

# **TENDER SPECIFICATION**

## **BHEL PSSR SCT 1885**

**for**

**Civil and Architectural Works of Coal Handling Plant  
(CHP) area of all units (i.e. Unit 1 to 5) at 5 x 800 MW  
Yadadri TPS, Veerlapalem Village, Dameracherla  
Mandal, Nalgonda District, Telangana State**

**VOLUME –II**

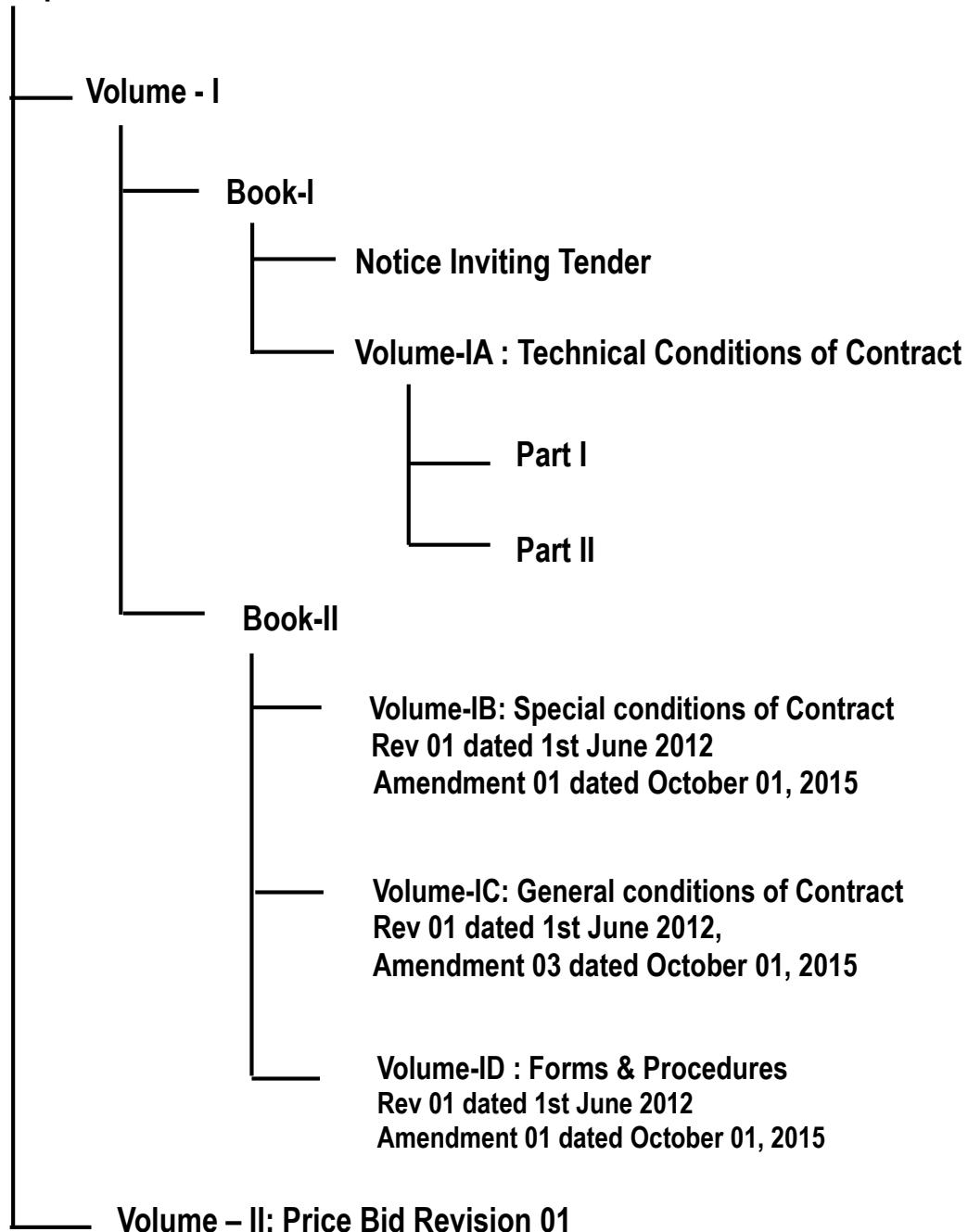
**PRICE BID-Revision 01**



**BHARAT HEAVY ELECTRICALS LIMITED**  
(A Government of India Undertaking)  
Power Sector – Southern Region  
690, Anna Salai, Nandanam, Chennai – 600 035

## **TENDER SPECIFICATION CONSISTS OF**

### **Tender Specification**



## PRICE BID-Revision 01

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## **PART A**

### **Instruction to Bidders:**

1. The quantity indicated in the BOQ in Part C of Price Bid-Revision 01 is approximate only and is liable for variation. Payment will be as per actual quantity executed as certified by BHEL Engineer.
2. Bidders shall quote 'Total Amount' in the format for Price Bid available in the E-procurement portal.  
Bidders may also quote 'Total Amount' in the format given in Part – B of this document(optional).  
Any other entry elsewhere in the price bid shall be treated as Null and Void.
3. The above mentioned 'Total amount' is for the entire Bill of Quantity (BOQ) given in Part -C in Price Bid Revision-01.
4. The quantities given in the contract are tentative and may change to any extent (both in plus side and minus side). The derived item rates (as mentioned above) for individual items shall remain firm irrespective of any variations in the individual quantities. No compensation becomes payable in case the variation of the final executed contract value is within the limit of Minus (-) 30% of awarded contract value.
5. BHEL has pre-fixed the weightages for the amount of individual items of Bill of Quantity with respect to the 'Total Amount' in Part C of Price Bid-Revision 01.
6. Based on the pre-fixed weightages, the amount for the individual items of the Bill of Quantity shall be arrived at. This amount shall be rounded off to the nearest rupee.
7. Based on the quantities of individual item and the amount arrived in Sl. No: 6 above, unit rate of individual items shall be derived. This unit rate shall be rounded off to four decimal places.
8. Bidders to note that this is an item rate contract. Payment shall be made for the actual quantities of work executed at the unit rate arrived at as per Sl No.7 above.

**Part B: Format to quote Total Amount**

**Tender Specification BHEL:PSSR:SCT:1885 R1 for Coal Handling Plant - Civil  
at 5 X 800 MW Yadadri TPS**

	In Figures
<b>Total Amount for the entire Bill of Quantities(BOQ) given in Part C</b>	In words

**Note :**

Bidders to quote Total Amount in this format given above, which shall be taken into account for evaluation and awarding and hence, shall be complete in all respect for the full scope defined in specification and in accordance with all terms & conditions of tender.

**Date**

**SIGNATURE OF BIDDER WITH SEAL**

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:1885 R1 for Coal Handling Plant - Civil**  
**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
100.0	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.	--		
101.0	Earth work in excavation in all types of soil including ash which can be excavated by any means including setting out, levelling, dewatering (except dewatering required for control of ground water to work below the depth of 6m, which is covered under item no. A101), 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 500m, 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	114,948	.0035464
b	Depth exceeding 2 m but not exceeding 4 m	CUM	29,691	.0011506
c	Depth exceeding 4 m but not exceeding 6 m	CUM	4,945	.00024
d	Depth exceeding 6 m but not exceeding 8 m	CUM	1,557	.0000943
e	Depth exceeding 8 m but not exceeding 10 m	CUM	677	.0000492
f	Depth exceeding 10 m but not exceeding 15 m	CUM	983	.0000821
g	Depth exceeding 15 m but not exceeding 20 m	CUM	405	.0000389
h	Depth exceeding 20 m but not exceeding 25 m	CUM	238	.0000263

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:1885 R1 for Coal Handling Plant - Civil  
at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
A101	<p>Extra over Item No. 101, 103, 104, 105 &amp; 106 for dewatering 'In or under water and / or liquid mud, including pumping out water as required' for following depths below ground level:</p> <p>Note: The extra rate is applicable in respect of excavated quantities (for all kind of soil excavation including excavation in soft rock &amp; hard rock) in these difficult condition (i.e. working under water or liquid mud) and volume of earth work under water shall be considered for payment for various depths as mentioned.</p> <p>Method of pumping out water (In line with guidelines provided in IS 9759) shall be decided in consultation with BHEL engineer in charge to suit the site condition.</p>	--		
a	Depth exceeding 6 m but not exceeding 8 m	CUM	46,723	.0005625
b	Depth exceeding 8 m but not exceeding 10 m	CUM	40,636	.001483
c	Depth exceeding 10 m but not exceeding 15 m	CUM	58,957	.0046361
d	Depth exceeding 15 m but not exceeding 20 m	CUM	24,322	.0033859
e	Depth exceeding 20 m but not exceeding 25 m	CUM	14,255	.002848
f	Depth exceeding 25 m but not exceeding 30 m	CUM	240	.0000625
103.0	Earth work in excavation in soft rock (rock without any recovery of excavated materials in the form of hard stone/boulder) including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc but does not require chiselling or blasting including setting out, levelling, dewatering (except dewatering required for control of ground water to work below the depth of 6m, which is covered under item no. A101), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 500 m, spreading / levelling of disposed materials etc all complete for following depths below ground level.	--		
a	Depth from ground level but not exceeding 2 m	CUM	114,948	.0052763

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:1885 R1 for Coal Handling Plant - Civil**

**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
b	Depth exceeding 2 m but not exceeding 4 m	CUM	89,072	.0048929
c	Depth exceeding 4 m but not exceeding 6 m	CUM	24,724	.0016372
d	Depth exceeding 6 m but not exceeding 8 m	CUM	15,575	.0012365
e	Depth exceeding 8 m but not exceeding 10 m	CUM	6,773	.0006167
f	Depth exceeding 10 m but not exceeding 15 m	CUM	9,826	.0009871
g	Depth exceeding 15 m but not exceeding 20 m	CUM	4,054	.0004469
h	Depth exceeding 20 m but not exceeding 25 m	CUM	2,376	.0002887
104.0	Earth work in excavation below ground level in hard rock requiring blasting (but excluding controlled blasting) including wedging, line drilling, pre shearing etc as required for grading, setting out, levelling, dewatering (except dewatering required for control of ground water to work below the depth of 6m, which is covered under item no. A101), 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 500m, spreading / levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	--		
a	Depth from ground level but not exceeding 2 m	CUM	57,474	.0043897
b	Depth exceeding 2 m but not exceeding 4 m	CUM	118,763	.0109029
c	Depth exceeding 4 m but not exceeding 6 m	CUM	54,393	.0059963
d	Depth exceeding 6 m but not exceeding 8 m	CUM	50,617	.0067036
e	Depth exceeding 8 m but not exceeding 10 m	CUM	52,827	.0080498
f	Depth exceeding 10 m but not exceeding 15 m	CUM	76,644	.0128613

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:1885 R1 for Coal Handling Plant - Civil  
at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
g	Depth exceeding 15 m but not exceeding 20 m	CUM	31,619	.0058412
h	Depth exceeding 20 m but not exceeding 25 m	CUM	18,530	.0037648
i	Depth exceeding 25 m but not exceeding 30 m	CUM	200	.0000447
105.0	Earth work in excavation in hard rock requiring controlled blasting including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (except dewatering required for control of ground water to work below the depth of 6m, which is covered under item no. A101), 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 500m, 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	57,474	.0043249
b	Depth exceeding 2 m but not exceeding 4 m	CUM	29,691	.0026811
c	Depth exceeding 4 m but not exceeding 6 m	CUM	9,890	.0010717
d	Depth exceeding 6 m but not exceeding 8 m	CUM	7,787	.0010137
e	Depth exceeding 8 m but not exceeding 10 m	CUM	6,773	.0010142
f	Depth exceeding 10 m but not exceeding 15 m	CUM	9,826	.0016193
g	Depth exceeding 15 m but not exceeding 20 m	CUM	4,054	.0007352
h	Depth exceeding 20 m but not exceeding 25 m	CUM	2,376	.0004738
i	Depth exceeding 25 m but not exceeding 30 m	CUM	200	.0000439

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:1885 R1 for Coal Handling Plant - Civil  
at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
106.0	Earth work in excavation upto any depth below ground level in hard rock requiring chiselling including wedging, etc as required for grading, setting out, levelling, dewatering (except dewatering required for control of ground water to work below the depth of 6m, which is covered under item no. A101), dressing the sides & bottom, all lifts, stacking/disposal of surplus excavated material within a lead upto 500m, spreading / levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	--		
a	Depth from ground level but not exceeding 2 m	CUM	38,316	.0218838
b	Depth exceeding 2 m but not exceeding 4 m	CUM	29,691	.0203538
c	Depth exceeding 4 m but not exceeding 6 m	CUM	4,945	.0040671
d	Depth exceeding 6 m but not exceeding 8 m	CUM	2,336	.0023054
e	Depth exceeding 8 m but not exceeding 10 m	CUM	677	.0007682
f	Depth exceeding 10 m but not exceeding 15 m	CUM	983	.0012272
g	Depth exceeding 15 m but not exceeding 20 m	CUM	405	.0005562
h	Depth exceeding 20 m but not exceeding 25 m	CUM	238	.0003595
107.0	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 250 mm thickness using/with selected materials from compulsorily excavated earth available within a lead upto 500m and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete.for the following.	--		
a	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	16,553	.0003861
b	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	89,306	.0023185

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:1885 R1 for Coal Handling Plant - Civil**

**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
A107	<p>Earthwork in backfilling upto any depth below ground level for grading to proper grade and level in layers of thickness and procedure as decided at site by Engineer-incharge but not exceeding 500mm loose thickness of each layer so as to achieve required compaction with available hard rock boulders and fine material (i.e soil, soft rock or mix of both) from available stacked excavated material within a lead upto 2Km and compacted as specified including re-excavation of stacked material, watering, ramming/compaction by manual/mechanical means, dressing etc all complete in following manner.</p> <p>Backfilling with hard rock boulder pieces having size less than 150mm and interstices filled with available stacked soil, soft rock (or both soil &amp; soft rock mix) as fine material and shall be compacted to minimum of 85% of original stack of material after filling the interstices. The item includes for breaking of oversized rock into pieces less than 150mm size by manual or mechanical means including manual picking. (Compacted filled volume shall be measured for payment.)</p>	CUM	372,196	.0197452
B107	<p>Earthwork in backfilling upto any depth below ground level for grading to proper grade and level in layers of thickness and procedure as decided at site by Engineer-incharge but not exceeding 500mm loose thickness of each layer with available excavated hard rock boulders within a lead upto 2Km, interstices filled with borrowed earth and compacted as specified below including re-excavation of hard rock boulders if required, watering, ramming/compaction by manual/mechanical means, dressing etc all complete in following manner.</p> <p>Backfilling with hard rock boulder pieces having size less than 150mm and interstices filled with approved borrowed earth (soil, sand, moorum, soft/ weathered rock etc) as fine materials (borrowed earth to be arranged by the bidder for all lead &amp; lifts) for filling and shall be compacted to minimum of 85% of original stack of material after filling the interstices. The item includes for breaking of oversized rock into pieces less than 150mm size by manual or mechanical means including manual picking. Required borrowed earth for filling interstices are to be arranged by the bidder and the cost of the same including royalty/seignorage fee etc (if any) is included in this item rate. (Compacted backfilled volume shall be measured for payment).</p>	CUM	159,513	.0139237

