



भारत हेवी इलेक्ट्रिकल्स लिमिटेड

(भारत सरकार का उपक्रम)

BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India Undertaking)

TCN - 01

Ref: PSER:SCT:DGP-M990:TCN-01

Date: 03-04-2009

Sub	Tender change notice (TCN) 01.	
Job	Erection, testing, commissioning etc of CW piping, ACW piping & DM water piping systems and various balance piping systems (instrument air, service air, drinking water, service water etc) of unit # 1 & 2 for 2x500 MW units at Durgapur Steel Thermal Power Station, West Bengal.	
Ref	1.0	Tender no PSER:SCT:DGP-M990:09.
	2.0	BHEL's NIT, vide reference no PSER:SCT:DGP-M990:1699, dated 16-03-09.
	3.0	All other pertinent issues till date.

With reference to above, following points, relevant to tender, may please be noted and complied with while submitting offer.

- 1.0 Due date of submission of offer is extended from 06-04-09 to **15-04-2009 (15-00 hrs)**.
- 2.0 Amendment/ clarification to tender as per attached Annexure-A.
- 3.0 Drawings pertaining to (i) Cooling water piping layout, R-2; (ii) P&ID of ECW system; (iii) P&ID of CW/ ACW system and (iv) P&ID of PW & SW system for tender purpose only.
- 4.0 Revised 'No deviation certificate' as per attached Annexure-2.
- 5.0 All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully,
for BHARAT HEAVY ELECTRICALS LTD

DGM (SCT)

Encl

As above.

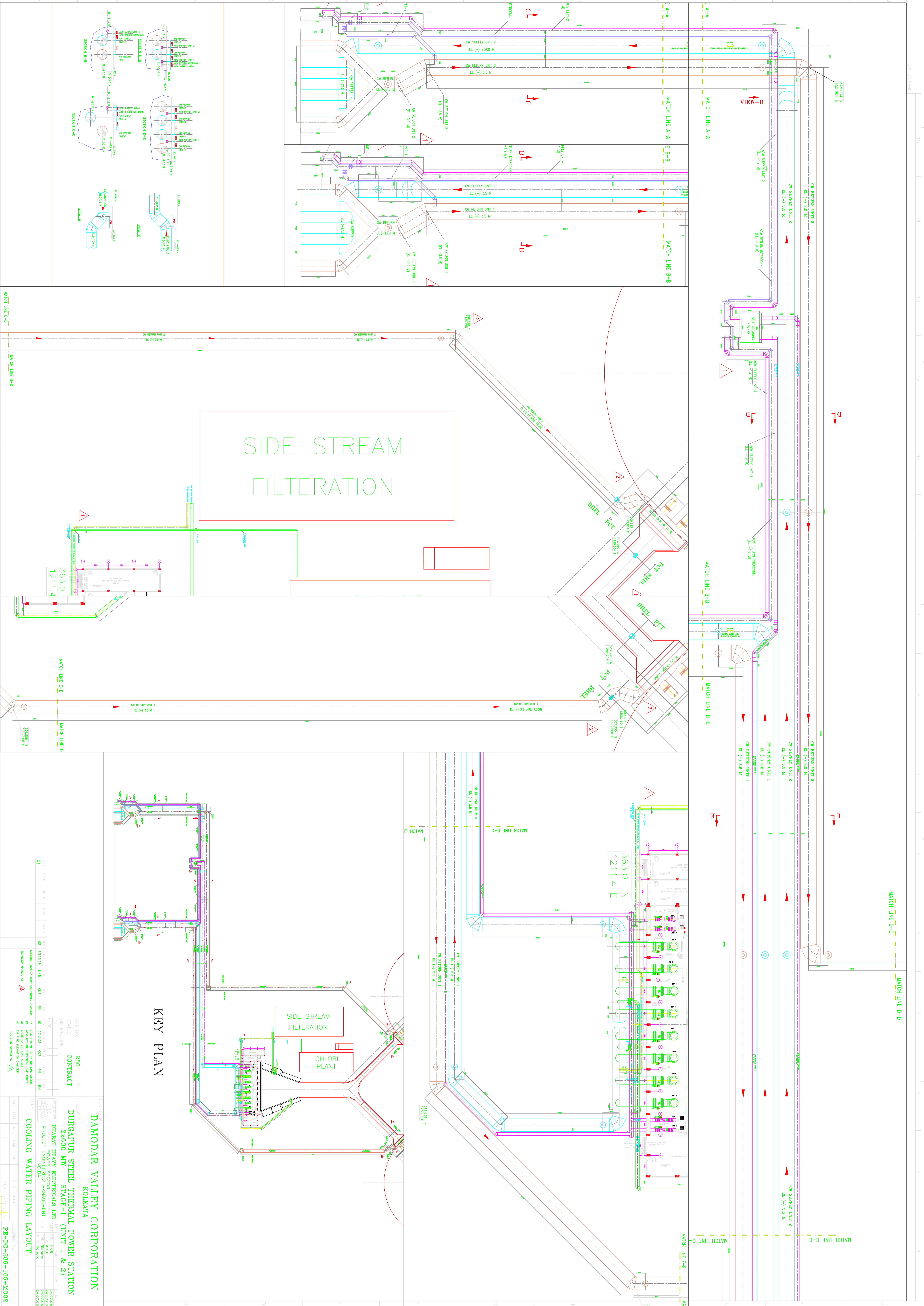
पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय)

POWER SECTOR EASTERN REGION, DJ-9/1, SALT LAKE CITY, KOLKATA - 700 091

फैक्स/Fax : (033) 23211960 फोन/Phone : बोर्ड/EPABX : 23211691/ 23211798/ 23211796

