

Subject: Engineering, Procurement and Construction (EPC) Contract for Renovation and Modernization of Existing Navigational Lock at Farakka, West Bengal.

Reference: IN-IWAI-350002-CW-RFB-2

CPP Portal Tender no: 2023_JMVP_782597_1

Sr. No	Description	As per tender	Bidder's Query	Employer's Response
1	Environmental Clearance, Vol - 1 Bid Documents, 3.1.2, pg 136 of 346	The Contractor shall comply with all Applicable Laws and Applicable Permits (including renewals as required) in the performance of its obligations under this Agreement. The Contractor shall comply with (a) all environmental clearances required (if any) during construction including implementation of Environmental and Social Management Plan (ESMP); (b) ESHS Management Strategies and Implementation Plans; and (c) Code of Conduct (ESHS).	Bidder presumes that all the clearances required for the construction of tender scope from the government bodies including renewal shall be under the scope of the employer. Kindly clarify.	Tender conditions prevail. The clearances connected with work execution at site shall be responsibility of the contractor.
2	Recovery of Mobilization Advance, Vol - 1 Bid Documents,the recovery of the same shall be made from the 5th to 18th Month against monthly RA bills in equal instalments.	Bidder requests Employer to consider recovery of mobilization advance shall be in pro rata basis from every RA bill. Also, bidder shall be allowed to reduce the value of BG on every 6 months equivalent to the	Tender conditions prevail.

			amount recovered.													
3	General- Topography Survey		<p>Bidder requests the employer to provide the topographical survey of the land side of U/S and D/S of the existing lock</p> <p>Bidder requests the employer to provide the top level of slope protection along with the cross sectional details with existing levels as the same is not mentioned in the drawing .</p> <p>Bidder presumes that no filing is required and slope protection works shall be carried out on the existing slope only.</p> <p>Employer to confirm.</p>	<p>Please refer drawing no ENL002-R1 attached as Annexure-A for reference topographical details.</p> <p>The design of Bank protection work shall be the responsibility of the Contractor. Recorded levels are as given below:</p> <table border="1"> <thead> <tr> <th>Type of level</th> <th>U/S</th> <th>D/S</th> </tr> </thead> <tbody> <tr> <td>NGL</td> <td>~28</td> <td>~26</td> </tr> <tr> <td>HFL</td> <td>26.30</td> <td>24.38</td> </tr> <tr> <td>Bed level</td> <td>~14</td> <td>~14</td> </tr> </tbody> </table> <p>The ground filling shall be based on the HFL & natural ground level as per site condition.</p>	Type of level	U/S	D/S	NGL	~28	~26	HFL	26.30	24.38	Bed level	~14	~14
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4	General- Bathymetry		Bidder requests the employer to provide the bathymetry survey of the U/S and D/S of the existing lock	The available Bathymetry Survey is attached as Annexure-B for reference. Bidder shall do their due diligence.												

5	General- Bore hole data		<p>Bidder requests the employer to provide the bore hole data (geo technical investigation report) for</p> <p>a. Upstream / downstream slope protection area b. Residential building area / new building area c. Existing Main lock area</p>	Tender conditions prevail.
6	General- As built drawings		Bidder requests the employer to provide the as built drawing (civil, mechanical, electrical and instrumentation) of the existing lock.	<p>The bidder can undertake site visit prior to the bid submission. IWAI shall provide all assistance in this regard. OIC-Farakka-IWAI may be contacted for site visit.</p> <p>The available drawings of the existing navigation lock shall be shared with the successful bidder.</p>
7	General- On site measurement		Bidder requests the employer to provide on site measurement of all gate seatings, hinges, drives.	The available drawings of the existing navigation lock shall be shared with the successful bidder.
8	General- Condition of existing lock		Bidder requests the employer to provide the information about existing concrete wall condition.	Condition survey report can be seen on IWAI website.
9	General- Structural condition		Request you to kindly provide a report on the structural condition and structural stability of the lock structure.	Condition survey report can be seen on IWAI website.
10	Vol - 1 Bid Documents, 2.2.5.(a), pg 50 of 346	The bidder should have ISO 14000 & OHSAS certification.	ISO 14000 certificate is not certifiable standard. Bidders will have ISO 14001 only. Further from March 2018, OHSAS certification is invalid.	<p><i>The clause 2.2.5.(a) at Page 50 of 346 of Vol - 1 Bid Documents may be read as:</i></p> <p><i>“The bidder should have ISO 14000 & ISO 45001 certification.”.</i></p>

			Hence, Bidder requests Employer to modify same as ISO 14001 and ISO 45001.																																									
11	Vol - 1 Bid Documents, 2.5, pg 55 of 346	<table border="1"> <thead> <tr> <th>Position</th> <th>Qualifications</th> </tr> </thead> <tbody> <tr> <td>Project Manager & Team Leader</td> <td>B.E. / B. Tech (Civil Engg.)</td> </tr> <tr> <td>Asst. Project Manager</td> <td>B.E. / B. Tech (Mechanical Engg.)</td> </tr> <tr> <td>Mechanical Engineer</td> <td>B.E. / B. Tech (Mechanical Engg.)</td> </tr> <tr> <td>Electrical Engineer</td> <td>B.E. / B. Tech (Electrical Engg.)</td> </tr> <tr> <td>Hydraulics Engineer</td> <td>B.E. / B. Tech (Civil Engg.)</td> </tr> <tr> <td>Structural Engineer</td> <td>B.E. / B. Tech (Civil Engg.)</td> </tr> <tr> <td>Planning Engineer</td> <td>B.E. / B. Tech (Civil Engg.)</td> </tr> <tr> <td>Geotechnical Engineer</td> <td>B.E. / B. Tech (Civil Engg.)</td> </tr> <tr> <td>Billing Engineer</td> <td>B.E. / B. Tech /Diploma</td> </tr> <tr> <td>Safety Engineer</td> <td>B.E. / B. Tech /Diploma</td> </tr> </tbody> </table>	Position	Qualifications	Project Manager & Team Leader	B.E. / B. Tech (Civil Engg.)	Asst. Project Manager	B.E. / B. Tech (Mechanical Engg.)	Mechanical Engineer	B.E. / B. Tech (Mechanical Engg.)	Electrical Engineer	B.E. / B. Tech (Electrical Engg.)	Hydraulics Engineer	B.E. / B. Tech (Civil Engg.)	Structural Engineer	B.E. / B. Tech (Civil Engg.)	Planning Engineer	B.E. / B. Tech (Civil Engg.)	Geotechnical Engineer	B.E. / B. Tech (Civil Engg.)	Billing Engineer	B.E. / B. Tech /Diploma	Safety Engineer	B.E. / B. Tech /Diploma	As per tender, the scope of work is predominantly mechanical work. Hence, we request the employer to modify the qualification of Project manager as B.E/ B. Tech Mechanical. Also, considering the limited geotechnical and structural scope of work, we request you to kindly remove the requirements of geotechnical and structural engineers.	<p>Clause no 2.5, at page no 55 of Vol-1 may be read as:</p> <table border="1"> <thead> <tr> <th>Position</th> <th>Qualifications</th> </tr> </thead> <tbody> <tr> <td>Project Manager & Team Leader</td> <td>B.E. / B. Tech (Civil Engg.)</td> </tr> <tr> <td>Asst. Project Manager</td> <td>B.E. / B. Tech (Mechanical Engg.)</td> </tr> <tr> <td>Mechanical Engineer</td> <td>B.E. / B. Tech (Mechanical Engg.)</td> </tr> <tr> <td>Electrical Engineer</td> <td>B.E. / B. Tech (Electrical Engg.)</td> </tr> <tr> <td>Hydraulics Engineer</td> <td>B.E. / B. Tech (Civil Engg.) with M. Tech in Hydraulics</td> </tr> <tr> <td>Structural Engineer</td> <td>B.E. / B. Tech (Civil Engg.) desirable M. Tech</td> </tr> <tr> <td>Planning Engineer</td> <td>B.E. / B. Tech (Civil Engg.)</td> </tr> <tr> <td>Geotechnical Engineer</td> <td>B.E. / B. Tech (Civil Engg.)</td> </tr> </tbody> </table>	Position	Qualifications	Project Manager & Team Leader	B.E. / B. Tech (Civil Engg.)	Asst. Project Manager	B.E. / B. Tech (Mechanical Engg.)	Mechanical Engineer	B.E. / B. Tech (Mechanical Engg.)	Electrical Engineer	B.E. / B. Tech (Electrical Engg.)	Hydraulics Engineer	B.E. / B. Tech (Civil Engg.) with M. Tech in Hydraulics	Structural Engineer	B.E. / B. Tech (Civil Engg.) desirable M. Tech	Planning Engineer	B.E. / B. Tech (Civil Engg.)	Geotechnical Engineer	B.E. / B. Tech (Civil Engg.)
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		Surveyor	B.E. / B. Tech /Diploma		QC/QA Engineer-Mech.	B.E. / B. Tech (Mechanical Engg.)
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12	Vol - 1 Bid Documents, 2.6, pg 56 of 346	<table border="1"> <thead> <tr> <th data-bbox="524 193 568 549">S l. N o .</th> <th data-bbox="568 193 763 549">Type of Equipment</th> <th data-bbox="763 193 887 549">Mini mum Capac ity</th> <th data-bbox="887 193 972 549">Ma x. Ag e (Ye ars)</th> <th data-bbox="972 193 1059 549">Min imu m Nu mb er req uire d</th> </tr> </thead> <tbody> <tr> <td data-bbox="524 549 568 639">1</td> <td data-bbox="568 549 763 639">Crane (Tyre mounted)</td> <td data-bbox="763 549 887 639">100 T</td> <td data-bbox="887 549 972 639">10</td> <td data-bbox="972 549 1059 639">1 No.</td> </tr> <tr> <td data-bbox="524 639 568 730">2</td> <td data-bbox="568 639 763 730">Crane (Tyre mounted)</td> <td data-bbox="763 639 887 730">50 T</td> <td data-bbox="887 639 972 730">10</td> <td data-bbox="972 639 1059 730">1 No.</td> </tr> <tr> <td data-bbox="524 730 568 1086">3 *</td> <td data-bbox="568 730 763 1086">Pile Driving Rigs with minimum 10T winch complete with DMC/Bailor/Chiesel etc.</td> <td data-bbox="763 730 887 1086">-</td> <td data-bbox="887 730 972 1086">8</td> <td data-bbox="972 730 1059 1086">1 No.</td> </tr> <tr> <td data-bbox="524 1086 568 1177">4 *</td> <td data-bbox="568 1086 763 1177">Hydra</td> <td data-bbox="763 1086 887 1177">10-12 T</td> <td data-bbox="887 1086 972 1177">10</td> <td data-bbox="972 1086 1059 1177">4 Nos.</td> </tr> <tr> <td data-bbox="524 1177 568 1268">5 *</td> <td data-bbox="568 1177 763 1268">Trailer</td> <td data-bbox="763 1177 887 1268">-</td> <td data-bbox="887 1177 972 1268">10</td> <td data-bbox="972 1177 1059 1268">2 Nos.</td> </tr> <tr> <td data-bbox="524 1268 568 1359">6 *</td> <td data-bbox="568 1268 763 1359">Winches</td> <td data-bbox="763 1268 887 1359">10-12 T</td> <td data-bbox="887 1268 972 1359">10</td> <td data-bbox="972 1268 1059 1359">2 Nos.</td> </tr> </tbody> </table>	S l. N o .	Type of Equipment	Mini mum Capac ity	Ma x. Ag e (Ye ars)	Min imu m Nu mb er req uire d	1	Crane (Tyre mounted)	100 T	10	1 No.	2	Crane (Tyre mounted)	50 T	10	1 No.	3 *	Pile Driving Rigs with minimum 10T winch complete with DMC/Bailor/Chiesel etc.	-	8	1 No.	4 *	Hydra	10-12 T	10	4 Nos.	5 *	Trailer	-	10	2 Nos.	6 *	Winches	10-12 T	10	2 Nos.	<p data-bbox="1077 201 1552 336">we request employer to remove the max age requirement and mention well maintained equipment.</p> <p data-bbox="1077 368 1552 539">Considering the lesser volume of concrete to be produced, we request you to modify the batching plant capacity as 15 cum/hr instead of 30cum/hr.</p>	<p data-bbox="1574 201 2130 264">Clause no 2.6 at page no 56 of Vol-1 may be read as:</p> <table border="1"> <thead> <tr> <th data-bbox="1581 264 1626 620">S l. N o .</th> <th data-bbox="1626 264 1821 620">Type of Equipment</th> <th data-bbox="1821 264 1944 620">Mini mum Capac ity</th> <th data-bbox="1944 264 2029 620">Ma x. Ag e (Ye ars)</th> <th data-bbox="2029 264 2116 620">Min imu m Nu mb er req uire d</th> </tr> </thead> <tbody> <tr> <td data-bbox="1581 620 1626 711">1</td> <td data-bbox="1626 620 1821 711">Crane (Tyre mounted)</td> <td data-bbox="1821 620 1944 711">100 T</td> <td data-bbox="1944 620 2029 711">10</td> <td data-bbox="2029 620 2116 711">1 No.</td> </tr> <tr> <td data-bbox="1581 711 1626 802">2</td> <td data-bbox="1626 711 1821 802">Crane (Tyre mounted)</td> <td data-bbox="1821 711 1944 802">50 T</td> <td data-bbox="1944 711 2029 802">10</td> <td data-bbox="2029 711 2116 802">1 No.</td> </tr> <tr> <td data-bbox="1581 802 1626 1158">3 *</td> <td data-bbox="1626 802 1821 1158">Pile Driving Rigs with minimum 10T winch complete with DMC/Bailor/Chiesel etc.</td> <td data-bbox="1821 802 1944 1158">-</td> <td data-bbox="1944 802 2029 1158">8</td> <td data-bbox="2029 802 2116 1158">1 No.</td> </tr> <tr> <td data-bbox="1581 1158 1626 1249">4 *</td> <td data-bbox="1626 1158 1821 1249">Hydra</td> <td data-bbox="1821 1158 1944 1249">10-12 T</td> <td data-bbox="1944 1158 2029 1249">10</td> <td data-bbox="2029 1158 2116 1249">4 Nos.</td> </tr> <tr> <td data-bbox="1581 1249 1626 1340">5 *</td> <td data-bbox="1626 1249 1821 1340">Trailer</td> <td data-bbox="1821 1249 1944 1340">-</td> <td data-bbox="1944 1249 2029 1340">10</td> <td data-bbox="2029 1249 2116 1340">2 Nos.</td> </tr> </tbody> </table>	S l. N o .	Type of Equipment	Mini mum Capac ity	Ma x. Ag e (Ye ars)	Min imu m Nu mb er req uire d	1	Crane (Tyre mounted)	100 T	10	1 No.	2	Crane (Tyre mounted)	50 T	10	1 No.	3 *	Pile Driving Rigs with minimum 10T winch complete with DMC/Bailor/Chiesel etc.	-	8	1 No.	4 *	Hydra	10-12 T	10	4 Nos.	5 *	Trailer	-	10	2 Nos.
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13	Volume 1: Bid document, Article 9.4, pg 155 of 300	Cutting of tree	<p>As per site visit, there are more tree exists at U/S slope protection area as well as D/S slope protection area.</p> <p>As the tree cutting is in the contractor's scope, Trust, approval for cutting the trees is available with IWAI.</p> <p>Employer to confirm</p>	Any tree cutting shall be in the scope of the Contractor along with obtaining the necessary approvals from concerned authority. However, IWAI shall provide necessary assistance in this regard.																																									
14	Boundary Wall and Drainage work		As per our site visit, the boundary / compound wall and drainage system is already	The renovation/ modernization of Boundary wall & drain are to be assessed by the bidder as per site																																									

