BHARAT HEAVY ELECTRICALS LIMITED

PROJECT ENGINEERING MANAGEMENT, NOIDA

Date-24-Jul-25

CORRIGENDUM- 01

PROJECTs	**:**	**KODERMA TPS PH-II (2x800 MW)**
PACKAGE	**:**	**WATER TREATMENT PACKAGES**
ENQUIRY NO	**:**	**77/25/6070/SAN Dated 07.07.2025**
SUBJECT	**:**	**TECHNICAL AMENDMENT + PRE-BID CLARIFICATIONS**

Type of Corrigendum			
Technical Corrigendum -	☑	Commercial Corrigendum -	☑

Bidders are requested to note the following -

1. Refer attached BHEL Replies to Pre-Bid Clarifications
2. Refer attached Technical Amendment – 1
3. Type of Agreement mentioned at s.no 3 of NIT may be read as Project.

All the other terms and conditions of the tender enquiry remain unchanged. All the bidders are requested to quote accordingly.

Yours faithfully,
For and on behalf of BHEL

SANJEEV KUMAR

Sanjeev Kumar
Engineer/BOP

Sl.No.	Specification reference	Specification requirement	Bidder's query/ statement of clarification	BHEL'S Reply
1	Page 3247 of 5195	Plot plan	RL 373.0 M shown in plot plan. Query: - Vendor assuming RL. 373.0 M as FGL. Please confirm.	Confirmed.
2	Page 3247 of 5195	Borrow Earth	As per given FGL and NGL from Contour map. Bidder has to fill plot with borrow soil. Please confirm availability of Borrow Soil within premises or graded site to be handed over to the bidder.	Bidder has to Borrow Soil from outside plant premises. Bidder has to arrange same of their own
2	GENERAL CIVIL	Fabrication & storage yard	As per bidder 's understanding, Owner shall provide space for fabrication work, Storage of construction material and other structural, piping materials etc., Please confirm area and distance from working area to storage area.	Space for fabrication work, Storage of construction material and other structural, piping materials etc. will be provided inside plant premises as per availability.
3	GENERAL CIVIL	Space for Batching plant	As per bidder 's understanding, Owner shall provide space for Concrete Batching Plant. Please confirm area and distance from working area to storage area.	Space for Concrete Batching Plant will be provided inside plant premises as per availability.
4	GENERAL CIVIL	Work Permit	QUERY: As it is working refinery Please confirm work permit requirements.	Work permit will be required and will be issued by BHEL's HSE Deptt.
5	GENERAL CIVIL	Working Hours	1.0 What will be allowable normal working hours? 2.0 Working for late hours beyond normal will be permitted or not	1) Allowable normal working hours is from 8 am to 5.30 pm. 2) Working is permitted round the clock, i.e. 24 Hours.
6	GENERAL CIVIL	FENCING AND BOUNDARY WALL:	As per Scope Fencing and boundary wall are not in contractor 's scope. Kindly confirm	Confirmed.

Sl.No.	Specification reference	Specification requirement	Bidder's query/ statement of clarification	BHEL's Reply
1	Lime Dosing System P 36 of 5195	It is indicated on this page that the complete waste water neutralization system shall be automated and controlled from the control room (DCS control system-by BHEL).	However, in C & I Annexure I under sr. 23 on page 1629 control system type indicated is Local Panel + FGD DDCMIS is indicated and Local Panel in Bidder's scope is indicated. Please clarify what is required in Local control panel.	This shall be decided during detailed engineering.
2	Chemical Dosing System P 20 of 5195	It is indicated on this page that the control of all dosing systems shall be realized in DDCMIS	However, in C & I Annexure I under sr. 21 on page 1629 it is indicated that Local Panel in Bidder's scope + DCS panel in BHEL scope Please clarify what is required in Local control panel.	This shall be decided during detailed engineering.
3	Sweage Treatment Plant (STP) P 42 of 5195	It is indicated on this page that Control of Complete Sewage treatment plant 1, 2 & 3 located in WTP Island 1, 2, 3, 4 & 5 shall be from Micro processer-based control system and same shall be in bidder's scope. However, STP plant can also be controlled from DDCMIS (DCS) based control system	Please clarify whether the Bidder supplied control system is to be placed locally in the Sewage treatment plant or it is to be installed in Water system control room.	Micro processer-based control system shall be located locally inside the building.
4	CONDENSATE POLISHING UNIT (CPU OR CPP) P 50 of 5195	It is indicated on this page at Sr. 17 that All analysers (Sodium, silica, conductivity, pH etc) shall be provided in air-conditioned panel/cabinet. Air conditioning equipment required for all analysers panel shall be in bidder's scope.	1. We understand that pH, conductivity analyzers are filed mounted analyzers and hence NOT required to be mounted in Airconditioned panel. Please confirm our understanding. 2. For Special Analyzers like Sodium Silica we understand that we have to provide Panel with Air conditioner. 3. We understand that the CPU plant area is SAFE Area NOT Hazardous area Zone 2 or Zone 1. Please confirm our understanding	Specification requirement is clear in this regard. All analysers (Sodium, silica, conductivity, pH etc) shall be provided in air-conditioned panel/ cabinet. Air conditioning equipment required for all analysers panel shall be in bidder's scope.
5	C & I for Water Package P 1607 of 5195	It is indicated in Sr. 3 on this page that PT/DPT/TT and control valve positioner shall be Profibus DP based for Open & Closed Loop.	1. We understand that all other instruments like Magnetic Flowmeter, Vortex Flowmeter, Level Transmitter, All type of Analyzers, etc shall be conventional type with 4-20 mA output. Please confirm our understanding. 2. We understand that Profibus based instrument PT/DPT/TT & Control valve positioner are required only for the packages where Client supplied DDCMIS is used. Please confirm our understanding.	1. Vendor to refer sl no-17 of General technical requirement (C&I). 2. Technical specification to be followed. 3. Pls refer clause no-3 of General technical requirements (C&I) for application of two types of controls.

Sl.No.	Specification reference	Specification requirement	Bidder's query/ statement of clarification	BHEL's Reply
			3. We understand that for STP 1,2,3 Raw Water Pump (for PT & ASH), SUMP-PUMPS for which the control system is in bidder's scope Profibus based instrument PT/DPT/TT & Control valve positioner are NOT required. Please confirm our understanding.	
6	C & I for Water Package P 1607 of 5195	It is indicated in Sr. 3 ii on this page that Profibus based IMC in LV SWGR / MCC	Please clarify that for Profibus based IMC in LV SWGR / MCC bidder has to consider the Instrument Electrical interface signal like Run Indication, Trip Indication, Local / Remote Indication, Ready to start Indication, Start Command, Stop Command etc through Conventional Hardwired or through Profibus.	Technical specification to be followed.
7	C & I for Water Package P 1607 of 5195	It is indicated in Sr. 23 on this page that Redundancy of instruments to be provided by bidder shall be as follows: - (i) Triple redundancy for all analog and binary inputs required for protection of system/drives.	Please note that in the P & ID provided with the tender triple redundancy of any instrument is NOT indicated, please clarify the exact requirement.	Minimum requirement of valves, instrumentation etc. has been shown in P&ID. However, bidder to furnish complete scheme in all respects including all instruments, valves etc. for smooth, safe, efficient, trouble free operation of plant for BHEL / customer approval during detailed engineering.
8	C & I for Water Package P 1607 of 5195	It is indicated in Sr. 23 on this page that Redundancy of instruments to be provided by bidder shall be as follows: - (ii) For all other control functions dual redundancy of the sensors shall be provided by the bidder.	Please note that in the P & ID provided with the tender dual redundancy of Level Transmitter, Pressure Transmitter & Flow Transmitter is indicated in some of the P & ID, however in some P & ID only one Level Transmitter, Pressure Transmitter, Flow Transmitter is indicated. Hence, we understand that we have to follow the tender P & ID and consider redundancy of instruments as indicated in tender P & ID. Please confirm our understanding	Minimum requirement of valves, instrumentation etc. has been shown in P&ID. However, bidder to furnish complete scheme in all respects including all instruments, valves etc. for smooth, safe, efficient, trouble free operation of plant for BHEL / customer approval during detailed engineering.
9	C & I for Water Package P 1610 of 5195	It is indicated in Sr. 33 on this page that All the outdoor field instruments such as analysers/transmitters/meters etc. shall be provided with suitable Free-standing cabinet(s)/panel/rack so that	We propose to provide FRP canopy covering all side of instrument installed in Field to protect against rain/sunlight. Please confirm your acceptance for the canopy in lieu of Free-standing cabinet/Panel/rack.	Technical specification to be followed.

Sl.No.	Specification reference	Specification requirement	Bidder's query/ statement of clarification	BHEL's Reply
		the equipment is protected against rain/ sunlight etc.		
10	C & I for Water Package P 1612 of 5195	It is indicated in Sr. 52 Bidder to provide mandatory spares as per mandatory spares list.	We understand that for all the packages in the tender we have to provide Mandatory spare Instruments as per the requirement given in Annexure XV under clause B Control & Instrumentation only. Please confirm our understanding	Specification requirement is clear in this regard.
11	C & I for Water Package P 1626 of 5195	ANNUAL MAINTAINENCE SERVICE (AMS) FOR PROFIBUS INSTRUMENTS: Under this heading in Sr. b it is indicated that The Contractor's scope shall also include providing Post Warranty Maintenance for 3 years after completion of warranty period of the offered wireless systems and all associated components as per specification.	1. We understand that the Profibus Instruments are wired instruments and hence wireless system indicated is typographical error. Please confirm our understanding. 2. We understand that as per this clause the AMS is required for Profibus Instruments PT/DPT/TT only. Please confirm our understanding.	As per clause 24 (ii) Bidder to provide Comprehensive Annual Maintenance Services (AMS) for three (03) years after warranty period for System including fieldbus instruments.
12	C & I for Water Package P 1627 of 5195	ANNUAL MAINTAINENCE SERVICE (AMS) FOR PROFIBUS INSTRUMENTS: Under this heading in Sr. c the requirement given are related to healthiness of system, inspection of Hardware & Software etc.	1. We understand that the requirement given are for Control system and NOT transmitters, however the bidder's scope is limited to supply of Profibus based instruments / transmitters. Hence please review and clarify the exact requirement.	Regarding scope of AMS, bidder to refer General technical requirement (C&I), clause no-24.
13	C & I for Water Package P 1680 to 1684 of 5195	On the referred Pages requirement of Wireless Instruments have been specified.	We understand that Wireless instruments are NOT required for the project. As specified on Page 1607 the transmitters PT/DPT/TT & Control valve positioner shall be Profibus based and rest of the instruments shall be conventional type.	Confirmed.

Sl.No.	Specification reference	Specification requirement	Bidder's query/ statement of clarification	BHEL's Reply
			In view of above we understand that Wireless instruments are NOT required for the project. Please confirm our understanding.	
14	Control valve Body & Flange Rating		We understand that the Body & Flange Rating of Control valve shall be as per the respective pipe class rating. Please confirm our understanding.	Bidder to refer SUB–SECTION – IIIC-08, cl no-3.00.00 Note-(a) of technical specification.
15	Pneumatically operated On Off Valve type & rating		We understand as follows 1. Type of Pneumatically operated On Off valve shall be as indicated in P & ID i.e Ball, Butterfly, and/or Diaphragm. 2. In some P & ID Pneumatically operated On Off valve type Gate valve, Plug valve are indicated, however on off valve type shall be Ball, Butterfly or Diaphragm. 3. The body & Flange rating of Pneumatically Operated On Off Ball & Diaphragm valve shall be as per the respective pipe class rating. 4. The body rating of Pneumatically Operated On Off butterfly valve shall be as per respective pipe class, the end connection of butterfly valve shall be lugged type. Please confirm our above understanding	Specification requirement is clear in this regard.
16	Technical Specification for Water Treatment package P 13 of 5195	On the referred page Brief scope is given for various packages and Electrical & Civil work	Brief scope of work for Instrumentation is NOT provided on the referred page, please provide the same.	Complete Control & Instrumentation system along with necessary fittings & accessories for Water Packages is in bidder scope of supply. Bidder to refer detail indicated in technical specification.
17	Technical Specification for Water Treatment package P 14 of 5195	On the referred page at Sr. 2 it is indicated that Five island have been identified for water treatment package.	On Page 1629 C & I Annexure I Under Note 7 size of following control room have been provided. 1. Island 1 Water system Control room 2. Island 2 CLO2 & CWT Control Room 3. Island 3 CHP WTP Control room However, in Island 4 for STP 3 & in Island 5	Placement of bidder's control system shall be decided by bidder. The same shall be reviewed by BHEL during detailed engineering.

Sl.No.	Specification reference	Specification requirement	Bidder's query/ statement of clarification	BHEL's Reply
			for STP 2 size of control room is NOT provided, hence we understand that the size of control room shall be as per the control system requirement provided by the bidder. Please confirm our understanding.	
18	C & I for Water Package P 1680 to 1628 of 5195	In the C & I Annexure I given on the referred page it is indicated that the control system for STP 1, STP 2 & STP 3 is in Bidder's scope	We understand that PLC based control system for STP 1, STP 2 & STP 3 shall comprise of following 1. The PLC system shall be General Purpose PLC (NOT SIL Certified). 2. The AI/AO cards of PLC system shall be suitable for conventional signals 4-20 mA based. 3. The channel density for IO cards shall be as below i) AI Card --- 16 Channel Max. ii) AO Card – 16 Channel Max iii) DI Card – 32 Channel Max. iv) DO Card – 32 Channel Max. 4. The PLC shall have Redundant CPU, Redundant Power supply & Redundant Communication, however the IO cards shall be Non-Redundant. 5. The PLC system shall have Panel Mounted HMI of size 15". There shall be NO Operator workstation or Engineering workstation. 6. The PLC system shall have provision for interfacing with client's DCS on Modbus TCP/IP. Please confirm our above understanding.	Bidder to follow PLC specification.
19	Scope Matrix (Electrical system/Equipment) Annexure E.1 P 1109 of 5195	On the referred Page at Sr.4 under remarks it is indicated that Electrical breaker control location and scope shall be same as followed for process/C & I control. Electrical breaker/Panel control & logic shall be	Please note that in C & I Annexure I given on P 1628 & 1629 NO DCS is in Bidder's scope. Only following Microcontroller/Relay based panel are in bidder's scope. 1. For STP 1, STP 2 & STP 3 Microcontroller /Relay based control system is in bidder's	1. Bidder to refer "Specific Points applicable for STP package:" for Microcontroller /Relay based control system for STP. 2. Bidder to refer "C&I Annexure-I". As per this Microcontroller /Relay based control system is applicable for Raw water lubrication system. Raw water pumps (for PT & ASH)

Sl.No.	Specification reference	Specification requirement	Bidder's query/ statement of clarification	BHEL's Reply
		part of DCS of Water treatment package and shall be in BOP Vendor Scope. Communication for Water treatment package DCS with Main Plant DCS is in BHEL scope.	scope. 2. Relay panel for Raw water pumps for PT & ASH is in Bidder's scope 3. Switchgear local panel for COLTCS is in Bidder's scope. 4. Relay based panel for sump pumps is in Bidder's scope. The DCS for all packages is indicated to be in BHEL scope. In view of above please review and clarify the statement DCS of Water treatment package in BOP Vendor scope	shall be controlled from DCS. 3. Noted. 4. Noted.

Sl.No.	Specification reference	Specification requirement	Bidder's query/ statement of clarification	BHEL's Reply
1.	Plot Plan (PE-DG-519-100-M001)	Sewage from Building through gravity	Sewage sump S1, S2, S4 to S7 is located outside STP area and construction of RCC sump is in BHEL scope. Hence bidder understand that sewage from building through gravity to above sumps shall be in BHEL/other scope. As sewage coming from which buildings shall not known to the bidder. Kindly confirm bidder understanding.	The civil works for sewage collection, routing & networking outside Islands-1, 2, 3, 4 & 5 is excluded from bidder scope. Further, Technical specification is clear in this regard. Kindly refer Section 1D / Specific Technical Specification- Civil. Bidder to follow technical specifications.
2.	Section-IA Datasheet	Operation Hour of de-centralised STP	Bidder understand that operating hour of de-centralised sewage treatment plant is 24 hour. Kindly confirm bidder understanding.	The operating hour of de-centralised sewage treatment plants shall be as CPHEEO manual.
3.	Section-IA Datasheet – Sewage treatment Plant	Pedestal for STP piping	purpose. 5.1.2.26 All sewage transfer piping from sewage sump up to Sewage treatment plant shall be routed on pedestals/ buried. Wrapping, coating and protection of all the buried pipe is also in bidder's scope Bidder understand that contractor shall use PEM scope pipe rack and ISG scope pipe rack for routing of piping from Sewage sump (S1, S2, S4 to S6) to respective common sewage collection sump as described in P&ID & Plot plant. Kindly confirm bidder understanding.	All sewage transfer piping from sewage sump up to Sewage treatment plant shall be routed on pedestals/ buried only.
4.	Section-IA Annexure XII Drawing	Scope of Treated sewage water pump	TREATED WATER PUMPS WITH DISPOSAL PIPING THROUGH HOSE PIPE 1) As per PFD, Scope of Treated water pump with disposal piping through hose pipe is in bidder scope. While as per technical specification, 50m hose pipe shall be directly connected to treated sewage tank. Kindly clarify the scope and requirement of treated sewage water pumps. 2) If treated sewage water pump is required then please provide the flow and head of pumps.	Treated sewage water pumps shall be excluded from Bidder's scope.
5.	Section-IA Datasheet - ETP	MOC of Piping	34. PIPING — All the piping shall generally be conforming to the requirements specified in the Chapter titled "General Technical Requirement of Low Pressure Piping" considering the following aspects as minimum requirement: Kindly note that MOC of piping for oily effluent water line is not provided in "General technical requirement of low-pressure piping". Hence kindly provide the MOC of Oily effluent water line.	MOC of piping for oily effluent water line shall be IS-2062 Gr.-E-250B/ASTM A-36/ASTM A-53 type 'E' Gr. B/IS-3589 Gr. 410 /IS-1239 Heavy.

