PROJECT : STEAM GENERATION PLANT AT TALCHER, ODISHA
TENDER NO. : PNMM/PC-150/E-4003/NCB
SUBJECT : REPLY TO PRE-BID QUERIES : LOT 4 Dated 30.7.2020

Sl. No.	Reference of Tender Document				Bidder's Query	PDIL/TFL's Reply
	Section No.	Page No.	Clause No.	Subject		
1.	Sheet 5 of 13, PC150/E/4003/SECVI.-4.0, Rev-0			The dissolved oxygen content in feed water measured at de-aerator outlet shall not exceed 0.005 mg/litre at all loads from no load to full load condition.	The dissolved oxygen content in feed water measured at de-aerator outlet shall not exceed 0.005 mg/litre at all loads from 30% load to full load condition	Agreed. Amendment to Section-VI-4.0 shall be issued.
2.				An online O2 analyser at outlet of De-aerator shall be provided for continuous monitoring of required parameters of boiler feed water.	BHEL is proposing the Dissolved oxygen analyser at the outlet of deaerator shall be routed to SWAS system instead of Line mounted Analyser. Please confirm our proposal.	Noted. Amendment to Section-VI-4.0 shall be issued.
3.	Cl.3.18, 4., Sheet 10 of 13, PC150/E/4003/SECVI.-4.0, Rev-0			Deaerator Storage vessel = CS Deaerator Stripping section = SS	All the parts in contact with non-condensable gases shall be of SS or SS stripping/cladded/lining. Other parts shall be of carbon steel	As per NIT.
4.	Sheet 6 of 8, PC150/E/4003/SECVI.-5.1, Rev-0			Deaerator Storage Tank Retention Time : 30 minutes (min.)	Deaerator Storage Tank Retention Time : 10 minutes (min.). As 30 minutes retention time is too consevative.	As per NIT.
5.	Cl.3.24.7, Sheet 32 of 46, PC150/E/4003/Section-VI-5.3.2 Rev-0			Attachment of tube to tube sheets will be rolled and expanded (with seal welding), strength welded or seal welded.	Oil cooler Tube to Tube sheet joint shall be rolled and expanded. Welding is not required.	As per NIT.
6.	General				Material of Construction: Tubes: Welded SS (SA249 TP304) (Tube Dimn: OD 15.875 mm x Thk 1.24 mm) Tube Sheet : CS (SA516 Gr.70) Baffle & Support Plate: CS (IS2062) Shell and Channel: CS (SA106 Gr.B or Eqvt.)	As per standard engineering practice . However Tubesheet shall be of forged material.
7.	SecVI-5.4 **PC150-TS- 0805** (PC150/E/4003/SecVI-5.4)	**PC150-TS- 0805** (PC150/E/4003/SecVI-5.4)		**TECHNICAL SPECIFICATION – MEDIUM VOLTAGE SWITCH BOARDS ((PC150-TS-0805))**	We understand this technical spec. holds good for spec. for LV switchgear boards. Please clarify.	Noted.
8.	SecVI-5.4 **PC150-TS- 0805** (PC150/E/4003/SecVI-5.4)	Sheet 4 of 17	5.1.2	The complete assembly shall be dust, damp and vermin proof having minimum degree of pro-tection equivalent to IP-52 as per IS/IEC:60947.	Degree of protection shall be IP 52 for ≤1600 and IP 42 >1600A.	Refer clause 9.1.5 of Section VI-5.4. The switch boards, to be installed inside the building shall have enclosure IP 4X for HV switchgear, for LV switchgear degree of protection shall be IP 52 up to 1600A rating and IP-4X above 1600A rating.
9.	SecVI-5.4 PC150/E/4003/SecVI-5.4	Sheet 44 of 89	9.5.2.2	The degree of protection shall be IP 52.		
10.	SecVI-5.4 **PC150-TS- 0805** (PC150/E/4003/SecVI-5.4)	Sheet 4 of 17	5.1.9	Mounting height of components requiring op-erations and observation shall not be lower than 300 mm and higher than 1800 mm.	We propose the maximum height of the switch- board and other control panels shall be limited to 2450 mm and Mounting height of components requiring operations and observation shall not be lowerthan200mmandhigherthan2000mmas it reduce the overall length of the panel.	The maximum height of the switchboard and other control panels shall be limited to 2400 MM. Maximum height of component requiring operation shall be limited to 1800MM.
11.	SecVI-5.4 PC150/E/4003/SecVI-5.4	Sheet 40 of 89	9.5.1.24	The maximum height of the switchboard and other control panels shall be limited to 2200 MM. Maximum height of component requiring operation shall be limited to 1800MM		
12.	SecVI-5.4 PC150/E/4003/SecVI-5.4	Sheet 40 of 89	9.5.1.27	For other boards (PMCCs, MCCs, MLDBs, ASPBs, DCDBs etc.) sufficient number of spare feeders to the extent of min. 20% for each type& rating shall be provided.	20% or min 1 no. spare feeders for outgoing feeders as below: 1. No spare feeders shall be provided for Incomers/Bus coupler/Bus &Line PT/CSTmodulesforallPMCC/MCC/ACDB/	20% or Minimum 1 No. Outgoing feeder, whichever is higher for each type & rating of Outgoing feeders shall be provided.
13.	SecVI-5.4 PC150/E/4003/SecVI-5.4	Sheet 45 of 89	9.5.2.23	All low voltage switchboards shall be provided with 20% spare outgoing feeders or minimum one of each rating (fully wired) and with all the components.	DCDB.2.Breaker(ACB) controlled Motor Feed- er& O/Gs Feeder to other MCC/ACDB shall be provided 20% or min 1 no. spare feeders (Except DG TIE feeder). 3. Supply feeders shall be pro- vided based on SFU, MCCB, MPCB rating 20% or min 1	20% or Minimum 1 No. Outgoing feeder, whichever is higher for each type & rating of Outgoing feeders shall be provided.

