



BHARAT HEAVY ELECTRICALS LIMITED
PROJECT ENGINEERING MANAGEMENT, NOIDA

Date-13-Dec-22

CORRIGENDUM- 01

PROJECT	:	2 x 660 MW NTPC TALCHER TPP, STAGE - III
PACKAGE	:	COOLING TOWERS (CT) (NATURAL DRAFT COOLING TOWER)
ENQUIRY NO	:	PE/PG/HER/E-7118/2022 Dated. 26.11.2022
SUBJECT	:	PRE- BID CLARIFICATION

Type of Corrigendum			
Technical Corrigendum -	<input checked="" type="checkbox"/>	Commercial Corrigendum -	<input checked="" type="checkbox"/>

Please note the following:

Reply to Pre Bid Query attached with this corrigendum shall be treated as part of NIT.

Yours faithfully,

For and on behalf of BHEL

Sharad Chandra
Manager/BOP

PRE-BID CLARIFICATION
[ENQUIRY NO. PE/PG/HER/E-7118/2022 DATED 26-11-2022]

NATURAL DRAUGHT COOLING TOWERS FOR 2 x 660 MW NTPC TALCHER THERMAL POWER PLANT, STAGE III AT TALCHER TOWN, ANGUL DISTRICT, ODISHA					
PRE-BID CLARIFICATIONS					
SI No	Reference			Queries	Response from BHEL
	Section	Chapter / Cl. No	Page No.		
COMMERCIAL					
1		21	1 OF 5	As cement and reinforcement steel are free issue items, BHEL should permit globalization of the cement and reinforcement steel quantities without affecting the sum total of the free issue items.	Bidder to follow Tender Specification.
2	Notice Inviting Tender	21	1 OF 5	In case bidder's quoted total cement and total reinforcement steel quantities are less than the specified respective base values, reduced quantities below the base values should be deducted from the quoted price at the specified evaluation rate for determination of the L1 bidder / Total Cost to BHEL excluding GST.	Bidder to follow Tender Specification.
3	Notice Inviting Tender	16	1 OF 5	Basic drawings / documents viz. General arrangement Drawing of NDCT, Civil Design Basis Report, Cooling Tower Technical Data Sheets, Thermal Sizing & Pumping Head Calculations will be submitted within 08 weeks from the date of receipt of clear LOA. This is in line with Clause No 17.00.00 of Section I / Sub-Section IA of Specification No. PE-TS-497-165-N001. Subsequent submission of drawings / documents shall commence only after these basic drawing / documents are approved by BHEL (Purchaser) & NTPC Limited (Owner).	Bidder to follow the conditions indicated in NIT.
4	Notice Inviting Tender	22 (i-a)	1 OF 5	Please confirm that BHEL shall release 5% of the civil work payment against site mobilization and not linking it with installation of the T&P as per Annexure - II. Please confirm.	Bidder to follow Tender Specification.
5	Notice Inviting Tender	22 (ii)	2 OF 5	For the last 10% payment against Civil Work, In case PG test / demonstration test of the cooling tower(s) cannot be completed within one year after completion of commissioning of cooling tower(s), for reasons not attributable to the contractor, BHEL shall release payment towards PG Test / demonstration test of the cooling tower(s) against submission of BG of equivalent amount and BHEL shall bear all the BG expenses. Please confirm.	Bidder to follow Tender Specification.
6	Notice Inviting Tender	28	2 OF 5	BHEL to delete Reverse auction clause as this is a EPC based contract.	Bidder to follow Tender Specification.