			<p>present in the site.</p> <p>Hence the bidder presumes that there is no scope for boundary wall and drainage. Kindly confirm.</p>	<p>requirement within the IWAI area.</p>
15	Volume 2: Bid document, ENL013	Length of slope protection works	<p>As per the drawing no : ENL013 ,the length of the slope protection wall on both upstream and downstream side is not mentioned.</p> <p>Bidder requests the employer to provide the length of the Slope protection works.</p>	<p>The approx. length of bank protection has been provided in the Drawing No. ENL 013-R1 attached as Annexed A.</p>
16	Volume 2: Bid document, 5.2.9, Page No 449 of 571	Length of cable trench	<p>Bidder requests the employer to provide the length of the cable trench to be constructed along with that layout in drawing.</p>	<p>To be assessed by the bidder as per their detailed design and drawings.</p>
17	Cofferdam		<p>In order to construct a parking bay, we had to maintain a dry surface.</p> <p>Hence, we need to construct coffer dam in both upstream and downstream side blocking the navigational channel.</p> <p>This is for your information.</p>	<p>The construction of Coffe Dam should not obstruct the navigation channel to the new navigational lock constructed adjacent to the existing lock.</p> <p>Refer to Vol. 1, Page 162, Clause No 10.4 Maintenance during Construction Period in the tender document.</p> <p>Tender conditions prevail.</p>

18	Drawings, ENL006, pg 555 of 571	Toe Wall	<p>We need dry surface through the length of the slope protection in order to construct the toe wall. we have to construct coffer dam throughout the length which will affect the navigational channel.</p> <p>Hence bidder requests the employer to descope the toe wall and accept alternate methodology like Gabion Mattress.</p>	<p>Tender conditions prevail. However, latest technologies / materials can be proposed & approval may be obtained from the Employer, keeping in view the aesthetics of the bank protection system on both the banks. The design and safety of the proposed bank protection shall be responsibility of the Contractor.</p>
19	Volume 1: Bid document, pg 42 of 346		<p>Bidder Presumes that qualification requirements and technical proposal shall not be submitted in hard copy. Only online submitted shall be opened.</p> <p>Kindly confirm</p>	<p>Please refer clause no 9 at page no 6 of Notice Inviting tender to understand the submission of hard copy requirement.</p> <p>Entire technical & financial proposal are to be submitted through the CPP portal only.</p> <p>Tender conditions prevail.</p>
20	Volume 1: Bid document, 2.3.1, pg 51 of 346	The audited balance sheets or, if not required by the laws of the Bidder's country, other financial statements acceptable to the Employer, for the last five years, i.e., from FY 2017-18 to FY 2021-22 shall be submitted and must demonstrate the current soundness of the Bidder's financial position	<p>As FY 22-23 is also completed, bidder presumes that the audited balance sheet for the year 22-23 can be submitted.</p> <p>Kindly Confirm</p>	<p>Clause no 2.3.1 (iii) at Page no 51 may be read as:</p> <p>“The audited balance sheets or, if not required by the laws of the Bidder's country, other financial statements acceptable to the Employer, for the last five years, i.e., from FY 2018-19 to FY 2022-23 shall be submitted and must demonstrate the current soundness of the Bidder's financial</p>

				position and indicate its prospective long-term profitability.”
21	Volume 1: Bid document, Schedule B, pg 262 of 346	The renovation and modernization of existing Navigational lock shall include but not limited to the following items:.....”Diversion of Existing Road”.....	Bidder presumes that the diversion of existing roads is not under the scope of the contractor. Kindly confirm	Schedule B, pg 262 of 346 of Vol-1 may be read as: “.....The diversion of the existing internal road is under the scope of the Contractor.....”
22	Volume 2: Bid document, 3.8.2, pg 112 of 571	The Employer shall provide land area limited to 2 acres within the Project Site for the Contractor’s working area. No space for the labour camp shall be provided.	The 2 acre of land for contractors working area is not sufficient as we need to carry out many activities like gate fabrication, gate dismantling, rebar yard set up, batching plant set up , office setup without disturbing one another. Kindly confirm	The contractor shall arrange additional land, if required by them for construction activities at their own cost.
23	Volume 2: Technical Specifications, 2.1.2 & 2.3.3, pg 43 of 571	Design life	As per Clause no. 2.1.2 and 2.3.3 of technical specifications, the design life of locks is 50 years and gate structure is 30 years. As the bidder is not designing the concrete lock wall, we presume that the existing lock structure shall not be guaranteed for design life.	The part of the civil structures of Lock shall be designed for its life for 50 years. Tender conditions prevail.
24	General- DPR		Request you to kindly provide detailed project report on the existing structure for better understanding on the renovation and modernization.	The DPR is available on the website of IWAI. The bidder may refer the same.

25	General		Request you to kindly provide the core strength of existing lock concrete wall at every embedded part location (six location each on gate side).	Condition survey report can be seen on IWAI website. Bidder shall do necessary due diligence.
26	Volume 2: Technical Specifications, 2.3.5, Pg 79 of 571	Clause 2.3.5 states that load due to “Accidental impact from 3000 DWT fully loaded barge on Caisson and Mitre gate shall be considered while designing.”	<p>Considering the said water head and accidental impact load, the forces arrived on the gates are very high and the existing concrete wall as well as the embedded parts cannot observe the forces and the recess available in the existing Mitre gate opening location may not be able to accommodate the new Mitre gate.</p> <p>Further caisson gate shall not be designed for accidental impact load.</p> <p>Hence bidder requests the employer to delete the accidental impact load.</p>	<p>The Mitre gate shall be designed to bear the design impact load during the life span & have the thickness to fit within the recess space provided in the existing structure.</p> <p>The Clause 2.3.5 at page no 79 of Vol-2 to be read as: “Mitre gate shall be designed for accidental impact load of 3000 DWT. Caisson gate shall be designed for the U/S hydrostatic head.”</p>
27	Volume 2: Technical Specifications, 2.3.5 Load considered for Structural Design, pg 79 of 571	Accidental impact from 3000 DWT fully loaded barge on Caisson and Mitre gate.	<p>Accidental impact load on wall applied to verify the integrity of the wall structure.</p> <p>-</p> <p>From the analysis it is inferred that the existing lock wall are failing to meet the design requirements of ship impact load.</p> <p>-</p>	Please refer above response at sr no 26.

			We request IWAI to Kindly review the design requirements and advise us accordingly.	
28	Volume 2: Technical Specifications, 2.3.9 Flootation and Stability – Caisson Gate, pg 81of 571	Downstream lock approach channel has water depth of 5.28m	Downstream lock approach channel is having water depth of 5.28m - Invert level of lock at downstream is RL 15.088 - The water level at downstream lock will be RL 20.368 {15.088 +5.28} - The caisson gate will be designed for operating water level above RL 20.368 with specified keel clearance. - The above shall be reconfirmed by the IWAI.	All gates are to be designed as per Clause No. 2.3.4 Range of Differential Water Levels (may be read as Water Head), in Volume 2 at Page 79,
29	Volume 2: Technical Specifications, 2.3.9 Flootation and Stability – Caisson Gate pg 81of 571	A minimum metacentric height of 0.6 m during sinking and raising operation.	A minimum metacentric height of 0.6 m is requested, which is not feasible to meet. As per IACS member of classification society for caisson gate, minimum recommended value is 0.15 m. - Bidder presume that requirements as per IACS member of classification society shall be adhered. -	Tender conditions prevail.

			IWAI shall confirm bidder understanding.	
30	Volume 2: Technical Specifications-Tender Drawing)"GENERAL ARRANGEMENT DRAWING AND DETAIL OF MITRE GATE OF EXISTING NAVIGATION LOCK, ENL007-SH1	Recess space	<p>The existing mitre gate width provided is 1.3 m .</p> <p>Recess space provided in concrete in open condition is 1.5 m.</p> <p>-</p> <p>Below are the factors needs to be considered for fixing the width & recess space of the mitre gate.</p> <p>-</p> <p>Free space behind the gate to allow water to flow back behind the gate when opening or closing the gate. Too little space behind the gate will have a ‘suction’ effect and the hydraulic cylinder would need to provide very high forces to open/close the gate or move very slowly.</p> <p>-</p> <p>Wood / UHWMPE protection fender beams on the face of the gate needs to be considered.</p> <p>-</p> <p>Minimum bottom air chamber width, Strength and fatigue checks with relation to the required loading conditions etc., needs to be accounted for while deciding the mitre gate width.</p> <p>-</p>	<p>Tender conditions prevail.</p> <p>The Mitre gate shall be designed to have the thickness to fit within the recess space provided in the existing structure.</p>

			<p>With the specified Design difference head, ship Impact conditions - extensive concrete works on mitre gate recess is foreseen which may also affect the underground duct. This approach of limiting the recess space with the specified design condition is not recommended by gate designer.</p> <p>-</p> <p>Alternatively, it may be possible to design a gate to fit the 1.5m recess but other specified design requirements (such as retaining of full water head (10.8m), ship impact, opening time) will probably need to be dropped / altered.</p> <p>-</p> <p>IWAI could review and advise us.</p>	
31	Volume 2: Civil Structural 2.1.2, Page No- 43	<p>Design Life The permanent works shall be designed and constructed to give the following design lives:</p> <ul style="list-style-type: none"> ➤ Locks - 50 years (As per PIANC 2011 workshop) ➤ Bank protection works - 50 years ➤ Fenders, Bollards and ladders - 8 years ➤ Buildings - 50 years <p>Above design lives are defined as a period within which the asset will</p>	<p>1.New structures (residential quarters, Toilet Block, Security Office cum check post, caisson gate parking bay -design life shall be considered 50 years.</p> <p>2.Retrofitted /modernized structures such as lock and control building -design life as specified will not be applicable and overall strength and stability shall be client's scope.</p>	<p>The part of the civil structures of Lock shall be designed for its life for 50 years. Tender conditions prevail.</p>

		continue to be serviceable for design loads without collapse.		
32	Volume 2: Civil Structural 2.1.6, Page no-45	Average response acceleration coefficient, which depends on time period of the structure. The time period, T of the structure will be evaluated by STAAD analysis considering Dead load & 50% Live load.	The time period evaluation of the structure either we can go empirical formula as specified by the code IS- 1893 or we can go to detailed dynamic Eigen-Value Analysis to find out exact time period through Modal analysis. In static analysis, STAAD does not give time period, it is to be pick from empirical formula as specified by code & then as a input to be given in STAAD. In case of Dynamic-Modal analysis, STAAD gives exact time period performing 90% mass participation to a particular direction. In this regard, should we go dynamic analysis? Please confirm.	Bidder may use empirical formula and dynamic analysis and use the more severe criteria in the design.
33	Volume 2: Civil Structural, 4.2.5.5, Page No -143	Exposure conditions for durability	Kindly specify the exposure condition to be considered for Structures as per IS 456.	This is indicative. The bidder shall assess as per specific requirement as per their own design. (Refer Table 2A on page 144 of Vol-2) The tender conditions prevail.
34	Volume 2: Civil Structural, 2.1.8, Page No-45	Scour depth shall be considered suitably in compliance with IS 14262.	Since lock structure is existing, please inform whether scour depth criteria to be considered.	Scour depth criteria shall be considered for proposed caisson gate parking bay structure. This is indicated, the bidder to consider the design criteria as per codal provisions & requirements.