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:1885 R1 for Coal Handling Plant - Civil  
at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
108.0	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 250 mm thickness using/with selected earth directly from excavation within a lead upto 500m and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.	--		
a	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	9,923	.0000784
b	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	49,614	.000448
109.0	Extra over ST No. 101 and 103 to 108 for carriage of material/earth for every 500m or part thereof beyond an initial lead of 500m.	--		
a	Carriage for stacking/ backfilling of serviceable material/ earth	CUM	167,474	.0005671
b	Carriage for disposal of serviceable/unserviceable material/ earth	CUM	167,474	.0005671
110.0	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:	--		
a	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	18,076	.0026456
b	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	6,025	.0009

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:1885 R1 for Coal Handling Plant - Civil  
at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
111.0	Supplying and filling sand upto any depth under floors, around foundations, plinths etc. in layers not exceeding 250 mm thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	CUM	100	.0000853
ISG A111	Supplying and filling sand upto any depth under floors, around foundations, plinths, surrounding pipe and in pipe beds, etc. in layers not exceeding 250 mm thickness and compacted so as to achieve at least 75% 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	11,872	.0101173
ISG B111	Supplying and filling sand upto any depth under floors, around foundations, plinths etc. in layers not exceeding 250 mm thickness and compacted so as to achieve at least 85% 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	100	.0000853
200.0	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. (Cement supply by BHEL free of cost for incorporation in permanent work)	--		
201.0	Concrete of grade M7.5 (1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume) as mass filling course, lean concrete, levelling course, mud mat under and around foundations/floors, at any depth below finished floor level etc.	CUM	9,121	.0114345
202.0	Concrete of grade M10 (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc	CUM	1,682	.0021086

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:1885 R1 for Coal Handling Plant - Civil  
at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
203.0	Concrete of grade M15 (1 part cement, 2 part sand, 4 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc	CUM	1,682	.0021086
a	same as above with 20 mm graded aggregate	CUM	17,477	.0219101
204.0	Concrete (20 mm graded aggregate by volume) under floors, paving, plinth protection, pipe encasing etc complete.	--		
a	M 15 Grade	CUM	100	.0001254
b	M 20 Grade	CUM	26,395	.033676
205.0	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size in foundations/substructure, grade slab, paving, drains, under floors etc at 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.	--		
a	M 25 Grade	CUM	52,207	.0718528
b	M 30 Grade	CUM	250	.0003461
A205	Providing and laying Design Mix cement concrete (M20) conforming to IS:456 & IS 10262 2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size in grade slab and paving using Vaccum Dewatered Flooring (VDF) method etc at any level below finished floor level, any shape, position or thickness etc complete including use of plasticizer/ superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing.	CUM	2,000	.0027391

**Part C : Bill of Quantities**

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206.0	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 in superstructure at all level above finished floor level, any shape, position or thickness etc complete including use of plasticizer/superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing for the following.	--		
ISG a	M20 Grade	CUM	50	.0000685
a	M 25 Grade	CUM	22,580	.0307202
b	M 30 Grade	CUM	300	.0004105
ISG 206	Providing and laying Design Mix cement concrete confirming to IS:456 & IS 10262-2009 for reinforced concrete works of grade M-30 Grade in crusher house including addition of suitable plasticizer conforming to IS 9103(latest) to achieve a slump more than 125mm in concrete as per manufacturers recommendation with 20 mm nominal size graded aggregate in concrete all complete as per specification & drawing.	CUM	500	.0006842
209.0	Extra over St. No. 205 to 208 for controlling of temperature of fresh concrete to less than 23 degree centigrade using ice, including all related arrangements for providing, storing and mixing of ice with water, cooling of aggregates etc. All complete as per specification, drawing and instruction of engineer in charge.	CUM	15,000	.0046786
210.0	Extra over ST Nos. 205 to 208 for conducting UPV test for concrete at all levels including all equipments, making necessary arrangements, staging, submission of report etc. all complete as directed by engineer in charge and as per specification.	CUM	100	.000013
211.0	Providing and encasing of structural steel member with concrete using nominal aggregate size of 12.5mm down. Encased member shall be wrapped with welded wire mesh/chicken wire mesh with proper lap etc. complete as per specification for the following grades. (Payment of welded wire mesh, chicken wire mesh shall be made separately)	--		
a	M 20	CUM	250	.0003134

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:1885 R1 for Coal Handling Plant - Civil**

**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
212.0	Screed concrete 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.	--		
a	1:2:4 (One part cement, Two parts fine aggregate and Four parts of coarse aggregate).	CUM	500	.0006268
213.0	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in precast works like roof slabs/trench covers, fins, lintels, chajas, beams, columns, wall panels, facias etc. at all levels in all kinds of work including formwork/moulds, curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transpoting, all leads, erection without damage, setting in position with cement sand mortar (1:3), filling the gaps between adjacent precast units with M30 grade concrete or cement sand mortar (1:3) and including making of holes for bolts for fixing, welding etc. complete with graded aggregate (20/12.5/10 mm) and as per specification and drawing for following grades.	--		
b	M30	CUM	1,193	.0026308
214.0	Providing and laying Design Mix cement concrete as per IS:456, IS 3370 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in water retaining/conveying structures including addition of suitable plastisizer cum waterproofing cement additives 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.	--		
a	M25	CUM	100	.0001768
b	M30	CUM	102,173	.1837919
c	M35	CUM	250	.0004573

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<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
215.0	Dismantling concrete work for all types of structures at all levels including stacking of servicable material to a lead of 500 m and disposal of unservicable material upto a lead of 2 km, cutting of reinforcement, labour, equipment, safety precautions etc all complete as per drawings, specification and instructions of engineer in charge.	--		
a	Plain cement concrete of all grades	CUM	40	.0000152
b	Reinforced cement concrete of all grades	CUM	40	.0000228
216.0	Chipping of concrete in reinforced concrete work, cutting pockets, making openings at all levels and according to shapes, disposal of waste materials upto a lead of 2 km as directed by engineer including equipment, safety precautions, making good the broken surface etc all complete as per specification, drawing, instructions of engineer in charge but excluding cutting of reinforcement .	CUDM	500	.0000103
217.0	Extra over and above St No 216 for cutting of reinforcement, all sizes and types including labour, equipment, return of cut reinforcement to store etc all complete as per specification, drawings and instructions of engineer in charge. Measurement shall be on the cross sectional area of reinforcement cut.	SQCM	50	.0000001
218.0	Cutting Reinforced concrete with mechanised tools like Core drilling machine etc. for cutting pockets, holes, cores in slab, beam, column or foundation as per direction of engineer in charge.	CUDM	39	.0000028
219.0	Providing and applying curing compound (water based) of approved make where ever required as per manufacturers specification.	SQM	249	.0000104
220.0	Providing & laying Plum cement concrete 1:3:6 with 75% graded metal of maximum size 40 mm and 25% plums of maximum size 150 mm.	CUM	7,398	.0092049
ISG 221	SHOTCRETING	--		
--	Shotcreting (Gunniting) 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.:	--		

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**Tender Specification BHEL:PSSR:SCT:1885 R1 for Coal Handling Plant - Civil**  
**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
--	i. Fabricating and fixing in position 6mm M S bars at 750mm c/c including connecting to the lugs for fastening	--		
--	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	--		
--	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.	--		
--	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.	--		
--	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.	--		
--	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.	--		

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<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
--	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.	--		
--	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.	--		
--	Note: 6mm MS Reinforcement and welded wire mesh as specified shall be used for thickness of Shotcreting above 50mm.	--		
--	a. Shotcreting for thickness 50mm and above of with 6mm MS Reinforcement and welded wire mesh as specified	SQM	17,000	.0173208
222.0	Cutting of groove of 10mm X 40mm size with groove cutting machine in concrete paving all complete.	RM	2,000	.0000339
223.0	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	40	.0000324
300.0	FORMWORK: 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.	--		

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<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
301.0	Fairface form work with good quality water proof ply wood of minimum 12mm thickness and smooth surface below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.including chamfering of edges as per drawing, specification and instruction of engineer in charge. (Operated for structures other than Wagon tippler, track hopper, ERH, RERH, Tunnels up to Pent house (PH), Under ground transfer point)	SQM	191,828	.0378916
A301	Fairface form work with good quality water proof ply wood of minimum 12mm thickness and smooth surface below finished ground floor level for raft of Wagon tippler, track hopper, ERH, RERH, Tunnels up to Pent house (PH), Under ground transfer point	--		
a	From Finished graded level 0.00m (FGL) to -3.00M	SQM	100	.0000198
b	From elevation -3.00M to -6.00M	SQM	100	.000021
c	From elevation -6.00M to -9.00M	SQM	80	.0000178
d	From elevation -9.00M to -12.00M	SQM	2,280	.0005362
e	From elevation -12.00M to -15.00M	SQM	80	.00002
f	From elevation -15.00M to -18.00M	SQM	860	.0002275
g	From elevation -18.00M to -21.00M	SQM	60	.0000168
h	From elevation -21.00M to -24.00M	SQM	560	.0001665
i	From elevation -24.00M to -27.00M	SQM	460	.0001449
j	From elevation -27.00M to -30.00M	SQM	60	.00002
ISG 301	Ordinary form work below finished ground floor level for lean concrete, mud mat, plum concrete etc.	SQM	1,500	.0002963

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302.0	Fairface form work with good quality water proof ply wood of minimum 12mm thickness and smooth surface above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, etc. including chamfering of edges as per drawing for all heights as per specification, drawing and instruction of engineer in charge. (Operated for structures other than Wagon tippler, track hopper, ERH, RERH, Tunnels up to Pent house (PH), Under ground transfer point)	SQM	54,471	.0128295
A302	Fairface form work with good quality water proof ply wood of minimum 12mm thickness and smooth surface above raft of structure for column, walls, piers, abutments, intermediate floors, beams, cantilever, etc. for Wagon tippler, track hopper, ERH, RERH, Tunnels up to Pent house (PH), Under ground transfer point Height will be considered from top of raft of structure.	--		
a	Upto height of 3m from top of raft	SQM	23,000	.0066893
b	From 3m height to 6m height from top of raft	SQM	23,400	.0072106
c	From 6m height to 9m height from top of raft	SQM	23,800	.0077726
d	From 9m height to 12m height from top of raft	SQM	44,200	.0152997
e	From 12m height to 15m height from top of raft	SQM	2,400	.0008804
f	From 15m height to 18m height from top of raft	SQM	2,600	.0010115
g	From 18m height to 21m height from top of raft	SQM	2,800	.0011546
h	From 21m height to 24m height from top of raft	SQM	1,000	.0004372
i	From 24m height to 27m height from top of raft	SQM	250	.0001159
B302	Fairface form work with good quality water proof ply wood of minimum 12mm thickness and smooth surface for hopper for Wagon tippler, track hopper, ERH, RERH, Tunnels up to Pent house (PH), Under ground transfer point	SQM	32,400	.0151404

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<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
ISG 303	Providing ,fixing & removing curved type of shuttering including staging, propping (cost incl. of submitting supporting design & drawing and approval etc.) at all locations, heights and levels above or bellow ground with Slip Formwork complete as per specification and directions of engineer incharge	SQM	250	.0001058
304.0	Providing, fixing and removing formwork in block-outs/pockets and openings (below 0.1 sqm plan area) at all elevations including cutting, formation of all shapes and all other operations required for making the required shape and size all complete as per specification, drawing and instruction of engineer in charge.	--		
a	Upto 150 mm depth	Each	650	.0000514
b	Pockets of depths more than 150mm and upto 300 mm depth	Each	400	.0000536
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	40	.0000096
d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	40	.0000152
e	Pockets of depths more than 1000mm and upto 1500 mm depth	Each	10	.0000055
305.0	Extra over item no.301 and 302 for curved form work for foundations, footings, beams, walls, trenches, domes, arches etc as per specification.	--		
a	Extra for Curve Shuttering for Item No. 301	SQM	50	.000002
b	Extra for Curve Shuttering for Item No. 302	SQM	50	.0000024
A305	Fairface plywood with filmface/laminated formwork above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, domes, arches, circular overhead tanks etc. for all heights where ever specifically mentioned in the drawing.	SQM	150	.0000382
400.0	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.	--		

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<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
401.0	Providing, straightening, cutting, bending, placing in position at all level, binding of mild steel reinforcements 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	30	.0006128
402.0	Providing, 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.	MT	30	.0006188
403.0	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 binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. (Reinforcement steel will be supplied by BHEL free of cost for incorporation in permanent work).	MT	24,393	.1210363
405.0	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 manufacturers 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, 404 as applicable.	--		
a	12mm Reinforcement bar	Nos.	10	.0000014
b	16mm Reinforcement bar	Nos.	10	.0000022
c	20mm Reinforcement bar	Nos.	10	.0000031