SL NO	AMENDMENT/ CLARIFICATIONS	
1.0	Volume-ID	
	QUERY	CLARIFICATION
	Man-hour rates as provided for modification items are not tenable. As such, request to change the same.	Shall be as per tender provision.
2.0	Volume-II	
	QUERY	CLARIFICATION
2.1	Please furnish the detail of tentative bill of material against the individual piping system showing the sizes & tentative length thickness/ quantity involvement of various pipe line separately to ascertain the involvement of work.	Bidder may refer enclosed tender drawings of layout of CW/ ACW piping and P&IDs of ACW/ CW piping, ECW piping system for guidance purpose only.
2.2	Please confirm whether fabricated spools will be supplied or rolled straight lengths of pipe and fabricated fittings will be supplied separately for all pipes including CW piping shall be supplied by BHEL in fabricated condition.	Straight lengths of pipe and fabricated fittings will be supplied separately.
2.3	Please specify tentative man-days to be considered for commissioning/ post commissioning assistance and valve servicing till trial run & handing over of the unit to customer.	Shall be as per tender provision.
2.4	Please confirm whether water, air, steam, including DM, if required for cleaning, hydrotest, pneumatic testing/ flushing/ blowing, etc will be provided by BHEL.	Water, air, steam, including DM if required for cleaning, hydro test, pneumatic testing/ flushing/ blowing, etc as applicable will be provided by BHEL.
2.5	All piping materials, pipe-fittings, flanges, etc for laying of temporary pipeline, for the testing/ flushing/ blowing of CW & LP piping system along with all valves, fasteners, gasket etc as may be required will be provided by BHEL.	Shall be as per tender provision.
2.6	<p><u>CW/ ACW PIPING</u> Under-ground piping shall generally come without any external painting. BOQ-cum price schedule for supply & application of wrapping & coating of the under-ground piping shall be as per applicable item of Volume-III A.</p> <p>All pipes will be issued to contractor in fabricated condition in tentatively 6 mtr to 12 mtr length and pipe will be issued by BHEL with internal painting with primer and coal tar epoxy paint leaving a gap of approx 200 mm length at each end to provide for field welding. Internal coating of this gap section at site is in the scope of the contractor, Supply & application of Epoxy Resin based Red Oxide Primer followed by finish coats of Coal Tar Epoxy paint from BHEL approved vendor, is in the scope of the contractor.</p>	
2.7	<p><u>CLEANING OF PIPES</u> For all sizes pipes, internal cleaning is to be done at site either manually or by air blowing, water flushing as per guidelines of BHEL engineer, as applicable.</p>	
2.8	<p><u>EXTRNAL PAINTING OF ABOVE GROUND PIPES</u> All touch up & final painting is under the scope of contractor including surface preparation, supply of Red Oxide Primer and synthetic enamel paints from BHEL approved vendors.</p>	
2.9	It is further clarified that no sandblasting is included.	
3.0	Volume-III A	
	QUERY	CLARIFICATION
3.1	Please confirm that against sl no 6.0, whether hangers & spring supports shall be supplied as a free issue by BHEL or it will be fabricated at site.	All materials shall be issued by BHEL free of cost to the contractor in fabricated condition. However,

		only structural members like Angle, Channels etc. may be supplied by BHEL as straight length and shall have to be cut by contractor as per execution drawing at site.
4.0	General	
4.1	Bidder shall submit offer strictly in compliance with technical specification and tender terms along with amendment/ clarifications issued subsequently till date.	
4.2	All other terms & conditions shall remain unchanged.	



