

GENERAL NOTES FOR BAG FILTER- LDS DADRI-II PROJECT

- **This is a custom bid i.e., the tender is for items involving our customized specifications / terms and conditions.**
- **While creating a custom catalogue for bidding to this tender all the pages in this documents have to be filled, signed as applicable and attached as per specification documents for your customs catalogue, to enable faster technical specifications comparison during evaluation.**
- **Contact details of dealing person for this tender:**
PARITOSH SAHA, OFFICE NO: 04172-284086, paritoshsaha@bhel.in
C. K. BHARTI, OFFICE NO:04172-3123, ckbharti@bhel.in

SCOPE OF SUPPLY & SALIENT POINTS OF THIS TENDER

- 1) The tender evaluation will be done in following/below stages:
 - a) Evaluation on Technical terms.
 - b) Evaluation on Quality terms (Both Mechanical & Electrical).
 - c) Evaluation on Commercial terms.

Not qualifying in any of the above stages will lead to rejection of your bid.

The total time taken for evaluation/finalization of the tender depends on our project sites requirements.

- 2) BHEL reserves right to claim Clarifications/ Documents until the completion of total evaluation of this tender.
- 3) Items in the bid (refer Table – 1 below) to be supplied taking into consideration of all the technical, quality, bidder guidelines/documents attached to this tender.

Bidder shall to read all the documents carefully, fill and give explicit acceptance/confirmation for all the requirements in the documents wherever applicable.

- 4) Bidder has to sign and stamp all the documents shared in this tender as a token of acceptance and upload with the offer against tender.
- 5) Order finalization will be based on BHEL PMD approval/ temporary vendor code allocation of Bidder only.
- 6) All item(s) in bid is /are to be supplied /dispatch to the BHEL project site of National Capital Thermal Power Project Stage –II, NTPC-DADRI, detail address will be intimated later on /before material dispatch.
- 7) Items in the bid have to be considered as a single package, bidder to quote/supply all the items in the enquiry, part quote/supply will be rejected.
- 8) **RA is applicable and will be conducted as a total single package only.**
- 9) Successful bidder on placement of PO has to start production only after all applicable drawings and QP approvals and explicit **manufacturing clearance from BHEL.**

Sign & Stamp of bidder

10) All finished products/materials are to be dispatched only after explicit **dispatch clearance given by BHEL**. Dispatch clearance will be issued only after receipt of valid MDCC from BHEL's ultimate customer.

The customer will issue the MDCC, only after submission of valid inspection and applicable technical documents by successful bidder so bidder has to kept the materials in own safe custody until the date of dispatch clearance given by BHEL.

11) In the event of force majeure or our organizational requirements, dispatch clearance may take longer duration than anticipated/ specified in the tender/purchase order.

12) Inspection charges will be borne by BHEL only where mutually approved applicable Manufacturing QP/ Vendor QP / Standard QP / Reference QP/ Customer QP refers to witness by BHEL/BHEL approved TPIA. All other internal inspection and applicable testing charges shall be borne by bidder.

The above guidelines/information are not exhaustive; refer to the information in respective documents also.

The information/requirements in tender are as per current requirements as on date of publishing the tender and may undergo change during process of evaluating the offers received against the tender.

13) Please note that Supervisions of Erection & Commissioning of BAG FILTER SYSTEMS are inclusive of all charges like boarding & lodging, TA/DA, travel charges and local conveyance, etc.

TABLE-1


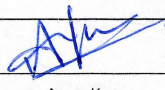
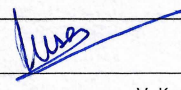
Items to supply in this tender:

SL. NO.	Ind. No.	Ind. Rev	Material code	Description	Qty.	Unit
1	RFW21903	01	RFW2190300001	SUPPLY OF BAG FILTER SYSTEM ALONG WITH ALL ACCESSORIES AS PER TECH. SPEC. LDS: SILO: BGFR: R00 AT LDS DADRI-II SITE. CAPACITY OF BAG FILTER -500 M3/HR.	02	ST
2	RFW21903	01	RFW2190300002	SUPERVISION FOR ERECTION & COMMISSIONING OF BAG FILTER SYSTEM ALONG WITH ALL ACCESSORIES AS PER TECH. SPEC. LDS:SILO: BGFR:R00 AT DADRI-II SITE FOR LIME DOSING SILO (LDS) SILO-I	01	ST
3	RFW21903	01	RFW2190300003	SUPERVISION FOR ERECTION & COMMISSIONING OF BAG FILTER SYSTEM ALONG WITH ALL ACCESSORIES AS PER TECH. SPEC. LDS:SILO: BGFR:R00 AT DADRI-II SITE FOR LIME DOSING SILO (LDS) SILO-II	01	ST

Sign & Stamp of bidder

Order Type	MAIN	Exp code	Indigenous	DI	1 - CONTRACT	Rev #	0
PO Ref	CS-6130-109-9-FC-NOA-6641					Rev Date	20-AUG-18
BAP Order_ID	SA18000016	Main Cust	G501	Proj abrvn	DAFGD	PO Date	01-FEB-18
Project Name	FGD PACKAGE for DADRI-II 2x490 MW						
Cust	OA			Text (if any - upto 1000 char) to be printed on Invoice			
Units	G501	DADRI-II- FGD-1					
Freight code	PAID						
Mode of desp	BY ROAD / RAIL						
INSU code	BHEL OTHERS						
Export Box code							
Carrier	BHEL APPROVED CARRIER						
Consignee Address	State Code : 09			Special Instructions (if any - upto 2000 chars)			
AGM ME(FGD) 4X490MW MIS NTPC Limited NATIONAL CAPITAL THERMAL POWER PROJECT STAGE II, NTPC, DADRI.PO-Vidyut nagar DIST: GAUTAM BUDHA NAGAR Pin - 201008 GSTIN 09AAACN0255D9Z0							
Inv Address	State Code : 09						
AGM ME(FGD) 4X490MW MIS NTPC Limited NATIONAL CAPITAL THERMAL POWER PROJECT STAGE II, NTPC, DADRI.PO-Vidyut nagar DIST: GAUTAM BUDHA NAGAR Pin-201008 GSTIN 09AAACN0255D9Z0							
Supply Address	State Code : 09						
AGM ME(FGD) 4X490MW MIS NTPC Limited NATIONAL CAPITAL THERMAL POWER PROJECT STAGE II, NTPC, DADRI.PO-Vidyut nagar DIST: GAUTAM BUDHA NAGAR Pin-201008 GSTIN 09AAACN0255D9Z0							
Status : Vet by finance							
Prepared by & Date				Vet by & Date			
20-AUG-18							

INTERNAL INFORMATION OF
 BOILER AUXILIARIES PLANT,
 BIHARAT HEAVY ELECTRICALS LIMITED,
 RANIPET.

		Bharat Heavy Electricals Ltd Boiler Auxiliaries Plant Ranipet-632 406		FLUE GAS DESULPHURISATION DEPT TECHNICAL SPECIFICATION	
00	12-12-2022	Fresh Release			
REV	DATE	DESCRIPTION	PREPARED	CHECKED & APPROVED	
Sl. no.	Item	Bag Filter System (online cleaning Pulse Jet type) for Lime Silo			Vendor's Acceptance /Comments
1	Qualification Criteria	a) Vendor should be a manufacturer of Bag Filters. Supporting documents like ISO certificates/ MSME certificates/ Articles of Association/Factory registration certificate etc. shall be submitted by the vendor with the offer.			
		b) Vendor should have previous experience of manufacturing & supplying of Bag Filters of minimum 500 m3/hr capacity for any dust application. At least two unpriced PO copies of previously supplied bag filters shall be submitted along with the technical bid.			
2	Scope of Supply	a) Design, manufacturing, testing and supply of Bag Filter System including Pulsing System & Centrifugal Fan with motor for Lime silos. b) Supervision of Erection and Commissioning of the complete Bag Filter system at site shall be under vendor's scope. Cost for Supervision of Erection and Commissioning shall be included in the offer on per set basis (including TA/DA, boarding & lodging etc). c) The complete Bag filter consists of Bag filter casing, Clean air plenum chamber, Bag holding plate, Compressed air manifold with bracket and clamps, Blow pipes, Filter bags with snap rings, Solenoid operated pulse diaphragm valves, Sequential timer, Filter regulator, gauges and pneumatic piping along with all accessories for the mentioned duty condition. d) Base frame, all ducts/pipes & mating flanges, gaskets, bolts and fasteners required for Bag Filter and centrifugal fan for the bag filter shall be supplied by vendor. e) Duct for connecting Bag Filter bottom flange to Silo top flange shall be supplied by vendor. f) Commissioning spares (if any) for Bag Filter system shall be supplied by vendor. g) In case the vendor requires additional instrumentation, controls, safety devices and any other accessories for safe and satisfactory operation of their equipment, the same shall be included in vendor's scope of supply.			
		Note : 1 set consists of "1no. of Bag Filter Casing & Pulsing System + 1 no. of centrifugal fan with motor + all accessories/items as mentioned above" required for one Silo.			
3	Application	Bag Filters shall be used in the lime silos of Flue Gas Desulphurization (FGD) system to filter lime powder particles from dusted air.			
4	Design Standards	Design, Manufacturing, Inspection and Testing of the Bag Filter shall conform to the latest applicable Indian / British / American Standards.			
5	Mounting Position	The Bag Filter will be mounted to suit the enclosed Building Layout drg no. 0-FW-000-00154 and the Silo (Hopper Assembly) drg no. 2-FW-730-00351 .			
6	Duty Conditions	(i) Capacity of the Bag Filter	500 m3/hr		
		(ii) Type	Pulse jet type		
		(iii) Inlet dust composition	Air + Lime powder		
		(iv) Inlet dust concentration	15000-20000 mg/Nm ³		
		(v) Gas temperature	45 °C (max)		
		(vi) Dust nature	Abrasive, Hygroscopic		
		(vii) Outlet dust concentration	< 10 mg/Nm ³		
		(viii) Design Pressure of blower	vendor to specify		
		(ix) Pressure drop across the filter	vendor to specify		
		(x) Capacity of the fan for the Bag filter	500 m3/hr		
		(xi) Operating pressure	vendor to specify		
7	Compressed Air Pressure	Working pressure of compressed air for Bag Filter shall be 4 to 6 bar .			
8	Number of Pulses	Number of pulses per hour for a silo for bag cleaning shall be decided by the vendor. Vendor to furnish the value.			
9	Solenoid Valves	Diaphragm type Solenoid valves shall be provided by the vendor for each Bag Filter pneumatic circuit.			

Bidder's seal & sign

10	Pneumatic Accessories	All pneumatic accessories (like Pressure Gauges, Ball Valves, NRVs, AFR, lubricator etc.) required for Bag Filter System shall be provided by the vendor.	
11	Pneumatic Piping	a) SS Piping for air from plant tapping point to Bag Filter shall be provided by the vendor for each Bag Filter. b) Tapping Point for air supply shall be around 20 meter away from the silo. Vendor to take into account the cost accordingly. c) ½" Ball valve shall be provided by the vendor for isolation of Bag Filter air supply at the plant tapping point.	
12	Electrical Panel	a) Separate control panel with Automatic Sequential Timer shall be provided by the vendor for each silo for the sequential operation of Bag Filter Pulsing System. Control Panel shall be IP55. b) Timer shall be mounted inside the control panel. c) All the wirings from timer to solenoid valves shall be done by the vendor during manufacturing. d) Suitable cable glands shall be provided by the vendor at the bottom of the control panel for input/output signals/power supply.	
13	Electrical Power Supply	BHEL will provide one 415V AC, 3 phase, 3 wire supply . Vendor shall derive required supplies (for solenoid valves, timers, motor etc.) at field internally from local panels/JBs supplied by the vendor.	
14	Motor Specification	a) Vendor has to refer the enclosed Motor specification no. TECI: LT MOTOR: REV05 . Vendor has to submit all pages of the motor specification with sign & seal along with the offer as compliance. b) The motor shall be as per outdoor application & suitable canopy (if required) shall be provided by the vendor.	
15	Documents to be submitted along with offer	a) Vendor to submit duly filled, sealed & signed all pages of the specification with confirmation to each point. b) Relevant documents for manufacturer & at least two unpriced PO copies of previously supplied Bag Filters shall be submitted by the vendor as per qualification criteria for this tender. c) GA drawing including cross sectional view, all dimensions & BOM with material specification. d) Pneumatic Circuit for Pulsing System of Bag Filter shall be submitted by the vendor (indicative pneumatic circuit is enclosed). e) All calculations related to Bag filter and Motor Power of Centrifugal Fan shall be submitted. f) Data sheet of Bag Filter & centrifugal Fan as per the attached format. g) Deviations (if any) shall be submitted at enquiry stage itself.	
16	Quality plan & Drawing approval	a) Vendor shall submit quality plan to BHEL for review after placement of order. b) Drawing approval from BHEL/Ranipet to be obtained before manufacturing for the following - i) Bag Filter along with pneumatic accessories with BOM & material specification ii) Datasheet of Bag Filter, Centrifugal Fan & accessories	
17	Inspection	a) Inspection by BHEL or its authorized agency. b) All necessary material test certificates to be produced at the time of inspection.	
18	Painting Schedule	Surface Preparation: Power Tool Cleaning to st3 (SSPC-SP3; Primer: Red Oxide Zinc Phosphate Primer to IS 12744 (Two coats of min 30μ each); Finish: Synthetic Enamel to IS 2932 Shade- Grey white RAL 9002 (Two coats of min 30μ each); Total DFT: min 120μ	
19	Warranty & Guarantee	a) The Warranty Period for the Bag Filter System shall be thirty six (36) months from the date of delivery or twenty four (24) months from the date of commissioning, whichever first occurs. b) The Vendor shall guarantee that after the installation of Bag Filter adverse effects like plugging, bridging, rat holing, funneling and arching shall not occur in silo.	
20	Packing	All items should be packed in wooden crates to ensure complete safety & proper handling of the items. Water should not enter into Electrical items and Pneumatic accessories during storage in the outer yard of power plant. Drawing Approval for packing shall be taken from BHEL after placement of PO before dispatch.	
21	Outside the box	PO number, vendor name, item size, material code, model number, Quantity inside the box to be mentioned.	

