



HARYANA POWER GENERATION CORPORATION LIMITED

1X800 MW SUPER CRITICAL EXPANSION UNIT
DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT
YAMUNA NAGAR, HARYANA

EPC PACKAGE TENDER SPECIFICATION

VOLUME - VII
TENDER DRAWINGS

Job No	D - 4041	Name / Sign	Date
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DESEIN PRIVATE LIMITED
DESEIN HOUSE,
GREATER KAILASH – II.
NEW DELHI – 110 048

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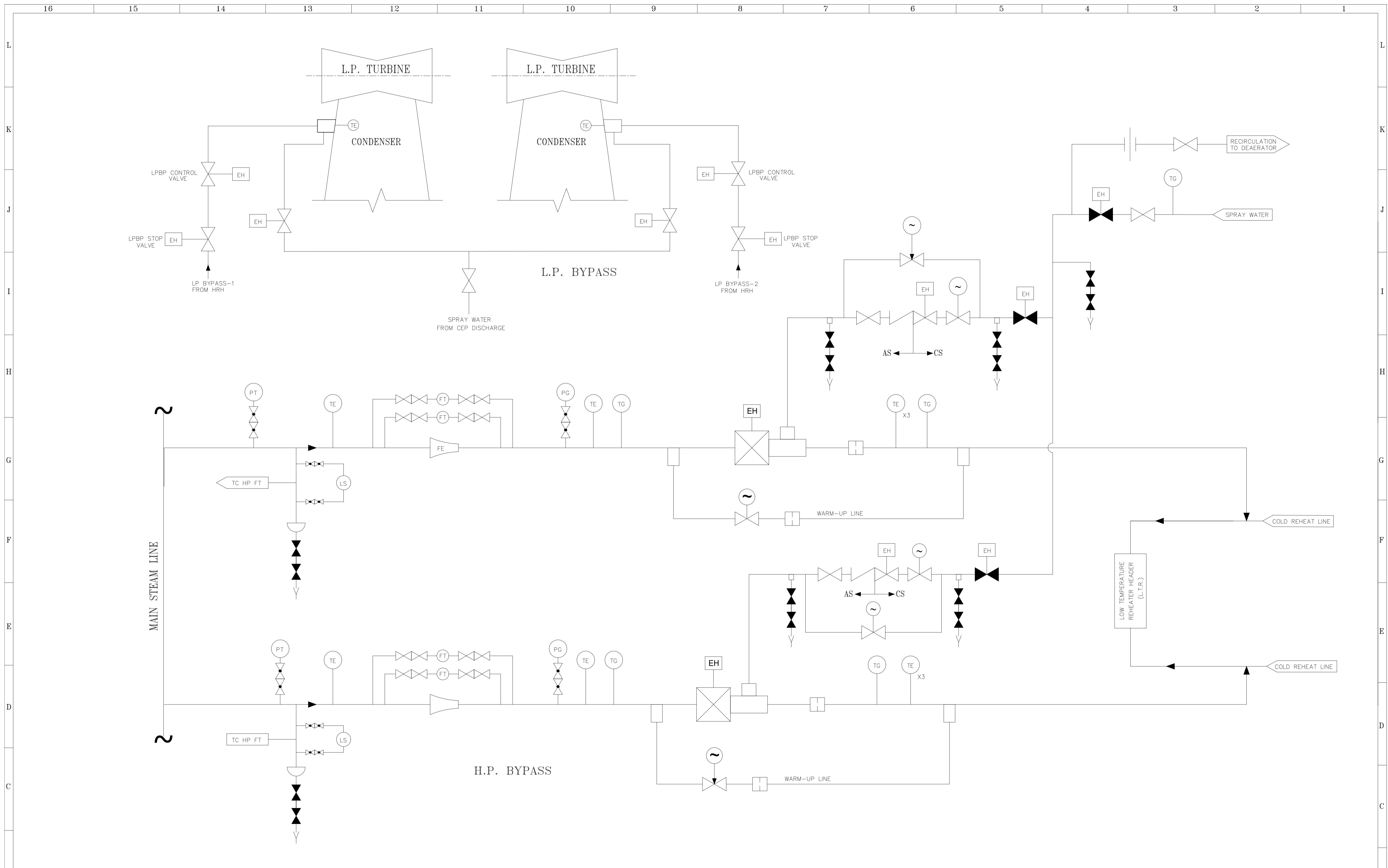
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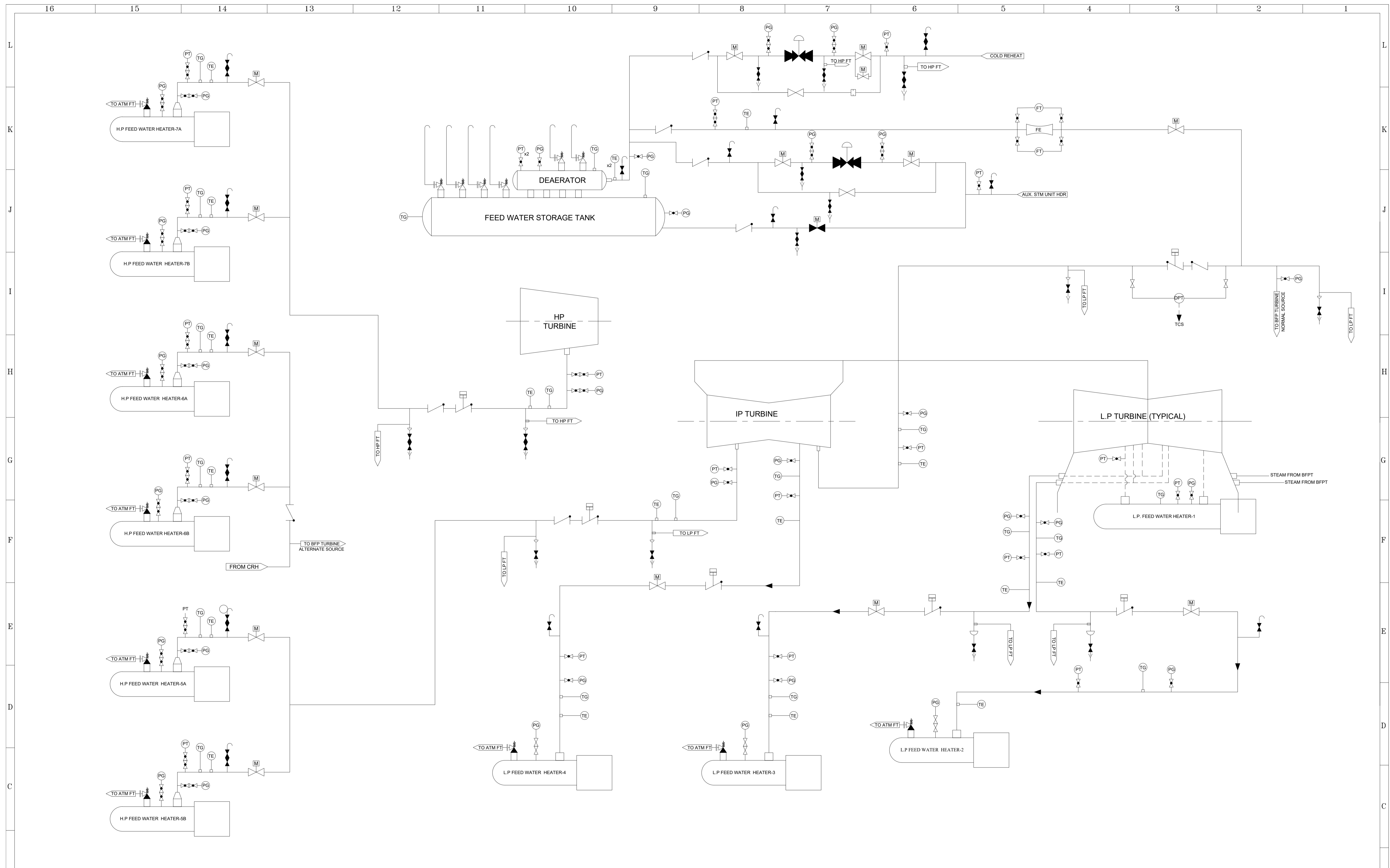
Note:-

Bidder to note that equipment / valves / instruments / analysers indicated in P&ID / flow schemes is minimum. However any other additional requirements regarding quantities & type of equipment / valves / instruments / analysers shall be finalized by Owner / Consultant during detailed engineering as per process & redundancy requirements as stipulated in NIT/Technical specification.



SR. No.	DATE	REVISIONS	APPROVED	CLIENT	CONSULTANT	PROJECT	TITLE	JOB. NO.	DWG. NO.	REV.
11				HARYANA POWER GENERATION CORPORATION LTD.	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	FLOW DIAGRAM - H.P AND L.P BYPASS SYSTEM	D-04041	111-11-0301	O
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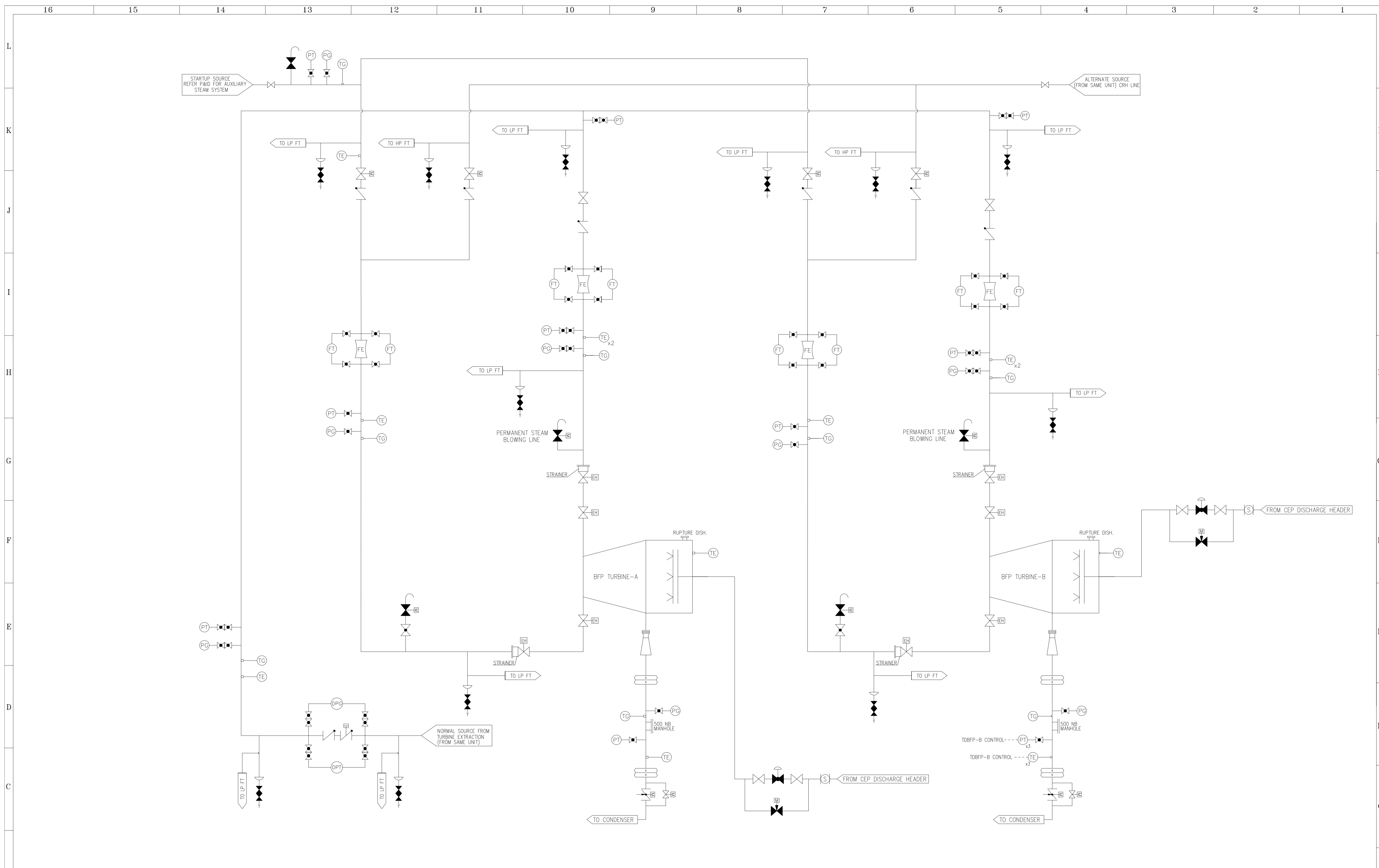
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DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	EVA	H.SUNDAR	NTS
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1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	D-04041	111-11-0400	O
TITLE :-	FLOW DIAGRAM - EXTRACTION STEAM		



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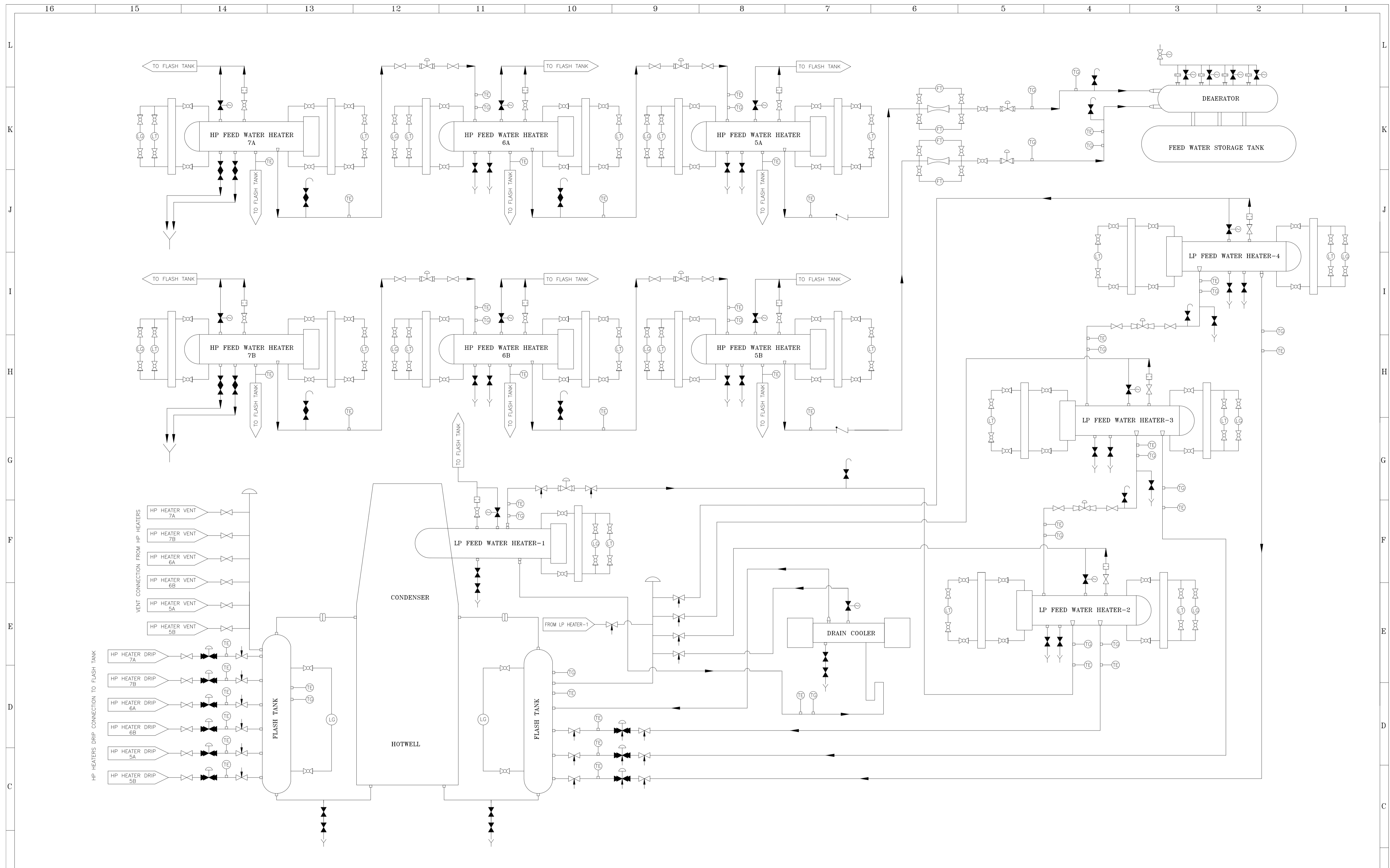
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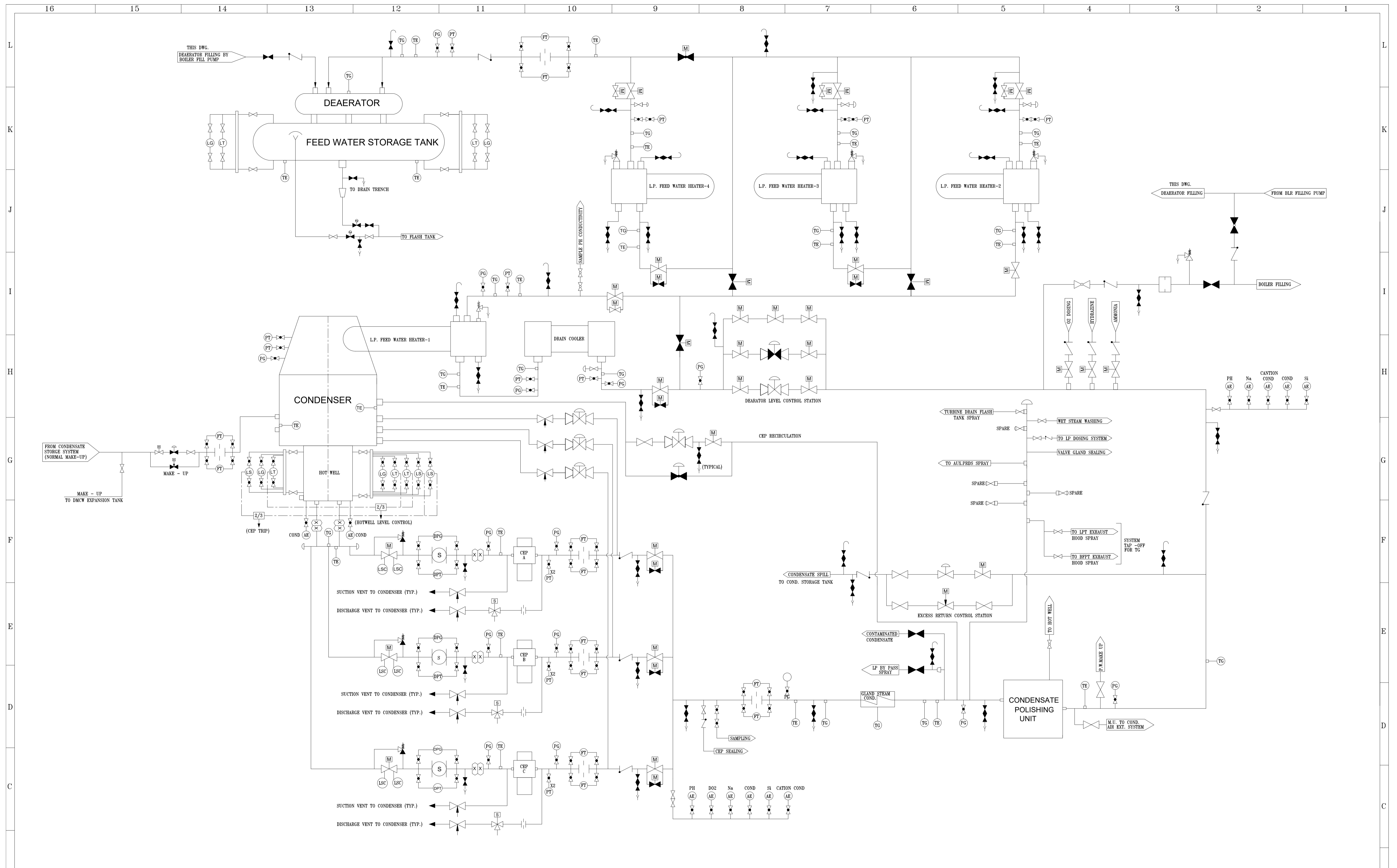
PROJECT:	JOB. NO.
1x900 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	D-04041

TITLE :-	DWG. NO.	REV.
FLOW DIAGRAM- EXTRACTION STEAM FOR BFP TURBINE	111-11-0401	0

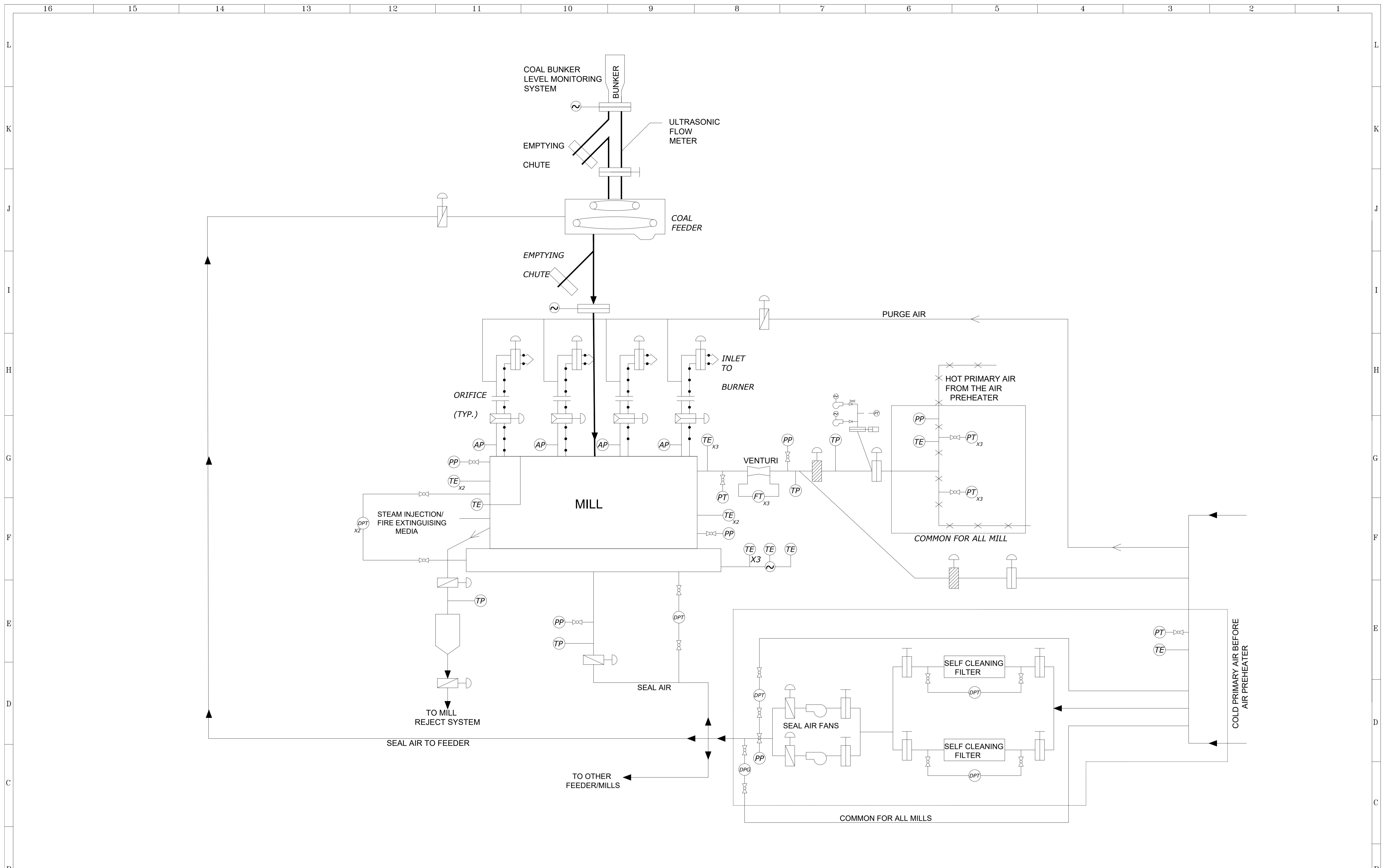
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5					5									PROJECT: 1x900 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	CHECKED	H.SUNDAR	26.09.2022	
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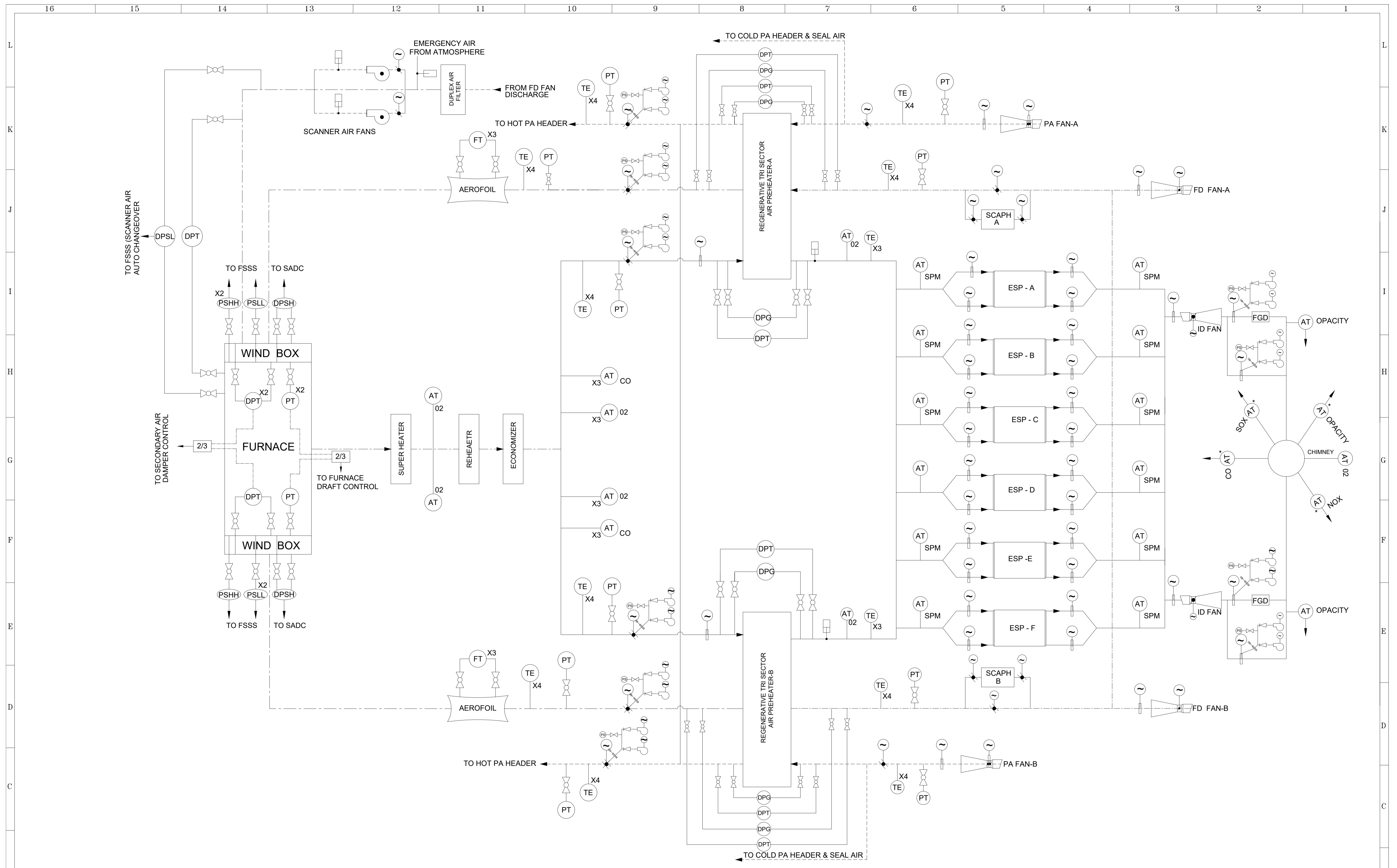
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PROJECT:	JOB. NO.
1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	D-04041

TITLE :-	DWG. NO.	REV.
FLOW DIAGRAM - PULVERISER (VERTICAL MILL)	111-11-1000	O

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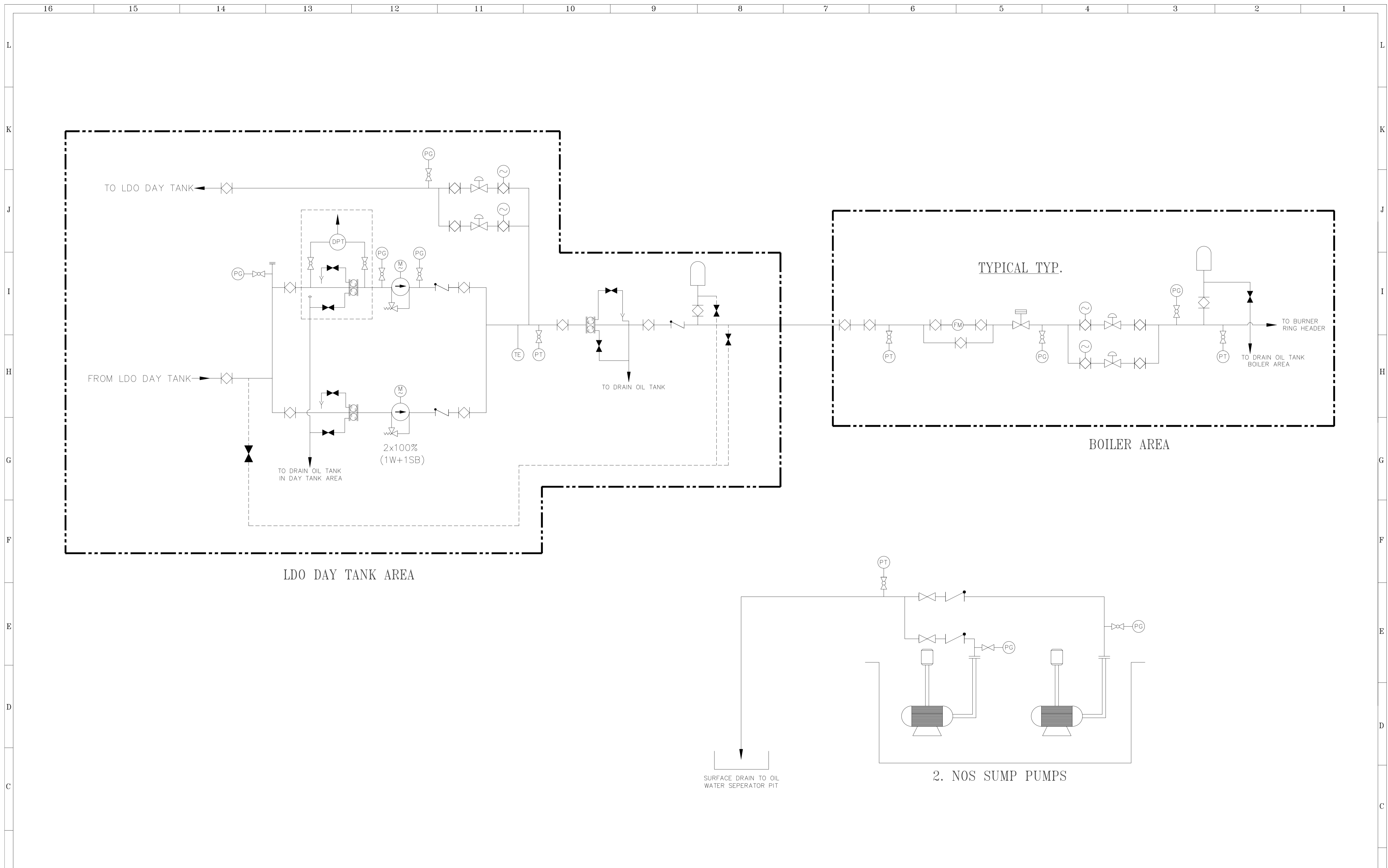
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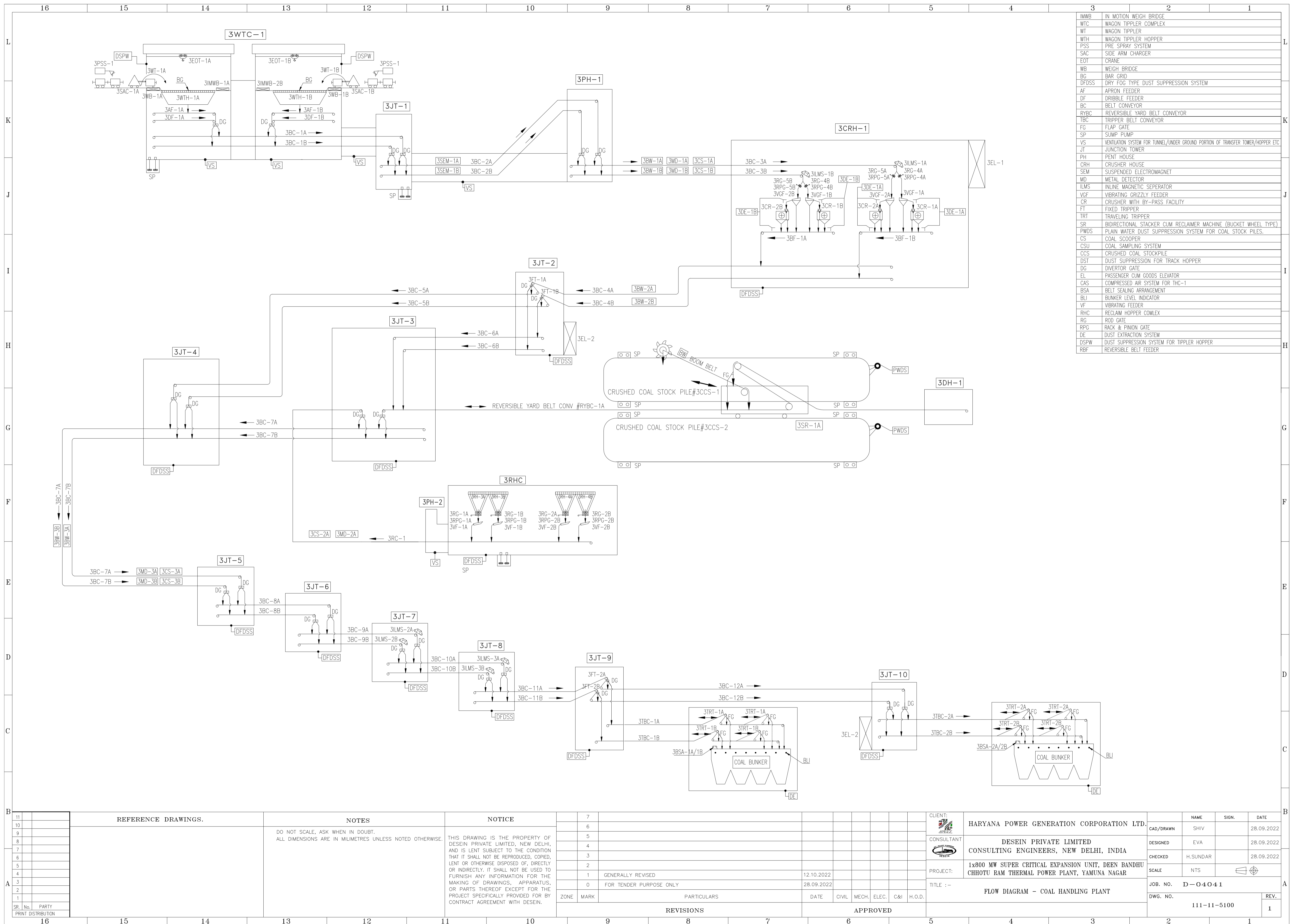
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CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED	EVA			DATE	26.09.2022
PROJECT:	1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	CHECKED	H.SUNDAR			DATE	26.09.2022
TITLE :-	FLOW DIAGRAM - AIR AND FLUE GAS	SCALE	NTS			JOB. NO.	D-04041
						DWG. NO.	111-11-1200
						REV.	0



<table border="1"> <tr><td>11</td><td></td></tr> <tr><td>10</td><td></td></tr> <tr><td>9</td><td></td></tr> <tr><td>8</td><td></td></tr> <tr><td>7</td><td></td></tr> <tr><td>6</td><td></td></tr> <tr><td>5</td><td></td></tr> <tr><td>4</td><td></td></tr> <tr><td>3</td><td></td></tr> <tr><td>2</td><td></td></tr> <tr><td>1</td><td></td></tr> <tr> <td>SR. No.</td><td>PARTY</td></tr> <tr> <td colspan="2">PRINT DISTRIBUTION</td></tr> </table>	11		10		9		8		7		6		5		4		3		2		1		SR. No.	PARTY	PRINT DISTRIBUTION		<p>REFERENCE DRAWINGS.</p>	<p>NOTES</p> <p>DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.</p>	<p>NOTICE</p> <p>THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.</p>	<table border="1"> <tr><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>0</td><td>FOR TENDER PURPOSE ONLY</td><td></td><td></td><td>26.09.2022</td><td></td><td></td><td></td><td></td><td></td></tr> <tr> <td>ZONE</td><td>MARK</td><td colspan="3">PARTICULARS</td><td>DATE</td><td>CIVIL</td><td>MECH.</td><td>ELEC.</td><td>C&I</td><td>H.O.D.</td></tr> </table>	7										6										5										4										3										2										1										0	FOR TENDER PURPOSE ONLY			26.09.2022						ZONE	MARK	PARTICULARS			DATE	CIVIL	MECH.	ELEC.	C&I	H.O.D.	<table border="1"> <tr> <td>CLIENT:</td><td>HARYANA POWER GENERATION CORPORATION LTD.</td><td>NAME</td><td>SHIV</td><td>SIGN.</td><td></td><td>DATE</td><td>26.09.2022</td></tr> <tr> <td>CONSULTANT:</td><td>DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA</td><td>DESIGNED</td><td>EVA</td><td>CHECKED</td><td>H.SUNDAR</td><td>DATE</td><td>26.09.2022</td></tr> <tr> <td>PROJECT:</td><td>1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR</td><td>SCALE</td><td>NTS</td><td colspan="4"></td></tr> <tr> <td>TITLE :-</td><td colspan="6">FLOW DIAGRAM - LDO FIRING SYSTEM</td><td>JOB. NO.</td><td>D-04041</td></tr> <tr> <td colspan="7">DWG. NO.</td><td>111-11-1301</td><td>REV.</td><td>O</td></tr> </table>	CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SHIV	SIGN.		DATE	26.09.2022	CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED	EVA	CHECKED	H.SUNDAR	DATE	26.09.2022	PROJECT:	1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	SCALE	NTS					TITLE :-	FLOW DIAGRAM - LDO FIRING SYSTEM						JOB. NO.	D-04041	DWG. NO.							111-11-1301	REV.	O
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VALVES		ACCESSORIES		INSTRUMENTS		ABBREVIATIONS			
	MANUALLY OPERATED GATE VALVE (NORMALLY OPEN)		SIGHT FLOW GLASS		LOCALLY MOUNTED INSTRUMENT	ATRS	AUTOMATIC TURBINE RECORDER SYSTEM	SIA	SILICA ANALYSER
	MANUALLY OPERATED GATE VALVE (NORMALLY CLOSED)		STRAINER Y TYPE		PANEL MOUNTED INSTRUMENT	EX	ECCENTRICITY TRANSMITTER	SIYR	SILICA RECORDER
	MANUALLY OPERATED GLOBE VALVE (NORMALLY OPEN)		STRAINER BASKET TYPE		ELECTRO PNEUMATIC CONVERTER	EYR	ECCENTRICITY RECORDER	SV	SAFETY VALVE
	MANUALLY OPERATED GLOBE VALVE (NORMALLY CLOSED)		STRAINER DUPLEX BASKET TYPE		LEVEL	FC	FLOW CONTROLLER	T	TRAP
	VALVE WITH GLAND SEALING ARRGT.		EXPANSION JOINT		CONDUCTIVITY	FE	FLOW ELEMENT	YE	TEMPERATURE ELEMENT
	ANGLE VALVE		GAUGE GLASS		HYDROGEN	FI	FLOW INDICATOR	TI	TEMPERATURE INDICATOR
	THREE WAY VALVE		ORIFICE PLATE		HYDROGEN ION CONCENTRATION	FX	FLOW TRANSMITTER	TS	TEMPERATURE SWITCH
	FOUR WAY VALVE		BREAKDOWN		OXYGEN	FYR	FLOW RECEIVER INDICATOR	TW	TEMPERATURE TEST WELL/TWERM WELL
	BUTTERFLY VALVE		FLOW NOZZLE		SILICA	KC	CONDUCTIVITY CELL	TX	TEMPERATURE TRANSMITTER
	BUTTERFLY VALVE MOTOR OPERATED		OPEN DRAIN FUNNEL		REVOLUTIONS/ROTATIONS	KI	CONDUCTIVITY INDICATOR	TYI	TEMPERATURE RECEIVER INDICATOR
	BUTTERFLY VALVE HYDRAULIC OPERATED		SAMPLE COOLER		HUMIDITY	KA	CONDUCTIVITY ANALYSER	TYR	TEMPERATURE RECEIVER RECORDER
	CONTROL GLOVE VALVE		ISOLATING DIAPHRAGM		CARBON DIOXIDE	KYR	CONDUCTIVITY RECEIVER RECORDER	VX	VIBRATION TRANSMITTER
	REGULATING GLOBE VALVE		SEPARATION CHAMBER		SMOKE DENSITY	KE	CONDUCTIVITY ELEMENT	VYR	VIBRATION RECEIVER RECORDER
	QUICK CLOSING NONRETURN VALVE		FILTER		VIBRATIONS	L	LEVEL	FQ	FLOW INTEGRATOR
	NON RETURN VALVE		UNION		FLAME	LC	LEVEL CONTROLLER	PHE	PH CELL
	MOTOR OPERATED		FLANGED CONNECTION		DIFFERENTIAL PRESSURE	LG	LEVEL INDICATOR (GAUGE GLASS)	PHA	PH ANALYSER
	SOLENOID OPERATED		VENT TO ATMOSPHERE		PRESSURE	LS	LEVEL SWITCH	PHYR	PH RECEIVER RECORDER
	SELF CONTAINED CONTROL		REDUCER		TEMPERATURE	LX	LEVEL TRANSMITTER	PHC	PH CONTROLLER
	MOTOR OPERATED GATE/PARALLEL SLIDE VALVE WITH MOTOR WITH MOTOR OPERATED INTEGRAL BY PASS VALVE		SILENCER		FLOW	LYI	LEVEL RECEIVER INDICATOR	PHI	PH INDICATOR
	SAFETY RELIEF VALVE		BLANKED FLANGE		CARBON MONOXIDE	LYR	LEVEL RECEIVER RECORDER	CCTV	CLOSE CIRCUIT TV
	PNEUMATIC OPERATED		HYDRAULIC SEAL		DIFFERENTIAL TEMPERATURE	LI	FLOAT TYPE LEVEL INDICATOR	UVFmS	ULTRAVOILET FLAME SCANNER
	HYDRAULIC OPERATED		A.C. DRIVE	ALARM INDICATION CONTACTS		PC	PRESSURE CONTROLLER	DAS	DATA ACQUISITION SYSTEM
	DAMPER REGULATION		D.C. DRIVE			PT	PRESSURE TEST CONNECTION	W	SPEED
	ISOLATING DAMPER		INTERGRAL TRAP STRAINER		VERY HIGH	PI	PRESSURE INDICATOR	LPT	LOW PRESSURE TURBINE
	DIAPHRAM VALVE (NORMALLY OPEN)		IMPLUSE TRAP		HIGH	PS	PRESSURE SWITCH	IPT	INTERMEDIATE PRESSURE TURBINE
	DIAPHRAM VALVE (NORMALLY CLOSED)		FLOW INDICATOR		NORMAL	PYI	PRESSURE RECEIVER INDICATOR	HPT	HIGH PRESSURE TURBINE
	PNEUMATIC OPERATED ACTUATED VALVE				LOW	PYR	PRESSURE RECEIVER RECORDER	ESV	EMERGENCY STOP VALVE
	KNIFE GATE VALVE				HIGH/LOW	RD	ROOF DRAIN	IV	INTERCAPTOR VALVE
	PLUG VALVE				VERY LOW	S	STRAINER		
						DPIS	DIFFERENTIAL PRESSURE INDICATOR SWITCH		

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REFERENCE DRAWINGS.		NOTES		NOTICE		REVISIONS		APPROVED		LEGEND	
		DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.		THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.		DATE: 26.09.2022		CIVIL MECH. ELEC. C&I H.O.D.		CLIENT: HARYANA POWER GENERATION CORPORATION LTD. CONSULTANT: DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA PROJECT: 1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	
SR. No. PARTY PRINT DISTRIBUTION										NAME: SHIV DESIGNED: EVA CHECKED: H.SUNDAR SCALE: NTS JOB. NO. D-04041 DWG. NO. 111-11-3000 REV. O	

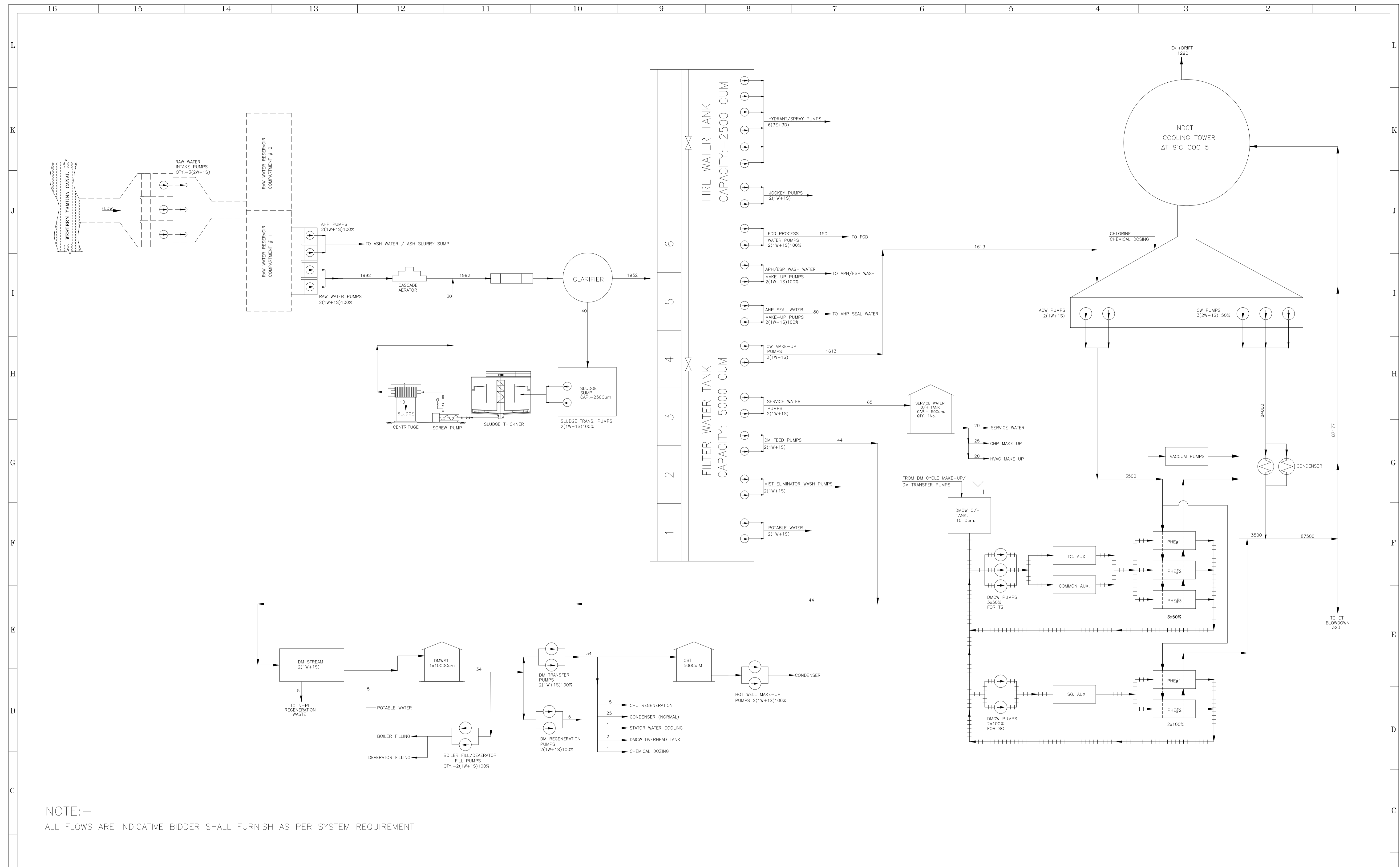


16	IMWB	IN MOTION WEIGH BRIDGE
15	WTC	WAGON TIPPLER COMPLEX
14	WT	WAGON TIPPLER
13	WTH	WAGON TIPPLER HOPPER
12	PSS	PRE SPRAY SYSTEM
11	SAC	SIDE ARM CHARGER
10	EOT	CRANE
9	WB	WEIGH BRIDGE
8	BG	BAR GRID
7	DFDSS	DRY FOG TYPE DUST SUPPRESSION SYSTEM
6	AF	APRON FEEDER
5	DF	DRIBBLE FEEDER
4	BC	BELT CONVEYOR
3	RYBC	REVERSIBLE YARD BELT CONVEYOR
2	TBC	TRIPPER BELT CONVEYOR
1	FG	FLAP GATE
	SP	SUMP PUMP
	VS	VENTILATION SYSTEM FOR TUNNEL/UNDER GROUND PORTION OF TRANSFER TOWER/HOPPER ETC
	JT	JUNCTION TOWER
	PH	PENT HOUSE
	CRH	CRUSHER HOUSE
	SEM	SUSPENDED ELECTROMAGNET
	MD	METAL DETECTOR
	ILMS	INLINE MAGNETIC SEPARATOR
	VGf	VIBRATING GRIZZLY FEEDER
	CR	CRUSHER WITH BY-PASS FACILITY
	FT	FIXED TRIPPER
	TRT	TRAVELING TRIPPER
	SR	BIDIRECTIONAL STACKER CUM RECLAIMER MACHINE (BUCKET WHEEL TYPE)
	PWDS	PLAIN WATER DUST SUPPRESSION SYSTEM FOR COAL STOCK PILES.
	CS	COAL SCOOPER
	CSU	COAL SAMPLING SYSTEM
	CCS	CRUSHED COAL STOCKPILE
	DST	DUST SUPPRESSION FOR TRACK HOPPER
	DG	DIVERTOR GATE
	EL	PASSENGER CUM GOODS ELEVATOR
	CAS	COMPRESSED AIR SYSTEM FOR THC-1
	BSA	BELT SEALING ARRANGEMENT
	BLI	BUNKER LEVEL INDICATOR
	VF	VIBRATING FEEDER
	RHC	RECLAIM HOPPER COMPLEX
	RG	ROD GATE
	RPG	RACK & PINION GATE
	DE	DUST EXTRACTION SYSTEM
	DSPW	DUST SUPPRESSION SYSTEM FOR TIPPLER HOPPER
	RBF	REVERSIBLE BELT FEEDER

NO.	REVISIONS	DATE	CIVIL	MECH.	ELEC.	C&I	H.O.D.
7							
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1	GENERALLY REVISED	12.10.2022					
0	FOR TENDER PURPOSE ONLY	28.09.2022					

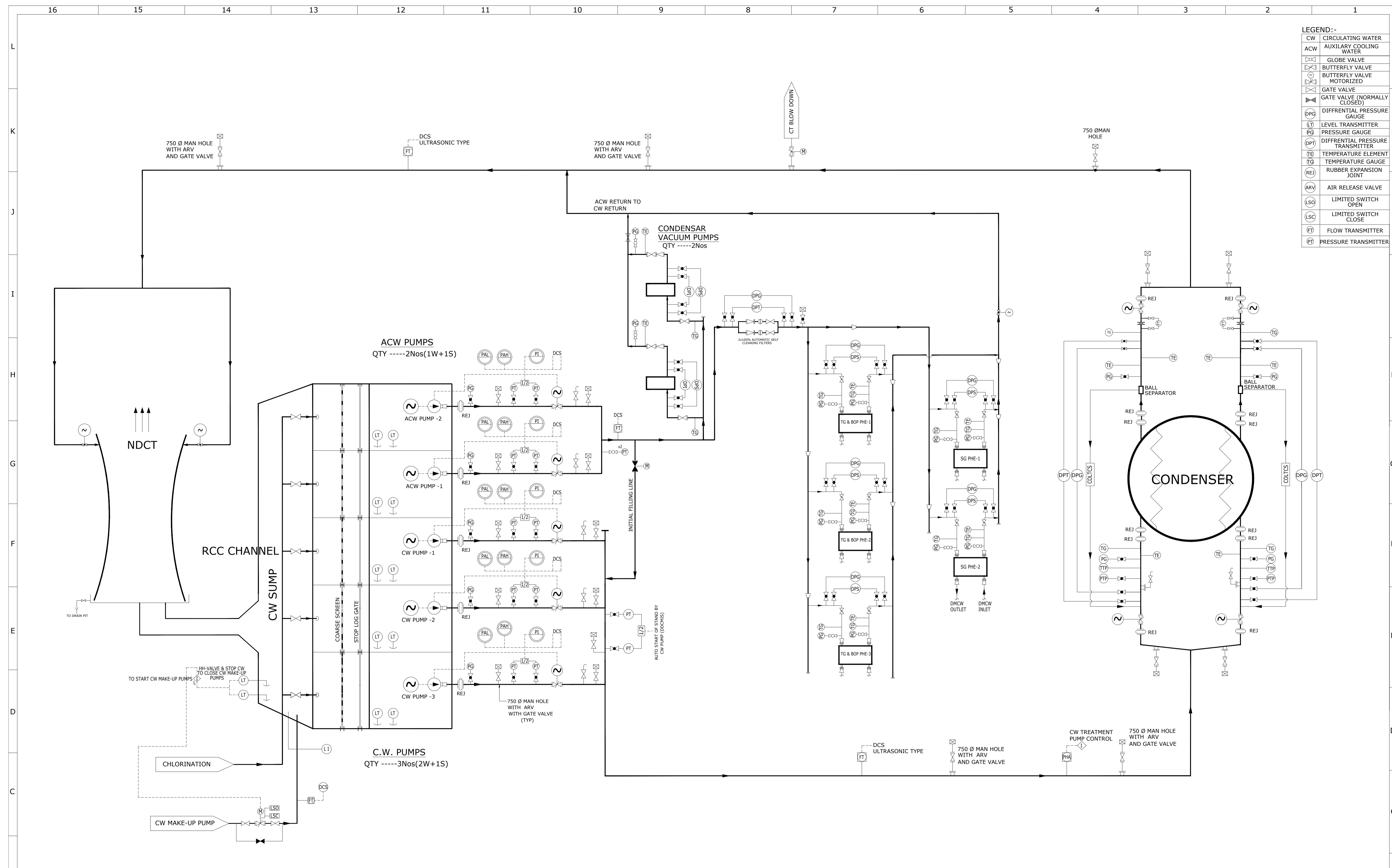
ZONE	MARK	PARTICULARS	DATE	CIVIL	MECH.	ELEC.	C&I	H.O.D.

CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SHIV	SIGN.		DATE	28.09.2022
CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED	EVA				28.09.2022
PROJECT:	1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	CHECKED	H.SUNDAR				28.09.2022
TITLE :-	FLOW DIAGRAM - COAL HANDLING PLANT	SCALE	NTS				
JOB. NO.	D-04041						
DWG. NO.	111-11-5100						
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NOTE:—
 ALL FLOWS ARE INDICATIVE BIDDER SHALL FURNISH AS PER SYSTEM REQUIREMENT

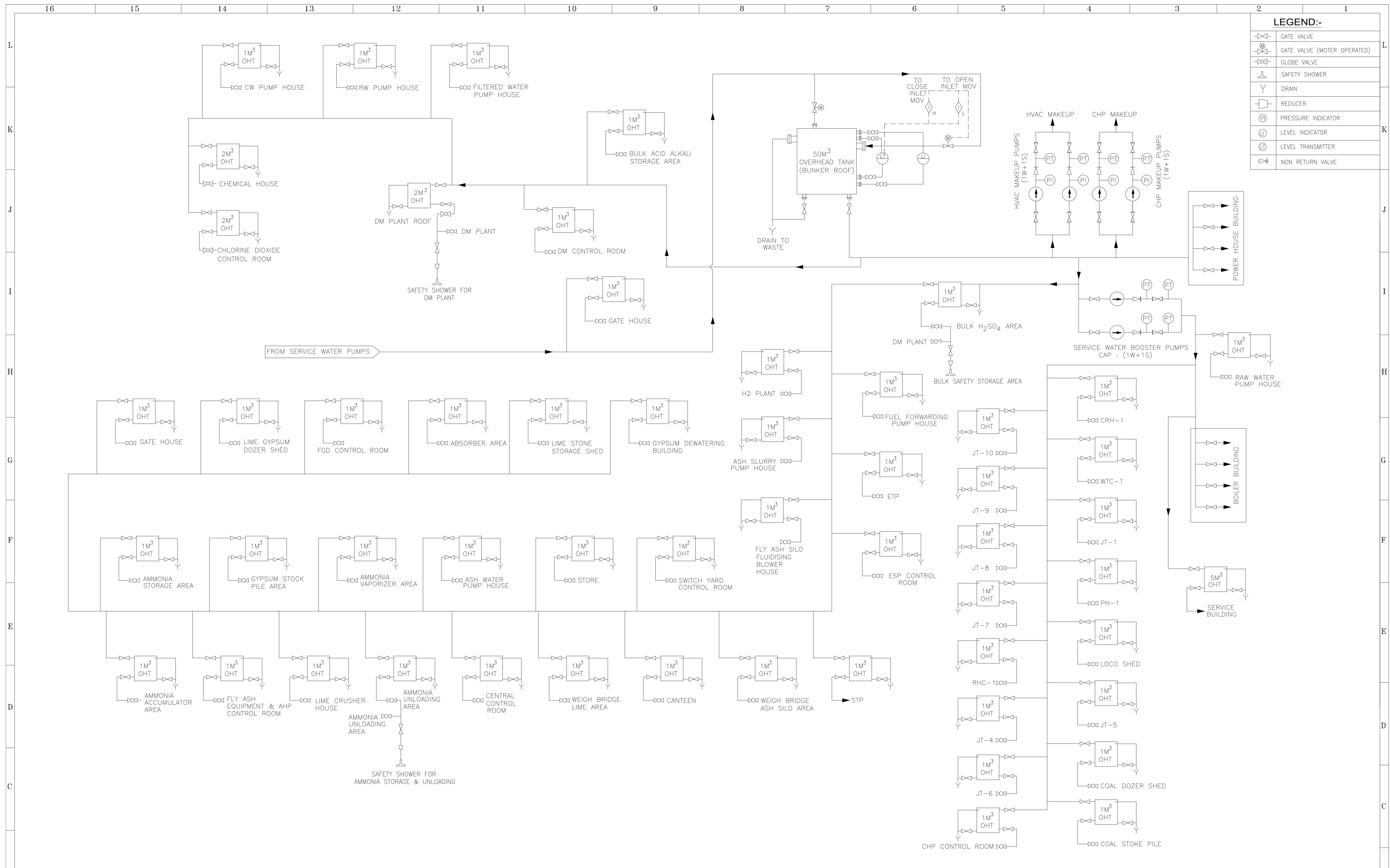
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			DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.				THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.				7 6 5 4 3 2 1 0			FOR TENDER PURPOSE ONLY 26.09.2022			NAME: SHIV SIGN. DATE: 26.09.2022 DESIGNED: EVA CHECKED: H.SUNDAR SCALE: NTS JOB. NO. D-04041 DWG. NO. 111-12-3100 REV. O		



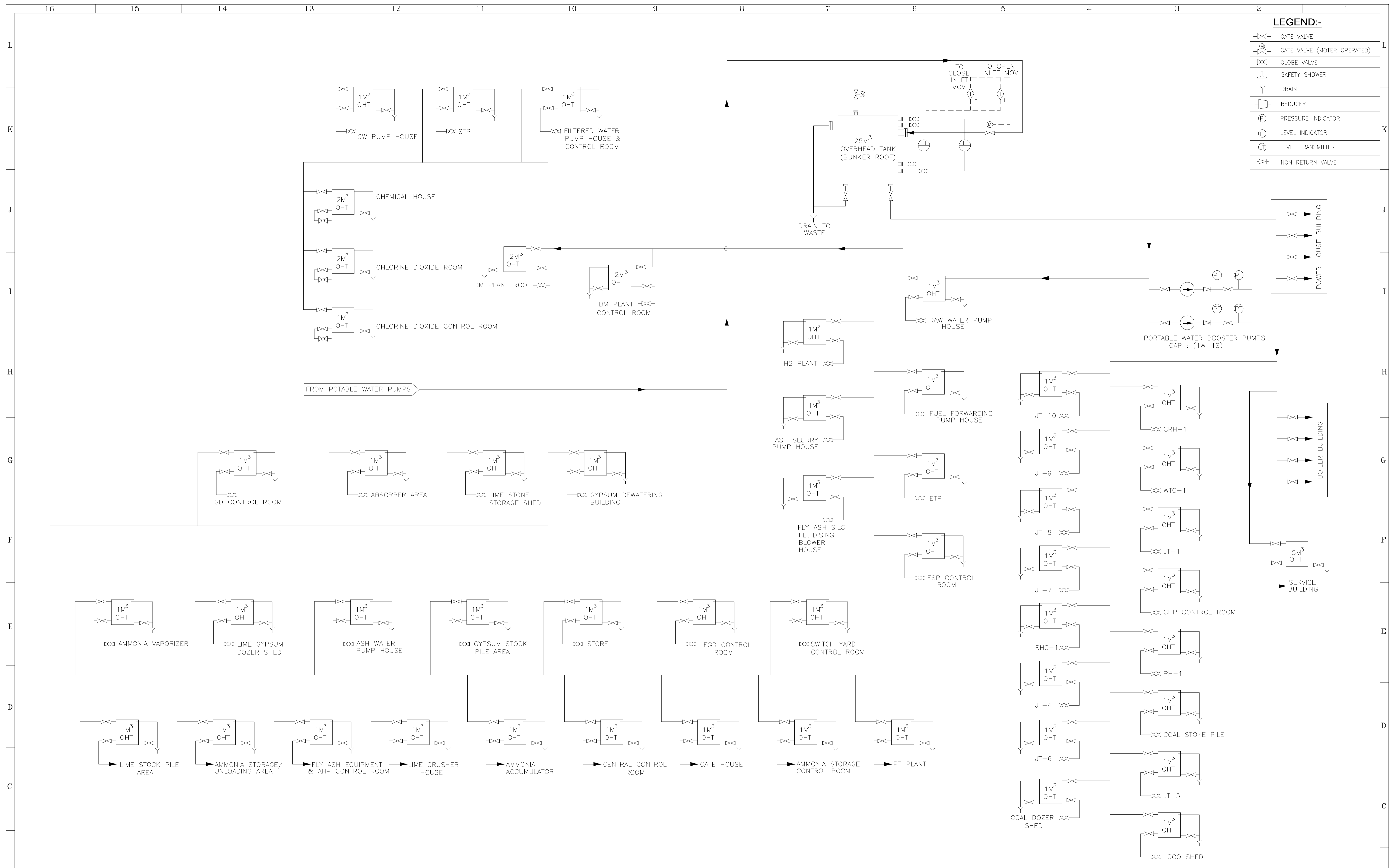
LEGEND:-

CW	CIRCULATING WATER
ACW	AUXILIARY COOLING WATER
[Symbol]	GLOBE VALVE
[Symbol]	BUTTERFLY VALVE
[Symbol]	BUTTERFLY VALVE MOTORIZED
[Symbol]	GATE VALVE
[Symbol]	GATE VALVE (NORMALLY CLOSED)
[Symbol]	DIFFERENTIAL PRESSURE GAUGE
[Symbol]	LEVEL TRANSMITTER
[Symbol]	PRESSURE GAUGE
[Symbol]	DIFFERENTIAL PRESSURE TRANSMITTER
[Symbol]	TEMPERATURE GAUGE
[Symbol]	TEMPERATURE ELEMENT
[Symbol]	RUBBER EXPANSION JOINT
[Symbol]	AIR RELEASE VALVE
[Symbol]	LIMITED SWITCH OPEN
[Symbol]	LIMITED SWITCH CLOSE
[Symbol]	FLOW TRANSMITTER
[Symbol]	PRESSURE TRANSMITTER

11	10	9	8	7	6	5	4	3	2	1	REFERENCE DRAWINGS.	NOTES	NOTICE	7								CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SHIV	DATE	26.09.2022
												DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.	THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.								CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED	EVA	DATE	26.09.2022	
																						PROJECT:	1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	CHECKED	H.SUNDAR	DATE	26.09.2022
																							TITLE :-	FLOW DIAGRAM - CW & ACW SYSTEM	SCALE	NTS	JOB. NO.
																						DWG. NO.	111-12-3300	REV.	O		



SR. No.	PARTY	DATE	REVISIONS	APPROVED	CIVIL	MECH.	ELEC.	C&I	H.O.D.		
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LEGEND:-

	GATE VALVE
	GATE VALVE (MOTER OPERATED)
	GLOBE VALVE
	SAFETY SHOWER
	DRAIN
	REDUCER
	PRESSURE INDICATOR
	LEVEL INDICATOR
	LEVEL TRANSMITTER
	NON RETURN VALVE

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PRINT DISTRIBUTION	

REFERENCE DRAWINGS.

NOTES

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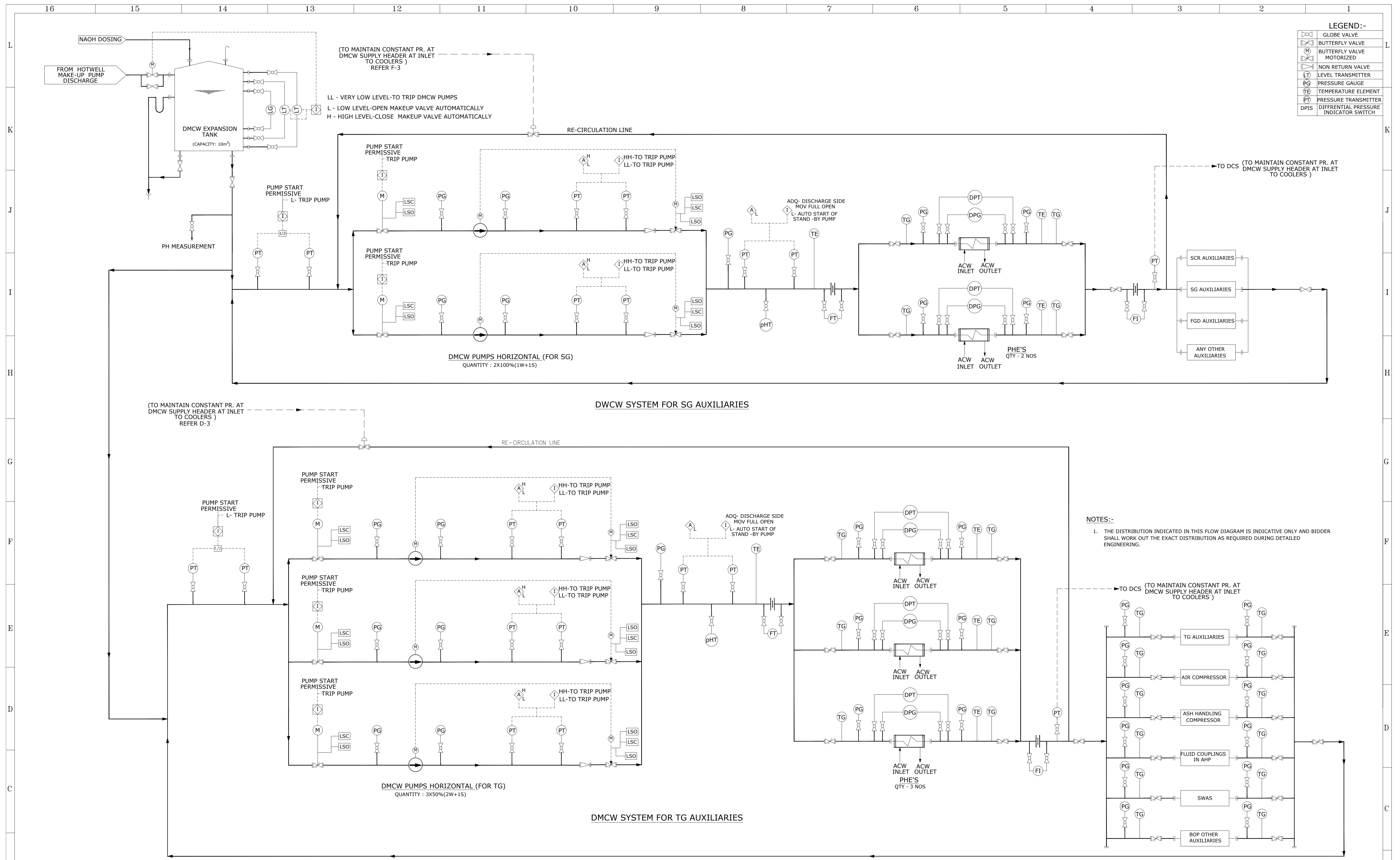
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1	REVISED AS PER COMMENTS	29.11.2022			
0	FOR TENDER PURPOSE ONLY	26.09.2022			
ZONE	MARK	PARTICULARS	DATE	CIVIL	MECH. ELEC. C&I H.O.D.

REVISIONS

APPROVED

CLIENT:		HARYANA POWER GENERATION CORPORATION LTD.
CONSULTANT:		DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA
PROJECT:	1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	
TITLE :-	FLOW DIAGRAM- PORTABLE WATER DISTRIBUTION SYSTEM	

	NAME	SIGN.	DATE
CAD/DRAWN	SHIV		26.09.2022
DESIGNED	EVA		26.09.2022
CHECKED	H.SUNDAR		26.09.2022
SCALE	NTS		
JOB. NO.	D-04041		
DWG. NO.	111-12-3307		
	REV.		
	1		



LEGEND:-

	GLOBE VALVE
	BUTTERFLY VALVE
	BUTTERFLY VALVE MOTORIZED
	NON RETURN VALVE
	LEVEL TRANSMITTER
	PRESSURE GAUGE
	TEMPERATURE ELEMENT
	PRESSURE TRANSMITTER
	DIFFERENTIAL PRESSURE INDICATOR SWITCH

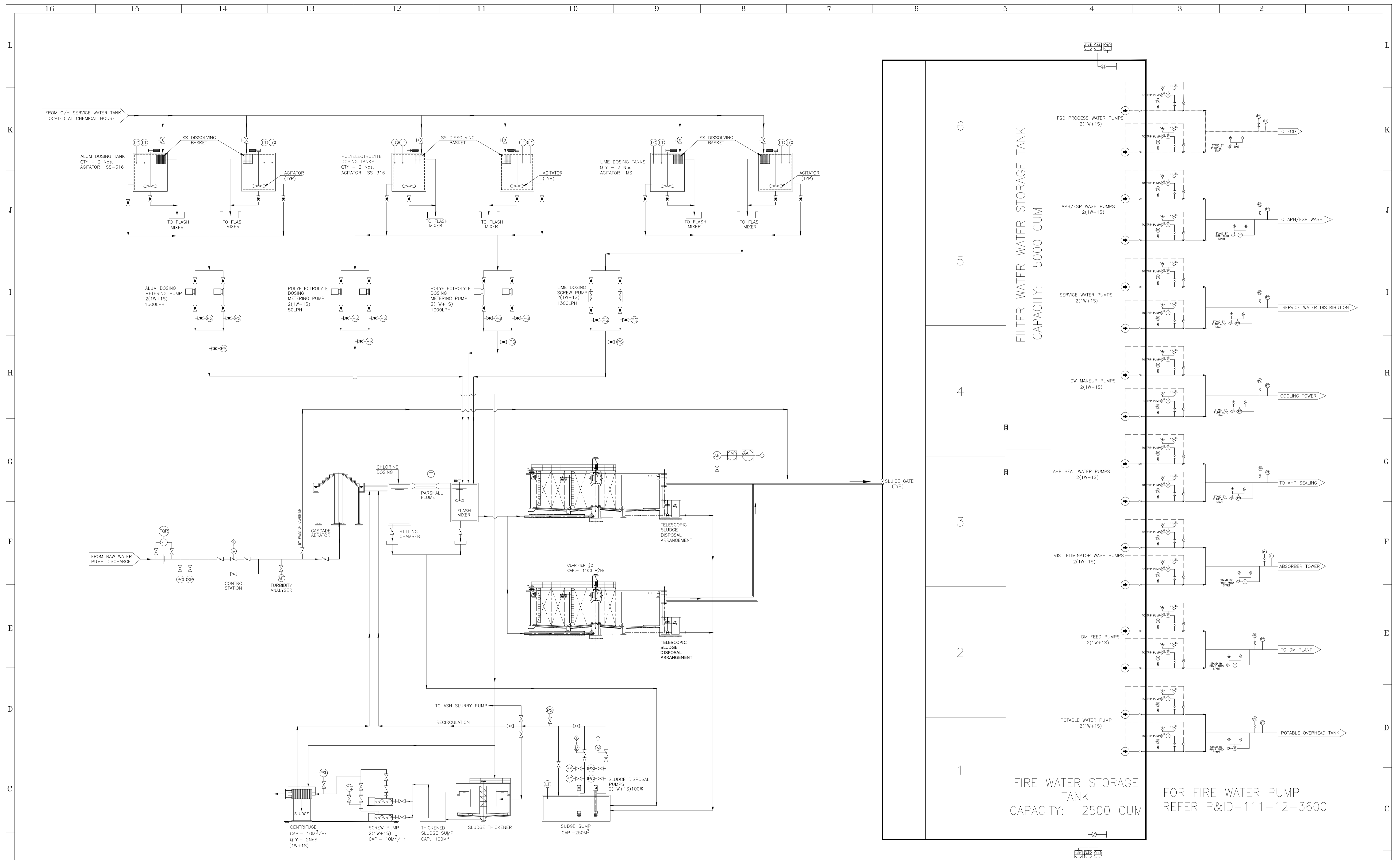
NOTES:-
 1. THE DISTRIBUTION INDICATED IN THIS FLOW DIAGRAM IS INDICATIVE ONLY AND BIDDER SHALL WORK OUT THE EXACT DISTRIBUTION AS REQUIRED DURING DETAILED ENGINEERING.

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REFERENCE DRAWINGS.	NOTES	NOTICE
	DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.	THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY, IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.

REVISIONS	APPROVED
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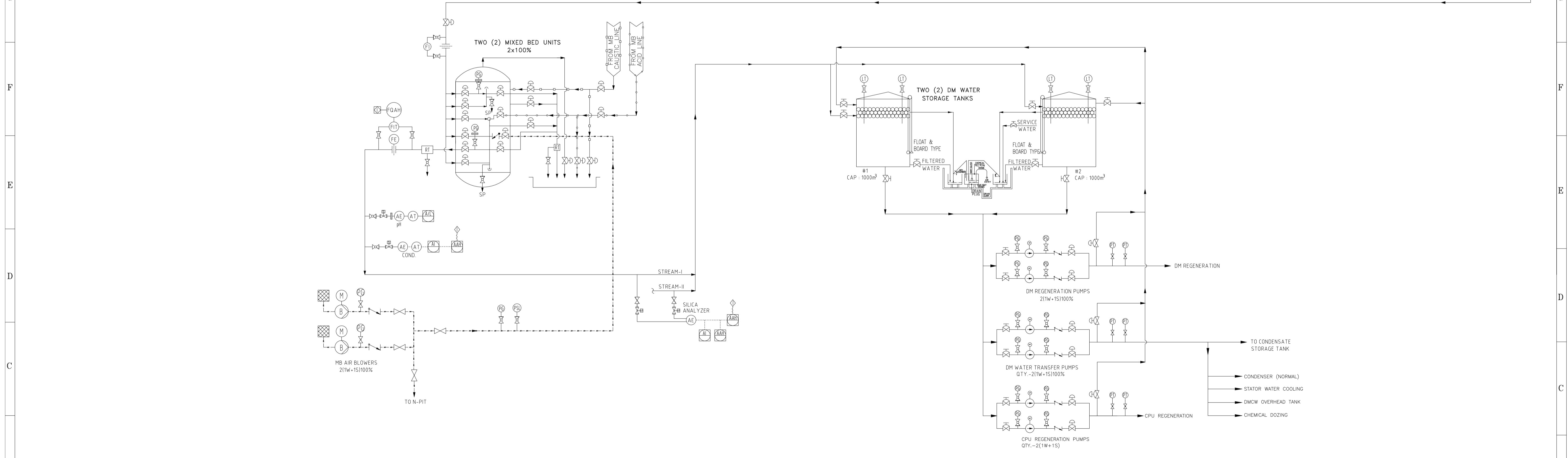
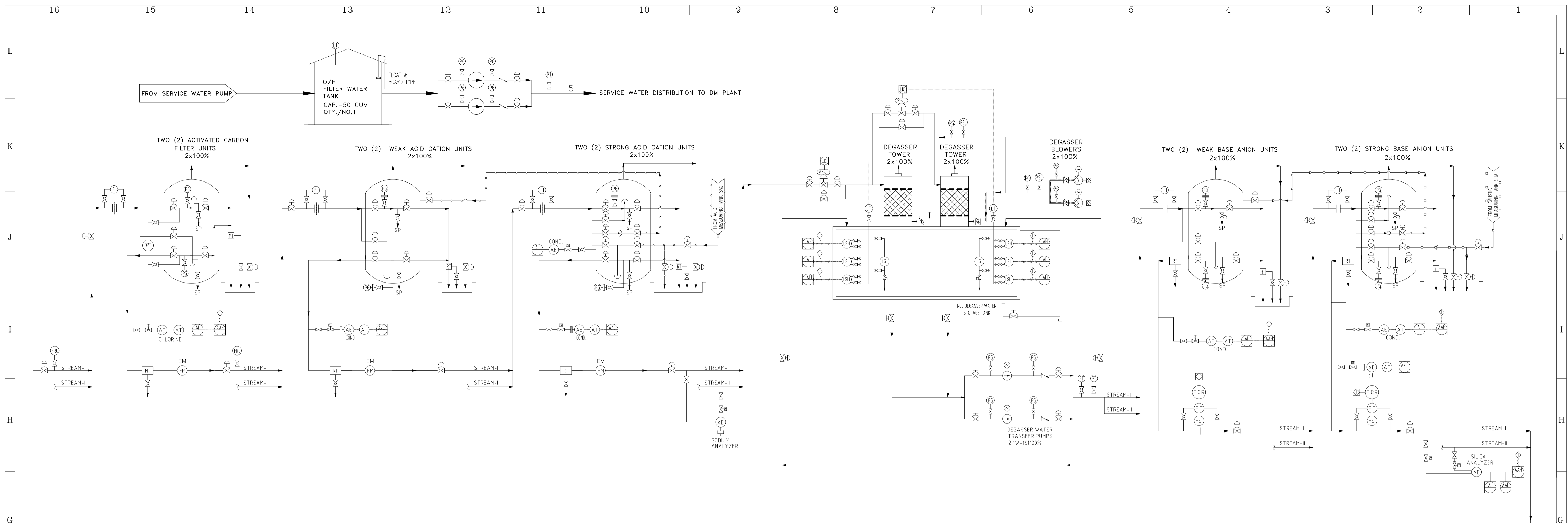
CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SHIV	SIGN.		DATE	26.09.2022
CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED	EVA			26.09.2022	
PROJECT:	1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	CHECKED	H.SUNDAR			26.09.2022	
TITLE :-	FLOW DIAGRAM - DWCW SYSTEM (TG AND SG AUXILIARIES)	SCALE	NTS				
JOB. NO.	D-04041						
DWG. NO.	111-12-3310	REV.					



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ZONE	MARK	PARTICULARS	DATE	CIVIL	MECH.	ELEC.	C&I	H.O.D.

CLIENT:	NAME	SIGN.	DATE
HARYANA POWER GENERATION CORPORATION LTD.	SHIV		06.10.2022
CONSULTANT:	DESIGNED	CHECKED	SCALE
DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	EVA	H.SUNDAR	NTS
PROJECT:	JOB. NO.	D-04041	
1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR			
TITLE :-	DWG. NO.	REV.	
FLOW DIAGRAM- FILTERED WATER SYSTEM	111-12-3500	2	



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REFERENCE DRAWINGS.	NOTES	NOTICE
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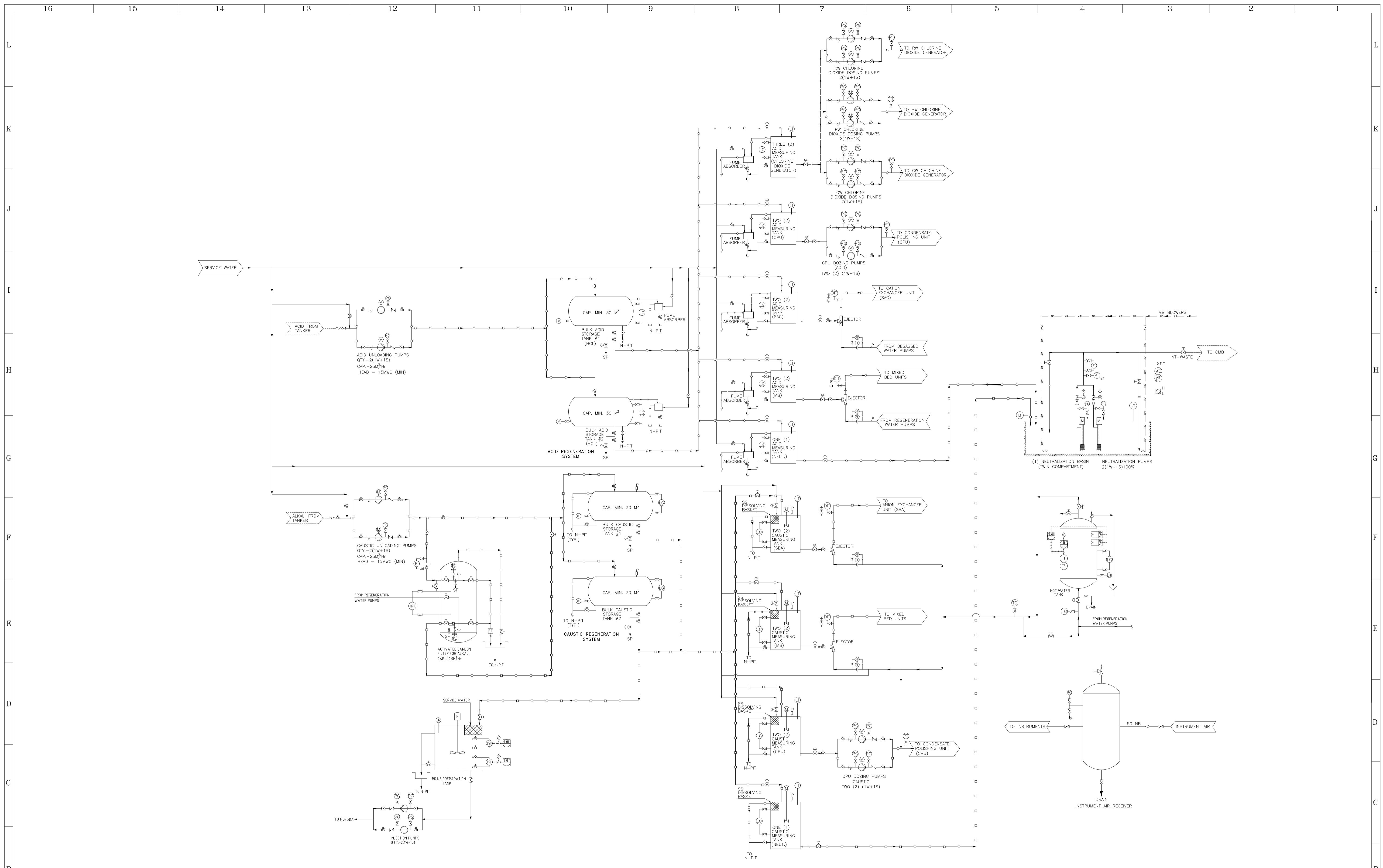
ZONE	MARK	PARTICULARS	DATE	CIVIL	MECH.	ELEC.	C&I	H.O.D.

CLIENT:	NAME	SIGN.	DATE
HARYANA POWER GENERATION CORPORATION LTD.	SHIV		26.09.2022

CONSULTANT:	DESIGNED	CHECKED	SCALE
DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	EVA	H.SUNDAR	NTS

PROJECT:	JOB. NO.
1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	D-04041

TITLE :-	DWG. NO.	REV.
FLOW DIAGRAM - DM PLANT	111-12-3501	1
	Sheet No. 1 OF 3	

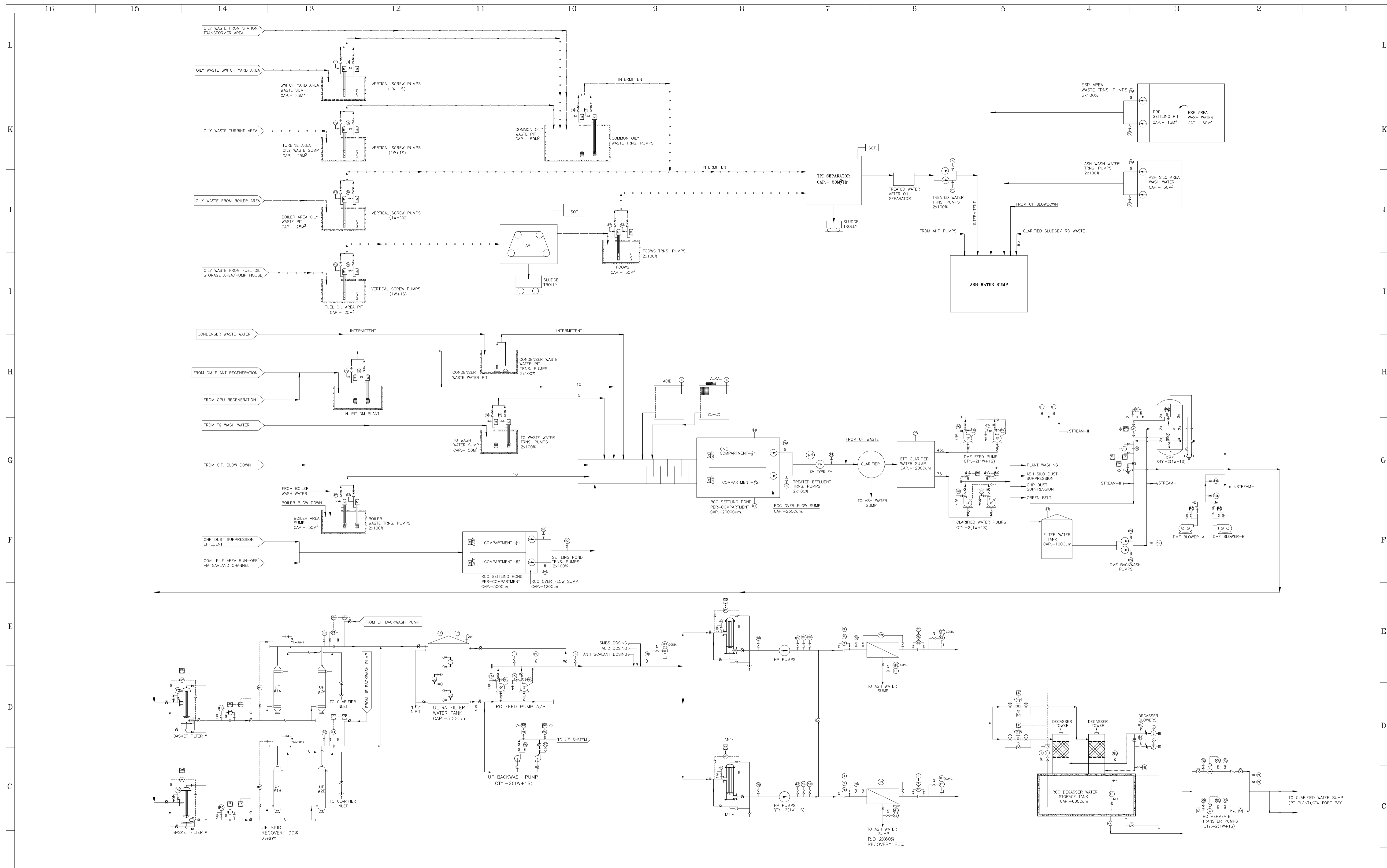


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REFERENCE DRAWINGS.	NOTES	NOTICE
	DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.	THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.

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DATE	15.11.2022
DATE	26.09.2022
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CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SHIV	SIGN.		DATE	26.09.2022
CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED	EVA			DATE	26.09.2022
PROJECT:	1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	CHECKED	H.SUNDAR			DATE	26.09.2022
TITLE :-	FLOW DIAGRAM - DM PLANT REGENERATION	SCALE	NTS				
JOB. NO.	D-04041						
DWG. NO.	111-12-3501	REV.					1
	Sheet No. 2 OF 3						



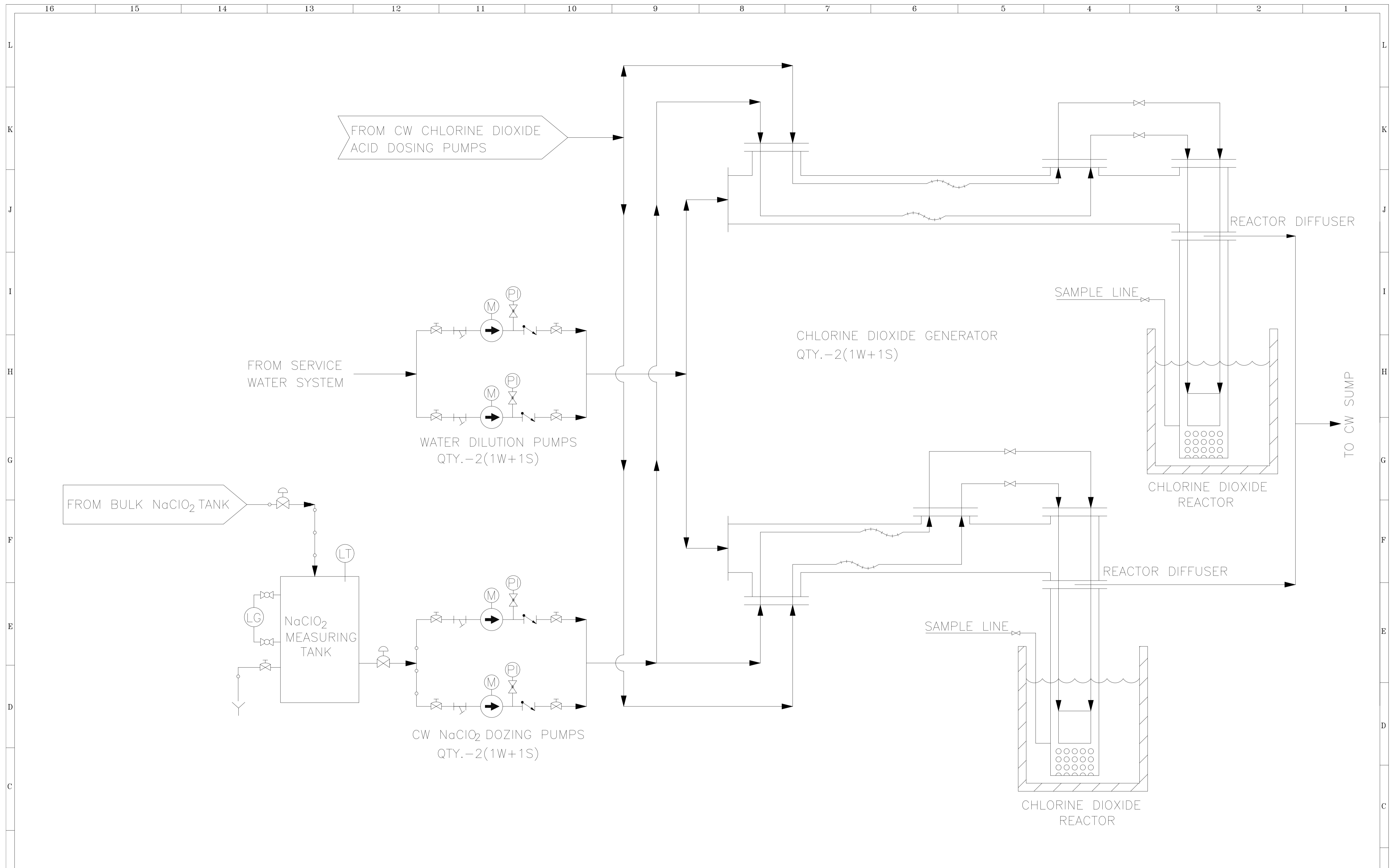
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DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.			THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.		

CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SHIV	SIGN.		DATE	11.10.2022
CONSULTANT	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED	EVA				11.10.2022
PROJECT:	1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	CHECKED	H.SUNDAR				11.10.2022
TITLE :-	FLOW DIAGRAM - EFFLUENT TREATMENT PLANT	SCALE	NTS				
		JOB. NO.	D-04041				
		DWG. NO.	111-12-3504				
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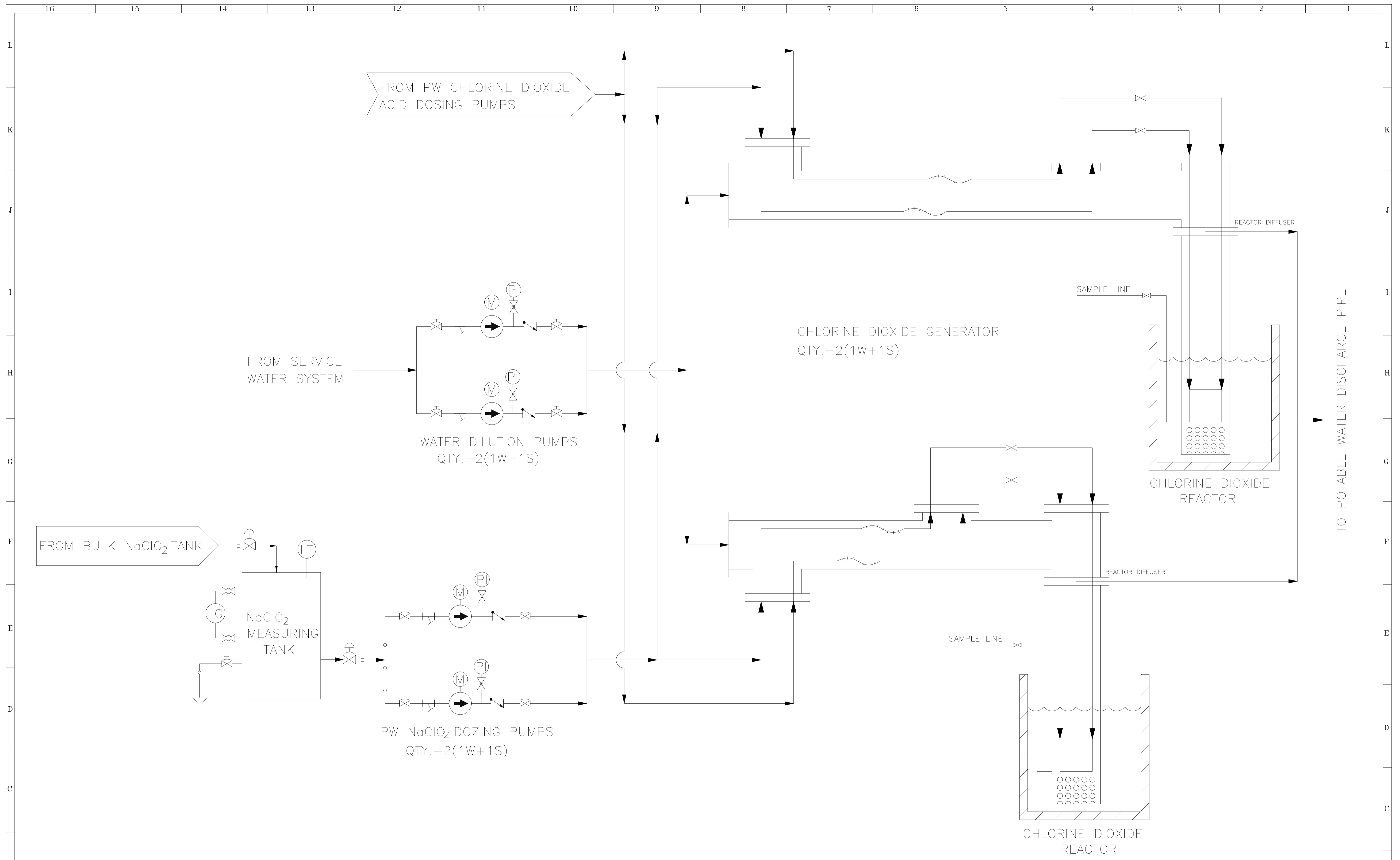


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REFERENCE DRAWINGS.		NOTES	NOTICE
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REVISIONS					APPROVED				

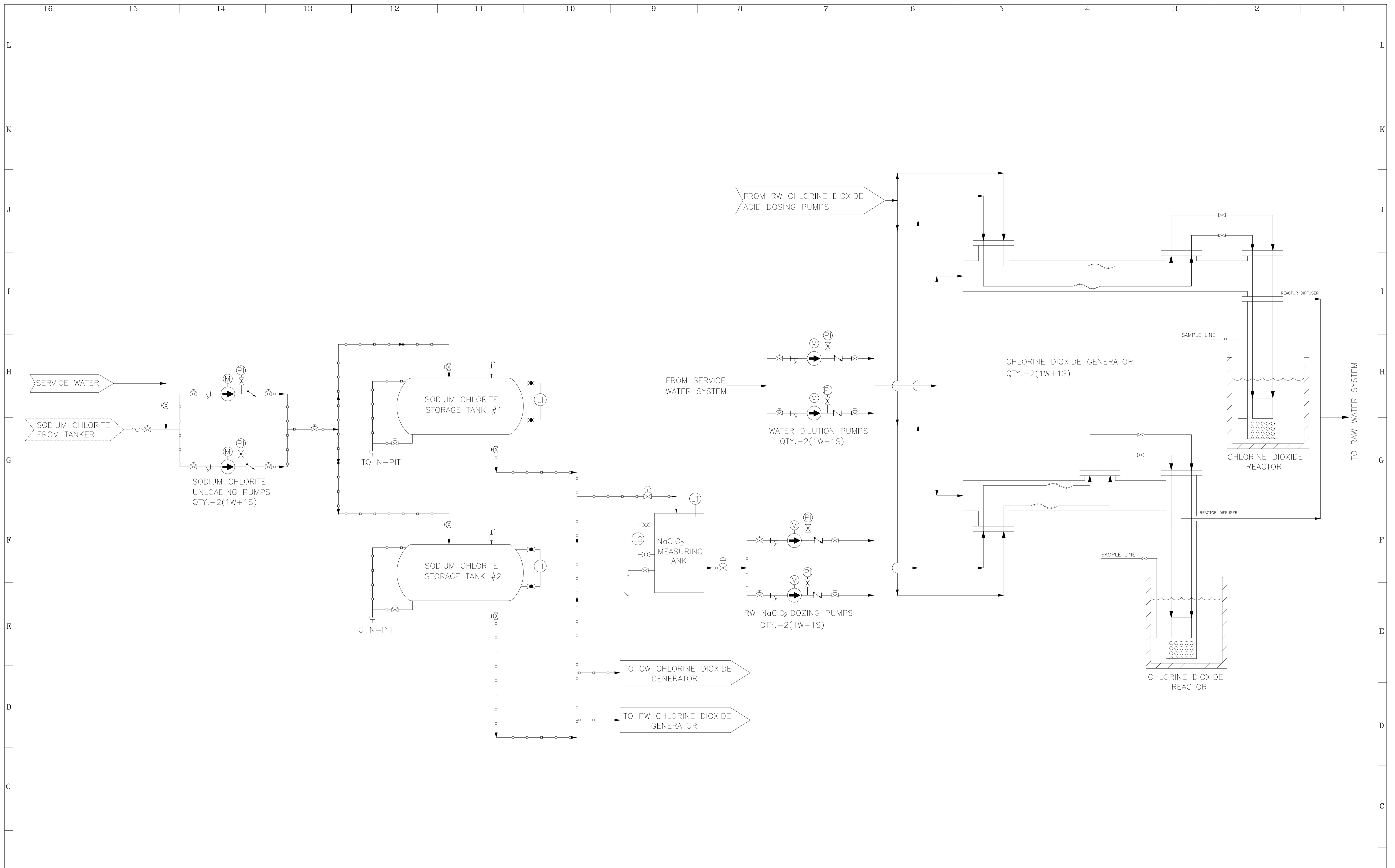
CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SHIV	SIGN.		DATE	06.10.2022
CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED	EVA			06.10.2022	
PROJECT:	1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	CHECKED	H.SUNDAR			06.10.2022	
TITLE :-	FLOW DIAGRAM - CW CHLORINE DIOXIDE GENERATOR	SCALE	NTS				
JOB. NO.	D-04041	DWG. NO.	111-12-3505	REV.			1



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REFERENCE DRAWINGS.		NOTES	NOTICE
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ZONE	MARK	PARTICULARS	DATE CIVIL MECH. ELEC. C&I H.O.D.
		REVISIONS	APPROVED

CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SHIV	SIGN.		DATE	06.10.2022
CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED	EVA			DATE	06.10.2022
PROJECT:	1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	CHECKED	H.SUNDAR			DATE	06.10.2022
TITLE :-	FLOW DIAGRAM - PW CHLORINE DIOXIDE GENERATOR	SCALE	NTS				
JOB. NO.	D-04041						
DWG. NO.	111-12-3506	REV.					1

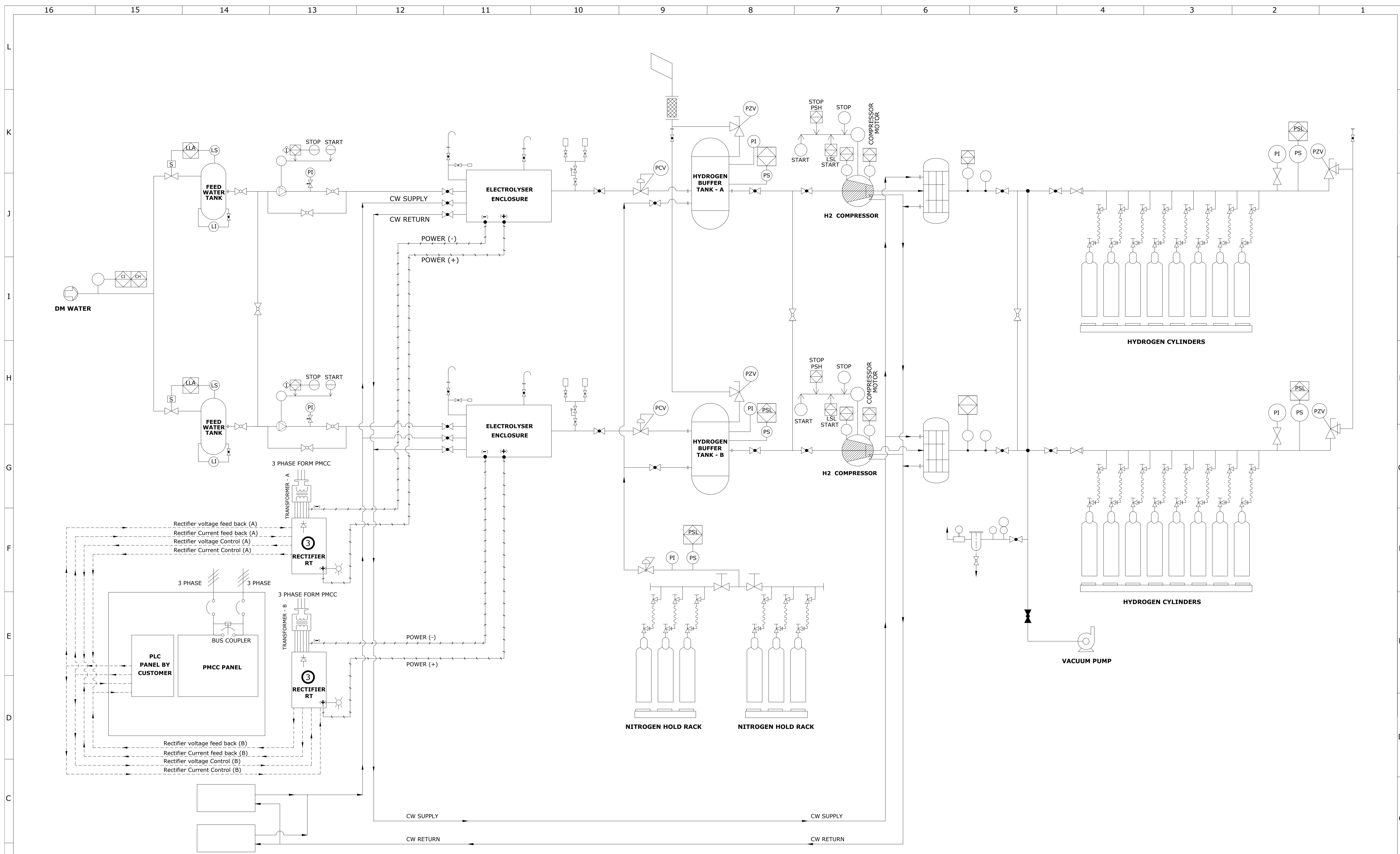


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REFERENCE DRAWINGS.		NOTES		NOTICE	
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ZONE	MARK	PARTICULARS	DATE	CIVIL	MECH.	ELEC.	C&I	H.O.D.
REVISIONS			APPROVED					

CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SHIV	SIGN.		DATE	06.10.2022
CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED	EVA				06.10.2022
PROJECT:	1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	CHECKED	H.SUNDAR				06.10.2022
TITLE :-	FLOW DIAGRAM - RW CHLORINE DIOXIDE GENERATOR	SCALE	NTS				
JOB. NO.	D-04041						
DWG. NO.	111-12-3507	REV.	1				

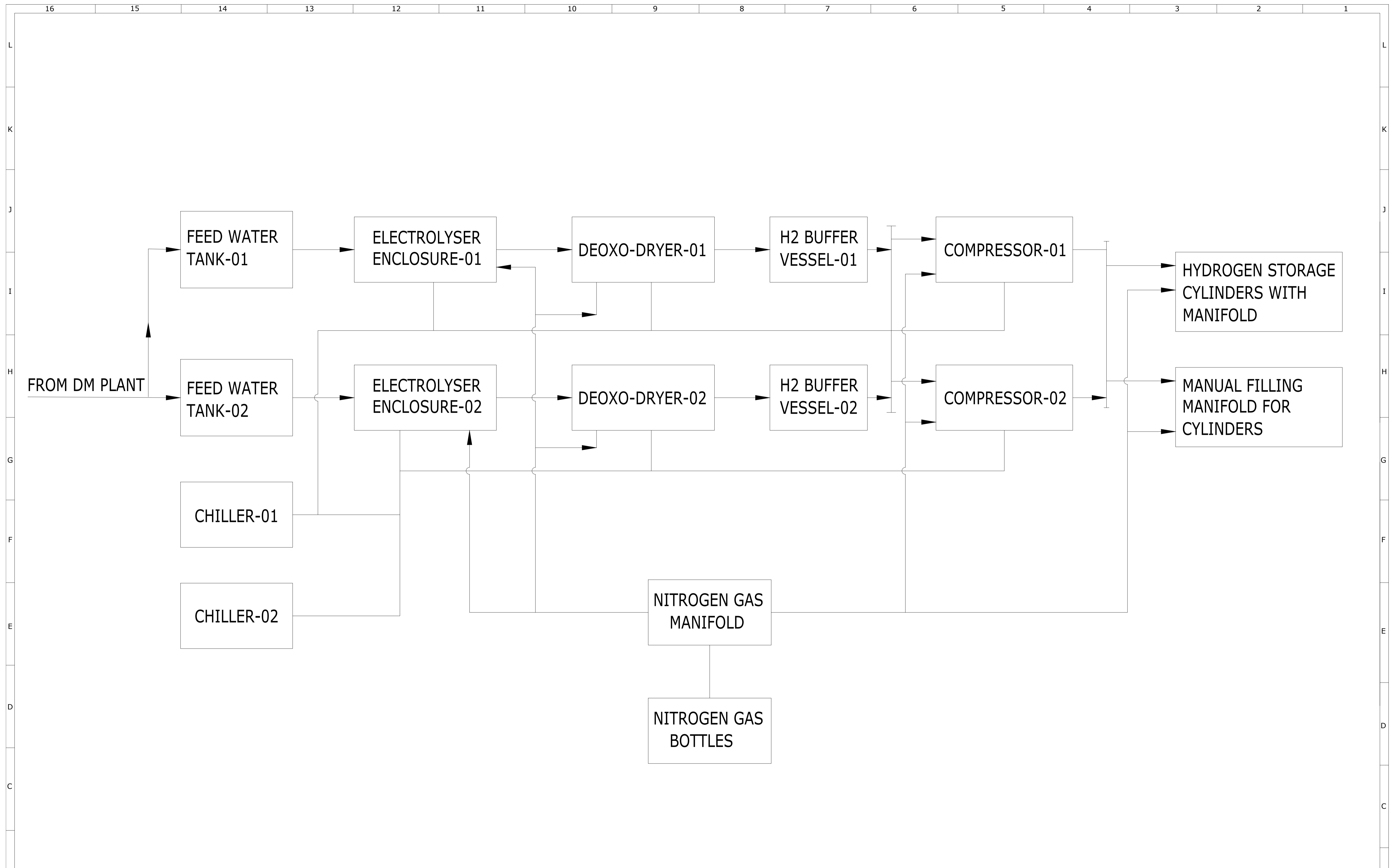


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REVISIONS	APPROVED

REFERENCE DRAWINGS.	NOTES	NOTICE	CLIENT:	NAME	SEGN.	DATE
	DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.	THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.	HARYANA POWER GENERATION CORPORATION LTD.	SHIV		26.09.2022
			DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	EVA		26.09.2022
			1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	H.SUNDAR		26.09.2022
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			DWG. NO. 111-12-3510			REV. O