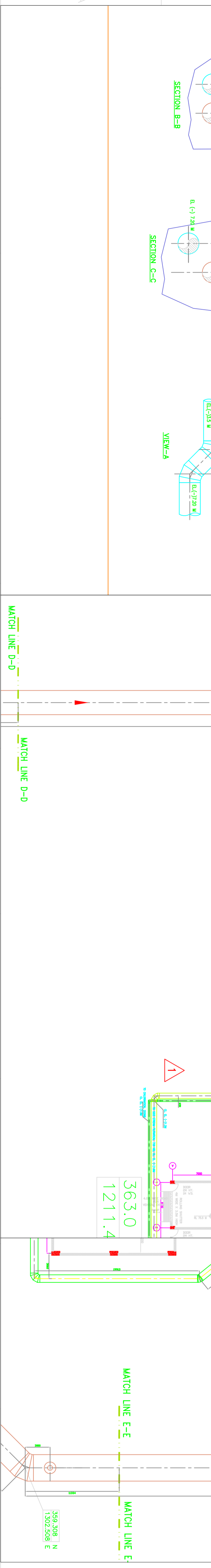
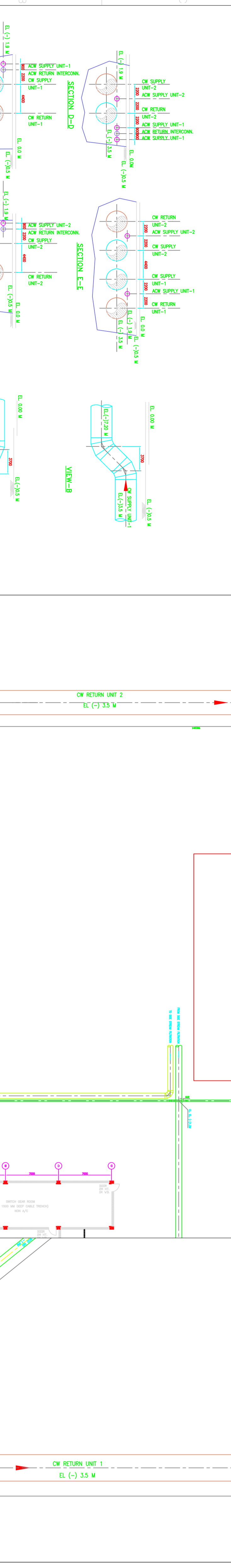
REV	DATE	BY	CHKD	APPV	REASON
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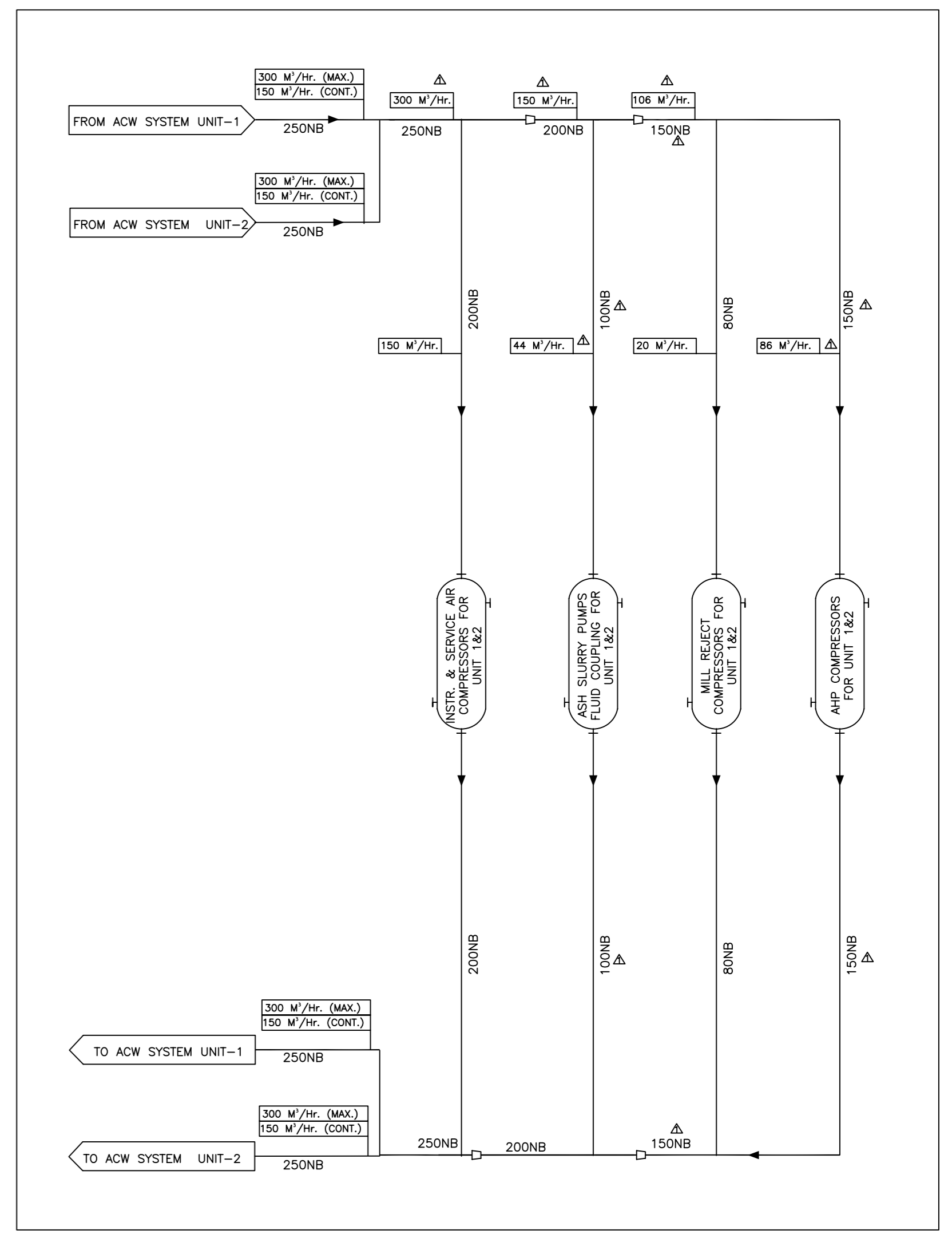
