

	TITLE 4 X 270 MW BHADRADRI TPS TECHNICAL SPECIFICATION FOR CW/RW/PW CHLORINATION PLANT	SPECIFICATION NO. PE-TS-411-174A-A001
		VOLUME: II B
		REV 00
		SHEET 1 of 2
ANNEXURE IX		
INPUT DRAWINGS		

**TITLE**

4 X 270 MW BHADRADRI TPS
TECHNICAL SPECIFICATION FOR
CW/RW/PW CHLORINATION PLANT

SPECIFICATION NO.

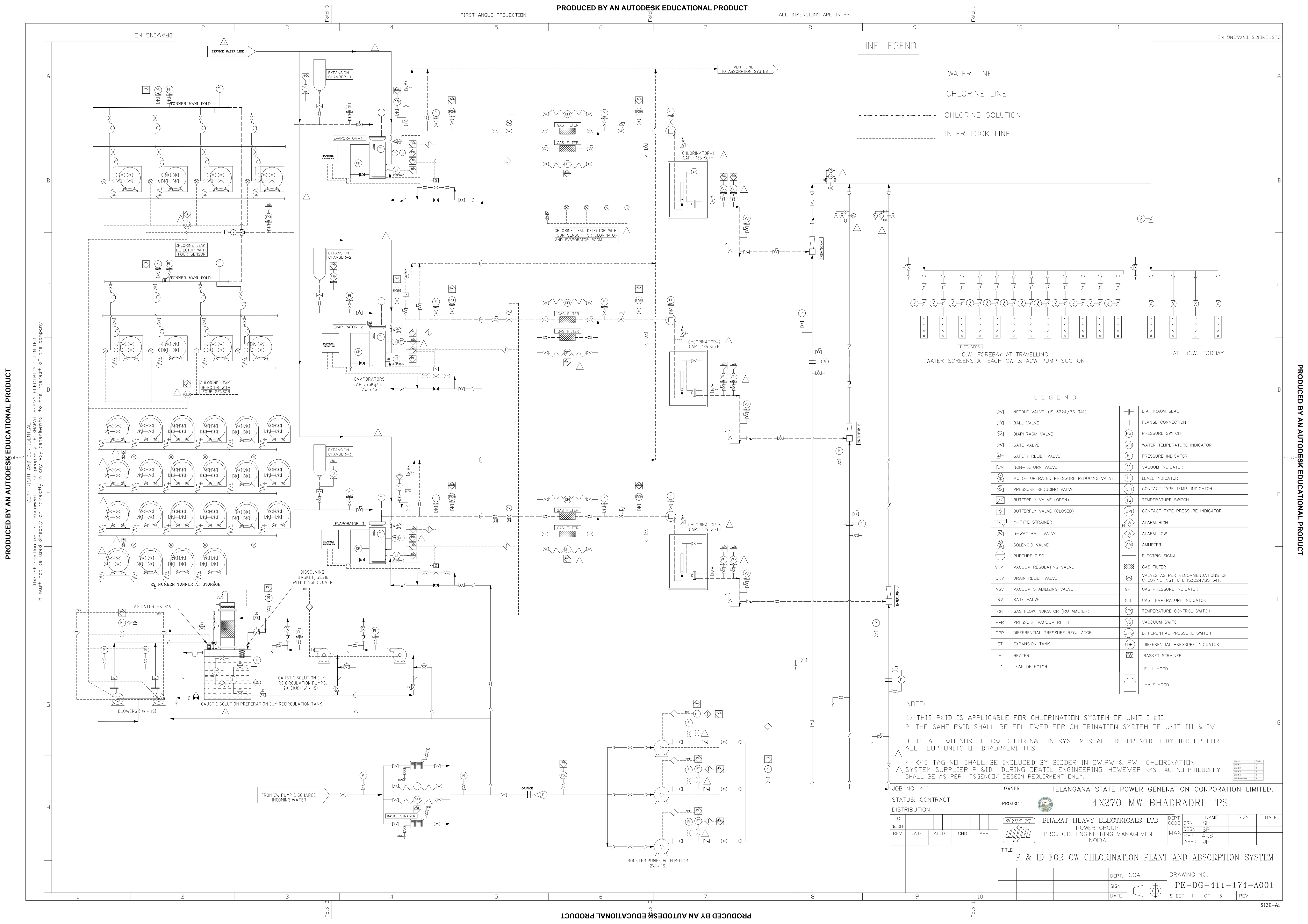
PE-TS-411-174A-A001

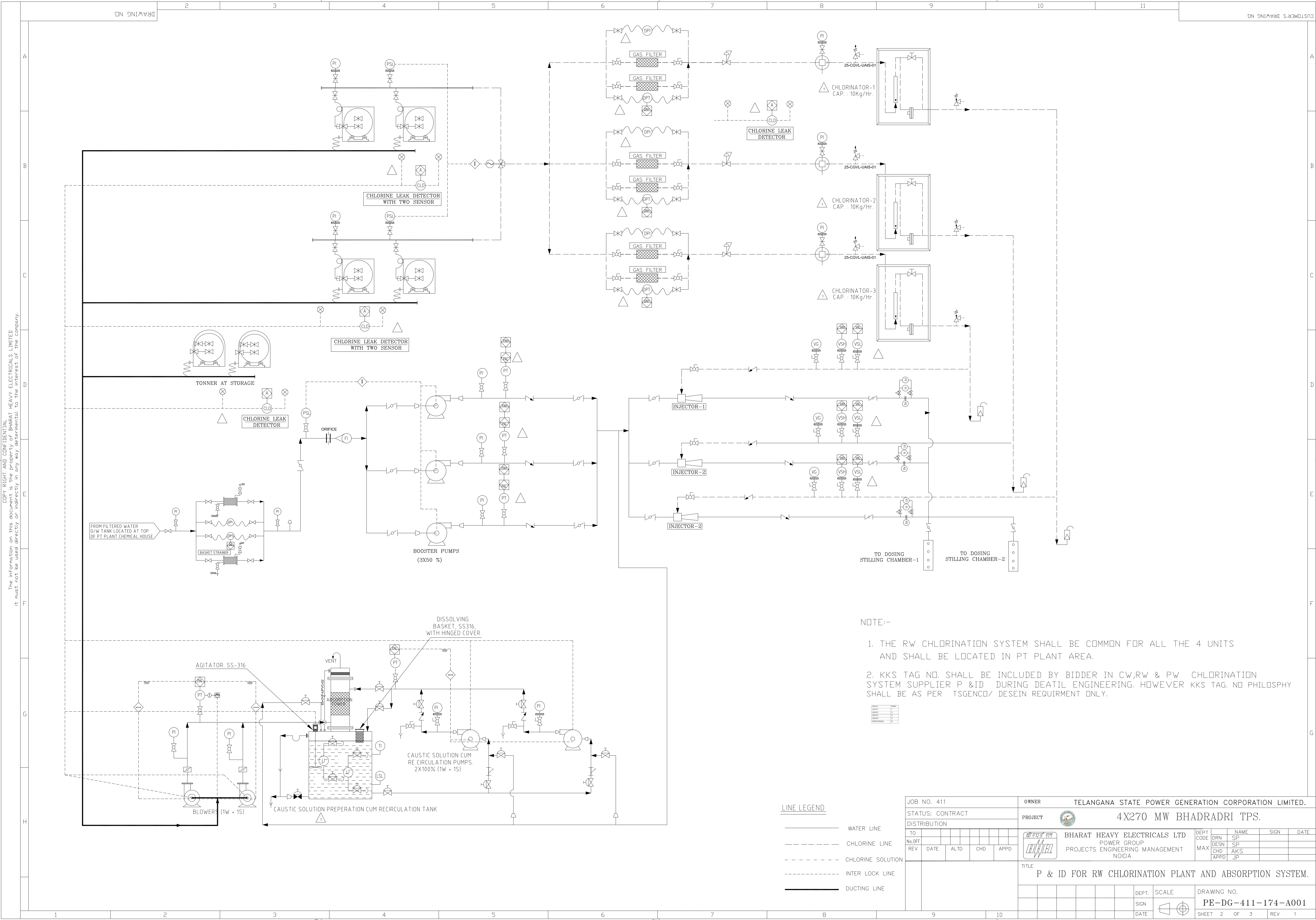
VOLUME: II B

REV 00

SHEET 2 of 2

SL. NO.	DRAWING TITLE	DRAWING NO.
1.	P& I DIAGRAM FOR CW CHLORINATION PLANT AND ABSORPTION SYSTEM	PE-DG-411-174-A001, SHEET 1 OF 3 R1
2.	P& I DIAGRAM FOR RW CHLORINATION PLANT AND ABSORPTION SYSTEM	PE-DG-411-174-A001, SHEET 2 OF 3 R1
3.	P& I DIAGRAM FOR PW CHLORINATION PLANT	PE-DG-411-174-A001, SHEET 3 OF 3 R1
4.	P&ID-CW AND ACW SYSTEM	PE-DG-411-165-N001 R3
5.	MECHANICAL GA OF CW& ACW PUMP HOUSE / FOREBAY	PE-DG-411-165-N004 R0
6.	PLOT PLAN	PE-DG-411-100-M001 R1





1. DESIGN PRESSURE : 5.0 Kg/sq.cm (g) FOR C.W.SYSTEM,
DESIGN PRESSURE : 7.5 Kg/sq.cm (g) FOR A.C.W.SYSTEM,
DESIGN ACW INLET TEMP. TO CONDENSER & VACUUM PUMP HEAT EXCH. = 33 °C
DESIGN ACW INLET TEMP. TO PHE'S = 36 °C
DESIGN MECHANICAL TEMPERATURE : 50 °C

A). PIPING UPTO AND INCLUDING 150NB SHALL BE CARBON STEEL, ERW, IS:1239 (HEAVY GRADE).