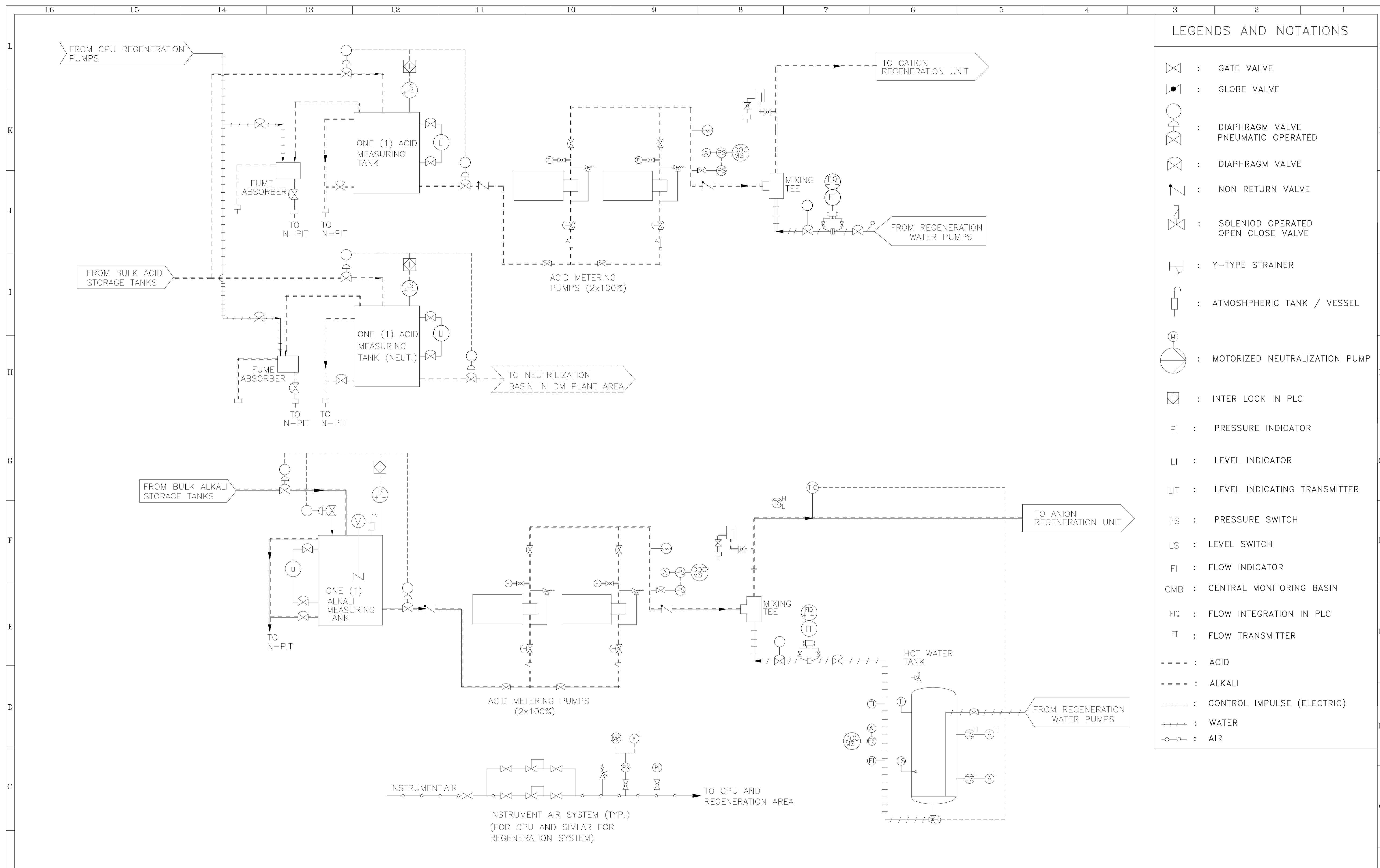


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REFERENCE DRAWINGS.		NOTES		NOTICE	
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CLIENT:		NAME		SIGN.		DATE	
HARYANA POWER GENERATION CORPORATION LTD.		SHIV				26.09.2022	
CONSULTANT:		DESEIN PRIVATE LIMITED		EVA		26.09.2022	
CONSULTANT:		CONSULTING ENGINEERS, NEW DELHI, INDIA		H.SUNDAR		26.09.2022	
PROJECT:		1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR		NTS			
TITLE :-		BLOCK DIAGRAM FOR		JOB. NO.		D-04041	
		HYDROGEN GENERATION SYSTEM		DWG. NO.		111-12-3510A	
				REV.		O	



LEGENDS AND NOTATIONS

- : GATE VALVE
- : GLOBE VALVE
- : DIAPHRAGM VALVE
PNEUMATIC OPERATED
- : DIAPHRAGM VALVE
- : NON RETURN VALVE
- : SOLENIOD OPERATED
OPEN CLOSE VALVE
- : Y-TYPE STRAINER
- : ATMOSPHERIC TANK / VESSEL
- : MOTORIZED NEUTRALIZATION PUMP
- : INTER LOCK IN PLC
- PI : PRESSURE INDICATOR
- LI : LEVEL INDICATOR
- LIT : LEVEL INDICATING TRANSMITTER
- PS : PRESSURE SWITCH
- LS : LEVEL SWITCH
- FI : FLOW INDICATOR
- CMB : CENTRAL MONITORING BASIN
- FIQ : FLOW INTEGRATION IN PLC
- FT : FLOW TRANSMITTER
- ==== : ACID
- : ALKALI
- - - - : CONTROL IMPULSE (ELECTRIC)
- : WATER
- o-o- : AIR

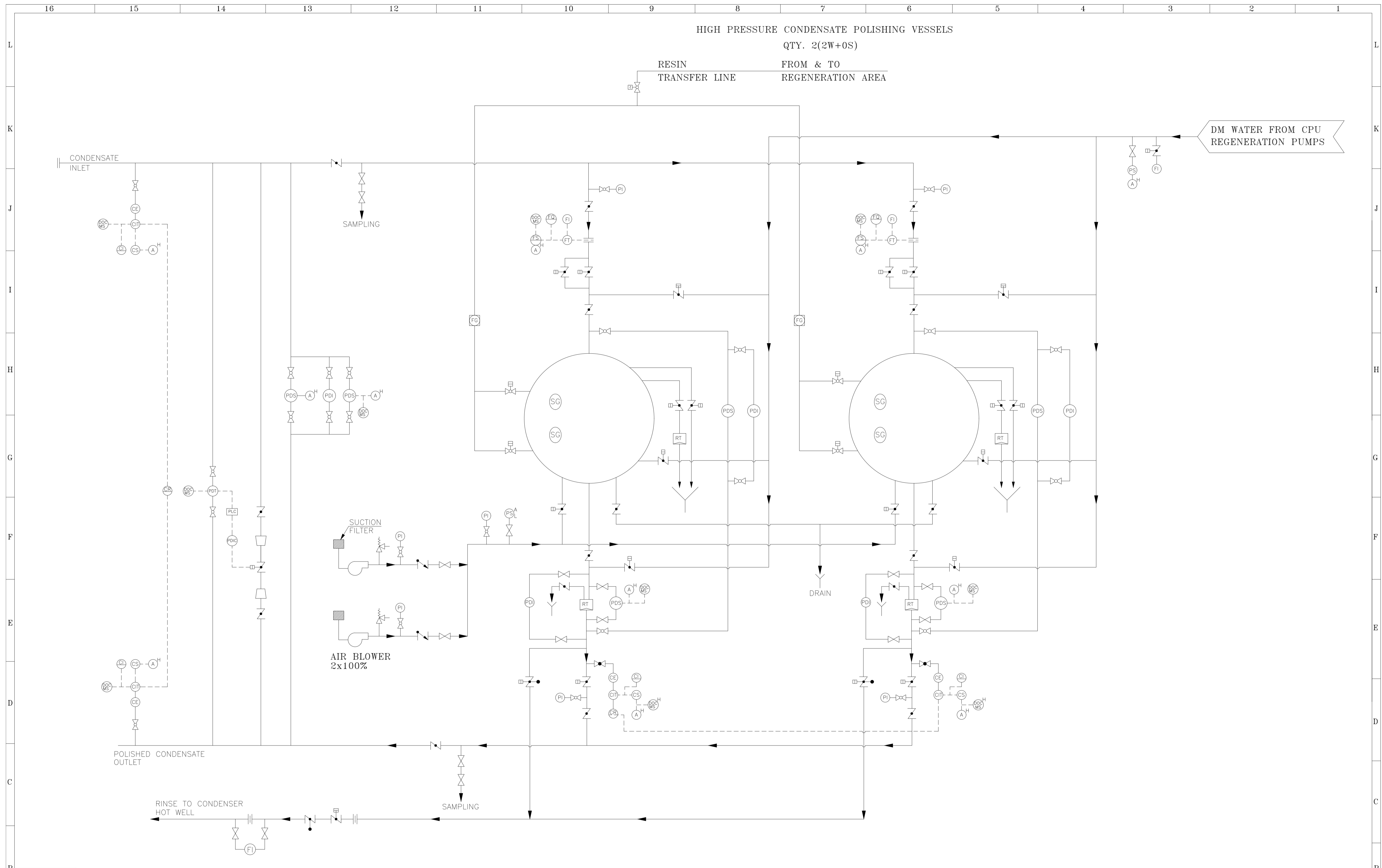
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REFERENCE DRAWINGS.	NOTES	NOTICE
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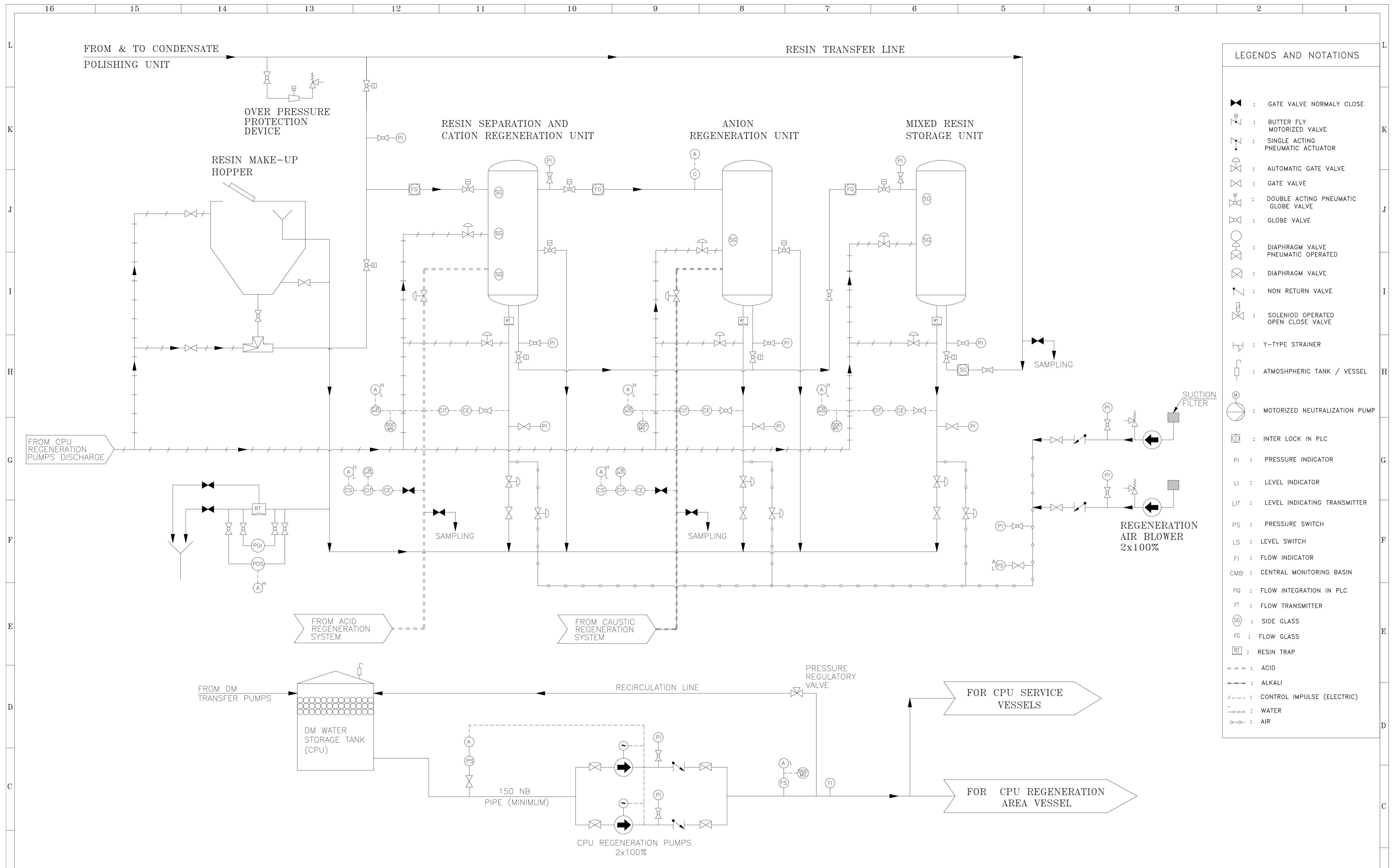
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CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.
CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA
PROJECT:	1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR
TITLE :-	FLOW DIAGRAM - CONDENSATE POLISHING UNIT (CPU)

NO.	NAME	SIGN.	DATE
CAD/DRAWN	SHIV		26.09.2022
DESIGNED	EVA		26.09.2022
CHECKED	H.SUNDAR		26.09.2022
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JOB. NO.	D-04041		
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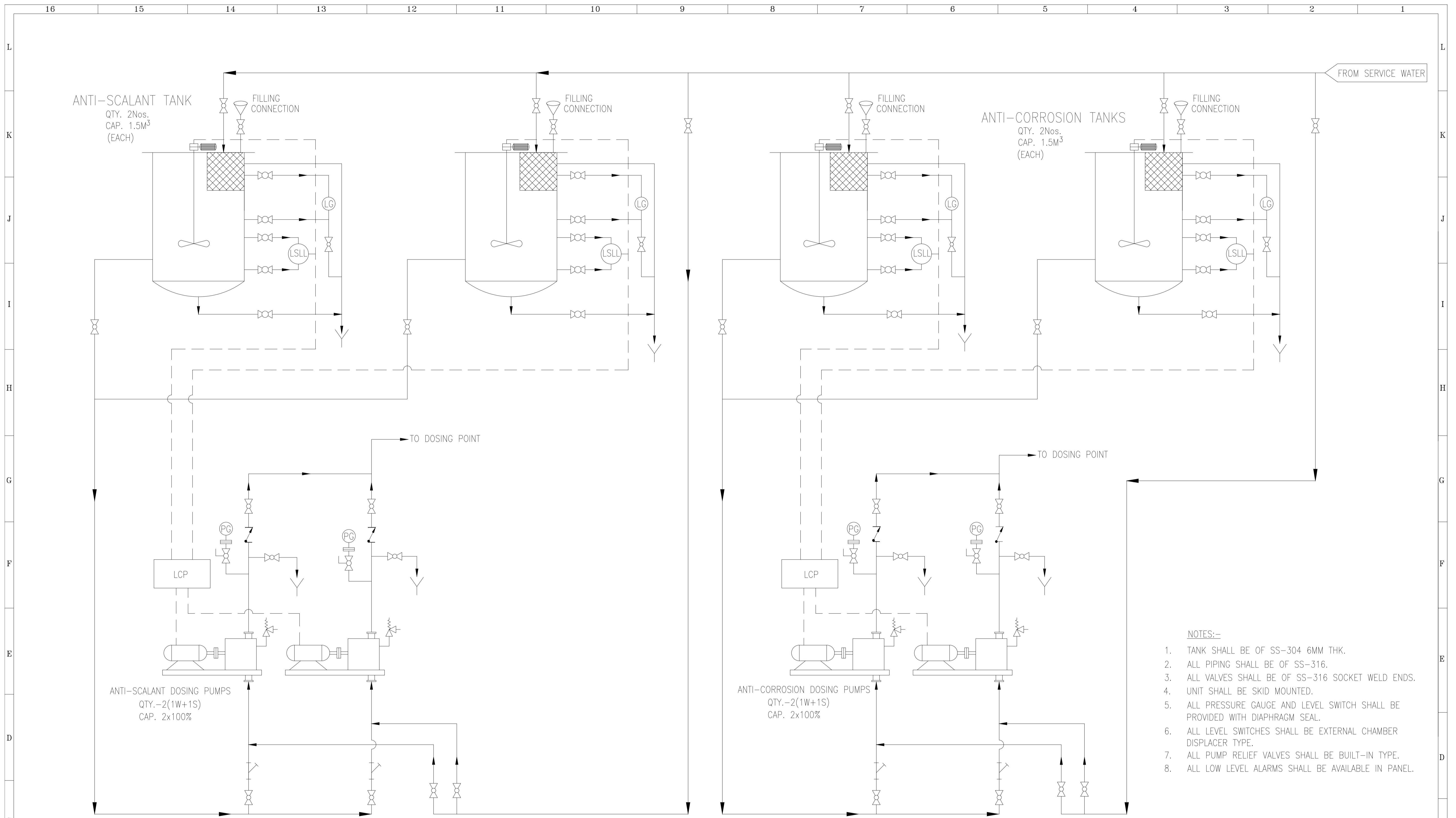


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												26.09.2022				CONSULTANT							
																DESEIN PRIVATE LIMITED							
																CONSULTING ENGINEERS, NEW DELHI, INDIA							
																PROJECT:							
																1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU							
																CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR							
																TITLE :-							
																FLOW DIAGRAM - CONDENSATE POLISHING UNIT (CPU)							
																JOB. NO. D-04041							
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																Sheet No. 1 of 3							



LEGENDS AND NOTATIONS		
	:	GATE VALVE NORMALLY CLOSE
	:	BUTTER FLY MOTORIZED VALVE
	:	SINGLE ACTING PNEUMATIC ACTUATOR
	:	AUTOMATIC GATE VALVE
	:	GATE VALVE
	:	DOUBLE ACTING PNEUMATIC GLOBE VALVE
	:	GLOBE VALVE
	:	DIAPHRAGM VALVE PNEUMATIC OPERATED
	:	DIAPHRAGM VALVE
	:	NON RETURN VALVE
	:	SOLENIOD OPERATED OPEN CLOSE VALVE
	:	Y-TYPE STRAINER
	:	ATMOSHPHERIC TANK / VESSEL
	:	MOTORIZED NEUTRALIZATION PUMP
	:	INTER LOCK IN PLC
PI	:	PRESSURE INDICATOR
LI	:	LEVEL INDICATOR
LIT	:	LEVEL INDICATING TRANSMITTER
PS	:	PRESSURE SWITCH
LS	:	LEVEL SWITCH
FI	:	FLOW INDICATOR
CMB	:	CENTRAL MONITORING BASIN
FIQ	:	FLOW INTEGRATION IN PLC
FT	:	FLOW TRANSMITTER
SG	:	SIDE GLASS
FG	:	FLOW GLASS
RT	:	RESIN TRAP
===	:	ACID
---	:	ALKALI
---	:	CONTROL IMPULSE (ELECTRIC)
---	:	WATER
---	:	AIR

REFERENCE DRAWINGS.		NOTES		NOTICE		REVISIONS		APPROVED		CLIENT:		NAME		SIGN.		DATE			
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DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.										THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.									
HARYANA POWER GENERATION CORPORATION LTD.										DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA									
1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR										FLOW DIAGRAM - CONDENSATE POLISHING UNIT (CPU)									
JOB. NO. D-04041										DWG. NO. 111-12-3512									
Sheet No. 2 of 3										REV. O									

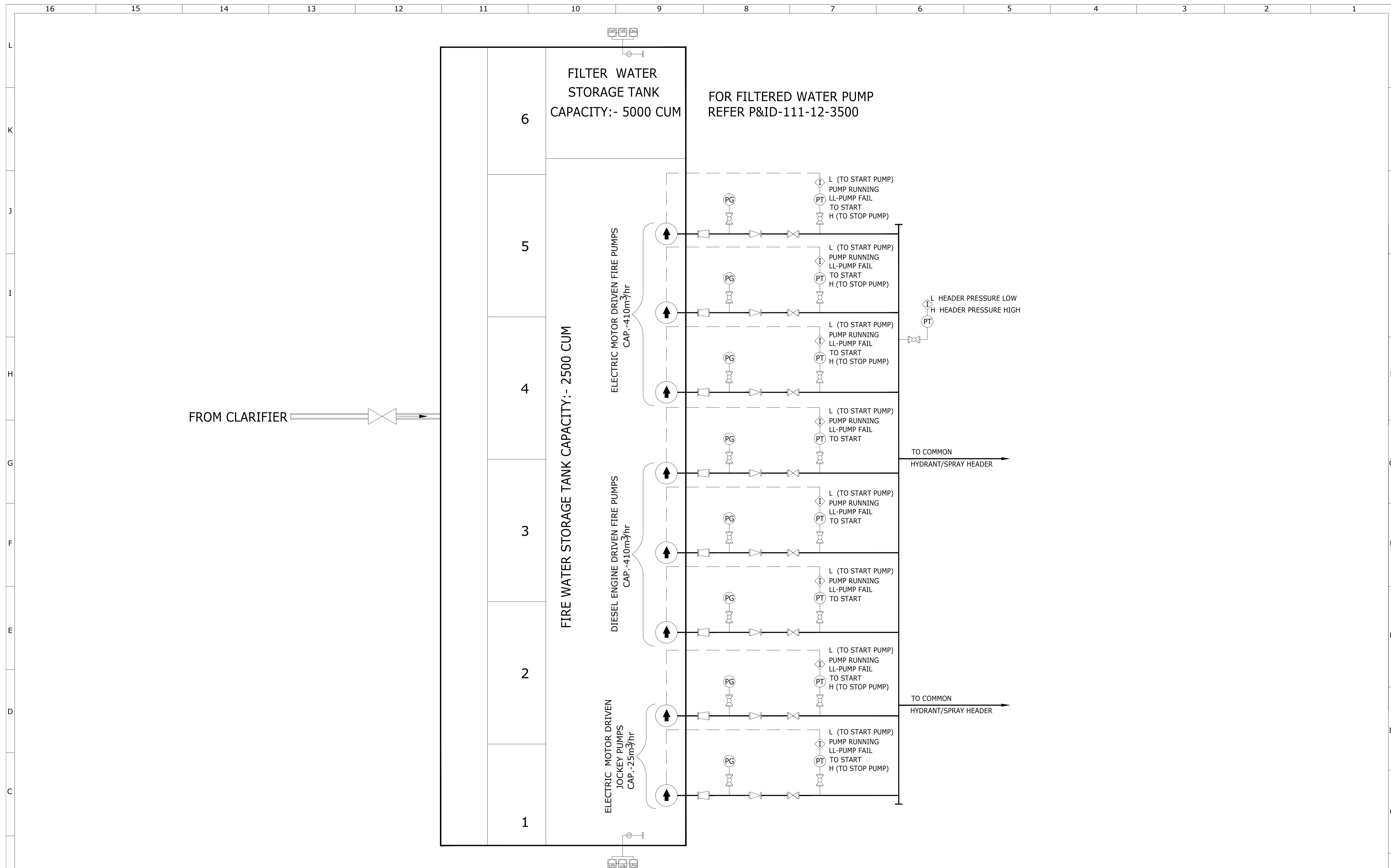


- NOTES:-
1. TANK SHALL BE OF SS-304 6MM THK.
 2. ALL PIPING SHALL BE OF SS-316.
 3. ALL VALVES SHALL BE OF SS-316 SOCKET WELD ENDS.
 4. UNIT SHALL BE SKID MOUNTED.
 5. ALL PRESSURE GAUGE AND LEVEL SWITCH SHALL BE PROVIDED WITH DIAPHRAGM SEAL.
 6. ALL LEVEL SWITCHES SHALL BE EXTERNAL CHAMBER DISPLACER TYPE.
 7. ALL PUMP RELIEF VALVES SHALL BE BUILT-IN TYPE.
 8. ALL LOW LEVEL ALARMS SHALL BE AVAILABLE IN PANEL.

Sr. No.	Particulars	Date	Civil	Mech.	Elec.	C&I	H.O.D.
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SR. No. PARTY		DATE		CIVIL		MECH. ELEC. C&I H.O.D.	
PRINT DISTRIBUTION							

ZONE	MARK	PARTICULARS	DATE	CIVIL	MECH.	ELEC.	C&I	H.O.D.
			11.11.2022					

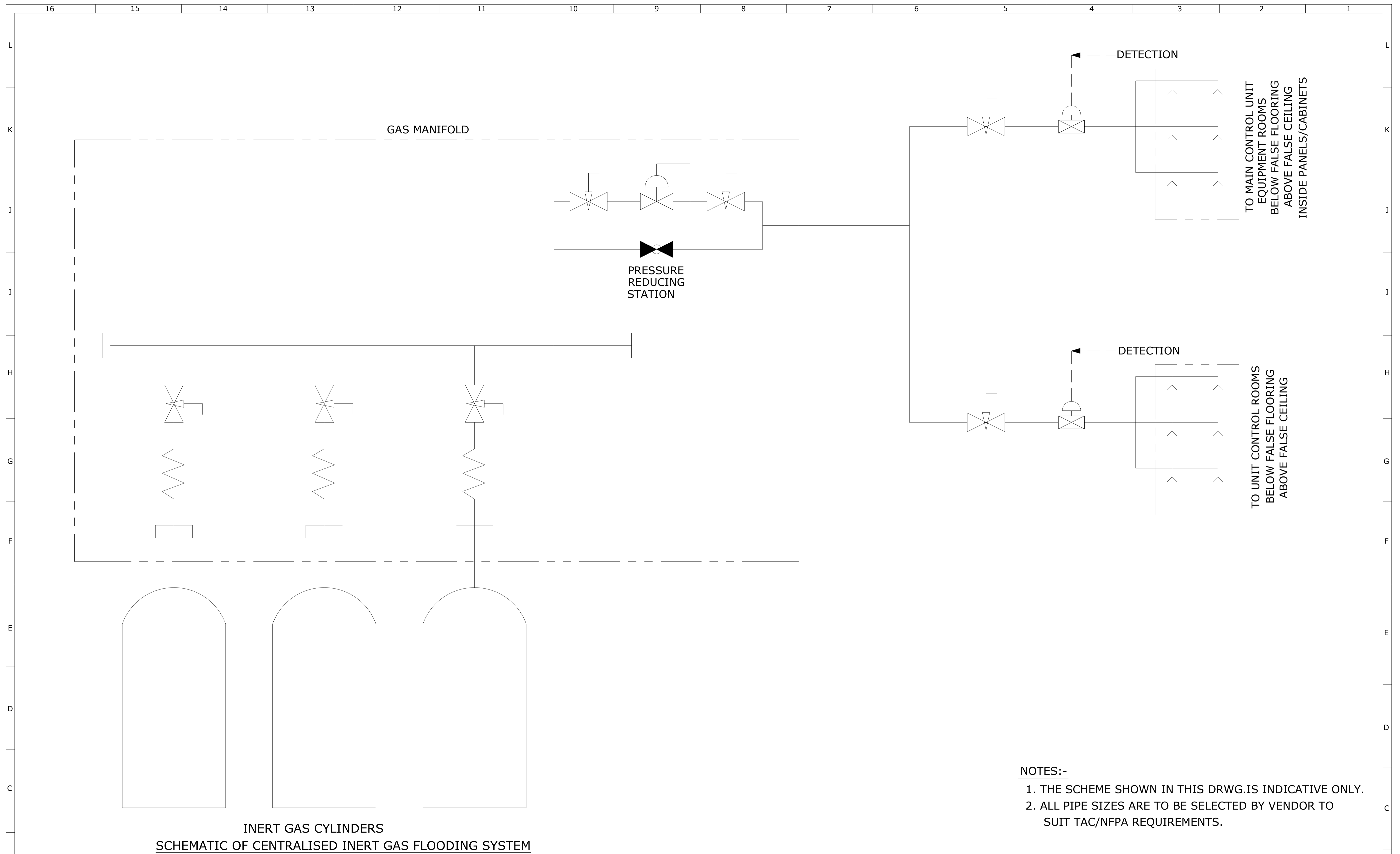
CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SHIV	SIGN.		DATE	11.11.2022
CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED	EVA	SIGN.		DATE	11.11.2022
PROJECT:	1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	CHECKED	H.SUNDAR	SIGN.		DATE	11.11.2022
TITLE :-	FLOW DIAGRAM -CW CHEMICAL DOSING SYSTEM	SCALE	NTS	SIGN.		DATE	
JOB. NO.	D-04041	DWG. NO.	111-12-3513	REV.			O
Sheet No. 1 of 2							



Sr. No.	Particulars	Date	CIVIL	MECH.	ELEC.	C&I	H.O.D.
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1	REVISED AS COMMENTS	24.11.2022					
0	FOR TENDER PURPOSE ONLY	26.09.2022					

ZONE	MARK	PARTICULARS	DATE	CIVIL	MECH.	ELEC.	C&I	H.O.D.

CLIENT:	NAME	SEGN.	DATE
HARYANA POWER GENERATION CORPORATION LTD.	SHIV		26.09.2022
CONSULTANT:	DESIGNED	CHECKED	SCALE
DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	EVA	H.SUNDAR	NTS
PROJECT:	1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR		
TITLE :-	FLOW DIAGRAM - FIRE WATER PUMP HOUSE		
JOB. NO.	D-04041		
DWG. NO.	111-12-3600		REV.
			1



NOTES:-

1. THE SCHEME SHOWN IN THIS DRWG.IS INDICATIVE ONLY.
2. ALL PIPE SIZES ARE TO BE SELECTED BY VENDOR TO SUIT TAC/NFPA REQUIREMENTS.

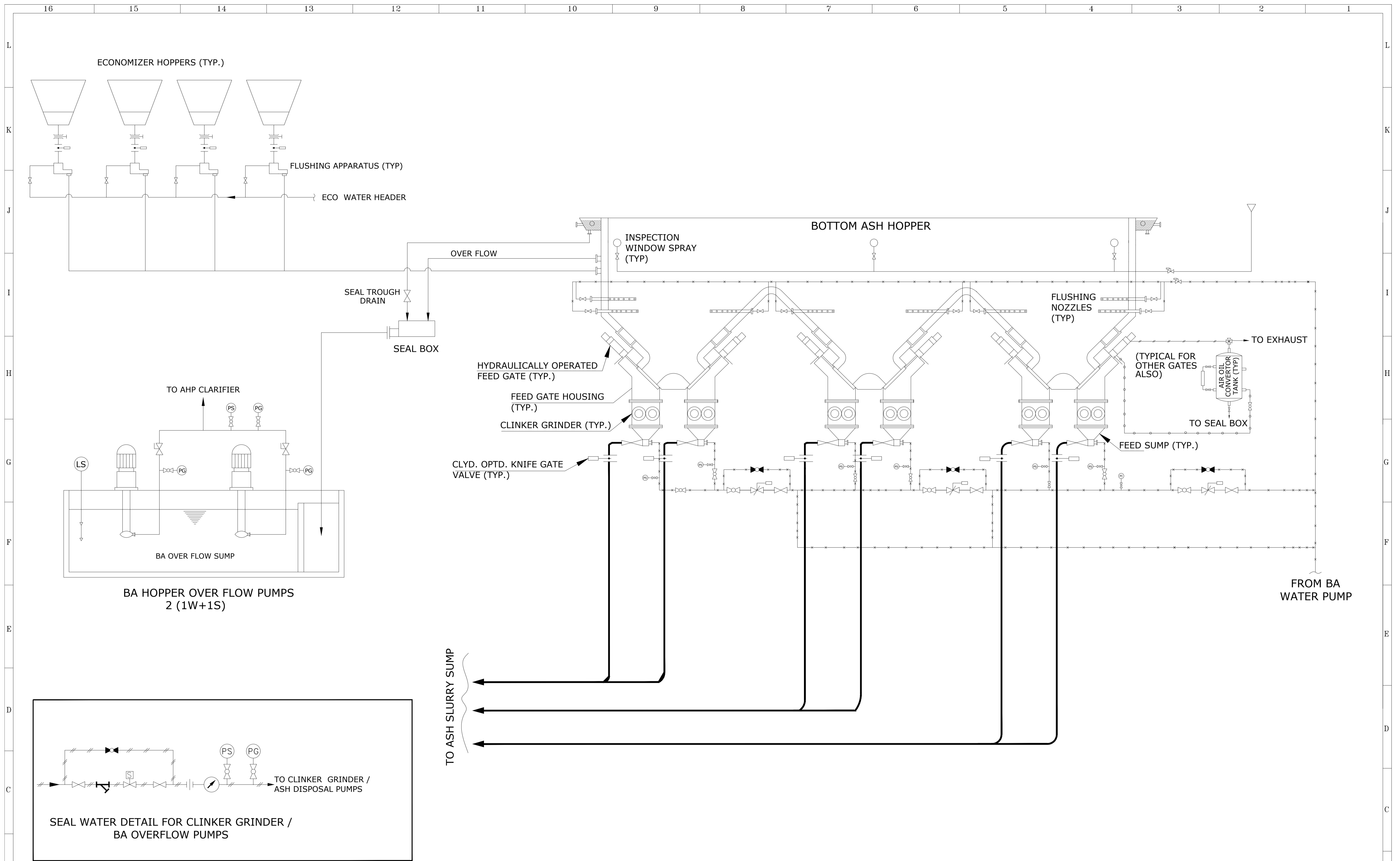
Sr. No.	PARTY	PRINT DISTRIBUTION
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REFERENCE DRAWINGS.	NOTES	NOTICE
	DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILIMETRES UNLESS NOTED OTHERWISE.	THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.

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REVISIONS	APPROVED

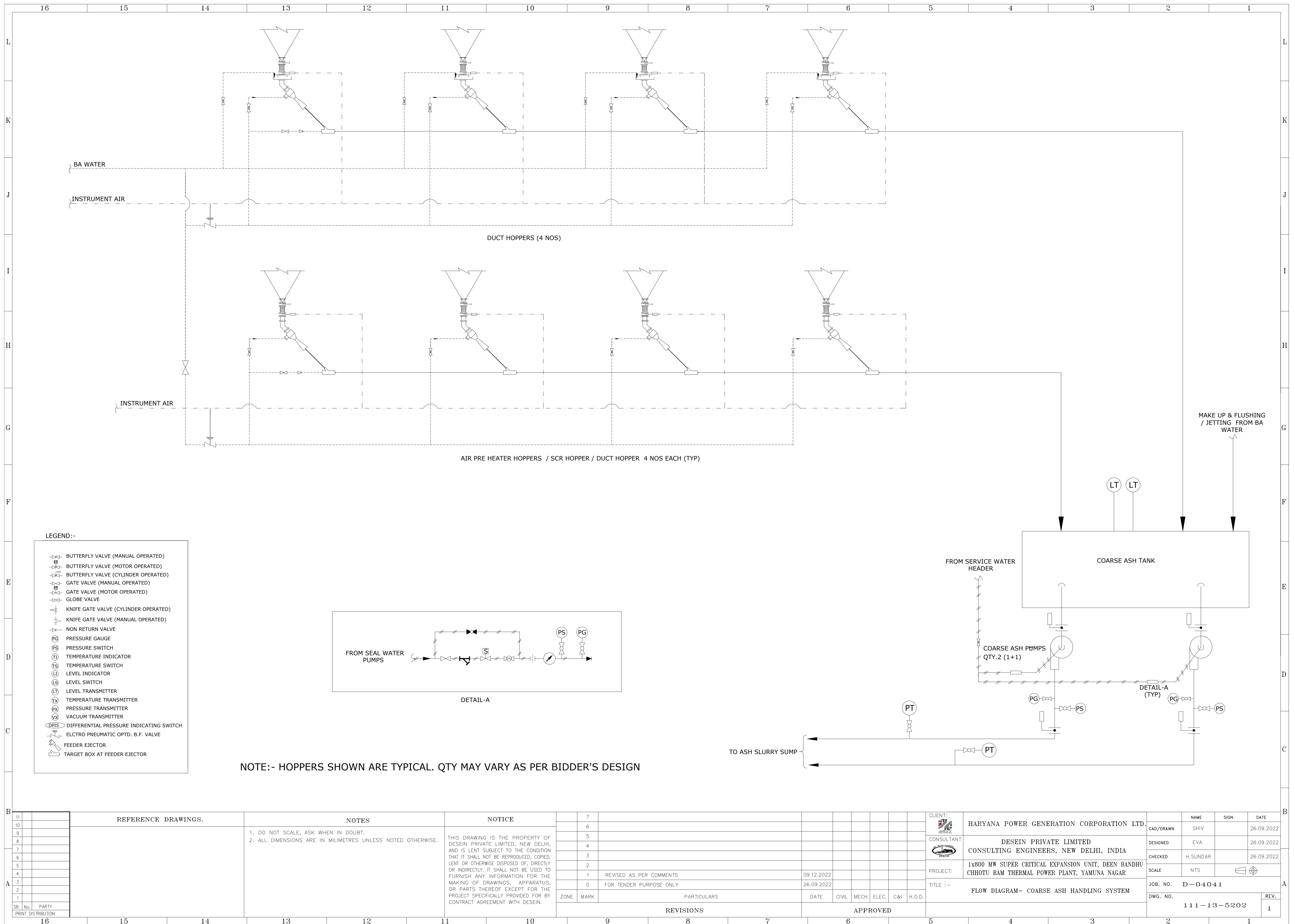
CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SHIV	SEGN.		DATE	26.09.2022
CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED	EVA				26.09.2022
PROJECT:	1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	CHECKED	H.SUNDAR				26.09.2022
TITLE :-	FLOW DIAGRAM - CENTRALIZED INERT GAS FLOODING SYSTEM	SCALE	NTS				
JOB. NO.	D-04041	DWG. NO.	111-12-3603	REV.			O



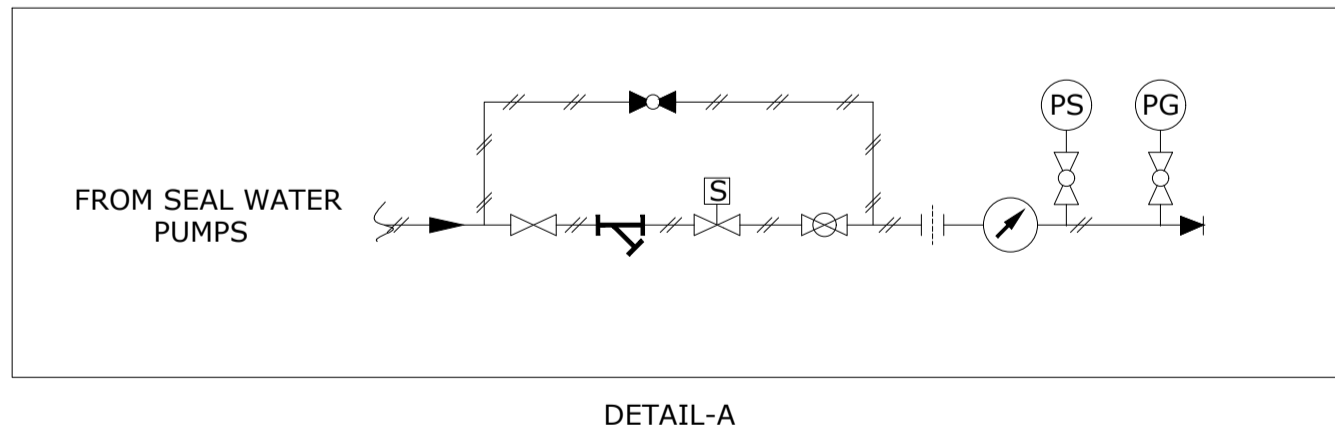
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CLIENT:	NAME	SIGN.	DATE
HARYANA POWER GENERATION CORPORATION LTD.	SHIV		26.09.2022
CONSULTANT:	DESIGNED	CHECKED	SCALE
DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	EVA	H.SUNDAR	NTS
PROJECT:	JOB. NO.	DWG. NO.	REV.
1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	D-04041	111-13-5201	O



- LEGEND:-**
- BUTTERFLY VALVE (MANUAL OPERATED)
 - BUTTERFLY VALVE (MOTOR OPERATED)
 - BUTTERFLY VALVE (CYLINDER OPERATED)
 - GATE VALVE (MANUAL OPERATED)
 - GATE VALVE (MOTOR OPERATED)
 - GLOBE VALVE
 - KNIFE GATE VALVE (CYLINDER OPERATED)
 - KNIFE GATE VALVE (MANUAL OPERATED)
 - NON RETURN VALVE
 - PRESSURE GAUGE
 - PRESSURE SWITCH
 - TEMPERATURE INDICATOR
 - TEMPERATURE SWITCH
 - LEVEL INDICATOR
 - LEVEL SWITCH
 - LEVEL TRANSMITTER
 - TEMPERATURE TRANSMITTER
 - PRESSURE TRANSMITTER
 - VACUUM TRANSMITTER
 - DIFFERENTIAL PRESSURE INDICATING SWITCH
 - ELECTRO PNEUMATIC OPTD. B.F. VALVE
 - FEEDER EJECTOR
 - TARGET BOX AT FEEDER EJECTOR



NOTE:- HOPPERS SHOWN ARE TYPICAL. QTY MAY VARY AS PER BIDDER'S DESIGN

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REFERENCE DRAWINGS.	NOTES	NOTICE
	1. DO NOT SCALE, ASK WHEN IN DOUBT. 2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.	THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.

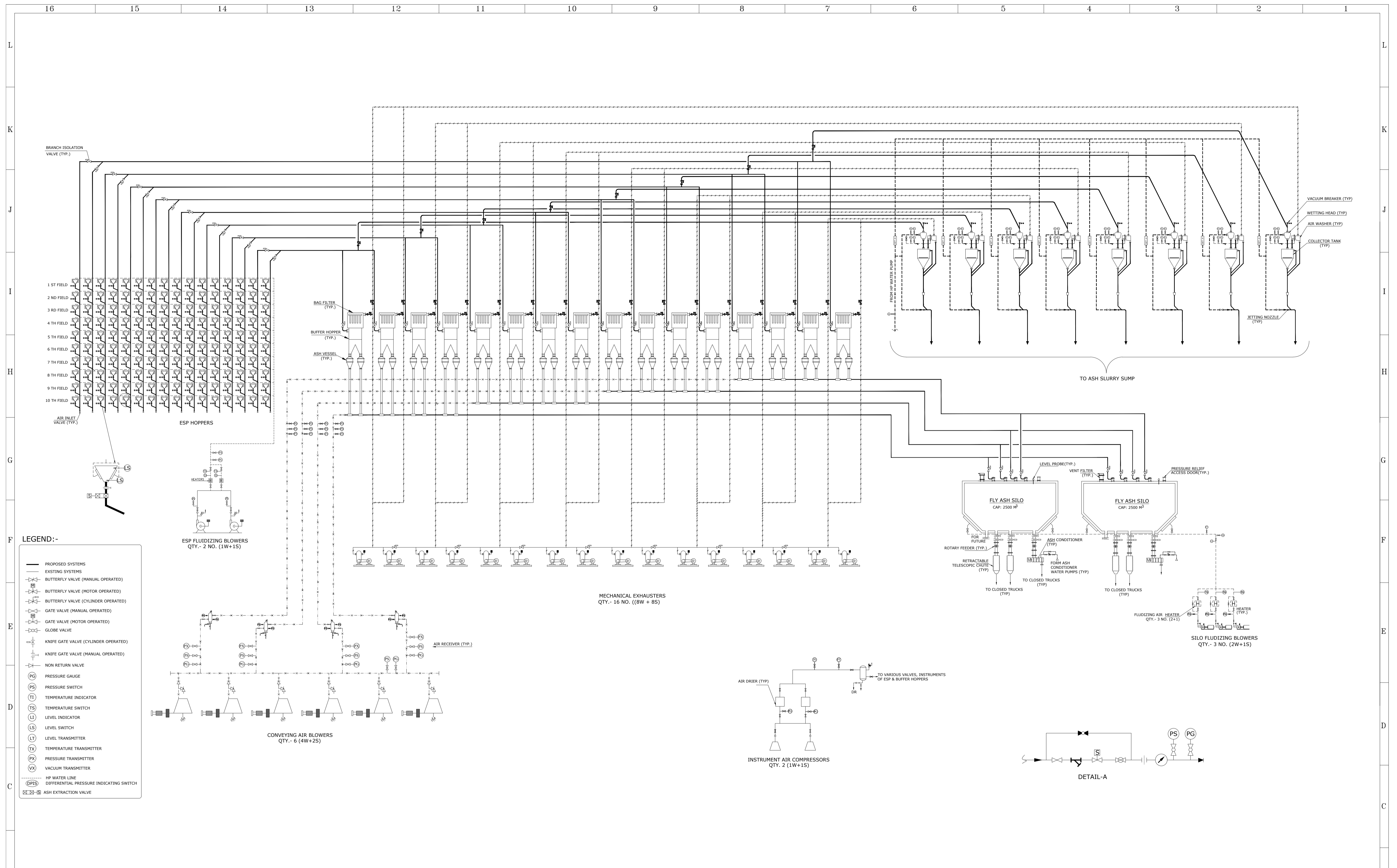
ZONE	MARK	PARTICULARS	DATE	CIVIL	MECH.	ELEC.	C&I	H.O.D.
			09.12.2022					
		1 REVISED AS PER COMMENTS	26.09.2022					
		0 FOR TENDER PURPOSE ONLY						

REVISIONS		APPROVED	

CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.
CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA
PROJECT:	1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR
TITLE :-	FLOW DIAGRAM- COARSE ASH HANDLING SYSTEM

NAME	SIGN.	DATE
SHIV		26.09.2022
EVA		26.09.2022
H.SUNDAR		26.09.2022

CAD/DRAWN	SCALE	JOB. NO.	D-04041
DESIGNED	NTS	DWG. NO.	111-13-5202
CHECKED	REV.		1



LEGEND :-

—	PROPOSED SYSTEMS
- - -	EXISTING SYSTEMS
	BUTTERFLY VALVE (MANUAL OPERATED)
	BUTTERFLY VALVE (MOTOR OPERATED)
	BUTTERFLY VALVE (CYLINDER OPERATED)
	GATE VALVE (MANUAL OPERATED)
	GATE VALVE (MOTOR OPERATED)
	GLOBE VALVE
	KNIFE GATE VALVE (CYLINDER OPERATED)
	KNIFE GATE VALVE (MANUAL OPERATED)
	NON RETURN VALVE
	PRESSURE GAUGE
	PRESSURE SWITCH
	TEMPERATURE INDICATOR
	TEMPERATURE SWITCH
	LEVEL INDICATOR
	LEVEL SWITCH
	LEVEL TRANSMITTER
	TEMPERATURE TRANSMITTER
	PRESSURE TRANSMITTER
	VACUUM TRANSMITTER
	HP WATER LINE
	DIFFERENTIAL PRESSURE INDICATING SWITCH
	ASH EXTRACTION VALVE

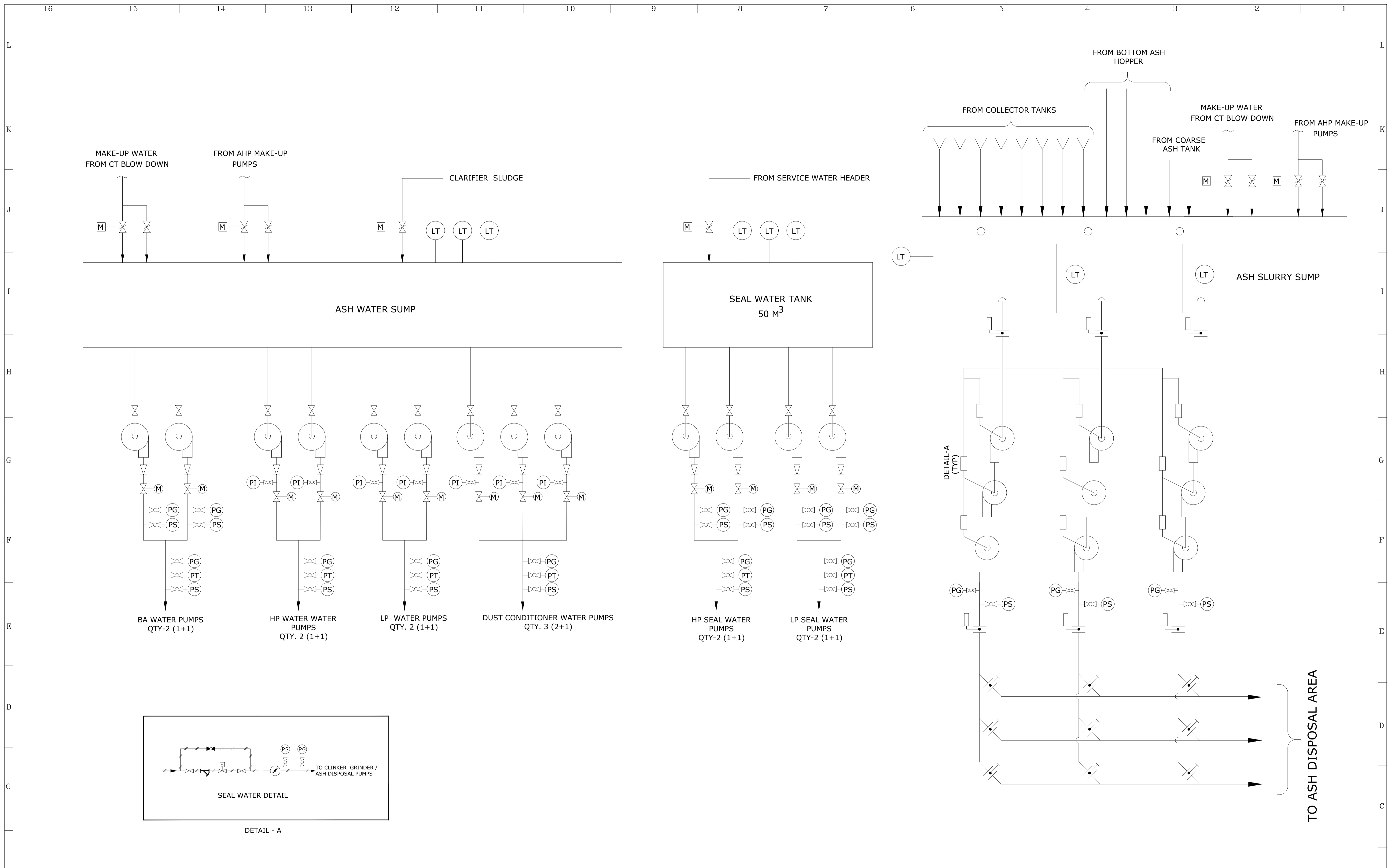
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REFERENCE DRAWINGS.	NOTES	NOTICE
	1. DO NOT SCALE, ASK WHEN IN DOUBT. 2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.	THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.

ZONE	MARK	PARTICULARS	DATE	CIVIL	MECH.	ELEC.	C&I	H.O.D.

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1	REVISED AS PER COMMENTS
0	FOR TENDER PURPOSE ONLY

CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SHIV	SIGN.		DATE	26.09.2022
CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED	EVA			DATE	26.09.2022
PROJECT:	1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	CHECKED	H.SUNDAR			DATE	26.09.2022
TITLE :-	FLOW DIAGRAM- FLY ASH HANDLING SYSTEM	SCALE	NTS				
JOB. NO.	D-04041						
DWG. NO.	111-13-5203	REV.					1



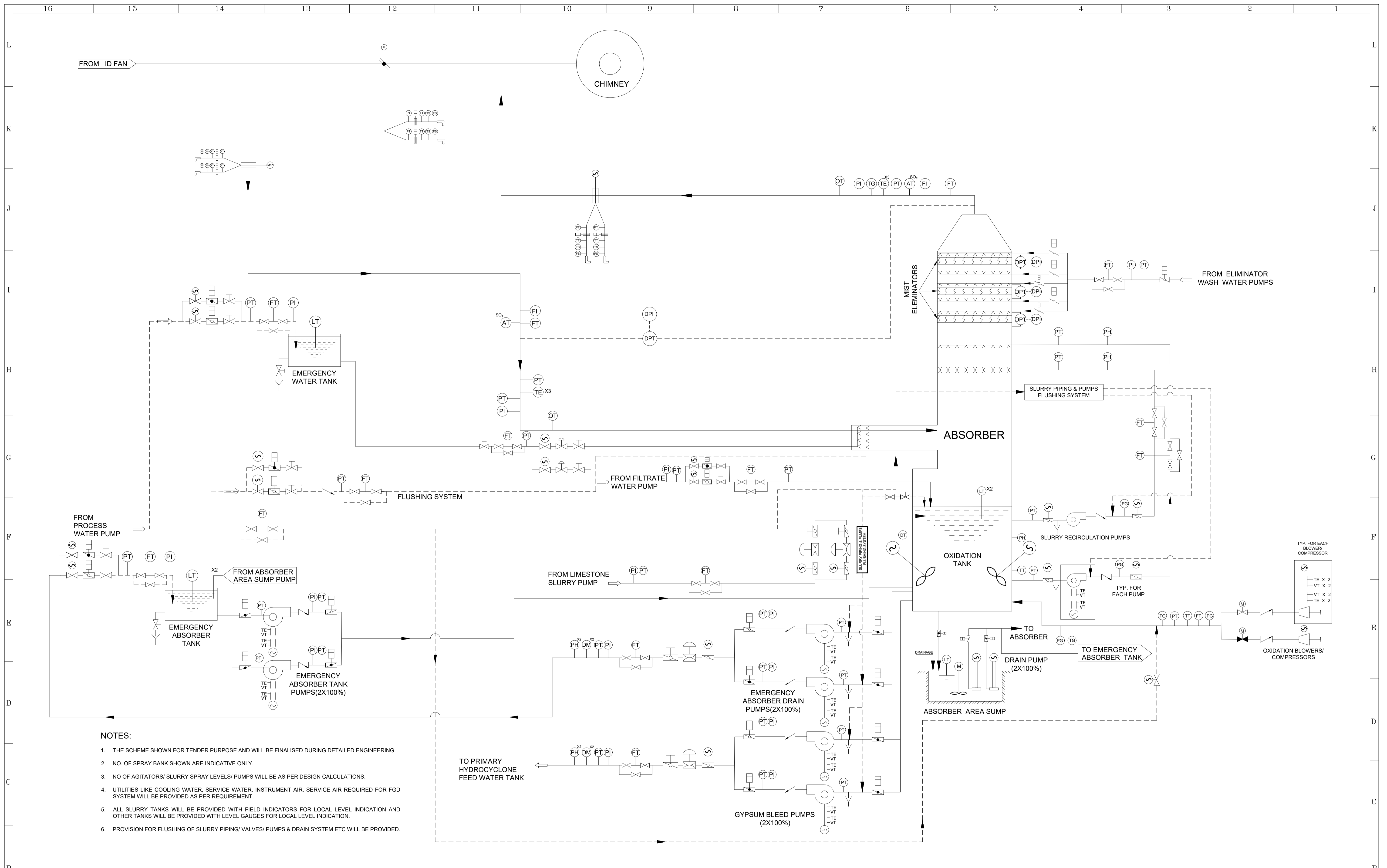
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ZONE	MARK	PARTICULARS	DATE	CIVIL	MECH.	ELEC.	C&I	H.O.D.