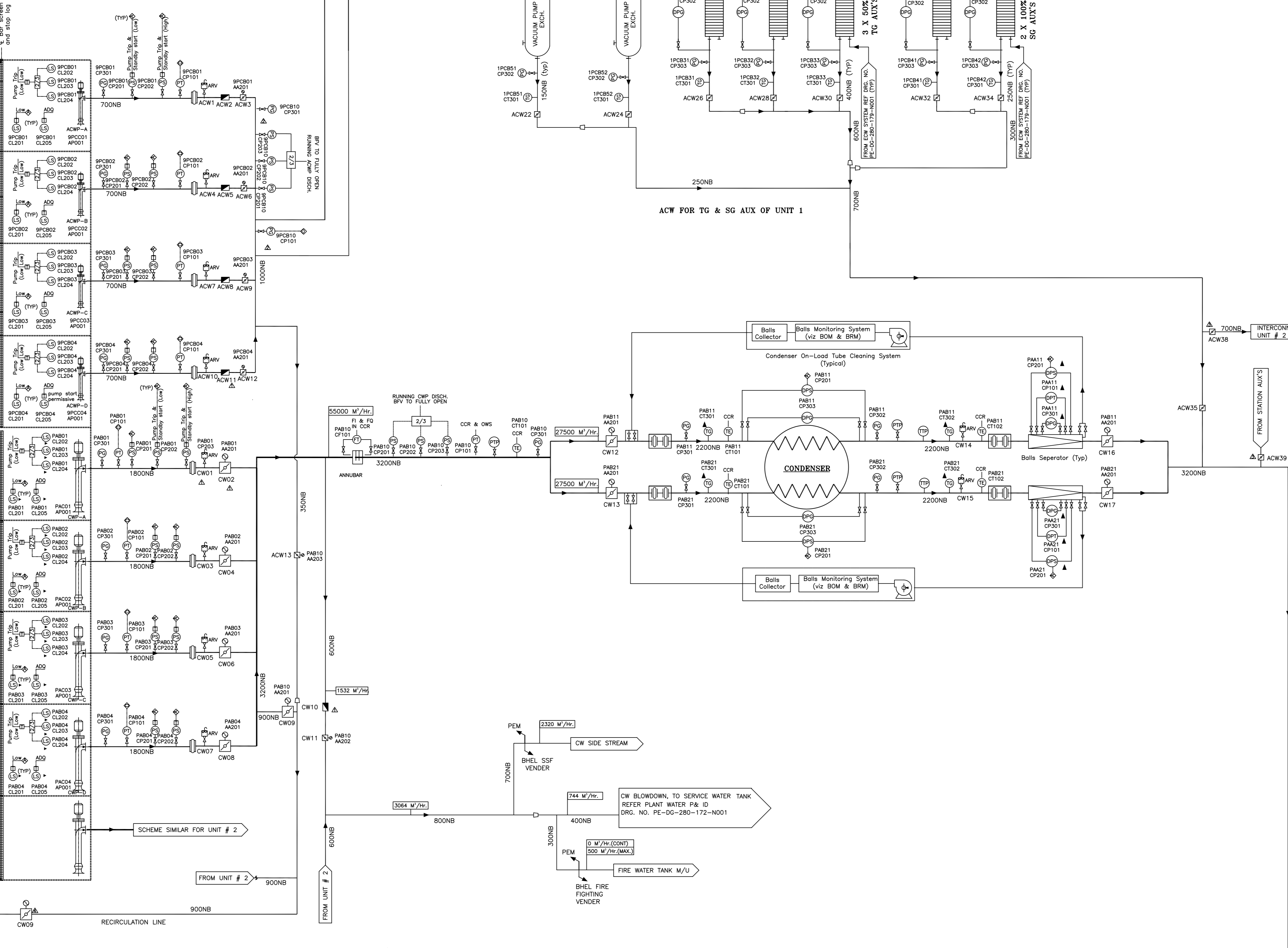
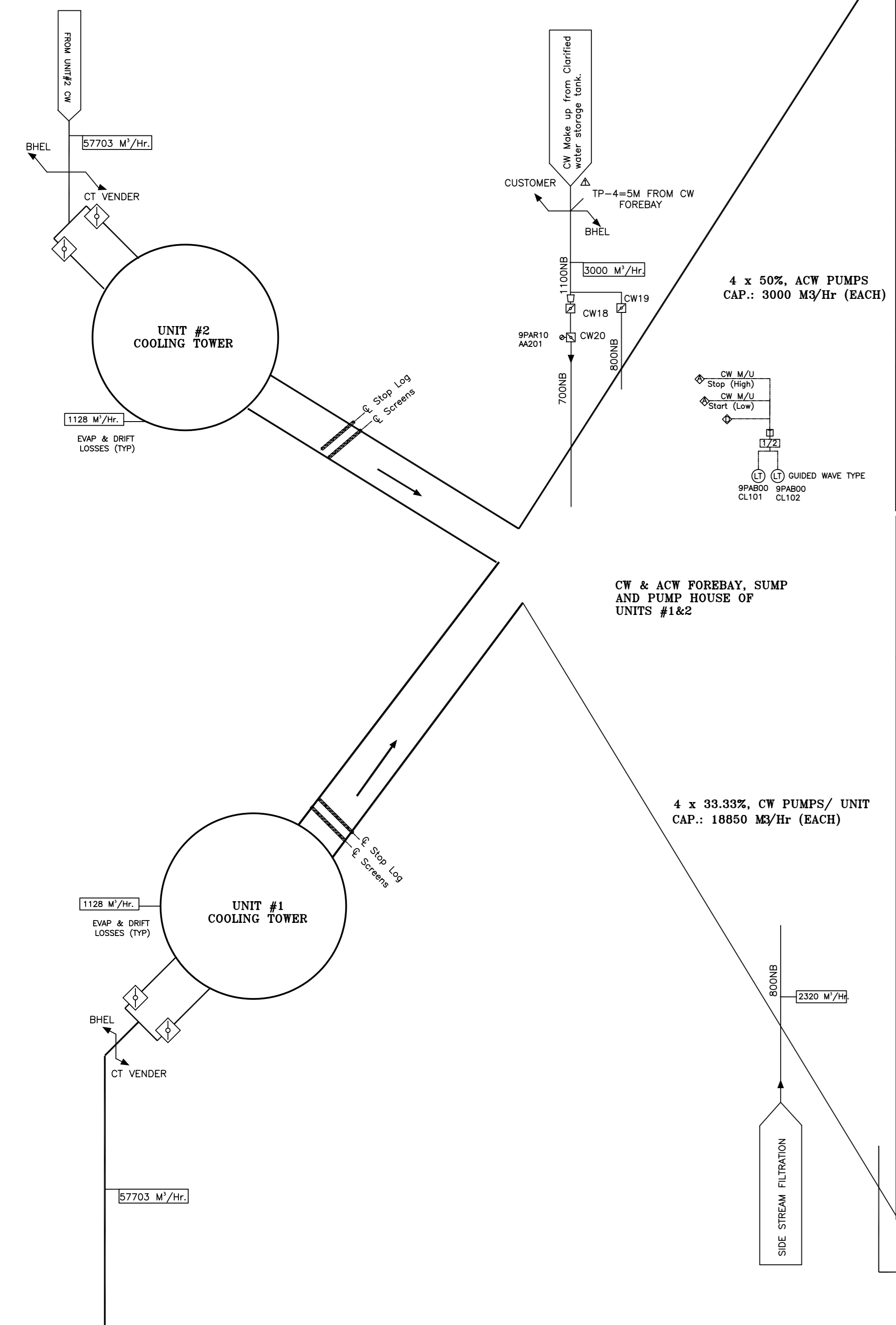
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ACW SYSTEM FOR COMMON STATION AUX'S