A). PIPING UPTO AND INCLUDING 150NB SHALL BE CARBON STEEL, ERW, IS:1239 (HEAVY GRADE).

B). PIPING 200 NB AND ABOVE SHALL BE CARBON STEEL ROLLED AND WELDED AS PER IS-3589 FABRICATED FROM CS PLATES AS PER IS: 2062 GR. B.

C). MATERIALS OF CONSTRUCTION FOR BUTTERFLY VALVES AND GATE/ GLOBE/ CHECK VALVES/

ARV's SHALL BE AS PER CW/ ACW VALVE SCHEDULE (REFER DOC. NO. PE-DC-411-165-N005.

3. ALL PRESSURE TAPPINGS & ROOT VALVES TO BE OF 15 NB.

4. CW SYSTEM : 150 NB SIZE DRAIN & VENT VALVES SHALL BE PROVIDED AS REQD. AS PER LAYOUT.
ACW SYSTEM : 50 NB SIZE DRAIN & VENT VALVES SHALL BE PROVIDED FOR PIPE SIZES 400 NB & ABOVE. 25 NB DRAIN & VENT VALVES SHALL BE PROVIDED FOR PIPE SIZES UPTO 350 NB AS PER LAYOUT REQUIREMENTS.

6. R.F. JOINT AT CONDENSER INLET & OUTLET SHALL BE PRESSURE BALANCING TYPE

7. PAINTING/PROTECTION - PIPES:

7.1 INTERNAL SURFACE (FOR PIPE SIZE >1000 NB)

A) SURFACE CLEANING BY WIRE BRUSH

B.) APPLICATION OF ONE COAT OF EPOXY RESIN BASED RED OXIDE PRIMER FOLLOWED BY ADEQUATE NO. OF FINISH PAINT OF COAL TAR EPOXY BASED PAINT TO ACHIEVE TOTAL DFT OF 150 MICRON.

7.2 EXTERNAL SURFACE:

A) SURFACE CLEANING BY WIRE BRUSH

B.) APPLICATION OF ONE COAT OF RED LEAD PRIMER FOLLOWED BY ADEQUATE NO. OF FINISH COATS OF SYNTHETIC ENAMEL PAINT TO ACHIEVE TOTAL DFT OF 150 MICRON.