NO.	REVISIONS	DATE	APPROVED
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1	REVISED AS PER COMMENTS	09.12.2022	
0	FOR TENDER PURPOSE ONLY	26.09.2022	

CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SIGN.	DATE
CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	SHIV		26.09.2022
PROJECT:	1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	EVA		26.09.2022
TITLE :-	FLOW DIAGRAM- ASH SLURRY & WATER SYSTEM	H.SUNDAR		26.09.2022
		SCALE	NTS	
		JOB. NO.	D-04041	
		DWG. NO.	111-13-5204	
		REV.	1	

REFERENCE DRAWINGS.	NOTES	NOTICE
	1. DO NOT SCALE, ASK WHEN IN DOUBT. 2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE. 3. NO OF DISPOSAL PUMPS IN EACH SENESARE TYP. AND SHALL BE IN INCREASED BASED ON HEAD CALCULATION	THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.



- NOTES:**
1. THE SCHEME SHOWN FOR TENDER PURPOSE AND WILL BE FINALISED DURING DETAILED ENGINEERING.
 2. NO. OF SPRAY BANK SHOWN ARE INDICATIVE ONLY.
 3. NO OF AGITATORS/ SLURRY SPRAY LEVELS/ PUMPS WILL BE AS PER DESIGN CALCULATIONS.
 4. UTILITIES LIKE COOLING WATER, SERVICE WATER, INSTRUMENT AIR, SERVICE AIR REQUIRED FOR FGD SYSTEM WILL BE PROVIDED AS PER REQUIREMENT.
 5. ALL SLURRY TANKS WILL BE PROVIDED WITH FIELD INDICATORS FOR LOCAL LEVEL INDICATION AND OTHER TANKS WILL BE PROVIDED WITH LEVEL GAUGES FOR LOCAL LEVEL INDICATION.
 6. PROVISION FOR FLUSHING OF SLURRY PIPING/ VALVES/ PUMPS & DRAIN SYSTEM ETC WILL BE PROVIDED.

SR. No.	PARTY	DATE	REVISIONS	APPROVED	CIVIL	MECH.	ELEC.	C&I	H.O.D.
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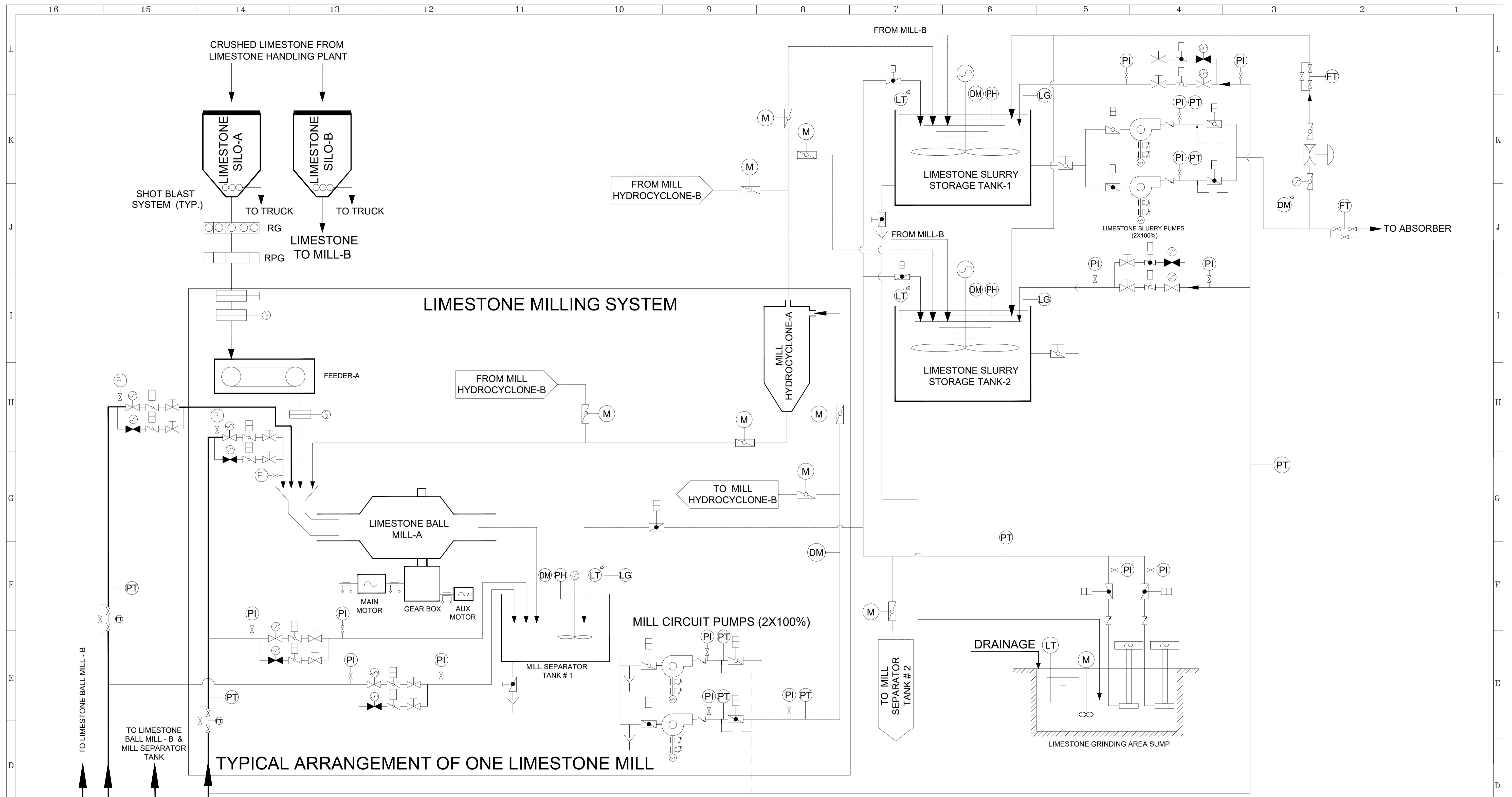
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CLIENT:	NAME	SIGN.	DATE
HARYANA POWER GENERATION CORPORATION LTD.	SHIV		26.09.2022

CONSULTANT:	DESIGNED	CHECKED	SCALE
DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	EVA	H.SUNDAR	NTS

PROJECT:	JOB. NO.	DATE
1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	D-04041	

TITLE :-	DWG. NO.	REV.
FLOW DIAGRAM - ABSORBER SYSTEM	111-13-5210	O



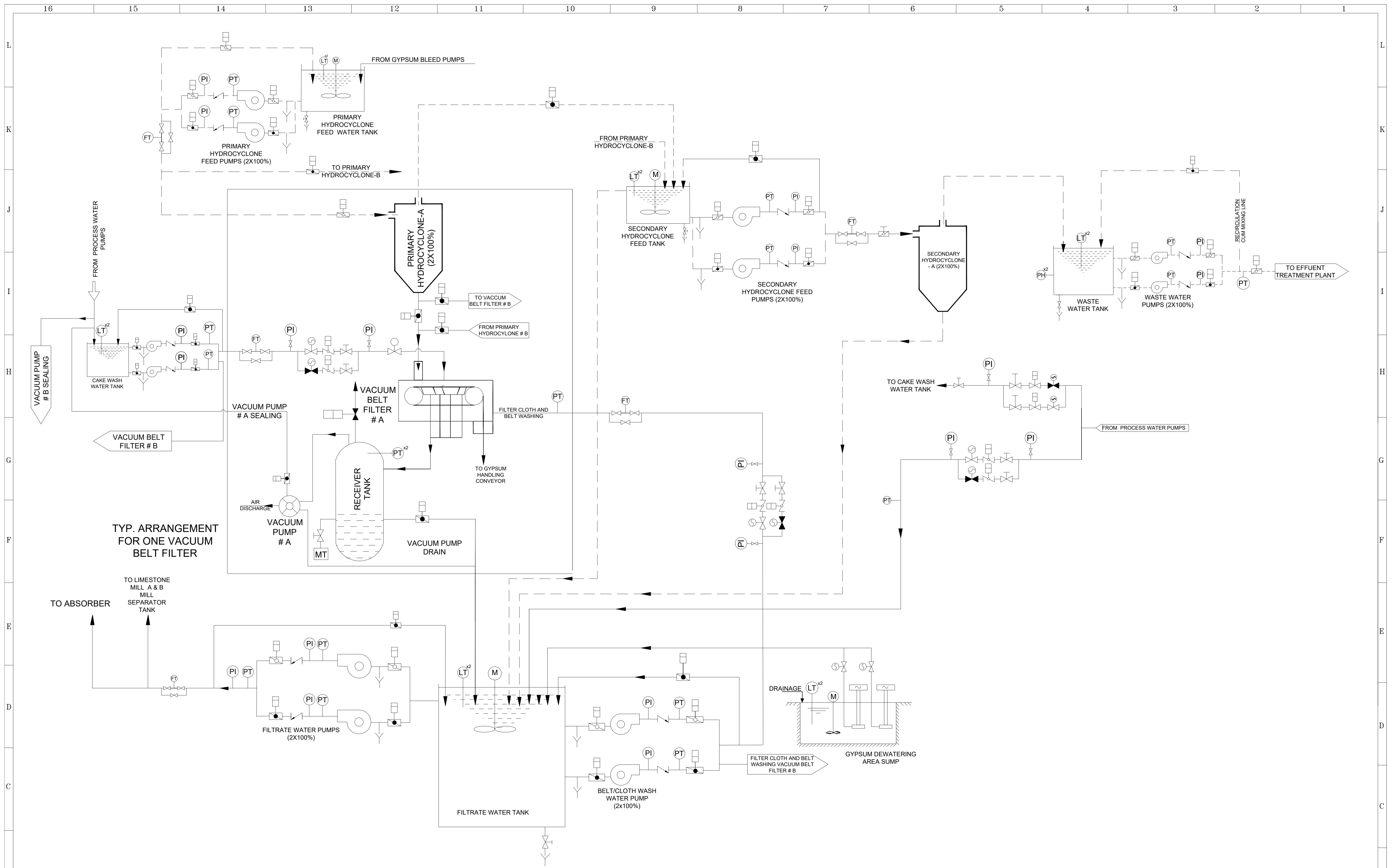
TYPICAL ARRANGEMENT OF ONE LIMESTONE MILL

- NOTES:**
1. THE SCHEME SHOWN FOR TENDER PURPOSE AND WILL BE FINALISED DURING DETAIL ENGINEERING
 2. LUB. OIL SYSTEM WILL BE AS PER SUPPLIER/ MANUFACTURER STANDARD.
 3. LIMESTONE SILOS WILL BE PROVIDED WITH 4 MM THK SS-304 LINERS ON CONICAL PORTION ONLY.

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REFERENCES DRAWINGS.		NOTES	NOTICE															
		DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.	THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY, IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.	7														
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CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SHIV	SIGN.		DATE	26.09.2022
CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED	EVA				26.09.2022
PROJECT:	1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	CHECKED	H.SUNDAR				26.09.2022
TITLE :-	FLOW DIAGRAM - LIME SLURRY PREPARATION SYSTEM	SCALE	NTS				
JOB. NO.	D-04041	JOB. NO.					
DWG. NO.	111-13-5211	DWG. NO.					
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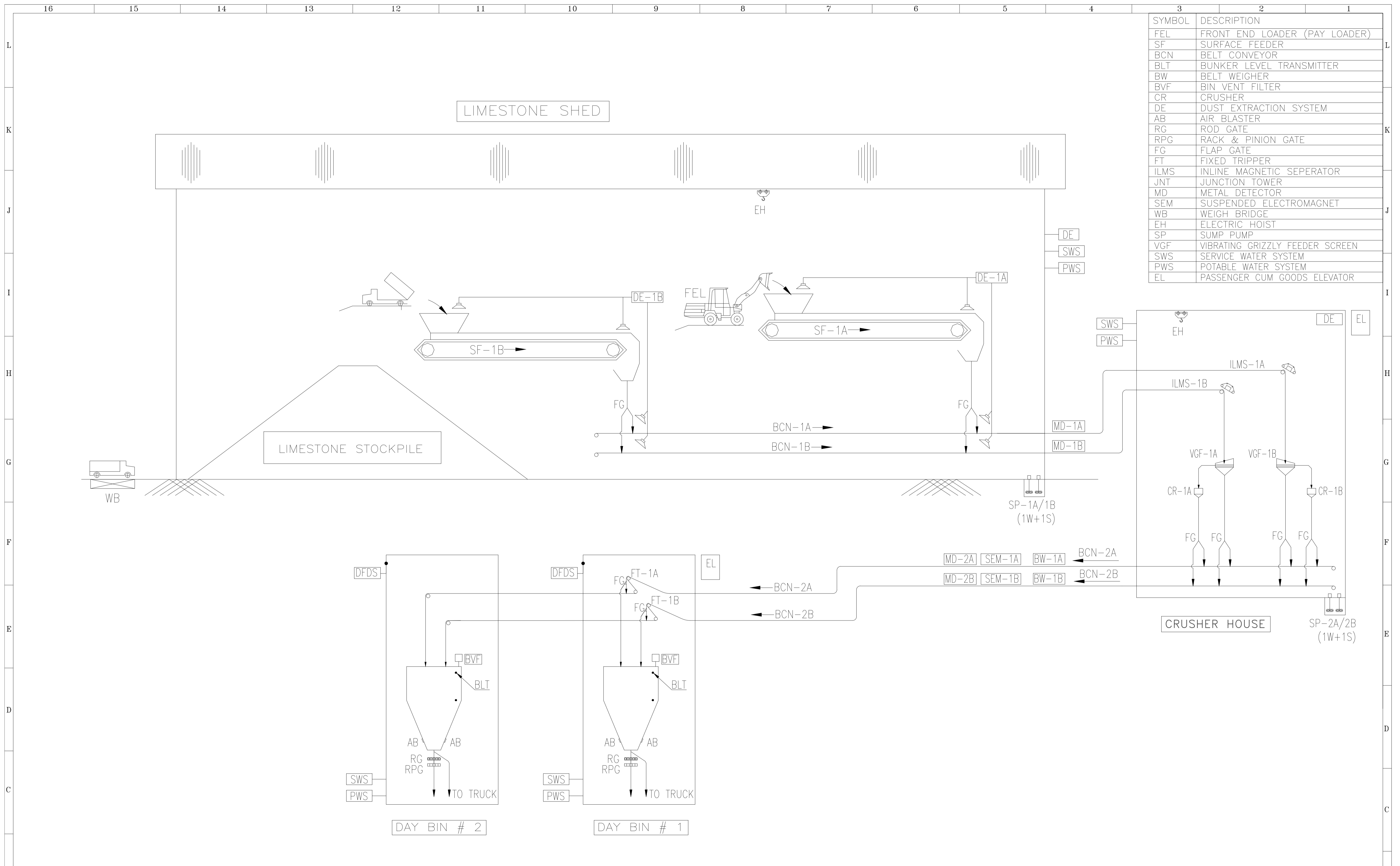


TYP. ARRANGEMENT FOR ONE VACUUM BELT FILTER

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CLIENT:	NAME	SIGN.	DATE
HARYANA POWER GENERATION CORPORATION LTD.	SHIV		26.09.2022
CONSULTANT:	DESIGNED	CHECKED	SCALE
DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	EVA	H.SUNDAR	NTS
PROJECT:	1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR		
TITLE :-	FLOW DIAGRAM - GYPSUM DEWATERING SYSTEM		
	JOB. NO.	D-04041	
	DWG. NO.	111-13-5212	
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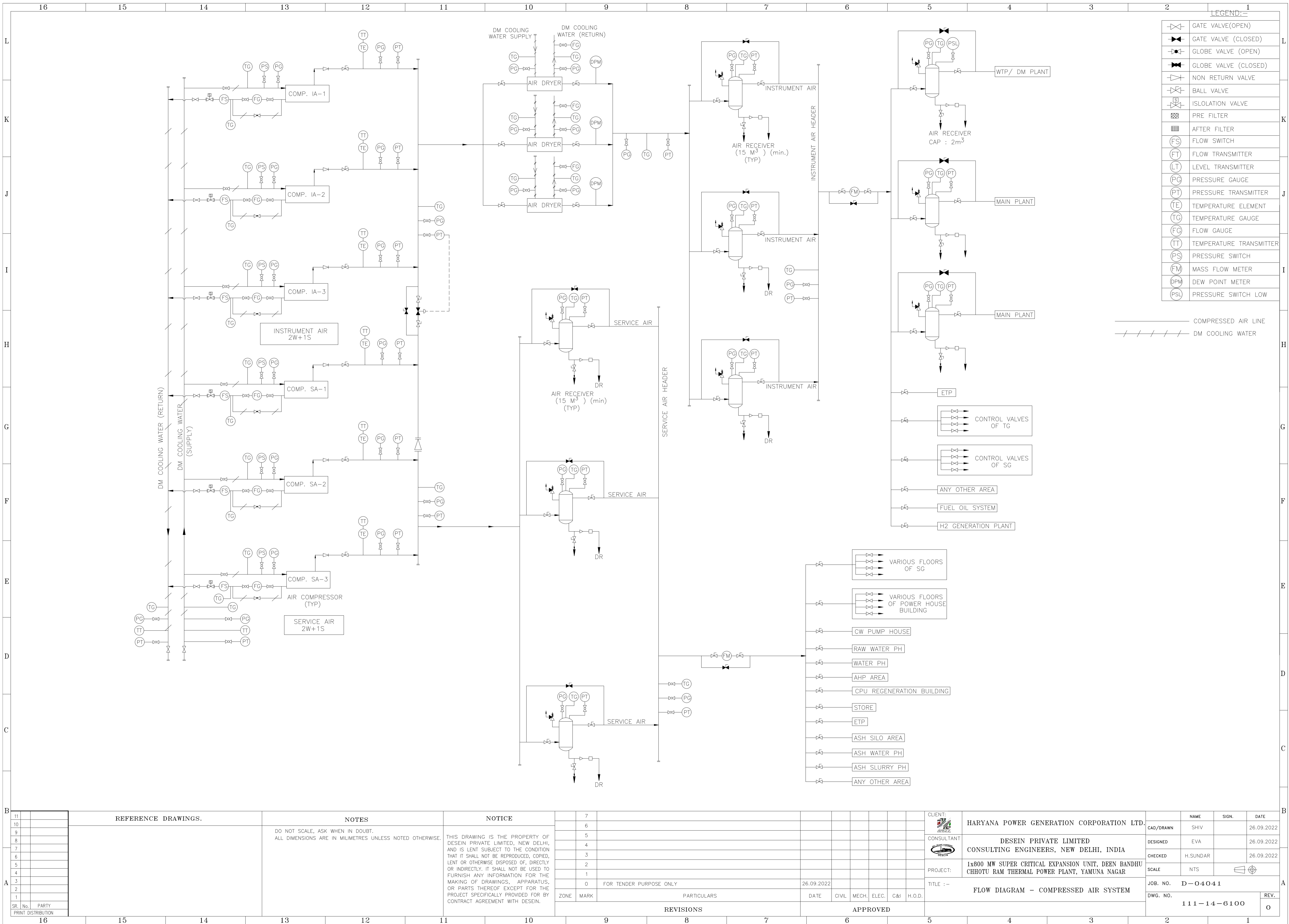
SYMBOL	DESCRIPTION
FEL	FRONT END LOADER (PAY LOADER)
SF	SURFACE FEEDER
BCN	BELT CONVEYOR
BLT	BUNKER LEVEL TRANSMITTER
BW	BELT WEIGHER
BVF	BIN VENT FILTER
CR	CRUSHER
DE	DUST EXTRACTION SYSTEM
AB	AIR BLASTER
RG	ROD GATE
RPG	RACK & PINION GATE
FG	FLAP GATE
FT	FIXED TRIPPER
ILMS	INLINE MAGNETIC SEPERATOR
JNT	JUNCTION TOWER
MD	METAL DETECTOR
SEM	SUSPENDED ELECTROMAGNET
WB	WEIGH BRIDGE
EH	ELECTRIC HOIST
SP	SUMP PUMP
VGF	VIBRATING GRIZZLY FEEDER SCREEN
SWS	SERVICE WATER SYSTEM
PWS	POTABLE WATER SYSTEM
EL	PASSENGER CUM GOODS ELEVATOR

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REVISIONS	APPROVED

CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SHIV	SIGN.		DATE	26.09.2022
CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED	EVA			DATE	26.09.2022
PROJECT:	1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	CHECKED	H.SUNDAR			DATE	26.09.2022
TITLE :-	FLOW DIAGRAM - LIMESTONE HANDLING SYSTEM	SCALE	NTS				
JOB. NO.	D-04041						
DWG. NO.	111-13-5213	REV.					O



LEGEND :-

	GATE VALVE (OPEN)
	GATE VALVE (CLOSED)
	GLOBE VALVE (OPEN)
	GLOBE VALVE (CLOSED)
	NON RETURN VALVE
	BALL VALVE
	ISLOLATION VALVE
	PRE FILTER
	AFTER FILTER
	FLOW SWITCH
	FLOW TRANSMITTER
	LEVEL TRANSMITTER
	PRESSURE GAUGE
	PRESSURE TRANSMITTER
	TEMPERATURE ELEMENT
	TEMPERATURE GAUGE
	FLOW GAUGE
	TEMPERATURE TRANSMITTER
	PRESSURE SWITCH
	MASS FLOW METER
	DEW POINT METER
	PRESSURE SWITCH LOW

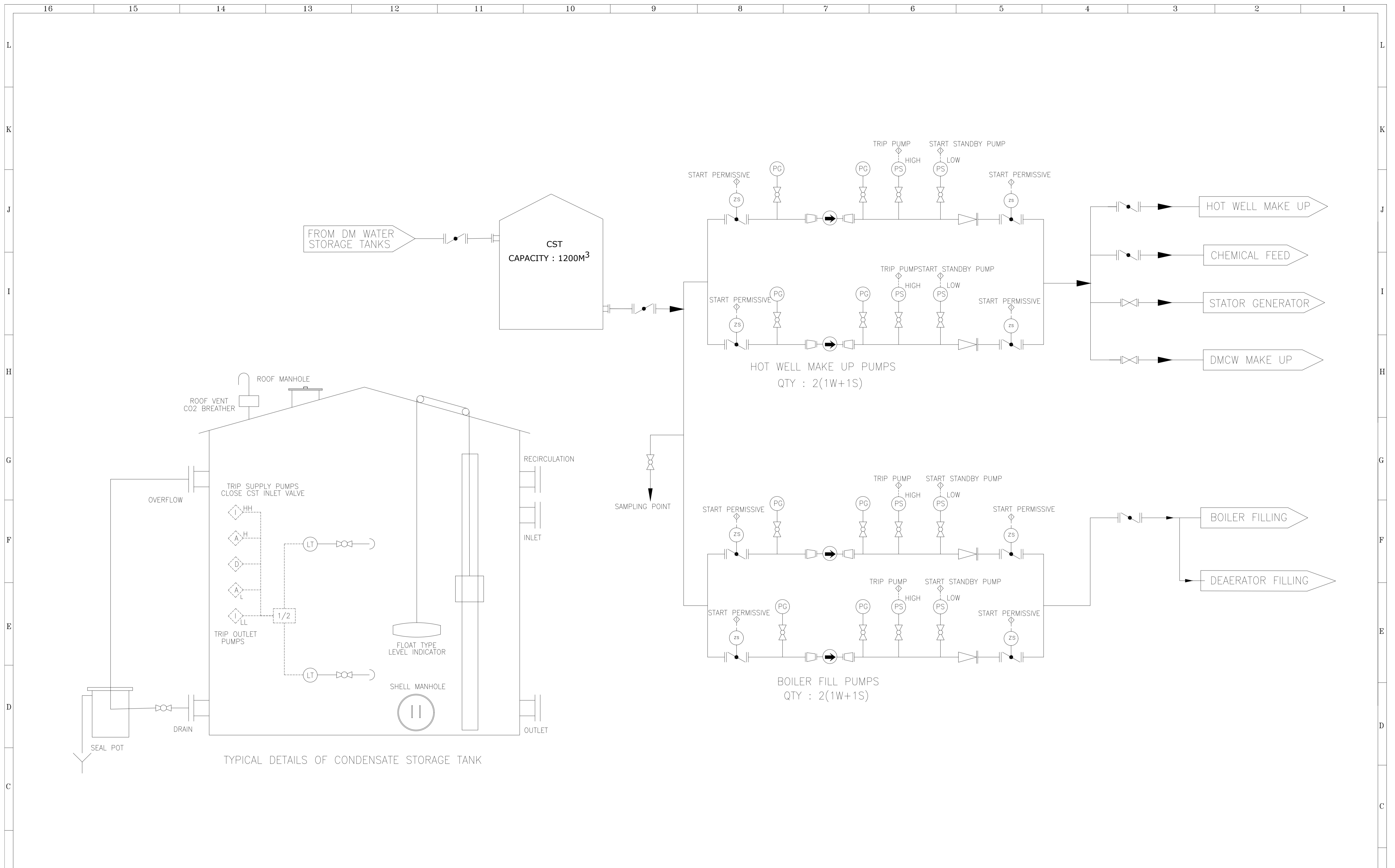
———— COMPRESSED AIR LINE
 - - - - - DM COOLING WATER

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REFERENCE DRAWINGS.	NOTES DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.	NOTICE THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY, IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.	REVISIONS																								
			<table border="1"> <tr><th>NO.</th><th>DESCRIPTION</th><th>DATE</th></tr> <tr><td>7</td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td></tr> <tr><td>1</td><td></td><td></td></tr> </table>	NO.	DESCRIPTION	DATE	7			6			5			4			3			2			1		
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FOR TENDER PURPOSE ONLY	26.09.2022								
ZONE	MARK	PARTICULARS	DATE	CIVIL	MECH.	ELEC.	C&I	H.O.D.	
		REVISIONS						APPROVED	

CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SHIV	SIGN.		DATE	26.09.2022
CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED	EVA	CHECKED	H.SUNDAR	DATE	26.09.2022
PROJECT:	1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	SCALE	NTS			DATE	26.09.2022
TITLE :-		JOB. NO.	D-04041				
		DWG. NO.	111-14-6100			REV.	0

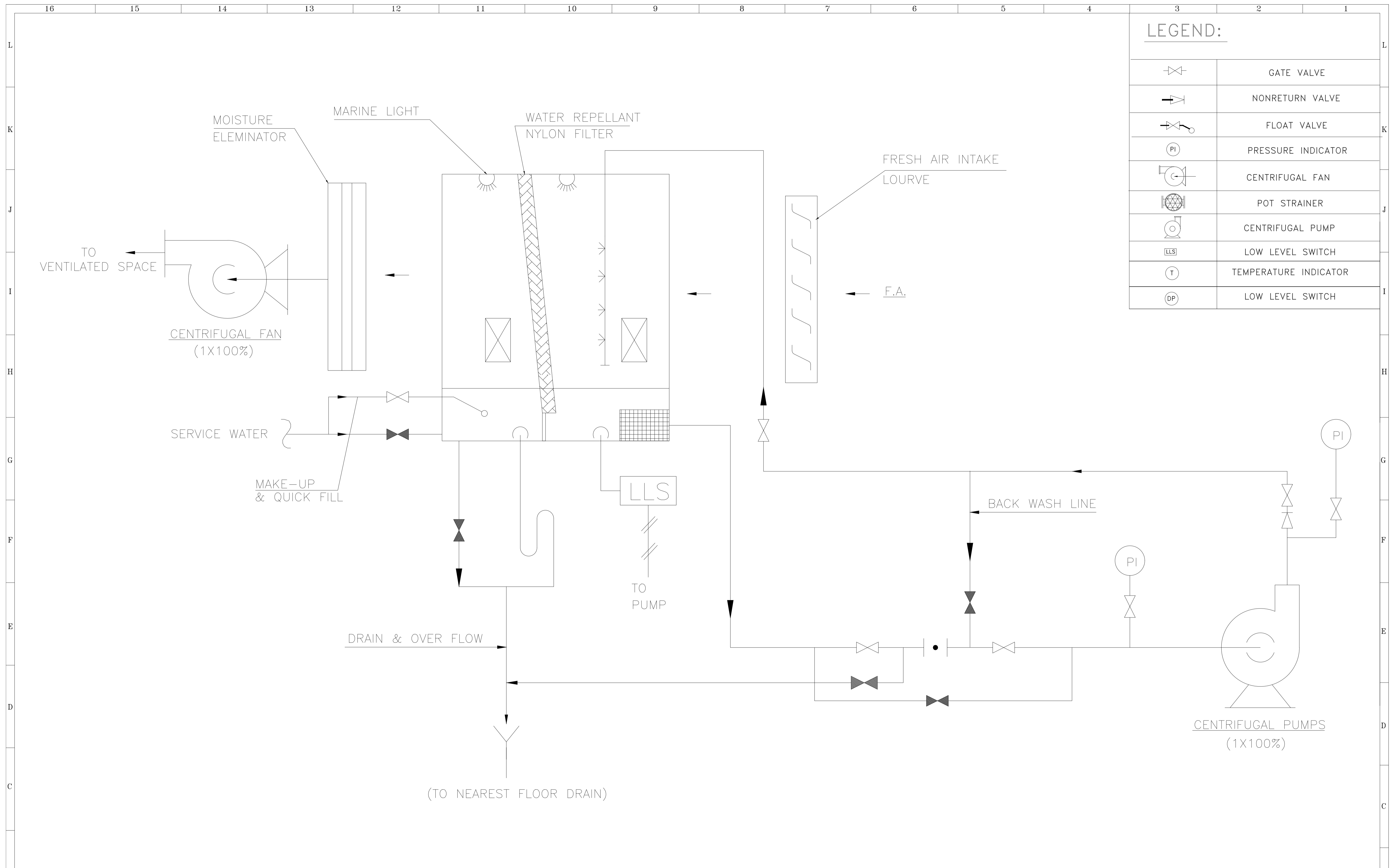


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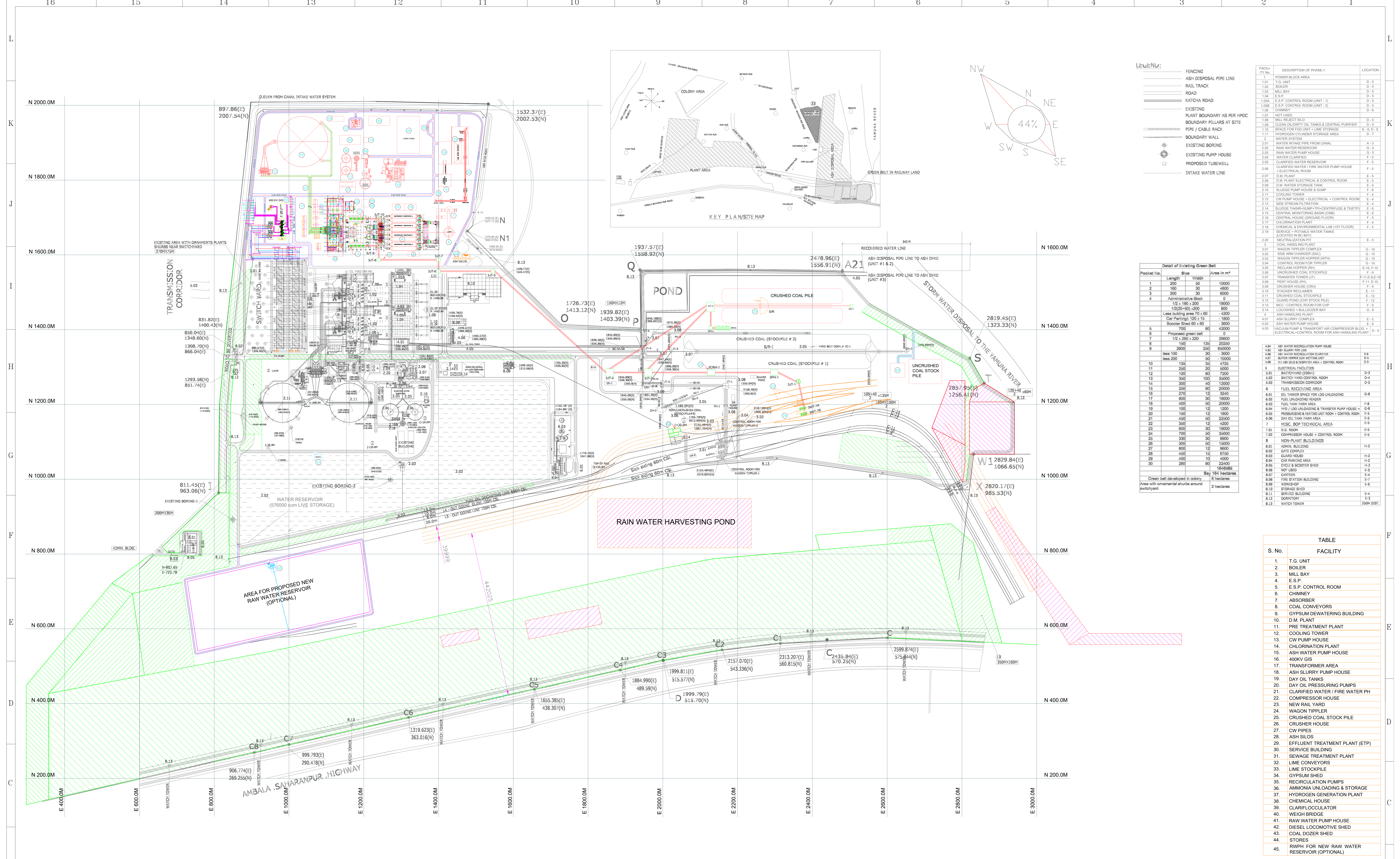
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CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SHIV	SIGN.		DATE	26.09.2022
CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED	EVA			DATE	26.09.2022
PROJECT:	1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	CHECKED	H.SUNDAR			DATE	26.09.2022
TITLE :-	FLOW DIAGRAM - HOT WELL MAKE UP SYSTEM	SCALE	NTS				
JOB. NO.	D-04041	DWG. NO.	111-15-3509	REV.			



LEGEND:	
	GATE VALVE
	NONRETURN VALVE
	FLOAT VALVE
	PRESSURE INDICATOR
	CENTRIFUGAL FAN
	POT STRAINER
	CENTRIFUGAL PUMP
	LOW LEVEL SWITCH
	TEMPERATURE INDICATOR
	LOW LEVEL SWITCH

REFERENCE DRAWINGS.		NOTES		NOTICE		REVISIONS		APPROVED		CLIENT:		NAME		SIGN.		DATE	
11		DO NOT SCALE, ASK WHEN IN DOUBT.		THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.	7						HARYANA POWER GENERATION CORPORATION LTD.	SHIV				26.09.2022	
10		ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.			6							CONSULTANT	DESEIN PRIVATE LIMITED	EVA			26.09.2022
9					5								CONSULTING ENGINEERS, NEW DELHI, INDIA	H.SUNDAR			26.09.2022
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										PROJECT:		1x800 MW SUPER CRITICAL POWER EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR		JOB. NO.		D-04041	
										TITLE :-		FLOW DIAGRAM - UNITARY AIR FILTRATION UNIT (UAF) FOR ESP CONTROL ROOM		DWG. NO.		111-15-6202	
														REV.		O	



LEGEND:

- FENCING
- ASH DISPOSAL PIPE LINE
- RAIL TRACK
- ROAD
- KATCHIA ROAD
- EXISTING PLANT BOUNDARY AS PER HPC
- BOUNDARY PILLARS AT SITE
- PIPE / CABLE RACK
- EXISTING BORING
- EXISTING PUMP HOUSE
- PROPOSED TUBEWELL
- INTAKE WATER LINE

Facilities

Facility No.	Description of Phase-1	Location
1.01	T.G. UNIT	D-5
1.02	BOILER	D-5
1.03	MILL BAY	D-5
1.04	E.S.P.	D-5
1.05A	E.S.P. CONTROL ROOM (UNIT - 1)	D-5
1.05B	E.S.P. CONTROL ROOM (UNIT - 2)	D-5
1.06	CHIMNEY	D-5
1.07	NOT USED	
1.08	MILL RECEIPT SILO	D-5
1.09	CLEAN OILY OIL TANKS & CENTRAL PURIFIER	D-4
1.10	SPACE FOR FGD UNIT + LIME STORAGE	E-6, D-6
1.11	HYDROGEN CYLINDER STORAGE AREA	F-7
2	WATER SYSTEM	A-3
2.01	WATER INTAKE PIPE FROM CANAL	A-3
2.02	RAW WATER RESERVOIR	G-5
2.03	RAW WATER PUMP HOUSE	G-5
2.04	WATER CLARIFIER	F-5
2.05	CLARIFIED WATER RESERVOIR	F-5
2.06	CLARIFIED WATER FIRE WATER PUMP HOUSE + ELECTRICAL ROOM	F-5
2.07	D.M. PLANT	E-5
2.08	D.M. PLANT ELECTRICAL & CONTROL ROOM	E-5
2.09	D.M. WATER STORAGE TANK	E-5
2.10	SLUDGE PUMP HOUSE & SUMP	F-6
2.11	COOLING TOWER	F-4
2.12	CW PUMP HOUSE + ELECTRICAL + CONTROL ROOM	E-4
2.13	SIDE STREAM FILTRATION	E-4
2.14	SLUDGE THINNER+SLUMP+CENTRIFUGE & TSE/TP	E-6
2.15	CENTRAL MONITORING BASIN (CMB)	E-6
2.16	CENTRAL HOUSE (GROUND FLOOR)	F-5
2.17	CHLORINATION PLANT	F-4
2.18	CHEMICAL & ENVIRONMENTAL LAB (1ST FLOOR)	F-5
2.19	SERVICE + ROTABLE WATER TANKS (LOCATED IN DRY)	
2.20	NEUTRALIZATION PIT	E-5
3	COAL HANDLING PLANT	
3.01	WAGON TIPPLER COMPLEX	G-10
3.02	SIDE ARM CHARGER (SAC)	G-10
3.03	WAGON TIPPLER HOPPER (WITH)	G-10
3.04	CONTROL ROOM FOR TIPPLER	G-10
3.05	RECLAIM HOPPER (RH)	E-10, F-10
3.06	UNCRUSHED COAL STOCKPILE	F-9
3.07	TRANSFER TOWER (TT)	F-11, E-10
3.08	PIENT HOUSE (PH)	F-9
3.09	CRUSHER HOUSE (CRH)	E-11
3.10	STACKER RECLAIMER	E-11
3.11	CRUSHED COAL STOCKPILE	E-12
3.12	GUARD POND (CHP STOCK PILE)	F-12
3.13	MCC CONTROL ROOM FOR CHP	F-9
3.14	LOCKERIES + BULLDOZER BAY	G-9
4	ASH HANDLING PLANT	
4.01	ASH SLURRY COMPLEX	E-5
4.02	ASH WATER PUMP HOUSE	E-6
4.03	VACUUM PUMP & TRANSPORT AIR COMPRESSOR BLDG + ELECTRICAL CONTROL ROOM FOR ASH HANDLING PLANT	D-5

Detail of Existing Green Belt

Pocket No.	Length	Width	Area in m ²
1	200	50	10000
2	160	30	4800
3	200	30	6000
4	12 x 180 x 200		18000
5	12 x 200 x 200		800
6	12 x 280 x 220		28800
7	150	130	20250
8	2000	250	500000
9	less 100	30	-3000
10	less 200	30	-10000
11	250	20	5000
12	120	60	7200
13	300	100	30000
14	300	40	12000
15	250	60	20000
16	270	12	3240
17	800	30	18000
18	400	30	20000
19	100	12	1200
20	150	12	1800
21	450	50	22500
22	350	12	4200
23	600	30	18000
24	700	50	35000
25	330	30	9900
26	300	50	15000
27	800	12	9600
28	450	16	6750
29	400	10	4000
30	280	60	22400
			1040568
			8 hectares

TABLE

S. No.	FACILITY
1.	T.G. UNIT
2.	BOILER
3.	MILL BAY
4.	E.S.P.
5.	E.S.P. CONTROL ROOM
6.	CHIMNEY
7.	ABSORBER
8.	COAL CONVEYORS
9.	GYPNUM DEWATERING BUILDING
10.	D.M. PLANT
11.	PRE TREATMENT PLANT
12.	COOLING TOWER
13.	CW PUMP HOUSE
14.	CHLORINATION PLANT
15.	ASH WATER PUMP HOUSE
16.	400KV GIS
17.	TRANSFORMER AREA
18.	ASH SLURRY PUMP HOUSE
19.	DAY OIL TANKS
20.	DAY OIL PRESSURING PUMPS
21.	CLARIFIED WATER / FIRE WATER PH
22.	COMPRESSOR HOUSE
23.	NEW RAIL YARD
24.	WAGON TIPPLER
25.	CRUSHED COAL STOCK PILE
26.	CRUSHER HOUSE
27.	CW PIPES
28.	ASH SILOS
29.	EFFLUENT TREATMENT PLANT (ETP)
30.	SERVICE BUILDING
31.	SEWAGE TREATMENT PLANT
32.	LIME CONVEYORS
33.	LIME STOCKPILE
34.	GYPNUM SHED
35.	RECIRCULATION PUMPS
36.	AMMONIA UNLOADING & STORAGE
37.	HYDROGEN GENERATION PLANT
38.	CHEMICAL HOUSE
39.	CLARIFOCCLULATOR
40.	WEIGH BRIDGE
41.	RAW WATER PUMP HOUSE
42.	DIESEL LOCOMOTIVE SHED
43.	COAL DOZER SHED
44.	STORES
45.	RWPH FOR NEW RAW WATER RESERVOIR (OPTIONAL)

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ZONE	MARK	PARTICULARS	DATE	CIVIL	MECH.	ELEC.	C&I	H.O.D.
7								
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3		SWITCH YARD MODIFIED, NEW RAW WATER RESERVOIR ADDED	04.01.2023					
2		GENERALLY REVISED	28.12.2022					
1		GENERALLY REVISED	28.11.2022					
0		FOR TENDER PURPOSE ONLY	10.10.2022					

CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SHIV	SIGN.		DATE	10.10.2022
CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED	EV			10.10.2022	
PROJECT:	1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	CHECKED	H.SUNDAR			10.10.2022	
TITLE :-	PLOT PLAN	JOB. NO.	D-O4O41				
		DWG. NO.	111-29-0200				
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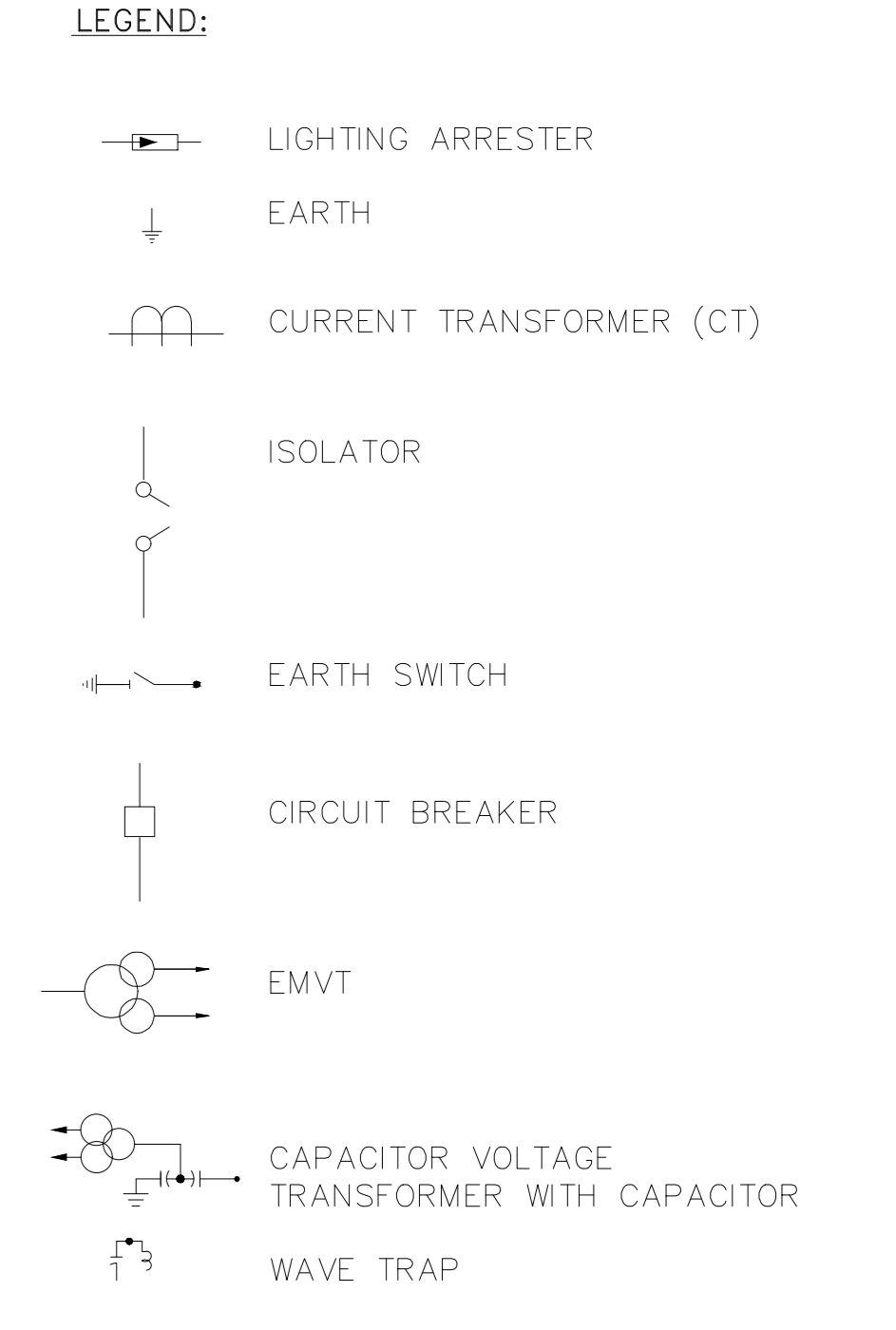
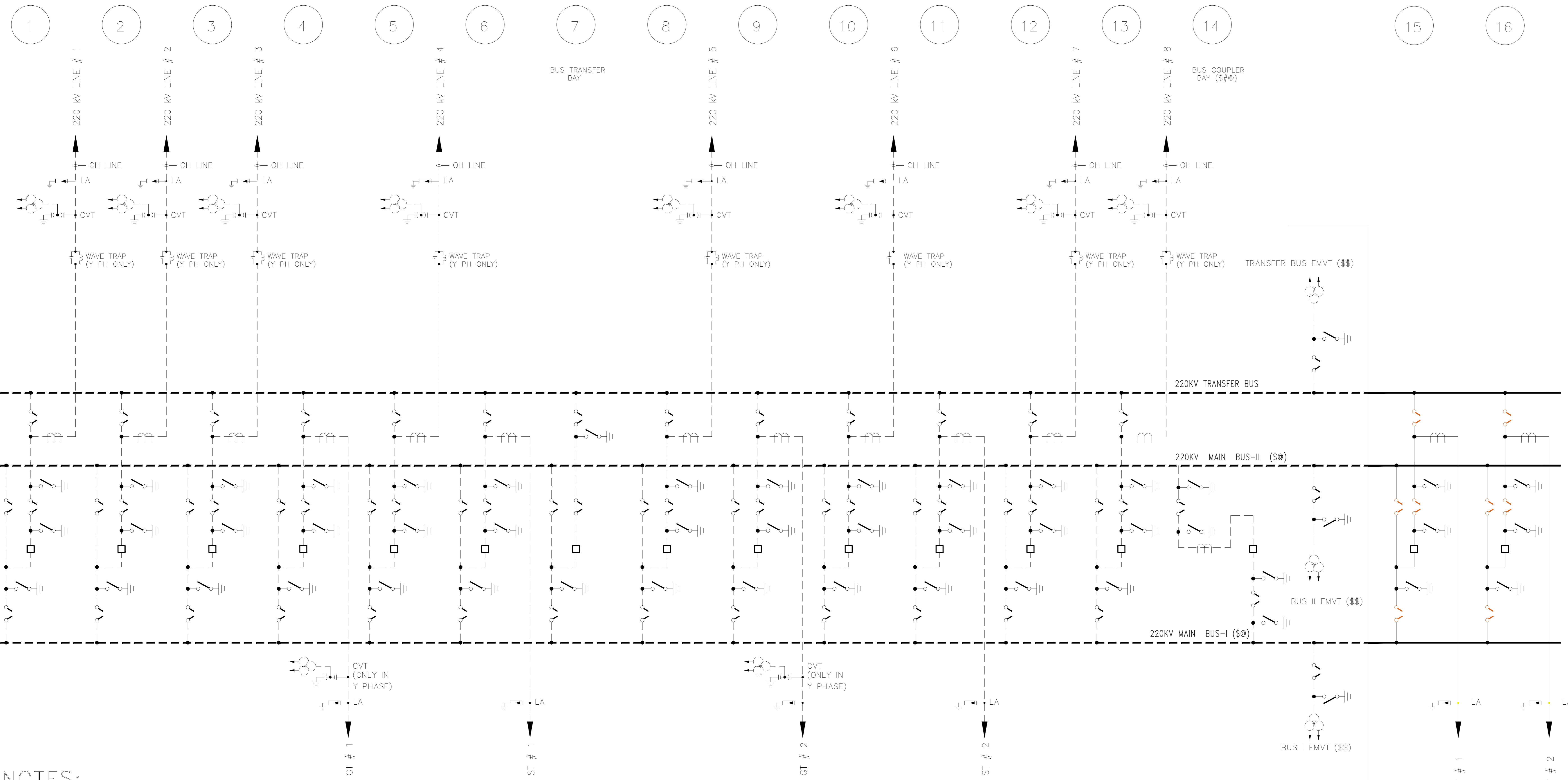
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A

SYSTEM DATA:

1.	SYSTEM VOLTAGE	220 KV
2.	HIGHEST SYSTEM VOLTAGE	245 KV
3.	NO OF PHASE	3
4.	FREQUENCY	50Hz
5.	ONE MIN. POWER FREQUENCY WITHSTAND VOLTAGE	460 kv (r.m.s.)
6.	LIGHTNING WITHSTAND VOLTAGE	1050 KVP
7.	SWITCHING IMPULSE VOLTAGE	NA
8.	SHORT CIRCUIT LEVEL	
A.	EXISTING EQUIPMENT	40 kA FOR 1Sec.
B.	NEW EQUIPMENT	50 kA FOR 1Sec.
9.	CREEPAGE DISTANCE	31 mm/kv
10.	TYPE OF EARTHING	SOLIDLY GROUNDED
11.	LA	198 kv
12.	CIRCUIT BREAKER RATING	2000/ 4000 A
13.	ISOLATOR RATING	2000/ 4000 A
14.	BUS BAR RATING	4000 A
15.	ICT BAY RATING	2000 A
16.	BUS COUPLER BAY NEW RATING	4000 A
17.	EARTH SWITCH RATING	2000/ 4000 A
18.	PHASE TO PHASE CLEARANCE	2100 mm
19.	PHASE TO EARTH CLEARANCE	2100 mm
20.	SECTIONAL CLEARANCE	5000 mm
21.	GROUND CLEARANCE	5500 mm
22.	SYSTEM EARTHING	SOLIDLY EARTHED

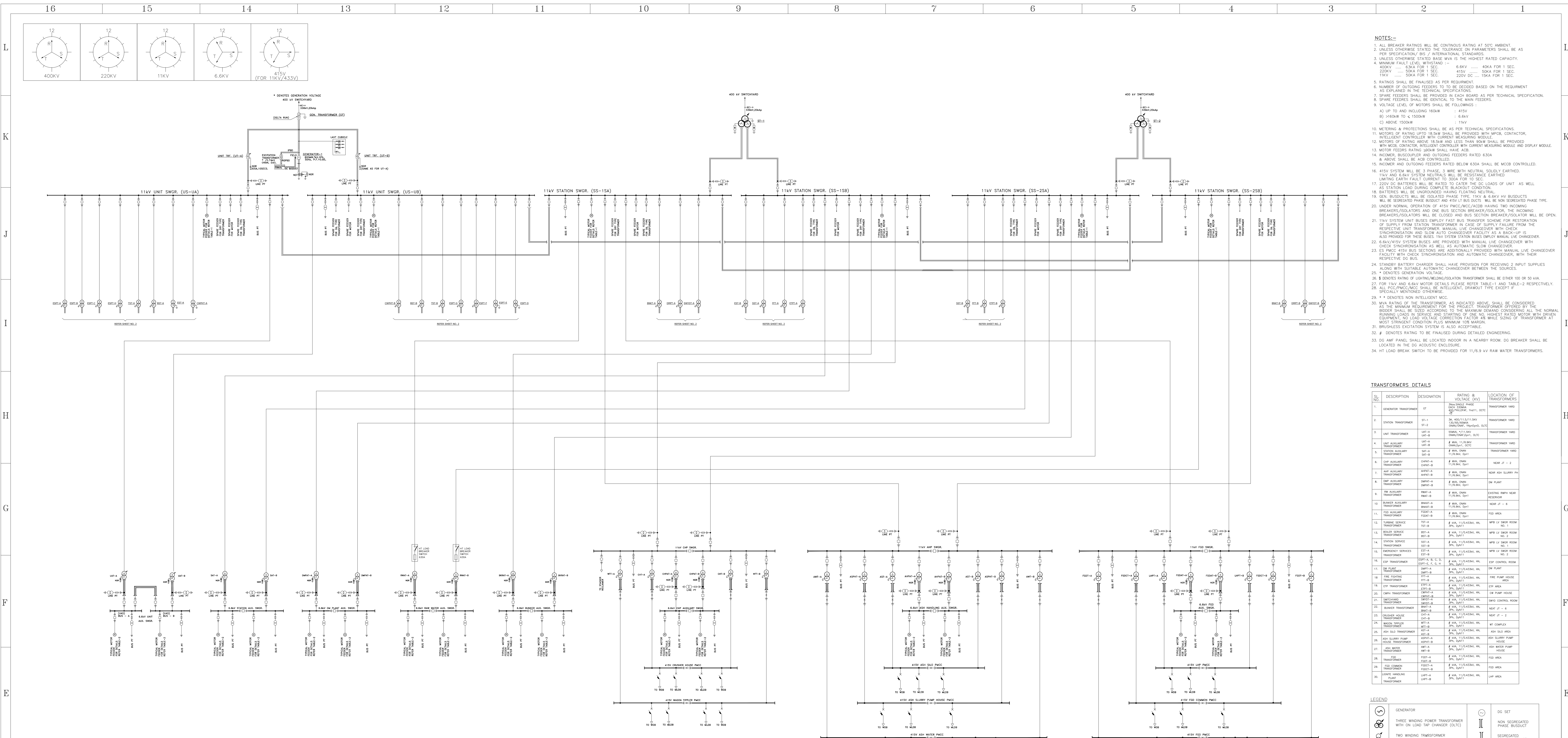


NOTES:

- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH TECHNICAL SPECIFICATION.
- THE REQUIREMENT SHOWN ARE MINIMUM ONLY. AS PER SYSTEM REQUIREMENT. ALL NECESSARY EQUIPMENTS/ DEVICES SHALL BE PROVIDED.
- FOLLOWING MODIFICATIONS HAVE TO BE DONE IN THE EXISTING 220 kV AIS: -
 - \$@** DENOTES EXISTING MAIN BUS I & II (QUAD MOOSE CONDUCTOR) RATED FOR 2000 A HAS TO BE INCREASED USING HTLS CONDUCTOR.
 - \$\$** DENOTES EXISTING MAIN BUS I & II EMVT AND TRANSFER BUS EMVT HAVING TO BE SHIFTED FROM BAY 14 SIDE TOWARDS BAY 1 AND PLACED AFTER THE BUS LAs.
 - \$\$@** DENOTES EXISTING MAIN BUS I & II EMVT, TRANSFER BUS EMVT, BUSCOUPLER BAY AND 2 NOS. NEW ICT BAYS LIGHT WEIGHT POLYMER INSULATORS TO BE USED.
 - HTLS CONDUCTOR AND POLYMER INSULATORS ARE BEING USED SO THAT EXISTING GANTRIES CAN BE USED.
 - MODIFICATION/EXTENSION OF THE EXISTING 220 kV SWITCHYARD CONTROL ROOM, AS REQUIRED FOR ACCOMMODATING THE 220 kV CONTROL & RELAY PANELS OF THE 2 NOS. ICT BAYS.
 - AUGMENTATION & MODIFICATION OF SCADA SYSTEM (SAS), AS REQUIRED FOR SUCCESSFUL OPERATION OF THE COMPLETE 220 kV SWITCHYARD.
 - EXTENSION OF SHIELD WIRES, FENCING, EARTH MAT. CABLE TRENCHES, ROADS, DRAINS AND ALL OTHER INTERFACING PROVISION.
- ALL OLD EQUIPMENT (DESCRIBED IN CI 3 ABOVE) REPLACED SHALL BE DEPOSITED BY THE BIDDER IN HPGL STORES.
- THE EXISTING BUS BAR PROTECTION SCHEME HAS PROVISION OF ADDING TWO (2) ADDITIONAL 220 kV BAYS. SUCCESSFUL COMMISSIONING OF BUS PROTECTION SCHEME IS IN BIDDER'S SCOPE.
- THE EXISTING DC BATTERIES SHALL CATER TO THE DC LOADS OF THE 2 NOS, ICT BAYS.