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7	Special Conditions of Contract	ANNEXURE-E	--	Price Adjustment Clause / PVC should be applicable for entire duration of contract period. This is standard for all NTPC contracts. Moreover, PVC should not be limited to Plastic, Steel & Electrical Equipment and Labour components only. PVC should be worked out based on NTPC formula and Contractor should be allowed to furnish the list along with assigned co-efficients for items on which PVC should be applicable. This is in line with standard NTPC specification.	Bidder to follow Tender Specification.
8	Special Conditions of Contract	General	--	Following provisions need to be incorporated in SCC / NIT: (a) Timeline for approval of drawing / documents should be available. (b) Provision of Change Order should be incorporated. (c) Provision towards extension of time should be made available. (d) Formal Contract Agreement format is required for our review & comments, if any. (e) Order of precedence should be available.	a) Bidder to follow Tender Specification. b) Bidder to follow Tender Specification. c) Bidder to refer clause no 43 (GCTC) of GCC BOP Rev-00. d) Bidder to follow Tender Specification. e) Bidder to refer clause no 1.6 (ITB) of GCC BOP Rev-00.
9	General Conditions of Contract	11.0	9 of 31	For the last 10% payment against Supply and Erection & commissioning, In case PG test / demonstration test of the cooling tower(s) cannot be completed within one year after completion of commissioning of cooling tower(s), for reasons not attributable to the contractor, payment towards PG Test / demonstration test of the cooling tower(s) should be released on submission of BG of equivalent amount, valid initially for 6 months & to be revalidated till completion of PG test / demonstration test of the cooling towers or till the end	Bidder to refer payment terms as per GCC BOP Rev-00. (Refer Note under Clause no 9.2.1 (GCTC) of GCC BOP Rev-00)
10	General Conditions of Contract	11.0	11 of 31	We request BHEL to reduce the Contract Performance Bank Guarantee amount to 3% of the total contract price (excluding taxes, duties & freight) instead of 5%.	Bidder to follow Tender Specification.
11	General Conditions of Contract	12.0	12 of 31	The guarantee period shall be 12 months from the date of handing over or 18 months from the date of last major despatch whichever is earlier. Please confirm.	Bidder to follow Tender Specification.

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12	General Conditions of Contract	17.0	17 of 31	As per SCC / Clause No 10.0, transit insurance is in BHEL's scope. So we are ignoring this particular GCC clause. Please confirm.	For Supply Packages: Transit Insurance in BHEL Scope. For Turnkey Packages: Transit, Unloading, Storage, Handling, Erection and Commissioning Insurance in BHEL Scope. For each dispatch, vendor shall inform the following to the Underwriter under intimation to BHEL-PEM and BHEL Site office: (i) Policy No. (ii) Consignee Name. (iii) Consignment Details (items with their weights and value (in INR)). (iv) Project Name and P.O. No. (v) LR No. and date, Dispatch origin and destination details, Invoice No. Vendors to intimate the underwriters quoting the insurance Policy No. as mentioned in Purchase Order. And Other Insurance shall be as per GCC BOP Rev-00.
TECHNICAL					
1	Technical Specification No. PE-TS-497-165-N001	Section I / Sub-Section IA - Clause No 8.03.08	7 of 10	Requirement of "Drift loss test" shall be deleted.	Bidder to follow specification.
2	Technical Specification No. PE-TS-497-165-N001	Section I / Sub-Section IA - Clause No 11.00.00 b	8 of 10	There is a contradiction between this clause and Clause No 2.10 of DATASHEET-A. Please clarify whether the guaranteed pumping head is only the static head above the FGL to centre line elevation of the hot water distribution header or the total head with friction losses to be guaranteed.	Bidder to follow datasheet-A clause no. 2.10, guaranteed Pumping head permissible viz. static head excluding frictional losses (Friction losses are considered by BHEL). Static lift from FGL up to the centre line elevation of hot water distribution header at Cooling Tower (To be guaranteed by bidder).
3	Technical Specification No. PE-TS-497-165-N001	Clarafication No 01 / SI No 1327	--	Flushing arrangement should be arranged by BHEL. Kindly confirm.	Bidder to follow specification.
4	Technical Specification No. PE-TS-497-165-N001	Section I / Sub-Section ID DATASHEET-A / Clause No 8.9	4 of 6	In case bidder opts for V-bar type splash fill, the fill bars shall be supported on SS-316L grids which in turn will be supported from RCC beams. Please confirm.	Bidder to follow specification.
5	Technical Specification No. PE-TS-497-165-N001	Section I / Sub-Section ID DATASHEET-A / Clause No 8.9	4 of 6	Kindly confirm the final MOC for staircase, handrail on staircase and walkway (internal & external).	Bidder to follow specification.