- NOTES:**
- DESIGN PRESSURE : 5.0 Kg/cm² (g) FOR C.W.SYSTEM.
DESIGN PRESSURE : 7.5 Kg/cm² (g) FOR A.C.W.SYSTEM.
DESIGN CW INLET TEMP. TO CONDENSER & TO VACUUM PUMP H.E. = 33 °C
DESIGN MECHANICAL TEMPERATURE : 50 °C
 - MATERIALS OF CONSTRUCTION :**
 - PIPING (LPTD & INCLUDING 150NB SHALL BE CARBON STEEL ERW (S1239 (HEAVY GRADE)
 - PIPING 200 NB AND ABOVE SHALL BE CARBON STEEL (S2062), ROLLED AND WELDED CONFORMING TO IS:3589.
 - MATERIALS OF CONSTRUCTION FOR BUTTERFLY VALVES AND GATE/ GLOBE/ CHECK VALVES/ ARV'S SHALL BE AS PER CW/ ACW DESIGN PHILOSOPHY (REFER DOC. NO. PE-DC-280-165-N002).
 - ALL PRESSURE TAPPINGS & ROOT VALVES TO BE OF 15 NB.
 - CW SYSTEM : 150 NB SIZE DRAIN & VENT VALVES, SHALL BE PROVIDED AS REGD. AS PER LAYOUT INTERVAL.
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 UP TO 350 NB AS PER LAYOUT REQUIREMENTS.
 - INSTRUMENTS MARKED ▲ THIS SHALL BE SUPPLIED ALONGWITH THE EQUIPMENTS.
 - RE-JOINT AT CONDENSER INLET & OUTLET SHALL BE PROVIDED BALANCING TYPE.
 - ADDITIONAL AIR RELEASE VALVES (100 NB) SHALL BE PROVIDED. THE TOTAL NOS. OF VALVES SHALL NOT BE LESS THAN 30. ▲
 - PAINTING/PROTECTION - PEELS:**
 - INTERNAL SURFACE (FOR PIPE DIA ABOVE 1000 mm)
 - SURFACE CLEANING BY WIRE BRUSH.
 - APPLICATION OF ONE COAT OF RED LEAD PRIMER FOLLOWED BY ADEQUATE NO. OF FINISH COATS OF SYNTHETIC ENAMEL PAINT TO ACHIEVE TOTAL DFT OF 125 TO 150 MICRONS.
 - EXTERNAL SURFACE - OVERSOUNDING PAINTING
 - SURFACE CLEANING BY WIRE BRUSH.
 - APPLICATION OF ONE COAT OF RED LEAD PRIMER FOLLOWED BY ADEQUATE NO. OF FINISH COATS OF SYNTHETIC ENAMEL PAINT TO ACHIEVE TOTAL DFT OF 125 TO 150 MICRONS.
 - CW, ACW & CW M/U PIPE BURIED PORTION COMING UNDER RAIL OR ROAD SHALL BE CONCRETE ENCASED.
8.4 CW ACW & CW M/U BURIED PIPING SHALL BE PROTECTED AS UNDER.
 - CW PIPINGWORK (3200NB AND 2200NB) IN THE TRANSFORMER YARD AREA OF LENGTH AS PER LAYOUT SHALL BE CONCRETE ENCASED.
 - CW PIPINGWORK OTHER THAN ABOVE, ACW & CW M/U
 - SURFACE CLEANING BY WIRE BRUSH
 - APPLY ONE COAT OF GALVALUM/ PRIMER/ ENAMEL CONFORMING TO IS:3537.
 - APPLY ONE/ TWO LAYER OF TAPE COMPRISING OF COALTALE APPLICATION OF TAPE SHALL CONFORM TO IS:3537.
 - THE PULLING FORCE REQUIRED TO OPERATE THE MANUAL VALVES UNDER FLOW & OPERATING PRESSURE SHALL NOT EXCEED 25 KGF. AND GEAR OPERATOR ARRANGEMENT SHALL BE PROVIDED FOR VALVES OF SIZE 350 NB AND ABOVE.
 - REFERENCE DRAWINGS :
 - BHEL HYP'S INSTRUMENTATION SCHEME OF CWP - 2 182

