

**Corrigendum 5 dated Dec' 06, 2019 to Tender Specification BHEL PSSR SCT 1866** for Structural Works of Coal Handling Plant and Ash Handling Plant area and Non-plant structure of Unit 1 & 2 (Package 2) for 2 x 660 MW Udangudi Supercritical Thermal Power Project, Tuticorin, Tamil Nadu

1) Some of the Bidders had raised queries for clarification in the published Tender Specification and BHEL's clarifications are furnished below:

Sl.No	Clause No.	Existing as per tender document	Query / Request	BHEL Clarification / Reply
1	Price Bid - A2301	Collection of material from BHEL stores, Transportation, Fabrication, erection and alignment of structural steel with mild steel rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, safety chains, ladders, MS grating etc. in columns, beams, gantry girders, bunkers, silos, hoppers, roof trusses, portals, laced purlins, space frames, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc <b>including 2 coats of zinc-silicate primer (one coat at shop and one coat after erection, Dry film thickness of each primer coat shall be 50 microns.),</b> connection design & preparation of fabrication drgs, collection of steel from stores, fabrication, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 20o C for welding over 20 mm and upto 40 mm & 66o C for welding over 40 mm and upto 63 mm & 110o C for thickness over 63 mm & use of low hydrogen/ radiogenic electrodes), post heating, testing of welders,	In the item no. A2301, it is mentioned as including the painting work which is also given as a separate item in item no. A2302. Kindly clarify us whether we have to consider painting in the Item A2301 or not.	<b>Painting shall not be considered in Item no. A2301. Item description has been modified as mentioned below:</b> "Collection of material from BHEL stores, Transportation, Fabrication, erection and alignment of structural steel with mild steel rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, safety chains, ladders, MS grating etc. in columns, beams, gantry girders, bunkers, silos, hoppers, roof trusses, portals, laced purlins, space frames, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc including connection design & preparation of fabrication drgs, collection of steel from stores, fabrication, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 20o C for welding over 20 mm and upto 40 mm & 66o C

		inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), return of surplus / waste steel materials to store etc all complete. Including appointment of a separate agency, approved by BHEL, for review and approval of fabrication drgs, in consultation with BHEL (BHEL to supply steel free of cost).		for welding over 40 mm and upto 63 mm & 110o C for thickness over 63 mm & use of low hydrogen/ radiogenic electrodes), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), return of surplus / waste steel materials to store etc all complete. Including appointment of a separate agency, approved by BHEL, for review and approval of fabrication drgs, in consultation with BHEL (BHEL to supply structural steel free of cost)"
2	Price Bid - 2302	Extra over ST NO. 2301 for blast cleaning of steel structures to near white metal surface(Sa 2 1/2 ) and applying epoxy based zinc phosphate primer in coats of minimum 25 micron (DFT) at shop and 25 micron (DFT) after erection, <b>instead of primer coat of red oxide zinc-chromate, including touch-up painting etc all complete.</b>		<b>Item description is modified as mentioned below:</b> "Extra over ST NO. 2301 for blast cleaning of steel structures to near white metal surface(Sa 2 1/2 ) and applying epoxy based zinc phosphate primer in coats of minimum 25 micron (DFT) at shop and 25 micron (DFT) after erection, including touch-up painting etc all complete."
3	Price Bid - A2302	Extra over ST No. 2301 for blast cleaning by shot/ metal blasting of steel structures to near white metal surface (Sa 2 1/2) as per S1s05-5900 and applying 2 coats of zinc silicate primer (one coat at shop and one coat at erection) <b>instead of primer coat of red oxide</b>		<b>Item description is modified as mentioned below:</b> "Extra over ST No. 2301 for blast cleaning by shot/ metal blasting of steel structures to near white metal surface (Sa 2 1/2) as per S1s05-5900 and applying 2 coats of zinc silicate primer (one coat at

		<b>zincchromate, including touch up painting etc all complete as per specification.</b>		shop and one coat at erection), including touch up painting etc all complete as per specification.”
4	Price Bid - 2303	Extra over ST NO. 2301 for providing and application of two coats of primer consisting of chemical resistant epoxy resin and hardener (Minimum 1 Kg of primer mix shall be consumed for priming of 4 to 5 m2 area of surface) <b>instead of primer coat of red oxide zinc-chromate, including touch up painting etc. all complete.</b>		<b>Item description is modified as mentioned below:</b> “Extra over ST NO. 2301 for providing and application of two coats of primer consisting of chemical resistant epoxy resin and hardener (Minimum 1 Kg of primer mix shall be consumed for priming of 4 to 5 m2 area of surface), including touch up painting etc. all complete.”
5	Price Bid - 2304	Extra over ST No. 2301 for providing and applying two coats of synthetic enamel paint with minimum 50 micron total dry film thickness (DFT) of approved make and shade to achieve an even shade over steel sections already having primer coats and keeping overall DFT with primer not less than 110 microns including protection and cleaning, scaffolding etc. all complete.		<b>Item description is modified as mentioned below:</b> “Providing and applying two coats of synthetic enamel paint with minimum 50 micron total dry film thickness (DFT) of approved make and shade to achieve an even shade over steel sections already having primer coats and keeping overall DFT with primer not less than 110 microns including protection and cleaning, scaffolding etc. all complete.”
6	Price Bid - A2329	Design, supply, fabrication, erection of <b>stoplog gates</b> , sluice gates etc in CW Pumps/Sea water Intake/Outfall pumps made out of SS 316L with embedments required, lifting beams, special tools & plants, spare parts for three years, machining, casting, all materials such as structural steel, cast steel, stainless steel, brass used for seals, rubber seals, gears, ball and roller bearing, branch bushings, greasing, bolts, nuts, lugs, threaded fastners etc., cleaning, blasting(SA 2 1/2) to near white metal surface, along with a second stage concreting to true plumb and levels, submission of drawings / fabrication drawings for engineers approval etc all complete as per approved drawings. The leakage through rubber seal shall not be more than 5	It is mentioned as only weight of stainless steel including embedments shall be considered for payment purpose, but the work also involves structural steel works. Kindly clarify us whether we should include the payments for structural steel works or not.	<b>Item description is modified as mentioned below:</b> Item rate to be inclusive of structural steel works also”