Sl.No.	Specification reference	Specification requirement	Bidder's query/ statement of clarification	BHEL's Reply
6.	Section-IA Technical specification	Requirement of Chain pulley block	6.1.28 Chain pulley block as per specification requirement. Kindly specify the requirement of Chain pulley block in Effluent treatment plant.	Chain pulley block of suitable capacity, lift, and travel length shall be provided for handling of items weighing from 500kg upto 1.6T and / or having lifting height less than 10m. The hoist capacity shall be selected considering 25% margin over the weight of heaviest component /equipment to be handled.
7.	Section-IA Datasheet - ETP	Oil at outlet of drum oil skimmer	h) Oil Skimmer (each to be installed in each compartment of WSWS) — Type: Drum; Capacity: As per system requirements; Inlet Oil Level: 50ppm; Oil Outlet guarantee: <5ppm As per datasheet of ETP, Free oil at outlet of Waste service water sump is 5 ppm and transferred to lamella clarifier. a. FREE OIL & FLOATING OIL IN LAMELLA CLARIFIER / TUBE SETTLER — mg/ l — 50 But as per Annexure X : Free oil at inlet of lamella clarifier is 50 ppm and outlet of lamella clarifier is 5ppm. Hence bidder understand that free oil at inlet of lamella clarifier is 5 ppm as lamella clarifier cannot removed free oil. Kindly confirm bidder understanding.	Bidder to design Effluent treatment plant as per Influent quality stipulated in tender specification for the desired outlet guarantee parameters.
8.	Section-IA Technical specification	Cover requirement on effluent lifting sump	6.1.27 Effluent lifting sumps, E1A, E1B, E1C, E2A, E2B, E3, E4, E5, E6, E7, E8, E9, & E10 shall be located outside ETP area. However, rest facilities indicated in P & ID of ETP shall be located inside 1) Kindly clarify the requirement of cover on effluent lifting sump E1 to E11. 2) If cover is required for effluent lifting sump then bidder understand that it is BHEL scope. As construction of sump is in BHEL scope. Kindly confirm bidder understanding.	Specification requirement is clear in this regard. Bidder to follow the Technical specification.
9.	Section-IA Technical specification	Flow transmitter on pump discharge	6.1.27 Effluent lifting sumps, E1A, E1B, E1C, E2A, E2B, E3, E4, E5, E6, E7, E8, E9, & E10 shall be located outside ETP area. However, rest facilities indicated in P & ID of ETP shall be located inside Kindly clarify the requirement of flow transmitter on Pump discharge header of Effluent lifting sump (E1 to E10)	Specification requirement is clear in this regard. Bidder to follow the Technical specification.
10.	Section-IA Technical specification	Location of E1C	Location of E1C not found in plot plant. Kindly provide the location of E1C.	Location of E1C shall be near to Central Lube Oil room inside the TG hall. Further The details pertaining to transfer piping Valves, inst. Etc shall

Sl.No.	Specification reference	Specification requirement	Bidder's query/ statement of clarification	BHEL's Reply
				be as per tender specification.
11.	Section-IA Technical specification	Pipe rack for ETP piping	6.2.1 Complete piping indicated in P & ID of Effluent treatment plant is in bidder's scope of supply and erection. In addition, any additional piping required to make the system complete inside ETP area Bidder understand that contractor shall use PEM scope pipe rack and ISG scope pipe rack for routing of piping from Effluent lifting sump(E1to E10) to respective destination as described in P&ID & Plot plant. Kindly confirm bidder understanding.	Pipe racks shall be provided by BHEL wherever available. Wherever pipe racks are not available, pipe shall be laid on pedestal. All auxiliary steel structure (U-clamps, nuts, bolts, channels etc.) for fixing pipes on pedestal or racks for complete scope shall be in bidder's scope.
12.	Section-IA Technical specification	Location of Lit pit pump in CWTP	8.1.10 Two (2) numbers Lime pit pumps along with electric motor drive & all other required accessories etc. Bidder understand that lime it pumps shall be located iun Neutralization pit. Kindly confirm bidder understanding.	Bidder's understanding is correct.
13.	Section-IA Datasheet – CW chemical treatment plant	Capacity of dosing pumps	Kindly provide minimum capacity of sulphuric acid dosing pump and chemical injection pump (other than acid).	Specification requirement is clear in this regard.
14.	Section-IA Datasheet – CW chemical treatment plant	Capacity of acid dilution water supply pump	Kindly provide minimum capacity of acid dilution water supply pump.	Specification requirement is clear in this regard.
15.	Section-IA Technical specification	Hand Operated barrel pump	8.1.27 One no. hand operated barrel pump for each chemical (other than acid). Bidder understand that one no. of common hand operated barrel pump to be provide for chemical such as HEDP & PBTC (common), Polymeric dispersant, Biodispersant,Corrosion inhibitor (Zn). Kindly confirm bidder understanding.	Specification requirement is clear in this regard.
16.	Section-IA Annexure XII Drawing	Availability of Clarified waterline or cooling tower blown down line	Bidder understand that Clarified waterline or cooling tower blown down line for overhead clarfied water tank is available at TP-2. Kindly confirm bidder understanding.	Bidder's understanding is correct.
17.	Section-IA Datasheet – CHP run off WTP	Capacity of Clarifier feed pump	1.1 CLARIFIER FEED PUMP (CSSP AREA) 1.2 Number: 3X50% 1.3 Service: Intermittent 1.4 Capacity (Each)-Minimum: To suit net Clarifiers output of 2200 cum/hr and Head to meet the system requirement. i.e., each pump capacity shall be 2200 cum/hr+ water loss due to sludge (3%). Bidder understand that total 3 Nos of clarifier feed pump (CSSp area) shall be provided with having capacity of each pumps i.e. 2200 m3/hr +water loss due to sludge (3%).	Capacity of each clarifier feed pump pumps shall be 1100 m3/hr+water loss due to sludge (3%). (Refer amendment)

Sl.No.	Specification reference	Specification requirement	Bidder's query/ statement of clarification	BHEL's Reply
			Kindly confirm bidder understanding.	
18.	Section-IA Datasheet – CHP run off WTP	Line size of Clarifier feed pump discharge header	From above query/clause, Capacity of each clarifier feed pump is 2200 m3/hr and no. of pumps are 2 working + 1 standby. Hence total flow rate of common discharge header of clarifier feed pump is 4400 m3/hr. So as per velocity criteria described in "general technical requirement of low pressure piping" & Flow rate of 4400 m3/hr, actual line size of common discharge header is 800 NB. But as per P&ID of CHP run off WTP, Line size of common discharge header of pump is 700NB. Kindly clarify the Line size & flow rate of common discharge header of clarifier feed pumps.	Capacity of each clarifier feed pump pumps shall be 1100 m3/hr+ water loss due to sludge (3%) .(Refer amendment)
19.	Section-IA Datasheet – CHP run off WTP	Capacity of stilling chamber	3. STILLING CHAMBER 3.1 No. One (1) Number 3.2 Purpose To dampen out any turbulence of the incoming water. 3.3 Type of Construction Circular/Rectangular 3.4 Capacity (Design flow) (2200 + 3% for sludge) Cum/hr. Capacity of each clarifier feed pump is 2200 m3/hr and no. of pumps are 2 working + 1 standby. Hence total flow rate of common discharge header of clarifier feed pump to stilling chamber is 4400 m3/hr. But as per above clause from datasheet, capacity of stilling chamber is only 2200 m3/hr +3% of sludge. Kindly re confirm the capacity of stilling chamber and No. of working pump with capacity of each pumps.	Specification requirement is clear in this regard.
20.	Section-IA Datasheet – CHP run off WTP	Net output from HRSCC	6.2 Design Capacity (Net output) 2200 Cum/hr each As per datasheet, design capacity (Net output) of each HRSCC is 2200 m3/h. Capacity (Net output)-2000 Cum/hr Total no of Clarifiers(02 Nos) But as per P&ID, design capacity (Net output) of each HRSCC is 2000 m3/h. Kindly confirm the design capacity(Net output) of each HRSCC.	Design capacity (Net output) of each HRSCC will be 2200m3/hr.
21.	Section-IA Datasheet – CHP run off WTP	Decanter water sump	Bidder understand that decanter water sump shall be in BHEL scope.	Decanted water sump Civil work is in BHEL scope, however pump, piping,

Sl.No.	Specification reference	Specification requirement	Bidder's query/ statement of clarification	BHEL's Reply
			Kindly confirm bidder understanding.	instrument etc coming in decanted water sump is to be provided by bidder as per tender specification.
22.	Section-IA Datasheet – CHP run off WTP	Control at inlet chamber	2.3 Control — Under "Auto" mode of flow control valve, valve shall automatically maintain the level of water in the Distribution Chamber, i.e valve shall automatically close when reservoir level becomes high. From above clause of datasheet, Bidder understand that Motorized On/Off valve shall be provided for auto mode and link with level transmitter of distribution chamber for automatically close when distribution chamber level become high. Kindly confirm bidder understanding.	Specification requirement is clear in this regard.
23.	Section-IA Datasheet – CHP run off WTP	Cover requirement in distribution chamber	Bidder understand that there is no requirement of cover in distribution chamber, sludge pit and centrate sump. Kindly confirm bidder understanding.	Bidder understanding is correct.
24.	Section-IA Technical specification CHP run off WTP	Overflow & drain from chemical tank	8) The overflow & drains from the various chemical tanks and floor wash drains of chemical storage cum dosing shed shall be led to sludge sump. As per technical specification, overflow and drain from chemical tank shall be transferred to sludge pit. 9. OVER FLOW & DRAINS FROM VARIOUS CHEMICAL TANKS & FLOOR WASH DRAINS OF CHEMICAL STORAGE CUM DOSING SHED SHALL BE LED TO THE COAL SLURRY SETTLING POND. But as per P&ID, overflow and drain from chemical tank shall be transferred to sludge pit Now as per bidder understanding overflow and drain from chemical tank shall be transferred to sludge pit as location of coal slurry settling pond is far away from CHP run off WTP plant. Kindly confirm bidder understanding.	Bidder understanding is correct. Overflow and drain from Chemical tank shall be transferred to sludge pit.
25.	Section-IA Annexure XII Drawing	Overflow of stilling chamber and inlet chamber	10.OVER FLOW & DRAINS FROM STRUCTURES AND PIPING HANDLING WASTE & TREATED WATER SUCH AS AERATOR, STILLING CHAMBER, INLET CHAMBER ETC. SHALL BE LED TO SLUDGE SUMP. As per bidder understanding overflow is not applicable for stilling chamber and inlet chamber. Kindly confirm bidder understanding.	Bidder understanding is correct. Overflow is not applicable for stilling chamber and inlet chamber.
26.	Section-IA Annexure XII Drawing Plot plant	Location of decanted water sump of CHP WTP plant	Kindly provide the location of decanted water sump of CHP WTP plant in Plot plant.	Location of Decanted waster sump shall be near to CSSP Pond.

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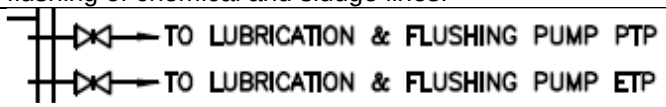
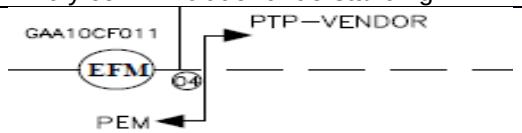
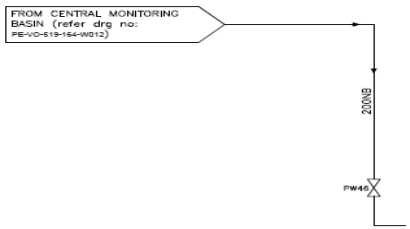
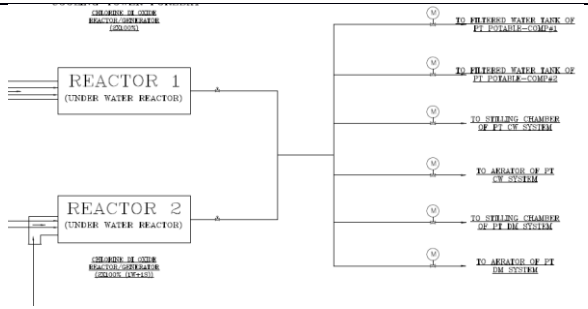
27.	Section-IA Datasheet – CHP run off WTP	Pipe rack for routing of supernatant water line from CHP WTP	Bidder understand that contractor shall use PEM scope pipe rack and ISG scope pipe rack for routing of piping from supernatant transfer pump to cooling tower basin and central monitoring basin (ETP area) as described in P&ID & Plot plant. Kindly confirm bidder understanding.	Bidder understanding is correct.
28.	Section-IA Datasheet – CHP run off WTP	Pipe rack for routing of clarifier feed pump discharge to CHP WTP	Bidder understand that contractor shall use PEM scope pipe rack and ISG scope pipe rack for routing of piping from clarifier feed pump discharge to CHP run off WTP as described in P&ID & Plot plant. Kindly confirm bidder understanding.	Piping from Decanted water sump to CHPWTP area (ISLAND-3) shall be buried/on Pedestal.
29.	Section-IA Annexure XII Drawing P&ID	Piping from lubrication pump to clarififer feed sump	Bidder understand that piping from lubrication pump (clarifier feed pump) to clarifier feed pump located in decanted water sump is in contractor scope. Kindly confirm bidder understanding.	Bidder understanding is correct. piping from lubrication pump (Located In Island-3)(if applicable) to clarifier feed pump located in decanted water sump is in bidder's scope
30.	Section-IA Datasheet – Pre-treatment Plant	Size of flow control valve	Bidder understand that size of flow control valve at inlet of aerator of PT-CW and PT-DM shall be as per design capacity of PT-CW and PT-DM. Kindly confirm bidder understanding.	Bidder understanding is correct.
31.	Section-IA Annexure XII Drawing P&ID- PT plant	Sludge Line from CT basin	SLUDGE FROM CT BASIN 150 M3/HR (INTERMITTENT DURING SHUT DOWN/ MAINTENANCE) There is no description about sludge line from CT basin in Termination point and exclusion document. Bidder understand that pressurized line available at Tie in point TP-1 from CT basin as Cooling tower with associated accessories is in BHEL scope. Kindly confirm bidder understanding.	Bidder understanding is correct. Further piping etc from TP-1 to sludge sump shall be in bidders scope.
32.	Section-IA Datasheet – Pre-treatment Plant	Capacity of gravity filter	11.2 Type: Twin Section 11.3 Design Capacity (each) Net Output: 120 Cum/hr for PW System; 150 Cum/hr for DM System for Option – 1 (ION EXCHANGE BASED DM PLANT); 240 Cum/hr for DM System for Option-2 (UF+RO+MB BASED DM PLANT) Employer to clarify that design capacity provided in above clause of datasheet of gravity filter is for each gravity filters or each section of gravity filters?	Specification requirement is clear in this regard.
33.	Section-IA Datasheet – Pre-treatment Plant	Quantity of alum solution preparation tanks	10.1.38 Four (4) nos. Alum Solution Preparation Tanks common for PTP and ETP with motorized stirrer, As per technical specification, quantity of alum solution	Four (4) nos. Alum Solution Preparation Tanks common for PTP

Sl.No.	Specification reference	Specification requirement	Bidder's query/ statement of clarification	BHEL's Reply
			preparation tanks are 4 Nos. But as per datasheet, quantity of alum solution preparation tanks are 3 Nos. Kindly confirm the quantity of alum solution preparation tanks. Same query is other tanks also where quantity of dosing of dosing tanks and dosing pumps are mismatched between technical specification and datasheet. Kindly clarify which document to be followed for quantity of dosing tank and dosing pumps.	and ETP with motorized stirrer, flushing arrangement, instrumentation, valves, fittings and piping up to the Clarifiers. (Refer Amendment)
34.	Section-IA Technical Pre-treatment Plant	Requirement of flushing pumps	10.1.51 Two (2) nos. flushing pumps shall be provided by the bidder for flushing chemical and sludge lines including connection of all drains through a common header to stilling chamber/sludge sump. As per P&ID, Flushing line from filter water storage tank is directly connected to flushing chemical and sludge lines. But as per technical specification, Flushing pump to be provided for flushing of chemical and sludge lines. Kindly confirm the requirement of Flushing pumps for flushing of chemical and sludge lines.	Two (2) nos. flushing pumps shall be provided by the bidder for flushing chemical and sludge lines including connection of all drains through a common header to stilling chamber/sludge sump.
35.	Section-IA Annexure XII Drawing P&ID- PT plant	Lubrication & flushing pump for ETP	 Requirement of lubrication & flushing pump in ETP is not described in Technical specification and datasheet but Line shown in P&ID of PT plant Kindly clarify the requirement of Lubrication & flushing pump for ETP.	Two (2) nos. flushing pumps shall be provided by the bidder for flushing chemical and sludge lines including connection of all drains through a common header to stilling chamber/sludge sump.
36.	Section-IA Annexure XII Drawing P&ID- PT plant	Termination for potable water discharge line	Bidder understand that discharge header of Potable water pump for Plant distribution and potable water for colony distribution shall be terminated at TP 1 as per termination point document. Kindly confirm bidder understanding.	Bidder understanding is correct.
37.	Section-IA Annexure XII Drawing P&ID- PT plant	Potable water for dilution water in ClO2 generation	Bidder understand that contractor shall to use potable water line from PT plant for ClO2 generator through Potable pump for ClO2 feed only. Contractor cannot use potable water line (50NB) for dilution water in ClO2 generator.	Bidder understanding is correct.