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					no. spare feeders. 4. Bidirectional motor feeder: Spare feeders based on physical size of the module 20% or min 1 no. spare feeders. 5. Unidi- rectional motor feeder: Spare feeders based on Type & rating of the module 20% or min 1no. spare feeders.	
14.	SecVI-5.4 PC150/E/4003/SecVI-5.4	Sheet 43 of 89	9.5.1.57	All 11kV, 3.3. kV and 415 V Switchboards shall preferably be of same make for ease of operation & maintenance.	Make of Switchboards may be different on differ- ent voltage level manufacture constraint in the market. Please review the same. 415V Switch- boards shall be BHEL-Make.	All 11kV, 3.3. kV and 415 V Switchboards shall preferably be of same make for ease of operation & maintenance, as per NIT. Make of 415V Switch- boards shall be as per NIT.
15.	SecVI-5.4 PC150/E/4003/SecVI-5.4	Sheet 44 of 89	9.5.2.13	Motor feeders up to 75 KW rating shall be con- tactor controlled and above 75 KW, these shall be ACB controlled with combined motor pro- tection relay. All other feeders of 415 V switchboards shall be provided with MCCB All outgoing feeders shall be draw-out type in all the switchboards.	1. We understand MCCB shall be used for motor up to 75 kW) and Supply feeders. We propose MPCB/MCCB shall be used for both motor and supply feeder depending on the ratings. 2. We have consider all ACDB/DCDB of Fixed type.	1. Motor feeders below 75 KW rating shall be contactor controlled and 75 KW and above, these shall be ACB controlled with combined motor protection relay. All other feeders of 415 V switchboards shall be provided with MCCB except feeder rated more than 400A, for which ACB shall be provided. Amendment shall be issued. . 2. ACDB drawout type, as per NIT. DCDB Non-drawout type, as per NIT.
16.	SecVI-15.0 PC150/E/4003/SecVI-15.0	Sheet 25 of 88		VENDOR LIST for 415 V SWITCH BOARD(PCC/MCC/PMCC)	In addition to vendors indicated in tender specifi- cation, kindly accept BHEL –EPD for LV switchgears Boards.	Make of 415V Switch- boards shall be as per NIT.
17.			1.10.5	All CS materials including forging used for pressure parts shall be procured in fully Killed and normalized condition.	All CS materials including forging used for pressure parts shall be procured as per the specification of ASME sec. II-part A. PDIL/TFL's Reply Bidder to follow NIT considering Minimum requirements. Query ASME Sec-II A specifications will be followed considering the procurement of raw materials.	Bidder to comply NIT conditions. However, in case, bidder proposes alternative specifications, more stringent conditions to be followed
18.			1.10.15	Carbon Content for carbon steel used for fabrication as shown by ladle analysis shall be 0.23% for plates, pipes & tubes 0.25% for forging.	Material chemical composition will be as per the specification of ASME sec. II-part A. PDIL/TFL's Reply Bidder to follow NIT considering Minimum requirements Query ASME Sec-II A specifications will be followed considering the procurement of raw materials.	Bidder to comply NIT conditions. However, in case, bidder proposes alternative specifications, more stringent conditions to be followed
19.			1.10.16	In order to minimise the effect of temper embrittlement for material to 2¼ Cr 1 Mo specifications in the temperature range of 375-575oC, the embrittlement factors 'X' & 'J' shall be limited to: X = (10P + 5Sb + 4Sn + AS) / 100 ≤ 15 The elements above are expressed as ppm J= (Si + Mn) (P + Sn) x 104 <160 The elements above are expressed as	Material chemical composition will be as per the specification of ASME sec. II-part A and the tests will be carried out as per IBR. PDIL/TFL's Reply NIT condition is minimum requirement to be followed in addition to the IBR requirement. In case of any ambiguity shall be reviewed during detail engineering. Query	Bidder to comply NIT conditions. However, in case, bidder proposes alternative specifications, more stringent conditions to be followed

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				percentages A stimulated PWHT followed by step cooling shall be performed on a sample of material. Acceptable toughness shall be demonstrated by means of a Charpy V Impact Test.	ASME Sec-II A specifications will be followed considering the procurement of raw materials..	
20.			1.10.23	For high pressure equipment's, in shell & heads, the impurity limit shall be Copper ≤ 0.20% & Nickel ≤ 0.30% for Mo & Cr- Mo low alloy steels while Copper shall be ≤ 0.20% & Vanadium ≤ 0.15% for carbon steels	Material chemical composition will be as per the specification of ASME sec. II-part A and the tests will be carried out as per IBR. **PDIL/TFL's Reply** Bidder to follow NIT considering Minimum requirements **Query** ASME Sec-II A specifications will be followed considering the procurement of raw materials..	Bidder to comply NIT conditions. However, in case, bidder proposes alternative specifications, more stringent conditions to be followed
21.	REPLY TO PRE-BID QUERIES : TECHNICAL – LOT 1	-	187	BIDDER'S QUERY - Please furnish details of equipments and their duty factors for considering Guarantee power. OWNER'S REPLY - Bidder's query is not clear. Please elaborate.	Customer to specify the equipments whose power consumption has to be guarenteedalongwith their duty factor. Suppose power for ash handling compressor has to be guaranteed then the duty factor for compressor has to be specified	Individual equipment guaranteed power consumption is not required.
22.	DESIGN PHILOSOPHY - BOILER	Sheet 5 of 42	2.4.12	One sand silo/bunker system for boiler, including support steel, rotary air lock feeder for flow control, discharge piping system to combustor.	A)Please furnish flow scheme for bed material conveying. B)Whether the bed material shall be conveyed pneumatically? C)In case of pneumatic conveying of bed material whether dedicated compressor has to be considered? D)In case of separate compressors, what is the type and number of working and standby compressors? E)What will be the conveying distance?	A) Bidder to develop flow scheme for Bed Material conveying and submit with bid. B) Bed material shall be conveyed pneumatically. C) Dedicated compressors are not required to feed the bed material. D) Ash conveying compressor may be used to feed the bed material. No. of Ash conveying compressor shall be designed as per system requirement by considering 100% standby compressor. E) Conveying distance shall be as per layout developed by bidder.
23.	DESIGN PHILOSOPHY - BOILER	Sheet 5 of 42	2.4.13	One Limestone silo/bunker system for boiler, If required, including support steel, rotary air lock feeder for flow control, discharge piping system to combustor.	A)Please furnish flow scheme for bed material conveying. B)Whether limestone has to be conveyed pneumatically after limestone milling unit? C)In case of pneumatic conveying oflimestone whether dedicated compressor has to be considered? D)In case of separate compressors, what is the type and number of working and standby compressors? E)What will be the conveying distance?	A) Bidder to develop flow scheme for Lime stone feeding and submit with bid. B) Bidder to feed Limestone after Milling unit as per system design requirement. C) In case of Pneumatic conveying of limestone, Bidder to consider dedicated compressor. D) Type of compressor shall be as per good/proven industry practice. Bidder shall decide capacity and number of compressor as per system design requirement by considering 100% standby compressor. E) Conveying distance shall be as per layout developed by bidder.
24.	REPLY TO PRE-BID QUERIES : TECHNICAL – LOT 1	-	374	BIDDER'S QUERY - Please furnish plant Climatic Condition i.e., site elevation, ambient temp, humidity etc. for design of various equipments e.g., compressor. OWNER'S REPLY - Refer Clause No. 4.0 of Section VI - 4.0 for site conditions. Average ambient temperature is 31.9 deg C is to be considered for PGTR. Any variation can be compensated by correction factor mutually agreed.	It is understood that the design temperature for compressors and other equipment shall be 31.9 deg C. Please confirm. Also furnish the sile elevation within a tolerance of 10 meters as the same is required by compressor manufacturer.	Bidder to consider the maximum temperature i.e. 46.3 deg. C (dry bulb, summer) and Humidity shall be as per NIT i.e.100%. Refer Land Development Plan already attached with Reply to Pre-bid Query Lot-1 .

