



PACKAGE: COMPRESSED AIR SYSTEM

SPECIFICATION NO.  
PE-TS-401-555-A001

VOLUME NO. : IIB

SECTION : F

VOLUME IIB  
SECTION F  
PRICE SCHEDULE

**1x500 MW UNCHAHAHAR TPS**

**SUGGESTIVE PRICE FORMAT**

Clause No.	DESCRIPTION	Qty.	Unit	Unit Ex-Works Price Duly Packed	Total Ex-Works Price Duly Packed (Rs)	Excise Duty Inclusive cess	CST / VAT	Freight inclusive Service Tax	Total "FOR" Site Prices (Rs.)	E & C Charges Inclusive service Tax	Grand Total
1	2	3	4	5	6	7	8	9	10=6+7+8+9	11	12=10+11
1.0	<b>LUMPSUM PRICES</b> Total lumpsum firm prices for Equipment & Services as Specified, Comprising Design, Engineering, Manufacture, Inspection & Testing at Manufacturer's Works, Painting at Manufacturer's Works, Duly packed for Transportation, Delivery to Site of Compressed Air System as per Specification No. PE-TS-401-555-A001 including supply of erection materials, consumables , start-up & commissioning spares and mandatory spares as required to complete the compressed air plants/equipments installation, maintenance tools & tackles.	1	Lot								
2.0	Break up prices for items covered in clause 1.0 above. Prices for design, manufacture, inspection & testing at manufacturers works & supply of following items.										
2.1	<b>Instrument Air Compressor (oil free Screw)</b> Each of 36 NM <sup>3</sup> /Minute capacity at 8.0 kg/cm <sup>2</sup> (g) consisting Electric motor to drive the compressor with accessories, Suction filter and silencer, Inter Cooler, After Cooler with moisture separators, automatic drain traps, instruments, Control panel etc.	1	Nos								
2.2	<b>Air Dryer (HOC Type)</b> Air Drying Plant of 36 NM <sup>3</sup> /min and to match instrument air compressor with all instruments and controls including Electronic Dew point meter as specified.	1	Nos								

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2.3	<b>Plant Air Compressor (oil free Screw)</b> Each of 36 NM <sup>3</sup> /Minute capacity at 8.0 kg/cm <sup>2</sup> (g) consisting Electric motor to drive the compressor with accessories, Suction filter and silencer, Inter Cooler, After Cooler with moisture separators, automatic drain traps, instruments, Control panel etc.	1	Nos								
2.4	<b>Air Receivers</b>										
2.4.1	Compressor house & Unit air receiver of 10 M <sup>3</sup> capacity with each having Pressure switches, Relief valve, Drain connection with automatic trap stations and other accessories as specified.	3	Nos								
2.4.2	DM plant air receiver of 2 M <sup>3</sup> capacity, having Pressure switches, Relief valve, Drain connection with automatic trap stations and other accessories as specified.	1	Nos								
2.5	Inter connecting cooling water and compressed air piping as specified including fittings and valves, etc. for complete compressed air system.	1	Lot								
2.6	Drain piping up to the nearest drain point	1	Lot								
2.7	Field instruments as specified	1	Lot								
2.8	Temperature transmitters as specified( for RTD & BTD element)	10	Nos								
2.9	Pressure Transmitters (Each for IA Header & SA Header)	2	Nos								
3	Interface module for the overall control of compressed air system through DDCMIS	1	Lot								
3.1	Cable lugs, glands, junction box etc for Compressed Air System equipment as required.	1	Lot								
3.2	<del>PRICES FOR TOTAL SYSTEM DESIGN &amp; ENGINEERING.</del>	<del>1</del>	<del>Lot</del>								
3.3	Total lumpsum prices for erection and commissioning including final painting and performance /acceptance tests at site of complete compressed air system	1	Lot								

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3.4	Total lump sum prices for Maintenance Tool & Tackles (bidder to furnish item wise prices separately along with the price bid).	1	Lot								
3.5	Total lump sum prices for commissioning spares (bidder to furnish lists of spares with item wise prices separately along with the price bid).	1	Lot								
3.6	Total lumpsum prices for mandatory spares as specified for compressed air System. (Bidder to furnish unit prices for each item in the Mandatory spares list separately along with the price bid).	1	Lot								
4	<b>Bidder to indicate the following in their offer:</b>										
4.1	Import content and currency (for each item separately)										
4.2	Rate of exchange										
4.3	Rate of customs duty assumed										

