SECTION: II

SUB SECTION: 6

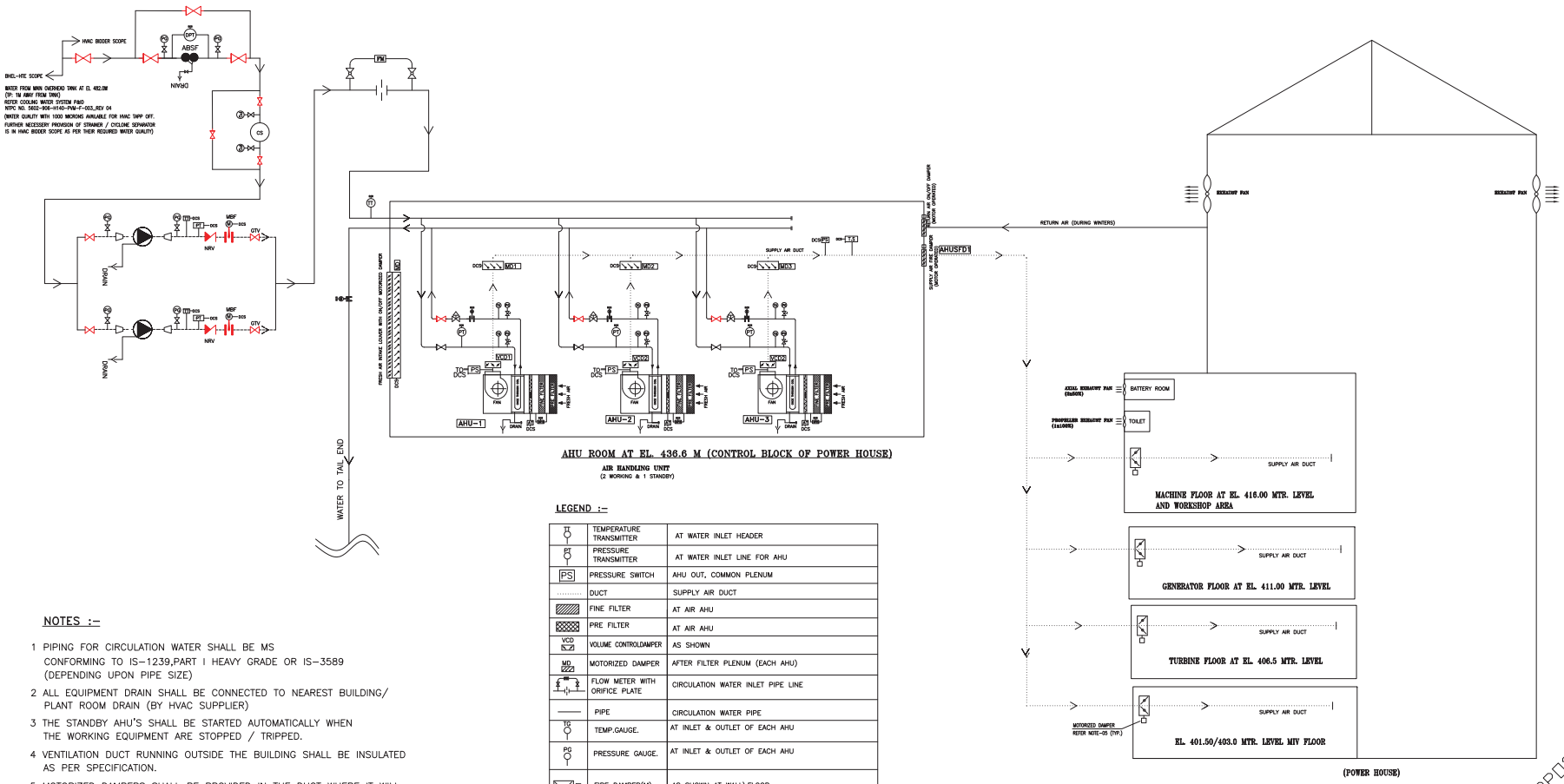
TENDER DRAWINGS

ALL DIMENSIONS ARE IN MM

FIRST ANGLE PROJECTION

DRAWING No.

CUSTOMER'S DRAWING No.



FOR TENDER PURPOSE ONLY

LEGEND :-

TT	TEMPERATURE TRANSMITTER	AT WATER INLET HEADER
PT	PRESSURE TRANSMITTER	AT WATER INLET LINE FOR AHU
PS	PRESSURE SWITCH	AHU OUT, COMMON PLENUM
	DUCT	SUPPLY AIR DUCT
	FINE FILTER	AT AIR AHU
	PRE FILTER	AT AIR AHU
VCD	VOLUME CONTROLDAMPER	AS SHOWN
MD	MOTORIZED DAMPER	AFTER FILTER PLENUM (EACH AHU)
	FLOW METER WITH ORIFICE PLATE	CIRCULATION WATER INLET PIPE LINE
	PIPE	CIRCULATION WATER PIPE
TG	TEMP.GAUGE.	AT INLET & OUTLET OF EACH AHU
PG	PRESSURE GAUGE.	AT INLET & OUTLET OF EACH AHU
	FIRE DAMPER(M)	AS SHOWN AT WALL\FLOOR
	ABSF– AUTOMATIC BACKWASH SELF CLEANING FILTER	AT WATER INLET LINE
	BALANCING VALVE	ALL AHU COOLING WATER RETURN LINE
	GATE VALVE	CIRCULATION WATER LINE AHU INLET/OUTLET
DPT	DIFFERENTIAL PRESSURE TRANSMITTER	AT WATER INLET LINE
DPS	DIFFERENTIAL PRESSURE INDICATING SWITCH	ACROSS FINE FILTER
	MOTORISED BUTTERFLY VALVE	CIRCULATION WATER LINE AHU OUTLET
CS	CYCLONE SEPERATOR	AT WATER INLET LINE
	MODULATING TYPE MOTOR-ISED BUTTERFLY VALVE.	CIRCULATION WATER LINE OUTLET HEADER

NOTES :-

1. PIPING FOR CIRCULATION WATER SHALL BE MS CONFORMING TO IS-1239,PART I HEAVY GRADE OR IS-3589 (DEPENDING UPON PIPE SIZE)
2. ALL EQUIPMENT DRAIN SHALL BE CONNECTED TO NEAREST BUILDING/ PLANT ROOM DRAIN (BY HVAC SUPPLIER)
3. THE STANDBY AHU'S SHALL BE STARTED AUTOMATICALLY WHEN THE WORKING EQUIPMENT ARE STOPPED / TRIPPED.
4. VENTILATION DUCT RUNNING OUTSIDE THE BUILDING SHALL BE INSULATED AS PER SPECIFICATION.
5. MOTORIZED DAMPERS SHALL BE PROVIDED IN THE DUCT WHERE IT WILL CROSS THE WALL/FLOOR. FURTHER IN BRANCH DUCT, VOLUME CONTROL DAMPER SHALL BE PROVIDED
6. THE INSTRUMENTATION & CONTROL / MONITORING SHALL BE FINALIZED DURING DETAILED ENGINEERING.
7. DRAIN & VENT VALVE SHALL BE PROVIDED AS PER LAYOUT REQUIREMENT.
8. THE QUANTITY SHOWN IN THE DRAWING FOR VALVES, STRAINER, CYCLONE SEPARATOR, PUMPS INSTRUMENTS ETC ARE INDICATIVE MINIMUM. ANY INSTRUMENTS & VALVES, STRAINER, CYCLONE SEPARATOR ETC REQUIREMENT FOR SYSTEM REQUIREMENT / COMPLETION, THE SAME SHALL BE PROVIDED WITHOUT ANY PRICE IMPLICATION.
9. PIPE INSULATION SHALL BE PROVIDED WHEREVER IF REQUIRED.
10. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER REQUIREMENTS MENTIONED IN SPECIFICATION.
11. REQUIREMENT OF PUMPS, CYCLONE SEPERATOR AND AUTOMATIC BACKWASH SELF CLEANING FILTER SHALL BE DECIDED DURING DETAILED ENGINEERING AS PER VENDOR'S REQUIRED WATER QUALITY AND STATIC HEAD REQUIREMENT.

REV	DATE	ALTD	CHD	APPD	REV	DATE	ALTD	CHD	APPD
					01				

JOB No. 414

STATUS CONTRACT

DISTRIBUTION

TO								
No.OFF								

PROJECT: 3x40 MW RAMMAM HEP STAGE-III

CUSTOMER: NTPC HYDRO LIMITED (NHL)

BHARAT HEAVY ELECTRICALS LTD
POWER SECTOR
PROJECT ENGINEERING MANAGEMENT
NOIDA

DEPT CODE		NAME	SIGN	DATE
A	DRN	AK	-SD-	13.03.2021
	DESN	AK	-SD-	13.03.2021
	CHD	SAK	-SD-	13.03.2021
	APPD	PK	-SD-	13.03.2021

TITLE: P & I DIAGRAM FOR VENTILATION SYSTEM

MPL	C	MSE	I	MAX	E	DEPT.	SCALE TAL18	BHEL DRAWING No.
						SIGN		PE-DG-414-571-11000-A001
						DATE		SHEET 01 OF 02 REV 00

SIZE-A2

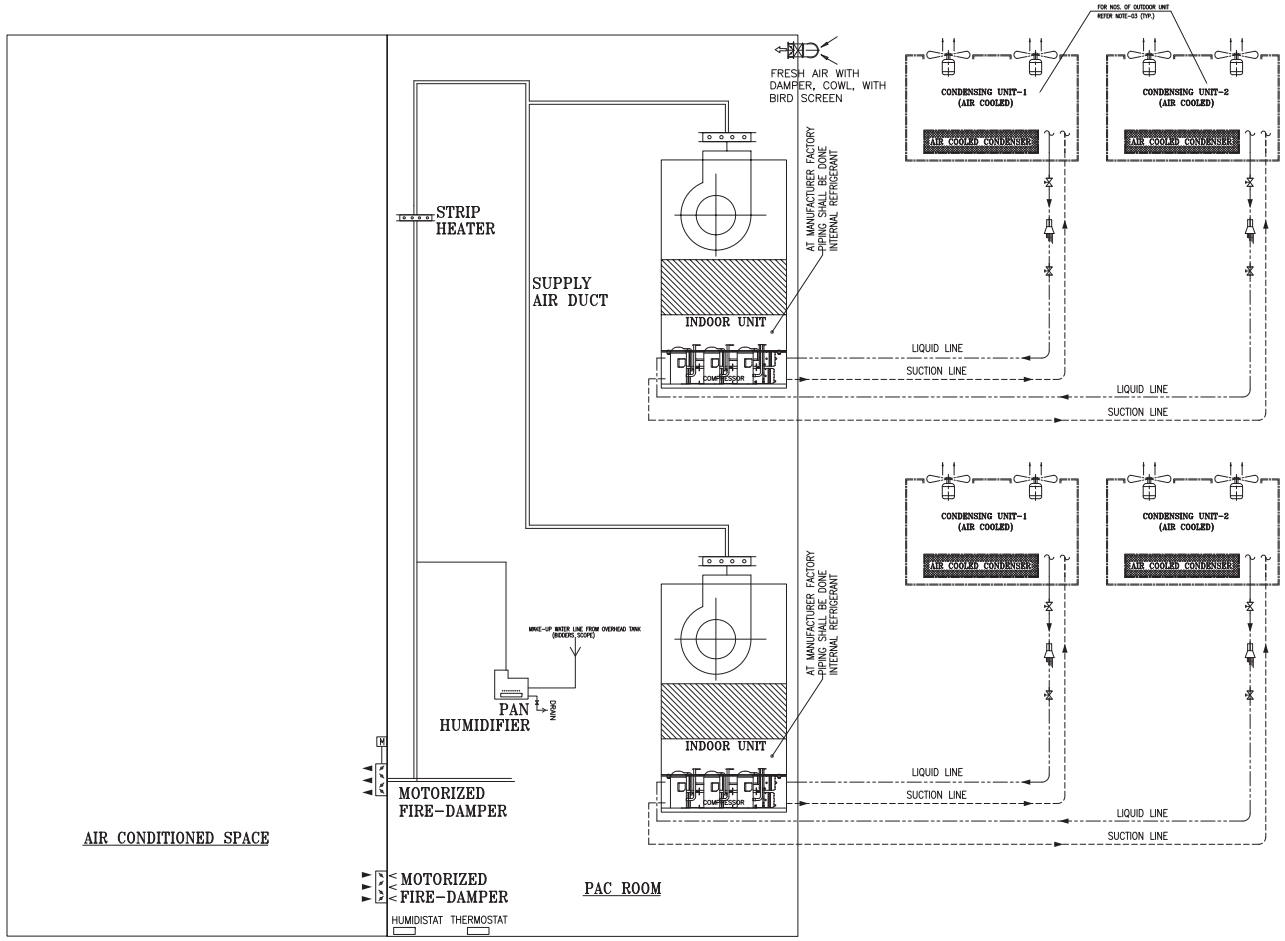
COMPUTER FILE NAME :

ALL DIMENSIONS ARE IN MM

FIRST ANGLE PROJECTION

DRAWING No.

CUSTOMER'S DRAWING No.



FOR TENDER PURPOSE ONLY

L E G E N D:

- BALL VALVE
- CATCH ALL DRIER
- THERMOSTATIC BULB
- EXPANSION VALVE
- HOT GAS SUCTION LINE.
- LIQUID LINE

SCHEMATIC FOR AIR COOLED PACKAGED AIR CONDITIONERS (1W+1S) TYP.

NOTES :-

1. THIS IS A TYPICAL P&ID FOR PAC AND IT MAY VARY AS PER OEM DESIGN.
2. ACTUAL QUANTITY OF PAC SHALL BE AS PER HEAT LOAD CALCULATION OF RESPECTIVE AC AREA.
3. THE NUMBER OF COMPRESSOR & OUTDOOR CONDENSING UNIT FOR EACH PAC SHALL BE AS PER OEM DESIGN.
4. AC DUCT SHALL BE INSULATED AS PER SPECIFICATION.
5. THE INSTRUMENTATION & CONTROL SHALL BE FINALIZED DURING DETAILED ENGINEERING.
6. THE QUANTITY SHOWN IN THE DRAWING FOR VALVES, INSTRUMENTS ARE INDICATIVE MINIMUM. ANY INSTRUMENTS & VALVES REQUIREMENT FOR SYSTEM REQUIREMENT / COMPLETION, THE SAME SHALL BE PROVIDED WITHOUT ANY PRICE IMPLICATION.
7. PIPE INSULATION SHALL BE PROVIDED WHEREVER IF REQUIRED.
8. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER REQUIREMENTS MENTIONED IN SPECIFICATION.

REV	DATE	ALTD	CHD	APPD	REV	DATE	ALTD	CHD	APPD

JOB No. 414

STATUS CONTRACT

DISTRIBUTION

TO

No.OFF

PROJECT: 3x40 MW RAMMAM HEP STAGE-III

CUSTOMER: NTPC HYDRO LIMITED (NHL)

BHARAT HEAVY ELECTRICALS LTD
POWER SECTOR
PROJECT ENGINEERING MANAGEMENT
NOIDA

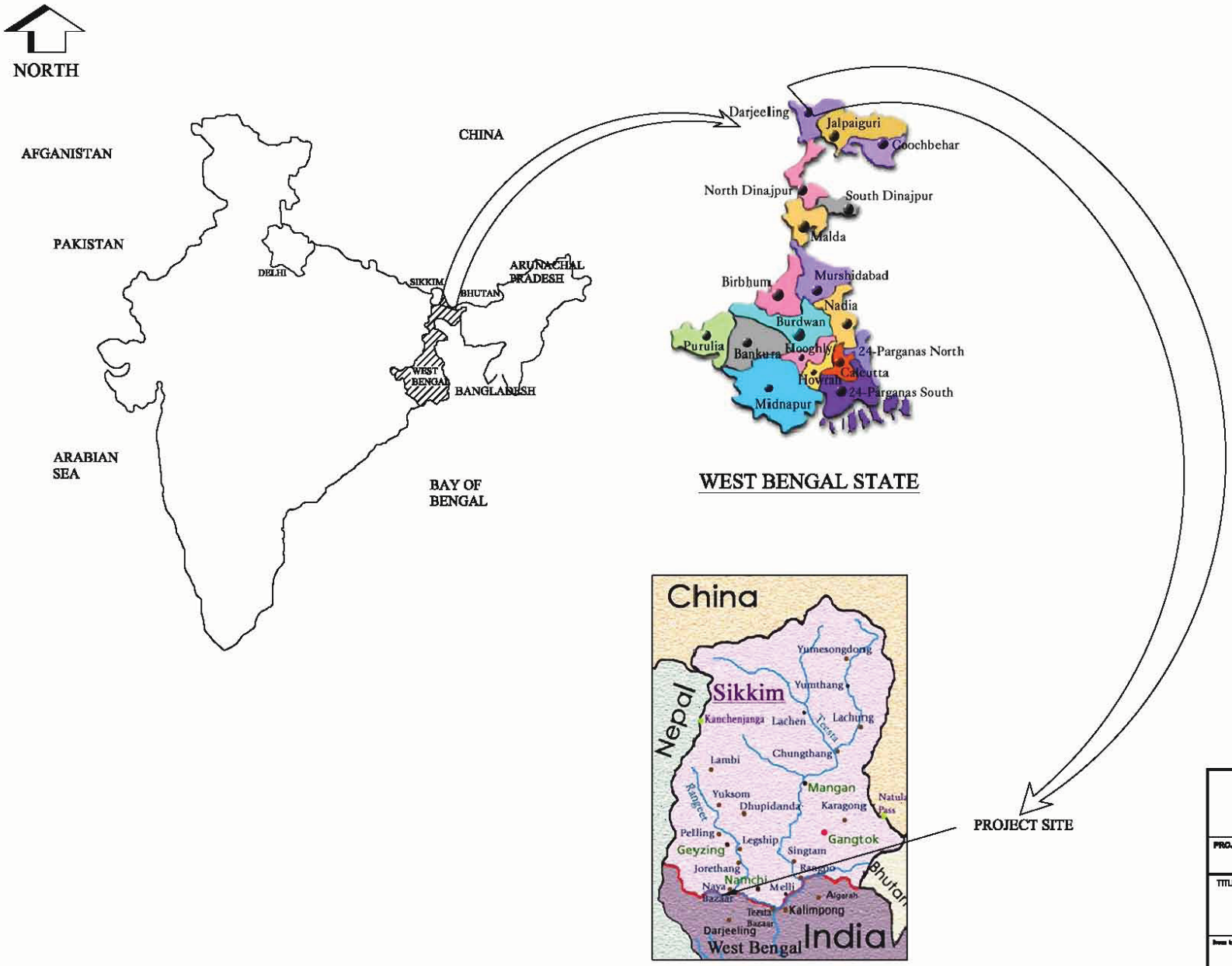
DEPT CODE		NAME	SIGN	DATE
A	DRN	YK	-SD-	13.03.2021
	DESN	AK	-SD-	13.03.2021
	CHD	LJ	-SD-	13.03.2021
	APPD	GB	-SD-	13.03.2021

TITLE: P & I DIAGRAM FOR PACKAGE AIR CONDITIONING

MPL	C	MSE	I	MAX	E	DEPT.	SCALE TAL18	BHEL DRAWING No.
						SIGN		PE-DG-414-571-11000-A001
						DATE		SHEET 02 OF 02 REV 00

SIZE-A2

COMPUTER FILE NAME :



FOR TENDER PURPOSE ONLY

एनटीपीसी NTPC हाइड्रो Hydro

एनटीपीसी हाइड्रो लि०
(एनटीपीसी की पूर्ण स्वामित्व की सहायक कम्पनी)
NTPCHYDROLIMITED
(A wholly owned subsidiary of NTPC)

PROJECT: RAMMAM STAGE - III HYDROELECTRIC PROJECT [3X40MW]

TITLE: **GEOGRAPHICAL LOCATION OF PROJECT**

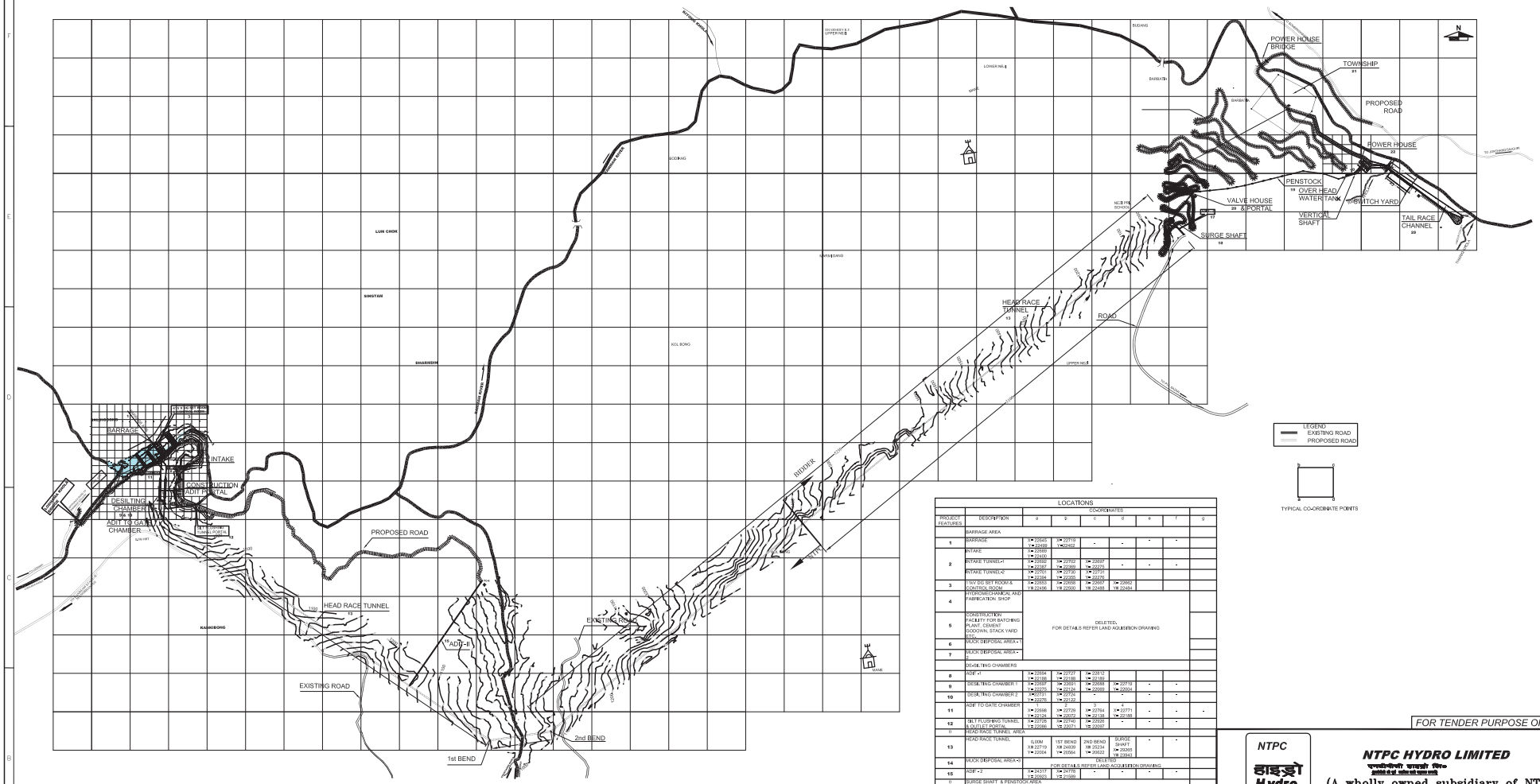
Drawn by	Signature /Date	Designed By	Signature /Date	Checked By	Signature /Date	Approved by	Signature /Date

NHL Drawing Number : 5602-002-P-E-C-A-01

FORMAT : SCALE :

KPCL Drawing Number : CCED/KPCL/CONSUL/RAMMAM-III/01 REV 0 NOV-08

CONSULTANT: **KARNATAKA POWER CORPORATION LIMITED**
CONSULTANCY AND ENGINEERING SERVICES DIVISION



LOCATIONS

PROJECT FEATURES	DESCRIPTION	CO-ORDINATES a	b	c	d	e	f	g
	BARRAGE AREA							
1	BARRAGE	X= 22643 Y= 22428	X= 22719 Y= 22462	-	-	-	-	
2	INTAKE	X= 22669 Y= 22400						
	INTAKE TUNNEL-I	X= 22652 Y= 22367	X= 22752 Y= 22399	X= 23597 Y= 22275	-	-	-	
	INTAKE TUNNEL-II	X= 22701 Y= 22384	X= 22800 Y= 22350	X= 23714 Y= 22175				
3	HAV DO BET ROOM & CONTROL ROOM	X= 22653 Y= 22496	X= 22668 Y= 22500	X= 23607 Y= 22488	X= 23662 Y= 22484			
4	HYDROMECHANICAL AND FABRICATION SHOP	DELETED. FOR DETAILS REFER LAND AQUISITION DRAWING						
5	CONSTRUCTION FACILITY FOR BATCHING PLANT, CEMENT GODOWN, STACK YARD ETC.							
6	MUCK DISPOSAL AREA - I							
7	MUCK DISPOSAL AREA - II							
	DE-SILTING CHAMBERS							
8	ADIT -1	X= 23554 Y= 22156	X= 23727 Y= 22188	X= 23813 Y= 22182	-	-	-	
9	DESILTING CHAMBER-1	X= 23557 Y= 22075	X= 23813 Y= 22132	X= 23884 Y= 22085	X= 23779 Y= 22034	-	-	
10	DESILTING CHAMBER-2	X= 23771 Y= 22076	X= 23824 Y= 22132	-	-	-	-	
11	ADIT TO GATE CHAMBER	X= 23686 Y= 22124	X= 23739 Y= 22072	X= 23764 Y= 22138	X= 23771 Y= 22198	-	-	-
12	SILT FLUSHING TUNNEL & OUTLET PORTAL	X= 23728 Y= 22086	X= 23740 Y= 22071	X= 23939 Y= 22027	-	-	-	
II	HEAD RACE TUNNEL AREA							
13	HEAD RACE TUNNEL	U.GOM Y= 22719 Y= 22004	1ST BEND X= 24859 Y= 20564	2ND BEND X= 29234 Y= 20632	SURGE SHAFT X= 30265 Y= 23943	-	-	
14	MUCK DISPOSAL AREA-II	DELETED FOR DETAILS REFER LAND AQUISITION DRAWING						
15	ADIT -2	X= 24337 Y= 20923	X= 24778 Y= 21099	-	-	-	-	
III	SURGE SHAFT & PENSTOCK AREA							
16	MUCK DISPOSAL AREA-III	DELETED FOR DETAILS REFER LAND AQUISITION DRAWING						
17	ADIT - 3	X= 29240 Y= 23919	X= 29576 Y= 23938	X= 29307 Y= 23896	X= 29348 Y= 23954	-	-	
18	SURGE SHAFT	X= 29355 Y= 23943	-	-	-	-	-	
19	SURFACE PENSTOCK	X= 29407 Y= 24126	X= 29811 Y= 24150	X= 30121 Y= 24263	X= 30236 Y= 24248	X= 30352 Y= 24214	X= 30459 Y= 24247	
20	PORTAL+VALVE HOUSE	X= 29400 Y= 24119	-	-	-	-	-	
IV	COLONY AREA							
21	COLONY	X= 30035 Y= 24503	X= 29797 Y= 24670	X= 29661 Y= 24861	X= 30131 Y= 25803	X= 30205 Y= 24744	X= 30179 Y= 24855	
	POWER HOUSE & OUT DOOR YARD AREA							
22	POWER HOUSE	X= 30535.77 Y= 24271.43	X= 30482.23 Y= 24332.20	X= 30498.00 Y= 24336.73	X= 30551.22 Y= 24280.05	-	-	
23	ODY	X= 30796 Y= 24134	X= 30859 Y= 24230	X= 30932 Y= 24262	X= 30930 Y= 24196	-	-	
	CABLE RACK BETWEEN ODY AND PH	X= 30478 Y= 24305	X= 30531 Y= 24254	X= 30553 Y= 24285	X= 30561 Y= 24290	X= 30622 Y= 24199		
24	132/33 KV HT CUBICALS & DG ROOM	X= 30664 Y= 24218	X= 30668 Y= 24230	X= 30932 Y= 24262	X= 30708 Y= 24230			
25	FABRICATION SHOP & CONSTRUCTION FACILITY	DELETED FOR DETAILS REFERLAND AQUISITION DRAWING						
26	MUCK DISPOSAL AREA - I							
27	MUCK DISPOSAL AREA -II							
28	TAIL RACE CHANNEL	X= 30512 Y= 24336	X= 30552 Y= 24298	X= 30658 Y= 24303	X= 31152 Y= 23977	X= 31192 Y= 23973	-	
29	OVER HEAD WATER TANK	X= 30478 Y= 24237	X= 30403 Y= 24237	-	-	-	-	
30	PIPES CONNECTING MULIMYER TANK AND PH	X= 30405 Y= 24237	X= 30464 Y= 24251	X= 30497 Y= 24255	-	-	-	
31	STORES	DELETED FOR DETAILS REFER LAND AQUISITION DRAWING						
32	CONCRETE BOX CULVERT	X= 30679 Y= 24274	X= 30668 Y= 24292	X= 30973 Y= 24290	X= 30932 Y= 24261			

FOR TENDER PURPOSE ONLY

NTPC हाइड्रो Hydro

NTPC HYDRO LIMITED
एनटीपीसी हाइड्रो लिमिटेड
(A wholly owned subsidiary of NTPC)

PROJECT: RAMMAM STAGE - III HYDROELECTRIC PROJECT [3X40MW]

TITLE: **GENERAL PROJECT LAYOUT**

Drawn by	Signature /Date	Designed By	Signature /Date	Checked By	Signature /Date	Approved by	Signature /Date