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25.	DESIGN PHILOSOPHY – COAL AND ASH HANDLING SYSTEM	SHEET 22 OF 30	6.2.2	Two (2) Screw compressors, one standby, one operating for the unit during normal and rapid evacuation operation shall be provided to meet the conveying air requirements of fly ashhandling system of Unit. Tender drawing no. PC150-4003-0001 Notes 2. Depending on the lean phase/dense phase systems the bidder shall decide capacity and number of air compressor or air blowers required for the system by considering 100% standby requirements.	Bidder requests customer to clearly specify the number of compressors to be used for bed and fly ash removal.	Bidder shall decide capacity and number of air compressor as per system design requirement by considering 100% standby compressor. Amendment shall be issued.
26.	REPLY TO PRE-BID QUERIES : TECHNICAL – LOT 1	-	368	BIDDER'S QUERY - Apart from the vendor-list furnished alongwith the tender document, successful bidder will propose vendors during detailed engineering for supply and erection & commissioning. OWNER'S REPLY - Bidder to note that Vendor List enclosed with the NIT shall only be followed. Bidder to also note that any other item for which vendors are not mentioned in NIT, successful LSTK bidder may furnish list of proven suppliers with PTR subject to Owner's/Consultant's approval during detailed engineering.	As per the policy of BHEL open tender shall be floated for ash handling system. Hence, it is requested from customer to furnish pre-qualification criteria for ash handling system and not the restrict the participation of vendors.	Bidder to follow approved vendor list enclosed with NIT.
27.	REPLY TO PRE-BID QUERIES : TECHNICAL – LOT 1	-	208	BIDDER'S QUERY - 1. Please confirm the type of ventilation system to be used for different equipment housing buildings. 2. Please specify the type of air conditioning for ash handling buildings. OWNER'S REPLY - Bidder to note that Vendor List enclosed with the NIT shall only be followed. Bidder to also note that any other item for which vendors are not mentioned in NIT, successful LSTK bidder may furnish list of proven suppliers with PTR subject to Owner's/Consultant's approval during detailed engineering.	For ash handling equipment building supply fans and dampers shall be considered without any standby. Please confirm.	1. Air conditioning and Ventilation to be provided as recommended in NIT Section 5.3.6. 2. Air conditioning wherever human occupancies are there, shall be as per NIT Section 5.3.6. Ventilation in other areas shall be as per industrial norms of ISHRAE codes & standards. While facilitating with Ventilation system, vendor to keep in mind that Cable cellars and Battery room in the subject area needs to be provided standby system as prescribed in NIT.
28.	PC150/E/4003/SecVI -5.3.4	22 OF 30 29 OF 30	6.3.1 6.10.7	Bed Ash Storage Silo There shall be one bed ash storage silo for all boilers. The silo shall be sized to store bed ash generated in a day from the proposed unit based on firing of worst coal at BMCR condition. Silos shall be of RCC construction. Silo shall be of flat bottom design. Silo area shall be paved and drain shall be provided at the periphery of the paved area. FLY ASH SILO AND BED ASH SILO Material of construction - RCC fly ash silo and MS silo for bed ash	Customer to clarify the material of construction of bed ash silo - RCC or steel?	Material of construction of Bed ash Silo shall be RCC Silo. Amendment shall be issued.
29.	REPLY TO PRE-BID QUERIES : TECHNICAL – LOT 1		188	BIDDER'S QUERY - 1) Please furnish location of bed ash and fly ash silos. 2) Ash/slag pond is shown in thedrawing. However, the same is not applicable.	As ash/slag pond is a large area, please pecify the exact location of silos as the same will affect the conveying distance and thus the compressor capacity	Please refer attached Plot Plan.

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				Please confirm. OWNER'S REPLY - Bed ash and fly ash silos in Bidder's scope. Location shall be near Ash/Slag Pond. Ash/slag pond is not in Bidder's scope.		
30.	REPLY TO PRE-BID QUERIES : TECHNICAL – LOT 1		72	BIDDER'S QUERY - Owner to provide complete fuel analysis for worst coal* to be consider for emission control (Fly ash, Nox and Sox) system and auxiliary system design. *- proximate and ultimate, similar to design coal analysis (Sec. VI-2.0, Table-1.0, Sheet 3 of 7) provided for guarantee purpose. OWNER'S REPLY - Please refer Annexure-1 of Section-VI-2.0 of NIT for worst coal quality. Confirmed. The silo shall be sized to store fly ash generated in a day from the boilers (working) based on firing of worst coal at BMCR condition. Further, Additional storage provision for 10 Mt/hr fly ash (From Coal Gasification Plant) is to be kept also. Primary & Secondary Air fan shall be as per Section-VI-4.0.	Please clarify "Further, Additional storage provision for 10 Mt/hr fly ash (From Coal Gasification Plant) is to be kept also. Primary & Secondary Air fan shall be as per Section-VI-4.0.". This is in contradiction to other clarification where it is specified that the silo shall be designed to hold worst fly ash generated in 24 hours from 2 boilers.	For fly ash silo, bidder to consider two (2) fly ash silos for all the boilers (2W+1S). Each silo shall be sized to store fly ash generated in a day (24 hrs.) from the one boiler on firing of worst coal at BMCR condition plus to store 10MT/hrs (240 MT/day) fly ash generated from coal gasification plant. Fly ash handling system shall be such that fly ash generated from each boiler stream may feed any one of fly Silos. Silos shall be of RCC construction. Silos shall be of flat bottom design or cylindrical with conical bottom. Silo area shall be paved and drain shall be provided at the periphery of the paved area. Each Fly ash silo shall be provided with four (4) outlets. a) One outlet shall be used to load ash into the open trucks (open trucks by others) in conditioned form for further disposal by others into the disposal area. For this purpose a rotary feeder and ash conditioner shall be provided. b) The other outlet shall be used to dispose ash in closed containers (by others) for utilization. This outlet shall be provided with rotary feeder and a motor operated retractable chute. c) One opening in silo for flyash transportation directly to Ash/slag pond within Fertilizer Plant premises is in bidder's scope as per system requirement. d) One opening for blind flange with chain wheel operated for future use. Note- Bidder to consider instrument system including additional bag/vent filter for flyash transfer of Coal gasification plant in both Flyashsilos. Amendment shall be issued.
31.	PC150/E/4003/SecVI-5.3.4	21 OF 30	6.2.2	The fly ash collected at the air preheater hoppers, economiser hoppers, ESP hoppers and stack hopper any other fly ash hopper if applicable shall be gravity fed into individual transmitter vessels provided below each hopper.	Stack hopper ash (if applicable) shall be very low quantity. Hence, manual evacuation is proposed. Please confirm.	As per NIT.
32.	PC150/E/4003/SecVI-5.3.4	23 OF 30	6.3.2	Note- Bidder to consider instrument system including additional bag/vent filter for flyash transfer of Coal gasification plant in both Flyash silo and Bed Ash silo.	1 bag filter shall be provided above each bed ash and fly ash silo. The same bag/vent filter shall be sized cater to the extra requirement of flyash transfer of Coal gasification plant in both Flyash silo and Bed Ash silo. Please confirm. If extra bag/vent filter is applicable then furnish the size of the bag/vent filter.	Bidder to consider two (2) fly ash silos for all the boilers (2W+1S). Each silo shall be sized to store fly ash generated in a day (24 hrs.) from the one boiler on firing of worst coal at BMCR condition plus to store 10MT/hrs (240 MT/day) fly ash generated from coal gasification plant. Fly ash handling system shall be such that fly ash generated from each boiler stream may