NOTES

1 Bidder must submit prices in the Pro Forma duly filled in signed and stamped on every page without any ambiguity. The price shall be written against each item. Term such as "refer covering letter" etc. are not acceptable. Extra sheet may be attached if the space provided is not sufficient

2 Price format shall not be changed by the bidder



**COMPRESSED AIR SYSTEM**  
**2X 800MW GADARWARA TPP**

DOCUMENT NO.: **PE-TS-395-555-A001**

VOLUME- IIB

SECTION-

REV. 0

SHEET 1 OF 1

# ANNEXURES

**FORMAT FOR NO DEVIATION CERTIFICATE**

BHARAT HEAVY ELECTRICALS LIMITED,  
 Power Sector – Project Engineering Management,  
 PPEI Building,HRD & ESI Complex,  
 Plot no. 25, Sec.16A  
Noida – 201301(UP)

DATE:23.06.2014

Sub	No Deviation Certificate.	
Job	Design, manufacturing, supply, erection, testing & commissioning of compressed air system for 1x500 MW FGUTPS	
Ref	1.0	Tender document no
	2.0	BHEL's NIT vide reference no
	3.0	BHEL's Amendment vide reference no .
	4.0	All other pertinent issues till date.

Dear Sirs,

With reference to above, this is to confirm that as per tender conditions, we have visited site before submission of our offer and noted the job content & site conditions etc. We also confirm that we have not changed/ modified the tender documents and in case of observance at any stage, it shall be treated as null and void.

We hereby confirm that we have not taken any deviation from tender clauses together with other references as enumerated in above referred NIT and convey our unqualified acceptance to all terms and conditions as stipulated in the tender and NIT.

We hereby confirm to unqualified compliance to technical specification together with other references as enumerated in above referred NIT.

In the event of observance of any deviation in any part of our offer at a later date whether implicit or explicit, the deviations shall stand null & void.

We confirm to have submitted offer strictly in accordance with above.

Thanking you,

Yours faithfully,

(Signature, date & seal of authorized  
 representative of the bidder)





**FGUTPS (1x500 MW)  
Compressed air package**


**Guaranteed Power Consumption for Air Compressor System shall be as per following:**

S.No (1)	Description of Equipment (2)	Nos. of Equipment to be considered for guaranteed power consumption (3)	Total Guaranteed Power Consumption for Each Equipment at motor input terminal. (4)	Duty factor (5)	Total (kW) (6)=(3)*(4)*(5)
1.0	Service Air Compressor of 36 Nm <sup>3</sup> /min at 8.0 kg/cm <sup>2</sup> (g).	1		0.6	
2.0	Instrument Air Compressor of 36 Nm <sup>3</sup> /min at 8.0 kg/cm <sup>2</sup> (g).	1		0.33	
3.0	Air Drying Plant for IA.	1		1	

**TOTAL (KW)**

Notes:

- 1.0 Base figure of Aux. Power consumption as per above criterion for CAS (for working drives only) shall be **310 kW (for one Unit)** .
- 2.0 Bidder's guaranteed power consumption at motor input terminals (not shaft power) as furnished in guaranteed schedule shall be demonstrated by the successful bidder during performance testing at works/site.
- 3.0 The price quoted by the bidder shall be loaded US \$ **4,646/-** for every additional kW increase in consumption from the base figure indicated at Note no. 1.0 above.
- 4.0 In case the successful bidder fails to establish / prove the guaranteed values of power consumption (base figure of auxiliary power consumption) on actual performance testing at the manufacturing works / site, penalty US \$ **4,646/-** per kW increase in power consumption figure shall be levied.
- 5.0 If the contract currency is other than US dollars, then the liquidated damages shall be in equivalent amount in contract currency based on Bill selling exchange rate of State Bank of India prevailing on the date of award of contract **(15.11.2013)**.

	TITLE	SPECIFICATION NO. PE-TS-401-555-A001	
	TECHNICAL SPECIFICATION FOR 1X500 MW UNCHAHAR TPP	VOLUME IIB	
		SECTION	
		REV 00	DATE: JUNE 2014

### 1.0 DRAWINGS TO BE SUBMITTED AFTER AWARD OF CONTRACT

a) After award of LOI, drawing/ documents shall be submitted by the bidder as per list given in this section for NBPPL/ BHEL/ Customer approval. However, any additional drawing/ documents, if found necessary for completion of the engineering, the same shall be submitted by bidder without any price & delivery implication.

b) Bidder to note that BHEL reserve the right for drg/doc submission through web based Document Management System. Bidder would be provided access to the DMS for drg/doc approval and adequate training for the same. Detailed methodology would be finalized during the kick-off meeting. Bidder to ensure following at their end.