Bidder's seal & sign

DATASHEET OF THE BAG FILTER

Sl.No.	Items	Description	Vendor to Confirm/specify**
1	Project Name	As per enquiry	
2	Equipment Name	Bag Filter	
3	Model No.	**	
4	Tag No.	**	
5	Make/Manufacturer details	**	
6	Location of Equipment	Silo Top	
7	Duty	Continuous	
8	Type of Equipment	Online Cleaned Pulse Jet Bag Filter	
9	Bag type	Clamp less	
10	Fuel	Air+ Limestone powder	
11	Construction Type	Modular	
12	Capacity (m3/hr)	500	
13	Inlet dust concentration/Load (mg/Nm3)	20000	
14	Gas Temperature (°C)	45	
15	Dust Nature	Abrasive, Hygroscopic	
16	Outlet Dust (mg/Nm3)	<10	
17	Velocity (m/s)	<1	
18	Filter Bag Size Dia. (mm)	**	
19	Filter Bags Length (mm)	**	
20	Area per Filter Bags (m2)	**	
21	Number of Filter Bags	**	
22	Total Filtration Area (m2)	**	
23	Fabric Material	**	
24	Air to Cloth Ratio (m3/min/m2)	**	
25	Design Pressure (mmWC)	**	
26	Pressure Drop across the filter (mmWC)	**	
27	Bag cage	**	
28	Venturi	**	
29	Number of Cages & Venturi	**	
30	Number of Solenoid Valves	**	
31	Solenoid Valve Size	**	
32	Make of Solenoid Valves	**	
33	Timer	**	
34	Make of Timer	**	
35	Max long term service temp. (°C)	**	
36	Materials		
	Housing	3 mm Thick, IS:2062, Grade B	
	Plenum	3 mm Thick, IS:2062, Grade B	
	Tube Sheet	5 mm Thick, IS:2062, Grade B	
	Air Header , Pipes, Tubes	IS:1239(M)/B:36.1 (Sch40)	
	Gasket	Neoprene , 5mm thick	
37	Compressed air requirements		
	Compressed air requirement (Nm3/hr)	**	
	Compressed air Pressure (Kg/cm2)	4-6 kg/cm2	
38	Air Filter Regulator make	**	
39	Air Filter Regulator Connection (NPT)	**	
40	Differential Pressure Switch (mmWC)	**	
41	Differential Pressure Switch Make	**	

Bidder's seal & sign

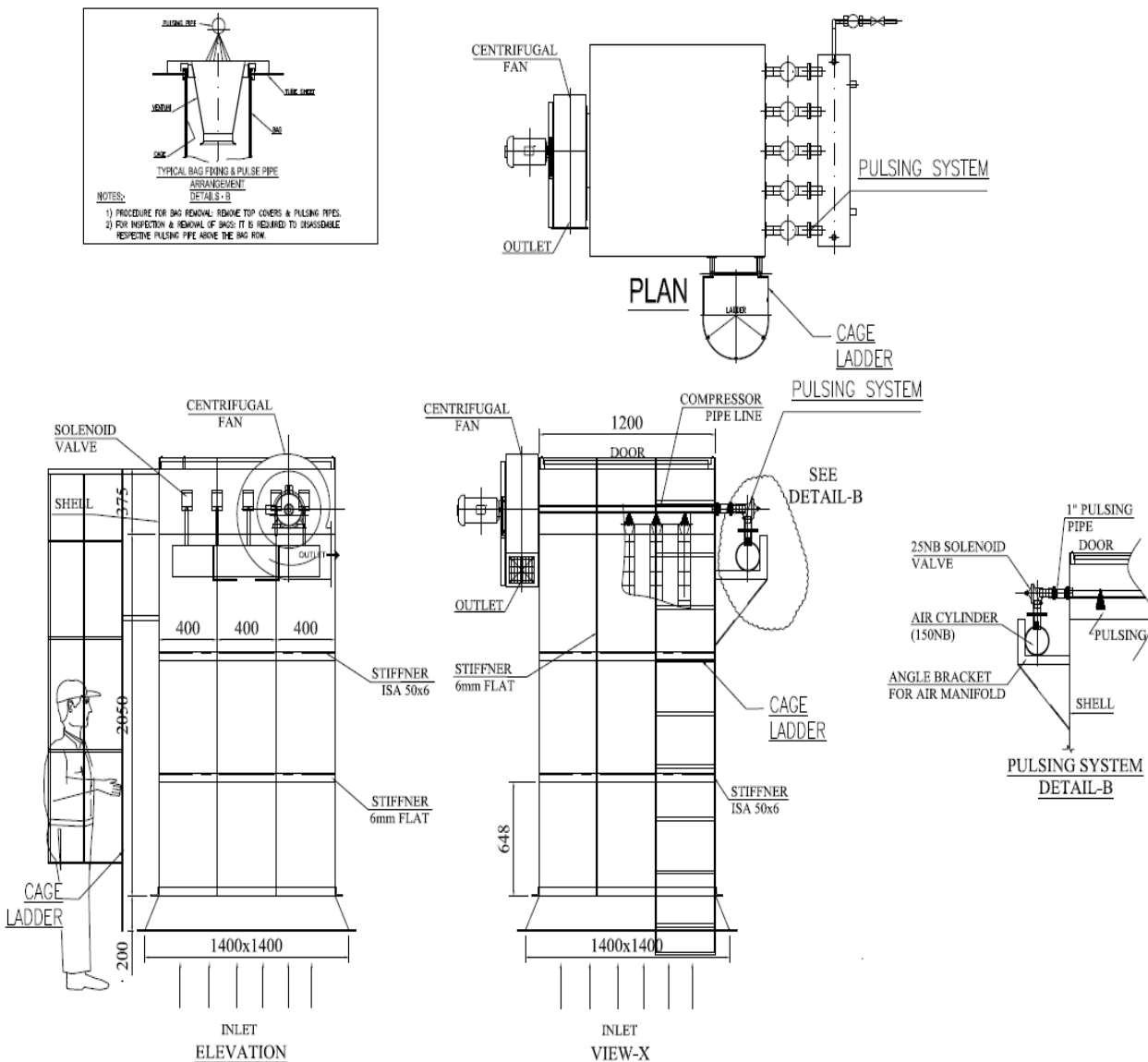
DATASHEET OF THE CENTRIFUGAL FAN

Sl.No.	Design Data:	Description	Vendor to Confirm/specify**
1	Gas Handled	Non-Corrosive dusted Air	
2	Capacity (m3/hr)	500	
3	Specific Gravity	1.2 (Air).	
4	Relative Humidity (%)	60 (%)	
5	Design Temperature (°C)	45	
6	Differential Pressure (mmWC)	200	
7	Voltage (V)	415	
8	Phase	3	
9	Frequency (Hz)	50	
	Mechanical Data:		
10	Fan Type	Centrifugal	
11	Fan manufacturer (make)	**	
12	Blade form Backward	Curved	
13	Wheel Diameter (mm)/Impeller Dia.	**	
14	Wheel Speed (rpm)	**	
15	Drive arrangement	Direct -Coupling	
16	BKW / rpm	**	
17	Motor rating (KW)/rpm	**	
18	Motor Efficiency class	IE3	
19	Motor manufacturer (make)	SIEMENS/CGL/ABB/ MARATHON/ BBL/KIRLOSKAR/JYOTI/LHP/NGEF	
20	Tip speed	**	
21	No. of stages	1	
	Casing		
22	Material	IS:2062	
23	Thickness(mm)	3mm ,with adequate stiffing	
24	Type Split	No	
25	Access doors(Quantity & Size mm x mm)	1 No	
26	Discharge designation	Clockwise top vertical	
27	Maximum Dia. of casing (mm)	**	
28	Arrangement type	**	
29	Fan Inlet Size (mm)	**	
30	Fan outlet size (mm)	**	
31	Flexible connection at Inlet	Yes	
32	Drain Plug	Yes	
	Impeller		
33	Material	IS:2062	
34	Thickness(mm)	**	
35	Blades- Quantity(width at tip) mm	**	
	Shaft		
36	Material	EN-8 / **	
37	Diameter at bearing / hub,	**	
38	Wheel position (Over hung or center hung)	**	
39	Bearing span, (mm)	**	
40	Shaft seal Description	**	
	Bearing		
41	Type	**	
42	Manufacturer	**	
43	Life L-10 rating (hrs.)	**	
44	Type of lubrication	Grease	
45	Cooling requirements	**	

Bidder's seal & sign

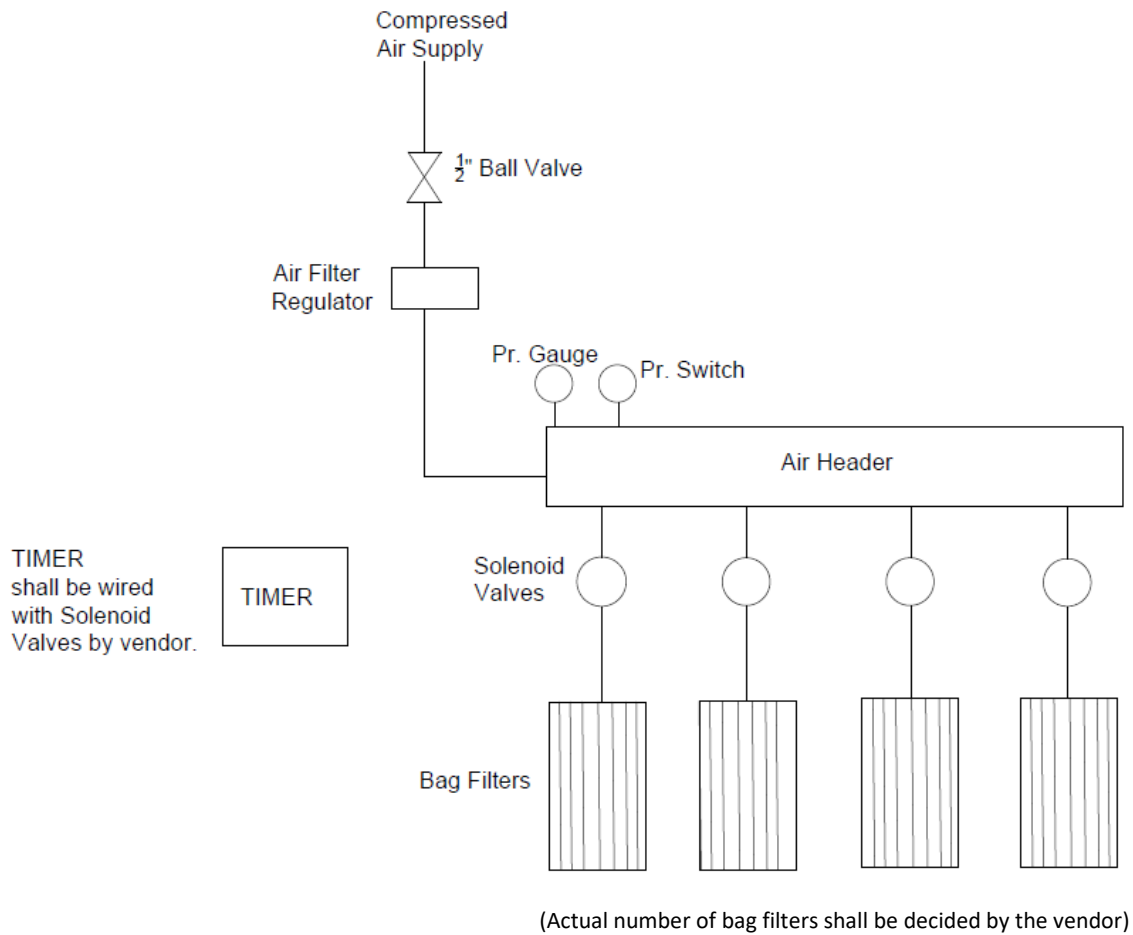
Typical GA drawing of Silo Bag Filter

(This is a sample drawing only. Vendor has to submit the actual drawing as per the specification.)