SR. No.	PARTY	REFERENCE DRAWINGS.	NOTES	NOTICE	7	6	5	4	3	2	1
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REVISIONS					APPROVED						
ZONE MARK					DATE	CIVIL	MECH.	ELEC.	C&I	H.O.D.	

CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	CAD/DRAWN:	MOTI RAM	NAME:	MOTI RAM	SIGN.		DATE:	20.10.2022
CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED:	VNG	CHECKED:	VNG				21.10.2022
PROJECT:	1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	SCALE:	NTS						21.10.2022
TITLE :-	220KV AIS SINGLE LINE DIAGRAM								
JOB. NO.	D-04041								
DWG. NO.	112-10-300								
REV.	O								



- NOTES:-**
- ALL BREAKER RATINGS WILL BE CONTINUOUS RATING AT 50% AMBIENT.
 - UNLESS OTHERWISE STATED THE TOLERANCE ON PARAMETERS SHALL BE AS PER SPECIFICATION / BS / INTERNATIONAL STANDARDS.
 - UNLESS OTHERWISE STATED THE HIGHEST RATED CAPACITY.
 - MINIMUM FAULT LEVEL WITHSTAND :-
400kV 63KA FOR 1 SEC
220kV 50KA FOR 1 SEC
11kV 50KA FOR 1 SEC
 - RATINGS SHALL BE FINALIZED AS PER REQUIREMENT.
 - NUMBER OF OUTGOING FEEDERS TO BE DECIDED BASED ON THE REQUIREMENT AS EXPLAINED IN THE TECHNICAL SPECIFICATIONS.
 - SPARE FEEDERS SHALL BE PROVIDED IN EACH BOARD AS PER TECHNICAL SPECIFICATION.
 - SPARE FEEDERS SHALL BE IDENTICAL TO THE MAIN FEEDERS.
 - VOLTAGE LEVEL OF MOTORS SHALL BE FOLLOWING:-
A) UP TO AND INCLUDING 160kW 415V
B) 160kW TO < 1500kW 6.6kV
C) ABOVE 1500kW 11kV
 - METERING & PROTECTIONS SHALL BE AS PER TECHNICAL SPECIFICATIONS.
 - MOTORS OF RATING UP TO 18.5kW SHALL BE PROVIDED WITH MCB, CONTACTOR, INTELLIGENT CONTROLLER WITH CURRENT MEASURING MODULE.
 - MOTORS OF RATING ABOVE 18.5kW AND LESS THAN 90kW SHALL BE PROVIDED WITH MCCB CONTACTOR, INTELLIGENT CONTROLLER WITH CURRENT MEASURING MODULE AND DISPLAY MODULE.
 - MOTOR FEEDERS RATING 90kW SHALL HAVE ACB.
 - INCOMER, BUSBYPASS AND OUTGOING FEEDERS RATED 630A & ABOVE SHALL BE ACB CONTROLLED.
 - INCOMER AND OUTGOING FEEDERS RATED BELOW 430A SHALL BE MCCB CONTROLLED.
 - 415V SYSTEM WILL BE 3 PHASE, 3 WIRE WITH NEUTRAL SOLIDLY EARTHED. 11kV AND 6.6kV SYSTEM NEUTRALS WILL BE RESISTANCE EARTHED. LIMITING EARTH FAULT CURRENT TO 300A FOR 10 SEC.
 - 220V DC BATTERIES WILL BE RATED TO CATER THE DC LOADS OF UNIT AS WELL AS STATION LOAD DURING COMPLETE BLACKOUT CONDITION.
 - BATTERIES WILL BE UNDERGRADED HAVING FLOATING NEUTRAL.
 - GEN. BUSSETS WILL BE ISOLATED PHASE TYPE 11kV & 6.6kV HV BUSSETS WILL BE SEGREGATED PHASE BUSSET AND 415V LT BUSSETS WILL BE NON SEGREGATED PHASE TYPE UNDER NORMAL OPERATION OF 415V MCCB/MCC/ACCB/HAVING TWO INCOMING BREAKERS/ISOLATORS AND ONE BUS SECTION BREAKER/ISOLATOR. THE INCOMING BREAKERS/ISOLATORS WILL BE CLOSED AND BUS SECTION BREAKER/ISOLATOR WILL BE OPEN.
 - 11kV SYSTEM UNIT BUSES EMPLOY FAST BUS TRANSFER SCHEME FOR RESTORATION OF SUPPLY FROM STATION TRANSFORMER IN CASE OF SUPPLY FAILURE FROM THE RESPECTIVE UNIT TRANSFORMER. MANUAL LIVE CHANGEOVER WITH CHECK SYNCHRONISATION AND SLOW AUTO CHANGEOVER FACILITY AS A BACK-UP IS ALSO PROVIDED FOR THESE BUSES. 11kV SYSTEM STATION BUSES EMPLOY MANUAL LIVE CHANGEOVER.
 - 6.6kV/415V SYSTEM BUSES ARE PROVIDED WITH MANUAL LIVE CHANGEOVER WITH CHECK SYNCHRONISATION AS WELL AS AUTOMATIC SLOW CHANGEOVER.
 - ES PHASE 415V BUS SECTIONS ARE ADDITIONALLY PROVIDED WITH MANUAL LIVE CHANGEOVER FACILITY WITH CHECK SYNCHRONISATION AND AUTOMATIC CHANGEOVER, WITH THEIR RESPECTIVE DC BUSES.
 - STANDBY BATTERY CHARGER SHALL HAVE PROVISION FOR RECEIVING 2 INPUT SUPPLIES WITH SUITABLE AUTOMATIC CHANGEOVER BETWEEN THE SOURCES.
 - * DENOTES GENERATION VOLTAGE.
 - # DENOTES RATING OF UNIT/TRANSFORMER/ISOLATOR TRANSFORMER SHALL BE EITHER 100 OR 50 KVA.
 27. FOR 11kV AND 6.6kV MOTOR DETAILS PLEASE REFER TABLE-1 AND TABLE-2 RESPECTIVELY.
 28. ALL MCCB/MCC/ACCB SHALL BE INTELLIGENT, DRAWOUT TYPE EXCEPT IF SPECIALLY MENTIONED OTHERWISE.
 29. * DENOTES NON INTELLIGENT MCC.
 30. MAX. RATING OF THE TRANSFORMER AS INDICATED ABOVE, SHALL BE CONSIDERED AS THE MINIMUM REQUIREMENT FOR THE PROJECT. TRANSFORMER OFFERED BY THE BIDDERS SHALL BE USED ACCORDING TO THE MAXIMUM DEMAND CONSIDERING ALL THE NORMAL RELIABLE LOADS. IN DETERMINING THE MAXIMUM DEMAND CONSIDERING ALL THE MOST STRINGENT CONDITION PERMISSIBLE UNDER NORMAL OPERATION WITH OPEN EQUIPMENT. NO LOAD VOLTAGE CORRECTION FACTOR IS WHILE SIZING OF TRANSFORMER.
 31. BRUSHLESS EXCITATION SYSTEM IS ALSO ACCEPTABLE.
 32. # DENOTES RATING TO BE FINALIZED DURING DETAILED ENGINEERING.
 33. DC AMP PANEL SHALL BE LOCATED INDOOR IN A NEARBY ROOM. DC BREAKER SHALL BE LOCATED IN THE DC ACROUSTIC ENCLOSURE.
 34. HT LOAD BREAK SWITCH TO BE PROVIDED FOR 11/6.6 kV RAW WATER TRANSFORMERS.

TRANSFORMERS DETAILS

S/NO	DESCRIPTION	DESIGNATION	RATING & VOLTAGE (KV)	LOCATION OF TRANSFORMER
1	GENERATOR TRANSFORMER	GT	6300 KVA, 11.8 KV / 22 KV	TRANSFORMER HOUSE
2	STATION TRANSFORMER	ST-1, ST-2	36, 40.7/11.8/11.8 KV / 22 KV/22 KV	TRANSFORMER HOUSE
3	UNIT TRANSFORMER	UNIT-A, UNIT-B	3000 KVA, 11.8 KV / 11.8 KV	TRANSFORMER HOUSE
4	UNIT AUXILIARY TRANSFORMER	UNIT-A, UNIT-B	# 300, 11.8 KV / 415V	TRANSFORMER HOUSE
5	SYSTEM AUXILIARY TRANSFORMER	SAT-A, SAT-B	# 300, 11.8 KV / 415V	TRANSFORMER HOUSE
6	ESP TRANSFORMER	ESP-A, ESP-B	# 300, 11.8 KV / 415V	NEAR J - 2
7	SWP AUXILIARY TRANSFORMER	SWP-A, SWP-B	# 300, 11.8 KV / 415V	NEAR SWP HOUSE
8	SWP AUXILIARY TRANSFORMER	SWP-A, SWP-B	# 300, 11.8 KV / 415V	SW PLANT
9	FA AUXILIARY TRANSFORMER	FA-A, FA-B	# 300, 11.8 KV / 415V	EXISTING BAY NEAR RECEIVER
10	BUNKER FEEDING TRANSFORMER	BFA-A, BFA-B	# 300, 11.8 KV / 415V	NEAR J - 6
11	110V AUXILIARY TRANSFORMER	110-A, 110-B	# 300, 11.8 KV / 415V	FSD AREA
12	110V MAIN TRANSFORMER	110-A, 110-B	# 300, 11.8 KV / 415V	MPS 10 CRACK ROOM
13	SOLEIL SERVICE TRANSFORMER	SST-A, SST-B	# 300, 11.8 KV / 415V	MPS 10 CRACK ROOM
14	STATION SERVICE TRANSFORMER	SST-A, SST-B	# 300, 11.8 KV / 415V	MPS 10 CRACK ROOM
15	EMERGENCY SERVICES TRANSFORMER	EST-A, EST-B	# 300, 11.8 KV / 415V	MPS 10 CRACK ROOM
16	ESP TRANSFORMER	ESP-A, ESP-B	# 300, 11.8 KV / 415V	ESP CONTROL ROOM
17	ESP TRANSFORMER	ESP-A, ESP-B	# 300, 11.8 KV / 415V	SW PLANT
18	FIRE FIGHTING TRANSFORMER	FFT-A, FFT-B	# 300, 11.8 KV / 415V	FIRE HOUSE
19	ESP TRANSFORMER	ESP-A, ESP-B	# 300, 11.8 KV / 415V	ESP AREA
20	SWP TRANSFORMER	SWP-A, SWP-B	# 300, 11.8 KV / 415V	SWP HOUSE
21	SWP TRANSFORMER	SWP-A, SWP-B	# 300, 11.8 KV / 415V	SWP CONTROL ROOM
22	SWP TRANSFORMER	SWP-A, SWP-B	# 300, 11.8 KV / 415V	NEAR J - 6
23	SWP TRANSFORMER	SWP-A, SWP-B	# 300, 11.8 KV / 415V	HT CONTROL
24	SWP TRANSFORMER	SWP-A, SWP-B	# 300, 11.8 KV / 415V	HT CONTROL
25	SWP TRANSFORMER	SWP-A, SWP-B	# 300, 11.8 KV / 415V	HT CONTROL
26	SWP TRANSFORMER	SWP-A, SWP-B	# 300, 11.8 KV / 415V	HT CONTROL
27	SWP TRANSFORMER	SWP-A, SWP-B	# 300, 11.8 KV / 415V	HT CONTROL
28	SWP TRANSFORMER	SWP-A, SWP-B	# 300, 11.8 KV / 415V	HT CONTROL
29	SWP TRANSFORMER	SWP-A, SWP-B	# 300, 11.8 KV / 415V	HT CONTROL
30	SWP TRANSFORMER	SWP-A, SWP-B	# 300, 11.8 KV / 415V	HT CONTROL

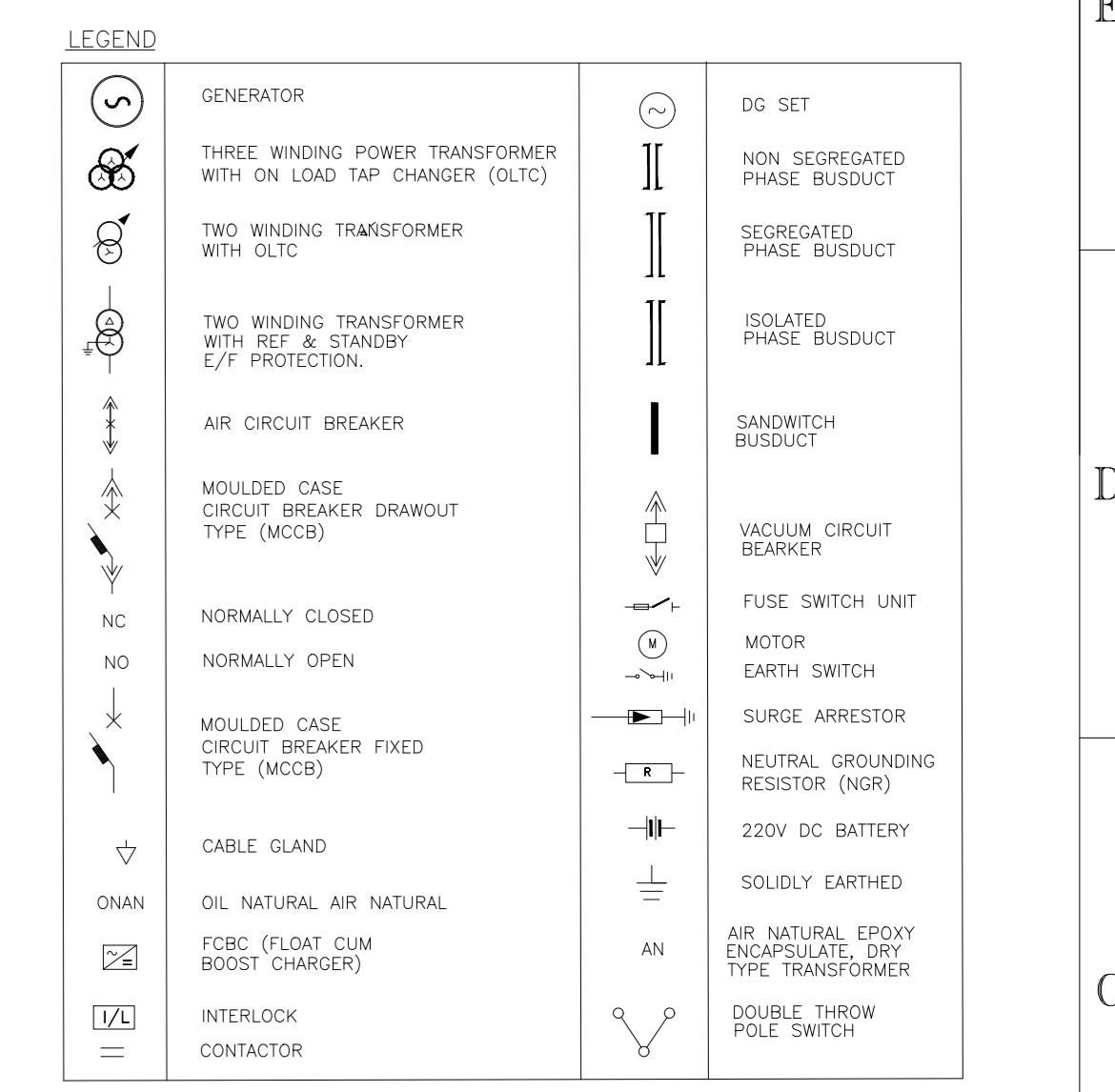


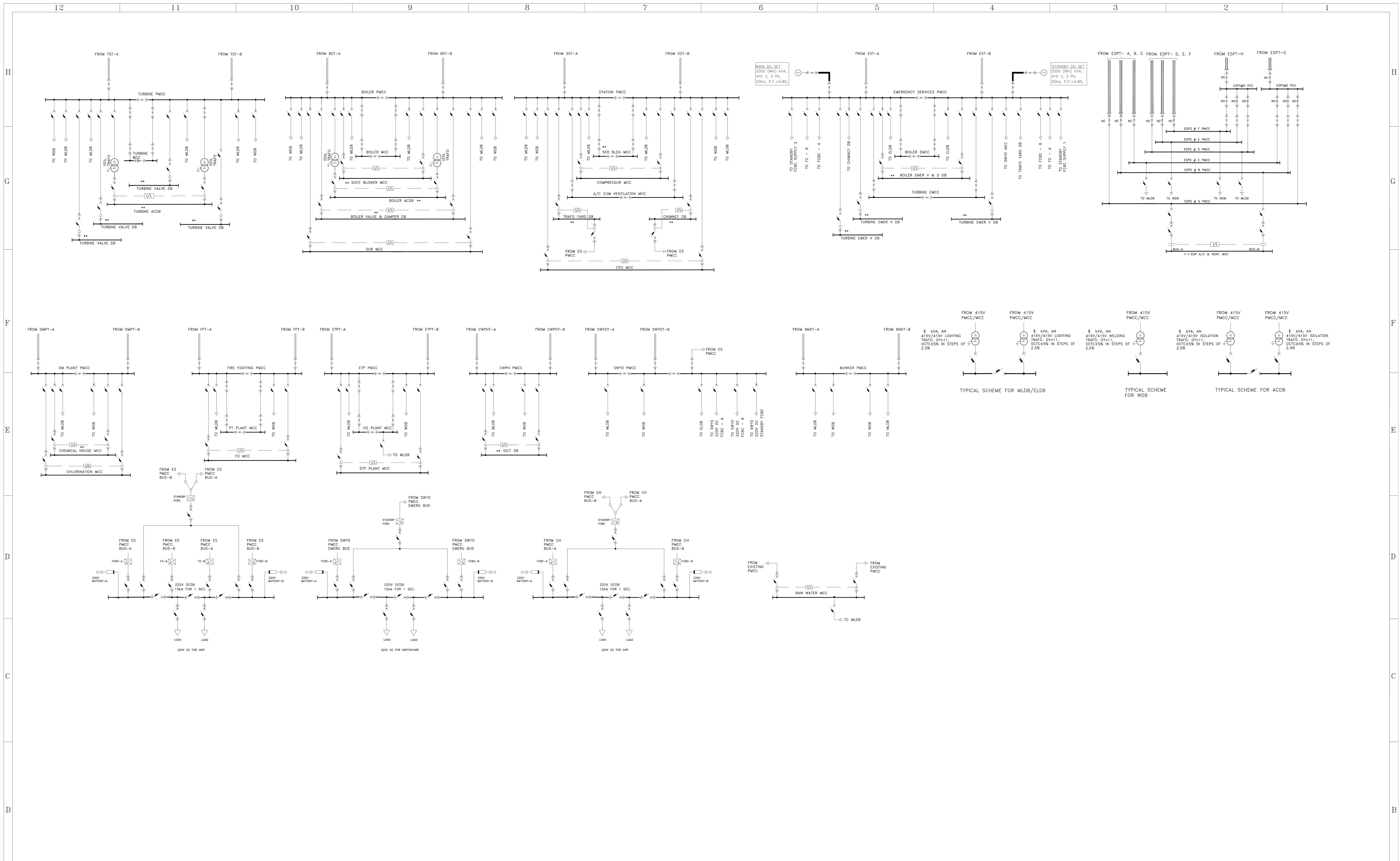
TABLE-1

SL.NO.	DESCRIPTION	LOCATION	QTY.	MOTORS RATED ABOVE 1500 KW										
				1 UA	1 LB	1 SA	1 SB	2 SA	2 SB	CHPS	FSDS			
1.	MD BIP MOTOR	TG HALL	1			1								
2.	DF FAN MOTOR	DF FAN AREA	2	1	1									
3.	FD FAN MOTOR	BOLLER AREA	2	1	1									
4.	FA FAN MOTOR	BOLLER AREA	2	1	1									
5.	OW PUMP MOTOR	OW PUMP HOUSE	3	1	1					1				
6.	OC PUMP MOTOR	TG HALL	3	1	1									
7.	CE PUMP MOTOR	BOLLER AREA	1	1										
8.	CRUSHER MOTOR	CHP	4									4		
9.	ABSORBER RECIRCULATION PUMP MOTOR	FSD	2											2

TABLE-2

SL.NO.	DESCRIPTION	LOCATION	QTY.	MOTORS RATED ABOVE 160 KW & UP TO 1500 KW														
				US BUS-A	US BUS-B	SAS	CHPS	AHPS	BRAS	FSDS	DMPAS	RWAS						
1.	ACW PUMP MOTOR	OW PUMP HOUSE	2	1	1													
2.	DRIP PUMP	TG HALL	2	1	1													
3.	MILL MOTOR	AROUND FURNACE	8						8									
4.	TO DMOW PUMP MOTOR	TG HALL	5	2	1													
5.	SO DMOW PUMP MOTOR	TG HALL	2	1	1													
6.	MAC MOTOR	CLUMP HOUSE	5															
7.	SAC MOTOR	COMP HOUSE	3				3											
8.	BOLLER FILL PUMP MOTOR	NEAR CSD	2				2											
9.	SWHP WATER PUMP	AHP	2							2								
10.	AWH SLURRY DISPOSAL PUMP MOTOR	AH PUMP HOUSE	9															
11.	BUNKER FEEDING CONV. MOTOR	BUNKER AREA	6								6							
12.	AHP/ESP WASH PUMP MOTOR	WTP	2										2					
13.	CT MAKEUP PUMP MOTOR	WTP	2									2						
14.	RAW WATER INTAKE PUMP MOTOR	RESERVOIR (E)	2											2				
15.	COOLING AIR BLOWER MOTOR	FSD	2												2			
16.	WET BALL MILL MOTOR	FSD	2													2		
17.	VACUUM PUMP MOTOR	FSD	2													2		
18.	AHP INSTRUMENT COMPRESSOR MOTOR	AHP	2													2		
19.	CONVERTERS	CHP	9													9		

11	10	9	8	7	6	5	4	3	2	1		
REFERENCE DRAWINGS.		NOTES		NOTICE		7		CLIENT: HARYANA POWER GENERATION CORPORATION LTD.		NAME	SIGN.	DATE
		DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.		THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY, IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.		6		CONSULTANT: DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA		CAD/DRAWN	MOTI RAM	17.10.2022
						5		PROJECT: 1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR		DESIGNED	VNG	17.10.2022
						4		TITLE :- MAIN SINGLE LINE DIAGRAM		CHECKED	VNG	17.10.2022
						3				SCALE	NTS	
						2				JOB. NO.	D-04041	
						1				DWG. NO.	112-10-100	
						0				REV.	1	
						7				Sheet No. 01 OF 02		
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SR. No.	PARTY	PRINT DISTRIBUTION
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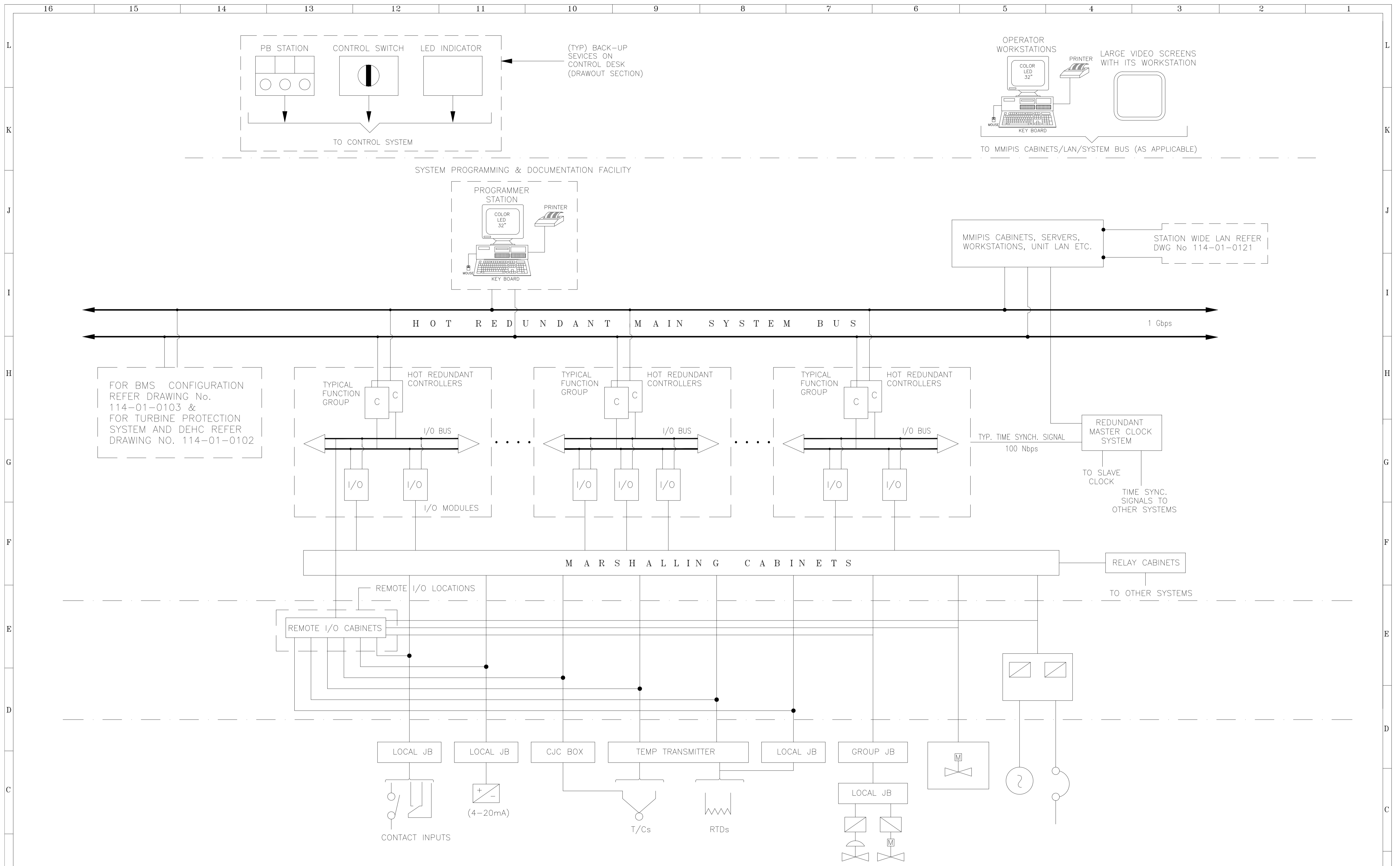
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CLIENT:	NAME	SIGN.	DATE
HARYANA POWER GENERATION CORPORATION LTD.	MOTI RAM		17.10.2022

CONSULTANT:	DESIGNED	CHECKED	SCALE
DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	VNG	VNG	NTS

PROJECT:	JOB. NO.	REV.
1x800 MW SUPER CRITICAL EXPANSION UNIT, DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR	D-04041	1

TITLE :-	DWG. NO.	Sheet No.	OF	TOTAL
MAIN SINGLE LINE DIAGRAM	112-10-100	02	OF	02



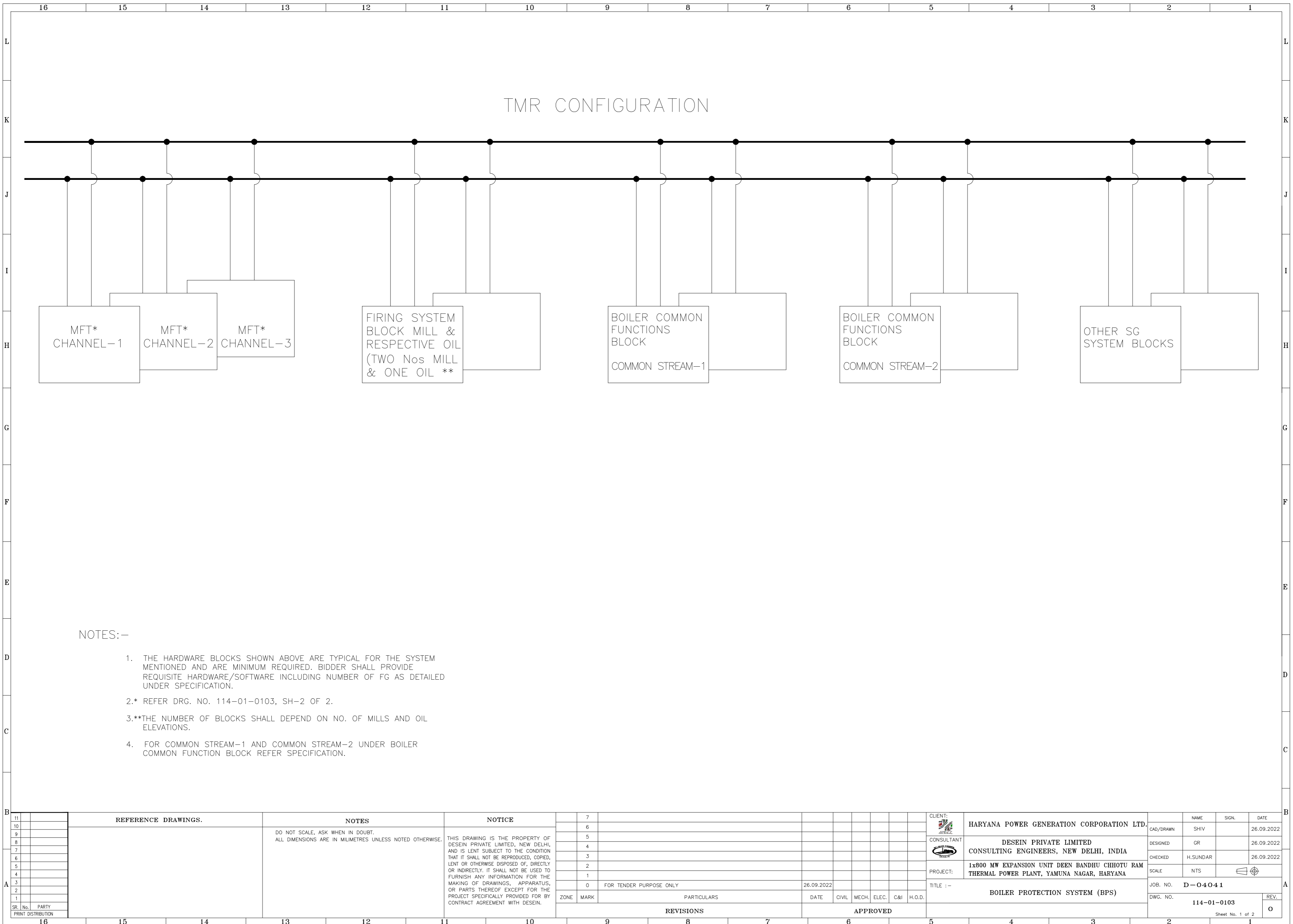
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ZONE	MARK	PARTICULARS	DATE	CIVIL	MECH.	ELEC.	C&I	H.O.D.
			26.09.2022					

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CLIENT:	NAME	SIGN.	DATE
HARYANA POWER GENERATION CORPORATION LTD.	SHIV		26.09.2022
CONSULTANT:	DESIGNED	CHECKED	SCALE
DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	GR	H.SUNDAR	NTS
PROJECT:	JOB. NO.	DWG. NO.	REV.
1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA	D-04041	114-01-0100	O

REFERENCE DRAWINGS.	NOTES	NOTICE
	DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.	THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.

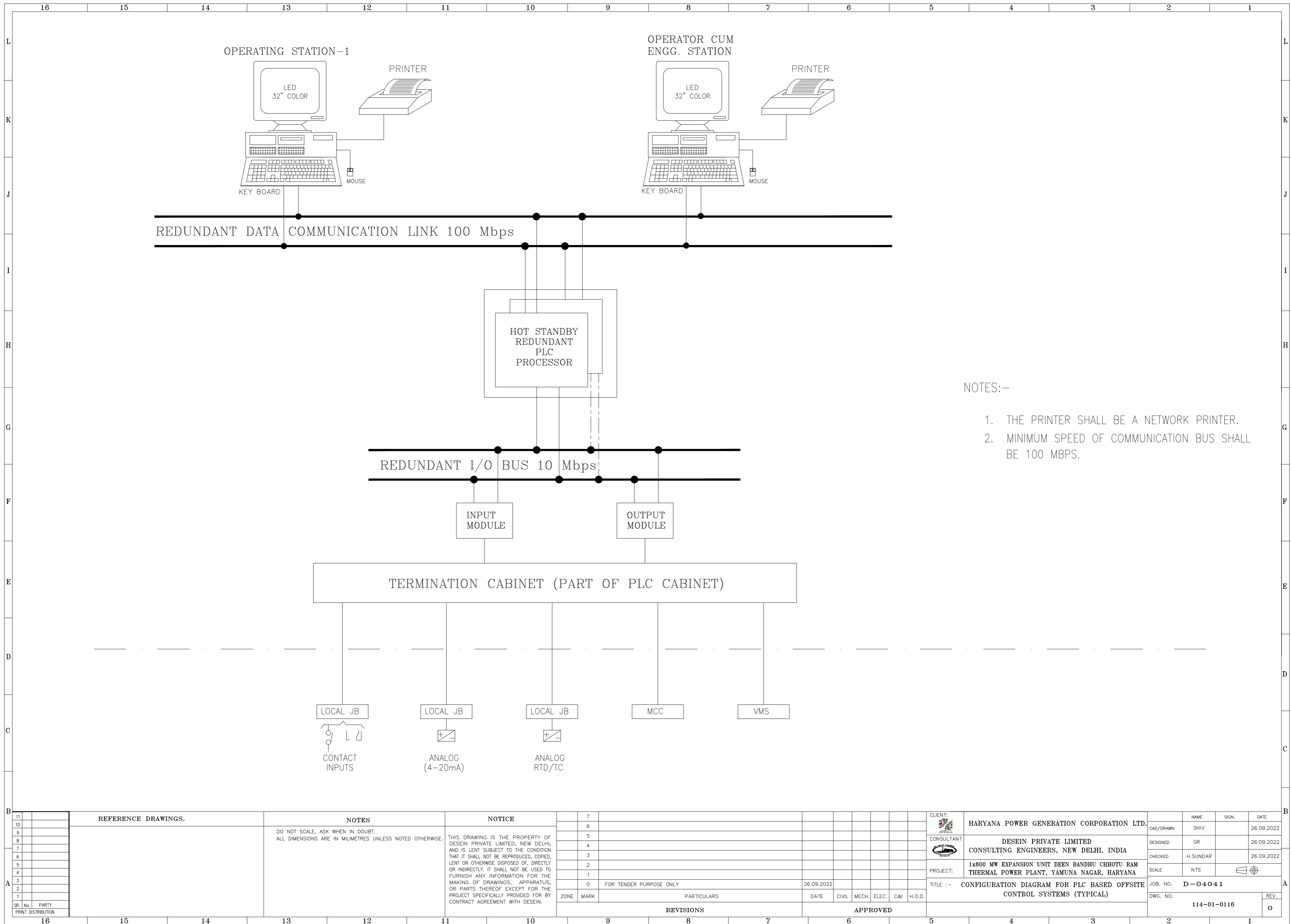


NOTES:-

1. THE HARDWARE BLOCKS SHOWN ABOVE ARE TYPICAL FOR THE SYSTEM MENTIONED AND ARE MINIMUM REQUIRED. BIDDER SHALL PROVIDE REQUISITE HARDWARE/SOFTWARE INCLUDING NUMBER OF FG AS DETAILED UNDER SPECIFICATION.
- 2.* REFER DRG. NO. 114-01-0103, SH-2 OF 2.
- 3.**THE NUMBER OF BLOCKS SHALL DEPEND ON NO. OF MILLS AND OIL ELEVATIONS.
4. FOR COMMON STREAM-1 AND COMMON STREAM-2 UNDER BOILER COMMON FUNCTION BLOCK REFER SPECIFICATION.

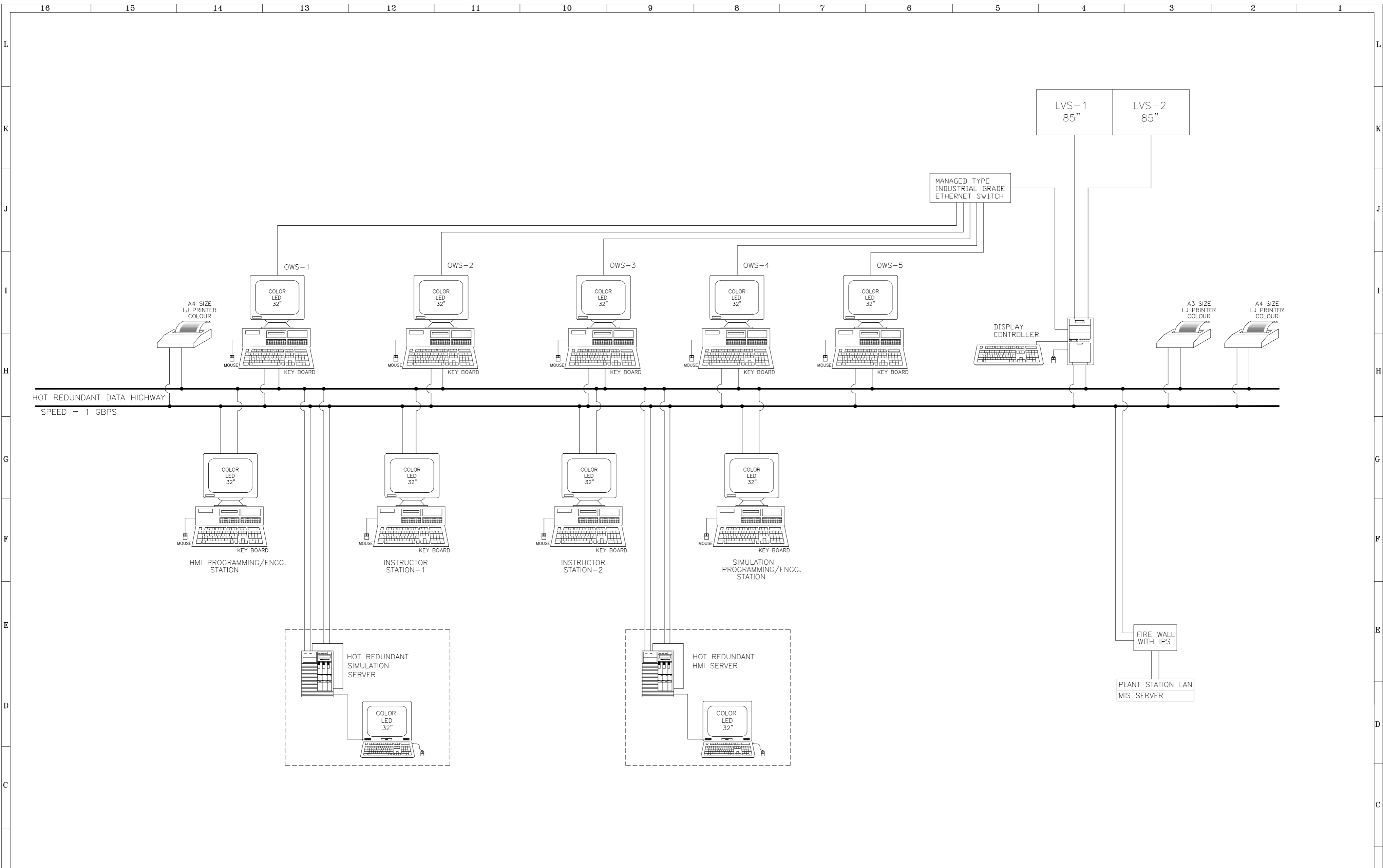
SR. No.	PARTY	REFERENCE DRAWINGS.				NOTES				NOTICE				7	6	5	4	3	2	1
16																				

CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SIGN.	DATE
CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	CAD/DRAWN	SHIV	26.09.2022
PROJECT:	1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA	DESIGNED	GR	26.09.2022
		CHECKED	H.SUNDAR	26.09.2022
		SCALE	NTS	
TITLE :-		BOILER PROTECTION SYSTEM (BPS)		
		JOB. NO.	D-04041	
		DWG. NO.	114-01-0103	
		REV.	O	
Sheet No. 1 of 2				



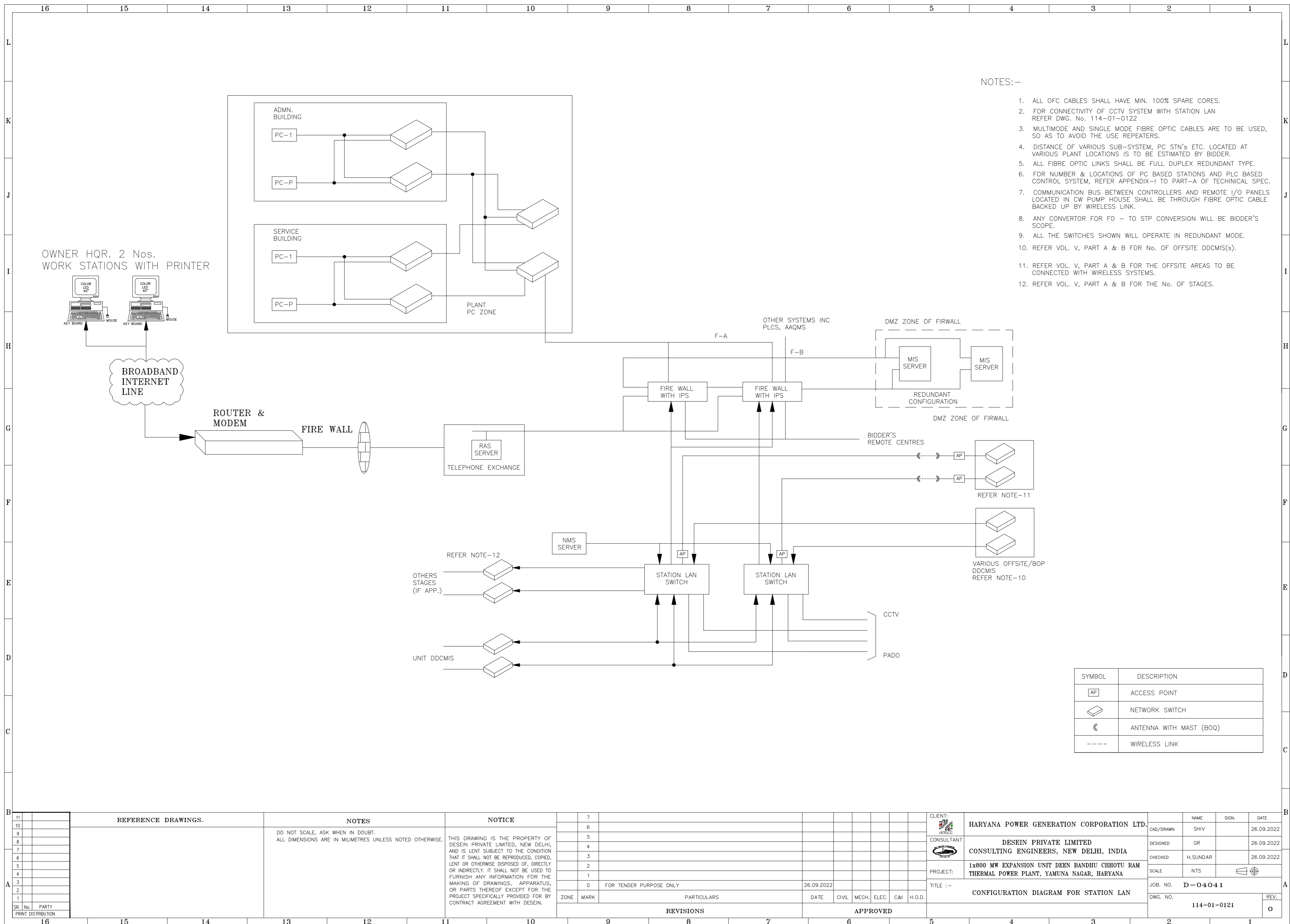
- NOTES:-
1. THE PRINTER SHALL BE A NETWORK PRINTER.
 2. MINIMUM SPEED OF COMMUNICATION BUS SHALL BE 100 MBPS.

11	REFERENCE DRAWINGS.	NOTES	NOTICE	7		CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SHIV	SIGN.	DATE	26.09.2022			
10		DO NOT SCALE, ASK WHEN IN DOUBT.		6		CONSULTANT	DESEIN PRIVATE LIMITED	DESIGNED	GR			26.09.2022			
9		ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.		5			CONSULTING ENGINEERS, NEW DELHI, INDIA	CHECKED	H.SUNDAR			26.09.2022			
8			THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.	4		PROJECT:	1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA	SCALE	NTS						
7				3											
6				2		TITLE :-	CONFIGURATION DIAGRAM FOR PLC BASED OFFSITE CONTROL SYSTEMS (TYPICAL)	JOB. NO.	D-04041						
5				1	FOR TENDER PURPOSE ONLY	DATE	26.09.2022	DWG. NO.	114-01-0116	REV.					
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	PRINT DISTRIBUTION														
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REFERENCE DRAWINGS.				NOTES				NOTICE				7	
				DO NOT SCALE, ASK WHEN IN DOUBT.				THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.				26.09.2022	
												FOR TENDER PURPOSE ONLY	
												DATE	
												CIVIL MECH. ELEC. C&I H.O.D.	
												APPROVED	
												REVISIONS	

CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SHIV	SIGN.		DATE	26.09.2022
CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED	GR	CHECKED	H.SUNDAR	26.09.2022	
PROJECT:	1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA	SCALE	NTS				
TITLE :-	SYSTEM CONFIGURATION DIAGRAM FOR SIMULATOR SYSTEM	JOB. NO. D-04041					
		DWG. NO. 114-01-0117					
				REV.	O		



NOTES:-

1. ALL OFC CABLES SHALL HAVE MIN. 100% SPARE CORES.
2. FOR CONNECTIVITY OF CCTV SYSTEM WITH STATION LAN REFER DWG. No. 114-01-0122
3. MULTIMODE AND SINGLE MODE FIBRE OPTIC CABLES ARE TO BE USED, SO AS TO AVOID THE USE REPEATERS.
4. DISTANCE OF VARIOUS SUB-SYSTEM, PC STN's ETC. LOCATED AT VARIOUS PLANT LOCATIONS IS TO BE ESTIMATED BY BIDDER.
5. ALL FIBRE OPTIC LINKS SHALL BE FULL DUPLEX REDUNDANT TYPE.
6. FOR NUMBER & LOCATIONS OF PC BASED STATIONS AND PLC BASED CONTROL SYSTEM, REFER APPENDIX-I TO PART-A OF TECHNICAL SPEC.
7. COMMUNICATION BUS BETWEEN CONTROLLERS AND REMOTE I/O PANELS LOCATED IN CW PUMP HOUSE SHALL BE THROUGH FIBRE OPTIC CABLE BACKED UP BY WIRELESS LINK.
8. ANY CONVERTOR FOR FO - TO STP CONVERSION WILL BE BIDDER'S SCOPE.
9. ALL THE SWITCHES SHOWN WILL OPERATE IN REDUNDANT MODE.
10. REFER VOL. V, PART A & B FOR No. OF OFFSITE DDCMIS(s).
11. REFER VOL. V, PART A & B FOR THE OFFSITE AREAS TO BE CONNECTED WITH WIRELESS SYSTEMS.
12. REFER VOL. V, PART A & B FOR THE No. OF STAGES.

SYMBOL	DESCRIPTION
[AP]	ACCESS POINT
[Network Switch Icon]	NETWORK SWITCH
[Antenna with Mast]	ANTENNA WITH MAST (BOQ)
---	WIRELESS LINK

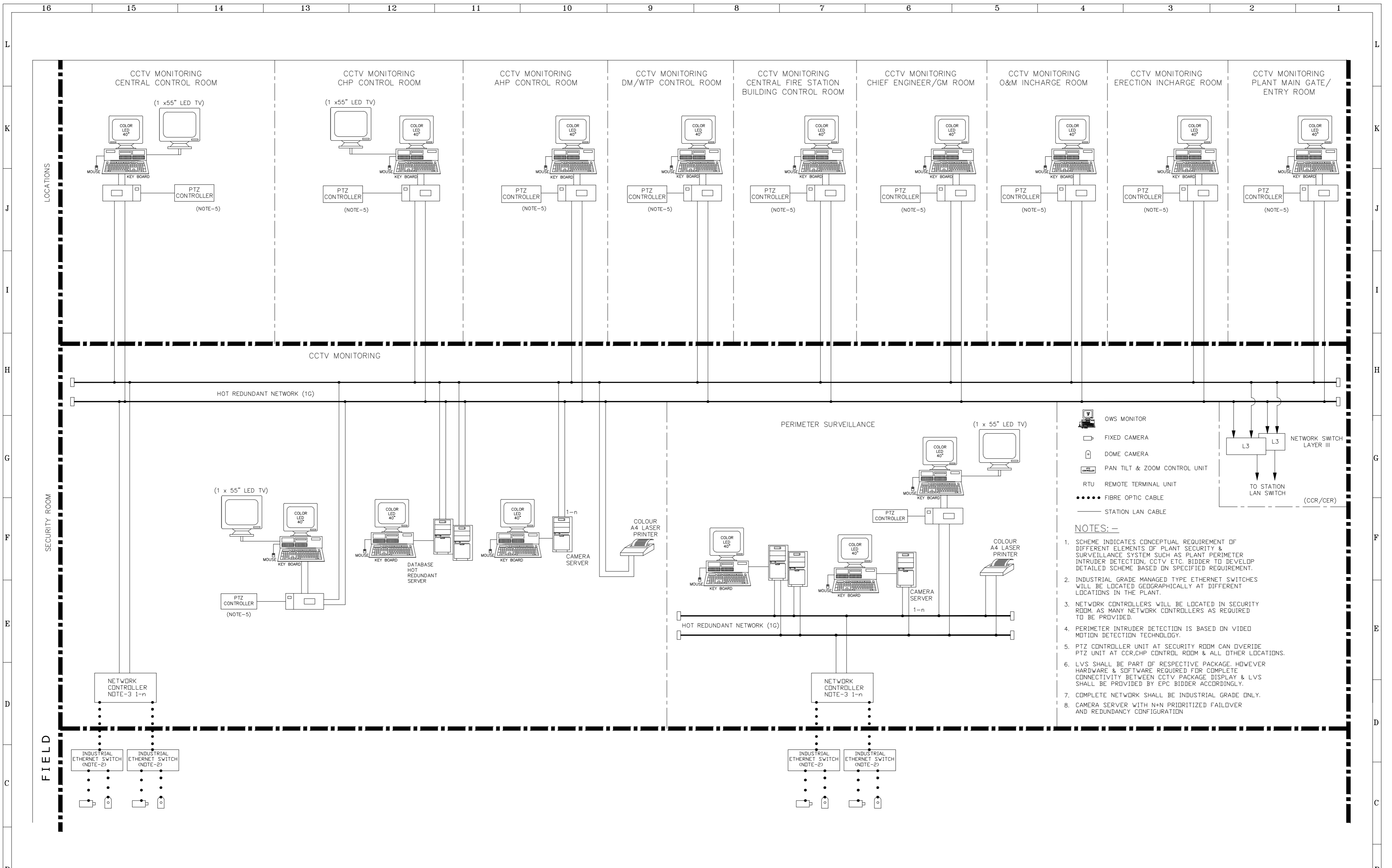
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REFERENCE DRAWINGS.		NOTES	NOTICE
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ELEC.	C&I	
H.O.D.		

