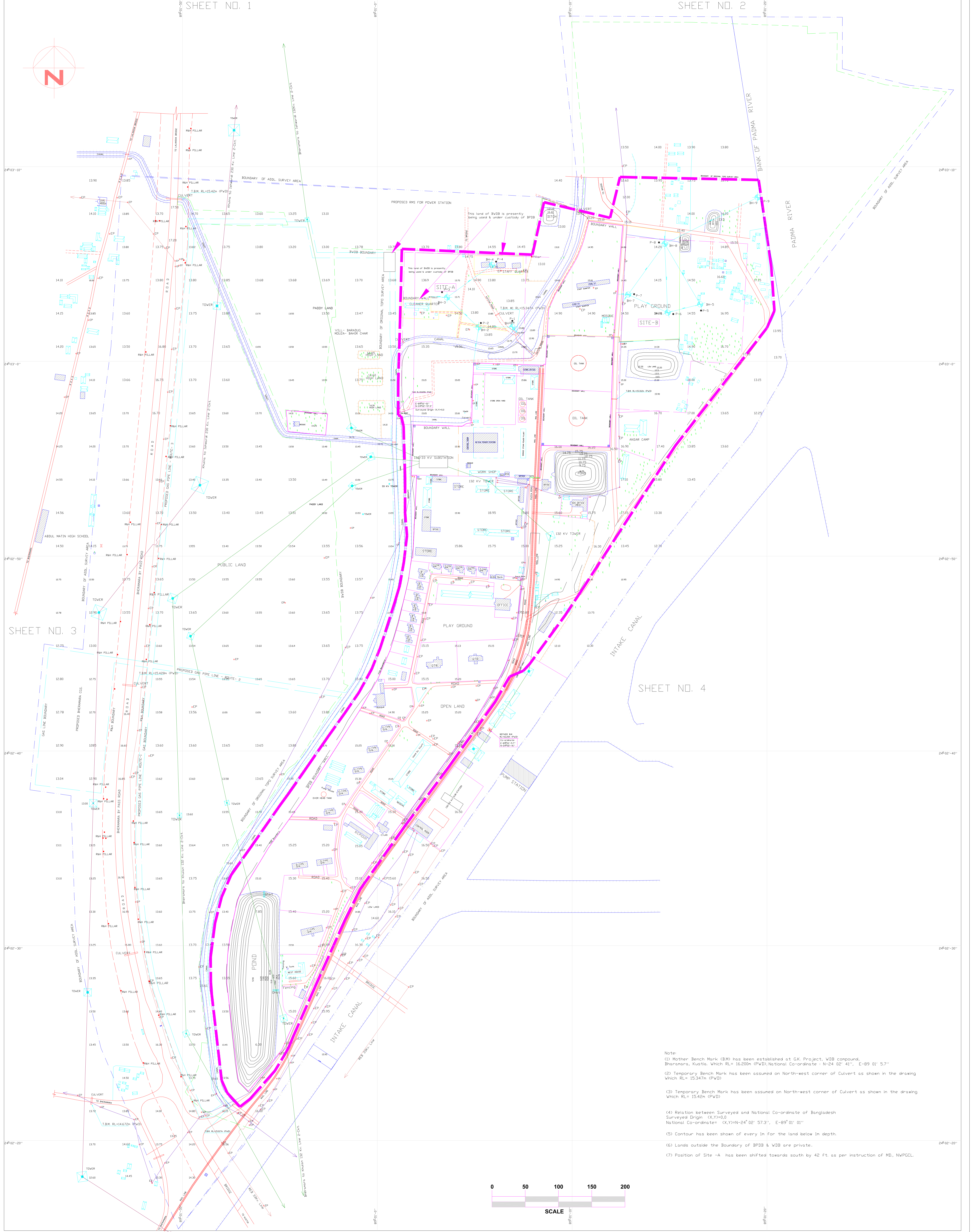
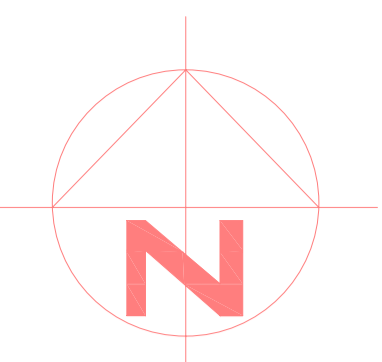
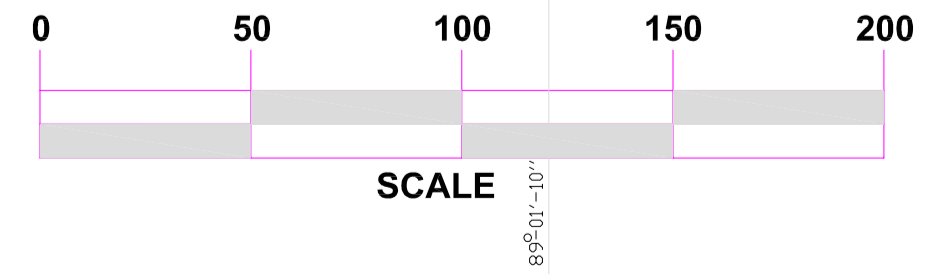


Attachment 4 Drawings

1. Topographic Map of Bheramara Power Station Area (Key Map)
2. Plot Plan
3. General Arrangement Power Plant
4. Overall Flow Diagram Steam Water Cycle
5. Steam & Feed Water System Diagram
6. Closed Cooling Water System Diagram
7. Circulating Water System
8. Fuel Gas System Diagram
9. Water Treatment System Diagram
10. Waste Water Treatment System Diagram
11. Compressed Air System Diagram
12. Fire Fighting System Diagram
13. Key Single Line Diagram