		lit/min/metre length of seal under maximum head.(only weight of stainless steel including embedments shall be considered for payment purpose). ( supply of stainless steel is in the scope of contractor only)		
7	Price Bid - A2331	SS component mentioned under ST No. A2329.		SS component mentioned under ST No. B2329.
8	Price Bid - B2329	Design, supply, fabrication, erection of stoplog gates in CW/ACW Pumps/Sea water intake & outfall pumps with embedments required, lifting beams, special tools & plants, spare parts for three years, machining, casting, all materials such as structural steel, cast steel, stainless steel, brass used for seals, rubber seals, gears, ball and roller bearing, branch bushings, greasing, bolts, nuts, lugs, threaded fastners etc., cleaning, sand blasting, hot double dip galvanised with minimum coating of zinc 750 gms/sqm., following by an application of etching primer and and anti-corrosive Hi-build epoxy coating system of DFT 260 microns, erection along with a second stage concreting to true plumb and levels, submission of drawings / fabrication drawings for engineers approval etc all complete. The leakage through rubber seal shall not be more than 5 lit/min/metre length of seal under maximum head.(only weight of structural steel including embedments shall be considered for payment purpose).  (SS component paid separately under BOQ item no A2331)		<b>Item description is modified to include design, supply, fabrication &amp; erection of screens also as mentioned below:</b> "Design, supply, fabrication, erection of stoplog gates/ <b>screens</b> in CW/ACW Pumps/Sea water intake & outfall pumps with embedments required, lifting beams, special tools & plants, spare parts for three years, machining, casting, all materials such as structural steel, cast steel, stainless steel, brass used for seals, rubber seals, gears, ball and roller bearing, branch bushings, greasing, bolts, nuts, lugs, threaded fastners etc., cleaning, sand blasting, hot double dip galvanised with minimum coating of zinc 750 gms/sqm., following by an application of etching primer and and anti-corrosive Hi-build epoxy coating system of DFT 260 microns, erection along with a second stage concreting to true plumb and levels, submission of drawings / fabrication drawings for engineers approval etc all complete. The leakage through rubber seal shall not be more than 5 lit/min/metre length of seal under maximum head.(only weight of structural steel including embedments shall be considered for payment purpose). (SS component paid separately under BOQ item no A2331)"

9	Price Bid	Item A2329, B2329 , A2332, B2332	Quantity of each type of stop log and coarse screen	Refer Pricebid
			Size of each type of gate and screen	Refer enclosed drawing for information
			Max water level	
			Minimum water level	
			Sill level	
			Operating floor level	
			Opening of wire mesh and dia of wire mesh	
10	Part C: Bill of Quantities	Item no. 2303	The weightage allocated to this item seems to be unbalanced Weightage shall be revised for this item.	Tender Condition Prevails

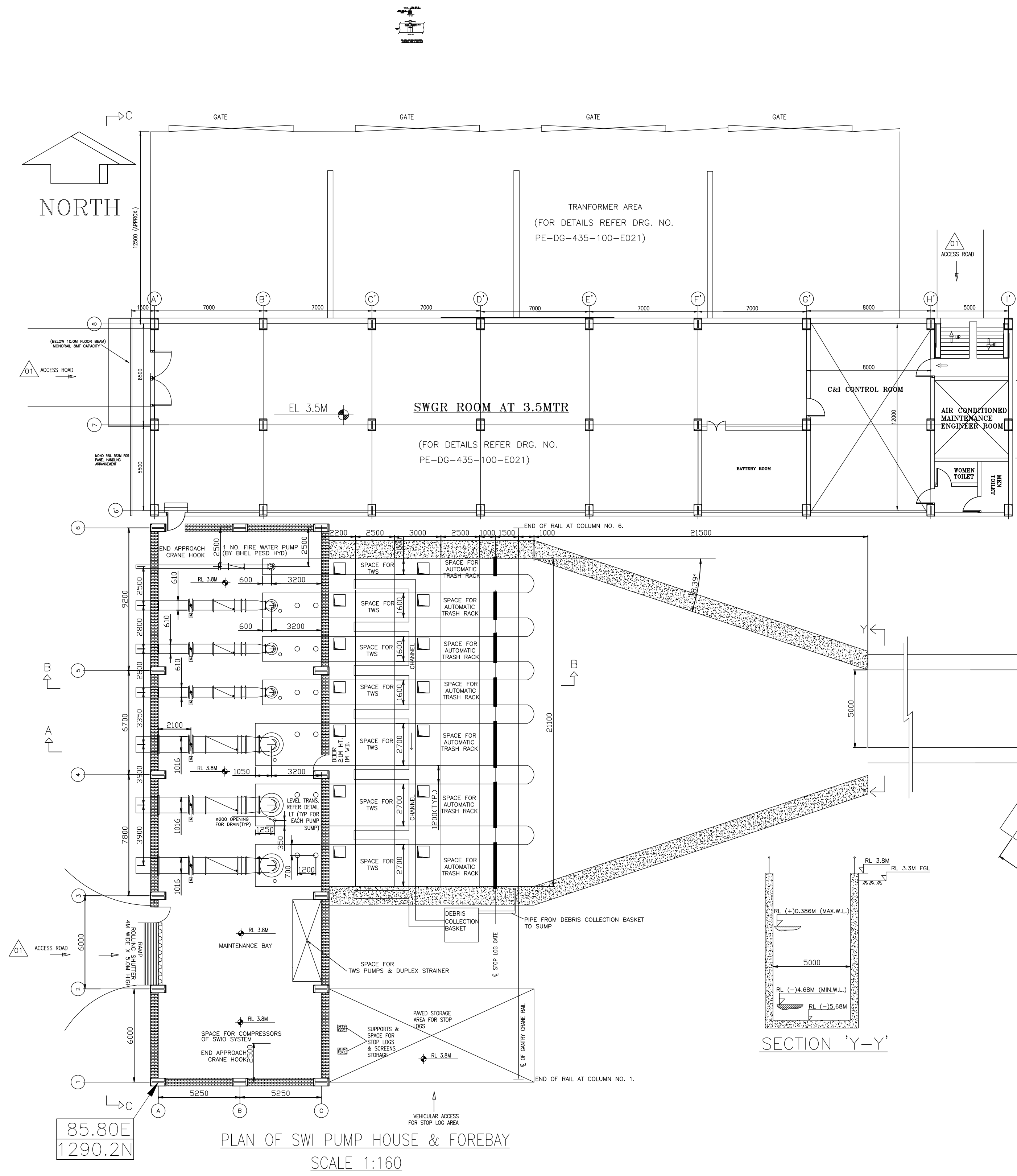
All other conditions of the tender specification remain unchanged.