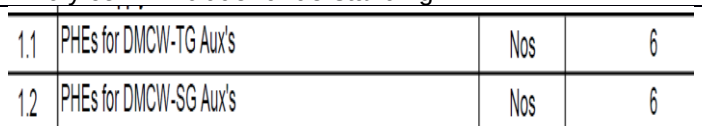
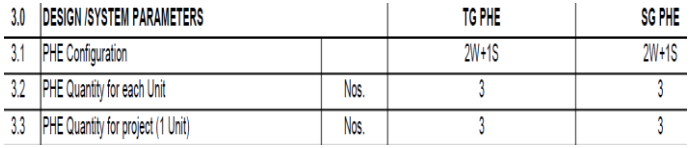
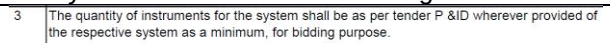
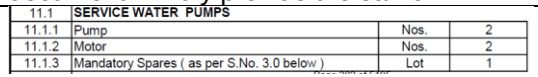
Sl.No.	Specification reference	Specification requirement	Bidder's query/ statement of clarification	BHEL's Reply
			Kindly confirm bidder understanding.	
38.	Section-IA Technical specification P&ID of Plant water system	Scope of 900NB raw water pipe line	 As per Termination point document, 900NB raw water line shall be terminated by BHEL at TP-1A near PT plant. But as per above screen shot, 900NB raw water pipe from raw water reservoir to PT plant shall be PTP vendor. Kindly clarify the scope of 900 NB raw water pipeline from raw water reservoir to PT plant tie in Point TP-1A.	The scope of Raw water pipe of 900 NB from Raw water Pump House to near to PT plant at TP-1A shall be terminated by BHEL.
39.	Section-IA Technical specification P&ID of Plant water system	Line from central monitoring basin	 In P&ID of Plant water system, Line coming from central monitoring basin to service water storage tank. But in P&ID of ETP, there is no outgoing line from central monitoring basin to service water tank. Kindly clarify the requirement.	Line from central monitoring basin to service water storage tank shall be in scope of bidder.
40.	Section-IA Technical specification RO plant	Quantity of UF system	b. Ultra-filtration system membranes skids (UF) (3X50%) (Pressurized type) As per technical specification and datasheet, Quantity of UF system shall be 3 x 50%. But as per P&ID of RO plant quantity of UF system shall be 2 Nos. Kindly confirm the quantity of UF system for RO plant.	Bidder to consider Ultra-filtration system membranes skids (UF) (3X50%) (Pressurized type) along with simplex basket strainers (2X100%) for each stream and necessary valves, piping, instrumentation, fittings etc.
41.	Section-IA Technical specification RO plant	Quantity of RO permeate transfer pump	water storage tank two (2) nos., Degassed Water Pumps/ RO permeate Transfer pumps (3x50%), RO Chemical dosing system consisting of Anti-oxidant dosing tank (2 As per technical specification, quantity of RO permeate transfer pump shall be 3 x 50%. **8.0 DEGASSED WATER TRANSFER PUMPS (FOR OPTION – I)/ RO PERMEATE TRANSFER PUMPS (FOR OPTION – II)** 8.1 Type: Horizontal Centrifugal 8.2 Number: 3x100 % (1W+2S) But as per datasheet, quantity of RO permeate transfer pump shall be 3 x 100%. Kindly confirm the quantity of RO permeate transfer with	Bidder to refer cl.no. 8.2/page 1085 of 5195) for required number of degassed water transfer pumps (for option – I)/ RO permeate transfer pumps (for option – ii)

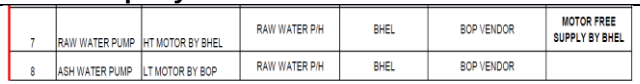
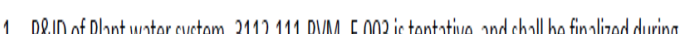
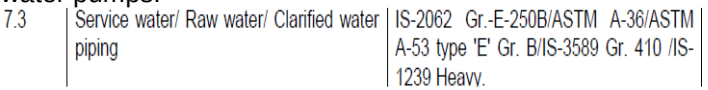
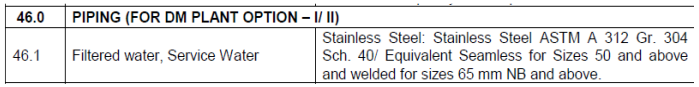
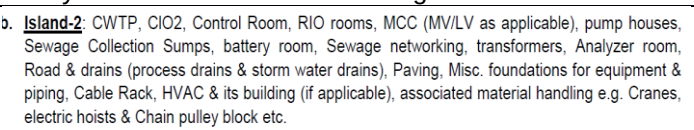
Sl.No.	Specification reference	Specification requirement	Bidder's query/ statement of clarification	BHEL's Reply
			capacity.	
42.	Section-IA Technical specification RO plant	Flow scheme for RO reject stream	Bidder understand that RO reject from RO system shall be transfer to 1 no. of RO reject collection tank and after that it shall be transferred to DSPH 1 & 2 through two nos. of RO reject transfer pumps. Kindly confirm bidder understanding.	Specification requirement is clear in this regard.
43.	Section-IA Technical specification RO plant	Scope of piping from RO reject to DSPH 1 & 2	Bidder understand that scope of piping from RO reject transferred pump to DSPH 1 & 2 is in contractor scope. Kindly confirm bidder understanding	Specification requirement is clear in this regard.
44.	Section-IA Technical specification RO plant	Location of DSPH 1 & 2	Kindly provide the location DSPH 1 & 2 for working out piping length from DM plant. We are unable to find in plot plant.	Bidder to refer approximate coordinates (N-11881/E- 3384) & N-12479/E- 3383) for DSPH-2 & DSPH-1 respectively.
45.	Section-IA Annexure-III guarantee	Guaranteed flow at DM plant	Kindly provide guaranteed design flow of DM plant.	Specification requirement is clear in this regard.
46.	Section-IA Annexure-III guarantee	Operating hour of Mixed bed	7. Mixed Bed shall be regenerated after minimum 30 hours of operation followed by regeneration period not exceeding 6 hours. As per guarantee document, Operating hour of mixed bed system shall be 30 hour. 4) Service Cycle (period between two (2) successive regenerations) 24 hrs. But as per datasheet, operating hour of mixed bed system shall be 24 hour.	Each Mixed Bed shall be regenerated after minimum 30 hours of operation followed by regeneration period not exceeding 6 hours. Refer amendment.
47.	Section-IA Datasheet RO plant	Quantity and capacity of degasser tower	6.0 DEGASSER TOWER (FOR DM PLANT OPTION – I/ II) 6.1 Type: Forced Draft Type. 6.2 Number: One number per DM stream. 6.3 Design Flow per Unit (Net): To suit net DM Plant output (Post UF) per stream of 150 CuM/Hr (Option-1)/ As per RO-DM Plant system design requirement (Option -2). Bidder understand that degasser tower shall be design on full capacity of RO permeate and quantity of degasser tower shall be 2 x 100%. Kindly confirm bidder understanding.	Specification requirement is clear in this regard.
48.	Section-IA annexure Xii drawing : P&ID of DM Plant	Transferred of N-Pit waste	Bidder understand that Effluent waste from N-pit of DM plant to bottom ASH slurry sump shall be contractor scope. Kindly confirm bidder understanding.	Specification requirement is clear in this regard.
49.	Section-IA annexure Xii drawing : plot plant	Location of Ash slurry sump	Kindly provide the location of Ash slurry sump for working out the piping length from DM plant to ash slurry sump.	Bidder to refer cl.no.12.2 (g)/page 100 of 5195 under option-1 & cl.no.12.2 (m)/page 101 of 5195 under option-2 for piping length.
50.	Section-IA Technical	Separate air blower or N-Pit	Bidder understand that separate air blower to be provide for	Bidder's understanding is correct.

Sl.No.	Specification reference	Specification requirement	Bidder's query/ statement of clarification	BHEL's Reply
	specification RO-DM plant	and MB unit	MB unit and N-Pit. Kindly confirm bidder understanding.	
51.	Section-IA P&ID of RO Plant	Filter backwash pit for UF system	 Bidder understand that UF backwash waste shall be transferred to Filter backwash pit of PT plant as shown in P&ID. No separate backwash pit with pump for RO based DM plant. Kindly confirm bidder understanding.	Specification requirement is clear in this regard.
52.	Section-IA Technical specification RO-DM plant	Requirement of Dosing pump for MB regeneration	associated accessories for pH control, 2X100% acid dosing/ metering pumps with associated accessories for MB regeneration, two (2) (2X100%) acid unloading & transfer As per technical specification, Acid dosing pump shall be provided for MB regeneration system. But as per P&ID, MB regeneration shall be done through ejector system. Kindly clarify the requirement of Dosing pump for MB regeneration in RO based DM plant.	Dosing/Metering pumps to be employed for DM plant as per Notes indicated in Flow Diagrams.
53.	Section-IA Technical specification RO-DM plant	Requirement of Dosing pump for N-PIT	Bidder understand that common dosing pumps for pH controller in RO plant and N-Pit sump. Kindly confirm bidder understanding.	Specification requirement is clear in this regard.
54.	Section-IA Technical specification RO-DM plant	Requirement of bulk anti scalant storage tank	**a.** Bulk Anti-Scalant storage tank(s), req Bidder understand that requirement of bulk antiscalant storage tank and bulk anti oxidation tank shall be decide by contractor as per system requirement. Kindly confirm bidder understanding.	Specification requirement is clear in this regard.
55.	Section-IA Technical specification RO-DM plant	Requirement of shed/ building for UF-RO system	Kindly clarify the requirement of shed/building UF-RO system in RO based DM plant or UF-RO system shall located in open to sky condition,	Specification requirement is clear in this regard.
56.	Section-IA Technical specification RO-DM plant	Requirement of shed/building for chemical handling system of UF-RO system	Kindly clarify the requirement of shed/building for chemical handling system of UF-RO system in RO based DM plant or chemical handling system of UF-RO system shall located in open to sky condition,	Specification requirement is clear in this regard.
57.	Section-IA annexure-III plot plant	Requirement of pavement	Bidder understand that contractor scope of pavement shall be only for area marked in plot plant for Island-1 to island-5. Kindly confirm bidder understanding.	Bidder's understanding is correct.

Sl.No.	Specification reference	Specification requirement	Bidder's query/ statement of clarification	BHEL's Reply
58.	Section-IA annexure-III plot plant	Location of equipment inside the island-1 & 3	Bidder understand that location of equipment/units shall be provided in plot plant is tentative. Contractor can change the location of equipment/units as per system requirement inside the Island-1 & insland-3. Kindly confirm bidder understanding.	The dimensions and location indicated in plot plan for various facilities are indicative inside islands 1, 2, 3, 4 & 5, if any, and shall be finalised during detailed engineering meeting technical specification requirements.
59.	Section-IA Technical specification	Installation location of ammonia and NaOH dosing system	Kindly specify the installation location with available for ammonia and NaOH dosing system.	Ammonia and NaOH dosing system shall be located in TG hall.
60.	Section-IA Technical specification	Installation location of oxygen dosing system	Kindly specify the installation location with available for oxygen dosing system.	Oxygen dosing system shall be located in TG hall.
61.	Section-IA Technical specification	Location of analyzer in ClO2 generator system	3.1.11 2 Nos. Online Residual Chlorine dioxide analyser in the potable/ raw water systems. 3.1.12 2 Nos. (one per unit) of Online Residual Chlorine dioxide analyser in the cooling water return header. Kindly specify the location of online residual ClO2 analyser in P&ID.	Bidder to refer cl.no.3.3.19 of page 32 of 5195.
62.	Section-IA P&ID of ClO2 generator system	Routing of ClO2 generator line	 1) Bidder understand that one single line from ClO2 generator (PT plant) shall be transferred from Island-2(ClO2 generator location) to lsland-1(PT plant location) further distribution to different location of PT plant shall be done from this single only. Kindly confirm bidder understanding. 2) Motorised valve for all 6 nos of ClO2 dosing location in PT plant shall be provide in P&ID of ClO2 dosing system and same motorised valve for all 6 nos of ClO2 dosing location shall be repeated in P&ID of PT plant. Bidder understand that contractor shall be consider 1 No of motorised valve for each ClO2 dosing location. Kindly confirm bidder understanding. • Residual chlorine dioxide (ClO2) analyzer.	Specification requirement is clear in this regard.

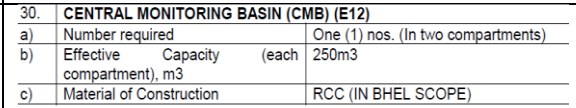
Sl.No.	Specification reference	Specification requirement	Bidder's query/ statement of clarification	BHEL's Reply
			3) Bidder understand that one no. of residual ClO2 analyser to be provide for each dosing location in PT plant. Kindly confirm bidder understanding.	
63.	Section-IA Technical specification	Location of return header tapping with size and MOC	3.6.3 Distance between CW return header to residual ClO2 analyser located in CLO2 area for sampling shall be 250 meters from one cooling tower and 350 meters from another cooling tower. Hence, total sampling Piping of 600-meter length is in bidder's scope. In case, sample required intermediate pressure boosting, then booster pumps (1W+1S) along with motor for each sampling system and all other accessories shall be provided by bidder. Pumps shall be complete with motor. 1) Kindly mark location CW return header in Cooling tower - 1 & 2 area from where contractor need transferred to the ClO2 area for working out pipe routing. 2) Kindly provide the pressure of cooling water return header at cooling tower area working out the booster pump requirement 3) Kindly provide the size and MOC of cooling water return header for costing. 4) Kindly provide flow rate of Cooling water return header line.	Specification requirement is clear in this regard.
64.	Section-IA Annexure XIII termination point	Termination point of Lime dosing	c) Lime dosing inlet flange of waste water tank. Bidder understand that termination point of lime dosing shall be near to lime dosing pump. Kindly confirm bidder understanding. If Lime dosing terminated at near waste water tank then kindly calrify the distance between lime dosing tank and waste water tank.	Specification requirement is clear in this regard.
65.	Section-IA Technical specification	Scope of work in Condenser on load tube cleaning system	Kindly mark scope of contractor with termination in CW piping layout drawing of Condenser on load tube cleaning system. We are unable to identified scope of contractor from technical specification of Condenser on load tube cleaning system. Kindly provide GAD or P&ID with scope marking and with termination point for better understanding of scope work.	Pl refer the CW Piping Around Condenser for scope demarcation of Scope of Bidder for COLTCS – ANNEXURE- A.
66.	Section-IA Technical specification	Scope work in Plate Heat Exchanger (PHE)	Bidder understand that contractor scope shall be design, manufacture, assembly, inspection and testing of Plate	The scope of PHE shall also include of erection of Plate Heat Exchanger

Sl.No.	Specification reference	Specification requirement	Bidder's query/ statement of clarification	BHEL's Reply
			Heat Exchanger (PHE) as described in technical specification whereas Inlet and outlet of hot and cold effluent piping connection to Plate Heat Exchanger (PHE) shall be done by BHEL or other contractor. Kindly confirm bidder understanding.	(PHE) along with its expander/reducer (if required) by the Bidder in the exiting Cold and Hot Water header. Inlet and Outlet piping shall be done by BHEL.
67.	Section-IA Technical specification	Quantity of Plate Heat Exchanger (PHE)	 As per bill of material provided in Tender page no. 219 of 5195, Total quantity of Plate Heat Exchanger (PHE) for TG & SG are 12 Nos.  But as per tender page no. 195 of 5195, Total quantity of Plate Heat Exchanger (PHE) for TG & SG are 6 Nos. Kindly confirm the total quantity of Plate Heat Exchanger (PHE) for TG & SG.	The BOQ referred at page no 219 of 5195 for PHE is for Station (Total - 12 nos). However, BOQ at page no195of 5195 is unit wise (6 nos).
68.	Section-IA Technical specification	Scope work in Self-cleaning strainer	Bidder understand that contractor scope shall be design, manufacture, assembly, inspection and testing of Self-cleaning strainer upto counter flange as described in technical specification whereas Inlet and outlet piping connection to Self-cleaning strainer shall be done by BHEL or other contractor. Kindly confirm bidder understanding.	The scope of SCS shall also include of erection of Self-Cleaning Strainer (SCS) upto counter flange by bidder. Inlet and Outlet piping shall be done by BHEL.
69.	Section-IA Technical specification	P&ID of Self-cleaning strainer	 P&ID of self-cleaning strainer is not provided in tender document. Kindly provide the same.	P&ID spec attached in Spec is tentative only and detail P&ID shall be given by bidder in detail Engineering.
70.	Section-IA Technical specification –Misc Horizontal pump	Quantity of service water pump	 As per BOQ schedule of Misc Horizontal pump, quantity of service water pumps are 2 Nos. But as per p&ID of Plant water system and technical data part-A, quantity of service water pumps are 3 Nos. Kindly confirm the quantity of service water pumps.	The quantity of Service water Pump shall be 3 nos of as per Technical Data sheet. BOQ for Service water shall be amended to 3 nos.

