect and comply with the requirement of NBC-2016, IS16231(PART-3) and as per specification. 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	3	0.003089327276600
922	Providing and fixing electrically operated, self operable/closing, approved anodized aluminium framed glass door with 12 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	0.049581081693000
923	Providing and fixing of fully glazed steel door with 120 minutes' fire rating, of integrity and radiation control (EW 120) fabricated with 1.6 mm thick galvanized steel sheet. The door frames are manufactured from 1.6 mm galvanized steel sheet (zinc coating not less than 120 gm/sqm) pressed to form a profile of 35 mm x 60 mm on the vertical sides and 50 x 60 mm on the horizontal side. The door shutter would have a top rail and side rail 60 mm x 60 mm and a bottom rail of 110 mm x 60 mm. The frame shall be finished with approved fire resistant primer or Power coating of min. 30 micron as per approved shade. The sections have a special insulating infill. The test is conducted in IFTS as per EN 1634-1: 1999. The glass panels shall be minimum 11mm thick or more, clear, toughened, interlayer 120-minute fire rating for both integrity & radiation control (EW120), with 20-minute full insulation, Non-Wired Toughened glass having a sound reduction of greater than 37dB, light transmission of 87% and compliant to class 2(B)2 category of impact resistance as per EN 12600. The manufacturer has to give test report /certification of glass fire rated glass and glass should have the stamp showing the value of E, EW AND EI. The manufactured in UL & TUV audited Facility and including UL-EU Certification. The glass should be compliant to category of Impact Resistance as per EN 12600. The glass should be held in its place with the help of 1.6 mm GI beading and a special ceramic tape with cross section of 5 x 20 mm as per the test evidence. The shutters should be fixed to the frame using Dorma SS Ball Bearing Hinges of size 100 mm x 89 mm and 3 mm thickness or equivalent. Beading should be attached using 4 mm x 35 mm SS screws at a distance of 75 mm from the edges and 150 mm c/c henceforth. The door should be fitted with Dorma Mortise Sash lock 952F and door closer TS 68 of Dorma make or equivalent. The inactive leaf should be fixed to the frame using 1200mm long tower bolt. 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	2	0.008016229781200
A924	Providing and fixing in position Acoustical wall panelling at all heights with 12mm thick compact laminates made out from High Pressure thermosetting resin treated Kraft as core material and design paper as a finish surface of size 600 x 600mm or 1200x1200mm having NRC (Noise Reduction coefficient) of 0.50 (minimum) as per IS 8225:1987, Light reflectance of 85% (minimum). Non-combustible as per BS:476 (part-4) fire performance as per BS:476 (part 6 &7),EN:BS110, humidity resistance of 100%, thermal conductivity < 0.043 W/m K as per ASTM 518:1991, having Anti-bacterial and anti-termite property under JIS Z2801:2000, Chemical resistance, Scratch resistant, should have the density >1.35kg/cm3 and fulfilled the criteria of FSC and Green Guard Gold certification and manufactured under EN438-2&3:2005 standard . comprising of a frame made from especially fabricated galvanised mild steel sheet 0.50 mm thick pressed section (galvanizing @120 grams per sqm including both sides) i.e. Vertical studs of size 48 x 34 x 36 mm are placed at 600mm centre to centre in a floor and ceiling channel section of size 50 x 32mm fixed to the floor and soffit at 600mm centres using 12mm dia,50mm long wedge type expanded zinc alloy dash fastener with 10mm bolt. This same channel is then to be fixed in horizontal direction at 600mm centre to centre so as to form a grid of 600mm x 600mm. Glass wool/mineral wool of 50mm thickness & 64 kg/cum density is to be inserted in the slots and finally compact Laminate panels are to be screw fixed with self-tapping pan head nickel coated mild steel screws of size 13 x 3.2mm on to this grid leaving an even groove of 1 mm between the panels. The joints between the panels are to be duly jointed and finished using recommended jointing filler compound and fibre joint tape roll 50mm wide (90 metre )roll and two coats of primer suitable for panelling as per manufacturer's specification as per direction of Engineer-in-Charge all complete. The laminated panel shall be perforated having perforation to 15-25mm diameter holes covering 20-25% of the panel area as per manufacturer recommendation to achieve the acoustical property and back of panels shall be laminated with acoustical Soundtex black tissue or non-woven acoustic fleece. Finish and colour of Interior wall panelling shall be complete as approved by engineer incharge. The contractor should provide the material cut sheet/ declaration from manufacturer mentioning the recycled content used in manufacturing of compact laminate panels.(Glass wool/mineral wool to be paid separately)	SQM	3	0.001510250607900
1000	BRICKWORK: Brickwork masonry including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding etc. at all levels as per specification, drawings and as directed by engineer - in - charge.		0	-
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.(BHEL will supply Cement free of Cost for cement sand mortar only as per TCC)		0	-
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	CUM	500	0.333521105323800
b	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 50 kg/cm2(including cost of cement for brick making)	CUM	250	0.155393554284800
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	100	0.067328291563900
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	CUM	50	0.032719124740400

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ST NO	Item Description	Unit	Quantity for PKG-I	% Weightage of PKG-I
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. (BHEL will supply Cement free of Cost for cement sand mortar only as per TCC)		0	-
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm <sup>2</sup> (including cost of cement for brick making)	CUM	900	0.730322959259900
b	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 50 kg/cm <sup>2</sup> (including cost of cement for brick making)	CUM	50	0.038371420404000
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	50	0.040885532986200
A1002	Providing Autoclave Areated concrete blocks blocks having dimensions of 625 mm x 250 mm in cement mortar 1:6 ( 1 part Cement 6 parts coarse sand having modulus of fineness 1.1& suitableplasticizer ) conforming to I.S.:2185(part-III) in walls, chambers etc. in thickness varying from 100mm to 300 mm at depths, places and position <b>above plinth</b> , including horizontal and vertical joint thickness approximately 10 mm ,raking out joints, curing, scaffolding etc. complete excluding plastering and painting all complete as per specification and drawing.(BHEL will supply Cement free of Cost for cement sand mortar only as per TCC)	CUM	3	0.002197477041600
1003	Providing brick work in cement mortar 1:4 (1 cement 4 coarse sand) in <b>partition walls</b> , 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.(BHEL will supply Cement free of Cost for cement sand mortar only as per TCC)		0	-
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm <sup>2</sup> (including cost of cement for brick making)	SQM	5	0.000496581811500
A1003	Providing factory made composite modular light weight aerated concrete panels of minimum 2 hours of fire rating, 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 <sup>2</sup> and density in the range of 700-900 Kg/Cu.M. to provide external wall and internal partition at all levels. <b>AC panels shall be minimum 75mm thick and 3.0M height and shall be capavle of sustaining wind pressure with limiting deflection of span/250.</b> 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.	SQM	5	0.001482791505900
B1003	Providing Autoclave Areated concrete blocks blocks in cement morat 1:4 ( 1 cement 4 coarse sand having modulus of fineness 1.1) in partition wall, chambers etc. in thickness 100mm/125/150 mm at all heights, places and position above or below plinth/grade level inclding joint reinforcement i.e. 1 number of 6-8 mm diameter bar placed at every alternate course to be anchored properly with the main structure, (joint reinforcement etc. in the AAC masonry work strictly be carried out as per instructions laid down in I.S 6041 – 1985, I.S -1905) including raking out joints, curing, scaffolding etc. complete excluding plastering and painting as per specification and drawing.(BHEL will supply Cement free of Cost for cement sand mortar only as per TCC)	CUM	3	0.002197477041600
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). <b>Using brick on edge.</b>		0	-
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm <sup>2</sup> (including cost of cement for brick making)	SQM	3	0.000201485618300
b	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 50 kg/cm <sup>2</sup> (including cost of cement for brick making)	SQM	3	0.000188558443700
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	SQM	3	0.000203268676900
d	Using burnt clay bricks of class designation 5.0 of nominal dimension	SQM	3	0.000197919501200
1005	<b>Breaking of existing brick work</b> 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	3	0.000455125699700
A1005	Making openings in existing AAC block work or partition wall including making good the broken edges/surface with cement mortar etc. all complete 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	3	0.000455125699700
1008	<b>Making openings in existing brick wall or partition wall</b> including making good the broken edges/surface with cement mortar 1:6 etc. complete.	CUM	3	0.000524219219300
1010	<b>Filling existing brick wall/ partition wall opening</b> at all level including making good the broken edges/surface with cement mortar 1:6, painting, finishing to match with existing finishing, scaffolding/supporting at all level, removal of debris upto a lead of 1 km including loading, unloading, transportation etc. all complete.	SQM	3	0.000250073964300
1011	<b>Providing and filling brick bats in soak pits</b> all complete.	CUM	3	0.000345913362400
1100	<b>DAMP PROOF COURSE:</b> Damp proof course including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, shutting, centering, curing etc at all level as per specification, drawings and as directed by engineer - in - charge.		0	-
1101	Providing Damp Proof Course of following thickness with 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. (BHEL will supply Cement free of Cost per TCC)		0	-
b	50mm thick	SQM	157	0.005664687920700
1200	<b>PLASTERING:</b> Cement mortar plaster including making grooves wherever required including all labour, material (unless otherwise specified in BOQ/contract specification), scaffolding, curing etc at all level as per specification, drawings and as directed by engineer - in - charge.		0	-
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(BHEL will supply Cement free of Cost for cement sand mortar only as per TCC)	SQM	4445	0.120470569153100
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.(BHEL will supply Cement free of Cost for cement sand mortar only as per TCC)	SQM	5361	0.101315705864400
1204	Providing 6mm thick plaster on ceiling in cement mortar 1:4 finished to a smooth all complete.	SQM	1000	0.018900420831000
1205	Providing 12mm thick plaster in walls, drains/culverts with a paste of neat cement @ 1kg/sqm and rubbed smooth with trowel etc. all complete.(BHEL will supply Cement free of Cost for cement sand mortar only as per TCC)	SQM	3	0.000040118817800