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6	Technical Specification No. PE-TS-497-165-N001	ANNEXURE-II / Layout Drawing	--	(a) Please provide NDCT layout drawing with related borehole numbers. (b) Battery limit under Vendor scope is not clear from this drawing. Battery Limits for Cold water Duct, Hot Water duct, Outlet Channel, Sludge Pipe to be clarified / marked clearly in the drawing for better understanding of our scope. The terminal points may be linked to the centre line of the NDCTs. (c) Location of the sludge pit needs to be marked in the drawing.	a) NDCT layout drawing with bore holes enclosed. b) NDCT layout with revised coordinates and battery limits is attached with this clarification. c) Sludgpit location shall be decided during detail engineering.
7	Technical Specification No. PE-TS-497-165-N001	Section VI / Part B of Bid Doc No CS-4540-001A-2 / Sub Section IID / Clause No 1.00.00	1 of 13	Kindly confirm that removal and disposal of identified facilities / structures / substructures / foundations of reinforcement, pavement/paving, pipes and any underground structure/materials, debris etc. are excluded from Cooling Tower contractor's scope.	Bidder's understanding is correct.
8	Technical Specification No. PE-TS-497-165-N001	Section VI / Part B of Bid Doc No CS-4540-001A-2 / Sub Section IID / Clause No 1.00.00	4 of 13	We understand that Cooling Tower vendor's scope does not include items listed under SI Nos 7 & 8. This should be excluded / deleted / struck out.	Bidder's understanding is correct.
9	Technical Specification No. PE-TS-497-165-N001	Section VI / Part B of Bid Doc No CS-4540-001A-2 / Sub Section IID / Clause No 1.00.00	6 of 13	We understand that items listed under SI No 13 / CW system Civil, Structural and Architectural works" are excluded from Cooling Tower vendor's scope. This should be excluded / deleted / struck out.	Bidder's understanding is correct.
10	Technical Specification No. PE-TS-497-165-N001	Section VI / Part B of Bid Doc No CS-4540-001A-2 / Sub Section IID / Clause No 1.00.02	11 of 13	As per this Clause, "The plant lies in the corrosive category C3 as per ISO 12944. Protection measures shall be provided as specified in Part-B of Technical Specifications". Kindly clarify this requirement. Also please elaborate on protective measures to be adopted for cooling tower.	Bidder to refer part B of technical specifications (Civil specification - Book 2 of 2)
11	Technical Specification No. PE-TS-497-165-N001	Section VI / Part B of Bid Doc No CS-4540-001A-2 / Sub Section IID / Clause No 2.01.00	11 of 13	As per this clause, for "Development of Bidders temporary staff colony" and labour colony along with toilets & fencing etc. Bidder may use Area-A for Labour Colony". Kindly furnish the document No. / page no.of specification where information about Area-A is available.	Area will be allotted by BHEL/Customer during actual mobilisation within 2.5 km from plant boundary.
12	Technical Specification No. PE-TS-497-165-N001	Section VI / Part B of Bid Doc No CS-4540-001A-2 / Sub Section IID / Clause No 2.02.00	11 of 13	As per this clause construction water may be provided by Owner at one point near existing Stage-II reservoir. Please confirm the distance between this reservoir and the Cooling Tower(s).	Construction water point shall be approximately 500 meter from working area.
13	Technical Specification No. PE-TS-497-165-N001	Section VI / Part B of Bid Doc No CS-4540-001A-2 / Sub Section IID / Clause No 2.02.00	12 of 13	It is mentioned that " Construction power (three phase, 415 V/ 440 V) will be provided free of cost at one point near the site at a distance of approx. 500M". This is acceptable if the Batching Plant is allowed near the Cooling Tower. If Batching plant is located elsewhere / in laydown area, separate power connection to be provided near the Batching Plant. Please confirm.	If Batching plant is located elsewhere / in laydown area, separate Construction power connection (three phase, 415 V/ 440 V) will be provided free of cost at one point near the batching plant at a distance of approx. 500M"