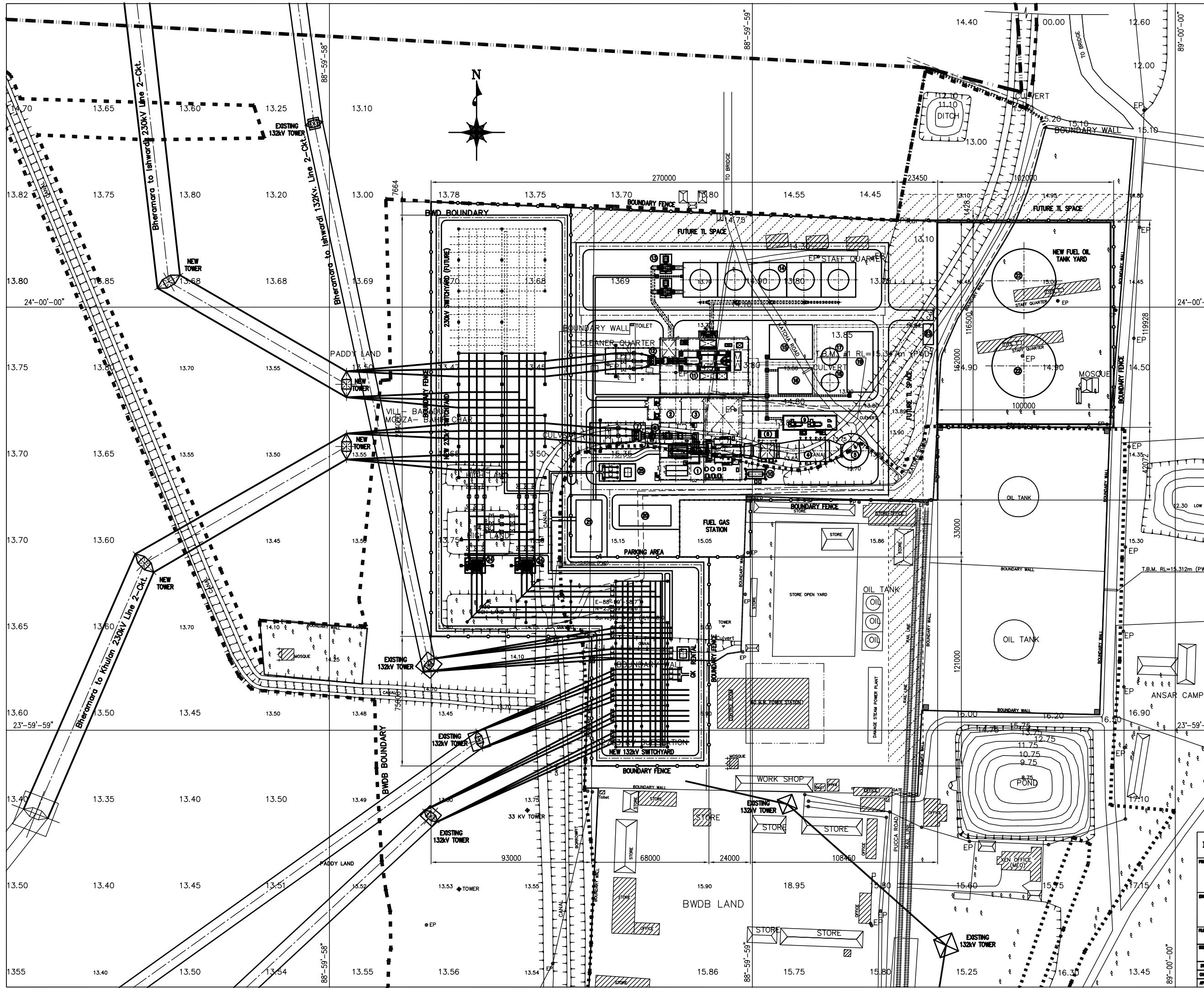


- Note:
- (1) Mother Bench Mark (BM) has been established at G.K. Project, WDB compound, Bheramara, Kushtia. Which RL = 16.200m (PWB), National Co-ordinate = N-24° 02' 41", E-89° 01' 57"
 - (2) Temporary Bench Mark has been assumed at North-west corner of Culvert as shown in the drawing. Which RL = 15.347m (PWB)
 - (3) Temporary Bench Mark has been assumed at North-west corner of Culvert as shown in the drawing. Which RL = 15.42m (PWB)
 - (4) Relation between Surveyed and National Co-ordinate of Bangladesh. Surveyed Origin (X,Y)=0.0. National Co-ordinate = (X,Y)=N-24° 02' 57.3", E-89° 01' 01"
 - (5) Contour has been shown of every 1m for the land below 1m depth.
 - (6) Lands outside the Boundary of BPDB & WDB are private.
 - (7) Position of Site -A has been shifted towards south by 42 Ft. as per instruction of MD., NWPGL.



<ul style="list-style-type: none"> Public Road, Kutcha Road HRB Road, Road with Pavement Entrance to Permanent Building, Railway Line Building, Train Shed, Hut/Kutcha Ban Mosque, Church, Edgah, Temple Bridge, Culvert Boundary Wall, Wire Fencing River, Canal Fund, Ditch, Embankment Telephone Pole, Power Line Poles, Tower Homestead, Benchmarks Tree Coner Boundary of Addl. Survey Area Boundary of Original Topo Survey Area BPDB Boundary HRB Boundary Gas Line Boundary POB Boundary 20 Kv. Line 132 Kv. Line 33 Kv. Line 15 Kv. Line Site A & B Boundary 	<ul style="list-style-type: none"> Boundary land of BPDB which is presently being used & under custody of BPDB
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CONSULTANT	TOKYO ELECTRIC POWER SERVICES CO. LTD.	ORIGINAL TOPOGRAPHIC AREA :40 HECTORS	NORTH WEST POWER GENERATION COMPANY LTD. (NWPGL)	
LOCAL CONSULTANT	ENGINEERS ASSOCIATES LTD.	ADDL. TOPOGRAPHIC AREA :75 HECTORS	PROJECT NAME	JICA STUDY ON 450MW BHERAMARA COMBINED CYCLE POWER STATION
SURVEYED BY		TOTAL TOPOGRAPHIC AREA :115 HECTORS	TITLE	TOPOGRAPHIC MAP OF BHERAMARA POWER STATION AREA (KEY MAP)
CHECKED BY		APPROVED BY	DATE OF PREPARATION	DESCRIPTION
		TEPSCO / JICA	25-06-2008	
			REVISIONS	
			1.	



1	GAS TURBINE BUILDING
2	COMPUTER ROOM
3	CENTRAL CONTROL ROOM
4	HRSG
5	EXHAUST STACK
6	UNIT AUXILIARY TRANSFORMER
7	GT STEP-UP TRANSFORMER
8	T.C.A COOLER
9	BOILER FEED WATER PUMP HOUSE
10	LO STORAGE TANK
11	STEAM TURBINE BUILDING
12	ST STEP-UP TRANSFORMER
13	CIRCULATING WATER PUMP
14	COOLING TOWER
15	WASTE WATER TREATMENT PLANT
16	WATER TREATMENT PLANT
17	RAW WATER TANK
18	MAKE-UP WATER TANK
19	WORKSHOP & WAREHOUSE
20	ADMINISTRATION BUILDING
21	SWITCHYARD CONTROL BUILDING
22	FUEL OIL TANKS
23	FUEL OIL PUMP STATION
24	230/132KV BUS-TIE TRANSFORMER
25	START-UP TRANSFORMER

LEGEND

	Pucca Road, Kutcha Road
	HEB Road with Pavement
	Entries to Permanent Building Railway Line
	Building, Tin Shed, Hut, Kutcha Bari
	Mosque, Church, Eidgh, Temple
	Bridge, Culvert
	Boundary Wall, Wire Fencing
	River, Canal
	Pond, Ditch, Embankment
	Telephone Pole, Power Line Pole Tower
	Homestead, Menchmarks
	Tree
	Contour
	Project Boundary
	BWDB Boundary
	PDB Boundary
	Site A & B Boundary
	230 Kv. Line
	132 Kv. Line
	33 Kv. Line
	11 Kv. Line

FOR REFERENCE ONLY

BANGLADESH POWER DEVELOPMENT BOARD

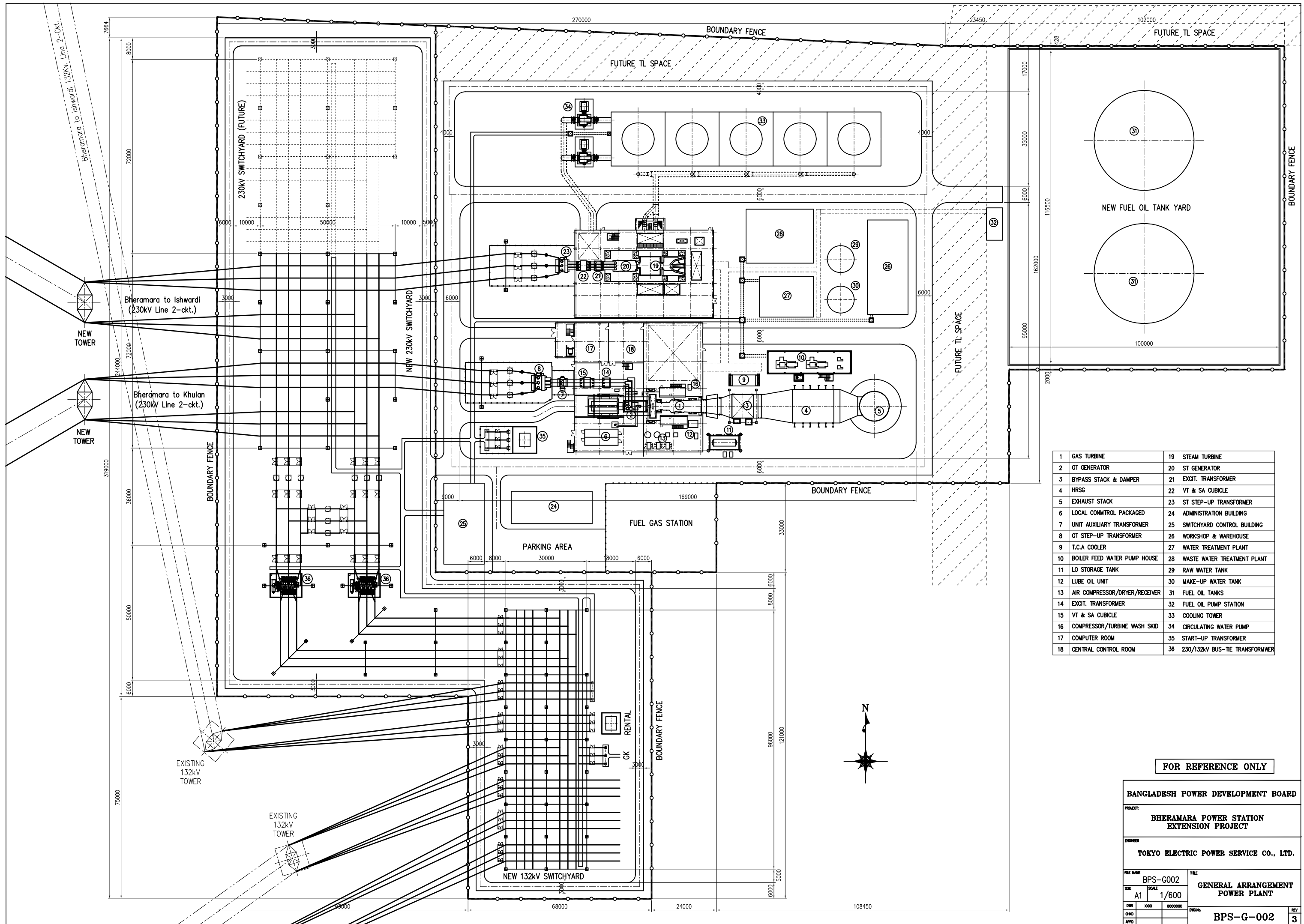
BHERAMARA POWER STATION EXTENSION PROJECT

TOKYO ELECTRIC POWER SERVICE CO., LTD.