## BILL OF QUANTITY AND % WEIGHTAGES FOR ITEM RATES W.R.T TOTAL LUMPSUM PRICE

E-Tender Specification No: BHE/PW/PUR/NTPRT-CVL-CHP-PKG-I/2219				
<b>PART B (Rev-01): % weightage for amount of individual items of Schedule of quantity w.r.t. the total price (as quoted by the bidder in the E-Procurement Portal titled as "Part-C of Vol-II Price Bid".)</b>				
<b>Scope of Work: PACKAGE-I: CIVIL &amp; ARCHITECTURAL WORKS FOR CHP AREA AT 3X800 MW PVNL PATRATU, JHARKHAND.</b>				
<b>This BOQ &amp; % Weightages is for 'Package-I' only. The BOQ &amp; % Weightages for 'Package-II' is exactly same as that for 'Package-I'.</b>				
ST NO	Item Description	Unit	Quantity for PKG-I	% Weightage of PKG-I
1206	Providing <b>drip course on plastered</b> 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 instruction of engineer in charge.(BHEL will supply Cement free of Cost for cement sand mortar only as per TCC)	RM	3	0.000014715433800
1207	Forming <b>groove of uniform size from 12X12 mm upto 25X15 mm in plastered surface</b> as per approved pattern, using wooden battens nailed to the under layer, including removal of wooden battens, 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	3	0.000011144116100
1208	Providing and laying <b>encasement to box type steel beams</b> 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)(BHEL will supply Cement free of Cost for cement sand mortar only as per TCC)	SQM	3	0.000133283628000
1300	<b>FINISHES TO CONCRETE / PLASTERED SURFACES:</b> Finishes, painting to concrete, plastered surfaces including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, surface preparation, scaffolding etc. at all level as per specification, drawings and as directed by engineer - in - charge.		0	-
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	1000	0.003423472452400
1304	Two or more coats of <b>acrylic distemper</b> of approved brand and manufacture to give an even shade including a priming coat with distemper primer complete.	SQM	5361	0.053812021133600
1305	Providing and applying two or more coats of <b>acrylic emulsion paint</b> 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	250	0.003717677116300
A1305	<b>Providing and applying two or more coats of low VOC (volatile organic compound) acrylic emulsion paint</b> 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. Note: The paint should have VOC content limit less than 150 grams per litre All necessary documentation (certificates, manufacturer declarations ) should be provided by the contractor to engineer in charge.	SQM	100	0.001504901432200
1306	Providing and applying 2 or more coats of <b>acid/alkali resistant paint</b> 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	150	0.006394939557600
1307	Providing and applying two coats of <b>Epoxy coating</b> 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, oil, splash, spillage & acidic environment. The epoxy paint coating shall be of minimum 150 micron thickness over epoxy primer.	SQM	3	0.000082332729400
1309	Two or more coats of <b>fire resistant transparent paint</b> (@0.3 litre per sqm per coat) 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. French polish payment will be made separately.	SQM	3	0.000091872092800
1311	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	1000	0.007845457703400
A1312	Providing and applying <b>3 coats of water proof cement paint</b> of approved make and color on exterior surface at all heights including material, labour, scaffolding, curing etc including primer coat complete as per specification. Note: The paint should have VOC content limit less than 200 grams per litre All necessary documentation (certificates, manufacturer declarations ) should be provided by the contractor to engineer in charge.	SQM	50	0.000585734739900
A1316	Providing and applying <b>2 mm thick Acrylic wall putty in two coats over cement plastered surfaces</b> including preparation of surface, staging, etc. to achieve a smooth even surface all complete as per specification and as directed by Engineer.	SQM	5361	0.058017578735500
1317	Providing and applying <b>2 mm thick white cement punning</b> on walls including preparation of surface, staging, etc to achieve a smooth even surface all complete as per specification and as directed by engineer.	SQM	50	0.000670430021900
A1319	Providing and applying two or more coats of <b>Premium Acrylic Smooth Paint with Silicone additives</b> weather coat paint of approved brand and manufacture and required shade over <b>one coat of primer of water proof cement paint</b> 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.(The sealant should have VOC content limit less than 250 grams per litre as prescribed by GRIHA. All necessary documentation (certificates, manufacturer declarations ) to be provided by the contractor for green building documentation ).	SQM	4445	0.109905617266200
1320	Providing and applying <b>acid alkali and oil resistant</b> high build, solvent free, self smoothing, seamless epoxy based amine cured floor finish 150 microns over primer on C.C. flooring	SQM	5	0.000228053191000
1322	Providing & fixing <b>GRC Tile</b> of size <b>250mmx75mmx15mm</b> conforming to IS:1237 in approved design, size, texture, thickness, pattern and color on wall cladding upto all height as per the architectural drawing & approval from architect/customer,including necessary scaffoldings required for installation. The Tile shall conform to IS :1237-1980. The composition of tiles should be '43' Grade White Portland cement, reinforced with Alkali Resistant Glass Fiber and the pigmentation should be done with exterior grade synthetic inorganic iron oxide pigments. The pigmentation should be homogeneous and in accordance with British Standards BS EN 12878:1999. The other additives should be fine washed graded quartz, super plasticizers and integrated water proofing agents and others. The tiles should be produced with high vibration technology and should have compressive strength equivalent to M-40 Grade@28 days. The top surface of the tiles should be sealed with acrylic lacquer resulting in surface water absorption of tiles, less than 1% and water absorption by 24 hrs immersion method, less than 8%. The tiles should be applied on a rough plaster of cement mortar 1:3 (1 cement: 3 coarse sand) and the fixing of tiles should be done by tile adhesive as per manufacturer's laying instruction. Installation to be done by specialized vendor in strict supervision if required as per the manufacturer's specification.	SQM	5	0.001338185456000
1400	<b>FLOORING AND SKIRTING:</b> Flooring and skirting at all level including base layer, labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, curing, polishing etc. at all level as per specification, drawings and as directed by engineer - in - charge.		0	-
1401	Providing and laying <b>50 mm thick heavy duty cement concrete in flooring with metallic hardener</b> pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 38mm thick cement concrete mix 1:1.5:3 (1 cement:1.5 sand : 3 stone aggregates 12.5 mm 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	16040	0.963828743333600