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A406	Providing and fixing parallel threaded reinforcement couplers for mechanical splices of rebars (TMT/ CRS TMT) for concrete reinforcement including supply of couplers as per IS: 16172 made out of EN8D grade high strength alloy material , threading on rebars to be coupled with coupler, enlargement at connection by forging,protecting the prepared reinforcement bars, fitting & fixing of couplers under specialized supervision, quality tests & checks (for couplers and coupled joints) etc. all complete as per direction of Engineer in charge. The couplers shall match to the properties of rebars of grade equal to Fe 550 D of IS 1786. The cost shall include for all works and tests including moblisation, demobilisation, loading/unloading of required plant/ machinery at site for threading & forging works, tools & tackles, labour & supervision, consumables and all incidental expenses for satisfactory execution of the work . (No deduction for labour and binding wire saved for not providing lap length shall be made).	--		
a	Coupler of class 'H' for 16 mm diameter reinforcement bar.	Each	20	.0000004
b	Coupler of class 'H' for 20 mm diameter reinforcement bar.	Each	50	.0000015
d	Coupler of class 'H' for 28 mm diameter reinforcement bar.	Each	50	.0000019
e	Coupler of class 'H' for 32 mm diameter reinforcement bar.	Each	50	.0000027
f	Coupler of class 'H' for 36 mm diameter reinforcement bar.	Each	50	.0000041
A407	Welding of lap joints of steel reinforcements of TMT steel of grade Fe-500D or 500EQR confirming to IS:1786 (Latest) including cost of welding electrodes, labour, tools and plants etc. complete as permitted and directed by Engineer. Measurement shall be done for the number of joints welded comprising of weld deposition of 2.5d length each on both side of lap joint (i.e total 5d length of weld deposition). Here, 'd' is the diameter of reinforcement bar.	--		
a	For d=16 mm	Each	50	.0000003
b	For d=20 mm	Each	50	.0000004

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c	For d=25 mm	Each	50	.0000005
d	For d=28 mm	Each	50	.0000005
e	For d=32 mm	Each	50	.0000006
f	For d=36 mm	Each	50	.0000007
407.0	Providing, straightening, cutting, bending, placing in position at any level, binding in position high yield strength steel reinforcements in brickwork including cost of reinforcement and binding wire, labour, scaffolding etc. complete all as per specifications & drawings.	MT	4	.0000825
500.0	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.	--		
502.0	Providing and laying underbed grading plaster with cement mortar 1:4 (1 cement : 4 sand) and average thickness of 15 mm including preparation of surface, batching, mixing, leveling etc all complete.	SQM	1,000	.0000365
505.0	Providing and laying rigid insulation (extruded polystyrene blocks) as per relevant IS Code in suitable panels over roofs followed by a layer of 15 mm thick cement sand plaster 1:4 (1 cement: 4 coarse sand) and providing of expansion joint at intervals and filling with sealant in both directions as per the recommendation of manufacturer. The insulating properties shall be such that the thermal conductivity shall not exceed 0.026 Kcal m/m deg C or as per specification. The block shall be strong enough to withstand without deformation the workload and standard loads expected on the roof. Cost shall include making of fillets, cleaning & preparation of surface, expansion joints at suitable intervals etc all complete for following.	--		
b	50 mm thickness of rigid insulation (expanded polystyrene blocks)	SQM	14,082	.003428

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ISG 506	Providing and applying PU based water proofing treatment with elastomeric, seamless waterproof membrane applied in 2 coats to a DFT of 1.2 mm thick having a elongation capacity of over 600% and average tensile strength of 1 MPa, tear resistance as per GBT 19250-2003 >20N/m. The material shall comply with ASTM C 836 National Std. of Canada 37.58 M86 by CGSB. Item includes surface preparation, polymerised mortar base preparation etc. All complete as per specifications and directions of engineer in charge.	SQM	14,082	.0038995
B506	Providing and applying a separation layer of non-woven polypropylene geo-textile membrane of 120 gsm for water proofing as per technical specification.	SQM	14,082	.0002119
509.0	Providing and laying wearing course consisting of 25mm thick plain cement concrete of proportion M20 (1:1.5:3) with graded aggregate of 12.5mm size cast in panels of maximum size 1.5mx1.5m 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.	SQM	500	.0000728
ISG 510	Providing and laying pressed precast concrete tiles of 20 mm thickness and size 600x600 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	14,082	.0024266
511.0	Providing and applying two coats of bitumen grade 85/25 as per IS 702 ( @ 1.7kg/sqm)with 1% antistripping compound conforming to IS 6241 in foundation, wall, column etc on concrete surfaces exposed to soil / ash including surface preparation etc. all complete.	SQM	111,426	.0049051
513.0	Providing and mixing water proofing compound conforming to IS:2645 in concrete or cement mortar all complete.	KG	50	.0000016
517.0	Providing and laying foam concrete blocks in the toilets/sunken slab etc. complete as directed by engineer in charge.	cum	4	.000003

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ISG51 7	<p>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 manufacturers 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.</p> <p>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.</p>	SQM	450	.000077

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ISG51 7A	<p>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 manufacturers 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.</p> <p>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.</p>	SQM	450	.0000179
600.0	JOINTS AND FILLERS: Joints & fillers including all labour, material, equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge.	--		
601.0	Supplying & installation of bitumen impregnated fibre board confirming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete.	--		
a	12 mm wide joints.	SQM	5,000	.0007995
b	20 mm wide joints.	SQM	50	.0000123

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c	25 mm wide joints	SQM	800	.000239
d	50 mm wide joints	SQM	100	.0000566
602.0	Supplying and installation of Dura board HD100 or its equivalent as approved by the Engineer, as filler material in joints including nailing, installation as per manufacturers recommendation etc. all complete.	--		
a	12 mm wide joints.	SQM	20	.0000039
b	20 mm wide joints.	SQM	20	.0000061
c	25 mm wide joints	SQM	20	.0000074
d	50 mm wide joints	SQM	20	.0000142
603.0	Providing and applying polysulphide based sealant 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:	--		
a	12mm X 25mm	RM	20	.0000041
b	20mmX25mm	RM	20	.0000077
c	25mmX25mm	RM	450	.0001825
d	50mmX25mm	RM	50	.0000406
604.0	Supplying and filling in position hot applied bitumin sealing compound (Grade A) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.	--		
a	10mm X 40mm	RM	50	.0000008
b	12mm X 25mm	RM	4,000	.0000542

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c	20mmX25mm	RM	50	.0000008
605.0	Supplying and installation of commercial quality of expanded polystyrene products from reliable manufacturers as approved by the Engineer, as filler material in joints including nailing, installation as per manufacturers recommendation etc. all complete.	--		
a	12 mm wide joints.	SQM	20	.0000002
b	20 mm wide joints.	SQM	20	.0000004
c	25 mm wide joints	SQM	20	.0000005
d	50 mm wide joints	SQM	20	.000001
606.0	Providing and installing PVC joint sealing strips of minimum 3mm thickness and minimum width 100 mm at the construction, expansion and isolation joints from reputed manufacturers as a continuous diaphragm to contain the filler material and/ or to exclude passage of water or any other material into or out of the structure, without any longitudinal joint; and shall be procured and installed in largest practicable lengths having a minimum number of transverse joints with jointing procedure as per the manufacturers recommendations including the material and tools required for jointing, testing, protection, etc all complete. The joints in rubber seals shall be vulcanised as needed.	RM	10	.0000003
610.0	Providing and fixing PVC water stops in joints conforming to IS 12200 & IS 15058 all complete for the following: (Bulb or Kicker type)	--		
a	150 mm wide and 8 mm thick	RM	50	.0000052
b	230 mm wide and 8 mm thick	RM	50	.000004
c	150 mm wide and 6 mm thick	RM	50	.000004
d	230 mm wide and 6 mm thick	RM	23,731	.0028483

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ISG e	230 mm wide and 10 mm thick	RM	50	.0000098
611.0	Providing and fixing copper water stops in joints of deep underground structure all complete for the following:	--		
ISG C	22 G 600 mm wide	RM	120	.0000445
612.0	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.	--		
a	25mmX25mm	RM	50	.0000063
b	50mmX25mm	RM	30	.000007
613.0	Providing and fixing G.I strips minimum 1.5mm thk and 150mm wide including fixing accessories etc. all complete.	Kg	30	.0000012
614.0	Providing and fixing aluminium strips minimum 18 SWG thk and 300mm wide over expansion joints with minimum lap of 50mm length including brass / aluminium screws, rawl plugs etc. all complete.	Kg	20	.0000023
615.0	Providing and fixing 300 mm wide Stainless steel strips over expansion joints with minimum lap of 50mm length including stainless steel screws, rawl plugs etc. all complete.	Kg	10	.0000012
700.0	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.	--		
701.0	Supply, fabricating and fixing of mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. including welding, bolting, cutting, drilling, scaffolding, setting etc. all complete.	MT	10	.0002675

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:1885 R1 for Coal Handling Plant - Civil**

**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
702.0	Supply, Fabrication, transportation, delivery at site and erection, installation and alignment of mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc. including welding, cutting, grinding, threading, drilling etc. all complete.	MT	450	.0149549
703.0	Same as above items 701 & 702 with BHEL supplied material free of cost including loading, transportation, unloading etc. all complete.	--		
A	Mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc.	MT	8	.0000656
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, stiffner plates, protective tape, pipe sleeves, templates etc.	MT	8	.0000599
704.0	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.	--		
a	MS pipes of all diameters	kg	60	.0000014
b	PVC pipes / conduits of all diameters	kg	50	.0000059
c	UPVC pipes / conduits of all diameters	kg	50	.0000062
d	Expansion anchor fasteners (galvanised) of HILTI make(HUD-1 Universal Fastners) or equivalent of safe tensile capacity as specified below for brick work with expansion sleeve of A6 polyamide:	--		
i	8mm Dia	Nos	10	.0000002
ii	10mm Dia	Nos	10	.0000002
iii	12mm Dia	Nos	10	.0000003
iv	14mm Dia	Nos	10	.0000003

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**Tender Specification BHEL:PSSR:SCT:1885 R1 for Coal Handling Plant - Civil**

**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
e	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with expansion sleeve of stainless steel:	--		
i	HST M8	Nos	10	.0000005
ii	HST M10	Nos	10	.0000007
iii	HST M12	Nos	10	.0000011
iv	HST M16	Nos	10	.0000019
v	HST M20	Nos	10	.000004
vi	HST M24	Nos	10	.0000052
Ae	Mechanical expansion fasteners, cold formed stud type having 3 way expansion sleeve of SS 316 grade approved for use in cracked concrete and seismic design with ETA C1/C2 approval or equivalent of safe tensile capacity as specified below for concrete work.	--		
i	HST3 M8	Nos	10	.0000005
ii	HST3 M10	Nos	10	.0000007
iii	HST3 M12	Nos	10	.0000009
iv	HST3 M16	Nos	10	.0000019
v	HST3 M20	Nos	10	.000003
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:	--		
i	HAS-E5.8 M8	Nos	10	.0000011

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at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
ii	HAS-E5.8 M10	Nos	10	.0000013
iii	HAS-E5.8 M12	Nos	10	.0000016
iv	HAS-E5.8 M16	Nos	10	.0000025
v	HAS-E5.8 M20	Nos	10	.000004
vi	HAS-E5.8 M24	Nos	10	.0000054
Af	Adhesive type Chemical anchor fastener consisting of slow curing epoxy chemical adhesive and threaded rod of carbon steel (minimum grade of 5.8) including nut and washer usable in diamond core drilled holes and in wet/ water submerged holes dispensed through mechanical dispenser HIT RE 500 V3 or equivalent of safe tensile capacity as specified below for concrete work.	--		
i	HIT-V M8	Nos	10	.0000013
ii	HIT-V M10	Nos	10	.0000016
iii	HIT-V M12	Nos	10	.0000022
iv	HIT-V M16	Nos	10	.0000044
v	HIT-V M20	Nos	10	.0000067
vi	HIT-V M24	Nos	10	.0000147
Ag	Designing, supplying and fixing rebars in already cast concrete, including drilling, cleaning hole with air blow-out & wire-brush and injecting ETA certified epoxy based chemical HIT RE 500 V3 or equivalent for rebar fixing in dry, water saturated condition/submerged holes conditions for 8mm-32mm dia. with the help of dispenser into a hole diameter and depth as per manufacture specification. Chemical should be made of two components consisting of resin and hardener in the ratio 5:1 in a foil pack of 330/500ml.	--		

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**Tender Specification BHEL:PSSR:SCT:1885 R1 for Coal Handling Plant - Civil**  
**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
i	8mm Dia	Nos	10	.0000011
ii	10mm Dia	Nos	10	.0000017
iii	12mm Dia	Nos	10	.0000023
iv	16mm Dia	Nos	10	.0000043
v	20mm Dia	Nos	10	.0000067
vi	25mm Dia	Nos	10	.00001
707.0	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	2	.0000425
A707	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.(Rail shall be supplied by BHEL)	MT	4	.0000271
ISG 708	Receipt from BHEL Stores or Yard, transporting, fixing in position and alignment of Rail Fixing Bolts for Stacker cum reclaimer Foundation beams with required base plate, sims and grouting after alignment, including all cost of material, labour and equipment, handling at site all complete as per approved drawings, specifications and instructions of Engineer In-charge.  (Quoted price shall include the cost of all works, labour & T&P required. Base plate, sims bolts, nuts etc. shall be provided by BHEL free of Cost. Grouting, if applicable, shall be paid separately under relevant item of Schedule of Rates).	MT	165	.0012362

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**Tender Specification BHEL:PSSR:SCT:1885 R1 for Coal Handling Plant - Civil**

**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
ISG 709	<p>Receipt from BHEL Stores or Yard, transporting, fixing in position of Flat Bottom Rails over existing bolts on Stacker cum reclaimer Foundation beams with required base plate, sims and grouting after alignment, including all cost of material, labour and equipment, handling at site, required grinding, jointing rails with available bolts, all complete as per approved drawings, specifications and instructions of Engineer In-charge.</p> <p>Measurement shall be on the basis of weight of Rail fixed only excluding the fixtures, base plate, sims bolts, nuts etc.</p> <p>(Quoted price shall include the cost of all works, labour &amp; T&amp;P required. Rails, base plate, sims bolts, nuts etc. shall be provided by BHEL free of Cost. Grouting shall be paid separately under relevant item of Schedule of Rates).</p>	MT	150	.0010351
800.0	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.	--		
801.0	Providing & grouting with cement slurry mix of approved ratio using pressure pump for water retaining concrete structures as per approved procedure including cost of nipples/nozzles, cement, admixture, curing, pressure pumps, slurry agitator etc. all complete. Cost shall include fixing of nipples at maximum 500 mm centre to centre spacing, cutting of nipples after completing of grouting, making good of the nipple hole with appropriate non-shrink cement paste, water tightness test etc. all complete wherever specified in the drawing.	SQM	5,000	.0011833
ISG 801	Waterproofing for underground concrete structure shall be done by injecting high polymer based non- shrink waterproof grouting compound through nozzle under pressure as per manufacturer's recommendation. The pressure during injection shall not be less than 2.5 kg/Sq.m. Payment shall be made as per the consumption of grout.	KG	900	.0005194