LEGEND

	MOTOR OPERATED BUTTERFLY VALVE
	MANUAL BUTTERFLY VALVE
	NON RETURN VALVE
	GLOBE VALVE
	AIR RELEASE VALVE
	PRESSURE GAUGE
	PRESSURE SWITCH
	PRESSURE TRANSMITTER
	DIFFERENTIAL PRESS. GAUGE
	DIFFERENTIAL PRESS. SWITCH
	DIFFERENTIAL PRESS. TRANSMITTER
	LEVEL TRANSMITTER
	BY-PASS/ ONLINE ROTAMETER
	TEMPERATURE ELEMENT
	TEMPERATURE GAUGE
	DCS
	ALARM
	ORIFICE PLATE
	R.E. JOINT (STD.)
	R.E. JOINT (PRESS BAL. TYPE)
	VERTICAL PUMP
	VIBRATION MONITORING SYSTEM

INSTRUMENT DESCRIPTION	NOS./EQUIPMENT	KKS NO./ PUMP			
		ACW PUMP A	ACW PUMP B	ACW PUMP C	ACW PUMP D
MOTORS					
NO. BEARING	1 NO.	PC001C101	PC002C101	PC003C101	PC004C101
DE BEARING	1 NO.	PC001C102	PC002C102	PC003C102	PC004C102
NO. DE	1 NO.	PC001C103	PC002C103	PC003C103	PC004C103
NO. DE	1 NO.	PC001C104	PC002C104	PC003C104	PC004C104
WINDING	6 NOS.	PC001C105-106	PC002C105-106	PC003C105-106	PC004C105-106
DE & H.E.	4 NOS.	PC001C101-104	PC002C101-104	PC003C101-104	PC004C101-104
PUMPS					
PARALLEL BEARING	2 NOS.	PC001C105-106	PC002C105-106	PC003C105-106	PC004C105-106

USUAL INSTRUMENTATION FOR ACW PUMPS
THESE INSTRUMENTS SHALL BE SUPPLIED BY PUMP/MOTOR SUPPLIER
TE AND MS SIGNALS SHALL BE TAKEN TO DCS FOR MONITORING.

PIPE SIZES OF CS MATL.

NB	OD	THICK.	NB	OD	THICK.	NB	OD	THICK.
15	21.8	3.2	300	323.9	6.0	1100	1118	10.0
25	34.2	4.0	350	355.6	6.0	1800	1829	14.2
40	48.8	4.0	400	426.4	6.0	2200	2235	16.0
50	60.8	4.5	450	457.0	6.0	3200	3243	20.0
65	76.4	4.5	500	508.0	6.0			
80	89.5	4.8	600	610.0	6.0			
100	115.0	5.4	700	711.0	10.0			
150	166.5	5.4	800	813.0	8.0			
200	219.1	6.0	900	914.0	8.0			
250	273.0	6.0	1000	1016	12.0			

S.NO.	EQUIPMENT	NOS. WORK + STANDBY	CW REGD. PER UNIT CUB/M/Hr.	CW REGD. PER COOLER CUB/M/Hr.	PRES. DROP M/MC.	TEMP. RISE °C.	REMARKS
1	CONDENSER	1 + 0	55000	55000	4.9	10.0	
2	VACUUM PUMPS OF ONE UNIT	1 + 1	120	+240	3.5	2.0	*DURING START UP BOTH PUMPS WORK.
3	PH'S (TG AUX) OF ONE UNIT	2 + 1	943	1886	5.0	5.3	
3	PH'S (SG AUX) OF ONE UNIT	1 + 1	427	427	5.0	5.3	

CUSTOMER: DAMODAR VALLEY CORPORATION, KOLKATA

JOB NO.: 280

CONTRACT: KODERMA THERMAL POWER PLANT (2X500 MW)

DESIGNER: BHARATI HEAVY ELECTRICALS LTD.