Bidders are requested to consider this corrigendum as part of tender specification and quote accordingly.

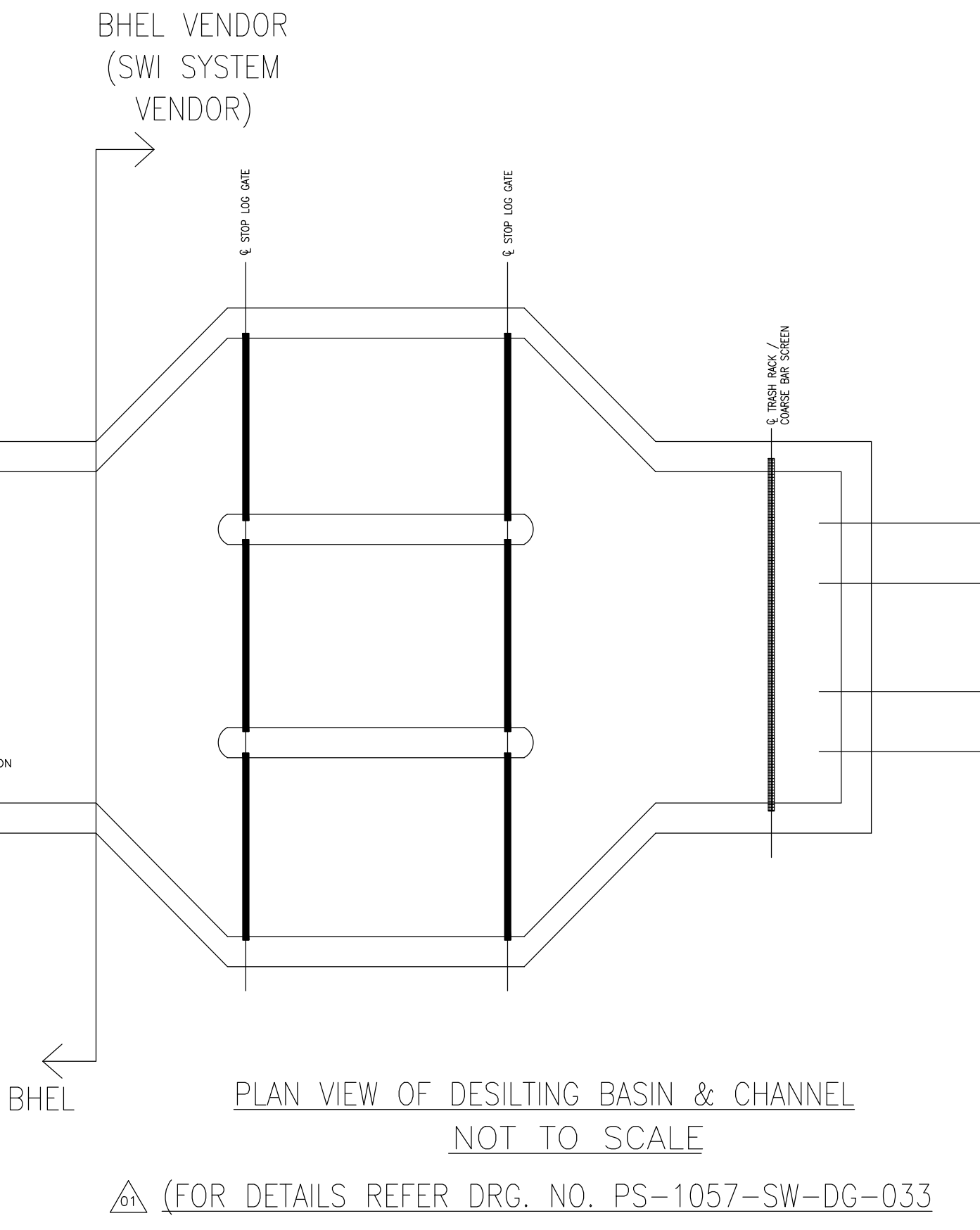
-Sd-  
Vinod Jaseja  
Sr. Dy. Gen. Manager / SCT