FILE NAME	BPS-G001	SCALE	1/1000
DATE	A1	DATE	1/1000
NO.		NO.	
REV.		REV.	

PLOT PLAN

BPS-G-001



1	GAS TURBINE	19	STEAM TURBINE
2	GT GENERATOR	20	ST GENERATOR
3	BYPASS STACK & DAMPER	21	EXCIT. TRANSFORMER
4	HRSG	22	VT & SA CUBICLE
5	EXHAUST STACK	23	ST STEP-UP TRANSFORMER
6	LOCAL CONTROL PACKAGED	24	ADMINISTRATION BUILDING
7	UNIT AUXILIARY TRANSFORMER	25	SWITCHYARD CONTROL BUILDING
8	GT STEP-UP TRANSFORMER	26	WORKSHOP & WAREHOUSE
9	T.C.A COOLER	27	WATER TREATMENT PLANT
10	BOILER FEED WATER PUMP HOUSE	28	WASTE WATER TREATMENT PLANT
11	LO STORAGE TANK	29	RAW WATER TANK
12	LUBE OIL UNIT	30	MAKE-UP WATER TANK
13	AIR COMPRESSOR/DRYER/RECEIVER	31	FUEL OIL TANKS
14	EXCIT. TRANSFORMER	32	FUEL OIL PUMP STATION
15	VT & SA CUBICLE	33	COOLING TOWER
16	COMPRESSOR/TURBINE WASH SKID	34	CIRCULATING WATER PUMP
17	COMPUTER ROOM	35	START-UP TRANSFORMER
18	CENTRAL CONTROL ROOM	36	230/132kV BUS-TIE TRANSFORMER

FOR REFERENCE ONLY

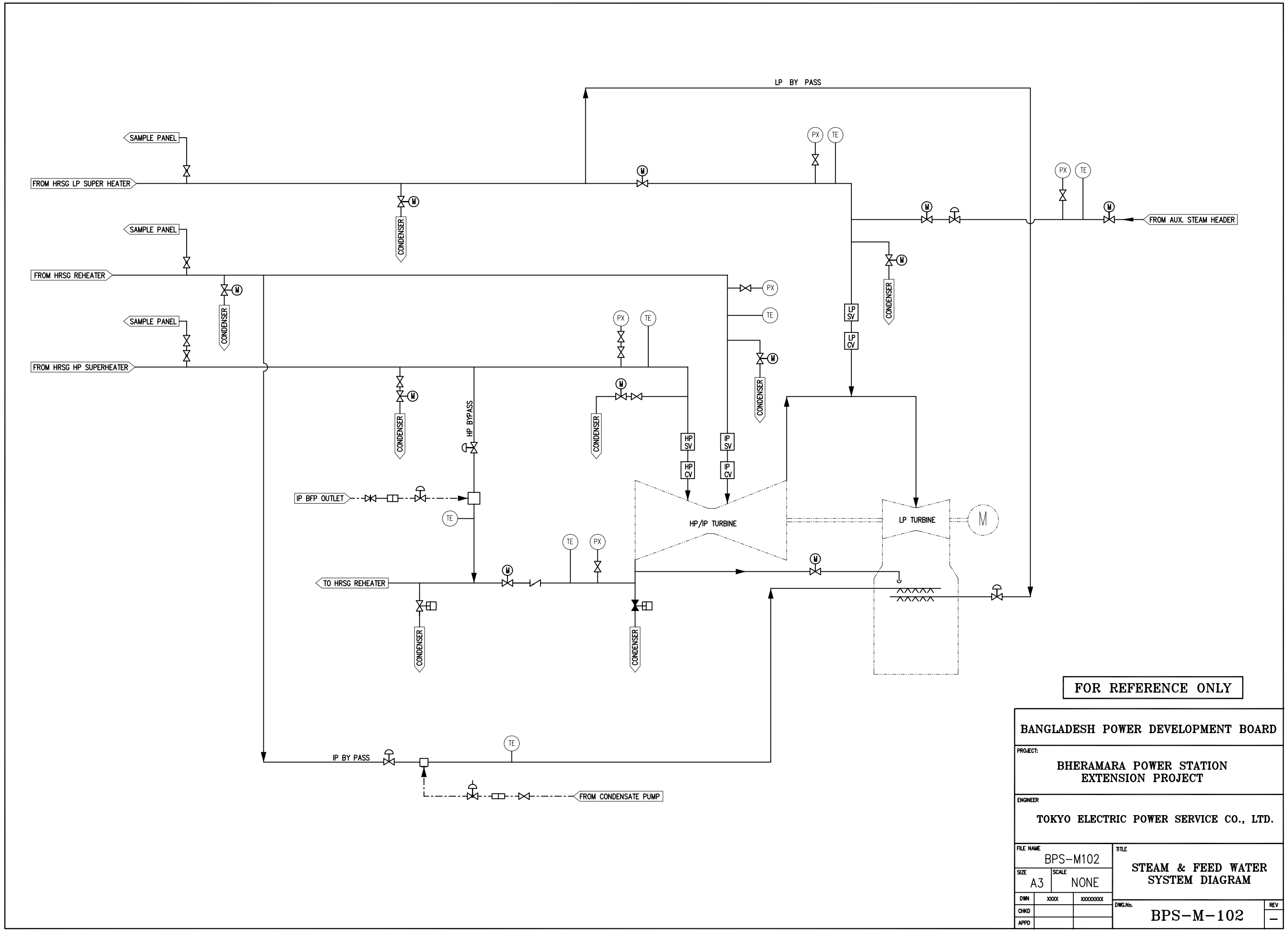
BANGLADESH POWER DEVELOPMENT BOARD

PROJECT: BHERAMARA POWER STATION EXTENSION PROJECT

OWNER: TOKYO ELECTRIC POWER SERVICE CO., LTD.

