

Ref: BHE/PW/PUR/BWT6-CVL BAL-SILO/001/Corri-02

Dt: 26/05/2022

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To
ALL BIDDERS

Sub: Corrigendum-02: Revision in BOQ

Job: Balance Civil, Structural & Architectural work of AHP 2nos. HCSD Silo & 1no. Fly ash silo (with slipform) at 1x660 MW Bhusawal Thermal Power Station, Unit-6, Maharashtra.

Tender Specification Number: BHE/PW/PUR/BWT6-CVL BAL-SILO/001

Bidders to kindly take note of the following:

AA) Revision in BOQ

Part B of CHAPTER XI – BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS of Vol-IA Technical Conditions of Contract (TCC) has been revised and issued along with this corrigendum as file titled “Part-B of Chapter-XI WEIGHTAGES & FACTORS PERTAINING TO SCHEDULE OF QUANTITIES-Revision-01 Dated --/--/2022”

Bidders to note that Total Lump-sum Price for the entire scope of work should be submitted in line with revised Chapter-XI WEIGHTAGES & FACTORS PERTAINING TO SCHEDULE OF QUANTITIES Rev-01 of Vol-I TCC.

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

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

All other Terms and conditions of the Tender Specification shall remain unaltered unless expressly amended by BHEL in writing.

Bidders are requested to submit as a part of Technical Bid, a copy of this corrigendum duly countersigned by the authorized signatory and stamped with the Official seal as a token of Bidder's unqualified acceptance of this corrigendum/ digitally signed.

This letter is hosted as file titled “Corrigendum-02 Clarifications” against Tender ID No 2022_BHEL_12444_1 on e-Procurement Portal of BHEL i.e. <https://eprocurebhel.co.in>.

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

Thanking you,
Yours Sincerely,

AGM & Project Director, Bhusawal site

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Part-B of Chapter-XI WEIGHTAGES FACTORS PERTAINING TO SCHEDULE OF QUANTITIES
Revision-01 dated 26/05/2022

E-Tender Specification No: BHE/PW/PUR/BWT6-CVL BAL-SILO/001				
PART B: % weightage for amount of individual items of Schedule of quantity w.r.t. the total price (as quoted by the bidder in the E-Procurement Portal titled as “Part-C of Vol-II Price Bid”).)				
Scope of Work: Balance Civil, Structural & Architectural work of AHP 2nos. HCSD Silo & 1no. Fly ash silo (with slipform) at 1x660 MW Bhusawal Thermal Power Station, Unit-6, Maharashtra.				
ST NO	Item Description	Unit	Qty	Weightage%
100	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	Earth work in excavation in all types of soil including ash which can be excavated by any means including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1Km , spreading/levelling of disposed materials etc all complete for following depths below ground level.			
a	Depth from ground level but not exceeding 2 m	CUM	175.00	0.0008068528037
b	Depth exceeding 2 m but not exceeding 4 m	CUM	101.50	0.0005849681664
c	Depth exceeding 4 m but not exceeding 6 m	CUM	1.50	0.0000108390008
d	Depth exceeding 6 m but not exceeding 8 m	CUM	1.50	0.0000135651602
103	Earth work in excavation in soft rock (rock without any recovery of excavated materials in the form of hard stone/boulder) including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc but does not require chiselling or blasting including setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1 Km , spreading / levelling of disposed materials etc all complete for following depths below ground level.		-	-
a	Depth from ground level but not exceeding 2 m	CUM	-	-
b	Depth exceeding 2 m but not exceeding 4 m	CUM	50.00	0.0004096366363
c	Depth exceeding 4 m but not exceeding 6 m	CUM	50.00	0.0004915678124
			-	-
107	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 1 Km 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	100.00	0.0003945408679
b	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	2,150.00	0.0094357872659
109	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 1km.			-
a	Carriage for stacking/ backfilling of serviceable material/ earth	CUM	4,300.00	0.0019063002959
111	Supplying and filling sand upto any depth under floors, around foundations, plinths etc. in layers not exceeding 250 mm thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	CUM	50.00	0.0041096300455
200	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.		-	-