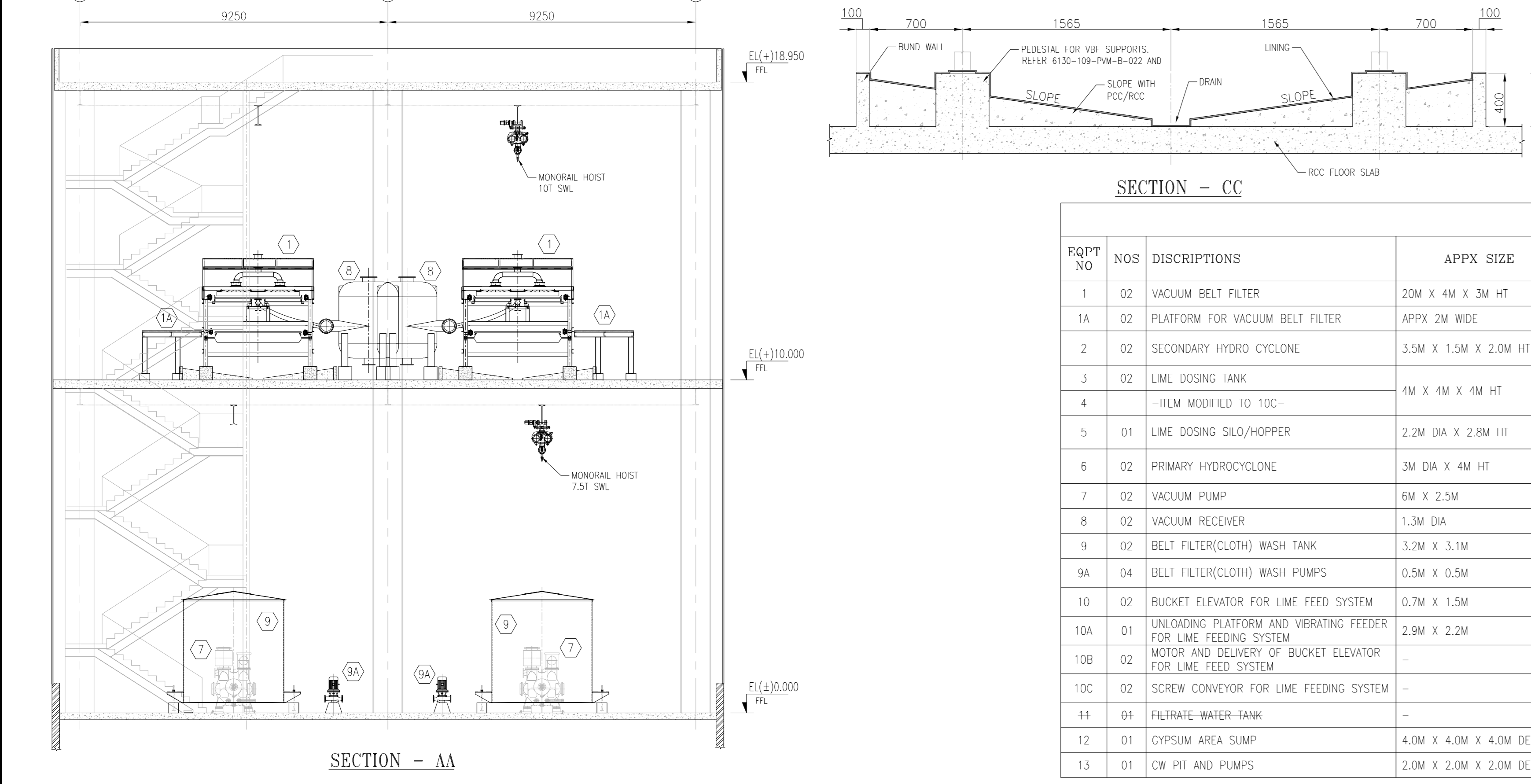
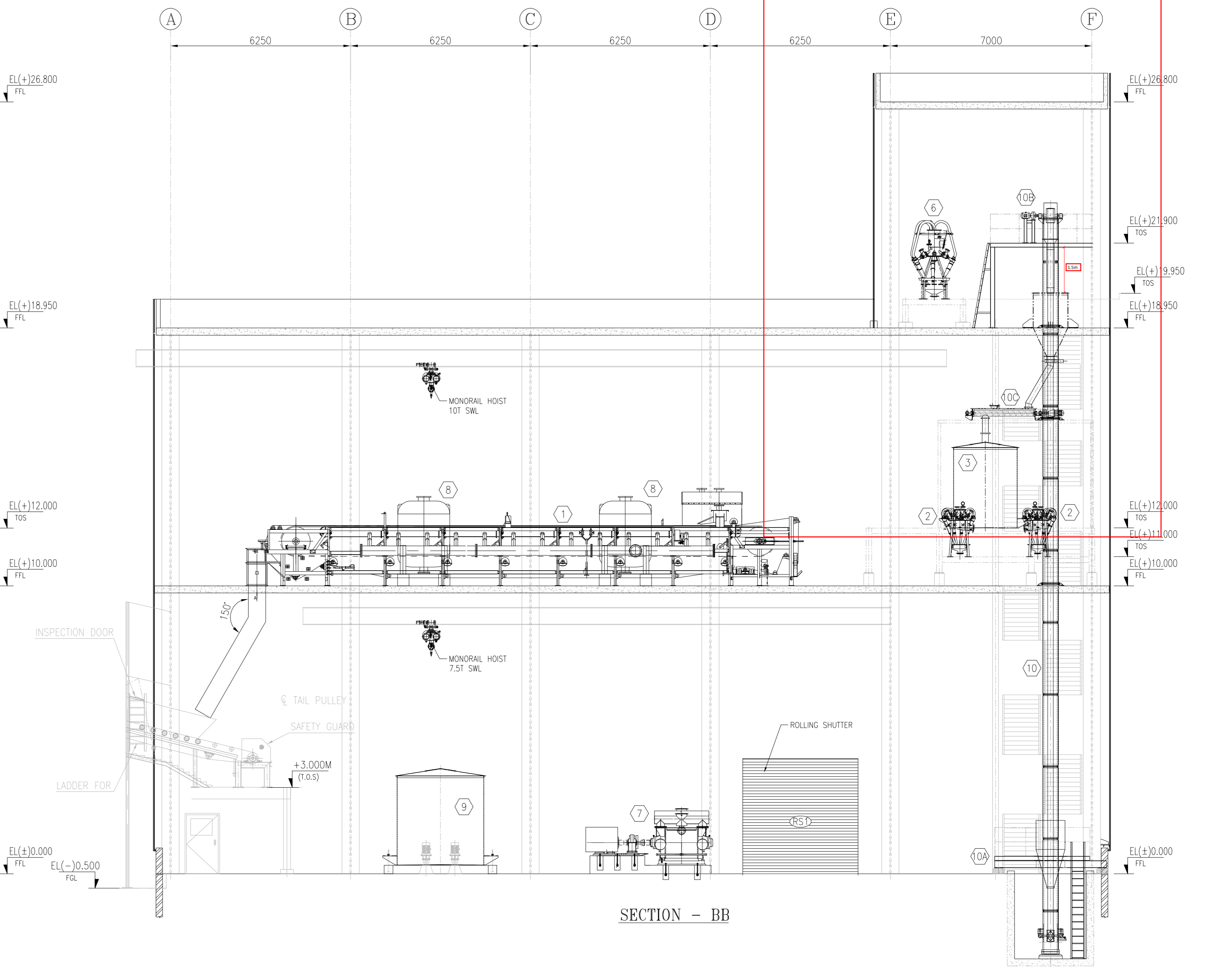
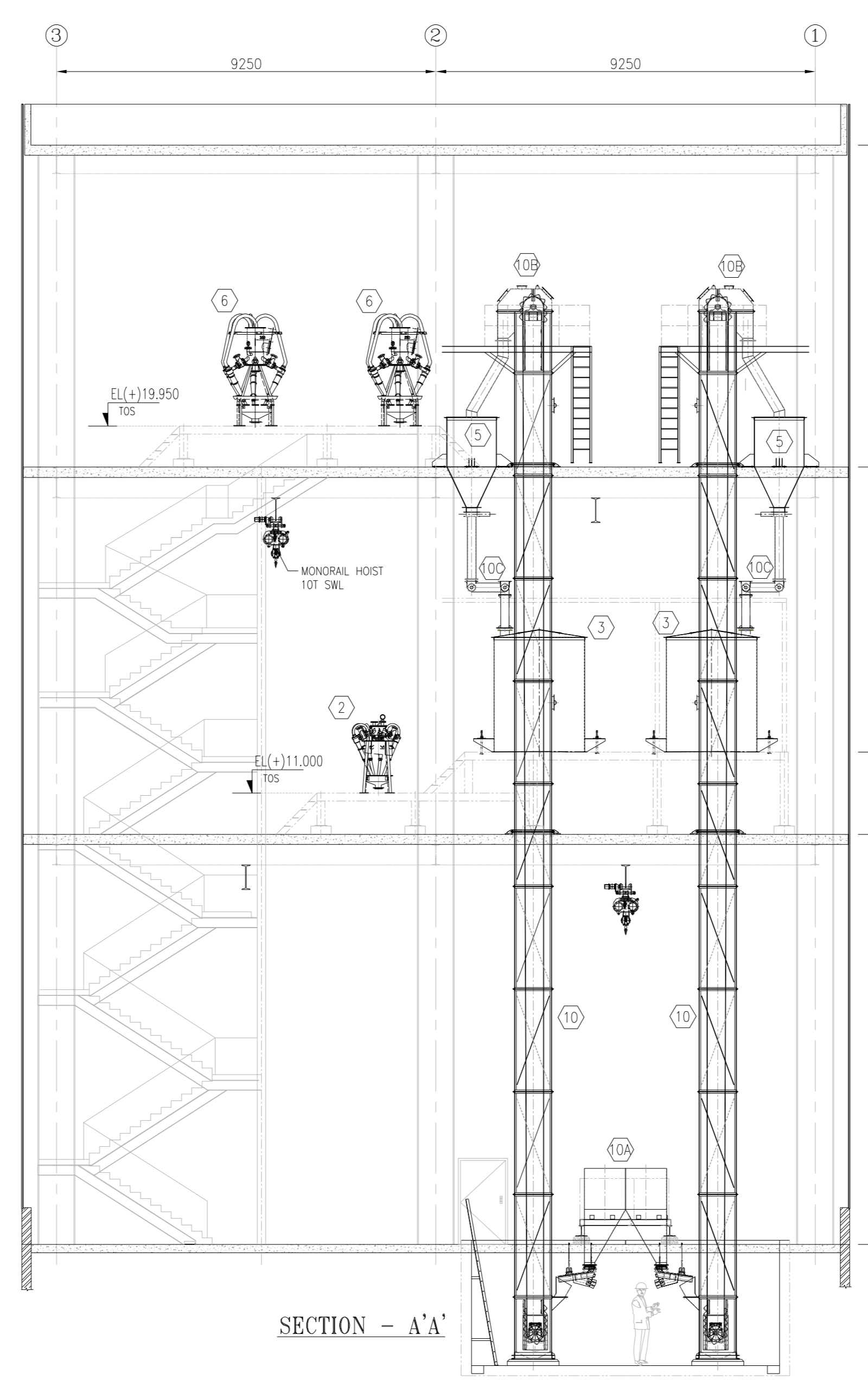
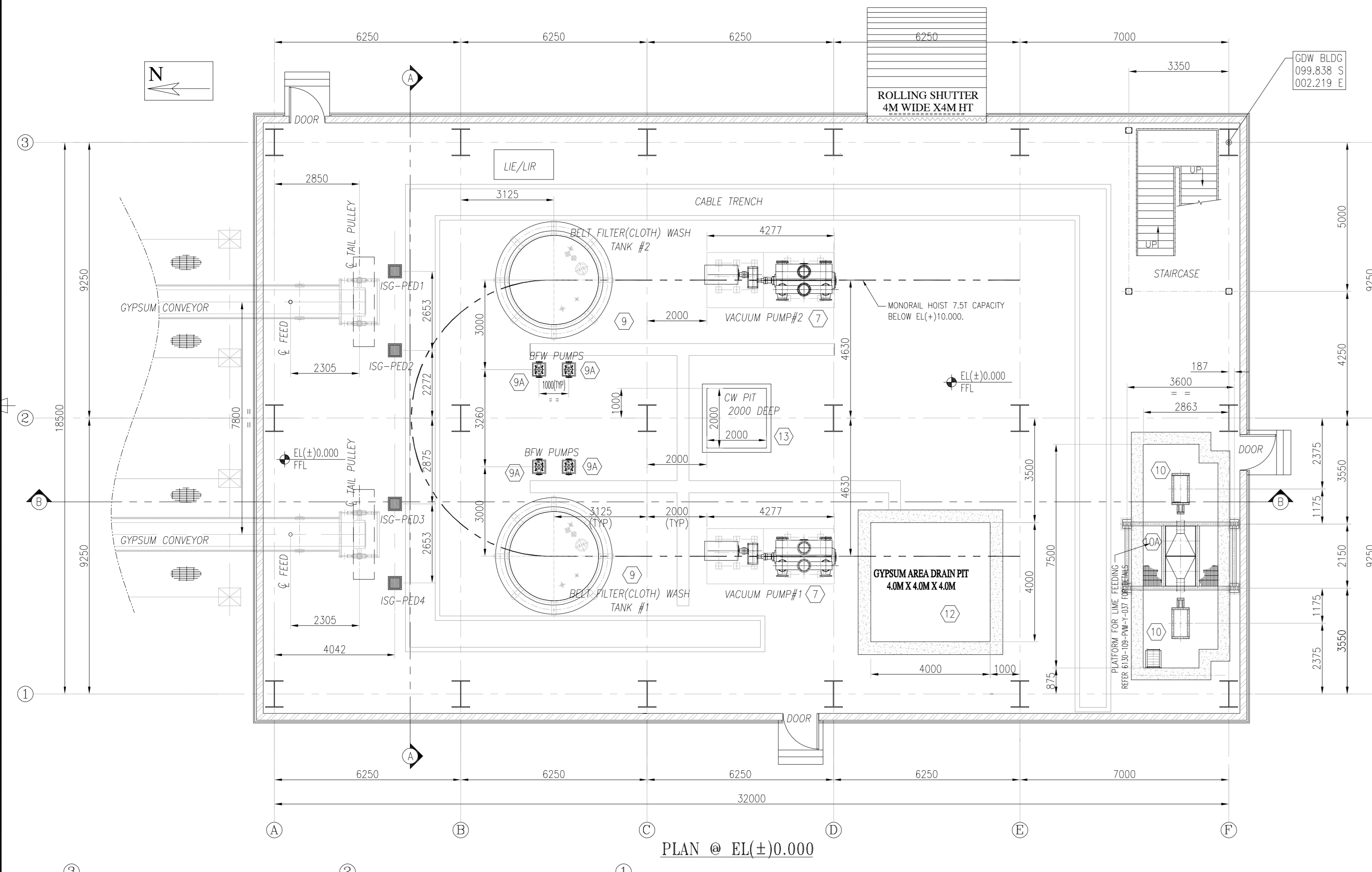
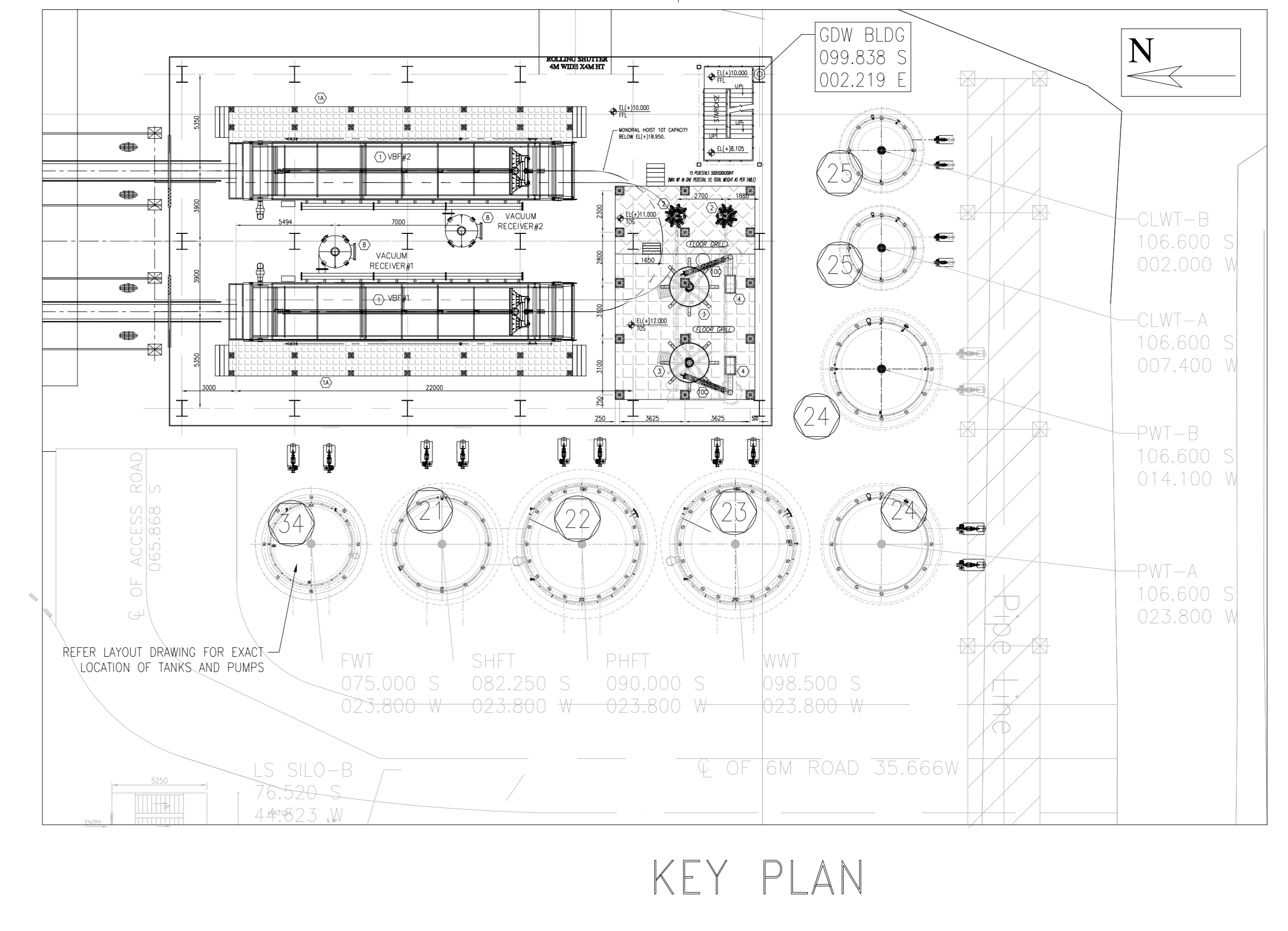
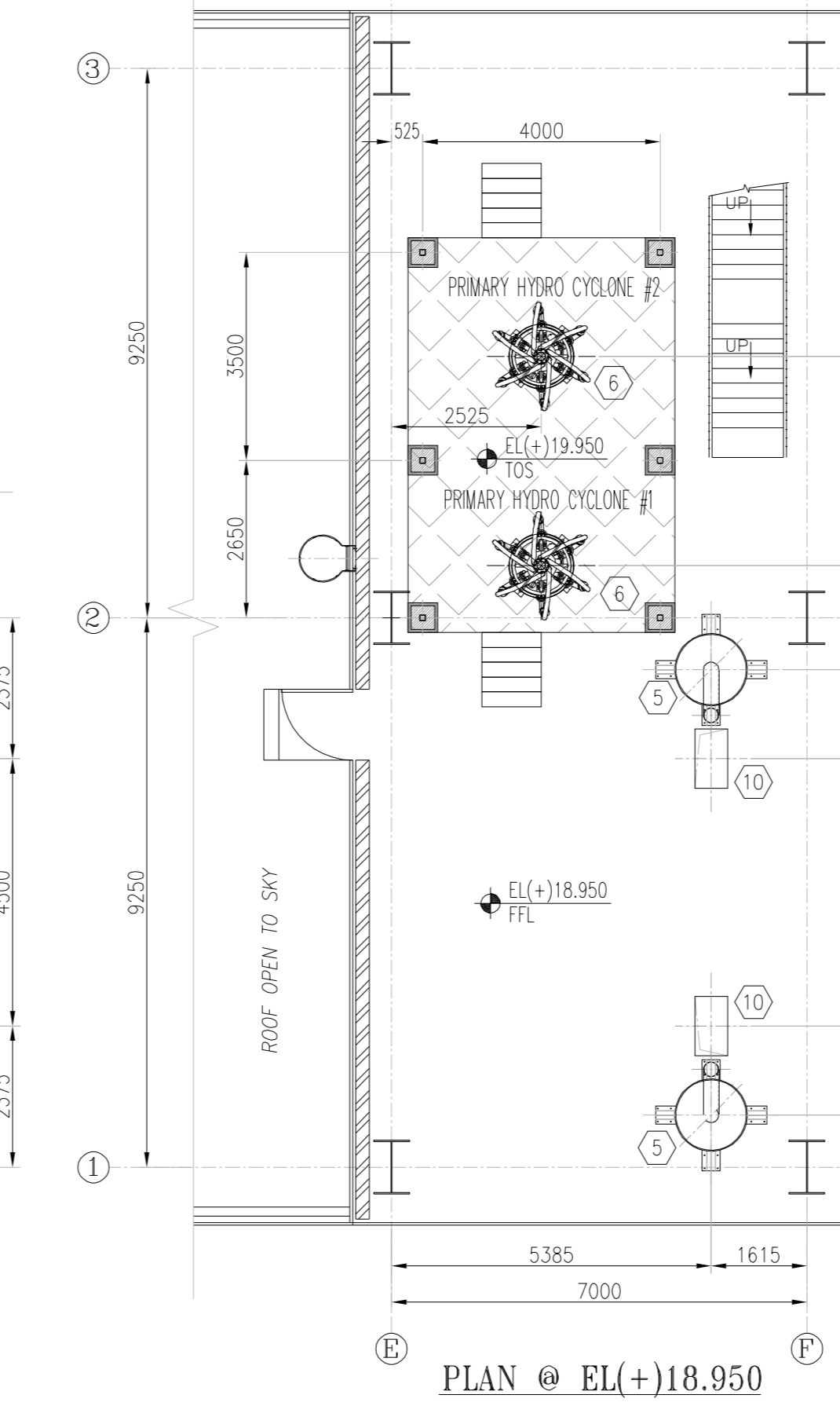
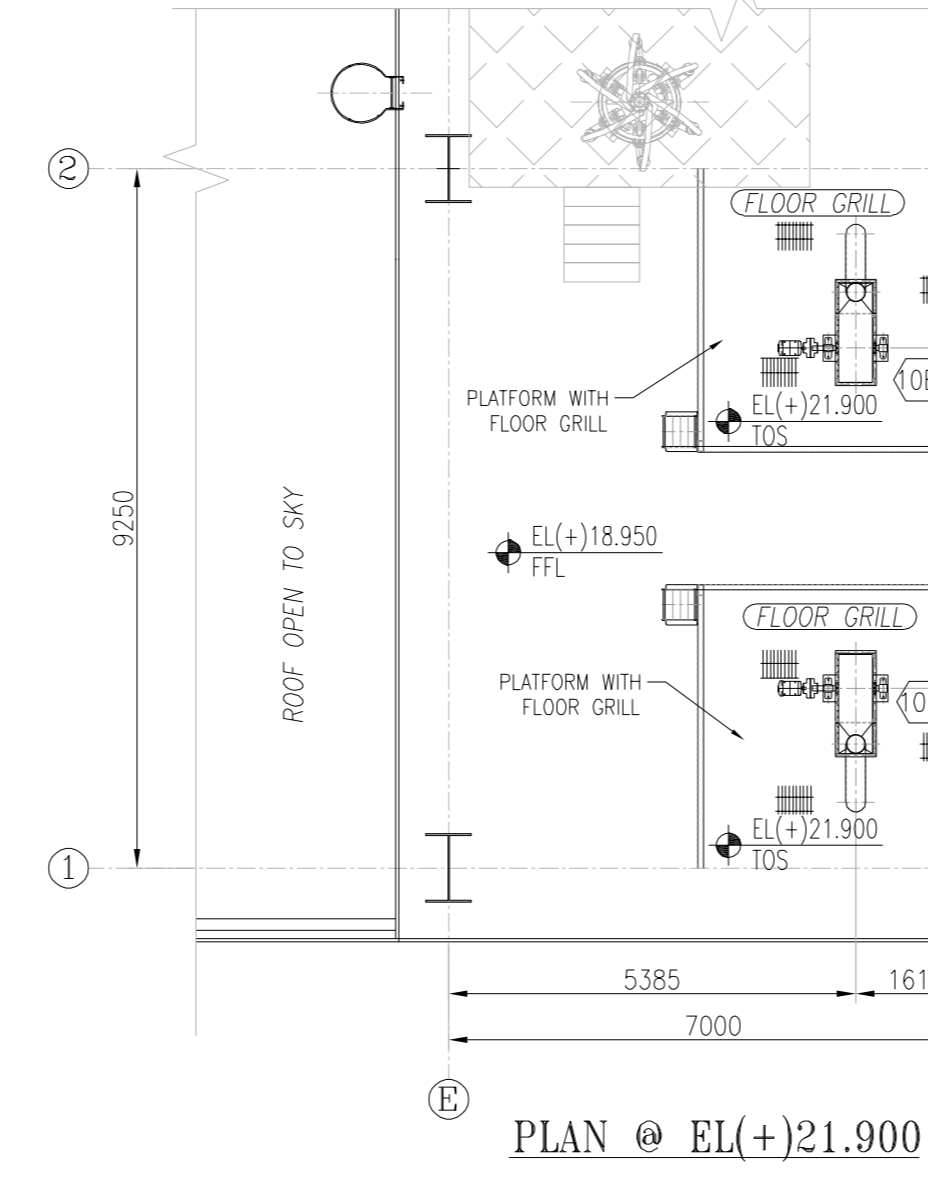
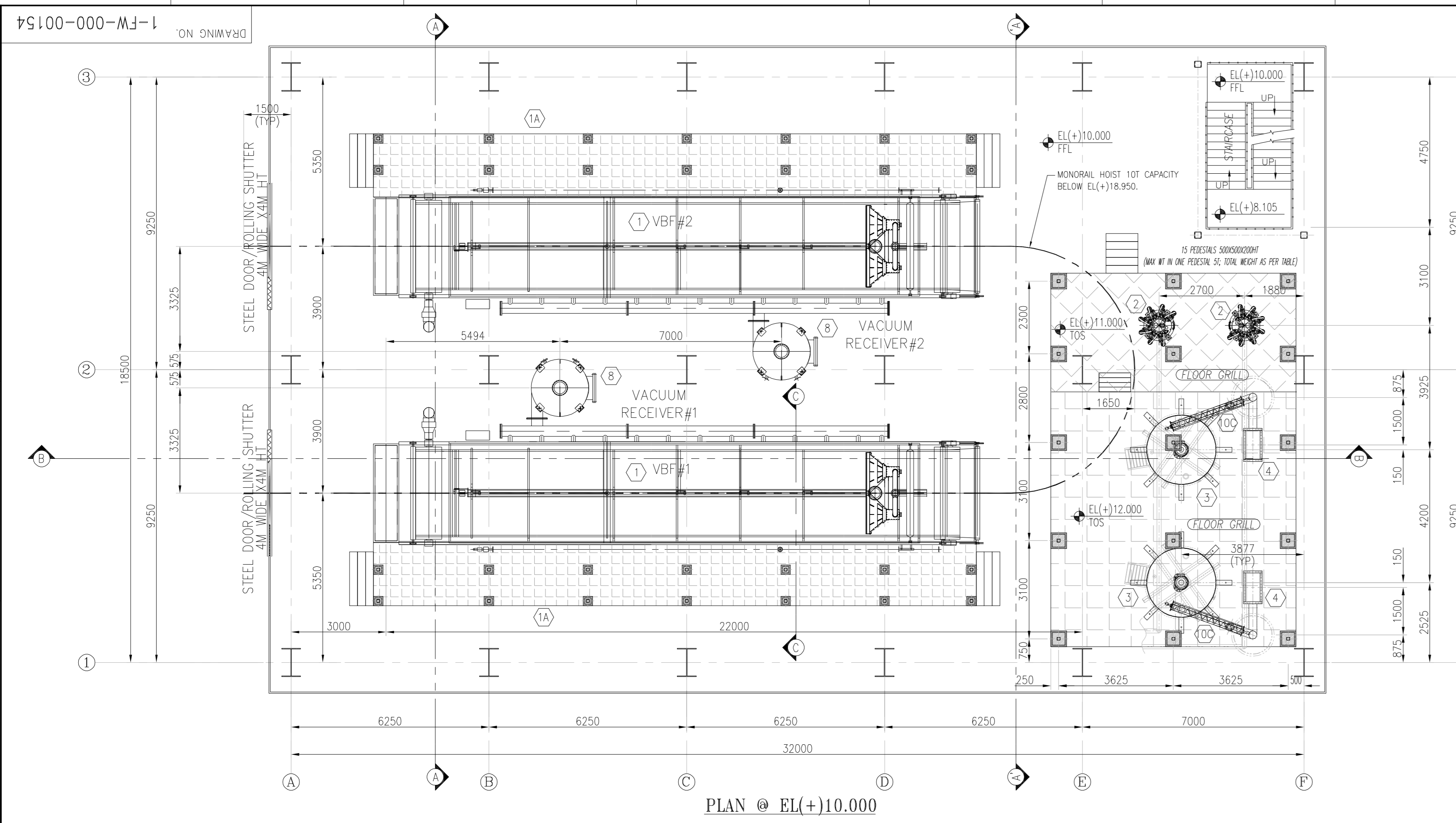