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**at 5 X 800 MW Yadadri TPS**

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900.0	DOORS & WINDOWS: 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.	--		
901.0	Providing and fixing wooden frame conforming to IS 4021 made of best quality seasoned CP teakwood free from large or loose knots, cracks or other defects including sand paper smoothening, hold fasts, beading, primer and finish painting / polishing etc. all complete with proper wood joinery, accurately set to required lines or levels and rigidly secured in place. (Finish painting / polishing paid separately)	CUM	2	.0000974
A901	Providing and fixing wooden frame conforming to IS 4021 made of best quality seasoned hardwood free from large or loose knots, cracks or other defects including sand paper smoothening, hold fasts, beading, primer and finish painting / polishing etc. all complete with proper wood joinery, accurately set to required lines or levels and rigidly secured in place. (Finish painting / polishing paid separately)	CUM	2	.000073
902.0	Providing and fixing teak wood frame panel door shutter as per IS 1003 with 35 mm x 150 mm vertical rail & 35mm x 125 mm horizontal rail and 12 mm thick interlocked panels of teakwood with proper wood joinery including beading, preparation of working drawings, godrej or equivalent make mortice lock with handels on both sides, approved ISI mark anodised fittings like door stopper, 300mm long tower bolts, 16x300mm long aldrops, 125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fitting shall be anodised aluminium color dyed), screws, primer and finish painting / polishing etc. all complete. (Finish painting / polishing paid separately)	SQM	2	.0000024

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**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
A902	Providing and fixing teakwood frame panel door with PVC lamination on both sides shutter as per IS 1003 with 35 mm x 150 mm vertical rail & 35mm x 125 mm horizontal rail and 12 mm thick interlocked panels of teakwood with proper wood joinery including beading, preparation of working drawings, godrej or equivalent make mortice lock with handels on both sides,approved ISI mark anodised fittings like door stopper,300mm long tower bolts,16x300mm long aldrops ,125mm long handles on both sides etc. butt hinges, sliding bolt ,knobs, (all fitting shall be anodised aluminium color dyed), screws, primer and finish painting / polishing etc. all complete. (Finish painting / polishing paid separately)	SQM	20	.0000245
903.0	Providing, fitting and fixing solid core flush door shutter as per IS 2202 part II, 35mm thick homogenous particle board bonded with BWP type phenolformaldihyde synthetic resin, partical board core conforming to IS 3087 type I, 35x12 mm thick teakwood beading all around including preparation of working drawings. godrej or equivalent make mortice lock with handels on both sides,approved ISI mark anodised fittings like door stopper,300mm long tower bolts,16x300mm long aldrops ,125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fittings shall be anoidised aluminium color dyed), finish synthetic paint over primer, screws etc. all complete as per drawing, specification and instruction of engineer in charge. with commercial faces and teak wood edges. (Finish painting paid separately)	SQM	6	.0000073
A903	Providing, fitting and fixing solid core wooden flush door shutter with PVC lamination on both sides as per IS 2202 part II, 35mm thick homogenous particle board bonded with BWP type phenolformaldihyde synthetic resin, partical board core conforming to IS 3087 type I, 35x12 mm thick teakwood beading all around including preparation of working drawings. godrej or equivalent make mortice lock with handels on both sides,approved ISI mark anodised fittings like door stopper,300mm long tower bolts,16x300mm long aldrops ,125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fittings shall be anoidised aluminium color dyed), finish synthetic paint over primer, screws etc. all complete as per drawing, specification and instruction of engineer in charge. with commercial faces and teak wood edges. (Finish painting paid separately)	SQM	20	.0000242

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**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
904.0	Providing and fixing single or double steel door shutters with 45mm 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	100	.0002277
A904	Providing and fixing single or double leaf steel door shutters. Door leaf should be 46 mm thick fully flush double skin door with or without vision lite. Door leaf shall be manufactured from 0.8mm (22 gauge) minimum thick galvanised steel sheet 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, aldrop, tower bolt, shop and final painting etc all complete.	SQM	50	.0001139
905.0	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	25	.0000587
A905	Providing and fixing sliding door shutters ( single or double) 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, handle on both sides, guide channels & sliding arrangement, shop and final painting etc all complete.	SQM	10	.0000235

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**at 5 X 800 MW Yadadri TPS**

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906.0	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 3mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 ( minimum anodized coating of grade AC15 ). fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at Junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be clear float glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately)	KG	1,500	.0002387
907.0	Providing and fixing fire proof steel doors (single or double shutter) with panic devices shall be 45mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers including all fittings, shop painting with approved post office/signal red color fire resistant paint and mineral wool insulation (64 kg/cum density) complete and shall be fire proof as per IS:3614, TAC requirements and as per specification. Minimum ratings shall be 2 Hrs.	SQM	100	.0003116
A907	Providing and fixing fire proof steel doors (single or double shutter) with panic devices and vision panel shall be 46mm thk flush design comprising of two outer sheets of 1.2 mm (18 gauge) minimum thick galvanised steel sheet rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers including all fittings, shop & finish painting with approved post office/signal red color fire resistant paint and mineral wool insulation (64 kg/cum density), vision lite etc. complete and shall be fire proof as per IS:3614, TAC requirements and as per specification. Minimum ratings shall be 2 Hrs.	SQM	60	.000187
908.0	Providing and fixing steel windows/ventilator with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision including all fittings, metal beadings, hold fasts, shop and final painting ,glazing etc. all complete. (Glazing shall be paid separately)	--		
a	Openable type	SQM	1,000	.000666

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<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
b	fixed type	SQM	1,000	.0004297
ISG 908	Providing and fixing steel windows/ventilator with steel sections with necessary framework as per approved drawings, The window shutters shall be provided with M.S Louvers and 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. - louver blade shall be Z shaped and made out of 18G sheets in E27 steel frames all complete as per the directions of the Engineer in charge. Quoted rate shall be all inclusive.(Glazing shall be paid separately)	--		
a	Openable type	SQM	100	.0000708
b	fixed type	SQM	100	.0000482
A908	Providing and fixing M.S. grills in windows/ventilator as per approved design for security purpose made of M.S. Flats / M.S. square bar of approved design shall be provided to suit security requirements.	kg	10	.0000003
B908	Providing and fixing anodised aluminium Grills in windows/ventilator of approved design.	kg	10	.0000016
C908	Extra over Item 908 for providing pre-coated (polyster painted) steel windows/ventilators	SQM	2	.0000005

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**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
A909	Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door/window frames, door/window shutters, ventilators, partitions, railing etc. with extruded standard tubular and other sections including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, anodised and electro color dyed to required shade according to IS 1868 (minimum anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-mettalic protection etc.including preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc. as applicable), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid seperately).Weight of aluminium section only shall be measured.	Kg	1,000	.0001539
A910	Providing and fixing of aluminium composite panel(ACP) of following thickness with PVDF or polyester coating for interior partition, encasing of columns & bracings, exterior facade works of approved shade', color and inclusive of sub-base frame work (if necessary), sealant etc all complete as per specification.	--		
a	3mm thick with minimum 0.2mm topping of precoated aluminium foil on both side.	SQM	500	.0005124
b	4mm	SQM	20	.0000235
c	5mm	SQM	20	.0000265
911.0	Providing and fixing of door closers as per specification ,of approved make & quality all complete of following type :	--		
a	Over head hydraulic door closures as per IS 3564	Each	50	.0000251
b	Floor mounted Hydraulic door closers as per IS 6315	Each	10	.0000086

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**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
912.0	Providing and fixing pressed steel frames fabricated from 16 gauge M.S sheet mortised, reinforced drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars ,paintings etc all complete as per specifications.	Kg	100	.0000046
A912	Providing and fixing pressed steel door frames. Door frame shall be Single rebate profile of size 100 x 57 mm made out of 1.20 mm thick galvanised steel sheet (18 gauge) 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	100	.0000048
B912	Providing and fixing pressed steel door frames for fire proof doors. Door frame shall be double rebate profile of size 143 x 57 mm made out of 1.60 mm (16 gauge) minimum thick galvanized steel sheet 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	25	.0000012
913.0	Providing and fixing in position rolling shutter of hot rolled double dipped galvanised steel lath section of 18 SWG tested mild steel strips at 75mm rolling centres interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation including wire springs, top cover, primer & shop coats of approved enamel paint etc, all complete as per IS 6248 and specification of approved make of following types: The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely riveted with stiffening angles.(partly coiled and lath/full lath).	--		
a	Hand Operated	SQM	5	.0000039
b	Mechanically Operated	SQM	300	.0003
c	Electrically operated	SQM	200	.0002147
914.0	Providing and fixing PVC doors (25 thk double skin) of sintex or equivalent make including all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	SQM	50	.0000445

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**at 5 X 800 MW Yadadri TPS**

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A914	Providing and fixing Solid core PVC doors (25 thk double skin) with PVC frame of sintex or equivalent make including all fitting & fixtures as per specification, drawing and instructions of engineer in charge.	SQM	50	.0000445
915.0	Providing, fixing and fitting of glazing of first grade class in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete.	--		
a	4 mm thick clear sheet glass	SQM	100	.0000463
b	4 mm thick clear float glass	SQM	100	.0000468
c	5.5 mm thick clear float glass	SQM	100	.0000532
d	6 mm thick wired glass	SQM	1,000	.0005433
e	6mm thick Polycarbonate sheet multi (twin) wall fire retardant and ultra violet resistant with sealed open edges.	SQM	6	.0000049
f	4 mm thick ground glass	SQM	50	.000028
g	6 mm thick tinted heat reflecting type float glass	SQM	50	.0000312
h	6 mm thick clear toughened safety glass	SQM	50	.000036
i	Two nos. 6 mm thick clear toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	50	.0000601
j	Two nos. 6 mm thick tinted toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	50	.0000601
l	6 mm thick laminated glass	SQM	6	.0000033
m	6 mm thick clear float glass	SQM	100	.0000532
A915 m	6 mm thick clear float glass with itching	SQM	30	.000016

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<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
A915n	One outer 6mm thick tinted heat-reflecting type float glass and one inner 6mm thick toughened float glass hermetically sealed and separated by 12 mm thick gap for thermal insulation (only single elevation area to be measured).	SQM	100	.0001202
916.0	Supplying and fixing weather stripping of approved make and quality to doors as per instructions of engineer in charge and specification complete.	RM	10	.0000007
917.0	Providing and fixing 12 mm thick BWP particle board, decorative veneer (prelaminated) on both sides, as panels in aluminium framed door shutter, fixed with necessary snap-on-beading etc. all complete (excluding aluminium works).	SQM	20	.0000112
918.0	Providing and fixing steel louvered window with ISMC 100 frame all round including verticals with 18G pressed steel louvers, painting etc. all complete.	SQM	1,000	.0009056
919.0	Providing and fixing 1 mm thk. MS sheet sliding shutters with frame and diagonal braces of 50X50X6 angle iron, 3 mm MS gusset plates at junction and corners, 25 mm dia pulley, 50X50X6 angle and T-iron guide at the top and bottom respectively including painting etc. all complete.	SQM	50	.0000699
A921	Supplying, installing and commissioning of self sliding mechanism for aluminum door (double shutter) & air curtain including photo operated sensors, fittings, motors, mechanical systems, electrical systems, warranty all inclusive in working condition as per specifications and drawings (aluminum door shutter and its glazing to be paid under separate items)	EACH	2	.0000655

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**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
A922	Providing and fixing Semi Unitised STRUCTURAL GLAZING to fixed panels with no aluminium section exposed to outside and only glass panels with silicon joint visible from outside. The system specially designed with extruded aluminium sections of 6063 T5 or T6 alloy conforming to ASTM B 221 and shall be anodized in approved colour with a anodic coating of minimum 20 microns. The mullion shall be fixed to beams / columns adequately designed. The member and bracket shall be fixed with appropriate bolts and expansion fasteners, so as to withstand the dead load of the structural glazing as well as stresses due to wind pressure. The Structural glazing system shall be designed as per BIS code for required wind pressure IS: 875 part III with as per the prevailing site conditions and building profiles and use of aluminium section alloy as per IS : 8147. System design to strictly consider for thermal movements, air infiltration, water penetration, seismic movement and structural movement. Silicon sealant structural grade and weathering grade shall be GE/Dow corning/Sikka or Equivalent. (Glazing panels are separately payable)	Kg	100	.0000159
B922	Providing and fixing Vision glass for structural glazing panels 24mm thick insulated double glazing having 6mm thick low E glass blue tinted toughened glass on outer side and 6mm thick clear toughened float low E glass on inner side with 12mm air gap & hermetically sealed as per specification. The structural glazing panels shall be factory glazed with structural silicon as per standard practice and under the strict supervision of the engineering staff (on site glazing is not permitted, except for replacement of damaged/broken glasses). The contractor shall obtain structural stability report of the structural glazing system from a consultant to be get approved by the engineer-in-charge.	SQM	50	.0000601
C922	Providing and fixing Spandrel Glazing for structural glazing panels of 6mm Thick Toughened glass of Saint Gobain ET 450 or equivalent with Properties ( VLT 42%, Ext Ref 11% , Int Ref 11% , Solar Factor 0.39, U value 5.0 W/Sq. mtr-K ). Providing and fixing glass with insulation in Spandrel area with 1mm thick GI sheet fabricated in tray form duly filled with 50mm thick glass wool of density 48 kgs/cum of approved make with one side laminated with aluminium foil and other side laminated with black tissue with facing glazing of approved make and colour all (insulation shall paid extra under item no.1506).	SQM	50	.0000601

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**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
D922	Providing and fixing G. I. flashing at soffit level / sill level made out of 1.5mm Thick G.I. Sheet with powder coated bent to required profile and shape to seal the soffit area.	SQM	50	.0000273
A923	Providing and fixing 12 mm thick bison Cementitious board Partition wall with GI Framework and 12 mm thick bison board cladding on either side of GI section (50x38mm) in horizontal & vertical framework 600 mm c/c spacing as required for suitable rigidity & fixed from floor to ceiling of above false ceiling partition walls as reqd.	SQM	50	.000043
1000.0	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. (Cement supply by BHEL free of cost for incorporation in permanent work)	--		
1001.0	Providing brick work in cement mortar 1:6 (1 part cement 6 parts coarse sand) in walls, chambers etc. in thickness varying from 230mm to 460mm at all depths, places and positions below plinth including raking out joints, curing, scaffolding etc. complete excluding plastering and painting.	--		
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm <sup>2</sup> (including cost of cement for brick making)	CUM	250	.0005221
1002.0	Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 230mm at all heights, places and position above plinth including raking out joints, curing, scaffolding etc complete excluding plastering and painting.	--		
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm <sup>2</sup> (including cost of cement for brick making)	CUM	3,504	.0088555
1003.0	Providing brick work in cement mortar 1:4 (1 cement 4 coarse sand) in partition walls, chambers etc. in thickness 115mm at all heights, places and position above or below plinth/graded level including providing two nos. 6 mm diameter MS bars at every third layer, raking out joints, curing, scaffolding etc complete excluding plastering and painting as per specification.	--		
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm <sup>2</sup> (including cost of cement for brick making)	SQM	300	.0000929