7.3 CW/ACW & CW MAKE UP BURIED PORTION COMING UNDER RAIL OR ROAD SHALL BE CONCRETE ENCASED

7.4 CW/ACW & CW MAKE UP BURIED PIPE SHALL BE PROTECTED AS UNDER (AS PER IS-10221)

-SURFACE CLEANING BY WIRE BRUSH

-APPLY ONE COAT OF COALTAR/PRIMER/ENAMEL CONFORMING TO AWWA C-203/IS10221/IS 15337

—APPLY ONE LAYER OF TAPE COMPRISING OF COALTAR APPLICATION OF TAPE

SHALL CONFORM TO AWWA C-203/ IS 15337 (APPENDIX-B) WITH THICKNESS OF TAPE AS 4MM

8. REFERENCE DRAWINGS :

8.1 CW/ ACW SYSTEM DESIGN PHILOSOPHY AND SYSTEM WRITEUP - DOC. NO. PE-DC-411-165-N001
PLANT WATER R&D - DOC. NO. PE-DC-411-172-N001

8.2 COTCS FLOW DIAGRAM = DRG. NO. PE-VO-411-165-N202

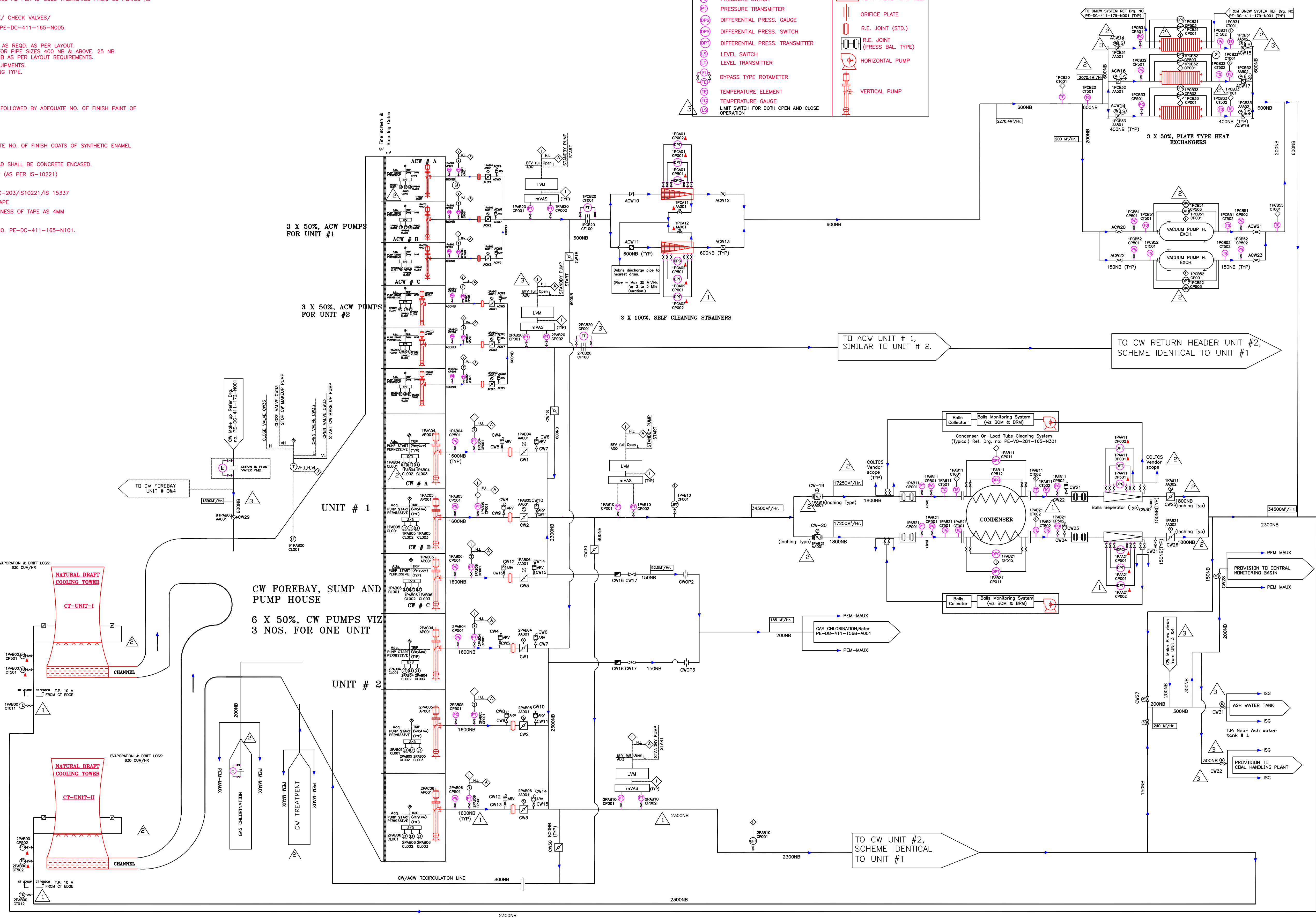
8.3 SCS FLOW DIAGRAM - DRG. NO. PE-VO-411-165-N152

CARBON STEEL

NR	OD	THICK.
25	34.2	4.0
50	60.8	4.5
150	166.5	5.4
200	219.1	6.0
250	273.0	6.0
300	323.9	6.0
350	355.6	6.0
400	406.4	6.0
450	457.2	6.0
500	508.0	6.0
600	610.0	6.0
700	711.0	7.0
800	813.0	8.0
900	914.0	8.0
1200	1219	10.0
1600	1626	16.0
1800	1829	16.0
2300	2335	18.0

S. NO.	EQUIPMENT	NOS. WORK. + STANDBY	CW REQD. PER COOLER CUB.M/Hr.	CW REQD. PER UNIT CUB.M/Hr	PRESS. DROP MWC	TEMP RISE °C	REMARKS
1	CONDENSER	1 + 0	34500	34500	5.0	9.0	—
2	VACUUM PUMPS	1 + 1	100	200	3.0	2	DURING START UP BOTH PUMPS WORK
3	PHE's	2 + 1	1078	2270.4	7.0	5.85	—