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14	Technical Specification No. PE-TS-497-165-N001	Section VI / Part B of Bid Doc No CS-4540-001A-2 / Sub Section D-1-7 / Clause No 5.17.01.01 (B)	49 of 120	For design consideration for wind pressure reference of "Criteria for structural design of Reinforced concrete Natural Draft Cooling Tower " IS 11504 and wind pressure co-efficient (p1) as 1.43 is mentioned in this clause. But as per latest code IS 11504-2020 , there is no such factor as 1.43. Please clarify.	Bidder to follow design criteria mentioned in technical specification.
15	Technical Specification No. PE-TS-497-165-N001	Section VI / Part B of Bid Doc No CS-4540-001A-2 / Sub Section D-1-7 / Clause No 5.17.01.02.03 (F - a)	55 of 120	We request BHEL to confirm minimum thickness of shell to be 250 mm in case meridional ribs are provided in the cooling tower shell.	Bidder to refer technical specification clause no. 5.17.01.02.03 "D" & "F"(section-VI,PART-B,SUB-SECTION-D-1-5).
16	Technical Specification No. PE-TS-497-165-N001	Section VI / Part B of Bid Doc No CS-4540-001A-2 / Sub Section D-1-7 / Clause No 5.17.01.02.03 (F - b)	55 of 120	Co-efficient of Pr. Distribution around the cooling tower circumference including suction may be taken as VGB-BTR KUCHLTURMEN GERMAN SPECIFICATIONS (latest). Please confirm if we can use IS: 11504 -2020 in place of VGB-BTR KUCHLTURMEN GERMAN SPECIFICATIONS (latest) for co-efficient calculation.	Bidder to comply the specification requirement.
17	Technical Specification No. PE-TS-497-165-N001	Section VI / Part B of Bid Doc No CS-4540-001A-2 / Sub Section D-1-7 / Clause No 5.17.01.02.03 (F - b)	58 of 120	Since this is a lumpsum EPC contract, mention of word "BOM" is therefore ignored by us.	Bidder to comply the specification requirements. Detailed BOM shall be included in every deliverables.
18	Technical Specification No. PE-TS-497-165-N001	Section VI / Part B of Bid Doc No CS-4540-001A-2 / Sub Section IID / Clause No 5.17.03.01	59 of 120	As per this clause "Automatic Climform scaffolding system or Jumpforms shall be used for tower shell construction". Kindly note that we will be using Jumpform system which is Electrical Mechanical operated and not Automatically operated.	Bidder to comply the specification requirement.
19	Technical Specification No. PE-TS-497-165-N001	Section VI / Part B of Bid Doc No CS-4540-001A-2 / Sub Section IID / Clause No 5.18.01.06	70 of 120	We understand that "MUWPH Inlet Channel" is outside Cooling tower contractor's scope. This should be excluded / deleted / strucked out.	Bidder's understanding is correct.
20	Technical Specification No. PE-TS-497-165-N001	Section VI / Part B of Bid Doc No CS-4540-001A-2 / Sub Section IID / Clause No 5.18.01.10	73 of 120	We understand that "Switch Gear / Control Room/ Remote IO room for CWPH, RWPH and MUWPH" is outside Cooling tower contractor's scope. This should be excluded / deleted / strucked out.	Bidder's understanding is correct.
21	Technical Specification No. PE-TS-497-165-N001	Section VI / Part B of Bid Doc No CS-4540-001A-2 / Sub Section IID / Clause No 5.18.02.00	73 of 120	We understand that "MUWPH Piping Works" is outside Cooling tower contractor's scope. This should be excluded / deleted / strucked out.	Bidder's understanding is correct.

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22	Technical Specification No. PE-TS-497-165-N001	Section VI / Part B of Bid Doc No CS-4540-001A-2 / Sub Section IID / Clause No 5.18.03.02	83 of 120	Kindly furnish the distance of the disposal area from the excavation point. Kindly confirm that same should be located inside the plant boundary only.	Disposal area from excavation point shall be approximate 4 km.
23	Technical Specification No. PE-TS-497-165-N001	Section VI / Part B of Bid Doc No CS-4540-001A-2 / SubSection D-1-7 / Clause No 7.01.00	1 of 12	As per this clause, NGL is varying between RL (+) 64.9 M and RL (+) 67.0 M. But as per enclosed Bore Hole details for (BH-10 to BH-18) & (BH-149-157), NGL is varying from RL 71.425 M to RL 68.122 M. Please clarify why there is so much difference in the levels.	Please note that the variation of NGL mentioned in clause no 7.01.00 is for proposed Admin building, fire station, permanent store, Workshop building and gate complex area. Bidder is requested to refer bore logs of NDCT area for actual variation in NGL (for Bore Holes in NDCT area, refer attachment against SI.no 6(a) above).
24	Technical Specification No. PE-TS-497-165-N001	Section VI / Part B of Bid Doc No CS-4540-001A-2 / SubSection D-1-9 / Clause No 9.08.00	7 of 31	We understand that "COLOUR COATED AND OTHER SHEETING WORK" is outside Cooling tower contractor's scope. This should be excluded / deleted / struck out.	Bidder's understanding is correct.
25	Technical Specification No. PE-TS-497-165-N001	Annexure - II	--	T&P shall be mobilized and installed by us as per our design and based on overall completion schedule and not necessarily as per the T&P list furnished in Annexure - II. Some of our comments on the T&P list furnished in Annexure - II are: (a) SI No F – Minimum twenty (20) Sets to be replaced with Minimum Ten (10) sets (b) SI No G – We understand that this is applicable against ring beam / raft below GL. Kindly confirm.	a) Bidder to follow tender specifications. b) Vendor understanding correct Vendor to follow minimum requirement mentioned in listed T&P. For balance requirement mutually agreed PLAN to be made during mobilisation.
26	Technical Specification No. PE-TS-497-165-N001	Annexure - III	--	Kindly confirm whether " One ash silo" need to be included in Cooling Tower contractor's scope.	One ash silo to be included in cooling tower contractor scope.
27	Technical Specification No. PE-TS-497-165-N001	Annexure - IV	--	Point 3 suggests "BHEL is planning to supply TMT in coil form. Vendor to deploy D Coiling machine". Please note D coiling machine is required for TME of smaller diameter. Generally usage of such small diameter TMT is very rare in NDCT projects. Hence we request BHEL to take suitable action and supply straightened bar. Hence this point needs to be modified suitably based on project requirement.	Bidder to follow tender specification.