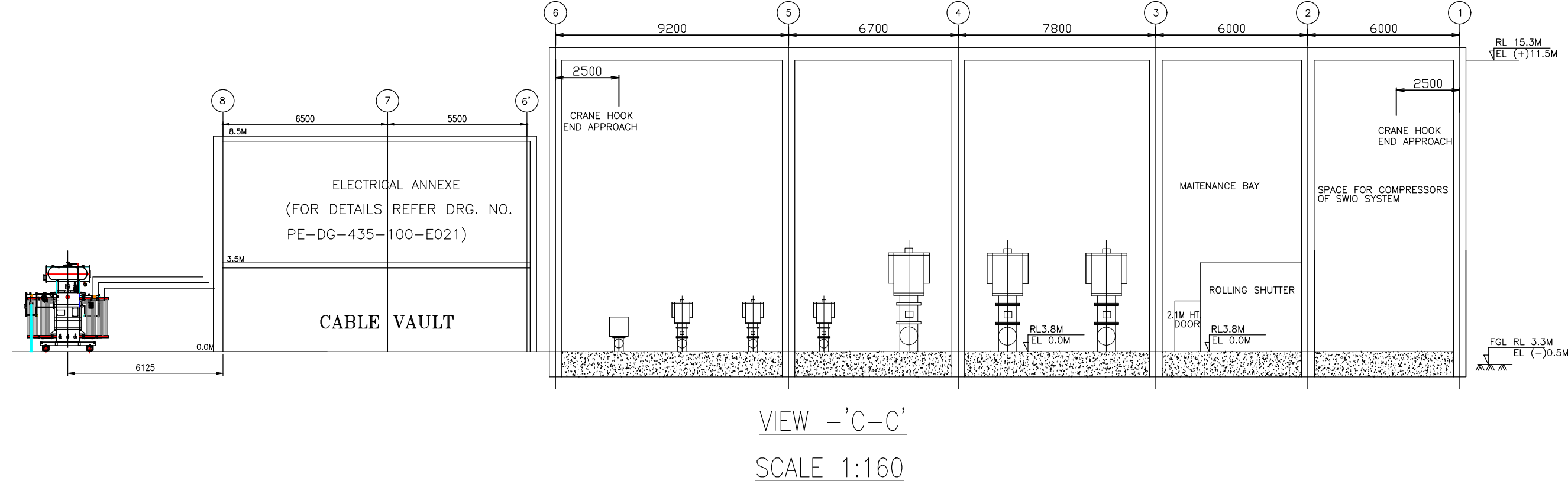
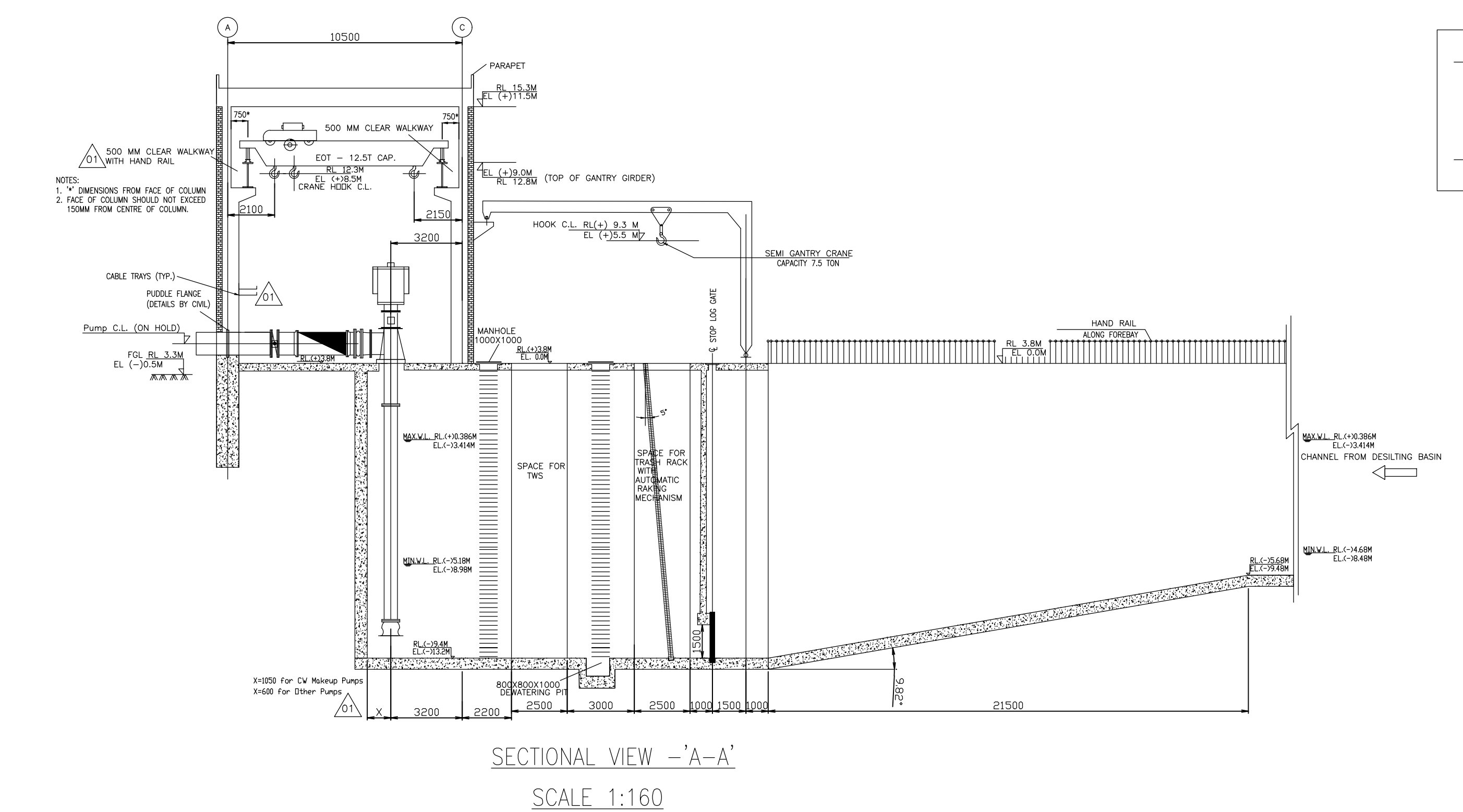
INFORMATION PROVIDED IS FOR TENDER PURPOSE ONLY



LEVELS CONSIDERED FOR DESIGNING (AS PER INFORMATION FURNISHED BY TANGEDCO AS PER CL. 5.1.3, SEC 1.0, Vol II)			
		ELEVATIONS W.R.T. CD	RL EL. (M)
PLANT FOL		3.940	+3.300 (-)20.900
HIGHEST HIGH WATER LEVEL	2.514m	1.026	+0.386 (-)25.414
MEAN SEA LEVEL	0.386m	0.640	0.000 (-)28.800
LOWEST LOW WATER LEVEL	0.330m	0.110	(-)29.530 (-)24.330