Sl.No.	Specification reference	Specification requirement	Bidder's query/ statement of clarification	BHEL's Reply
71.	Section-IA Technical specification –Misc Horizontal pump	Requirement of raw water pump and Ash water pump (Horizontal centrifugal Type)	 As per technical specification tender page 336 of 5195, Raw water pumps and Ash water pumps are contractor scope. But as per Technical data part-A, there is no details about raw water pumps and Ash water pumps. Also, as per BOQ schedule, requirement of raw water pumps and Ash water pump is not mentioned. Kindly clarify the requirement of raw water pumps and Ash water pumps (Horizontal centrifugal Type).	Pl note that the Raw water Pumps & Ash water Pump shall be in Misc Pump (Vertical Type). For details of Vertical Pump pl refer page no- 278 of 5195 in Specification no. PE-TS-519-100-W002. Sl. No. 7&8 of page no 336 of 5195 to be ignored as it is part of Vertical Pump.
72.	Section-IA Technical specification –Misc submersible Pump	P&ID not found in tender document	 P&ID of Plant water system having P&ID no. of 3112-111-PVM- F-003 is not found tender document.	Pl refer section of Clarified and Service Water System page-429 of 5195 of specification.
73.	Section-IA Datasheet of DM plant	MOC of service water line	As per P&ID of PT plant, Clarified water from HRSCC of PT shall be transferred to Clarified water tank and service water tank. Service water distribution from service water tank to plant and process requirement shall be done through service water pumps.  So as per datasheet of all plant except DM plant , MOC of piping for service water line is IS-2062 as shown in above scrren shot.  But in process datasheet of DM plant, MOC of of piping for service water line is SS304 as shown in above screen shot. Bidder understand that it is typographical error and MOC of service water line must be IS-2062. Kidnly confirm bidder understanding.	MOC of Pipe lines of Filtered Water & Service water shall be IS-2062 Gr.-E-250B/ASTM A-36/ASTM A-53 type 'E' Gr. B/IS-3589 Gr. 410 /IS- 1239 Heavy.
74.	Section-IA Technical specification of WT package	Scope of supply inside Island-2	 1) Kindly note that there is no pump house requirement for	1) Specification requirement is clear in this regard. 2) Specification requirement is clear in this regard. 3) Specification requirement is clear

Sl.No.	Specification reference	Specification requirement	Bidder's query/ statement of clarification	BHEL's Reply
			CWTP and ClO2 system. Hence kindly clarify the requirement of pump house for Island-2. 2) Kindly clarify the requirement of Control room and RIO room for Island-2. 3) Kindly note that there is no sewage collection sump in Island-2. Hence kindly clarify the requirement of sewage collection sump with netwroking for Island-2.	in this regard.
75.	Section-IA Technical specification of WT package	Scope of supply inside Island - 3 & 4	d. Island-4: STP-3 Equipment Room, MCC & Control Room, Analyzer Room, Road & drains (process & storm water drains), Sewage networking, Paving, Equipment & piping misc. foundations, HVAC & its building (if applicable), associated material handling (Cranes, electric hoists & chain pulley block) etc. e. Island-5: STP-2 Equipment Room, MCC & Control Room, Analyzer Room, Road & drains (process & storm water drains), Sewage networking, Paving, Equipment & piping misc. foundations, HVAC & its building (if applicable), associated material handling (Cranes, electric hoists & chain pulley block) etc. Kindly note that STP-2 & STP-3 is very small de-centralised treatment plant located in island-5 & island-4 respectively. Hence kindly clarify the requirement of equipment room, MCC room, control room & analyzer room for such small operation plant.	Specification requirement is clear in this regard.
76.	General	General	Kindly clarify the meaning of BOP vendor	The word BOP vendor shall have same meaning as successful bidder of water treatment packages.
77.	General	General	Bidder understand that pre-bid query replies and addenddum provided in tender document are not related to water treatment package and provided only information not scope of work. Kindly confirm bidder understanding.	Bidder to refer relevant pre-bid query replies and addendum for pertaining water treatment packages only.
78.	General	Scope of Road	Bidder understand that Road and storm water drain inside island-1 to island-5 area shall be only in contractor scope. Road and storm water drain outside the island area shall not be in contractor scope. Kindly confirm bidder understanding.	Scope of works for Connection of Roads and associated storm water drain from island 1, 2, 3, 4 & 5 up to nearest main storm drain & road outside islands shall be in bidder' scope. Bidder to refer tender specification for further detail.
79.	General	Scope of Building/Shed	Bidder understand that Building or shed located inside island-1 to island-5 area shall be only in contractor scope. Building or shed located outside the island area shall not be	Bidder's understanding is correct.

Sl.No.	Specification reference	Specification requirement	Bidder's query/ statement of clarification	BHEL's Reply
			in contractor scope. Kindly confirm bidder understanding.	
80.	SECTION – ID- SPECIFIC TECHNICAL REQUIREMENTS – CIVIL	Scope of Building	Bidder understand that Safety park having arch. Drawing no. 8200-001-POC-A-008 shall not be in contractor scope. Kindly confirm bidder understanding.	Not in the bidder's scope.
81.	SECTION – ID- SPECIFIC TECHNICAL REQUIREMENTS – CIVIL	Scope of Building	Bidder understand that maintenance building having arch. Drawing no. 8200-001-POC-A-009 shall not be in contractor scope. Kindly confirm bidder understanding.	Not in the bidder's scope.
82.	SECTION – ID- SPECIFIC TECHNICAL REQUIREMENTS – CIVIL	Scope of Building/Shed	Bidder understand that Worker's rest room shed having arch. Drawing no. 8200-001-POC-A-010 and quantity of 6 nos at different location shall not be in contractor scope. Kindly confirm bidder understanding.	Not in the bidder's scope.
83.	Section-IA Datsheet of STP	Scope of RCC work	**17.0 Sewage Sump S3** 17.1 MOC — RCC (Civil by BHEL) 17.2 Type — Covered at top, below ground Since sewage sump (S3) located inside Island-1 hence scope RCC work for sewage sump S3 shall be in bidder scope. But as per datasheet, Scope of RCC work for sewage sump S3 shall be BHEL. Kindly re confirm the scope of RCC work for sewage sump S3.	Scope of RCC work for Sewage sump (S3) located inside Island-1 shall be in bidder scope.
84.	Section-IA Datsheet of ETP	Scope of RCC work	27. **WASTE SERVICE WATER SUMP (WSWS) (E11)** a) Number required — One (1) nos. (In two compartments) b) Effective Capacity (each compartment), m3 — 250m3 c) Material of Construction — RCC (IN BHEL SCOPE) Since waste service water sump located inside Island-1 hence scope RCC work for waste service water sump shall be in bidder scope. But as per datasheet, Scope of RCC work for waste service water sump shall be BHEL. Kindly re confirm the scope of RCC work for waste service water sump.	All Civil works for ETP treatment facilities (located in Island – 1) shall be in bidder's scope. Bidder to refer cl. 2.A.f/Section-I/Page 1835 of 5195.
85.	Section-IA Datsheet of ETP	Scope of RCC work	29. **LAMELLA CLARIFIER/ TUBE SETTLER** a) Number required — Two (1W+1S) nos. b) Material of Construction — RCC (IN BHEL SCOPE) Since Lamella clarifier/tube settler located inside Island-1 hence scope RCC work for Lamella clarifier/tube settler	All Civil works for ETP treatment facilities (located in Island – 1) shall be in bidder's scope. Bidder to refer cl. 2.A.f/Section-I/Page 1835 of 5195.

Sl.No.	Specification reference	Specification requirement	Bidder's query/ statement of clarification	BHEL's Reply
			shall be in bidder scope. But as per datasheet, Scope of RCC work for Lamella clarifier/tube settler shall be BHEL. Kindly re confirm the scope of RCC work for Lamella clarifier/tube settler.	
86.	Section-IA Datsheet of ETP	Scope of RCC work	 30. CENTRAL MONITORING BASIN (CMB) (E12) a) Number required — One (1) nos. (In two compartments) b) Effective Capacity (each compartment), m3 — 250m3 c) Material of Construction — RCC (IN BHEL SCOPE) Since Central monitoring basin located inside Island-1 hence scope RCC work for Central monitoring basin shall be in bidder scope. But as per datasheet, Scope of RCC work for Central monitoring basin shall be BHEL. Kindly re confirm the scope of RCC work for Central monitoring basin.	All Civil works for ETP treatment facilities (located in Island – 1) shall be in bidder's scope. Bidder to refer cl. 2.A.f/Section-I/Page 1835 of 5195.
87.	Section-IA Datasheet – PT plant	Cover requirement in Clarified water tank and service water tank	Bidder understand that there is no requirement of cover in Clarified water tank and service water tank. Kindly confirm bidder understanding.	Clarified water tank and service water tank shall be RCC covered from top.
88.	Section-IA Datasheet – PT plant	Cover requirement in filter backwash pit	Bidder understand that there is no requirement of cover in filter backwash pit. Kindly confirm bidder understanding.	Bidder understanding is correct.
89.	Amendment no. 1	Requirement of DM plant Lab building	In P&ID of DM plant (0000-000-POM-A-003) rev B provided with Amendment no. 1, DM plant lab building shall be shown in P&ID of DM plant. Kindly clarify the scope & requirement of DM plant lab building.	Page no. 2335 to 2346 of 5195 stands deleted.
90.	Amendment no. 1	P&ID of liquid effluent treatment plant	As per tender document P&ID no. for Effluent treatment plant is PE-DG-519-164-W001. But as per Amendment no. 1 P&ID no. for Effluent treatment plant is 0000-000-POM-A-001 rev B. Kindly clarify which P&ID to be followed for Effluent treatment plant as details in both p&id are mismatched with each other.	Page no. 2335 to 2346 of 5195 stands deleted.
91.	Amendment no. 4 to technical specification annexure WS-1 page 2649	Mandoray spare requirement	Bidder understand that contractor shall to followed mandatory spare list provided with Amendment no. 4 to technical specification annexure WS-1-page 2649 of 5195. Kindly confirm bidder understanding.	Page no. 2650 to 2683 of 5195 stands deleted.

SL. NO.	VOLUME	SECTION	CLAUSE NO.	PAGE NO.	SPECIFICATION REQUIREMENT	CLARIFICATION	BHEL's Reply
1.		Section-I	Annexure-X	875	Raw Water Analysis (Total Suspended Solids – TSS value)	In Raw Water Analysis, Turbidity is mentioned as 300 NTU (max) and TSS as 2.1 ppm. The value of TSS seems to be very less in co-relation to the max. Turbidity value. Design of various units of Pre-treatment plant like, sludge withdrawal from Clarifiers, Sludge Sump, Thickener, Centrifuge and respective pumps are governed by the design TSS value (TSS load). We request to provide Design TSS value for the pre-treatment plant, to enable appropriate sizing of sludge line.	Design of various units of Pre-treatment plant shall be based on TSS load of 300 ppm (min).
2.		Section-III		5192	List of Documents to be submitted along with Bid. Point 3- Auxiliary power consumption in format given for applicable water treatment packages.	We understand, in reference to stated section, only following three schedules are required to be submitted. 1. Schedule of Performance Guarantee - Vertical pumps at Page 289. 2. Schedule of Performance Guarantee - Horizontal pumps at Page 355. 3. Guaranteed Power Consumption Figures- HVAC at Page 548. Please Confirm.	Bidder's understanding is correct.
3.		Section-IC		1617, 1618, 1620, 1623	Power requirement	At various places in Tender document (e.g. pages mentioned) following sentences is written "Bidder to submit the power requirement along with the bid". We understand in reference to Section-III, Pg 5192, bidder needs to submit only	Bidder to submit UPS power requirement along with the bid as per clause no: GENERAL TECHNICAL REQUIREMENTS (C&I), Sl No: 41.

SL. NO.	VOLUME	SECTION	CLAUSE NO.	PAGE NO.	SPECIFICATION REQUIREMENT	CLARIFICATION	BHEL's Reply
						the Auxiliary power consumption in format given for applicable water treatment packages. Please confirm.	
4.		Section-I	Specific Technical Requirement-Mechanical	186, 220, 225, 317, 385, 423, 593, 605	Drawings & documents to be submitted by all the bidders along with the bid.	At mentioned pages and several other places in tender document, a list of 4 to 5 documents – tech / prequalification / drawings are mentioned as to be submitted by bidder along with the bid. We understand in reference to Section-III, Pg 5192 with heading - List of Documents to be submitted along with Bid; Bidder needs to submit only those documents which are mentioned in 4 points at specified page 5192. Please confirm.	Bidder's understanding is correct. However, bidder to also submit the Schedule of performance demonstration, Schedule of Performance Guarantee, Guaranteed Power consumption etc. as per requirement stipulated in tender specification.
5.		Section-I	Specific Technical Requirement-Mechanical	245	Schedule of performance demonstration during commissioning for Self Cleaning Strainer (SCS).	Since, this document is not listed in page 5192, please confirm, if it is required to submit the specified document at page 245 along with bid.	Schedule of performance demonstration during commissioning for Self-Cleaning Strainer to be submitted along with bid.
6.		Section-IA	Annexure XII-Drawings	925	P&I Diagram for CHP Run-Off Water Treatment Plant	Please specify the location of Decanted Water Sump. If this sump being in any of the Islands from 1 to 5. Please mention.	Decanted water sump shall be located near to CSSP.
7.		-	Project Information, Clause 2.	14	Equipment & Structures outside Island 1 to 5.	Please clarify the scope of MCC panels and RCC foundations (for pumps/ equipment), which are outside Island 1 to 5.	MCC panels and RCC foundations (for pumps/ equipment), which are outside Island 1 to 5 are excluded from bidder's scope.

SL. NO.	VOLUME	SECTION	CLAUSE NO.	PAGE NO.	SPECIFICATION REQUIREMENT	CLARIFICATION	BHEL's Reply
8.		Section-IA	Datasheet-A For CHP Run Off WTP	1062	17.3 Pumps- Horizontal Centrifugal pumps	As per specified clause, these pumps and their drives are to be designed for Outdoor duty. We understand, there is no need to provide any pumphouse for such pumps, (including Supernatant Transfer Pumps).	Supernatant Transfer Pumps shall be located outside.
9.		Section-IA	Datasheet-A For CHP Run Off WTP	1058	Distribution Chamber	We understand the Distribution Chamber (Above Ground) is an Open Tank (not covered). Please confirm.	Confirmed.
10.		Section-I Section-IC	Specific Technical Requirement-Mechanical Cl. 2 A f.	44 1835	ETP Civil Works	As per Technical Specifications Cl. 6.1.18, 6.1.21 and 6.1.22 (at Pg 44); Civil works of WSWS, Lamella Clarifier and CMB, respectively are in BHEL Scope. However, contradictory to above, as per Cl. 2 A. f. (at Pg 1835):- ETP treatment facilities shall be located in Island-1. All Civil works for ETP treatment facilities shall be in bidder's scope. Please clarify the contradiction and Civil works scope for ETP.	All Civil works for ETP treatment facilities (located in Island – 1) shall be in bidder's scope. Bidder to refer cl. 2.A.f/Section-I/Page 1835 of 5195.
11.	Part 43 -2 topographic survey	DWG			The proposed PT plant/DM plant/ ETP plant location are under pond area as per Topographic survey.	We understand that leveling and filling of the site upto FGL (373 mtr) is in client scope. Kindly confirm	Site Levelling and grading work within Water Treatment Package Islands-1, 2, 3,4 & 5 is in bidder's scope. Bidder to refer civil specification for further details.
12.	Part 42 Plot pan	DWG			RL 373 and EL 372.5 marked in the proposed PT plant/DM plant / ETP plant location area.	Kindly provide NGL and FGL of the proposed PT plant/DM plant / ETP plant location area.	FGL is RL 373.0 m. To determine the Natural Ground Level (NGL), tender drawings titled "TOPGRAPHICAL SURVEY" shall be referred. Further the above tender drawings shall also be referred in conjunction with bore log data carried out

SL. NO.	VOLUME	SECTION	CLAUSE NO.	PAGE NO.	SPECIFICATION REQUIREMENT	CLARIFICATION	BHEL's Reply
							during. The NGL for any particular structure/facility shall be the lowest of all the NGLs mentioned in the extent of the building/facility. The NGL of any point shall be the lowest of the levels at (a) TOPGRAPHICAL SURVEY and (b) Bore log data. Bidder to refer tender specification.
13.	Technical specification Part -1	5.1 SCOPE OF SUPPLY FOR SEWAGE TREATMENT PLANT	5.1.1.21	Page 38 of 5195	One (1) no. above ground treated water tank for effluent storage after tertiary treatment along with valves, piping, fittings, instruments and required accessories.	Kindly confirm the Tank MOC.	Specification requirement is clear in this regard.
14.	Technical specification Part -1	5.1 SCOPE OF SUPPLY FOR SEWAGE TREATMENT PLANT	5.1.1.23	Page 38 of 5195	All sewage transfer piping from sewage sump up to Sewage treatment plant shall be routed on pedestals/ buried. Wrapping, coating and protection of all the buried pipe is also in bidder's scope & shall be as per AWWA C 203.	Kindly confirm sewage piping MOC and requirement of wrapping coating.	Specification requirement is clear in this regard.
15.	Technical specification Part -1	5.2 PIPING		Page 41 of 5195	Sewage pipe length from outside sumps to STP mentioned	Sewage pipe length from outside sumps to STP mentioned in the tender but pipe diameter is Missing. Kindly provide Pipe diameter.	Specification requirement is clear in this regard.