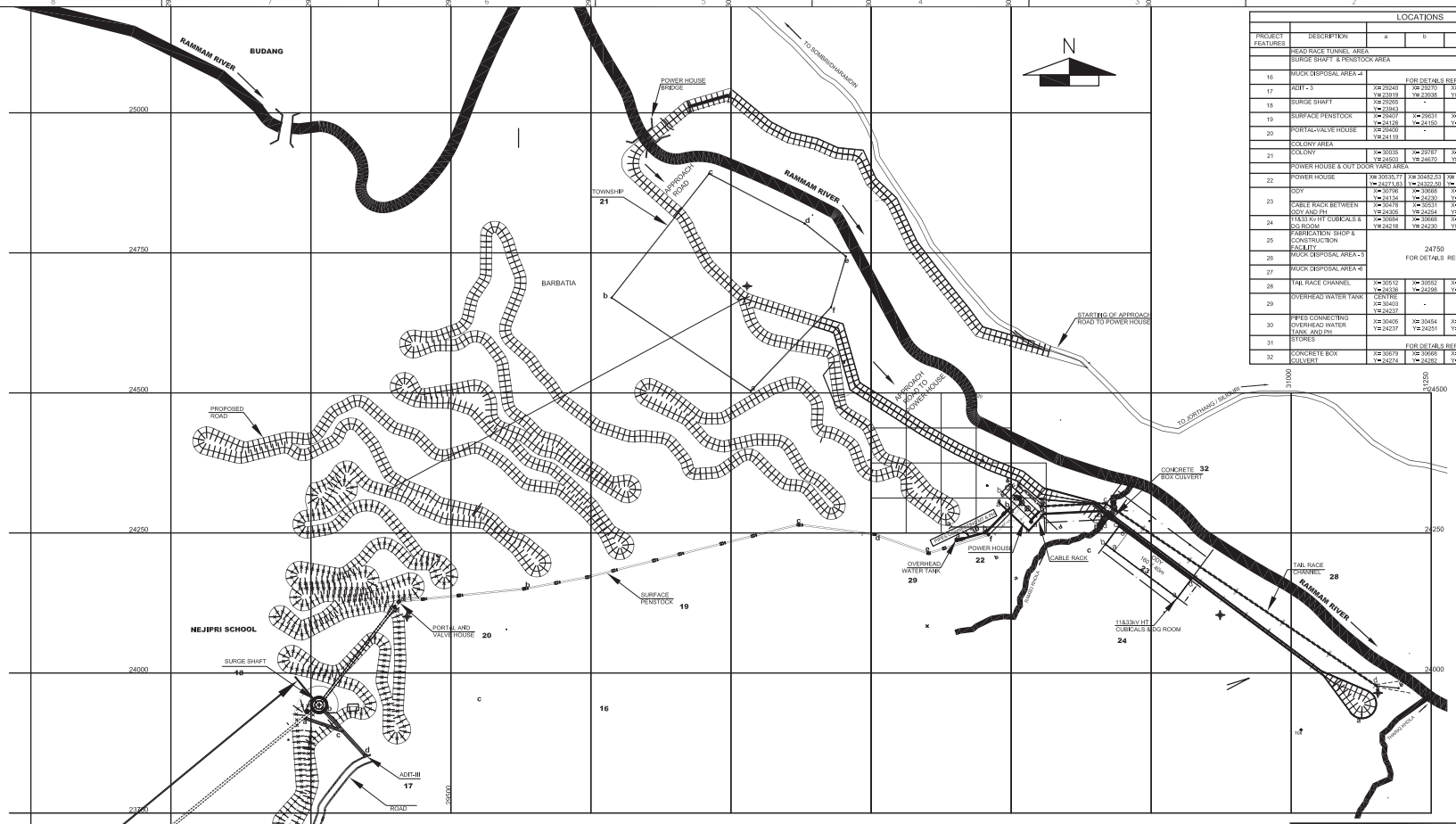
NHL Drawing Number : 5602-002-P-E-C-A-09

FORMAT : SCALE :

KPCL Drawing Number: CCED/KPCL/CONSUL/RAMMAM-III/TL-09 REV 3 DEC-2011

CONSULTANT: CCED

KARNATAKA POWER CORPORATION LIMITED
CONSULTANCY AND ENGINEERING SERVICES DIVISION



LOCATIONS							
		CO-ORDINATES					
PROJECT FEATURES	DESCRIPTION	a	b	c	d	e	f
	HEAD RACE TUNNEL AREA						
	SURGE SHAFT & PENSTOCK AREA						
16	MUCK DISPOSAL AREA -4	DELETED FOR DETAILS REFER LAND ACQUISITION DRAWING					
17	ADIT - 3	X= 29240 Y= 23919	X= 29270 Y= 23938	X= 29307 Y= 23896	X= 29346 Y= 23854	-	-
18	SURGE SHAFT	X= 29265 Y= 23943	-	-	-	-	-
19	SURFACE PENSTOCK	X= 29407 Y= 24128	X= 29631 Y= 24150	X= 30121 Y= 24265	X= 30256 Y= 24248	X= 30352 Y= 24214	X= 30459 Y= 24247
20	PORTAL-VALVE HOUSE	X= 29400 Y= 24119	-	-	-	-	-
	COLONY AREA						
21	COLONY	X= 30035 Y= 24503	X= 29787 Y= 24670	X= 29961 Y= 24891	X= 30131 Y= 24802	X= 30205 Y= 24744	X= 30179 Y= 24663
	POWER HOUSE & OUT DOOR YARD AREA						
22	POWER HOUSE	X= 30635.77 Y= 24271.83	X= 30482.53 Y= 24322.50	X= 30498.00 Y= 24338.73	X= 30651.22 Y= 24288.05	-	-
23	ODY	X= 30796 Y= 24134	X= 30668 Y= 24230	X= 30692 Y= 24262	X= 30820 Y= 24166	-	-
	CABLE RACK BETWEEN ODY AND PH	X= 30478 Y= 24305	X= 30531 Y= 24254	X= 30559 Y= 24285	X= 30661 Y= 24200	X= 30622 Y= 24169	
24	11&33 Kv HT CUBICALS & DG ROOM	X= 30664 Y= 24218	X= 30668 Y= 24230	X= 30692 Y= 24262	X= 30706 Y= 24250		
25	FABRICATION SHOP & CONSTRUCTION FACILITY	24750 DELETED FOR DETAILS REFERLAND ACQUISITION DRAWING					
26	MUCK DISPOSAL AREA - 5						
27	MUCK DISPOSAL AREA -6						
28	TAIL RACE CHANNEL	X= 30512 Y= 24338	X= 30552 Y= 24298	X= 30668 Y= 24303	X= 31152 Y= 23977	X= 31192 Y= 23973	-
29	OVERHEAD WATER TANK	CENTRE X= 30403 Y= 24237	-	-	-	-	-
30	PIPES CONNECTING OVERHEAD WATER TANK AND PH	X= 30405 Y= 24237	X= 30454 Y= 24251	X= 30497 Y= 24295	-	-	-
31	STORES	DELETED FOR DETAILS REFER LAND ACQUISITION DRAWING					
32	CONCRETE BOX CULVERT	X= 30679 Y= 24274	X= 30668 Y= 24282	X= 30673 Y= 24298	X= 30685 Y= 24281		

NOTE:
1. CONCRETE BOX CULVERT ACROSS RAMSHU KHOLA
9m WIDE AND 15 m LONG (AT TOP). ACTUAL DIMENSIONS SHALL BE FIXED AS PER SITE CONDITION.

TANK DETAILS

CAPACITY = 750 cum
CIRCULAR APPROX. O/DIA. OF TANK = 15 m
CONCENTRIC TWIN CHAMBER
FLOOR LEVEL OF TANK (TENTATIVE) = EL 482 m

FOR TENDER PURPOSE ONLY

NTPC हाइड्रो Hydro

NTPC HYDRO LIMITED
(A wholly owned subsidiary of NTPC)

PROJECT: RAMMAM STAGE - III HYDROELECTRIC PROJECT [3X40MW]

TITLE: LAYOUT OF SURGE SHAFT, VALVE HOUSE, O/H WATER TANK, PENSTOCK, POWER HOUSE, ODY, COLONY & TRC

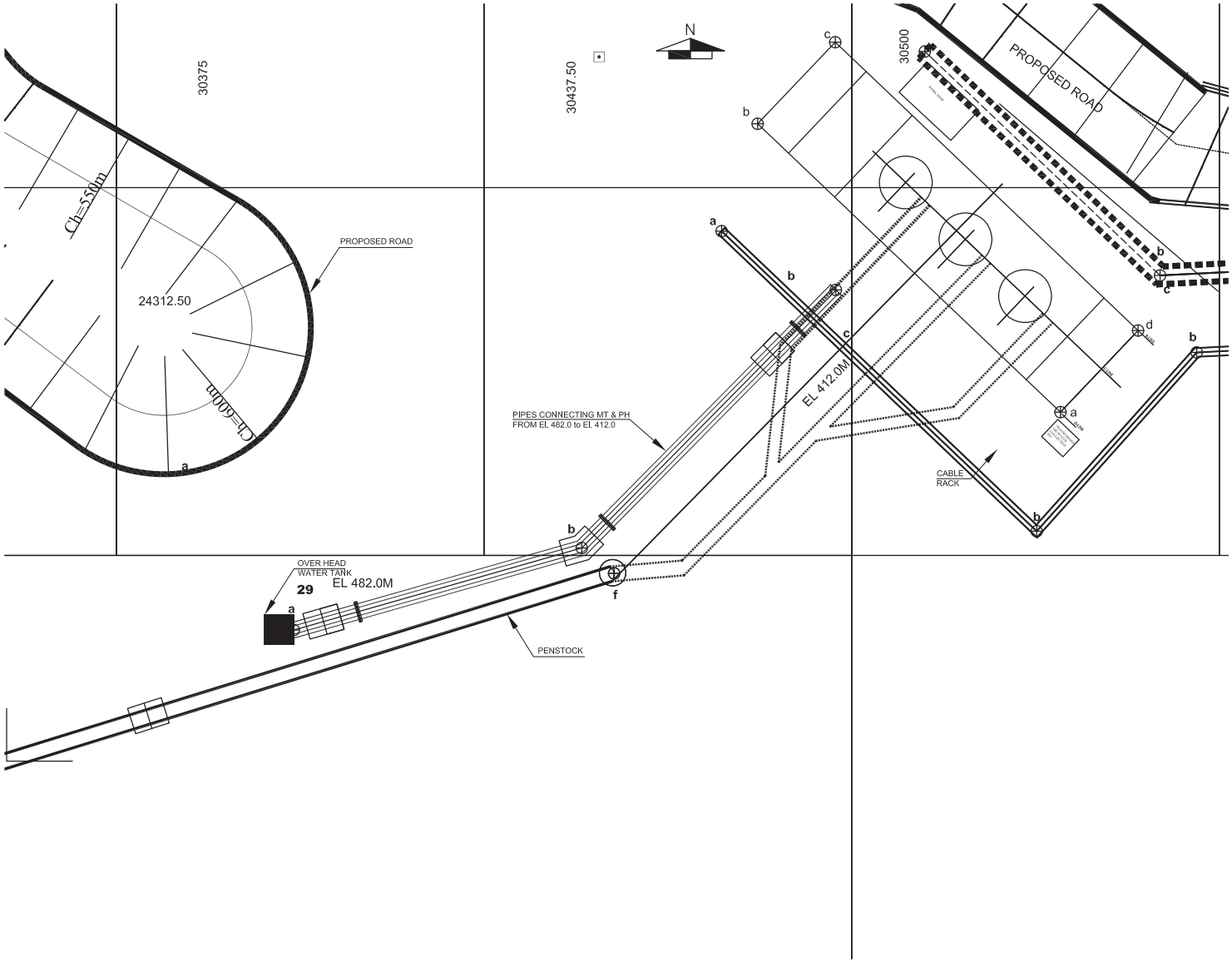
Drawn by	Signature /Date	Designed By	Signature /Date	Checked By	Signature /Date	Approved by	Signature /Date

NHL Drawing Number : 5602-002-P-E-C-A-12

FORMAT : SCALE :

KPCL Drawing Number: CCED/KPCL/CONSUL/RAMMAM-III/TL-12 REV 3 DEC-2011

CONSULTANT: KARNATAKA POWER CORPORATION LIMITED
CONSULTANCY AND ENGINEERING SERVICES DIVISION



LEGEND

EXISTING ROAD

PROPOSED ROAD

FOR TENDER PURPOSE ONLY

NTPC हाइड्रो Hydro

NTPC HYDRO LIMITED

(A wholly owned subsidiary of NTPC)

PROJECT: RAMMAM STAGE - III HYDROELECTRIC PROJECT [3X40MW]

TITLE: LAYOUT OF OVERHEAD WATER TANK

Drawn by	Signature /Date	Designed By	Signature /Date	Checked By	Signature /Date	Approved by	Signature /Date

NHL Drawing Number : 5602-002-P-E-C-A-13

FORMAT : SCALE :

KPCL Drawing Number: CCED/KPCL/CONSUL/RAMMAM-III/TL-13 REV 3 DEC-2011

CONSULTANT

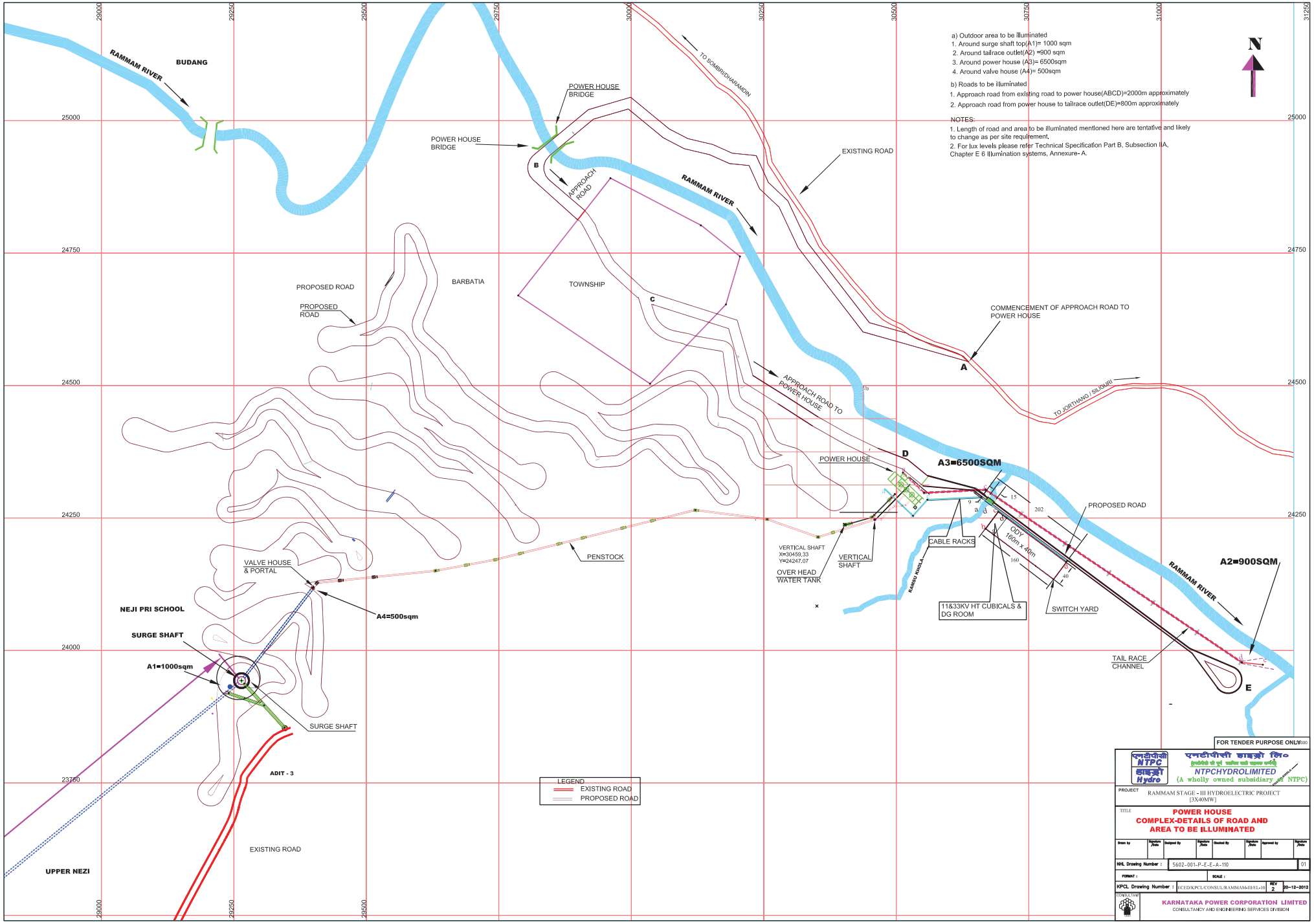
KARNATAKA POWER CORPORATION LIMITED

CONSULTANCY AND ENGINEERING SERVICES DIVISION

a) Outdoor area to be Illuminated
1. Around surge shaft top(A1)= 1000 sqm
2. Around tailrace outlet(A2) =900 sqm
3. Around power house (A3)= 6500sqm
4. Around valve house (A4)= 500sqm

b) Roads to be illuminated
1. Approach road from existing road to power house(ABCD)=2000m approximately
2. Approach road from power house to tailrace outlet(DE)=800m approximately

NOTES:
1. Length of road and area to be illuminated mentioned here are tentative and likely to change as per site requirement.
2. For lux levels please refer Technical Specification Part B, Subsection IIA, Chapter E 6 Illumination systems, Annexure- A.



FOR TENDER PURPOSE ONLY

एनटीपीसी हाइड्रो लि०
NTPC Hydro
NTPCHYDROLIMITED
(A wholly owned subsidiary of NTPC)

PROJECT: RAMMAM STAGE - III HYDROELECTRIC PROJECT [3X40MW]

TITLE: POWER HOUSE COMPLEX-DETAILS OF ROAD AND AREA TO BE ILLUMINATED

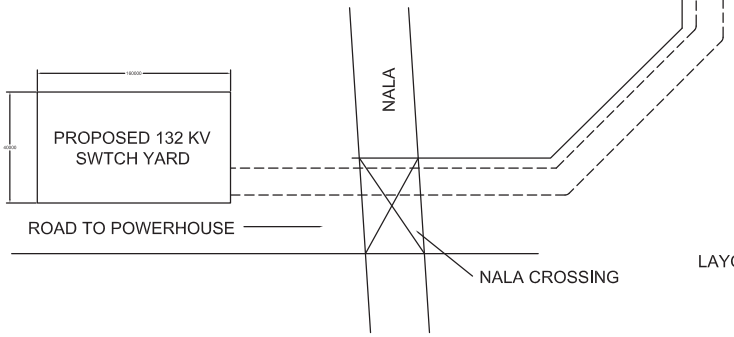
Drawn by	Signature /Date	Designed By	Signature /Date	Checked By	Signature /Date	Approved by	Signature /Date

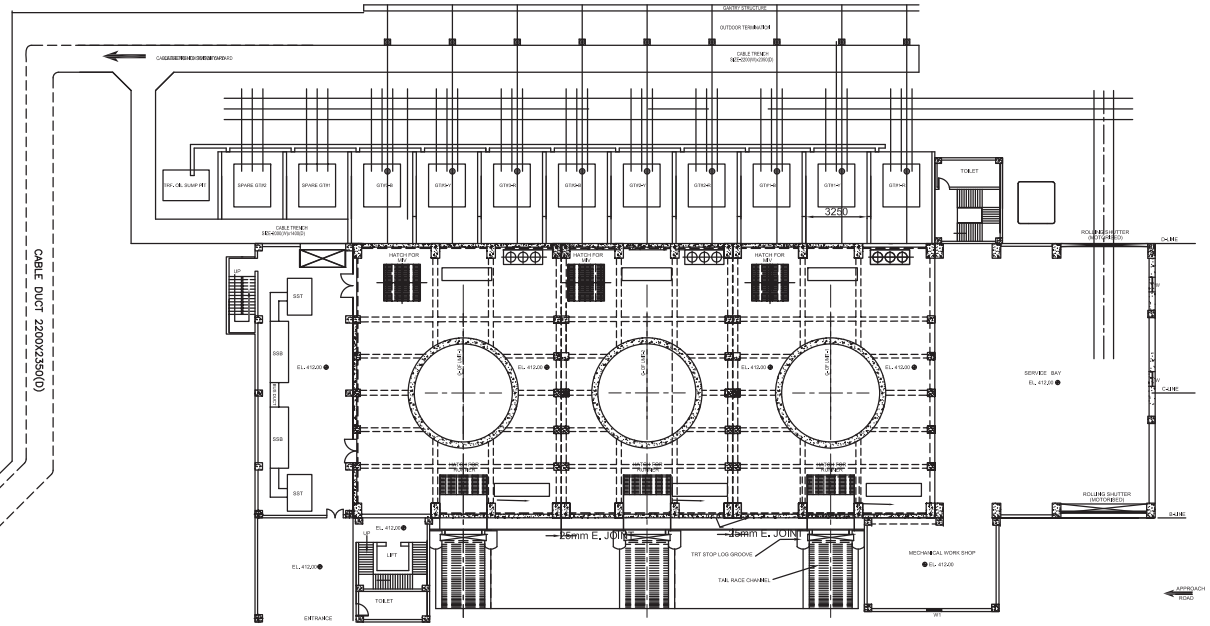
NHL Drawing Number : 5602-001-P-E-E-A-110 | 01

FORMAT : | SCALE :

KPCL Drawing Number : ECED/KPCL/CONSUL/RAMMAM-III/EL-10 | REV 2 | 30-12-2012

CONSULTANT: KARNATAKA POWER CORPORATION LIMITED
CONSULTANCY AND ENGINEERING SERVICES DIVISION





LAYOUT OF INTER CONNECTED CABLE TRENCH BETWEEN POWER HOUSE & 132 KV SWITCHYARD

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND ELEVATIONS ARE IN METRES.

FOR TENDER PURPOSE ONLY

NTPC Hydro

NTPC HYDRO LIMITED

(A wholly owned subsidiary of NTPC)

PROJECT: RAMMAM STAGE - III HYDROELECTRIC PROJECT [3X40MW]

TITLE: CABLE ROUTING BETWEEN POWERHOUSE & SWITCHYARD

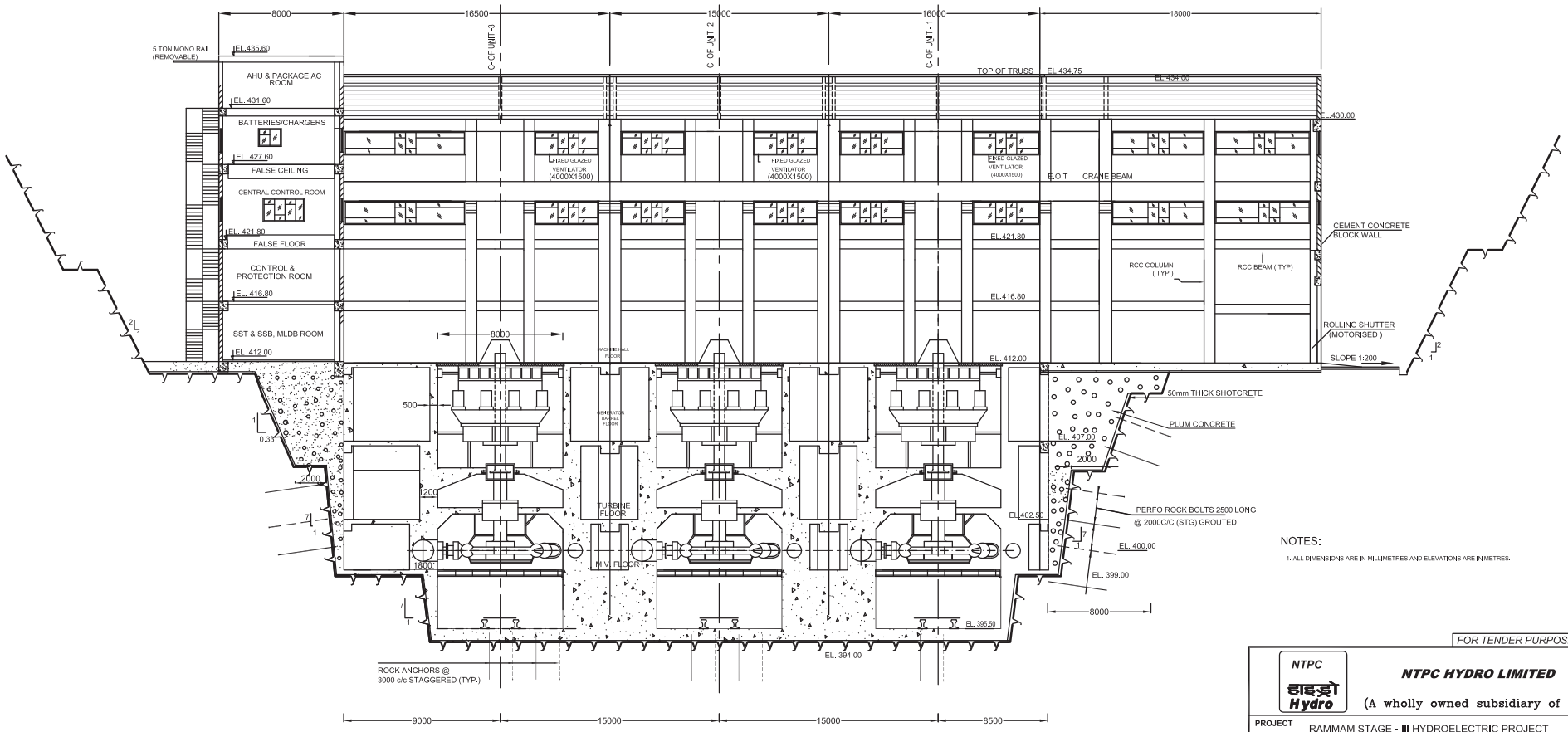
Drawn by	Signature /Date	Designed By	Signature /Date	Checked By	Signature /Date	Approved by	Signature /Date

NHL Drawing Number : 5602-002-P-E-E-A-127

FORMAT : SCALE :

KPCL Drawing Number: CCEO/KPCL/CONSUL/RAMMAM-III/EL REV 2 DEC-2011

CONSULTANT: KARNATAKA POWER CORPORATION LIMITED
CONSULTANCY AND ENGINEERING SERVICES DIVISION



L-SECTION OF POWER HOUSE THROUGH Y-Y

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND ELEVATIONS ARE IN METRES.

FOR TENDER PURPOSE ONLY

NTPC हाइड्रो Hydro

NTPC HYDRO LIMITED

(A wholly owned subsidiary of NTPC)

PROJECT: RAMMAM STAGE - III HYDROELECTRIC PROJECT [3X40MW]

TITLE: L-SECTION OF POWER HOUSE

Drawn by	Signature /Date	Designed By	Signature /Date	Checked By	Signature /Date	Approved by	Signature /Date

NHL Drawing Number : 5602-002-P-E-C-A-23

FORMAT : SCALE :

KPCL Drawing Number: CCED/KPCL/CONSUL/RAMMAM-III/TL-23 REV 2 DEC-2011

CONSULTANT

KARNATAKA POWER CORPORATION LIMITED

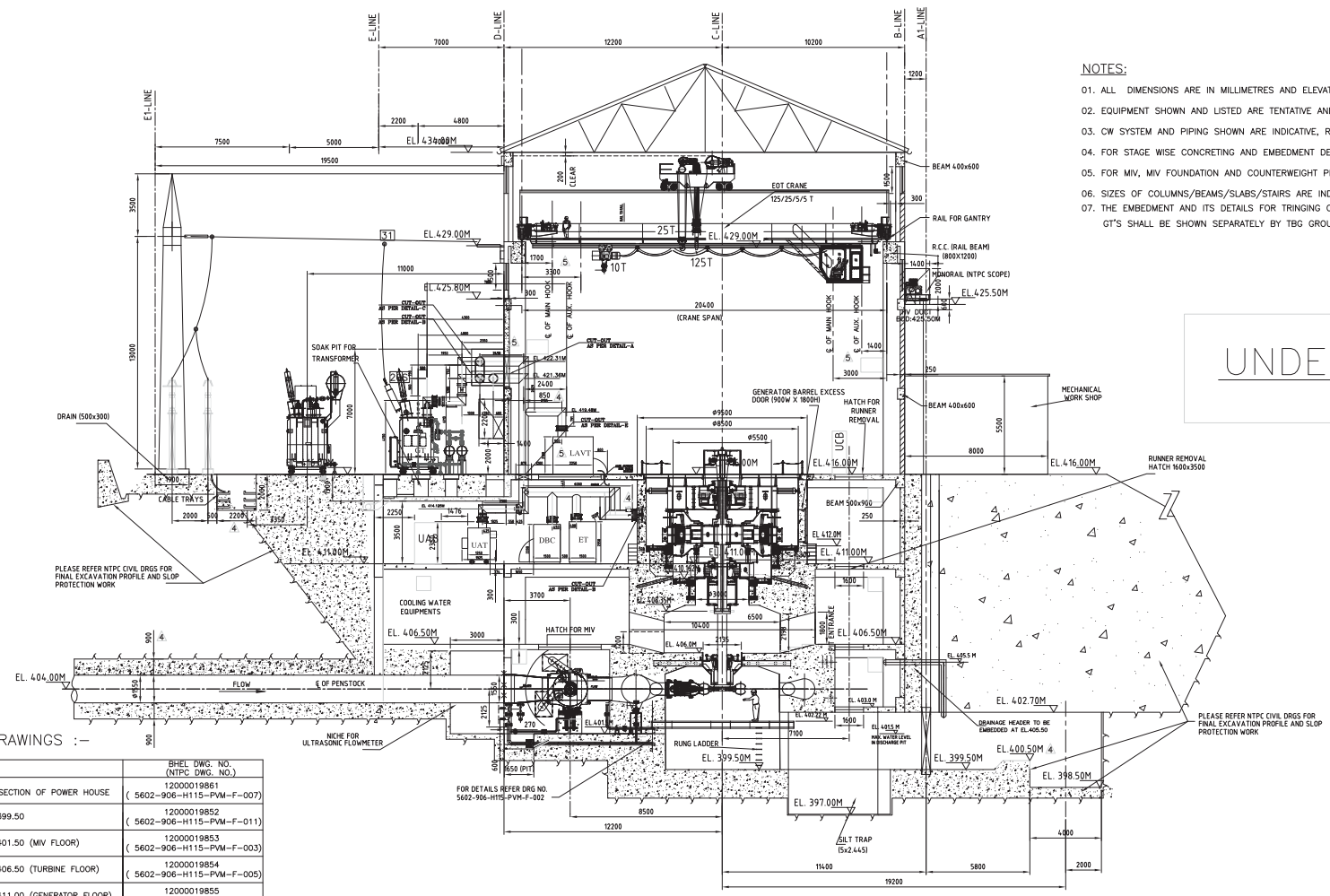
LONGITUDINAL SECTION OF POWERHOUSE

CONSULTANCY AND ENGINEERING SERVICES DIVISION

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 12000019851



NOTES:

01. ALL DIMENSIONS ARE IN MILLIMETRES AND ELEVATIONS ARE IN METRES.
02. EQUIPMENT SHOWN AND LISTED ARE TENTATIVE AND SHALL BE FINALISED INCLUDING SIZES DURING DETAILED DESIGN.
03. CW SYSTEM AND PIPING SHOWN ARE INDICATIVE, REFER COOLING WATER AND HVAC DRAWINGS FOR COMPLETE DETAILS.
04. FOR STAGE WISE CONCRETING AND EMBEDMENT DETAILS REFER TURBINE DRAWINGS OF BHEL.
05. FOR MIV, MIV FOUNDATION AND COUNTERWEIGHT PIT DETAILS REFER TURBINE DRAWINGS OF BHEL.
06. SIZES OF COLUMNS/BEAMS/SLABS/STAIRS ARE INDICATIVE ONLY. FOR DETAILS REFER CIVIL CONSTRUCTION DRAWINGS.
07. THE EMBEDMENT AND ITS DETAILS FOR TRINGING OF THE ACSR CONDUCTOR FOR CONNECTING TAP OFF TO LA AND GT'S SHALL BE SHOWN SEPARATELY BY TBG GROUP.