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<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
1005.0	Breaking of existing brick work at all levels including plastering, removing the rubbish up to a distance of 500 m including transportation, loading, unloading etc. all complete as directed by the engineer.	CUM	50	.0000274
1006.0	Providing and encasing of structural steel member with masonry work around flanges, webs etc. and filling the gap between steel and masonry by minimum 12mm thick mortar of 1:6. Encased member shall be wrapped with chicken wire mesh with 50mm lap etc. complete as per specification. (Chicken wire mesh to be paid separately)	--		
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	10	.0001088
1008.0	Making openings in existing brick wall or partition wall including making good the broken edges/surface with cement mortar 1:6 etc. complete.	CUM	10	.0000065
1009.0	Supply and placing in position mild steel wire fabric of square mesh 25 mm size and wire diameter of 2 mm for encasing of steel sections in concrete including cutting, bending, fixing etc. complete.	SQM	10	.0000003
1010.0	Filling existing brick wall/ partition wall opening 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	5	.0000015
1011.0	Providing and filling brick bats in soak pits all complete.	CUM	20	.0000072
1100.0	DAMP PROOF COURSE: Damp proof course including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, shuttering, centering, curing etc at all level as per specification, drawings and as directed by engineer - in - charge (Cement supply by BHEL free of cost for incorporation in permanent work)	--		
1101.0	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.	--		

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**Tender Specification BHEL:PSSR:SCT:1885 R1 for Coal Handling Plant - Civil  
at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
a	40mm thick	SQM	600	.0000555
b	50mm thick	SQM	26	.0000028
A1201	Providing 20mm thick plaster in two layers outside the building/rough surface of internal wall in cement mortar 1:4 on walls, finished to a smooth finish including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete. The two layer include 1:4 cement sand mortar 12mm thick first layer and 1:3 cement sand mortar with 8mm.	SQM	15,044	.002383
ISG 1202	Providing 12mm thick plaster inside the building/boundary wall in cement mortar 1:4 on walls finished to a smooth finish as per specification all complete.	SQM	19,429	.0012354
ISG 1204	Providing 6mm thick plaster on ceiling in cement mortar 1:3 finished to a smooth all complete.	SQM	7,329	.0004412
1205. 0	Providing 12mm thick plaster in walls, drains/culverts with a paste of neat cement @ 1kg/sqm and rubbed smooth with trowel etc. all complete.	SQM	250	.000015
1207. 0	Forming groove of uniform size from 12X12 mm upto 25X15 mm in plastered surface 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	250	.0000029
ISG12 07	Providing drip coarse on plastered surface at all elevations for all type of work such as chajjas, parapet, projections etc. including scaffolding, finishing etc. complete with all labour, tools and plants as per specification, drawing and instructions of engineer in charge.	RM	250	.0000029
1208. 0	Providing and laying encasement to box type steel beams at all levels with lath plaster 50 mm nominal thickness with cement plaster (1:4) over chicken wire mesh including all labour, materials, equipment, handling, transporting, mixing, placing, leveling, curing and cleaning, finishing the exposed surfaces etc including centering and shuttering all complete as per specification, drawing and instructions of engineer in charge (chicken wire mesh to be paid separately)	SQM	50	.0000096

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**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
1209.0	Ruled pointing in masonry in Cement Mortar 1:3 (1 cement and 3 fine sand) including raking out joints, curing etc. complete.	SQM	100	.0000056
1300.0	FINISHES TO CONCRETE / PLASTERED SURFACES: 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.	--		
1304.0	Two or more coats of acrylic distemper of approved brand and manufacture to give an even shade including a priming coat with distemper primer complete.	SQM	7,329	.0002096
1305.0	Providing and applying two or more coats of acrylic emulsion paint as per IS 5411 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline.	SQM	14,572	.0005866
1306.0	Providing and applying 2 or more coats of acid/alkali resistant paint of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying bitumen primer confirming to IS 158 complete all as per manufacturers recommendations and as approved by engineer, at all heights above or below grade level, complete as per specifications.	SQM	200	.0000209
A1307	Providing and applying ready made Acid/Alkali resistant Epoxy Paint over areas other than steel structure with suitable pigments of approved shade as per manufacturers specification and direction of Engineer.	SQM	600	.0000628
1308.0	Providing and applying 2 or more coats of Chlorinated Rubber paint of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying chlorinated rubber zinc phosphate primer confirming to IS 158 complete all as per manufacturers recommendations and as approved by engineer, at all heights above or below grade level, inclusive of intermediate coat of Titanium dioxide / micaceous iron oxide complete as per specifications.	SQM	100	.0000061
1309.0	Two or more coats of fire resistant transparent paint (@3.5 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	100	.0000085

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**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
1310.0	Two or more coats of black anti-corrosive bitumastic painting of approved brand and manufacture to give an even shade complete.	SQM	100	.0000022
A1311	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 including base preparation, primer etc. complete as per manufacturers specifications.	SQM	2,000	.0000504
1312.0	Providing and applying 3 coats of water proof cement paint of approved make and color on exterior surface at all heights including material, labour, scaffolding, curing etc including primer coat complete as per specification.	SQM	100	.0000026
1313.0	Providing and applying resin bonded granular textured finish, for external applications shall consist of crushed stone/quartz chips of .5 mm to 2.5 mm size and of approved natural color/shade and bonded with synthetic resins, adhesives and additives altogether in a single pack mix, applied on cured and dried plaster surface with a dry film thickness of minimum 2 mm. The final finish shall have UV resistance, fungus, bacterial resistance properties all complete with grooves filled with poly sulfide sealant of matching color and shade as per specification/drawing/approval of engineer in charge.	SQM	100	.0000133
1314.0	Providing and applying resin bonded granular textured finish, for external applications shall consist of crushed stone/quartz chips of .5 mm to 2.5 mm size and of approved natural color/shade and bonded with synthetic resins, adhesives and additives altogether in a single pack mix, applied on cured and dried plaster surface with a dry film nominal thickness of 2.5 mm. The final finish shall have UV resistance, fungus, bacterial resistance properties all complete with grooves filled with poly sulfide sealant of matching color and shade as per specification/drawing/approval of engineer in charge.	SQM	100	.0000178

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1315.0	Providing and applying resin bonded granular textured finish, for internal applications shall consist of crushed stone/quartz chips of .5 mm to 1.2 mm size and of approved natural color/shade and bonded with synthetic resins, adhesives and additives altogether in a single pack mix, applied on cured and dried plaster surface with a dry film nominal thickness of 1.2 mm. The final finish shall have UV resistance, fungus, bacterial resistance properties all complete with grooves filled with poly sulfide sealant of matching color and shade as per specification/drawing/approval of engineer in charge.	SQM	100	.0000076
1316.0	Providing and applying 2 mm thick plaster of paris punning 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	.0000016
1317.0	Providing and applying 2 mm thick white cement punning 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	4,500	.0001151
ISG 1317	Providing and applying 3 mm thick white cement punning (Birla White or JK White or Similar approved) 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	10,536	.0003568
1318.0	Providing and applying Synthetic plaster for external applications composed of synthetic fibre and petroleum based chemical similar to RENOVO or equivalent and of approved natural color/shade applied on cured and dried plaster surface. The final finish Paint shall have UV resistance, fungus, bacterial resistance properties all complete with grooves filled with poly sulfide sealant of matching color and shade as per specification/drawing/approval of engineer in charge.	SQM	50	.0000065
A1319	Providing and applying two or more coats of waterproof external quality acrylic based emulsion paint of approved brand and manufacturer as per approved shade, over one or more coat of primer after necessary cleaning/ washing, preparing the surface using coir brush/ wire brush, sand paper, including filling of cracks with putty wherever required etc. all complete to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guidelines. The final finished coating shall be fungus resistant, UV resistant, water repellent and extremely durable with color fastness as per specification.	SQM	14,292	.0006507

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**at 5 X 800 MW Yadadri TPS**

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1320.0	Providing and applying acid alkali and oil resistant high build, solvent free, self smoothing, seamless epoxy based amine cured floor finish 150 microns over primer on C.C. flooring	SQM	50	.0000052
1321.0	Providing and applying french polish (minimum 2 coats) on wood surface made from best quality shelac, denatured spirit and other suitable alcohol soluble ingredients and made by a well known approved manufacturer as per IS 348 including required base preparation etc. all complete as per specification	SQM	50	.0000029
1400.0	FLOORING AND SKIRTING: 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 (Cement supply by BHEL free of cost for incorporation in permanent work)	--		
1401.0	Providing and laying 50 mm thick heavy duty cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 38mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5 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	78,072	.0144228
1402.0	Providing and laying 25 mm thick heavy duty cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates ) flooring with metallic hardener pigmented topping of 10 mm thick uniform graded treated iron particles in skirting and dado. Under layer of 15mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 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).	SQM	150	.0000233

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1403.0	Providing and laying precast polished heavy duty cement concrete tiles (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 20mm 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:	--		
a	Laid in floors	SQM	100	.00004
b	Laid in skirting	SQM	100	.0000487
1404.0	Providing and laying interlocking M30 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)	--		
a	60mm	SQM	20	.0000046
b	75mm	SQM	20	.0000052
1405.0	Providing and laying 50 mm thick floor finish with 25mm thk Terrazo Tiles including minimum 25mm thick cement mortar bedding of 1:3 (1 cement : 3 sand) with neat cement slurry @4.4 kg/sqm, labour, materials, etc. all complete. (inclusive of cost of cement for tiles manufacturing)	SQM	20	.0000061
1406.0	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.	SQM	500	.0002794

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**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
1409.0	Providing polished Kota stone 14mm to 16mm thk in skirting projecting 6mm from adjacent plaster minimum 12 mm thick cement mortar bedding of 1:3 (1 cement : 3 sand) with thick cement slurry @4.4kg/sqm spread over the surface with fine joint finished including cutting brickwall upto the required depth, edging, finishing etc. all complete.	SQM	100	.0000475
1410.0	Marble stone Flooring laid in 50mm overall thickness with 18-20mm thick marble slabs (grade -1) with minium 30mm thick underbed of 1 cement : 2 sand : 4 stone aggregate by volume and brought to proper level.The marbel slabs/tiles laid over underbed with mortar 1:3, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry @4.4kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.	SQM	50	.0000356
1411.0	Marble stone Flooring laid in 50mm overall thickness with 14 -16mm thick marble slabs (grade -1) with minium 35mm thick underbed of 1 cement : 2 sand : 4 stone aggregate by volume and brought to proper level.The marbel slabs/tiles laid over underbed with mortar 1:3, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry @4.4kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.	SQM	50	.0000397
1412.0	Providing and laying 18-20mm thick polished Granite stone of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 30 mm thick of 1 cement : 2 sand : 4 stone aggregate by volume and brought to proper level. The granite stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry @3.3kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.	SQM	100	.0001366
1415.0	Providing and laying polished Granite stone 14-16mm thk in skirting and dado with 6mm thick projection from adjacent plaster including mortar ,cement slurry ,pigments, curing, grinding,moulding, granite polishing etc. all complete.	SQM	100	.0001248

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1416.0	Providing and laying vitrified ceramic tiles of polished variety of size 600x600 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	--		
a	7mm thick tiles In flooring	SQM	1,000	.0003744
b	10mm thick tiles In flooring	SQM	300	.0001288
c	7mm thick tiles In skirting and dado upto specific height	SQM	50	.0000195
d	10mm thick tiles In skirting and dado upto specific height	SQM	100	.0000446
A1417	Providing and laying vitrified ceramic tiles of matt finish of minimum size 400x400mm from reputed / approved manufacturer including underbed of cement mortar 1:3 with neat cement slurry etc. all complete for following.	--		
a	7mm thick tiles In flooring	SQM	50	.0000187
b	10mm thick tiles In flooring	SQM	1,500	.0006439
A1418	Providing and laying non-skid, full body vitrified, 10 mm thick non-porous, homogenous, abrasion resistant, floor tiles of 1st quality dual charged similar to MARBONITE,FERRASTONE of BOSS Profile Ltd, RESTILE,ENDURA of H & R Jonson (India) Pvt. Ltd of size minimum 600 mm x 600 mm of approved colour in flooring and shall be laid over minimum 30mm thick underbed of 1 part cement and 3 parts coarse sand by weight mixed with sufficient water, complete as per specification.	--		
a	400X400 mm	SQM	26	.0000126
b	600X600 mm	SQM	800	.0003901

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<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
ISG 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 40 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	--		
b	600X600 mm	SQM	250	.0001255
1419. 0	Providing and laying granite stone slab of 20mm thickness 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.	SQM	10	.0000173
1420. 0	Providing and laying Heavy Duty dust pressed Ceramic Tiles of 7mm thick of reputed manufacturer of approved finish shade and colour including 20mm underbed of cement mortar 1:3 with neat cement slurry @3.3kg/sqm etc. all complete.	--		
a	300X300 mm	SQM	100	.0000254
b	600X600 mm	SQM	50	.0000127
1421. 0	Providing and laying Heavy Duty dust pressed (grade-5) Ceramic Tiles (Matt Finish) of size 600x600mm(approved size) and 7mm thick of reputed / approved manufacturer (Kajaria,jhonson,Spartek or equivalent) of approved finish, shade and colour. The tiles shall be scratch resistance of minimum 5 on Mohrs scale and shall have a bending strength of 350 Kg./sqm,with Under bed shall average 43mm thk of 1 cement : 2 sand : 4 stone aggregates by volume and brought to proper level including cement mortar with neat cement slurry @3.3kg/sqm all complete.	SQM	50	.0000171
1423. 0	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado beded and jointed with epoxy mortar all complete for following thicknesses. The tiles should be abrasion resistant & durable.	--		
a	20mm thick	SQM	500	.0003443
b	38mm thick	SQM	50	.000055