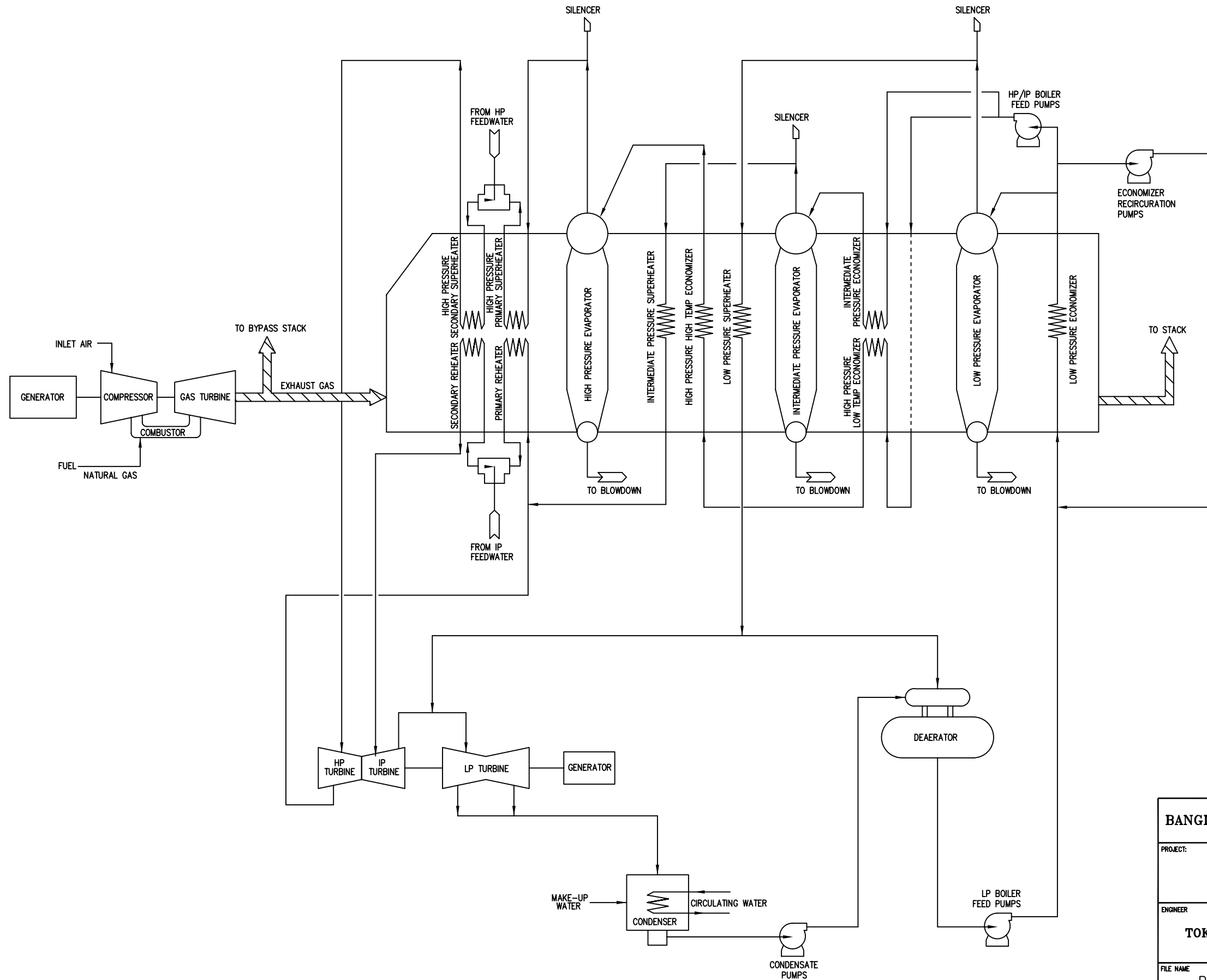
FILE NAME: BPS-G002
 SIZE: A1
 SCALE: 1/600
 TITLE: GENERAL ARRANGEMENT POWER PLANT

DATE: 0000
 APPD: 00000000
 DWN: 0000
 CHD: 00000000
 REV: 3
 BPS-G-002



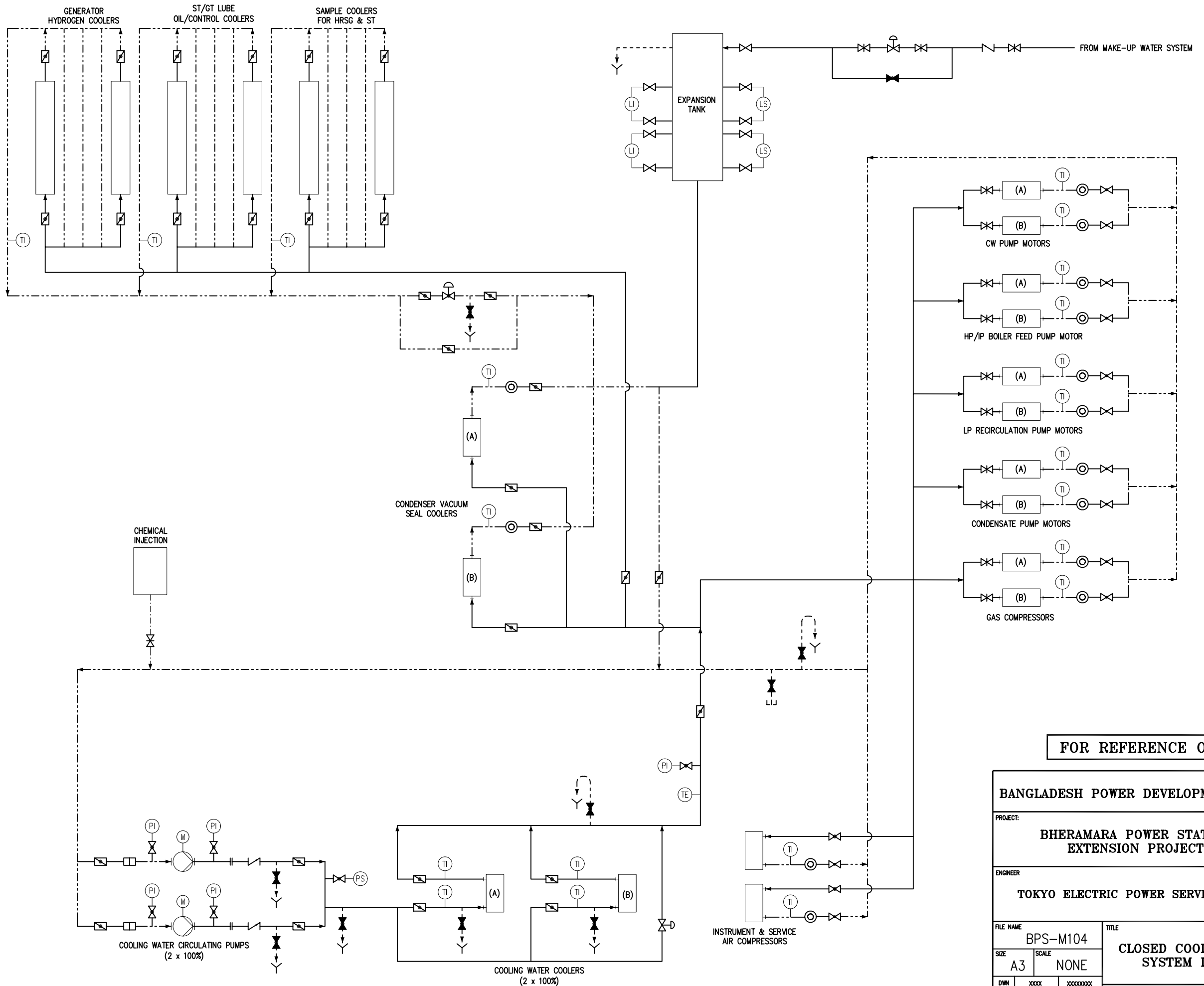
FOR REFERENCE ONLY

BANGLADESH POWER DEVELOPMENT BOARD			
PROJECT: BHERAMARA POWER STATION EXTENSION PROJECT			
ENGINEER: TOKYO ELECTRIC POWER SERVICE CO., LTD.			
FILE NAME	BPS-M102		TITLE
SIZE	A3	SCALE	NONE
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CHKD			
APPD			
			REV
			-