## BILL OF QUANTITY AND % WEIGHTAGES FOR ITEM RATES W.R.T TOTAL LUMPSUM PRICE

E-Tender Specification No: BHE/PW/PUR/NTPRT-CVL-CHP-PKG-I/2219				
<b>PART B (Rev-01): % weightage for amount of individual items of Schedule of quantity w.r.t. the total price (as quoted by the bidder in the E-Procurement Portal titled as "Part-C of Vol-II Price Bid".)</b>				
<b>Scope of Work: PACKAGE-I: CIVIL &amp; ARCHITECTURAL WORKS FOR CHP AREA AT 3X800 MW PVNL PATRATU, JHARKHAND.</b>				
<b>This BOQ &amp; % Weightages is for 'Package-I' only. The BOQ &amp; % Weightages for 'Package-II' is exactly same as that for 'Package-I'.</b>				
ST NO	Item Description	Unit	Quantity for PKG-I	% Weightage of PKG-I
A1401	Providing and laying <b>50 mm thick heavy duty cement concrete in flooring without metallic hardener</b> pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 38mm thick cement concrete mix 1:1.5:3 (1 cement : 1.5 sand : 3 stone aggregates 12.5 mm well graded) (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):(BHEL will supply Cement free of Cost as per TCC)	SQM	5	0.000291530076000
B1401	Providing and laying <b>70 mm thick heavy duty cement concrete in flooring with metallic hardener</b> pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 58mm thick cement concrete mix 1:1.5:3 (1 cement : 1.5 sand : 3 stone aggregates 12.5 mm 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):(BHEL will supply Cement free of Cost as per TCC)	SQM	5	0.000420623516400
C1401	Providing and laying <b>70 mm thick heavy duty cement concrete in flooring without metallic hardener</b> pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 58mm thick cement concrete mix 1:1.5:3 (1 cement : 1.5 sand : 3 stone aggregates 12.5 mm well graded) (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):(BHEL will supply Cement free of Cost as per TCC)	SQM	5	0.000402792930700
1402	Providing and laying <b>25 mm thick heavy duty cement concrete mix 1:1.5:3</b> (1 cement: 1.5 sand : 3 stone aggregates ) flooring with metallic hardener pigmented topping of 10 mm thick uniform graded treated iron particles in <b>skirting and dado</b> . Under layer of 15mm thick cement concrete mix 1:1.5:3 (1 cement: 1.5 sand : 3 stone aggregates 12.5 mm well graded) and top layer of 10mm 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 as per specification. (Quoted item rate shall be inclusive of providing glass joint strips).(BHEL will supply Cement free of Cost as per TCC)	SQM	10	0.000513699173700
1403	Providing and laying <b>precast polished heavy duty cement concrete tiles</b> (Carborundum topping pigment content is 3.5 kg per 50 Kg of Cement) of size 300X300X25 thick of approved shade as per IS 1237, including minimum 25mm cement mortar bedding of 1:3 (1 cement : 3 sand) jointed with neat cement slurry@4.4 kg/sqm,labour,materials, 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.(inclusive of cost of cement for tiles manufacturing) all complete for following:(BHEL will supply Cement free of Cost as per TCC)		0	-
a	Laid in floors	SQM	5	0.000730162484000
b	Laid in skirting	SQM	5	0.000942346453700
A1404	Providing and laying interlocking M35 Grade concrete blocks in paving with approved colour and pattern and should be laid on the subbase and bedding of sand minimum 50mm thick as per specifications and recommendations of manufacturer.(inclusive of cost of cement for paver manufacturing)		0	-
Ab	80mm	SQM	5	0.000740961995100
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 @4.4kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.(BHEL will supply Cement free of Cost for cement sand mortar as per TCC)	SQM	300	0.055310476809100
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 marble 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 @4.4kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.(BHEL will supply Cement free of Cost for cement sand mortar as per TCC)	SQM	5	0.001590488243500
1412	Providing and laying <b>18-20mm thick polished Granite stone</b> of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 30 mm thick of cement sand mortar of 1:4 (1 cement : 4 sand) 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 @3.3kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.(BHEL will supply Cement free of Cost for cement sand mortar as per TCC)	SQM	3	0.001101484431000
A1412	Providing and laying <b>18-20mm thick polished Granite stone</b> of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 50 mm thick of 1 : 4 (1 cement : 4 sand) 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 @3.3kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.(BHEL will supply Cement free of Cost for cement sand mortar as per TCC)	SQM	3	0.001105942077400
1413	Providing and laying <b>14 to16mm thick polished Granite stone</b> of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 35mm thk of 1 cement : 4 sand 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 @3.3kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.(BHEL will supply Cement free of Cost for cement sand mortar as per TCC)	SQM	3	0.001001187386500
A1413	Providing and laying <b>14 to16mm thick polished Granite stone</b> of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 55 mm thk of 1 cement : 4 sand 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 @3.3kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.(BHEL will supply Cement free of Cost for cement sand mortar as per TCC)	SQM	3	0.001005645032900
1414	Providing and laying <b>polished Granite stone 18-20mm</b> thk in skirting and dado with 6mm thick projection from adjacent plaster minimum 12 mm thick cement mortar bedding of 1:3 (1 cement : 3 sand) with thick cement slurry @3.3kg/sqm spread over the surface with fine joint finished including cutting brickwall upto the required depth, edging, finishing etc. all complete. including mortar, cement slurry, pigments, curing, grinding,moulding, granite polishing etc. all complete.(BHEL will supply Cement free of Cost for cement sand mortar as per TCC)	SQM	3	0.001105496312800
1416	Providing and laying <b>vitrified ceramic tiles of polished variety of size 600x600</b> from reputed / approved manufacturer, complete including underbed of cement mortar 1:3 minimum 40mm thick underbed for flooring and 12mm thick underbed for dado/skirting with neat cement slurry @3.3Kg/sqm etc. all complete for following (BHEL will supply Cement free of Cost for cement sand mortar as per TCC)		0	-
b	10mm thick tiles In flooring	SQM	3	0.000377116887300
c	10mm thick tiles In skirting and dado upto specific height	SQM	3	0.000369984653100

## BILL OF QUANTITY AND % WEIGHTAGES FOR ITEM RATES W.R.T TOTAL LUMPSUM PRICE

E-Tender Specification No: BHE/PW/PUR/NTPRT-CVL-CHP-PKG-I/2219				
<b>PART B (Rev-01): % weightage for amount of individual items of Schedule of quantity w.r.t. the total price (as quoted by the bidder in the E-Procurement Portal titled as "Part-C of Vol-II Price Bid".)</b>				
<b>Scope of Work: PACKAGE-I: CIVIL &amp; ARCHITECTURAL WORKS FOR CHP AREA AT 3X800 MW PVNL PATRATU, JHARKHAND.</b>				
<b>This BOQ &amp; % Weightages is for 'Package-I' only. The BOQ &amp; % Weightages for 'Package-II' is exactly same as that for 'Package-I'.</b>				
ST NO	Item Description	Unit	Quantity for PKG-I	% Weightage of PKG-I
A1416	Providing and laying <b>heavy duty vitrified antiskid tiles 18-20 mm thick of size 600x600 in flooring</b> from reputed / approved johnson, varmora, quitone or equivalent manufacturer, complete including minimum 30mm thick underbed for flooring of cement mortar 1:3 with neat cement slurry @3.3Kg/sqm etc. all complete. NOTE: All vitrified tiles to be used should be with appropriate % of recycled content. The contractor should provide the material sample/ declaration from manufacturer mentioning the recycled content used in manufacturing of vitrified tiles to be used to engineer in charge)(BHEL will supply Cement free of Cost for cement sand mortar as per TCC)	SQM	3	0.000554085450300
C1416	Providing and laying <b>vitrified ceramic tiles of polished variety of size 800x800</b> from reputed / approved manufacturer johnson, varmora, quitone or equivalent, complete including underbed of cement mortar 1:3 with neat cement slurry etc. all complete for following .(BHEL will supply Cement free of Cost for cement sand mortar as per TCC)		0	-
a	10mm thick tiles In flooring	SQM	50	0.007631490675100
b	10mm thick tiles In skirting and dado upto specific height	SQM	3	0.000374442299500
1417	Providing and laying <b>vitrified ceramic tiles of matt finish of size 600x600mm</b> from reputed / approved manufacturer complete including underbed of cement mortar 1:3 minimum 20mm thick underbed for flooring and 12mm thick underbed for dado/skirting with neat cement slurry @3.3Kg/sqm etc. all complete for following(BHEL will supply Cement free of Cost for cement sand mortar as per TCC)		0	-
b	10mm thick tiles In flooring	SQM	140	0.021667727730000
c	7mm thick tiles In skirting and dado upto specific height	SQM	3	0.000319613248500
A1417	Providing and laying <b>vitrified ceramic tiles of matt finish of size 800x800mm</b> from reputed / approved manufacturer including underbed of cement mortar 1:3 with neat cement slurry etc. all complete for following.NOTE: All vitrified tiles to be used should be with appropriate % of recycled content. The contractor to provide the material sample/ declaration from manufacturer mentioning the recycled content used in manufacturing of vitrified tiles to be used to engineer in charge)(BHEL will supply Cement free of Cost for cement sand mortar as per TCC)		0	-
b	10mm thick tiles In flooring	SQM	3	0.000391381355900
c	10mm thick tiles In skirting and dado upto specific height	SQM	3	0.000324070894900
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, cement slurry 3.3kg/sqm complete as per specification laid in pattern of following sizes(BHEL will supply Cement free of Cost for cement sand mortar as per TCC)		0	-
b	600X600 mm	SQM	150	0.033245127018200
1419	Providing and laying <b>granite stone slab of 20mm thickness</b> single piece for wash basin / sink slab / facia of black or approved colour including 20mm underbed of cement mortar 1:3 with cutting, making corners, moulding and opening etc. all complete.(BHEL will supply Cement free of Cost for cement sand mortar as per TCC)	SQM	13	0.006916038424300
1420	Providing and laying <b>Heavy Duty dust pressed Ceramic Tiles of 7mm thick</b> of reputed manufacturer of approved finish shade and colour including 43mm underbed of cement mortar 1:3 with neat cement slurry @3.3kg/sqm etc. all complete.(BHEL will supply Cement free of Cost for cement sand mortar as per TCC)		0	-
a	300X300 mm	SQM	3	0.000242941730000
A1420	Providing and laying <b>Heavy Duty dust pressed Ceramic Tiles of 7mm thick</b> of reputed manufacturer of approved finish shade and colour including 43mm underbed of cement mortar 1:3 with neat cement slurry etc. all complete. All tiles to be used should be with appropriate % of recycled content. The contractor to provide the material sample/ declaration from manufacturer mentioning the recycled content used in manufacturing of vitrified tiles to be used to engineer in charge)(BHEL will supply Cement free of Cost for cement sand mortar as per TCC)		0	-
a	300X300 mm	SQM	13	0.001214708650100
b	600X600 mm	SQM	8	0.000742198129300
A1421	Providing and laying <b>Heavy Duty dust pressed (grade-5) Ceramic Tiles (Matt Finish)</b> of size 300x300mm(approved size) and 7mm thick	SQM	3	0.000353045596700
1422	Providing & fixing <b>Acid / Alkali resistant (Chemical resistant) tiles</b> conforming to IS:4457 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.		0	-
a	20mm thick	SQM	25	0.010711724353000
b	38mm thick	SQM	50	0.031916748384400
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	50	0.022011858033800
A1427	Providing and fixing designer <b>ceramic tiles</b> of approved color and design of size 200x300mm / 300x600mm in dado of approved size of reputed / approved manufacturer (Kajaria, johnson, varmora, quitone or equivalent) , projecting 6mm uniformly from adjacent plaster or wall finish. The mix for 45/47mm thick 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 @ 3.3kg/sqm including pigments, curing etc all complete for following thicknesses:NOTE: All vitrified tiles to be used should be with appropriate % of recycled content. The contractor to provide the material sample/ declaration from manufacturer mentioning the recycled content used in manufacturing of vitrified tiles to be used to engineer in charge)(BHEL will supply Cement free of Cost for cement sand mortar as per TCC)		0	-
a	5mm thick	SQM	3	0.000426222320300
b	7mm thick	SQM	3	0.000463452583200
A1428	Providing and laying <b>2mm thick antistatic PVC flooring / skirting</b> of approved shade,as per IS:3462 and laying as per IS:5318 all complete.	SQM	3	0.000128380217000