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						feed any one of fly Silos. 1 bag filter shall be provided above each fly ash silo. The same bag/vent filter shall be sized to caterthe extra requirement of flyash transfer of Coal gasification plant in both Flyash silo. Amendment shall be issued.
33.	FORM No.: 02-0000-0021F2 REV1 Standard Specification for Motorized Actuators STD-0120	6 of 13	3.03.01	Limit switches shall be weatherproof IP-65 or better. Limit Switches shall be supplied for valve open and close position suitable for low current intrinsically safe application (gold plated contacts of 24V DC 1A rating)	Regarding limit switch contact material, it will be as per Actuator vendor standrad practice. **PDIL/TFL's Reply** Tender Condition prevails. Limit Switch and torque switch should be the integral part of the actuators. **Query** We confirm Limit and torque switches are integral part of actuator. Regarding limit switch contact material, it will be Silver plated Brass as per vendor standard. The has been supplied in all our power projects, Fertilizer and Refinery projects executed by BHEL. Moreover Silver plated Brass contact will meet the application requirement.	Kindly follow Tender requirement. All Contacts for limit switches shall be Gold Plated 2 SPDT.
34.	FORM No.: 02-0000-0021F2 REV1 Standard Specification for Motorized Actuators STD-0120	5 of 13	3.02.13	The actuator shall include a digital position indicator	Analog position indicator will be provided as per actuator vendor standard **PDIL/TFL's Reply** Tender Condition prevails. **Query** Instead of digital position indicator, we will provide Mechanical position indicator in local (part of actuator). The same feature was supplied for all of our contracts. This will meet requirement of position indication in local.	The actuator shall include a digital position indicator with a display from fully open to fully closed in 1% increment.
35.	FORM No.: 02-0000-0021F3 REV5 Vendor List PC150/E/4003	61 of 88	7.0 instrumentation	Electrical Acuators	Kindly include Rotork-India, Auma-India and Germany, Limitork-India and Antrieb-India **PDIL/TFL's Reply** Please follow vendor list attached with tender. **Query** Kindly include Rotork-India, Auma-India and Germany, Limitork-India and Antrieb-India vendor for Electrical actuator. We have been supplying these make actuators for all Our power projects, Fertilizer and Refinery projects executed by BHEL over past three decades.	Vendor list to be followed as attached with Tender.
36.	Doc No. PC150/E/4003/SecVI-15.0 VENDOR LIST	Sheet 62 of 88 Page 2438 of 2464	Safety Valves & Thermal Relief Valves Upto 2500#	BHEL is not appearing in the approved vendor list for Safety Valves & Thermal Relief Valves Upto 2500#	BHEL to be included in the vendor list for Safety Valves & Thermal Relief Valves Upto 2500# **PDIL/TFL's Reply** Please follow vendor list attached with tender. **Query** BHEL has been supplying Safety valves & Thermal relief valves to Power Plants, Refinaries and other industries for many decades. We request that BHEL be included in	Vendor list to be followed as attached with Tender.

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					the vendor list for Safety Valves & Thermal Relief Valves Upto 2500#	
37.	Doc. No. PC150/E/4003/SecVI-5.2 INSTRUMENTATION	Sheet 56 of 149 Page 386 of 2464	6.13 Safety valve testing at site before installation Testing Jig Note-32:	Test Bench, Testing jig, Testing medium shall be provided by LSTK contractor with valid Pressure testing certificate for entire duration of testing as per Statutory regulations and following all Safety norms.	Safety valve testing already carried out in factory premises. Since the safety valves will be put into service to operate at the required set pressure, test jigs may not be required for making further adjustments. Hence test jig shall not be a part of BHEL scope of supply.	For Valve testing at site, Test Bench, Testing jig, Testing medium shall be required and the same to be provided by Contractor as mentioned in the Tender. Safety Valve Test Bench shall be coming with valid Hydro Test and all the necessary Statutory approvals. Similarly any test instrument shall be coming with valid calibration certificate.
38.	STEAM GENERATION PLANT TALCHER FERTILIZERS LIMITED PERFORMANCE & GUARANTEE TESTS	Page no. 2274 of 2464 2.0 PERFORMANCE GUARANTEES	LSTK Contractor must fulfill guarantee parameters of Steam Generation Plant as specified in this Clause under the following heads to meet his contractual obligations. a. Capacity of boilers (All possible combinations of two boilers running) for export steam as well as individual boiler system b. Internal Power consumption in steam generation plant B.L. c. Internal steam consumption in steam generation plant B.L.	C	Since the Bidder is guaranteeing capacity of the boilers, fuel efficiency, indirect fuel consumption & the power consumption at battery limit - Internal steam consumption in steam generation plant B.L may not be required, as increased internal consumption will have an impact on the other guaranteed parameters such as increased Power consumption / increased output from boiler / increased fuel consumption. Hence the bidder requests PDIL / TFL to exclude internal steam consumption from the guarantee schedule.	Internal steam consumption has been removed from the guaranteed consumption. Amendment shall be issued.
39.	STEAM GENERATION PLANT TALCHER FERTILIZERS LIMITED PERFORMANCE & GUARANTEE TESTS	Page no. 2275 of 2464 2.1.i.b Quality of the Product & Effluent	The quality of steam, BFW & Boiler blow-down from steam generation plant shall be according to the following specifications: H.P superheated Steam Description / Normal / Design Pressure, kg/cm²g (Min/ Nor/ Max) / 107/110/112 / 130 Temperature, °C (Min/ Nor/ Max) / 515/520/525 / 545 Silica as SiO_2, ppm / < 0.02 pH / 9-9.5 Conductivity, µS/cm (at 25 deg.C) / < 0.2 Total Iron (Fe) mg/kg / <0.01 Na+K mg/kg / <0.01 Copper mg/kg / 0.003	C	Kindly note that the DM water is being provided to the bidders at battery limit as per the conditions specified in Page no. 288 cl. 3.5. 3.5 Boiler Feed Water UNDER LSTK CONTRACTOR'S SCOPE Total Hardness as $CaCO_3$, mg/l / Nil O_2, mg/l / <0.005 Silica as SiO_2, mg/l / < 0.02 pH (at 25 deg. C) / 8.5-9.5 Conductivity, µS/cm (at 25°C before pH adjustment with NH_3) / < 0.3 Oil, ppm / Nil Fe +Cu mg/lt. / <0.01 Residual Hydrazine (as N2H4) Mg/l / <0.05 Oxygen consumed in 4 hours, mg/l / Nil Since the conductivity of <0.2 microS/cm & copper <0.003 mg/kg in SH steam is to be guaranteed at battery limit, is dependent on the inlet FW quality, conductivity&Fe+Cu, it shall be limited to <0.2 microS/cm and < 0.003 mg/kg.	Bidder to note that Conductivity in DM water is <0.2 microS/cm and same has already given in the NIT. Further, Copper in DM water shall be <0.003 mg/kg. Amendment to NIT shall be issued.
40.	STEAM GENERATION PLANT TALCHER FERTILIZERS LIMITED PERFORMANCE & GUARANTEE TESTS	Page no. 2277 of 2464 2.2.9 Works cost guarantee	Guaranteed Specific Work Cost = SUM [S]/ [Total Steam exporting a day] "₹ per MT"	C	Bidder understands that the term total steam export in a day for calculating the specific work cost shall include 564 + 74 TPH of HP steam & 10 TPH of LP steam. Kindly confirm.	Total steam export for calculating the specific works cost shall include 564 TPH + 74 TPH of HP steam only not 10 TPH of LP steam. Bidder to make provision for supplying of 10 TPH LP Steam at specified quality at SGP battery limit. This requirement is not continuous in nature. Amendment shall be issued to Section-VI-4.0.
41.	STEAM GENERATION PLANT	STEAM GENERATION TALCHER FERTILIZERS LIMITED	Within a reasonable period of time but not later than 10 working days from the	C	Since the process involves extensive testing of coal & ash samples in a third party accredited laboratory it will take a minimum of 2 weeks to	Agreed. Amendment shall be issued to Section-VI-8.0.