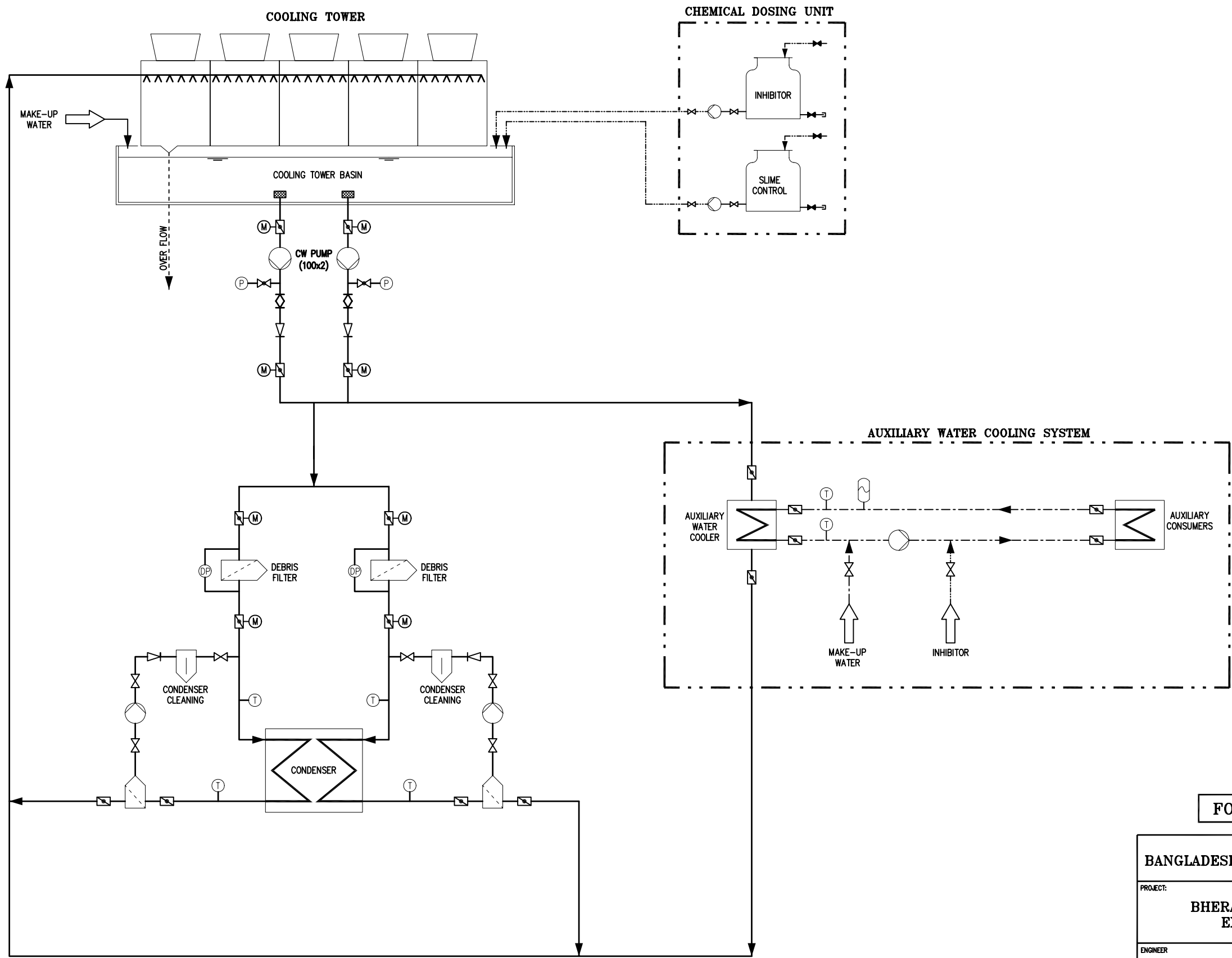
FOR REFERENCE ONLY

BANGLADESH POWER DEVELOPMENT BOARD			
PROJECT: BHERAMARA POWER STATION EXTENSION PROJECT			
ENGINEER: TOKYO ELECTRIC POWER SERVICE CO., LTD.			
FILE NAME	BPS-M101		
SIZE	A3	SCALE	NONE
DWN	XXXX	XXXXXXXX	
CHKD			
APPD			
TITLE OVERALL FLOW DIAGRAM STEAM WATER CYCLE			DWG.No. BPS-M-101
			REV -



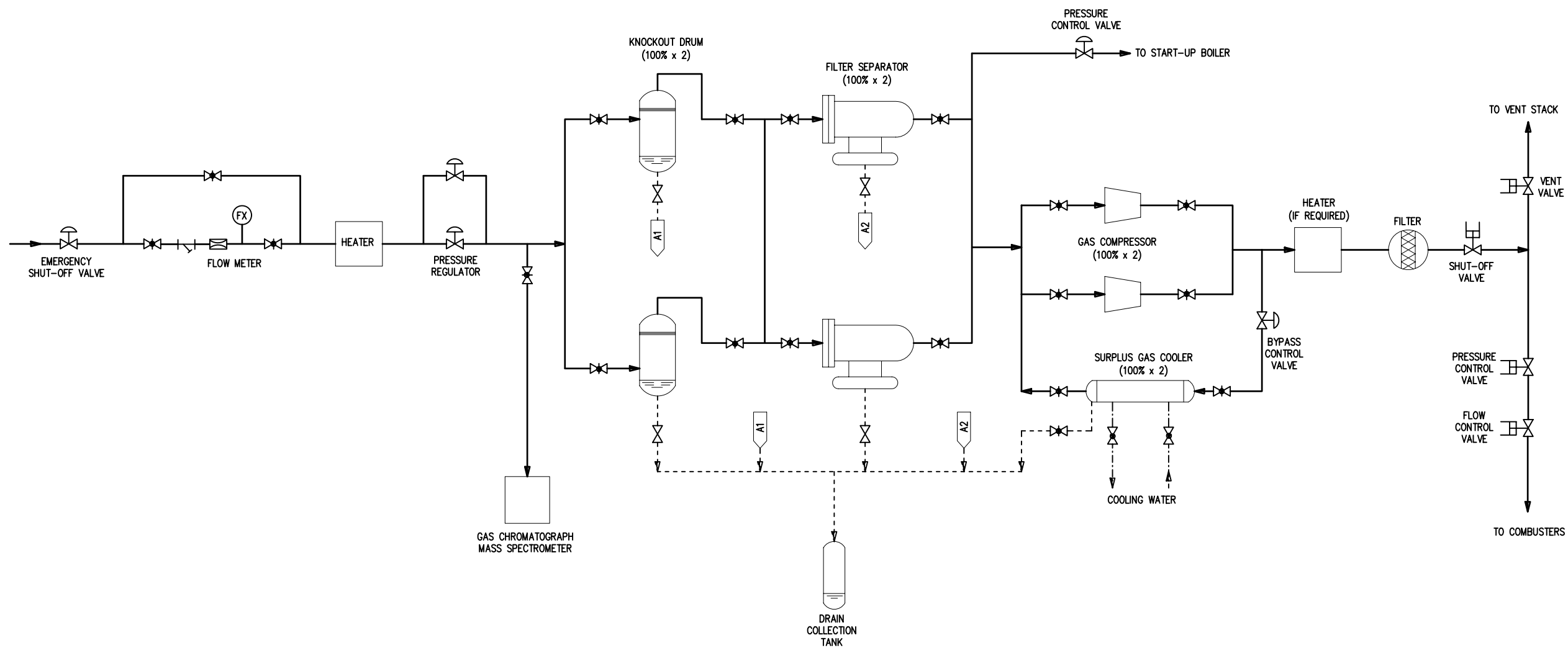
FOR REFERENCE ONLY

BANGLADESH POWER DEVELOPMENT BOARD			
PROJECT: BHERAMARA POWER STATION EXTENSION PROJECT			
ENGINEER: TOKYO ELECTRIC POWER SERVICE CO., LTD.			
FILE NAME BPS-M104	TITLE CLOSED COOLING WATER SYSTEM DIAGRAM		
SIZE A3	SCALE NONE	DWG.No. BPS-M-104	
DWN XXXX	XXXXXXX	REV	-
CHKD			
APPD			



FOR REFERENCE ONLY

BANGLADESH POWER DEVELOPMENT BOARD			
PROJECT: BHERAMARA POWER STATION EXTENSION PROJECT			
ENGINEER: TOKYO ELECTRIC POWER SERVICE CO., LTD.			
FILE NAME	BPS-M103		TITLE
SIZE	A3	SCALE	NONE
DWN	XXXX	XXXXXXXX	DWG.No. BPS-M-103
CHKD			
APPD			
			REV
			-