ZONE	MARK	PARTICULARS	DATE	CIVIL	MECH.	ELEC.	C&I	H.O.D.	
REVISIONS					APPROVED				

CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SHIV	SIGN.		DATE	26.09.2022
CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED	GR			CHECKED	H.SUNDAR 26.09.2022
PROJECT:	1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA	SCALE	NTS				
TITLE :-	CONFIGURATION DIAGRAM FOR STATION LAN	JOB. NO.	D-04041				
		DWG. NO.	114-01-0121			REV.	O

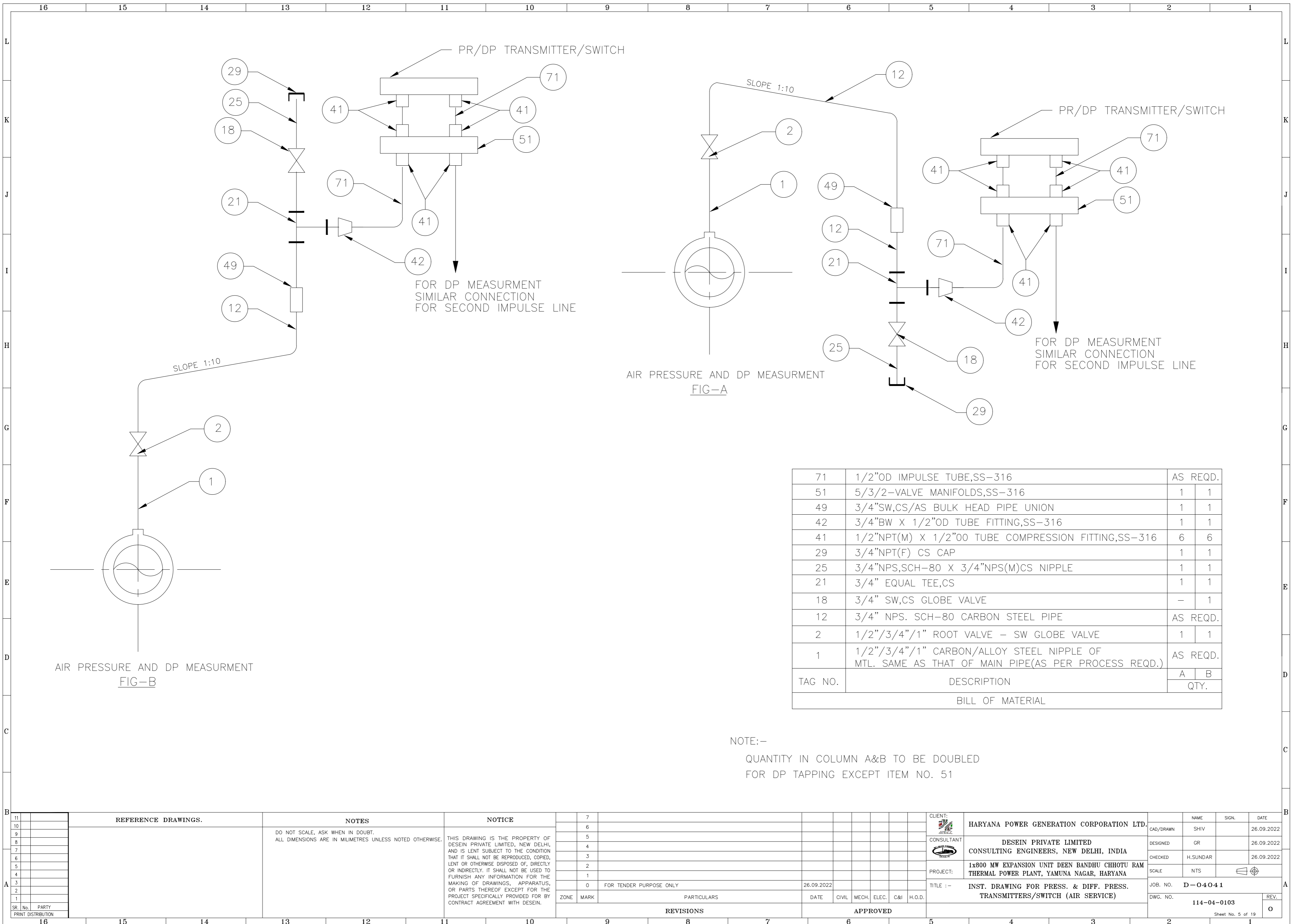


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REFERENCE DRAWINGS.			NOTES			NOTICE													
			DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.			THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.													
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REVISIONS									APPROVED										
CLIENT:										HARYANA POWER GENERATION CORPORATION LTD.				NAME		SIGN.		DATE	
CONSULTANT:										DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA				CAD/DRAWN		SHIV		26.09.2022	
PROJECT:										1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA				DESIGNED		GR		26.09.2022	
TITLE :-										SYSTEM CONFIGURATION DIAGRAM FOR PLANT SECURITY & SURVEILLANCE SYSTEM. (CCTV & PERIMETER INTRUDER DETECTION SYSTEM)				CHECKED		H.SUNDAR		26.09.2022	
												SCALE		NTS					
												JOB. NO.		D-04041					
												DWG. NO.		114-01-0122					
												REV.		O					
												Sheet No. 1 of 1							

LIST OF INSTALLATION DRAWINGS

S.NO.	DESCRIPTION	DWG.NO.	REV.
1.	DRAWING FOR 'U' TUBE	114-04-0100	00
2.	INST. DRAWING FOR FLOW MEASUREMENT.	114-04-0101	00
3.	INST. DRAWING FOR PRESSURE & DIFF. PRESSURE TRANSMITTER/SWITCH (OIL SERVICE)	114-04-0102	00
4.	INST. DRAWING FOR PRESSURE & DIFF. PRESSURE TRANSMITTERS/SWITCH (AIR SERVICE)	114-04-0103	00
5.	INST. DRAWING FOR PRESSURE & DIFF. PRESSURE TRANSMITTERS/SWITCH (STEAM & LIQUID SERVICE)	114-04-0104	00
6.	INST. DRAWING FOR PRESSURE & DIFF. PRESSURE TRANSMITTERS (FLUE GAS SERVICE)	114-04-0105	00
7.	INST. DRAWING FOR LOCAL PRESSURE GAUGE	114-04-0106	00
8.	INST. DRAWING FOR FLOW TRANSMITTERS (AIR SERVICE)	114-04-0107	00
9.	INST. DRAWING FOR LOCAL PRESSURE/DIFF. PRESSURE SWITCH/GAUGE/LEVEL SWITCHES	114-04-0108	00
10.	INST. DRAWING FOR FLOW TRANSMITTERS (WATER & STEAM) SERVICE)	114-04-0109	00
11.	INST. DRAWING FOR LEVEL TRANSMITTERS	114-04-0110	00
12.	INST. DRAWING FOR TEMP. STUB.	114-04-0111	00
13.	INST. DRAWING FOR AIR PURGING	114-04-0112	00
14.	INST. DRAWING FOR LEVEL SWITCH	114-04-0113	00
15.	HOOK-UP DIAGRAM FOR CONTROL VALVE (WITH PNEUMATIC ACTUATOR)	114-18-0100	00

S.No.	PARTY	REFERENCE DRAWINGS.	NOTES	NOTICE	REVISIONS	APPROVED	CLIENT	CONSULTANT	PROJECT	TITLE	JOB NO.	DWG. NO.	REV.
11								HARYANA POWER GENERATION CORPORATION LTD.	1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA	LIST OF INSTALLATION DRAWINGS	D-04041	114-04-0000	O
10			DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.	THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.				DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA					
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AIR PRESSURE AND DP MEASUREMENT
FIG-A

AIR PRESSURE AND DP MEASUREMENT
FIG-B

TAG NO.	DESCRIPTION	QTY.	
		A	B
71	1/2"OD IMPULSE TUBE,SS-316	AS REQD.	
51	5/3/2-VALVE MANIFOLDS,SS-316	1	1
49	3/4"SW,CS/AS BULK HEAD PIPE UNION	1	1
42	3/4"BW X 1/2"OD TUBE FITTING,SS-316	1	1
41	1/2"NPT(M) X 1/2"OD TUBE COMPRESSION FITTING,SS-316	6	6
29	3/4"NPT(F) CS CAP	1	1
25	3/4"NPS,SCH-80 X 3/4"NPS(M)CS NIPPLE	1	1
21	3/4" EQUAL TEE,CS	1	1
18	3/4" SW,CS GLOBE VALVE	-	1
12	3/4" NPS. SCH-80 CARBON STEEL PIPE	AS REQD.	
2	1/2"/3/4"/1" ROOT VALVE - SW GLOBE VALVE	1	1
1	1/2"/3/4"/1" CARBON/ALLOY STEEL NIPPLE OF MTL. SAME AS THAT OF MAIN PIPE(AS PER PROCESS REQD.)	AS REQD.	
		A	B
		QTY.	
BILL OF MATERIAL			

NOTE:-
QUANTITY IN COLUMN A&B TO BE DOUBLED
FOR DP TAPPING EXCEPT ITEM NO. 51

SR. No.		PARTY	PRINT DISTRIBUTION
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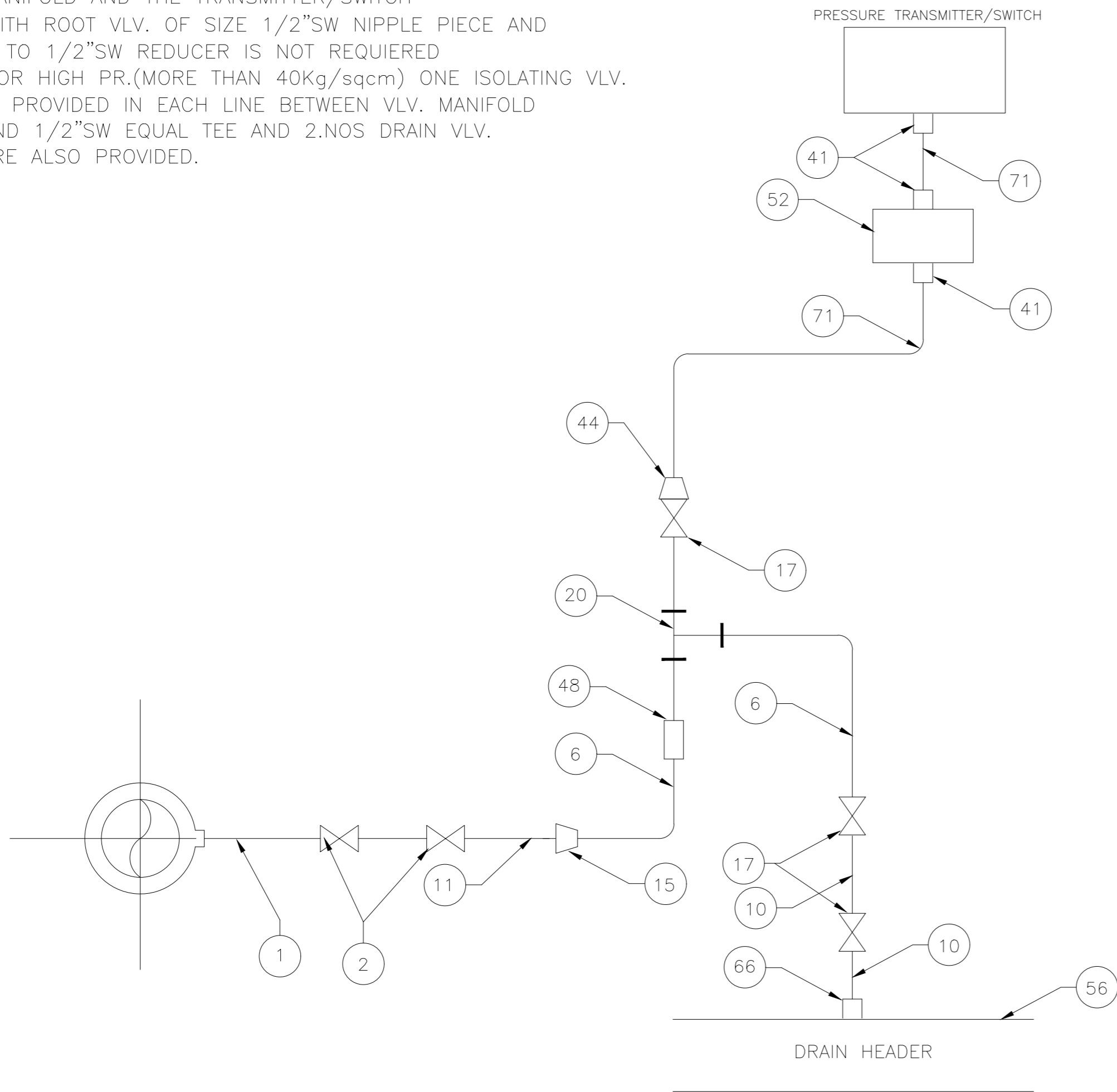
REFERENCE DRAWINGS.	NOTES	NOTICE	7	6	5	4	3	2	1		
	DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.	THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.									
			FOR TENDER PURPOSE ONLY	26.09.2022							
			ZONE	MARK	PARTICULARS	DATE	CIVIL	MECH.	ELEC.	C&I	H.O.D.
			REVISIONS			APPROVED					

CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SHIV	SIGN.		DATE	26.09.2022
CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED	GR	CHECKED	H.SUNDAR	DATE	26.09.2022
PROJECT:	1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA	SCALE	NTS				
TITLE :-	INST. DRAWING FOR PRESS. & DIFF. PRESS. TRANSMITTERS/SWITCH (AIR SERVICE)	JOB. NO.	D-04041				
		DWG. NO.	114-04-0103		REV.		
							O

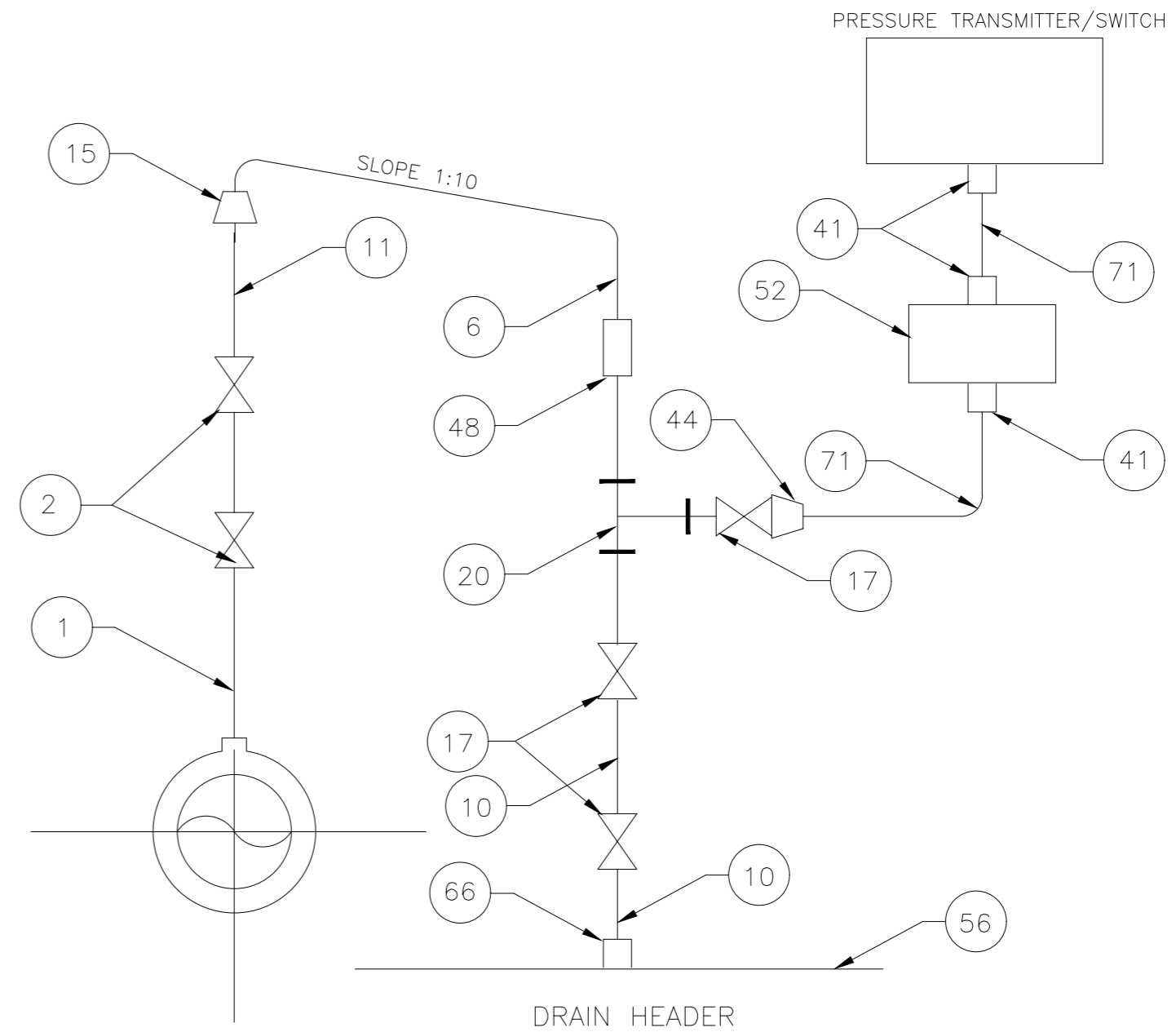
Sheet No. 5 of 19

NOTE:-

1. FOR HIGH TEMP. SERVICE (MORE THAN 80C) A 'U'-TUBE / SYPHON (REF. DWG NO. IN-114-04-0100) SHALL BE PROVIDED BETWEEN THE MANIFOLD AND THE TRANSMITTER/SWITCH
2. WITH ROOT VLV. OF SIZE 1/2"SW NIPPLE PIECE AND 1 TO 1/2"SW REDUCER IS NOT REQUIRED
3. FOR HIGH PR.(MORE THAN 40Kg/sqcm) ONE ISOLATING VLV. IS PROVIDED IN EACH LINE BETWEEN VLV. MANIFOLD AND 1/2"SW EQUAL TEE AND 2.NOS DRAIN VLV. ARE ALSO PROVIDED.



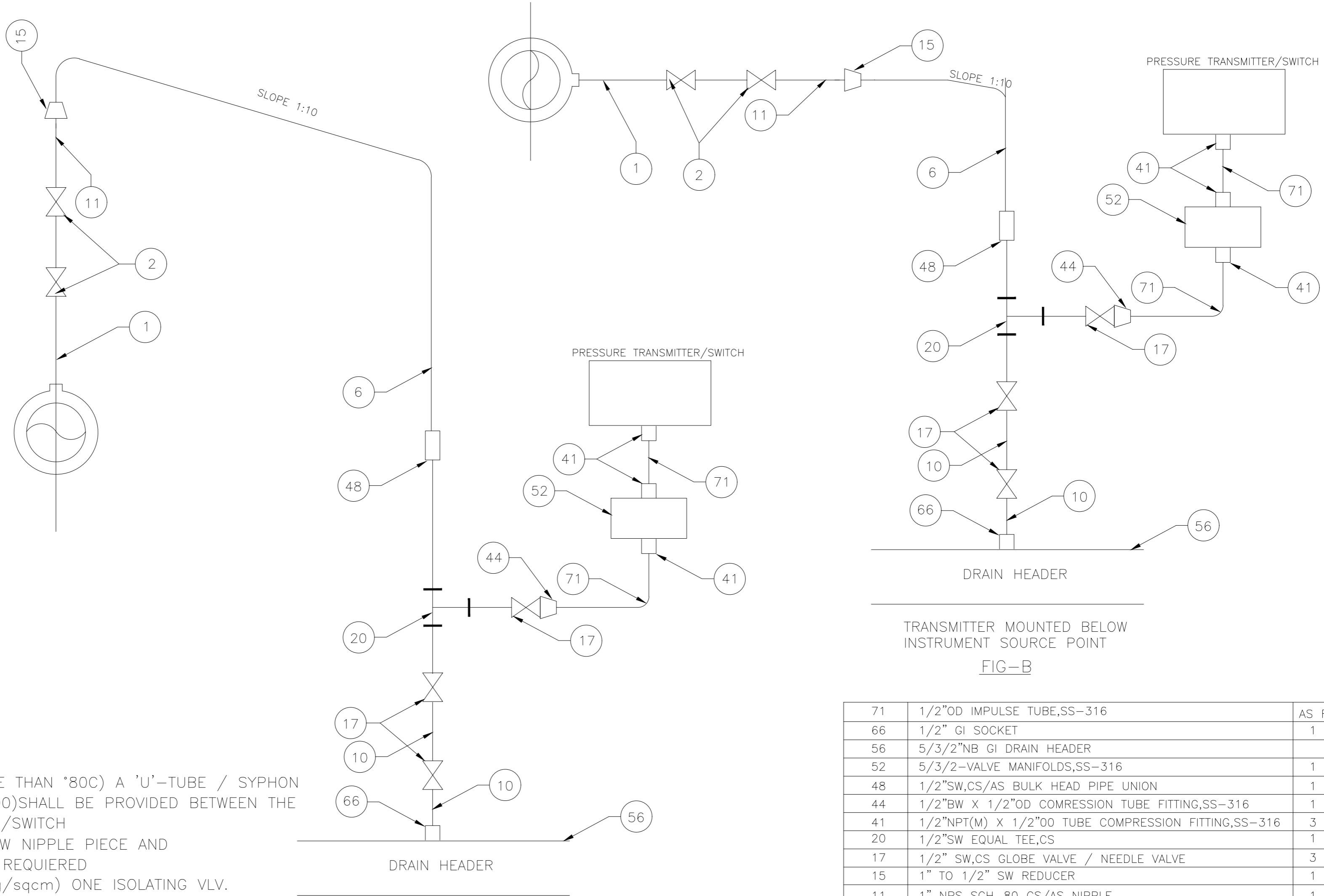
TRANSMITTER MOUNTED ABOVE INSTRUMENT SOURCE POINT
FIG-D



TRANSMITTER MOUNTED ABOVE INSTRUMENT SOURCE POINT
FIG-C

TAG NO.	DESCRIPTION	QTY.	
71	1/2"OD IMPULSE TUBE,SS-316	AS REQD.	
66	1/2" GI SOCKET	1	1
56	2"NB GI DRAIN HEADER		
52	5/3/2-VALVE MANIFOLDS,SS-316	1	1
48	1/2"SW,CS/AS BULK HEAD PIPE UNION	1	1
44	1/2"BW X 1/2"OD COMPRESSION TUBE FITTING,SS-316	1	1
41	1/2"NPT(M) X 1/2"OO TUBE COMPRESSION FITTING,SS-316	3	3
20	1/2"SW EQUAL TEE,CS	1	1
17	1/2" SW,CS GLOBE VALVE / NEEDLE VALVE	3	3
15	1" TO 1/2" SW REDUCER	1	1
11	1" NPS SCH-80 CS/AS NIPPLE	1	1
10	1/2" NPS,SCH 80/160, CS/AS NIPPLE	2	2
6	1/2" NPS. SCH-80/160 CS/ AS PIPE	AS REQD.	
2	1/2"/3/4"/1" ROOT VALVE	2	2
1	1/2"/3/4"/1" CARBON/ALLOY STEEL NIPPLE OF MTL. SAME AS THAT OF MAIN PIPE(AS PER PROCESS REQD.)	AS REQD.	
		C	D
BILL OF MATERIAL			

SR. No.	PARTY	PRINT DISTRIBUTION	REFERENCE DRAWINGS.	NOTES	NOTICE	REVISIONS	APPROVED	DATE	CIVIL	MECH.	ELEC.	C&I	H.O.D.
11													
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5													
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1													
<p>THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.</p>													
<p>FOR TENDER PURPOSE ONLY 26.09.2022</p>													
<p>CLIENT: HARYANA POWER GENERATION CORPORATION LTD.</p> <p>CONSULTANT: DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA</p> <p>PROJECT: 1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA</p> <p>TITLE :- INST. DRAWING FOR PRESS. & DIFF.PRESS. TRANSMITTERS/SWITCH (STEAM & LIQUID SERVICE)</p> <p>JOB. NO. D-04041</p> <p>DWG. NO. 114-04-0104</p> <p>SCALE: NTS</p> <p>DATE: 26.09.2022</p> <p>DESIGNED: GR</p> <p>CHECKED: H.SUNDAR</p> <p>CAD/DRAWN: SHIV</p> <p>DATE: 26.09.2022</p> <p>REV. O</p> <p>Sheet No. 7 of 19</p>													



NOTE:-
 1. FOR HIGH TEMP. SERVICE (MORE THAN 80C) A 'U'-TUBE / SYPHON (REF. DWG NO. IN-114-04-0100) SHALL BE PROVIDED BETWEEN THE MANIFOLD AND THE TRANSMITTER/SWITCH
 2. WITH ROOT VLV. OF SIZE 1/2"SW NIPPLE PIECE AND 1 TO 1/2"SW REDUCER IS NOT REQUIRED
 3. FOR HIGH PR.(MORE THAN 40Kg/sqcm) ONE ISOLATING VLV. IS PROVIDED IN EACH LINE BETWEEN VLV. MANIFOLD AND 1/2"SW EQUAL TEE AND 2.NOS DRAIN VLV. ARE ALSO PROVIDED.

TRANSMITTER MOUNTED BELOW INSTRUMENT SOURCE POINT
 FIG-B

TAG NO.	DESCRIPTION	QTY.	
71	1/2"OD IMPULSE TUBE,SS-316	AS REQD.	
66	1/2" GI SOCKET	1	1
56	5/3/2"NB GI DRAIN HEADER		
52	5/3/2"-VALVE MANIFOLDS,SS-316	1	1
48	1/2"SW,CS/AS BULK HEAD PIPE UNION	1	1
44	1/2"BW X 1/2"OD COMPRESSION TUBE FITTING,SS-316	1	1
41	1/2"NPT(M) X 1/2"OD TUBE COMPRESSION FITTING,SS-316	3	3
20	1/2"SW EQUAL TEE,CS	1	1
17	1/2" SW,CS GLOBE VALVE / NEEDLE VALVE	3	3
15	1" TO 1/2" SW REDUCER	1	1
11	1" NPS SCH-80 CS/AS NIPPLE	1	1
10	1/2" NPS,SCH 80/160, CS/AS NIPPLE	2	2
6	1/2" NPS. SCH-80/160 CS/ AS PIPE	AS REQD.	
2	1/2"/3/4"/1" ROOT VALVE	2	2
1	1/2"/3/4"/1" CARBON/ALLOY STEEL NIPPLE OF MTL. SAME AS THAT OF MAIN PIPE(AS PER PROCESS REQD.)	AS REQD.	
BILL OF MATERIAL		A	B

SR. No.	PARTY	REFERENCE DRAWINGS.	NOTES	NOTICE	7	6	5	4	3	2	1
1			DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.	THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.							
2					0	FOR TENDER PURPOSE ONLY	26.09.2022				
REVISIONS					APPROVED						
ZONE MARK					PARTICULARS						
DATE					CIVIL MECH. ELEC. C&I H.O.D.						

CLIENT: HARYANA POWER GENERATION CORPORATION LTD.

CONSULTANT: DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA

PROJECT: 1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA

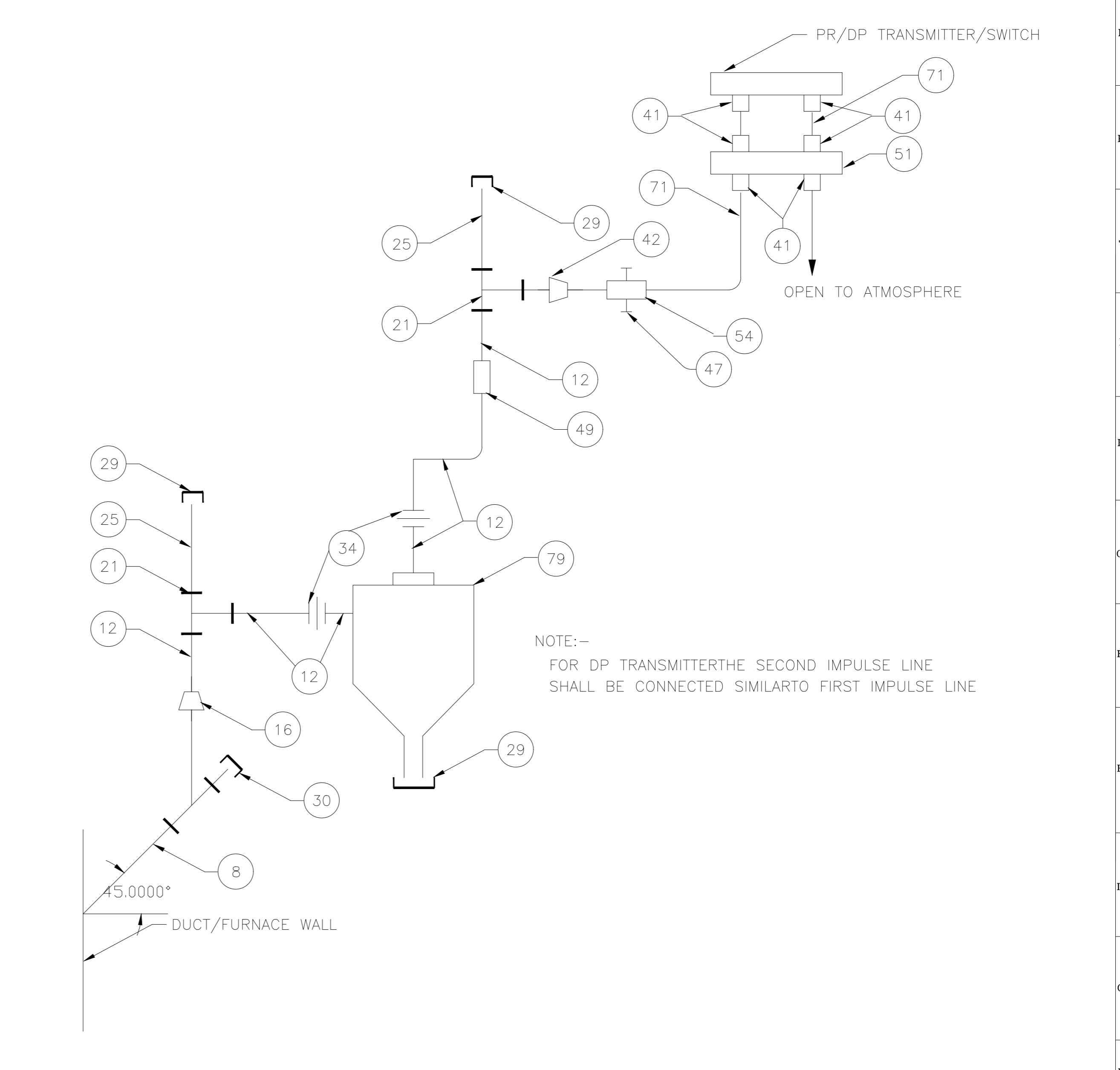
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JOB. NO. D-04041

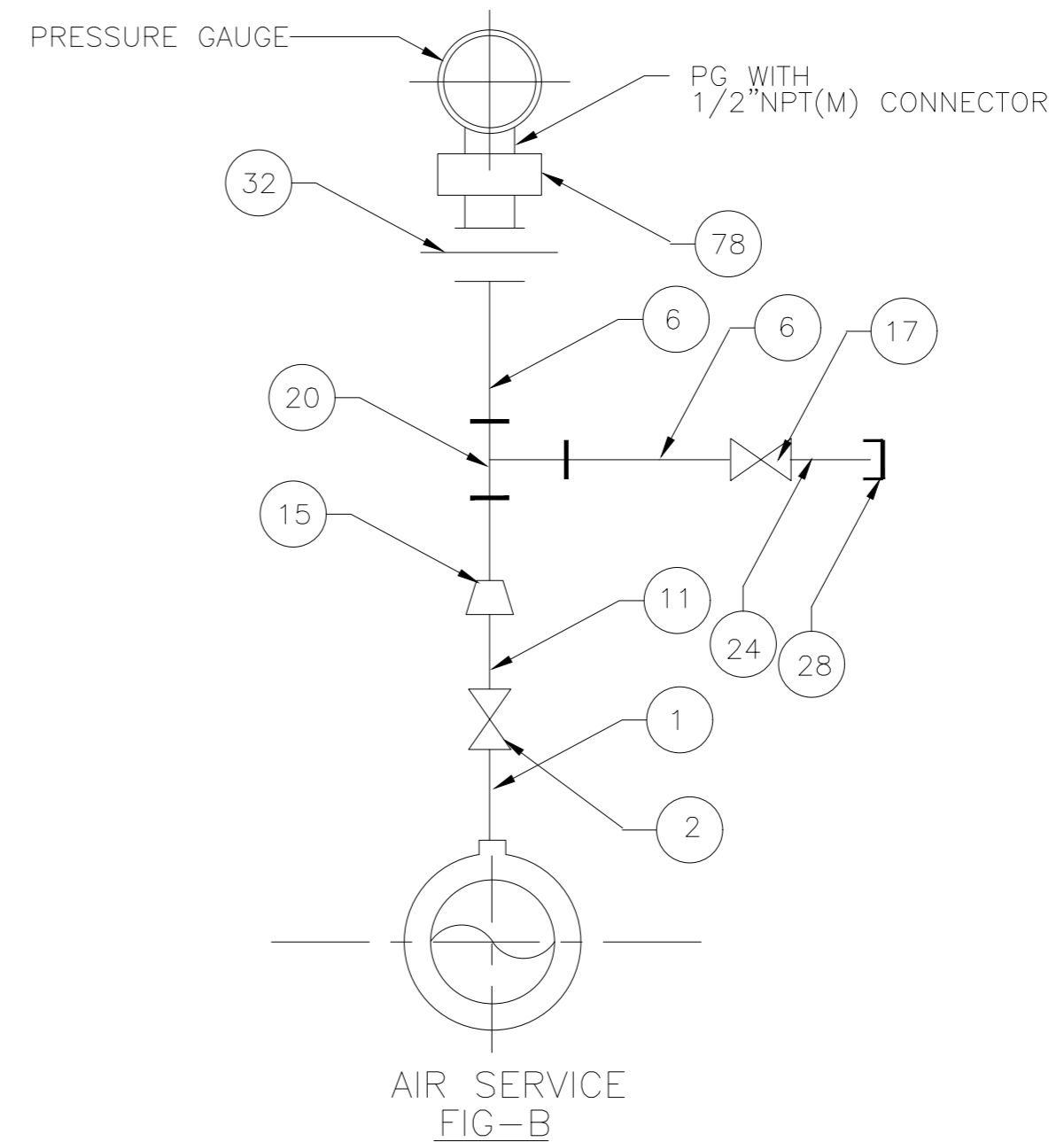
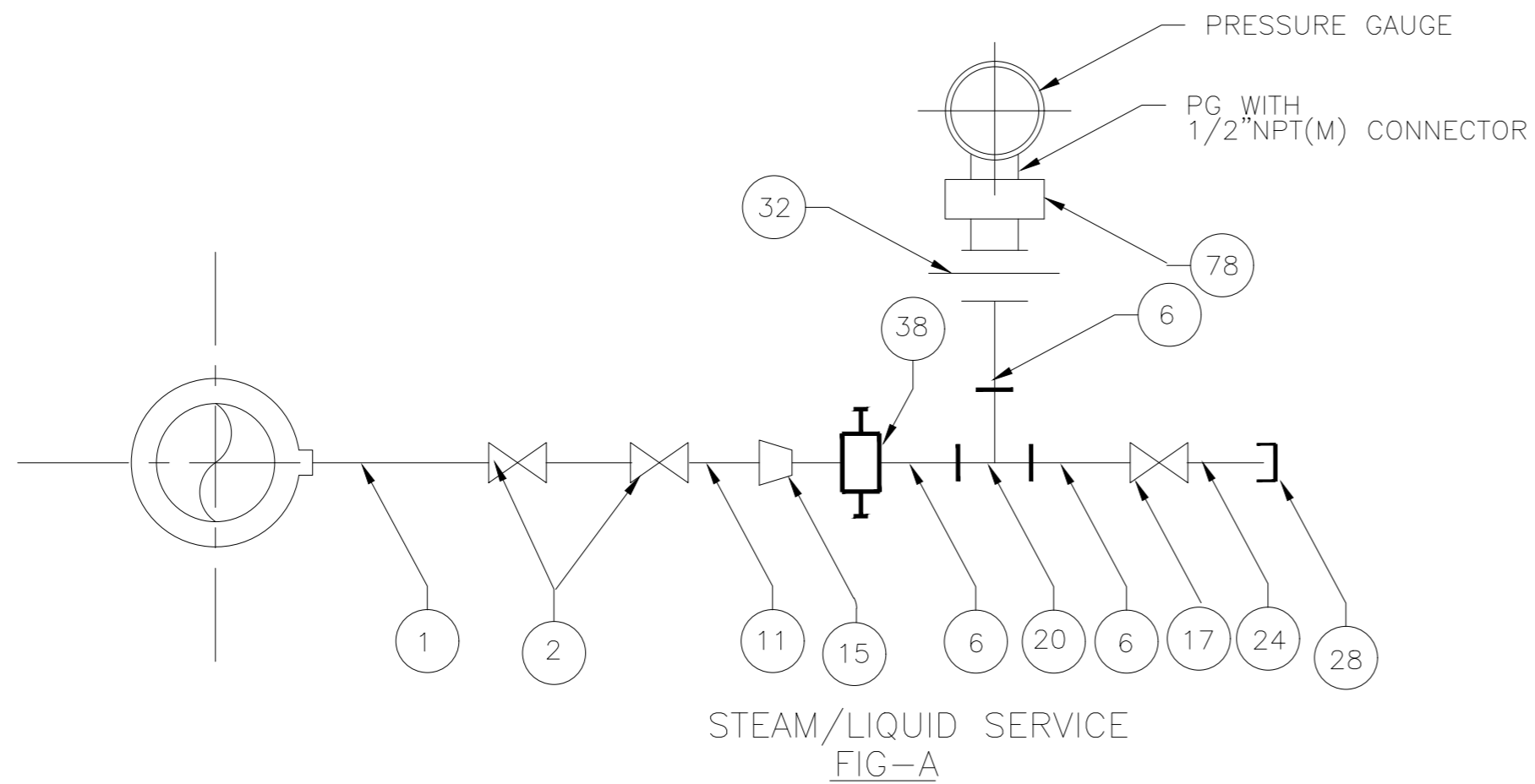
DWG. NO. 114-04-0104

Sheet No. 6 of 19

79	MS SETTING CHAMBER 16" X 10"Ø	1
71	1/2"OD IMPULSE TUBE,SS-316	AS REQD.
54	3-WAY VALVE WITH 1/2" SWAGE LOCK CONNECTION	1
51	5-VALVE MANIFOLDS/3-VALVE MANIFOLDS/2-VALVE MANIFOLDS,SS-316	1
49	3/4"SW,CS/AS BULK HEAD PIPE UNION	1
47	QUICK DISCONNECT FITTING,CS	1
42	3/4"BW X 1/2"OD TUBE FITTING,SS-316	1
41	1/2"NPT(M) X 1/2"Ø TUBE COMPRESSION FITTING,SS-316	6
34	3/4" SW,CS PIPE UNION	2
30	MS BLACK PIPE CAP	1
29	3/4"NPT(F) CS CAP	3
25	3/4"NPS,SCH-80 X 3/4"NPT(M)CS NIPPLE	2
21	3/4" EQUAL TEE,CS	2
16	MS BLACK PIPE TO 3/4" SW,CS REDUCER	1
12	3/4" NPS SCH-80 CARBON STEEL PIPE	AS REQD.
8	MS BLACK PIPE	AS REQD.
TAG NO.	DESCRIPTION	A
		QTY.
BILL OF MATERIAL		



11	REFERENCE DRAWINGS.	NOTES	NOTICE	7						CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SHIV	SIGN.	DATE	26.09.2022
10		DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.	THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.	6						CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED	GR		DATE	26.09.2022
9				5						PROJECT:	1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA	CHECKED	H.SUNDAR		DATE	26.09.2022
8				4						TITLE :-	INST. DRAWING FOR PRESS. & DIFF. PRESS. TRANSMITTERS/SWITCH (FLUE GAS SERVICE)	SCALE	NTS			
7				3						JOB. NO.:	D-04041					
6				2						DWG. NO.:	114-04-0105					
5				1												
4				0	FOR TENDER PURPOSE ONLY	26.09.2022										
3					ZONE	MARK	PARTICULARS	DATE	CIVIL	MECH.	ELEC.	C&I	H.O.D.			
2					REVISIONS				APPROVED							
1																
SR. No.	PARTY															
PRINT DISTRIBUTION																



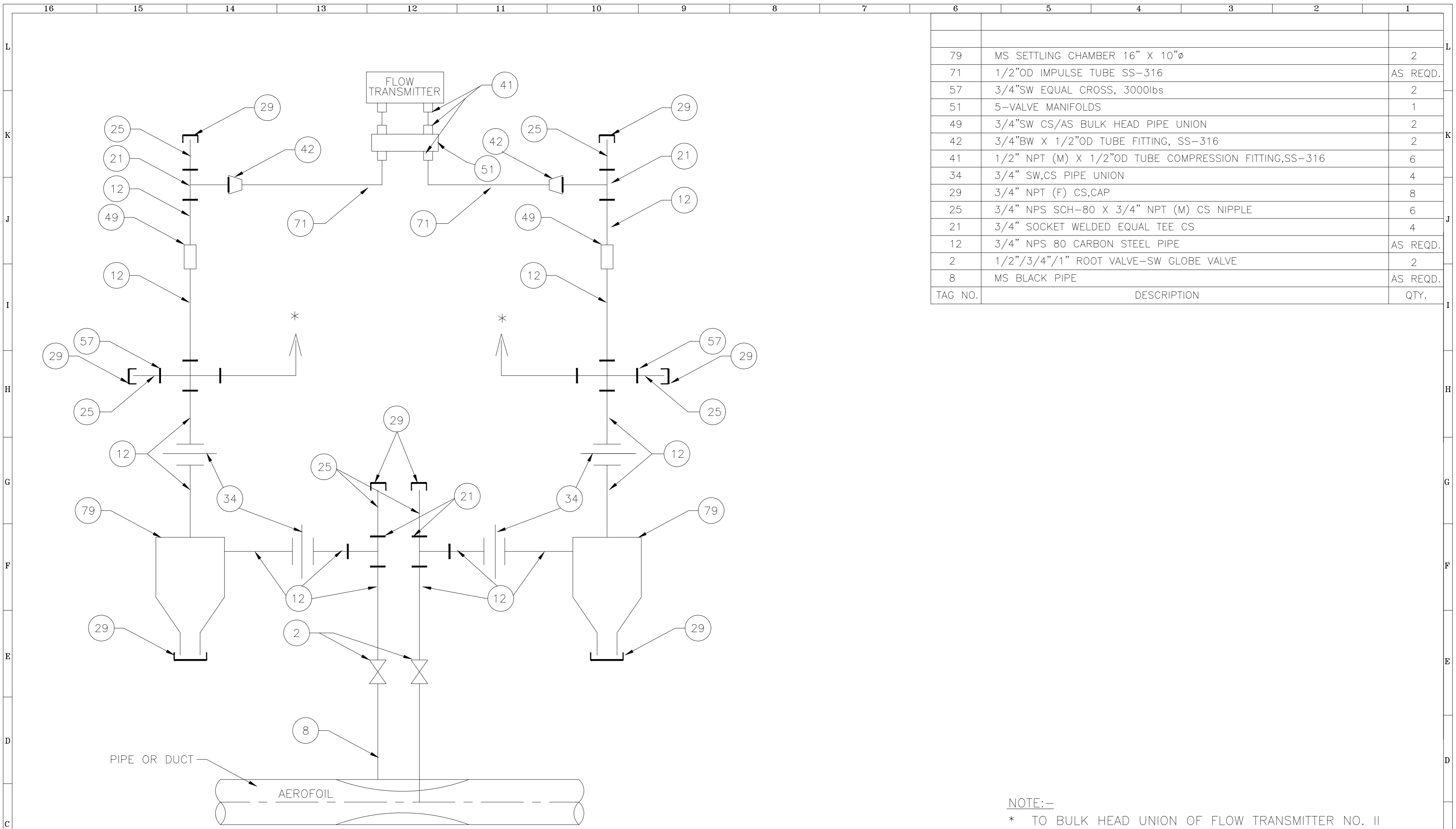
TAG NO.	DESCRIPTION	A	B
78	1/2"NPT(F)X1/2"NPT(M) SNUBBER/PULSATION DAMPER	1	1
59	1/2"SW, STRAIGHT PIPE CONNECTOR, CS/AS	-	-
38	3 WAY GAUGE VALVE 1/2" NB SW	1	-
37	6" COILED SYPHON SCH 80/160 1/2"NB CS/SS	-	-
32	1/2"NPS,3PIECE PIPE UNION WITH 1/2"NPT(F) SCREWED	1	1
28	1/2"NPT (F) CS CAP	1	1
24	1/2"NPS,SCH-80/160X1/2"NPT(M)CS/AS NIPPLE	1	1
20	1/2"SW EQUAL TEE, CS/AS	1	1
17	1/2" SW CS/AS GLOBE VALVE	1	1
15	1" TO 1/2" SOCKET WELDED REDUCER	1	1
11	1" NPS SCH-80/160 CS/AS NIPPLE	1	1
6	1/2" NPS. SCH-80/160 CS/ AS PIPE	AS REQD.	
2	1/2"/3/4"/1" ROOT VALVE-SW GLOBE VALVE	2	1
1	1/2"/3/4"/1" CARBON/ALLOY STEEL NIPPLE OF MTL. SAME AS THAT OF MAIN PIPE(AS PER PROCESS REQD.)	AS REQD.	
		A	B
		QTY.	

BILL OF MATERIAL

SR. No.	PARTY	PRINT DISTRIBUTION	REFERENCE DRAWINGS.	NOTES	NOTICE	ZONE	MARK	REVISIONS	APPROVED
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1									
DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.		THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.		FOR TENDER PURPOSE ONLY		26.09.2022		CIVIL MECH. ELEC. C&I H.O.D.	

CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	CAD/DRAWN	NAME	SHIV	SIGN.	DATE	26.09.2022
CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED	GR				26.09.2022
PROJECT:	1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA	CHECKED	H.SUNDAR				26.09.2022
TITLE :-	INST. DRAWING FOR LOCAL PRESSURE GAUGE	SCALE	NTS				
JOB. NO.	D-04041	DWG. NO.	114-04-0106				
		REV.					
		O					

Sheet No. 9 of 19



TAG NO.	DESCRIPTION	QTY.
79	MS SETTLING CHAMBER 16" X 10"Ø	2
71	1/2"OD IMPULSE TUBE SS-316	AS REQD.
57	3/4"SW EQUAL CROSS, 3000lbs	2
51	5-VALVE MANIFOLDS	1
49	3/4"SW CS/AS BULK HEAD PIPE UNION	2
42	3/4"BW X 1/2"OD TUBE FITTING, SS-316	2
41	1/2" NPT (M) X 1/2"OD TUBE COMPRESSION FITTING,SS-316	6
34	3/4" SW,CS PIPE UNION	4
29	3/4" NPT (F) CS,CAP	8
25	3/4" NPS SCH-80 X 3/4" NPT (M) CS NIPPLE	6
21	3/4" SOCKET WELDED EQUAL TEE CS	4
12	3/4" NPS 80 CARBON STEEL PIPE	AS REQD.
2	1/2"/3/4"/1" ROOT VALVE-SW GLOBE VALVE	2
8	MS BLACK PIPE	AS REQD.