35	Volume 2:Civil Structural 1.2.2, Page No- 26	Renovation/Modernization of lock structure including all associated facilities	Please clarify the method to Renovate/Modernize the lock structure	Tender conditions prevail.
36	Volume 2:Civil Structural, 1.2.5.1, Page No- 28	The Contractor shall renovate / modernize the existing control room at central place of existing Navigation lock for remote control operation of gates of lock	<ol style="list-style-type: none"> 1. Please clarify the Additional requirements like lifts, Emergency staircase, firefighting arrangements etc., 2. Confirm the Location of the Main Control room 3. Whether any Local control rooms to be constructed please clarify. 4. Please clarify the Specifications & scope of works for the Renovation required 	<p>There is no additional requirement. Safety certificate from concerned authority shall be obtained by the EPC Contractor at his own cost. This may require lift, fire & other safety aspects as per NBC.</p> <p>Please refer drawing no ENL013_R1 for location of main control room.</p>
37	Volume 2:Civil Structural, 1.2.7, Page No- 30	The Contractor shall plan, design and construct suitable roofed paved area for vehicle parking nearby the control room.	<ol style="list-style-type: none"> 1. Please provide the size of vehicle parking area. 2. Confirm the Location of the Vehicle parking area 	<p>Clause No 1.2.7 Vehicle Parking Area, at page no 30 in Vol-2 may be read as:</p> <p>“The Contractor shall plan, design and construct suitable covered (Corrugated Metal sheet) along with necessary support structure and paved (paver block) area for vehicle parking adjacent to the main control room building with capacity of 6 Nos. of four-wheeler and 10 Nos. of two-wheeler vehicles. Size and height of parking shall be as per NBC and IS code.”</p> <p>The site development is to be planned by the EPC contractor based on the requirement given. Accordingly, the</p>

				vehicle parking area, if possible, shall be adjacent to the control room building.												
38	Volume 2:Civil Structural, 1.2.5.4, Page No-30	The Contractor shall plan, design and construct security office at the suitable location to handle entry and exit clearances of the navigation lock	1. 4 numbers of 6m x 3.2m x 10m (H) buildings are considered, Please confirm the sizes considered. 2. Confirm the Location	<p>The clause no 1.2.5.4 at page no 30 of Vol-2 may be read as:</p> <p>The Contractor shall plan, design and construct security office of 5m x 4m area at suitable location near the gates to handle entry and exit clearances in the Navigational lock area.</p> <p>The site development is to be planned by the EPC contractor based on the requirement given. Accordingly, the security office, if possible, shall be adjacent to the entry & exit gates (Refer Drawing No. ENL 013_R1).</p>												
39	Volume 2:Civil Structural, 1.2.5.3, Page No-29	The Contractor shall plan, design and construct toilet block at the suitable location	1. 52sqm of plan size is considered, please confirm the adequacy.	<p>The clause no 1.2.5, page no 28 of Vol-2 may be read as</p> <p>The following buildings shall be constructed/renovated/modernized as part of this Contract:</p> <table border="1"> <thead> <tr> <th>S. No.</th> <th>Building</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Control Room building</td> <td>G+4 storey building</td> </tr> <tr> <td>2.</td> <td>Local Control Room building (4 Nos)</td> <td>Single storey building</td> </tr> <tr> <td>3.</td> <td>Residential</td> <td>Type III and</td> </tr> </tbody> </table>	S. No.	Building	Type	1.	Control Room building	G+4 storey building	2.	Local Control Room building (4 Nos)	Single storey building	3.	Residential	Type III and
S. No.	Building	Type														
1.	Control Room building	G+4 storey building														
2.	Local Control Room building (4 Nos)	Single storey building														
3.	Residential	Type III and														

					Quarters	Type IV
					4. Toilet Block	Single storey building with <ul style="list-style-type: none"> • one WC & one Urinal for Women including 2 washbasins. • Two WC and 02 Urinals and 02 washbasins for men. • one toilet for disabled person along with one washbasin.
					5. Security Office cum check post (2 Nos)	Single storey building
40	Volume 2:Civil Structural, 1.2.5.2, Page No- 29	The Contractor shall plan, design and construct Residential quarters. 2 Units of Type-IV and 4 units of Type-III Quarters have been proposed	1. Clarify whether buildings shall be individual 6 units or separate Apartments of Type-III & Type-IV as G+1. 2. Confirm the Location of the Residential quarters.	Tender conditions prevail. Please refer drawing no ENL 013_R1 attached in Annexure-A.		
41	Volume 2:Civil Structural, 1.2.8, Page No-30	The Contractor shall do design, installation and commissioning of the complete water supply distribution system including the	1. Kindly clarify the requirement of structures like R.C tanks (Over head/Under Ground). And also mention the capacity of	The bidder has to assess the requirement as per design. Tender conditions prevail.		

		supply of potable water to the buildings.	water tanks required.	1000 L RCC tank for each unit for residential quarters.
42	Volume 2:Civil Structural, 1.2.9, Page No-31	A drainage system for carrying the storm water run-off from the Lock area is to be designed and provided. Tentative layout for drainage is shown in Drawing ENL013. The drain will provide the drainage of entire area within the boundary wall of lock area.	1. Provide the Length and Catchment area for which drain has to be provided & also the length of Drain works	The requirement of the drainage will be as per design done by bidder to drain out catchment area of the lock. Tender conditions prevail.
43	Volume 2:Civil Structural, 1.2.10, Page No- 31	The Contractor shall plan, design and construct complete sewerage system including laying of pipelines for collection of sewage from buildings to Sewerage Treatment Plant (STP) to constructed by the contractor. The treated water from STP shall be stored in a separate tank and will be used for horticulture. Plumbing arrangement along with pumping system should be planned and constructed by the contractor.	1. Kindly mention the capacity of STP tank to be provided. 2. Confirm the Location	The capacity of the STP tank is to be planned by the EPC contractor based on the requirement given. Accordingly, the same can be designed. Tender conditions prevail.
44	Volume 2:Civil Structural, 1.2.1, Page No-26	Store room for storing spare parts	1. Confirm the type of structure like structural Steel Shed or RCC framed structure for storage shed. 2. Clarify the Size of the structure required & location	Storeroom shall be in the control room building with provisions to keep spares.
45	2.3 (iv) Schedules, SCHEDULE - K (TESTS ON	Time taken for filling / emptying of the lock shall not exceed 8 minutes. If it does not meet the criteria, appropriate modification to the	Rectification / modernization of existing under ground duct for meeting the specified time limit for water filling / transfer is not	Clause no 2.3 (iv), Schedules, SCHEDULE - K (TESTS ON COMPLETION), at page no 283 of 346 of Vol-1 may be read as:

	COMPLETION), pg 283 of 346 of Vol-1	feeder channel shall be made.	in the scope of work - hence this clause is not applicable.	“Currently it is around 8 minutes. The existing time taken to fill the lock shall be retained. No modification in the dimensions of the existing feeder canal is expected”.
46	"1. GENERAL INFORMATION AND EMPLOYER'S REQUIREMENTS/ SCOPE OF WORK", clause 1.1.4.1 Operations system: Caisson Gate ,pg 15 of 571 of Vol-2	Caisson Gate: By filling up top buoyancy tanks from river water by gravity and draining the same from end tanks during floating operation through drain valve.	It is recommended that sinking and Raising operations of the caisson gate shall always be carried out by pumps during normal & emergency operating conditions to ensure safe operation. Please confirm.	Refer to Clause 1.1.4.1 at page no 15 of Vol-2. The tender conditions prevail.
47	Volume II, 1.2.5 Buildings 1.2.10 Sewerage System, pg 31 of 571 of Vol-2	The Contractor shall plan, design and construct complete sewerage system including laying of pipelines for collection of sewage from buildings to Sewerage Treatment Plant (STP) to constructed by the contractor.	Location of STP shall be specified.	The location of the STP tank is to be planned by the EPC contractor based on the requirement given. Accordingly, the same can be designed.
48	Volume II, 2.1.3 Navigational Lock and caisson gate parking bay Fendering System, Pg 44	Based on these criteria, the fender of AN 800, grade E3.0	A) ARCH fender AN 800 is specified, Bidder presume that other type of fender system shall also be considered by meeting the design & functional requirement specified. - B) Kindly provide the below	The bidder shall conduct its own assessment and design in accordance with the provisions, codes, specifications etc. Maximum length of Vessel= The

	of 571		<p>details for the designing the fender</p> <ol style="list-style-type: none"> 1. Length of vessel 2. Width of vessels 3. Draft of the vessel 4. Limiting fender Depth 	<p>complete lock chambers will be provided with fenders so that the longest vessel can be accommodated. Maximum width of vessels= 18 M Draft of vessel= 3 M Limiting fender depth- 300-400 mm</p>
49	<p>Volume II, 2.3 HYDROMECHANICAL, 2.3.11 Material, pg 82 of 571</p>	<p>Lock gate envelope plating and primary Structural members Ship building quality steel (IS:3039) - Secondary structural members Hot Rolled Medium & High Tensile Structural Steel (IS:2062)</p>	<p>it is foreseen that design the gate using IS 3039 having a yield stress of 235 MPa is not feasible to meet the performance criteria specified. We shall be allowed to use IS 2062 E350 B0 Grade. Please confirm.</p>	<p>Tender conditions prevail.</p>
50	<p>Volume II, 2.3 HYDROMECHANICAL, 2.3.11 Material pg 83 of 571</p>	<p>Ballast Cast Iron (IS:210) or concrete</p>	<p>We shall be allowed to use additional recommended gate designer material such as carbon steel ingots/Rebar/ Lead material. Please confirm</p>	<p>Point no 10 in clause 2.3.11 at page no 83 of Vol-2 to be read as: Ballast Cast Iron (IS:210)/concrete/lead material/steel/rebar.</p>
51	<p>Volume II, 3.6 FIELD SURVEYS AND INVESTIGATIONS, 3.6.5 Model Studies pg 107 of 571</p>	<p>The Mathematical/Physical model studies for the whole structure to access the filling/emptying time of the lock chamber, sedimentation in the hydraulic system, check for air entrapment in the hydraulic system, waves, currents and turbulence generation in the lock chamber</p>	<p>This is not applicable for Renovation and Modernization of Existing Navigational Lock project.</p>	<p>Tender conditions prevail.</p>
52	<p>Volume II, 3.6 FIELD SURVEYS AND INVESTIGATIONS, 3.6.6 Green Belt</p>	<p>Contractor shall develop green belt all along the boundary within the site. The length and width of the green belt shall be 1000 m x 10 m. About 900 trees along with herbs and shrubs will be planted in 10000</p>	<p>This is not applicable for Renovation and Modernization of Existing Navigational Lock project.</p>	<p>Development of Green Belt is under the scope of the project. The tender conditions prevail.</p>

	Development, pg 108 of 571	m2 area reserved for green belt.		
53	Volume II, 4.24 LOCK APPURTENAN CES " 4.24.1 General" pg 362 of 571	<ul style="list-style-type: none"> • Bollards • Ladders • Mooring rings • Rubbing strip • Edge angles • Handrails 	Bidder presume Ladders, Rubbing strip, edge angle , Hand rail are not applicable. - Please inform the (Bollards)numbers to be provided for this project.	For quantity of Bollards, please refer Table 1.1, Point 5 at Page No 14 & 15 in Volume 2. Ladders, mooring rings, Rubbing strips, Edge angles, Handrails etc are to be replaced/ renovated or modernized as per conditions.
54	Volume II 1.2.12.4 Miscellaneous/ General Works/Service s pg 37 of 571	xiii) Complete lot of base plates, foundation bolts, inserts, embedment, clamps, nuts, washers etc. as required for the system.	For gates, The existing Embedment plate of gate shall be retained and damaged parts if any shall be replaced.	Tender conditions prevail.
55	Volume II, 6.2 MITRE GATE 6.2.4 Fixing Arrangements pg 528 of 571	Sill and side walls at gate grooves should be made of polished granite as per IS codes 14223 (Part-I) as mentioned in Design Criteria,	Sill and side well of gate shall have embedment steel plate instead of granite to meet the functional requirement of the gate/ Tender specification. Owner shall confirm.	Clause no 6.2.4 Fixing Arrangements at pg no 528 of 571 of Vol-2 may be read as: “Sill and side walls at gate grooves should be made of stainless steel as per relevant IS codes as mentioned in Design Criteria”.
56	Volume II, 6.3 CAISSON GATE, 6.3.1 Structure pg 531 of 571	Sill and side walls at gate grooves should be made of polished granite as per IS codes 14223 (Part-I) as mentioned in Design Criteria	Sill and side well of gate shall have embedment steel plate instead of granite to meet the functional requirement of the gate/ Tender specification. Owner shall confirm.	Clause no 6.3.1 Fixing Arrangements at pg no 531 of 571 of Vol-2 may be read as: “Sill and side walls at gate grooves should be made of stainless steel as per relevant IS codes as mentioned in Design Criteria”.

57	Volume II, 6.3 CAISSON GATE6.3.2 Miscellaneous items / fittings and fixtures, pg 531 of 571	Fixed Hard Rails – At each side of the top deck over full length in 3 tiers duly supported by galvanized steel stanchions. Handrails around bollards/ fairleads shall be removable type.	Increasing the weight of members on the top of caisson gate is not recommended. Alternatively GRP hand rail at top of caisson gate is recommend as per international practice and followed in the executed IWAI project. Bidder shall note and confirm the usage of GRP handrail.	Tender conditions prevail.
58	Volume II,6.4 RADIAL GATES 6.4 RADIAL GATES, pg 536 of 571	The radial gates shall consist of curved skin plate as per IS:2062 steel quality clad with corrosion resistant steel conforming to IS:1570 Part V.	Instead of cladding, Whole skin plate material as per IS 2062 which is followed in Dam / Barrage based projects could be used. Owner could review & confirm.	Tender conditions prevail.
59	Annexure to Volume 2 Drawing No ENL 005	General arrangement drawing and details of mooring equipment of existing Navigation lock	Please confirm is it in contractor scope of work or not (mooring equipment). If it is included, indicate the quantity / specification of mooring equipment requirements {as per existing site data, it is 5 ton }	Tender conditions prevail. Please refer to Table 1.1, Point 5 in Volume 2, Clause No.1.1.4, Page No 14 & 15,
60	"Annexure to Volume 2 Drawing & Volume II, 6.5 BULKHEAD GATES" "Drawin g No ENL 009- SH1 -	Material Handling	Crane hoist is shown for bulkhead gate lifting / Lowering however in the specification of Bulk head gate Rope drum hoist is requested. - Owner shall check the discrepancy and Confirm the type of material handling arrangement requirements.	Please refer to Clause 6.5.7 at page no 544 of Vol-2. Tender conditions prevail.