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ST NO	Item Description	Unit	Qty	Weightage%
A201	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/pavings, at any depth below finished floor level etc.	CUM	10.00	0.0014031242377
202	Concrete of grade M10 (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc	CUM	87.50	0.0122773373264
204	Concrete of grade M20 (1 part cement, 1.5 part sand, 3 parts of 20 mm graded aggregate by volume) under floors, paving, plinth protection, pipe encasing etc. complete.	CUM	15.00	0.0021046857816
205	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size in foundations/substructure, grade slab, paving, drains, under floors etc at 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.		-	-
Aa	M 20 Grade	CUM	135.00	0.0223894789904
a	M 25 Grade	CUM	115.00	0.0192509792850
206	Providing and laying Design Mix cement concrete of grade conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size 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.		-	-
a	M 25 Grade	CUM	2,125.00	0.3587392944072
b	M 30 Grade	CUM	15.00	0.0025588763781
215	Dismantling concrete work for all types of structures at all levels including stacking of servicable material to a lead of 500 m and disposal of unservicable material upto a lead of 2 km , cutting of reinforcement, labour, equipment, safety precautions etc all complete as per drawings, specification and instructions of engineer in charge.			-
a	Plain cement concrete of all grades	CUM	1.00	0.0000449086049
b	Reinforced cement concrete of all grades	CUM	1.00	0.0000652129311
216	Chipping of concrete in reinforced concrete work , cutting pockets, making openings at all levels and according to shapes, disposal of waste materials upto a lead of 2 km as directed by engineer including equipment, safety precautions, making good the broken surface etc all complete as per specification, drawing, instructions of engineer in charge but excluding cutting of reinforcement.	CUDM	1.00	0.0000019061008
217	Extra over and above ST No 216 for cutting of reinforcement , all sizes and types including labour, equipment, return of cut reinforcement to store etc all complete as per specification, drawings and instructions of engineer in charge. Measurement shall be on the cross sectional area of reinforcement cut.	SQCM	1.00	0.0000001768642
218	Cutting Reinforced concrete with mechanised tools like Core drilling machine etc. for cutting pockets, holes, cores in slab, beam, column or foundation as per direction of engineer in charge.	CUDM	1.00	0.0000077572803
300	FORMWORK: Providing, fixing and removing formwork at all elevations for all structures, as per specifications and including all labour, material, scaffoldings and centering etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.		-	-

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ST NO	Item Description	Unit	Qty	Weightage%
301	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..	SQM	450.00	0.0087977162268
302	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.	SQM	3,720.00	0.0903746232761
304	Providing, fixing and removing formwork in block-outs/pockets and openings (below 0.1 sqm plan area) at all elevations including cutting, formation of all shapes and all other operations required for making the required shape and size all complete as per specification, drawing and instruction of engineer in charge.		-	-
a	Upto 150 mm depth	Each	15.00	0.0001283399763
b	Pockets of depths more than 150mm and upto 300 mm depth	Each	75.00	0.0011171766637
AA306	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 below ground with Slip Formwork complete as per specification and directions of engineer incharge	SQM	4,200.00	0.1645903385022
400	REINFORCEMENT WORK: Reinforcement work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment,		-	-
403A	Transportation, straightening, cutting, bending, placing in position at all level, binding in position of steel reinforcements of TMT steel of grade Fe-500 or 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. (BHEL to supply steel free of cost)	MT	270.00	0.1124322476240
500	Roof Treatment works: Roof treatment works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, curing, sampling, testing etc at all level as per specification, drawings and as directed by engineer - in - charge.			-
501	Providing and laying underbed grading plaster with cement mortar 1:4 (1 cement : 4 sand) and average thickness of 25 mm including preparation of surface, batching, mixing, leveling etc. all complete.	SQM	127.98	0.0006127578093
A503	Providing and laying in-situ light weight foam concrete insulation as per relevant IS Code in suitable panels over roofs followed by a layer of 12 mm thick cement sand plaster 1:4 (1 cement: 4 coarse sand) after the curing period of laid foam concrete and providing of expansion joint at intervals as per the recommendation of manufacturer. The insulating properties shall be such that the thermal conductivity shall not exceed 0.125 Kcal/sqm-hr deg C. The weight of the insulating material shall be from 0.3 to 0.5 gm/cm. Cost shall include making of fillets, cleaning & preparation of surface, expansion joints at suitable intervals etc all complete for following.			-
b	Average 75 mm thickness	SQM	159.97	0.0009573428600