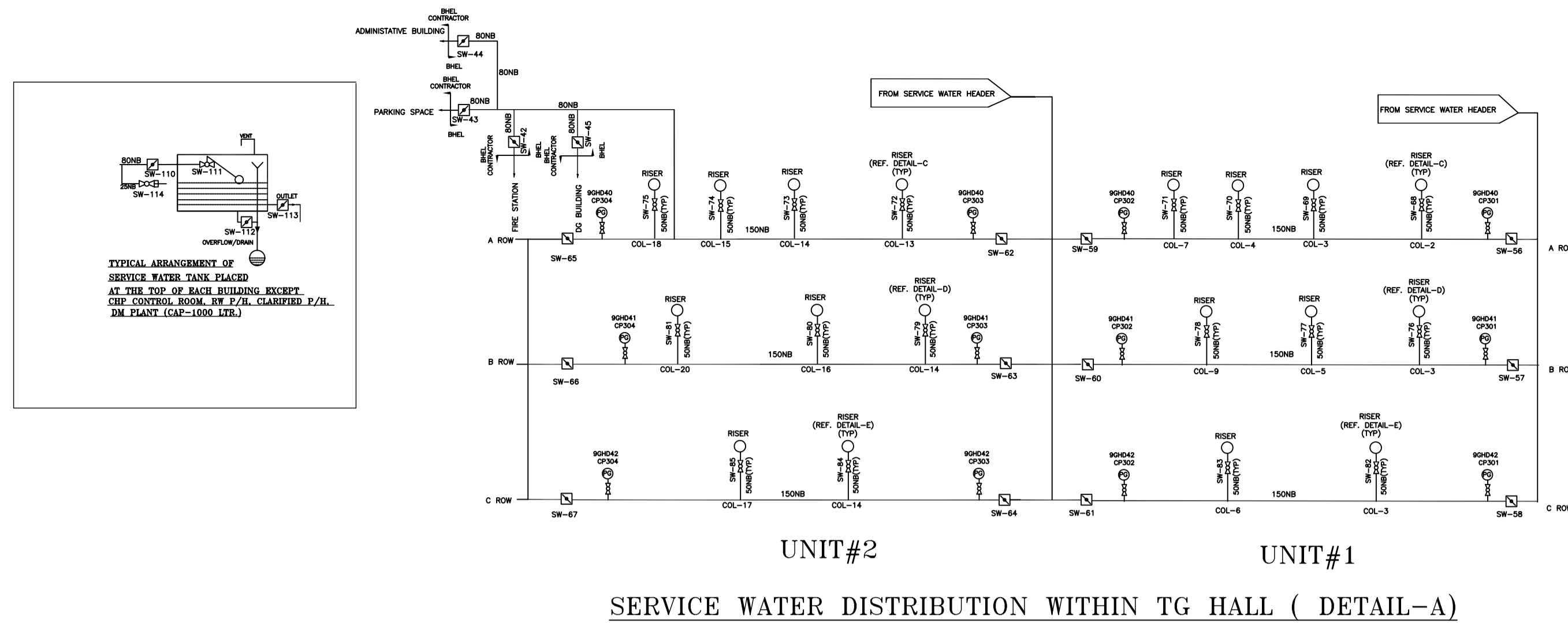
PROJECTS ENGINEERING MANAGEMENT

DATE: 06.08.08

SCALE: AS SHOWN

DRAWING NO.: PE-DG-280-165-N001

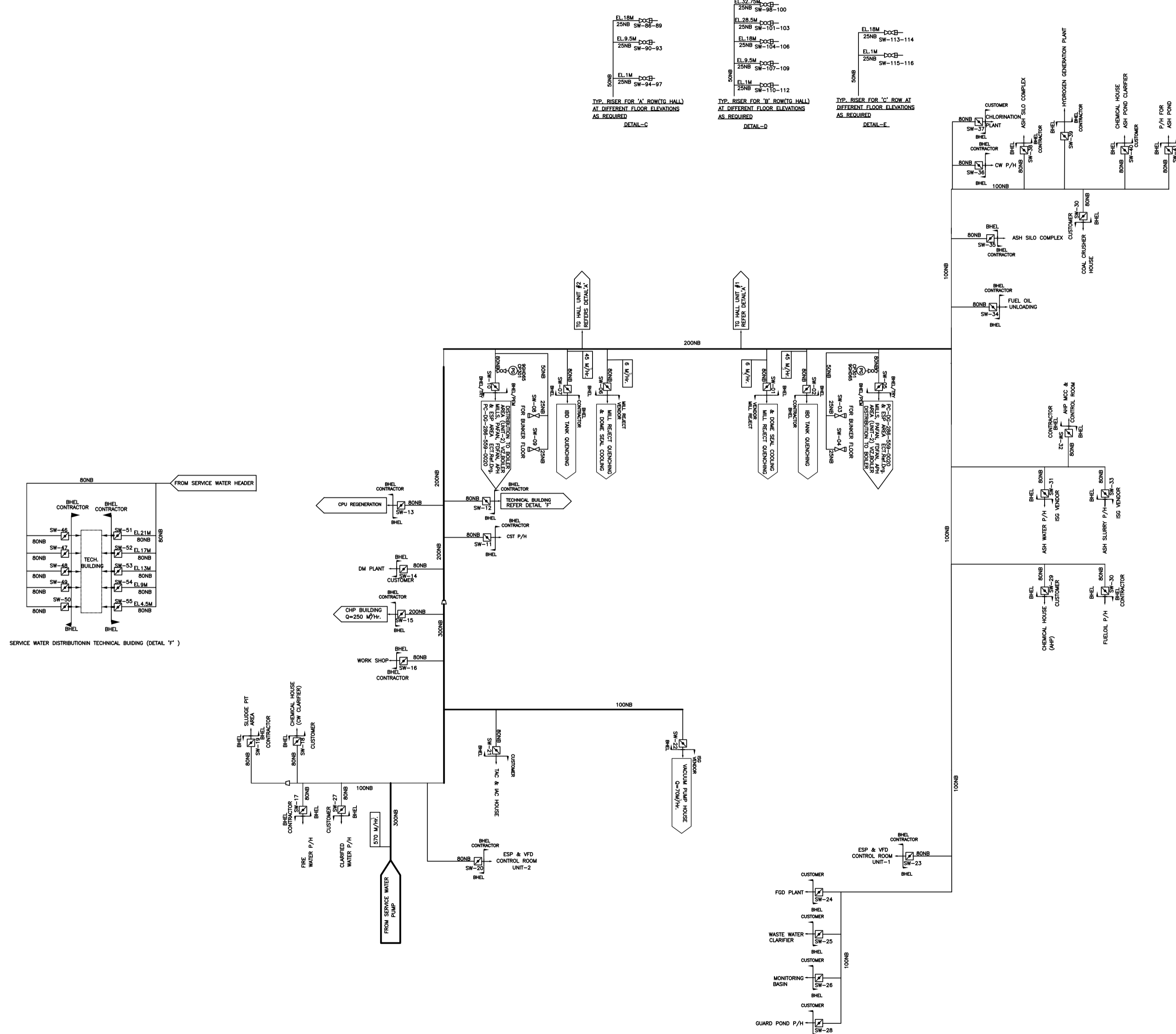
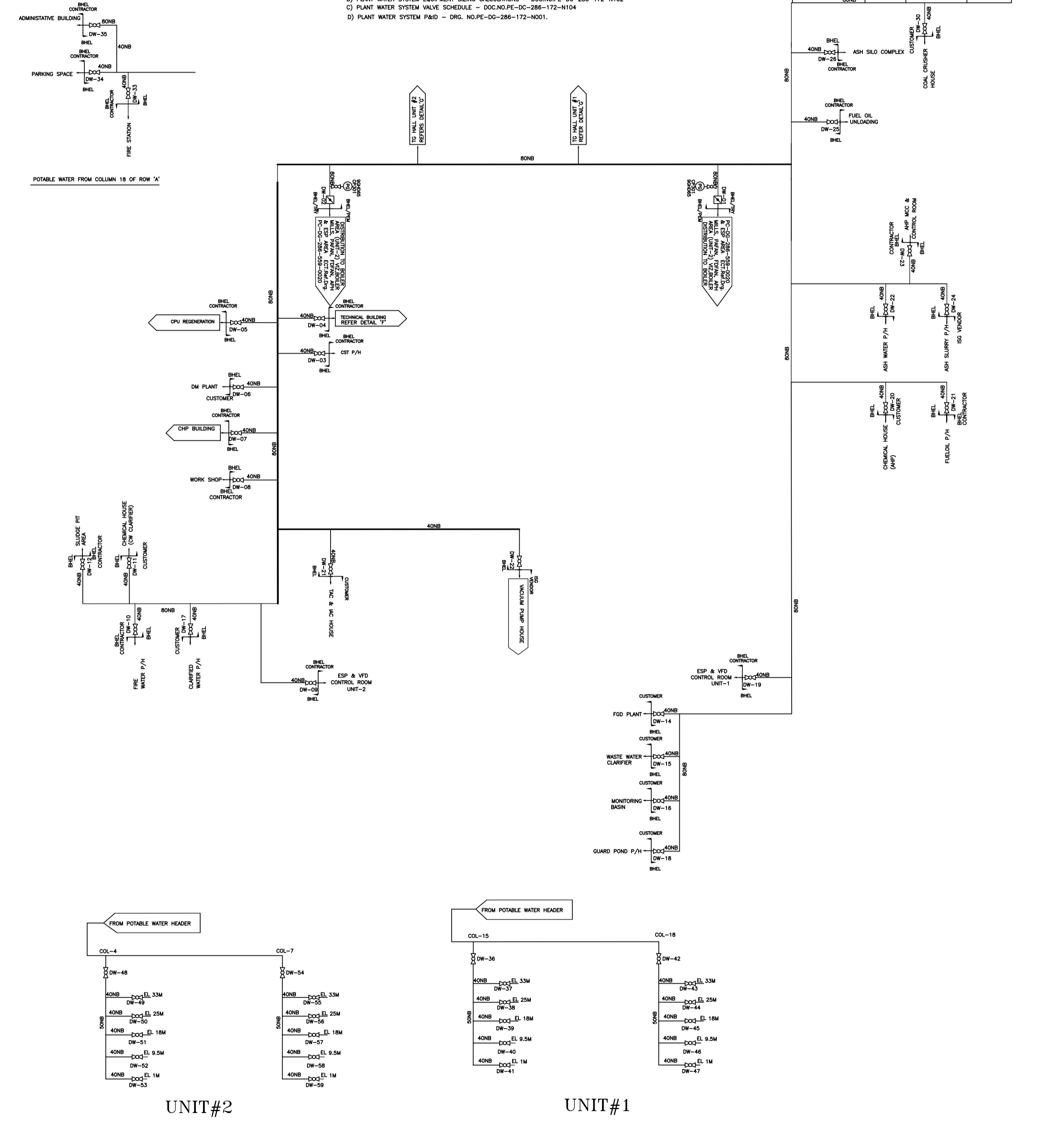
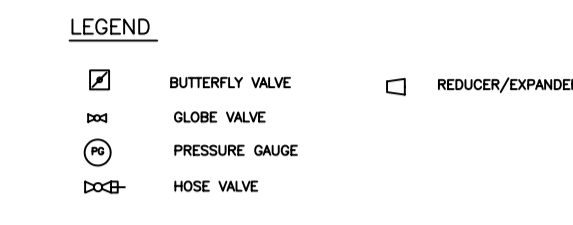
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PIPE SIZES

Nb	D.O (mm)	MAX.	THK.(mm)
15	21.8	3.2	
25	34.3	4.0	
40	48.8	4.0	
50	60.8	4.5	
65	76.8	4.5	
80	89.5	4.8	
100	115.0	5.4	
150	166.5	6.4	
200	218.1	8.0	
250	273.0	9.0	
300	323.9	10.0	