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E-Tender Specification No: BHE/PW/PUR/NTPRT-CVL-CHP-PKG-I/2219				
<b>PART B (Rev-01): % weightage for amount of individual items of Schedule of quantity w.r.t. the total price (as quoted by the bidder in the E-Procurement Portal titled as "Part-C of Vol-II Price Bid".)</b>				
<b>Scope of Work: PACKAGE-I: CIVIL &amp; ARCHITECTURAL WORKS FOR CHP AREA AT 3X800 MW PVNL PATRATU, JHARKHAND.</b>				
<b>This BOQ &amp; % Weightages is for 'Package-I' only. The BOQ &amp; % Weightages for 'Package-II' is exactly same as that for 'Package-I'.</b>				
ST NO	Item Description	Unit	Quantity for PKG-I	% Weightage of PKG-I
A1429	Providing and fixing Removable type flooring system (raised access floor) consisting of fire resistant Cementitious panels of 600 x 600x 35 mm and Laminated with 1.2 mm thick fire retardant food grade antistatic laminate top finish to ensure max bonding to the steel surface. Cementitious panels shall be steel welded construction, with an enclosed bottom pan of 64 hemispherical and top plain sheet which are fuse welded at multiple location to form a panel. The panel is coated with 40-60-micron epoxy coat after cleaning, degreasing, phosphate by several tank processes & is heated to achieve max adhesion to the panel surface & corrosion resistance. The inner empty core of the panel is injected with a light weight fire retardant, non-combustible cementations compound at high pressure to fill in all the crevices of the panel and ensures support of not less than 90% of the top surface area of the panel. Pedestal (300mm - 800 mm) must be 25mm dia. pipe with min.2.0 mm thickness with bottom plate of 100x100x min.2.0mm thick & top plate must be 75x75x3.0 mm. All pedestal shall be tightening to Stringer of 20x30x575x1.0 mm Rectangular tube. The system shall be design for Uniformly distributed load (UDL) of 13 KN (1300 kg / sqm), for the same all complete as per specification.	SQM	3	0.001456045627400
1430	Providing and fixing <b>dividing strips in joints</b> of cast in situ floorings at various elevations, finishing, all labour, material etc. complete as per drawing, specification and instructions of engineer in charge.		0	-
a	Glass strips 40 mm wide and minimum 6 mm thick.	RM	25	0.000156017624800
b	Aluminium strips 40 mm wide and minimum 3 mm thick	RM	25	0.000369984653100
A1431	Providing and fixing <b>15mm thick wooden panel flooring and skirting of pergo,greenlam or equivalent as per EN13329 of approved color,shade multi-layered engineered wooden planks treated with VOC free lacquers and stains to provide extra strengthening, longevity and durability to planks.</b> In all planks each layers are arranged at cross grain to each other for provide the balancing and stability to all three layers. Top layer of flooring is made up of about 3.0 mm thick thermosetting re-polish able natural veneer setting on a core of about 10 mm thick pine wood that produce natural characteristic of wood with 2.0mm thick bottom ply based veneer balancing layer. The planks are joint to each other through plankloc system with glue less technology system and laid on 2mm thick dual barrier underlay protecting sheet having anti-bacterial, Anti-termite, fire-resistant, noise reduction, high wear and abrasion resistance, water resistant properties. The system includes all accessories like beading, Quadrant, Veneered/solid wood skirting, end profile etc as per manufacturer specification and approved by Engineer Incharge. (The contractor should provide the material cut sheet/ declaration from manufacturer mentioning the recycled content used in manufacturing of wooden flooring to be used).	SQM	3	0.000999226022000
1432	Providing and fixing <b>Glass mosaic tiles</b> at finished plain wall surface of size 24 mm x 24 mm x 3.8 mm in all colour, design , fixing in customize design as per direction of Engineer-in- Charge. The glass mosaic tiles to be fixed on the wall surface with the help of approved adhesive applied at the rate of 2.5 kg per sqm and grouting of the same. The rate is inclusive of all operation, material and required pattern approved by Engineer-in- Charge.	SQM	3	0.001853382398900
1600	<b>FALSE CEILING: False ceiling including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, suspension system etc at all level as per specification, drawings and as directed by engineer - in - charge.</b>		0	-
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). All GRG board to be used should be with appropriate % of recycled content. The contractor should provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in manufacturing of board to be used)	SQM	25	0.002384840836000
b	<b>12 mm thick GRG board in profile</b> (dome,curved profiled etc.) with galvanised light gauge steel load bearing supporting GI frame and finished smooth (seamless).	SQM	25	0.003575032430800
A1602	Providing, fixing and laying light weight mineral fiber tile false ceiling 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 Ties 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.(All mineral fiber board to be used should be with appropriate % of recycled content. The contractor to provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in manufacturing of board to be used)	SQM	14	0.002219194694900
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 etc. Suitable M.S. channel (minimum MC 75) grid 1200 mm 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. (Structural steel works for platform for movement is separately payable under relevant items of BOQ)	SQM	100	0.038389250989700
A1604	Providing and fixing <b>Metal False Ceiling System</b> of 600x600 mm module (of Armstrong/ Hunter Douglas/ Durlam make) which includes providing and fixing GI Clip, 'C' wall angle of size 20x30x20mm made of 0.5mm thick pre painted steel along the perimeter of the room with help of nylon sleeves and wooden screws at 300mm center to centre, suspending the main C carrier of size 10x38x10mm made of G.I steel 0.7 mm thick from the soffit with help of soffit cleat 37x27x25x1.6 mm, rawl plugs of size 38x12 mm and C carrier suspension clip and main carrier bracket at 1000mm c/c. Inverted triangle shaped Spring Tee having height of 24 mm and width of 34mm made of GI steel 0.45 mm thick is then fixed to the main C carrier and in direction perpendicular to it at 600mm centers with help of suspension brackets. Wherever the main C carrier and spring T have to join, C carrier and spring T connectors have to be used. All sections to be galvanized @ 120 gms/sqm (both side inclusive) Fixing with clip in tiles into spring 'T' with GI Metal Ceiling Clip in plain Beveled edge global white color tiles of size 600x600 and 0.5mm thick with 25mm height, made of G.I sheet having galvanizing of 100 gms/sqm (both sides inclusive) and 20% perforation area with 1.8mm dia holes and having NRC of 0.5, electro statically polyester powder coated of thickness 60 microns (minimum), including factory painted after bending and perforation and backed with a black Glass fiber acoustical fleece. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures etc. Suitable M.S. channel (minimum MC 75) grid 1200 mm 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. (Structural steel works for platform for movement is separately payable under relevant items of BOQ)	SQM	25	0.006076717259900