Indicative Pneumatic Circuit for Pulse Jet Cleaning of Bag Filter System

(This is an indicative Pneumatic Circuit only. Vendor has to submit the actual Pneumatic Circuit with the offer.)



Bidder's seal & sign



LIST OF EQUIPMENTS						
EQPT NO	NOS	DISCRPTIONS	APPX SIZE	APPX WEIGHT OF EACH EQPT UNDER OPERATION	LOCATION	REMARKS.
1	02	VACUUM BELT FILTER	20M X 4M X 3M HT	40 MT	ON FIRST FLOOR EL(+10.000)	THE EQUIPMENT COLUMNS WILL BE SUPPORTED ON THE FLOOR. REFER 6130-190-PVM-B-022-REV 03 FOR DETAILS
1A	02	PLATFORM FOR VACUUM BELT FILTER	APPX 2M WIDE	-	ON FIRST FLOOR EL(+10.000)	COLUMNS SUPPORTED ON PEDESTALS
2	02	SECONDARY HYDRO CYCLONE	3.5M X 1.5M X 2.0M HT	10 MT (INCLUDING SUPPORTING PLATFORMS)	ON FIRST FLOOR EL(+10.000)	THE EQUIPMENT HAS 4 COLUMNS WHICH WILL BE SUPPORTED ON THE FLOOR. REFER 6130-190-PVM-B-022-REV03 FOR DETAILS
3	02	LIME DOSING TANK	4M X 4M X 4M HT	25MT (COMBINED WEIGHT INCLUDING SUPPORTS)	ON FIRST FLOOR EL(+10.000)	THE SCREW CONVEYOR AND LIME DOSING TANK WILL BE SUPPORTED ON PLATFORM WHICH WILL BE SUPPORTED ON FLOOR. REFER 6130-190-PVM-Y-037-REV02 FOR DETAILS
4	-	-ITEM MODIFIED TO 10C-	-	-	-	-
5	01	LIME DOSING SILO/HOPPER	2.2M DIA X 2.8M HT	10 MT	FLOOR OPENING ON SECOND FLOOR EL(+18.750)*	SUPPORTED ON PERIPHERY OF THE FLOOR OPENING
6	02	PRIMARY HYDROCYCLONE	3M DIA X 4M HT	15MT (INCLUDING SUPPORTING PLATFORMS)	ON SECOND FLOOR EL(+18.750)*	PRIMARY HYDRO CYCLONE WILL BE SUPPORTED ON PLATFORM WHICH WILL BE SUPPORTED ON FLOOR. REFER 6130-190-PVM-B-022-REV 03 FOR DETAILS
7	02	VACUUM PUMP	6M X 2.5M	20MT	GROUND FLOOR @ EL(+10.000)	FOUNDATION TO BE PROVIDED AS PER CIVIL DESIGN. REFER 6130-190-PVM-B-022-REV 03 FOR DETAILS
8	02	VACUUM RECEIVER	1.3M DIA	10MT	FIRST FLOOR @ EL(+10.000)	FLOOR MOUNTED TANK. REFER 6130-190-PVM-B-022-REV 03 FOR DETAILS
9	02	BELT FILTER(CLOTH) WASH TANK	3.2M X 3.1M	AS PER LOADING ORG	GROUND FLOOR @ EL(+10.000)	SEPARATE FOUNDATION OR FLOOR MOUNTED AS PER CIVIL DESIGN
9A	04	BELT FILTER(CLOTH) WASH PUMPS	0.5M X 0.5M	REFER 6130-190-PVM-B-022	GROUND FLOOR @ EL(+10.000)	SEPARATE FOUNDATION OR FLOOR MOUNTED AS PER CIVIL DESIGN. REFER 6130-190-PVM-B-022-REV 03 FOR DETAILS
10	02	BUCKET ELEVATOR FOR LIME FEED SYSTEM	0.7M X 1.5M	-	FROM GROUND FLOOR TO FIRST FLOOR	-
10A	01	UNLOADING PLATFORM AND VIBRATING FEEDER FOR LIME FEEDING SYSTEM	2.9M X 2.2M	REFER 6130-190-PVM-Y-037	GROUND FLOOR @ EL(+10.000)	OPENING IN FLOOR LEVEL DTD EL(+10.000) AND EL(+18.750). REFER 6130-190-PVM-Y-037-REV02 FOR DETAILS
10B	02	MOTOR AND DELIVERY OF BUCKET ELEVATOR FOR LIME FEEDING SYSTEM	-	-	EL(+21.900) TOS	-
10C	02	SCREW CONVEYOR FOR LIME FEEDING SYSTEM	-	-	BELOW EL(+18.950) FLOOR	-
11	04	FILTRATE-WATER-TANK	-	-	-	TANK SHIFTED TO OUTSIDE THE BUILDING
12	01	GYPSSUM AREA SLUMP	4.0M X 4.0M X 4.0M DEEP	-	GROUND FLOOR @ EL(+10.000)	-
13	01	CW PIT AND PUMPS	2.0M X 2.0M X 2.0M DEEP	-	GROUND FLOOR @ EL(+10.000)	-

LEGEND:
 FGL - FINISHED GROUND LEVEL
 FFL - FINISHED FLOOR LEVEL
 T.O.P - TOP OF PLATFORM
 T.O.C - TOP OF CONCRETE
 OPNG - OPENING
 MR - MONORAIL
 TH - TRUSS
 TYP - TYPICAL
 GDB - GYPSSUM Dewatering BUILDING
 VBF - VACUUM BELT FILTER

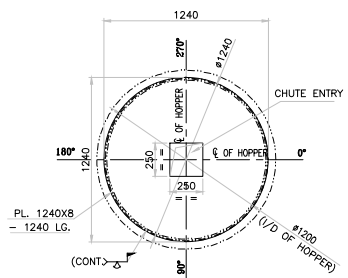
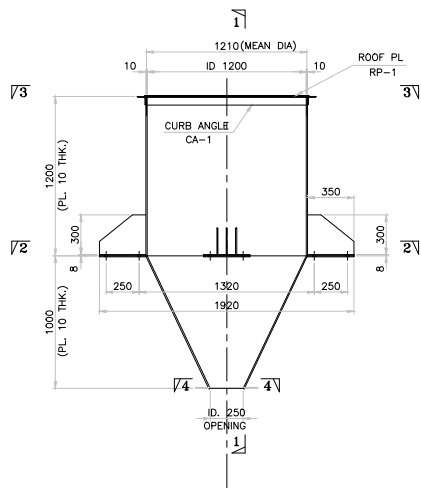
NOTES:
 1. ALL DIMENSIONS ARE IN MILLIMETRES AND ELEVATIONS IN METRES
 2. EL(+10.000) IS THE GROUND FLOOR LEVEL OF POWER HOUSE BUILDING WHICH CORRESPONDS TO RL(+100.750)
 3. FGL (FINISHED GRADED LEVEL) OF GDB AREA IS EL(-30.500) AND RL(+100.25) M
 4. THE EQUIPMENT/ANCHORY SIZES SHOWN IN THIS DRAWING IS INDICATIVE ONLY AND WILL BE CONFIRMED AFTER VENDOR DATA. THE MAXIMUM ANCHORED SIZE AND LOADS IS PROVIDED IN THIS DRAWING.
 5. FLOOR OPENINGS, PIPE CROSSINGS SHALL BE CONFIRMED DURING DETAIL ENGINEERING.
 6. SUITABLE DOORS, WINDOWS AND VENTILATORS SHALL BE CONSIDERED BY CIVIL DESIGNER FOR GYPSSUM Dewatering BUILDING.
 7. THE APPROX DIMENSIONS AND WEIGHT OF EACH EQUIPMENT IS INDICATIVE AND RELEVANT VENDOR DRAWINGS TO BE REFERRED FOR FINAL DATA.