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:1885 R1 for Coal Handling Plant - Civil**

**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
1424.0	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	.0000432
1425.0	Providing and laying polished Marble slabs (Aranga white or equivalent approved shade/color /design) 20 mm thk in staircase landing/skirting and corridors over minimum 20 mm thick underbed of 1 cement : 2 sand : 4 stone aggregates by volume mixed with sufficient water to form a stiff workable mass. The marble slabs shall be laid over under-bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry 3.3kg/sqm spread over the surface with fine joint finished including moulded marbel nosing, pigments, curing, grinding, making corners, granite polishing etc. complete.	SQM	50	.0000403
1426.0	Providing and laying marble skirting /dado (Aranga white or approved shade/color /design) equivalent of minimum 20mm thickness projecting 6mm from adjacent plaster all complete including underbed 20mm cement mortar 1:3, with thick cement slurry 3.3kg/sqm spread over the surface scaffolding etc. all complete.	SQM	40	.0000246
1427.0	Providing and fixing glazed ceramic tiles of approved color and design of size 200x300mm / 300x300mm in dado of approved size, projecting 6mm uniformly from adjacent plaster or wall finish. The mix for 20mm 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:	--		
a	5mm thick	SQM	50	.0000164
b	7mm thick	SQM	50	.0000164

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**Tender Specification BHEL:PSSR:SCT:1885 R1 for Coal Handling Plant - Civil  
at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
1428.0	Providing and laying 3mm thick antistatic PVC flooring / skirting of approved shade,as per IS:3462 and laying as per IS:5318 all complete.	SQM	26	.0000024
A1428	Providing and laying flexible electric insulated PVC synthetic sheet as per IS 15652-2006 of Suntex Insulatic Pvt. Ltd. Or similar all complete as per specification.	SQM	500	.0000322
1429.0	Providing and fixing removable type flooring system consisting of fire resistant particle board of size 600X600X35 mm with 0.05 mm thick aluminium foil lining at bottom and with 2 mm thick anti static PVC topping including proprietary floor supporting system complete as per specification.	SQM	500	.0004983
1430.0	Providing and fixing dividing strips in joints of cast in situ floorings at various elevations, finishing, all labour, material etc. complete as per drawing, specification and instructions of engineer in charge.	--		
a	Glass strips 40 mm wide and minimum 6 mm thick.	RM	200	.0000029
b	Aluminium strips 40 mm wide and minimum 3 mm thick	RM	200	.0000063
A1430	Providing and fixing dividing strips in joints of cast in situ floorings at various elevations, finishing, all labour, material etc. complete as per drawing, specification and instructions of engineer in charge.	--		
a	Glass strips 40 mm wide and minimum 4 mm thick.	RM	2,500	.0000367
b	PVC strips 40 mm wide and minimum 2 mm thick	RM	2,500	.0000847
c	Aluminium strips 40 mm wide and minimum 2 mm thick	RM	500	.0000158
1500.0	ROOFING / SIDE CLADDING: Roofing / side cladding work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at all level as per specification, drawings and as directed by engineer - in - charge.	--		

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**Tender Specification BHEL:PSSR:SCT:1885 R1 for Coal Handling Plant - Civil**

**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
1502.0	Designing, providing, erection and fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour and conforming to class3 of IS 14246 over floor beams/roof purlins for cast-in-situ floor/roof slab as per relevant IS code and specification. Bare metal thickness of deck plate shall be minimum 0.8mm with minimum trough depth of 44 mm having minimum yield strength of 250 MPa and shall serve as permanent shuttering to the slab 150mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 150 kg/sqm during construction between beams/purlins as per manufacturers recommendations/ calculations/ test certificates for approval including fixing of plates to purlins, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyester paint of minimum 20 micron DFT on exposed surface (facing operating floor) and minimum 7 micron on other face over epoxy primer applied over hot dipped galvanising @ 275 gm/sqm including fixing of sheet to beams/purlins with self drilling white zinc plated heat treated carbon steel screws of minimum 5.6 mm dia @ 260mm c/c in the trough and stich screws between two adjacent sheets and sealing with epoxy sealant. Measurement of profile sheeting shall be of the plan area of floor/roof covered by MS trough metal decking.	--		
a	Span Upto 1800mm	SQM	31,837	.0148414
1503.0	Providing and fixing shear connectors of mild steel studs having 16mm dia and minimum 75 mm projected length above purlin passing through metal decking as per relevant IS codes and specification.	QUINTAL	290	.0020212
1511.0	Providing and fixing insulation of resin bonded mineral wool of 50 mm nominal thickness conforming to IS 8183 having a density of 32 kg/cum glass wool or 48 kg/cum for rock wool, for cladding/under deck insulation including application of glue and tying with lacing wire, for glass/rock wool as per manufacturers recommendations.	--		
a)	For insulation in Sandwitch Cladding	SQM	400	.0000858
b)	For underdeck insulation below RCC slabs	SQM	400	.0000865

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<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
A1511	Providing and installing under deck insulation using Closed Cell Elastomeric Nitrile Rubber (minimum 25mm thick) of density 40 to 60 kg/cum fixed at various elevations with rawl plugs including clips etc as per specification.	SQM	400	.0001961
1512.0	Providing and fixing insulation of resin bonded mineral wool of 50 mm nominal thickness conforming to IS 8183 having a density of 32 kg/cum glass wool or 48 kg/cum for rock wool, for cladding/under deck insulation including wrapping in black polythene black supported over weld mesh 75X75X1.6 MM dia to hold in position and application of glue & tying with lacing wire, for glass/rock wool as per manufacturers recommendation.	--		
a	For insulation in Sandwitch Cladding	SQM	400	.0000915
b	For underdeck insulation below RCC slabs	SQM	400	.0000923
A 1518	Providing and installing fire resistant under deck insulation using Lloyd Foam or equivalent 50 mm thick polyurethane Foam of density 36 kg/cubic meter including minimum 0.05 mm thick aluminium foil on exposed surface followed by 0.56 mm dia and 24 Gx 25 mm mesh GI wire netting, fixed at various elevations with glue/rawl plugs including clips.	SQM	400	.0001913
1600.0	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.	--		
A1601	Providing and fixing Moisture and fire resistant glass fibre reinforced gypsum plaster board (GRG) ceiling (having gypsum core mixed with glass fibre) system consisting of metal supporting grid system forming panels of specified size, suspended from RCC slab/structural steel or catwalkway grid above with 4 mm (minimum) galvanised wires (rods) with special height adjustment clips, including preparation of working drawing, providing openings for AC ducts, return air grills, light fixtures etc (but excluding the cost of catwalkway grid) all complete as per drawings, specification and instructions of the engineer.	--		

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at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
a	12.5 mm thick GRG board with galvanised light gauge steel load bearing supporting GI frame and finished flat (seamless).	SQM	400	.0000992
b	12.5 mm thick GRG board in profile (dome ,curved profiled etc.) with galvanised light gauge steel load bearing supporting GI frame and finished smooth (seamless).	SQM	50	.0000186
A1603	Providing and fixing permanently colour coated aluminium false ceiling of approved colour and Luxalon 84 C or approved equivalent with corrosion resistant aluminium alloy panels of minimum thickness 0.5mm including 25mm thick mineral wool insulation(density 48 kg/cum) conforming to IS:8183 bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures, A.C. ducts etc all complete. Suitable M.S. channel grid with minimum MC 75 shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. (Materials for structural platform grid made up of MS Channels/ Beams / Angles shall be supplied by BHEL and shall be paid under ST No 2301)	SQM	200	.0001178
A1604	Providing, fixing and laying acoustic permanently colour coated plain/perforated aluminium false ceiling of approved colour with stove enamel finish of approved make of either lineal panel system or aluminium tile/plank system with corrosion resistance aluminium alloys panels of minimum thickness 0.5mm including 25mm thick mineral wool insulation (as per IS:8183) bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. A.C. ducts etc. suitable M.S. channel (minimum MC 75) grid 1200 c/c maximum shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. The work to be complete as per specifications, drawings and direction of engineer.( Materials for structural platform grid for movement made up of MS Channels/ Beams / Angles shall be supplied by BHEL and shall be paid under ST No A2301)	SQM	100	.0001639

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**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
A1608	Providing and Fixing CALCIUM Silicate Board/Tiles in false ceiling of HILUX or AEROLITE or equivalent consisting of metal supporting grid system forming panels of specified size, suspended from RCC slab/structural steel with 4 mm (minimum) galvanised wires (rods) with special height adjustment clips, including preparation of working drawing, providing openings for AC ducts, return air grills, light fixtures etc all complete as per drawings, specification and instructions of the engineer.	SQM	100	.0000781
B1608	Providing and fixing 25 mm thick resin bonded mineral wool insulation (as per IS:8183) bound in polythene bags on top of false ceiling panels. The work to be complete as per specifications, drawings and direction of engineer.	SQM	100	.0000108
1700.0	RAIN WATER DOWN TAKE PIPES: 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.	--		
1703.0	Providing and fixing galvanised MS down take pipes of 100 mm dia- Medium quality as per IS:1239(part-I) / IS:3589 all complete.	RM	50	.0000208
1704.0	Providing and fixing galvanised MS down take pipes of 150 mm dia- Medium quality as per IS:1239(part-I) all complete.	RM	50	.0000277
1705.0	Providing and fixing UPVC down take pipes of 110mm diameter- Class 3 as per IS:4985 all complete.	RM	50	.000008
1706.0	Providing and fixing UPVC down take pipes of 160mm diameter- Class 3 as per IS:4985 all complete.	RM	50	.0000108
1707.0	Providing and fixing GI down take pipes conforming to IS:1239 /IS:3589 of medium duty all complete for following diameters.	--		
a	100 mm Dia	RM	50	.0000215
b	150 mm Dia	RM	6,519	.0039146

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**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
c	200 mm Dia	RM	50	.0000413
1709.0	Providing and fixing HDPE down take pipes conforming to IS:4984 as per specification of following diameters.	--		
a	110 mm Dia	RM	50	.0000072
b	160 mm Dia	RM	50	.000011
c	200 mm Dia	RM	50	.0000163
1800.0	MISCELLANEOUS: 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.	--		
1801.0	Providing and Filling in trenches, plinths, area paving and other underground structures with graded stone aggregate of size range 63 mm to 45 mm in layers not exceeding 230 mm in thickness including breaking of stone boulders to required sizes, filling the interstices with selected sand and compacting to 85 % of original volume of stone stack for all lifts etc. all complete. Payment shall be made for the measurement of the volume of the compacted fill.	CUM	50,841	.0329205
1802.0	Supply and laying approved quality Stone aggregate 40mm size in transformer yards.	CUM	50	.0000456
1804.0	Providing and fixing weep holes in Retaining wall, drains, etc consisting of 100 mm dia HDPE pipe sleeves with single side covering for the pipe mouth with galvanised welded wire fabric of 20 mm sq. opening all complete.	EACH	50	.0000029
1807.0	Anti termite chemical treatment of soil with Chlorpyrifos/Lindane E.C. 20% with 1% concentration conforming to IS:8944 and as per IS 6313 all complete. (Plinth area of building at ground floor only shall be measured for payment).	SQM	500	.0000231

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at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
1808.0	Laying of earthing mats/rods including risers, transportation from yard stores, loading, unloading, cutting to length, welding, protective painting of joints etc. all complete. (Excavation & Back filling shall be paid separately under respective item of earth work. Earthing mats/rods shall be supplied by BHEL free of cost)	MT	2	.000007
1809.0	Construction of below ground earthing system test pits as per drawing / sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing and specification (excavation & backfilling only will be paid under applicable BOQ items).	each	2	.0000071
1810.0	Construction of below ground earthing system test links as per drawing/ sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing & specification (excavation & backfilling only will be paid under applicable BOQ items).	NO	2	.0000052
1811.0	Construction of below ground earthing system earth electrodes as per drawing and specification. ( Excavation and backfilling only will be paid under applicable BOQ items)	NO	2	.0000013
1812.0	Construction of below ground earthing system - Earth connection and riser pig tails as per drawing and specification. ( Excavation and backfilling only will be paid under applicable BOQ items& steel shall be supplied by BHEL free of cost.)	NO	2	.0000012
1813.0	Providing Earthing pit as per drawing with charcoal & salt, GI pipes, GI earth electrodes, GI wire, GI strips, brick chamber with covers including associated earthwork etc. all complete.	EACH	2	.0000156
1814.0	Construction of below ground earthing system test pits as per drawing/ sketches including brickwork, plaster, concreting, reinforcement, formwork, providing & fixing GI strips/pipes, GI wires, covers etc as per drawing & specification including associated earthwork.	EACH	2	.0000109
1815.0	Providing and fixing GI rungs in concrete/brick walls having zinc coating of minimum 900 g/sqm etc. all complete.	KG	100	.0000024

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<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
1816.0	Providing and fixing PVC pressure release valve of minimum dia 90mm in water retaining structure including 160 mm dia housing pipe of minimum length 3.75 m with perforation as per IS4558, nylon jali, perforated end plug, collar, graded filter, excavation, fixing in concrete slab/wall etc. all complete.	EACH	10	.0000284
1817.0	Providing and laying dry stone pitching of 230 mm thickness for slope protection in cement mortar 1:6 including hammer dressing, raking of joints, pointing, preparing the bedding surface and voids filling with stone aggregate etc. all complete.	SQM	250	.0002196
1818.0	Fire proofing of steel structures with VERMICULITE cementious coating including supply of all materials for vermiculite materials, reinforcement mesh (3mm thick wire, 50x50 size mesh) , nuts, tie wires, weldings, suface preparation, curing, staging, compatible paintings etc. all complete.	CUM	6	.000174
1822.0	Providing & filling Bentonite Powder (Sodium base) mixed with water in electronic earthing pit as per drawing & direction below ground level including all materials, transportation, labour, incidental etc all complete as per specification.	CUM	2	.0000053
1824.0	Disposal of scrap steel, scrap wood, broken packing crates, cable scrap, debris and other civil waste, electrical waste materials etc. from project site to a designated place within 5 KM range, with all manpower T & P etc. including loading and unloading as and when directed by BHEL.	--		
a)	Steel scrap / metal scrap	MT	2	.0000004
b)	Debris & Other waste materials.	CUM	2	.0000001
1827.0	Anti weed chemical treatment of soil with suitable chemical pertaining to the types of weeds found in the vicinity including providing anti-weed/ soil sterilization test certificate, performance guarantee of three years etc. all complete.	SQM	250	.0000004