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<b>Scope of Work: PACKAGE-I: CIVIL &amp; ARCHITECTURAL WORKS FOR CHP AREA AT 3X800 MW PVNL PATRATU, JHARKHAND.</b>				
<b>This BOQ &amp; % Weightages is for 'Package-I' only. The BOQ &amp; % Weightages for 'Package-II' is exactly same as that for 'Package-I'.</b>				
ST NO	Item Description	Unit	Quantity for PKG-I	% Weightage of PKG-I
A1607	Providing and Fixing <b>12mm thick Gypsum board plain/ mineral fibre</b> based acoustic ceiling board 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) and 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. Movement platform of structural steel shall be provided if required for the movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (Structural steel works for platform for movement is separately payable under relevant items of BOQ). Work shall include 25mm thick resin bonded mineral wool insulation (as per IS:8183) bound in polythene bags on top of ceiling. The work to be complete as per specifications, drawings and direction of engineer. Payment terms - a) On receipt of Gypsum board false ceiling at site - 50%; b) On completion of erection & fixing - 50%. (All mineral fiber board to be used should be with appropriate % of recycled content. The contractor should provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in manufacturing of board to be used)	SQM	<b>14</b>	0.003082908265700
B1607	Providing and Fixing <b>12mm thick Calcium silicate board of HILUX or equivalent</b> 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) and 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. Movement platform of structural steel shall be provided if required for the movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (Structural steel works for platform for movement is separately payable under relevant items of BOQ). Work shall include 25mm thick resin bonded mineral wool insulation (as per IS:8183) bound in polythene bags on top of ceiling. The work to be complete as per specifications, drawings and direction of engineer. Payment terms - a) On receipt of Gypsum board false ceiling at site - 50%; b) On completion of erection & fixing - 50%.	SQM	<b>14</b>	0.002795835836100
1608	Providing & fixing 12.5 mm thick glass fibre reinforced gypsum plastic board in plan curve or in 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 MS galvanized (grade 180 as per IS:277) and nominal size of T-section shall be 24 x 38 mm or 24 x 25 mm cross runners. 24 mm wide exposed flange surface shall be permanently color coated. Suspension system shall be as per manufacturer's specification. Movement platform of structural steel shall be provided if required for the movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (Structural steel works for platform for movement is separately payable under relevant items of BOQ). Work shall include 25 mm thick resin bonded mineral wool insulation (as per IS:8183) bound in polythene bags on top of ceiling. The work to be complete as per specifications, drawings and direction of engineer.	SQM	<b>5</b>	0.001007428091500
1700	<b>RAIN WATER DOWN TAKE PIPES:</b> Rain water down take pipes at all level including all labour, material (unless otherwise specified in BOQ/contract specification), transportation, 2 coats of approved paint over one primary coat, fixtures, accessories etc as per specification, drawings and as directed by engineer - in - charge.		<b>0</b>	-
1704	Providing and fixing <b>galvanised MS down take pipes of 150 mm dia</b> - Medium quality as per IS:1239(part-I) all complete.	RM	<b>3</b>	0.000493461459000
1707	Providing and fixing GI down take pipes conforming to IS:1239 /IS:3589 of medium duty all complete for following diameters.		<b>0</b>	-
b	150 mm Dia	RM	<b>250</b>	0.061337214772200
1710	Providing and fixing galvanised ERW steel down take pipes of medium duty as per specification of following diameters.		<b>0</b>	-
c	273mm OD and 4mm thick	RM	<b>1242</b>	0.548546200553600
1711	Providing and making <b>Khurras 45 x45 cm</b> with average thickness of 3cm cement concrete 1:2:4 ( 1 cement: 2 coarse sand: 4 graded stone aggregate of 20mm nominal size) over PVC sheet 1m x1mx 400 micron, finished with 12 mm cement plaster 1:3 ( 1 cement : 3 coarse sand) and a coat of neat cement, rounding the edges and making and finishing the outlet complete in all respects as per specification and drawing.	EACH	<b>20</b>	0.002851353147700
1800	<b>MISCELLANEOUS:</b> Miscellaneous works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge.		<b>0</b>	-
1801	Providing and Filling in trenches, plinths, area paving and other underground structures with graded stone aggregate of size range <b>63 mm to 45 mm</b> in layers not exceeding <b>200 mm in thickness</b> including breaking of stone boulders to required sizes, filling the interstices with selected sand and compacting to 85 % of original volume of stone stack for all lifts etc. all complete. Payment shall be made for the measurement of the volume of the compacted fill.	CUM	<b>3448</b>	0.853340449272900
A1801	Providing and Filling in trenches, plinths, area paving and other underground structures with graded stone aggregate of size range <b>63 mm to 45 mm</b> in layers not exceeding <b>275 mm compacted thickness</b> including breaking of stone boulders to required sizes, filling the interstices with well graded selected sand and compacting to 90 % of original volume of stone stack for all lifts etc. all complete. Payment shall be made for the measurement of the volume of the compacted fill.	CUM	<b>250</b>	0.067412986845900
B1801	Providing and Filling in trenches, plinths, area paving and other underground structures with graded stone aggregate of size range <b>63 mm to 45 mm</b> in layers not exceeding <b>200 mm compacted thickness</b> including breaking of stone boulders to required sizes, filling the interstices with selected sand and compacting to 90 % of original volume of stone stack for all lifts etc. all complete. Payment shall be made for the measurement of the volume of the compacted fill.	CUM	<b>250</b>	0.067412986845900
1802	Supply and laying approved quality <b>Stone aggregate 40mm size in transformer yards.</b>	CUM	<b>50</b>	0.016689428205500
1803	Supply and laying approved quality <b>rounded pebbles / gravels of 40mm size</b> in transformer yards.	CUM	<b>25</b>	0.007199098972200
1804	Providing and fixing <b>weep holes</b> in Retaining wall, drains, etc consisting of <b>100 mm dia HDPE pipe sleeves</b> with single side covering for the pipe mouth with galvanised welded wire fabric of 20 mm sq. opening all complete.	EACH	<b>2500</b>	0.059286697417900
1807	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	<b>250</b>	0.005304599242700
1808	<b>Laying of earthing mats/rods</b> 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	<b>1</b>	0.000560504461200
1809	Construction of <b>below ground earthing system test pits</b> as per drawing / sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing and specification (excavation & backfilling only will be paid under applicable BOQ items).	each	<b>1</b>	0.001256521373500
1810	Construction of <b>below ground earthing system test links</b> as per drawing/ sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing & specification (excavation & backfilling only will be paid under applicable BOQ items).	NO	<b>1</b>	0.000967844191200

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ST NO	Item Description	Unit	Quantity for PKG-I	% Weightage of PKG-I
1815	Providing and fixing <b>GI rungs in concrete/brick walls</b> having zinc coating of minimum 900 g/sqm etc. all complete.	Kg	3	0.000028974701700
1823	Providing and laying <b>cinder filling in the toilets, roads, etc</b> complete as directed by engineer in charge.	CUM	3	0.000657057082700
1828	Providing and placing approved quality of 250 micron thick heavy duty low density polyethylene liner (LDPE) films manufactured from polyethylene resin over cement sand mortar 1:4 in the base of reservoir/pond as well as on side slopes of embankment to prevent seepage including joining with approved method including testing, necessary excavation, fixing at the edges in plain cement concrete by providing 400mm wide and 300mm thick plain cement concrete 1:2:4 on the top of embankment (the cost of plain cement concrete 1:2:4 shall be excluded and shall be payable separately) as shown in the drawing etc all complete as per specification and as directed by the engineer-in-charge. Minimum width of LDPE liner shall be 6m.	SQM	2	0.000012481410000
1829	Providing and placing 300mmx300mm size and 75mm thick precast concrete tiles of grade M-20 over 50 mm thick 1: cement:4 sand mortar on LDPE liner at the bed of reservoir and on side slopes of embankment, filling joints with 1: cement: 3 sand mortar etc all complete as per specification and as directed by the engineer-in-charge. The rate shall be inclusive of cement sand mortar as well.	SQM	2	0.000365883618400
1833	Supplying, stacking and laying 150 mm thick sand filter of approved quality behind retaining wall including screening, washing (wherever required), watering, compaction, dressing, necessary trimming if any including all leads and lifts etc all complete as per specification and as directed by the engineer-in-charge.	CUM	5	0.001344426161000
A1837	Providing & fixing GI chicken wire mesh 12.5mm X 24G for miscellaneous applications	SQM	8	0.000322060496400
2000	<b>FENCING AND GATES:</b> Fencing and gates including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc at all level as per specification, drawings and as directed by engineer - in - charge.		0	-
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 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. GI barbed wire fencing of height of 600 mm conforming to IS 298 at top of chain link fencing shall be provided with 4 strands of barbed wire hot dip galvanised wire of 12G comprising of 2 ply of wires with barbs of 16G spaced at 100mm. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 25X6 mm GI flat stretcher bar at end posts, accessories etc. all complete. (Structural post shall be paid separately under item 2007)	RM	186	0.046198690910000
A2003	Supplying and erecting in position <b>2.4 m high PVC coated gavanised chain linked fencing of minimum 8 gauge</b> (including PVC coating ) of mesh size <b>75mm x 75mm</b> . The diameter of the hot dip galvanised steel wire for chain link fencing excluding PVC coating shall not be less than <b>12 gauge</b> . The PVC coated chain link will be stretched by the clips at 0.5m intervals to three strands of galvanised high tensile spring steel wire (HTSSW) of 2.5 mm diameter interwoven with chain link wire mesh and kept under tension which in turn are attached to the fence post with security nuts and bolts. Concertina of height of 600 mm at top of chain link fencing shall be provided with all accessories. <b>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.</b> 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 paid separately under ST No. 2008)	RM	13	0.003361065402500
2006	Supplying and fixing <b>600mm high concertina</b> on top of boundary wall including GI tension wires, clips, anchors, accessories 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. (Structural post shall be separately under ST No. 2007)	RM	13	0.000505942868900
2008	Supply, fabrication and fixing of <b>mild steel posts</b> for fencing including <b>painting</b> etc all complete.	MT	1	0.005829353379500
2010	Supply, fabrication and installing in position and testing <b>MS Gates out of channels</b> , 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	1	0.012837665084800
2100	<b>WATER SUPPLY: Water supply work including men, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level as per specification, drawings and as directed by engineer - in - charge.</b>		0	-
A2101	Providing and fixing in position tested <b>heavy duty type chromium plated (CP) brass long neck bib cocks</b> with flow rate less than 5 LPM (litres per minute) at 45 psi, including sockets, union, nuts etc all complete -15mm nominal bore.(Note: Flow rate of all faucets at 45 psi should be less than 5 lpm. The contractor should submit the cutsheets/declaration from the manufacturers mentioning the same to Engineer in charge.)	NOS	5	0.000635660379800
2102	Providing and fixing in position <b>heavy duty brass stop cock</b> of approved quality including all specials etc all complete - 15mm nominal bore.	NOS	6	0.000595898173700
2103	Providing and fixing in position <b>heavy duty brass full way valve</b> with wheel of approved quality including all specials etc all complete for following sizes:		0	-
a	25mm nominal bore.	NOS	13	0.000846952820300
b	50mm nominal bore.	NOS	13	0.001499998021100
2104	Providing and fixing <b>GI pipes class B medium</b> 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:		0	-
a	15 mm nominal bore.	RM	50	0.002317976139600
b	20 mm nominal bore.	RM	50	0.002594350217800
c	25 mm nominal bore.	RM	75	0.004560172290100
d	50 mm nominal bore.	RM	100	0.008843970502000
e	40 mm nominal bore.	RM	25	0.001768794100400
2105	Providing and fixing <b>GI pipes class B complete for external work</b> with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete for following sizes:		0	-
a	15 mm nominal bore.	RM	25	0.000895986930900
b	20 mm nominal bore.	RM	38	0.001557947424600
c	25 mm nominal bore.	RM	38	0.001885584436700
d	50 mm nominal bore.	RM	50	0.003895982973200