REL. DWGS:
 1. 6130-999-FD0-F-001-REV 000 : NCTPP GENERAL LAYOUT PLAN
 2. 6130-109-PVM-F-001-SH1 & SH2 : FGD SYSTEM LAYOUT-SH1 & SH2
 3. 6130-109-PVM-B-022-REV 04 : HST DETAILS
 4. 6130-190-PVM-B-022-REV 03 : DATA SHEET & GA OF VACUUM BELT FILTERS, VACUUM PUMPS, VACUUM RECEIVERS, WASH PUMPS, ETC.
 5. 6130-109-PVM-Y-037-REV 02 : GA & DATA SHEET OF LIME DOSING/WATERING BUILDING

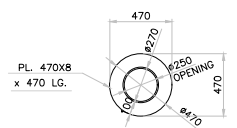
REV. DATE A/D BY APPR. DATE A/D BY APPR. DATE
 01 11.02.20 FELIX K. B. PADI 25.05.18 FELIX K. B. PADI BALAJI
 DRG REVISIONS AS PER CUSTOMER COMMENTS XXXX DRG REVISIONS AS PER CUSTOMER COMMENTS
 STD 09-04-18; CCPE:6130:109:23385 DTD 09-04-18
 THIS DRG IS DEVIDED INTO TWO SHEETS.

CUST NO. G501 & G502
 NTPC DRG NO: 6130-109-PVM-B-046
 NTPC LTD.
 NCTPP (2X490MW) DADRI STAGE-II
 FGD SYSTEM PACKAGE
 HARYAT HEAVY ELECTRICALS LIMITED, DRG NO. 1 NAME SHEET NO. DATE
 UNIT WORKER MANAGER'S PLANT. DRG NO. FELIX K. B. PADI 24/07/18
 SUPERVISOR SK. DASH JP 24/07/18
 ENGINEER LAKSHMANAN JP 24/07/18

TITLE: LAYOUT AND ELEVATION DETAILS OF GYPSSUM Dewatering BUILDING
 DRAWING NO. 0-FW-000-00154 SCALE: NTS SHEET 1 OF 1 REV 02

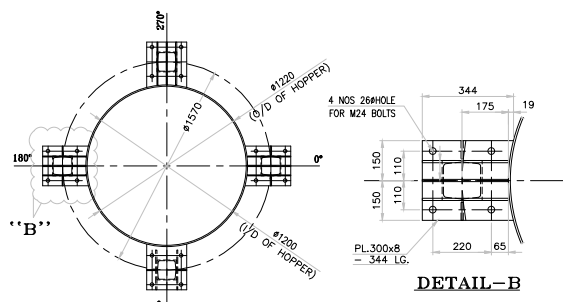


PLAN 3-3



SECTION 4-4

1 SET. BIN REQD. AS DRN. MKD. HP-1



DETAIL-B

PLAN 2-2

NOTES:-

1. ALL DIMENSIONS ARE IN MM. & LEVELS ARE IN M.
2. ALL ERECTION HOLES ARE 17.5# FOR M-16 BOLTS U.N.O.
3. ALL PERMANENT HOLES ARE 17.5# FOR M-16 BOLTS U.N.O.
4. ALL MEMBERS AND GUSSETS PLATES TO BE CUT AFTER FULL SCALE SHOP LAYOUT BEFORE FABRICATION
5. ALL SHOP WELD ARE 6mm. THICK AND SITE WELD ARE 6mm. THICK. U.N.O.
6. ERECTION HOLES SHOWN THUS \rightarrow
7. PERMANENT HOLES SHOWN THUS \rightarrow
8. ALL ERECTION BOLTS SHALL BE RETAINED IN POSITION
9. THIS DRG. SHALL BE READ IN CONJUNCTION WITH DRG. NO.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		BPHAR		BHARAT HEAVY ELECTRICALS LTD., UNIT: BOILER AUXILIARIES PLANT, RAINPET - 632 406.		DRN	NAME	SIGN	DATE	NO. OF VAR.
DEPT		ACCS	GRADE OF UNTOLO.DIM	SCALE	WEIGHT (KG.)	APPD	EOL/STRIM		REF. TO ASSY/OLD DRG.	
CODE		862	PR: AQ: 500	N.T.S	-		ADARSH/KBP			
TITLE		HOPPER ASSEMBLY			CARD CODE	U 01	C.GANESH		07.01.19	
DRAWING NO.		REF: 2-FW-730-00351			REV				08.01.19	00

CAUTION: The information on this drawing is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way without the written consent of the company.

REV	DATE	ALTERED	CHECKED
ZONE			




PRODUCT STANDARD
ELECTRICAL, CONTROLS & INSTRUMENTATION
BAP / BHEL / RANIPET – 632 406

TECI: LT MOTOR: REV 05
PAGE 1 OF 10
EFFECTIVE DATE : 28.07.2021

DOCUMENT TITLE : TECHNICAL SPECIFICATION FOR BOUGHT OUT ITEMS

ITEM : LT MOTOR

PROJECT : BHEL STANDARD

	NAME	DESIGNATION	SIGNATURE	DATE
PREPARED BY	ALAN S G	ENGINEER		28/7/2021
REVIEWED BY	CHANDRASEKAR A P	DM		28-07-2021
APPROVED BY	JEYAMURUGANAND M	AGM		28/07/2021

ISSUED BY EDC – ECI

RECORD OF REVISIONS:

REVISION NUMBER 00	INITIAL RELEASE - Dt. 19.03.2013
REVISION NUMBER 01	
REVISION NUMBER 02	Cl. No: 5- Packing and Drawing included
REVISION NUMBER 03	Cl. No: 2.20, 2.21, 2.38, 2.39, 2.43 added
REVISION NUMBER 04	Cl.No: 2.3, 4(b) - ECI:DATASHEET:LTMOTOR:00 added
REVISION NUMBER 05	Cl.No: 2.36, 2.40, 4(b), 5(a) Updated

PRODUCT STANDARD
ELECTRICAL, CONTROLS & INSTRUMENTATION
BAP / BHEL / RANIPET – 632 406

TECI: LT MOTOR: REV 05
PAGE 2 OF 10
EFFECTIVE DATE : 28.07.2021

	<u>SPECIFICATION</u>	<u>VENDOR COMPLIANCE/ REMARKS</u>
1	<u>SITE CONDITIONS</u>	
1.1	Altitude above mean sea level	>1000 m.
1.2	Ambient temperature condition	6 to 50°C.
1.3	Relative humidity	100%
1.4	Atmosphere	Tropical, Dusty, salty, corrosive & highly polluted as in a coal based Thermal power plant.
2	<u>GENERAL</u>	
2.1	Reference standards	IS 15999, IS 12615, IS/IEC-60034, IS 1231, IS 6362, IS 2253, IS 12065, IS 12075
2.2	Design ambient	50 Deg.C
2.3	Application/ Type(Normal/ Energy efficient)	As per the document LT MOTOR:PROJECT SPECIFIC DETAILS
2.4	Duty cycle	Continuous S1
2.5	Rated voltage, frequency & Phases	415 V AC $\pm 10\%$; 50 Hz (+5% to -5%); 3 phase
2.6	Combined variation of Voltage and frequency	10% absolute sum
2.7	Motors efficiency class	As per the document LT MOTOR:PROJECT SPECIFIC DETAILS
2.8	Minimum starting voltage	80% of the rated voltage
2.9	Minimum voltage under which motor will run satisfactorily	75% of the rated voltage for 5 minutes
2.10.	Capacity to restart (at specified voltage)	i. Two successive starts from cold condition ii. Two HOT restarts starts from Hot condition iii. Three equally spread start per hour
2.11	High speed bus transfer withstand capability	Suitable to withstand 150 % of rated voltage
2.12	Type of balancing for rotor	Dynamic balancing
2.13	Direction of rotation	Suitable for both direction
2.14	Direction of cooling air	Non-drive end to driving end
2.15	Class of insulation	Class F with temperature rise limited to Class B.
2.16	Winding treatment	The insulation shall be given tropical and fungicidal treatment for successful operation of the motor in hot, humid & tropical climate.
2.17	Allowed winding temperature rise at continuous full load	60°C by thermometer method & 70°C by resistance method
2.18	Accelerating Torque at minimum permissible Starting voltage	10% of full Load Torque

2.19	Pullout Torque at rated voltage	205% of full load torque	
2.20.	Ratio of Locked rotor KVA to KW for	As per the document LT MOTOR:PROJECT SPECIFIC DETAILS	
2.21	Starting current	As per the document LT MOTOR:PROJECT SPECIFIC DETAILS	
2.22	Starting time & locked rotor withstand time	The locked rotor withstand time (LRWT) at 110% rated voltage (RV) under HOT condition shall be at least 2.5 sec more than the starting time at 80% of rated voltage for motors with acceleration time upto 20 sec at RV and 5 sec where the accelerating time is more than 20 sec at RV.	
2.23	Momentary overload withstand capability	60% of full load torque for 15 second without any damage.	
2.24	Over speed withstand	120% of rated speed for 2 minutes without any mechanical damage.	
2.25	Hot thermal withstand curve	margin of at least 10% over the full load current	
2.26	Cooling	Totally enclosed fan cooled- IC 411(TEFC)	
2.27	Vibration	The peak amplitude of vibration shall be as per IS 12075	
2.28	Noise level	Within the limits specified by IS 12065 / <85 dB at 1 meter distance from motor.	
2.29	Type of enclosure	TEFC, IP 55 as per IS/IEC 60034-5	
2.30.	Type of mounting	Horizontal foot mounted.	
2.31	Bearings	Ball or roller type / bearings effectively sealed against ingress of dust. The bearing shall be so constructed that the loss of lubricating grease is kept to minimum. Sealed bearings are also acceptable	
2.32	Lubricant Type	Grease	
2.33	Bearing life	minimum life of 40000 Working hours	
2.34	Shaft extension	Key slotted bare shaft extension with key at the driving end.	
2.35	Terminal box Type	Weather proof IP 55 as per IS/IEC 60034-5; Capable of being turned through 360° in steps of 90°.	
2.36	Cable gland and lugs	Double compression type nickel plated brass cable glands and annealed tinned copper crimping lugs to suit the cable size i) Size of power cables will be intimated after PO. ii) For space heater cable glands and lugs suitable for 2CX2.5 to be provided	

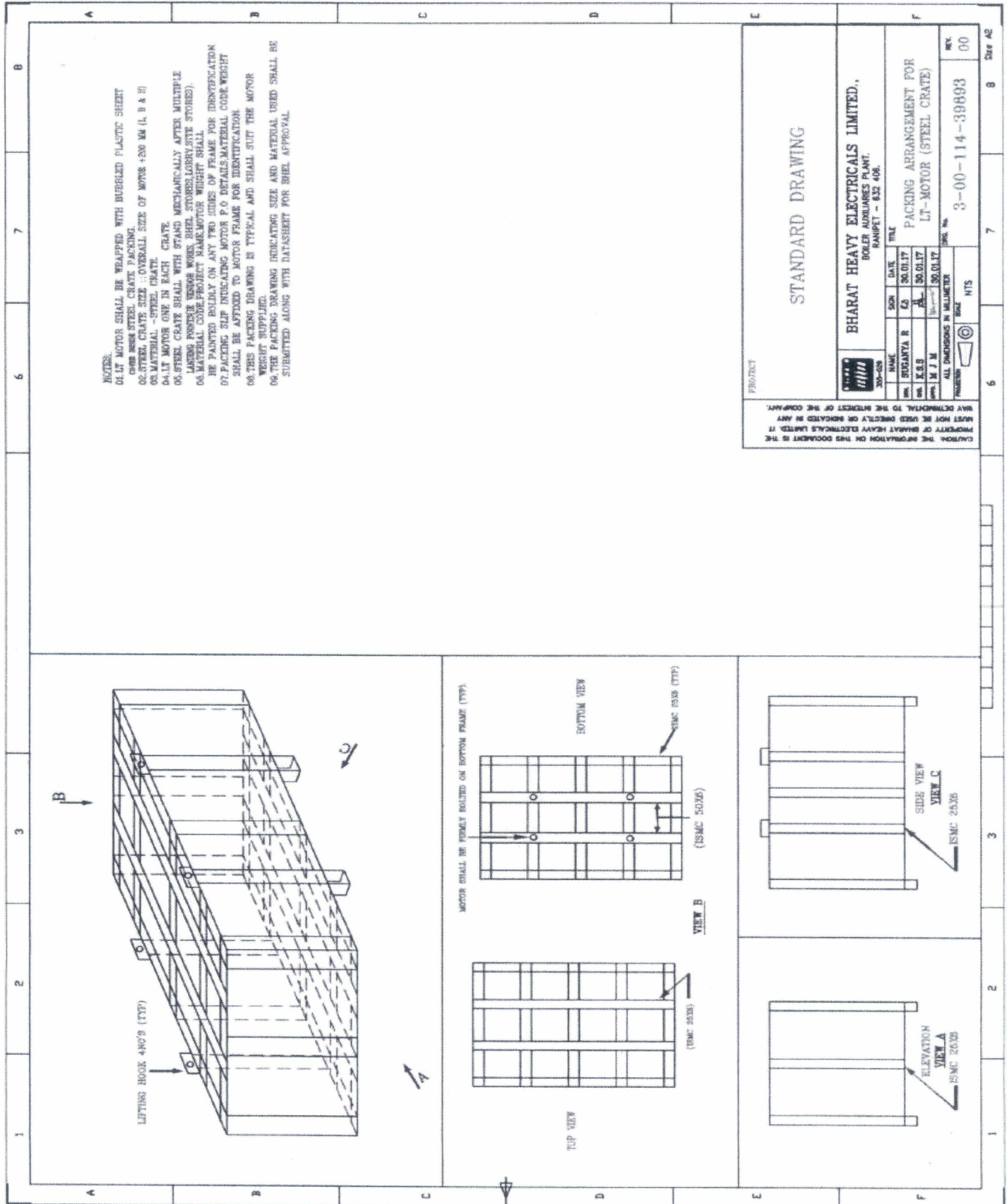
PRODUCT STANDARD
ELECTRICAL, CONTROLS & INSTRUMENTATION
BAP / BHEL / RANIPET – 632 406

TECI: LT MOTOR: REV 05
PAGE 4 OF 10
EFFECTIVE DATE : 28.07.2021

2.37	Type of terminals	Stud / screw type with plain washers, spring washers / checknuts & lugs	
2.38	Min.Spacing between Gland plate and Center stud(in mm)	As per the document LT MOTOR:PROJECT SPECIFIC DETAILS	
2.39	Phase to Phase/Phase to Earth air clearance(in mm) in Terminal Box	As per the document LT MOTOR:PROJECT SPECIFIC DETAILS	
2.40.	Fault level	40KA for 0.25Sec	
2.41	Painting	As per the document LT MOTOR:PROJECT SPECIFIC DETAILS	
2.42	Space heaters:		
2.42.a	i) Motors above 30 kW	Separate space heater suitable for 240V, Single Phase, AC,50 Hz	
2.42.b	ii) Motors below 30 kW	Winding shall be suitable for heating at 24 V, Single phase, AC,50 Hz	
2.43	Terminals for space heater	As per the document LT MOTOR:PROJECT SPECIFIC DETAILS	
2.44	RTD for winding	Two numbers of Thermistors / RTD for each phase as below are to be provided A. Motors above 37 Kw shall have thermistors Or RTD if specifically called for in enquiry. B. Motor rated 160kW and above shall have RTDs	
2.45	Bearing RTD	For motors 132 Kw and above	
2.46	Terminals for RTD/ Thermistor	Thermistors/ RTDs shall be terminated in an auxiliary terminal box. Details shall be furnished in TB diagram.	
2.47	Earthing	Two no of earthing provisions on terminal box and on motor body(on opposite sides)	
2.48	Name plate	As per IS/IEC 60034-8 and Additional data on name plate : a. Bearing DE/ NDE details. b. Year of manufacture	
2.49	Lifting Device	Eye bolt or lugs to facilitate safe lifting	
3	INSPECTION & TESTING	As per applicable quality plan	