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**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
1828.0	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	6	.0000001
1829.0	Providing and placing 300mmx300mm size and 75mm thick precast concrete tiles of grade M-20 over 50 mm thick 1cement:4sand mortar on LDPE liner at the bed of reservoir and on side slopes of embankment, filling joints with 1cement : 3sand 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	6	.0000033
1830.0	Supplying, stacking and laying sand of approved quality as sand blanket/cushion over base/bed and on slopes of embankment/canal 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	6	.0000078
1831.0	Providing random rubble (RR) stone masonry in foundation, super structure, boundary wall, retaining wall and embankment with cement mortar 1:6 at all elevations including all labour, material, equipment, handling, scaffolding etc. all complete.	CUM	250	.0003509
1832.0	Providing and fixing sliding layer of bitumen paper or craft paper over the screed layer for water retaining structures to destroy the bond between the screed and the base slab concrete of the water retaining structure etc all complete.	SQM	50	.0000003
1833.0	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	20	.000026

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**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
1834.0	Supplying, stacking and laying 150 mm thick gravel 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	20	.000017
A1837	Supply & fixing 18G chicken wire mesh on brick/ stone masonry and RCC joints and fixed with GI type nails etc. complete	SQM	20	.0000005
A1838	Supply, fabrication and fixing of 20 mm square MS bar balustrades with suitable MS flats & anodized aluminium handrails including transporation, loading/unloading, painting etc. all complete. Measurement shall be running metre of handrail in staircase.	RM	20	.0000206
B1838	Supply, fabrication and fixing of 20 mm square MS bar balustrades with suitable MS flats & CP Teakwood handrails including transporation, loading/unloading, painting etc. all complete. Measurement shall be running metre of handrail in staircase.	RM	20	.0000361
A1839	Providing Chemical injection grouting with pressure pump for water retaining concrete structures conforming to IS:6494, including fixing nozzles, cost of approved cement, admixture, curing etc. all complete . Payment shall be made as per the consumption of chemical grout.	KG	20	.0000116
A1840	Dismantling old existing reinforced/non-reinforced brickwork/ blockwork/ stone masonry work in mud/lime/ cement mortar at any level including clearing/cleaning, stacking the serviceable materials at plant site and disposal of unserviceable materials within a lead upto1km all complete.	CUM	20	.0000087
A1841	Rebate over ST No. A1840 for taking into account the deemed cost of all serviceable material which bidder will be getting out of it by taking them outside plant for bidders purpose instead of stacking at plant site.	CUM	20	-.0000006
A1842	Marking, lettering on floor/ walls with synthetic enamel paint of design & size as per customers instruction, scope incl. cost of material, labour, scaffolding at all heights & all tools, etc. Method of measurement:area of each letter shall be measured equivalent to area of rectangle with sides equal to the letters width and height.	SQM	10	.0001806
A1843	Providing & fixing 150 long MS lug made from 25mmX3mm flat on the structural member for anchoring in brick wall.	EACH	200	.0000005

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
A1847	Providing Rock anchor for required design load including Drilling of drill holes in rock, fixing of the reinforcement (BHEL will provide reinforcement free of cost) in the hole and packing it with Hilti epoxy chemical or Fosroc lockfix or equivalent epoxy grout. The reinforcement bar has to be placed centrally in the hole so that the grout fill the gap uniformly around the reinforcement bar. All other efforts including vertical / horizontal / inclined drilling and expenses required for completing the task shall be included in the rates. Item rate is inclusive of designing and testing of rock anchors of required sample (min 3 nos each dia of bar) to arrive the required design load at various locations directed by BHEL Engineer Incharge.	--		
a.	For the design load of 3MT	--		
i	16mm dia bar with 28dia drill hole	EACH	60	.0000138
ii	20mm dia bar with 32dia drill hole	EACH	60	.0000201
iii	25mm dia bar with 40dia drill hole	EACH	60	.0000297
b.	For the design load of 5MT	--		
i	16mm dia bar with 28dia drill hole	EACH	60	.0000166
ii	20mm dia bar with 32dia drill hole	EACH	60	.0000226
iii	25mm dia bar with 40dia drill hole	EACH	60	.0000344
c.	For the design load of 10MT	--		
i	20mm dia bar with 32dia drill hole	EACH	60	.0000285
ii	25mm dia bar with 40dia drill hole	EACH	60	.000044
iii	28mm dia bar with 40dia drill hole	EACH	60	.0000558

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<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
ISG 1848	Conducting plate load test at specified depth using 600mm x600mm x 25mm mild steel plate as per IS -188 and submission of approved test report etc as per the specification. ( earth work in excavation and back filling shall be paid extra as per relevant applicable item)	EACH	2	.0001001
ISG 1849	Topographical Survey with required details such as levels, co-ordinates for preparation of civil drawings.	SQM	1,000	.0000001
2000. 0	FENCING AND GATES: 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.	--		
2001. 0	Supplying and erecting in position 2.4 m high PVC coated galvanised chain linked fencing of minimum 8 gauge (including PVC coating ) of mesh size 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 confirming 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	100	.0000599
2002. 0	Supplying and erecting in position 2.4 m high galvanised chain linked fencing conforming to IS 2761 of 10G hot dip galvanised steel wires woven in the form of zig-zag mesh giving an opening size of 50 mm square. GI barbed wire fencing of height of 600 mm confirming 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 ST No. 2007)	RM	100	.0000552

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**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
ISG-2003	Supplying and erecting in position 2.4 m high PVC coated galvanised chain linked fencing of minimum 4 mm (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 2.5 mm. Concertina of height of 600 mm at top of chain link fencing shall be provided with all accessories. 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. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 25X6 mm GI flat stretcher bar at end posts etc. all complete. (Structural post shall be separately under ST No. 2007)	RM	300	.0001929
2004.0	Supplying and erecting in position 2.4 m high gavanised chain linked fencing conforming to IS 2761 of 10G hot dip galvanised steel wires woven in the form of zigzag mesh giving an opening size of 50 mm square. Concertina of height of 600 mm at top of chain link fencing shall be provided with all accessories. Concertinal shall be from tensile serrated galvanised wire (HTSW) made with wire diameter of 2.5 mm which will be stretched to 6m and attached on two strands of galvanised HTSSW (high tensile spring steel wire) of 2.5mm dia by means of clips at 1m interval. These two HTSSW strands will be attached to the fence posts/ angles with 12 mm security fasteners. Cost to include for GI hook bolts, rings & washers, hot dip galvanised tension wires, 25X6 mm GI flat stretcher bar at end posts etc. all complete. (Structural post shall be paid separately under ST No. 2007)	RM	100	.0000607
2005.0	Supplying and fixing 600mm high G.I. barbed wire fencing on top of boundary wall consisting of min. 6 nos. strands of barbed wire hot dip galvanised wire of 12G comprising of 2 ply with barbs of 16G spaced at 100mm including GI clips, anchors, accessories etc. all complete. (Structural post shall be paid separately under ST No. 2007/ 2008 as the case may be) Measurement shall be for per running meter of fencing.	RM	100	.0000024

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**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
2006.0	Supplying and fixing 600mm high concertina 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	100	.0000091
2007.0	Supply and fixing of hot dip galvanised mild steel posts for fencing. Rate of zinc coating shall not be less than 710 g/m <sup>2</sup> on steel posts.	MT	2	.0000589
2008.0	Supply, fabrication and fixing of mild steel posts for fencing including painting etc all complete.	MT	2	.0000555
2009.0	Supply, fabrication and installing in position and testing galvanised MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete.	MT	2	.0000639
2010.0	Supply, fabrication and installing in position and testing MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete.	MT	2	.000061
2100.0	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.	--		
2101.0	Providing and fixing in position tested heavy duty type chromium plated (CP) brass long neck bib cocks including sockets, union, nuts etc all complete - 15mm nominal bore.	NOS	26	.0000066
2102.0	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc all complete - 15mm nominal bore.	NOS	26	.0000021

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**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
2103.0	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality including all specials etc all complete for following sizes:	--		
a	25mm nominal bore.	NOS	26	.0000035
b	50mm nominal bore.	NOS	26	.0000062
ISG 2104	Providing and fixing Galvanised MS pipes class B medium class conforming to IS:1239 pipes shall be concealed and painted with anticorrsive paint, complete for internal works with MS sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc all complete for following sizes:	--		
a	15 mm nominal bore.	RM	50	.0000066
b	20 mm nominal bore.	RM	50	.0000073
c	25 mm nominal bore.	RM	50	.0000087
d	50 mm nominal bore.	RM	50	.0000131
2105.0	Providing and fixing GI pipes class B complete for external work with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete for following sizes:	--		
a	15 mm nominal bore.	RM	50	.000005
b	20 mm nominal bore.	RM	50	.0000058
c	25 mm nominal bore.	RM	50	.0000071
d	50 mm nominal bore.	RM	50	.0000116
Ae	32 mm nominal bore.	RM	50	.0000093

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**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
Af	63 mm nominal bore.	RM	50	.0000131
A2106	Providing and fixing 450mmx750mm high square edge 6mm thk float glass mirror of adequate width to match toilet layout and interior decor and as per spec	NOS	6	.0000022
B2106	Providing and fixing large size mirror of 6 mm thick float glass with wooden/ aluminum bead to match toilet lay-out and interior decor and as per spec.	SQM	6	.0000064
2107. 0	Providing and fixing 610mmx127mmx6mm thk clear glass with C.P Guard rails and mounted on C.P. brackets etc all complete.	NOS	6	.0000014
2108. 0	Providing and fixing 25 mm diameter stainless steel towel rails (600mm X 25mm) with C.P. mounting brackets all complete.	NOS	6	.0000014
2109. 0	Providing and fixing 20mm dia chromium plated M.S. pipes wall mounted towel rod with C.P. Brackets etc all complete.	NOS	6	.0000011
2110. 0	Providing and fixing C.P. Soap holder mounted with C.P. screws etc all complete.	NOS	6	.000001
ISG- 2111	Providing and fixing stainless steel liquid soap dispenser. Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc all complete	NOS	6	.0000013
ISG- 2112	Providing and fixing wall mounted stainless steel paper holder with suitable cover cum cutter fitted with screws etc. all complete	NOS	6	.0000008
2113. 0	Providing and fixing chromium plated brass shower rose 100mm dia with 15 or 20 mm inlet dia all complete.	NOS	6	.0000001
2114. 0	Providing & fixing in position P.V.C. water tank of Syntex or approved equivalent including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete for following capacities. GI pipes shall be paid separately under ST No. 2105.	--		
a	500 litres capacity	NOS	2	.000002

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b	1000 litres capacity	NOS	4	.0000079
c	2000 litres capacity	NOS	2	.0000079
d	5000 litres capacity	NOS	2	.0000198
A2115	Providing and fixing SS grab bars, barrier-free access and appropriate fittings and fixtures for toilets for handicapped etc. all complete.	NOS	2	.0000021
2200.0	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.	--		
2201.0	Supply and fixing glazed vitreous china Wash Basin 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.	--		
a	White	EACH	4	.0000046
b	Colored	EACH	4	.0000048
2202.0	Providing and fixing approved vitreous china laboratory sink of size 600x400x200mm conforming to IS:2556 (part-5) with R.S. or C.I. brackets, chromium plated brass chain with rubber plug 40mm, 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	4	.0000035
ISG 2203	Providing and fixing approved stainless steel sink with integrated drainboard as per IS:13983 of size 915x460x178mm with CI brackets, stainless steel chain with rubber plug 40mm, cp brass waste trap with necessary union complete including painting the fittings, cutting and making good the wall where required etc. all complete as per spec.	EACH	2	.0000046

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2204.0	Providing and fixing colour glazed vitreous china European type water closet conforming to IS:2556 with siphon, open front solid plastic seat and plastic cover, low level 12.5 litre PVC flushing cistern (same colour as WC) with valveless fittings, necessary C.P connections etc all complete.	--		
a	Floor mounted	EACH	4	.0000066
b	Wall mounted	EACH	4	.0000124
2205.0	Providing and fixing colour glazed vitreous indian type Orissa pattern (580x440mm) water closet 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.	EACH	2	.0000034
2206.0	Providing and fixing white flat back glazed vitreous china urinals of size 440x265x355 mm with photo voltaic control flushing system as per IS:2556 (part 6, section 1) with flush pipes, lead pipes, gratings, traps and necessary C.P. fittings etc. all complete.	EACH	6	.0000124
A2207	Supply, laying and jointing UPVC pipes of Type B as per IS:13592 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.	--		
a	75mm dia pipes	RM	6	.000001
b	110mm dia pipes	RM	6	.0000014
c	160mm dia pipes	RM	6	.0000038
ISG-2208	Providing, laying light duty non pressure NP3 class RCC pipes with collars or male and female jointed with stiff mixture of cement mortar 1:2 including testing of joints etc all complete for following.	--		
a	200mm dia	RM	6	.000001
b	300mm dia	RM	150	.0000338

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c	450mm dia	RM	150	.0000958
ISG-2209	Providing, laying light duty non pressure NP2 class RCC pipes with collars or male and female jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following.	--		
a	150mm dia	RM	10	.0000013
b	250mm dia	RM	10	.0000017
c	300mm dia	RM	10	.0000018
d	450mm dia	RM	10	.0000024
2210.0	Providing, laying light duty non pressure NP4 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following:	--		
a	450mm dia	RM	6	.0000044
b	600mm dia	RM	6	.0000056
c	900mm dia	RM	6	.0000108
2211.0	Providing and fixing C.I Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture etc. all complete.	EACH	6	.0000054
2212.0	Providing and fixing circular heavy duty C.I. manhole cover of 600 mm dia with frame etc. all complete.	EACH	6	.0000047
2213.0	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:	--		