	6.5.7 Operating Mechanism, Page no 544"		- We suggest Rope drum hoist as per technical write up.	
61	Volume II, Scope- General		Kindly confirm the Requirement of Jib crane for maintenance of bulk and radial gate.	Please refer drawing ENL-009-SH1 in Vol-2. Tender conditions prevail.
62	Volume II, Drawing ENL013, General	maneuvering	Caisson gate parking bay is located away from the lock . Manoeuvring scheme and auxiliary equipment requirements for this operation needs to be specified.	Appropriate maneuvering scheme & required ancillary equipment shall be designed & provided by the EPC Contractor. The location of Caisson gate parking bay may be fixed by the contractor in accordance with IWAI within the IWAI boundary. Tender conditions prevail.
63	Volume II: Technical Specifications, 2.3.4 Range of Differential Water Levels pg 79 of 571	All the gates should be designed for the differential water head U/S Water Column 7.025 m D/S Water Column 5.955 m	Bidder presume that U/S gate shall be designed for 7.025 m differential water head , similarly D/S gate shall be designed for 5.95 m differential water head. - - Owner shall reconfirm bidder understanding	Understanding confirmed. Tender conditions prevail.
64	Volume II: Technical Specifications, 2.3.5 Load considered for Structural Design pg 79 of	Accidental impact from 3000 DWT fully loaded barge on Mitre gate.	Accidental impact load on wall applied to verify the integrity of the wall structure. - From the analysis it is inferred that the existing lock wall are failing to meet the design requirements of ship impact	The tender conditions prevail. The mitre gate shall be designed to bear the design impact load during the life span & have the thickness to fit within the recess space provided in the existing structure.

	571		load on mitre gate. - We request IWAI to exclude this clause.	
65	Volume II: Technical Specifications, 2.3.9 Flootation and Stability – Caisson Gate pg 81 of 571	A minimum metacentric height of 0.6 m - Minimum under keel clearance at lightship draft – 0.5 m	A minimum metacentric height of 0.6 m is requested , which is not feasible to meet. As per IACS member of classification society for caisson gate , minimum recommended value is 0.15 m . - The caisson gate will be designed to meet the requirement @ water level above RL 20.3 with specified keel clearance and metacentric height of 0.6 m requirements - Bidder presume that requirements as per IACS member of classification society shall be adhered. - IWAI shall confirm bidder understanding.	Tender conditions prevail.
66	Volume II: Technical Specifications- Tender Drawing) "GENERAL ARRANGEMENT DRAWING	Recess space	The existing mitre gate width provided is 1.3 m . Recess space provided in concrete in open condition is 1.5 m. - Below are the factors needs to be considered for fixing the	Tender conditions prevail. The Mitre gate shall be designed to fit within the provided recess space. No projection is permitted.

	<p>AND DETAIL OF MITRE GATE OF EXISTING NAVIGATION LOCK "ENL007-SH1</p>		<p>width & recess space of the mitre gate.</p> <ul style="list-style-type: none"> - Free space behind the gate to allow water to flow back behind the gate when opening or closing the gate. Too little space behind the gate will have a 'suction' effect and the hydraulic cylinder would need to provide very high forces to open/close the gate or move very slowly. - Wood / UHMWPE protection fender beams on the face of the gate needs to be considered - Minimum bottom air chamber width, Strength and fatigue checks with relation to the required loading conditions etc., needs to be accounted for while deciding the mitre gate width. - With the specified Design difference head, ship Impact conditions - extensive concrete works on mitre gate recess is foreseen which may also affect the underground duct. This approach of limiting the recess space with the specified design condition is not recommended by gate designer. 	
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			<p>- Alternatively it may be possible to design a gate to fit the 1.5m recess but other specified design requirements (such as retaining of full water head , ship impact , opening time) will probably need to be dropped / altered.</p> <p>- IWAI could review and advise us.</p>	
67	Volume II: Technical Specifications, Volume - 2 Clause no 2.3.9 pg 81 of 571	Floataion and Stability – Caisson Gate, The gate shall be capable of being ballasted for de-ballasted in 30 minutes or less.	This is applicable to gravity system and not applicable to pumped system.	Clause no 2.3.9 at page no 81 of Vol-2 may be read as: “Floataion and Stability – Caisson Gate: the gate shall be capable of being ballasted or de-ballasted in 30 minutes or less.”
68	Volume II: Technical Specifications, Volume - 2 Clause no 1.1.4, Table no 1.1, pg 14 &15 of 571	Bollards – eight (8) numbers. floating type fourteen (14) numbers fixed type	The existing Fixed and floating Bollard capacity of 5 ton. Bidder presume the same capacity shall be provided.	Clause No. 4.21.3.1 at page no 369 of Vol-2 may be referred. Tender conditions prevail.
69	Volume II: Technical Specifications, Volume - 2 Clause no 2.3.5 Load considered for Structural	Accidental impact from 3000 DWT fully loaded barge on Caisson and Mitre gate.	This clause is not applicable to Caisson gate as the same will not be in used during normal operating condition. During Maintenance case { Mitre gate maintenance) ships are not allowed inside the lock.	Please refer above response at sr no 26.

	Design pg 79 of 571			
70	Volume II: Technical Specifications, "BULKHEAD GATES 6.5.3 Guide Rollers" pg 543 of 571	Guide rollers shall be provided at the sides of the gates both near the top and bottom.	Bulkhead gates are only used for maintenance of radial gates. They will be used once or twice. The guide strips do not need any maintenance where the wheels are very likely to be rust, stuck and create operational issues. It is recommended to envisage guide strip. Owner shall review and confirm the usage of guide strip.	Tender conditions prevail. Appropriate design shall be done with latest technology.
71	"POWER SINGLE LINE DIAGRAM OF EXISTING NAVIGATION LOCK, FARAKKA (DRG. No: ENL011)" ELECTRICAL Note no.15 & 16	Local Control Room	As per SLD note no.15 & 16, There are 8nos of LCR has been proposed. However as per actual operational requirement 4nos of LCR has been visualized in "Control System architecture for exiting lock (Drg.no.ENL012). Kindly clarify the requirement of additional 4nos of LCR.	Please refer point no 5 of Table 1.1 at page no 14 of Vol-2. The modified SLD (ENL 011_R1) attached as Annexure-A for indicative purpose. However, the contractor shall design the SLD. it is 1 Central Control Room and 4 local control room.
72	"BASIC CONTROL SYSTEM ARCHITECTUR E OF EXISTING LOCK, FARAKKA	CCTV system	As per tender drawing, CCTV cameras are connected with Ethernet switch of Main PLC. As per OEM architecture of CCTV system, CCTV cameras will be connected with CCTV rack/panel from which the CCTV workstation will be	Tender conditions prevail. As per drawing, it is a standalone system. Appropriate CCTV system shall be designed & establish at the Existing Navigation Lock control room.

	(DRG. No: ENL012)" CONTROL SYSTEM		communicated. hence we are clarifying that CCTV system will be standalone system. We are proceeding as per above said clarification. Kindly provide your confirmation.	
73	"GENERAL LOCATION PLAN FOR MONITORING INSTRUMENTATION OF EXISTING NAVIGATION LOCK, FARAKKA (DRG. No: ENL014)" "MONITORING INSTRUMENTATION"	Monitoring Instruments	As per tender drawing, Monitoring field instruments are proposed for both locks (existing and new lock structure). However, There are field instruments were already provided on single side (east bank) of new lock and single side (west bank) of existing lock during construction of new lock. Hence, Those instruments will be used for monitoring, and new instruments will be considered only for existing lock (east bank).	Tender conditions prevail.
74	Electrical "Clause: 1.2.12.2 Detailed Electrical Scope of Work" pg 33 of 571	WBSEDCL Metering Panel location	As per specification, we understood that the metering panel will be supplied by WBSEDCL. Kindly confirm the location of metering panel.	Location shall be decided as per the guidelines/ in consultation with WBSEDCL. Tender conditions prevail.
75	General, "Clause:1.1.4, Table 1.1 Salient Features of	Local Control Room (LCR)	As per tender drawing & technical specification, 2no of LCR is mentioned. however the as per the operational requirement of 4leaf of mitre	Please refer point no 5 of Table 1.1 at page no 14 of Vol-2. Please refer above response at sr no 71.

	Existing Navigational lock" pg 14 & 15 of 571		gates (2leaf for each gate), each leaf will be operated from dedicated LCR. Hence, kindly confirm the number of local control room	
76	General, "Clause:1.1.4, Table 1.1 Salient Features of Existing Navigational lock" pg 14 & 15 of 571	Cable crossing bridge across the existing lock	Since there are electrical equipment will be placed on both bay (East bank & West bank) of lock, there will be cable crossing across the lock. Hence kindly provide the height of cable crossing structure for our further proceedings.	The existing height of the cable crossing structure shall be retained. Tender conditions prevail.
77	Electrical "Clause: 1.2.12.1 Electrical Works-Authority's (IWAI's) Requirements" pg 31 of 571	Electrical works for central control room	As per specification, all electrical works to be provided for existing central control room building, Kindly, share the existing drawing of central control room and its electrics.	The available drawings of the existing central control room building shall be shared with the successful bidder.
78	Electrical "Clause: 1.2.12.2 Detailed Electrical Scope of Work" pg 33 of 571	Lighting Fixture-Material	As per specification & BOQ (S.No. 8 & 9), 1x20W and 2x20W LED tube light fixture shall made up of Aluminium with heat sink. However as per OEM standard manufacturing range, Aluminium material with heat sink is obsolete product. instead polycarbonate material will be for the same. Kindly	The latest LED lighting fixtures / materials shall be provided to ensure 200 Lux illumination.

			accept the proposal.	
79	Electrical "Clause: 2.2.6, Lighting System" pg 68 of 571	HPSV Lighting Fixture	As per specification, HPSV lighting fixtures are proposed however as per OEM product range HPSV lighting fixtures are obsolete. which is not available. Hence, we are considering LED lighting fixtures instead of HPSV wherever mentioned in the specification. Kindly confirm	The lighting fixture requirement is indicative & based on the specific site requirement. However, the EPC Contractor may consider appropriate lighting fixtures as per design & fix at the site. The tender conditions prevail.
80	Electrical: "Clause: 2.2.6.4 Lighting Installation", pg 70 of 571	Concealed conduit for lighting	As per specification 'concealed conduit' to be provided for lighting fixture wiring (wherever practicable), however as it is Existing building (i.e. Central control room), providing concealed conduit is not possible. Hence, all over the existing control room building the conduits will be surface mounted only. which will be inside the false ceiling wherever applicable.	. Please refer to Clause No. 2.2.6.4 at page no 70 of Vol-2. Tender conditions prevail
81	Electrical: "Clause: 5.2.4.1, Moulded Case Circuit Breaker (MCCB)", pg 410 of 571	MCCB - TMD and MP based release	As per specification, "MCCBs shall be provided with thermo-magnetic type release for over current and short circuit protection. These shall be microprocessor based with RS 485 communication facility". Whereas in tender SLD (Drg. No: ENL011), All incomer & outgoing breaker rated 125A	Please refer to Clause No. 5.2.4.1 at page no 410 of Vol-2. Tender conditions prevail.

			and above shall have microprocessor (MP) based release and breaker below 125A shall have Thermal-Magnetic (TMD) release. Hence, we are considering requirement as per SLD, also RS485 (MODBUS RTU) communication facility will be provided only in microprocessor based MCCB. kindly confirm.	
82	Electrical: "Clause: 5.1.2.2, Transformer- Bushings", pg 394 of 571	Bushing type	As per OEM manufacturer recommendation porcelain bushing is outdated, same shall be provided by epoxy. Kindly confirm	Please refer clause 5.1.2.4. Tender conditions prevail.
83	Electrical "Clause: 5.2.5, 110VDC System" pg 419 of 571	110V DC System - Quantity	As per specification clause 5.2.5, 1x100% battery charger with DCDB & battery is mentioned where as in in electrical works table (Clause: 1.2.12.2, page no. 35) 110V DC battery charger with dual battery charging and DC Distribution boards. Kindly clarify the requirement of DC system is 1x100% or 2x100%	Please refer clause no 5.2.5, Page no 419 of Vol-2, as follows: ".....Batteries shall be sized in accordance with IEEE-485. The battery shall be sized with a 10% design margin and an ageing factor of 1.25. 110V DC Power Supply System shall consist of 1x100% 110V batteries, 1x100% 110V battery charger cum DC Distribution Board....."
84	Electrical "Clause: 5.2.5.1, 110VDC System -	110V DC System - Battery rack	As per specification, Wooden racks shall be provided for batteries of multi-tier installation. However as per Battery OEM recommendation	Please refer to Clause No. 5.2.5.1 at page no 421 of Vol-2. The tender conditions prevail.