SL. NO.	REFERENCE OF BIDDING DOCUMENT				BIDDER'S QUERY	BHEL REPLY
	VOLUME & SECTION	PAGE NO.	CLAUSE NO. / SR. No.	DESCRIPTION		
INSTRUMENTATION						
1.	Section-I	Page 37-43 of 5195	5. SEWAGE TREATMENT PLANT (STP) & 5.3 OPERATION AND CONTROL	Control of Complete Sewage treatment plant 1, 2 & 3 located in WTP Island 1, 2, 3, 4 & 5 shall be from Micro processer-based control system and same shall be in bidder's scope. However, STP plant can also be controlled from DDCMIS (DCS) based control system. DDCMIS (DCS) shall be in BHEL scope. Bidder to refer C & I specification for further detailing. Sewage transfer pumps (S1, S2, S3, S4, S5, S6 and S7) shall be controlled from DDCMIS (DCS) based control system. DDCMIS (DCS) shall be in BHEL scope.	Please confirm following Points: 1.Bidder shall consider PLC based Local Control Panel for Control of Complete Sewage treatment plant 1, 2 & 3 located in WTP Island 1, 2, 3, 4 & 5. 2. Please confirm, Package PLC Shall be Redundant or Standalone. 3. Please also provide communication Provision available in DCS/ DDCMIS (BHEL scope) for interfacing with Package PLC. 4. Interfacing Cable, Connecting Accessories shall be BHEL scope.	1. Pls refer C&I Annexure-1 for this point. 2. Pls refer PLC specification. 3. This shall be provided during detailed engineering. 4. Pls refer C&I Annexure-1 for this point.

2.	SCOPE MATRIX [ELECTRICAL SYSTEM / EQUIPMENTS]	Page 1109 of 5195	4.DDCMIS interface with PLC/microprocessor panel/ Profibus COMM/local control panels	Electrical breaker control location and scope shall be same as followed for process/C & I control. Electrical breaker/Panel control & logic shall be part of DCS of Water treatment package and shall be in BOP Vendor Scope. Communication for Water treatment package DCS with Main Plant DCS is in BHEL scope.	Please confirm following Points: 1.Bidder shall consider DCS based system for Water treatment Package or Package PLC for each process Unit to be considered. 2.Communication Protocol available at Main Plant DCS for interface with Water treatment package DCS. 3. Interfacing Cable, Connecting Accessories shall be BHEL scope	1. For package wise DCS/PLC applicability please refer C&I part of specification C&I annexure-1(Page no. 1628-1629/5195). DCS panel if applicable as per above scope shall be in BHEL scope. Electrical breaker/Panel control & logic and I/O list input shall be in bidder's scope. 2. Same shall be informed during detailed engineering. 3. Please refer relevant scope regarding cables, cabling.
3.	Section-I	Page 48-67 of 5195	7. CONDENSATE POLISHING UNIT (CPU OR CPP) &	17) All analysers (Sodium, silica, conductivity, pH etc) shall be provided in air-conditioned panel/ cabinet. Air conditioning equipment required for all analysers panel shall be in bidder's scope.	Please confirm following Points: 1. Bidder Shall consider Analyzer Shelter or Analyzer Room for housing of All analysers (Sodium, silica, conductivity, pH etc.).	Bidder to follow the specification.
				22) All weather Local Panel fitted with integral Air Conditioner shall be provided by bidder for housing analyzers (pH, conductivity, concentration etc), if the same are not kept in AC rooms.		

4.	Section-IIIC-04	Page 1629 of 5195	2.00.00 SPECIFICATION FOR ELECTRONIC TRANSMITTERS	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.	Foundation Fieldbus / Profibus PA instruments Specific required for this project or Bidder shall consider Microprocessor based 2 wire loop powered electronic transmitter with 4-20 mA DC HART output Signal Field Instruments.	Bidder to refer the specification, "clause no: 3 &17 of GENERAL TECHNICAL REQUIREMENTS (C&I)" for usage of two types of control.
5.	SUB– SECTION – IIIC – 16	Page 1680 of 5195	2.06.00 WIRELESS INSTRUMENTS & SYSTEMS	Contractor to note that wireless networks of Wireless HART and ISA 100.11a may coexist in the same area. For Pressure Transmitters/Differential Pressure Transmitter/Level Transmitter (DPT type)/ Flow Transmitter (DPT type)/Temperature transmitter, in place of requirement of 2-wire HART protocol output, following shall be considered:	Wireless instruments Specific required for this project or Bidder shall consider Microprocessor based 2 wire loop powered electronic transmitter with 4-20 mA DC HART output Signal Field Instruments	Bidder to refer the specification, "clause no: 3 &17 of GENERAL TECHNICAL REQUIREMENTS (C&I)" for usage of two types of control.
6.	SECTION- IC	Page 1605 - 1610 of 5195	GENERAL TECHNICAL REQUIREMENTS (C&I)	Profibus based controls and conventional controls (hardwired 4- 20mA/DI/DO) are envisaged for these packages.	Instrumentation & Control System shall be conventional controls (hardwired 4-20mA / DI/DO) or Profibus based controls required. Please confirm.	Bidder to refer the specification, "clause no: 3 &17 of GENERAL TECHNICAL REQUIREMENTS (C&I)" for usage of two types of control.
7.	SECTION- IC	Page 1610 of 5195	GENERAL TECHNICAL REQUIREMENTS (C&I)	40. 230 V AC UPS Power supply shall be provided by BHEL at water system control room, further distribution to various instruments/equipment of	UPS Power Supply (230V AC) shall be Provided by BHEL. So, UPS system shall be excluded from Bidder.	Confirmed.

				the system shall be in bidder scope. Bidder to include necessary power distribution board in his scope.	However, Bidder shall consider Necessary power distribution board (PDB). Please confirm.	
8.	SECTION- IC	Page 1611 of 5195	GENERAL TECHNICAL REQUIREMENTS (C&I)	42. Vibration monitoring system is envisaged for HT Motors which is in BHEL scope. However, mounting of vibration sensors/probe, bidder to provide vibration pad for mounting of sensors and a notch/slot for mounting of key phasor.	Vibration monitoring system for HT Motors shall be in BHEL Scope. So, Vibration monitoring system shall be excluded from Bidder. Please confirm.	Confirmed.
9.	SUB-SECTION-B – 05B	Page 1222 of 5195	3.03.10		Please confirm following Points: 1.Bidder shall consider separate system for MV Switchgear protection as per (drawing no. 0000-205-POE-A-001) 2. Bidder shall consider Communication Provision (IEC 61850) at HMI (Switchgear Engineering Workstation) for interface with DCS/DDCMIS (BHEL scope). Interfacing Cable, Connecting Accessories shall be BHEL scope.	MV switchgear(11/.3.3kV) protection is not in bidder's scope. Further, for LT boards relay communication (on IEC-61850 protocol) to DCS (BHEL scope, located in water system island), refer electrical scope(Annexure E-1)
10.	SECTION- IC	Page 1612 of 5195	GENERAL TECHNICAL REQUIREMENTS (C&I)	54. Number of pairs to be selected for Screen /Control cable (Size : 0.5 mm2) a) F-Type: 2P/4P/8P/12P b) G-Type: 2P/4P/8P/12P	0.5 mm2 Cable size of Instrument cable is required or Bidder shall consider 1.5 mm2 Cable size. Please also confirm, Cable is Armoured or Un-Armoured.	Please refer electrical specification(pg. no. 1306-1315/5195) for F& G type of insturmentation cable. F&G type Instrumentation cable shall be Un-Armoured.

11.	Section-I			P&ID Diagram	Please confirm following Points: 1.KKS Code for Instruments only indicated in the following P&ID: (PE- DG-519-157-W001, PE-DG- 519-154- W101, PE-DG-519-154-W001, PE- VO-520-571-W001).	Vendor to follow standard KKS philosophy. Further type of instrument shall be as per specification.
					Please also confirm KKS Code for Instruments for Rest other P&ID. 2.Type of Instruments is not defined in the Legend for Some Instruments. So, Bidder shall considered Type of Instruments as per Standard Practice/IS Standard.	
12.	SECTION- IC	Page 1611 of 5195	GENERAL TECHNICAL REQUIREMENTS (C&I)	All electrical devices like switches/ transmitters/ controller/ analyzer/ solenoid valves which are located in the in hazardous areas like hydrogen gas area, seal oil area etc. shall be made intrinsically safe by providing suitable type of transformer isolated barrier/ Zener barrier of standard make & shall be provided with explosion proof enclosure suitable for hazardous areas described in National Electric Code (USA), Article 500, Class-I, Division-I or EN60079-14 or shall comply with the essential requirements of ATEX directives.	Please confirm Complete Plant is in hazardous area or non- hazardous area.	The complete water treatment plant is in non-hazardous area.

13.	Section-I	Page 124-132 of 5195	TECHNICAL SPECIFICATION FOR Condenser On Load Tube Cleaning System (COLTCS)	1.16 Local Control Panel / Switchgear/Starter Panel Note: COLTCS Controls are envisaged from DCS, however one number local panel (common for both COLTCS) shall be provided for manual start/ stop, power distribution and its MIMIC and annunciator for its operation (applicable as per C&I Specification). Extent of MIMICs and annunciators shall be decided duringdetailed engg. (For details refer C&I Specification)	Please confirm following Points: 1. Bidder shall consider Local Control panel for Complete Control of Condenser on Load Tube Cleaning System (COLTCS). 2. LCP shall have provision for Remote Control of COLTCS from DCS/DDCMIS (BHEL scope). Interfacing Cable, Connecting Accessories shall be BHEL scope.	Pls refer ANNEXURE-E.1 (Scope matrix), sl no-17 & 18) for cable scope of supply.

ELECTRICAL						
1	66 of 76	66 of 76	SLD-part-18	-	We understand that 11kV/3.3kV power feeder shall be provided by client for transformer's in bidder scope however cable,cable installation and termination in both side in bidder;s scope. to calculate the cable requirement we need following details: i) Distance between 11kv,station switchboard# 0BA to proposed island 02 battery limit. ii) Distance between 11kv,station switchboard# 0BB to proposed island 01 battery limit. iii) Distance between 11kv,station switchboard# 0BC to proposed island 02 battery limit. iv) Distance between 11kv,station switchboard# 0BD to proposed island 01 battery limit. v) Distance between 3.3 kv,station switchboard to proposed island 01 and island 02 battery limit for 3.3kV motor cable connection.	Bidders understanding is correct that 11kV/3.3kV power/motor uncabled feeder is in BHEL scope. For calculating cable requirement following distance to be considered. Bidder to note that 4 nos. LT transformer of water system package(except CSSP transformer) are located in ISLAND-1 ony. i) Distance between 11kv,station switchboard# 0BA to proposed island 01 battery limit is 750 meter. ii) Distance between 11kv,station switchboard# 0BB to proposed island 01 battery limit is 750 meter. iii) Distance between 11kv,station switchboard# 0BC to proposed island 01 battery limit is 900 meter. iv) Distance between 11kv,station switchboard# 0BD to proposed island 01 battery limit is 900 meter. v) There is no 3.3 motor in island-02. For 3.3kv motors located in Island-01 fed from main power house, distance from Unit-3 shall be 750meters and from Unit-4 shall be 900 meters respectively. For APH/ESP wash pump fed from ESP CR, distance shall be 550 meter from Unit-3 ESP CR and 900 Meter from Unit-4 ESP CR For 3.3kV motors (DMCW-TG, DMCW-SG and ACW Pumps) located in main power house distance shall be 250 meters. For 3.3kV motors (Raw water Pumps) located in Raw water Pump house distance shall be 100 meters.

					Cable tray and support for laying of 11 kV and 3.3 kV HT cable, is it exisitng or we have to route new cable tray support system.	Cable Tray and Support scope is well defined in Electrical scope (Annexure-E.1, pg 1109-1110/5195)

					is there Any modification required in exisitng 11kV power feeder and 3.3kV power feeder.	No modification required in 11/3.3kV uncabled feeder provided by BHEL.
					Is there any emergency power required/DG set required?	Emergency power required/DG set is not required.
2	121 of 152	121 of 152	Annexure-1 scope matrix-Part-14	-	As per scope matrix client is providing feeder for LT drive/feeders for STP-3 from main power hosue swgr. Let us know the distance between the STP-3 to main power house swgr.	Distance from STP-3 to main power house swgr. will be 350 meters.
3	1123 of 5195	1123 of 5195	Technical specification section-VI-PART-B	-	mention Automatic change over for crtical swgr.let us know scope of critical switchgear.pl confirm	Critical swgrs are not applicable for water system packages.
4	83 of 228	83 of 228	Cl-8.00 part-15	-	let us know the requirement of substation automation system.pl confim	**Page reference mentioned is not as per spec.** However, subsation automation system is not in bidder's scope. Further, for relay communication to DCS scope, refer electrical scope(Annexure E-1)
5	81 of 228	81 of 228	CL-3.02.01	-	Let us know the mini kw motor rating for 87M differential protection module.Pl confrim.	**Page reference mentioned is not as per spec.** 2000kW motor require 87M differential protection module.
6	81 of 228	81 of 228	CL-3.02.02	-	Let us know the mini KVA transformer rating for 87Tdifferntial protection module.pl confirm.	**Page reference mentioned is not as per spec.** >= 5000 KVA transformer rating requires 87T differntial protection module.

7	81 of 228	81 of 228	CL-3.02.02	-	let us the know any requirement of restritced earth fault protection for transformer feeder.pl confirm.	**Page reference mentioned is not as per spec.** LT transformer requires restricted E/F and standby E/F and relay for the same will be located in LT swgr.
8			General query	-	Let us know the requirement of differential protection at HT panel side.pl confirm.	Differential protection of HT panel is not in bidder's scope.
9			General query	-	As per technical specifiation there is no mention of UPS power supply. If Any requirement of UPS.pl confirm on same.	UPS is excluded from Bidder's scope of supply.Bidder to submit UPS power requirement along with the bid as per clause no: GENERAL TECHNICAL REQUIREMENTS (C&I), Sl No: 41.
10			General query	-	let us know the solar panel system requirement. Pl confirm on the same.	Solar panel system is not in the scope of bidder.
11			General query	-	let us know the LV switchborad bus bar system shall be TTA OR PTTA. Kindly confirm on the same	Query not clear. Refer LV switchgear specification in electrical portion Annexure E.3
12	93 of 228	93 of 228	TECHNICAL SPECIFICATION FOR WATER TREATMENT PACKAGES - 2X800MW KODERMA - Copy_Part15,Clause -no.4.00.01,4.00.02	The Metallic screen for each core shall be capable of carrying thesystem earth fault current.	since system fault current is 50KA for 1 sec.,can we consider 3 core HT cable with earth conductor?	**Page reference mentioned is not as per spec.** Refer specification pg 1129/5195, it is clearly mentioned that metallic screen of 11/3.3kV cable shall be capable of earth fault current of 600A for 2 sec.

13	121 of 152	121 of 152	ANNEXURE-E.1,KODERMA TPS PH-II (2 X 800 MW),SCOPE MATRIX [ELECTRICAL SYSTEM / EQUIPMENTS]	Uncabled feeder for 3.3kV DMCW-TG, DMCW-SG & ACW Pump Motors located in Main Plant Power House will be provided by BHEL from 3.3kV HT boards	We understand that only feeders will be provided by BHEL.Bidder has to consider starter(including protection relays) in its scope OR feeders with complete protection(Starters) will be provided by BHEL.	**Page reference mentioned is not as per spec.** Uncabled Complete feeders with protection(starters) will be provided by BHEL for 3.3kV DMCW-TG, DMCW-SG & ACW Pump Motors located in Main Plant Power House.

