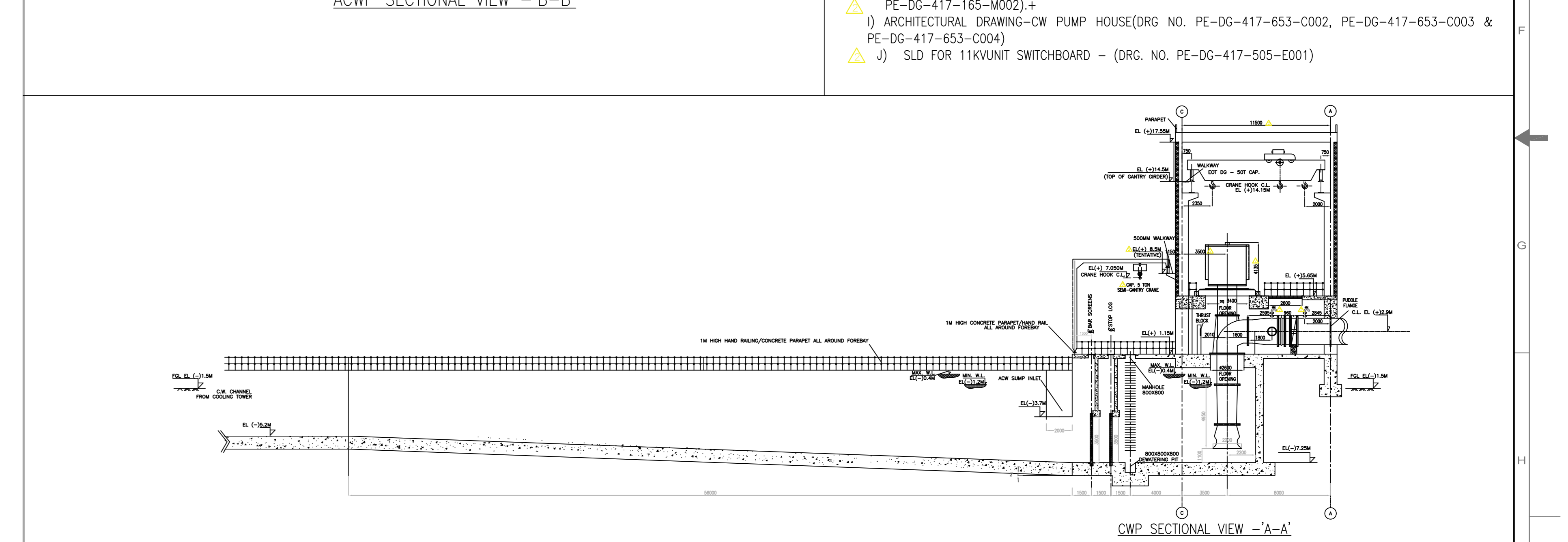
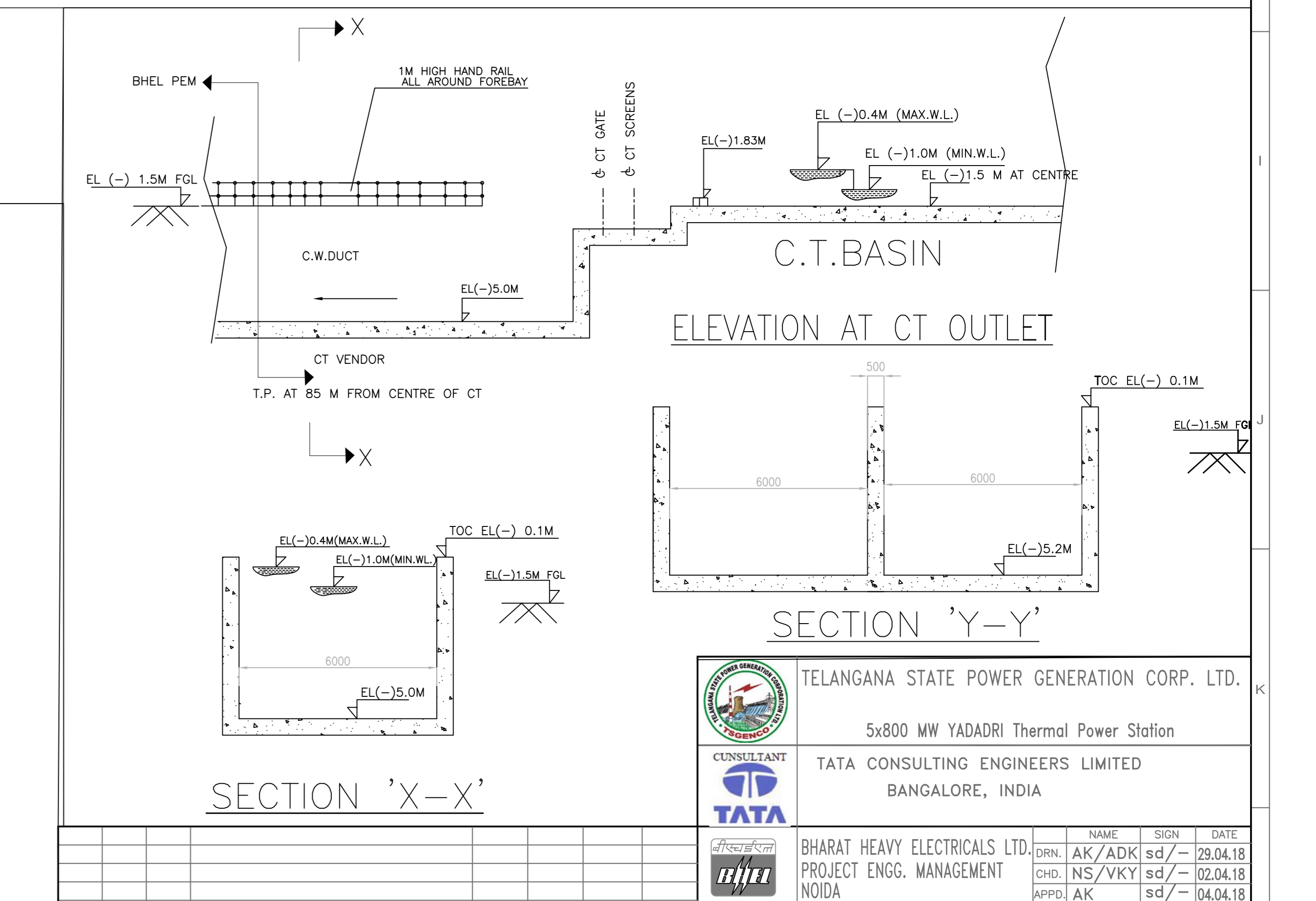
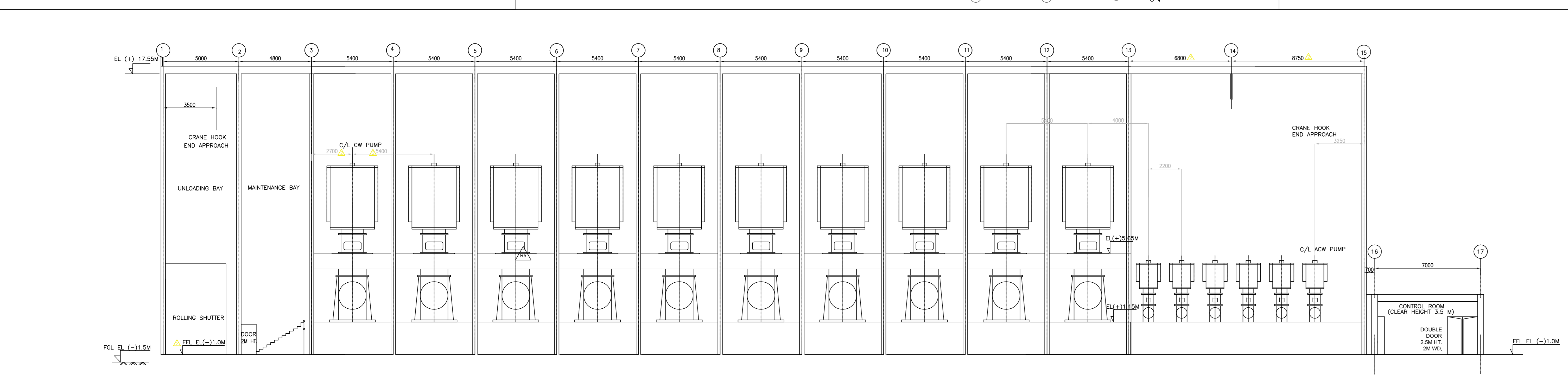