	Construction of Battery" pg 421 of 571		battery rack shall be MS only. Also wooden racks are not applicable for VRLA SMF batteries. kindly accept the same.	
85	Electrical "Clause: 5.2.5.2, 110VDC System - Construction of Battery Charger cum DCDB" pg 422 of 571	Construction of Battery Charger cum DCDB: ".....Suitable synthetic rubber gaskets shall be provided to achieve a degree of protection of IP54....."	As per specification, IP54 is the requirement for battery charger cum DCDB. However as per OEM recommendation IP42 is the maximum available protection for battery charger due to heat dissipation. Kindly confirm.	Clause: 5.2.5.2, 110VDC System - Construction of Battery Charger cum DCDB", page no 422 of 571 may be read as: ".....Suitable synthetic rubber gaskets shall be provided to achieve a degree of protection of IP42....."
86	Electrical "Clause: 5.2.5.1, 110VDC System - Construction of Battery" pg 421 & 422 of 571	Construction of Battery:Following accessories shall be provided with batteries. • Syringe type Hydrometer : 2 Nos per Battery • Thermometer with specific gravity correction scale: 2 Nos per Battery • Cell testing voltmeter 3-0-3 volts : 2 Nos per Battery • Acid resistant funnel : 2 Nos per Battery • Acid resistant jug. : 2 Nos per Battery • Rubber apron and gloves : 2 sets per Battery • Spanners : 2 sets per Battery • Wall mounted teak wood rack for above items : 2 Nos per Battery	As per specification, There are some accessories are inquired, in which the following accessories are not applicable for VRLA SMF type battery; * Syringe type Hydrometer-2 Nos per Battery * Thermometer with specific gravity correction scale-2 Nos per Battery * Acid resistant funnel-2 Nos per Battery * Acid resistant jug.-2 Nos per Battery * Rubber apron and gloves-2 Nos per Battery.	Clause: 5.2.5.1, 110VDC System - Construction of Battery" pg 421 & 422 of 571 of Vol-2 may be read as: Construction of Battery:Following accessories shall be provided with batteries. • Cell testing voltmeter 3-0-3 volts : 2 Nos per Battery • Rubber apron and gloves : 2 sets per Battery • Spanners : 2 sets per Battery • Wall mounted teak wood rack for above items : 2 Nos per Battery Following maintenance spares shall be provided as a minimum: • Inter cell connectors : 10 Nos. • Inter row connectors : 2 Nos.

		<p>Following maintenance spares shall be provided as a minimum:</p> <ul style="list-style-type: none"> • Inter cell connectors : 10 Nos. • Inter row connectors : 2 Nos. • Battery stand insulators : 2 Nos • Cell insulators : 2 Nos • Nuts, bolts & washers : 10 pieces each • Vent plugs : 10 Nos. • Spare dry cell : 4 Nos. 		<ul style="list-style-type: none"> • Nuts, bolts & washers : 10 pieces each • Vent plugs : 10 Nos. • Spare dry cell : 4 Nos.
87	<p>Electrical "Clause: 5.2.5.1, 110VDC System - Construction of Battery" pg 422 of 571</p>	110V DC System - Battery Spare list	<p>As per specification, There are some spares are inquired, in which the following spares are not applicable for VRLA SMF type battery;</p> <ul style="list-style-type: none"> * Battery stand insulators - 02 Nos. * Cell insulators - 02 Nos. * Vent plugs - 10 Nos. 	Please refer above response at sr no 86.
88	<p>Electrical "Clause: 5.2.5.2, 110VDC System - Construction of Battery Charger cum DCDB" pg 424 & 425 of 571</p>	110V DC System - Annunciator	<p>As per specification, Digital type Window annunciator need to be provided for alarm annunciation with acknowledge, test & reset push buttons and a buzzer for the following conditions:</p> <ul style="list-style-type: none"> · SCR fuse fail · Battery / DC system under voltage · DC system over voltage · DC overload · Output fuse blown · AC supply fail · AC under voltage · Battery earth fault 	As per the latest specifications & OEM standard, suitable type of Annunciator shall be considered.

			<ul style="list-style-type: none"> · Filter fuse failure · Battery on Float / Boost · Charger fail/Battery on discharge · Any other annunciation, as required <p>However as per OEM recommendation annunciator are outdated technology, hence all these parameters shall be displayed on LCD display. Kindly accept the same.</p>	
89	<p>Electrical "Clause: 2.2.8.1, Cable Selection Criteria Clause: 5.2.6, Power and Control cables" "pg 73, 427 of 571"</p>	Power cable selection - Voltage drop	<p>As per specification clause-2.2.8.1, voltage drop details are mentioned as Starting Voltage drop of Motor: 15% Running Voltage drop of Motor: 3% whereas on specification clause-5.2.6, voltage drop details are mentioned as Steady state Voltage drop (Continuous running condition): 2.5% Transient state voltage drop (During Motor Starting): 10 % Kindly clarify which one we must follow.</p>	<p>Please refer to Clause No. 2.2.8.1 at page no 72 of Vol-2. Tender conditions prevail.</p>
90	<p>Electrical Clause: 5.2.7.1, Receptacles pg 435</p>	63A welding socket - MOC	Kindly provide the enclosure material for 63A welding receptacles as there is no details provided in specification.	<p>Please refer Clause no 5.2.7 on Page 432 of Vol-2. Tender conditions prevail.</p>

	of 571			
91	Electrical "Clause: 5.2.7, Lighting System" pg 432 of 571	Receptacle - Degree of protection	As per specification, all receptacle have IP67 however as per OEM product range IP65 is available for outdoor and the MOC will be polycarbonate instead of polyamide. Kindly confirm	Tender conditions prevail.
92	Electrical "Clause: 5.2.9.1, Design and Construction of Cable Trays" pg 451 of 571	Cable fill criteria in cable tray	As per specification, 'The size of the trays shall be selected on the basis of maximum 50% fill criteria'. However, as there are space constrain in existing lock cable routing we are unable to consider the 50% of fill criteria. Hence, sufficient space will be consider in each tray for cable erection only. kindly consider our proposal and accept the same.	Tender conditions prevail.
93	Electrical "Clause: 5.2.10, 415V Silent Diesel Generator" pg 454 of 571	DG set ratingThe output from the unit shall be 400 KVA (at alternator output), 415 volts, 3 ph, 50 Hz, 0.8 power factor. It shall cater to 100% indoor lighting, Operation of Mitre & Radial Gates and 20% High Mast Load.....	Kindly clarify that DG set is required for only emergency operation or complete normal operation of existing lock if main supply failure.	Clause no 5.2.10, page no 454 of Vol-2 may be read as: “...The output from the unit shall be 400 KVA (at alternator output), 415 volts, 3 ph, 50 Hz, 0.8 power factor. It shall cater to 100% indoor lighting, Operation of Mitre & Radial Gates, 20% High Mast Load. Entre-Exit Gates, Boundary Wall lighting (both sides).....”
94	Electrical "Clause:	DG set - Protection relay & Indication lamp	The following protections are in built with DG controller in	Tender conditions prevail.

	5.2.11.8, Metering and AMF Control Panel" pg 460 of 571		addition to annunciator panel instead of individual protection. 1) Generator high voltage 2) Generator low voltage 3) Field failure relay 4) Phase failure relay Hence, additional indication lamp or relay will not be provided as recommended by OEM.	
95	Electrical "Clause: 5.2.14.5, Telephone System (EPABX) - Power Supply" pg 475 of 571	EPABX - Power Supply	As per specification, Dedicated Battery charger with Battery is required for Telephone system (EPABX) alone. However as per specification, we are providing Separate UPS system and Separate 110VDC battery charger system for existing lock. Hence, We are considering the Telephone system load in UPS system and not considering dedicated battery charger system for telephone system alone. kindly consider our proposal and accept the same.	The necessary provision shall be made as per the requirement.
96	Control & Automation works "Clause: 5.3.2.6, The Programmable Logic Controllers PLCs" pg 485	Major equipment's controlled from PLC	As per specification, START/STOP operation of 'Submersible pump (for caisson gate)' and 'Capstan motor' to be controlled from PLC (from control room). However, as these equipment's are located in field there must be manual intervention required for safe	Tender conditions prevail.

	of 571		operation of equipment. Hence considering the safety aspects which can be controlled & monitored from respective local control panels (field) and only can be monitored from PLC (from control room).	
97	Control & Automation works "Clause: 5.3.2.12, Control and Instrumentation Cable" pg 494 of 571	Control & Instrumentation cable - Insulation material	As per specification clause 5.3.2.12, Insulation of control & instrumentation cable shall be of 'XLPE' whereas as per clause:5.2.6.1, Insulation of Control cable shall be 'PVC'. Kindly confirm the insulation material.	Please refer clause no 5.3.2.12 at page no 494 of Vol-2 as follows: ".....The insulation shall be chemically crosslinked polyethylene XLPE conforming to the physical, electrical and ageing properties as required to relevant IS specified.....".
98	Control & Automation works "Clause: 5.3.3.2, Management Software", pg 498 of 571	Operational requirement of management software	As per specification, it is mentioned that "The goal of the system is to centralize information and planning for the Material Handling solution operations and to optimize the utilization of all facilities". as we are not constructing any material handling plant, the requirement of management software to be confirmed. The functional requirement of Management software to be provided for our further design & proceedings if management software required.	Please refer to Clause No. 5.3.3.2 at page no 498 of Vol-2. Tender conditions prevail.
99	Clause no 2.2.6.1 at page	Boundary Wall: Single Arm Street light poles with GI pipe of 3.5m	Boundary wall lighting has not been envisaged only indoor	Please refer to Clause No. 2.2.6.1 at page no 68 of Vol-2 may be read as:

no 68 of Vol-2	height (1 m Tilted at 45 degree & 2.5 m straight) above boundary wall with 30W LED luminaires @ 15m distance.		lighting, street lighting (if required) and high mast only will be considered. Kindly confirm.	Location	Average lux level	Type of Luminaire
	Outdoor Area	30		2x400W HPSV twin lamp & 1x1000W Flood Light, weather proof, Heavy duty High Mast (30 m) in die cast Aluminum alloy housing		
	Boundary Wall	20		Single Arm Street light poles with GI pipe of 3.5m height (1 m Tilted at 45 degree & 2.5 m straight) above boundary wall with 30W LED luminaires @ 15m distance		
	Control Room Building (Ground)	200		General Purpose Industrial compact batten suitable for 2x20 W LED Tube Light fitted with		
	Outdoor Area	30		2x400W HPSV twin lamp & 1x1000W Flood Light, weather proof, Heavy duty High Mast (30 m) in die cast Aluminum alloy housing		
				Boundary Wall including Entry-Exit gate	20	Double Arm Street light poles with GI pipe of 3.5m height (1 m Tilted at 45 degree & 2.5 m straight) above boundary wall with 30W LED luminaires @ 15m distance
				Control Room Building (Ground Floor), DG & Transfo	200	General Purpose Industrial compact batten suitable for 2x20 W LED Tube Light fitted with Aluminium heat sink

		Floor), DG & Transf ormer Room, & Local Contro l Panel Rooms		Aluminium heat sink		mer Room, & Local Control Panel Rooms		
		Contro l Room Buildi ng (First & Seco nd Floor)	300	34Watt LED Panel with ultra-modern recess mounting luminaire suitable for armstrong/grid/P OP ceiling complete with separate electronic driver & high brightness Surface Mounted Device(SMD) LEDs		Control Room Buildin g (First & Second Floor)	300	34Watt LED Panel with ultra-modern recess mounting luminaire suitable for armstrong/grid/P OP ceiling complete with separate electronic driver & high brightness Surface Mounted Device(SMD) LEDs
		Contro l Room Buildi ng (Groun d, First & Seco nd Floor) &	10 (Min imu m)	Battery operated emergency lighting unit consist of aesthetically designed rechargeable 5 Watt LED lantern with dimming and SOS feature. Battery shall be		Control Room Buildin g (Groun d, First & Second Floor) & Local Control Panel rooms & at all entry /	10 (Min imu m)	Battery operated emergency lighting unit consist of aesthetically designed rechargeable 5 Watt LED lantern with dimming and SOS feature. Battery shall be rechargeable Li- ion type & 5V DC Li-ion charger with 1 hour

		Local Control Panel rooms & at all entry / exit points etc.	rechargeable Li-ion type & 5V DC Li-ion charger with 1 hour battery backup.		exit points etc.	battery backup.
100	Electrical "Clause: 7, Specification for Fire Fighting System", pg 549 of 571	Fire detection & Alarm system		As per firefighting system specification, there is no detailed requirement for Fire detection and Alarm System. however as per Fire protection system norm, it may be required. Hence kindly ensure the requirement of fire detection and alarm system. also share the specification if required.	Please refer to Clause No. 7.2 at page no 547 of Vol-2 where the provision of firefighting system elaborated. Tender conditions prevail.	
101	SCHEDULE - K (TESTS ON COMPLETION), Vol I, Page No-283	Time taken for filling / emptying of the lock shall not exceed 8 minutes. If it does not meet the criteria, appropriate modification to the feeder channel shall be made.		Request to modify this clause may be read as: The filling & emptying time of existing navigational lock shall be retained as per original design of the structure."	Please refer above response at sr no 45.	
102	Fendering System, Vol II, 2.1.4, Page no-44	the fender of AN 800, grade E3.0		Bidder presume that other type of fender system shall also be considered by meeting the design & functional requirement specified. Please provide maximum size of vessel to be accommodated in Lock.	Please refer above response at sr no 48.	

