

**TENDER SPECIFICATION
BHEL: PSSR: SCT: 2199**

FOR

**Topographical Survey and Geotechnical Investigation
at
1x800MW SCCL Singareni TPP
Stage - II, Telangana Unit-1**

VOLUME –II

PRICE BID

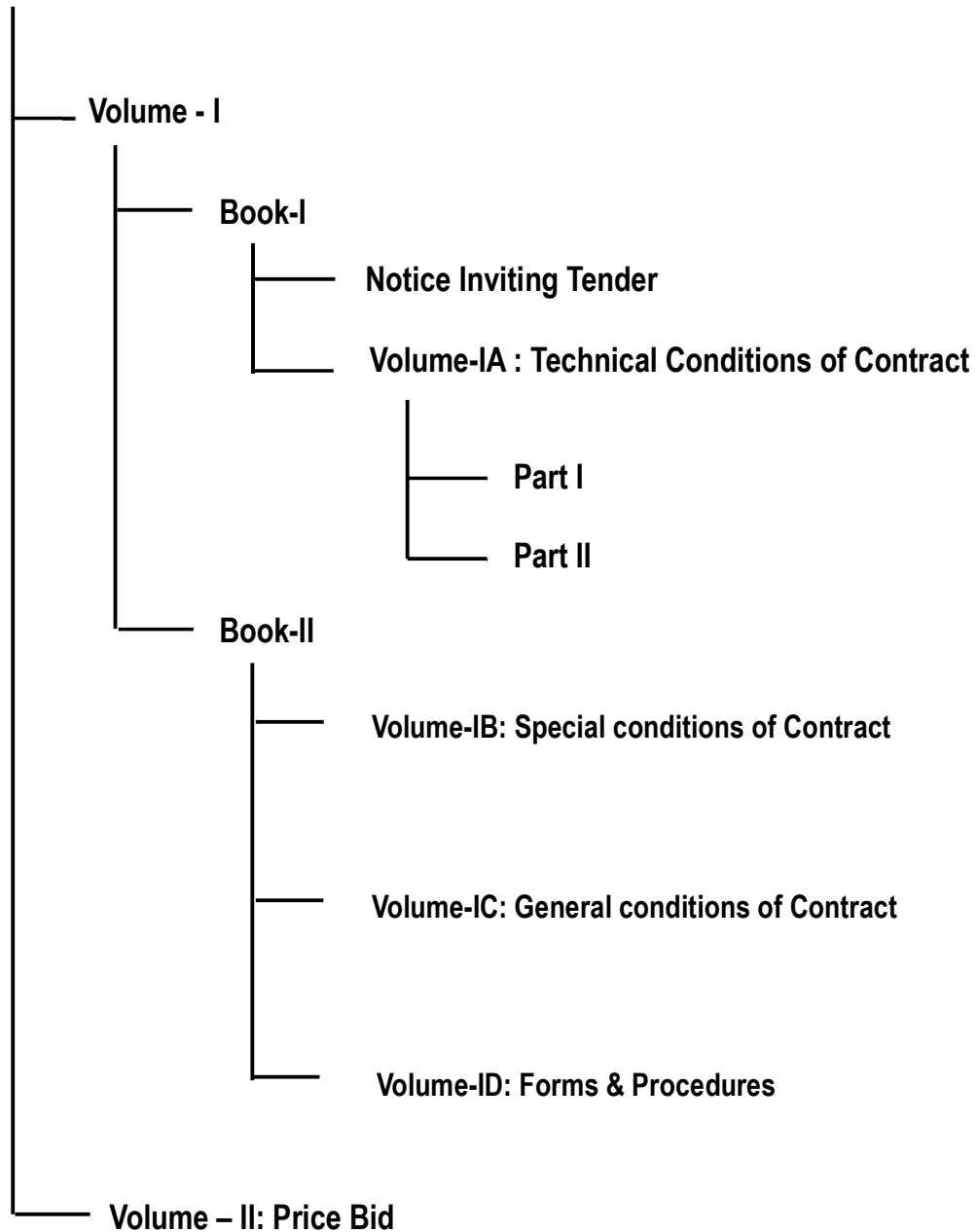


BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India Undertaking)

Power Sector – Southern Region
BHEL Integrated Office Complex, TNEB Road
Pallikaranai, Chennai - 600100

TENDER SPECIFICATION CONSISTS OF

Tender Specification



NOTICE INVITING TENDER

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NOTICE INVITING TENDER

PART A

Instruction to Bidders:

1. The quantity indicated in the BOQ / Price bid (Part C) is approximate only and is liable for variation. Payment will be as per actual quantity executed as certified by BHEL Engineer.
2. Tenderers are requested to affix their company seal and authorized signature in all pages.
3. Bidders shall quote 'Total Amount' in the format enclosed as a separate Excel File in BHEL NIC e-Procurement portal for the subject tender and upload the same under 'Packet details - > Tender covers -> Finance '(Cover Type Description – Price Bid)' and same shall be taken into account for evaluation and awarding and hence, shall be complete in all respect for the full scope of work defined in specification and in accordance with terms & conditions of the tender. Any other entry elsewhere in the price bid shall be treated as Null and Void. Quoting of rates in any other form/ formats will not be entertained.
4. The above mentioned 'Total amount' is for the entire Bill of Quantity (BOQ) given in Part -C of the Price Bid. Total amount shall be excluding taxes.
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.
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 SI 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 SI No.7 above.

Part C : Bill of Quantities					
Tender Specification for Topographical Survey and Geotechnical Investigation works at 1x 800MW SCCL TPP, Telangana at 1x800 MW Singareni Thermal Power Project - Stage II					
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	
A	TOPOGRAPHICAL SURVEY	--			
1.0	Carrying out bench mark from the nearest GTS bench mark or any other available source as approved by the engineer-in-charge to different locations in the project area including clearing of jungles and/or cutting trees and any other works required for completion of the said item etc all complete as per specification and instructions of the engineer-in-charge. (Construction of bench mark pillar to be paid separately)	Km	5	.0052193	
2.0	Carrying out topographical survey of plant and allied areas showing all permanent & general features and detailed contour survey by taking spot levels at 5m interval, carrying out cross section of canal/nallah/pipe corridor by taking spot levels at 5m interval or less including clearance of jungles and cutting of trees etc which are interfering with the survey works and any other field works necessary for the completion of the said item, preparation and submission of all plans (maps), reports, CD and originals etc all complete as per specification and instructions of the engineer-in- charge.	Hectare	170	.0859985	
3.0	deleted	--			
4.0	Construction of bench mark pillar/reference pillar/grid pillar at different locations including clearing of jungles, excavation, supply of materials, pillar marking, backfilling, white washing, painting on MS plate etc all complete as per specification, drawings and instructions of the engineer-in- charge.	--			
a)	Bench mark pillar	Each	5	.0094349	
b)	Grid/reference pillar	Each	10	.015658	
B	GEOTECHNICAL INVESTIGATION	--			

Part C : Bill of Quantities

**Tender Specification for Topographical Survey and Geotechnical Investigation works at 1x 800MW SCCL TPP, Telangana
at 1x800 MW Singareni Thermal Power Project - Stage II**

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
1.0	Mobilisation of necessary equipments, men and materials to the project site for carrying out the geotechnical investigation and demobilisation of the same after completion of all the field works etc all complete as per specification, drawings and as directed by the engineer-in-charge. (Minimum 5 no.of rigs) Note - Payment for this item shall be made against mobilisation as mentioned above including mobilisation of 5 rigs. However, addl. rigs required further to the above quantity in order to meet the schedule, the same is in the scope of Contractor scope without any addl. cost. Also, demobilisation of all the resources shall be done by Contractor after completion of all the field works.	LS	1	.0762826
2.0	Making 150mm nominal diameter bore hole up to a maximum depth of 25 m below ground level at various locations in all types of soil including laterite using suitable approved method of boring including chiselling, cleaning, providing casing pipes as required or as directed; performing standard penetration test at every 1 m interval alternate to collection of undisturbed soil samples up to 10 m depth below ground level and at every 1.5 m interval alternate to collection of undisturbed soil samples beyond 10 m depth, at change of strata and at depths wherever undisturbed soil samples could not be collected; collection of undisturbed sample (UDS) at every 1 m interval alternate to conducting standard penetration test up to 10 m depth below ground level and at every 1.5 m interval alternate to conducting standard penetration test beyond 10 m depth; collection of disturbed soil samples and water samples, sealing and packing of samples, observation such as ground water table etc; transportation of all the collected samples to the laboratory and back filling of boreholes with sand on completion of the same etc all complete as per specification and as directed by the engineer-in-charge for depth below ground level as given below .	RM	650	.1226543
3.0	Core drilling (Nx size) in rock using hydraulic feed rotary drill and double tube core barrel with diamond bit including collection of core samples, performing SPT at locations where core recovery is less than 20%, maintaining continuous record of core recovery and RQD, keeping the cores in wooden core boxes, transporting the cores to laboratory, back filling the holes with 1 part of cement : 3 part of sand grout on completion of the same etc all complete as per specification, drawings and as directed by the engineer-in-charge.	RM	1,000	.562082