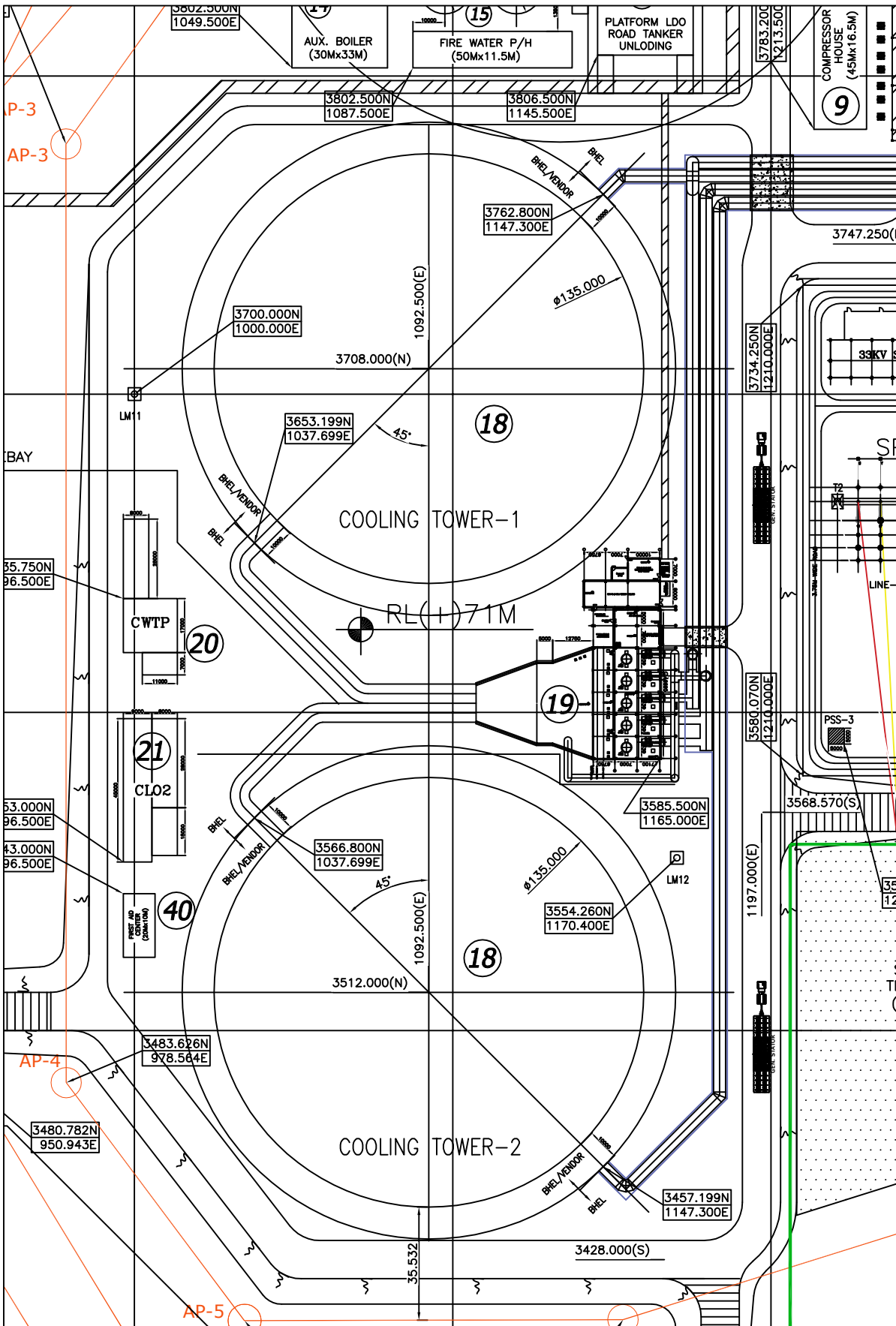
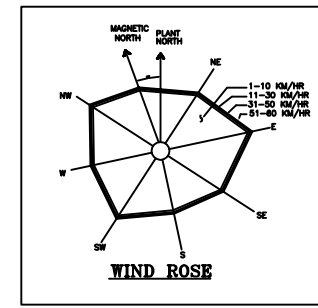
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28	Technical Specification No. PE-TS-497-165-N001	Amendment No 01 / SI No D1-39	--	As per this point, exterior surfaces of cooling tower shell and all surfaces of raker columns shall be given three coats of waterproof cement paint of approved make and colour. All concrete surfaces below Eliminator level such as internal surface of CT shell, all surfaces of raker columns, beams & internal columns, platforms, walkways and any other RCC/PCC components shall receive high build heavy duty polyurethane. The detailed specification of the coating system on concrete surfaces is given in Annexure Q. However as per Tendernotice 3 page 151, clause D-1-12(M) / Annexure M, High Performance Moisture Compatible Corrosion Resistant Coating System manufactured as per technical specifications of Central Electrochemical Research Institute, Karaikudi to be provided. Kindly clarify which specification has to be followed.	Bidder to follow specifications.
29	Technical Specification No. PE-TS-497-165-N001	Section VI / Part B of Bid Doc No CS-4540-001A-2 / Sub Section D-1-12 (F) / Clause No 1.4.0	2 of 4	Kindly confirm that the soil data provided elsewhere (Volume IIB / Section C & Annexure-I) in the specification is for cooling towers' location only. Also confirm that there will be no possibility of shifting of cooling tower location in future. For bidding purpose we will be following the available soil investigation report only and any price / time implication due to change in our bid consideration due to any variation between actual soil condition and available soil report should be borne by Purchaser.	It is confirmed that soil data provided in Annexure-1 is for NDCT area. Please refer clause no 3.00.00 of Volume IIB / Section C, sheet 1 to 8 for clarity. Regarding cooling tower location the tower centre line may shift by 10 to 15 meters depending on size provided by successful bidder.
30	Technical Specification No. PE-TS-497-165-N001	Annexure - Q	--	The proposed cooling towers will be handling clarified water. Hence kindly confirm whether this specification mentioned as applicable for concrete surfaces in sea water application will be applicable or not for this project.	Pl. follow this specifications for painting/coating.
31	Technical Specification No. PE-TS-497-165-N001	Section C / Sub-Section C&I	--	1. Please provide detailed technical specification, P&ID, relevant piping drawings and approved sub vendor list for each item listed under SI No 1.1 thru 1.4 listed under Specific Technical Requirements (C&I). 2. Also please provide C&I Cable, JB scope terminal point information for the MOV Signals.	1. Detailed technical specification for items listed under SI.no 1.1 to 1.4 are already covered in specification (Section - IC). Sub vendor list is also annexed with Section - IC. 2. C&I cable is in BHEL scope of supply. Special cable, if any shall be supplied by bidder. Further, cable engineering i.e. cable schedules and interconnections to be provided by bidder.