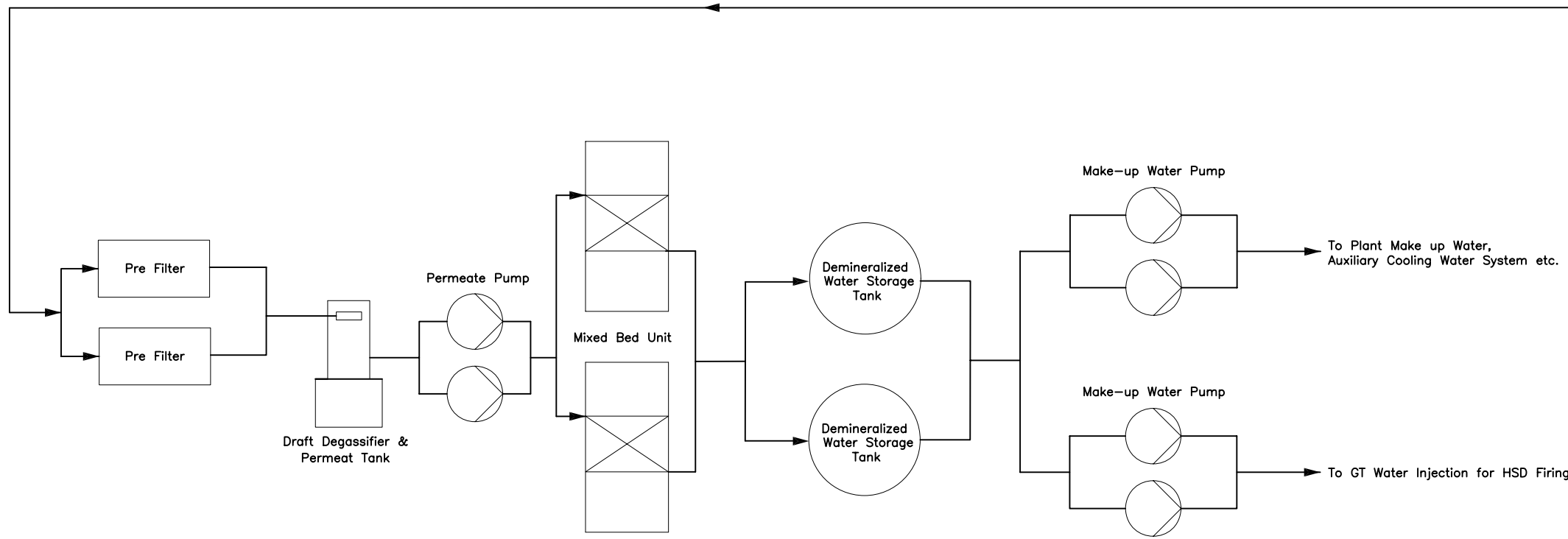
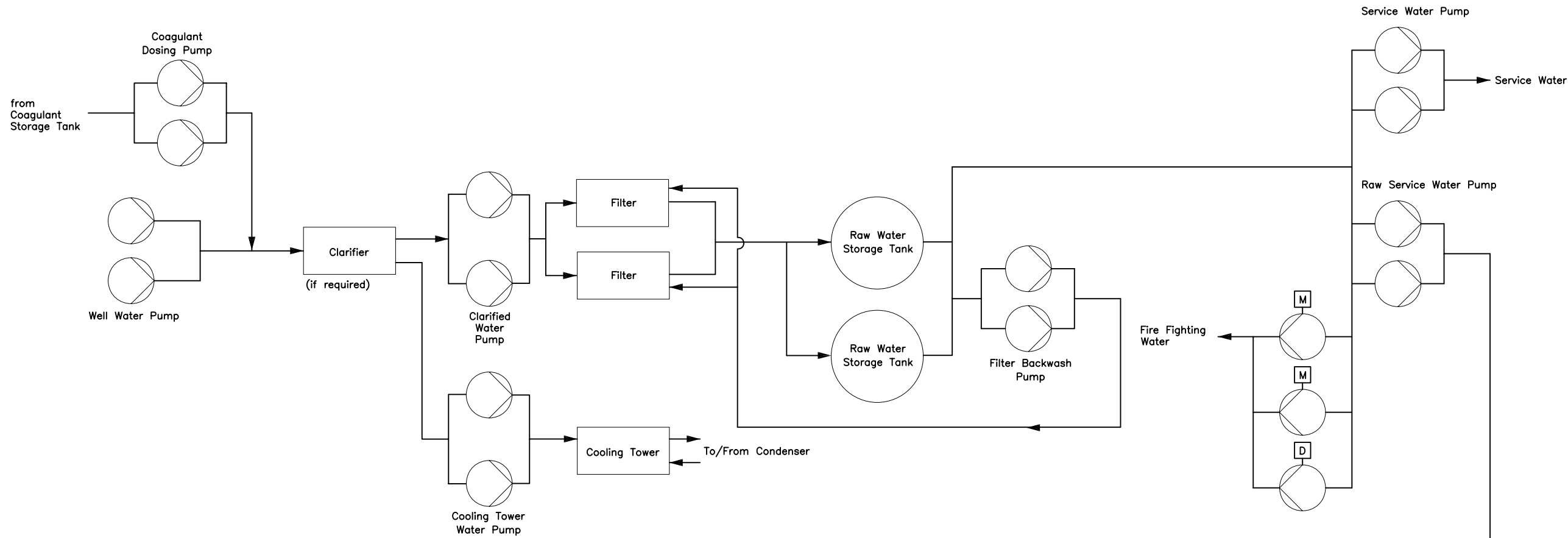
FOR REFERENCE ONLY

BANGLADESH POWER DEVELOPMENT BOARD

PROJECT:
BHERAMARA POWER STATION
EXTENSION PROJECT

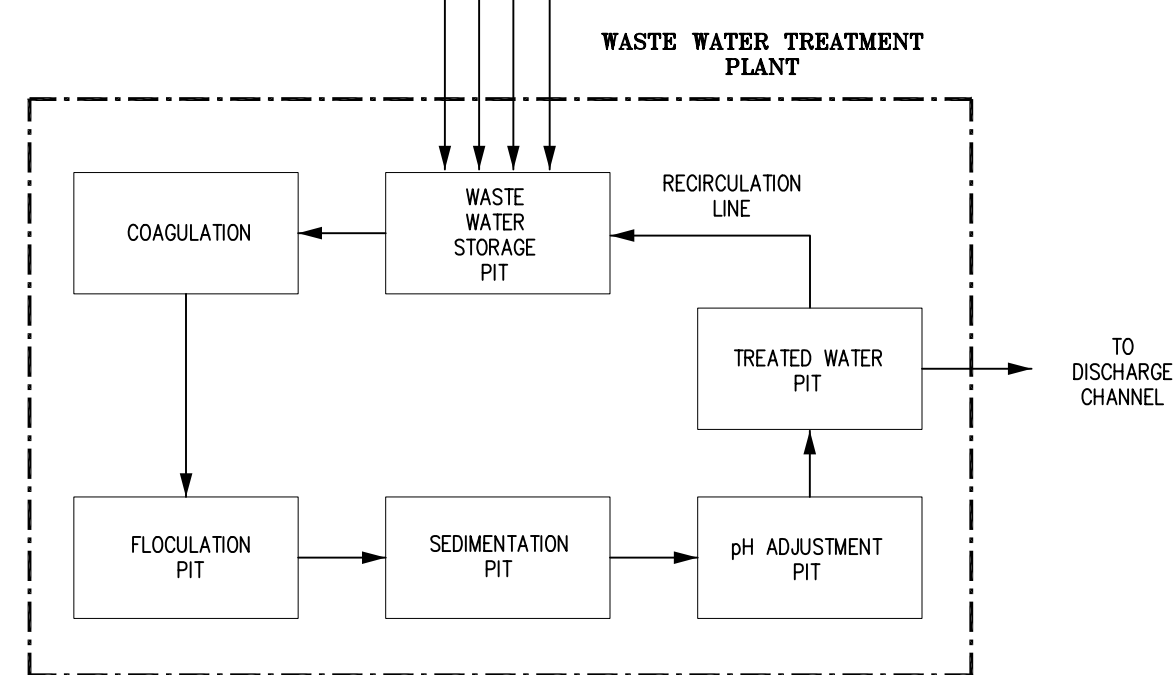
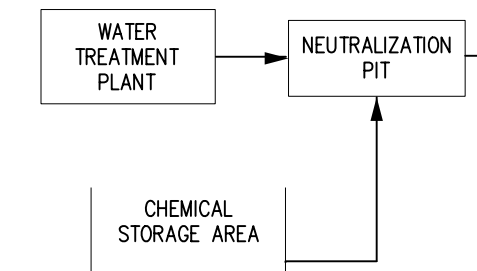
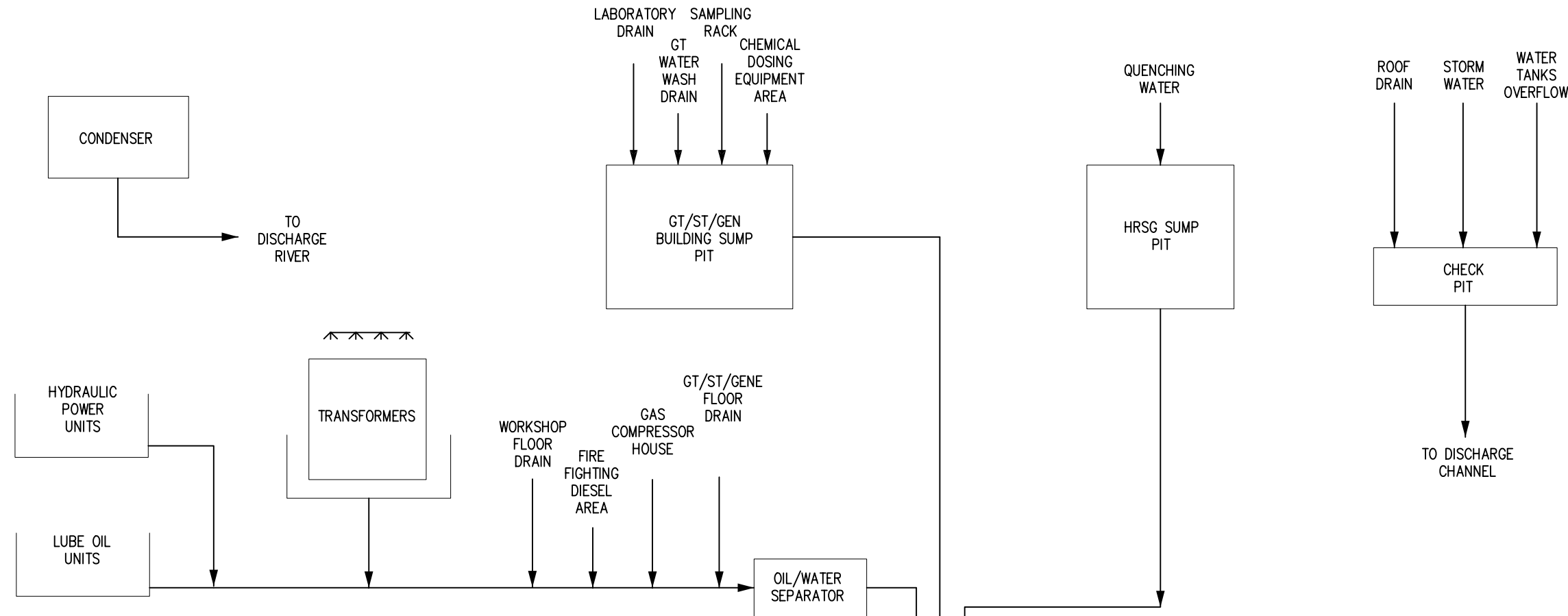
ENGINEER
TOKYO ELECTRIC POWER SERVICE CO., LTD.