UNDER REVISION–5

LINKED DRAWINGS :–

SL. No.	DESCRIPTION	BHEL DWG. NO. (NTPC DWG. NO.)
01	LONGITUDINAL SECTION OF POWER HOUSE	12000019861 (5602–906–H115–PVM–F–007)
02	PLAN AT EL. 399.50	12000019852 (5602–906–H115–PVM–F–011)
03	PLAN AT EL. 401.50 (MIV FLOOR)	12000019853 (5602–906–H115–PVM–F–003)
04	PLAN AT EL. 406.50 (TURBINE FLOOR)	12000019854 (5602–906–H115–PVM–F–005)
05	PLAN AT EL. 411.00 (GENERATOR FLOOR)	12000019855 (5602–906–H115–PVM–F–008)
06	PLAN AT EL. 416.00(MACHINE HALL FLOOR)	12000019856 (5602–906–H115–PVM–F–009)
07	LAYOUT OF POWER HOUSE AUX. BLOCK	12000019158 (5602–906–H115–PVM–F–104)
08	FIRST STAGE PIPES AND EMBEDMENTS DRG.	02010419801 (5602–906–H115–PVM–F–002)
09	CRANE CLEARANCE DIAGRAM	PE–DG–414–501–A001 (5602–003–H143–PVM–W–039)
10	GENERATOR FOUNDATION	02500087601 (5602–003–H231–PVE–V–084)
11	EMBEDMENTS & PIPES IN SECOND STAGE	02020819801 (5602–906–H115–PVM–F–004)
12	ARRGT. OF DEFLECTOR SERVOMOTOR	02160319801 5602–906–H115–PVM–B–011
13	GUIDE BEARING ARRANGEMENT	02060119801 (5602–906–H115–PVM–B–017)
14	SECTIONAL ARRANGEMENT	02500087617 5602–003–H231–PVE–B–014
15	LAYOUT OF IPB (MAIN, DELTA & TAP–OFF–RUN) FOR UNIT–A,2&3	0169141001 SHT 01

CROSS SECTION OF POWER HOUSE
THROUGH WATER CONDUCTOR SYSTEM (UNIT-I)

REV.	DATE		
04	06.03.19	ALTERED	TK
		CHECKED	SS
		APPD.	RS

ZONE: REVISED AS PER NTPC COMMENTS

REV.	DATE		
03	02.08.16	ALTERED	TK
		CHECKED	SS
		APPD.	RS

ZONE: REVISED AS PER NTPC COMMENTS & MOM DATED 02.08.16 TO 04.08.16

REV.	DATE		
02	11.07.16	ALTERED	TK
		CHECKED	SS
		APPD.	RS

ZONE: REVISED AS PER NTPC COMMENTS

REV.	DATE		
01	28.02.16	ALTERED	TK
		CHECKED	SS
		APPD.	RS

ZONE: REVISED AS PER NTPC COMMENTS

CUSTOMER: एन टी पी सी NTPC — एन.टी.पी.सी.लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)

PROJECT: RAMMAM STAGE – III HYDROELECTRIC PROJECT [3X40MW]

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

DEPT. CODE: HPE 415		NAME	SIGN	DATE	NO. OF VAR
	DRN	T.KHAN		20.09.15	
	CKD	S.SAHU		20.09.15	
	APPD	R.S		20.09.15	

SUB–VENDOR DRG. NO. | PO REF | NO. OF ITEMS

TITLE: STATION LAYOUT – ELEVATION

NTPC DRG. NO. 5602–906–H115–PVM–F–001

SUB–VENDOR NAME | WEIGHT (kg) | SCALE 1:125

BHEL DRG. NO. 12000019851 | REV. 04

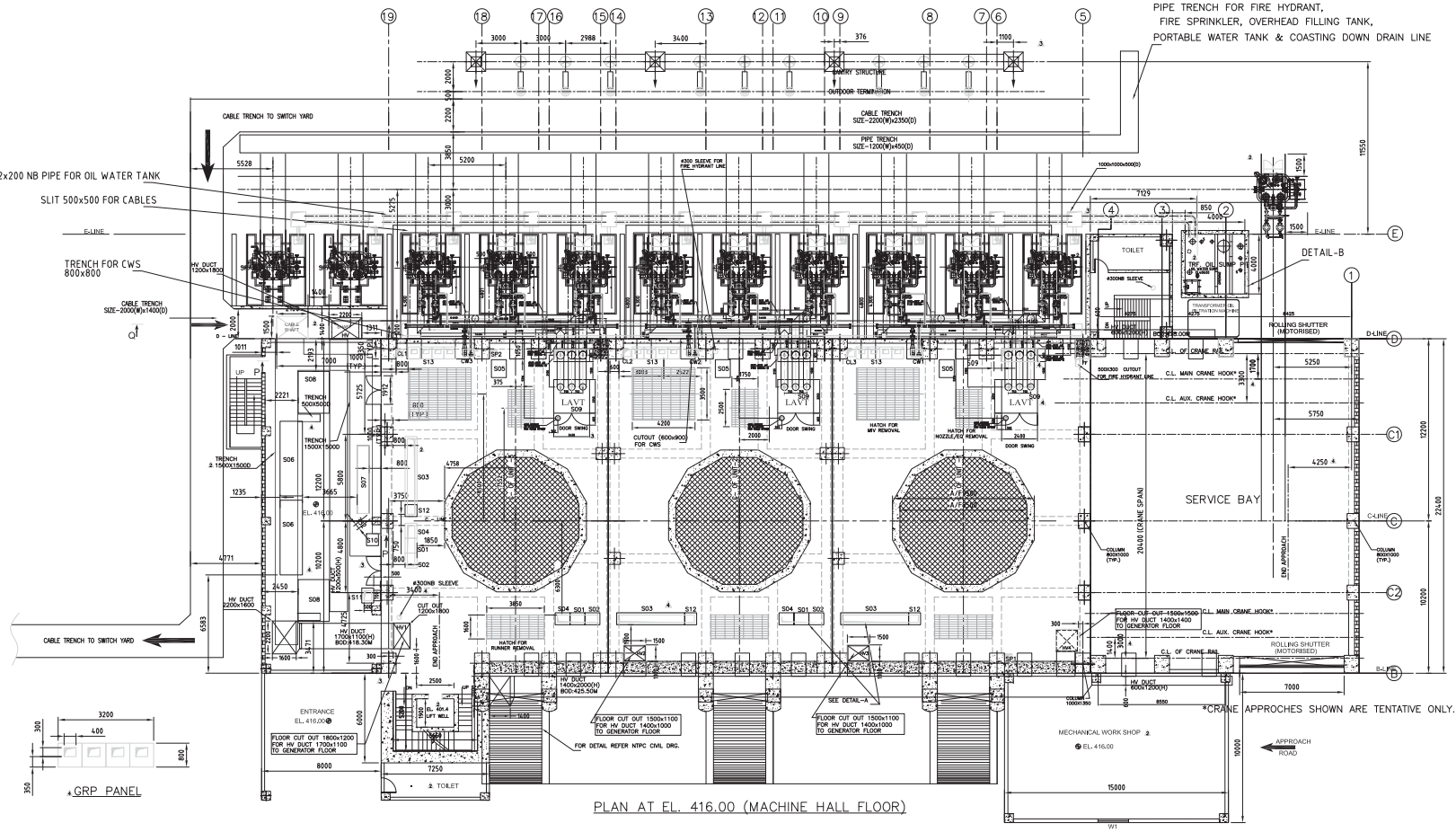
SHEET NO. 01 | NO. OF SHT. 01

A1 SIZE

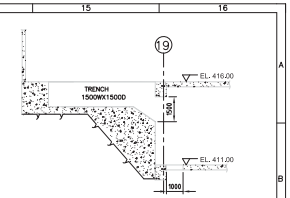
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

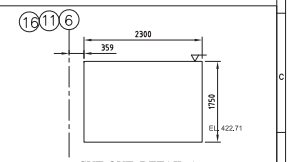
DRG. NO. 12000019856



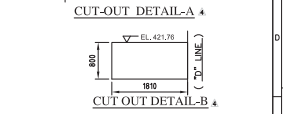
PLAN AT EL. 416.00 (MACHINE HALL FLOOR)



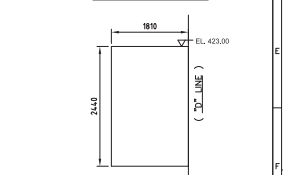
SECTION– PP



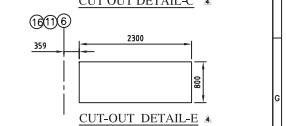
CUT-OUT DETAIL-A



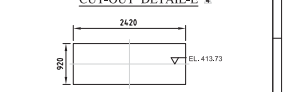
CUT OUT DETAIL-B



CUT OUT DETAIL-C

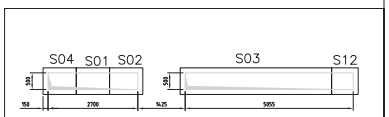


CUT-OUT DETAIL-E

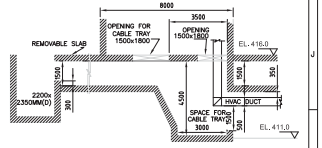


CUT-OUT DETAIL-F

GRP PANEL



DETAIL–A



SECTION–QQ

LIST OF EQUIPMENTS

S.No	DESCRIPTION	SIZE (mm) LENGTH	WIDTH	HEIGHT	LOCATED AT	WEIGHT (Kgs.)	QTY./ UNIT	TOTAL QTY.	DRG. No.	REMARKS
S01	GAUGE PANEL	1000	800	2415	EL 416	1500	1	3	36940000700	EDN
S02	TEMPARATURE MEASUREMENT PANEL	1000	800	2415	EL 416	900	1	3	36940000700	EDN
S03	UNIT CONTROL BOARD(SUIT OF 6 PANELS) ELECTRONIC PANEL(3), RELAY PANEL(1) CONTROL & METERING PANEL(1) TERMINATION PANEL(1)	4555	800	2415	EL 416	3500	1	3	36940000700	EDN
S04	ALARM ANNUNCIATOR PANEL	1000	800	2415	EL 416	900	1	3	36940000700	EDN
S05	EHG CUBICLE	1200	1000	2520	EL 416	900	1	3		HPE GOV
S06	STATION SERVICE BOARD	5000	1500	2350	EL 416	NA	–	2		HPE ELEC
S07	COMMON AUX. LOCAL CONTROL BOARD	4555	800	2415	EL 416	3500	–	1	36940000704	EDN
S08	STATION SERVICE TRANSFORMER	2800	2075	3250	EL 416	NA	–	2		JHS
S09	LAVT CUBICLE	3300	2250	2500	EL 416	NA	1	3		RUDRAPUR
S10	COMMON AUX. LOCAL HMI PANEL	800	800	2415	EL 416	750		1	36940000704	EDN
S11	COMMON AUX. ALARM ANNUNCIATION PANEL	1000	800	2415	EL 416	3500		1	36940000704	EDN
S12	LOCAL HMI PANEL & UCB PANEL LINER	800	800	2415	EL 416	750		1	36940000700	EDN
S13	GRP PANEL	3200	800	2350	EL 416		1	3	35610051461	SWE

NOTES:

01. ALL DIMENSIONS ARE IN MILLIMETRES AND ELEVATIONS ARE IN METRES.
02. CW SYSTEM AND PIPING SHOWN ARE INDICATIVE, REFER COOLING WATER AND HVAC DRAWINGS FOR COMPLETE DETAILS.
03. SIZES OF COLUMNS/BEAMS/SLABS/STAIRS ARE INDICATIVE ONLY. FOR DETAILS REFER CIVIL CONSTRUCTION DRAWINGS.
04. BUS DUCT ROUTING SHOWN IS INDICATIVE ONLY. FOR DETAILS REFER 'DELTA FORMATION OF IPBD' DRAWING.
05. POWERHOUSE FLOOR DRAIN, INTER FLOOR DRAIN AND STORM WATER DRAIN TO BE SUITABLY DESIGNED BY NTPC CIVIL.
06. DRAIN PIT 1000x1000 TO BE SUITABLY DESIGNED BY NTPC CIVIL. SUITABLY SLOPE TO BE PROVIDED AS PER CIVIL PRACTICE.

⚠ REFERENCE DRAWINGS :–

SL. No.	DESCRIPTION	BHEL DWG. NO.	NTPC DWG. NO.
01	STATION LAYOUT – ELEVATION	12000019851	5602–906–H115–PVM–F–001
02	OUTLINE GEN ARRAGT. OF GT	14500050058	5602–003–H201–PVE–B–710
03	UCB	36940000700	5602–003–H415–PVI–B–018
04	LAYOUT OF IPB	0169141010	5602–003–H207–PVE–F–001
05	COMMON AUX. LOCAL CONTROL BOARD	36940000704	5602–003–H415–PVI–B–005
06	LAYOUT OF IPB	0169141001	5602–003–H207–PVE–F–001
07	CIVIL GUIDELINES OF TRANSFORMER CAVERN AT EL. 416.00 & SUMP PIT DETAILS	12000019863	5602–906–H115–PVM–F–108
08	SSB	–	5602–003–H204–PVE–B–003

CW1,CW2,CW3 (750x500)	CUTOUT FOR COOLING WATER SYSTEM FOR TRANSFORMER
FF (500X300)	CUTOUT FOR FIRE FIGHTING SYSTEM
CL1,CL2,CL3 (500X500)	CUTOUT FOR CABLE TRAY
HV1,HV2,HV3,HV4	CUTOUT FOR HVAC SYSTEM
SP1,SP2 (500X500)	SPARE CUTOUT

REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.
			04	11.06.19	TK / SS / RS	03	22.03.18	TK / SS / RS	02	25.01.17	TK / SS / RS	01	28.08.16	TK / SS / RS
ZONE			ZONE	REVISED AS PER NTPC COMMENTS		ZONE	REVISED AS PER NTPC COMMENTS		ZONE	REVISED AS PER NTPC COMMENTS		ZONE	REVISED AS PER NTPC COMMENTS & MOM DATED 02.08.16 TO 04.08.16	

CUSTOMER: एनटीपीसी NTPC — एन.टी.पी.सी.लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)

PROJECT: RAMMAM STAGE – III HYDROELECTRIC PROJECT [3X40MW]

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

DEPT. CODE: HPE 415		NAME	SIGN	DATE	NO. OF VAR
	DRN	T.KHAN		3.3.16	
	CKD	S.SAHU		3.3.16	
	APPD	R.S		3.3.16	
SUB–VENDOR DRG. NO.				PO REF	NO. OF ITEMS

TITLE: STATION LAYOUT PLAN AT EL.416.00 MACHINE HALL

NTPC DRG. NO. 5602–906–H115–PVM–F–009

SUB–VENDOR NAME | WEIGHT (kg) | SCALE 1:200 | BHEL DRG. NO. 12000019856 | REV. 04

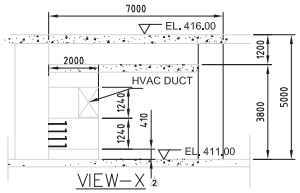
SHEET NO. 01 | NO. OF SHT. 01

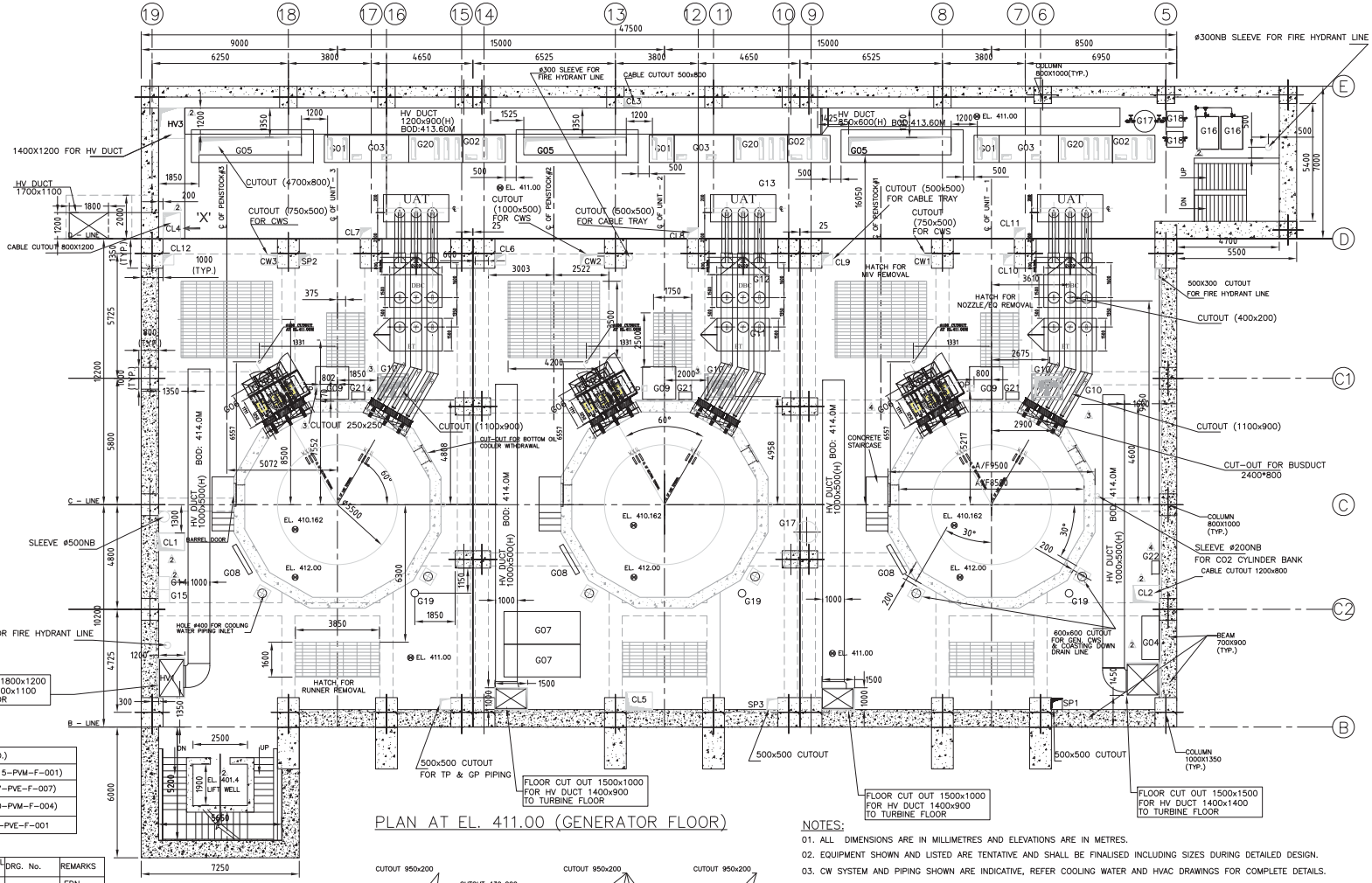
A1 SIZE

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 12000019855





CW1,CW2,CW3	CUTOUT FOR TRANSFORMER CWS & OVERHEAD PIPE (FOR CW5 ONLY)
FF –	CUTOUT FOR FIRE FIGHTING SYSTEM
CL1,CL2,CL3,CL4 CL5,CL6,CL7,CL8 CL9,CL10,CL11,CL12	CUTOUT FOR CABLE TRAY
HV1,HV2,HV3	CUTOUT FOR HVAC SYSTEM
SP1,SP2 ,SP3	SPARE CUTOUT
OP –	CUTOUT FOR OIL PIPELINE

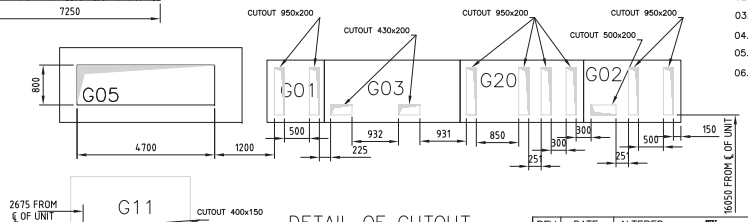
PLAN AT EL. 411.00 (GENERATOR FLOOR)

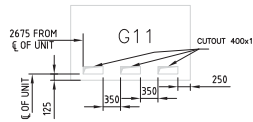
LINKED DRAWINGS :–

SL. No.	DESCRIPTION	BHEL DWG. NO.	(NTPC DWG. NO.)
01	STATION LAYOUT – ELEVATION	12000019851	(5602–906–H115–PVM–F–001)
02	GENERATOR FOUNDATION	02500087601	(5602–003–H207–PVE–F–007)
03	LAYOUT OF COOLING WATER SYSTEM	02292019801	(5602–906–H140–PVM–F–004)
04	LAYOUT OF IPB	0169141001	5602–003–H207–PVE–F–001

LIST OF EQUIPMENTS (TENTATIVE)

S.No	DESCRIPTION	SIZE (mm) LENGTH	WIDTH	HEIGHT	LOCATED AT	WEIGHT (KgS.)	QTY./ UNIT	TOTAL QTY.	DRG. No.	REMARKS
G01	FIELD SUPPRESSION CUBICLE	1150	1250	2295	EL 411.00	1500	1	3		EDN
G02	REGULATION CUBICLE	1951	1250	2295	EL 411.00	1000	1	3		EDN
G03	THYRISTOR & TRUNKING CUBICLE	2723	1250	2995	EL 411.00	3500	1	3		EDN
G04	H.S. LUB UNIT COMMON	2000	800	800	EL 411.00	400	1	1		HGE BPL
G05	UNIT AUXILIARY BOARD	5600	1500	2300	EL 411.00	NA	1	3		HPE
G06	NG CUBICLE	2200	1600	2035	EL 411.00	NA	1	3		RP
G07	AIR PRESSURIZATION EQUIPMENT	3500	1500	2200	EL 411.00	NA	–	2		RP
G08	MARSHALLING BOX	1500	200	1200	EL 411.00	100	1	3		HGE BPL
G09	NEEDLE CONTROL CABINET	1525	1500	2830	EL 411.00	1700	1	3		HTE BPL
G10	HMC FOR GOVERNOR	1125	800	2800	EL 411.00	1700	1	3		HTE BPL
G11	EXCITATION TRANSFORMER	3050	1500	2700	EL 411.00	1000	1	3		EDN
G12	DYNAMIC BRAKING CUBICLE	2400	1500	2350	EL 411.00	2000	1	3		
G13	UNIT AUXILIARY TRANSFORMER	3300	1900	2500	EL 411.00	4800	1	3		
G14	NORMAL LIGHTING PANEL (WALL MOUNTED)	650	500	500	EL 411.00	NA	–	1		
G15	EMERGENCY LIGHTING PANEL (WALL MOUNTED)	650	500	500	EL 411.00	NA	–	1		
G16	LP COMPRESSOR	1500	1000	1100	EL 411.00	NA	–	2		HTE BPL
G17	LP AIR RECEIVER	ø1000	–	2500	EL 411.00	NA	–	2		HTE BPL
G18	AIR DRYER	750	750	1340	EL 411.00	NA	–	2		HPE GOV
G19	PRESSURE RECIEVER FOR GENERATOR BRAKE AIR	ø350	–	1750	EL 411.00	NA	1	3		HTE BPL
G20	AUX.BREAKER & AUX.TRANSFORMER CUB)	2476	1250	2370	EL 411.00	NA	–	3		EDN
G21	MCP FOR GENERATOR STATOR HEATER (WALL MOUNTED)	600	350	800	EL 411.00	NA	–	3		HPE BPL
G22	MCP FOR HP LUB OIL PUMP	600	350	800	EL 411.00	NA	–	1		HPE BPL





DETAIL OF CUTOUT (G01,G02,G03,G05,G20,G11)

NOTES:

01. ALL DIMENSIONS ARE IN MILLIMETRES AND ELEVATIONS ARE IN METRES.
02. EQUIPMENT SHOWN AND LISTED ARE TENTATIVE AND SHALL BE FINALISED INCLUDING SIZES DURING DETAILED DESIGN.
03. CW SYSTEM AND PIPING SHOWN ARE INDICATIVE, REFER COOLING WATER AND HVAC DRAWINGS FOR COMPLETE DETAILS.
04. SIZES OF COLUMNS/BEAMS/SLABS/STAIRS ARE INDICATIVE ONLY. FOR DETAILS REFER CIVIL CONSTRUCTION DRAWINGS.
05. POWERHOUSE FLOOR AND OVERALL DRAIN TO BE SUITABLY DESIGNED BY NTPC CIVIL.
06. CUTOUTS REQUIRED FOR INDIVIDUAL EQUIPMENTS ARE NOT SHOWN AND SHALL BE INCORPORATED LATER. UAB SIZE HAS BEEN CONSIDERED ASSUMING DOUBLE FRONT PANEL.

REV.	DATE	ALTERED	T KHAN
03	22.03.17	CHECKED	S SAHU
		APPD.	R SINGH
ZONE	REVISED AS PER NTPC COMMENTS.		

REV.	DATE	ALTERED	SS
02	18.01.17	CHECKED	RS
		APPD.	RS
ZONE	REVISED AS PER NTPC COMMENTS & DISCUSSED IN TCM DATED 21–22 NOV'16		

REV.	DATE	ALTERED	TK
04	04.02.19	CHECKED	SS
		APPD.	RS
ZONE	UNDER REVISION		

REV.	DATE	ALTERED	TK
01	26.08.16	CHECKED	SS
		APPD.	RS
ZONE	REVISED AS PER NTPC COMMENTS & MOM DATED 02.08.16 TO 04.08.16		

CUSTOMER: एन टी पी सी NTPC — एन.टी.पी.सी.लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)

PROJECT: RAMMAM STAGE – III HYDROELECTRIC PROJECT [3X40MW]

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

DEPT. CODE: HPE 415		NAME	SIGN	DATE	NO. OF VAR
	DRN	T.KHAN		–	
	CKD	S.SAHU		–	
	APPD	R.S		–	
SUB–VENDOR DRG. NO.				PO REF	NO. OF ITEMS

TITLE: STATION LAYOUT PLAN AT EL.411.00 GENERATOR FLOOR

NTPC DRG. NO. 5602–906–H115–PVM–F–008

SUB–VENDOR NAME | WEIGHT (kg) | SCALE 1:100

BHEL DRG. NO. 12000019855 | REV. 04

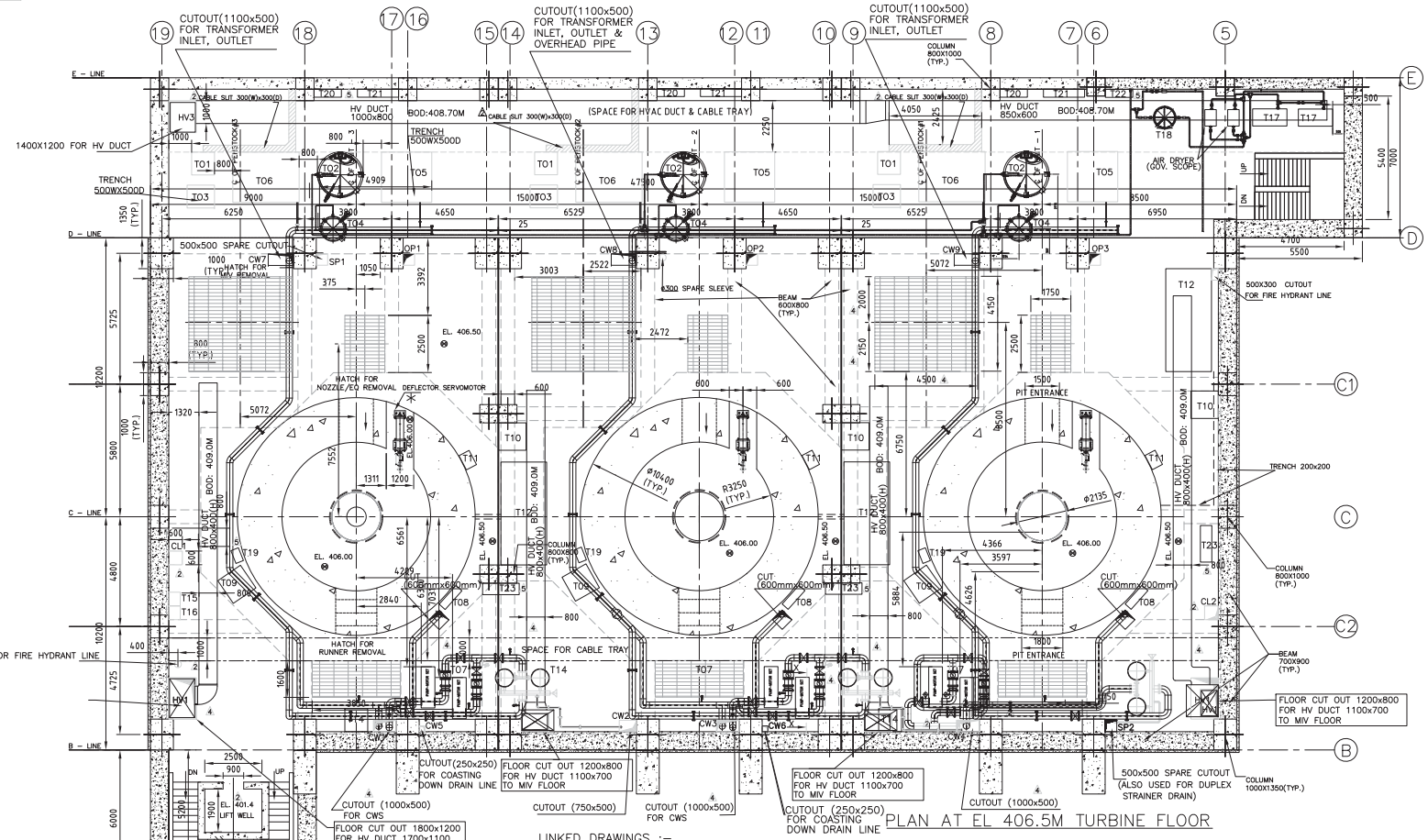
SHEET NO. 01 | NO. OF SHT. 01

A1 SIZE

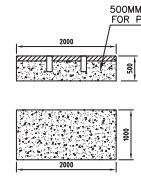
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 12000019854



PLAN AT EL 406.5M TURBINE FLOOR



SECTION–XX

(RAISED PLATFORM FOR SECONDARY PUMPS)

LIST OF EQUIPMENTS

S.No	DESCRIPTION	SIZE (mm) LENGTH	WIDTH	HEIGHT	LOCATED AT	WEIGHT (KgS.)	QTY./UNIT	TOTAL QTY.	DRG. No.	REMARKS
T01	ELECTRICAL CONTROL & INDICATION PANLE FOR MIV	1000	1000	2400	EL406.5	400	1	3		HPE GOV
T02	PRESSURE RECEIVER FOR MIV	ø2000	–	3200	EL406.5	4500	1	3		HPE GOV
T03	HYDRAULIC CONTROL PANEL FOR MIV	1200	1000	2500	EL406.5	1000	1	3		HPE GOV
T04	PRESSURE RECEIVER FOR GOVERNOR	ø1200	–	3000	EL406.5	3500	1	3		HPE GOV
T05	PP SET FOR TURBINE/ GOVERNOR	2200	2200	2300	EL406.5	3200	1	3		HPE GOV
T06	PP SET FOR MIV	2900	2200	2325	EL406.5	4500	1	3		HPE GOV
T07	SEC COOLING WATER PUMPS	2100	800	1000	EL406.5	2500	2	6		HTE BPL
T08	BRAKE JACK CONTROL PANEL	1100	350	1200	EL406.5	350	1	3		HGE BPL
T09	BRAKE DUST COLLECTOR	1200	1200	2500	EL406.5	500	1	3		HGE BPL
T10	MOTORISED POWER PACK (PORTABLE)	1200	1200	1800	EL406.5	300	1	3		HGE BPL
T11	CO2 FIRE FIGHTING SYSTEM PANEL	500	700	2300	EL406.5	1000	1	3		HGE BPL
T12	CO2 CYLINDER BANK	4500	2000	2500	EL406.5	–	–	3		HGE BPL
T13	HEAT EXCHANGER	1500	750	1500	EL406.5		1	3		HTE BPL
T14	DUPLEX STRAINER	1500	2500	2500	EL406.5	–	1	3		HTE BPL
T15	NORMAL LIGHTING PANEL (WALL MOUNTED)	650	500	500	EL406.5	NA	–	1		PEM BHEL
T16	EMERGENCY LIGHTING PANEL (WALL MOUNTED)	650	500	500	EL406.5	NA	–	1		PEM BHEL
T17	HP COMPRESSOR	1500	750	2000	EL406.5		–	2		HTE BPL
T18	HP RECEIVER	ø800	–	1000	EL406.5	–	–	1		HTE BPL
T19	MCP FOR BRAKE DUST COLLECTOR (WALL MOUNTED)	600	350	800	EL406.5	–	–	3		HPE BPL
T20	MCP FOR MIV OPU (WALL MOUNTED)	1200	350	1200	EL406.5		–	3		HPE BPL
T21	MCP FOR TURBINE OPU (WALL MOUNTED)	1800	350	1000	EL406.5	–	–	3		HPE BPL
T22	MCP FOR HP COMPRESSOR (WALL MOUNTED)	1200	350	1000	EL406.5	–	–	1		HPE BPL
T23	MCP FOR SECONDARY COOLING PUMP	2x800	500	2400	EL406.5	–	–	3		HPE BPL

LINKED DRAWINGS :–

SL. No.	DESCRIPTION	BHEL DWG. NO.	(NTPC DWG. NO.)
01	STATION LAYOUT – ELEVATION	12000019851	(5602–906–H115–PVM–F–001)
02	EMBEDMENTS & PIPES IN SECOND STAGE	02020819801	(5602–906–H115–PVM–F–004)
03	LAYOUT OF COOLING WATER SYSTEM	02292019801	(5602–406–H140–PVM–F–004)
04	ARRANGEMENT OF DEFLECTOR _MECHANISM	02030719801	5602–906–H115–PVM–B–010
05	OIL PIPE LINES	0 21018 19801	5602–906–H115–PVM–B–023

4	CW1 (1000x500)	– SECONDARY WATER INLET TO SECANDARY PUMP AND DUPLEX STRAINER INLET – SECONDARY WATER FOR GENERATOR (FOR UNIT–1)
4	CW2 (750x500)	– RETURN LINE OF DUPLEX STRAINER & FOR OVERHEAD TANK
4	CW3 (1000x500)	– SECONDARY WATER INLET TO SECANDARY PUMP AND DUPLEX STRAINER INLET – SECONDARY WATER FOR GENERATOR (FOR UNIT–2)
4	CW4 (1000x500)	– SECONDARY WATER INLET TO SECANDARY PUMP AND DUPLEX STRAINER INLET – SECONDARY WATER FOR GENERATOR (FOR UNIT–3)
	CL1, CL2 (600x600)	CUTOUT FOR CABLE TRAY
	HV1, HV2 (1800x1200)	CUTOUT FOR HVAC SYSTEM
	SP1, SP2 (500x500)	SPARE CUTOUT & FOR DUPLEX STRAINER DRAIN (SP2)
	CW5, CW6 (250x250)	CUTOUT FOR COASTING DOWN DRAIN LINE
	OP1, OP2, OP3 (500x500)	CUTOUT FOR OIL PIPE LINE
4	CW7, CW8, CW9 (1100x500)	CUTOUT FOR OIL PIPE LINE

NOTES:

01. ALL DIMENSIONS ARE IN MILLIMETRES AND ELEVATIONS ARE IN METRES.
02. CW SYSTEM AND PIPING SHOWN ARE INDICATIVE, REFER COOLING WATER AND HVAC DRAWINGS FOR COMPLETE DETAILS.
03. SIZES OF COLUMNS/BEAMS/SLABS/STAIRS ARE INDICATIVE ONLY. FOR DETAILS REFER CIVIL CONSTRUCTION DRAWINGS.
04. POWERHOUSE FLOOR AND OVERALL DRAIN TO BE SUITABLY DESIGNED BY NTPC CIVIL.
05. FOR ARRGT. OF DEFLECTOR SERVOMOTOR PLEASE REFER DRG NO. 02160319801 (NTPC DRG. NO. 5602–906–H115–PVM–B–011)
06. BHEL SHALL PROVIDE GRATING & CHEQQUERED PLATE FOR OPENING/TRENCHES. SINGLE/DOUBLE EDGE PROTECTION WHEREVER REQUIRED SHALL BE PROVIDED BY NTPC CIVIL.