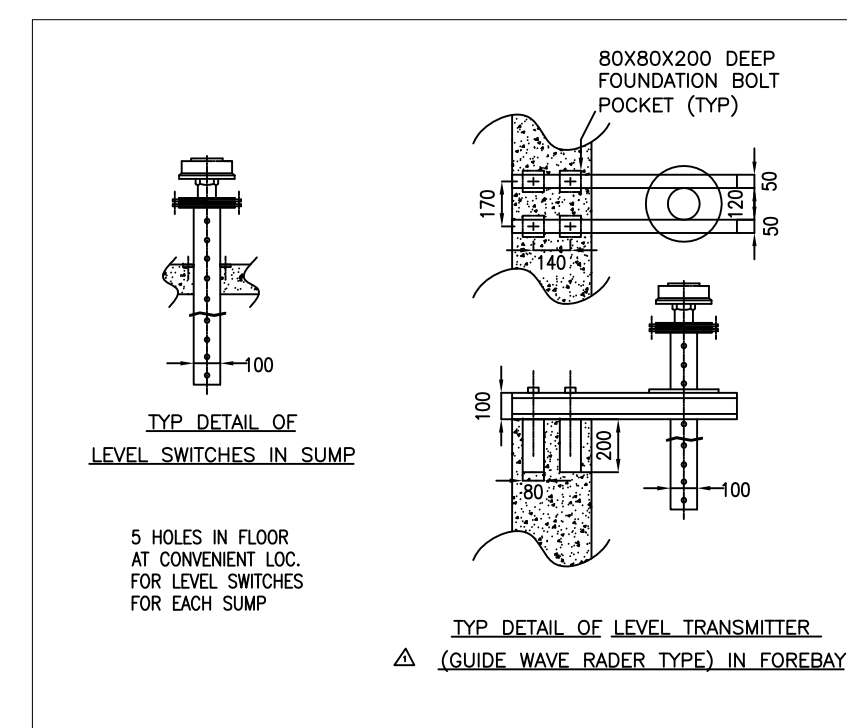
	MOTOR OPERATED BUTTERFLY VALVE		ANNUBAR
	MANUAL BUTTERFLY VALVE		ULTS. FLOW TRANSMITTER
	NON RETURN VALVE		ALARM
	GLOBE VALVE		INDICATION IN UCR
	REGULATING TYPE GLOBE VALVE		LIMIT VALVE MONITOR
	AIR RELEASE VALVE		MEAN VALUE AUTO SEL.
	PRESSURE GAUGE		
	PRESSURE SWITCH		
	PRESSURE TRANSMITTER		
	DIFFERENTIAL PRESS. GAUGE		ORIFICE PLATE
	DIFFERENTIAL PRESS. SWITCH		R.E. JOINT (STD.)
	DIFFERENTIAL PRESS. TRANSMITTER		R.E. JOINT (PRESS. BAL. TYPE)
	LEVEL SWITCH		HORIZONTAL PUMP
	LEVEL TRANSMITTER		
	BYPASS TYPE ROTAMETER		VERTICAL PUMP
	TEMPERATURE ELEMENT		
	TEMPERATURE GAUGE		
	LIMIT SWITCH FOR BOTH OPEN AND CLOSE OPERATION		



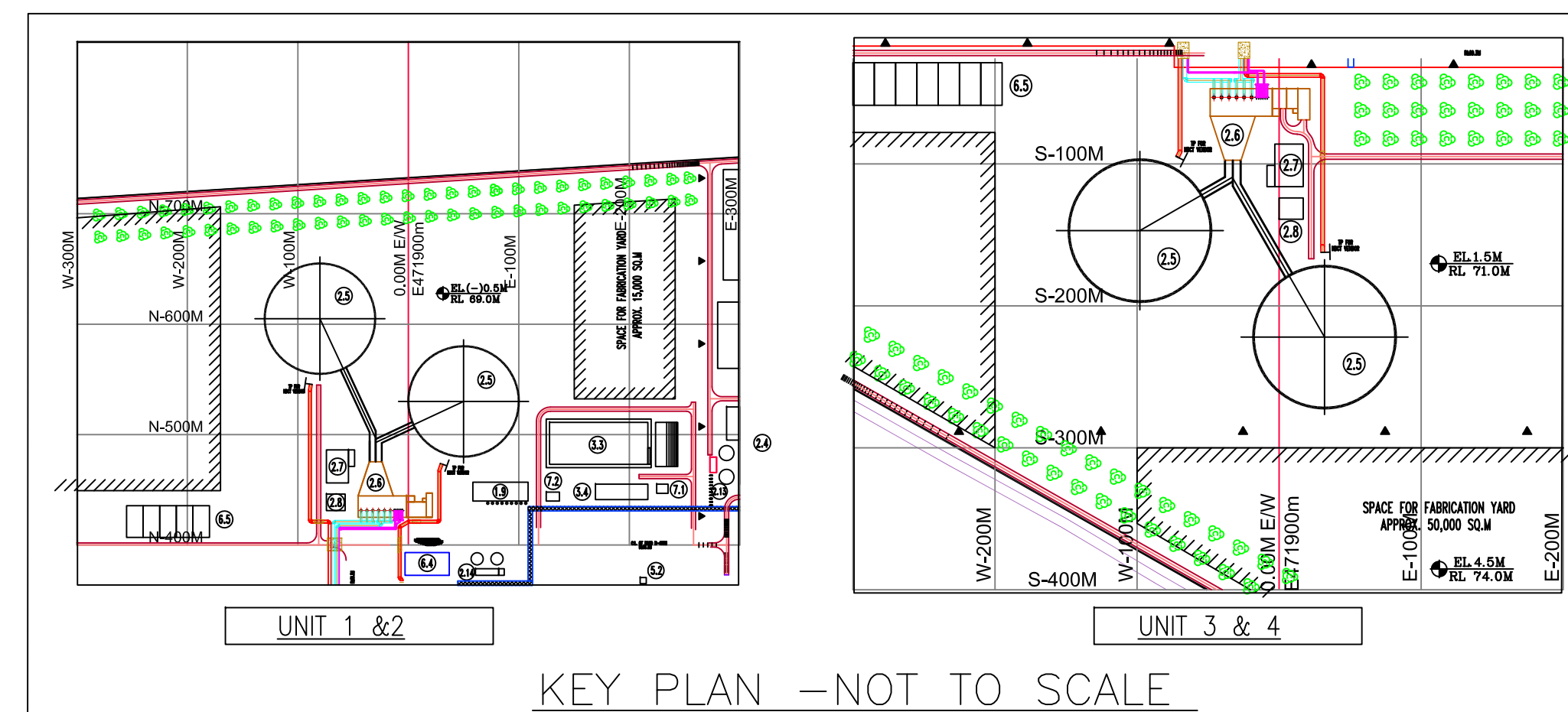
THIS SCHEME IS APPLICABLE FOR FIRST TWO UNITS (VIZ. UNIT#1 & 2) OF 270 MW.