FILE NAME	BPS-M105		TITLE	FUEL GAS SYSTEM DIAGRAM	
SIZE	A3	SCALE	NONE		
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CHKD			REV	-	
APPD					



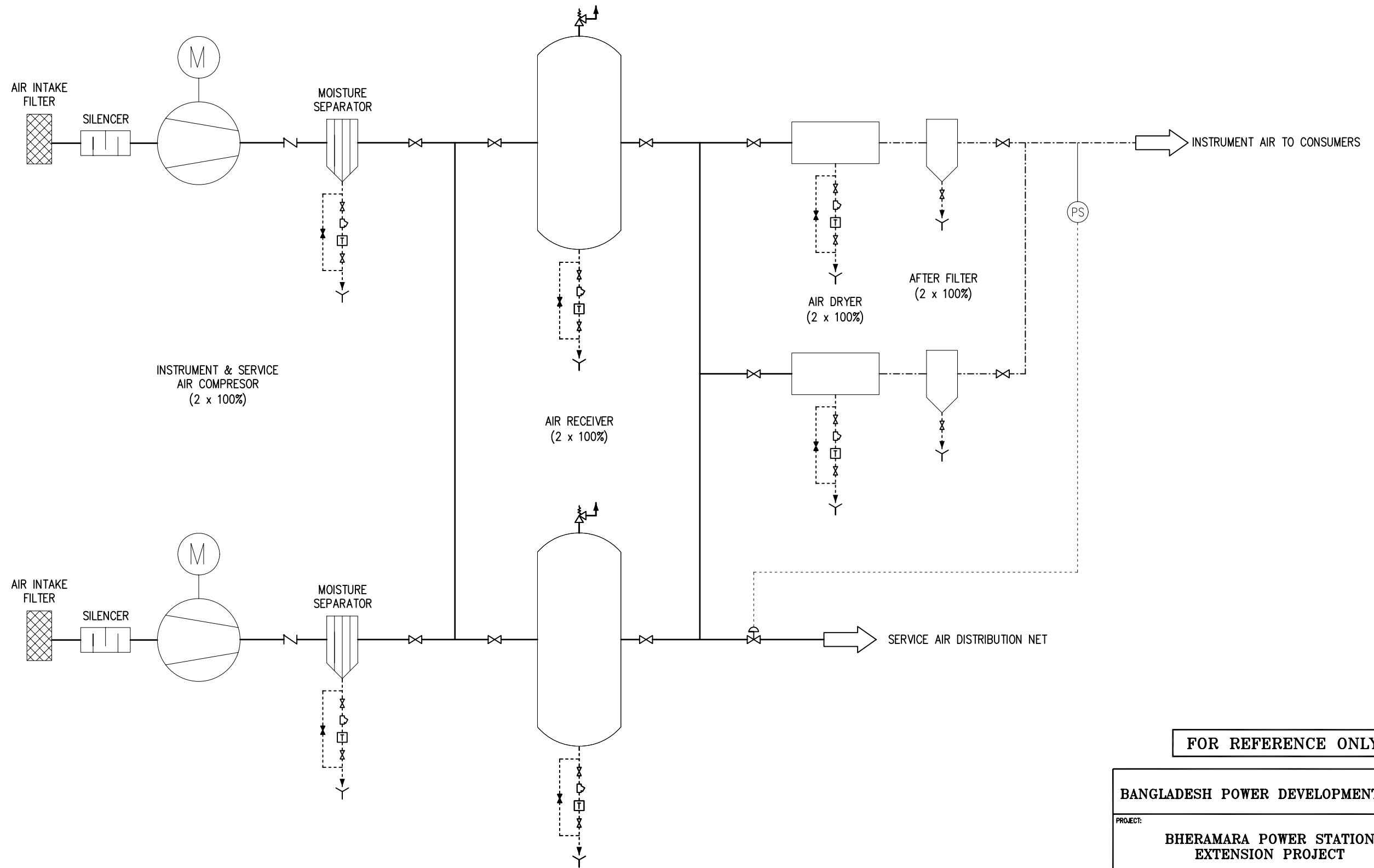
FOR REFERENCE ONLY

BANGLADESH POWER DEVELOPMENT BOARD			
PROJECT: BHERAMARA POWER STATION EXTENSION PROJECT			
ENGINEER: TOKYO ELECTRIC POWER SERVICE CO., LTD.			
FILE NAME	BPS-M107		TITLE
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CHKD			
APPD			
			REV -