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32	Technical Specification No. PE-TS-497-165-N001	Section VI / Part B of Bid Doc No CS-4540-001A-2 / Sub Section IIIC-17	3 OF 4	<p>Please provide the the approved sub-vendor list for MOV Valve and actuator.</p> <p>Also please clarify the scope of the MOV Cables, JB's and traywork. We understand that all these referred items are in Purchaser's scope.</p>	<p>Sub vendor list is already part of the specification(Pg-165 of 464).</p> <p>Kindly refer Electrical scope matrix for Cable, Junction box and cable tray (Section - IB)</p>
33	Technical Specification No. PE-TS-497-165-N001	Section C / Sub-Section C&I	--	<p>We understand that there is a requirement to consider Averaging Type Pitot Tube or Annubar along with DP Type Flow transmitter SMART HART type. Please review and confirm.</p> <p>Also furnish the approved sub vendor list and detailed technical specification for SMART HART type DP Flow transmitter.</p>	<p>DP Flow transmitter shall be of Profibus type . The specification for same is attached herewith.</p>
34	Technical Specification No. PE-TS-497-165-N001	Section VI / Part B of Bid Doc No CS-4540-001A-2 / Sub Section IIIC-04	20 of 34	<p>Please inform the quantity of these items required to be included in scope.</p>	<p>Please refer PG test details mentioned in specification (Book 1 of 2) for quantity of the items to be supplied. For balance items wherein quantity is not mentioned, codal requirement shall be followed.</p>
35	Technical Specification No. PE-TS-497-165-N001	HSEP: 14 / Clause No 11.44 / SI No 10	82 of 190	<p>Clause Suggest "Tie up with fire brigade shall be done in case customer is not having fire station". Please note this should remain sole responsibility of Purchaser only.</p>	<p>FIRE tender arrangement is not in vendor scope. Vendor to follow FIRE extinguisher requirement as mentioned in HSE chapter.</p>