SCHEME FOR OTHER TWO UNITS (VIZ. UNIT#3 & 4) SHALL BE SIMILAR TO FIRST TWO UNITS (UNIT #1 & 2)

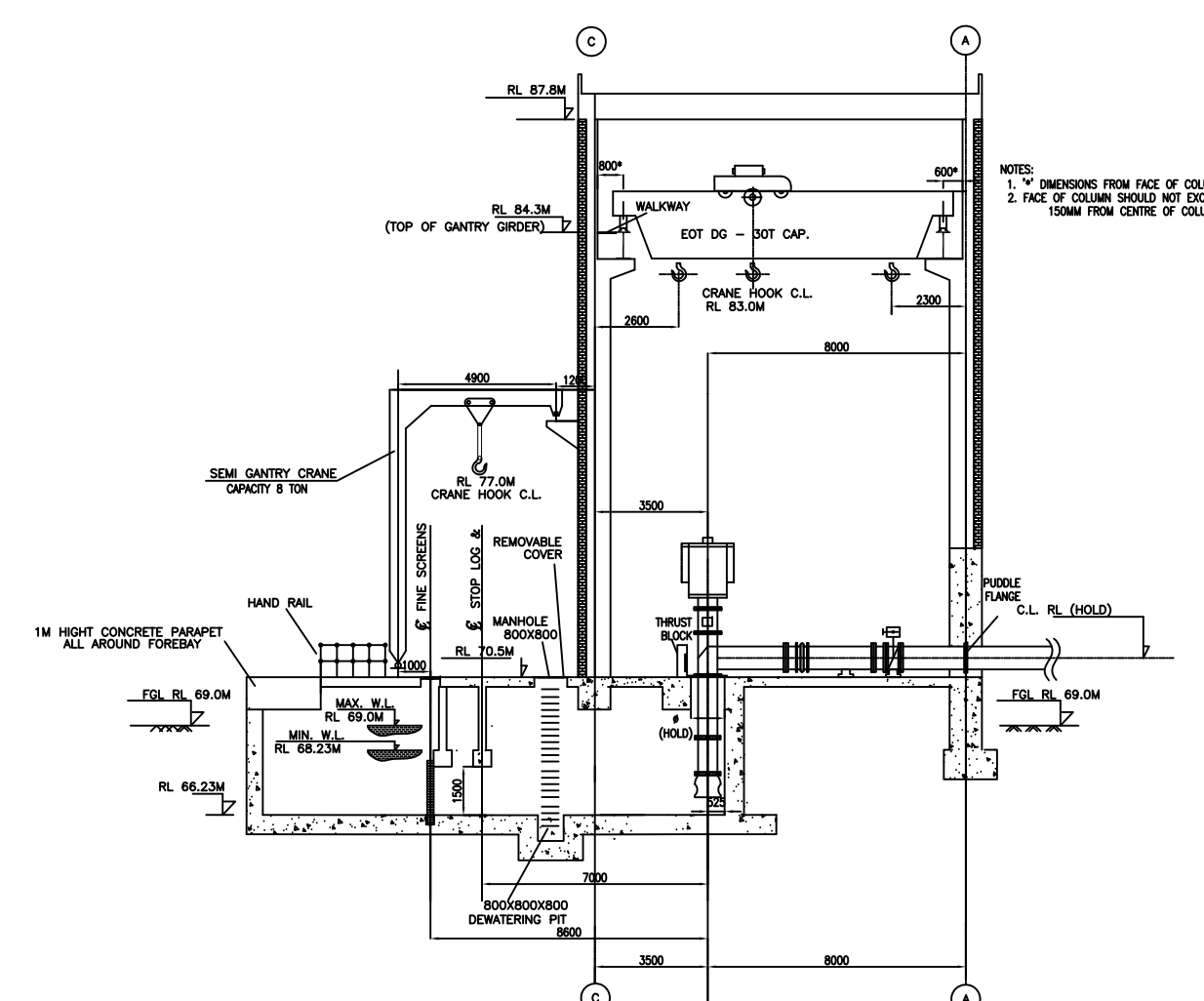
JOB NO. 411												TELANGANA STATE POWER GEN. CO. LTD. 4 X 270 MW BHADRADEI TPS									
STATUS CONTRACT										OWNER											
DISTRIBUTION										CONSULTANT		DESIGN PRIVATE LTD.									
TO FROM												BHARAT HEAVY ELECTRICALS LTD.		EQUIP.		NAME		DATE			
PGV RLY. DIST. ALTD CHD APRS										POWER SECTOR		PROJECT ENGINEER		APPROV. SR		SR		DATE			
H.D. TO VLV. AND										PROJECTS ENGINEERING MANAGEMENT		NEW DELHI		APPROV. SR		SR		DATE			
REVISED IN LNE. WITH CUSTOMER COMMENTS T.O. 28.04.15										TITLE		P&ID - CW AND ACW SYSTEM									
										DRAWN		SHEET		NO.		DRAWING NO.					
										SIGN				PE-DC-411-165-N001							
										SHEET		OF		REVISION							