- NOTES:
- ALL DIMENSIONS ARE IN MM AND ALL ELEVATIONS ARE IN METRES UNLESS OTHERWISE STATED.
  - SS316L GATES (TOTAL 3 NOS. I.e. 1NO. FOR SWP FOR CW MAKEUP, 1 NO. FOR SWP FOR DESALINATION PLANT, & 1 NO. FOR FIRE WATER PUMP) & SS316L GUIDE TO BE FABRICATED AND SUPPLIED BY CIVIL CONTRACTOR.
  - 1 NO. TRASH RACK FOR EACH PUMP SUMP SHALL BE PROVIDED ALONG WITH 1 NO. COMMON AUTOMATIC MOBILE TRASH CLEANING MECHANISM BY BHEL-PEM TWS VENDOR.
  - SUMP MODEL STUDY SHALL BE CARRIED OUT BY BHEL PEM PUMP VENDOR FOR SEA WATER INTAKE 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 AS PER RESPECTIVE INSTRUMENTS, PIPING LAYOUT ETC.
  - ACCESS TO ROOF FOR PUMP HOUSE SHALL BE PROVIDED BY CAGE LADDER.
  - STOP LOG GATE HEIGHT SHALL BE DESIGNED FOR SUMP OPENING HEIGHT AS SHOWN IN DRAWING.
  - TRASH RACK (COARSE BAR SCREEN) HEIGHT SHALL BE UP TO PUMP FLOOR LEVEL (RL 3.8M)
  - REFERENCE ENGINEERING DRAWINGS:
    - a) PLANT WATER P&ID: PE-DG-435-172-N001
    - b) GA OF PUMPS: PE-V6-435-100-N002
    - c) ELECTRICAL EQUIPMENT LAYOUT & CABLING IN SEA WATER INTAKE P/H AREA: PE-DG-435-100-E021.
    - d) P&ID OF ELECTRO CHLORINATION : 1-WT-040-01694
    - e) GA DRAWING FOR SWI PH EOT CRANE: PE-V0-435-501-A105
    - f) INTAKE PIPING OUTSIDE PUMP HOUSE: PE-DG-435-100-M049
  - VENTILATION DETAILS SHALL BE AS PER HVAC DOCUMENTS.
  - SERVICE & POTABLE WATER OVER HEAD TANK (1 CUM EACH) ON ROOF OF ELECTRICAL ANNEXE TO BE PROVIDED BY CIVIL CONTRACTOR.
  - CW MAKEUP PUMPS DETAILS
    - (i) No. OF PUMPS 3Nos. (2w+1S for Station)
    - (ii) TYPE VERTICAL TURBINE
    - (iii) SPEED 1500 RPM (MAX.)
    - (iv) CAPACITY OF PUMPS 6500 m<sup>3</sup>/hr
    - (v) HEAD (EX. PUMP INTERNAL LOSSES) 16.3M
  - DESALINATION PLANT SUPPLY PUMPS DETAILS
    - (i) No. OF PUMPS 3Nos. (2w+1S for Station)
    - (ii) TYPE VERTICAL TURBINE
    - (iii) SPEED 1500 RPM (MAX.)
    - (iv) CAPACITY OF PUMPS 2000 m<sup>3</sup>/hr
    - (v) HEAD (EX. PUMP INTERNAL LOSSES) 30.0M



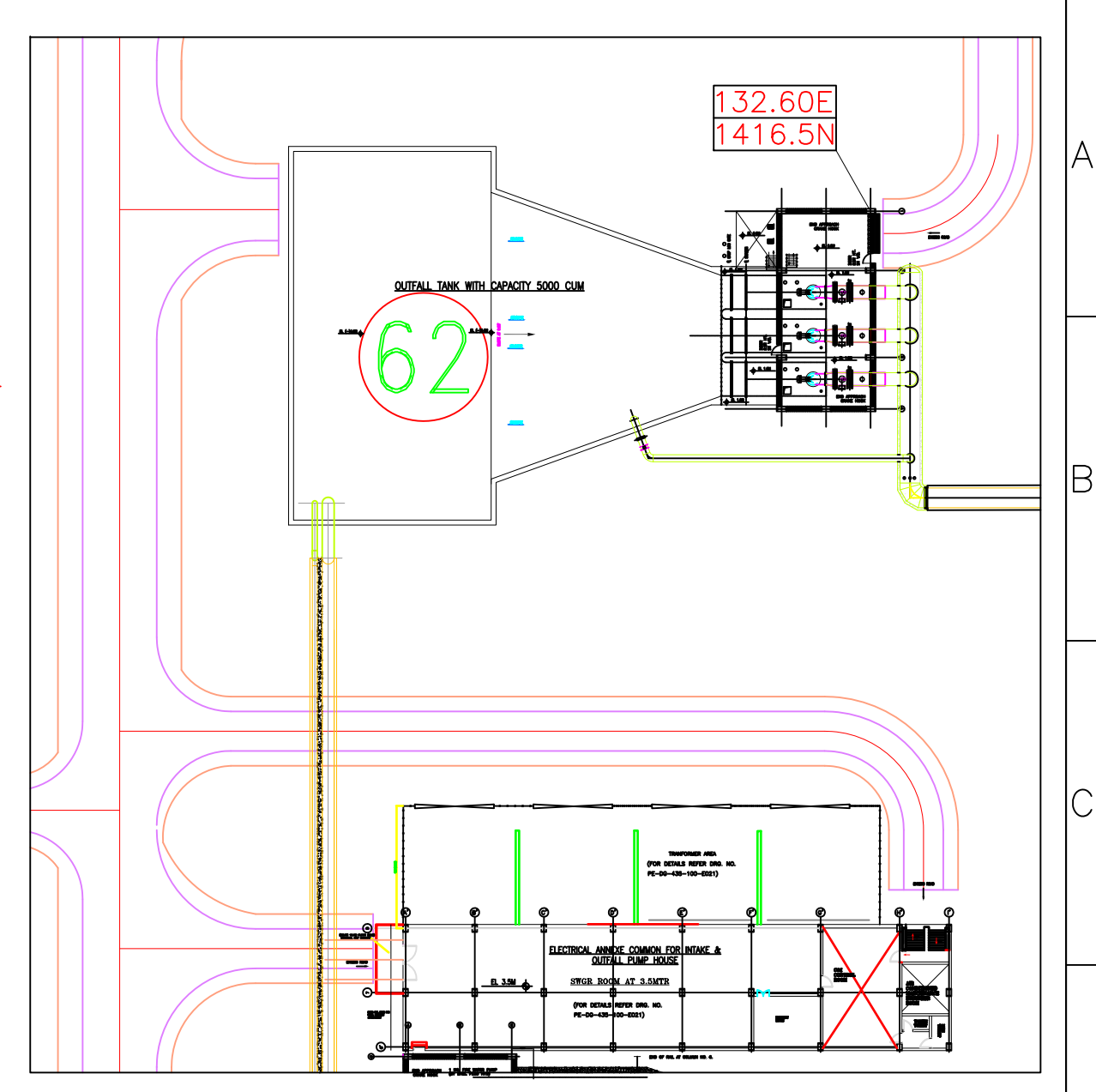
IMPORTANT NOTE:  
THIS PUMP HOUSE IS BASED ON MINIMUM WATER LEVEL AS PER CALCULATION IN PLANT WATER EQUIPMENT SIZING (DOC. NO. PE-DC-435-172-N007). ANY CHANGE IN FINAL WATER LEVELS FROM SEA WATER INTAKE SYSTEM AT DOWNSTREAM OF DESILTING CHAMBER MAY HAVE BEARING ON PUMP HOUSE.