## BILL OF QUANTITY AND % WEIGHTAGES FOR ITEM RATES W.R.T TOTAL LUMPSUM PRICE

E-Tender Specification No: BHE/PW/PUR/NTPRT-CVL-CHP-PKG-I/2219				
<b>PART B (Rev-01): % weightage for amount of individual items of Schedule of quantity w.r.t. the total price (as quoted by the bidder in the E-Procurement Portal titled as "Part-C of Vol-II Price Bid".)</b>				
<b>Scope of Work: PACKAGE-I: CIVIL &amp; ARCHITECTURAL WORKS FOR CHP AREA AT 3X800 MW PVNL PATRATU, JHARKHAND.</b>				
<b>This BOQ &amp; % Weightages is for 'Package-I' only. The BOQ &amp; % Weightages for 'Package-II' is exactly same as that for 'Package-I'.</b>				
ST NO	Item Description	Unit	Quantity for PKG-I	% Weightage of PKG-I
2106	Providing and fixing <b>610mmx453mmx6mm</b> <b>thk</b> <b>mirror</b> from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete.	NOS	<b>6</b>	0.000945734265000
A2106	Providing and fixing <b>600mmx900mmx6mm</b> <b>thk</b> <b>mirror</b> from reputed mirror manufacturer, edge mounted with teak beading and minimum 12mm thick plywood backing. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete.	NOS	<b>6</b>	0.000910819518700
A2108	Providing and fixing <b>20 mm diameter stainless steel towel rails</b> (600mm X 20mm) with C.P. mounting brackets all complete.	NOS	<b>8</b>	0.001267368861700
2111	Providing and fixing <b>stainless steel / C.P. liquid soap dispenser</b> . Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc all complete.	NOS	<b>8</b>	0.000439345631400
2112	Providing and fixing glazed vitreous wall mounted <b>paper holder</b> with suitable cover cum cutter fitted with CP screws etc. sll complete.	NOS	<b>8</b>	0.000426507609700
2113	Providing and fixing chromium plated brass <b>shower rose</b> 100mm dia with 15 or 20 mm inlet dia all complete.	NOS	<b>8</b>	0.000077028130200
A2114	Providing & fixing in position <b>Polyethylene water storage tank, ISI: 12701</b> of approved make 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.		<b>0</b>	-
a	500 litres capacity	NOS	<b>1</b>	0.000555422744200
b	1000 litres capacity	NOS	<b>3</b>	0.003332536465400
c	2000 litres capacity	NOS	<b>3</b>	0.006665072930800
d	5000 litres capacity	NOS	<b>1</b>	0.005554227442300
2200	<b>SANITARY: Sanitary work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level as per specification, drawings and as directed by engineer - in - charge.(BHEL will issue free of Cost Cement for cement sand mortar only for fixing sanitary item as per TCC)</b>		<b>0</b>	-
2201	Supply and fixing glazed <b>vitreous china Wash Basin</b> of approved make conforming to IS:2556 part 4 of oval shape with R.S. or C.I. brackets painted white, 15mm chromium plated brass hot & cold faucets with nylon washers, chromium plated brass chain with rubber plug, 32mm chromium plated brass bottle trap and waste of standard pattern, 32mm dia chromium plated brass trap unions, plastic connection pipe with chromium plated nuts, fittings, cutting and making good the walls where required etc all complete.		<b>0</b>	-
a	White	EACH	<b>6</b>	0.008971637495600
A2201	Supply and fixing coloured glazed vitreous oval shape <b>china wash basin 450x550mm</b> conforming to IS: 2556 mounted over 18 mm thk granite beveled edge counter counter. The Basin shall be fitted with approved shape bib cock, <b>photo-voltic control system for water control</b> with flow rate less than 5 LPM (litres per minute) at 45 psi,CP brass chain with rubber plug, 40mm CP brass waste and bottle trap with necessary union including cutting of notch in granite counter slab etc complete as per specification	EACH	<b>6</b>	0.008960939144200
2202	Providing and fixing approved <b>vitreous china laboratory sink</b> of size 600x400x200mm conforming to IS:2556 (part-5) with R.S. or C.I. brackets, chromium plated brass chain with rubber plug 40mm, 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	<b>3</b>	0.003030308037900
2203	Providing and fixing <b>stainless steel kitchen sink</b> of size 610x510x200mm conforming to IS: 13983 including all fittings etc. all complete.	EACH	<b>3</b>	0.002723800269900
A2204	Providing and fixing wall mounted coloured glazed vitreous water closet with flushing valve system,water faucet,Toilet paper holder, open front solid plastic seat and plastic cover,including necessary CP connection etc all complete.having flow rate of 6/3 LPF (litres per flush) or less and faucet having flow rate of 5 LPM (litres per minute) or less.	EACH	<b>3</b>	0.002332775525800
A2205	Providing and fixing white/coloured glazed <b>vitreous china Orissa pattern (580x440mm) water closet</b> conforming to IS:2556 part 3 with all fittings including foot rests, low level 12.5 litre PVC flushing cistern with valveless fittings, necessary C.P. connections etc all complete having flow rate of 6/3 LPF (litres per flush) or less at 45 psi.	EACH	<b>3</b>	0.002675122771000
A2206	Providing and fixing <b>white/coloured water efficient flat black glazed vitreous china urinals of size 440x265x355mm with photo voltaic control</b> flushing system as per IS: 2556(pt-6 sec-1) with flush pipes, lead pipes, gratings, traps and necessary C.P fitting etc. all complete as per specification having flow rate of 2 LPF (litres per flush) or less at 45 psi.	EACH	<b>3</b>	0.006097525388300
2207	Supply, laying and jointing <b>UPVC pipes of class 3</b> as per IS:4985 including bends, branches and all other necessary fittings, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc all complete for following.		<b>0</b>	-
a	75mm dia pipes	RM	<b>25</b>	0.001635956237000
b	110mm dia pipes	RM	<b>25</b>	0.002157500868400
c	160mm dia pipes	RM	<b>50</b>	0.006927182540400
d	200mm dia pipes	RM	<b>50</b>	0.009583939808200
2208	Providing, laying light duty <b>non pressure NP3 class RCC pipes</b> with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc all complete for following.		<b>0</b>	-
a	150mm dia	RM	<b>400</b>	0.038029073158800
a	200mm dia	RM	<b>25</b>	0.003066860738600
b	300mm dia	RM	<b>20</b>	0.003573249372200
c	450mm dia	RM	<b>15</b>	0.004158984112100
d	600mm dia	RM	<b>25</b>	0.009071310469600
e	900mm dia	RM	<b>25</b>	0.015552728367700
2209	Providing, laying light duty non pressure <b>NP2 class RCC pipes</b> with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following.		<b>0</b>	-
a	150mm dia	RM	<b>8</b>	0.000409211941600
c	300mm dia	RM	<b>8</b>	0.000540266746400
d	450mm dia	RM	<b>8</b>	0.000592421209500