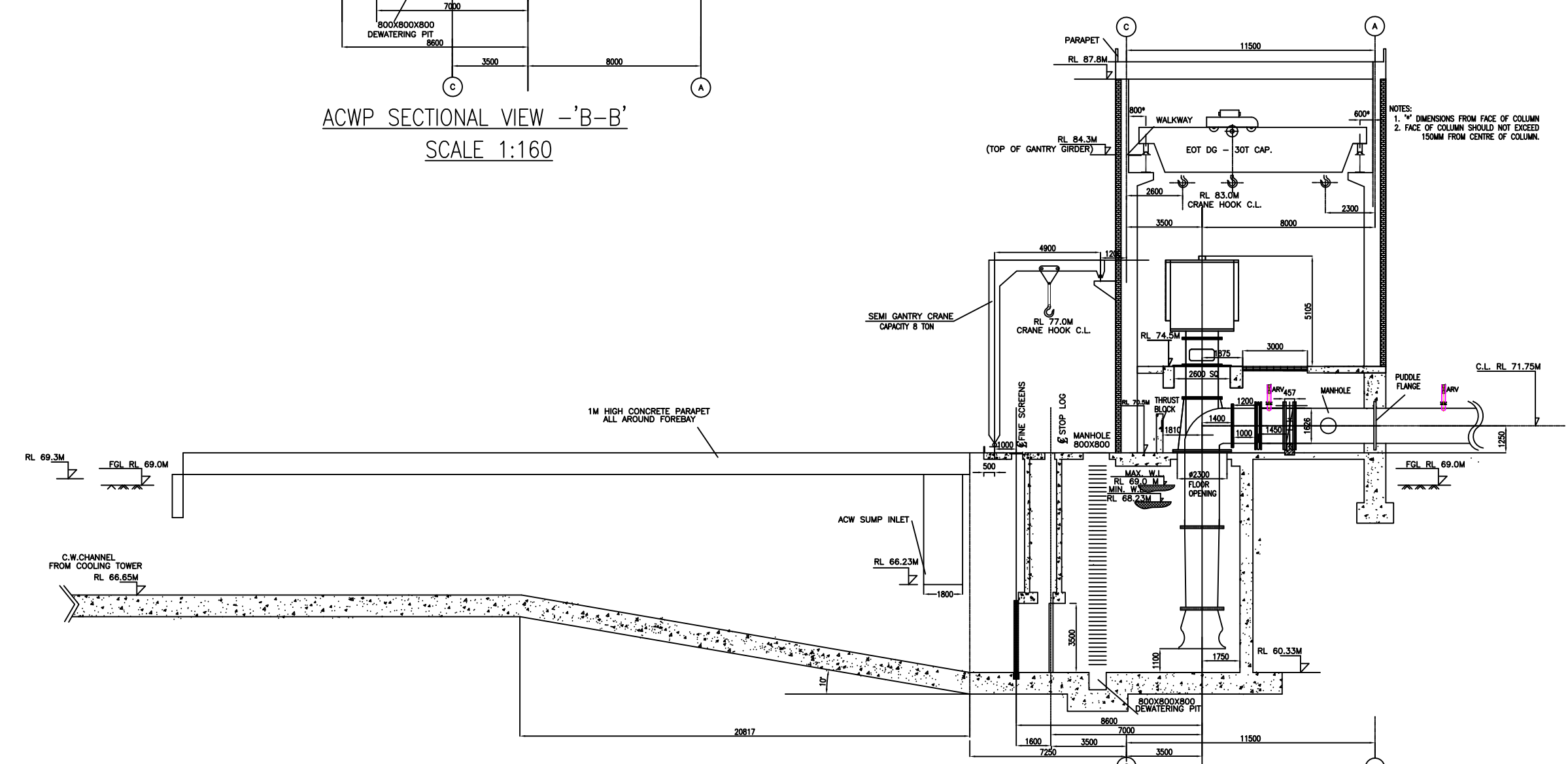
DETAIL - "LT"
SCALE 1:20



KEY PLAN –NOT TO SCALE

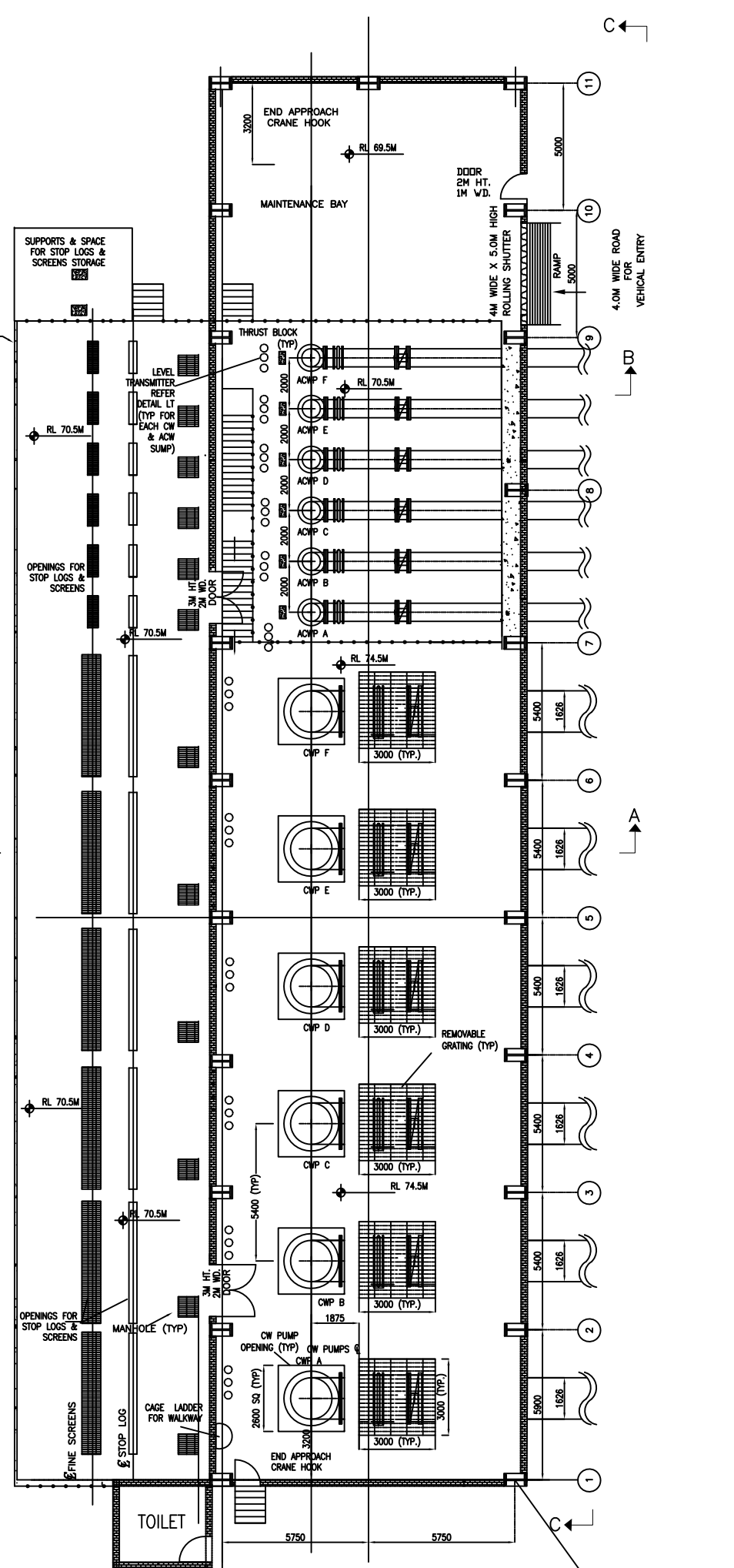


ACWP SECTIONAL VIEW - 'B-B'
SCALE 1:160



CWP SECTIONAL VIEW - 'A-A'

SCALE 1:160



PLAN OF C.W. PUMP HOUSE
SCALE 1:160

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JOB NO = 411				OWNER		TELANGANA STATE POWER GEN. CO. LTD 4 X270 NW BHADRADRI TPTS	
SOURCE = CONTRACT				CONSULTANT		DESEIN PRIVATE LIMITED	
REVISIONS							
NO.				BHSAT BAWA ELECTRICALS LTD. DEEN		DATE	
REV				POWER TOWER		NAME	
DATE				PROJECTS ENGINEERING MANAGEMENT NEW DELHI		SIGN	
ALTD						DATE	
CHD						APPRO	
APPO						DATE	
				TITLE:			
				MECHANICAL GA OF CW AND ACW PUMP HOUSE			
				DPT		SCALE	
				SIGN		DRAWING NO.	
						PE-DG-411-185-N004	