EL 0.00M CORRESPOND TO RL 3.8M, WHICH IS FFL OF TG BUILDING. ALL ELEVATIONS ARE MARKED WITH RESPECT TO THIS LEVEL.

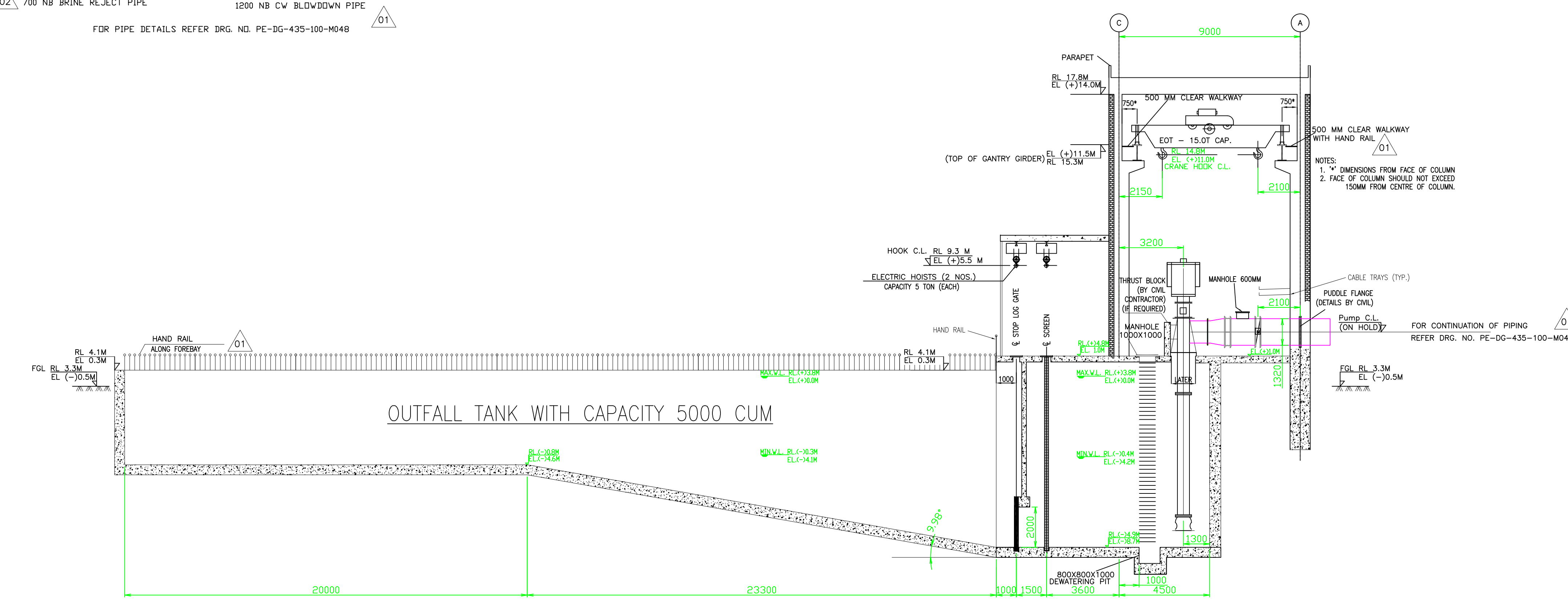
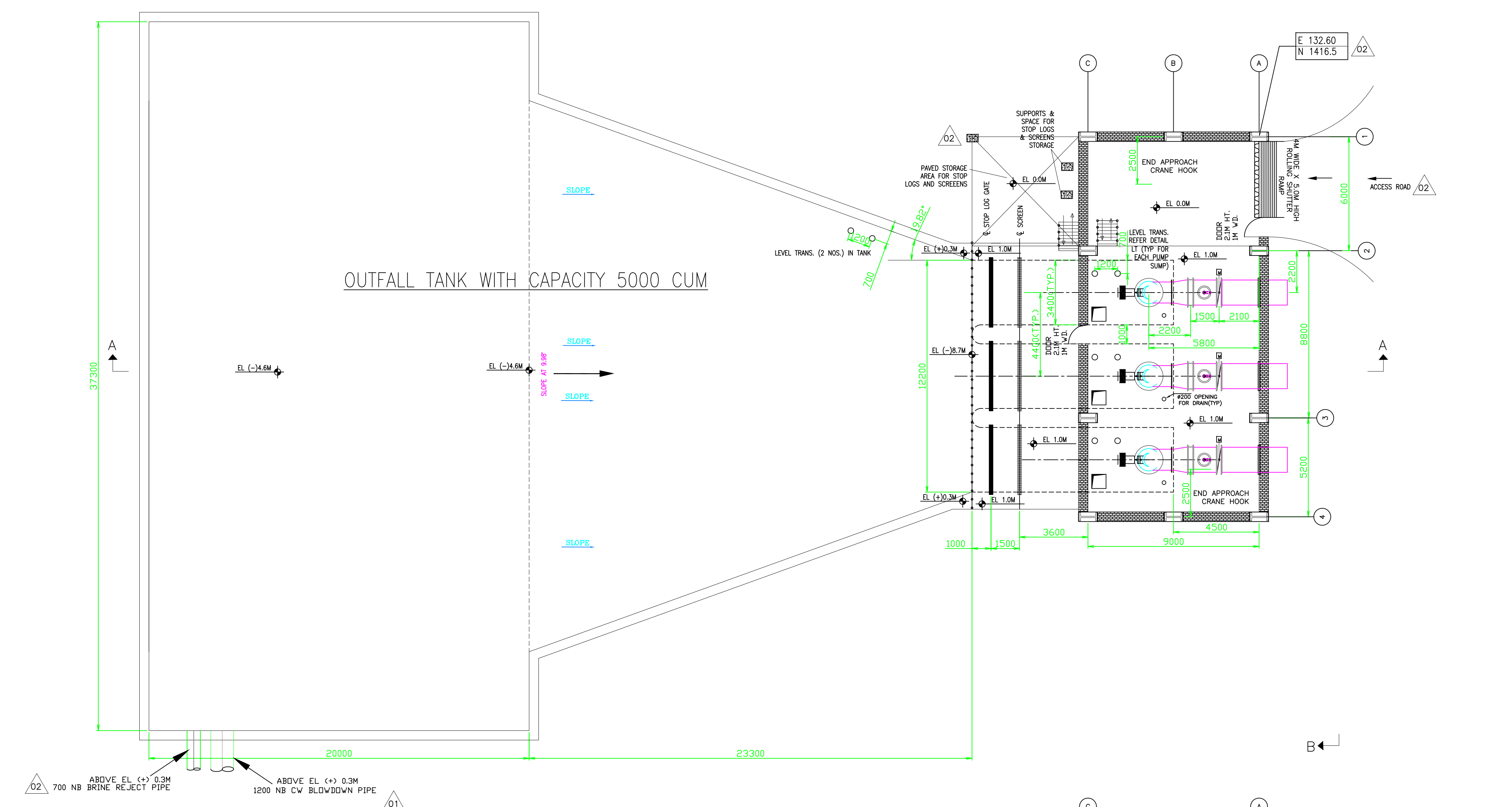
DRAFT