- Internet explorer version – Minimum Internet Explorer 7
- Internet speed – 2 mbps (Minimum preferred)
- Pop ups from our external DMS IP (124.124.36.198) should not be blocked
- Vendor's Internal proxy setting should not block DMS application's link.

<http://124.124.36.198/wrenchwebaccess/login.aspx>

ANNEXURE-I

**MDL FOR CAS PACKAGE FOR FGUTPS (1X500MW) ANNEXURE-VI**

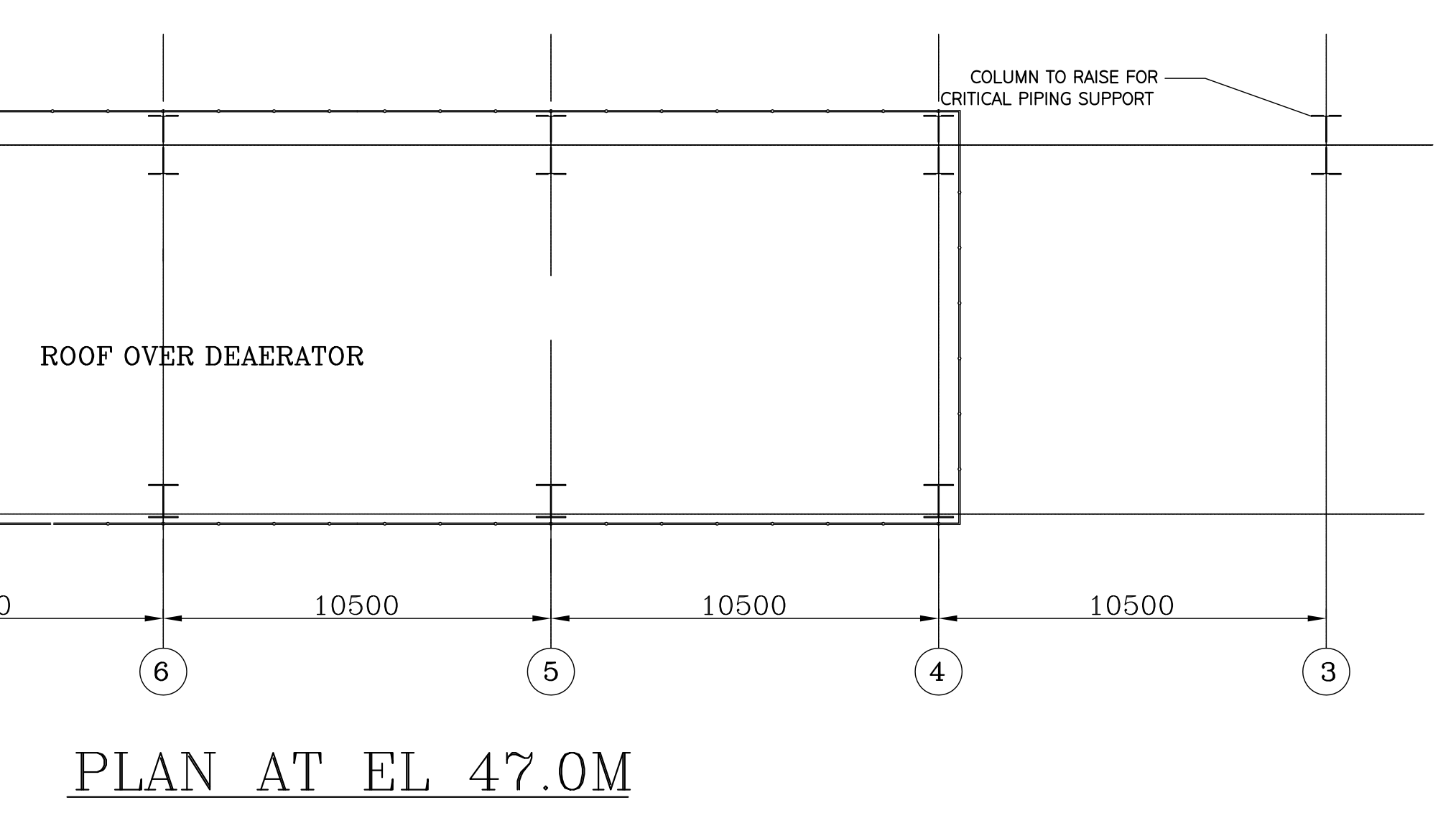
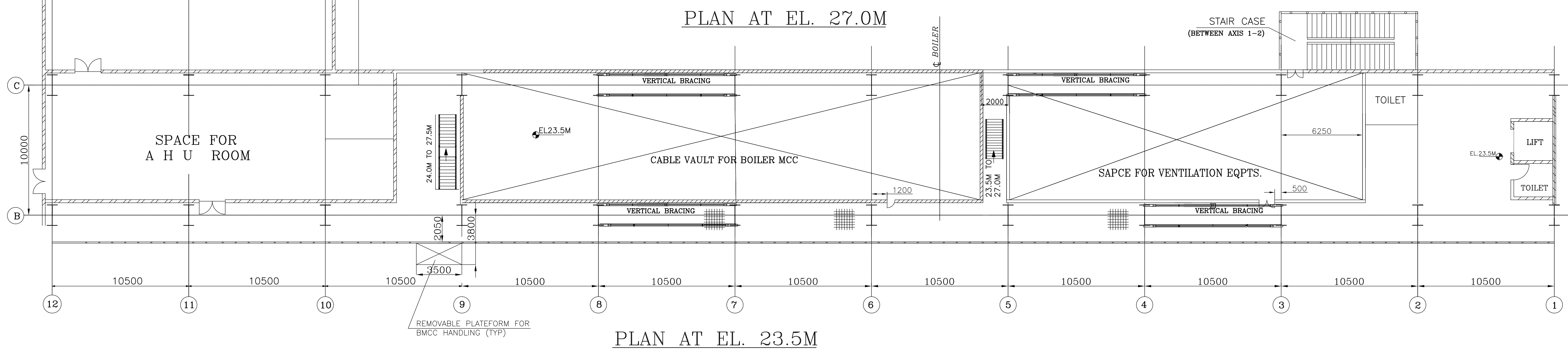
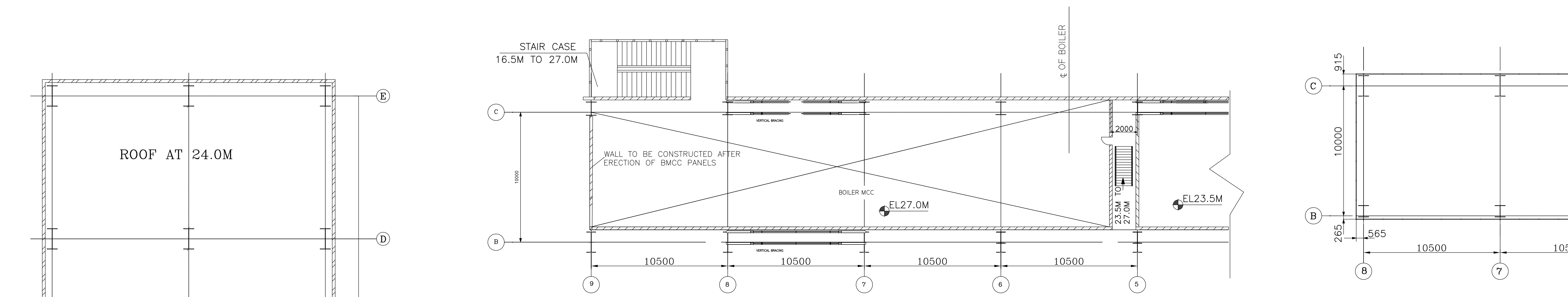
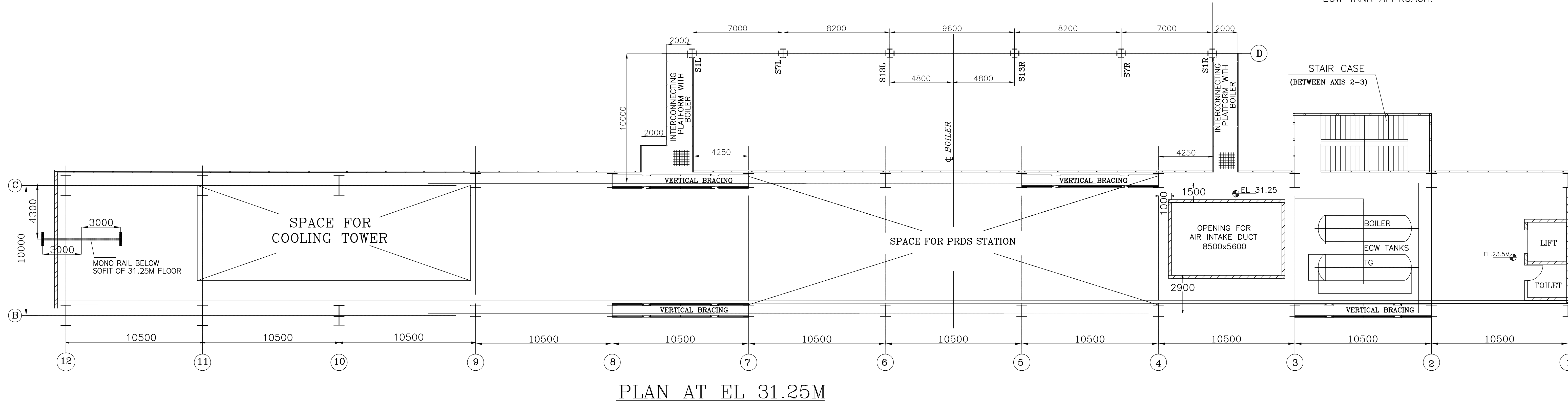
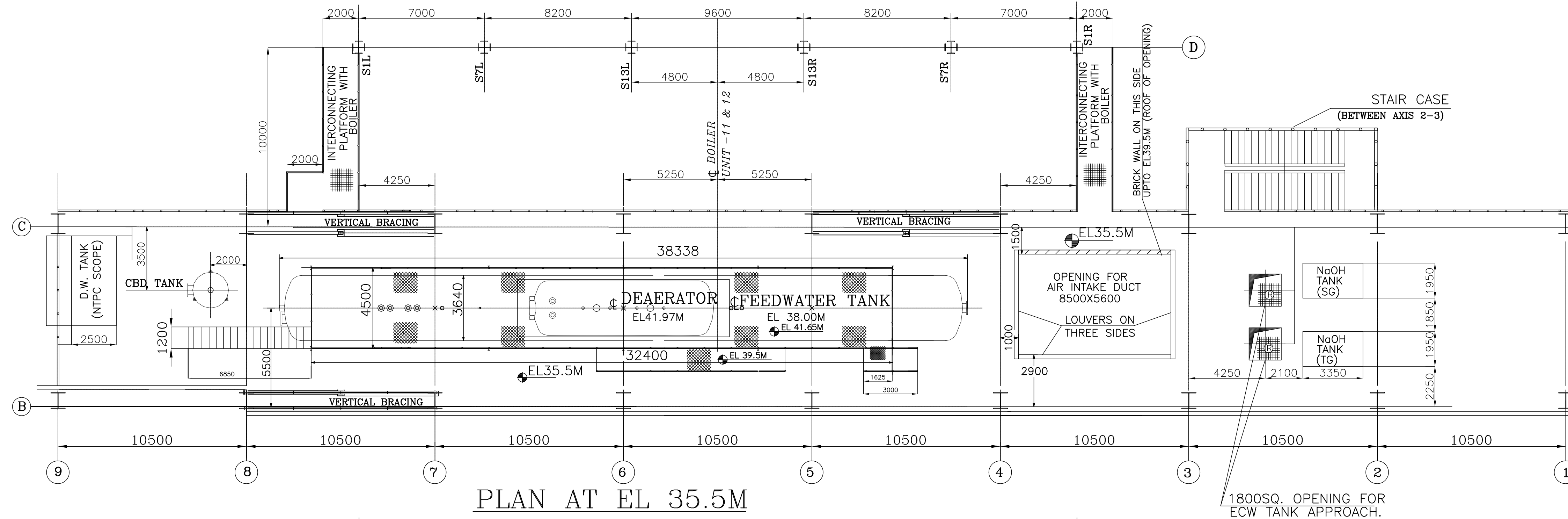
"A" S NO	"B" VENDOR_DRG_NO.	"C" NTPC_DRG_NO.	"D" DRAWING TITLE	"E" PURPOSE	"F" BOI (Y/N)	"G" NAME OF BOI	"H" SCHEDULED SUBMISSION DATE FROM LOI DATE	"I" RESUBMISSION AFTER INCORPORATING COMMENTS	"J" COMMENTS / APPROVAL FROM BHEL & NTPC