REV.	DATE		
04	18.03.19	ALTERED	TK
		CHECKED	SS
		APPD.	RS
ZONE 4	REVISED AS PER LATEST CWS DRAWING		

REV.	DATE		
03	25.01.17	ALTERED	TK
		CHECKED	SS
		APPD.	RS
ZONE	REVISED AS PER NTPC COMMENTS		

REV.	DATE		
02	28.11.16	ALTERED	SS
		CHECKED	RS
		APPD.	RS
ZONE	REVISED AS PER NTPC COMMENTS & DISCUSSED IN TCM DATED 21–22 NOV'16		

REV.	DATE		
01	26.08.16	ALTERED	TK
		CHECKED	SS
		APPD.	RS
ZONE	REVISED AS PER NTPC COMMENTS & MOM DATED 02.08.16 TO 04.08.16		

CUSTOMER: एन टी पी सी NTPC — एन.टी.पी.सी.लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)

PROJECT: RAMMAM STAGE – III HYDROELECTRIC PROJECT [3X40MW]

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

DEPT. CODE: HPE 415		NAME	SIGN	DATE	NO. OF VAR
	DRN	T.KHAN		20.09.15	
	CKD	S.SAHU		20.09.15	
	APPD	R.S		20.09.15	
SUB–VENDOR DRG. NO.				PO REF	NO. OF ITEMS

TITLE: STATION LAYOUT PLAN AT EL.406.5M TURBINE FLOOR

NTPC DRG. NO. 5602–906–H115–PVM–F–005

SUB–VENDOR NAME | WEIGHT (kg) | SCALE 1:100

BHEL DRG. NO. 12000019854 | REV. 04

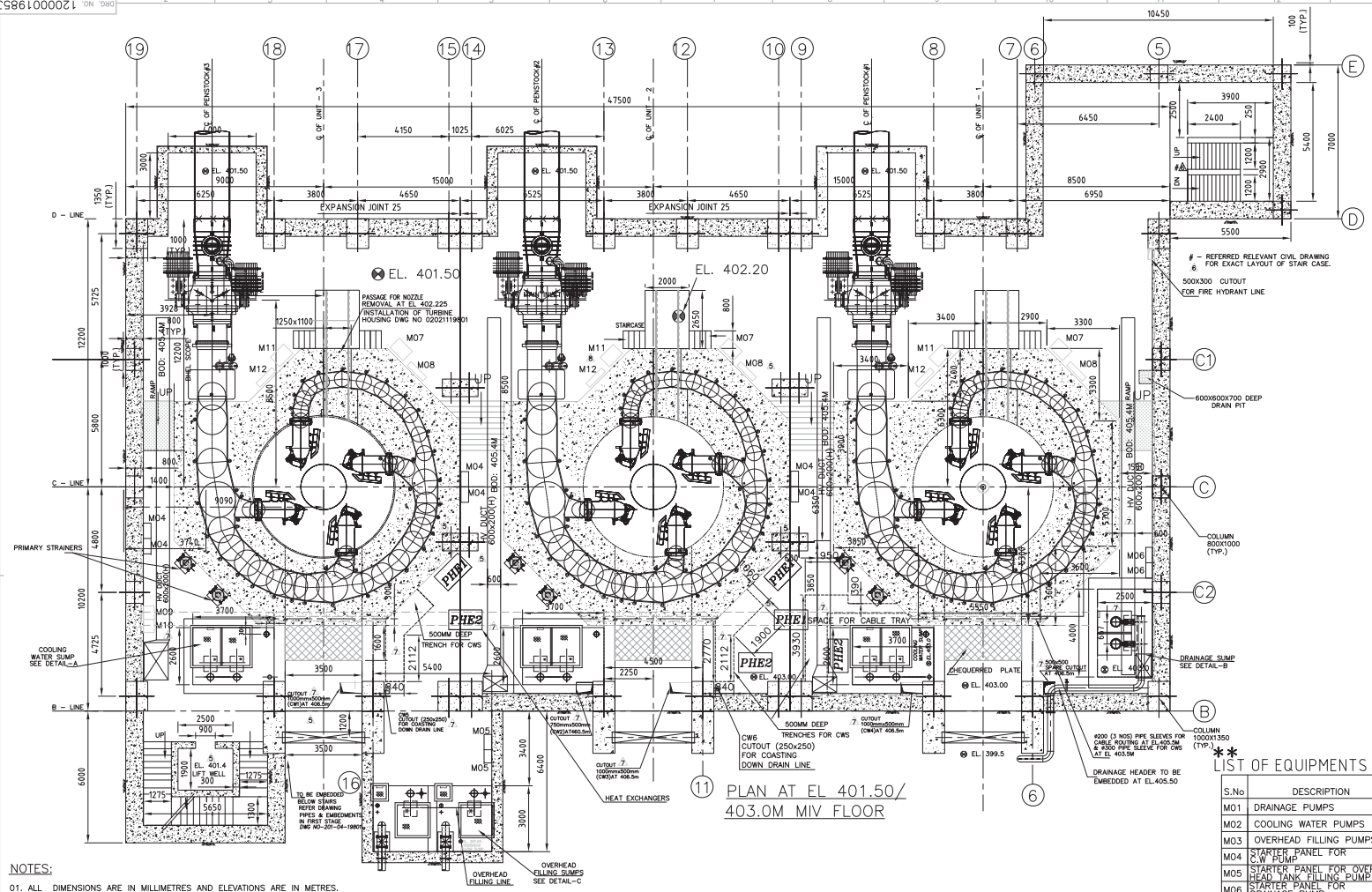
SHEET NO. 01 | NO. OF SHT. 01

A1 SIZE

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 12000019853



PLAN AT EL 401.50/ 403.0M MIV FLOOR

NOTES:

01. ALL DIMENSIONS ARE IN MILLIMETRES AND ELEVATIONS ARE IN METRES.
02. EQUIPMENT SHOWN AND LISTED ARE TENTATIVE AND SHALL BE FINALISED INCLUDING SIZES DURING DETAILED DESIGN.
03. REFER COOLING WATER AND HVAC DRAWINGS FOR COMPLETE DETAILS.
04. FOR STAGE WISE CONCRETING AND EMBEDMENT DETAILS REFER TURBINE DRAWINGS OF BHEL.
05. FOR MIV, MIV FOUNDATION AND COUNTERWEIGHT PIT DETAILS REFER TURBINE DRAWINGS OF BHEL.
06. SIZES OF COLUMNS/BEAMS/SLABS/STAIRS ARE INDICATIVE ONLY. FOR DETAILS REFER CIVIL CONSTRUCTION DRAWINGS.
07. ** SHALL BE SHOWN LATER AFTER FINALIZATION OF CW DRG "LAYOUT OF COOLING WATER SYSTEM" (5602-406-H140-PVM-F-004).
08. THIS DRAWING IS INTENDED FOR SHOWING LAYOUT & CIVIL REQUIREMENTS OF FLOOR ONLY. FOR CIVIL DETAILS/EMBEDMENTS INSIDE BARREL/HOUSING RESPECTIVE SYSTEM DRAWING AS GIVEN IN TABLE OF REFERENCE DRAWING TO BE FOLLOWED.
09. POWERHOUSE FLOOR AND OVERALL DRAIN TO BE SUITABLY DESIGNED BY NTPC CIVIL.

LINKED DRAWINGS :-

SL No.	DESCRIPTION	BHEL DWG. NO.	(NTPC DWG. NO.)
01	STATION LAYOUT - ELEVATION	12000019851	(5602-906-H115-PVM-F-001)
02	PLAN AT EL. 399.50	12000019852	(5602-906-H115-PVM-F-011)
03	FIRST STAGE PIPES AND EMBEDMENTS DRG.	02010419801	(5602-906-H115-PVM-F-002)
04	EMBEDMENTS & PIPES IN SECOND STAGE	02020819801	(5602-906-H115-PVM-F-004)
05	POWER HOUSE DRAINGE AND DEWATERING SUMP CONCRETE		(5602-305(R2)-POC-C-135)
06	LAYOUT OF COOLING WATER SYSTEM	02292019801	(5602-406-H140-PVM-F-004)

** LIST OF EQUIPMENTS (TENTATIVE) @ NA - NOT AVAILABLE

S.No	DESCRIPTION	SIZE (mm) LENGTH	WIDTH	HEIGHT	LOCATED AT	WEIGHT (KgS.)@	QTY./UNIT	TOTAL QTY.	DRG. No	REMARKS
M01	DRAINAGE PUMPS	-	-	-	EL 396.0	NA	-	2(1M+1S)		HPE BPL
M02	COOLING WATER PUMPS	-	-	-	EL 397.0	NA	2	6(3M+3S)		HTE BPL
M03	OVERHEAD FILLING PUMPS	-	-	-	EL 397.0	NA	-	2(1M+1S)		HTE BPL
M04	STARTER PANEL FOR C.W PUMP	2X700	350	1275	EL 403.0	NA	2	6		HPE BPL
M05	STARTER PANEL FOR OVER HEAD TANK FILLING PUMP	2X700	350	1275	EL 403.0	NA	-	2		HPE BPL
M06	STARTER PANEL FOR DRAINAGE PUMP	2X600	300	1000	EL 403.0	NA	-	2		HPE BPL
M07	OIL LEAKAGE UNIT FOR MIV	850	600	900	EL 403.0	NA	1	3		HPE BPL
M08	MCP FOR OIL LEAKAGE UNIT FOR MIV (WALL MOUNTED)	1000	250	800	EL 403.0	NA	1	3		HPE BPL
M09	NORMAL LIGHTING PANEL (WALL MOUNTED)	650	500	500	EL 403.0	NA	-	1		
M10	EMERGENCY LIGHTING PANEL (WALL MOUNTED)	650	500	500	EL 403.0	NA	-	1		
M11	OIL LEAKAGE UNIT FOR TURBINE	850	600	900	EL 403.0	NA	1	3		HPE BPL
M12	MCP FOR OIL LEAKAGE UNIT FOR TURBINE (WALL MOUNTED)	1000	250	800	EL 403.0	NA	1	3		HPE BPL

REV.	DATE	ALTERED	TK	REVISED AS PER NTPC COMMENTS
06	08.11.16	CHECKED	SS	
		APPD.	RS	
05	10.09.16	ALTERED	TK	REVISED AS PER NTPC COMMENTS
		CHECKED	SS	
		APPD.	RS	
04	02.08.16	ALTERED	TK	REVISED AS PER NTPC COMMENTS & MOM DATED 02.08.16 TO 04.08.16
		CHECKED	SS	
		APPD.	RS	
03	18.06.16	ALTERED	TK	REVISED AS PER NTPC COMMENTS
		CHECKED	SS	
		APPD.	RS	
02		ALTERED	SS	REVISED AS PER NTPC COMMENTS
		CHECKED	RS	
		APPD.	RS	
01	28.02.16	ALTERED	SS	REVISED AS PER NTPC COMMENTS
		CHECKED	RS	
		APPD.	RS	
07	06.03.19	ALTERED	TK	REVISED AS PER LATEST CWS DRAWING
		CHECKED	SS	
		APPD.	RS	

CUSTOMER: NTPC — एन.टी.पी.सी. लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)

PROJECT: RAMMAM STAGE - III HYDROELECTRIC PROJECT [3X40MW]

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

DEPT. CODE: HPE 415		NAME	SIGN	DATE	NO. OF VAR
	DRN	T.KHAN		20.09.15	
	CKD	S.SAHU		20.09.15	
	APPD	R.S		20.09.15	

SUB-VENDOR DRG. NO. | PO REF | NO. OF ITEMS

TITLE: STATION LAYOUT PLAN AT EL.401.50/403.00M

NTPC DRG. NO. 5602-906-H115-PVM-F-003

SUB-VENDOR NAME | WEIGHT (kg) | SCALE 1:100

BHEL DRG. NO. 12000019853 REV. 07

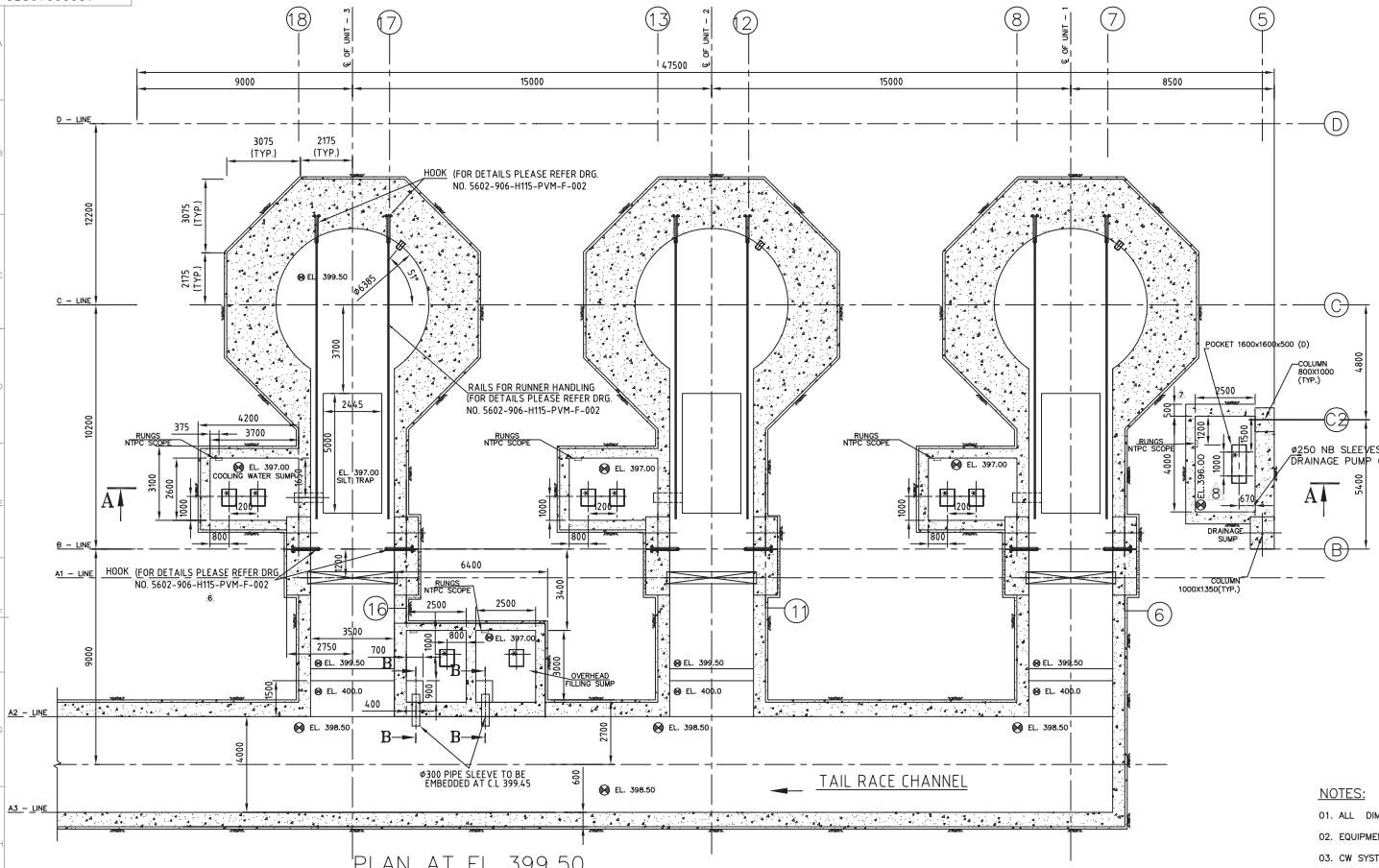
SHEET NO. 01 NO. OF SHT. 01

A1 SIZE

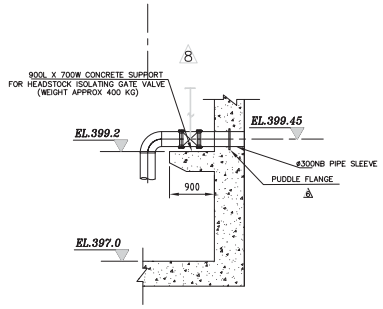
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO 12000019852



PLAN AT EL 399.50



SECTION–BB

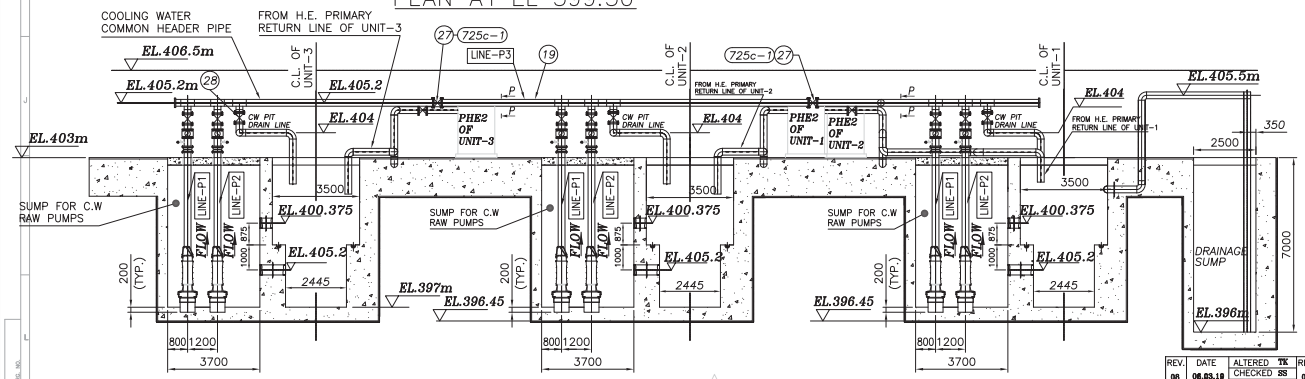
REFERENCE DRAWINGS

SL. No.	DESCRIPTION	BHEL DWG. NO. (NTPC DWG. NO.)
01	FIRST STAGE PIPES AND EMBEDMENTS DRG.	02010419801 (5602-906-H115-PVM-F-002)
02	DRAINAGE SYSTEM	12110119853 (5602-003-H171-PVM-F-003)
03	POWER HOUSE DRAINGE AND DEWATERING SUMP CONCRETE	(5602-305(R2)-POC-C-135)
04	INSTALLATION OF LOWER PIT LINER	–
05	COOLING WATER SYSTEM	0-229-20-19801 (5602-906-H140-PVM-F-004)

* 200MM DEEP POCKET TO BE LEFT AND DOWELS TO BE LEFT PROTRUDING FOR MAKING FOUNDATION OF PUMPS DURING SECONDARY CONCRETING

NOTES:

01. ALL DIMENSIONS ARE IN MILLIMETRES AND ELEVATIONS ARE IN METRES.
02. EQUIPMENT SHOWN AND LISTED ARE TENTATIVE AND SHALL BE FINALISED DURING DETAILED DESIGN.
03. CW SYSTEM AND PIPING SHOWN ARE INDICATIVE, REFER COOLING WATER AND HVAC DRAWINGS FOR COMPLETE DETAILS.
04. FOR STAGE WISE CONCRETING AND EMBEDMENT DETAILS REFER TURBINE DRAWINGS OF BHEL.
05. FOR MIV, MIV FOUNDATION AND COUNTERWEIGHT PIT DETAILS REFER TURBINE DRAWINGS OF BHEL.
06. SIZES OF COLUMNS/BEAMS/SLABS/STAIRS ARE INDICATIVE ONLY. FOR DETAILS REFER CIVIL CONSTRUCTION DRAWINGS.
07. THIS DRAWING IS INTENDED FOR SHOWING LAYOUT & CIVIL REQUIREMENTS OF FLOOR ONLY. FOR CIVIL DETAILS/EMBEDMENTS INSIDE BARREL/HOUSING RESPECTIVE SYSTEM DRAWING AS GIVEN IN TABLE OF REFERENCE DRAWING TO BE FOLLOWED.
08. POWERHOUSE FLOOR AND OVERALL DRAIN TO BE SUITABLY DESIGNED BY NTPC CIVIL.
09. REFER RELEVANT HM DRAWING FOR DETAIL OF DRAFT TUBE GATE EMBEDMENT.
8 10. REFER SEPARATE RELEVANT DRAWING FOR FOUNDATION DETAILS.
11. FOR EMBEDMENT OF LOWER PIT REFER RESPECTIVE DRAWING OF LOWER PIT LINER



SECTION–AA 8

REV.	DATE	ALTERED	TK	REV.	DATE	ALTERED	TK	REV.	DATE	ALTERED	TK	REV.	DATE	ALTERED	SS	REV.	DATE	ALTERED	SS
06	10.09.16	CHECKED	SS	05	02.08.16	CHECKED	SS	04	18.06.16	CHECKED	SS	03	18.06.16	CHECKED	RS	01	28.02.16	CHECKED	RS
		APPD.	RS			APPD.	RS			APPD.	RS			APPD.	RS			APPD.	RS
ZONE	REVISED AS PER NTPC COMMENTS	ZONE	REVISED AS PER NTPC COMMENTS & MOM DATED 02.08.16 TO 04.08.16	ZONE	REVISED AS PER NTPC COMMENTS	ZONE	REVISED AS PER NTPC COMMENTS	ZONE	REVISED AS PER NTPC COMMENTS	ZONE	REVISED AS PER NTPC COMMENTS

REV.	DATE	ALTERED	TK	REV.	DATE	ALTERED	TK
08	08.03.19	CHECKED	SS	07	08.11.16	CHECKED	SS
		APPD.	RS			APPD.	RS
ZONE	REVISED AS PER LATEST CWS DRAWING	ZONE	REVISED AS PER NTPC COMMENTS

CUSTOMER: एन.टी.पी.सी. NTPC — एन.टी.पी.सी. लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)

PROJECT: RAMMAM STAGE – III HYDROELECTRIC PROJECT [3X40MW]

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

DEPT. CODE: HPE 415		NAME	SIGN	DATE	NO. OF VAR
	DRN	T.KHAN		20.09.15	
	CKD	S.SAHU		20.09.15	
	APPD	R.S		20.09.15	

SUB-VENDOR DRG. NO. | PO REF | NO. OF ITEMS

TITLE: STATION LAYOUT PLAN AT EL.399.50M

NTPC DRG. NO. 5602-906-H115-PVM-F-011

SUB-VENDOR NAME | WEIGHT (kg) | SCALE 1:100

BHEL DRG. NO. 12000019852 | REV. 08

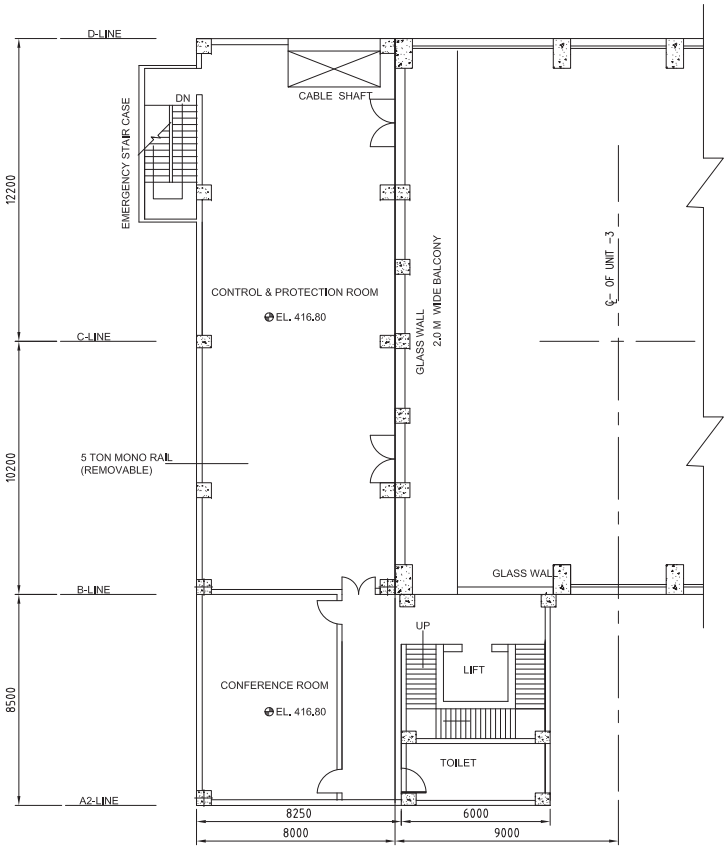
SHEET NO. 01 | NO. OF SHT.