NOTE:-
* TO BULK HEAD UNION OF FLOW TRANSMITTER NO. II

SR. No.	PARTY	PRINT DISTRIBUTION	REFERENCE DRAWINGS.	NOTES	NOTICE	REVISIONS	APPROVED	CLIENT:	NAME	SIGN.	DATE
11								HARYANA POWER GENERATION CORPORATION LTD.	SHIV		26.09.2022
10				DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.	THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.			DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	GR		26.09.2022
9								1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA	H.SUNDAR		26.09.2022
8									NTS		
7											
6											
5											
4											
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1											
								JOB. NO. D-04041			
								INST. DRAWING FOR FLOW TRANSMITTERS (AIR SERVICE)			
								DWG. NO. 114-04-0107		REV. O	
								Sheet No. 10 of 19			

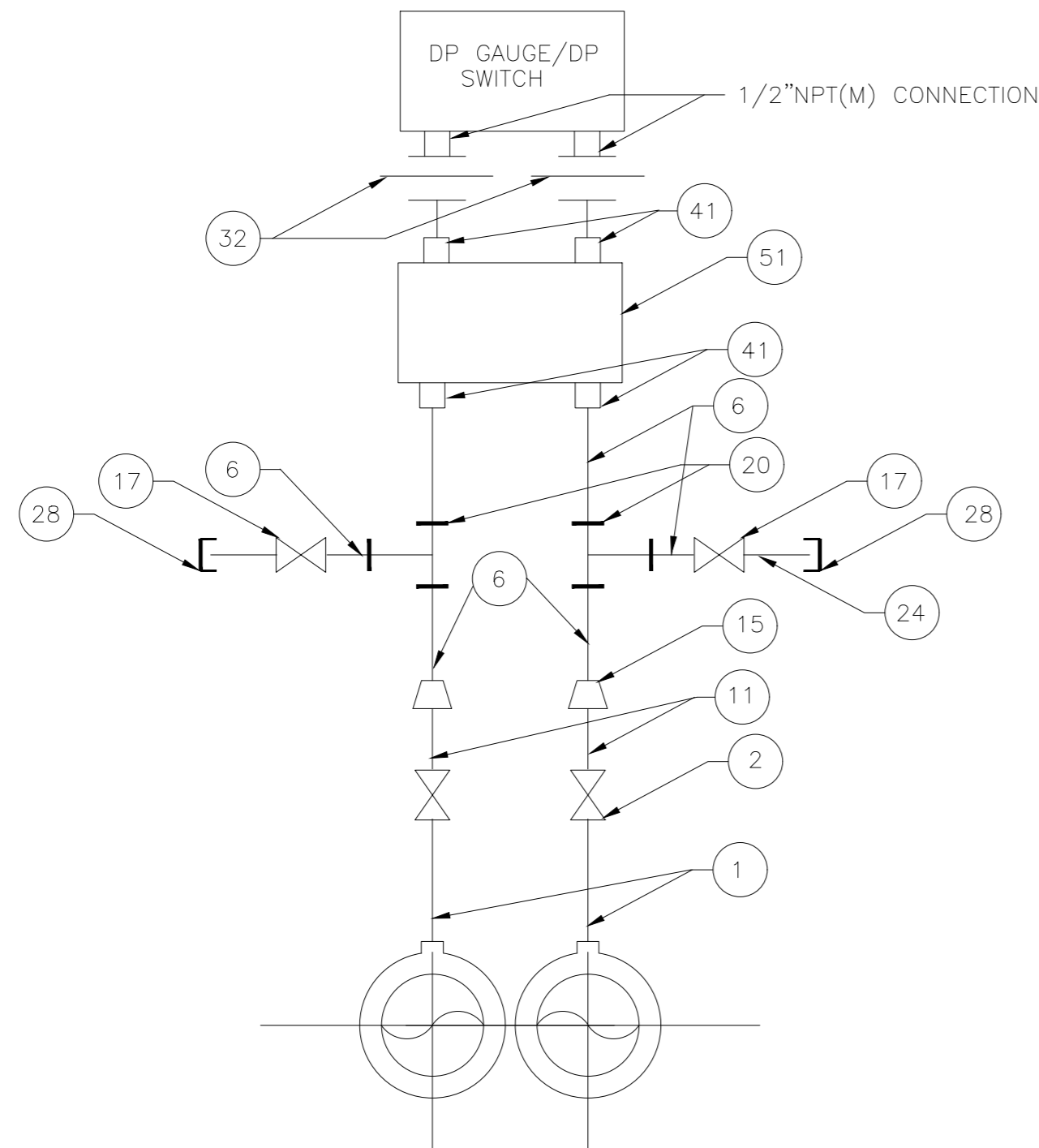


FIG-A

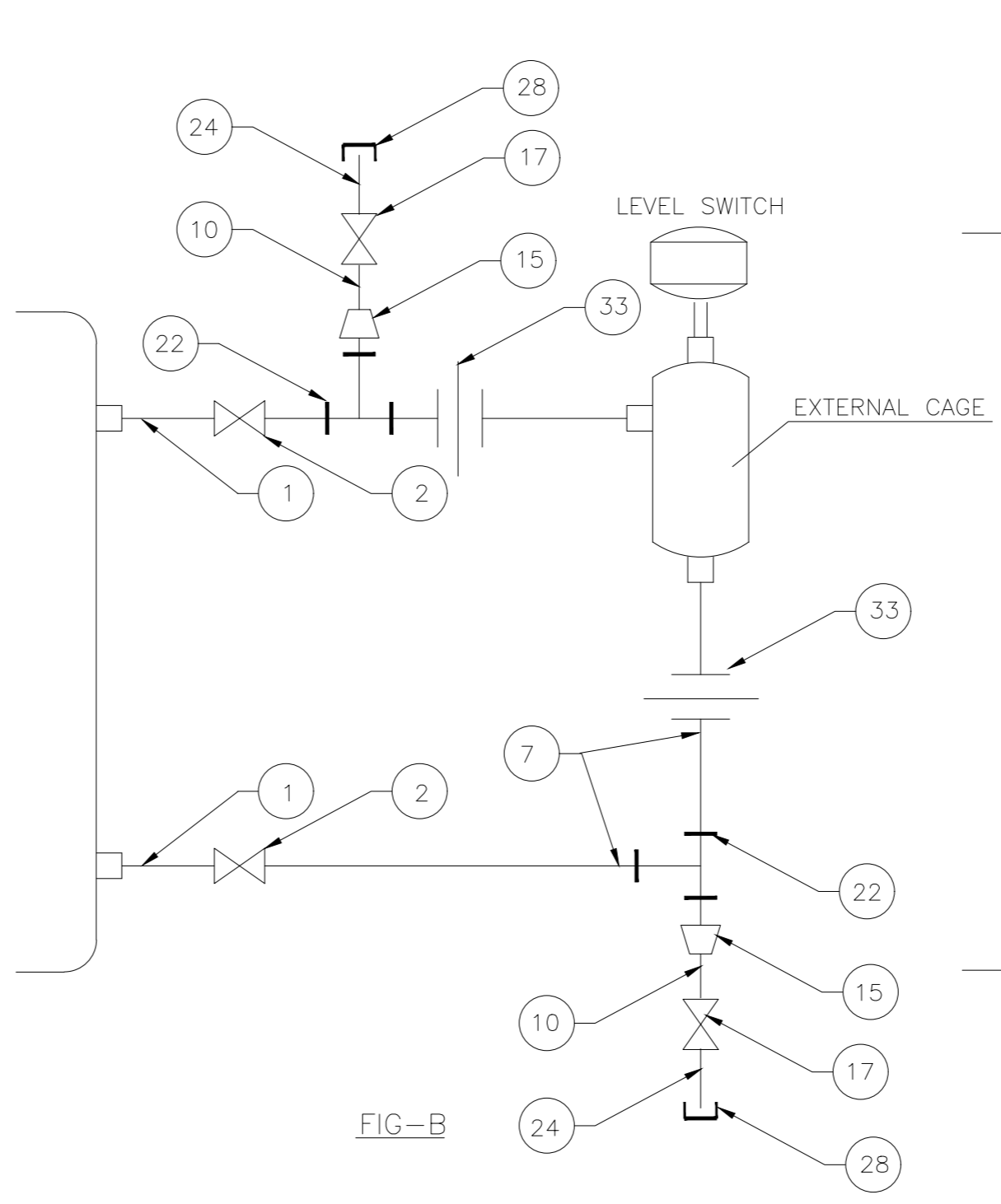


FIG-B

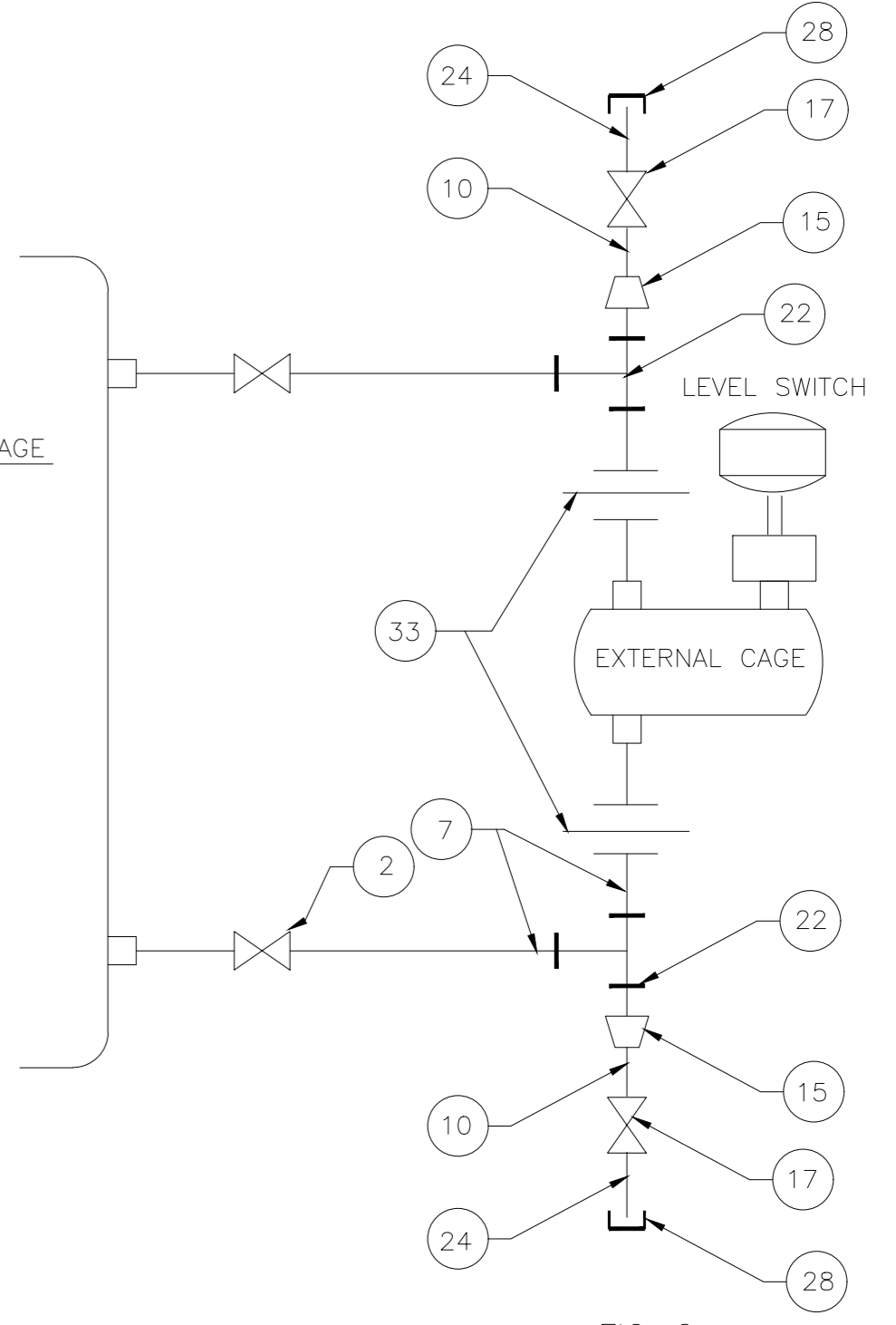
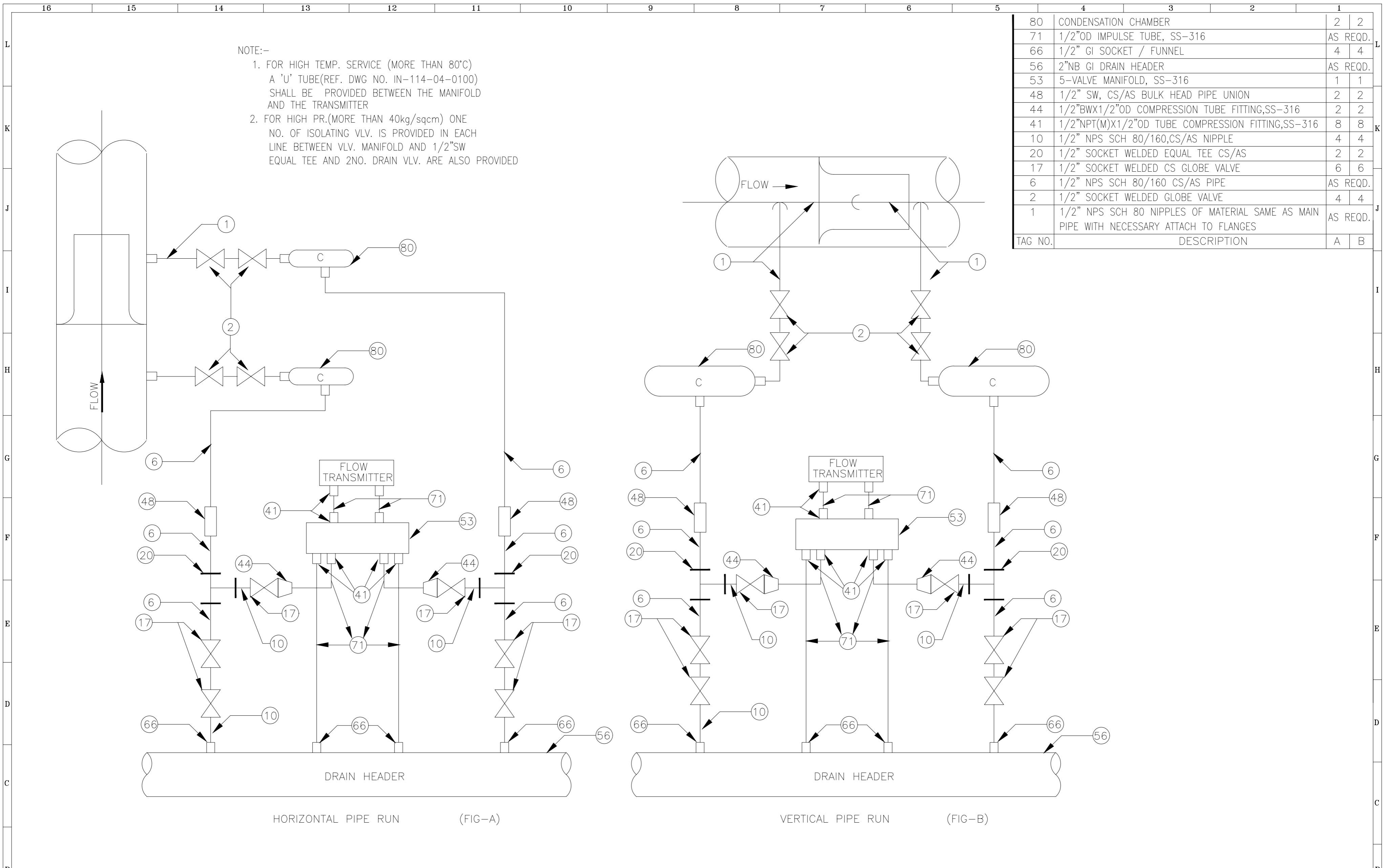


FIG-C

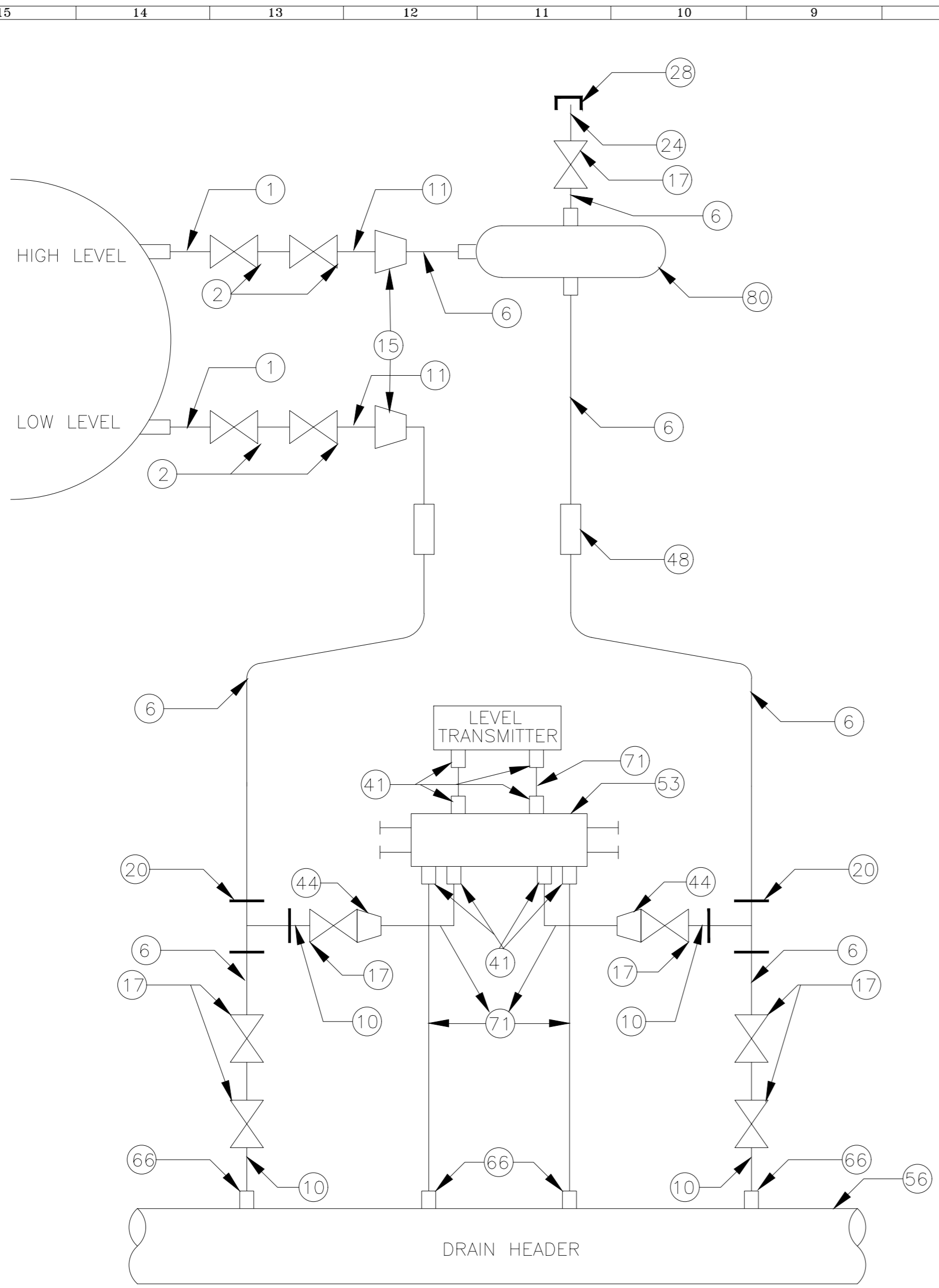
NOTE:-
WITH VALVE OF SIZE 1/2"SW NIPPLE PIECE IS NOT REQUIRED

TAG NO.	DESCRIPTION	A	B	C
78	1/2" NPT(F) X 1/2" NPT(M) SNUBBER/PULSATION DAMPNER	1	-	-
51	5 VALVE MANIFOLDS, SS-316	-	-	-
41	1/2" NPT(M) X 1/2" OD TUBE COMPRESSION FITTING,SS-316	-	-	-
38	3 WAY GAUGE VALVE 1/2"NB SW	1	-	-
33	1" SW EQUAL PIPE UNION	-	2	2
32	1/2" NPS,3 PIECE PIPE UNION 1/2" NPT(F) SCREWED AND 1/2" SW CONNECTION	1	-	-
28	1/2" NPT(F) CS. CAP	1	2	2
24	1/2" NPS,SCH 80/160 X 1/2" NPT(M) CS/AS NIPPLE	1	2	2
22	1" SW EQUAL TEE CS/AS	-	1	2
20	1/2"SW EQUAL TEE CS/AS	1	-	-
17	1/2" SW,CS/AS, GLOBE VALVE	1	2	2
15	1" TO 1/2" SOCKET WELD REDUCER	1	2	2
11	1"NPS SCH 80/160 CS/AS NIPPLE	1	-	-
10	1/2"NPS,SCH 80/160 CA/AS NIPPLE	-	2	2
6	1/2"NPS,SCH 80/160 CARBON/ALLOY STEEL PIPE	AS REQD.		
7	1" NPS,SCH 80/160 CS/AS STEEL PIPE	AS REQD.		
2	1/2"3/4"/1" ROOT VALVE - SW GLOBE VALVE	2	2	2
1	1/2"/3/4"/1" CARBON/ALLOY STEEL NIPPLE OF MTL SAME AS THAT OF MAIN PIPE (AS PER PROCESS REQD.)	AS REQD.		
		A	B	C
		QTY.		

REFERENCE DRAWINGS.		NOTES		NOTICE		REVISIONS		APPROVED		CLIENT:		NAME		SIGN.		DATE		
		DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.		THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.		7				CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.							
						6				CONSULTANT	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA		CAD/DRAWN	SHIV			26.09.2022	
						5					PROJECT:		DESIGNED	GR			26.09.2022	
						4					1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA		CHECKED	H.SUNDAR			26.09.2022	
						3					TITLE :-		SCALE	NTS				
						2					INST. DRAWING FOR DIFF. PRESS.SWITCH/GAUGE/ LEVEL SWITCHES		JOB. NO.	D-04041				
						1							DWG. NO.	114-04-0108				
						0	FOR TENDER PURPOSE ONLY	26.09.2022					REV.	O				
						ZONE	MARK										Sheet No. 11 of 19	



SR. No.	PARTY	DATE	REVISIONS	APPROVED	CIVIL	MECH.	ELEC.	C&I	H.O.D.	TITLE :-	JOB. NO.	REV.
1										INST. DRAWING FOR FLOW TRANSMITTERS (WATER & STEAM SERVICE)	D-04041	O
<p>REFERENCE DRAWINGS.</p> <p>NOTES DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.</p> <p>NOTICE THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.</p>												
<p>CLIENT: HARYANA POWER GENERATION CORPORATION LTD.</p> <p>CONSULTANT: DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA</p> <p>PROJECT: 1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA</p> <p>SCALE: NTS</p> <p>DATE: 26.09.2022</p> <p>DESIGNED: GR</p> <p>CHECKED: H.SUNDAR</p> <p>DATE: 26.09.2022</p>												

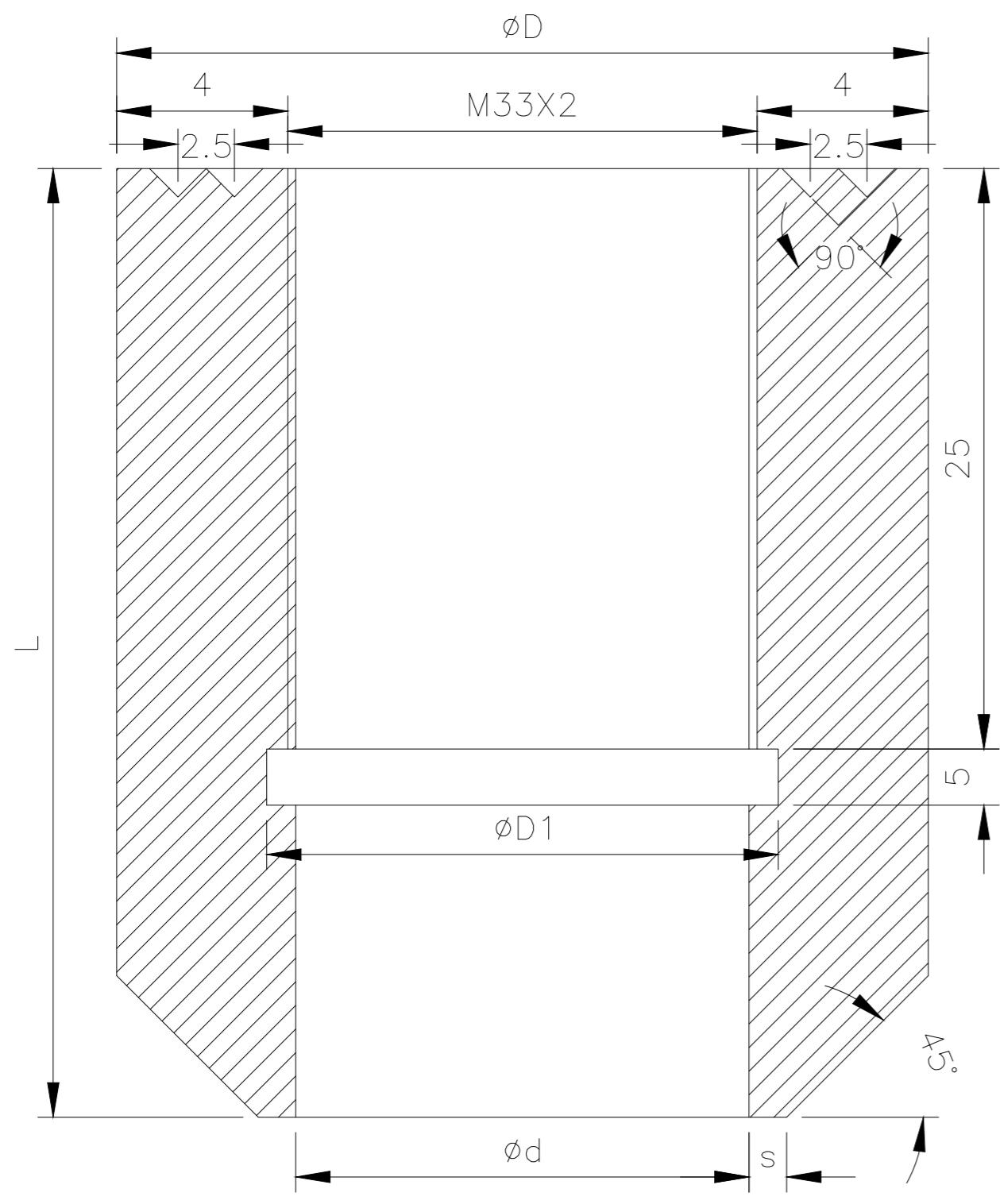


TAG NO.	DESCRIPTION	BOM
80	CONDENSATION CHAMBER	1
71	1/2"OD IMPULSE TUBE, SS-316	AS REQD.
66	1/2" GI SOCKET / FUNNEL	4
56	2"NB GI DRAIN HEADER	AS REQD.
53	5-VALVE MANIFOLD, SS-316	1
48	1/2" SW, CS/AS BULK HEAD PIPE UNION	2
44	1/2"BWX1/2"OD COMPRESSION TUBE FITTING,SS-316	2
41	1/2"NPT(M)X1/2"OD TUBE COMPRESSION FITTING,SS-316	8
28	1/2" NPT (F) CS CAP	1
24	1/2" NPS SCH-80/160X1/2"NPT(M) CS/AS NIPPLE	1
20	1/2" SOCKET WELDED EQUAL TEE CS/AS	2
17	1/2" SOCKET WELDED CS GLOBE VALVE	7
15	1"TO 1/2" SOCKET WELD REDUCER	2
11	1" NPS SCH 80/160 CS/AS NIPPLE	2
10	1/2" NPS SCH 80/160,CS/AS NIPPLE	4
6	1/2" NPS SCH 80/160 CS/AS PIPE	AS REQD.
2	1/2"/3/4"/1" SOCKET WELDED GLOBE VLV/ROOT VLV.	4
1	1/2" NPS SCH 80 NIPPLES OF MATERIAL SAME AS MAIN PIPE WITH NECESSARY ATTACH TO FLANGES	AS REQD.

NOTE:-
 1. FOR HIGH TEMP. SERVICE (MORE THAN 80°C) A 'U' TUBE(REF. DWG NO. 114-04-0100) SHALL BE PROVIDED BETWEEN THE MANIFOLD AND THE TRANSMITTER
 2. FOR HIGH PR.(MORE THAN 40kg/sqcm) ONE NO. OF ISOLATING VLV. IS PROVIDED IN EACH LINE BETWEEN VLV. MANIFOLD AND 1/2"SW EQUAL TEE AND 2NO. DRAIN VLV. ARE ALSO

TRANSMITTER MOUNTED BELOW INST. SOURCE POINT

SR. No.	PARTY	DATE	REVISIONS	APPROVED	CIVIL	MECH.	ELEC.	C&I	H.O.D.	CLIENT	NAME	SIGN.	DATE
11			7							CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.		26.09.2022
10			6							CONSULTANT	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	SHIV	26.09.2022
9			5							PROJECT:	1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA	GR	26.09.2022
8			4							TITLE :-	INST. DRAWING FOR LEVEL TRANSMITTERS	H.SUNDAR	26.09.2022
7			3							SCALE	NTS		
6			2							JOB. NO.	D-04041		
5			1							DWG. NO.	114-04-0110		
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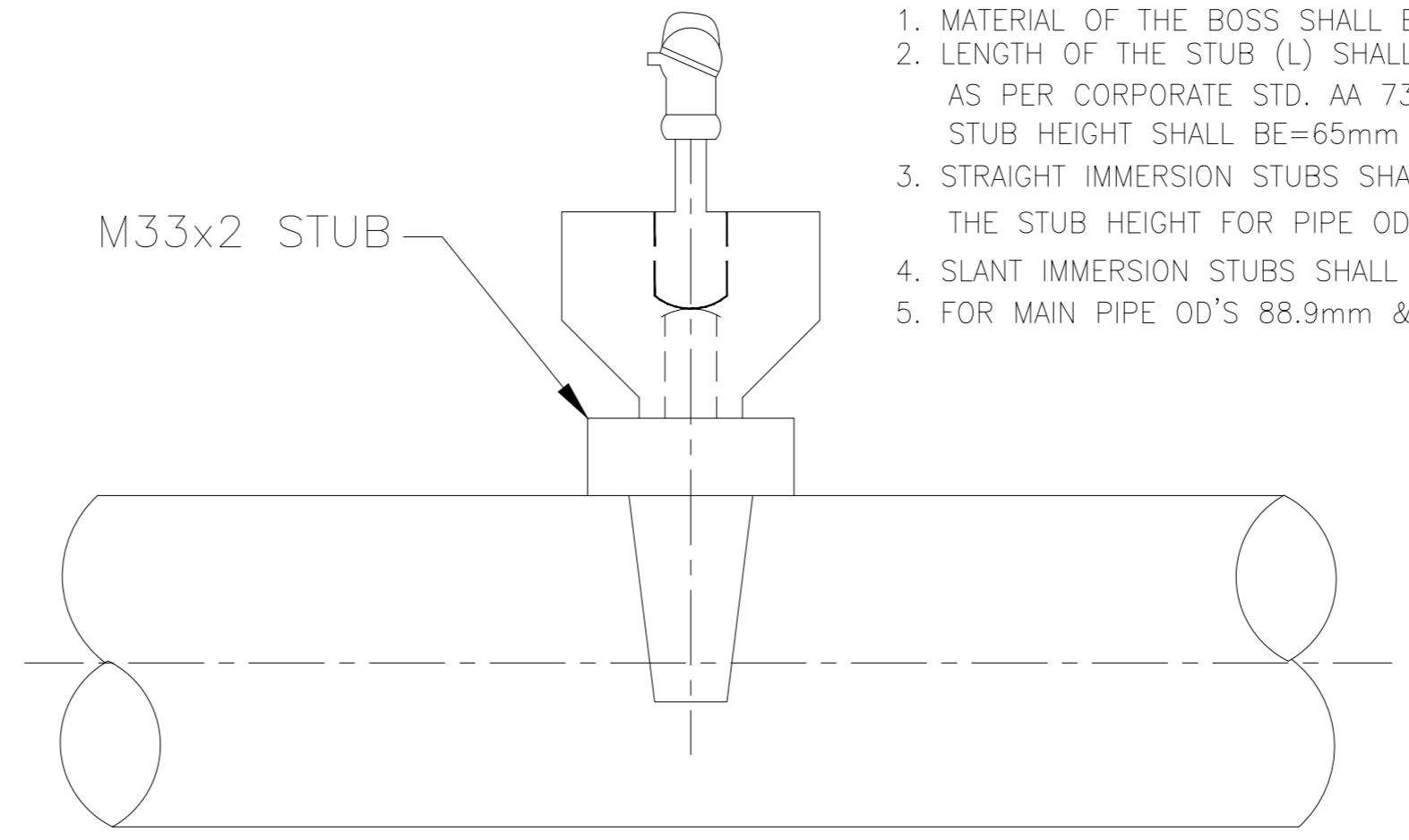


TEMPERATURE STUB FOR STRAIGHT IMMERSION

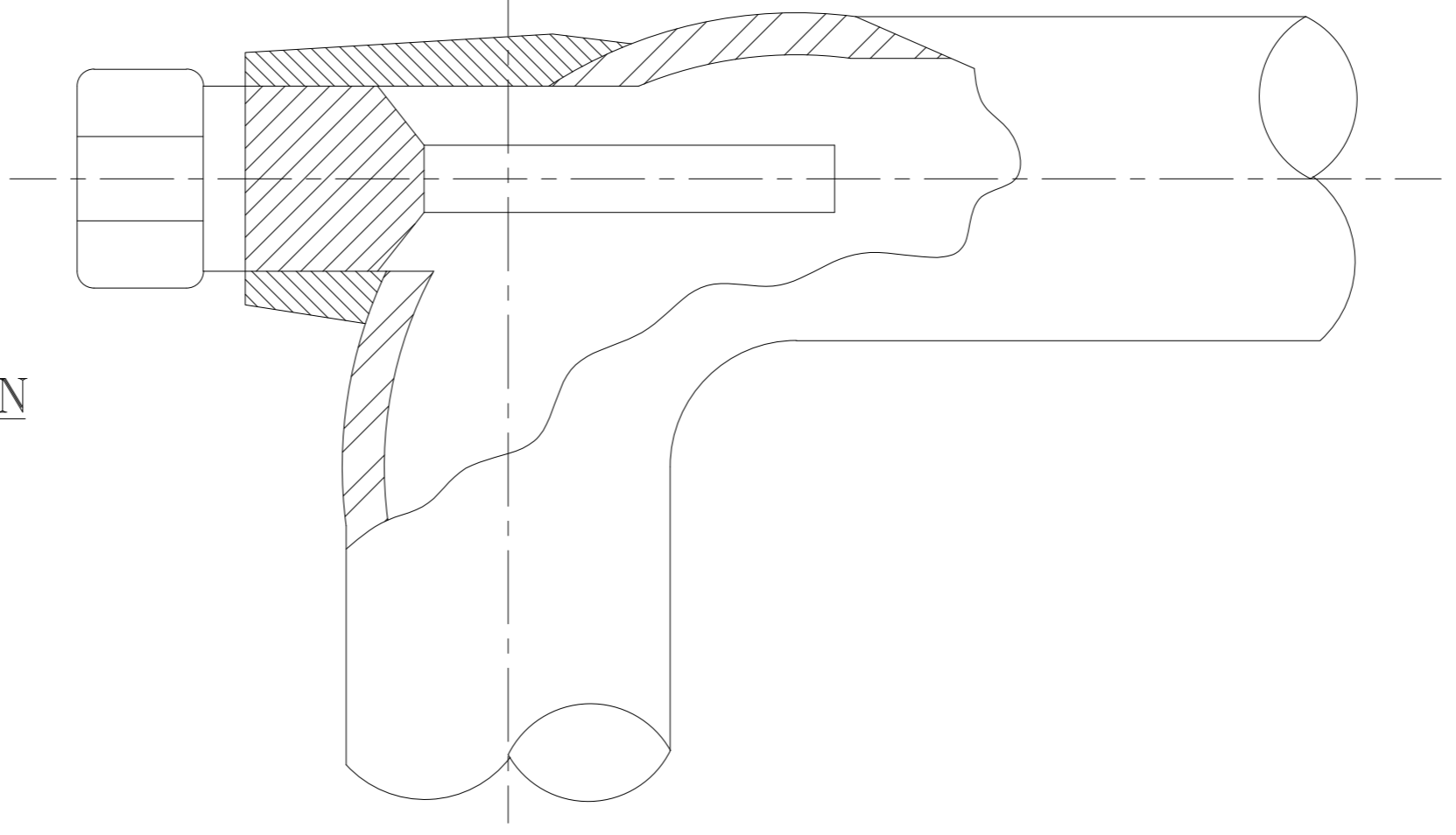
FOR PIPE OD BELOW 219.1mm	29	55	33.5	1.5	65
FOR PIPE OD 219.1mm & ABOVE	29	55	33.5	1.5	45
MAIN PIPE SIZES	d	D	D1	S	L

NOTE :-

- MATERIAL OF THE BOSS SHALL BE THE SAME AS THE PIPE INTO WHICH IT IS WELDED.
- LENGTH OF THE STUB (L) SHALL BE 65/45 mm DEPENDING UPON PIPE SIZE, AS PER CORPORATE STD. AA 7326102.(FOR PIPE OD 88.9mm TO 159mm STUB HEIGHT SHALL BE=65mm & FOR PIPE OD >219.1mm STUB HEIGHT SHALL BE=45mm)
- STRAIGHT IMMERSION STUBS SHALL BE USED FOR PIPE OD'S 168.3mm & ABOVE. THE STUB HEIGHT FOR PIPE OD, 168.3mm TO <219.1mm SHALL BE 65mm.
- SLANT IMMERSION STUBS SHALL BE USED FOR PIPE OD'S 88.9mm TO 159mm.
- FOR MAIN PIPE OD'S 88.9mm & BELOW SUITABLE EXPANDER SHALL BE USED.

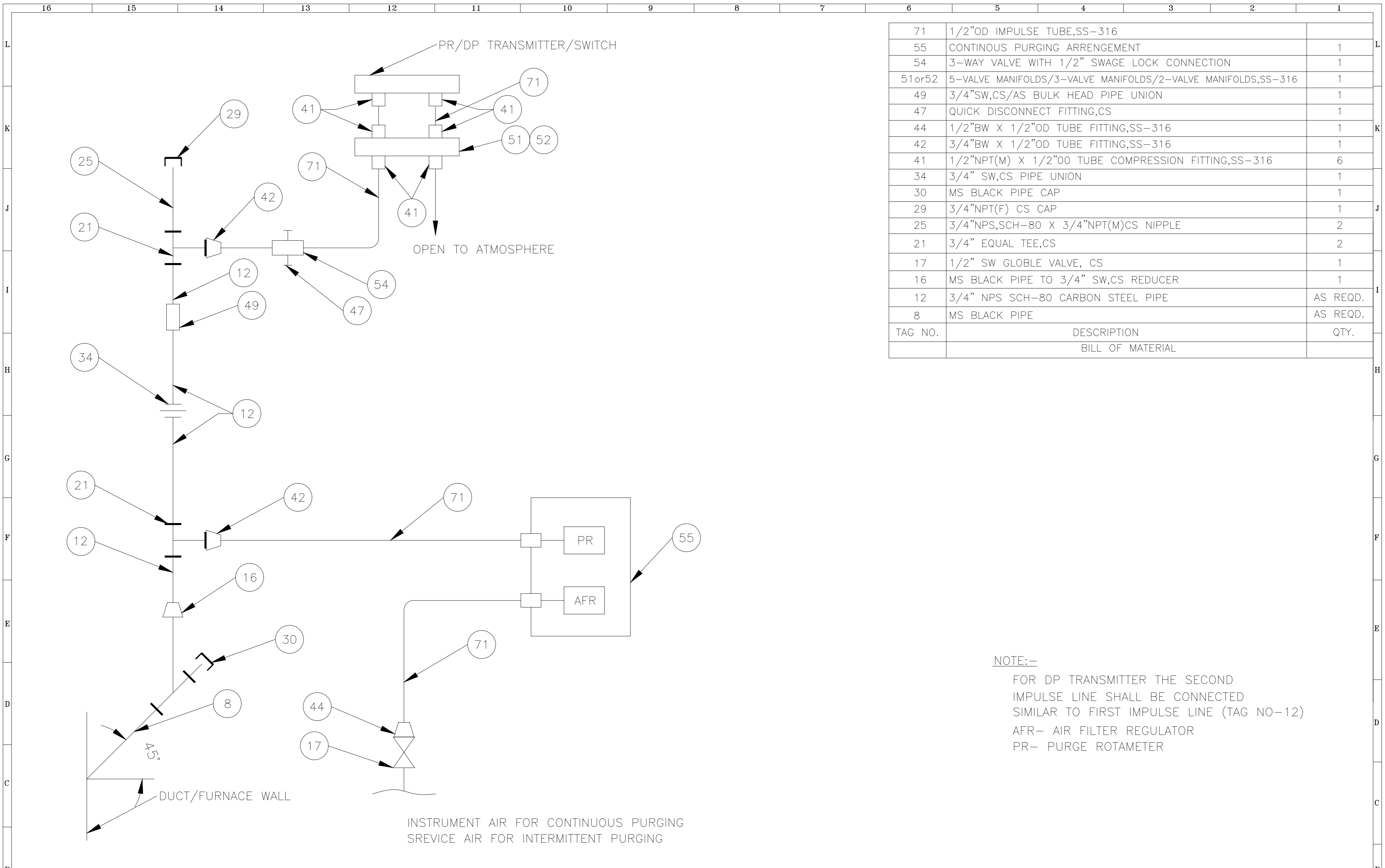


INSTALLATION TYPE-1
(FOR MAIN PIPE OD 168.3mm & ABOVE)



INSTALLATION TYPE-2
(FOR MAIN PIPE OD 88.9mm & BELOW)

11	REFERENCE DRAWINGS.	NOTES	NOTICE	7						CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SHIV	SIGN.	DATE	26.09.2022
10		DO NOT SCALE, ASK WHEN IN DOUBT.	THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.	6						CONSULTANT	DESEIN PRIVATE LIMITED	DESIGNED	GR			26.09.2022
9		ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.		5							CONSULTING ENGINEERS, NEW DELHI, INDIA	CHECKED	H.SUNDAR			26.09.2022
8				4						PROJECT:	1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA	SCALE	NTS			
7				3						TITLE :-	INST. DRAWING FOR TEMPERATURE STUB	JOB. NO.	D-04041			
6				2								DWG. NO.	114-04-0111			REV.
5				1												O
4				0	FOR TENDER PURPOSE ONLY	26.09.2022										
3				ZONE	MARK	PARTICULARS	DATE	CIVIL	MECH.	ELEC.	C&I	H.O.D.				
2				REVISIONS				APPROVED								
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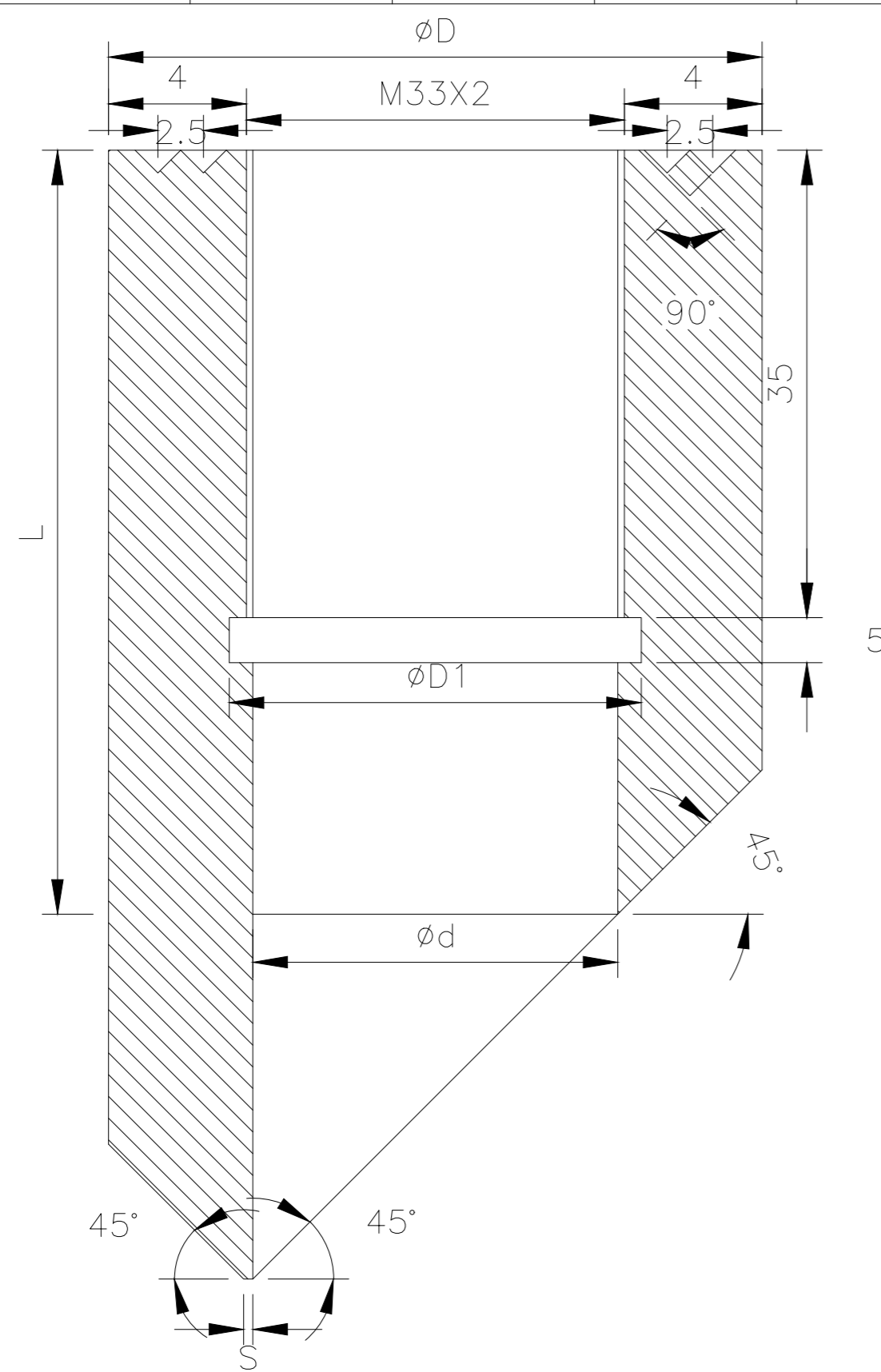
TAG NO.	DESCRIPTION	QTY.
71	1/2"OD IMPULSE TUBE,SS-316	
55	CONTINUOUS PURGING ARRANGEMENT	1
54	3-WAY VALVE WITH 1/2" SWAGE LOCK CONNECTION	1
51or52	5-VALVE MANIFOLDS/3-VALVE MANIFOLDS/2-VALVE MANIFOLDS,SS-316	1
49	3/4"SW,CS/AS BULK HEAD PIPE UNION	1
47	QUICK DISCONNECT FITTING,CS	1
44	1/2"BW X 1/2"OD TUBE FITTING,SS-316	1
42	3/4"BW X 1/2"OD TUBE FITTING,SS-316	1
41	1/2"NPT(M) X 1/2"OO TUBE COMPRESSION FITTING,SS-316	6
34	3/4" SW,CS PIPE UNION	1
30	MS BLACK PIPE CAP	1
29	3/4"NPT(F) CS CAP	1
25	3/4"NPS,SCH-80 X 3/4"NPT(M)CS NIPPLE	2
21	3/4" EQUAL TEE,CS	2
17	1/2" SW GLOBLE VALVE, CS	1
16	MS BLACK PIPE TO 3/4" SW,CS REDUCER	1
12	3/4" NPS SCH-80 CARBON STEEL PIPE	AS REQD.
8	MS BLACK PIPE	AS REQD.
	BILL OF MATERIAL	

NOTE:-
 FOR DP TRANSMITTER THE SECOND IMPULSE LINE SHALL BE CONNECTED SIMILAR TO FIRST IMPULSE LINE (TAG NO-12)
 AFR- AIR FILTER REGULATOR
 PR- PURGE ROTAMETER

SR. No.		PARTY	PRINT DISTRIBUTION
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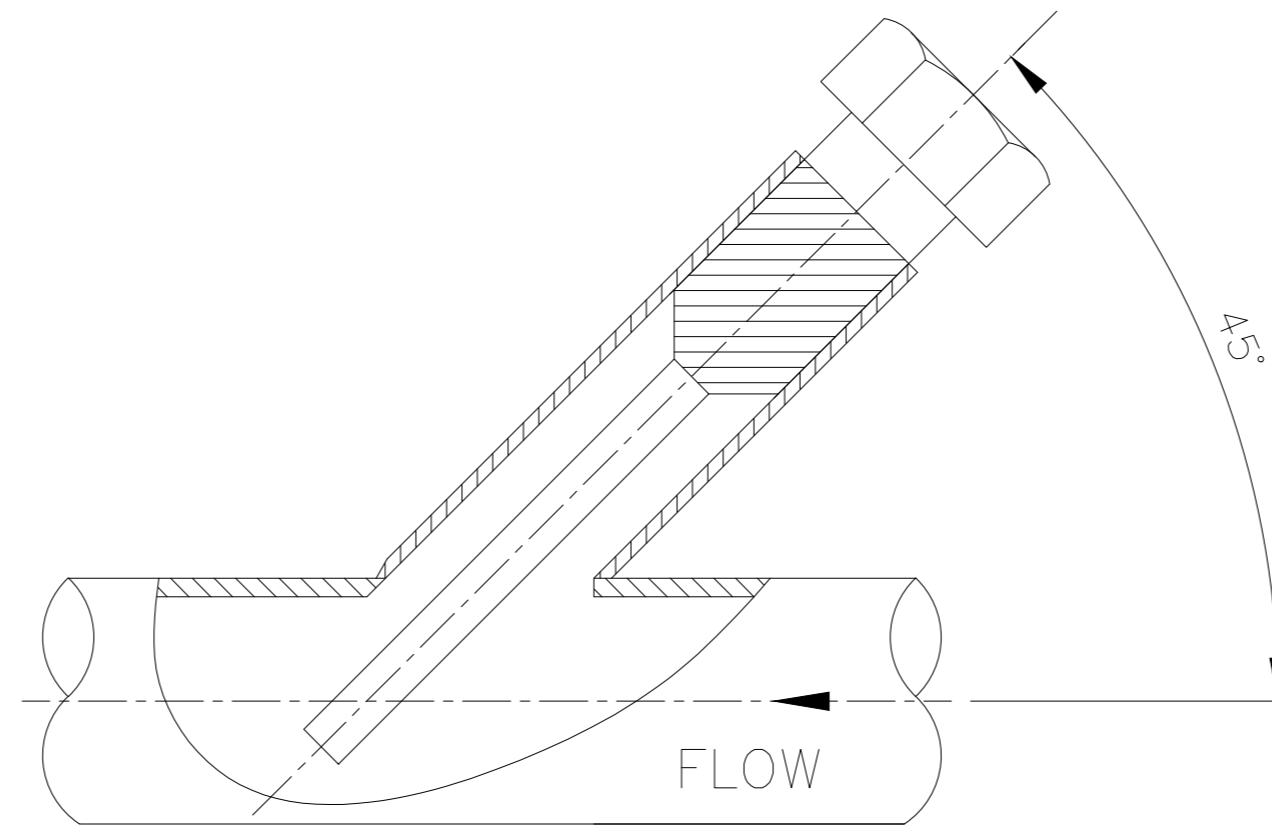
REFERENCE DRAWINGS.	NOTES	NOTICE	7	6	5	4	3	2	1		
	DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.	THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.	FOR TENDER PURPOSE ONLY	26.09.2022							
			ZONE	MARK	PARTICULARS	DATE	CIVIL	MECH.	ELEC.	C&I	H.O.D.
					REVISIONS			APPROVED			

CLIENT:		NAME	SIGN.	DATE
HARYANA POWER GENERATION CORPORATION LTD.		SHIV		26.09.2022
CONSULTANT:				
DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA		GR		26.09.2022
PROJECT:				
1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA		H.SUNDAR		26.09.2022
TITLE :-				
INST. DRAWING FOR AIR PURGING		JOB. NO. D-04041		
		DWG. NO. 114-04-0112		
		REV. O		

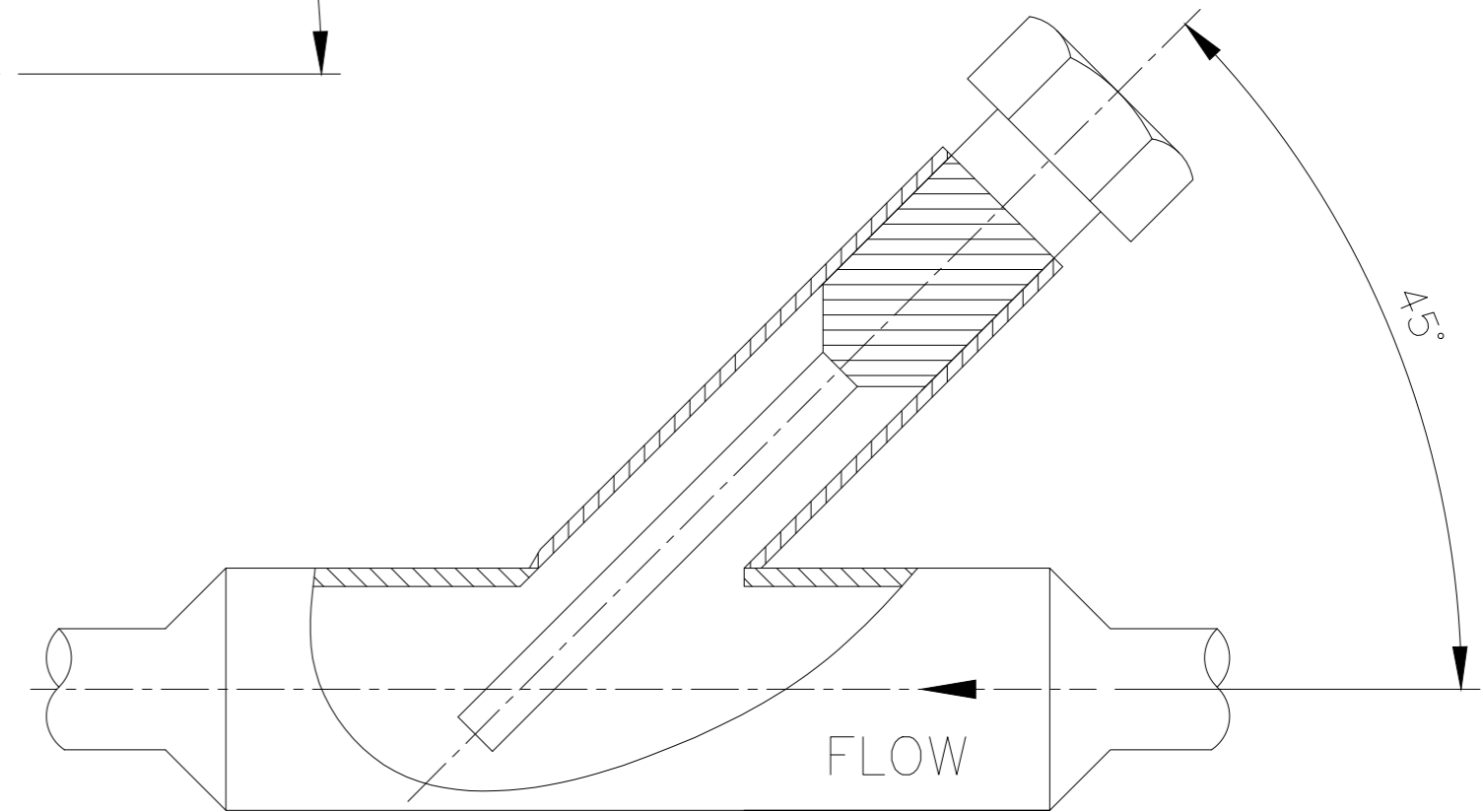


NOTE :-

1. MATERIAL OF THE BOSS SHALL BE THE SAME AS THE PIPE INTO WHICH IT IS WELDED.
2. LENGTH OF THE STUB (L) SHALL BE 65/45 mm DEPENDING UPON PIPE SIZE, AS PER CORPORATE STD. AA 7326102.(FOR PIPE OD 88.9mm TO 159mm STUB HEIGHT SHALL BE=65mm & FOR PIPE OD >219.1mm STUB HEIGHT SHALL BE=45mm)
3. STRAIGHT IMMERSION STUBS SHALL BE USED FOR PIPE OD'S 168.3mm & ABOVE. THE STUB HEIGHT FOR PIPE OD, 168.3mm TO <219.1mm SHALL BE 65mm.
4. SLANT IMMERSION STUBS SHALL BE USED FOR PIPE OD'S 88.9mm TO 159mm.
5. FOR MAIN PIPE OD'S 88.9mm & BELOW SUITABLE EXPANDER SHALL BE USED.



INSTALLATION TYPE-3
(FOR MAIN PIPE OD 88.9mm TO 159mm)



INSTALLATION TYPE-4
(FOR MAIN PIPE OD 88.9mm & BELOW)

TEMPERATURE STUB FOR SLANT IMMERSION

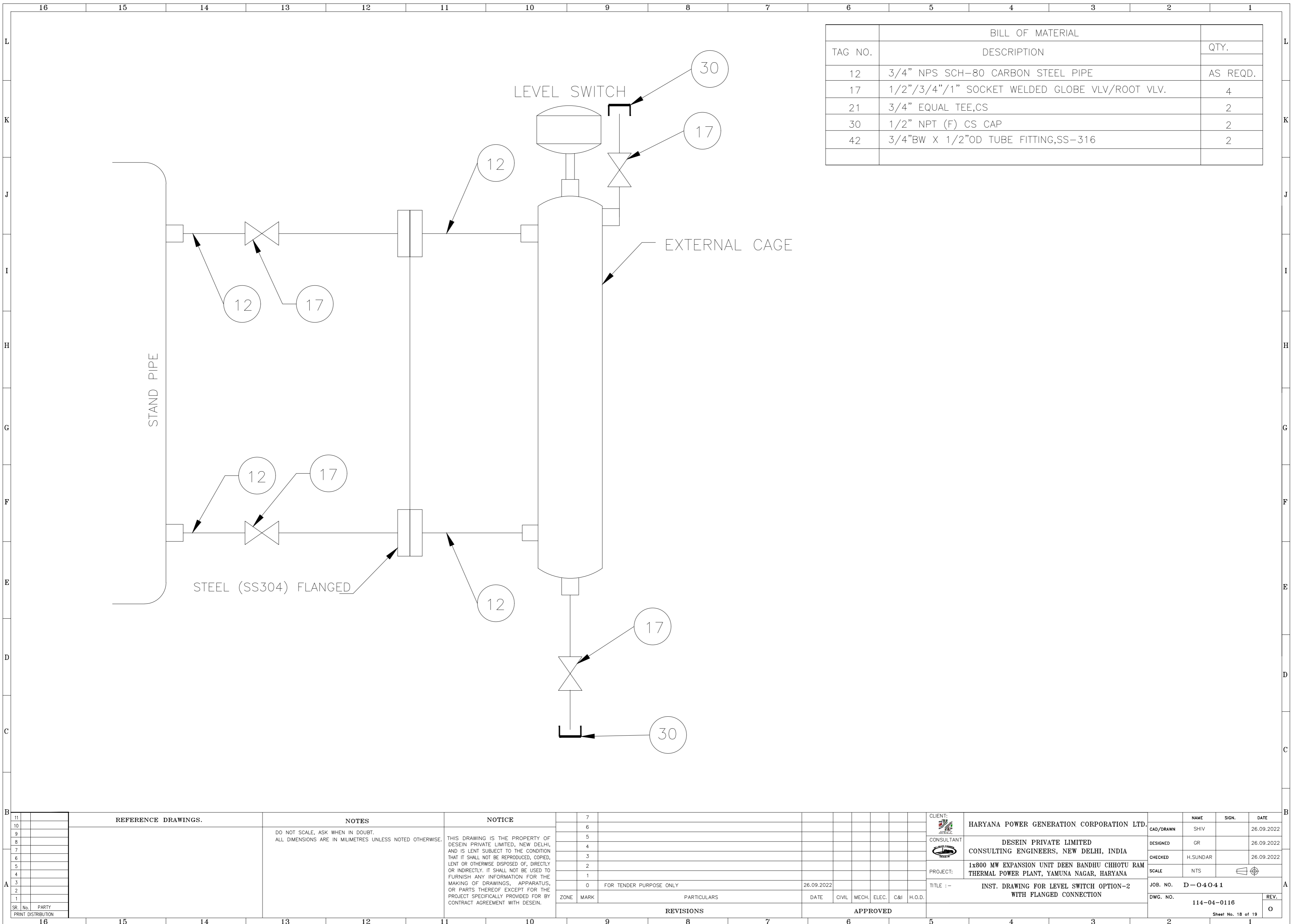
FOR PIPE OD BELOW 219.1mm	29	55	33.5	1.5	65
FOR PIPE OD 219.1mm & ABOVE	29	55	33.5	1.5	45
MAIN PIPE SIZES	d	D	D1	S	L

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REFERENCE DRAWINGS.	NOTES	NOTICE
	DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.	THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.