PROJECT : STEAM GENERATION PLANT AT TALCHER, ODISHA
TENDER NO. : PNMM/PC-150/E-4003/NCB
SUBJECT : REPLY TO PRE-BID QUERIES : LOT 4 Dated 30.7.2020

Sl. No.	Reference of Tender Document				Bidder's Query	PDIL/TFL's Reply
	Section No.	Page No.	Clause No.	Subject		
	TALCHER FERTILIZERS LIMITED PERFORMANCE & GUARANTEE TESTS	PERFORMANCE & GUARANTEE TESTS Page no. 2281 of 2464 3.1.7 Guarantee test run results	completion of the guarantee test Run, Contractor shall determine the results thereof and if in LSTK Contractor's judgment, the performance guarantees have been achieved, submits its calculations and report to Owner/ PMC for Owner's acceptance. The method of calculation for the Guarantee Test Run shall be mutually agreed by LSTK Contractor, Owner and PMC before starting of Guarantee Test Run		get the test results, post which the calculations need to be performed for preparation of the final report for submission. hence we request you to provide 15 working days for submission of report after completion of the test.	
42.	STEAM GENERATION PLANT TALCHER FERTILIZERS LIMITED DESIGN PHILOSOPHY – COAL AND ASH HANDLING SYSTEM	STEAM GENERATION PLANT TALCHER FERTILIZERS LIMITED DESIGN PHILOSOPHY – COAL AND ASH HANDLING SYSTEM pg No 1284 of 2464	Coal (-) 30mm / fluxant (-) 30mm shall be received through conveyors from Coal Crusher House	C	We are considering 10% fines (<10 mm) in input coal since we are receiving primary crushed coal. Customer to confirm the same and provide the sieve analysis of input coal and fluxant.	Sieve analysis of Coal and fluxant to be provided during detail engineering.
43.	STEAM GENERATION PLANT TALCHER FERTILIZERS LIMITED DESIGN PHILOSOPHY – COAL AND ASH HANDLING SYSTEM	STEAM GENERATION PLANT TALCHER FERTILIZERS LIMITED DESIGN PHILOSOPHY – COAL AND ASH HANDLING SYSTEM pg No 1284 of 2464	Capacity of belt conveying system at battery limit of Steam Generation Plant is 1000TPH (Rated)/ 1200 TPH (Design). Bidder to design Material Handling system as per steam generation plant process requirement for two shift operations i.e. 14 hours to fill all raw materials to steam generation plant.	C	We understand that input coal system designed capacity is 1200 TPH (customer's coal handling at primary crusher outlet) , bidder shall take the tapping from that coal handling system and design the downstream coal handling system as per coal consumption requirement of Boiler (Working i.e 2 nos) . LSTK coal handling system shall be designed to operate for 14 hrs , based on the coal consumption requirement of working boilers which works out to be around **500 TPH** Kindly confirm.	Outlet of Crusher house(CGP) is 1000tph (Rated capacity)/1200tph (Design capacity), Bidder to design coal handling system as per crusher house outlet. Amendment shall be issued against sec VI 5.3.4, caluse no 3.1.
44.	STEAM GENERATION PLANT TALCHER FERTILIZERS LIMITED DESIGN PHILOSOPHY – COAL AND ASH HANDLING SYSTEM	STEAM GENERATION PLANT TALCHER FERTILIZERS LIMITED DESIGN PHILOSOPHY – COAL AND ASH HANDLING SYSTEM pg No 1284 of 2464	LSTK's contractor scope shall be started from Coal Crusher House of Coal Gasification Plant	C	Pls. provide the details at tapping point for coal at battery limit (i.e primary crusher house) We are considering battery limit of coal at the inlet of Belt conveyor which shall start at ground level , that belt conveyor shall feed to secondary crusher house (bidder's scope). Kindly confirm.	Please refer attached Plot Plan
45.	STEAM GENERATION PLANT TALCHER FERTILIZERS LIMITED DESIGN PHILOSOPHY – COAL AND ASH	STEAM GENERATION PLANT TALCHER FERTILIZERS LIMITED DESIGN PHILOSOPHY – COAL AND ASH HANDLING SYSTEM 4.5 VIBRATING SCREENS 4.6 CRUSHER AND	Bidder to consider adequate capacity vibrating screen Crusher shall be provided for sizing the input coal and fluxant.	C	Considering large capacity of Coal handling plant and limitation of screen capacity; in order to provide better operation availability by avoiding screen chockages , we are proposing single stage crushing system (without screens) to get product coal as per Boiler process requirement.	To be provided as per NIT.