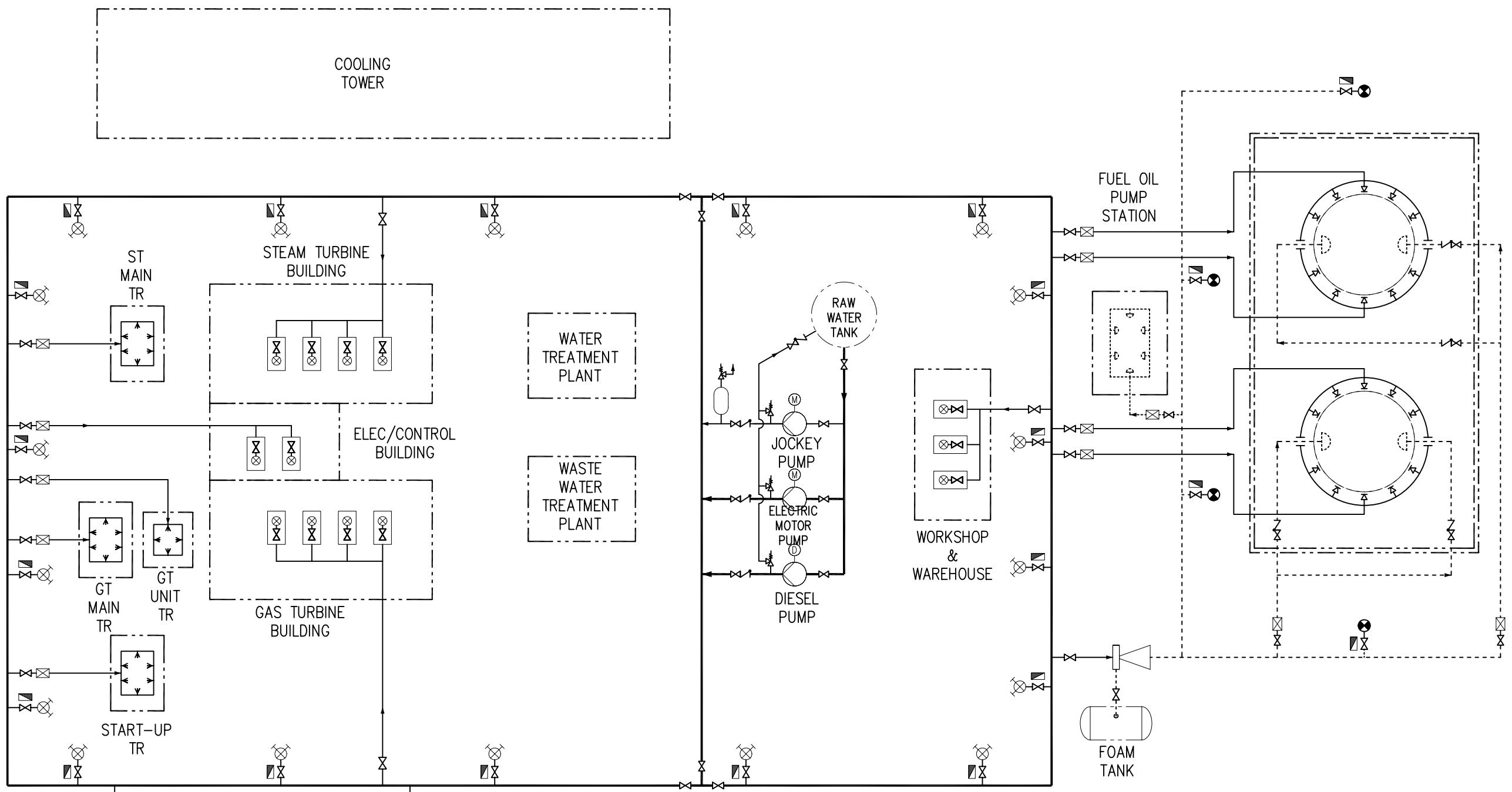
FOR REFERENCE ONLY

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PROJECT: BHERAMARA POWER STATION EXTENSION PROJECT			
ENGINEER: TOKYO ELECTRIC POWER SERVICE CO., LTD.			
FILE NAME	BPS-M108		TITLE
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CHKD			
APPD			
			REV -



FOR REFERENCE ONLY

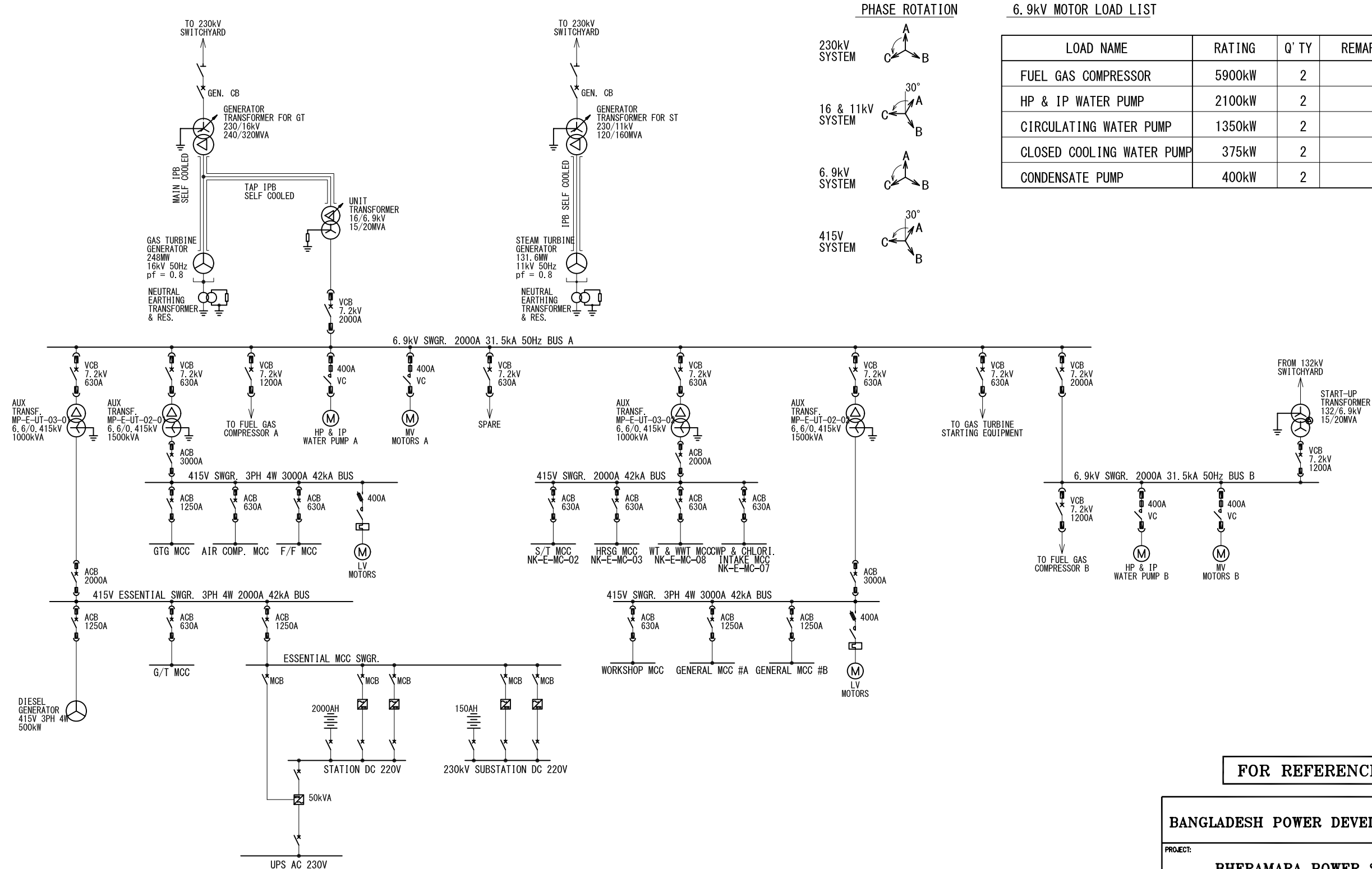
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PROJECT: BHERAMARA POWER STATION EXTENSION PROJECT			
ENGINEER: TOKYO ELECTRIC POWER SERVICE CO., LTD.			
FILE NAME	BPS-M106		TITLE
SIZE	A3	SCALE	NONE
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CHKD			
APPD			
			REV -



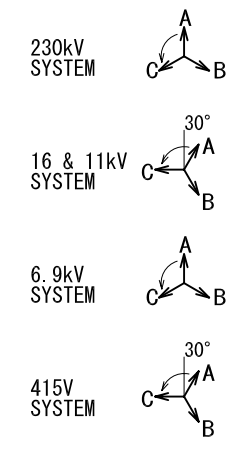
FOR REFERENCE ONLY

-  FIRE HYDRANT
-  FOAM HYDRANT
-  HOSE HOUSE
-  FOAM HEAD NOZZLE
-  SPRINKLER
-  WATER SPRAY NOZZLE
-  INDOOR HYDRANT CABINET

BANGLADESH POWER DEVELOPMENT BOARD			
PROJECT: BHERAMARA POWER STATION EXTENSION PROJECT			
ENGINEER: TOKYO ELECTRIC POWER SERVICE CO., LTD.			
FILE NAME BPS-M109	TITLE FIRE FIGHTING SYSTEM DIAGRAM		
SIZE A3	SCALE NONE	DWG.No. BPS-M-109	
DWN XXX	XXXXXX	REV -	
CHKD			
APPD			



PHASE ROTATION



6.9kV MOTOR LOAD LIST

LOAD NAME	RATING	Q' TY	REMARK
FUEL GAS COMPRESSOR	5900kW	2	
HP & IP WATER PUMP	2100kW	2	
CIRCULATING WATER PUMP	1350kW	2	
CLOSED COOLING WATER PUMP	375kW	2	
CONDENSATE PUMP	400kW	2	

LEGEND

- : GENERATOR
- : TRANSFORMER
- : CIRCUIT BREAKER
- : VACUUM CIRCUIT BREAKER
- : AIR CIRCUIT BREAKER
- : MOLDED CASE CIRCUIT BREAKER
- : CONTACTOR
- : FUSE AND SWITCH
- : PLUG AND SOCKET
- : BATTERY CHARGER (RECTIFIER)
- : INVERTER
- : BATTERY
- : RESISTOR
- : THERMAL RELAY

FOR REFERENCE ONLY

BANGLADESH POWER DEVELOPMENT BOARD			
PROJECT: BHERAMARA POWER STATION EXTENSION PROJECT			
ENGINEER: TOKYO ELECTRIC POWER SERVICE CO., LTD.			
FILE NAME BPS-E201	TITLE KEY SINGLE LINE DIAGRAM		
SIZE A3	SCALE NONE	DWG.No. BPS-E-201	
DWN	XXXX	XXXXXXXX	REV
CHKD			
APPD			