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----

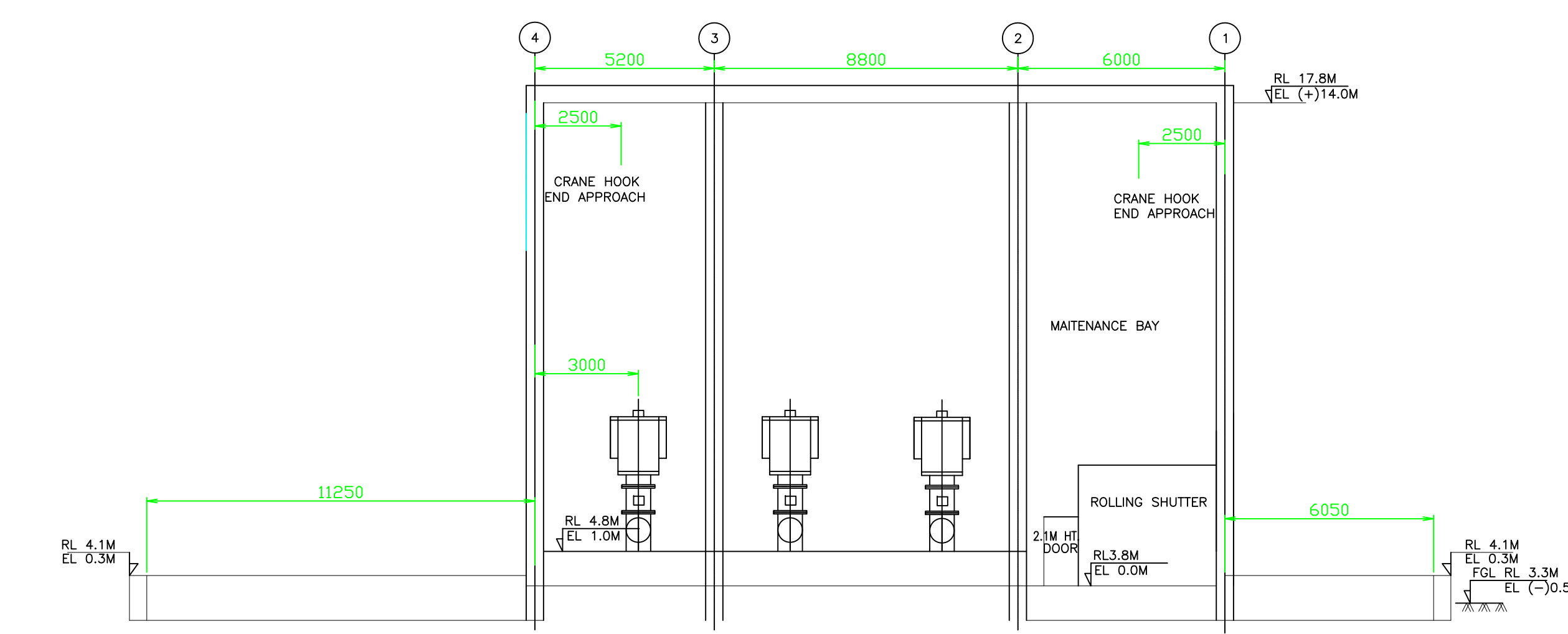


KEY PLAN  02



SEA WATER OUTFALL PUMP SECTIONAL VIEW - 'A-A'