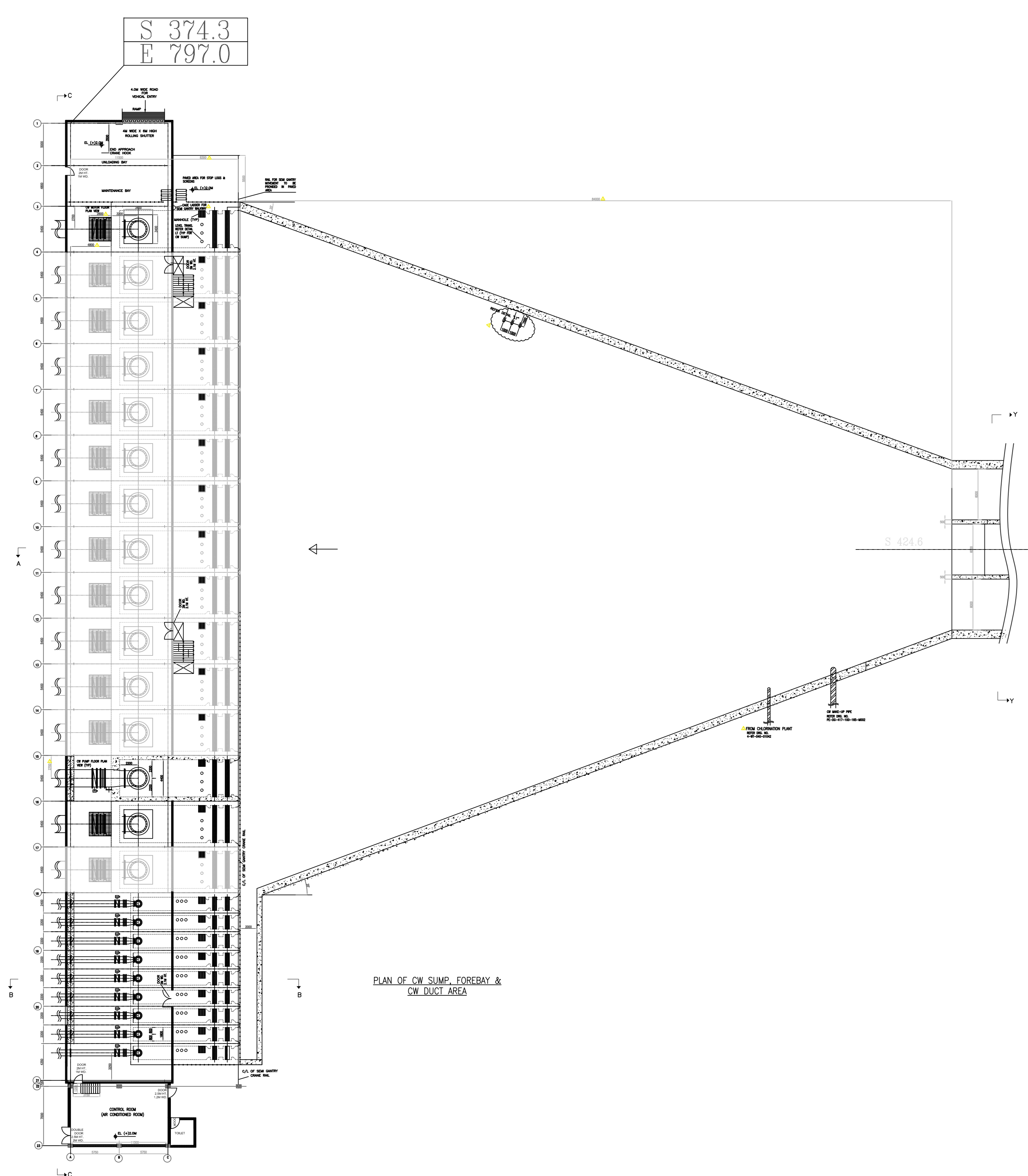
- NOTES :
- ALL DIMENSIONS ARE IN MM AND ALL ELEVATIONS ARE IN METRES UNLESS OTHERWISE STATED.
  - CARBON STEEL GATES (1NO. FOR EACH UNIT I.E. TOTAL 2 NOS. FOR CW SUMP & 1 NO. FOR EACH UNIT I.E. TOTAL 2 NOS. FOR ACW SUMP) AND CARBON STEEL COARSE BAR SCREEN (FOR EACH SUMP) OF 50mm SPACING BETWEEN BARS WITH CARBON STEEL FRAME (16 NOS., VIZ. 1 NO FOR EACH SUMP) TO BE FABRICATED AND SUPPLIED BY CIVIL CONTRACTOR.
  - SUMP MODEL STUDY & CFD ANALYSIS SHALL BE CARRIED OUT BY BHEL HYD FOR CW SUMP & FOREBAY, AND REQUISITE HYDRAULIC ELEMENTS SHALL BE INCORPORATED IN CIVIL WORKS, IF REQUIRED, AS PER STUDIES.
  - OPENINGS, INSERTS ETC. REQUIRED FOR C&I ITEMS, PIPE/VALVE SUPPORTS ETC. SHALL BE INDICATED AFTER FINALISATION OF RESPECTIVE INSTRUMENTS, PIPING LAYOUT ETC.
  - EL(+ ) 0.0 (F.L OF TG BUILDING) CORRESPONDS TO RL 81.5M. FGL OF CW PUMP HOUSE AREA SHALL BE EL(- ) 1.5M CORRESPONDS TO RL 80.0M AS PER PLOT PLAN.
  - ACCUMULATED WATER ON FLOORS SHALL BE DRAINED BACK TO CW/ ACW SUMPS.
  - STOP LOG GATE & COARSE BAR SCREEN HEIGHT SHALL BE DESIGNED FOR SUMP OPENING HEIGHT VIZ 3500 MM FOR CW SUMP & 1200 MM FOR ACW SUMP.
  - FOR FOUNDATION DETAILS OF CW PUMP & MOTOR, CW PUMP GA FROM BHEL HYD (DRG NO. 1-182-005-7082) SHALL ALSO BE REFERRED IN CONJUNCTION WITH THIS DRG.
  - FOR FOUNDATION DETAILS OF BUTTERFLY VALVES, BUTTERFLY VALVE GA DRG FROM BHEL BHOPAL MAY BE REFERRED.
  - REFERENCE DRAWINGS/ DOCUMENTS:
    - A) P&ID OF CW/ ACW SYSTEM (DRG NO. PE-DG-417-165-N001).
    - B) CW & ACW SYSTEM DESIGN PHILOSOPHY & SYSTEM WRITE UP (DOC NO. PE-DG-417-165-N002).
    - C) PLOT PLAN (DRG NO. PE-DG-417-100-M001).
    - D) GENERAL ARRANGEMENT & FOUNDATION DETAILS OF CWP (DRG NO. 1-182-005-7082) & MOTOR (DRG NO. BP-DG-417-207-001) BY BHEL HYD & BHEL BHOPAL RESPECTIVELY.
    - E) ELECTRICAL EQUIPMENT & CABLING LAYOUT IN CW PUMP HOUSE AREA (DRG NO. PE-DG-417-100-E024).
    - F) GA OF DG EOT CRANES WITH CT DSI DETAILS (DRG NO. PE-Y0-417-501-A105).
    - G) GA OF SINGLE ORDER CRANES WITH CT DSI DETAILS (DRG NO. PE-Y0-417-524-A003).
    - H) LAYOUT OF CW PIPING BETWEEN A-ROW TO CW PUMP HOUSE/COOLING TOWER (DRG NO. PE-DG-417-165-M002).
    - I) ARCHITECTURAL DRAWING-CW PUMP HOUSE(DRG NO. PE-DG-417-653-C002, PE-DG-417-653-C003 & PE-DG-417-653-C004).
    - J) SLD FOR 11KVUNIT SWITCHBOARD - (DRG NO. PE-DG-417-505-E001)