103	Performance security, Vol I, Article 7, 7.1.1, Page No- 148	The Performance Security amount is equal to 9% of the Contract Price, and Environmental, Social, Safety and Health (ESHS) Performance Security amount is 1 percent of Contract Price.	Request to amend as 3% of contract price as Performance Security amount as in case of other Central Government bids(like railways, NHAI contracts) as per MOF,GOI office memorandum dated 12-11-2020.	Tender condition prevail.
104	General-DPR		It is presumed that cost of bid is evaluated based on an approved DPR. Please state whether DPR has been approved by competent authority or not	The DPR has been uploaded on the IWAI website. The same may be visited.
105	Bank protection works, Vol II, 1.2.3, Page No-27	Bank protection works shall be carried out on the left bank of the approach channel to protect the river bank from erosion and flooding.	Please state whether bank protection works can also be carried with modern technology/ techniques	Tender conditions prevail. the latest technologies /techniques may be considered to design the Bank protection work. The approval of the same shall be given on the basis of vetting by the proof checking consultant.
106	Bank protection works, Vol II, 1.2.3, Page No-27	Bank protection works shall be carried out on the left bank of the approach channel to protect the river bank from erosion and flooding.	It is presumed that bank protection works shall be carried up to IWAI land boundary.	Please refer above response at sr no 15.
107	Bank protection works, Vol II, 1.2.3, Page No-27	Bank protection works shall be carried out on the left bank of the approach channel to protect the river bank from erosion and flooding.	For formation of coffer dam to take renovation of Lock chamber and bank protection works please state is it permissible to convey soil from high berms/island formations of River Ganga and it is presumed that necessary permissions	The high berms shall not be disturbed/ touched. For development of coffer dam, the suitable material shall be arranged by the contractor at his own cost. Tender Conditions prevail.

			shall be granted by Employer on request of bidder.	
108	Residential Buildings, Vol II, 1.2.5.2, Page No- 29	Location of the proposed quarters are shown in Drawing No. ENL 013	It is requested to consider the location of residential buildings on left side of Lock chamber beside existing control room or at locations as decided by Engineer-in - charge as per site conditions to maintain aesthetic aspect in between two Navigation Locks.	Please refer drawing number ENL 013_R1 attached at Annexure-A.
109	Synchronized Operation of Existing and New Navigational Lock through Integrated Signal System, Vol II, 1.2.16, Page no- 41	The movement of traffic through both the navigational locks (Existing & New) shall be managed from an integrated signal system. The integrated signal system should be installed at the upstream and downstream of the lock for synchronized operation through both the locks (Existing & New) resulting in safe and reliable and smooth movement of vessels. The integrated signal system should be interoperable from both the existing and new navigational lock control room . The Contractor shall do the design, installation, testing and commissioning of the integrated signal system for traffic management for synchronized operations of the movement of traffic through the Existing and New Navigational lock as per specifications for Signal System	It is submitted that guarantee and performance of New Lock signal system, after integration of system by bidder, shall lie with the Employer only.	The guarantee & performance of new navigational lock signal system is not in the scope of the subject contract. However, the signal system shall be synchronized by the Contractor under this contract. Clause no 1.2.16 at Page no- 41, Vol-2 may be read as: The movement of traffic through both the navigational locks (Existing & New) shall be managed from an integrated signal & Hooter system. The integrated signal & Hooter system should be installed at the upstream and downstream of the lock for synchronized operation through both the locks (Existing & New) resulting in safe and reliable and smooth movement of vessels. The integrated signal system should be interoperable from both the existing and new navigational lock control

		covered under Section 4.25.		room. The Contractor shall do the design, installation, testing and commissioning of the integrated signal & Hooter system for traffic management for synchronized operations of the movement of traffic through the Existing and New Navigational lock as per specifications for Signal System covered under Section 4.25. The Hooter system shall be duly synchronized with the opening & closing of the gates.
110	MITRE Gate control system, Vol II, 6.2.3, Page no- 526	The electro-hydraulic system shall be proven and selected from reputed manufacturer who had supplied similar system in Navigational lock and the same is working satisfactorily for at least 10 years. A performance certificate from the users for similar system designed and installed by the manufacturer shall be submitted along with the offer	Requested to modify as "The electro-hydraulic system shall be proven and selected from reputed manufacturer who had supplied similar system in Navigational lock/ Irrigation Projects and the same is working satisfactorily for at least 10 years. A performance certificate from the users for similar system designed and installed by the manufacturer shall be submitted along with the offer"	<i>The clause 6.2.3 at page no 526 of Vol-2 may be read as:</i> "The electro-hydraulic system shall be proven and selected from reputed manufacturer who had supplied similar system in Navigational lock / Irrigation/ Hydropower Projects and the same is working satisfactorily for at least 10 years. A performance certificate from the users for similar system designed and installed by the manufacturer shall be submitted along with the offer."
111	Radial Gate control system, Vol II, 6.4.14, Page no- 540	The electro-hydraulic system shall be proven and selected from reputed manufacturer who had supplied similar system in Navigational lock and the same is working satisfactorily for at least 10 years. A performance certificate from the	Requested to modify as "The electro-hydraulic system shall be proven and selected from reputed manufacturer who had supplied similar system in Navigational lock/ Irrigation Projects and the same is	<i>Please refer 6.4.14 at page no 540 of Vol-2 may be read as:</i> "The electro-hydraulic system shall be proven and selected from reputed manufacturer who had supplied similar system in Navigational lock / Irrigation/ Hydropower Projects and

		users for similar system designed and installed by the manufacturer shall be submitted along with the offer	working satisfactorily for at least 10 years. A performance certificate from the users for similar system designed and installed by the manufacturer shall be submitted along with the offer"	the same is working satisfactorily for at least 10 years. A performance certificate from the users for similar system designed and installed by the manufacturer shall be submitted along with the offer".													
112	General		<p>GST – (i) Whether cost of bid is inclusive of GST or exclusive of GST.</p> <p>(ii) If rate is exclusive of GST, is reimbursable or not?</p> <p>Labour Cess: (i) Labour Cess is included in bid amount or not.</p> <p>(ii) If rate is exclusive of Labour Cess, 2% of labour cess is reimbursable or not?</p> <p>Payments made by the contractor under Mines Act, 1952 are reimbursable or included in the rate.</p>	<p>i & ii) Please refer the BoQ of CPP Portal for detailed understanding.</p> <p>Please refer the BoQ of CPP portal, separate line item (item no 28) has been included to cover up the component of all the duties & taxes except GST.</p> <p>Payments made by the contractor under Mines Act, 1952 are included in the quoted rate by the bidder.</p>													
113	Volume II: Technical Specifications, 2.3.4 Range of Differential Water Levels, Page no- 79	<table border="1"> <tr> <th colspan="3">Static Condition</th> </tr> <tr> <td rowspan="2">U/S Gates</td> <td>U/S Water Column</td> <td>10.755 m</td> </tr> <tr> <td>Lock Water Column</td> <td>2.743 m</td> </tr> <tr> <td rowspan="2">D/S Gates</td> <td>Lock Water Column</td> <td>8.835 m</td> </tr> <tr> <td>D/S Water</td> <td>2.743</td> </tr> </table>	Static Condition			U/S Gates	U/S Water Column	10.755 m	Lock Water Column	2.743 m	D/S Gates	Lock Water Column	8.835 m	D/S Water	2.743	<p>What is meant by Static Condition / Operating Condition / Maintenance condition. How is this differentiation to be understood for the operating conditions of the lock and/or for the loads/combinations to be taken into account for the gate design?</p>	<p>All gates are to be designed as per Clause No. 2.3.4 Range of Differential Water Levels (may be read as Water Heads) at page no 79 of Vol-2.</p> <p>Tender conditions prevail.</p>
Static Condition																	
U/S Gates	U/S Water Column	10.755 m															
	Lock Water Column	2.743 m															
D/S Gates	Lock Water Column	8.835 m															
	D/S Water	2.743															

			Column	m		
		Operating Condition				
		U/S Gates	U/S Water Column	8.835 m		
			Lock Water Column	2.743 m		
		D/S Gates	Lock Water Column	8.835 m		
			D/S Water Column	2.743 m		
		Maintenance Condition				
		U/S Gates	U/S Water Column	7.025 m		
		D/S Gates	Lock Water Column	5.955 m		
114	Volume II: Technical Specifications, 2.3.9 Flootation and Stability – Caisson Gate, Page No-81	A minimum metacentric height of 0.6 m			<p>The depth of the approach channel of 5.28m has been omitted from the revised bidding document. It is not clear at what depth the caisson gate should be able to float.</p> <p>-</p> <p>The very strict requirement of 0.6m metacenter height, etc., is however still imposed.</p> <p>-</p> <p>Please note that this</p>	<p>Tender conditions prevail.</p> <p>The same is under the design scope of the EPC Contractor.</p>

			<p>requirement for a minimum required hull width in combination with heavy ballast of the caisson gates, and therefore limits its obtainable minimum empty draft.</p> <p>-</p> <p>This implies that the water level in which the caisson gate can be operated will 'not be low'. IACS rules for floating equipment and floating gates rather require metacentric heights in the order of magnitude of 10 or 20 cm. 60 cm is to be regarded as very high, and excessive/too limiting given the available water depth restrictions in dry conditions at Farakka.</p>	
115	Volume 3: Bill of Quantities, 2.8.7 Engineering, Procurement and Construction of Hydro Mechanical work/ operating mechanism of Bulkhead gates, Page No-20	Sl.no 8.7.1 Hydro Mechanical Works - Hydraulic hoist / Other operating mechanism for Bulkhead gate	<p>In BOQ Hydraulic hoist operating mechanism for Bulkhead gate is requested.</p> <p>-</p> <p>As per Technical specification bulkhead gate (Volume 2, 2.3.8 Operation System Page no 81), needs to be operated by electrical wire rope hoist not by Hydraulic hoist mechanism. Owner shall reconfirm operation of Bulkhead gate as per Volume 2.</p>	<p><i>The Clause no 2.8.7 (8.7.1) at page no 20 & item no 19.01 of BoQ may be read as:</i></p> <p>“Supply, Installation and Commissioning of Hydro mechanical works such as electrical wire rope hoist / Other operating mechanism for Bulkhead gate operations including mobilization, designing, fabricating, Supplying, painting, welding, drilling, grouting & fixing in position as necessary for complete operation and ready to use as per approved designs, drawings and specifications including testing,</p>

				inspection, commissioning and defect rectifications, complete in all respects”.
116	Clause no 1.2, Page No 25 & 26	<p>Employer’s requirement</p> <p>The Employer’s Requirements are that the Contractor shall carryout the Engineering, Design, Procurement of materials and Construction / installation of all the items listed below, along with associated works as outlined in this tender document. For this purpose, the Tenderer shall conduct all necessary field tests and surveys to satisfy / verify himself regarding the correctness of the data furnished vis-à-vis actual condition. No claim whatsoever will be entertained for any variation between the actual site condition met with during the execution of the work and those indicated herein. While working for this Contract, the contractor shall be fully responsible to ensure that there will not be any damages in the New Navigational lock which are already in advance stage of operationalization.</p> <p>The broad items of works covered are listed below:</p> <ul style="list-style-type: none"> ➤ Renovation/Modernization of Lock Structure including all associated facilities ➤ Bank protection works 	<p>We understand that, the existing Navigational lock along with its existing mechanical equipments need to be dismantled and construct new one with all the equipments and necessary facilities, Please clarify</p>	<p>Please refer clause no 1.1 which is self-explanatory. Further to above, being 35 years old structure, the renovation & modernization with retrofitting of obsolete items has been envisaged in the present work. The specific requirement of dismantling of the items (if any) has been clearly detailed in the Bid document.</p> <p>Tender conditions prevail.</p>

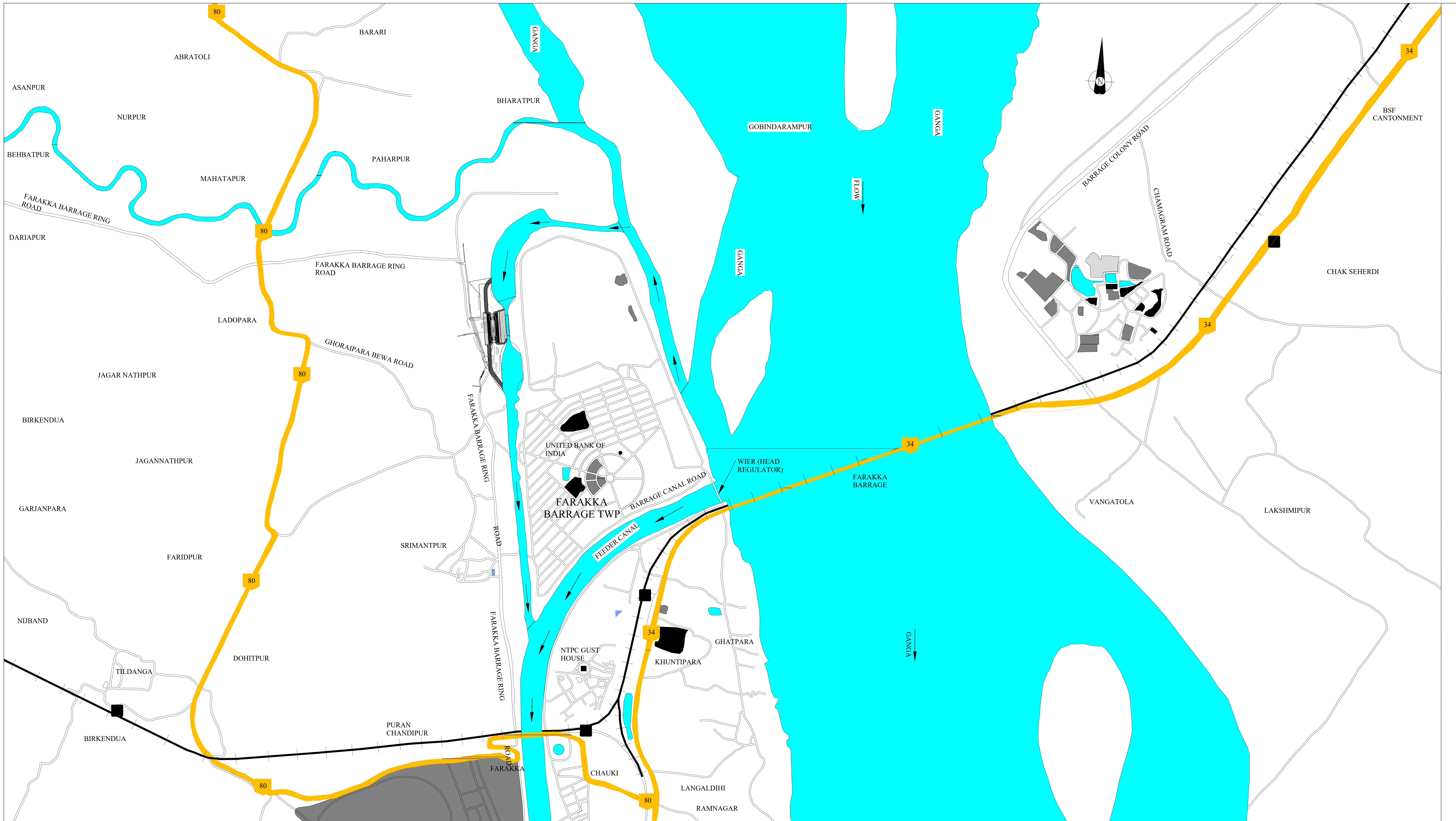
		<ul style="list-style-type: none"> ➤ Renovation/Modernization of Control Room building with associated electrical, mechanical and other facilities for remote operation of gates ➤ Electrical works ➤ Communication system ➤ Roads ➤ Vehicle parking area ➤ Security office cum check post ➤ Toilet block ➤ Water supply ➤ Storm water drainage ➤ Sewerage system ➤ Waste collection system ➤ Fire-fighting system ➤ Store room for storing spare parts 		
117	Drawing No. ENL-003, Vol-2, BoQ item no 7 & clause no 2.5.3 of Vol-3 at page no 12	<p>Control Rooms</p> <div style="border: 1px solid black; padding: 5px;"> <p>Engineering, Procurement and Construction of Control Room Building including local control rooms (2 Nos)</p> </div>	What is the size of 8 local control rooms and its purpose?	<p>The size of local control room are to be designed by the bidder as per the site requirement.</p> <p>BoQ item no 7 & clause no 2.5.3 of Vol-3 at page no 12 may be read as:</p> <div style="border: 1px solid black; padding: 5px;"> <p>Engineering, Procurement and Construction of Control Room Building including local control rooms (4 Nos)</p> </div>