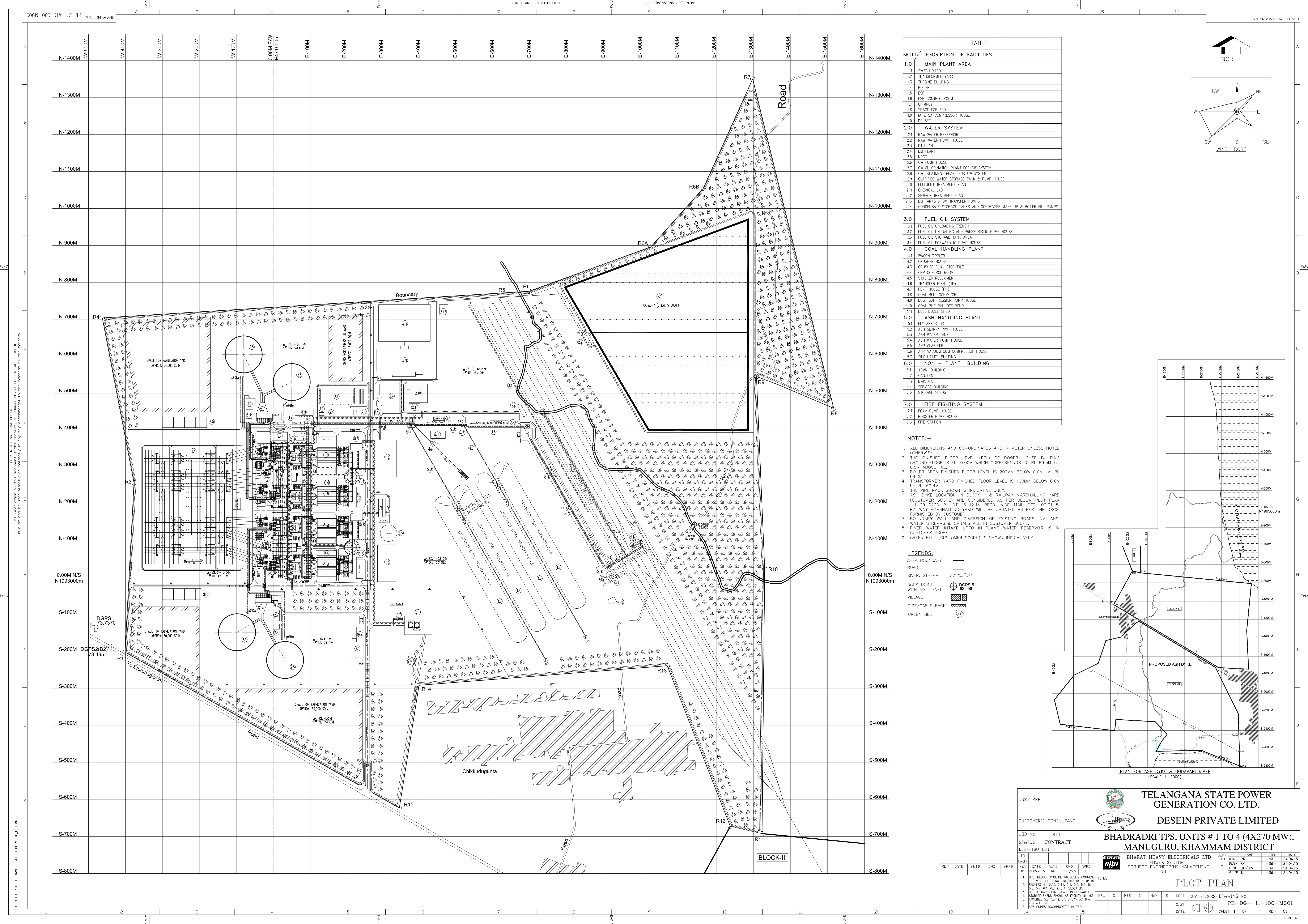
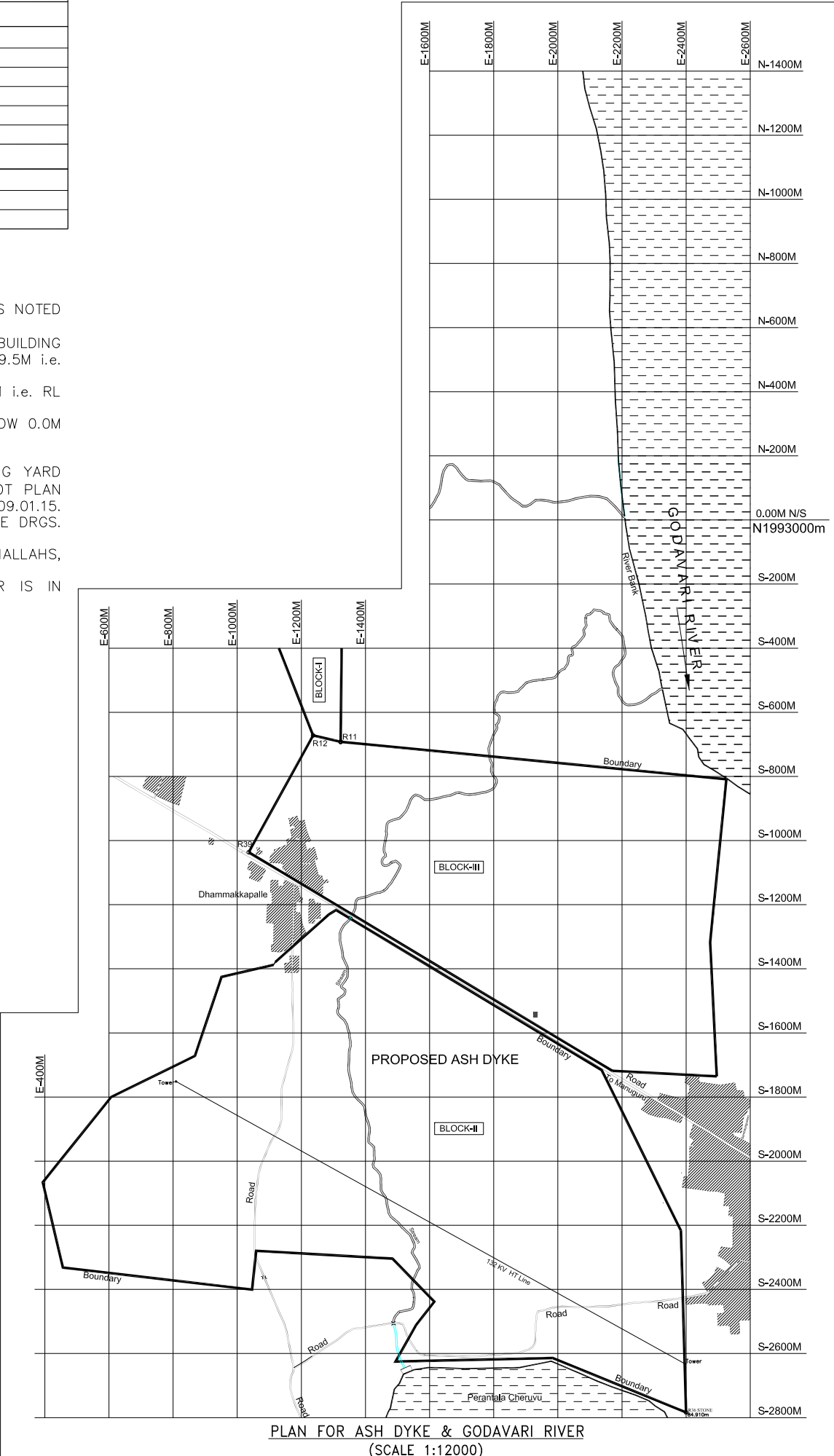