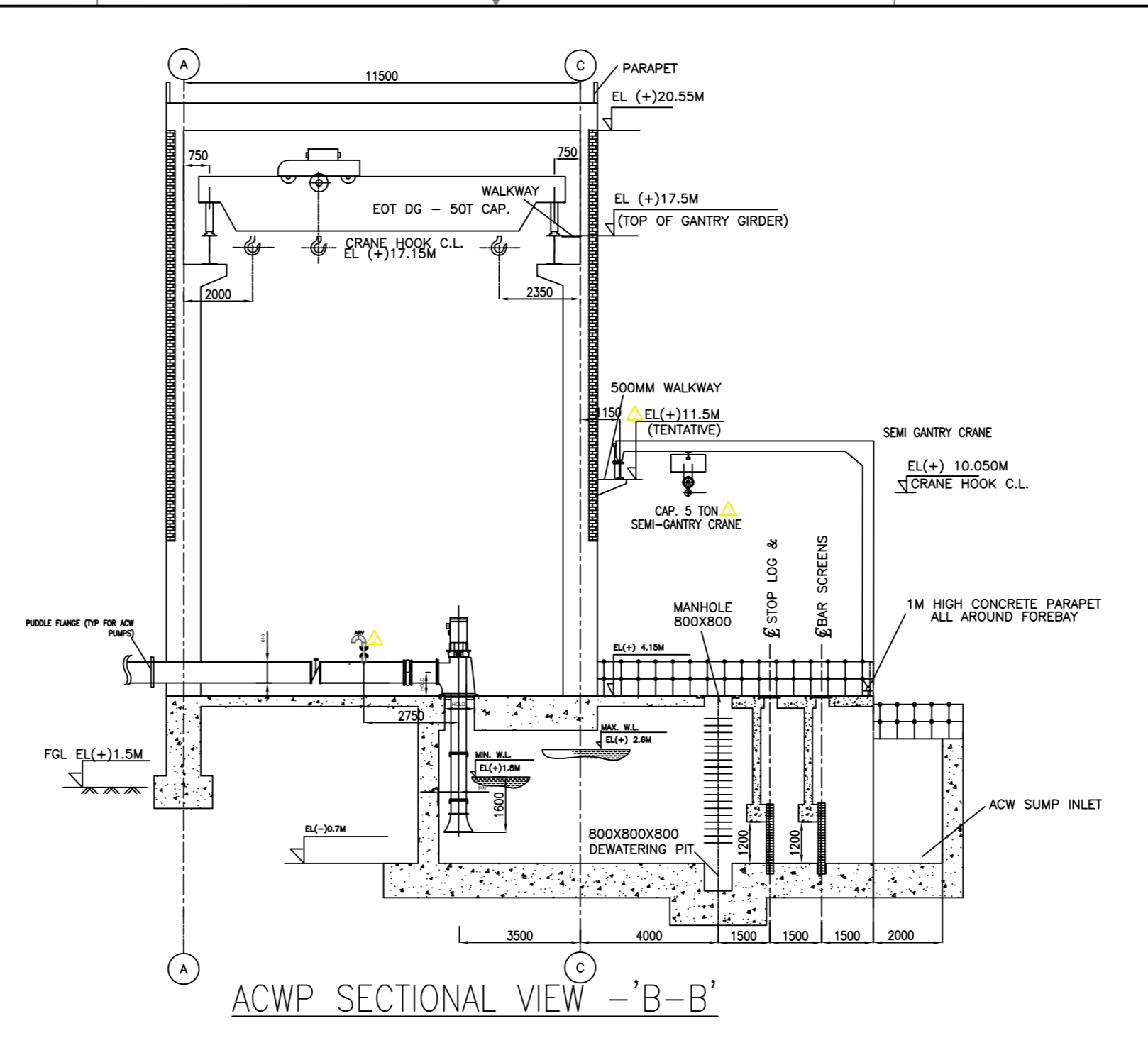
- EQUIPMENT DETAILS:
- CW PUMPS
    - (I) NO. OF PUMPS : 10 (4 W + 1 STANDBY PER UNIT)
    - (II) CAPACITY: 22800 CUB M/HR
    - (III) HEAD: 28 MLC
  - ACW PUMPS
    - (I) NO. OF PUMPS : 6 (2 W + 1 STANDBY PER UNIT)
    - (II) CAPACITY: 2000 CUB M/HR
    - (III) HEAD : 41 MLC