1	PE-V0-401-555-A001		QUALITY PLAN OF AIR COMPRESSOR	A-CUST	N	CAS	21	10	21
2	PE-V0-401-555-A002		QUALITY PLAN OF AIR DRYING PLANT	A-CUST	N	CAS	21	10	21
3	PE-V0-401-555-A003		QUALITY PLAN OF AIR RECEIVER	A-CUST	Y	CAS	25	10	21
4	PE-V0-401-555-A004		QUALITY PLAN OF MOTOR	A-CUST	Y	CAS	21	10	21
5	PE-V0-401-555-A006		QUALITY PLAN OF BALL VALVE	A-CUST	Y	CAS	21	10	21
6	PE-V0-401-555-A007		SUB-VENDOR LIST & INSPECTION CATEGORISATION SCHEDULE	A-CUST	N	CAS	15	10	21
7	PE-V0-401-555-A101		TDS OF INSTRUMENT AIR & SERVICE AIR COMPRESSORS	A-CUST	Y	CAS	21	10	21
8	PE-V0-401-555-A102		TDS OF AIR DRYING PLANT	A-CUST	N	CAS	21	10	21
9	PE-V0-401-555-A103		TDS ,GA & CHARACTERISTIC CURVES OF MOTOR FOR AIR COMPRESSOR	I-CUST	Y	CAS	21	10	21
10	PE-V0-401-555-A108		TYPE TEST CERTIFICATE OF COMPRESSOR MOTOR	A-CUST	Y	CAS	60	10	21
11	PE-V0-401-555-A104		TDS & GA OF VALVES	I-CUST	Y	CAS	42	10	21
12	PE-V0-401-555-A105		TDS OF INSTRUMENTS	I-CUST	Y	CAS	42	10	21
13	PE-V0-401-555-A301		GA DRAWING OF INSTRUMENT & SERVICE AIR COMPRESSOR	I-CUST	N	CAS	21	10	21
14	PE-V0-401-555-A302		GA DRAWING OF AIR DRYER	I-CUST	N	CAS	21	10	21
15	PE-V0-401-555-A302(2 nos. sheets)		GA DRAWING OF AIR RECEIVER.	I-CUST	Y	CAS	25	10	21
16	PE-V0-401-555-A401		COMPRESSOR HOUSE LAYOUT	A-CUST	N	CAS	30	10	21
17	PE-V0-401-555-A501		P & I DIAGRAM OF AIR COMPRESSOR	I-CUST	N	CAS	21	10	21