A1 SIZE

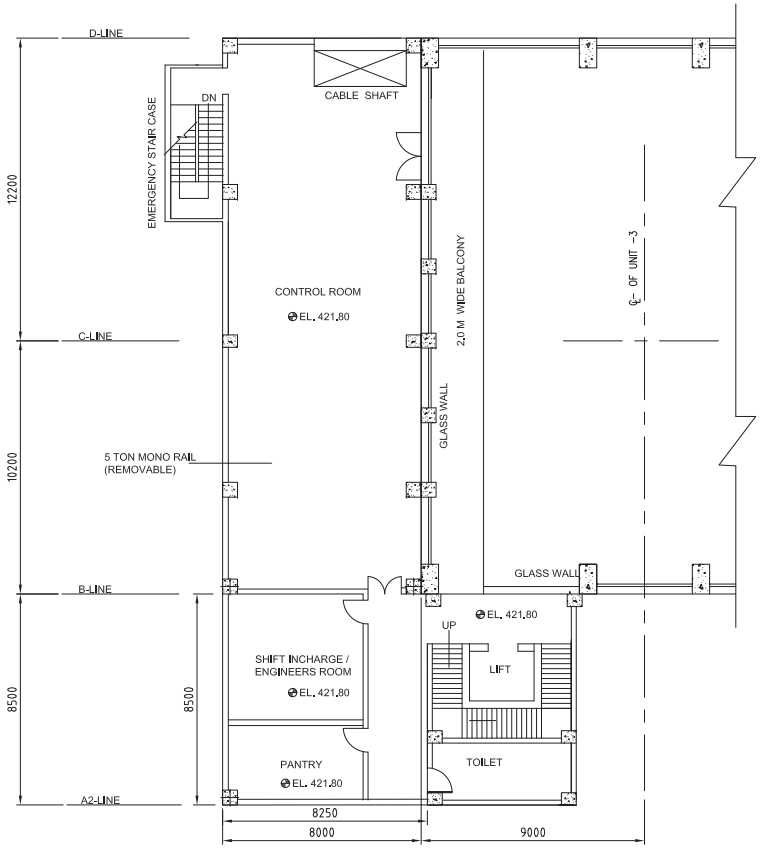
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 12000019857



AUXILARY FLOOR
PLAN AT EL. 416.80



AUXILARY FLOOR
PLAN AT EL. 421.80

REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.
ZONE			ZONE			ZONE		

CUSTOMER: एन टी पी सी NTPC — एन.टी.पी.सी.लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)

PROJECT: RAMMAM STAGE – III HYDROELECTRIC PROJECT [3X40MW]

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

DEPT. CODE		NAME	SIGN	DATE	NO. OF VAR
HPE 415	DRN	T.KHAN		12.06.18	
	CKD	S.SAHU		12.06.18	
	APPD	R.SINGH		12.06.18	

SUB-VENDOR DRG. NO. | PO REF | NO. OF ITEMS

TITLE: LAYOUT OF POWER HOUSE AUX. BLOCK AT EL. 416.80 & 421.80

NTPC DRG. NO. 5602-906-H115-PVM-F-102

SUB-VENDOR NAME | WEIGHT (kg) | SCALE 1:100

BHEL DRG. NO. 12000019857 | REV. 00

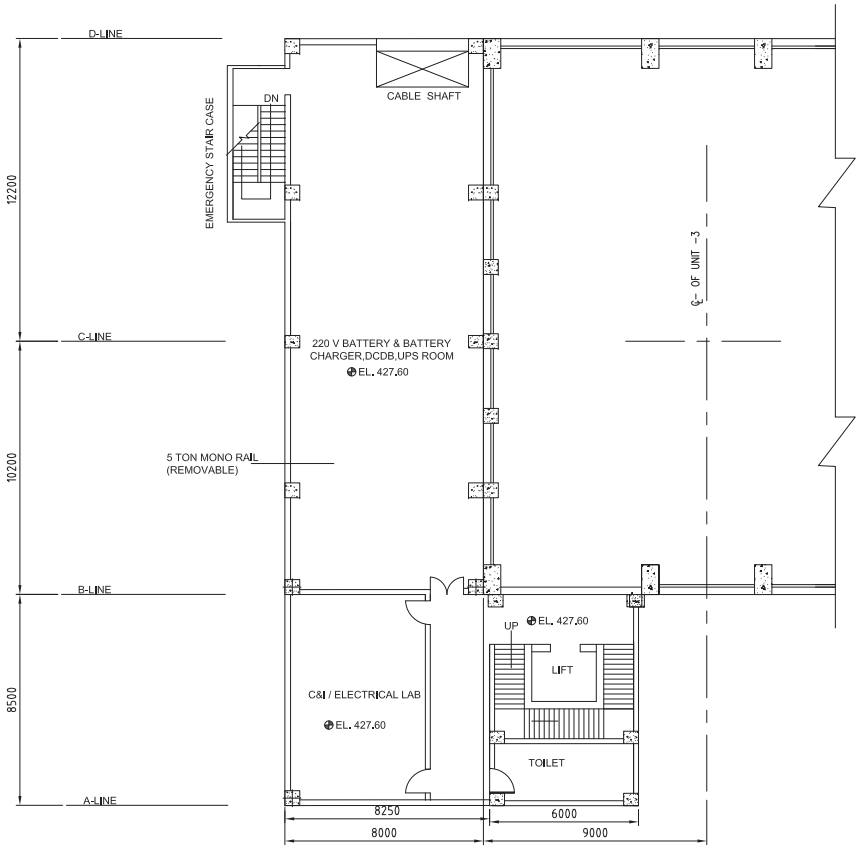
SHEET NO. 01 | NO. OF SHT. 01

A1 SIZE

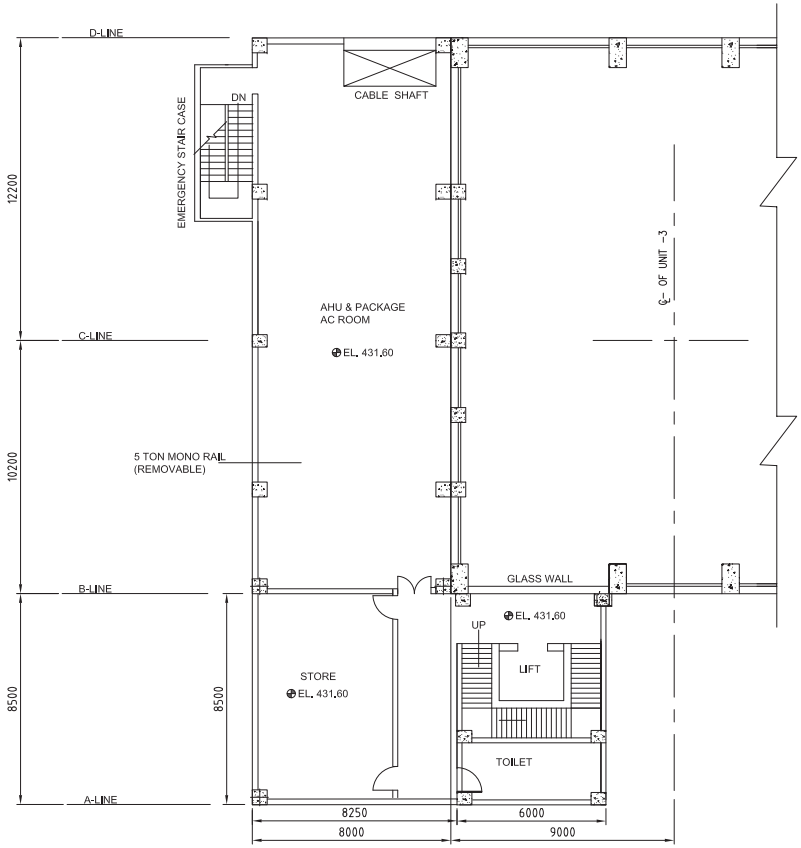
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 12000019857



AUXILARY FLOOR
PLAN AT EL. 427.60



AUXILARY FLOOR
PLAN AT EL. 431.60

REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.
ZONE			ZONE			ZONE		

CUSTOMER : एन टी पी सी NTPC — एन.टी.पी.सी.लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)

PROJECT: RAMMAM STAGE – III HYDROELECTRIC PROJECT [3X40MW]

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

DEPT. CODE		NAME	SIGN	DATE	NO. OF VAR
HPE 415	DRN	T.KHAN		12.06.18	
	CKD	S.SAHU		12.06.18	
	APPD	R.SINGH		12.06.18	

SUB–VENDOR DRG. NO. | PO REF | NO. OF ITEMS

TITLE: LAYOUT OF POWER HOUSE AUX. BLOCK AT EL. 427.60 & 431.60

NTPC DRG. NO. 5602–906–H115–PVM–F–104

SUB–VENDOR NAME | WEIGHT (kg) | SCALE 1:100

BHEL DRG. NO. 12000019858 | REV. 00

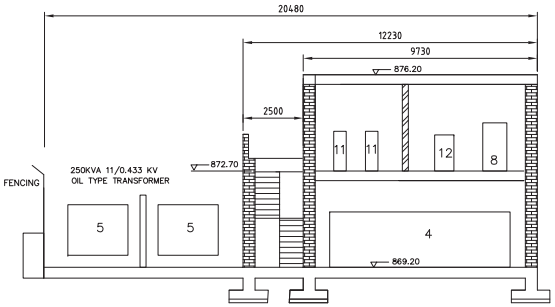
SHEET NO. 01 | NO. OF SHT. 01

A1 SIZE

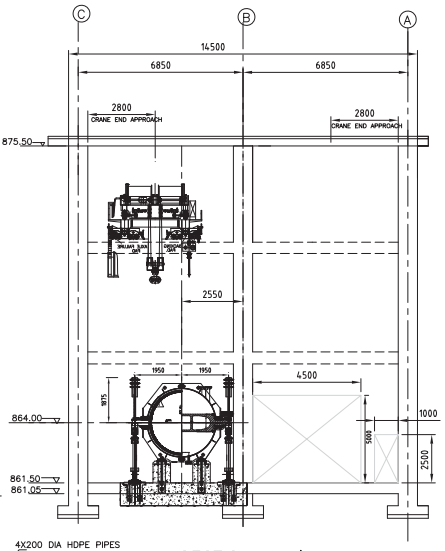
FIRST ANGLE PROJECTION

DRG. NO. 12000019862

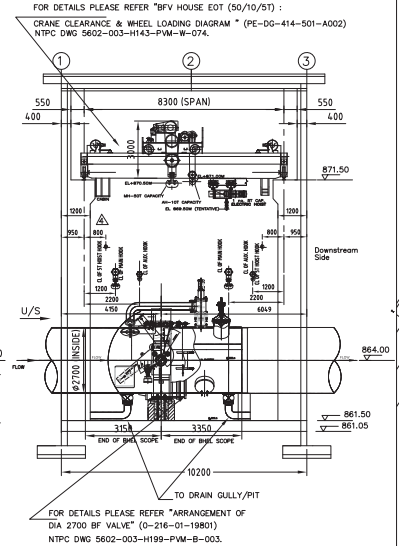
(ALL DIMENSIONS ARE IN mm)



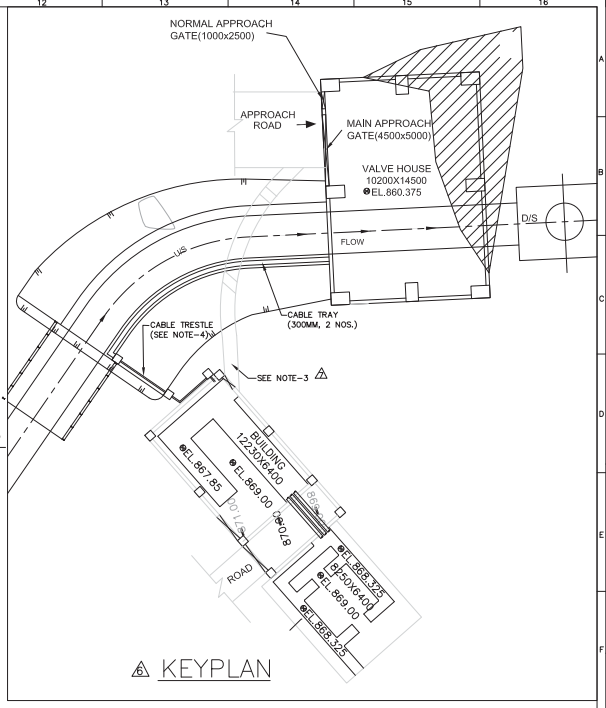
CONTROL ROOM BUILDING (SECTION A1–A1)



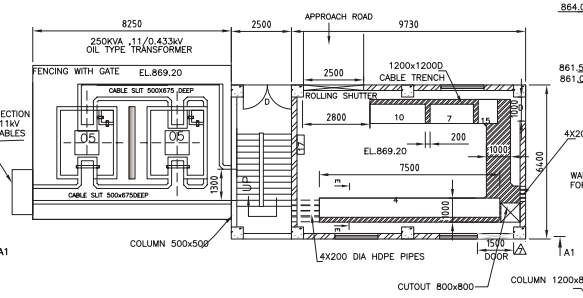
SECTION–AA



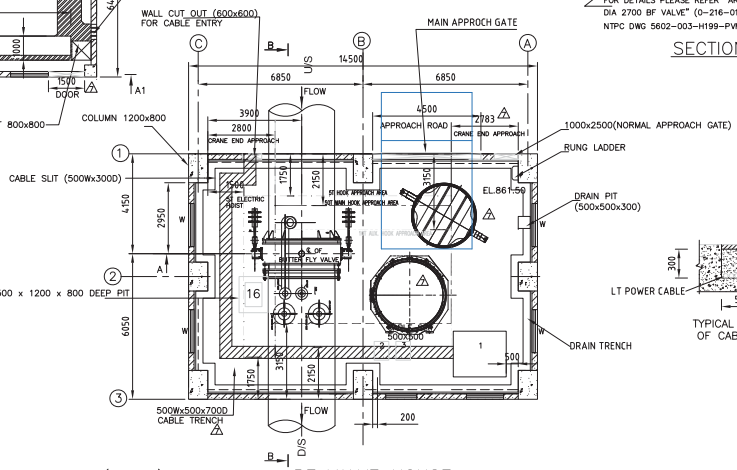
SECTION–BB



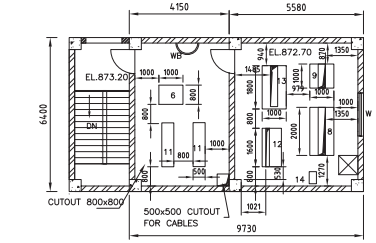
KEYPLAN



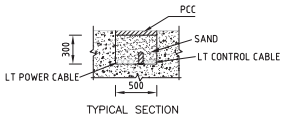
PLAN AT EL. 869.20M



BF VALVE HOUSE



PLAN VIEW AT EL. 872.70M

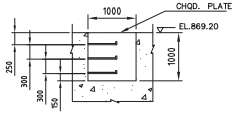


TYPICAL SECTION
OF CABLE SILT

LIST OF EQUIPMENTS:–(TENTATIVE)

SL. No.	DESCRIPTION	QTY	DIMENSION IN mm LENGTH	WIDTH	HEIGHT	WEIGHT	DIV.	LOCATION
1	HYDRAULIC POWER PACK	1	2200	1900	2500	NA	HPE(GOV)	EL.861.50
2	HYDRAULIC CONTROL PANEL (FOR B.F. VALVE)	1	1000	800	2250	NA	HPE(GOV)	EL.861.50
3	ELECTRICAL CONTROL PANEL (FOR B.F. VALVE)	1	1000	800	2300	NA	HPE(GOV)	EL.861.50
4	415V AC DISTRIBUTION BOARD	1	7500	800	2300	2000	HPE	EL.869.20
5	250 KVA OIL TYPE TRANSFORMER	2	1500	1000	1600	NA	HPE	EL.869.20
6	24V DC BATTERY BANK	1	2500	800	1500	NA	EDN	EL.872.70
7	LIGHTING DISTRIBUTION BOARD	1	1800	900	2350	NA	EDN	EL.869.20
8	24V DC BATTERY CHARGER	1	2000	1000	2100	NA	EDN	EL.872.70
9	24V DCDB	1	1000	1000	2100	NA	EDN	EL.872.70
10	BFV LCB	1	2302	800	2415	2250	EDN	EL.869.20
11	220V DC BATTERY BANK	2	1825	500	1650	NA	HPE	EL.872.70
12	220 DC BATTERY CHARGER	1	1600	800	1500	NA	HPE	EL.872.70
13	220V DCDB	1	1800	500	2200	NA	HPE	EL.872.70
14	BHMS	1	500	300	500	NA	–	EL.872.70
15	VENTILATION PANEL	1	1000	800	2300	NA	–	EL.869.20
16	OIL LEAKAGE UNIT (PORTABLE)	1	1000	700	1000	NA	HTE	EL.861.50
17	ULTRASONIC FLOW METER PANEL	1	800	300	800	NA	HPE(GOV)	EL.861.50

NA– NOT AVAILABLE



SECTION–EE

REFERENCE DRAWINGS (BHEL)

SL.NO	DESCRIPTION	NTPC DRAWING NO.
01	BFV HOUSE EOT CRANE CLEARANCE & WHEEL LOADING DIAGRAM	5602-003-H143-PVM-W-074
02	DETAIL OF VALVE HOUSE	5602-305 (R2)-PHO-A-028
03	ARRANGEMENT OF DIA 2700 B.F. VALVE	5602-003-H199-PVM-B-003
04	ARRANGEMENT OF VENTILATION SYSTEM OF VALVE HOUSE	5602-003-H145-PVM-F-038
05	TOOLS, TACKLES & ERECTION DEVICES FOR B.F. VALVE	5602-003-H199-PVM-B-008

NOTE:–

1. CUSTOMER'S DRAWING REFERENCE No. 5602–305(R2)–POH–A–028.
2. CIVIL DETAILS TO BE FINALIZED BY NTPC.
3. FOR EMERGENCY & SAFETY OPERATION OF BF VALVE HOUSE, A PATHWAY (IN ADDITIONAL TO EXISTING MOTORABLE INTERCONNECTING ROAD TO CONTROL BLOCK AND BVC) SHALL BE PROVIDED BETWEEN BUTTERFLY VALVE HOUSE & CONTROL BLOCK BUILDING. (DETAILS TO BE FINALIZED BY NTPC)
4. FOUNDATION FOR CABLE TRESTLE TO BE PROVIDED BETWEEN VALVE HOUSE AND CONTROL BUILDING FOR ROUTING OF CABLES . (NTPC SCOPE)
5. SUITABLE DRAINAGE TRENCH IN BFV HOUSE & DRAINAGE FROM DRAIN PIT MAY BE PLANNED BY NTPC
6. SUITABLE TRENCH/PROTECTION SHALL BE PROVIDED BY NTPC IN THE APPROACH ROAD FOR PREVENTING INGRESS OF RAIN WATER IN THE VALVE HOUSE.
7. SUITABLE BASE FRAME FOR ITEM NO(2) & (3) SHALL BE PROVIDED BY BHEL FOR FACILITATING BOTTOM CABLE ENTRY.

REV.	DATE	ALTERED T KHAN / CHECKED S SAHU / APPD. R SINGH	ZONE	DRAWING REVISED AS PER NTPC COMMNTS.
06	01.10.19			
05	27.08.19			
04	08.12.17			
03	17.10.17			
02	18.09.17			
01	06.12.16			
07	25.10.19			

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CUSTOMER : NTPC — एन.टी.पी.सी.लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)

PROJECT: RAMMAM STAGE – III HYDROELECTRIC PROJECT [3X40MW]

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

DEPT. CODE		NAME	SIGN	DATE	NO. OF VAR
HPE 415	DRN	T.KHAN		21.04.16	
	CKD	S.SAHU		21.04.16	
	APPD	R.S		21.04.16	

SUB–VENDOR DRG. NO. | PO REF | NO. OF ITEMS

TITLE: LAYOUT AND CROSS SECTION OF B.F. VALVE HOUSE

NTPC DRG. NO. 5602–906–H115–PVM–F–006

SUB–VENDOR NAME | WEIGHT (kg) | SCALE 1:75

BHEL DRG. NO. 12000019862 | REV. 07

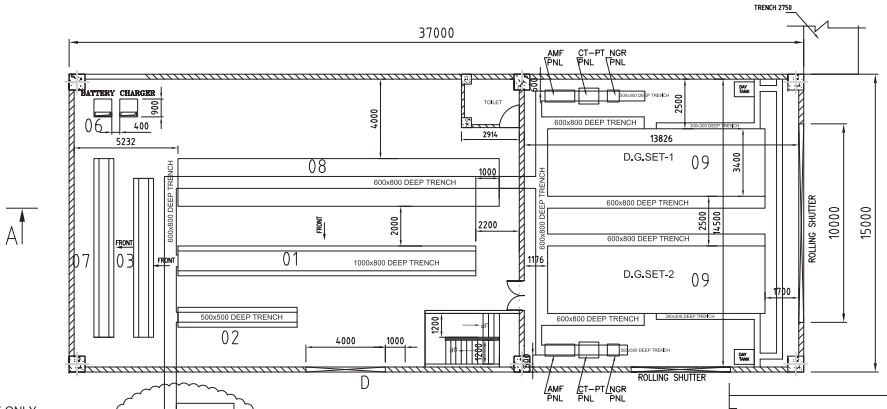
SHEET NO. 01 | NO. OF SHT. 01

A1 SIZE

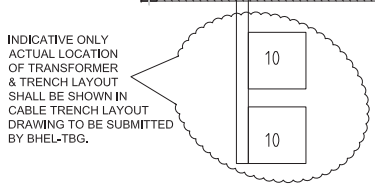
FIRST ANGLE PROJECTION

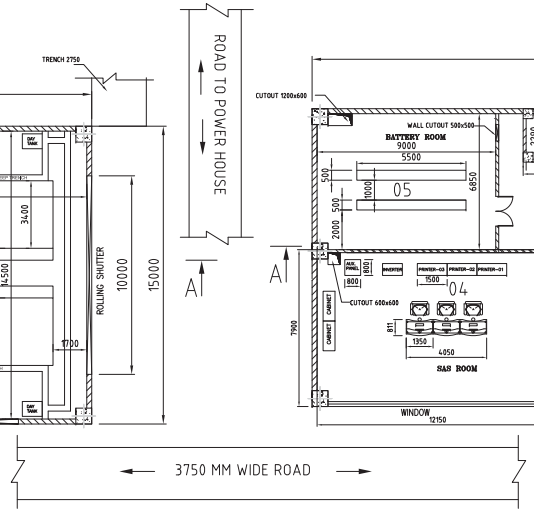
DRG. NO 12000019865

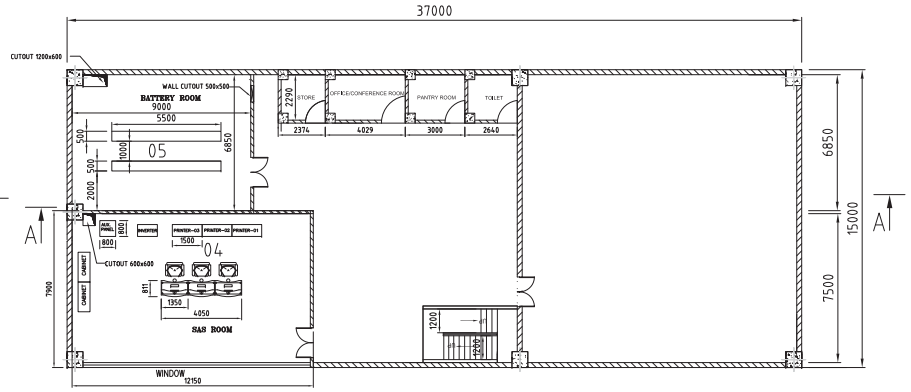
(ALL DIMENSIONS ARE IN mm)



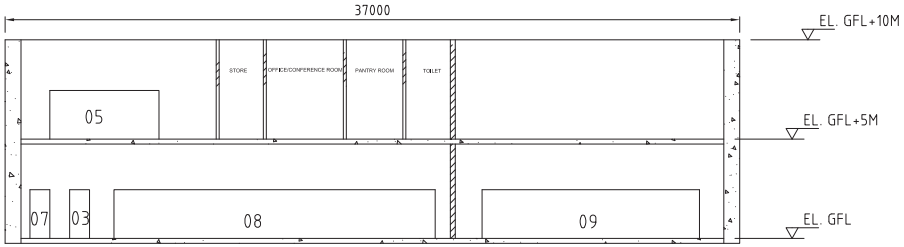
GROUND FLOOR PLAN







GFL+5M



ELEVATION VIEW

NOTES:-

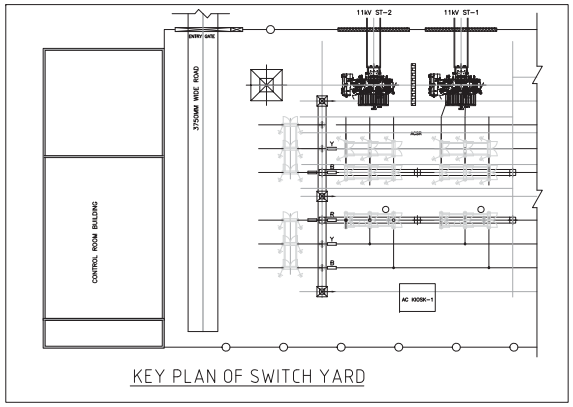
1. SIZES AND LOCATIONS OF COLUMN/BEAM/SLAB/STAIRS/TOIL ETS/ROOMS ARE INDICATIVE ONLY. FOR DETAIL REFER CIVIL CONSTRUCTION DRAWINGS.
2. ALL DIMENSION ARE IN MILLIMETERS AND ELEVATION ARE IN METERS.
3. EQUIPMENT SHOWN AND LISTED ARE TENTATIVE AND SHALL BE FINALISED AFTER GETTING INPUTS FROM CONCERN DIVISION.
4. FOR FOUNDATION FIXING DETAILS GENERAL ARRANGEMENT DRAWINGS OF RESPECTIVE EQUIPMENT SHALL BE REFERRED
5. CABLE TRENCH COVER AND SUPPORT CHANNEL SHALL BE IN NTPC SCOPE.
6. MINOR CHANGES IN EQUIPMENT LOCATIONS MAY BE MADE TO SUIT SITE CONDITION.

* THIS DRAWING IS PRELIMINARY FOR FINALIZING THE OVER ALL SIZE OF SWITCHYARD CONTROL BUILDING.

* ELEVATIONS TO BE DECIDED BY NTPC.

LIST OF EQUIPMENTS

ITEM NO.	DESCRIPTION	DIMENSION W x D x H	QTY NO.	SCOPE OF SUPPLY	REF.DRG. NO.
01	LT SWITCHGEAR PANEL	15000x1500x2450	01	BHEL-TBG	YET TO BE SUBMITTED
02	220V DCDB	9000x1000x2450	01	BHEL-TBG	YET TO BE SUBMITTED
03	MLDB	8000x1000x2450	01	BHEL-TBG	YET TO BE SUBMITTED
04	COMPLETE SAS EQUIPMENT'S ROOM	7500x8500x2450	01	BHEL-TBG	5602-003-H230-PVE-Y-253
05	48 V BATTERY BANK	5500x500x2450	02	BHEL-TBG	YET TO BE SUBMITTED
06	48V BATTERY CHARGER	900x900x2450	02	BHEL-TBG	YET TO BE SUBMITTED
07	48 V DCDB	6000x1000x2450	01	BHEL-TBG	YET TO BE SUBMITTED
08	11 KV SWITCHGEAR PANEL	16180x2403x2450	01	BPL-SWE	YET TO BE SUBMITTED
09	DG SET 750 KVA	-	02	BPL-CEE	YET TO BE SUBMITTED
10	250 KVA TRANSFORMER	2850x2900x2550	02	BPL-HPE	YET TO BE SUBMITTED



KEY PLAN OF SWITCH YARD

REV.	DATE	ALTERED / CHECKED / APPD.
01	04.01.20	ALTERED T.KHAN; CHECKED S.SAHU; APPD. R.SINGH

DRAWING REVISED AS PER NTPC COMMENTS.

CUSTOMER : NTPC — एन.टी.पी.सी.लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)

PROJECT: RAMMAM STAGE – III HYDROELECTRIC PROJECT [3X40MW]

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

DEPT. CODE		NAME	SIGN	DATE
HPE 415	DRN	T.KHAN		16.12.19
	CKD	S.SAHU		16.12.19
	APPD	R.SINGH		16.12.19

SUB–VENDOR DRG. NO. | PO REF | NO. OF ITEMS | NO. OF VAR

TITLE: LAYOUT OF AUXILIARY BUILDING (AT 132KV SWITCHYARD)

NTPC DRG. NO. 5602-906-H115-PVM-F-107

SUB–VENDOR NAME | WEIGHT (kg) | SCALE 1:125

BHEL DRG. NO. 12000019865 | REV. 01

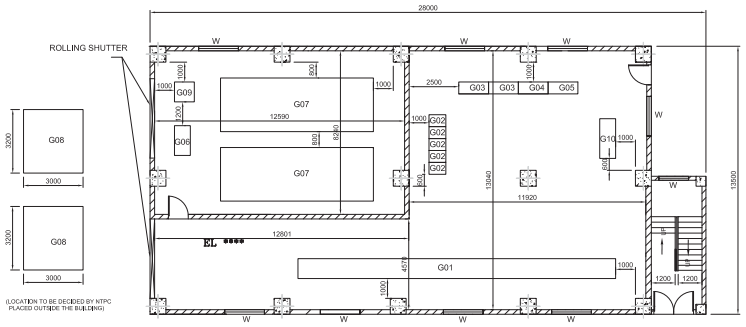
SHEET NO. 01 | NO. OF SHT. 01

A1 SIZE

FIRST ANGLE PROJECTION

DRG. NO. 1200019859

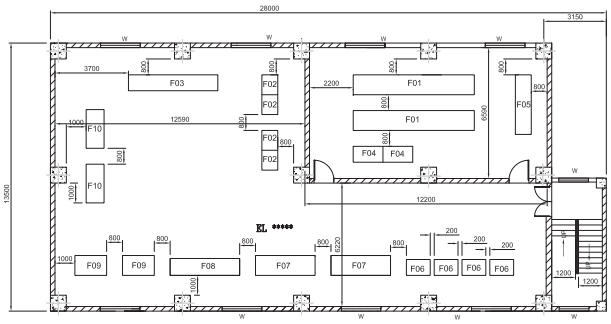
(ALL DIMENSIONS ARE IN mm)



GROUND FLOOR PLAN
AT EL.-"X"

EQUIPMENT'S PLACED AT EL.-"X"(GROUND FLOOR) (TENTATIVE)

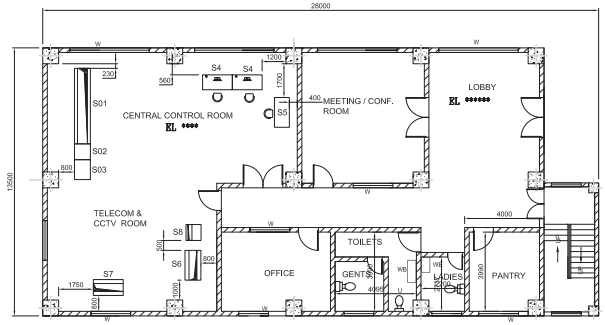
ITEM NO.	DESCRIPTION	DIMENSION W x D x H	QTY NO.	WEIGHT (KG)	SCOPE OF SUPPLY
G01	LT BOARD	16000x1000x2400	01		BHEL-HPE
G02	SPILLWAY BOARD	850x800x2200	05		BHEL-HPE
G03	INTAKE BOARD	1500x300x2200	02		BHEL-HPE
G04	SILT FLUSHING BOARD	1500x300x2200	01		BHEL-HPE
G05	DESILTING BOARD	1500x300x2200	01		BHEL-HPE
G06	DG SET LOCAL AMF PANEL	1500x800x2200	01		BHEL-CEE
G07	FIXED DG SET (335KVA)	7500x2500x2300	02		BHEL-CEE
G08	OIL FILLED TRANSFORMER (1250KVA)	3200x3000x3000	02		BHEL-HPE
G09	DG SET DAY TANK	1000x1000x1000	01		BHEL-CEE
G10	MCC FOR VENTILATION/AC	2000x800x2100	01		BHEL-PEM
G11					
G12					



FIRST FLOOR PLAN
AT EL.-"X+4.5M"

EQUIPMENT'S PLACED AT EL.-"X+4.5M"(FIRST FLOOR) (TENTATIVE)

ITEM NO.	DESCRIPTION	DIMENSION W x D x H	QTY NO.	WEIGHT (KG)	SCOPE OF SUPPLY
F01	220V DC BATTERY BANK	6100x1000x1500	02		BHEL-HPE
F02	220V DC BATTERY CHARGER	1000x800x2000	04		BHEL-HPE
F03	220V DCDB	4500x800x2000	01		BHEL-HPE
F04	24V BATTERY BANK	1500x800x1500	02		EDN
F05	UPS BATTERY BANK	3000x800x1500	01		EDN
F06	24V BATTERY CHARGER	1200x800x2000	04		EDN
F07	24V DCDB	3000x1000x2300	02		EDN
F08	UPS AND AUX. PANEL	3500x860x2100	01		EDN
F09	UPS ACDB	1600x1000x2000	02		EDN
F10	ELDB	1950x900x2200	02		BHEL-PEM
F11					
F12					
F13					



SECOND FLOOR PLAN
AT EL.-"X+9M"

EQUIPMENT'S PLACED AT EL.-"X+9M"(SECOND FLOOR) (TENTATIVE)

ITEM NO.	DESCRIPTION	DIMENSION W x D x H	QTY NO.	WEIGHT (KG)	SCOPE OF SUPPLY
S01	SPILLWAY, INTAKE, FLUSHING GATES LOCAL CONTROL PANEL	3804x800x2415	01		EDN
S02	LOCAL HMI PANEL	800x800x2415	01		EDN
S03	ALARM ANNUNCIATION PANEL	1000x800x2415	01		EDN
S04	PC TABLE	1500x750x735	02		EDN
S05	PRINTER TABLE	800x600x740	01		EDN
S06	WATER LEVEL MEASUREMENT PANEL	1500x800x1500	01		BHOPAL
S07	SDH	1500x800x1500	01		BHOPAL
S08	CCTV PANEL	800x760x2100	01		BHEL HPE
S09					