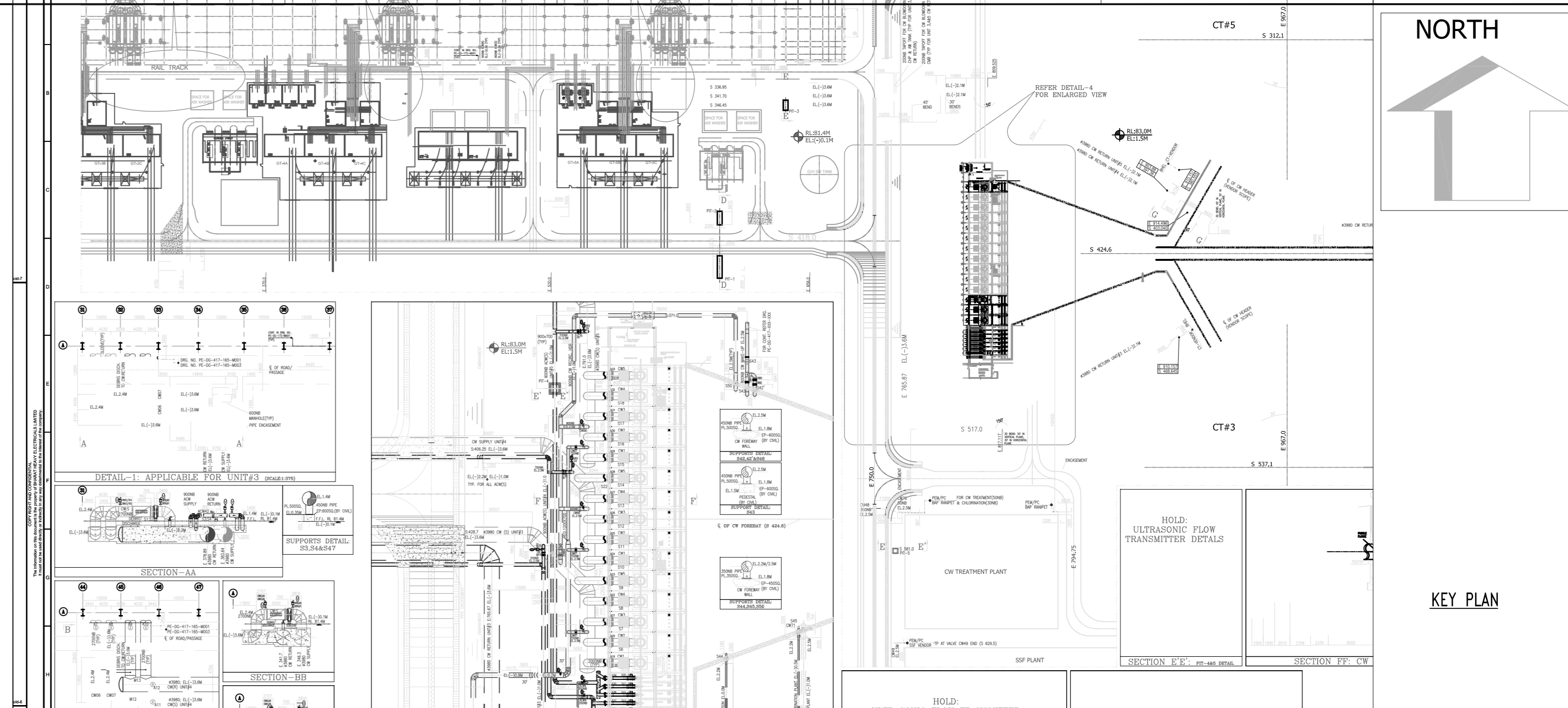
		TELANGANA STATE POWER GENERATION CORP. LTD. 5x800 MW YADADRI Thermal Power Station TATA CONSULTING ENGINEERS LIMITED BANGALORE, INDIA	
BHARAT HEAVY ELECTRICALS LTD. PROJECT ENGG. MANAGEMENT NOIDA	DRN: AK/ADK/sd/- CHD: NS/VKY/sd/- APPD: AK/sd/-	NAME: SD/- DATE: 29.04.18 DATE: 02.04.18 DATE: 04.04.18	TITLE: MECHANICAL GA OF CW & ACW PUMP HOUSE (FOR STAGE-I: UNIT# 1 & 2) UNIT: MM SCALE: BHEL DWG. NO. 1 PE-DG-417-165-N004 SHEET (1 OF 2)
02. REVISED INLINE WITH CUSTOMER COMMENTS 01. REVISED INLINE WITH CUSTOMER COMMENTS	ADK NS/VKY AK ADK NS/VKY AK DRAWN CHECKED APPROVED	24.12.18 08.08.18 DATE	02 01