BILL OF QUANTITY AND % WEIGHTAGES FOR ITEM RATES W.R.T TOTAL LUMPSUM PRICE

E-Tender Specification No: BHE/PW/PUR/NTPRT-CVL-CHP-PKG-I/2219				
<b>PART B (Rev-01): % weightage for amount of individual items of Schedule of quantity w.r.t. the total price (as quoted by the bidder in the E-Procurement Portal titled as "Part-C of Vol-II Price Bid".)</b>				
<b>Scope of Work: PACKAGE-I: CIVIL &amp; ARCHITECTURAL WORKS FOR CHP AREA AT 3X800 MW PVNL PATRATU, JHARKHAND.</b>				
<b>This BOQ &amp; % Weightages is for 'Package-I' only. The BOQ &amp; % Weightages for 'Package-II' is exactly same as that for 'Package-I'.</b>				
ST NO	Item Description	Unit	Quantity for PKG-I	% Weightage of PKG-I
2211	Providing and fixing C.I Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture etc. all complete.	EACH	5	0.004685877919200
2212	Providing and fixing circular heavy duty C.I. manhole cover of 600 mm dia with frame etc. all complete.	EACH	5	0.004024363190100
2213	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber(Clay Brickwork in 1:6 mortar, 12mm plaster in 1:6 mortar & 1:2:4 Cement Concrete) 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:		0	-
a	100x100mm P or S Type.	EACH	10	0.001713519284800
b	150x100mm P or S Type.	EACH	10	0.001809804447500
c	150x150mm P or S Type.	EACH	10	0.001986327245800
A2214	Providing and fixing SS floor traps size 100 mm Inlet and 100 mm Outlet all complete as per specification.	EACH	3	0.000515303926400
2216	Providing and installing approved brand single tap water cooler of 80 L cooling capacity all complete.	EACH	1	0.002685197051900
2217	Providing and installing approved brand single tap water cooler of 150 L cooling capacity all complete.	EACH	1	0.009608724322300
2218	Providing and fixing white vitreous urinal partitions of size 675x325x85mm all complete.	EACH	10	0.003238034361200
2219	Providing and fixing eye and face drinking water fountain (combined unit with receptacle conforming to IS: 10592) all complete as per specification.	EACH	1	0.000576106223600
2220	Providing and fixing heavy duty cast iron pipes for above and below ground sanitary works with water tight lead joint, fixing clamps, excavation, filling, disposal etc. all complete for the following.		0	-
a	75mm dia pipes	RM	15	0.002586326454300
b	100mm dia pipes	RM	10	0.002275182734000
c	150mm dia pipes	RM	8	0.002030012180800
d	200mm dia pipes	RM	8	0.002782908661500
e	250mm dia pipes	RM	8	0.003958390023100
2221	Providing, laying spun CI pipes with conforming to IS 1536 complete for following (Excavation,backfilling,concrete to be paid separately)		0	-
a	75mm dia	RM	3	0.000477859696500
b	100mm dia	RM	3	0.000584943210600
c	150mm dia	RM	3	0.000859879994900
d	200mm dia	RM	3	0.001218274767200
A2221	Providing, laying and jointing glazed stoneware pipes class SP-1 with stiff mixture of cement mortar in the proportion of 1:1 (1 cement : 1 fine sand) including testing of joints etc. complete (BHEL will supply Cement free of Cost for cement sand mortar as per TCC)		0	-
a	150mm dia pipes	RM	3	0.000130128687500
b	200mm dia pipes	RM	3	0.000168445130300
2222	Providing and fixing HDPE pipes in concrete/ brick work of following sizes including cutting, fixing and levelling in position etc. all complete.		0	-
a	Upto 75 mm dia	RM	2	0.000062317897000
b	100 mm dia	RM	2	0.000081842388300
2223	Providing and fixing suitable water meter (Maximum Working Pressure 16 bar; Maximum Liquid Temperature 60°C; Connection Flanges according to ISO, BS 10, American Water works Association (AWWA) or others; Register water consumption in cum) on 50 mm domestic water inlet pipe	NOS.	1	0.000988527670600
2224	Providing and fixing suitable water meter (Maximum Working Pressure 16 bar; Maximum Liquid Temperature 60°C; Connection Flanges according to ISO, BS 10, American Water works Association (AWWA) or others; Register water consumption in cum) on 150 mm sewer water outlet pipe	NOS.	1	0.001977055341300
2400	ROAD WORKS: Road works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. as per specification, drawings and as directed by engineer - in - charge.		0	-
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	6000	0.070609119330800
2402	Supplying and filling with selected good earth of approved quality in layers not exceeding 300 mm loose thickness using borrowed soil (borrowed soil to be arranged by the bidder) and compacted so as to achieve at least 95 % maximum dry density as per IS-2720 (Part-VII) including royalty/seignorage fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, testing etc all complete.	CUM	2000	0.067043002192900
2403	Providing, stacking & laying granular morrum for shoulder including watering, compaction with road roller to required camber etc all complete.	CUM	50	0.004867749893300
2404	Providing & laying water bound macadam sub base course in layers of required thickness with crushed stone aggregates 90 to 40 mm down size (IRC 19 - grading -1), stone screening & blinding material including screening, sorting, spreading to template & consolidation with road roller including carriage, spreading & consolidation of blinding material morrum etc all complete.	CUM	25	0.007274878961400
2405	Providing & laying water bound macadam base course in layers of required thickness with stone aggregate 63mm to 40mm size(IRC 19 - grading -1), stone screening and blinding material including screening, sorting, spreading to template and consolidation with road roller including carriage, spreading and consolidation of blinding material morrum etc all complete.	CUM	2629	0.799562867915500
2406	Providing & Laying water bound macadam base course with stone aggregate 50mm to 20mm size stone(IRC 19 -grading -1) screening & binding material including screening, sorting, spreading to template & consolidation with road roller including carriage spreading & consolidation of blinding material morrum etc all complete.	CUM	25	0.007702813017900
2407	Providing & applying tack coat of low viscosity liquid bitumen of grade 80/100 confirming to IS 73, 217 or 454 as applicable @10 kg/ 10 sqm for untreated WBM surface including scraping, cleaning with compressed air etc all complete.	SQM	1	0.000003922728900