ANNEXURE-II (Revised co-ordinates and Battery limits)

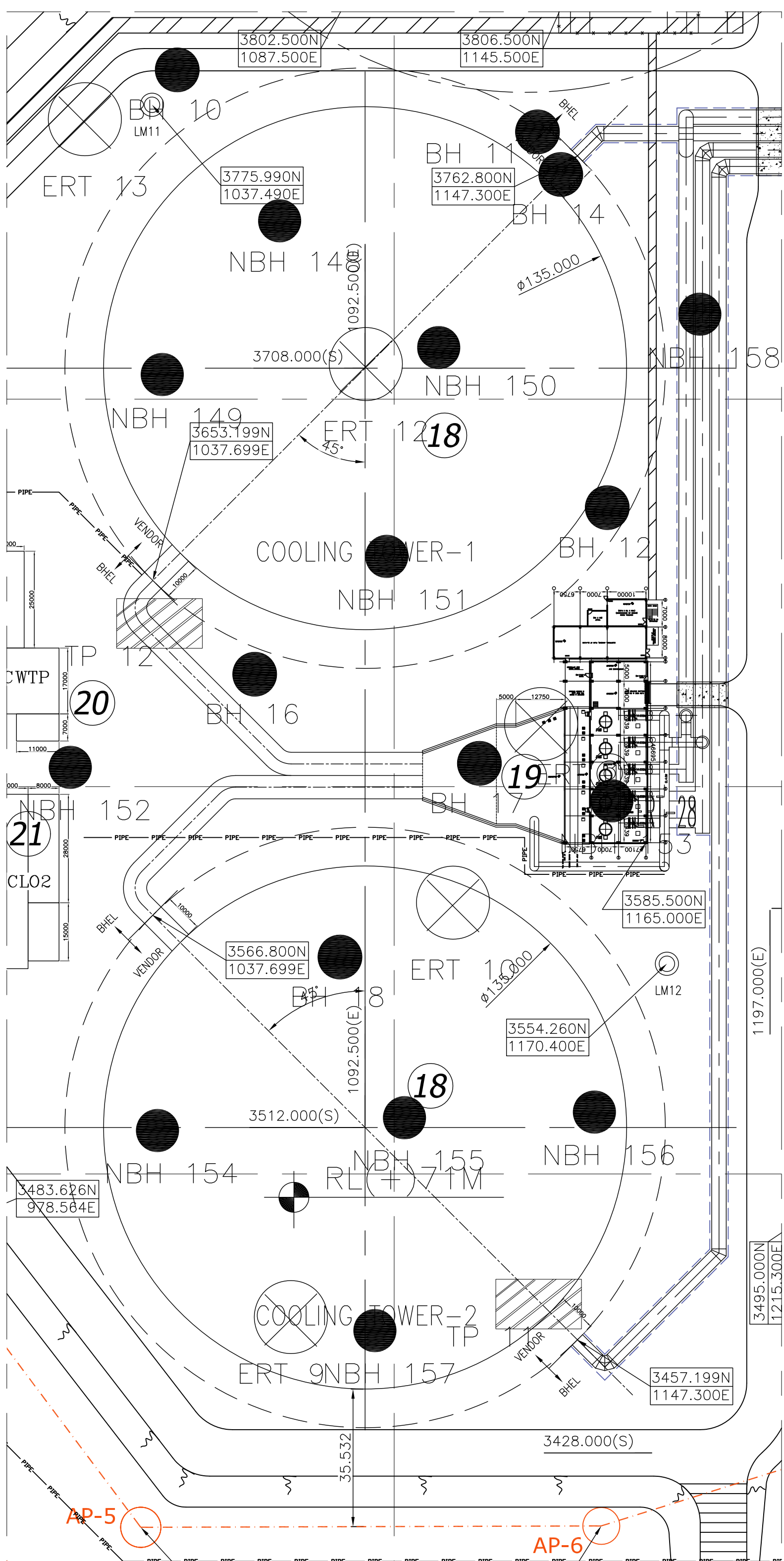


REV 01


Note:

1. THE ISOLATION VALVES FOR HOT WATER RISERS SHALL BE IN VENDOR'S SCOPE WITH RISERS TAPPED FROM WITHIN BIDDER SCOPE OF HW HEADER.
2. CENTRE LINE ELEVATION OF COMMON HEADER IS (-) 3.8 M.

NDCT layout with Bore holes



Annexure for DP type flow transmitter

CLAUSE NO.	TECHNICAL REQUIREMENTS																	
2.00.00	SPECIFICATION FOR ELECTRONIC TRANSMITTERS																	
2.01.00	<p>SPECIFICATION FOR ELECTRONIC TRANSMITTER FOR PRESSURE, DIFF PRESS AND DP BASED FLOW / LEVEL MEASUREMENTS</p> <p>Microprocessor based 2 wire loop powered electronic transmitter with 4-20 mA DC HART/ Fieldbus (Foundation Fieldbus /Profibus PA complying to IEC 61158.) output signal shall be provided.</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th style="width: 25%;">Range</th> <th style="width: 25%;">Accuracy (For calibrated Range)</th> <th style="width: 25%;">Turndown (For span)</th> <th style="width: 25%;">Stability (% of Calibrated range)</th> </tr> </thead> <tbody> <tr> <td><=400mmwc</td> <td>0.1%</td> <td>20:1</td> <td>+/-0.2% for 1 year</td> </tr> <tr> <td>>400mmwc</td> <td>0.060%</td> <td>50:1</td> <td>+/-0.25 % for 10 year</td> </tr> <tr> <td>>250 kg/cm²</td> <td>0.065%</td> <td>10:1</td> <td>+/- 0.15 % for 5 years</td> </tr> </tbody> </table> <p>Above parameters/features of offered models shall be strictly as defined in standard published catalogue of the manufacturer only.