Sr. No.	Tender Clause Reference	Clause as per the Tender Document	Bidder's Request	BHEL's Reply
1	Technical prequalification: Page no: 2 of 4	Pretreatment Plant (PTP) The bidder should have designed, supplied, erected and commissioned at least one (1) number water/ waste treatment plant having capacity of not less than 1000 cum/hr, comprising of clarifiers/tube settlers/thickeners or a combination thereof including civil works. The plant should have been in successful operation for at least (1) year as on the date of **11.06.2024**	We humbly request you please amend the below clause as per below: The bidder should have designed, supplied, erected and commissioned at least one (1) number water/ waste treatment plant having capacity of not less than 1000 cum/hr, comprising of clarifiers/tube settlers/thickeners or a combination thereof including civil works. The plant should have been in successful operation for at least (1) year as on the date of **05.06.2025**	Technical prequalification requirement is clear in this regard. Bidder to follow the same.

Sr. No.	Tender Clause Reference	Clause as per the Tender Document	Bidder's Request	BHEL's Reply
2	Technical pre-qualification: Page no: 2 of 4	**Reverse osmosis plant** In case the Bidder offers reverse osmosis with mixed bed combination plant for DM water, the Bidder should have designed, supplied, erected and commissioned/ supervised commissioning of one (1) number Reverse (RO) consisting of at least one (1) stream of minimum 60 cum/hr capacity capable pf producing outlet water quality of silica and conductivity not more than 0.02 ppm as SiO2 and 0.2 micromho/cm respectively. The above RO plant (s) should be having inlet feed water (fresh water) with TDS ≥ 500 ppm and capable of producing permeate water quality with TDS not more than 100 ppm OR having inlet feed as sea water and capable of producing permeate water quality with TDS not more than 500 ppm. The plants(s) should have been in successful operation for at least one (1) year as on the date of **11.06.2024.**	We humbly request you please amend the clause as per below. In case the Bidder offers reverse osmosis with mixed bed combination plant for DM water, the Bidder should have designed, supplied, erected and commissioned/ supervised commissioning of one (1) number Reverse (RO) consisting of at least one (1) stream of minimum 60 cum/hr capacity capable of producing outlet water quality of silica and conductivity not more than 0.02 ppm as SiO2 and 0.2 micromho/cm respectively. The above RO plant (s) should be having inlet feed water **(fresh water/waste water)** with TDS ≥ 500 ppm and capable of producing permeate water quality with TDS not more than 100 ppm OR having inlet feed as sea water and capable of producing permeate water quality with TDS not more than 500 ppm. The plants(s) should have been in successful operation for at least one (1) year as on the date of **11.06.2024.**	Technical prequalification requirement is clear in this regard. Bidder to follow the same.
3		**Approved makes:** **RO pressure tubes /RO membrane housings**	We are the only manufacturer for the **recyclable RO Pressure tubes** under the brand name KaiGO. Our RO Pressure tubes are being manufactured at our Ahmedabad Gujarat based factory. We have **registered patent** for this particular recyclable RO membrane tubes. We have manufactured more than 30 thousands numbers RO membrane tubes and supplied across the globe. Our RO pressure tubes have **pressure ratings up-to 1800 psi** and these pressure ratings are	Bidder to refer cl. 13.7/Sub Section-IA/Section-I/Page 116 of 5195.

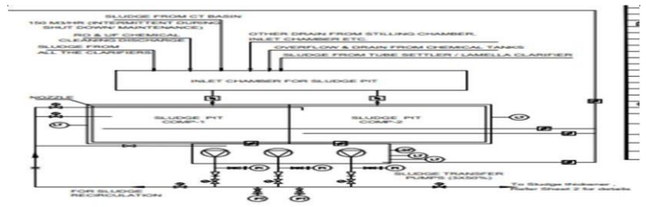
Sr. No.	Tender Clause Reference	Clause as per the Tender Document	Bidder's Request	BHEL's Reply
			rarely manufactured in India. We also have **ISO 9001:2015** for factory manufacturing standards for RO Pressure tubes. We are **approved in PSU & well known private groups.** Our 1 number of RO pressure tube can accommodate up-to 8 elements RO membranes which is very rarely and it will help our customer **to save the space.** With all above valued added advantages we humbly request you please approve our KaiGO brand for RO Pressure tubes. Your valuable approval will encourage to "Make in India" and "Local for Vocal" initiatives.	

Sr. No.	Tender Clause Reference	Clause as per the Tender Document	Bidder's Request	BHEL's Reply
4		**Approved makes:** **ULTRA-FILTRATION MEMBRANES**	We are having our own Ultra- Filtration membranes brand name as "Qurem". Our Qurem membranes have **proven track records in waste water treatment plant which is difficult to treat comparatively to water treatment plants.** We are one of the potential bidder to take this complete and would like to propose our "Qurem" Brand Ultra filtration membranes. We have supplied our Qurem brand membrane at multiple sites including waste water treatment plants. Hence we We humbly request you please accept and approve our Qurem Ultra-filtration brand.	Bidder to refer cl. 13.7/Sub Section-IA/Section-I/Page 116 of 5195.
5		**Approved makes** CLARIFIER/THICKENER/SOLID CONTACT CLARIFIER MECHANISM- Approved makes	We are manufacturing clarifiers/Thickners/Solid contact clarifier mechanism and have been supplied to many of our customers. Majority of the capacities have been standardize which ensure smooth installation and operation of the system. We have our own R&D Set up where we modernize the systems and deliver them with optimistic solutions. We have humbly request you please approve our clarifiers/Thickners/Solid contact clarifier mechanism under our brand name "Segmo"	Bidder to refer cl. 13.7/Sub Section-IA/Section-I/Page 116 of 5195.

Sr. No.	Tender Clause Reference	Clause as per the Tender Document	Bidder's Request	BHEL's Reply
6		**Approved makes:** Control Panels & Accessories – Approved makes	We are manufacturing control Panel under our Brand name " Verlec". Our Panels are CPRI certified for below test. 415 V, 630 V , LT Panel Short circuit withstand strength test Verification of temperature rise We also have ISO 9001:2015 for factory manufacturing standards for Panels. Our panels are installed in PSU and private segments and running successfully. We humbly request you please approve our brand " Verlec" for Panel.	Bidder to refer cl. 13.7/Sub Section-IA/Section-I/Page 116 of 5195.

SL. NO.	VOLUME	SECTION	CLAUSE NO.	PAGE NO.	SPECIFICATION REQUIREMENT	CLARIFICATION	BHEL'S Reply
1.	NIT		06.11.00 A 06.12.00 A 22	Pg. no 22 & 23 of 75 PG. No 37 of 75.	Construction water & Power Provide to bidder on FOC basis. Construction water & Power Chargeable basis.	Our request to kindly confirm that power and water for construction will be provided on FOC basis.	Please refer Annexure - F to NIT
2.	General				Statutory Permissions	Is there any Statutory Permission in the scope of bidder? If yes Please mention required permissions?	Requirement related meeting statutory guidelines, clearances, permissions for relevant water treatment packages are indicated in tender specification However bidder to refer GCC/SCC/NIT for other applicable statutory permissions.
3.		Section-I	Annexure-X	875	Raw Water Analysis (Chloride 12 ppm as Cl)	In Raw Water Analysis, Chloride is mentioned as 12 ppm as Cl, and the total cationic and total anionic load is given as 128 ppm as CaCO3. If we consider Chloride as Cl, the anionic load will increase from 128 ppm as CaCO3, and ionic balance will not match. Please confirm, if the value of Chloride is as Cl ion or ppm as CaCO3.	Specification requirement is clear in this regard. Bidder to follow the Technical specification.
4.		Section-I	Sub section-IA, 18. Chemical dosing	1071, 1073	18.1 Alum Dosing System and 18.5 PAC Dosing System	Please clarify, why the requirement of both Alum dosing and PAC Dosing system is envisaged.	Specification requirement is clear in this regard. Bidder to follow the Technical specification.
5.		Section-I	Sub section-IA, 18. Chemical dosing	1079, 1080	Coagulant aid for thickener & Centrifuge	As per Clause 25.17, PE dosing rate for Thickener & Centrifuge is mentioned as 5 ppm and 20 ppm respectively. However, contradictory to this, as per Clause 30.1	Capacity of each coagulant aid dosing tank shall be equal to 12 hours requirement of both

SL. NO.	VOLUME	SECTION	CLAUSE NO.	PAGE NO.	SPECIFICATION REQUIREMENT	CLARIFICATION	BHEL'S Reply
						Design dosing rate of coagulant for thickener & centrifuge is given as 2ppm. Please clarify the contradiction.	Thickener & centrifuge operating at its design capacity and a design dosage rate of 5 ppm for thickener & 20 ppm for centrifuge minimum.

SL. NO.	REFERENCE OF BIDDING DOCUMENT			DESCRIPTION	BIDDER'S QUERY	BHEL'S REPLY
	VOLUME & SECTION	PAGE NO.	CLAUSE NO. / SR. No.			
PROCESS						
1.	Technical Document-5		P&ID	Tender -P&ID (CHP RUN OFF WATER TREATMENT PLANT) 	Please define the scope and design details of Construction of Decanted Water Sump.	Decanted water sump Civil work is in BHEL scope, however pump, piping, instrument etc coming in decanted water sump is to be provided by bidder as per tender specification.
2.	Technical Document-5	Page 1074 of 5195	P&ID TECHNICAL SPECIFICATION FOR WATER TREATMENT PACKAGES KODERMA THERMAL POWER PROJECT PH - II (2 X 800 MW)	Sludge consistency Tender P&ID- PT Plant  PT PLANT-Sludge Disposal Pump 19.1 | Sludge pumps | disposal | Three (3X50%) | Vertical sump pump | 80 cum/hr (min) each	Please confirm the operation hour of Sludge disposal pump capacity is 80 m3/hr & qty 3 x 50%. Also provide the Sludge consistency in Sludge Pit in PT Section.	Specification requirement is clear in this regard. Further Sludge consistency Shall be finalized during detailed engineering.
3.	SECTION – I	875-5195	-	Raw Water Analysis	As per Raw water analysis mentioned Total Cation – 128 ppm and Total Anion – 128 ppm. Based on Total cation and anion TDS comes 256 ppm as our standing. However, in table mentioned TDS – 131 ppm. Please reconfirm the design TDS.	Specification requirement is clear in this regard. Bidder to follow the Technical specification.
4.	Annexure-XII			Chlorine di oxide dosing system P&ID	Kindly confirm, shall we consider individual ClO2 Analyzer at Outlet of ClO2 Generator for Locations - Filtered Water Tank of PT Potable-Comp-1, PT Potable Comp-2, To Stilling Chamber PT CW System, To Aerated of PT CW system, To Stilling Chamber PT DM System, To Aerated of PT CW System. Please reconfirm.	Specification requirement is clear in this regard. Bidder to follow the Technical specification.

SL. NO.	REFERENCE OF BIDDING DOCUMENT			DESCRIPTION	BIDDER'S QUERY	BHEL'S REPLY
	VOLUME & SECTION	PAGE NO.	CLAUSE NO. / SR. No.			
5.	Annexure-XII			Chlorine Di Oxide Dosing System P&ID	Kindly confirm each Piping Length in ClO2 from Generator Outlet to Filtered Water Tank of PT Potable-Comp-1, PT Potable-Comp-2, To Stilling Chamber PT CW System, To Aerated of PT CW System, To Stilling Chamber PT DM System, To Aerated of PT CW System.	Specification requirement is clear in this regard. Bidder to follow the Technical specification.
6.	Volume 6 Part-14	997 of 5195		Datasheet for Chlorine Di Oxide Dosing System SL.NO. 3.6 & 3.7	Kindly confirm capacity and Head of booster pump/Dosing Pump for CLO2 sample line.	Specification requirement is clear in this regard. Bidder to follow the Technical specification.
7.			General	Chlorine di oxide dosing system	We are considering T-mixing of sulphuric acid. Please confirm.	Specification requirement is clear in this regard. Bidder to follow the Technical specification.
8.			General	Vendor Selection	Apart from Vendor list, Bidders are free to select vendors having the experience in Similar Power Plant Project. Please confirm.	Bidder to refer cl. 13.7/Sub Section-IA/Section-I/Page 116 of 5195.
9.			General		Please provide the P&ID of PHE System for designing purpose.	Bidder to refer details indicated in technical specification for design of PHE.
10.			General	Sludge Cake Disposal	Please reconfirm that Treated Sludge disposal is in client scope.	Sludge cake disposal of Filter Press/Centrifuge is excluded from bidder's scope.
11.			General	Chemical Dosing	We are considering shed for chemical dosing system. Please confirm.	Specification requirement is clear in this regard. Bidder to follow the Technical specification.
12.			General	Site Grading	We understand that Grading shall be done by the client.	Site Grading is in bidder's scope. Bidder to follow the Technical specification.
13.			General	Overhead Laying of Pipe and Cable	We are considering overhead laying of pipe and cables. Please reconfirm.	Specification requirement is clear in this regard. Bidder to follow the Technical specification.
14.			General	Power	Power during construction will be provide by Client. Please reconfirm.	Refer Annexure-F to NIT

SL. NO.	REFERENCE OF BIDDING DOCUMENT			DESCRIPTION	BIDDER'S QUERY	BHEL'S REPLY
	VOLUME & SECTION	PAGE NO.	CLAUSE NO. / SR. No.			
	CIVIL					
1.	-	-	-	General	Kindly provide HGL (High flood level) of site.	The Highest Flood Level (HFL) of nearby Barakar River (Approx. 7.5 KM away) is 372.28m.
2.	Sec – VI/B Sub sec - D-1-5	15 of 78	5.02.11.01.03	Buoyancy from high ground water levels shall be taken into account in investigating stability against uplift.	Kindly clarify whether the uplift design water table shall be considered at ground level OR as per actual water table in Soil report.	Uplift shall be checked considering ground water table up to FGL. Bidder to follow the Technical specification.
3.	Sec. - VI/A Sub sec. - IID	55 of 78	5.23.01	Imported earth	Please convey Approx. source or location of bringing imported earth to site in case needed for filling requirements.	Source will be outside DVC Koderma plant. Tentatively 10 Km from plant boundary. Bidder needs to visit site for further assessment.
4.	Sec. - VI/A Sub sec. - IID	55 of 78	5.23.01	Malwa disposal	Kindly suggest the following- 1 Approx. location of disposal site for disposal of debris/ malwa/surplus & unserviceable earth (if any) 2 Its distance from the site.	Will be decided by DVC as per site suitability during execution.
5.	Sec - VI/A Sub section - IID	1 OF 8	1.00.00	Dismantling works	Kindly provide the sections details of any abandoned structure in the area of work to ascertain the dismantling required.	Bidder needs to visit site and assess of their own.
6.	Sec - VI/E	-	General Layout Plan-8024-999- POC-F-001	Relocation of existing pipe line	Kindly confirm if underground Pipe lines, Cables or Poles etc. that is required to be dismantled or relocated.	Restoration of existing facilities shall be in the bidder's scope. Any dismantling and re-erection of customer infrastructure / facilities within the islands shall be in the bidder's scope.
7.	-	-	-	General	Please provide the tie in point for connecting storm water drainage. Please also confirm MOC of storm water drains	Scope of works for Connection of Roads and associated storm water drain from island 1, 2, 3, 4 & 5 up to nearest main storm drain & road outside islands shall be in bidder' scope. Bidder to refer tender specification for further detail.
8.	-	-	-	General	Kindly conform if there shall be any chemical drains apart from storm water drain.	Specification requirement is clear in this regard. Bidder to follow the Technical specification.

SL. NO.	REFERENCE OF BIDDING DOCUMENT			DESCRIPTION	BIDDER'S QUERY	BHEL'S REPLY
	VOLUME & SECTION	PAGE NO.	CLAUSE NO. / SR. No.			
9.	Sec-VI	-	-	Cutting of forest area	Kindly conform if Cutting of unwanted Tress, Plants, Bushes and Shrubs etc. in Island-3 and removing the same form Site. However, necessary approval for the same shall be arranged by the Employer or contractor.	Unwanted Tress having girth 30 cm and above will be cut by DVC. Cutting of Trees having girth less than 30 cm is in bidder's scope. However, in all cases removal of trees, roots etc is in Bidder's scope only.
10.	Sec – VI/B Sub sec - D-1-5	55 of 78	5.23.01	Area grading	Bidder understand that filling of pond area is in employer's scope. Kindly confirm.	Filling of pond area within islands, if any will be in bidder's scope.
	-	-	-	Removal of Boulder & debris	During site visit it was observed that there are boulder & debris which needs to be cleared. Kindly confirm if it's in contractor's or bidder's scope.	Removal of boulder & debris, if any will be in bidder's scope.
11.	VI/A	-	8024-999-POC-F- 001	-	Termination of overhead transmission line over proposed wagon Tippler area as identified in General Layout Plan-8024-999-POC-F- 001.	Query is not clear. Bidder to follow technical specification.
12.	-	-	-	General	Kindly confirm the bolting MOC to be used in Piping for submerged and non-submerged condition.	Specification requirement is clear in this regard. Bidder to follow the Technical specification.
13.	-	-	-	General	Kindly confirm the Handrailing MOC for RCC & Metallic structure. Also, please confirm the post dia. and no. of posts?	Specification requirement is clear in this regard. Bidder to follow the Technical specification.
14.	Tendernotice_10	41 of 75	PROFORMA OF BANK GUARANTEE FOR EARNEST MONEY	Employer's Name and Address	Please share the Employer's (BHEL) address for Bank Guarantee.	Refer S,No - 26 of NIT
15.	TECHNICAL SPECIFICATION FOR WATER TREATMENT PACKAGES - 2X800MW KODERMA - Copy_Part58	62 of 65	LIST OF DOCUMENTS TO BE SUBMITTED ALONG WITH BID	Auxiliary power consumption in format given for applicable water treatment packages. (Stamped & Signed)	Please provide the format for providing the Auxiliary Power Consumption for water treatment package.	Bidder to refer, page no. 156 for COLTCS, page no. 202 for PHE, page no. 245 for SCS, page no. 289 for Misc Pump (Vertical Type),page no. 355 for Misc Pump (Horz. Type), page no. 548 for HVAC system. Bidder to furnish signed & stamped copy of above format along with their bid.