PROJECT : STEAM GENERATION PLANT AT TALCHER, ODISHA
TENDER NO. : PNMM/PC-150/E-4003/NCB
SUBJECT : REPLY TO PRE-BID QUERIES : LOT 4 Dated 30.7.2020

Sl. No.	Reference of Tender Document				Bidder's Query	PDIL/TFL's Reply
	Section No.	Page No.	Clause No.	Subject		
	HANDLING SYSTEM	VIBRATION MONITORING SYSTEM (VMS) pg No 1292 of 2464				
46.	STEAM GENERATION PLANT TALCHER FERTILIZERS LIMITED DESIGN PHILOSOPHY – COAL AND ASH HANDLING SYSTEM	STEAM GENERATION PLANT TALCHER FERTILIZERS LIMITED DESIGN PHILOSOPHY – COAL AND ASH HANDLING SYSTEM pg No 1303 of 2464 6.0 ASH HANDLING SYSTEM 6.3 Storage Silos and Disposal of ash from silos	Note- Bidder to consider instrument system including additional bag/vent filter for fly ash transfer of Coal gasification plant in both Flyash silo and Bed Ash silo.	C	Kindly clarify the requirement. We understand from PBQ reply that additional volume to be considered in Silo for ash coming from coal gasification plant. Ash handling conveying from Coal gasification plant to Fly ash and bed ash silo is not in bidder's scope. Only ash handling system in LSTK battery limit is considered in bidder's scope.	Fly ash conveying & handling system from Coal Gasification uptothe location of Fly Ash Silo is not in Bidder's Scope. In steam generation plant , Bidder to consider two (2) fly ash silos for all the boilers (2W+1S). Each silo shall be sized to store fly ash generated in a day (24 hrs.) from the one boiler on firing of worst coal at BMCR condition plus to store 10MT/hrs (240 MT/day) fly ash generated from coal gasification plant. Instrument system and Bag/vent filter shall be designed accordingly. Bidder to note that there is no such bed ash conveying/ transferring system from Coal Gasification unit. Amendment shall be issued
47.	STEAM GENERATION PLANT TALCHER FERTILIZERS LIMITED DESIGN PHILOSOPHY – COAL AND ASH HANDLING SYSTEM	STEAM GENERATION PLANT TALCHER FERTILIZERS LIMITED DESIGN PHILOSOPHY – COAL AND ASH HANDLING SYSTEM pg No 1303 of 2464 6.0 ASH HANDLING SYSTEM 6.3 Storage Silos and Disposal of ash from silos	The rated capacity of the bed ash conveying shall be based on 150 % margin over bed ash generation rate based on worst coal at BMCR condition.	C	We understand that 150% margin shall be considered for conveying system only and not for Ash Silo volume calculation. Kindly confirm.	Confirmed.
48.	STEAM GENERATION PLANT AT TALCHER, ODISHA (INDIA) (NIT NO : PNMM/PC-150/E-4003/NCB)	5.2.3.11 Clearance and Accessibility / 4. Layout & Access Requirements for Platforms ladders and Stairs Sheet No 14 of 75 / PDF Page No (1155 of 2464)	Platform at elevated structure a) Dual access (i.e. two stair case) shall be provided at large elevated structure if any part of platform has more than 22.65M (75 ft) of travel	C	Instead of giving two staircases from both sides of ESP; Bidder providing staircase in between two chambers which will give access at both sides as a optimised design and reducing distance to travel. Please refer enclosed ESP sketch for your ready reference.	As per NIT.
49.	PC150/E/4003/SecVI -5.5 - CIVIL AND STRUCTURALWORKS	ANNEXURE- III CIVIL ENGINEERING DESIGN BASIS / 6.7 - Minimum Thickness / Sheet 100 of 200 / PDF Page No (1995 of 2464)	The Minimum thickness of various structural components (Rolled Steel sections) shall be given as .	D	Rolled section sizes shall be as per the Staad Pro Design (IS) calculation for the applicable loading. The minimum thickness given in table 6.7.1. a (General construction) of various plate shall be applicable for plate formed structural components only. Hence this is not applicable for rolled sections.	As per NIT.
50.	VI-4.0	11 of 13	3.20 d	ESP (N-1) per boiler system shall be installed to meet the emission norms	1. Number of ESP streams shall be decided by the bidder based on the OEM design requirement. 2. Bidder understand that "N" refered in "N-1" is pertaining to number of fields in ESP and not streams as specified in tender.	1. Number of ESP streams shall be decided by Bidder. 2.Bidder's understanding is correct. This supersedes Reply to pre-bid Query Lot 3 at Sl. No. 233.
51.	VI-5.3.7	26 of 42	27.1	ESP shall be designed considering N-1 philosophy, where **N is the number of intalled streams of ESP**.		

PROJECT : STEAM GENERATION PLANT AT TALCHER, ODISHA
TENDER NO. : PNMM/PC-150/E-4003/NCB
SUBJECT : REPLY TO PRE-BID QUERIES : LOT 4 Dated 30.7.2020

Sl. No.	Reference of Tender Document				Bidder's Query	PDIL/TFL's Reply
	Section No.	Page No.	Clause No.	Subject		
52.	VI-5.3.7	5 of 42	2.4.18	Complete roof and side cladding along with structures for protection against rain and other climatic conditions for operating floors, drum floors and other floor levels including gutter and rain water down pipes.	We have considered roof and side cladding for boiler up to steam drum operating floor level from boiler top and for bunkers up to 1 m below bunker top level. Side cladding for feeder floor on three sides for 2 meter height local to feeder floor shall be provided.	As per NIT. This supersedes Reply to pre-bid Query Lot 3 at Sl. No. 242.
53.	VI.-5.3.7	33 of 42	27.8	The Transformer Rectifier (TR) sets shall be optimally sized and shall have the required electrical ability under sparking conditions.TR sets shall be three phase	Bidder shall offer Single phase Transformer for this application without affecting the performance of ESP.	TR sets shall be Single Phase or Three Phase. Amendment shall be issued. This supersedes Reply to pre-bid Query Lot 3 at Sl. No. 196 and Reply to pre-bid Query Lot 1 at Sl. No. 232 & 244.