		Control Room Building Renovation and modernization of existing main control room building along with local control rooms (2 Nos) including mobilization & demobilization as per approved designs, drawings and specifications including testing, inspection and defect rectifications, complete in all respects.				Control Room Building Renovation and modernization of existing main control room building along with local control rooms (4 Nos) including mobilization & demobilization as per approved designs, drawings and specifications including testing, inspection and defect rectifications, complete in all respects. Please refer drawing number ENL003_R1 attached at Annexure-A.
118	Drawing No. ENL-013, Vol-2	Bank Protection works			Please clarify the extent of the bank protection works and total length.	Please refer above response at sr no 15.
119	Drawing No. ENL-013, Vol-2	Temporary Buildings			Please provide size and type of temporary building shown this drawing.	The temporary building areas shown in the drawing are designated for contractor's temporary shed (if any) required during construction.
120	General				Please provide Autocad file of all drawings and topo survey	The available drawings are being provided along with the Tender document. The bidder may undertake their due diligence for the other parameters for bidding.
121	Clause No-1.2.5 Buildings, Vol-2	S. No.	Building	Type	Please provide Architectural drawings and sizes of all the buildings to be constructed.	Architectural drawings are in the scope of the EPC Contractor. Sizes of residential buildings are as per the category of CPWD. Please refer above response at sr no
		1.	Control Room building	Three storey building		

		2. Residential Quarters	Type III and IV		39.
		3. Toilet Block	Single storey building with capacity of 2 Water Closet (flush toilet) for women and men and 4 urinals for men		
		4. Security Office cum check post	Single storey building		
122	Clause no 1.2.7 of Vol-2	Vehicle Parking Area: The Contractor shall plan, design and construct suitable roofed paved area for vehicle parking nearby the control room building.		Please provide size of parking area required	Please refer above response at sr no 37.
123	Clause no 1.2.8 of Vol-2	Water Supply The Contractor shall do design, installation and commissioning of the complete water supply distribution system including the supply of potable water to the buildings.		Please clarify from where the potable water is to be sourced and what is the capacity of pump house required? Please provide the Potable and raw Water supply and distribution layout dwg.	The source of portable water supply will be ground water. The other design details are in the scope of the EPC Contract.
124	Clause 1.2.9 of Vol-2	Storm Water Drainage		layout for storm water drainage is not shown in Drawing ENL013, please provide the same	The design of storm water drainage will be in the scope of EPC contract. The requirement of drainage system shall be worked out on the basis of site requirement & annual rainfall data.

List of Drawings

S.N.	Drawing No.	Revision	Title Of Drawing
1	ENL001	R1	Index Plan of The Existing and New Navigation Lock, Farakka
2	ENL002	R1	Topography Survey of The Navigation Lock Farakka
3	ENL003	R1	General Arrangement Drawing of Existing Navigation Lock
4	ENL004	R1	General Arrangement Drawing of Parking Bay
5	ENL005	R1	General Arrangement Drawing of Mooring Equipment
6	ENL006	R1	General Arrangement Drawing of Bank Protection
7	ENL007-SH1	R1	General Arrangement Drawing of Mitre Gate (Sheet No.1)
8	ENL007-SH2	R1	General Arrangement Drawing of Mitre Gate (Sheet No.2)
9	ENL007-SH3	R1	General Arrangement Drawing of Mitre Gate (Sheet No.3)
10	ENL008-SH1	R1	General Arrangement Drawing of Radial Gate (Sheet No.1)
11	ENL008-SH2	R1	General Arrangement Drawing of Radial Gate (Sheet No.2)
12	ENL009-SH1	R1	General Arrangement Drawing of Bulkhead Gate (Sheet No.1)
13	ENL009-SH2	R1	General Arrangement Drawing of Bulkhead Gate (Sheet No.2)
14	ENL010-SH1	R1	General Arrangement Drawing of Caisson Gate (Sheet No.1)
15	ENL010-SH2	R1	General Arrangement Drawing of Caisson Gate (Sheet No.2)
16	ENL010-SH3	R1	General Arrangement Drawing of Caisson Gate (Sheet No.3)
17	ENL010-SH3	R1	General Arrangement Drawing and Detail of Caisson Gate Movement for Operation of Existing Navigation Lock (Sheet No.4)
18	ENL011	R1	Power Single Line Diagram of Existing Navigation Lock, Farakka
19	ENL012	R1	Basic Control Architecture of Existing Navigation Lock, Farakka
20	ENL013	R1	General Arrangement Drawing of Bank Protection, Parking Bay, Storm Water Drainage and Road, Retiring Area
21	ENL014	R1	General Location Plan for Monitoring Instrumentation of Existing Navigation Lock, Farakka



INLAND WATERWAYS AUTHORITY OF INDIA

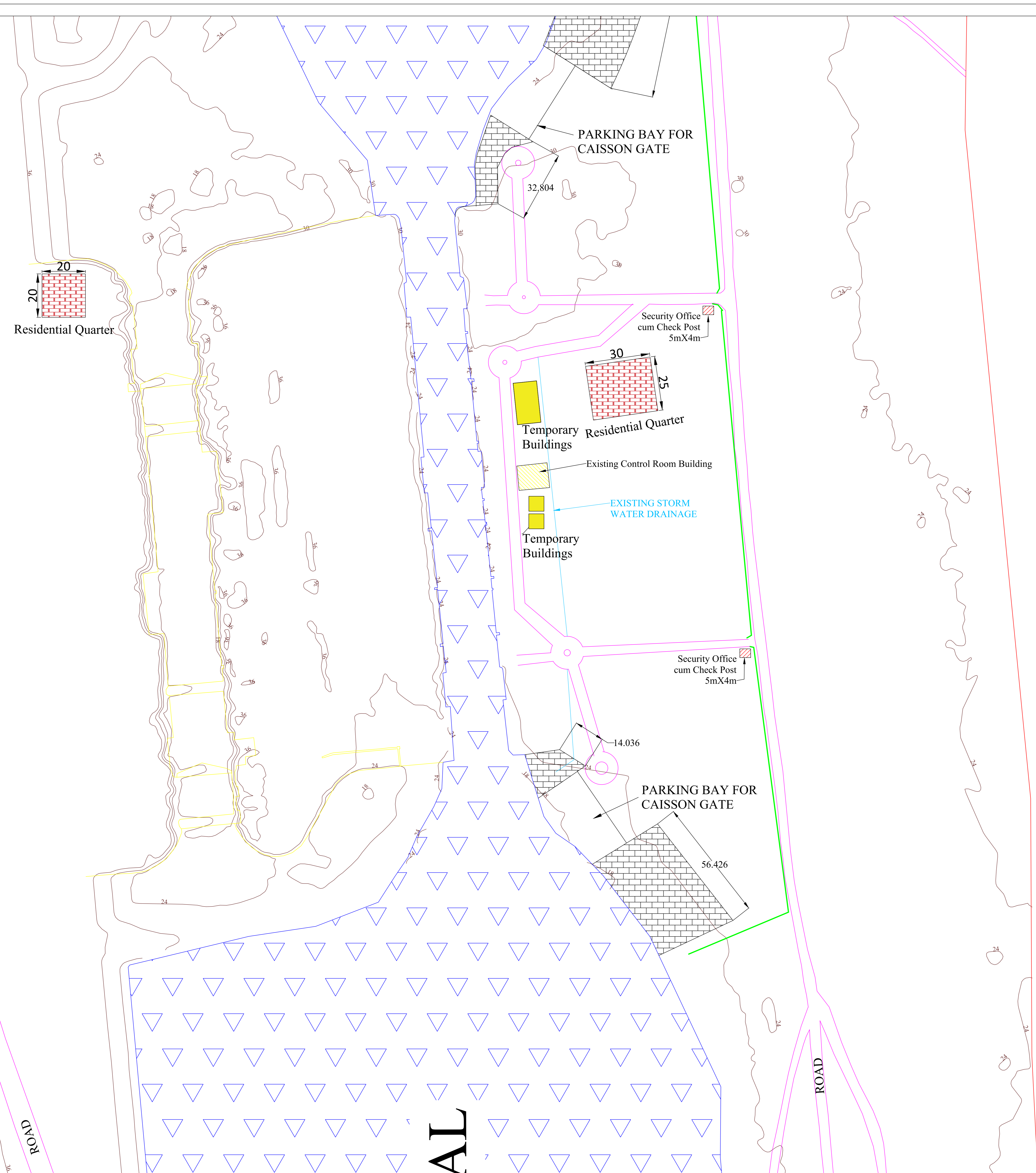
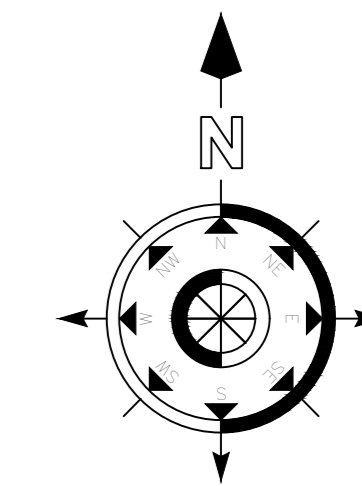
PROJECT CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR THE WORK OF RENOVATION / MODERNIZATION OF EXISTING NAVIGATION LOCK AT FARAKKA

CONSULTANT	NAME	SIGN	DATE
 PKS FLOODKON JV 	DRN		
	CHD		
	APD		

TITLE INDEX PLAN OF THE EXISTING AND NEW NAVIGATION LOCK, FARAKKA

JOB. NO. DRG. NO. ENL001

REV.	DATE	DESCRIPTION	DRN	CHD	APD



Legends

- Contour Lines
- Canal
- New Navigation Lock

- NOTE:
1. ALL DIMENSIONS AND ELEVATIONS ARE IN METERS, UNLESS OTHERWISE SPECIFIED.
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REV.	DATE	DESCRIPTION	DRN	CHD	APD

INLAND WATERWAYS AUTHORITY OF INDIA

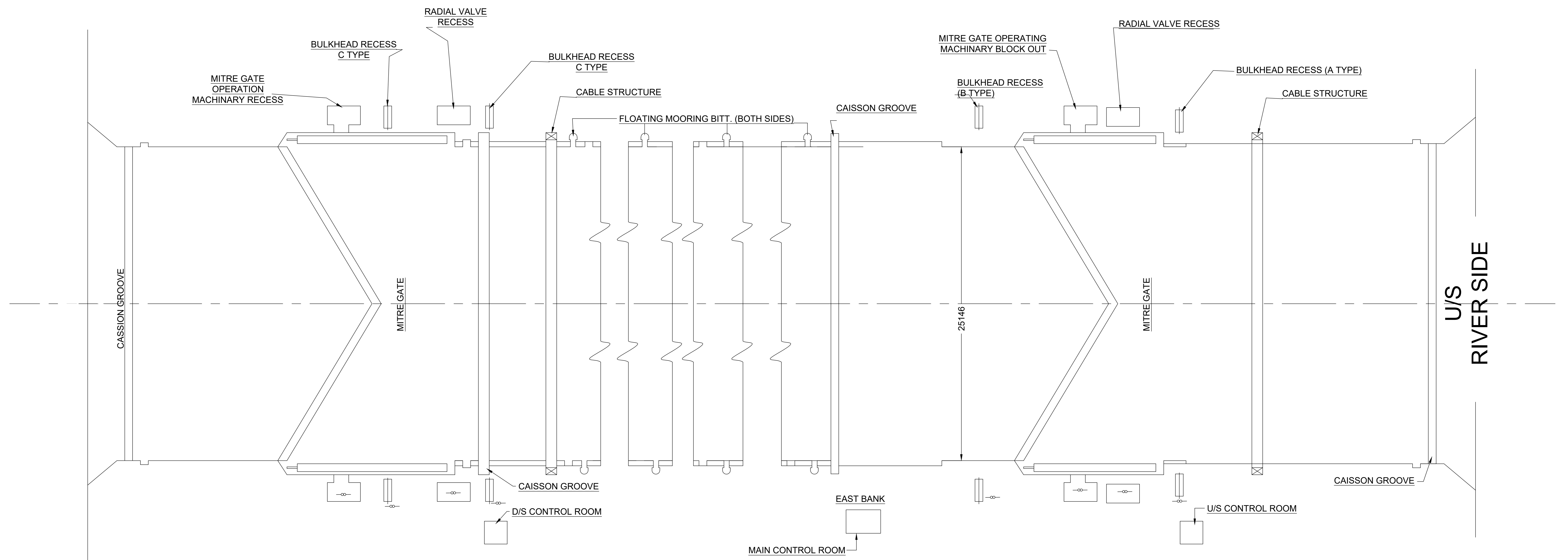
PROJECT CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR THE WORK OF RENOVATION / MODERNIZATION OF EXISTING NAVIGATION LOCK AT FARAKKA