S.No.	Specification reference	Specification requirement	Bidder's query/ statement of clarification	BHEL Reply
1	NIT, Page 3 of 7, Clause 26, EMD, Sub clause (v)	Bank Guarantee from any of the Scheduled Banks.	1. Please provide BHEL Bank details for issuing EMD Bank Guarantee by our bank 2. We understand that Original EMD Bank Guarantee is to be submitted to BHEL, PEM, BHEL Sadan, HRD & ESI Complex, Plot No. 25, Sector-16A, Noida-201301. Kindly confirm.	Refer clause no 26 of NIT
2	NIT, Page 3 of 7, Clause 27, Security Deposit, Sub clause (c)	Bank Guarantee from Scheduled Banks	Please provide format for Bank Guarantee towards Security Deposit of 10% of the Contract value.	Refer Annexure of GCC
3	GCC-BOP, Page 11 of 31, Clause 11, CPBG	Contract Performance Bank Guarantee	It is surprising to note from Tender that Contract Performance Bank Guarantee for 5% of Contract value is required to be submitted by bidder in addition to the Bank Guarantee towards Security Deposit of 10% of the Contract value. Please waive requirement of CPBG so as not to duplicate.	Only Security Deposit as per clause no -27 of NIT is applicable.
4	Technical Specification, Page 16 of 5195, Clause 21, Construction Power	Construction power shall be provided by BHEL free of cost	While Construction power shall be provided by BHEL free of cost, subject clause further specifies that *"Power for agencies Office, Canteen etc. will be on chargeable basis ".* Kindly share the rate at which power for office, etc. shall be charged by BHEL.	Refer Annexure F to NIT. Prevailing Rates shall be as per DISCOM at site
5	Annexure-B to NIT	In the event of delay, Liquidated damages shall be recovered to a *"maximum of ten (10) percent of the total contract price (main supply and E&C including civil works) excluding GST".*	We submit that Liquidated Damages @10% is very harsh for such a high value project. We request for reduction of the Liquidated Damages percentage to *"maximum of five (5) percent of the total contract price (main supply and E&C including civil works) excluding GST".*	As per NIT

6	Main Price Format	S.no. B Electrical Works & sub headings, B1, B2, B3 & B4	With reference to S.no. B, breakup of Supply, E&C, Engineering Charges & Mandatory Spares is given only for Electrical works as sub-heading of B viz. B1, B2, B3 & B4. Please confirm whether B1 is towards supply of Electrical works & B2, B3 & B4 are for all works including Mechanical, Electrical & Instrumentation. Further, breakup of Instrumentation work is also not provided, so it may be presumed that Instrumentation is a part of Mechanical or Electrical works. Kindly confirm.	Only for Electrical Work.
7	Annexure-G to NIT	BOCW cess	We understand that BOCW cess shall be applicable @ 1% only on value of construction entered at S.no. B2 (E&C) & S.no. C (Civil Works) of Main Price Format. Please confirm.	Refer Annexure-G to NIT.

	AMENDMENT TO TECHNICAL SPECIFICATION FOR **WATER TREATMENT PACKAGES** **KODERMA THERMAL POWER PROJECT PH – II (2 X 800 MW)**	BHEL DOCUMENTS NO.: PE-TS-519-404-W001 AMENDMENT NO # 1 REV. NO. 00 DATE: 24-Jul-25 Page **1** of **1**

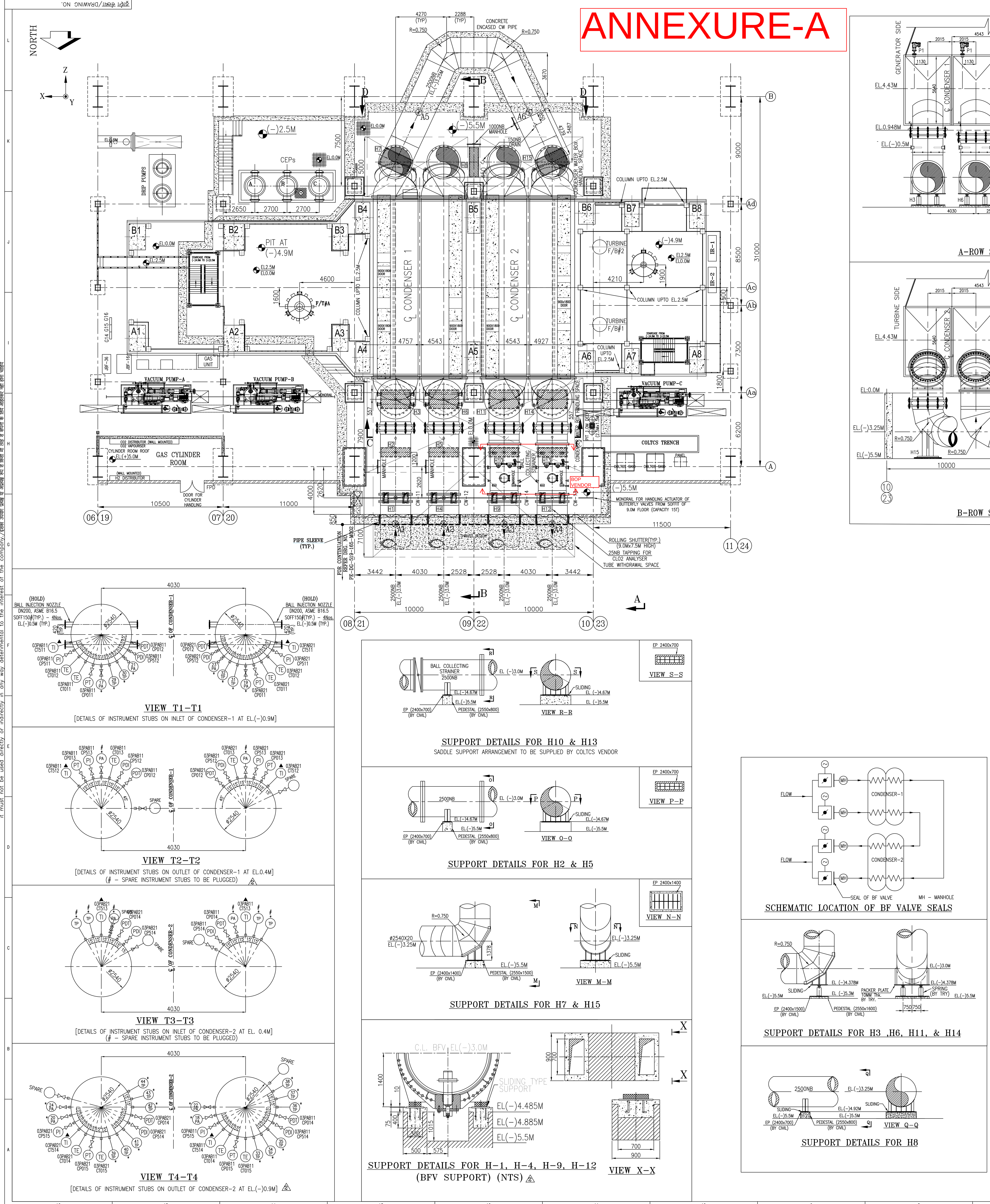
The following modifications with respect to Technical Specification for WATER TREATMENT PACKAGES, BHEL's Technical specification no PE-TS-519-404-W001 REV. NO. 00 shall apply. Bidder to note that existing clauses as appearing in the specification stands deleted and clauses as mentioned in "Modified to" column shall be applicable and complied by the bidder.

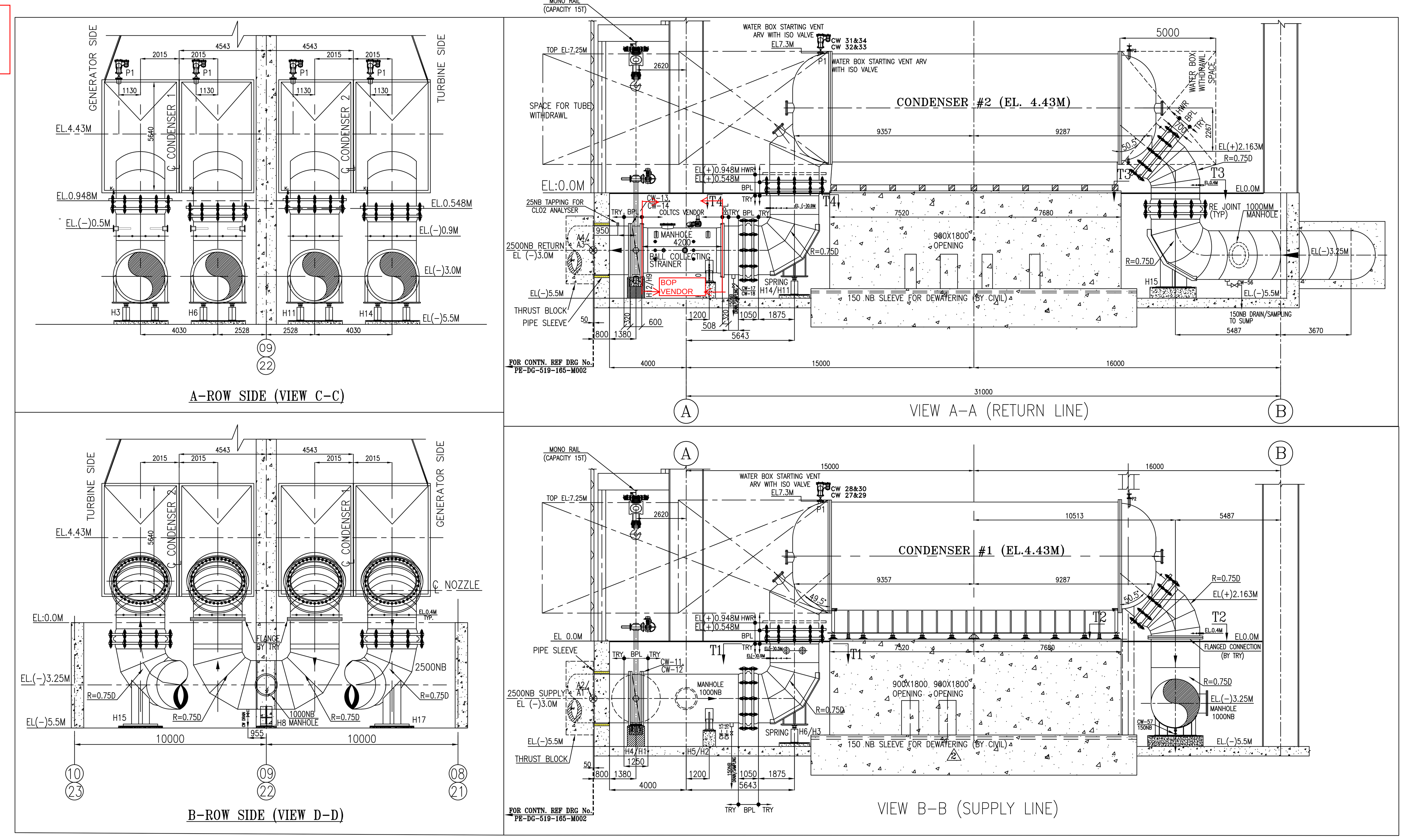
Sl.No.	Specification reference	Cl. No./Page No.	Specification requirement	Amendment
1.	Section-IA /TECHNICAL SPECIFICATION COLTCS	A) CW PIPING LAYOUT/ Page 148 of 5195	Layout of CW Piping (Local To Condenser)	Annexure-A
2.	Section-IA /TECHNICAL SPECIFICATION MISC. PUMPS (HORIZONTAL)	BILL OF QUANTITY/ Page 382-384 of 5195	BOQ SCHEDULE-R00	BOQ SCHEDULE-R01
3.	Section-IA/ DATASHEET A FOR CHP RUN OFF WTP	1.4/Page 1056 of 5195	Capacity (Each)-Minimum-To suit net Clarifiers output of 2200 cum/hr and …… shall be 2200 cum/hr+ water loss due to sludge (3%).	Capacity (Each)-Minimum-To suit net Clarifiers output of 2200 cum/hr and …… shall be 1100 cum/hr+ water loss due to sludge (3%).
4.	Section-IA/ DATASHEET A FOR PRETREATMENT PLANT	18.1 (a)/ Page 1071 of 5195	Tank – Number- (3) numbers Capacity (each)- To store …… One (1) number per tank	Tank – Number- (4) numbers Capacity (each)- To store …… One (1) number per tank
5.	Section-IA/ DATASHEET A FOR PRETREATMENT PLANT	18.1 (b)/ Page 1072 of 5195	Pump Number- Three (2W+1S)…….. ……Shaft-Hardened steel (EN8-BS-970)/AISI-316	Pump Number- Four (3W+1S)…….. ……Shaft-Hardened steel (EN8-BS-970)/AISI-316
6.	Section-IA/ DATASHEET A FOR PRETREATMENT PLANT	18.3 (b)/ Page 1072 of 5195	Lime Dosing Tank- Number-Two (2) numbers lime solution dosing tanks. Capacity (Each)- To hold …….. One (1) number per tank	Lime Dosing Tank- Number-Three (3) numbers lime solution dosing tanks. Capacity (Each)- To hold …….. One (1) number per tank
7.	Section-IA/ DATA SHEET – A FOR DM PLANT	51 (4)/ Page 1105 of 5195	4) Service Cycle (period between two (2) successive regenerations) 24 hrs.	4) Service Cycle (period between two (2) successive regenerations) **30** hrs.
8.	Section-IA /TECHNICAL SPECIFICATION MISC. PUMPS (VERTICAL)	Additional pages	-	Details of Vertical Pump.
9.	Section-ID (Cont.)/ TECHNICAL SPECIFICATIONS FOR CIVIL, STRUCTURAL & ARCHITECTURAL WORKS	-	-	Page no. 2335 to 2346 of 5195 stands deleted
10.	Section-ID (Cont.)/ TECHNICAL SPECIFICATIONS FOR CIVIL, STRUCTURAL & ARCHITECTURAL WORKS	-		Page no. 2650 to 2683 of 5195 stands deleted.