REVISIONS	APPROVED
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0	FOR TENDER PURPOSE ONLY
DATE	26.09.2022
CIVIL	MECH.
ELEC.	C&I
H.O.D.	

CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SHIV	SIGN.		DATE	26.09.2022
CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED	GR				26.09.2022
PROJECT:	1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA	CHECKED	H.SUNDAR				26.09.2022
TITLE :-	INST. DRAWING FOR TEMPERATURE STUB	SCALE	NTS				
JOB. NO.	D-04041	DWG. NO.	114-04-0115	REV.	O		
Sheet No. 15 of 19							



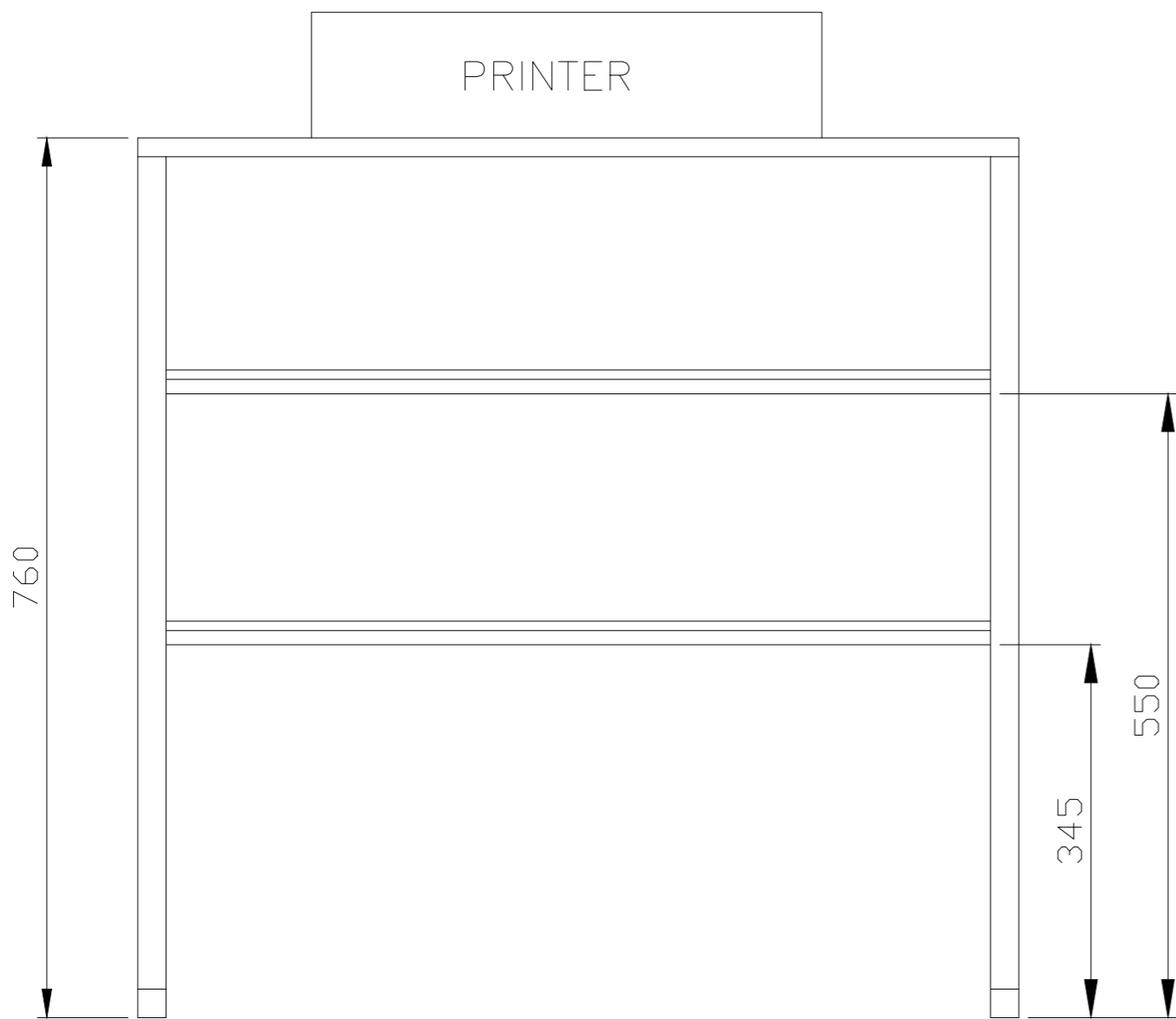
BILL OF MATERIAL		
TAG NO.	DESCRIPTION	QTY.
12	3/4" NPS SCH-80 CARBON STEEL PIPE	AS REQD.
17	1/2"/3/4"/1" SOCKET WELDED GLOBE VLV/ROOT VLV.	4
21	3/4" EQUAL TEE,CS	2
30	1/2" NPT (F) CS CAP	2
42	3/4"BW X 1/2"OD TUBE FITTING,SS-316	2

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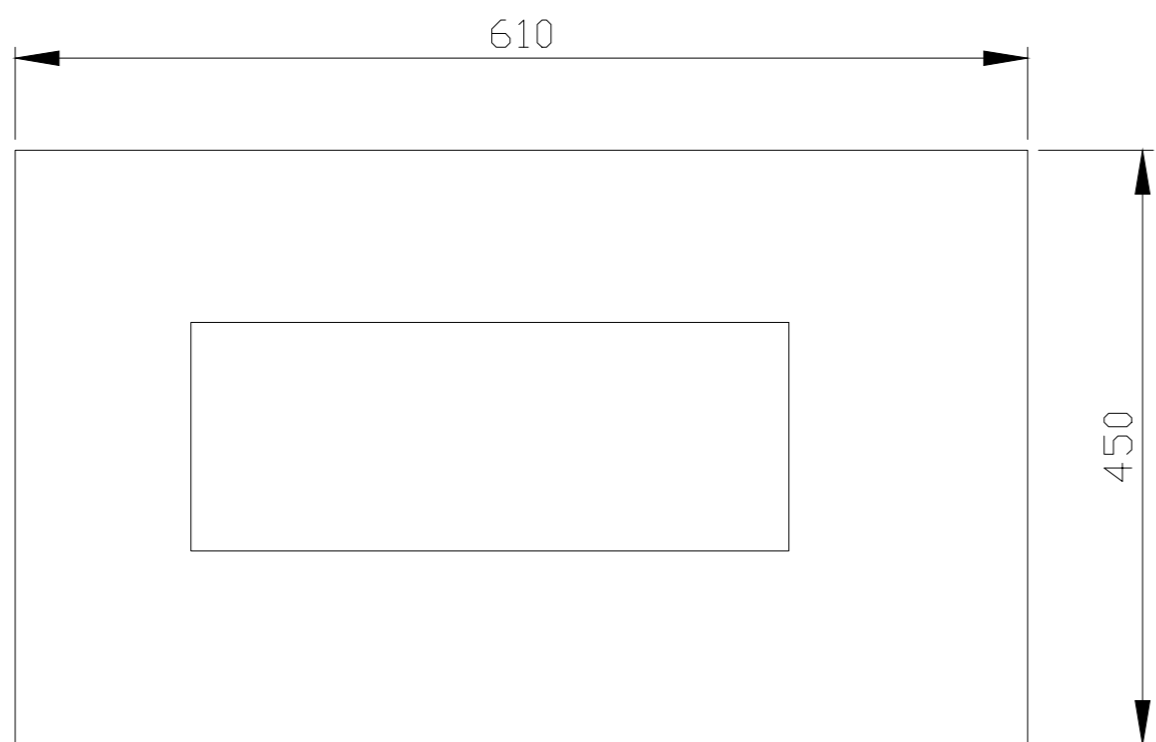
REFERENCE DRAWINGS.	NOTES	NOTICE
	DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.	THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.

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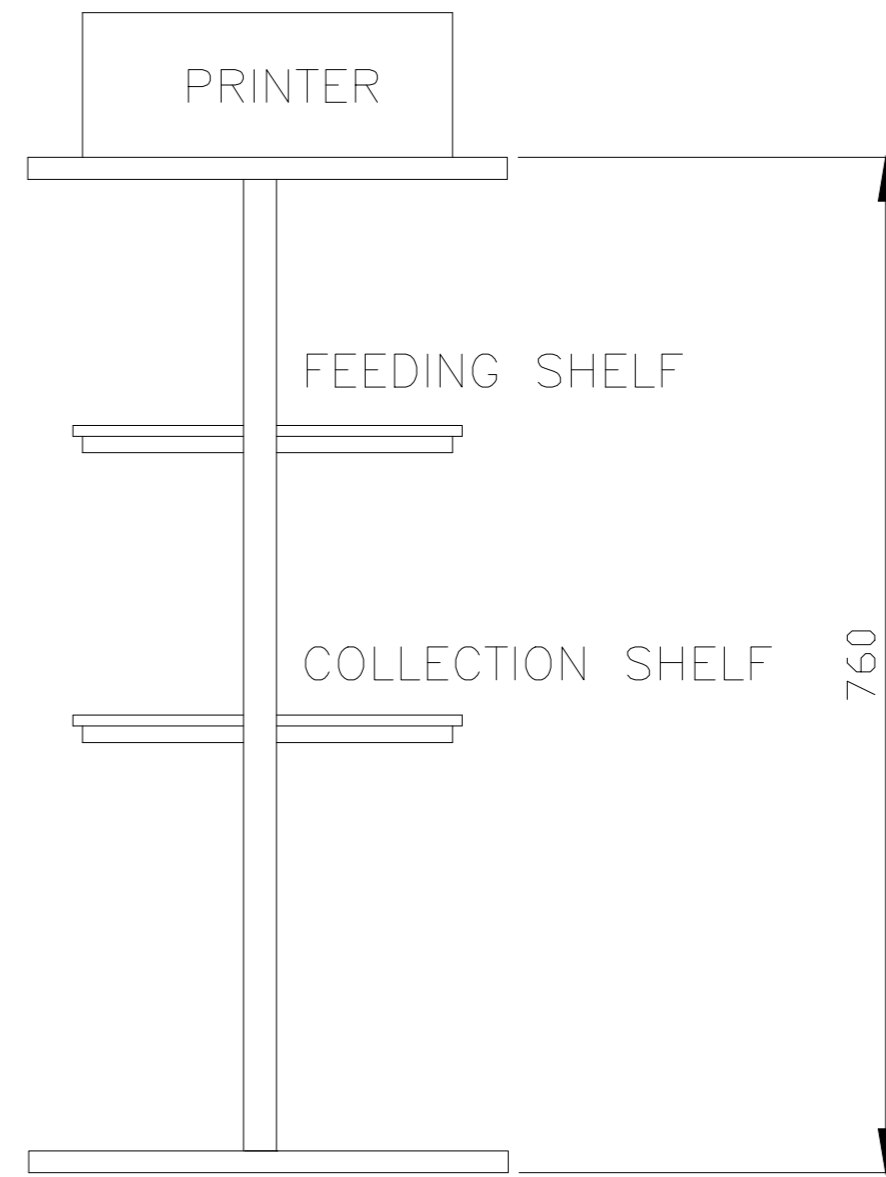
CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SHIV	SIGN.		DATE	26.09.2022
CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED	GR	CHECKED	H.SUNDAR	DATE	26.09.2022
PROJECT:	1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA	SCALE	NTS				
TITLE :- INST. DRAWING FOR LEVEL SWITCH OPTION-2 WITH FLANGED CONNECTION		JOB. NO.	D-04041				
DWG. NO.	114-04-0116	REV.	O				
Sheet No. 18 of 19							



FRONT VIEW



TOP VIEW



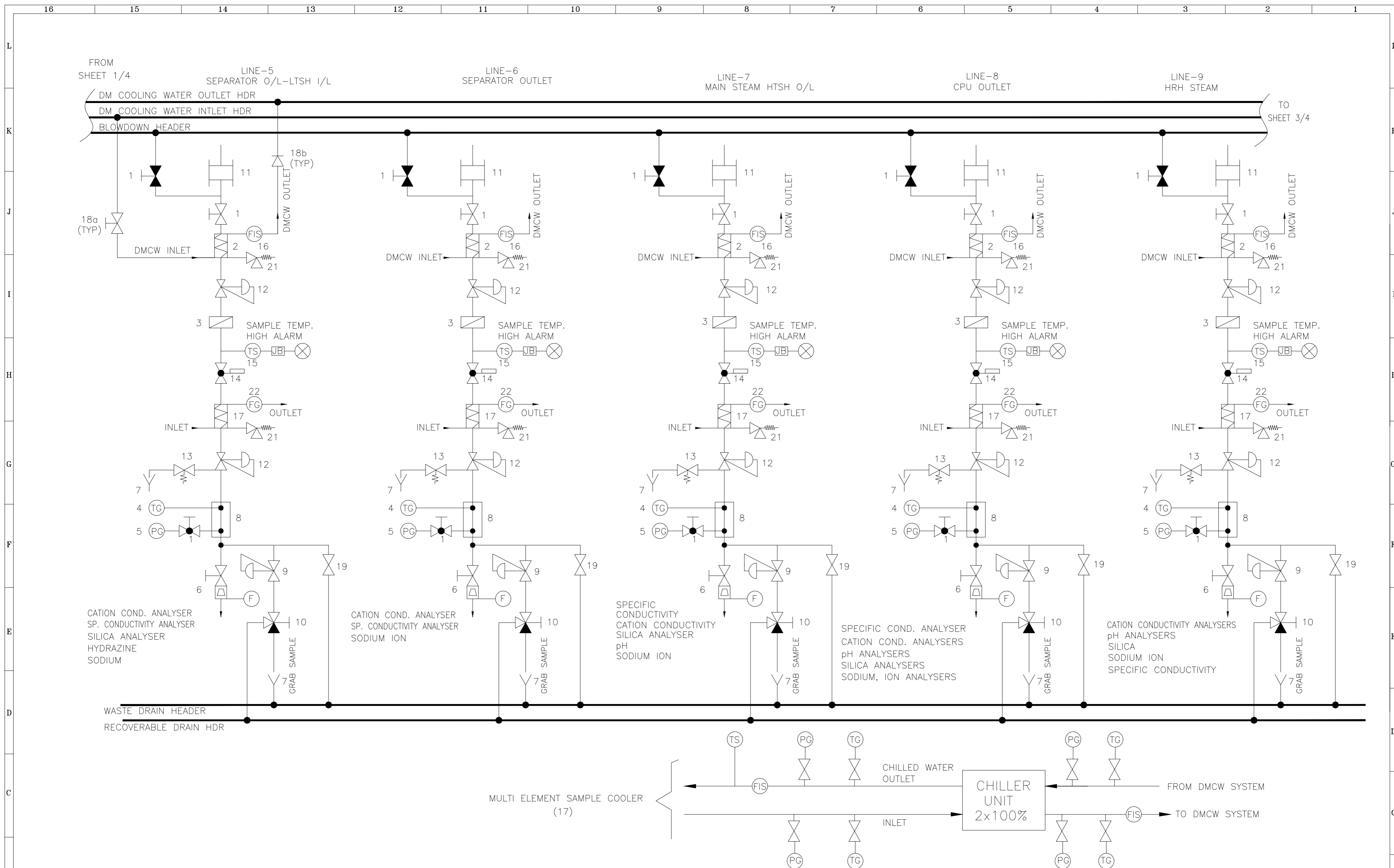
SIDE VIEW

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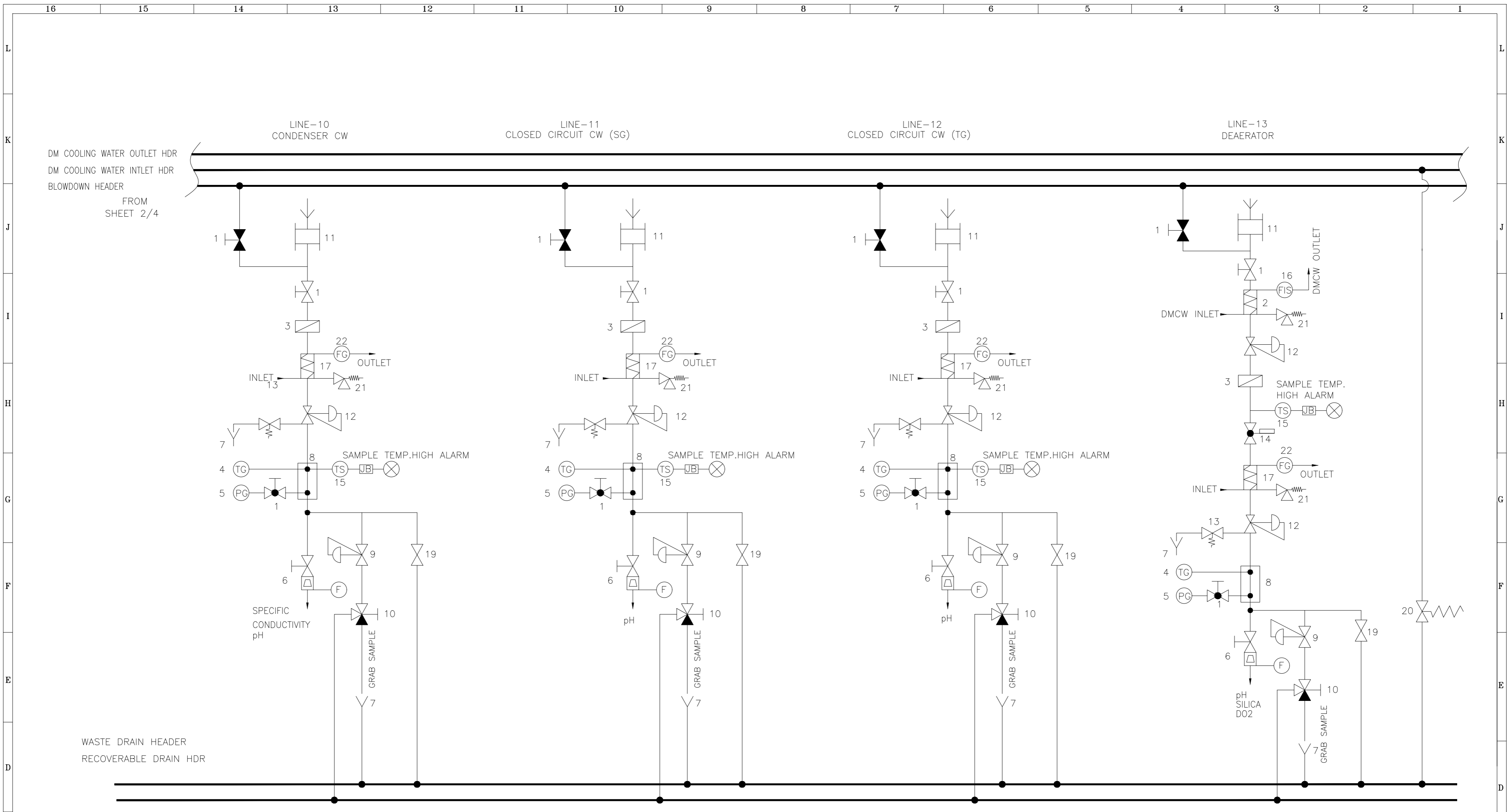
REFERENCE DRAWINGS.	NOTES	NOTICE
	DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.	THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.

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ZONE	MARK	PARTICULARS	DATE	CIVIL	MECH.	ELEC.	C&I	H.O.D.

CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SIGN.	DATE
CONSULTANT:	DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED	GR	26.09.2022
PROJECT:	1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA	CHECKED	H.SUNDAR	26.09.2022
TITLE :-	OGA-PRINTER TABLE FOR DDCMIS AND PLC SYSTEM	SCALE	NTS	
JOB. NO.	D-04041	DWG. NO.	114-05-0108	REV.
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11						7						CLIENT:	HARYANA POWER GENERATION CORPORATION LTD.	NAME	SHIV	SIGN.	DATE	26.09.2022
10						6						CONSULTANT:	DESEIN PRIVATE LIMITED	DESIGNED	GR			26.09.2022
9						5						CHECKED	H.SUNDAR					26.09.2022
8						4						PROJECT:	1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA	SCALE	NTS			
7						3						TITLE :-	SAMPLE CONDITIONING SYSTEM (FOR COMPLETE PLANT)	JOB. NO.	D-04041			
6						2						DWG. NO.	114-14-0101	REV.	O			
5						1						Sheet No. 2 of 4						
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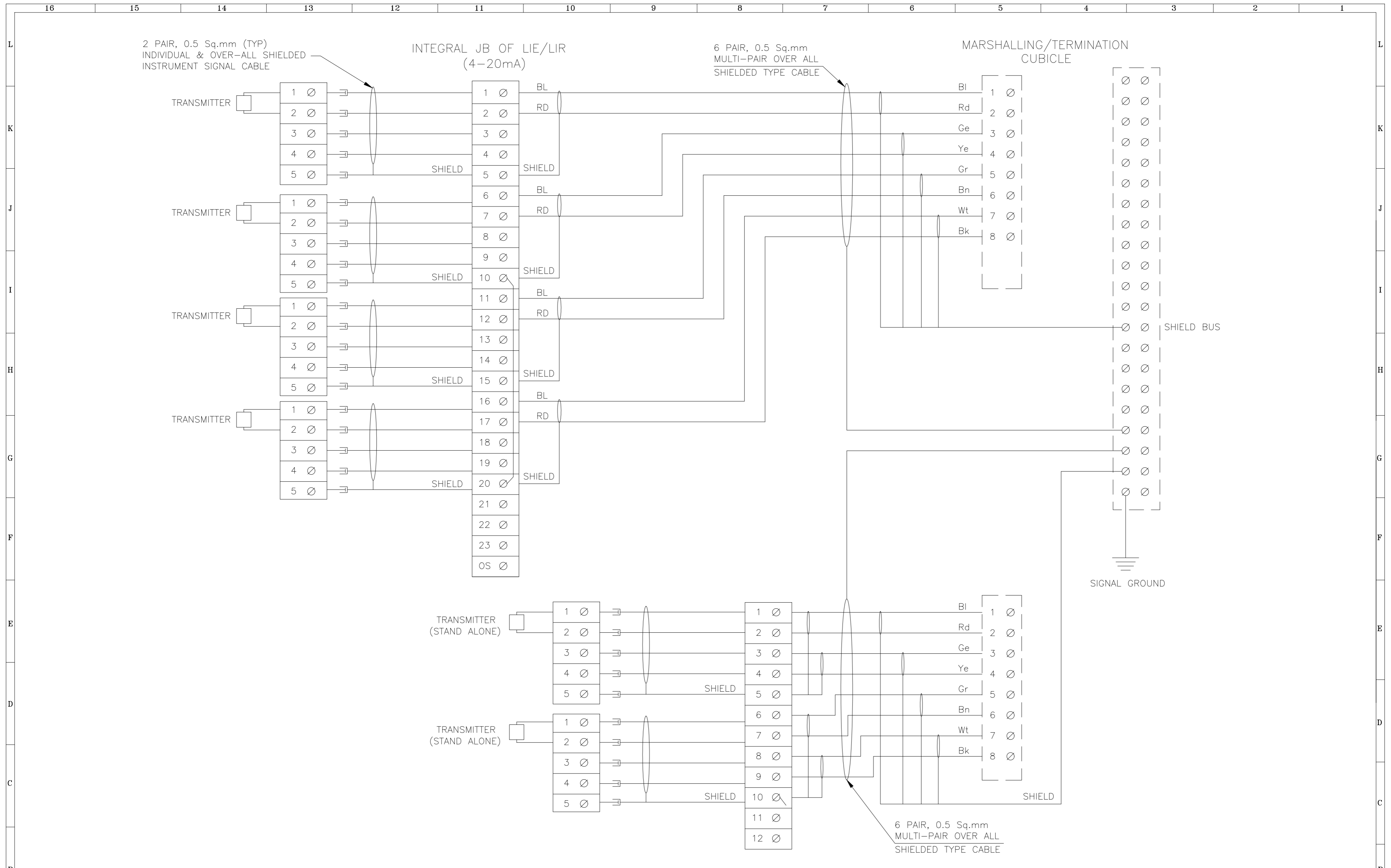
A	11		REFERENCE DRAWINGS. NOTES DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.	NOTICE THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.	7		CLIENT: HARYANA POWER GENERATION CORPORATION LTD. CONSULTANT: DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA PROJECT: 1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA TITLE :- SAMPLE CONDITIONING SYSTEM (FOR COMPLETE PLANT)	NAME	SIGN.	DATE
	10				CAD/DRAWN	SHIV		26.09.2022		
	9				DESIGNED	GR		26.09.2022		
	8				CHECKED	H.SUNDAR		26.09.2022		
	7				SCALE	NTS				
	6				JOB. NO. D-04041					
	5				DWG. NO. 114-14-0101					
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SR.	No.	PARTY
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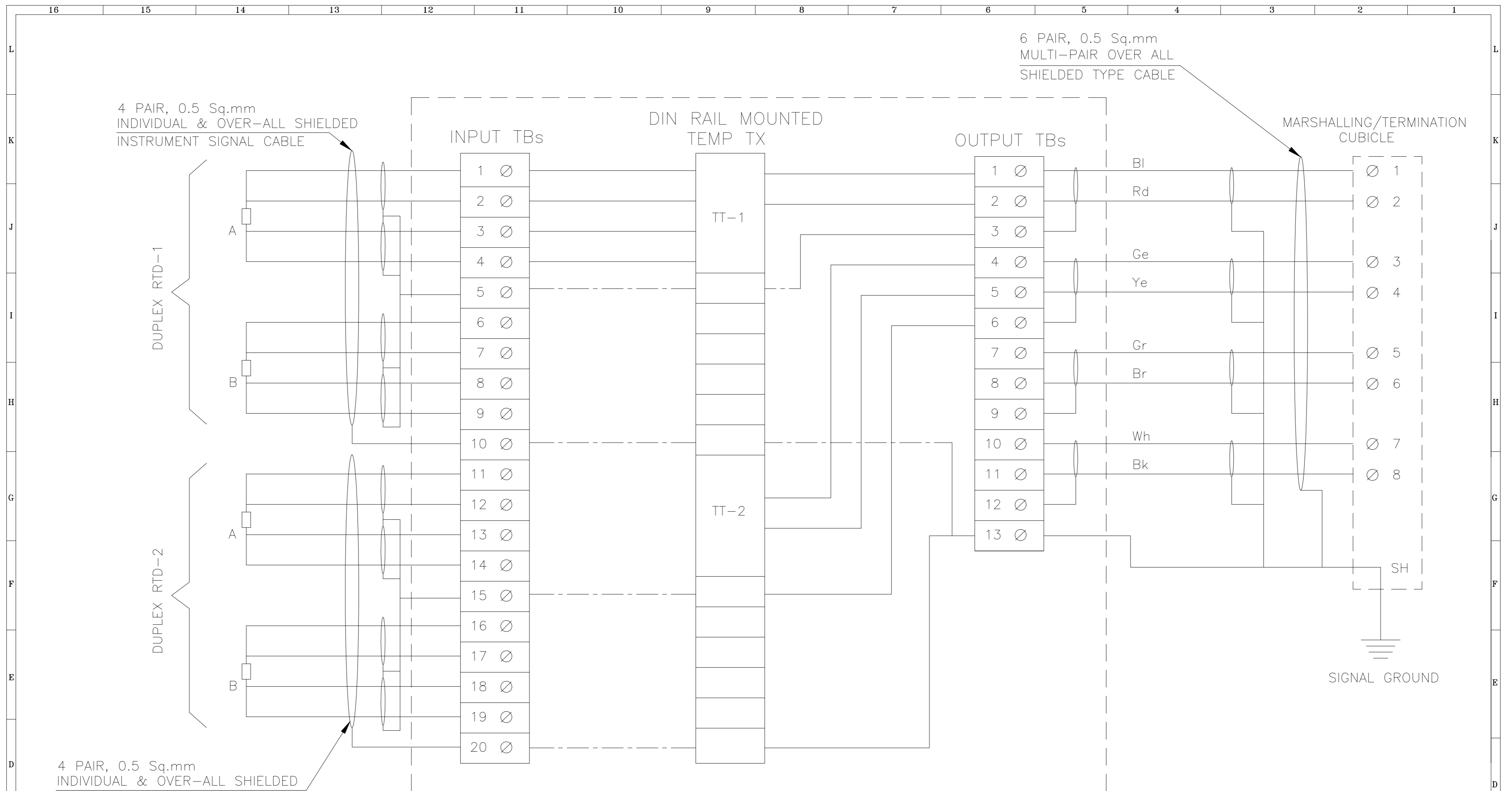
LEGEND: —

ITEM NO	DESCRIPTION
1.	SAMPLE ISO. VALVE (HT & LT) – QUANTITIES AND SIZE OF VALVES SHALL BE AS PER SAMPLE'S PRESSURE AND TEMPERATURE RATING
2.	SAMPLE COOLER (PRIMARY) WITH SHELL PRESSURE RELIEF VALVE
3.	SAMPLE FILTER (SS316,SINTERED 40 MICRON SIZE)
4.	TEMPERATURE GAUGE
5.	PRESSURE GAUGE
6.	ROTAMETER WITH BUILT-IN VALVE (ONE NO. EACH FOR EACH ANALYSER)
7.	TUNDISH (COMMON)
8.	SAMPLE MANIFOLD
9.	BACK PRESSURE REGULATEOR
10.	THREE WAY BALL VALVE
11.	BULKHEAD UNION
12.	PRESSURE REGULATOR
13.	SAMPLE RELIEF VALVE
14.	THERMAL SHUT OF VALVE
15.	TEMPERATURE SWITCH
16.	FLOW INDICATOR CUM SWITCH
17.	SECONDARY SAMPLE COOLER
18a	ISOLATION VALVE
18b	NON RETURN VALVE
19.	QUICK DISCONNECTION VALVE (QDV)
20.	DMCW INLET HEADER SAFETY RELIEF VALVE
21.	SHELL PRESSURE RELIEF VALVE
22.	FLOW GAUGE

11		REFERENCE DRAWINGS.	NOTES	NOTICE																			
10			DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.	THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.	7															CLIENT: HARYANA POWER GENERATION CORPORATION LTD.	NAME: SHIV	SIGN.	DATE: 26.09.2022
9					6															CONSULTANT: DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA	DESIGNED: GR	SIGN.	DATE: 26.09.2022
8					5															PROJECT: 1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA	CHECKED: H.SUNDAR	SIGN.	DATE: 26.09.2022
7					4															SCALE: NTS			
6					3															JOB. NO. D-04041			
5					2															TITLE :- SAMPLE CONDITIONING SYSTEM (FOR COMPLETE PLANT)			
4					1	FOR TENDER PURPOSE ONLY	26.09.2022													DWG. NO. 114-14-0101		REV.	
3					0															O			
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11 10 9 8 7 6 5 4 3 2 1	REFERENCE DRAWINGS.	NOTES	NOTICE	7	8	9	10	11	12	13	14	15	16
		DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.	THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.	0									
FOR TENDER PURPOSE ONLY DATE: 26.09.2022 CIVIL MECH. ELEC. C&I H.O.D.				REVISIONS PARTICULARS DATE		APPROVED		CLIENT: HARYANA POWER GENERATION CORPORATION LTD. CONSULTANT: DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA PROJECT: 1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA TITLE: INTERFACING OF FIELD INSTRUMENTS 4-20mA		NAME: SHIV SIGN: GR H.SUNDAR NTS		DATE: 26.09.2022 26.09.2022 26.09.2022	
JOB. NO. D-04041 DWG. NO. 114-15-0105 SHEET No. 5 of 15										REV. O			



6 PAIR, 0.5 Sq.mm
MULTI-PAIR OVER ALL
SHIELDED TYPE CABLE

4 PAIR, 0.5 Sq.mm
INDIVIDUAL & OVER-ALL SHIELDED
INSTRUMENT SIGNAL CABLE

MARSHALLING/TERMINATION
CUBICLE

DUPLEX RTD-1

DUPLEX RTD-2

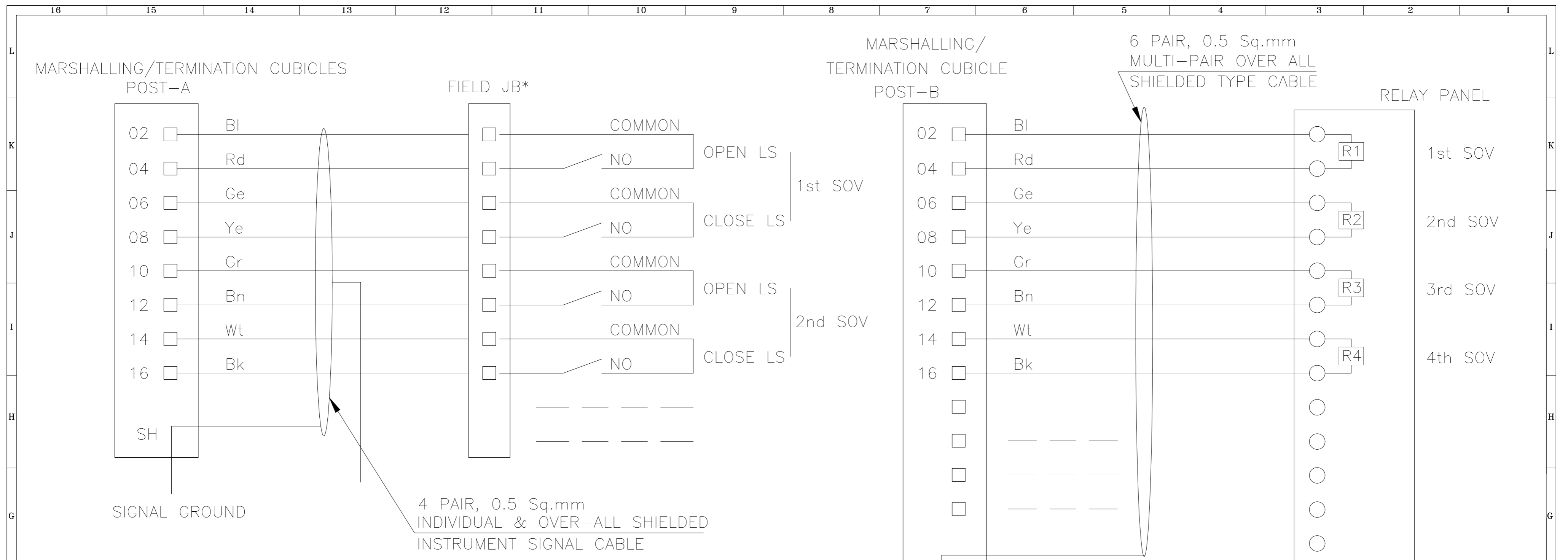
4 PAIR, 0.5 Sq.mm
INDIVIDUAL & OVER-ALL SHIELDED
INSTRUMENT SIGNAL CABLE

JUNCTION BOX FOR MOUNTING TEMP. Tx

NOTE:-

1. ABOVE IS THE TYPICAL DWG. FOR DIN RAIL MOUNTED TEMP TRANSMITTERS FOR RTD APPLICATION. EXACT TYPE OF TEMP TRANSMITTER SHALL BE AS PER PART-A OF SPECIFICATION.
2. THE EXACT GROUPING OF TEMP TXs SHALL BE FINALISED DURING DETAILED ENGINEERING STAGE.

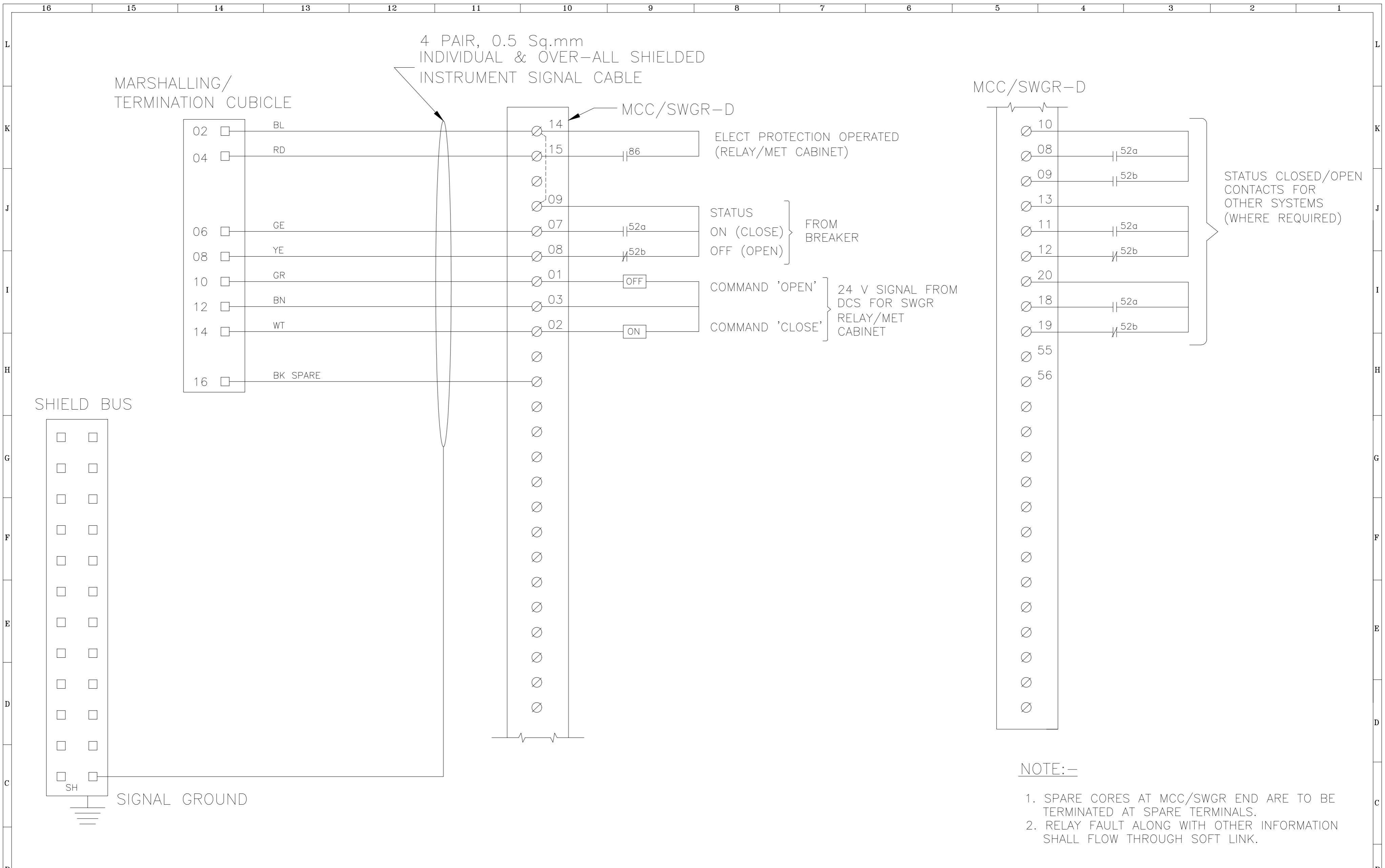
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				DO NOT SCALE, ASK WHEN IN DOUBT. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.			THIS DRAWING IS THE PROPERTY OF DESEIN PRIVATE LIMITED, NEW DELHI, AND IS LENT SUBJECT TO THE CONDITION THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF, DIRECTLY OR INDIRECTLY. IT SHALL NOT BE USED TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, APPARATUS, OR PARTS THEREOF EXCEPT FOR THE PROJECT SPECIFICALLY PROVIDED FOR BY CONTRACT AGREEMENT WITH DESEIN.						CONSULTANT: DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA			SIGN: GR		
													PROJECT: 1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA			DATE: 26.09.2022		
													TITLE :- INTERFACING OF FIELD INSTRUMENTS TYPICAL RTD CONNECTION WITH TEMP. TRANSMITTER INJBS			SCALE: NTS		
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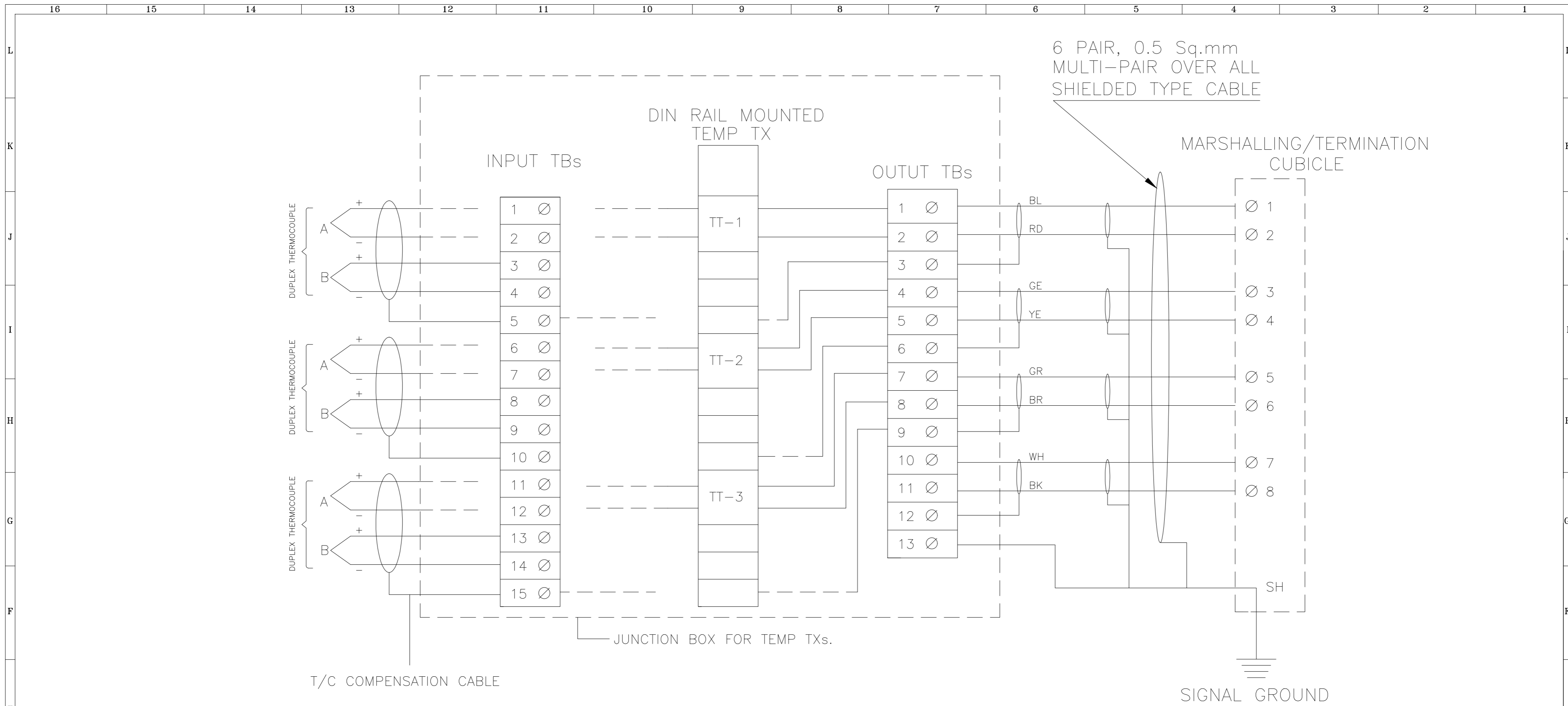
NOTE:-

- *FEEDBACKS OF SOVs CAN BE GROUPED IN FIELD JB AND MULTI PAIR CABLE IS TO BE USED FROM FIELD JB TO MARSHALLING/TERMINATION CUBICLE FOR FEEDBACKS OF GROUP OF SOVs. TYP ARRANGEMENT IS SHOWN FOR A GROUP OF TWO SOVs WITH OPEN AND CLOSE LIMIT SWITCHES.
- No. OF LIMIT SWITCHES/No. OF CONTACT IN LIMIT SWITCHES SHALL BE PROVIDED FOR EACH VALVE AS PER SPEC. REQUIREMENT/PHILOSOPHY FOR RESPECTIVE SYSTEM.
- ** MULTIPAIR CABLE IS TO BE USED FOR CONNECTION OF COMMAND OUTPUTS FROM MARSHALLING/TERMINATION CUBICLE TO RELAY PANEL FOR A GROUP OF SOVs.

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<p>CLIENT: HARYANA POWER GENERATION CORPORATION LTD.</p> <p>PROJECT: 1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA</p> <p>TITLE :- INTERFACING OF FIELD INSTRUMENTS INTERFACE OF DDCMIS WITH MCC/SWGR/ ACTUATOR (SINGLE COIL SOLENOID)</p>												<p>NAME</p> <p>SHIV</p>		<p>DATE</p> <p>26.09.2022</p>		<p>DATE</p> <p>26.09.2022</p>		<p>DATE</p> <p>26.09.2022</p>		<p>JOB. NO.</p> <p>D-04041</p>		<p>DWG. NO.</p> <p>114-15-0109</p>		<p>REV.</p> <p>O</p>	
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<p>Sheet No. 9 of 15</p>												<p>114-15-0109</p>		<p>D-04041</p>		<p>O</p>									



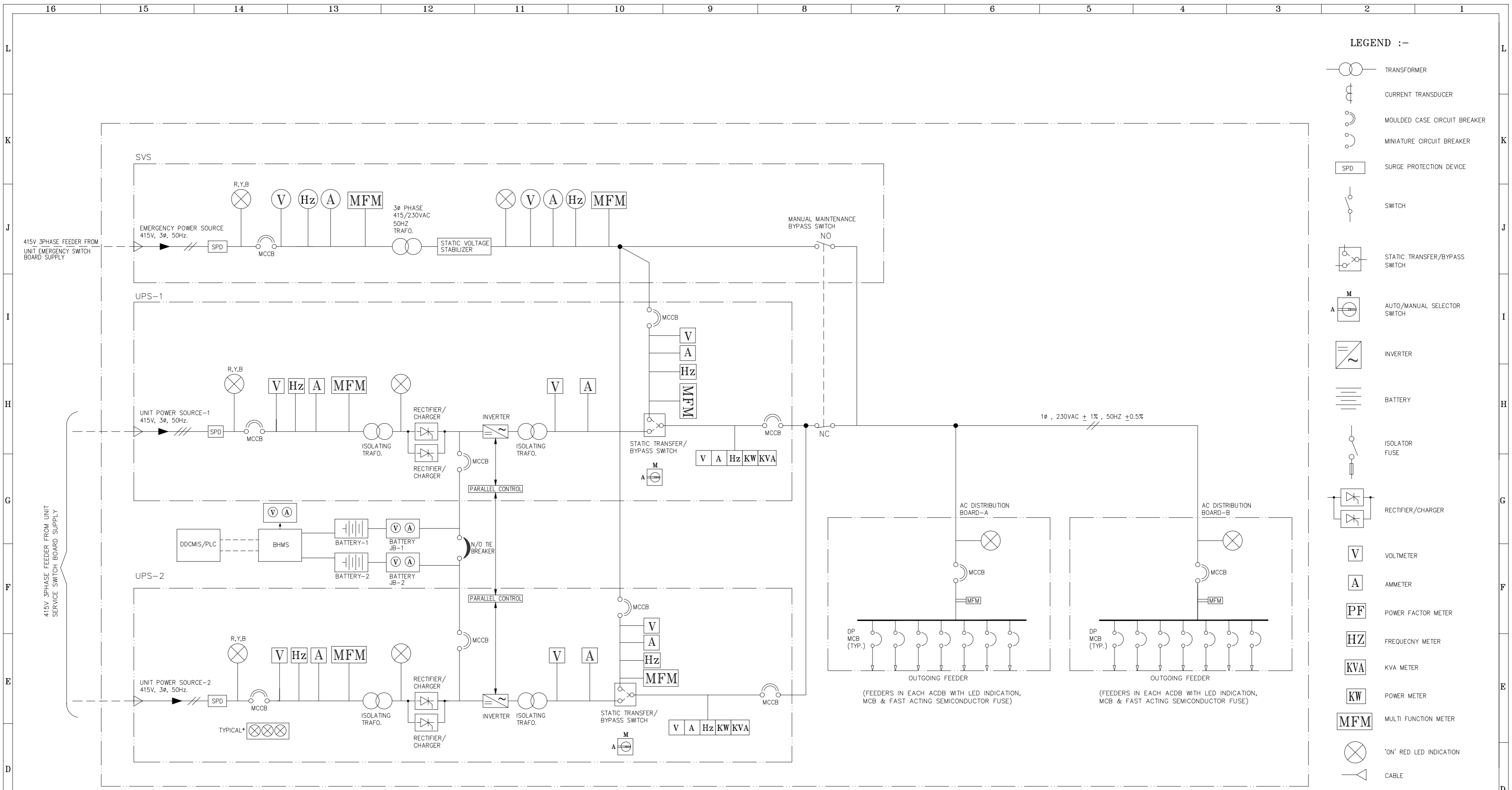
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NOTE:--

1. ABOVE IS THE TYP DRG. FOR DIN RAIL MOUNTED TEMP TRANSMITTER FOR T/C APPLICATION. EXACT TYPE OF TEMP. TRANSMITTERS SHALL BE AS PER PART-A OF SPECIFICATION.
2. THE EXACT GROUPING OF TEMP. TXs SHALL BE FINALISED DURING DETAILED ENGG. STAGE
3. AFTER GLANDING OF T/C CABLES ON JB, THE CABLE PAIR OF FIRST ELEMENT WILL BE DIRECTLY CONNECTED TO TT AND FOR CABLE PAIR OF SECOND ELEMENT LOOP SHALL BE KEPT, BEFORE TERMINATION AT INPUT TBs FOR FUTURE USE.

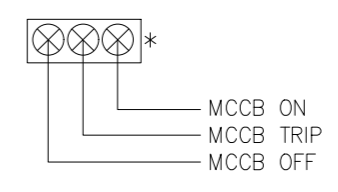
REFERENCE DRAWINGS.		NOTES		NOTICE		REVISIONS		APPROVED		CLIENT:		NAME		SIGN.		DATE	
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10		ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.				6				DESEIN PRIVATE LIMITED CONSULTING ENGINEERS, NEW DELHI, INDIA		DESIGNED	GR			26.09.2022	
9						5				1x800 MW EXPANSION UNIT DEEN BANDHU CHHOTU RAM THERMAL POWER PLANT, YAMUNA NAGAR, HARYANA		CHECKED	H.SUNDAR			26.09.2022	
8						4				TITLE :- INTERFACING OF FIELD INSTRUMENTS TYPICAL T/C CONNECTION WITH TEMP TXs IN JBs		SCALE	NTS				
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LEGEND :-

	TRANSFORMER
	CURRENT TRANSDUCER
	MOULDED CASE CIRCUIT BREAKER
	MINIATURE CIRCUIT BREAKER
	SURGE PROTECTION DEVICE
	SWITCH
	STATIC TRANSFER/BYPASS SWITCH
	AUTO/MANUAL SELECTOR SWITCH
	INVERTER
	BATTERY
	ISOLATOR FUSE
	RECTIFIER/CHARGER
	VOLTMETER
	AMMETER
	POWER FACTOR METER
	FREQUENCY METER
	KVA METER
	POWER METER
	MULTIFUNCTION METER
	'ON' RED LED INDICATION
	CABLE
	SHUNT
	TIE BREAKER

- NOTES:-**
1. FILTER CIRCUITS SHALL BE PROVIDED ON AC & DC SIDE AS REQUIRED.
 2. UPS DB SHALL HAVE 1Φ 230VAC MCB OUTGOING FEEDER.
 3. RECTIFIER SHALL HAVE FACILITY FOR BOOST CHARGING THE BATTERY.
 4. TRANSDUCERS FOR VARIOUS METERS SHALL BE PROVIDED FOR GIVING 4-20mA ISOLATED SIGNALS FOR DDCMS & PLC.
 5. POTENTIAL FREE CONTACTS FOR ALARMS/FAULTS SHALL BE PROVIDED FOR USE IN DDCMS & PLC.
 6. BOTH STATIC TRANSFER SWITCHES SHALL BE SELECTED ON AUTO MODE FOR AUTOMATIC TRANSFER TO BACKUP SUPPLY.
 7. UPS SYSTEM SHALL WORK IN "CRISS-CROSS REDUNDANCY" CONFIGURATION AS SPECIFIED IN NIT CLAUSE No. 7.02.04 FOR AUTOMATIC TRANSFER TO BACKUP SUPPLY.
 8. REDUNDANT SOFTLINK SHALL BE PROVIDED WITH EACH UPS FOR INTERFACING WITH DDCMS & PLC.



LEGEND :-

MCB	-MINIATURE CIRCUIT BREAKER
MCCB	-MOULDED CASE CIRCUIT BREAKER
DP	-DOUBLE POLE
MFM	-MULTIFUNCTION METER FOR V,A,F,KVA,KW & PF
BHMS	-BATTERY HEALTH MONITORING SYSTEM

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