PLAN OF CW SUMP, FOREBAY & CW DUCT AREA

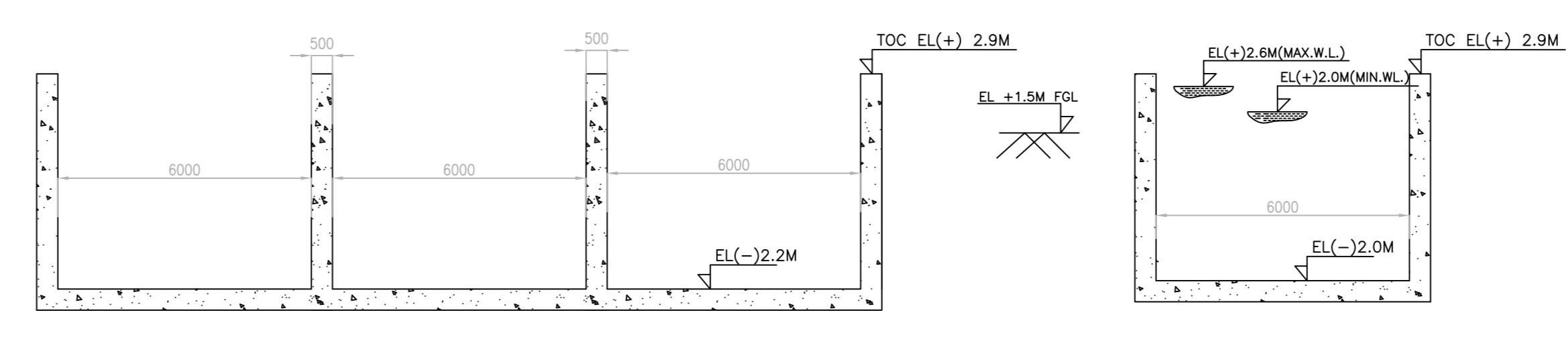


ACWP SECTIONAL VIEW -'B-B'