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<b>Scope of Work: PACKAGE-I: CIVIL &amp; ARCHITECTURAL WORKS FOR CHP AREA AT 3X800 MW PVNL PATRATU, JHARKHAND.</b>				
<b>This BOQ &amp; % Weightages is for 'Package-I' only. The BOQ &amp; % Weightages for 'Package-II' is exactly same as that for 'Package-I'.</b>				
ST NO	Item Description	Unit	Quantity for PKG-I	% Weightage of PKG-I
2408	Providing & applying tack coat of low viscosity liquid bitumen of grade 80/100 confirming to IS 73, 217 or 454 as applicable @ 6 kg/ 10 sqm for bituminous surface including cleaning with compressed air etc all complete.	SQM	<b>1</b>	0.000002763740800
2409	Providing, mixing & laying of bituminous macadam course of specified thickness using bitumen of grade 60/70 conforming to IS 73, aggregates and binder material including hot mixing, hot laying, rolling etc all complete for the following.			-
a	75mm compacted thickness	SQM	<b>1</b>	0.000036909312400
b	50mm compacted thickness	SQM	<b>1</b>	0.000024606208300
2410	Providing, mixing & laying 25 mm compacted thick premix carpet in a single course composed of suitable small size aggregate premixed with bituminous binder using medium setting grade bitumen on a prepared base including mixing, applying, rolling etc all complete.	SQM	<b>1</b>	0.000014442774400
2411	Providing, mixing & laying 25 mm thick semi dense bituminous concrete(SDBC) in a single course composed of suitable small size aggregate premixed with bituminous binder using medium setting grade bitumen on a prepared base including mixing, applying, rolling etc all complete.	SQM	<b>1</b>	0.000018008891500
2412	Providing and applying liquid seal coat comprising of an application of a layer of bituminous binder using medium setting grade bitumen at the rate of 9.8kg/10sqm followed by a cover of stone chips at the rate of 0.09 cum/10sqm including rolling etc all complete.	SQM	<b>1</b>	0.000004903411100
2413	Supplying and laying 450mmx250mmx500mm deep precast concrete kerb stone of grade M-20 with 20 mm nominal size stone aggregate and of shape as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste, making drainage opening where required etc all complete.	RM	<b>1660</b>	0.067707191509800
2414	Supplying and laying 300mmx250mmx150mm PCC blocks of grade M-25 for edge protection with 20 mm nominal size stone aggregate and of shape as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste, making drainage opening where required etc all complete.	RM	<b>1830</b>	0.028221662620200
2415	Supply and laying 200mm dia R.C.C NP-3 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:3) in 13mm thick joints, finishing of joints with neat cement paste etc all complete.	RM	<b>1184</b>	0.023912898022100
2416	Dismantling of existing road consisting of premix carpet, kerb stone/ brick on edge, bitumen macadam course, WBM, preparing subgrade to receive new WBM including camber consolidation including disposal of debris within a lead of 1 km etc all complete.	SQM	<b>25</b>	0.000442956325000
2417	Providing 25 mm compacted thick premix carpet on existing/damaged road surfaces in a single course composed of suitable small size aggregate premixed with a bituminous binder using medium setting grade bitumen on the existing base including tack coat, cleaning of existing surface, mixing, applying, rolling etc all complete.	SQM	<b>1</b>	0.000014621080300
2418	Concrete of grade M15 (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. (BHEL will supply Cement free of Cost as per TCC)	CUM	<b>1577</b>	0.681642705501800
A2419	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 for work etc. all complete in road work. (Excluding the cost of reinforcement and dowel bar)(BHEL will supply Cement free of Cost as per TCC)	CUM	<b>2630</b>	1.448639604492700
2420	Supplying and filling sand for preparation of road sub-base/ sub-grade 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	<b>1</b>	0.000060980603100
2421	Providing & laying dry lean cement concrete of grade M10 with 20 mm nominal size graded stone aggregate over a prepared sub-grade including compaction, finishing, curing etc all complete. (BHEL will supply Cement free of Cost as per TCC)	CUM	<b>561</b>	0.274196098892500
<b>REINFORCEMENT</b>				
2422	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. (BHEL will issue free of Cost MS Dowel bar as per TCC)	MT	<b>115</b>	0.155101132679500
2423	Providing, straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of TMT steel of grade Fe-500/Fe-500D confirming to IS:1786 including cost of binding wire, labour, scaffolding, transportation to & from stores etc all complete as per specification, drawing and as directed by Engineer. (BHEL will issue free of Cost TMT as per TCC)	MT	<b>3</b>	0.003371763753900
2424	Providing, straightening cutting, bending, placing in position at any level, binding in position of steel reinforcement of mild steel reinforcements including cost of binding wire, labour, scaffolding transportation to & from stores etc all complete as per specifications, drawings and as directed by Engineer.(BHEL will issue free of Cost Mild steel as per TCC)	MT	<b>3</b>	0.003371763753900
<b>MISCELLANEOUS</b>				
2425	Providing & installation of bitumen impregnated fibre board of specified thickness confirming to IS 1838 as joint filler including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete as per specification, drawing and as directed by engineer.	RM	<b>13</b>	0.000267458785300
2426	Providing and filling in position hot applied bitumen sealing compound (Grade A) of specified thick confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints, sealant primer etc all complete as per specification, drawing and as directed by Engineer.	RM	<b>13</b>	0.000030303502600
2427	Providing and laying debonding strip/tape of specified thickness before applying sealant including cleaning etc all complete as per specification, drawing and as directed by Engineer.	RM	<b>13</b>	0.000162627543900
A2427	Providing & laying polythene sheet of specified thickness (min. 125 micron), above dry lean concrete sub base, before laying of concrete slab pavement.	SQM	<b>8</b>	0.000107547356200
A2428	Providing & laying 75 mm thick precast interlocking concrete pavers of grade M-35 of approved colour and pattern as per specification and recommendation of manufacturer.	SQM	<b>8</b>	0.0011111442992700
A2429	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	<b>8</b>	0.000066251770000
<b>3101 GUNITING/SHOTCRETING</b>				
	Shotcreting (Gunning) specified concrete surfaces as per the following specifications including all materials. Labour, tools and plants, scaffolding etc all complete as per the directions of Engineer in charge, :(BHEL will supply Cement free of Cost as per TCC)		<b>0</b>	-
i.	Fabricating and fixing in position 6mm M S bars at 750mm c/c including connecting to the lugs for fastening		<b>0</b>	-
ii.	Fixing wire fabric confirming to IS:1566 as reinforcement with 3mm diameter spaced at 50mm c/c both ways electrically cross welded including securely tying to the 6mm MS bars by maintaining 100mm overlap for adjacent sheets		<b>0</b>	-

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<b>PART B (Rev-01): % weightage for amount of individual items of Schedule of quantity w.r.t. the total price (as quoted by the bidder in the E-Procurement Portal titled as "Part C of Vol-II Price Bid".)</b>			
<b>Scope of Work: PACKAGE-I: CIVIL &amp; ARCHITECTURAL WORKS FOR CHP AREA AT 3X800 MW PVNL PATRATU, JHARKHAND.</b>			
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ST NO	Item Description	Unit	% Weightage of PKG-I
	iii. Fine aggregate shall consist of natural sand or crushed stone from a known source and shall be strong, hard, coarse, sharp, chemically inert, clean and free from any coating. It shall be free from clay, coal or coal residue, organic or any other impurities that may impair the strength or durability of the concrete and shall conform to IS: 383. The fineness modulus shall be preferably between 2.5 and 3.3. Any other value can be used, with prior approval of the Engineer. Fine aggregate (Sand) shall be well graded and particles shall range in size within limits. The Engineer may approve the use of any other grading as per requirement or as per IS: 9012.	0	-
	iv. The surface after the placement of reinforcement and / or welded mesh and not more than six hours prior to the application of concrete, shall be thoroughly cleaned of all loose materials and dirt. The Contractor shall properly prepare the surfaces, reinforcement and / or welded mesh to receive the shotcrete. Cleaned surfaces shall be wetted not more than hour prior to shotcreting.	0	-
	v. The mix as placed on surface shall be one part cement to three parts approved sand by mass. Cement and sand shall be dry mixed; no water shall be added after mixing and before using in the gun. The quantity of water when added shall be only that which is sufficient to hydrate the cement. For average atmospheric conditions, the water cement ratio for shotcrete in place shall be between 0.35 and 0.5 by mass. Suitable admixture shall be used wherever required.	0	-
	vi. A uniform pressure of not less than 25 Kgf / cm <sup>2</sup> at the nozzle shall be maintained. Necessary adjustments shall be made to ensure this pressure, taking into account the length of hose and height of the place to be shotcreted, above location of the machine.	0	-
	vii. The application shall proceed in an upward direction. Beams, stiffeners and intermediate walls, if any, shall be wrapped with wire fabric and completely covered with shotcreting. All rebound shall be removed from the area of application as the work progresses and such rebound material shall not be reused.	0	-
	viii. As soon as the freshly shotcreted surface shows the first dry patches, a fine spray of water shall be applied to keep too moist. After the surface has hardened, it shall be kept continuously moist for minimum seven days. If there is extreme heat, especially when accompanied by hot winds, the shotcreted surface, immediately upon completion, shall be covered with burlap or similar covering, which must be kept continuously moist for 14 days after shotcreting. The temperature of the lining shall not be permitted to exceed 38oC during placing and curing.	0	-
	Note: 6mm MS Reinforcement and welded wire mesh as specified shall be used for thickness of Shotcreting above 50mm	0	-
	a. Shotcreting for thickness 50mm and above of with 6mm MS Reinforcement and welded wire mesh as specified	SQM	7261 1.708976051535800
	b. Shotcreting for thickness 25mm <b>without</b> 6mm MS Reinforcement and welded wire mesh as specified	SQM	50 0.008558681131000
6.3	Providing and applying on the outer surface of walls, frames and roof slabs coming in contact with earth, polymer modified cementitious coating in two layers as specified and as per manufacturer's specifications shall be provided directly on the concrete surface. Modified liquid polymer blend shall be a dispersion containing 100 % acrylic based polymer solids. Polymer shall be mixed in the ratio of 1 cement: 0.5 polymer (for minimum solid content of polymer 30%). Portland cement based dry powder. Clean, fine specially prepared quartz sand approximately 0.6 mm size. The liquid polymer shall be stirred well and cement based powder shall then be added slowly to make a Slurry Mix. For preparation of Brush Topping Mix, quartz sand shall be added slowly and mixed well till a homogeneous mixture is obtained. The mix shall be used within half an hour of the preparation. Addition of quartz sand may not be necessary, in case dry powder contains the same. For Brush Topping Mix: This shall be applied in two coats. A primary coat of slurry mix can also be first applied on the surface as first coat. After the coating has dried up, a coat of Brush Topping Mix shall be applied over it with a push broom or any other similar brush. It shall be left in broom finished condition. The nominal thickness shall be 1.5 mm and minimum thickness shall be 1.0 mm. A lap of 75 mm shall be provided at the joints. It shall be ensured that no pinhole exists and rebrushing shall be done to cover the pinholes, if any. The Coating shall be air dried for 4 to 6 hours and thereafter cured for 7 days after the application of last coat. Rate of application of coating shall be established to achieve the required thickness. The rate quoted should be all inclusive.(BHEL will supply Cement free of Cost for cement sand mortar as per TCC)	Sqm	29730 1.277548983249100
6.4	Providing and laying underbed grading plaster with cement mortar 1:4 (1 cement : 4 sand) and average thickness of 25 mm including preparation of surface, batching, mixing, leveling etc. all complete.	Sqm	475 0.005420498049600
6.5	Fixing copper water stops in joints of deep underground structure all complete of 600 mm wide water stop fabricated with 22G copper.(Copper plate shall be supplied by BHEL free of cost)	Rmt	1000 0.036133681900000
6.6	Providing and driving sheet piles in various types of soil, cost is inclusive of all materials, like sheet, tools and plants, anchoring arrangement labour etc. all complete including removing the sheet piles on completion of repetitive civil work as per the direction of engineer incharge. Quoted price is inclusive of design and approval of sheet pile system with anchoring(The item shall be executed on specific approval by the Engineer-in-charge on a case-to-case basis depending on space constraints).	smt	150 0.383738364483600
	<b>Total Value</b>		<b>100</b>