MAGNETIC NORTH
PLANT NORTH
WIND DIRECTION

VILLAGE DEOJHARNA
BOUNDARY WALL (EXIST.)
RAIL TRACKS
EXISTING 132 KV OVERHEAD TRANSMISSION LINE
GATE
EXIST. HT LINE
GREEN BELT
CONVEYOR FROM RAILWAY SIDING
UNLOADING GROUND HOPPER
T.T-1
T.T-2
T.T-3
T.T-4
FULLY COVERED STORAGE
PETCOKE STORAGE (3)
FLUXANT STORAGE STACKER CUM RECLAIMER
OPEN COAL STORAGE
SEMI-CLOSED STORAGE
ROM COAL STORAGE STACKER CUM RECLAIMER
ROM COKE STORAGE
ELECTRICAL DISTRIBUTION SYSTEM & EDG (17) [70 M x 240 M] [HOLD] NOTE-7
STEAM GENERATION PLANT (14) [320 M x 240 M]
TO STEAM GENERATION PLANT
TENTATIVE LOCATION OF FLYASH AND BEDASH SILO
BA FA FA
CRUSHER HOUSE
TO COAL GASIFICATION PLANT
SPACE FOR FURUTE
COOLING TOWER FOR COAL GASIFICATION PLANT (5)
COOLING TOWER FOR AMMONIA & AMMONIA STORAGE (4)
COOLING TOWER FOR UREA (6)
AMMONIA PLANT (1) [100 M x 120 M]
UREA PLANT (2) [200 M x 160 M]
P-1 N=815.007 E=698.341 RL=94.682
N=750.004 E=690.613 RL=94.552
SUBSTATION (33)
AMMONIA STORAGE TANK WITH FLARE STACK (31) [170 M x 100 M] (2 TANK)
DM WATER PLANT (9) [170 M x 80 M]
BAGGING PLANT (4)
LOADING PLATFORM (660m x 30m)
LINE No-1
LINE No-2
LINE No-3
PROPOSED TRACK HOPPER 240m LONG
6 HOPPER (32)
RAIL/ROAD TRUCK LOADING SYSTEM
AMMONIA VAPOUR LOADING SYSTEM
HOLDING POND FOR ETP (24) [27000 M2]
FLARE STACK (15)
[50 M x 30 M]
SULPHUR STORAGE (34)
GAS CLEANING & PURIFICATION PLANT (21) [330 M x 200 M]
CONST. WATER STORAGE
FUEL OIL UNLOADING, STORAGE & FORWARDING AREA (7)
INST. AIR GENERATION UNIT (12)
PILLAR FCI N=816.772 E=416.209 RL=94.447
(EXIST.UREA SILO) [238 M x 42 M] (20)
WATER TREATMENT PLANT (10) [190 M x 100 M]
ETP (26) [110 M x 70 M]
FIRE WATER STORAGE & PUMP HOUSE (100M x 50M) UREA PLANT EXIST. (11)
WEIGH BRIDGE (16)
CMD & COAL GASIFICATION PLANT (23) [300 M x 200 M]
CENTRAL STORE EXIST. (29)
EXT. MECHANICAL WORKSHOP (19)
ELECTRICAL WORK SHOPS
PLANT MAINT. OFFICE (30)
SHANKAR BHAGAVAN TEMPLE
HEAVY WATER PLANT EXIST
132-KV SWITCH YARD EXIST.
CANTEEN (35)
TECHANICAL BUILDING EXIST (8)
PUMP HOUSE
RAW WATER STORAGE (22) [280 M x 270 M]
ASH /SLAG POND (25) [66975 M2]
AIR SEPARATION UNIT (28) [215 M x 120 M]
MAHANADI COALFIELDS Ltd. AREA
BOUNDARY WALL
TIME OFFICE
MAIN GATE
MATERIAL GATE (EXIST.)
MATERIAL GATE (NEW)
NEW BOUNDARY WALL
EXISTING BOUNDARY WALL
TRAINING HOSTEL
TEMPORARY MARKET CENTER
TRUCK PARKING 170 x 100
FERTILIZER HIGHER SECONDARY SCHOOL
POLICE STATION
VINOD KENDRA
TRAINING INSTIUTE
FIRE STATION EXIST.
TRAINING WORK SHOP
TO FACTORY
N-2312910.151
E-308680.833
VILLAGE KARADAPALLI

TABLE FOR FACILITIES/UNITS

SL.NO.	BLOCK DESCRIPTION	SIZE IN METRE	REMARKS
1.	AMMONIA PLANT	100 M x 120 M	
2.	UREA PLANT	200 M x 160 M	
3.	PETCOKE/FLUXANT STORAGE	200 M x 100 M	
4.	BAGGING PLANT	150 M x 30 M	
5.	WAGON LOADING PLATFORM	650 M x 20 M	
6.	COOLING TOWER FOR AMMONIA & UREA	–	
7.	FUEL OIL UNLOADING, STORAGE & FORWARDING AREA	70 M x 55 M	
8.	ADMIN. / TECHNICAL BUILDING (EXIST.)	60M X 40 M	
9.	DM WATER PLANT	170 M x 80 M	
10.	WATER TREATMENT PLANT	190 M x 100 M	
11.	AMM. STORGE TANK(2 Nos) WITH FLARE STACK	170 M x 100 M	
12	INERT GAS GENERATION UNIT	50 M x 40 M	
13.	COVERED STORAGE SHED (ROM COAL)	290 M x 85 M	
14.	STEAM GENERATION PLANT	320 M x 240 M	
15.	FLARE STACK	R 100M	
16.	TRUCK/ LORRY WEIGH BRIDGE	20 M x 16 M	
17.	ELECTRICAL DISTRIBUTION SYSTEM & EDG	70 M x 240 M	
18.	TRUCK PARKING	170 M x 100 M	
19.	MECHANICAL/ELECT. WORKSHOP (EXIST.)	70 M x 40 M	

TABLE FOR FACILITIES/UNITS

SL.NO.	BLOCK DESCRIPTION	SIZE IN METRE	REMARKS
20.	UREA SILO (EXIST.)	238 M x 42 M	
21.	GAS CLEANING & PURIFICATION PLANT	330 M x 200 M	
22.	RAW WATER STORAGE	280 M X 270 M	
23.	CMD & COAL GASIFICATION PLANT	300 M X 200 M	
24.	HOLDING POND FOR ETP	27000 M2	
25.	ETP	110 M x 70 M	
26.	ASH /SLAG POND	66975 M2	
27.	COOLING TOWER FOR CGP	–	
28.	AIR SEPARATION UNIT	215 M x 120 M	
29.	CENTRAL STORE (EXIST.)	60 M x 40 M	
30.	PLANT MAINT. OFFICE	60 M x 40 M	
31.	FIRE WATER STORAGE & PUMP HOUSE	100 M x 50 M	
32.	WAGON TIPPLER FOR COAL/PETCOKE/FLUXANT	20 M X 10 M	
33.	SUB-STATION	65 M X 35 M	
34.	SULPHUR STORAGE	50 M X 30 M	
35.	CANTEEN	60 M X 20 M	
36.	LAB. TECH. BUILDING	30 M X 18 M	

NOTES:-

1. ALL DIMENSIONS AND COORDINATES ARE IN METERS UNLESS OTHERWISE SPECIFIED.
2. REFRENCE BENCH MARK (⊕) POINTS IS W.R.T GLOBAL CO-ORDINATES HAVING N-2312910.151 & E-308680.833 (GRID COORDINATES E-000.0M, W-000.0M)
3. EQUIPMENT SIZES AND LOCATIONS ARE TENTATIVE.
4. BLOCK SIZE OF FACALITIES ARE TO BE FINALIZED AFTER GETTING VENDOR INFO.
5. PIPE RACK LOCATION & SIZES MARKED ARE SCHEMATIC.
6. CENTER LINE OF EXISTING ROAD & PERIPHERAL ROAD TO BE MAINTAINED WITH MINOR ADJUSTMENT & SAME SHALL BE ALIGNED WITH EXISTING BOUNDARY WALL.
7. IT IS ASSUMED THAT 220 KV EXTERNAL POWER SUPPLY TIE-IN SHALL BE AT THE BOUNDARY WALL CLOSE TO THE LOCATION OF ELECTRICAL DISTRIBUTION SYSTEM BLOCK.