18	PE-V0-401-555-A502		P&I DIAGRAM OF AIR DRYER	I-CUST	N	CAS	21	10	21
19	PE-V0-401-555-A503		P&I DIAGRAM OF COMPRESSED AIR SYSTEM WITHIN COMPRESSOR HOUSE	A-CUST	N	CAS	21	10	21
20	PE-V0-401-555-A701		OPERATION & CONTROL PHILOSOPHY OF COMPRESSED AIR SYSTEM	A-CUST	N	CAS	42	10	21
21	PE-V0-401-555-A702		ELECTRICAL & INTERNAL WIRING DIAGRAM FOR COMPRESSOR AND AIR DRYER PANEL.	I-CUST	N	CAS	50	10	21
22	PE-V0-401-555-A751		ELECTRICAL FEEDER LIST	I-G-P	N	CAS	21	10	21
23	PE-V0-401-555-A752		CONTROL CABLE SCHEDULE	I-G-P	N	CAS	60	10	21
24	PE-V0-401-555-A753		I/O List for CAS system.	I-CUST	N	CAS	56	10	21
25	PE-V0-401-555-A901		CAS PG TEST PROCEDURE	A-CUST	N	CAS	75	10	21
26	PE-V0-401-555-A903		O&M MANUAL-COMP AIR SYSTEM	I-CUST	N	CAS	90	10	21