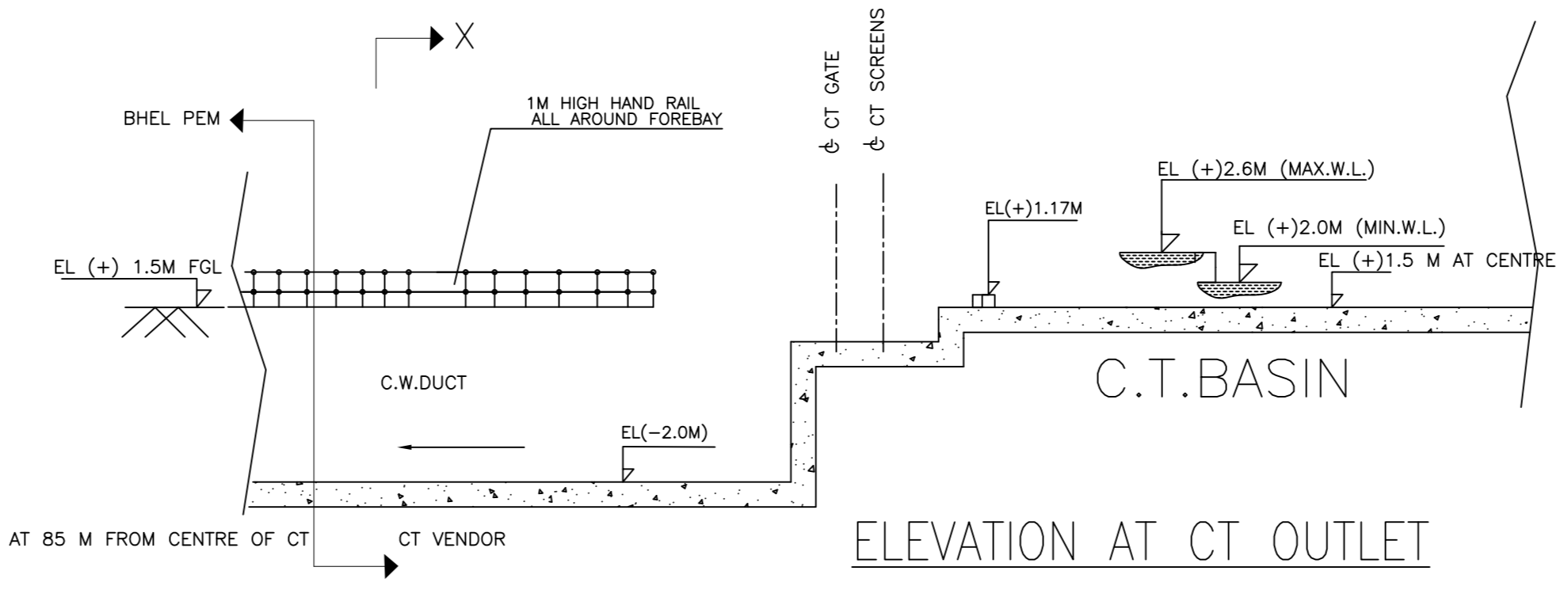
NORTH

KEY PLAN



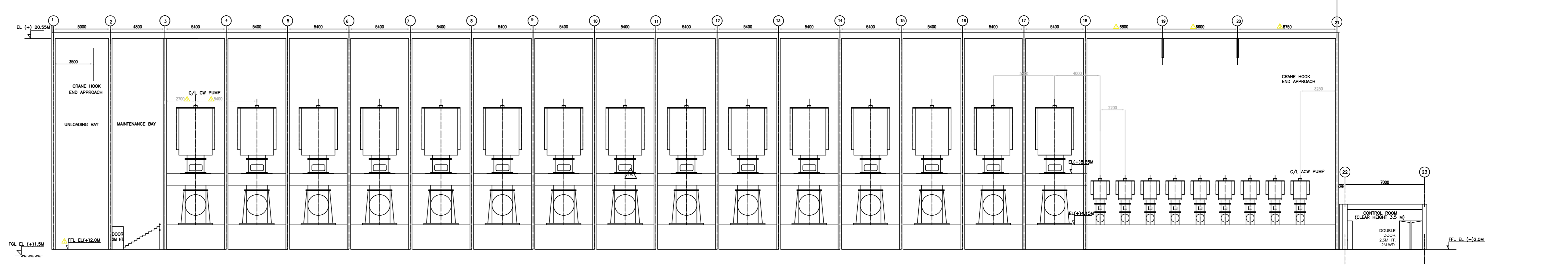
SECTION 'Y-Y'

SECTION 'X-X'