ELEVATION OF BARRAGE CONTROL BUILDING (X) TO BE DECIDED BY NTPC

REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.
ZONE			ZONE			ZONE		

CUSTOMER: एन टी पी सी NTPC — एन.टी.पी.सी.लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)

PROJECT: RAMMAM STAGE – III HYDROELECTRIC PROJECT [3X40MW]

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

DEPT. CODE		NAME	SIGN	DATE	NO. OF VAR
HPE 415	DRN	T.KHAN		10.07.18	
	CKD	S.SAHU		10.07.18	
	APPD	R.SINGH		10.07.18	

SUB-VENDOR DRG. NO. | PO REF | NO. OF ITEMS

TITLE: LAYOUT OF EQUIPMENTS IN BARRAGE CONTROL BUILDING

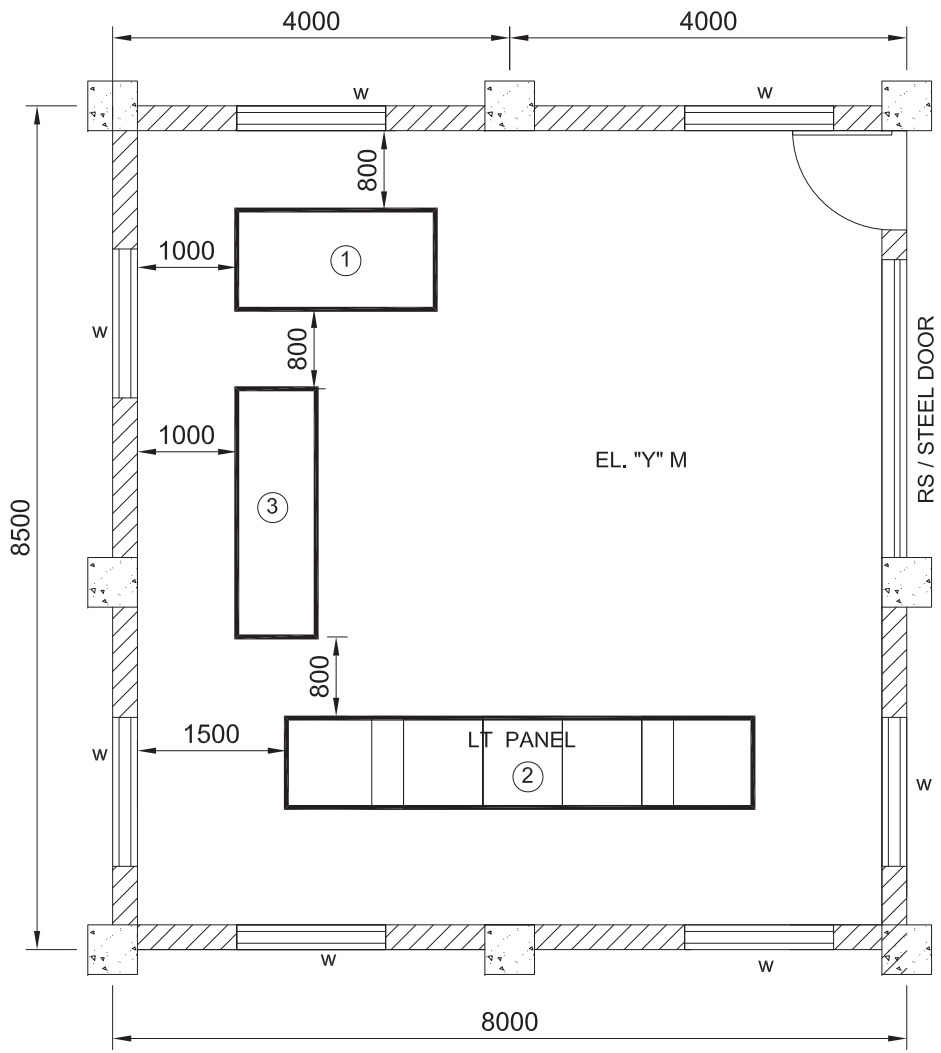
NTPC DRG. NO. 5602-906-H115-PVM-F-101

SUB-VENDOR NAME | WEIGHT (kg) | SCALE 1:125

BHEL DRG. NO. 1200019859 | REV. 00

SHEET NO. 01 | NO. OF SHT. 01

A1 SIZE



PLAN AT EL.–"Y"

ELEVATION OF SURGE SHAFT AREA (Y) TO BE DECIDED BY NTPC

EQUIPMENT'S PLACED AT EL.–"Y" (TENTATIVE)

ITEM NO.	DESCRIPTION	DIMENSION W x D x H	QTY NO.	WEIGHT (KG)	SCOPE OF SUPPLY
1	MLDB-1	2000 x 1000 x 1800	1		BHEL
2	LT SWITCHGEAR PANEL	4700x 1210x 2530	1		BHEL
3	SURGE SHAFT SUPPLY PANEL (HM PACKAGE)	2500 x 800 x 2000	1		NTPC

NOTES:-

1. SIZES AND LOCATIONS OF COLUMN/BEAM/SLAB/STAIRS/TOILETS/ROOMS ARE INDICATIVE ONLY. FOR DETAIL REFER CIVIL CONSTRUCTION DRAWINGS.
2. ALL DIMENSION ARE IN MILLIMETERS AND ELEVATION ARE IN METERS.
3. EQUIPMENT SHOWN AND LISTED ARE TENTATIVE AND SHALL BE FINALISED AFTER GETTING INPUTS FROM CONCERN DIVISION.
4. FOR FOUNDATION FIXING DETAILS GENERAL ARRANGEMENT DRAWINGS OF RESPECTIVE EQUIPMENT SHALL BE REFERRED
5. CABLE TRENCH COVER AND SUPPORT CHANNEL SHALL BE IN NTPC SCOPE.
6. MINOR CHANGES IN EQUIPMENT LOCATIONS MAY BE MADE TO SUIT SITE CONDITION.
7. CLEAR HEIGHT OF THE ROOM FROM BOTTOM OF BEAM SHALL BE 4500mm.

REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.
ZONE			ZONE			ZONE		

CUSTOMER: एनटीपीसी NTPC — एन.टी.पी.सी.लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)

PROJECT: RAMMAM STAGE – III HYDROELECTRIC PROJECT [3X40MW]

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

DEPT. CODE		NAME	SIGN	DATE	NO. OF VAR
HPE 415	DRN	T.KHAN		12.07.18	
	CKD	S.SAHU		12.07.18	
	APPD	R.SINGH		12.07.18	

SUB–VENDOR DRG. NO. | PO REF | NO. OF ITEMS

TITLE: EQUIPMENT LAYOUT FOR SURGE SHAFT AREA

NTPC DRG. NO. 5602-906-H115-PVM-F-106

SUB–VENDOR NAME | WEIGHT (kg) | SCALE 1:25 | BHEL DRG. NO. 3200019864 | REV. 00

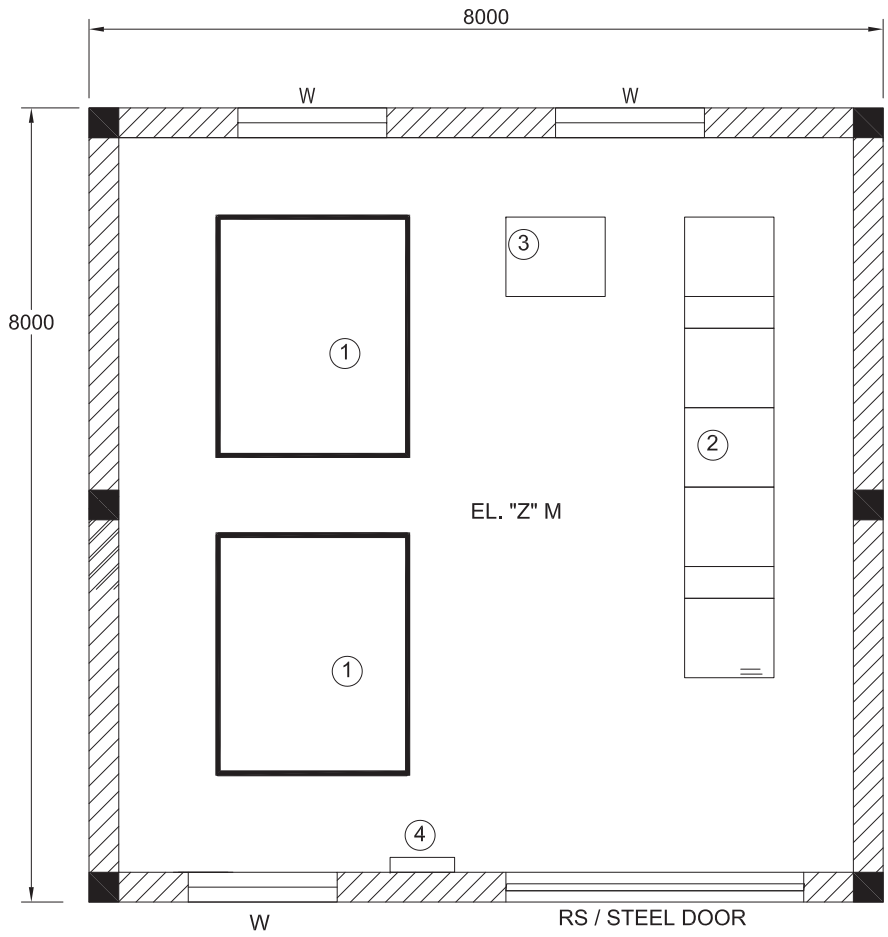
SHEET NO. 01 | NO. OF SHT. 01

A1 SIZE

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO 3200019863



PLAN AT EL.–"Z"

ELEVATION OF TRT PORTAL (Z) TO BE DECIDED BY NTPC

EQUIPMENT'S PLACED AT EL.–"Z" (TENTATIVE)

ITEM NO.	DESCRIPTION	DIMENSION W x D x H	QTY NO.	WEIGHT (KG)	SCOPE OF SUPPLY
1	250KVA TRANSFORMER	2400x 1910x 2340	2		BHEL
2	LT SWITCHGEAR	4700x 1210 x 2300	1		BHEL
3	MLDB	1000x 800x 1500	1		BHEL
4	NORMAL LIGHTING BOARD	650x 150x 850	1		BHEL

NOTES:-

1. SIZES AND LOCATIONS OF COLUMN/BEAM/SLAB/STAIRS/TOILETS/ROOMS ARE INDICATIVE ONLY. FOR DETAIL REFER CIVIL CONSTRUCTION DRAWINGS.
2. ALL DIMENSION ARE IN MILLIMETERS AND ELEVATION ARE IN METERS.
3. EQUIPMENT SHOWN AND LISTED ARE TENTATIVE AND SHALL BE FINALISED AFTER GETTING INPUTS FROM CONCERN DIVISION.
4. FOR FOUNDATION FIXING DETAILS GENERAL ARRANGEMENT DRAWINGS OF RESPECTIVE EQUIPMENT SHALL BE REFERRED
5. CABLE TRENCH COVER AND SUPPORT CHANNEL SHALL BE IN NTPC SCOPE.
6. MINOR CHANGES IN EQUIPMENT LOCATIONS MAY BE MADE TO SUIT SITE CONDITION.
7. CLEAR HEIGHT OF THE ROOM FROM BOTTOM OF BEAM SHALL BE 4500mm.

REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.
ZONE			ZONE			ZONE		

CUSTOMER: एनटीपीसी NTPC — एन.टी.पी.सी.लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)

PROJECT: RAMMAM STAGE – III HYDROELECTRIC PROJECT [3X40MW]

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

DEPT. CODE		NAME	SIGN	DATE	NO. OF VAR
HPE 415	DRN	T.KHAN		12.07.18	
	CKD	S.SAHU		12.07.18	
	APPD	R.SINGH		12.07.18	

SUB–VENDOR DRG. NO. | PO REF | NO. OF ITEMS

TITLE: EQUIPMENT LAYOUT IN TRT PORTAL

NTPC DRG. NO. 5602-906-H115-PVM-F-105

SUB–VENDOR NAME | WEIGHT (kg) | SCALE 1:25

BHEL DRG. NO. 3200019863 | REV. 00

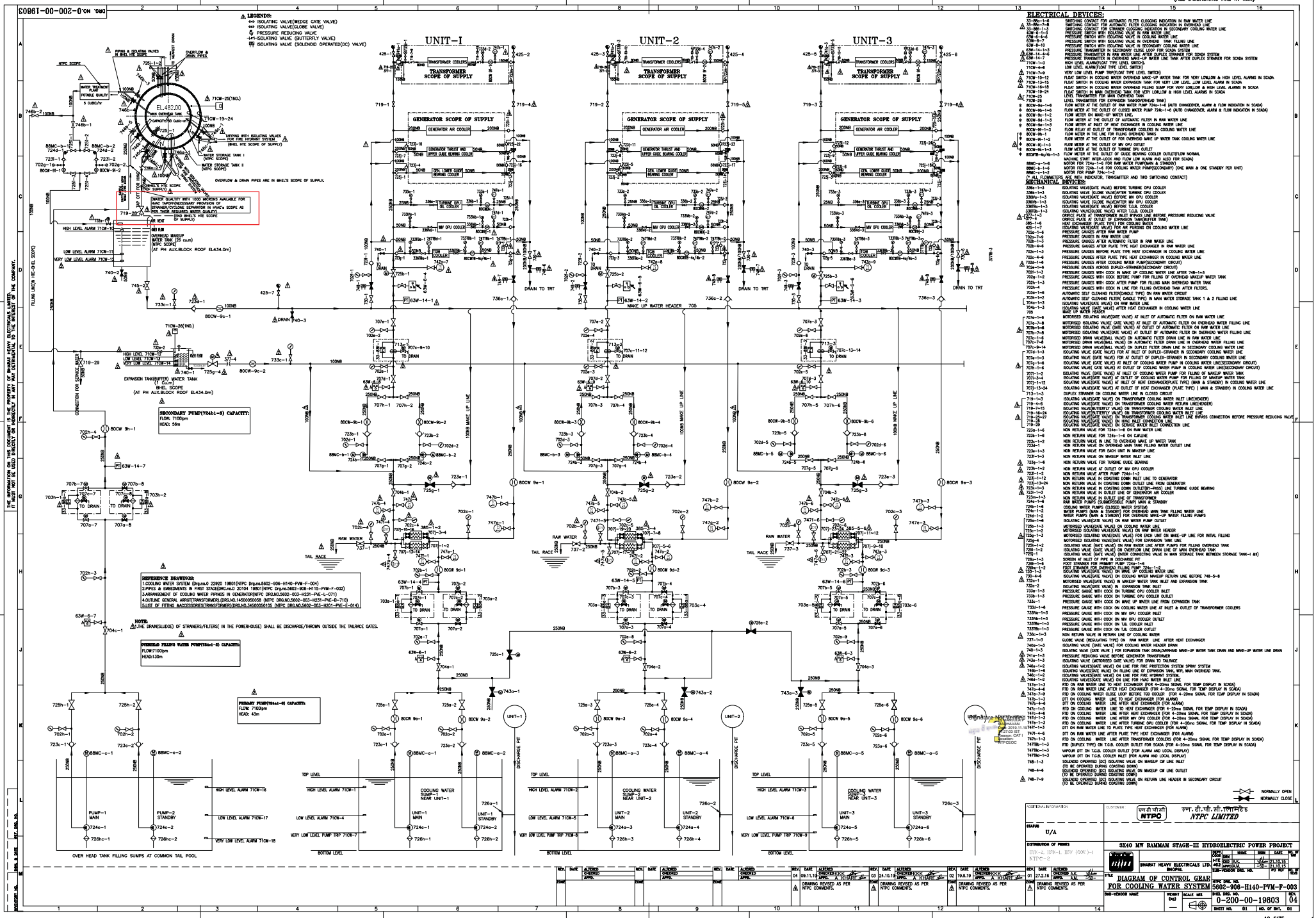
SHEET NO. 01 | NO. OF SHT. 01

A1 SIZE

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO.0-200-00-19803



REV.	DATE	ALTERED CHECKED APPR.	REV.	DATE	ALTERED CHECKED APPR.	REV.	DATE	ALTERED CHECKED APPR.	REV.	DATE	ALTERED CHECKED APPR.	REV.	DATE	ALTERED CHECKED APPR.	REV.	DATE	ALTERED CHECKED APPR.
04	09.11.16	CHECKED KKK APPR. A. KHARE							02	19.8.19	CHECKED KKK APPR. A. KHARE				01	27.2.16	CHECKED A.K. APPR. A.K.
DRAWING REVISED AS PER NTPC COMMENTS.									DRAWING REVISED AS PER NTPC COMMENTS.						DRAWING REVISED AS PER NTPC COMMENTS.		

ADDITIONAL INFORMATION

CUSTOMER: एनटीपीसी NTPC — एन.टी.पी.सी.लिमिटेड NTPC LIMITED

STATUS: U/A

DISTRIBUTION OF PRINTS: (ITP-2, ITP-1 (CON.)-1 NTPC-2

5X40 MW RAMMAM STAGE-III HYDROELECTRIC POWER PROJECT

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE
DRN			
CHD	J.K.		21.10.15
APPROVAL			21.10.15

SUB-VENDOR DRG. NO. | PO REF. | REV. OF ISSUE

TITLE: DIAGRAM OF CONTROL GEAR FOR COOLING WATER SYSTEM

NTPC DRG. NO. 5602-906-H140-PVM-F-003

SUB-VENDOR NAME | WEIGHT (kg) | SCALE NTS

BHEL DRG. NO. 0-200-00-19803 | REV. 04

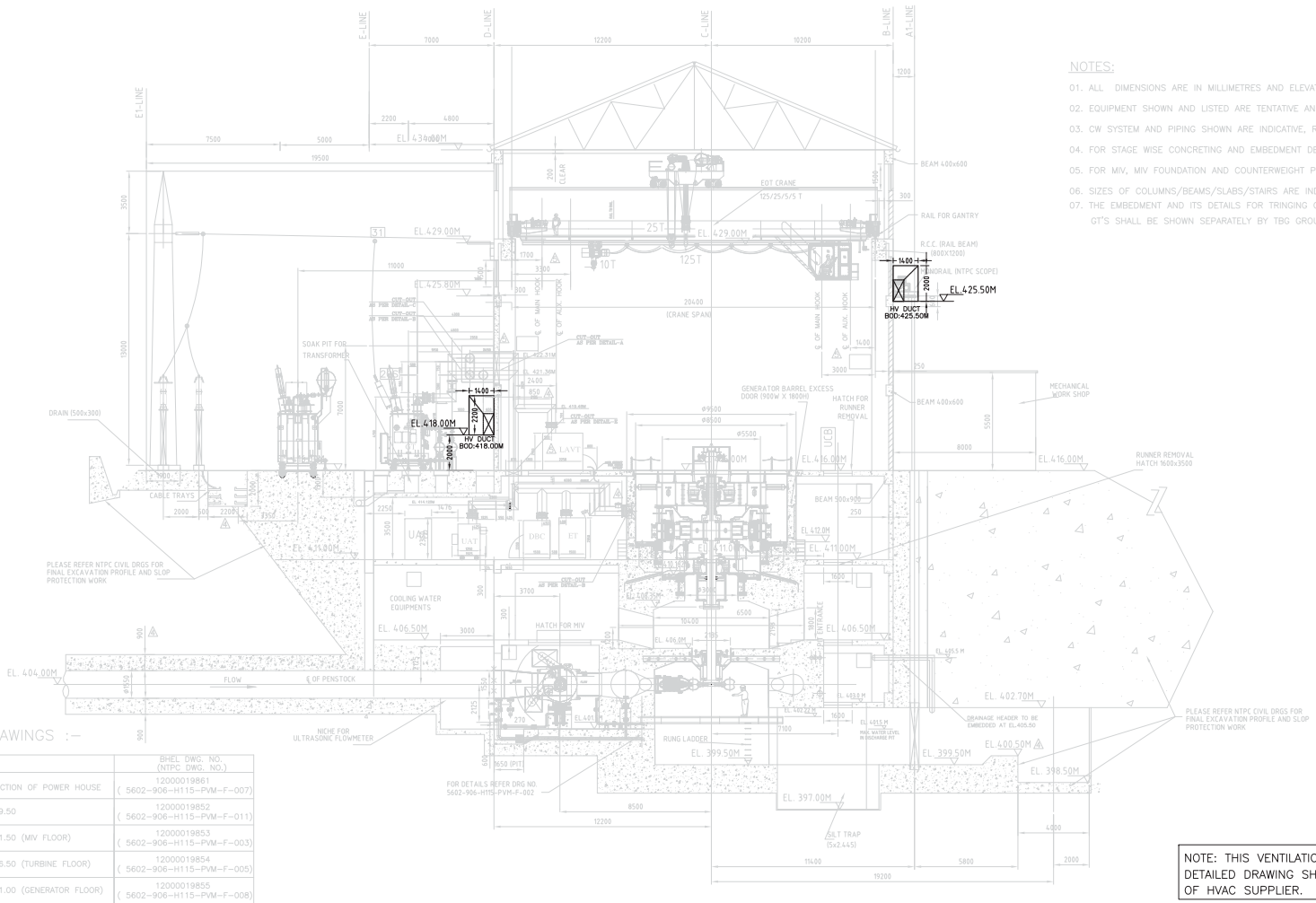
SHEET NO. 01 | NO. OF SHT. 01

A0 SIZE

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 12000019851



CROSS SECTION OF POWER HOUSE THROUGH WATER CONDUCTOR SYSTEM (UNIT-I)

NOTES:

01. ALL DIMENSIONS ARE IN MILLIMETRES AND ELEVATIONS ARE IN METRES.
02. EQUIPMENT SHOWN AND LISTED ARE TENTATIVE AND SHALL BE FINALISED INCLUDING SIZES DURING DETAILED DESIGN.
03. CW SYSTEM AND PIPING SHOWN ARE INDICATIVE, REFER COOLING WATER AND HVAC DRAWINGS FOR COMPLETE DETAILS.
04. FOR STAGE WISE CONCRETING AND EMBEDMENT DETAILS REFER TURBINE DRAWINGS OF BHEL.
05. FOR MIV, MIV FOUNDATION AND COUNTERWEIGHT PIT DETAILS REFER TURBINE DRAWINGS OF BHEL.
06. SIZES OF COLUMNS/BEAMS/SLABS/STAIRS ARE INDICATIVE ONLY. FOR DETAILS REFER CIVIL CONSTRUCTION DRAWINGS.
07. THE EMBEDMENT AND ITS DETAILS FOR TRINGING OF THE ACSR CONDUCTOR FOR CONNECTING TAP OFF TO LA AND GT'S SHALL BE SHOWN SEPARATELY BY TBG GROUP.

NOTE: THIS VENTILATION DUCT LAYOUT IS INDICATIVE AND DETAILED DRAWING SHALL BE PREPARED AFTER FINALIZATION OF HVAC SUPPLIER.

LINKED DRAWINGS :-

SL. No.	DESCRIPTION	BHEL DWG. NO. (NTPC DWG. NO.)
01	LONGITUDINAL SECTION OF POWER HOUSE	12000019861 (5602-906-H115-PVM-F-007)
02	PLAN AT EL. 399.50	12000019852 (5602-906-H115-PVM-F-011)
03	PLAN AT EL. 401.50 (MIV FLOOR)	12000019853 (5602-906-H115-PVM-F-003)
04	PLAN AT EL. 406.50 (TURBINE FLOOR)	12000019854 (5602-906-H115-PVM-F-005)
05	PLAN AT EL. 411.00 (GENERATOR FLOOR)	12000019855 (5602-906-H115-PVM-F-008)
06	PLAN AT EL. 416.00(MACHINE HALL FLOOR)	12000019856 (5602-906-H115-PVM-F-009)
07	LAYOUT OF POWER HOUSE AUX. BLOCK	12000019158 (5602-906-H115-PVM-F-104)
08	FIRST STAGE PIPES AND EMBEDMENTS DRG.	02010419801 (5602-906-H115-PVM-F-002)
09	CRANE CLEARANCE DIAGRAM	PE-DG-414-501-A001 (5602-003-H143-PVM-W-039)
10	GENERATOR FOUNDATION	02500087601 (5602-003-H231-PVE-V-084)
11	EMBEDMENTS & PIPES IN SECOND STAGE	02020819801 (5602-906-H115-PVM-F-004)
12	ARRGT. OF DEFLECTOR SERVOMOTOR	02160319801 5602-906-H115-PVM-B-011
13	GUIDE BEARING ARRANGEMENT	02060119801 (5602-906-H115-PVM-B-017)
14	SECTIONAL ARRANGEMENT	02500087617 5602-003-H231-PVE-B-014
15	LAYOUT OF IPB (MAIN, DELTA & TAP-OFF-RUN) FOR UNIT-A,2&3	0169141001 SHT 01

REV.	DATE		
04	06.03.19	ALTERED	TK
		CHECKED	SS
		APPD.	RS
ZONE	REVISED AS PER NTPC COMMENTS		

REV.	DATE		
03	02.08.16	ALTERED	TK
		CHECKED	SS
		APPD.	RS
ZONE	REVISED AS PER NTPC COMMENTS & MOM DATED 02.08.16 TO 04.08.16		

REV.	DATE		
02	11.07.16	ALTERED	TK
		CHECKED	SS
		APPD.	RS
ZONE	REVISED AS PER NTPC COMMENTS		

REV.	DATE		
01	28.02.16	ALTERED	TK
		CHECKED	SS
		APPD.	RS
ZONE	REVISED AS PER NTPC COMMENTS		

CUSTOMER: एन टी पी सी NTPC — एन.टी.पी.सी.लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)

PROJECT: RAMMAM STAGE – III HYDROELECTRIC PROJECT [3X40MW]

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

DEPT. CODE		NAME	SIGN	DATE	NO. OF VAR
HPE 415	DRN	T.KHAN		20.09.15	
	CKD	S.SAHU		20.09.15	
	APPD	R.S		20.09.15	
SUB-VENDOR DRG. NO.				PO REF	NO. OF ITEMS

TITLE: STATION LAYOUT – ELEVATION

NTPC DRG. NO. 5602-906-H115-PVM-F-001

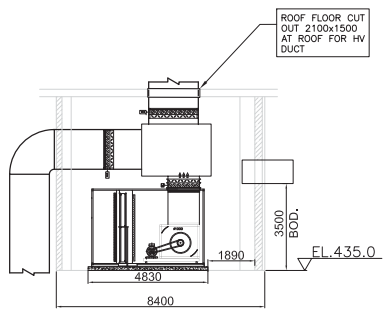
SUB-VENDOR NAME | WEIGHT (kg) | SCALE 1:125

BHEL DRG. NO. 12000019851 | REV. 04

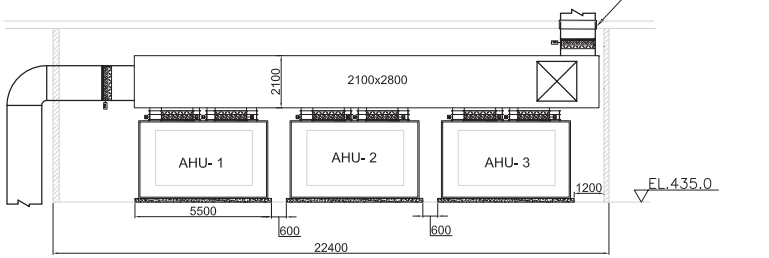
SHEET NO. 01 | NO. OF SHT. 01

A1 SIZE

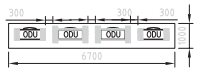
AHU ROOM EQUIPMENT PLAN AND ELEVATION (TENTATIVE)



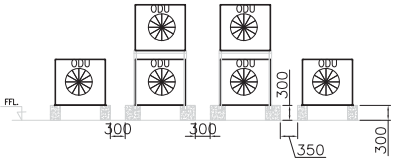
SECTION B-B



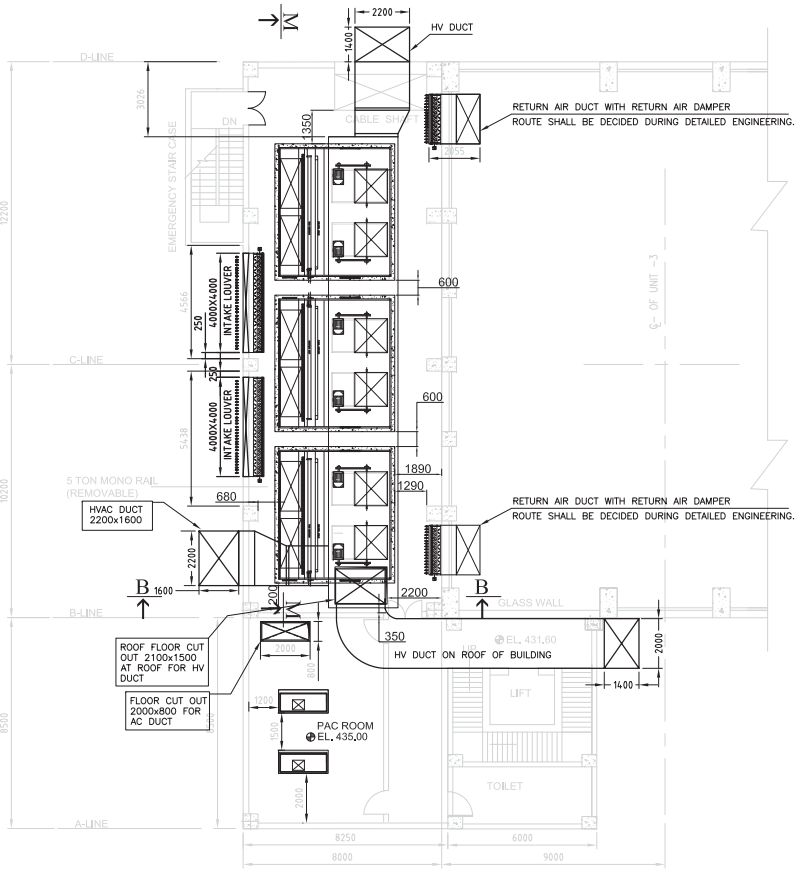
SECTION M-M



PAC OUTDOOR UNIT PLAN (TENTATIVE)



PAC OUTDOOR UNIT ELEVATION (TENTATIVE VIEW)



AUXILARY FLOOR PLAN AT EL. 435.00

NOTE:

1: THIS VENTILATION DUCT LAYOUT IS INDICATIVE AND DETAILED DRAWING SHALL BE PREPARED AFTER FINALIZATION OF HVAC SUPPLIER.

2: SPACE REQUIREMENT FOR HVAC EQUIPMENT ARE TENTATIVE AND FINAL LAYOUT SHALL BE PREPARED AFTER FINALIZATION OF HVAC SUPPLIER.

3: OUTDOOR UNIT FOR PAC FOR CONTROL ROOM (EL 435.00) SHALL BE PLACED ON THE ROOF OF CONTROL ROOM/PAC ROOM.

4: OUTDOOR UNIT FOR PAC FOR CONTROL PROTECTION AND CONFERENCE ROOM (EL 420.25) SHALL BE PLACED AT EL. 416 OUTSIDE THE POWER HOUSE.

5: LOCATION OF EQUIPMENT MAY CHANGED DURING DETAILED ENGINEERING.

REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.
ZONE			ZONE			ZONE		

CUSTOMER: एन टी पी सी NTPC — एन.टी.पी.सी.लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)

PROJECT: RAMMAM STAGE – III HYDROELECTRIC PROJECT [3X40MW]

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

DEPT. CODE		NAME	SIGN	DATE	NO. OF VAR
HPE 415	DRN	T.KHAN		12.06.18	
	CKD	S.SAHU		12.06.18	
	APPD	R.SINGH		12.06.18	
SUB-VENDOR DRG. NO.				PO REF	NO. OF ITEMS

TITLE: LAYOUT OF POWER HOUSE AUX. BLOCK AHU ROOM AND PAC ROOM (EL 435.0)

NTPC DRG. NO. 5602-906-H115-PVM-F-104

SUB-VENDOR NAME | WEIGHT (kg) | SCALE 1:100 | BHEL DRG. NO. 12000019858 | REV. 00

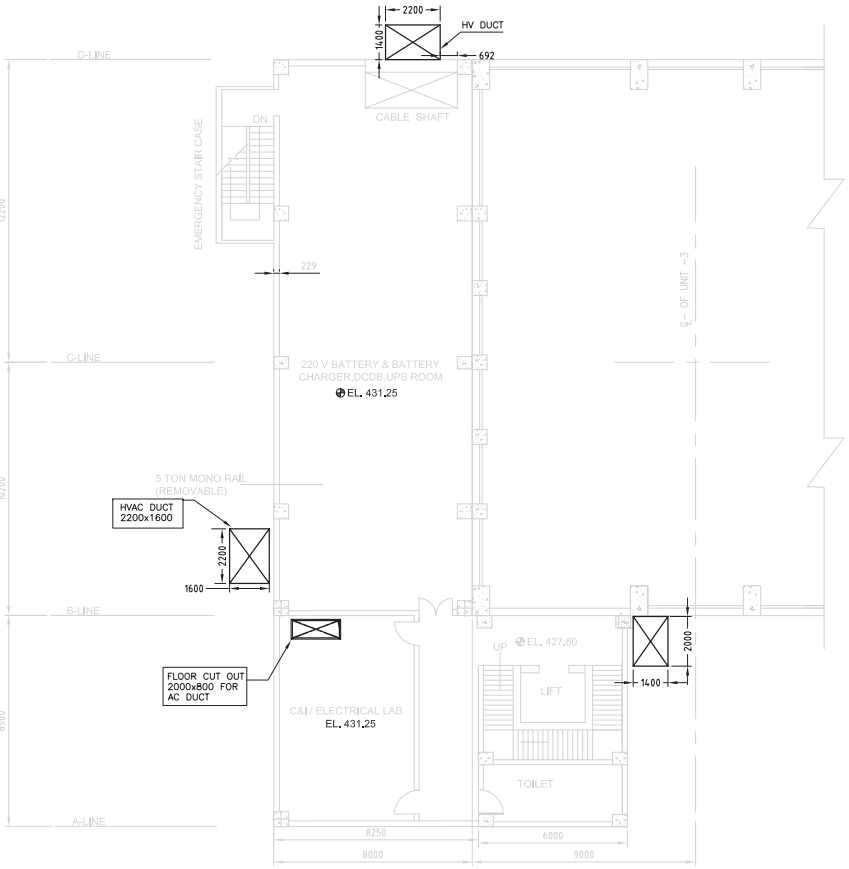
SHEET NO. 01 | NO. OF SHT. 01

A1 SIZE

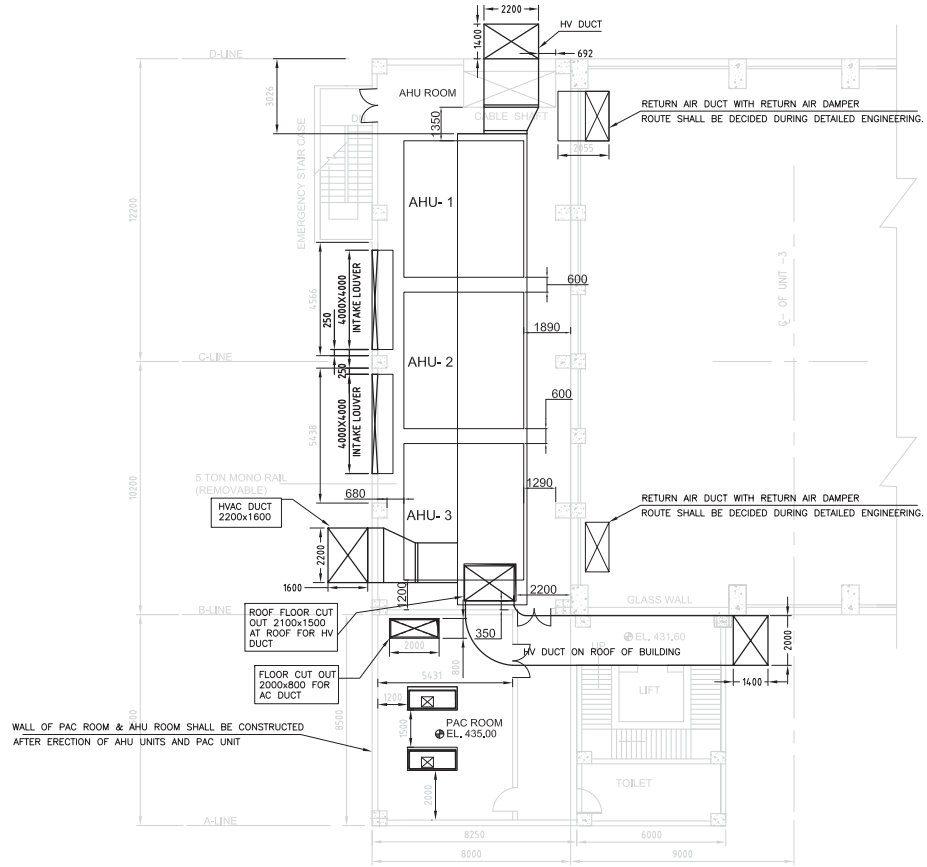
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 12000019857



AUXILARY FLOOR
PLAN AT EL. 431.25



AUXILARY FLOOR
PLAN AT EL. 435.00

NOTE: THIS VENTILATION DUCT LAYOUT IS INDICATIVE AND DETAILED DRAWING SHALL BE PREPARED AFTER FINALIZATION OF HVAC SUPPLIER.

REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.
ZONE			ZONE			ZONE		

CUSTOMER: एनटीपीसी NTPC — एन.टी.पी.सी.लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)

PROJECT: RAMMAM STAGE – III HYDROELECTRIC PROJECT [3X40MW]

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

DEPT. CODE		NAME	SIGN	DATE	NO. OF VAR
HPE 415	DRN	T.KHAN		12.06.18	
	CKD	S.SAHU		12.06.18	
	APPD	R.SINGH		12.06.18	

SUB-VENDOR DRG. NO. | PO REF | NO. OF ITEMS

TITLE: LAYOUT OF POWER HOUSE AUX. BLOCK AT EL. 431.50 & 435.00

NTPC DRG. NO. 5602-906-H115-PVM-F-104

SUB-VENDOR NAME | WEIGHT (kg) | SCALE 1:100

BHEL DRG. NO. 12000019858 | REV. 00

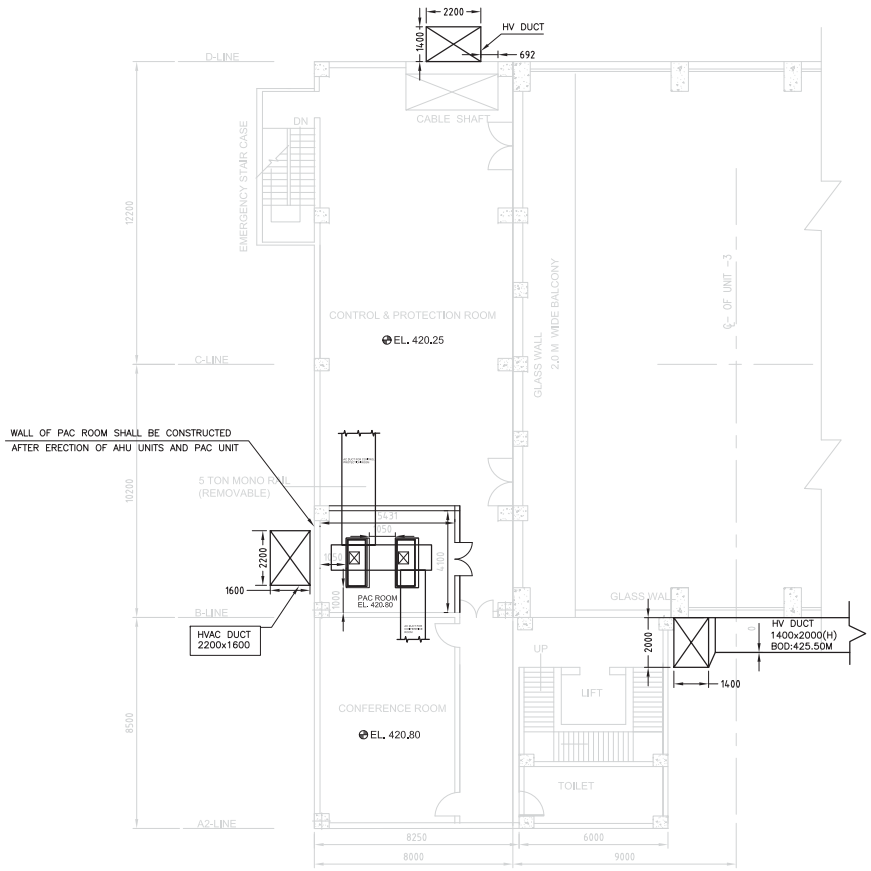
SHEET NO. 01 | NO. OF SHT. 01

A1 SIZE

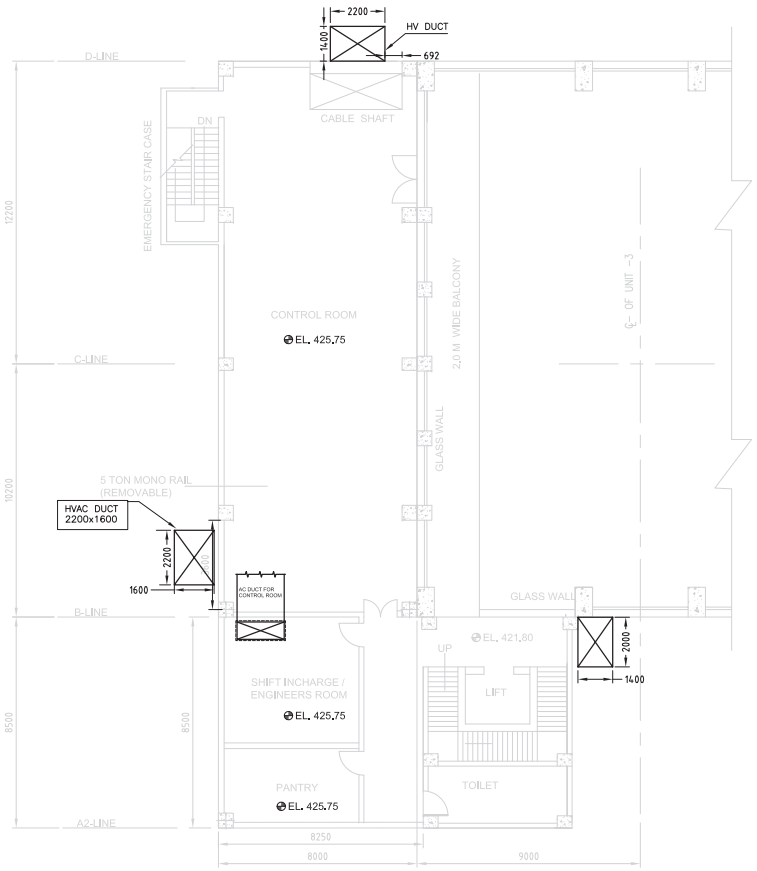
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 12000019857



AUXILARY FLOOR
PLAN AT EL. 420.25



AUXILARY FLOOR
PLAN AT EL. 425.75

NOTE: THIS VENTILATION DUCT LAYOUT IS INDICATIVE AND DETAILED DRAWING SHALL BE PREPARED AFTER FINALIZATION OF HVAC SUPPLIER.

REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.	REV.	DATE	ALTERED / CHECKED / APPD.
ZONE			ZONE			ZONE		

CUSTOMER: एनटीपीसी NTPC — एन.टी.पी.सी.लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)

PROJECT: RAMMAM STAGE – III HYDROELECTRIC PROJECT [3X40MW]

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

DEPT. CODE		NAME	SIGN	DATE	NO. OF VAR
HPE 415	DRN	T.KHAN		12.06.18	
	CKD	S.SAHU		12.06.18	
	APPD	R.SINGH		12.06.18	
SUB-VENDOR DRG. NO.				PO REF	NO. OF ITEMS

TITLE: LAYOUT OF POWER HOUSE AUX. BLOCK AT EL. 420.25 & 425.75

NTPC DRG. NO. 5602-906-H115-PVM-F-102

SUB-VENDOR NAME | WEIGHT (kg) | SCALE 1:100 | BHEL DRG. NO. 12000019857 | REV. 00

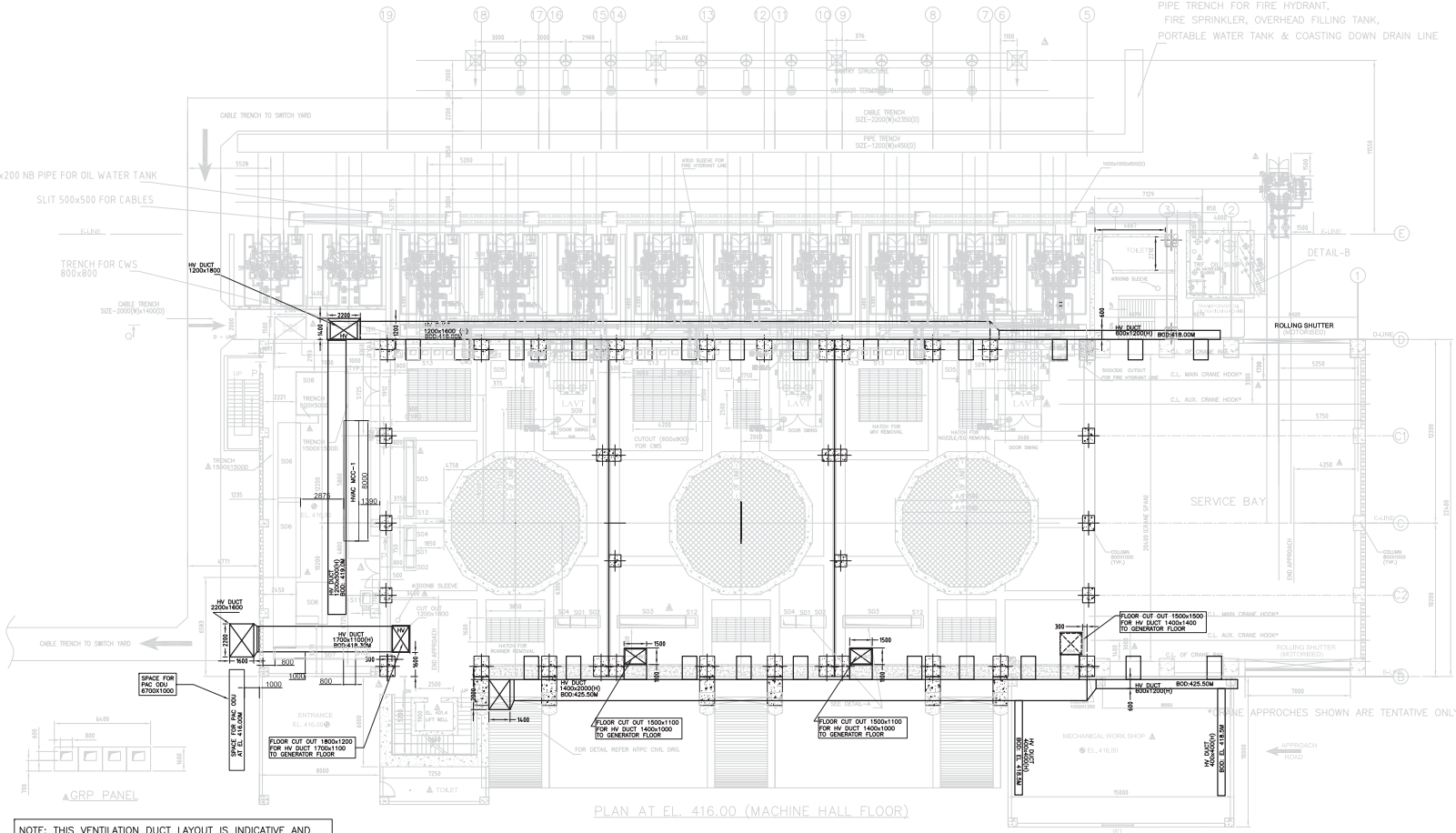
SHEET NO. 01 | NO. OF SHT. 01

A1 SIZE

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 12000019856



NOTE: THIS VENTILATION DUCT LAYOUT IS INDICATIVE AND DETAILED DRAWING SHALL BE PREPARED AFTER FINALIZATION OF HVAC SUPPLIER.

LIST OF EQUIPMENTS

S.No	DESCRIPTION	SIZE (mm) LENGTH	WIDTH	HEIGHT	LOCATED AT	WEIGHT (Kgs.)	QTY./ UNIT	TOTAL QTY.	DRG. No.	REMARKS
S01	GAUGE PANEL	1000	800	2415	EL. 416	1500	1	3	36940000704	EDN
S02	TEMPARATURE MEASUREMENT PANEL	1000	800	2415	EL. 416	900	1	3	36940000700	EDN
S03	UNIT CONTROL BOARD(SUIT OF 6 PANELS) ELECTRONIC PANEL(3), RELAY PANEL(1) CONTROL & METERING PANEL(1) TERMINATION PANEL(1)	4555	800	2415	EL. 416	3500	1	3	36940000700	EDN
S04	ALARM ANNUNCIATOR PANEL	1000	800	2415	EL. 416	900	1	3	36940000700	EDN
S05	EHG CUBICLE	1200	1000	2520	EL. 416	900	1	3		HPE GOV
S06	STATION SERVICE BOARD	5000	1500	2350	EL. 416	NA	–	2		HPE ELEC
S07	COMMON AUX. LOCAL CONTROL BOARD	4555	800	2415	EL. 416	3500	–	1	36940000704	EDN
S08	STATION SERVICE TRANSFORMER	2800	2075	3250	EL. 416	NA	–	2		JHS
S09	LAVT CUBICLE	3300	2250	2500	EL. 416	NA	1	3		RUDRAPUR
S10	COMMON AUX. LOCAL HMI PANEL	800	800	2415	EL. 416	750		1	36940000704	EDN
S11	COMMON AUX. ALARM ANNUNCIATION PANEL	1000	800	2415	EL. 416	3500		1	36940000704	EDN
S12	LOCAL HMI PANEL & UCB PANEL LINER	800	800	2415	EL. 416	750		1	36940000700	EDN
S13	GRP PANEL	3200	800	2350	EL. 416		1	3	35610051461	SWE
HVAC MCC-1	HVAC MCC-1 FOR POWER HOUSE AREA	8000	1000	2600	EL. 416					PEM

NOTES:

01. ALL DIMENSIONS ARE IN MILLIMETRES AND ELEVATIONS ARE IN METRES.
02. CW SYSTEM AND PIPING SHOWN ARE INDICATIVE, REFER COOLING WATER AND HVAC DRAWINGS FOR COMPLETE DETAILS.
03. SIZES OF COLUMNS/BEAMS/SLABS/STAIRS ARE INDICATIVE ONLY. FOR DETAILS REFER CIVIL CONSTRUCTION DRAWINGS.
04. BUS DUCT ROUTING SHOWN IS INDICATIVE ONLY. FOR DETAILS REFER 'DELTA FORMATION OF IPBD' DRAWING.
05. POWERHOUSE FLOOR DRAIN, INTER FLOOR DRAIN AND STORM WATER DRAIN TO BE SUITABLY DESIGNED BY NTPC CIVIL.
06. DRAIN PIT 1000x1000 TO BE SUITABLY DESIGNED BY NTPC CIVIL. SUITABLY SLOPE TO BE PROVIDED AS PER CIVIL PRACTICE.

REFERENCE DRAWINGS :-

SR. NO.	DESCRIPTION	BHEL DWG. NO.	NTPC DWG. NO.
01	STATION LAYOUT – ELEVATION	12000019851	5602-906-H115-PVM-F-001
02	OUTLINE GEN ARRAGT. OF GT	14500050058	5602-003-H201-PVE-B-710
03	UCB	36940000700	5602-003-H415-PVE-B-018
04	LAYOUT OF IPB	0169141010	5602-003-H207-PVE-F-001
05	COMMON AUX. LOCAL CONTROL BOARD	36940000704	5602-003-H415-PVE-B-005
06	LAYOUT OF IPB	0169141001	5602-003-H207-PVE-F-001
07	CIVIL GUIDELINES OF TRANSFORMER CAVERN AT EL. 416.00 & SGM. PIT DETAILS	12000019853	5602-906-H115-PVM-F-108
08	SSB	–	5602-003-H204-PVE-B-003

CW1,CW2,CW3 (750x500)	CUTOUT FOR COOLING WATER SYSTEM FOR TRANSFORMER
FT (500X300)	CUTOUT FOR FIRE FIGHTING SYSTEM
CL1,CL2,CL3 (500X500)	CUTOUT FOR CABLE TRAY
HV1,HV2,HV3,HV4	CUTOUT FOR HVAC SYSTEM
SP1,SP2 (500X500)	SPARE CUTOUT

REV.	DATE	ALTERED	TK
		CHECKED	SS
		APPD.	
ZONE			

REV.	DATE	ALTERED	TK
04	11.06.19	CHECKED	SS
		APPD.	RS
ZONE	REVISED AS PER NTPC COMMENTS		

REV.	DATE	ALTERED	TK
03	22.03.18	CHECKED	SS
		APPD.	RS
ZONE	REVISED AS PER NTPC COMMENTS		

REV.	DATE	ALTERED	TK
02	25.01.17	CHECKED	SS
		APPD.	RS
ZONE	REVISED AS PER NTPC COMMENTS		

REV.	DATE	ALTERED	TK
01	26.08.16	CHECKED	SS
		APPD.	RS
ZONE	REVISED AS PER NTPC COMMENTS & MOM DATED 02.08.16 TO 04.08.16		

CUSTOMER : एन टी पी सी NTPC — एन.टी.पी.सी.लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)

PROJECT: RAMMAM STAGE – III HYDROELECTRIC PROJECT [3X40MW]

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

DEPT. CODE		NAME	SIGN	DATE	NO. OF VAR
HPE 415	DRN	T.KHAN		3.3.16	
	CKD	S.SAHU		3.3.16	
	APPD	R.S		3.3.16	
SUB-VENDOR DRG. NO.				PO REF	NO. OF ITEMS

TITLE: STATION LAYOUT PLAN AT EL.416.00 MACHINE HALL

NTPC DRG. NO. 5602-906-H115-PVM-F-009

SUB-VENDOR NAME | WEIGHT (kg) | SCALE 1:200

BHEL DRG. NO. 12000019856 REV. 04

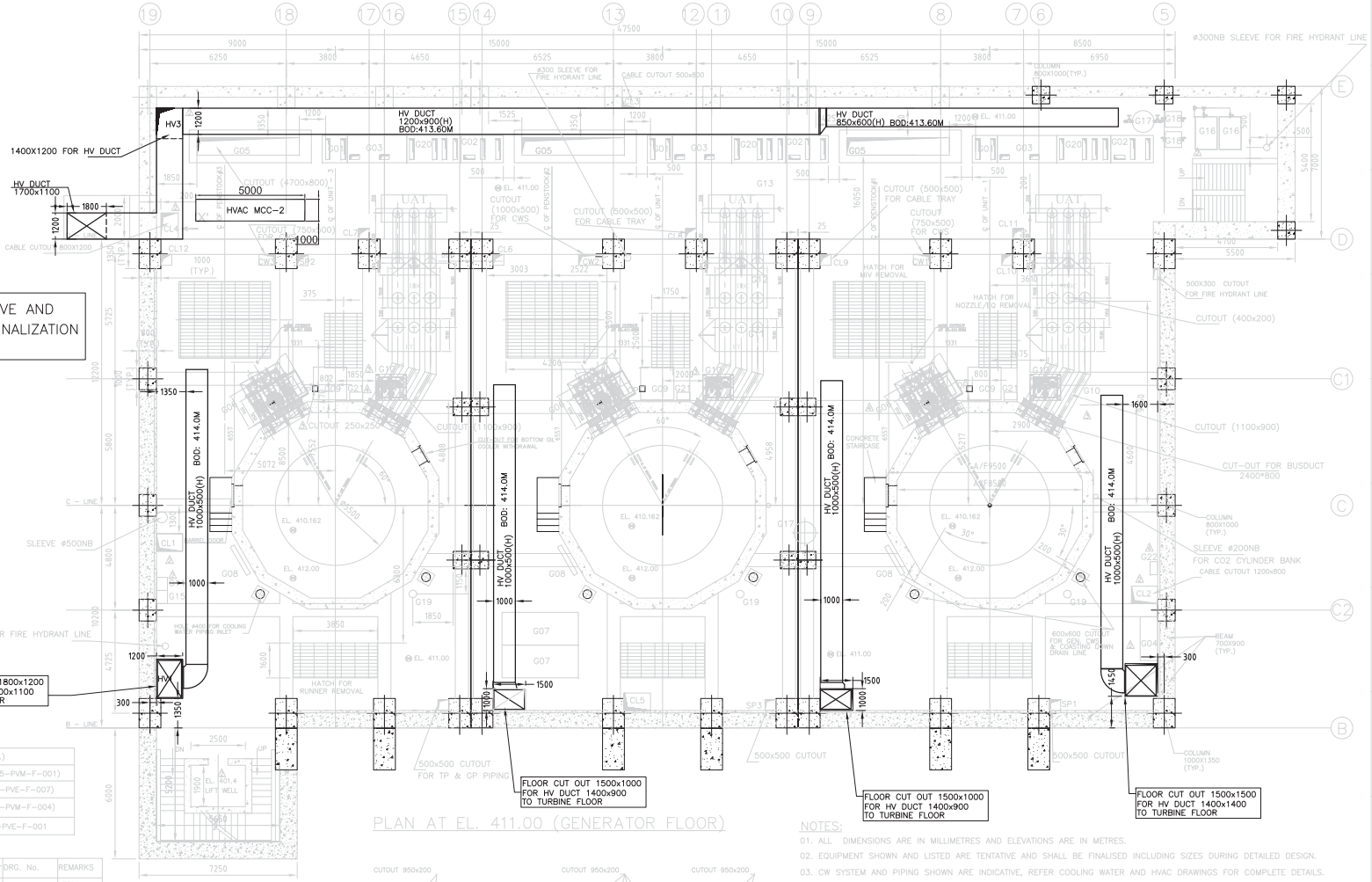
SHEET NO. 01 NO. OF SHT. 01

A1 SIZE

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 12000019855



NOTE: THIS VENTILATION DUCT LAYOUT IS INDICATIVE AND DETAILED DRAWING SHALL BE PREPARED AFTER FINALIZATION OF HVAC SUPPLIER.

CW1,CW2,CW3	CUTOUT FOR TRANSFORMER CWS & OVERHEAD PIPE (FOR CW5 ONLY)
FF –	CUTOUT FOR FIRE FIGHTING SYSTEM
CL1,CL2,CL3,CL4 CL5,CL6,CL7,CL8 CL9,CL10,CL11,CL12	CUTOUT FOR CABLE TRAY
HV1,HV2,HV3	CUTOUT FOR HVAC SYSTEM
SP1,SP2 ,SP3	SPARE CUTOUT
OP –	CUTOUT FOR OIL PIPELINE

PLAN AT EL. 411.00 (GENERATOR FLOOR)

LINKED DRAWINGS :–

SL. No.	DESCRIPTION	BHEL DWG. NO.	(NTPC DWG. NO.)
01	STATION LAYOUT – ELEVATION	12000019851	(5602–906–H115–PVM–F–001)
02	GENERATOR FOUNDATION	02500087601	(5602–003–H207–PVE–F–007)
03	LAYOUT OF COOLING WATER SYSTEM	02292019801	(5602–906–H140–PVM–F–004)
04	LAYOUT OF IPB	0169141001	5602–003–H207–PVE–F–001

LIST OF EQUIPMENTS (TENTATIVE)

S.No	DESCRIPTION	SIZE (mm) LENGTH	WIDTH	HEIGHT	LOCATED AT	WEIGHT (KgS.)	QTY./ UNIT	TOTAL QTY.	DRG. No.	REMARKS
G01	FIELD SUPPRESSION CUBICLE	1150	1250	2295	EL 411.00	1500	1	3		EDN
G02	REGULATION CUBICLE	1951	1250	2295	EL 411.00	1000	1	3		EDN
G03	THYRISTOR & TRUNKING CUBICLE	2723	1250	2995	EL 411.00	3500	1	3		EDN
G04	H.S. LUB UNIT COMMON	2000	800	800	EL 411.00	400	1	1		HGE BPL
G05	UNIT AUXILIARY BOARD	5600	1500	2300	EL 411.00	NA	1	3		HPE
G06	NG CUBICLE	2200	1600	2035	EL 411.00	NA	1	3		RP
G07	AIR PRESSURIZATION EQUIPMENT	3500	1500	2200	EL 411.00	NA	–	2		RP
G08	MARSHALLING BOX	1500	200	1200	EL 411.00	100	1	3		HGE BPL
G09	NEEDLE CONTROL CABINET	1525	1500	2830	EL 411.00	1700	1	3		HTE BPL
G10	HMC FOR GOVERNOR	1125	800	2800	EL 411.00	1700	1	3		HTE BPL
G11	EXCITATION TRANSFORMER	3050	1500	2700	EL 411.00	1000	1	3		EDN
G12	DYNAMIC BRAKING CUBICLE	2400	1500	2350	EL 411.00	2000	1	3		
G13	UNIT AUXILIARY TRANSFORMER	3300	1900	2500	EL 411.00	4800	1	3		
G14	NORMAL LIGHTING PANEL (WALL MOUNTED)	650	500	500	EL 411.00	NA	–	1		
G15	EMERGENCY LIGHTING PANEL (WALL MOUNTED)	650	500	500	EL 411.00	NA	–	1		
G16	LP COMPRESSOR	1500	1000	1100	EL 411.00	NA	–	2		HTE BPL
G17	LP AIR RECEIVER	ø1000	–	2500	EL 411.00	NA	–	2		HTE BPL
G18	AIR DRYER	750	750	1340	EL 411.00	NA	–	2		HPE GOV
G19	PRESSURE RECIEVER FOR GENERATOR BRAKE AIR	ø350	–	1750	EL 411.00	NA	1	3		HTE BPL
G20	AUX.BREAKER & AUX.TRANSFORMER CUB)	2476	1250	2370	EL 411.00	NA	–	3		EDN
G21	MCP FOR GENERATOR STATOR HEATER (WALL MOUNTED)	600	350	800	EL 411.00	NA	–	3		HPE BPL
G22	MCP FOR HP LUB OIL PUMP	600	350	800	EL 411.00	NA	–	1		HPE BPL
HVAC MCC–2	HVAC MCC–2 FOR POWER HOUSE	5000	1000	2600	EL 411.00					PEM

DETAIL OF CUTOUT (G01,G02,G03,G05,G20,G11)

NOTES:

01. ALL DIMENSIONS ARE IN MILLIMETRES AND ELEVATIONS ARE IN METRES.
02. EQUIPMENT SHOWN AND LISTED ARE TENTATIVE AND SHALL BE FINALISED INCLUDING SIZES DURING DETAILED DESIGN.
03. CW SYSTEM AND PIPING SHOWN ARE INDICATIVE, REFER COOLING WATER AND HVAC DRAWINGS FOR COMPLETE DETAILS.
04. SIZES OF COLUMNS/BEAMS/SLABS/STAIRS ARE INDICATIVE ONLY. FOR DETAILS REFER CIVIL CONSTRUCTION DRAWINGS.
05. POWERHOUSE FLOOR AND OVERALL DRAIN TO BE SUITABLY DESIGNED BY NTPC CIVIL.
06. CUTOUTS REQUIRED FOR INDIVIDUAL EQUIPMENTS ARE NOT SHOWN AND SHALL BE INCORPORATED LATER. UAB SIZE HAS BEEN CONSIDERED ASSUMING DOUBLE FRONT PANEL.