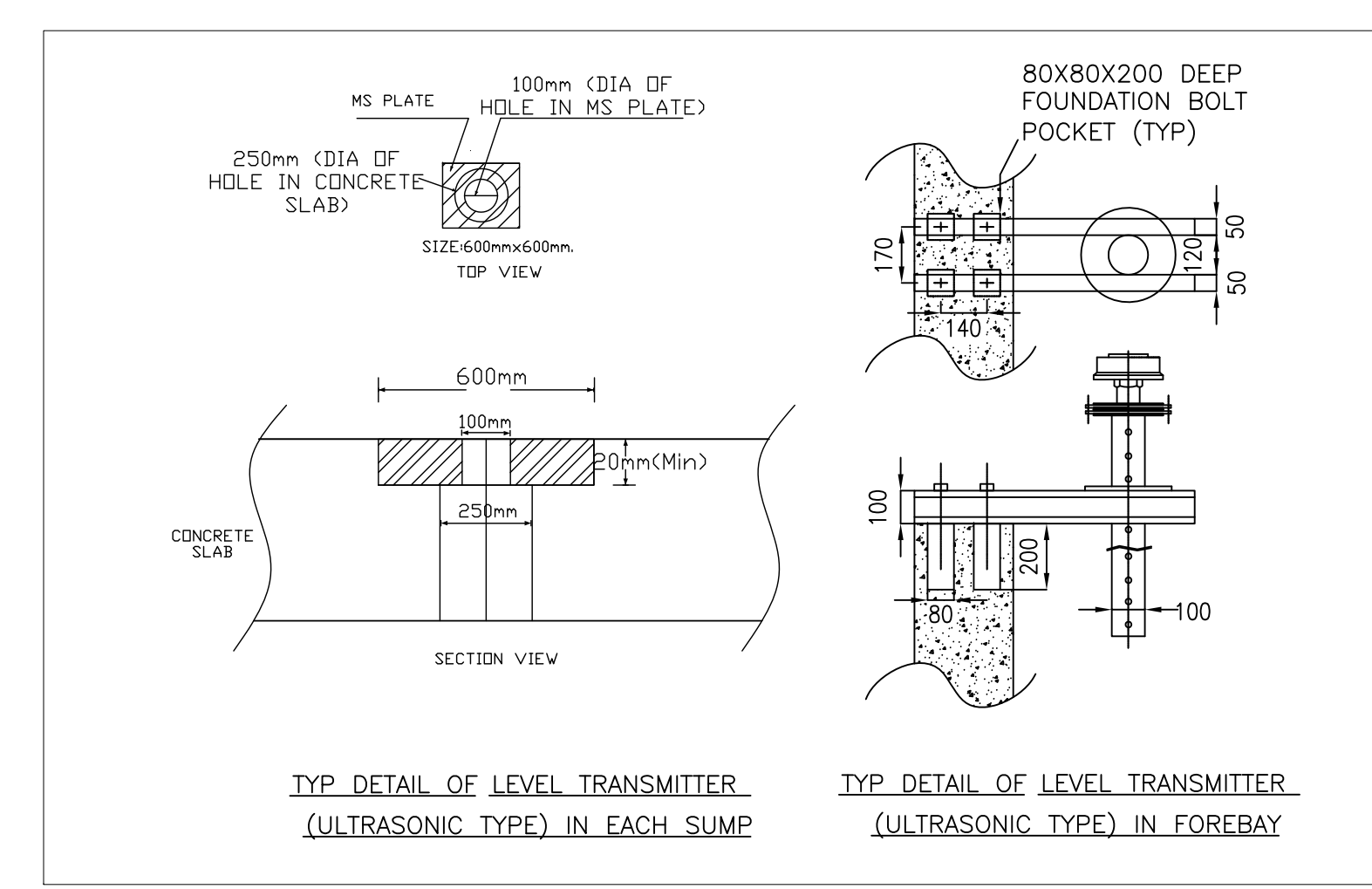
SCALE 1:160



VIEW - 'B-B'  
SCALE 1:160



- NOTES :

  1. ALL DIMENSIONS ARE IN MM AND ALL ELEVATIONS ARE IN METRES UNLESS OTHERWISE STATED
  2. SS316L GATES (TOTAL 1NO.), SS316L SCREEN OF 25mm OPENING BETWEEN BARS WITH SS316L FRAME (1 NO. EACH FOR ALL SUMPS) & GUIDE TO BE FABRICATED AND SUPPLIED BY CIVIL CONTRACTOR.
  3. ACCESS TO ROOF FOR PUMP HOUSE SHALL BE PROVIDED BY CAGE LADDER.
  4. STOP LOG GATE HEIGHT SHALL BE DESIGNED FOR SUMP OPENING HEIGHT AS SHOWN IN DRAWING.
  5. SCREEN HEIGHT SHALL BE UP TO PUMP FLOOR LEVEL (RL 4.8M)
  6. REFERENCE ENGINEERING DRAWINGS:
    - a) PLANT WATER P&ID: PE-DG-435-172-N001
    - b) SEA WATER OUTFALL PUMP GA: PE-V6-435-100-N002
    - c) ELECTRICAL EQUIPMENT LAYOUT & CABLING IN INTAKE P/H AREA: PE-DG-435-100-E021.
    - d) GA DRAWING FOR S/W PH EOT CRANE: PE-V0-435-501-A105
    - e) INTAKE PIPING OUTSIDE PUMP HOUSE: PE-DG-435-100-M048
    - f) VENTILATION DETAILS SHALL BE AS PER HVAC DOCUMENTS.
    - g) SERVICE & POTABLE WATER OVER HEAD TANK ON ROOF OF P/H TO BE PROVIDED BY CIVIL CONTRACTOR.
    - h) ELECTRICAL MCC ROOM & C&I CONTROL ROOM FOR OUTFALL PUMP HOUSE SHALL BE PROVIDED WITH ELECTRICAL ANNEXE & CONTROL ROOM OF SEA WATER INTAKE PUMP HOUSE (REFER KEY PLAN).
  10. SUMP MODEL STUDY SHALL BE CARRIED OUT BY BHEL PEM PUMP VENDOR FOR SEA WATER OUTFALL P/H AND REQUISITE HYDRAULIC ELEMENTS SHALL BE INCORPORATED IN CIVIL WORKS, IF REQUIRED, AS PER STUDIES.



DETAIL - "LT"

EL 0.00M CORRESPOND TO RL 3.8M, WHICH IS FFL OF TG BUILDING. ALL ELEVATIONS ARE MARKED WITH RESPECT TO THIS LEVEL.

										PROJECT		2x600MW UDANGURI STPP STG I											
JOB NO - 435										OWNER				TAMILNADU GENERATION & DISTRIBUTION CORPORATION LIMITED									
STATUS - CONTRACT										CONSULTANT				TATA CONSULTING ENGINEERS LIMITED BENGALURU									
DISTRIBUTION																							
TO																							
NO																							
REV										DATE		ALT		CHD		APD		APD		DATE			
1										29/07/18										27.12.18			
1										REVISED AS PER CUSTOMER COMMENTS RECEIVED VIDE LTR TCE/114033-ME-VDT-0183, dt:16/07/2019										27.12.18			
APPD										PROJECTS		BKHART HEAVY ELECTRICALS LTD. POWER SECTOR ENGINEERING MANAGEMENT		DEPT CODE		GRN		NAME		SIGN		DATE	
VIDE LTR 58.														APR		APR		APR		APR		27.12.18	
										TITLE		MECHANICAL GA OF SEA WATER OUTFLUX PUMP HOUSE		DEPT		SCALE		DRAWING NO.		DATE			
														SIN		SIN		SIN		SIN			
														SHEET 01 OF 01		REV. 02		REV. 02		REV. 02			