</p> <p>Transmitter shall have weather proof IP-67 metallic housing with durable corrosion resistant coating, integral digital display with self-indicating diagnostics, Plug and socket type electrical connection for HART and ½ "NPT (F) for Fieldbus type Transmitter, calibration using HART/Fieldbus calibrator, 2/3/5 Valve non integral manifold and rack with canopy. For HART transmitter SIL 2 certification is required.</p> <p>For primary air and flue gas applications, DPT shall be provided for pressure measurement below range of 2000 mmwc.</p> <p>For corrosive, viscous, solid bearing, slurry type process fluids, suitable diaphragm seal shall be provided. Parts below seal shall be removable for cleaning. Entire volume shall be completely filled with inert liquid suitable for instruments. LVDT type transmitter is not acceptable.</p>	Range	Accuracy (For calibrated Range)	Turndown (For span)	Stability (% of Calibrated range)	<=400mmwc	0.1%	20:1	+/-0.2% for 1 year	>400mmwc	0.060%	50:1	+/-0.25 % for 10 year	>250 kg/cm ²	0.065%	10:1	+/- 0.15 % for 5 years	
Range	Accuracy (For calibrated Range)	Turndown (For span)	Stability (% of Calibrated range)															
<=400mmwc	0.1%	20:1	+/-0.2% for 1 year															
>400mmwc	0.060%	50:1	+/-0.25 % for 10 year															
>250 kg/cm ²	0.065%	10:1	+/- 0.15 % for 5 years															
TALCHER THERMAL POWER PROJECT STAGE-III (2X660 MW) EPC PACKAGE	TECHNICAL SPECIFICATIONS SECTION – VI, PART-B BID DOC. NO.:CS-4540-001A-2	SUB-SECTION-IIIC-04 MEASURING INSTRUMENTS (PRIMARY & SECONDARY)	PAGE 2 OF 34															