REV.	DATE		
03	22.03.17	ALTERED	T KHAN
		CHECKED	S SAHU
		APPD.	R SINGH
ZONE	REVISED AS PER NTPC COMMENTS.		

REV.	DATE		
02	18.01.17	ALTERED	SS
		CHECKED	RS
		APPD.	RS
ZONE	REVISED AS PER NTPC COMMENTS & DISCUSSED IN TCM DATED 21–22 NOV'16		

REV.	DATE		
04	04.02.19	ALTERED	TK
		CHECKED	SS
		APPD.	RS
ZONE	UNDER REVISION		

REV.	DATE		
01	26.08.16	ALTERED	TK
		CHECKED	SS
		APPD.	RS
ZONE	REVISED AS PER NTPC COMMENTS & MOM DATED 02.08.16 TO 04.08.16		

CUSTOMER : एन टी पी सी NTPC — एन.टी.पी.सी.लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)

PROJECT: RAMMAM STAGE – III HYDROELECTRIC PROJECT [3X40MW]

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

DEPT. CODE		NAME	SIGN	DATE	NO. OF VAR
HPE 415	DRN	T.KHAN		–	
	CKD	S.SAHU		–	
	APPD	R.S		–	
SUB–VENDOR DRG. NO.				PO REF	NO. OF ITEMS

TITLE: STATION LAYOUT PLAN AT EL.411.00 GENERATOR FLOOR

NTPC DRG. NO. 5602–906–H115–PVM–F–008

SUB–VENDOR NAME | WEIGHT (kg) | SCALE 1:100

BHEL DRG. NO. 12000019855 REV. 04

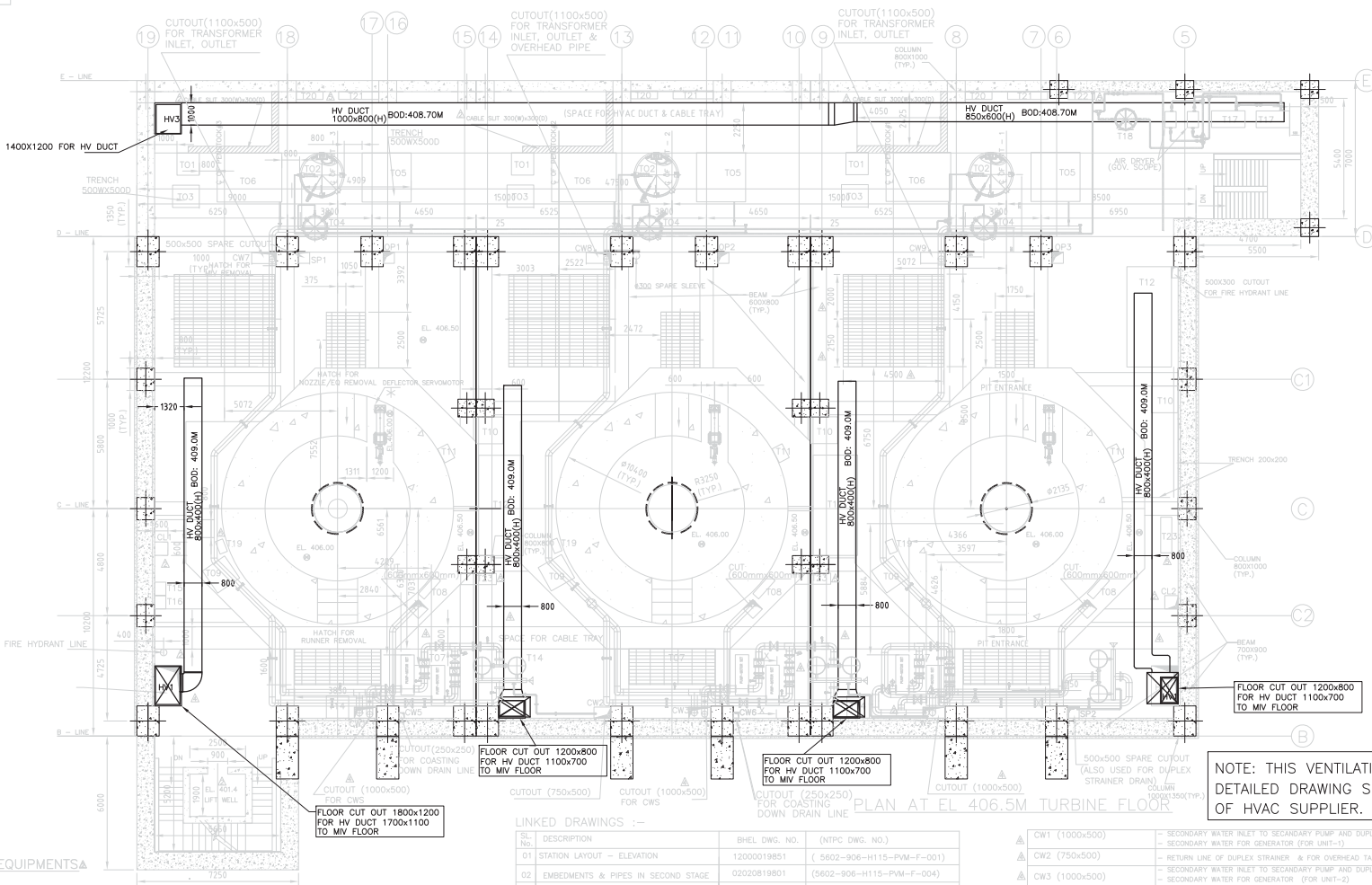
SHEET NO. 01 NO. OF SHT. 01

A1 SIZE

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 12000019854



PLAN AT EL 406.5M TURBINE FLOOR

NOTE: THIS VENTILATION DUCT LAYOUT IS INDICATIVE AND DETAILED DRAWING SHALL BE PREPARED AFTER FINALIZATION OF HVAC SUPPLIER.

LIST OF EQUIPMENTS

S.No	DESCRIPTION	SIZE (mm) LENGTH	WIDTH	HEIGHT	LOCATED AT	WEIGHT (KgS.)	QTY./UNIT	TOTAL QTY.	DRG. No.	REMARKS
T01	ELECTRICAL CONTROL & INDICATION PANLE FOR MIV	1000	1000	2400	EL406.5	400	1	3		HPE GOV
T02	PRESSURE RECEIVER FOR MIV	ø2000	–	3200	EL406.5	4500	1	3		HPE GOV
T03	HYDRAULIC CONTROL PANEL FOR MIV	1200	1000	2500	EL406.5	1000	1	3		HPE GOV
T04	PRESSURE RECEIVER FOR GOVERNOR	ø1200	–	3000	EL406.5	3500	1	3		HPE GOV
T05	PP SET FOR TURBINE/ GOVERNOR	2200	2200	2300	EL406.5	3200	1	3		HPE GOV
T06	PP SET FOR MIV	2900	2200	2325	EL406.5	4500	1	3		HPE GOV
T07	SEC COOLING WATER PUMPS	2100	800	1000	EL406.5	2500	2	6		HTE BPL
T08	BRAKE JACK CONTROL PANEL	1100	350	1200	EL406.5	350	1	3		HGE BPL
T09	BRAKE DUST COLLECTOR	1200	1200	2500	EL406.5	500	1	3		HGE BPL
T10	MOTORISED POWER PACK (PORTABLE)	1200	1200	1800	EL406.5	300	1	3		HGE BPL
T11	CO2 FIRE FIGHTING SYSTEM PANEL	500	700	2300	EL406.5	1000	1	3		HGE BPL
T12	CO2 CYLINDER BANK	4500	2000	2500	EL406.5	–	–	3		HGE BPL
T13	HEAT EXCHANGER	1500	750	1500	EL406.5		1	3		HTE BPL
T14	DUPLEX STRAINER	1500	2500	2500	EL406.5	–	1	3		HTE BPL
T15	NORMAL LIGHTING PANEL (WALL MOUNTED)	650	500	500	EL406.5	NA	–	1		PEM BHEL
T16	EMERGENCY LIGHTING PANEL (WALL MOUNTED)	650	500	500	EL406.5	NA	–	1		PEM BHEL
T17	HP COMPRESSOR	1500	750	2000	EL406.5		–	2		HTE BPL
T18	HP RECEIVER	ø800	–	1000	EL406.5	–	–	1		HTE BPL
T19	MCP FOR BRAKE DUST COLLECTOR (WALL MOUNTED)	600	350	800	EL406.5	–	–	3		HPE BPL
T20	MCP FOR MIV OPU (WALL MOUNTED)	1200	350	1200	EL406.5		–	3		HPE BPL
T21	MCP FOR TURBINE OPU (WALL MOUNTED)	1800	350	1000	EL406.5	–	–	3		HPE BPL
T22	MCP FOR HP COMPRESSOR (WALL MOUNTED)	1200	350	1000	EL406.5	–	–	1		HPE BPL
T23	MCP FOR SECONDARY COOLING PUMP	2×800	500	2400	EL406.5	–	–	3		HPE BPL

LINKED DRAWINGS :–

SL. No.	DESCRIPTION	BHEL DWG. NO.	(NTPC DWG. NO.)
01	STATION LAYOUT – ELEVATION	12000019851	(5602–906–H115–PVM–F–001)
02	EMBEDMENTS & PIPES IN SECOND STAGE	02020819801	(5602–906–H115–PVM–F–004)
03	LAYOUT OF COOLING WATER SYSTEM	02292019801	(5602–406–H140–PVM–F–004)
04	ARRANGEMENT OF DEFLECTOR _MECHANISM	02030719801	5602–906–H115–PVM–B–010
05	OIL PIPE LINES	0 21018 19801	5602–906–H115–PVM–B–023

CW1 (1000x500)	– SECONDARY WATER INLET TO SECANDARY PUMP AND DUPLEX STRAINER INLET – SECONDARY WATER FOR GENERATOR (FOR UNIT–1)
CW2 (750x500)	– RETURN LINE OF DUPLEX STRAINER & FOR OVERHEAD TANK
CW3 (1000x500)	– SECONDARY WATER INLET TO SECANDARY PUMP AND DUPLEX STRAINER INLET – SECONDARY WATER FOR GENERATOR (FOR UNIT–2)
CW4 (1000x500)	– SECONDARY WATER INLET TO SECANDARY PUMP AND DUPLEX STRAINER INLET – SECONDARY WATER FOR GENERATOR (FOR UNIT–3)
CL1, CL2 (600x600)	CUTOUT FOR CABLE TRAY
HV1, HV2 (1800x1200)	CUTOUT FOR HVAC SYSTEM
SP1, SP2 (500x500)	SPARE CUTOUT & FOR DUPLEX STRAINER DRAIN (SP2)
CW5, CW6 (250x250)	CUTOUT FOR COASTING DOWN DRAIN LINE
OP1, OP2, OP3 (500x500)	CUTOUT FOR OIL PIPE LINE
CW7, CW8, CW9 (1100x500)	CUTOUT FOR OIL PIPE LINE

NOTES:

01. ALL DIMENSIONS ARE IN MILLIMETRES AND ELEVATIONS ARE IN METRES.
02. CW SYSTEM AND PIPING SHOWN ARE INDICATIVE, REFER COOLING WATER AND HVAC DRAWINGS FOR COMPLETE DETAILS.
03. SIZES OF COLUMNS/BEAMS/SLABS/STAIRS ARE INDICATIVE ONLY. FOR DETAILS REFER CIVIL CONSTRUCTION DRAWINGS.
04. POWERHOUSE FLOOR AND OVERALL DRAIN TO BE SUITABLY DESIGNED BY NTPC CIVIL.
05. FOR ARRGT. OF DEFLECTOR SERVOMOTOR PLEASE REFER DRG NO. 02160319801 (NTPC DRG. NO. 5602–906–H115–PVM–B–011)
06. BHEL SHALL PROVIDE GRATING & CHEQQUERED PLATE FOR OPENING/TRENCHES. SINGLE/DOUBLE EDGE PROTECTION WHEREVER REQUIRED SHALL BE PROVIDED BY NTPC CIVIL.

REV.	DATE	ALTERED	TK
04	18.03.19	CHECKED	SS
		APPD.	RS

ZONE: REVISED AS PER LATEST CWS DRAWING

REV.	DATE	ALTERED	TK
03	25.01.17	CHECKED	SS
		APPD.	RS

ZONE: REVISED AS PER NTPC COMMENTS

REV.	DATE	ALTERED	SS
02	28.11.16	CHECKED	RS
		APPD.	RS

ZONE: REVISED AS PER NTPC COMMENTS & DISCUSSED IN TCM DATED 21–22 NOV'16

REV.	DATE	ALTERED	TK
01	26.08.16	CHECKED	SS
		APPD.	RS

ZONE: REVISED AS PER NTPC COMMENTS & MOM DATED 02.08.16 TO 04.08.16

CUSTOMER: एन टी पी सी NTPC — एन.टी.पी.सी.लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)

PROJECT: RAMMAM STAGE – III HYDROELECTRIC PROJECT [3X40MW]

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

DEPT. CODE		NAME	SIGN	DATE	NO. OF VAR
HPE 415	DRN	T.KHAN		20.09.15	
	CKD	S.SAHU		20.09.15	
	APPD	R.S		20.09.15	

SUB–VENDOR DRG. NO. | PO REF | NO. OF ITEMS

TITLE: STATION LAYOUT PLAN AT EL.406.5M TURBINE FLOOR

NTPC DRG. NO. 5602–906–H115–PVM–F–005

SUB–VENDOR NAME | WEIGHT (kg) | SCALE 1:100

BHEL DRG. NO. 12000019854 | REV. 04

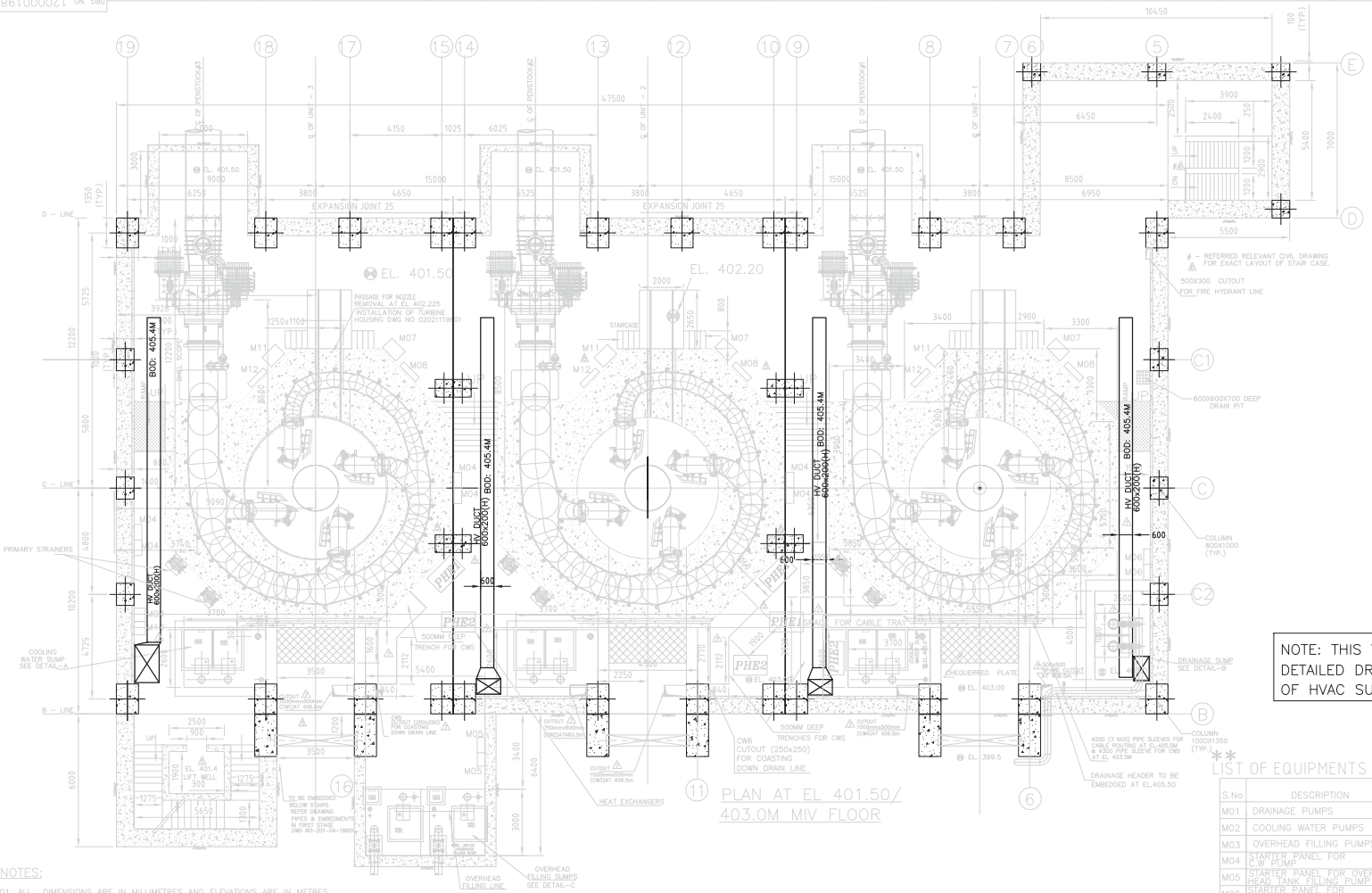
SHEET NO. 01 | NO. OF SHT. 01

A1 SIZE

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 12000019853



NOTE: THIS VENTILATION DUCT LAYOUT IS INDICATIVE AND DETAILED DRAWING SHALL BE PREPARED AFTER FINALIZATION OF HVAC SUPPLIER.

NOTES:

01. ALL DIMENSIONS ARE IN MILLIMETRES AND ELEVATIONS ARE IN METRES.
02. EQUIPMENT SHOWN AND LISTED ARE TENTATIVE AND SHALL BE FINALISED INCLUDING SIZES DURING DETAILED DESIGN.
03. REFER COOLING WATER AND HVAC DRAWINGS FOR COMPLETE DETAILS.
04. FOR STAGE WISE CONCRETING AND EMBEDMENT DETAILS REFER TURBINE DRAWINGS OF BHEL.
05. FOR MIV, MIV FOUNDATION AND COUNTERWEIGHT PIT DETAILS REFER TURBINE DRAWINGS OF BHEL.
06. SIZES OF COLUMNS/BEAMS/SLABS/STAIRS ARE INDICATIVE ONLY. FOR DETAILS REFER CIVIL CONSTRUCTION DRAWINGS.
07. ** SHALL BE SHOWN LATER AFTER FINALIZATION OF CW DRG "LAYOUT OF COOLING WATER SYSTEM" (5602-406-H140-PVM-F-004).
08. THIS DRAWING IS INTENDED FOR SHOWING LAYOUT & CIVIL REQUIREMENTS OF FLOOR ONLY. FOR CIVIL DETAILS/EMBEDMENTS INSIDE BARREL/HOUSING RESPECTIVE SYSTEM DRAWING AS GIVEN IN TABLE OF REFERENCE DRAWING TO BE FOLLOWED.
09. POWERHOUSE FLOOR AND OVERALL DRAIN TO BE SUITABLY DESIGNED BY NTPC CIVIL.

LINKED DRAWINGS :-

SL. No.	DESCRIPTION	BHEL DWG. NO.	(NTPC DWG. NO.)
01	STATION LAYOUT - ELEVATION	12000019851	(5602-906-H115-PVM-F-001)
02	PLAN AT EL. 399.50	12000019852	(5602-906-H115-PVM-F-011)
03	FIRST STAGE PIPES AND EMBEDMENTS DRG.	02010419801	(5602-906-H115-PVM-F-002)
04	EMBEDMENTS & PIPES IN SECOND STAGE	02020819801	(5602-906-H115-PVM-F-004)
05	POWER HOUSE DRAINGE AND DEWATERING SUMP CONCRETE		(5602-305(R2)-POC-C-135)
06	LAYOUT OF COOLING WATER SYSTEM	02292019801	(5602-406-H140-PVM-F-004)

LIST OF EQUIPMENTS (TENTATIVE)

@ NA - NOT AVAILABLE

S.No	DESCRIPTION	SIZE (mm) LENGTH	WIDTH	HEIGHT	LOCATED AT	WEIGHT (KgS.)@	QTY./UNIT	TOTAL QTY.	DRG. No	REMARKS
M01	DRAINAGE PUMPS	-	-	-	EL 396.0	NA	-	2(1M+1S)		HPE BPL
M02	COOLING WATER PUMPS	-	-	-	EL 397.0	NA	2	6(3M+3S)		HTE BPL
M03	OVERHEAD FILLING PUMPS	-	-	-	EL 397.0	NA	-	2(1M+1S)		HTE BPL
M04	STARTER PANEL FOR C.W PUMP	2X700	350	1275	EL 403.0	NA	2	6		HPE BPL
M05	STARTER PANEL FOR OVER HEAD TANK FILLING PUMP	2X700	350	1275	EL 403.0	NA	-	2		HPE BPL
M06	STARTER PANEL FOR DRAINAGE PUMP	2X600	300	1000	EL 403.0	NA	-	2		HPE BPL
M07	OIL LEAKAGE UNIT FOR MIV	850	600	900	EL 403.0	NA	1	3		HPE BPL
M08	MCP FOR OIL LEAKAGE UNIT FOR MIV (WALL MOUNTED)	1000	250	800	EL 403.0	NA	1	3		HPE BPL
M09	NORMAL LIGHTING PANEL (WALL MOUNTED)	650	500	500	EL 403.0	NA	-	1		
M10	EMERGENCY LIGHTING PANEL (WALL MOUNTED)	650	500	500	EL 403.0	NA	-	1		
M11	OIL LEAKAGE UNIT FOR TURBINE	850	600	900	EL 403.0	NA	1	3		HPE BPL
M12	MCP FOR OIL LEAKAGE UNIT FOR TURBINE (WALL MOUNTED)	1000	250	800	EL 403.0	NA	1	3		HPE BPL

REV.	DATE	ALTERED	CHECKED	APPD.	ZONE	REMARKS
06	08.11.16	TK	SS	RS		REVISED AS PER NTPC COMMENTS
05	10.09.16	TK	SS	RS		REVISED AS PER NTPC COMMENTS
04	02.08.16	TK	SS	RS		REVISED AS PER NTPC COMMENTS & MOM DATED 02.08.16 TO 04.08.16
03	18.06.16	TK	SS	RS		REVISED AS PER NTPC COMMENTS
02		SS	RS	RS		REVISED AS PER NTPC COMMENTS
01	28.02.16	SS	RS	RS		REVISED AS PER NTPC COMMENTS
07	06.03.19	TK	SS	RS		REVISED AS PER LATEST CWS DRAWING

CUSTOMER: एन.टी.पी.सी. लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)

PROJECT: RAMMAM STAGE - III HYDROELECTRIC PROJECT [3X40MW]

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

DEPT. CODE		NAME	SIGN	DATE	NO. OF VAR
HPE 415	DRN	T.KHAN		20.09.15	
	CKD	S.SAHU		20.09.15	
	APPD	R.S		20.09.15	

SUB-VENDOR DRG. NO. | PO REF | NO. OF ITEMS

TITLE: STATION LAYOUT PLAN AT EL.401.50/403.00M

NTPC DRG. NO. 5602-906-H115-PVM-F-003

SUB-VENDOR NAME | WEIGHT (kg) | SCALE 1:100

BHEL DRG. NO. 12000019853 REV. 07

SHEET NO. 01 NO. OF SHT. 01

A1 SIZE

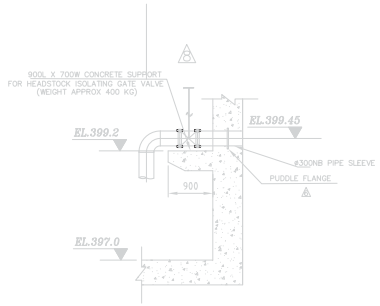
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 12000019852

PLAN AT EL 399.50

NO HV DUCT FOR THIS AREA



SECTION–BB

REFERENCE DRAWINGS

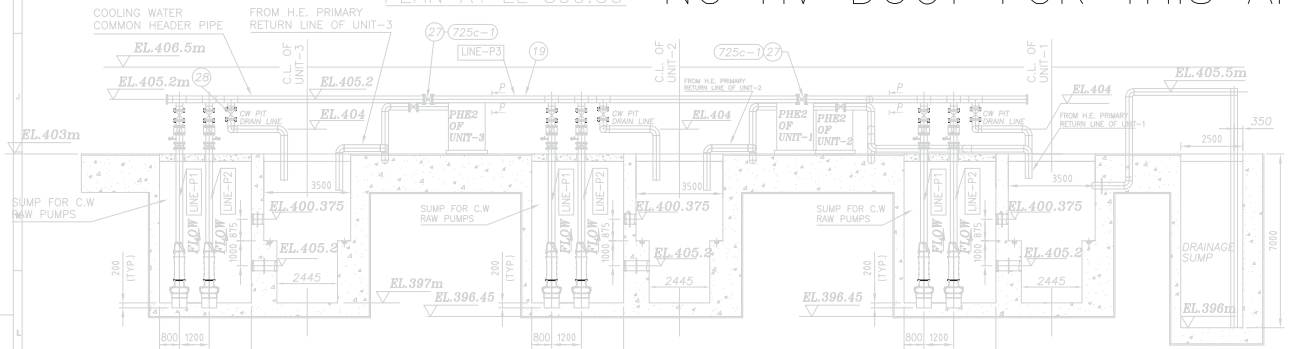
SL. No.	DESCRIPTION	BHEL DWG. NO. (NTPC DWG. NO.)
01	FIRST STAGE PIPES AND EMBEDMENTS DRG.	02010419801 (5602–906–H115–PVM–F–002)
02	DRAINAGE SYSTEM	12110119853 (5602–003–H171–PVM–F–003)
03	POWER HOUSE DRAINGE AND DEWATERING SUMP CONCRETE	(5602–305(R2)–POC–C–135)
04	INSTALLATION OF LOWER PIT LINER	–
05	COOLING WATER SYSTEM	0–229–20–19801 (5602–906–H140–PVM–F–004)

* 200MM DEEP POCKET TO BE LEFT AND DOWELS TO BE LEFT PROTRUDING FOR MAKING FOUNDATION OF PUMPS DURING SECONDARY CONCRETING

NOTES:

01. ALL DIMENSIONS ARE IN MILLIMETRES AND ELEVATIONS ARE IN METRES.
02. EQUIPMENT SHOWN AND LISTED ARE TENTATIVE AND SHALL BE FINALISED DURING DETAILED DESIGN.
03. CW SYSTEM AND PIPING SHOWN ARE INDICATIVE, REFER COOLING WATER AND HVAC DRAWINGS FOR COMPLETE DETAILS.
04. FOR STAGE WISE CONCRETING AND EMBEDMENT DETAILS REFER TURBINE DRAWINGS OF BHEL.
05. FOR MIV, MIV FOUNDATION AND COUNTERWEIGHT PIT DETAILS REFER TURBINE DRAWINGS OF BHEL.
06. SIZES OF COLUMNS/BEAMS/SLABS/STAIRS ARE INDICATIVE ONLY. FOR DETAILS REFER CIVIL CONSTRUCTION DRAWINGS.
07. THIS DRAWING IS INTENDED FOR SHOWING LAYOUT & CIVIL REQUIREMENTS OF FLOOR ONLY. FOR CIVIL DETAILS/EMBEDMENTS INSIDE BARREL/HOUSING RESPECTIVE SYSTEM DRAWING AS GIVEN IN TABLE OF REFERENCE DRAWING TO BE FOLLOWED.
08. POWERHOUSE FLOOR AND OVERALL DRAIN TO BE SUITABLY DESIGNED BY NTPC CIVIL.
09. REFER RELEVANT HM DRAWING FOR DETAIL OF DRAFT TUBE GATE EMBEDMENT.
10. REFER SEPARATE RELEVANT DRAWING FOR FOUNDATION DETAILS.
11. FOR EMBEDMENT OF LOWER PIT REFER RESPECTIVE DRAWING OF LOWER PIT LINER

NOTE: THIS VENTILATION DUCT LAYOUT IS INDICATIVE AND DETAILED DRAWING SHALL BE PREPARED AFTER FINALIZATION OF HVAC SUPPLIER.



SECTION–AA

REV.	DATE	ALTERED	TK	REV.	DATE	ALTERED	TK	REV.	DATE	ALTERED	TK	REV.	DATE	ALTERED	SS	REV.	DATE	ALTERED	SS	REV.	DATE	ALTERED	SS
06	10.09.16	CHECKED	SS	05	02.08.16	CHECKED	SS	04	18.06.16	CHECKED	SS	03	18.06.16	CHECKED	SS			CHECKED	RS	01	28.02.16	CHECKED	SS
		APPD.	RS			APPD.	RS			APPD.	RS			APPD.	RS			APPD.	RS			APPD.	RS
ZONE	REVISED AS PER NTPC COMMENTS			ZONE	REVISED AS PER NTPC COMMENTS & MOM DATED 02.08.16 TO 04.08.16			ZONE	REVISED AS PER NTPC COMMENTS			ZONE	REVISED AS PER NTPC COMMENTS			ZONE	REVISED AS PER NTPC COMMENTS			ZONE	REVISED AS PER NTPC COMMENTS		

REV.	DATE	ALTERED	TK	REV.	DATE	ALTERED	TK
08	06.03.19	CHECKED	SS	07	08.11.16	CHECKED	SS
		APPD.	RS			APPD.	RS
ZONE	REVISED AS PER LATEST CRS DRAWING			ZONE	REVISED AS PER NTPC COMMENTS		

CUSTOMER: एन टी पी सी NTPC — एन.टी.पी.सी.लिमिटेड NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)

PROJECT: RAMMAM STAGE – III HYDROELECTRIC PROJECT [3X40MW]

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

DEPT. CODE		NAME	SIGN	DATE	NO. OF VAR
HPE 415	DRN	T.KHAN		20.09.15	
	CKD	S.SAHU		20.09.15	
	APPD	R.S		20.09.15	
SUB–VENDOR DRG. NO.				PO REF	NO. OF ITEMS

TITLE: STATION LAYOUT PLAN AT EL.399.50M

NTPC DRG. NO. 5602–906–H115–PVM–F–011

SUB–VENDOR NAME | WEIGHT (kg) | SCALE 1:100

BHEL DRG. NO. 12000019852 REV. 08

SHEET NO. 01 NO. OF SHT.

A1 SIZE