4 **DOCUMENTS**

<p>a) Along with offer:</p>	<p>One set of technical data sheet as per the enclosed format and Motor general arrangement drawing giving foundation details, shaft details.</p>	
<p>b) After placement of Purchase order (within 15 days)</p>	<p>Three sets of the following for approval:</p> <ol style="list-style-type: none"> 1. Technical Data sheet as per the enclosed format ECI:DATASHEET:LTMOTOR:00 2. Motor general arrangement drawing giving foundation details, shaft details and weight 3. Motor Terminal box arrangement drawing 4. Motor characteristic curves : Torque vs Speed with load curve superimposed Speed vs Current Time vs Current Thermal with stand curve Load vs Efficiency Load vs Slip Load vs Power factor Speed vs Time Load vs Current 5. Suggested steel crate packing drawing (Drawing No:- 3-00-114-39893) or vendor standard packing drawing subject to approval. The following shall be submitted: <ol style="list-style-type: none"> 1. Guarantee certificate. 2. O & M manuals. 3. Acceleration time and LRWT calculation shall be submitted for review. 	
<p>5 <u>PACKING</u></p>	<p>a) As per suggested Drawing No:- 3-00-114-39893 b)The packing shall meet the Transport, Environment & Storage hazards. c) As per Packing Procedure QA:CI: STD:PR:03 or as per Manufacturer's Standard Practice subject to approval.</p>	



NOTES:
01. LT MOTOR SHALL BE WRAPPED WITH BUBBLED PLASTIC SHEET OVER BHEL STEEL CRATE PACKING.
02. STEEL CRATE SIZE : OVERALL SIZE OF MOTOR +20 MM (L, B & H)
03. MATERIAL - STEEL CRATE.
04. LT MOTOR ONE IN EACH CRATE.
05. STEEL CRATE SHALL WITH STAND MECHANICALLY AFTER MULTIPLE LANDING FORTHE VENDOR WORKS. BHEL STORES LOBBY/STE STORES).
06. MATERIAL CODE/PROJECT NAME/MOTOR WEIGHT SHALL BE PAINTED BOLDLY ON ANY TWO SIDES OF FRAME FOR IDENTIFICATION.
07. PACKING SLIP INDICATING MOTOR P.O DETAILS/MATERIAL CODE/WEIGHT SHALL BE ATTACHED TO MOTOR FRAME FOR IDENTIFICATION.
08. THIS PACKING DRAWING IS TYPICAL AND SHALL SUIT THE MOTOR WEIGHT SUPPLIED.
09. THE PACKING DRAWING INDICATING SIZE AND MATERIAL USED SHALL BE SUBMITTED ALONG WITH DATASHEET FOR BHEL APPROVAL.

STANDARD DRAWING

PROJECT: BHARAT HEAVY ELECTRICALS LIMITED.,
BOILER AUXILIARIES PLANT,
RANIPET - 632 406.

NO.	NAME	DATE	SCALE	TITLE
01	SUDANTA R	30.01.17	AS	PACKING ARRANGEMENT FOR LT-MOTOR (STEEL CRATE)
02	K.S.S	30.01.17	AS	
03	M.J.M	30.01.17	AS	

ALL DIMENSIONS IN MILLIMETER
PROJECTION: SCALE: NTS
Dwg No. 3-00-114-39893
REV: 00
SHEET 9 OF 02

CAUTION: THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF THE COMPANY.

PRODUCT STANDARD
ELECTRICAL, CONTROLS & INSTRUMENTATION
BAP / BHEL / RANIPET – 632 406

TECI: LT MOTOR: REV 05
PAGE 7 OF 10
EFFECTIVE DATE : 28.07.2021

ECI: DATASHEET: LTMOTOR: 00

TECHNICAL DATA SHEET OF LT MOTOR

P.O No:

DATA SHEET - Customer No: Project:

CL.NO	CHARACTERISTICS	VENDOR DATA(To be filled by Vendor)
1.0	Application	
1.1	Fan / Load Curve referred	
2.0	Manufacturer	
3.0	Type & frame size	Normal/ Energy efficient Frame size:
3.1	Degree of Protection	IP55
4.0	Rated output in kW	
4.1	Rated speed	
5.0	Rated voltage , frequency & phases	415 V \pm 10% AC; 50 Hz \pm 5%; (Check voltaqe as per Enquiry) 10% absolute sum; 3 phase
6.0	Full load current	Amps
7.0	Energy efficient	As per IS 12615
8.0	Efficiency & power factor at Full load	Eff- Pf-
9.0	Efficiency & power factor at 75 % load	Eff- Pf-
10.0	Efficiency & power factor at 50 % load	Eff- Pf-
11.0	Duty Cycle	S1 - Continuous
12.0	Rated torque	
13.0	Starting current	As per IS standards
14.0	No load current (with mechanism coupled)	(at Rated.V and Frequency)
15.0	Starting torque in % of full load torque	
16.0	Pull up torque in % of full load torque	
17.0	Pull out torque in % of full load torque	

PRODUCT STANDARD
ELECTRICAL, CONTROLS & INSTRUMENTATION
BAP / BHEL / RANIPET – 632 406

TECI: LT MOTOR: REV 05
PAGE 8 OF 10
EFFECTIVE DATE : 28.07.2021

18.0	No load starting time (without mechanism coupled)	
19.0	Locked rotor withstand time at rated voltage	a.Hot b.Cold
20.0	Locked rotor withstand time at minimum starting voltage	a.Hot b.Cold
21.0	Locked rotor withstand time at 110% rated voltage	a.Hot b.Cold
22.0	Starting time at minimum starting voltage with mechanism coupled	
23.0	Starting time at rated voltage with mechanism coupled	
24.0	Maximum permissible starting time	
25.0	Stator thermal time constant	Minutes
26.0	Type & No of terminals brought out	
27.0	Stator winding connection	Delta / Star
28.0	Class of insulation & temperature rise	Class F; 60 ⁰ C by thermometer method / 70 ⁰ C by resistance method.
29.0	Minimum permissible starting voltage	Volts
30.0	Resistance per phase at 20Deg C (Indicative)	Ohms
31.0	No of successive starts in Hot condition	
32.0	Quantity and power consumption of space heater	Quantity: Watts:
33.0	Direction of rotation	Bi-Directional.
34.0	Bearing make & type	Make: Drive End: Non Drive End:
35.0	Lubricant quantity grade & recommended interval of lubrication	

PRODUCT STANDARD
ELECTRICAL, CONTROLS & INSTRUMENTATION
BAP / BHEL / RANIPET – 632 406

TECI: LT MOTOR: REV 05
PAGE 9 OF 10
EFFECTIVE DATE : 28.07.2021

36.0	Type of mounting & shaft orientation	Foot mounting; Horizontal.
	<u>Terminal Box</u>	
37.0	Location & angle of rotation	
38.0	Gland size for stator winding	
39.0	Gland size for space heater	Suitable for 2CX2.5 sq.mm (armoured), if applicable.
40.0	Cable entry	
41.0	GD ² of motor (kg-m ²)	
42.0	Total weight of motor (kg).	
43.0	Weight of stator (kg)	
44.0	Weight of rotor (kg)	
45.0	Anticipated bearing life in Hours	
46.0	Method of connection to driven equipment	
47.0	Limiting rotor temperature for determining safe stall time	
48.0	RTD for winding/ Bearing	Applicable: YES <input type="checkbox"/> NO <input type="checkbox"/>
49.0	Grade of balance of motor	
50.0	Standard continuous rating at 40 Deg C ambient.	
51.0	Derated rating of motor at 50 Deg C.	
52.0	a. Locked Rotor KVA	
	b. Ratio of Locked rotor KVA / Rated KW	
53.0	a. Motor Dynamic Load	Upward/ Downward—
	b. Motor Static load	Upward / Downward—
54.0	PAINT SHADE	

Vendor's signature and seal

Rev No :

Date :

PRODUCT STANDARD
ELECTRICAL, CONTROLS & INSTRUMENTATION
BAP / BHEL / RANIPET – 632 406

TECI: LT MOTOR: REV 05
PAGE 10 OF 10
EFFECTIVE DATE : 28.07.2021

The following curves are to be enclosed during datasheet approval.

1. GA drawing , Terminal box arrangement
2. Torque Vs Speed with load curve superimposed.
3. Speed Vs Current
4. Time Vs Current
5. Thermal with stand curve
6. Load Vs Efficiency
7. Load Vs Slip
8. Load Vs Power factor
9. Speed Vs Time
10. Load Vs Current.

The following information shall be specifically provided for motors suitable for VFD drive (if called for in eqny during datasheet approval in addition to datasheet.

1. Stator Resistance
2. Stator leakage reactance
3. Magnetising reactance
4. Rotor resistance referred to stator
5. Rotor reactance referred to stator

Vendor's signature and seal.

Date

LT MOTOR: PROJECT SPECIFIC DETAILS FOR NTPC

ENERGY EFFICIENT	IE3
SUPPLY	Supply: 415V + 10% & -10%, 3 Phase, 50 Hz +5% & -5%. System fault level of 40kA rms for 0.25sec
STARTING CURRENT	As per IS 12615
RATIO OF LOCKED ROTOR KVA TO KW	
i) 50KW to 110KW	11
ii) 110KW to 200KW	9
MIN. SPACING BETWEEN GLAND PLATE AND CENTER STUD(IN MM)	
upto 3KW	As per manufacturer's practice
above 3KW and upto 7KW	85
above 7KW and upto 13KW	115
above 13KW and upto 24KW	167
above 24KW and upto 37KW	196
above 37KW and upto 55KW	249
above 55kw and upto 90KW	277
above 90KW and upto 125KW	331
above 125KW and upto 200KW	203
PHASE TO PHASE/PHASE TO EARTH AIR CLEARANCE(IN MM) IN TERMINAL BOX	
upto 110	10
above 110kw and upto 150KW	12.5
above 150KW	19
ADDITIONAL DATA TO BE INCLUDED IN DATASHEET	
GRADE OF BALANCING OF MOTOR	
STANDARD CONTINUOUS RATING AT 40DEG.C AMBIENT	
DERATED RATING OF MOTOR AT 50DEG.C(DESIGN POINT)	
NO LOAD CURRENT OF MOTOR AT RATED VOLTAGE AND FREQUENCY	
STARTING TORQUE VALUE IN KGM	
LOCKED ROTOR KVA @ RATED KW	
POWER FACTOR AND EFFICIENCY AT 75% LOAD	
POWER FACTOR AND EFFICIENCY AT 50% LOAD	
SPACE HEATER TERMINAL(if applicable)	Separate terminal box shall be provided
PAINTING	RAL 5012.

Quality Assurance (Mech)
CONTRACT QUALITY REQUIREMENT (CQR)

DADRI: BAG FILTER: 638

Dt. 14-12-2022

SL No	Indent No	PGMA	Item Description	Project
01	RFW21903	FW314	BAG FILTER SYSTEM WITH FAN FOR LIME SILO	DADRI – 2X490 MW
QP NO. BAG FILTER:745, Rev:00, Dated:15.05.2020			Technical Specification – LDS:SILO:BGFR:REV:00,DT:12.12.2022	

Following are Quality recommendation:


1. All the items shall be inspected at Manufacturer works as per BHEL SQP/Approved Drawing/Approved datasheet and Technical Specification.
2. Physical Inspection shall be done by BHEL/BHEL AIA at Manufacturer works.
3. BHEL Approved Source is acceptable.
4. Arrange Vendor acceptance for BHEL SQP (QP NO. BAG FILTER:745, Rev:00, Dated:15.05.2020). Any clarification on this SQP shall be discussed and settled with relevant/Standard/ technical discussion before PO placement.
5. Packing of items shall be as per BHEL Engg Approved Packing Drawing/Technical Specifications.
6. BHEL Authorized representatives shall have the right to witness the necessary inspection and testing of goods mentioned in the PO. The supplier shall inform BHEL in advance about the readiness of the goods for inspection and testing. Inspection / Inspection wavier / approval by BHEL does not absolve Supplier's responsibility for conformity of the specification as per the terms of PO. Material Test Certificates shall be submitted to BHEL.
7. Painting shall be as per Customer approved painting scheme.
8. Annexure 'Q' shall be part of enquiry File and shall be filled by Supplier with their duly sign and seal.
9. **General Inspection Notes:**
 - a. Latest version of standards & Specification shall be applied.
 - b. Materials shall be procured in compliance to Functional Technical specification.
 - c. Gauges and measuring instruments with valid calibration only shall be used.
 - d. Inspection / Inspection wavier / approval by BHEL does not absolve Supplier's responsibility for conformity of the specification as per the terms of PO.
 - e. BHEL /BHEL Authorized representatives shall have the right to witness the necessary inspection and testing of goods mentioned in the PO.
 - f. In case of Vendor Drawing & Datasheet, it needs approval by BHEL Engineering.
 - g. This QP shall be read along with relevant PO, BHEL Specification / Approved Drawing/Datasheet.

This is for your information and further necessary action at your end please.