TABLE	
FACILITY	DESCRIPTION OF FACILITIES
1.0	MAIN PLANT AREA
1.1	SWITCH YARD
1.2	TRANSFORMER YARD
1.3	TURBINE BUILDING
1.4	BOILER
1.5	ESP
1.6	ESP CONTROL ROOM
1.7	CHIMNEY
1.8	SPACE FOR FGD
1.9	IA & SA COMPRESSOR HOUSE
1.10	DC SET
2.0	WATER SYSTEM
2.1	RAW WATER RESERVOIR
2.2	RAW WATER PUMP HOUSE
2.3	PT PLANT
2.4	DM PLANT
2.5	NDCI
2.6	CW PUMP HOUSE
2.7	CW CHLORINATION PLANT FOR CW SYSTEM
2.8	CW TREATMENT PLANT FOR CW SYSTEM
2.9	CLARIFIED WATER STORAGE TANK & PUMP HOUSE
2.10	EFFLUENT TREATMENT PLANT
2.11	CHEMICAL LAB
2.12	SEWAGE TREATMENT PLANT
2.13	DM TANKS & DM TRANSFER PUMPS
2.14	CONDENSATE STORAGE TANKS AND CONDENSER MAKE UP & BOILER FILL PUMPS
3.0	FUEL OIL SYSTEM
3.1	FUEL OIL UNLOADING TRENCH
3.2	FUEL OIL UNLOADING AND PRESSURISING PUMP HOUSE
3.3	FUEL OIL STORAGE TANK AREA
3.4	FUEL OIL FORWARDING PUMP HOUSE
4.0	COAL HANDLING PLANT
4.1	WAGON TIPPLER
4.2	CRUSHER HOUSE
4.3	CRUSHED COAL STOCKPILE
4.4	CHP CONTROL ROOM
4.5	STACKER RECLAIMER
4.6	TRANSFER POINT (TP)
4.7	PENT HOUSE (PH)
4.8	COAL BELT CONVEYOR
4.9	DUST SUPPRESSION PUMP HOUSE
4.10	COAL PILE RUN OFF POND
4.11	BULL DOZER SHED
5.0	ASH HANDLING PLANT
5.1	FLY ASH SILOS
5.2	ASH SLURRY PUMP HOUSE
5.3	ASH WATER TANK
5.4	ASH WATER PUMP HOUSE
5.5	AHP CLARIFIER
5.6	AHP VACUUM CUM COMPRESSOR HOUSE
5.7	SILO UTILITY BUILDING
6.0	NON - PLANT BUILDING
6.1	ADMIN. BUILDING
6.2	CANTEN
6.3	MAIN GATE
6.4	SERVICE BUILDING
6.5	STORAGE SHEDS
7.0	FIRE FIGHTING SYSTEM
7.1	FOAM PUMP HOUSE
7.2	BOOSTER PUMP HOUSE
7.3	FIRE STATION

- NOTES:-
- ALL DIMENSIONS AND CO-ORDINATES ARE IN METER UNLESS NOTED OTHERWISE.
 - THE FINISHED FLOOR LEVEL (FFL) OF POWER HOUSE BUILDING GROUND FLOOR IS EL. 0.00M WHICH CORRESPONDS TO RL 69.5M I.E. 0.5M ABOVE FGL.
 - BOILER AREA FINISHED FLOOR LEVEL IS 200MM BELOW 0.0M I.E. RL 69.3M.
 - TRANSFORMER YARD FINISHED FLOOR LEVEL IS 100MM BELOW 0.0M I.E. RL 69.4M.
 - THE PIPE RACK SHOWN IS INDICATIVE ONLY.
 - ASH DYKE LOCATION IN BLOCK-II & RAILWAY MARSHALLING YARD (CUSTOMER SCOPE) ARE CONSIDERED AS PER DESEIN PLOT PLAN 111-29-0220 R1 DT. 31.12.14. RECD. VIDE MAIL DTD. 09.01.15. RAILWAY MARSHALLING YARD WILL BE UPDATED AS PER THE DRGS. FURNISHED BY CUSTOMER.
 - BOUNDARY WALL AND DIVERSION OF EXISTING ROADS, NALLAHS, WATER STREAMS & CANALS ARE IN CUSTOMER SCOPE.
 - RIVER WATER INTAKE UPTO IN-PLANT WATER RESERVOIR IS IN CUSTOMER SCOPE.
 - GREEN BELT (CUSTOMER SCOPE) IS SHOWN INDICATIVELY.

- LEGENDS:
- AREA BOUNDARY
 - ROAD
 - RIVER, STREAM
 - DGPS POINT WITH MSL LEVEL
 - VILLAGE
 - PIPE/CABLE RACK
 - GREEN BELT



CUSTOMER

CUSTOMER'S CONSULTANT

JOB No. 411

STATUS CONTRACT

DISTRIBUTION

REV. DATE ALTD. CHD. APPD.

1. 21.05.2015

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