- NOTES:-**
- DESIGN PRESSURE:- a) SERVICE WATER SYSTEM-10KG/50CM(O) b) POTABLE WATER SYSTEM-(10KG/50CM(O))
 - MECH. DESIGN TEMPERATURE: 60°C
 - MINIMUM PRESSURE OF SERVICE WATER AT ANY SW CONNECTION SHALL BE 1.5KG/50CM EXCEPT WHERE MENTIONED OTHERWISE SPECIFICALLY.
 - MATERIALS OF CONSTRUCTION:- (REFER TO SPECIFICATIONS)
 - 3.1 SERVICE WATER SYSTEM.**
 - a) PIPING LESS THAN EQUAL TO 150NB SHALL BE CARBON STEELWELD CONFORMING TO IS:1239(HEAVY GRADE).
 - b) PIPING-150NB SHALL BE CARBON STEELSS2062 GR.PLAATES ROLLED AND WELDED AS PER IS:3589
 - 3.2 POTABLE WATER SYSTEM.**
 - a) PIPING LESS THAN EQUAL TO 150NB SHALL BE CARBON STEELWELD CONFORMING TO IS:1239(HEAVY GRADE) & SHALL BE GALVANISED AS PER IS 4736 OR I.P.E. PIPE END CONNECTIONS SHALL BE SCREWED.
 - 4 WATER HOSES FOR SERVICE SYSTEM.**
 - a) WATER HOSES SHALL BE AS PER IS:4444 WITH 25NB SIZE.
 - b) TOTAL 210 NOS. HOSE PIPES FOR TO HALL AREA OF BOTH UNITS SHALL BE SUPPLIED BY BHFL FOR INSTALLATION AT:
 - 1) TO HALL-A- 100 NOS. AT EACH FLOOR PER UNIT (TOTAL 12 NOS.- FOR 2 UNITS)
 - 2) TO HALL-B- 100 NOS. AT EACH FLOOR PER UNIT (TOTAL 20 NOS.- FOR 2 UNITS)
 - 3) TO HALL-C- 100 NOS. AT EACH FLOOR PER UNIT (TOTAL 8 NOS.- FOR 2 UNITS)
 - c) BUNKER FLOOR- 2 NOS. PER UNIT (4 FOR 2 UNITS)
 - d) TO BUILDINGS 50 NOS. FOR BOTH UNITS.
 - e) 18 NOS. HOSE PIPES ARE SPARE.
 - f) LENGTH OF EACH HOSE PIPE SHALL BE 15M.
 - g) HOSE POINTS SHALL BE LOCATED STRATEGICALLY AS NEAR TO COLLAR CENTER LINE AS POSSIBLE WITHOUT DESTROYING PASSAGES/CLEAN SPACES.
 - h) FOR EACH HOSELINE END SHALL BE FITTED WITH MS FEMALE COUPLING WITH SWELLING NUTS & SOFT SEATED RING SUITABLE FOR CONNECTION TO SCREWED ENDS OF HOSE VALVE & OTHER END SHALL BE MALE THREADED AS PER IS:5041 TO JOIN WITH THE SWELLING NUT OF SECOND HOSE WHEREBY TWO HOSE LINES CAN BE JOINED IF REQUIRED.
 - ALL HOSE VALVES SHALL BE APPROX. 1 M ABOVE FLOOR LEVEL.
 - 6.0 EXTERNAL SURFACE - OVERGROUND PIPING (SERVICE WATER SYSTEM ONLY)**
 - 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 125 TO 150 MICRONS.
 - 7. TERMINAL DEVICES.**
 - a) SERVICE WATER CONNECTIONS WITH ISOLATING VALVES SHALL BE TERMINATED SW AWAY FROM VARIOUS BUILDINGS. FURTHER DISTRIBUTION OF PIPEWORK INCLUDING SERVICE WATER OVERHEAD TANKS ETC. WITHIN RESPECTIVE BUILDINGS SHALL BE BY RESPECTIVE BUILDINGS CONTRACTOR.
 - b) DRINKING WATER CONNECTIONS WITH ISOLATING VALVES SHALL BE TERMINATED SW AWAY FROM VARIOUS BUILDINGS. FURTHER DISTRIBUTION OF PIPEWORK INCLUDING DRINKING WATER TANK ETC. WITHIN RESPECTIVE BUILDINGS SHALL BE BY RESPECTIVE BUILDINGS CONTRACTOR.
 - 8. REFERENCE Dwg. DOC. NOS.:-**
 - PER DRAWINGS AND DOCUMENTS:-
 - A) PLANT WATER SYSTEM DESIGN PHILOSOPHY & SYSTEM WRITEUP-DOCANO.PE-DC-286-172-N002
 - B) PLANT WATER SYSTEM EQUIPMENT SIZING CALCULATIONS - DOCANO.PE-DC-286-172-N102
 - C) PLANT WATER SYSTEM VALVE SCHEDULE - DOCANO.PE-DC-286-172-N104
 - D) PLANT WATER SYSTEM P&ID - DRG. NO.PE-DC-286-172-N001.



CUSTOMER		DAMODAR VALLEY CORPORATION, KOLKATA			
JOB NO.		286			
SCALE		CONTRACT			
DISTRIBUTION		DURGAPUR THERMAL POWER PLANT (2X500 MW)			
NO.		BHARAT HEAVY ELECTRICALS LTD.		NAME	
REV DATE		PROJECTS ENGINEERING MANAGEMENT		DATE	
ALT		NEW DELHI		REV.	
DSD		APPRO		REV.	
P&ID OF PW & SW SYSTEM					
DEPT		SCALE		DRAWING NO.	
DESIGN		SCALE		PE-DG-286-172-N003	
CHECK		SCALE		PAGE 2 OF 3	
APPRO		SCALE		REV.	

FORMAT FOR NO DEVIATION CERTIFICATE
(To be submitted in the bidder's letter head)

BHARAT HEAVY ELECTRICALS LIMITED,
Power Sector - Eastern Region,
Plot no 9/1, DJ Block, Sector – II, Salt Lake City,
Kolkata – 700 091

Sub	No Deviation Certificate.	
Job	Erection, testing, commissioning etc of CW piping, ACW piping & DM water piping systems and various balance piping systems (instrument air, service air, drinking water, service water etc) of unit # 1 & 2 for 2x500 MW units at Durgapur Steel Thermal Power Station, West Bengal.	
Ref	01	Tender no PSER:SCT:DGP-M990:09.
	02	BHEL's NIT, vide reference no PSER:SCT:DGP-M990:1699, dated 16-03-09.
	03	BHEL's TCN-01, vide reference no PSER:SCT:DGP-M990:TCN-01, dated 03-04-09.
	04	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 as appeared in the website and in case of such 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 the above referred NIT and convey our unqualified acceptance to all terms & conditions, unqualified compliance to technical specification and acceptance to reverse auctioning process.

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 tender instructions.

Thanking you,

Yours faithfully,

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