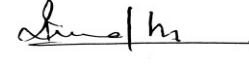

Sd/- Rakesh Kr Madhu
Dy/Mgr-QA

Sd/- K Renjith
Mgr/QA

1200811/2022/BAP/QA

 Ranipet		MANUFACTURER'S NAME & ADDRESS BHEL/ BHEL APPROVED SOURCE		STANDARD QUALITY PLAN ITEM: BLOWER & BAG FILTER QP. NO.: BAG FILTER :745 Rev No. :00 Date: 15.05.2020 Page 1 of 4				PROJECT: AS PER PO.				
		SL NO	COMPONENT & OPERATION	CHARACTERISTICS	CLASS OF CHECK	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENTS	ACCEPTANCE NORMS	FORMAT OF RECORD	
1	2	3	4	5	M	B/C	7	8	9	D	10	11


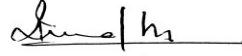

A	Centrifugal Blower												
1.0	RAW MATERIAL												
1.1	Fan Casing and Impeller	Material	Major	Chemicals & Mech test.	Each Heat/Melt		BHEL Specification/ Approved Drawing		TC	√	P	V	-
		Shaft Soundness	Major	UT	100%	100%	ASME Sec.V	ASME Sec.V	TC	√	P	V	-
2.0	IN PROCESS INSPECTION												
2.1	Fabrication (Casing and Impeller)	Dimension	Major	Visual & Measurement	100%	100%	Manufacturing Drawings		Report	√	P	W	-
2.2		Weld Quality	Major	DP Test	100%	100%	ASME Sec.V	ASME Sec.V	Report	√	P	W	-
2.3	Impeller	Dimensions	Major	Dimensional check	100%	100%	As per Manufacturing Drawings / Data sheet		Report	√	P	W	-
		Balancing	Major	Dynamic Balancing, Static Balancing	100%	100%	Approved Drawing/ Data sheet		Report	√	P	W	-
2.4	Motor	As per Electrical and C&I inspection requirement.											
3.0	FINAL INSPECTION												
3.1	Mechanical Run Test	Run test for one hour.	Critical	RPM, Current, vibration, Temperature & Noise.	100%	Random one per visit from offered lot	Specification /Approved Drg. / Approved Datasheet		Report	√	P	W	-

M – Manufacturer / Subcontractor, B - BHEL /BHEL Authorized Inspection Agency, C - Customer, P - perform, V - Verification of reports, COC- Certificate of conformance. W - Witness, TC - Test certificate, IR- Inspection report. "D" – Record, identified with tick (√) shall be essentially included by Supplier in QA documentation. UT- Ultrasonic test, DP – Dye Penetrant Test.	Prepared by	Reviewed by	Approved by
	 Sanjib Pandit (AE/QA)	 Rakesh Kumar Madhu (Dy Manager / QA)	 R. Arunachalam (DGM/QA)

1200811/2022/BAP-QA


MECH

SL NO		COMPONENT & OPERATION	CHARACTERISTICS	CLASS OF CHECK	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENTS	ACCEPTANCE NORMS	FORMAT OF RECORD		Agency	REMARKS	
1		2	3	4	5	M	B/C	7	8	9	D	10	11	
3.2	Performance Test	Performance Test with Job Motor/Shop Motor (as applicable in tech. specification/ap proved data sheet)	Critical	RPM, Power consumption, vibration, Temperature rise & Noise level.	One no of each type and size (to be randomly selected from complete Lot)	Specification /Approved Drg. / Approved Datasheet		Report	√	P	W	-		
4.0 PAINTING & PACKING														
4.1	Painting	Cleaning, painting & Preservations	Major	Visual	100%	100%	As per P.O. / Approved Drg. / Specification.		COC	√	P	V	-	


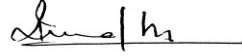

M – Manufacturer / Subcontractor, B - BHEL /BHEL Authorized Inspection Agency, C - Customer, P - perform, V - Verification of reports, COC- Certificate of conformance. W - Witness, TC - Test certificate, IR- Inspection report. “D” – Record, identified with tick (√) shall be essentially included by Supplier in QA documentation. UT- Ultrasonic test, DP – Dye Penetrant Test.	Prepared by	Reviewed by	Approved by
	 Sanjib Pandit (AE/QA)	 Rakesh Kumar Madhu (Dy Manager / QA)	 R. Arunachalam (DGM/QA)

1200811/2022/BAP/QA

MECH

 Ranipet		MANUFACTURER'S NAME & ADDRESS BHEL/ BHEL APPROVED SOURCE		STANDARD QUALITY PLAN				PROJECT: AS PER PO.						
				ITEM: BLOWER & BAG FILTER		QP. NO.: BAG FILTER :745 Rev No. : 00 Date: 15.05.2020 Page 3 of 4								
SL NO	COMPONENT & OPERATION	CHARACTERISTICS	CLASS OF CHECK	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENTS	ACCEPTANCE NORMS	FORMAT OF RECORD		Agency			REMARKS
					M	B/C			M	B	C			
1	2	3	4	5	M	B/C	7	8	9	D	10			11

B	Bag Filter													
1.0	RAW MATERIAL													
1.1	Casing /Housing	Material	Major	Chemicals & Mech test.	Each Heat/Mel t	BHEL Specification/ Approved Drawing	TC	√	P	V	-			
2.0	IN PROCESS INSPECTION													
2.1	Casing/Housing	Dimension	Major	Visual & Measurement	100%	100%	Manufacturing Drawings	Report	√	P	W	-		
2.2	Casing/Housing	Weld Quality	Major	DP Test	100%	100%	ASME Sec V	ASME Sec V	Report	√	P	V	-	
3.0	Instruments & BOI													
3.1	DP switch/Transmitter, Air filter regulator, Solenoid valve, Timer, Bearing.	Make	Major	Visual , Dimensional check	100%	100%	Specification/Approved Drawing/ Data sheet	TC/COC	√	P	V	-		-
4.0	FINAL INSPECTION & PAINTING													
4.1	Painting	Painting & preservations	Major	Visual	100%	100%	As per P.O. / Approved Drawing. / Specification	COC		P	W	-		

M – Manufacturer / Subcontractor, B - BHEL /BHEL Authorized Inspection Agency, C - Customer, P - perform, V - Verification of reports, COC- Certificate of conformance. W - Witness, TC - Test certificate, IR- Inspection report. "D" – Record, identified with tick (√) shall be essentially included by Supplier in QA documentation. UT- Ultrasonic test, DP – Dye Penetrant Test.	Prepared by	Reviewed by	Approved by
	 Sanjib Pandit (AE/QA)	 Rakesh Kumar Madhu (Dy Manager / QA)	 R. Arunachalam (DGM/QA)

1200811/2020/BAP-QA


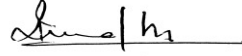
MECH

SL NO		COMPONENT & OPERATION	CHARACTERISTICS	CLASS OF CHECK	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENTS	ACCEPTANCE NORMS	FORMAT OF RECORD	Agency	REMARKS	
						6				M B C		
1	2	3	4	5	M	B/C	7	8	9	D	10	11

- Note: 1. Latest version of standards & Specification shall be applied.
 2. Materials shall be procured in compliance to Functional Technical Specification.
 3. Gauges and measuring instruments with valid calibration only shall be used.
 5. Inspection / Inspection waiver / approval by BHEL does not absolve Supplier's responsibility for conformity of the specification as per the terms of PO.
 4. BHEL /BHEL Authorized representatives shall have the right to witness the necessary inspection and testing of goods mentioned in the PO.
 5. In case of Vendor Drawing, it needs approval by BHEL Engineering.
 6. This QP Shall be read along with relevant PO, BHEL TDC/Drawing.
 7. All Test certificates/Inspection Reports shall be submitted to BHEL for Review and record purpose.

Record of revision

Rev no	Date	Description
00	15.05.2020	First release

M – Manufacturer / Subcontractor, B - BHEL /BHEL Authorized Inspection Agency, C - Customer, P - perform, V - Verification of reports, COC- Certificate of conformance. W - Witness, TC - Test certificate, IR- Inspection report. “D” – Record, identified with tick (✓) shall be essentially included by Supplier in QA documentation. UT- Ultrasonic test, DP – Dye Penetrant Test.	Prepared by	Reviewed by	Approved by
		 Sanjib Pandit (AE/QA)	 Rakesh Kumar Madhu (Dy Manager / QA)

Annexure Q

Indent No:		Enquiry no:	
Sl.No	BHEL / Customer Requirements	## Specific confirmations by the manufacturer (Acceptable/Not acceptable)	
	Quality Plan Requirement: (If SQP is not given & Vendor QP applicable)		
	(i) MQP (Manufacturing Quality Plan) shall be submitted in attached format for BHEL/Customer review & approval. Our SQP/Typical MQP/ MQP Format is attached for guidance & use.		
	(ii) MQP shall invariably cover w.r.t Inward inspection including on Raw material Procurement, In process and Final inspection in elaborated way/details.		
	(iii) Bidder shall also to give specific confirmation that on need basis, their competent officials shall visit to BHEL / customer for finalization of Quality plan including test procedure/methodology during preaward / post award approval / detailed engineering in the event of an order.		
	(iv) No deviation on BHEL/Customer approved MQP/ SQP (In case BHEL SQP is provided) is acceptable.		
1	(v) Bidder shall agree to submit all cross referred documents other than codes/standards to BHEL/Customer/Consultant.		
	Important Notes shall be included in MQP : (a) Latest revision of Standard s & Specification shall apply. Only International Standards are applicable. (b) Materials shall be procured in compliance to Functional Technical Specification. (c) Inspection shall be in compliance with Approved Quality Control Procedure for the Product. (d) NDT shall be carried out by Qualified Personnel with compliance to Approved NDT Procedures and Acceptance Norms, as per ASME standard. (e) Gauges and measuring Instruments, with valid calibration only shall be used. (f) Cleaning and Painting of products shall be carried out as per Approved Painting Schedule. (g) Finished Products shall be packed to comply with Approved Packing Schedule. (h) Welding shall be carried out by Qualified Personnel with compliance to Approved NDT Procedures and Acceptance Norms, as per ASME standard.		
2	Domestic / Inland Inspection will be carried out by BHEL/BHEL appointed Third Party Inspection Agency (TPIA) / Customer/Customer Appointed Inspection Agency/Consultant. This is applicable for all Stage inspection and Final Inspection identified as "W" - Witness or "CHP" - Customer Hold Point as per customer approved Quality Plan/ Technical specification / Approved Drawing/ Approved Data sheet / Scheme / PID / PFD / SLD (Process Instrumentation Diagram / Process Flow Diagram / Single Line Diagram) etc. (as applicable).		
3	Inspection Agency for Foreign Bidders and also for Indian Bidder but importing from Foreign Sources: (1) Any one of the following Third Party Inspection Agency (TPIA) shall be appointed by the bidder and same shall be furnished by the bidder in techno commercial bid itself. (2) The details of TPIA with contact details like Name of the official, Phone no, Email id shall also to be submitted during pre/post award. However cost for such inspection agency shall be borne by the bidder only. Inspection charges for such inspection agency shall be indicated separately so that if BHEL/Customer is undertaking the inspection by on their own , then these charges are non claimable by the bidder. For NTPC Project ensure TPI Approved by NTPC. Refer our QC Procurement email in this regard. List of TPIA 1.M/s Bureau Veritas 2.M/s TUV-Nord 3.M/s TUV-SUD 4.M/s TUV Rheinland 5.M/s Lloyds Register 6.M/s SGS 7.M/s Germanischer Lloyds 8.M/s QUEST 9.M/s Certification Engineers International 10.M/s Intertek 11.M/s IR Class Systems and Solutions 12.M/s DNV 13. M/s Fichtner 14. M/s ABS Inspection Services		

1200811/2022/BAP-QA_MECH

Sl.No	BHEL / Customer Requirements	## Specific confirmations by the manufacturer (Acceptable/Not acceptable)
4	Stage Inspection during manufacturing Process : Stage Inspection during manufacturing shall be carried out as per approved quality plan and all necessary documents shall be provided for review, verification and clearance for further processing. This inspection call shall be given well in advance (at least 2 weeks before) to TPI/Bidder's own inspection agency to avoid delay in the manufacturing processes.	
5	Inspection before despatch for domestic supplier : Inspection before despatch at supplier's works shall be carried out by BHEL appointed Inspection agency (as in Sl no. 2). Inspection shall be done as per approved Quality plan/ Technical specification/ Approved Drawing/ Approved Data sheet .	
6	Inspection at Foreign Source/Supplier: (a) As in sl no: 3. shall be ensured without fail (b) No material / items shall be despatched without getting the written communication from BHEL / Customer inspection carried out by Bidder appointed Third Party Inspection Agency (As per Sl no.3) / Customer/Customer Appointed Inspection Agency/Consultant. This is applicable for all Stage inspection and Final Inspection identified as "W" - Witness or "CHP" - Customer Hold Point as per customer approved Quality Plan/ Technical specification / Approved Drawing/ Approved Data sheet / Scheme / PID / PFD / SLD (Process Instrumentation Diagram / Process Flow Diagram / Single Line Diagram) etc. (As applicable). Inspection before despatch for Foreign supplier : Inspection before despatch at supplier's works shall be carried out by bidder appointed inspection agencies having international presence at vendors and or vendor's sub vendor works. Inspection shall be done as per approved Quality plan/ Technical specification/ Approved Drawing/ Approved Data sheet by TPIA mentioned in Sl no: 03 at supplier's cost.	
7	Painting shall be done strictly as per BHEL/Customer approved painting schedule / scheme only. Paint Thickness / Paint shade shall be ensured as per BHEL / Customer approved painting schedule / specification / data sheet etc. No deviation is acceptable unless otherwise accepted by BHEL/Customer in writing. Any conflict if any among BHEL / Customer approved painting schedule / Spec / data sheet etc. shall be brought to the notice of BHEL well in advance before proceeding including the BOI being procured for assy / skid like motors etc.	
8	Specific conformation for document package in the event of an order (2 Hard copies & soft copy in PDF file) is to be given containing the following with proper linkages (i) Index Sheet (ii) MQP/RQP/Endorsement Sheet (As applicable) (iii) TCs identified by BHEL/ Customer for record for "CHP" / "W" and Verification portion ("V") as given in approved QP. (iv) Final inspection report + TC including Chemical + Mechanical + HT + NDT etc. (v) Third party Inspection report + TC (vi) Customer CHP/ MDCC (vii) Type test / Performance Test reports conducted (viii) Type test / Performance Test approval/ clearance obtained from BHEL/Customer (ix) BOM with As Build Drgs with actual make / rating used with BHEL/customer approved drawings.	
9	Packing / Seaworthy Packing shall be as per BHEL Packing schedule / approved drg / sketch. This shall be ensured to take care transit / handling / transshipment in Road / Sea / Air. Photographs are to be submitted for BHEL review before despatching the material as per contract conditions.	
10	Outsourcing of test facilities: Bidder shall ensure all the testing facilities in house. However If any of the test facilities are not available with successful bidder, then bidder shall ensure the same at NABL accredited third party lab / Govt / Govt Lab for major testing such as NDT, Electrical & Mechanical testing.	
11	Important Note: No deviation on the above requirement 01 to 10 is acceptable with respect to Quality Requirement and those offers not meeting these specific customer requirement is liable for rejection and hence the bidder shall submit all the required documentary evidences in the offer itself.	
12	## Necessarily to be filled up by the bidder at the time of offer itself otherwise the offer may not be considered w.r.t Quality Requirement being customer specific requirement.	

VENDOR SIGN AND STAMP:

Vendor Name & Address:

1207913/2022/BAP-QR-MECH CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS(IE3) Up to 200KW

PROJECT: NTPC Dadri 2 x 510MW PACKAGE: FGD PACKAGE MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR (OEM) & ADDRESS: (To be filled by OEM VENDOR)		CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS(IE3) - Up to 200KW used in Bag Filter System NTPC Dadri 2 x 510MW FGD PACKAGE		DOC.NO: BAP/QR/G501 /Dadri /LTM/BFS: 001 Rev NO.: 00 PAGE : Page 1 of 4 DATE: 17.12.2022		##Enquiry No: ## OEM Supplier Name & Address: ##Offer reference: ##Date: Contact Official Name: Mobile no: Email id:	
Sl. NO.	DESCRIPTION	BHEL and Ultimate Customer - NTPC (National Thermal Power Corporation), India Quality Requirements				##Specific confirmations by the vendor	

ITEM: LT Motors (IE3) Up to 200KW

01	Type Test Requirements	A. Vendor shall submit the type test reports of all the type tests as listed in SL NO: 01 (D) below and carried out within 10 years from the data of ultimate NTPC bid opening dt 01.01.2018. These reports should be for the test conducted on the identical/similar LT Motors to those proposed to be supplied under this enquiry and test (s) either should have been conducted at an independent laboratory (or) should have been witnessed by BHEL AIA (BHEL Appointed Inspection Agency) / BHEL (or) Ultimate client NTPC at respective LT Motor Manufacture of OEM vendor.	
		B. However, if vendor is not able to submit the similar / identical type test report as per above condition (or) in the case of type test reports are not found to be meeting the specification requirement, the vendor shall conduct all the tests at no additional cost to BHEL either at third party lab (or) own lab in the presence of BHEL AIA (BHEL Appointed Inspection Agency) / BHEL /Ultimate client NTPC and submit the reports for review & approval.	
		C. Type Test reports review and approval by BHEL AIA (BHEL Appointed Inspection Agency) / BHEL / Ultimate client NTPC is must in line with NTPC approved data sheet / BOM/GA Drawing etc.	
		D. The following Type test reports to be submitted covering the following for above 50KW LT Motor as per relevant BIS (Bureau of Indian Standard) - BIS 325 / IEC 60034 etc	
		<ul style="list-style-type: none"> i. Measuring of resistance of winding of stator and wound rotor (if applicable) ii. No load test at rated voltage to determine input current, power and speed. iii. Open circuit voltage ratio of wound rotor motor (in case slip ring motors) iv. Full load test to determine efficiency power factor and slip v. Temperature rise test. vi. Momentary excess load test vii. High voltage test viii. Test for vibration severity of motor ix. Test of noise levels of motor (Noise level for all the motors shall be limited to 85dB(A) except for BFP motor for which the maximum limit shall be 90dB(A).) x. Over speed test xi. Degree of Protection Tests (Minimum Ingress Protection - IP 55). xii. Type test reports for motors located in fuel oil area having flame proof enclosures as per BIS 2148/ IEC 60079-1 	
	E. The TCs / Type Test reports shall also be given as PDF file with index sheet & page control through Email & Soft Copy (File size to less than 9MB).		