TOTAL PLANT AREA = 490.7 ACRE (APPROX.)
AREA FOR NEW PLANT = 326.8 ACRE (APPROX.)
TOTAL GREENBELT AREA = 163.9 ACRE (APPROX.)

LEGEND :~
PROPOSED FACILITIES
EXISTING FACILITIES
NEW RAILWAY TRACKS
ROAD FACILITIES (TO BE USED)
GREEN BELT AREA

ISSUED FOR TENDER PURPOSE ONLY

S.NO.	REFERENCE DRAWINGS	NUMBERS
05.	TOPOGRAPHICAL & CONTOUR SURVEY DRAWING	SA/RCF/TALCHER/2017/TOPO-DWG
04.	MASTER PLAN OF MINING	FURNISHED BY CLIENT
03.	MASTER PLAN [FCI, TALCHER UNIT].	DRG. NO. 501
02.	INDEX PLAN [FCI, TALCHER UNIT].	DRG. NO. 635
01.	PLANTS LAYOUT [FCI, TALCHER UNIT].	TFU-M-GN-6341

REV.	DATE	DESCRIPTION	PPD.	CKD.	APPD.
6_OP	15.11.19	REVISED	ANIL	NS/DR	AMAR
5	30.10.19	REVISED	ANIL	NS/DR	AMAR
4	19.01.18	REVISED	SAH	NS	AMAR
3	04.12.17	REVISED	SAH	NS	AMAR
2	28.09.17	REVISED	SAH	NS	AMAR
1	01.08.17	REVISED	SAH	NS	AMAR
0	24.05.17	ISSUED	SAH	NS	AMAR

Talcher Fertilizers

CLIENT : M/s. TALCHER FERTILIZER LIMITED

LOCATION : TALCHER, ANGUL DISTRICT, ODISHA(INDIA)

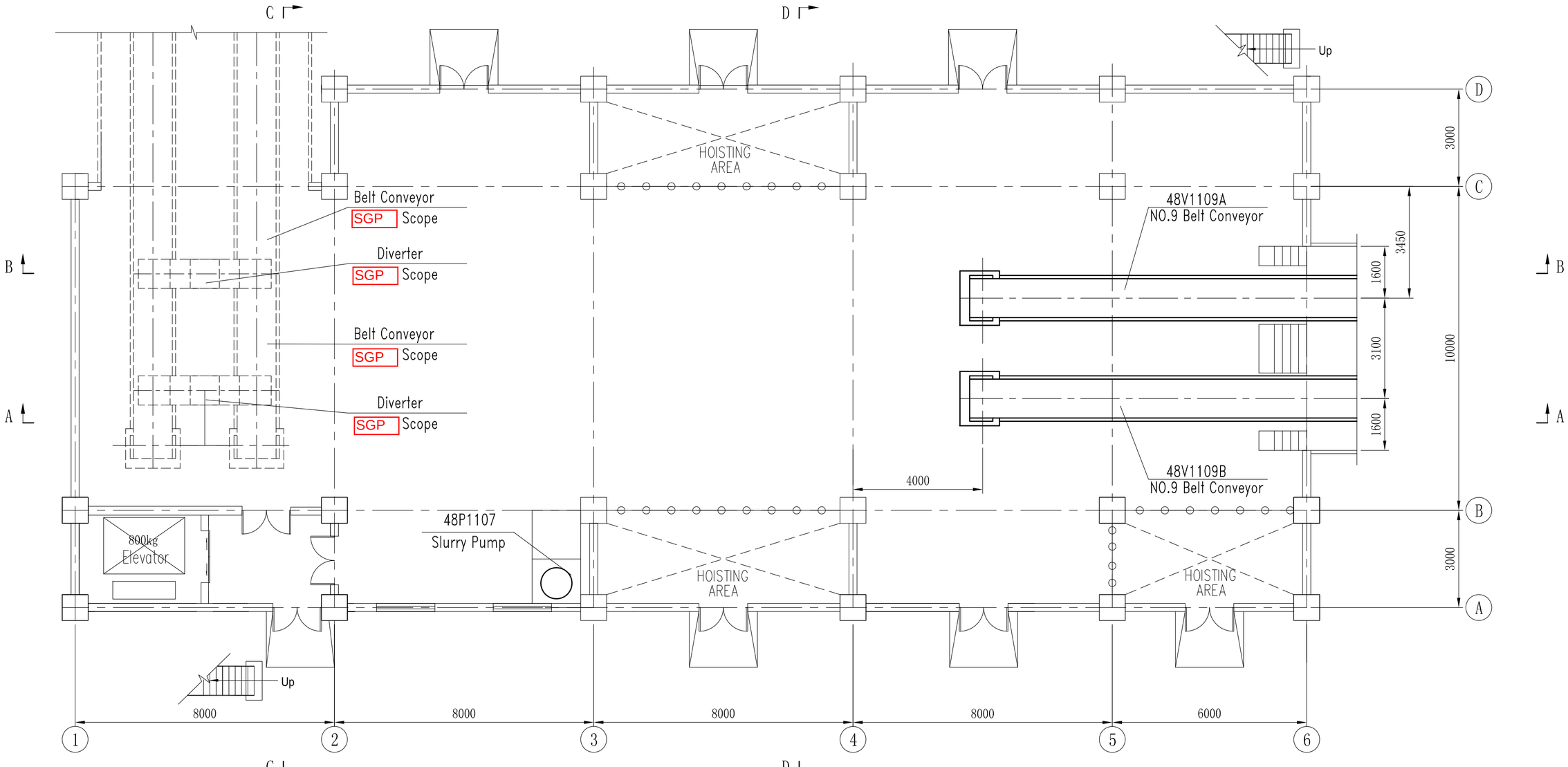
TITLE : PLOT PLAN OF PROPOSED INTEGRATED COAL BASED FERTILIZER AND CHEMICALS COMPLEX

REV. 6_OP | SHEET 1 OF 1 | SCALE :~ 1 : 2200 | DRG. No.:~ PC009-0000-0001 | FILE :~ PC009-0000-0001 Rev.6_OP

PDIL PROJECTS & DEVELOPMENT INDIA LTD. NOIDA

EL ±0.000

Crusher House (CGP Scope)



CGP Crusher House

40.000

34.000

20.000

13.500

6.500

48L1108
Electric Hoist

48V1106B
NO.6 Belt Conveyor

∠α =14.515°

34.257

ø1000

1600

1100

2800

1300

R30000

48Z1105B
Diverter

48Z1105A
Diverter

30.000

30.000

48S1108B
Coal Screen

48S1107A
Limestone Screen

48S1104A
Dust Collector

48M1102B
Coal Crusher

48L1109
Electric Hoist

48L1110
Electric Hoist

48M1101A
Limestone Crusher

48V1107B
NO.7 Belt Conveyor

885

1200

∠α =15.406°

2800

1300

2.746

48V1109B
NO.9 Belt Conveyor

SGP conveyors

±0.000（100.300）

-0.300

±0.000（100.300）

-0.300

1200

8000 8000 8000 8000 6000

1 2 3 4 5 6