### List of Drawings enclosed with the technical specification

<b>SNO</b>	<b>DESCRIPTION</b>	<b>DRG NO</b>
1	GENERAL LAYOUT PLAN	1450-001R-TGPE-PVM-F-001
2	TG HALL EQUIPMENT LAYOUT PLAN AT 0.0 M	1450-001R-TGPE-PVM-F-003
3	TG HALL EQUIPMENT LAYOUT PLAN AT 8.5 M	1450-001R-TGPE-PVM-F-004
4	TG HALL EQUIPMENT LAYOUT PLAN AT 16.5 M	1450-001R-TGPE-PVM-F-005
5	TG HALL EQUIPMENT LAYOUT PLAN AT MISCELLANEOUS FLOORS IN BC BAY	1450-001R-TGPE-PVM-F-006
6	PID FOR COMPRESSED AIR SYSTEM(TENDER DWG)	1150-001-POM-A-045
7	PID 's FOR IA & SA SYSTEM	PE-DG-401-555-A001
8	BLOCK LAYOUT OF COMPRESSOR HOUSE	



9000-M00-100-101-101-M000



- NOTES:-**
1. ALL ELEVATIONS MARKED ARE W.R.T. FINISHED FLOOR ELEVATION OF 0.0M WHICH CORRESPONDS TO RL. +107.0M.
  2. ALL ELEVATIONS ARE IN MM AND LEVELS ARE IN METERS UNLESS STATED OTHERWISE.
  3. FPD: FIRE PROOF DOOR
  4. EQUIPMENTS & FACILITIES SHOWN FOR PACKAGES OTHER THAN TG PACKAGE ARE SUGGESTIVE ONLY. HOWEVER IT IS PREFERRED THAT SIMILAR DETAILS BE ENSURED FROM RESPECTIVE PACKAGE VENDORS.
- FINAL DETAILS SHALL BE AS PER NTPC DRG. NO. \_\_\_\_\_  
ALL CIVIL DETAILS SUCH AS DOORS/WALLS/CLADINGS/OPENINGS/TOILETS/STAIRCASES ETC. ARE INDICATIVE ONLY & FOR EXACT DETAILS REFER NTPC CIVIL/ARCHITECTURE DRAWINGS.

- REFERENCE DRAWING:**
- |   |                    |
|---|--------------------|
| 1. MAIN EQUIPMENT LAYOUT PLAN           | PE-DG-401-100-M002 |
| 2. EQUIPMENT PLAN AT 0.0M               | PE-DG-401-100-M003 |
| 3. EQUIPMENT PLAN AT 8.5M               | PE-DG-401-100-M004 |
| 4. EQUIPMENT PLAN AT 16.5M              | PE-DG-401-100-M005 |
| 5. MAIN PLANT (T.G. HALL) CROSS SECTION | PE-DG-401-100-M007 |
| 6. GA OF DEAERATOR                      | -                  |
| 7. GA OF ECW TANKS                      | -                  |

- LEGEND:**
- |  |                           |  |                 |
|--|---------------------------|--|-----------------|
|  | CHEQUERED PLATE FLOORING  |  | CONCRETE BLOCK  |
|  | REMOVABLE CHEQUERED PLATE |  | CUT OUTS        |
|  | GRATED FLOORING           |  | HAND RAILING    |
|  | REMOVABLE GRATING         |  | PARAPET WALL    |
|  |                           |  | GLASS PARTITION |
|  |                           |  | BRICK WALL      |

NTPC DRG. No. 1450-001R-TGPE-PVM-F-006  
 NBPPL DRG. No. \_\_\_\_\_  
 PROJECT FERROZE GANDHI UNCHAHR THERMAL POWER PROJECT  
 STAGE-IV 1X500MW

**OWNER**  
 NTPC Limited  
 (A GOVERNMENT OF INDIA ENTERPRISE)

**PROJECT VENDOR**  
 NBPPL

**CLIENT**  
 NTPC BHEL Power Projects Private Limited  
 (A Joint Venture Company of NTPC & BHEL)  
 Y.S.R. Puram, Village Mannavaram, Sri Kalahasti Mandal, Distt. Chittoor - 517620 (A.P.)

**POWER SECTOR**  
 BHARAT HEAVY ELECTRICALS LTD  
 PROJECT ENGINEERING MANAGEMENT  
 NEW DELHI

NO.	DATE	REV.	BY	CHKD	APPD	DATE	REVISION

TITLE: T.G. EQUIPMENT PLAN AT 23.5M, 27.0M, 31.25M, 35.5M & 47.0M

DEPT: \_\_\_\_\_ SCALE: \_\_\_\_\_ DRAWING NO.: PE-DG-401-100-M006

SHEET 1 OF 1 REV. 0

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