ANNEXURE-A

फस्ट ऐंगल प्रोजेक्शन/FIRST ANGLE PROJECTION

सभी माप मि मी मे है/ALL DIMENSIONS ARE IN MM





REFERENCE DRGS:

SL NO	TITLE	BHEL DRG NUMBER	DVC DRG NUMBER	UNIT	
1	TG EQUIPMENT PLAN AT GROUND (EL 0.0M) FLOOR	PE-DG-519-100-M003	3112-110-PVM-F-001	PEM	
2	CROSS SECTION OF MAIN PLANT	PE-DG-519-100-M007	3112-110-PVM-F-005	PEM	
3	P & ID OF CW AND ACW SYSTEM	PE-DG-519-165-N001	3112-112-PVM-F-004	PEM	
4	LAYOUT OF CW PIPING (BETWEEN A-ROW TO PUMP HOUSE / COOLING TOWER)	PE-DG-519-165-M002	3112-112-PVM-L-013	PEM	
5	PG TEST INSTRUMENTATION SCHEME	PE-DG-519-100-N298	-	PEM	(HOLD)
6	CONDENSER GA AND CROSS-SECTION DRAWING	0-160-10-70073-C-243	3112-110-PVM-B-178	HWR	
7	GA OF BUTTERFLY VALVES WITH ELECTRICAL ACTUATOR	BP-DG-697-104-002	3112-110-PVM-B-216	BPL	(HOLD)
8	GA DRG FOR 2500 NB COMPENSATING TYPE RE JOINTS	BP-DG-697-101-001	3112-110-PVM-B-224	BPL	(HOLD)
9	INSTALLATION PLAN - COLTCS	PE-V2-519-165-N003	3112-112-PVM-E-031	PEM	(HOLD)
10	GA OF BALL SEPERATOR	PE-V2-519-165-N004	3112-112-PVM-B-032	PEM	(HOLD)
11	INSTRUMENT STUB DETAIL (PRES/TEMP)	PE-DG-519-145-I102	-	PEM	(HOLD)
		PS:PE:SP:200	-	PS-TS	
		PS:PE:ST:200	-	PS-TS	

VALVE DETAILS (HOLD)

SI. NO.	VALVE TAG NO.	SIZE (NB)	TYPE	END CONN.	LENGTH (MM)	SUPPLIED BY
1	CW-11,12,13,14	2500	BFV	F	600	BPL@
2	CW-28,30,31,34	200	ARV	F	–	PEM
3	CW-15,16,17,18,56,57	150	GV	BW	–	TRY
4	CW-27,29,32,33	200	GV	F	–	TRY
	@ WITH MATING FLANGE AND NECK PIECE					

NOTES:

1. ALL DIMENSIONS ARE IN MM'S AND LEVELS ARE IN METRES.
2. ALL ELEVATIONS INDICATED IN THE DRG. ARE W.R.T. POWER HOUSE GROUND FLOOR ELEVATION AS 0.00M, WHICH CORRESPONDS TO RL.(+)373.5M.
3. DESIGN PARAMETERS:
   PRESSURE : CW DESIGN SYSTEM PRESSURE : 5.5 kg/sq.cm (g).
   DESIGN COOLING WATER INLET TEMPERATURE TO CONDENSER & VACUUM PUMP H.E. : 33°C.
   DESIGN ACW INLET TEMPERATURE TO PHE'S : 36°C.
   DESIGN MECHANICAL TEMPERATURE : 60°C.
4. FOR MATERIALS OF CONSTRUCTION AND PAINTING/ PROTECTION OF PIPEWORK, REFER P&ID CW-ACW SYSTEM (PE-DG-519-165-W001).
5. ALL PRESSURE STUBS & ROOT VALVES SHALL BE 15NB.
6. INSTRUMENTS MARKED ▲ SHALL BE SUPPLIED ALONG WITH THE EQUIPMENT.
7. INSTRUMENTS MARKED WITH * ARE FOR PERFORMANCE GUARANTEE TEST.
8. ALL 2500NB BENDS ARE OF MITRE TYPE WITH RADIUS 0.75D.
9. DRAIN/VENT VALVES:-
   CW SYSTEM: 150NB DRAINS / VENTS TO BE PROVIDED.
   200NB ARVs IN CW SYSTEM SHALL BE PROVIDED AS PER TRANSIENT ANALYSIS REPORT.
10. COMPANION FLANGES FOR BUTTERFLY VALVES SUPPLIED BY BHEL/BPL, ARE SUPPLIED ALONG WITH VALVES.
11. REFER COLTCS VENDOR DRAWING, FOR COLTCS PIPING LAYOUT.
12. FOR PAINTING AND SURFACE PROTECTION REQUIREMENT, REFER P&ID CW-ACW SYSTEM. PE-DG-519-165-W001.
13. FOOTINGS OF A-ROW COLUMNS 8/21, 9/22 & 10/23 SHALL BE KEPT BELOW CW PIT LEVEL SUCH THAT NO PART OF BASE PLATE PROJECTS ABOVE PIT SURFACE.
14. ANY FOULING OF PIPING SHOWN HERE WITH OTHER FACILITIES SHALL BE CORRECTED TO SUIT AT SITE. PIPING ARRANGEMENT SHALL BE SUCH THAT DURING EQUIPMENT HANDLING THERE SHALL BE NO FOULING WITH HOIST MOVEMENT
15. CLEAR HEIGHT AND WIDTH TO BE MAINTAINED IN ALL ACCESS WAYS AND OPERATING AREAS AROUND PIPING AS PER STANDARD
16. ALL PIPE MOUNTED VALVES AND INSTRUMENTATION SHALL BE PROVIDED WITH SUFFICIENT APPROACH FOR OPERATION AND MAINTENANCE AS PER STANDARD.
17. (2) ARV SIZE, NO AND LOCATIONS SHALL BE AS PER APPROVED TRANSIENT ANALYSIS REPORT.

CALCULATED LOAD AT ANCHORS, BOTTOM SUPPORTS AND BOTTOM SPRINGS

LOAD ON ANCHORS NEAR TO A-ROW

TAG	NODE	Fx(T)	Fy(T)	Fz(T)	Mx(T-m)	My(T-m)	Mz(T-m)
A1	1000	2.3	(-)4.8	(-)32.8	5.0	47.2	0.0
A2	2000	0.8	(-)4.8	(-)34.2	6.4	10.1	0.0
A3	5000	2.9	(-)5.5	(-)49.3	3.3	53.3	0.0
A4	6000	0.8	(-)5.5	(-)50.2	3.5	11.2	0.0

LOAD ON ANCHORS NEAR TO B-ROW

TAG	NODE	Fx(T)	Fy(T)	Fz(T)	Mx(T-m)	My(T-m)	Mz(T-m)
A5	8045	0.9	(-)38.9	23.8	(-)60.5	(-)50.5	(-)70.8
A6	7045	6.6	(-)46.4	24.1	(-)94.4	23.3	55.7

LOAD ON BOTTOM SUPPORTS

TAG	NODE	Fx(T)	Fy(T)	Fz(T)	Dx(mm)	Dy(mm)	Dz(mm)
H1	1035	1.2	(-)34.6	3.6	0.0	0.0	0.2
H2	1040	4.9	(-)40.6	8.6	0.2	0.0	0.5
H4	2035	0.6	(-)34.6	3.6	0.0	0.0	0.2
H5	2040	1.8	(-)46.7	8.6	0.0	0.0	0.5
H7	8060	5.5.	(-)56.0	(-)6.3	0.6	0.0	(-)0.7
H8	4115	9.2	(-)108.3	25.2	0.9	0.0	2.7
H9	5035	1.3	(-)39.8	7.8	0.1	0.0	0.4
H10	5040	4.5	(-)63.9	19.1	0.2	0.0	1.0
H12	6035	0.5	(-)39.8	7.8	0.0	0.0	0.4
H13	6040	2.0	(-)67.3	19.2	0.0	0.0	1.0
H15	7060	(-)3.9	(-)56.0	(-)5.7	(-)0.6	0.0	(-)0.9

LOAD ON BOTTOM SPRINGS

TAG	NODE	PIPE WEIGHT (T)	LOAD ON STRUCTURE (T)	Dx(mm)	Dy(mm)	Dz(mm)	
H3	1096	(-)16.7	(-)49.2	1.5	0.1	0.7	SPRING 13/080 2 No.'s EACH
H6	2096	(-)16.7	(-)46.6	0.3	(-)0.2	0.7	
H11	5096	(-)16.7	(-)49.1	1.2	(-)0.3	1.9	
H14	6096	(-)16.7	(-)46.5	0.3	(-)0.6	1.9	

AXIS FOLLOWS:

(+)X--> TURBINE TO GENERATOR
(+)Y--> VERTICALLY UPWARD
(+)Z--> TURBINE TO BOILER

NOTE:

1. FORCES AND MOMENTS ON ANCHORS & SUPPORTS ARE FOR PIPING FROM RE JOINT UPTO ANCHOR.
2. THE EFFECT OF PIPING (BEYOND ANCHORS) INCLUDING PRESSURE THRUST, BURIED PIPING RESISTANCE AND THERMAL MOVEMENTS (AS GIVEN IN DRG. No.) IS TO BE TAKEN CARE OF BY CIVIL WHILE CALCULATING THE TOTAL LOAD ON ANCHORS.

PIPE SIZES:

NB	O.D.(MM) MAX.	THK.(MM)
2500	2540.0	20.0

NOTE:- SCAN QR CODE FOR CHECKING THE LATEST REV. STATUS OF DRAWING.

कार्य संख्या- JOB NO. 519
स्थिति STATUS CONTRACT
मुद्रण स्केल मीटर में PRINT SCALE IN METRE

पुनरीक्षण REV.	दिनांक DATE	परिवर्तितकर्ता ALTD	जांचकर्ता CHD	अनुमोदनकर्ता APPD	पुनरीक्षण REV.	दिनांक DATE	परिवर्तितकर्ता ALTD	जांचकर्ता CHD	अनुमोदनकर्ता APPD
02	16.07.25	MK	PM	BKA	01	09.07.25	MK	PM	BKA
01	DRG. REVISED INLINE WITH CUSTOMER COMMENTS RCVD. DTD.15.07.2025 VIA LETTER NO.ENGG-3112-110-051-PVM-L-009.				01	DRG. REVISED INLINE WITH CUSTOMER COMMENTS RCVD. DTD.09.05.2025 VIA LETTER NO.ENGG-3112-110-051-PVM-L-009			
02	REVISION MARKED (2)								

CUSTOMER DRG. NO. 3112-110-051-PVM-L-009

ग्राहक/CUSTOMER: DAMODAR VALLEY CORPORATION

परियोजना/PROJECT: KODERMA THERMAL POWER PROJECT PH-II (2x800 MW)

भारत हेवी इलेक्ट्रिकल्स लिमिटेड
BHARAT HEAVY ELECTRICALS LTD
पावर सेक्टर/POWER SECTOR
परियोजना अभियांत्रिकी प्रबंधन
PROJECT ENGINEERING MANAGEMENT
नोएडा (उ॰प्र॰)/NOIDA (U.P.)

DEPT CODE: M

	नाम NAME	हस्ताक्षर SIGNATURE	दिनांक DATE
तैयारकर्ता/DRN	RK		15.04.2025
डिजाइनकर्ता/DESN	RK		15.04.2025
जांचकर्ता/CHD	MK		15.04.2025
अनुमोदनकर्ता/APPD	PM		15.04.2025

शीर्षक/TITLE: LAYOUT OF CW PIPING (LOCAL TO CONDENSER)

एमपीएल MPL	सिविल CIVIL	इलेक्ट्रिकल ELEC	एसएण्डसीई S&CE	डब्ल्यूएसई WSE	मैक्स MAX	विभाग DEPT.
						हस्ताक्षर SIGN / दिनांक DATE

स्केल - SCALE- 1:125

ड्राइंग संख्या / DRAWING NO. PE-DG-519-165-M001

शीट SHEET 1 OF 1 — पुनरीक्षण REV. 02

फॉर्मेट साइज A0
FORMAT SIZE A0

1.0	Supply of Pumps and Motors:	UOM	QUANTITY
1.1	**DMCW TG PUMPS**		
1.1.1	Pump	Nos.	6
1.1.2	Motor	Nos.	by BHEL
1.1.3	Suction Strainer	Nos.	6
1.1.4	Mandatory Spares (as per S.No. 3.0 below)	Lot	1
2.1	**DMCW SG PUMPS**		
2.1.1	Pump	Nos.	6
2.1.2	Motor	Nos.	by BHEL
2.1.3	Suction Strainer	Nos.	6
2.1.4	Mandatory Spares (as per S.No. 3.0 below)	Lot	1
3.1	**ACW PUMPS**		
3.1.1	Pump	Nos.	6
3.1.2	Motor	Nos.	by BHEL
3.1.3	Suction Strainer	Nos.	6
3.1.4	Mandatory Spares (as per S.No. 3.0 below)	Lot	1
4.1	**DM M/UP PUMPS**		
4.1.1	Pump	Nos.	3
4.1.2	Motor	Nos.	by BHEL
4.1.3	Suction Strainer	Nos.	3
4.1.4	Mandatory Spares (as per S.No. 3.0 below)	Lot	1
5.1	**CONDENSATE TRANSFER PUMPS**		
5.1.1	Pump	Nos.	2
5.1.2	Motor	Nos.	by BHEL
5.1.3	Suction Strainer	Nos.	2
5.1.4	Mandatory Spares (as per S.No. 3.0 below)	Lot	1
6.1	**BOILER FILL PUMP**		
6.1.1	Pump	Nos.	2
6.1.2	Motor	Nos.	by BHEL
6.1.3	Suction Strainer	Nos.	2
6.1.4	Mandatory Spares (as per S.No. 3.0 below)	Lot	1
7.1	**CW MAKE UP PUMP**		
7.1.1	Pump	Nos.	3
7.1.2	Motor	Nos.	by BHEL
7.1.3	Suction Strainer	Nos.	3
7.1.4	Mandatory Spares (as per S.No. 3.0 below)	Lot	1
8.1	**HVAC PUMPS**		
8.1.1	Pump	Nos.	2
8.1.2	Motor	Nos.	2
8.1.3	Mandatory Spares (as per S.No. 3.0 below)	Lot	1
9.1	**FGD M/UP PUMPS**		
9.1.1	Pump	Nos.	2
9.1.2	Motor	Nos.	2
9.1.3	Mandatory Spares (as per S.No. 3.0 below)	Lot	1
10.1	**GYPSUM WASH PUMP**		
10.1.1	Pump	Nos.	2
10.1.2	Motor	Nos.	2
10.1.3	Mandatory Spares (as per S.No. 3.0 below)	Lot	1
11.1	**SERVICE WATER PUMPS**		
11.1.1	Pump	Nos.	3
11.1.2	Motor	Nos.	3
11.1.3	Mandatory Spares (as per S.No. 3.0 below)	Lot	1

BOQ SCHEDULE

12.1	**APH/ESP WASH PUMPS**		
12.1.1	Pump	Nos.	2
12.1.2	Motor	Nos.	2
12.1.3	Mandatory Spares (as per S.No. 3.0 below)	Lot	1
NOTE: Commissioning & Erection spares, special Tools & tackle and other accessories applicable as per Specification but not listed above shall be included in the price of pump/motor & shall be supplied with the pump/motor.			
2.0	**SITE SERVICES:**	**UOM**	**QUANTITY**
2.1	Erection & commissioning at site as per Specification	LOT	1
2.1.1	Replacement of Gland packing with Mechanical Seal at Site as per Specification	LOT	1
2.2	PG Test of pumps at site as per Specification	LOT	1
3.0	**Mandatory Spares**	**UOM**	**QUANTITY**
3.1	**DMCW TG & DMCW SG & ACW, pumps — For each type, size & rating**		
3.1.1	Impeller with impeller fastener as applicable	set	1
3.1.2	Shaft (s) with fasteners as applicable	set	1
3.1.3	Shaft Sleeves	set	2
3.1.4	Wearing rings — Impeller as applicable	set	2
3.1.5	Wearing Rings — Casing as applicable	set	2
3.1.6	Bearings for the pumps & drives	set	2
3.1.7	Thrust bearing & Thrust bearing collar (as applicable)	set	1
3.1.8	Pump & Drive Coupling assembly with all fasteners & coupling Guard	set	1
3.1.9	Pin & Bushes for Coupling (as applicable)	set	2
3.1.10	Gland packing / Mechanical seals (as applicable)	set	2
3.1.11	Stuffing box / Gland assembly (if applicable)	set	1
3.1.12	DMCW TG & DMCW SG & ACW, pumps Motor-1 No. (of each type, size & rating)	set	1
3.2	**DM M/UP PUMP, CST PUMP, BOILER FILL PUMP, CW M/UP PUMP, HVAC PUMP, FGD M/UP PUMP, GYPSUM WASH PUMP, SERVICE WATER PUMP,APH/ESP Wash PUMPS — For each type, size & rating**		
3.2.1	Impeller with impeller fastener as applicable	Set	1
3.2.2	Shaft (s) with fasteners as applicable	Set	1
3.2.3	Shaft Sleeves	Set	2
3.2.4	Wearing rings — Impeller as applicable	Set	2
3.2.5	Wearing Rings — Casing as applicable	Set	2
3.2.6	Bearings for the pumps & drives	Set	2
3.2.7	Thrust bearings & thrust bearing collar (as applicable)	Set	1
3.2.8	Pump & Drive Coupling assembly with all fasteners coupling Guard	Set	1
3.2.9	Pin & Bushes for Coupling (as applicable)	Set	2
3.2.10	Gland packing / Mechanical seals (as applicable)	Set	2
3.2.11	Stuffing box / Gland assembly (if applicable)	Set	1

BOQ SCHEDULE

3.3	**VALVES AS APPILCABLE (For P&ID of Plant water system)**		
3.3.1	Manual Plug Valve	Set	1
3.3.2	Motor operated Plug Valve (without motor	Set	1
3.3.3	Check Valves /Non-return Valve	Set	1
3.3.4	Manual Ball Valve	Set	1
3.3.5	Motor operated Ball Valve (without motor	Set	1
3.3.6	Manual Globe Valve	Set	1
3.3.7	Manual Diaphragm Valve	Set	1
3.3.8	Motor operated Diaphragm Valve (without	Set	1
3.3.9	Diaphragm for the above Diaphragm Valves	Set	1
3.3.10	Manual Butterfly Valve	Set	1
3.3.11	Motor operated Butterfly Valve (without	Set	1
3.3.12	Manual Gate Valve	Set	1
3.3.13	Motor operated Gate Valve (without motor	Set	1
3.3.14	Relief Valves in Air Blowers unit	Set	1

NOTE:

1	One(1) set consists of quantity required for complete replacement for one(1) Pump of each type/size. Also the ‘set’ would include all components/hardware required to replace the item.
2	In case spares indicated in the list are not applicable to the particular design offered by the bidder, the bidder should offer spares applicable to offered design with quantities as specified in the Technical specification.

	TECHNICAL SPECIFICATION MISC. PUMPS (VERTICAL) 2X800 MW KODERMA TPS- STAGE-II	PE-TS-519-100-W002 REV-1 22.07.25

Details of Vertical Pump.

Sl. No	Name of Pump	Scope of Motor	Location of Pump	scope of Pump House	SCOPE OF ERECTION & COMISIOINING	REMARKS
1	RAW WATER PUMP	HT MOTOR BY BHEL	RAW WATER P/H	BHEL	BOP VENDOR	**MOTOR FREE SUPPLY BY BHEL**
2	ASH WATER PUMP	LT MOTOR BY BOP	RAW WATER P/H	BHEL	BOP VENDOR	