Part C : Bill of Quantities

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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
4.0	Excavating trial pit of size 3m x 3m at various locations up to 4m depth below ground level in all types of soil and weathered rock which can be excavated with pick axe/crow bar etc including sheeting or shoring the sides for the purpose of stability, dewatering and maintaining the pit dry at all times, collecting disturbed/undisturbed samples at 1m interval and at final depth and transporting all the collected samples to the laboratory; backfilling of the pit with excavated material etc all complete as per specification and as directed by the engineer-in-charge.	Cum	216	.0177778
5.0	deleted	--		
6.0	deleted	--		
7.0	deleted	--		
8.0	deleted	--		
9.0	deleted	--		
10.0	Conducting electrical resistivity test at various locations complete as per specification, drawings and as directed by the engineer-in-charge.	Each	30	.0204758
11.0	deleted	--		
12.0	Conducting pump in type field permeability test by constant head or falling head method (suitability of type of test shall be as per site conditions) in various boreholes at specified depth including providing packers as required etc all complete as per specification, drawings and as directed by the engineer-in-charge. Cost of the borehole and backfilling etc shall be paid separately as per item no.2.	Each	20	.0192714
13.0	deleted	--		
14.0	deleted	--		
15.0	deleted	--		

Part C : Bill of Quantities					
Tender Specification for Topographical Survey and Geotechnical Investigation works at 1x 800MW SCCL TPP, Telangana at 1x800 MW Singareni Thermal Power Project - Stage II					
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	
16.0	Conducting laboratory test on soil samples at an approved laboratory including preparation of soil samples to determine the following properties etc all complete as per specification.	--			
a.	Bulk density and moisture content	Each	120	.0019271	
b.	Sieve analysis	Each	160	.0035331	
c.	Hydrometer analysis	Each	10	.0002208	
d.	Liquid limit and plastic limit	Each	60	.0014454	
e.	Shrinkage limit	Each	10	.0001847	
f.	Specific gravity	Each	30	.0006022	
g.	Swell pressure	Each	10	.0002208	
h.	Free swell index	Each	10	.0002208	
i.	Relative Density	Each	15	.0007829	
j	Unconfined compressive strength	Each	10	.0003613	
k.	Direct shear test	Each	10	.0003212	
l.	Triaxial shear test	--			
i)	Unconsolidated undrained test (UU)	Each	10	.0003212	
ii)	Consolidated undrained test (CU)	Each	10	.0004818	
iii)	Consolidated drained test (CD)	Each	10	.0006022	
m)	One dimensional consolidation test	Each	5	.0003212	
Page 4				SIGNATURE OF BIDDER WITH SEAL	

Part C : Bill of Quantities

Tender Specification for Topographical Survey and Geotechnical Investigation works at 1x 800MW SCCL TPP, Telangana at 1x800 MW Singareni Thermal Power Project - Stage II

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
n)	Standard Proctor compaction test	Each	5	.000803
o)	deleted	--		
p)	CBR test	Each	10	.0028104
q)	Chemical analysis	Each	10	.000803
17.0	Conducting laboratory test on rock samples including preparation of the samples to determine the following properties etc all complete as per specification.	--		
a.	Moisture content, porosity & density	Each	160	.0041755
b.	Specific gravity	Each	80	.0016059
c.	Slake durability index	Each	80	.0035331
d.	Unconfined compressive strength (both at saturated and insitu water content)	Each	160	.0073874
e.	Point load strength	Each	120	.004577
f.	Hardness	Each	30	.0008431
g.	Soundness	Each	30	.0009636
h.	Deformability (both at saturated and insitu water content)	Each	80	.0064238
17.0	Conducting chemical test on water samples to determine the carbonate, sulphate, chloride and nitrate contents, pH value, turbidity, organic matter and any other chemicals harmful to foundation material etc all complete as per specification.	Each	5	.0016059
18.0	Preparation and submission of draft report in 3 copies and final report in 5 hard copies and 2 soft copies on CD after the approval of draft report including all field records, laboratory test results, graphs, analysis of test results, photo graphs showing details of field tests/soil/rock samples/Trail pits and recommendation etc all complete as per specification.	LS	1	.0180669
				SIGNATURE OF BIDDER WITH SEAL

Part C : Bill of Quantities				
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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
TOTAL Weightage				1.0

Part B: Format to quote Total Amount	
Tender Specification for Topographical Survey and Geotechnical Investigation works at 1x 800MW SCCL TPP, Telangana at 1x800 MW Singareni Thermal Power Project - Stage II	
Total Amount for the entire Bill of Quantities(BOQ) given in Part C	In Figures
	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