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Scope of Work: Balance Civil, Structural & Architectural work of AHP 2nos. HCSD Silo & 1no. Fly ash silo (with slipform) at 1x660 MW Bhusawal Thermal Power Station, Unit-6, Maharashtra.				
ST NO	Item Description	Unit	Qty	Weightage%
A506	Providing and applying pre-fabricated APP (atactic polypropylene) modified waterproofing membrane with reinforced with non-woven polyester matt of 4 mm thickness (min. 5kg/sqmt) consisting 160 gsm polyester core coated on both sides with APP modified bitumen and finally finished with thermo fusible film laid over a coat of bituminous primer @ 0.27 L/Sqm (IS: 3384) including 18 mm thick cement sand mortar (1:4) with 0.56mm dia galvanized chicken wire mesh interposed layer over waterproofing treatment. The testing of material shall be done from authorised lab and same shall be furnished before execution of work. The vital physical and chemical parameters of the membrane shall be as under: Joint strength in longitudinal and transverse direction at 23°C as 650/ 450N/5cm. Tear strength in longitudinal and transverse direction as 300/250N. Softening point of membrane not less than 150°C. Cold flexibilities shall be up to -2°C when tested in accordance with ASTM, D - 5147. The laying of membrane shall be got done through the authorised applicator of the manufacturer of membrane. Item includes surface preparation, polyscrim cloth /fabric for edges, joints & vulnerable points etc all complete as per specifications and directions of engineer in charge.	SQM	1,474.14	0.0812984212880
510	Providing and laying cement concrete chequered flooring tiles of 22 mm thickness and size 300x300 mm conforming to IS 13801 with 8 mm thick 1:4 cement mortar over the top most layer of roofing treatment in pathway or entire area with fine joints including sealing of joints (silicon/elastomeric sealant) and providing expansion gap in both directions including underbed(as per drawings) filled up with (silicon/elastomeric) joint sealant etc all complete. (Water proofing paid elsewhere)(including cost of cement for tiles making)	SQM	519.03	0.0100783531448
511	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	109.02	0.0004446486681
A511	Providing and applying three 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	123.24	0.0005681833866
513	Providing and mixing water proofing compound conforming to IS:2645 in concrete or cement mortar all complete.	KG	168.27	0.0010592887175
700	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	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	12.00	0.0380974658393
702	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	0.15	0.0005579055319
703	Same as above items 701 & 702 with BHEL supplied material free of cost including loading, transportation, unloading etc. all complete from BHEL store to plant site.		-	-
A	Mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc.	MT	2.25	0.0016555230128
800	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.		-	-

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ST NO	Item Description	Unit	Qty	Weightage%
804	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with ConbextraGP-1 or equivalent as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	0.30	0.0005083038812
1500	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.		-	-
1502	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 roof purlins for cast-in-situ 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 roof slab 100mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 150 kg/sqm during construction between purlins as per manufacturer's 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 purlin 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 roof covered by MS trough metal decking.		-	-
a	Span Upto 1800mm	SQM	390.00	0.0221654029946
1503	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	3.00	0.0021284956379
1700	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.		-	-
1707	Providing and fixing GI down take pipes conforming to IS:1239 /IS:3589 of medium duty all complete for following diameters.		-	-
b	150 mm Dia	RM	105.00	0.0072523666641
1800	MISCELLANEOUS: Miscellaneous works including all labour, material (unless		-	-
1801	Providing and Filling in trenches, plinths, area paving and other underground structures with graded stone aggregate of size range 63 mm to 45 mm in layers not exceeding 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	105.00	0.0070708050973
2300	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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ST NO	Item Description	Unit	Qty	Weightage%
A2301	Taking delivery of steel from BHEL stores / store yard, loading, Transportation, unloading, 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, monorails, stays, safety chains, ladders, MS grating 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 inorganic zinc (85% Zinc) primer (one coat at shop and one coat after erection and final alignment), connection design & preparation of fabrication drgs, collection of steel from stores, fabrication, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 20°C for welding over 20 mm and upto 40 mm & 66°C for welding over 40 mm and upto 63 mm & 110°C for thickness over 63 mm & use of low hydrogen/ radiogenic electrodes), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection		-	-
(a)	Fabrication	MT	1.50	0.0008576356064
b	Erection, alignment, welding Payment Break up: a) Erection : 70% b) Alignment and Welding : 30 %		1.50	0.0004618343491
	a)Erection : 70%	MT	-	-
	b) Alignment and Welding : 30 %	MT	-	-
A2302	Extra over ST NO. 2301 for Shot blast cleaning of steel structures to near white metal surface(Sa 2 1/2) etc all complete.	MT	1.50	0.0002127963753
A2304	Providing and applying minimum total 150 microns DFT of polyamide epoxy paint composed of 77% solids (by volume) in three coats (each coat shall be minimum 50 micron DFT) as finishing coat of approved make and shade to achieve an even shade over steel sections already having primer coats including protection and cleaning, scaffolding etc. all complete.	MT	1.50	0.0002516317174
2307	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	0.75	0.0022238987170
2311	Providing and fixing in position of permanent mild steel bolts (class 4.6 as per IS : 1367 and grade 'C' as per IS: 1363) and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long for structural steel work etc all complete.	KG	375.00	0.0013373170648
2322	Supply, fabrication and fixing of GI pipe hand railing (Min. 1000 mm high, 610 gms/Sqm) of 32 mm/40 mm/ 50 mm dia (Medium Grade) including transportation, loading/unloading, painting etc. all complete..	MT	1.50	0.0057517531246
	Sub Total	A		1.00