1207913/2022/BAP-QR-MECH CONTRACT QUALITY REQUIREMENTS (COR) for LT MOTORS(IE3) Up to 200KW

PROJECT: NTPC Dadri 2 x 510MW PACKAGE: FGD PACKAGE MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR (OEM) & ADDRESS: (To be filled by OEM VENDOR)		CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS(IE3) - Up to 200KW used in Bag Filter System NTPC Dadri 2 x 510MW FGD PACKAGE		DOC.NO: BAP/QR/G501 /Dadri /LTM/BFS: 001 Rev NO.: 00 PAGE : Page 2 of 4 DATE: 17.12.2022		##Enquiry No: ## OEM Supplier Name & Address: ##Offer reference: ##Date: Contact Official Name: Mobile no: Email id:	
Sl. NO.	DESCRIPTION	BHEL and Ultimate Customer - NTPC (National Thermal Power Corporation), India Quality Requirements				##Specific confirmations by the vendor	

ITEM: LT Motors (IE3) Up to 200KW

02	Quality Plan Requirement	<ol style="list-style-type: none"> 1. RQP or MQP is applicable for these LT Motor. 2. RQP/MQP (Manufacturing Quality Plan) is applicable for these LT Motors and accordingly Actual LT Motor Manufacture and OEM shall submit the RQP/MQP in ultimate customer – NTPC format. 3. If any of LT Motor manufacture is having, ultimate customer NTPC approved MQP (Manufacturing Quality Plan) / RQP (Reference Quality Plan) and having validity, the same is applicable for these LT Motor for inspection subject to obtaining ultimate customer NTPC formal approval in the event of an order through endorsement sheet approval route as in sl no: 4 below 4. Accordingly, LT Motor Manufacture & OEM supplier shall submit the filled up Endorsement sheet (copy attached) with ultimate customer approved MQP/RQP with signature & seal in the event of a Purchase Order from BHEL. 5. If LT Motor Manufacture / OEM vendor does not have MQP/RQP, they should submit a fresh MQP to BHEL/NTPC (in NTPC format) for review & approval. (copy attached). 					
03	BHEL / Ultimate Customer – NTPC approved vendors	LT Motors are to be procured only from following Ultimate Customer - NTPC approved vendors and no deviation on this specific requirement is acceptable. <ul style="list-style-type: none"> ➤ KEC / Bengaluru (Up to 200KW) & Hubli (Up to 90KW) ➤ CGL/Ahemdnagar (Up to 200KW) ➤ SIEMENS/Mumbai (Up to 200KW) ➤ ABB/Faridabad (Up to 55KW) and Bengaluru (Up to 200KW) ➤ BBL/Mumbai (Up to 200KW) ➤ NGEF/ Bengaluru (Up to 15KW) ➤ Marathon / Kolkatta (Up to 200KW) ➤ Jyothi / Vadodara (Up to 200KW) ➤ Laximi Hydralics Private Limited (LHPL) / Solapur (Up to 200KW) 					

1207913/2022/BAP-QR-MECH CONTRACT QUALITY REQUIREMENTS (COR) for LT MOTORS(IE3) Up to 200KW

PROJECT: NTPC Dadri 2 x 510MW PACKAGE: FGD PACKAGE MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR (OEM) & ADDRESS: (To be filled by OEM VENDOR)		CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS(IE3) - Up to 200KW used in Bag Filter System NTPC Dadri 2 x 510MW FGD PACKAGE		DOC.NO: BAP/QR/G501 /Dadri /LTM/BFS: 001 Rev NO.: 00 PAGE : Page 3 of 4 DATE: 17.12.2022		##Enquiry No: ## OEM Supplier Name & Address: ##Offer reference: ##Date: Contact Official Name: Mobile no: Email id:	
Sl. NO.	DESCRIPTION	BHEL and Ultimate Customer - NTPC (National Thermal Power Corporation), India Quality Requirements				##Specific confirmations by the vendor	

ITEM: LT Motors (IE3) Up to 200KW

04	Inspection Methodology to be adopted at Actual LT Motor Manufacture works by OEM vendor	<u>LT Motors up to 50KW – Inspection Categorization: III</u> All Routine tests on LT Motors are to be ensured by OEM Vendor & same are to be inspected & witnessed by OEM Vendor / BHEL / BHEL AIA (BHEL authorized inspection Agency) at LT Motor manufacture works as per approved MQP & approved data sheet / drg / spec/ as per relevant BIS (Bureau of Indian Standard) - BIS 325 / IEC 60034 etc and all the Routine Test Reports with Inspection report (IR) to be submitted for BHEL/Ultimate Customer – NTPC for review and to obtain inspection and dispatch clearance. LT Motor Manufacturer has to issue COC (Certificate of Conformance) states that the above motor/ motors was manufactured taking care of Customer specific requirements regarding ambient temp., voltage and frequency variation, hot starts, pull out torque, starting KVA/KW, temp. rise, distance between centre of stud and gland plate, space heater and tested in accordance with approved drawing/data sheets	
		<u>Above 50KW and up to 200KW – Inspection Categorization: I</u> All Routine & Type Tests if any on LT Motors are to be ensured by OEM Vendor and same shall be offered to BHEL/ BHEL AIA (BHEL authorized inspection Agency) / Ultimate Customer-NTPC for inspection & witnessing including review of Degree of Protection Test Reports as per approved MQP /RQP with endorsement sheet / approved data sheet / drg / spec / as per relevant BIS (Bureau of Indian Standard) - BIS 325 / IEC 60034 etc and all the Routine Test Reports , Type test Reports including Degree of protection test report with Inspection report (IR) to be submitted for BHEL/Ultimate Customer – NTPC for review and to obtain inspection and dispatch clearance.	
		BHEL/ BHEL AIA (BHEL authorized inspection Agency) / Ultimate Customer-NTPC to witness / perform inspection at LT Motor Supplier works and submit all the inspection documents and routine & Type test reports including Degree of Protection Test Reports (IP 55) as per approved MQP & approved data sheet / drg / spec / as per relevant BIS (Bureau of Indian Standard) - BIS 325 /IEC 60034 etc.	
		No material shall be dispatched without BHEL / BHEL AIA and Ultimate Customer – NTPC Inspection and dispatch clearance.	
05	Painting Requirements	Painting requirement like paint shade and painting thickness including no of coats if any are to be ensured by the OEM vendor for these LT Motors as per BHEL/ Ultimate Customer -NTPC approved data sheet/drg/spec (As applicable).	
06	Packing	Packing shall be as per Specification / Drg. / Data sheet including sea worthy packing if any to avoid any transit & handling damages.	
07	For Inspection call	To raise inspection call by BHEL/BHEL AIA inspection including for type test witnessing , vendor is requested to contact Mr MS Aditya Chakravarthy., Manager (QC-Proc)., Mobile no: +91 9443006303., Email id: msachakravarthy@bhel.in and Mr Zeeshan Ali., Sr. Engineer (QC-	

1207913/2022/BAP-QR-MECH CONTRACT QUALITY REQUIREMENTS (COR) for LT MOTORS(IE3) Up to 200KW

PROJECT: NTPC Dadri 2 x 510MW PACKAGE: FGD PACKAGE MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR (OEM) & ADDRESS: (To be filled by OEM VENDOR)		CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS(IE3) - Up to 200KW used in Bag Filter System NTPC Dadri 2 x 510MW FGD PACKAGE		DOC.NO: BAP/QR/G501 /Dadri /LTM/BFS: 001 Rev NO.: 00 PAGE : Page 4 of 4 DATE: 17.12.2022		##Enquiry No: ## OEM Supplier Name & Address: ##Offer reference: ##Date: Contact Official Name: Mobile no: Email id:	
Sl. NO.	DESCRIPTION	BHEL and Ultimate Customer - NTPC (National Thermal Power Corporation), India Quality Requirements				##Specific confirmations by the vendor	

ITEM: LT Motors (IE3) Up to 200KW

		Proc.), Mobile no: + 9443149691., Email id: zeeshan@bhel.in for inspection related activities for immediate response / resolution			
08	Document Package / Dossier	Specific confirmation for Document Package in the event of an order (3 hard copies + soft copies in PDF file) is to be given containing the following with proper linkages (.) (i) Index Sheet (ii) MQP/RQP/Endorsement sheet (iii) TCs identified by BHEL/NTPC for record for "CHP" (Customer Hold Point) Verification & Witness "W" portion as given in MQP / RQP / MQP (as applicable). (iv) Final Inspection Report + TC (v) BHEL AIA (BHEL Appointed Inspection Agency) / BHEL report + TC (vi) Ultimate customer NTPC (National Thermal Power Corporation) CHP (Customer Hold Point) / MDCC (Material Dispatch Clearance Certificate) (vii) Type test reports conducted/submitted with approval with approved data sheet and BOM with actual make used with Customer approved drgs.			
09	Important notes	<u>Inspection Categorization: I</u> Inspection by BHEL/BHEL AIA and also by Ultimate Customer – NTPC based on MQP/RQP approved and as in sl no:04 <u>Inspection Categorization: III</u> COC by Main contractor (BHEL) to Ultimate Customer – NTPC based on inspection as in sl no:04.			
		Any cost implication for conducting checks / tests including for witnessing of any of the tests at Actual LT Motor Manufacture Works by BHEL / BHEL AIA / Ultimate Customer – NTPC is in the scope of OEM Supplier only and no extra cost if any will be admissible in the event of an order and also during execution of the contract.			
10	Vendor shall furnish following Motor details involved in Bag Filter System (as applicable) for this enquiry.				
	S. No	Bag Filter System	LT Motor		
			Rating (in kW)	Quantity (in nos)	Make
	1	Bag Filter System			
	2	Other LT motors involved in the system (if any)			

OEM Supplier signature with seal

Necessarily to be filled up & submitted by the OEM vendor at the time of offer itself otherwise the offer may not be considered w.r.t Quality Requirements against LT Motors being BHEL/ ultimate customer – NTPC (National Thermal Power Corporation Limited) specific requirements.

TECHNICAL DETAILS CONFIRMATION & SDDR FORM

S.NO	DESCRIPTION	BHEL'S REQUIREMENT	SUPPLIER'S COMMENTS
01	Specification	Clause wise / Point wise confirmation in line with the attached specifications to be confirmed. In case of offer with equivalent material grade, then copy of the entire specification of that equivalent grade shall be sent along with the techno- commercial bid without fail.	
02	Data Sheet / Drawings	Design Calculations, Data sheet and Drgs are to be submitted along with the offer. (if applicable).	
03	Quality plan	To confirm applicable QP will be followed. (OR) Your Quality Plan to be submitted for our review and approval, along with offer.	
04	Specification Deviation Disposition Report (SDDR)	Attached SDDR to be filled & submit along with offer. In case of any deviation, clause wise to be mentioned in the below SDDR. [Even if NO deviation is taken, NIL report to be submitted]	
05	Net Weight per No	Shall be Indicated	

SPECIFICATION DEVIATION DISPOSITION REPORT (SDDR)			
Specn		Item	
Eng.No & Date			
Vendor Name			
SPECN	As per the Tender specification		
Page	Clause	Details Of Deviation With Reason	Disposition By Bhel
Signature Of Vendor			Reviewed By
" AGREED DEVIATION "			APPROVED BY
if any to be incorporated in the PO in the event of order.			

BHEL reserves the right to reject the offer which is having deviations to BHEL standard terms & conditions and specn / drg / catalogue.

Date :

VENDOR'S SIGNATURE WITH SEAL

***(To be submitted In the company letter head by supplier)**

Subject: Public Procurement (Preference to Make In india)

References:

- 1.P-45021/2/2017-B.E-II dated. 15th June-2017,
- 2.P-45021/2/2017-PP(BE-II) dated. 28th May-2018 ,
- 3.P-45021/2/2017-PP(BE-II) dated. 29th May-2019.
- 4.P-45021/2/2017-PP(BE-II) dated.4th June-2020

We hereby declare with reference to above subject and references that

M/s -----(Tick whichever is applicable as below)

"Class-I local supplier" meeting the requirement of minimum local content equal to 50%(fifty percent) or more defined in the above government notification for the goods and services (or)

"Class-II local Supplier" meeting the requirement of local content 20% to less than 50%(fifty percent) defined in the above government notification for the goods and services

Please mention the details against the following:

Enquiry no:----- dated. -----

Type of Supplier (Class-I/Class-II)

Product:-----

Project:.....

Details of location at which local value addition will be made is as follows:

We also understand that the false declarations will be in breach of the code of Integrity under rule 175(1)(i)(h) of the General financial rules for which a bidder or its successors can be debarred for up to two years as per Rule 151(iii) of the General Financial Rules along with such other actions as may be permissible under law.

Authorized Signature M/s-----
(Signature and seal)

Place:.....

Date:.....

***(To be submitted In the company letter head by supplier)**

From.

M/s _____

Address: _____

I/we are bidder from _____ (country). We does not belong to any of the below category mentioned.

1. Any of entity/office/workshop of your organisation/incorporation, established in a country sharing land border with India, If yes, provide the full address of all such locations.
2. Any of subsidiary of your organisation/incorporation, established in a country sharing land border with India, If yes, provide the full address of all such locations.
3. Any of entity/office/workshop of your organisation/incorporation, controlled in a country sharing land border with India, If yes, provide the full address of all such locations.
4. Any of entity whose beneficial owner is situated in a country sharing land border with India, If yes, provide the full name, address of all such locations.
5. Any Indian Agent available, If so, Provide details of address and contacts.
6. Any employee/directors who is/are citizen of country sharing land border with India, If yes, provide the full name, employee code and address of all such locations.
7. Any of consortium/joint venture of your organisation/incorporation, established in a country sharing land border with India, If yes, provide the full address of all such locations.

Meaning of beneficial owner

- 1) In case of a company or limited liability partnership, beneficial owner is the natural person, who, whether acting alone or together, or through one or more judicial person, has a controlling ownership interest or who exercises control through other means.

Explanation

- a) Controlling ownership interest means ownership of or entitlement to more than twenty-five percent of shares or capital or profits of the company.
- b) "control" shall include the right to appoint majority of the directors or to control the management rights or shareholder's agreement or voting agreement.

***(To be submitted In the company letter head by supplier)**

- 2) In case of a partnership firm the beneficial owner is the natural person (s) who whether acting alone or together or through one or more judicial person, has ownership of the entitlement to more than fifteen percent of capital or profits of the partnership.
- 3) In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together or through one or more judicial person, has ownership of the entitlement to more than fifteen percent of the property or capital or [profits of such association or body of individual.
- 4) Where no natural person is identified under (1) or (2) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official.
- 5) In case of a trust, the identification of beneficial owner (s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust and any other natural person exercising the ultimate effective control over the trust through a chain of control of ownership.
- 6) An agent is a person employed to do any act for another, or to represent another in dealing with third person.

We have read the clause regarding restriction on procurement from a bidder of a country which shares a land border with India, we hereby declare that we do not belong to any such country and are eligible to be considered.

In case, any of information is found to be false, even after bid acceptance, immediate termination may happen and action will be taken as per law.

Format is being filled without altering any of the clause mentioned in the given format**

Dated: _____

Authorised Sign and stamp_____