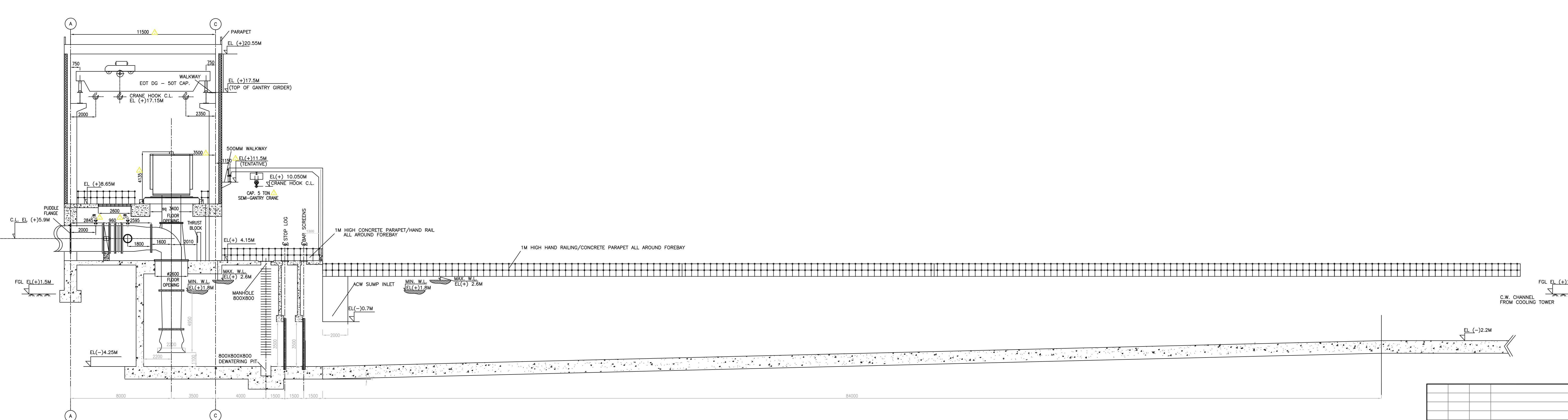


ELEVATION AT CT OUTLET

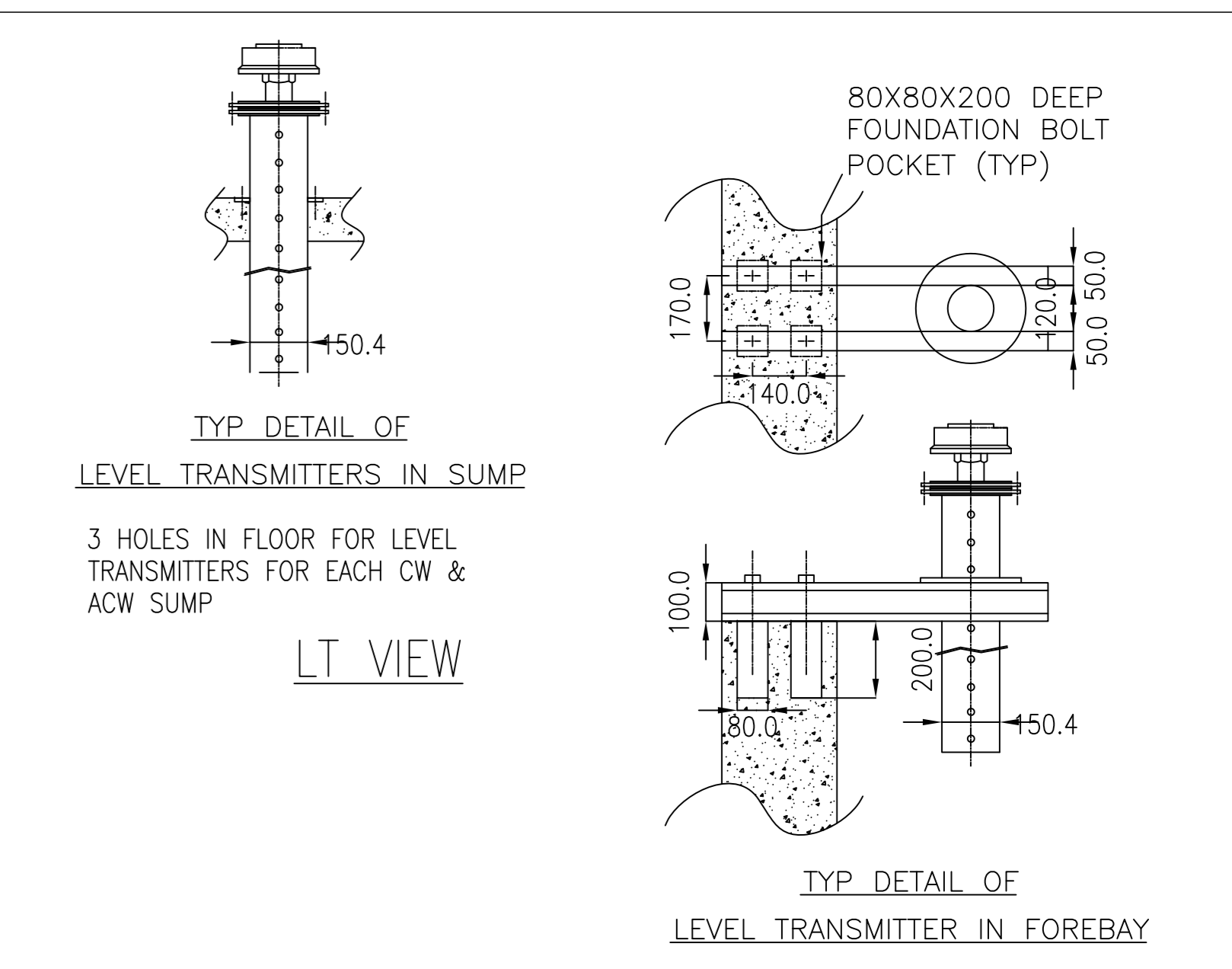
- NOTES :
- ALL DIMENSIONS ARE IN MM AND ALL ELEVATIONS ARE IN METRES UNLESS OTHERWISE STATED.
  - CARBON STEEL GATES (1NO. FOR EACH UNIT I.E. TOTAL 3 NOS. FOR CW SUMP & 1 NO. FOR EACH UNIT I.E. TOTAL 3 NOS. FOR ACW SUMP) AND CARBON STEEL COARSE BAR SCREEN (FOR EACH SUMP) OF 50mm SPACING BETWEEN BARS WITH CARBON STEEL FRAME (24 Nos., VIZ. 1 NO FOR EACH SUMP) TO BE FABRICATED AND SUPPLIED BY CIVIL CONTRACTOR.
  - SUMP MODEL STUDY & CFD ANALYSIS SHALL BE CARRIED OUT BY BHEL HYD FOR CW SUMP & FOREBAY, AND REQUISITE HYDRAULIC ELEMENTS SHALL BE INCORPORATED IN CIVIL WORKS, IF REQUIRED, AS PER STUDIES.
  - OPENINGS, INSERTS ETC. REQUIRED FOR C&I ITEMS, PIPE/VALVE SUPPORTS ETC. SHALL BE INDICATED AFTER FINALISATION OF RESPECTIVE INSTRUMENTS, PIPING LAYOUT ETC.
  - EL (+) 0.0 (F.L. OF TO. BUILDING) CORRESPONDS TO RL 81.5M. FGL OF CW PUMP HOUSE AREA SHALL BE EL (+) 1.5M CORRESPONDS TO RL 83.0M AS PER PLOT PLAN.
  - ACCUMULATED WATER ON FLOORS SHALL BE DRAINED BACK TO CW/ ACW SUMPS.
  - STOP LOG GATE & COARSE BAR SCREEN HEIGHT SHALL BE DESIGNED FOR SUMP OPENING HEIGHT VIZ 3500 MM FOR CW SUMP & 1200 MM FOR ACW SUMP.
  - FOR FOUNDATION DETAILS OF CW PUMP & MOTOR, CW PUMP GA FROM BHEL HYD (DRG NO. 1-182-005-7082) SHALL ALSO BE REFERRED IN CONJUNCTION WITH THIS DRG.
  - FOR FOUNDATION DETAILS OF BUTTERFLY VALVES, BUTTERFLY VALVE GA DRG FROM BHEL BHOPAL MAY BE REFERRED.
  - REFERENCE DRAWINGS/ DOCUMENTS:
    - A) P&ID OF CW/ ACW SYSTEM (DRG NO. PE-DG-417-165-N001).
    - B) CW & ACW SYSTEM DESIGN PHILOSOPHY & SYSTEM WRITE UP (DOC NO. PE-DC-417-165-N002).
    - C) PLOT PLAN (DRG NO. PE-DG-417-100-M001).
    - D) GENERAL ARRANGEMENT & FOUNDATION DETAILS OF CWP (DRG NO. 1-182-005-7082) & MOTOR (DRG NO. BP-DG-417-207-001) BY BHEL HYD & BHEL BHOPAL RESPECTIVELY.
    - E) ELECTRICAL EQUIPMENT & CABLING LAYOUT IN CW PUMP HOUSE AREA (DRG NO. PE-DG-417-100-E024).
    - F) GA OF DC EOT CRANES WITH CT DSL DETAILS (DRG NO. PE-V0-417-501-A105).
    - G) GA OF SINGLE ORDER CRANES WITH CT DSL DETAILS (DRG NO. PE-V0-417-524-A003).
    - H) LAYOUT OF CW PIPING BETWEEN A-ROW TO CW PUMP HOUSE/COOLING TOWER (DRG NO. PE-DG-417-165-M002).
  - ARCHITECTURAL DRAWING-CW PUMP HOUSE(DRG NO. PE-DG-417-653-C002, PE-DG-417-653-C003 & PE-DG-417-653-C004)
  - SLD FOR 11KVUNIT SWITCHBOARD - (DRG. NO. PE-DG-417-505-E001)