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<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
a	100x100mm P or S Type.	EACH	10	.0000045
b	150x100mm P or S Type.	EACH	10	.0000047
c	150x150mm P or S Type.	EACH	10	.000005
2214.0	Providing and fixing C.I. floor traps size 100 mm Inlet and 100 mm Outlet Sand Cast Iron S&S as per IS: 1729 with C.P jalli all complete.	EACH	10	.000004
2215.0	Providing and fixing 100mm heavy duty UPVC floor traps with 100 mm inlet and 100 mm outlet & C.P jalli all complete.	EACH	2	.0000008
2216.0	Providing and installing approved brand single tap water cooler of 80 L cooling capacity all complete.	EACH	2	.0000202
2217.0	Providing and installing approved brand single tap water cooler of 150 L cooling capacity all complete.	EACH	6	.0000754
2218.0	Providing and fixing white viterous urinal partitions of size 675x325x85mm all complete.	EACH	6	.0000027
2219.0	Providing and fixing eye and face drinking water fountain (combined unit with receptacle conforming to IS: 10592) all complete as per specification.	EACH	2	.0000151
2220.0	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.	--		
a	75mm dia pipes	RM	10	.0000044
b	100mm dia pipes	RM	10	.0000057
c	150mm dia pipes	RM	10	.0000078
d	200mm dia pipes	RM	10	.000012

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e	250mm dia pipes	RM	10	.0000152
ISG 2221	Providing and fixing Cast Iron Pressure Pipes of Class LA as per IS:1536 for external work with all gaskets, jointing, hydro testing etc. complete including trenching & refilling, anti-corrosive paint etc all complete for following sizes:	--		
a	75mm dia	RM	10	.000005
b	100mm dia	RM	10	.0000072
c	150mm dia	RM	10	.0000107
d	200mm dia	RM	10	.0000162
e	250mm dia	RM	10	.0000193
f	300mm dia	RM	10	.0000243
2222. 0	Providing and fixing HDPE pipes in concrete/ brick work of following sizes including cutting, fixing and levelling in position etc. all complete.	--		
a	Upto 75 mm dia	RM	10	.0000004
b	100 mm dia	RM	10	.0000008
c	150 mm dia	RM	10	.0000017
d	200 mm dia	RM	10	.0000026
ISG- 2222	Supply, laying and jointing HDPE pipes of pressure rating PN 2.5 confirming to IS:4984 in concrete/ brickwork 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 as per specifications for following	--		
a	Upto 75 mm dia	RM	10	.0000004

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b	100 mm dia	RM	10	.0000008
c	150 mm dia	RM	10	.0000017
d	200 mm dia	RM	10	.0000026
2300.0	STRUCTURAL WORKS: Structural steel works including all labour, material (unless otherwise specified in BOQ/contract specification), equipments unless otherwise specified, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.	--		

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2301.0	Fabrication,erection and alignment of structural steel with mild steel rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds/sag rods, monorails, stays, safety chains, ladders, MS grating(For hoppers) etc. in columns, beams, gantry girders, bunkers, silos, hoppers, roof trusses, portals, laced purlins, space frames,hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc including 2 coats of red oxide zinc-chromate primer (one coat at shop and one coat after erection), connection design & preparation of fabrication drgs, collection of steel from stores, fabrication, straightening, cutting, bending, rolling, grinding, machining, drilling, threadingwelding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 20o C for welding over 20 mm and upto 40 mm & 66o C for welding over 40 mm and upto 63 mm & 110o C for thickness over 63 mm & use of low hydrogen/ radiogenic electrodes), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per specification, touch-up painting, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), return of surplus / waste steel materials to store etc all complete. Including appointment of a seperate agency, approved by BHEL, for review and approval of fabrication drgs, in consultation with BHEL (BHEL to supply steel free of cost).	MT	100	.0009016
A2301	Same as 2301 Procurement is in Vendors scope	MT	5	.0001388

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A2302	Extra over ST NO. 2301 for surface preparation by air Blast cleaning of steel structures as per standard specification and applying epoxy resin based zinc rich primer as per specification in two coats of minimum 25 micron (DFT) at shop and 25 micron (DFT) after erection, instead of primer coat of red oxide zinc-chromate, including touch- up painting etc all complete..	MT	100	.0002087
ISG 2305	Providing and applying two or more coats of epoxy paint over primer coat so achieve an even shade over steel sections already having primer coats and keeping overall DFT with primer not less than 110 microns including protection and cleaning, scaffolding etc. all complete.	MT	100	.0001855
2307. 0	Supplying, fabrication, erection and alignment of factory made electroforged galvanised grating units with mild steel having minimum galvanisation conforming to IS:2062 in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete.	--		
a	Minimum galvanisation of 610 g/sqm	MT	25	.000724
2600. 0	LEVELING & GRADING: Levelling & grading 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.	--		
2601. 0	Cutting of trees having girth more than 300 mm measured at a height of 1m above ground level including removal of roots, stacking the serviceable material like trunks, branches etc at specified area within the plant boundary and disposal of unserviceable parts/materials within a lead upto 1km etc all complete.	--		
a	300 mm upto 600 mm girth.	Nos	8	.000001
b	601 mm upto 1200 mm girth.	Nos	8	.0000046
c	1200mm and above.	Nos	8	.0000215

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2602.0	Earth work in stripping of top soil upto a maximum depth of 0.30m below ground level so as to exclude all debris, grass, vegetation, bushes, trees having girth upto 300 mm including roots and organic materials etc for leveling and grading including dressing to specified levels & grades and compacting the graded/stripped surface by manual/mechanical means, disposal of stripped materials within a lead upto 500m etc all complete as per specification, drawing and as directed by the engineer-in-charge.	SQM	800	.0000054
A2602	Earth work in stripping of top soil upto a maximum depth of 0.15m below ground level so as to exclude all debris, grass, vegetation, bushes, trees having girth upto 300mm including roots and organic materials etc for leveling and grading including dressing to specified levels & grades and compacting the graded/stripped surface by manual/mechanical means, disposal of stripped materials within a lead upto 1km etc all complete as per specification, drawing and as directed by the engineer-in-charge.	SQM	214,704	.000727
2603.0	Earth work in excavation below ground level in all types of soil including moorum, ash which can be excavated by any means for grading including setting out, levelling, dewatering (wherever required), dressing the sides & bottom, levelling to grade, all lifts, ramming/compacting the excavated bottom/graded surface, stacking/disposal of surplus excavated materials within a lead upto 500m, spreading/levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	--		
a	Depth below FGL 0 to 2m	CUM	400	.0000107
b	Depth below FGL 2m to 4m	CUM	400	.0000134
2604.0	Earth work in excavation below ground level in soft rock (rock without any recovery of excavated materials in the form of hard stone/boulder) including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc (but does not require chiselling or blasting) for grading including setting out, levelling, dewatering (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking/disposal of surplus excavated materials within a lead upto 500m, spreading/levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	--		

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**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
a	Depth below FGL 0 to 2m	CUM	400	.0000188
b	Depth below FGL 2m to 4m	CUM	400	.0000236
2605.0	Earth work in excavation below ground level in hard rock requiring blasting (but excluding controlled blasting) including wedging, line drilling, pre shearing etc as required for grading, setting out, levelling, dewatering (wherever required), dressing the sides & bottom, all lifts, necessary licenses/statuatory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 500m, spreading / levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	--		
a	Depth below FGL 0 to 2m	CUM	10	.0000008
b	Depth below FGL 2m to 4m	CUM	20	.0000019
c	Depth below FGL 4m to 6m	CUM	50	.000006
2606.0	Earth work in excavation below ground level in hard rock requiring controlled blasting including wedging, line drilling, pre shearing etc as required for grading, setting out, levelling, dewatering (wherever required), dressing the sides & bottom, all lifts, necessary licenses/statuatory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated materials within a lead upto 500m, spreading / levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	--		
a	Depth below FGL 0 to 2m	CUM	10	.0000008
b	Depth below FGL 2m to 4m	CUM	20	.0000019
c	Depth below FGL 4m to 6m	CUM	50	.0000059

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:1885 R1 for Coal Handling Plant - Civil**

**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
2607.0	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 500m, spreading / levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.	CUM	80	.0000457
2608.0	Earth work in filling upto any depth below ground level for grading to proper grade and level in layers not exceeding 300mm loose thickness so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII) with selected approved soil/soft rock directly from excavation within a lead upto 500m and compacted as specified including dewatering if required, sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing etc all complete as per specification, drawing and as directed by the engineer for the following.	CUM	80	.0000007
A-2608	Earth work in filling upto any depth below ground level for grading to proper grade and level in layers not exceeding 250mm loose thickness so as to achieve at least 95% maximum dry density (modified proctor) as per IS-2720 (Part-VIII) with selected approved soil/soft rock directly from excavation within a lead upto 1km and compacted as specified including dewatering if required, sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing etc all complete as per specification, drawing and as directed by the engineer.	CUM	80	.0000008
2609.0	Earth work in filling upto any depth below ground level for grading to proper grade and level in layers not exceeding 300mm loose thickness so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII) with selected approved soil/soft rock from compulsorily excavated earth available within a lead upto 500m and compacted as specified including re-excavation of stacked earth, all lifts, sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing etc all complete as per specification, drawing and as directed by the engineer.	CUM	80	.0000021

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**Tender Specification BHEL:PSSR:SCT:1885 R1 for Coal Handling Plant - Civil**  
**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
A2609	<p>Earthwork in filling upto any depth below ground level for grading to proper grade and level in layers of thickness and procedure as decided at site by Engineer-incharge but not exceeding 500mm loose thickness of each layer so as to achieve required compaction with available hard rock boulders and fine material (i.e soil, soft rock or mix of both) from available stacked excavated material within a lead upto 2Km and compacted as specified including re-excavation of stacked material, watering, ramming/compaction by manual/mechanical means, dressing etc all complete in following manner.</p> <p>Filling with hard rock boulder pieces having size less than 150mm and interstices filled with available stacked soil, soft rock (or both soil &amp; soft rock mix) as fine material and shall be compacted to minimum of 85% of original stack of material after filling the interstices. The item includes for breaking of oversized rock into pieces less than 150mm size by manual or mechanical means including manual picking. ( Compacted filled volume shall be measured for payment.)</p>	CUM	4,000	.0002122
B2609	<p>Earthwork in filling upto any depth below ground level for grading to proper grade and level in layers of thickness and procedure as decided at site by Engineer-incharge but not exceeding 500mm loose thickness of each layer with available excavated hard rock boulders within a lead upto 2Km, interstices filled with borrowed earth and compacted as specified below including re-excavation of hard rock boulders if required, watering, ramming/compaction by manual/mechanical means, dressing etc all complete in following manner.</p> <p>Filling with hard rock boulder pieces having size less than 150mm and interstices filled with approved borrowed earth (soil, sand, moorum, soft/ weathered rock etc) as fine materials (borrowed earth to be arranged by the bidder for all lead &amp; lifts) for filling and shall be compacted to minimum of 85% of original stack of material after filling the interstices. The item includes for breaking of oversized rock into pieces less than 150mm size by manual or mechanical means including manual picking. Required borrowed earth for filling interstices are to be arranged by the bidder and the cost of the same including royalty/seignorage fee etc (if any) is included in this item rate. (Compacted backfilled volume shall be measured for payment).</p>	CUM	31,200	.0027234

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:1885 R1 for Coal Handling Plant - Civil**

**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
C2609	Earth work in filling upto any depth below ground level for grading to proper grade and level in layers not exceeding 250mm loose thickness so as to achieve at least 95% maximum dry density (modified proctor) as per IS-2720 (Part-VIII) with selected approved soil/soft rock from compulsorily excavated earth available within a lead upto 1km and compacted as specified including re-excavation of stacked earth, all lifts, sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing etc all complete as per specification, drawing and as directed by the engineer.	CUM	42,900	.003551
2610.0	Extra over ST No. 2601 to 2609 for carriage of material/earth for every 500m or part thereof beyond an initial lead of 500km.	--		
a	Carriage for stacking/ backfilling of serviceable material/ earth	CUM	80	.0000003
b	Carriage for disposal of serviceable/unserviceable material/ earth	CUM	80	.0000003
2611.0	Earth work in filling upto any depth below ground level for grading to proper grade and level in layers not exceeding 300 mm loose thickness so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII) 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.	CUM	80	.0000119
A2611	Earth work in filling upto any depth below ground level for grading to proper grade and level in layers not exceeding 250 mm loose thickness so as to achieve at least 95% maximum dry density (modified proctor) as per IS-2720 (Part-VIII) with approved borrowed earth (includes soil, rock boulder of specified size and mixture of both) (borrowed earth to be arranged by the bidder) and compacted as specified including supplying borrowed earth, 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.	CUM	4,000	.0005975

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:1885 R1 for Coal Handling Plant - Civil**  
**at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
B2611	Earth work in filling upto any depth below ground level for grading to proper grade and level in layers not exceeding 250mm loose thickness so as to achieve required compaction with approved excavated material from the area within plant boundary and compacted as specified, dewatering if required, sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, testing etc all complete as per specification, drawing and as directed by the engineer. Item includes excavation work in soil and soft rock (i.e., excluding hard rock) for making available approved excavated material (required for filling) from area identified within plant boundary as per direction of engineer - in - charge for all lead and lifts. Compacted backfilled volume shall be measured for payment.	--		
a	Each layer compacted so as to achieve at least 95% maximum dry density (modified proctor) as per IS-2720 (Part-VIII)	CUM	248,380	.010747
C2611	Earthwork in filling upto any depth below ground level for grading to proper grade and level in layers of thickness and procedure as decided at site by Engineer-incharge but not exceeding 500mm loose thickness of each layer with available excavated hard rock boulders within a lead upto 2Km, interstices filled with approved excavated material from the area within the plant boundary and compacted as specified below including re-excavation of stacked material, hard rock boulders if required, watering, ramming/compaction by manual/mechanical means, dressing etc all complete in following manner.  Filling with hard rock boulder pieces having size less than 150mm and interstices filled with approved earth (soil and soft rock or mix of both) excavated from the area within plant boundary (all lead & lifts included) and compacted to minimum of 85% of original stack of material after filling the interstices. The item includes for breaking of oversized rock into pieces less than 150mm size by manual or mechanical means including manual picking. (Compacted backfilled volume shall be measured for payment). CUM	CUM	4,000	.0001731

**Part C : Bill of Quantities**

**Tender Specification BHEL:PSSR:SCT:1885 R1 for Coal Handling Plant - Civil  
at 5 X 800 MW Yadadri TPS**

<b>Ref.No.</b>	<b>Description</b>	<b>Unit of Measurement</b>	<b>Qty.</b>	<b>Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount</b>
2612.0	Providing and laying 225mm thick stone pitching including caulking with 1 cement: 4 sand mortar on the slopes of earth fill/cut with approved quality of rock fragments including materials, testing, necessary excavations if any, compaction etc all complete as per specification, drawing and as directed by the engineer.	CUM	5,600	.0049198
<b>TOTAL Weightage</b>				1.0