VIEW -'C-C' ABOVE EL (+)1.5M



CWP SECTIONAL VIEW -'A-A'



TYP DETAIL OF LEVEL TRANSMITTERS IN SUMP

TYP DETAIL OF LEVEL TRANSMITTER IN FOREBAY

EQUIPMENT DETAILS:

- 1. CW PUMPS: (03 NOS OF PUMPS = 15 (3 W x 1 STANDBY PER UNIT))  
 QTY: CAPACITY: 2800 CUB M/H  
 QTY: HSD: 28 HEC
- 2. ACW PUMPS: (03 NOS OF PUMPS = 9 (3 W x 1 STANDBY PER UNIT))  
 QTY: CAPACITY: 2000 CUB M/H  
 QTY: HSD: 1 HEC

TELANGANA STATE POWER GENERATION CORP. LTD.  
 5x800 MW YADADRI Thermal Power Station  
 TATA CONSULTING ENGINEERS LIMITED  
 BANGALORE, INDIA

REV.	STATUS	TYPE	REASONS FOR REVISION	DRAWN	CHECKED	APPROVED	DATE	TITLE	SCALE	UNIT	MM
02	REVISED	IN LINE	WITH CUSTOMER COMMENTS	ADK	NS/ARY	AK	24.12.18	MECHANICAL GA OF CW & ACW PUMP HOUSE (FOR STAGE-II, UNIT - #3, 4 & 5)	NA	BHEL	DWG. NO. PE-DG-417-165-N004 (SHEET 2 OF 2)
01	REVISED	IN LINE	WITH CUSTOMER COMMENTS	ADK	NS/ARY	AK	08.08.18				

**Replies to comments on Mechanical GA of CW Pump house (Rev 01)**

S. No	Customer Comments	BHEL Replies dated 24.12.2018
<b>Comments marked on Word file</b>		
1	Is there any storage rack considered for storing the stop logs.	Please note a Paved area near maintenance bay (500 mm above FGL) is provided for storage of stop log gate and stools are provided in this area for resting of stop log gate. There is no storage rack envisaged.
2	Indicate dimension	Noted & incorporated.
3	Indicate the cross travel approach	Already provided in "CWP sectional View A-A"
4	56785?	checked & corrected.
5	3 No's LT shall be provided as per P & Id.	Noted & incorporated.
6	Provision shall be provided for Chlorine dosing along with other CW chemical dosing system.	Noted & Incorporated.
7	Please mark the dimension.	Noted & incorporated.
8	BHEL to explain where this kind of arrangement is made in earlier projects (except KTPS). BHEL to provide the reference for those projects (especially NTPC projects).	This arrangement is as per BHEL standard practice and already provided in number of projects viz. 2X660 MW RRUVNL Suratgarh TPS, 1X500 MW DVC Bokaro 'A' TPS, 1X700 MW KPCL Bellary TPS Unit-3 etc.. Further sump model study along with CFD analysis shall be conducted for establishing the correctness of layout.
9	Does the arrangement is inline with HIS requirements?	
10	BHEL to confirm whether flow study & Modeling has been done to arrive the layout. If done and arrived the arrangement. BHEL to submit the same for reference	
11	Indicate electrical MCC room	Please note there is no switchgear room in CWPH. Please refer PE-DG-417-505-A001.
12	FFL shall be marked.	Noted & incorporated.
13	CW pump and ACW pump foundation details shall be shown.	CW pump & ACW pump foundation details shall be provided in Civil GA of CW pump house.
14	BHEL to ensure the proper approach to the pumps	Noted.
15	Weight of Pump and motor shall be provided.	Weight of CW pump & motor shall be indicated in respective GA drawing ( FP-1-182-005-7082 & BP-DG-417-207-001) submitted separately by BHEL-Hyderabad & Bhopal respectively.
16	Static load and dynamic load due to pump and motor set shall be furnished.	Static load and dynamic load due to pump and motor set shall be indicated in respective GA drawing ( FP-1-182-005-7082 & BP-DG-417-207-001) submitted separately by BHEL-Hyderabad & Bhopal.
17	Pump data indicating the pump capacity, head, quantity shall be provided.	Noted & incorporated.
18	Indicate ventilation system requirement like fan and louver details shall be shown.	Ventilation system requirement shall be indicated in Architectural drawing of CW pump house (Drg no. PE-DG-417-653-C002, PE-DG-417-653-C003 & PE-DG-417-653-C004)
19	BHEL to indicate the holds as most of the equipments are to be order and are dependent on Vendor information. BHEL to indicate the same.	Noted.
21	Please mark water levels.	Water levels are already marked in CWP sectional view A-A. Further there is negligible pressure drop of 50 mm across screen and same can not be distinguished in water levels near screen in GA drawing.
22	Please indicate minimum submergence value.	Please note minimum water level in CW pump house is selected based on minimum submergence requirement and submergence requirement of 4950 mm is already indicated in the "CWP Sectional view A-A".
23	Dimension shall be provided.	Noted & incorporated.
24	Check the column grid locations and revise the dimension.	Noted & incorporated.
25	BHEL to indicate maintenance platform for motor	Maintenance platform for motor is envisaged in maintenance bay at EL (-) 1.0 M. However for local monitoring/inspection of motor, motor floor is already indicated at EL (+)5.65 M.
26	ARV shall be shown.	Noted & incorporated.
27	Dimension shall be provided.- CW Pump	Complete dimensions of CW pump shall be provided in CW pump GA drawing (drg no. FP-1-182-005-7082).
28	Please provide basis of crane selection (typical).	Required capacity of semi gantry crane is arrived as 5T, considering 25% margin over heaviest equipment to be lifted i.e. stop log gate. Stop log gate is in three parts (4400mmX1170mm each) and weight of each part is approx. 1.8 ton+1 ton including accessories of handling arrangement of gate. Thus selected capacity of semi gantry crane is in order.
29	EL shall be marked.	Noted & incorporated
30	Please mark the dimension.	Noted & incorporated
31	ARV shall be shown.	Noted & incorporated