CONSULTANT	NAME	SIGN	DATE
PKS Infra Engineers PKS FLOODKON JV	DRN		
	CHD		
	APD		

TITLE TOPOGRAPHY SURVEY OF THE NAVIGATION LOCK, FARAKKA

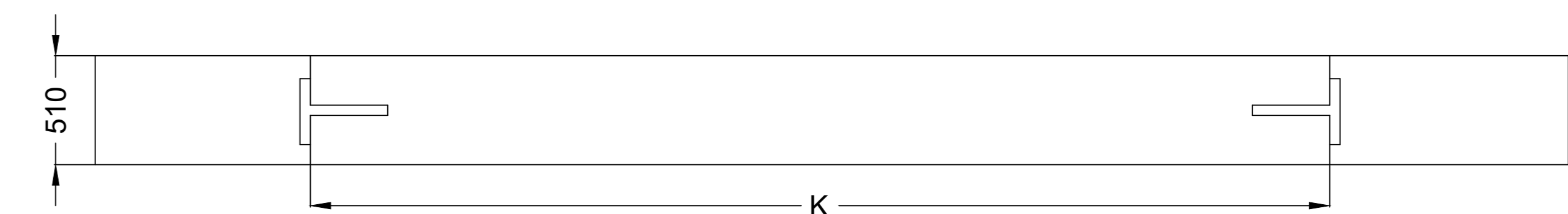
JOB. NO.	DRG. NO.
	ENL002

SIZE: A0	REV: R1
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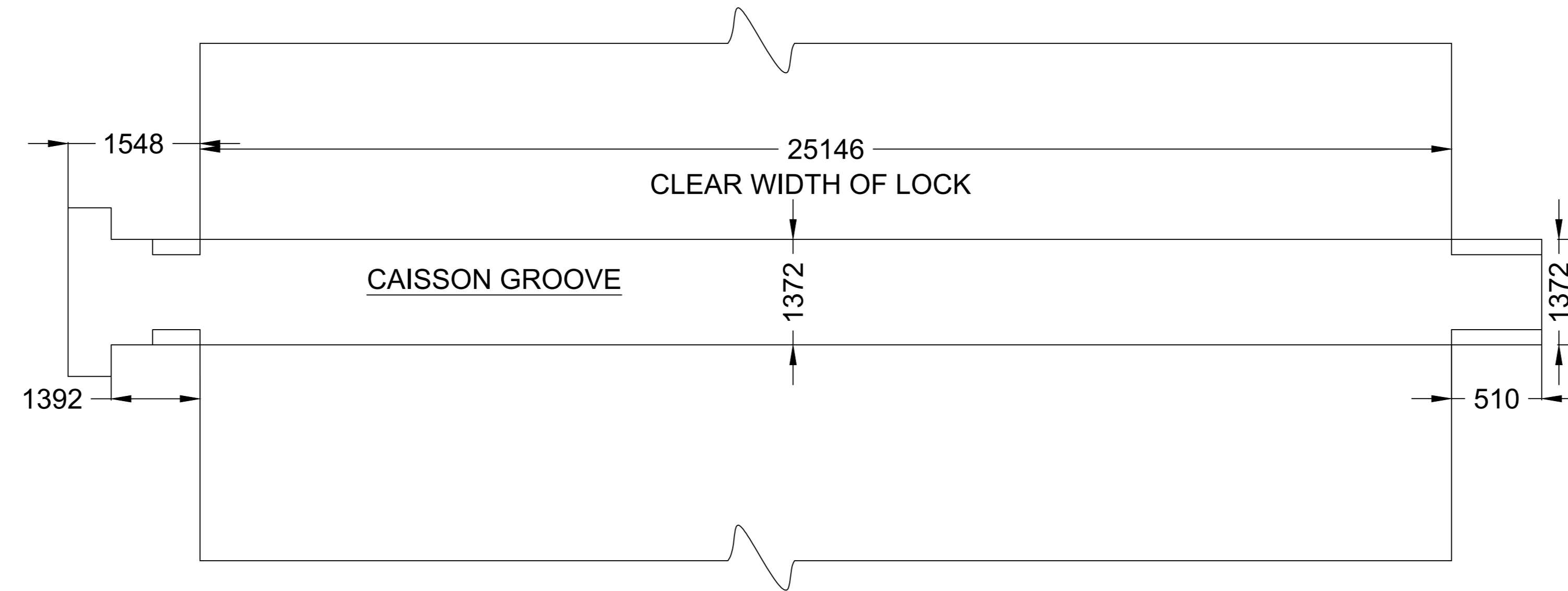
**U/S NAVIGATION LOCK FARAKKA
GENERAL LAYOUT**

- | | |
|-----------------|---|
| LOCK | : 1 NO. |
| MITRE GATES | : 2 NOS. with 2 leaf each |
| RADIAL GATES | : 4 NOS |
| MOORING BITS | : 8 NOS. (Floating Bollard) |
| CAISSON GATES | : 2 NOS. |
| BULK HEAD GATES | : 8 NOS. |
| CONTROL ROOMS | : 1 NO. Main Control Room and 2 NOS. Local Control Control Room |
- Currently, the lock operations are carried out through four temporary local control rooms located at each radial gate.

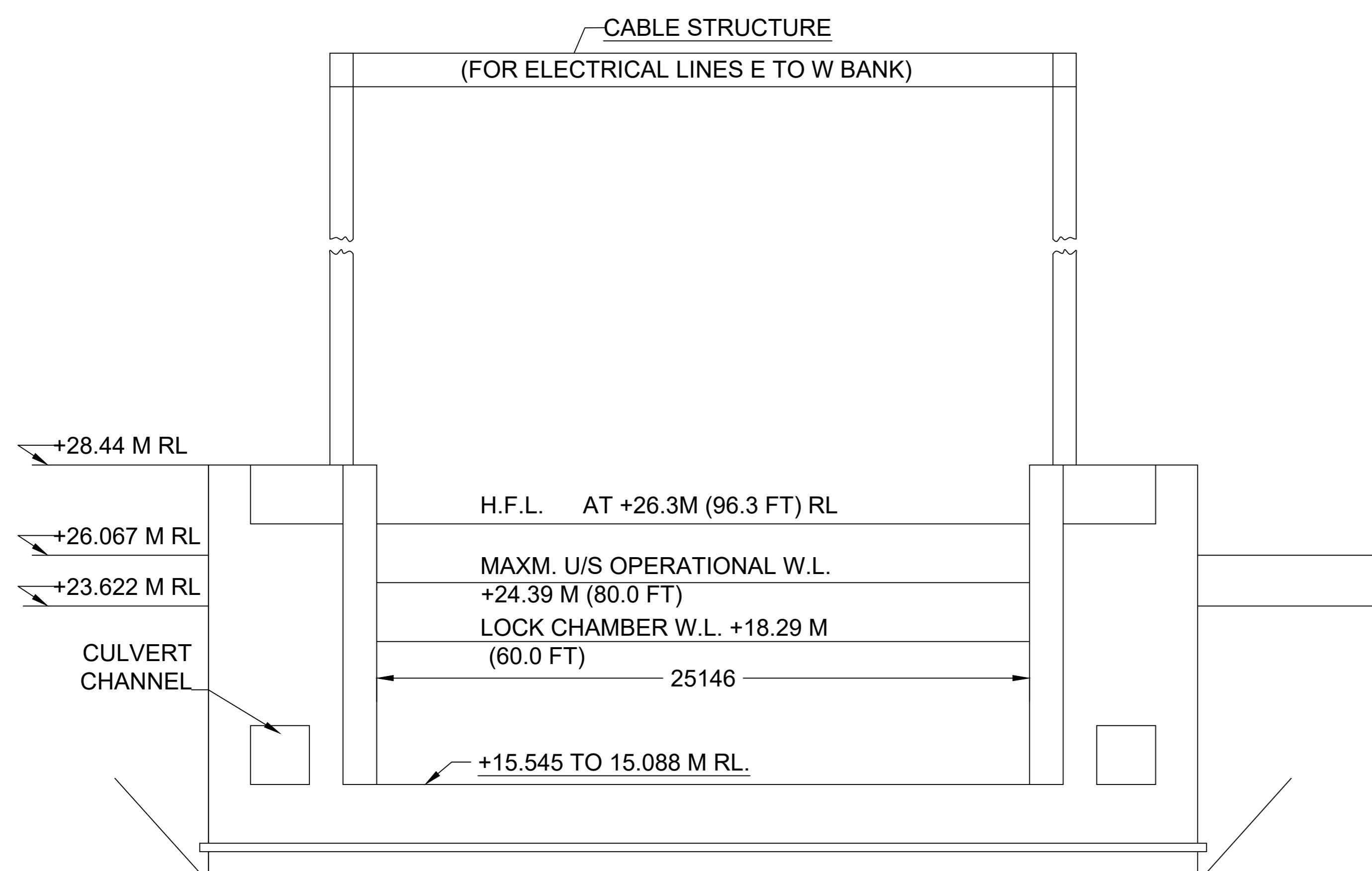


**ENLARGED DETAIL OF
BULKHEAD RECESS**

"K" FOR TYPE - "A" = 4118
 "K" FOR TYPE - "B" = 3328
 "K" FOR TYPE - "C" = 2670



**ENLARGED DETAIL OF
CAISSON GROOVE**

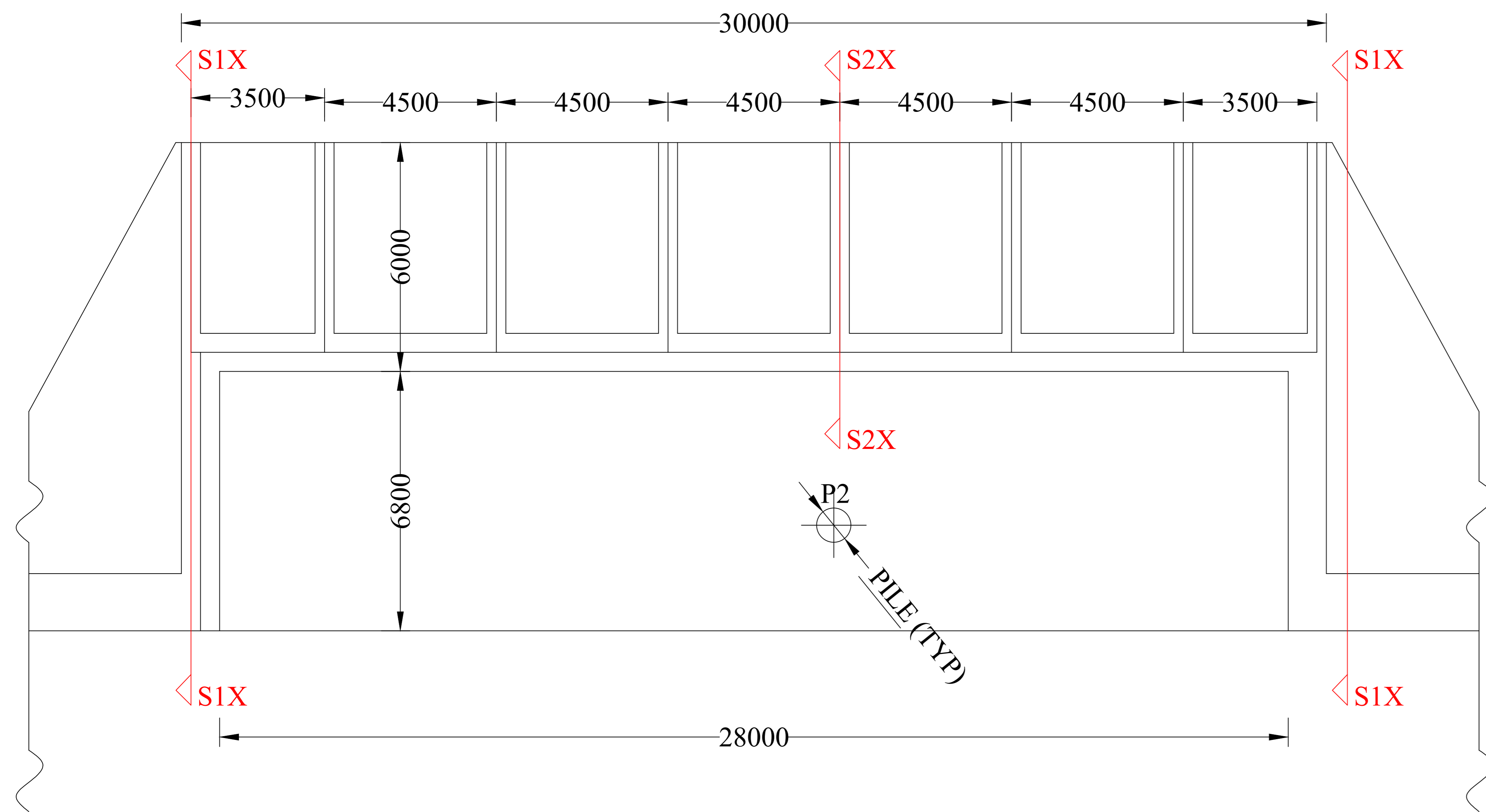


**SECTIONAL ELEVATION
OF LOCK CHAMBER**

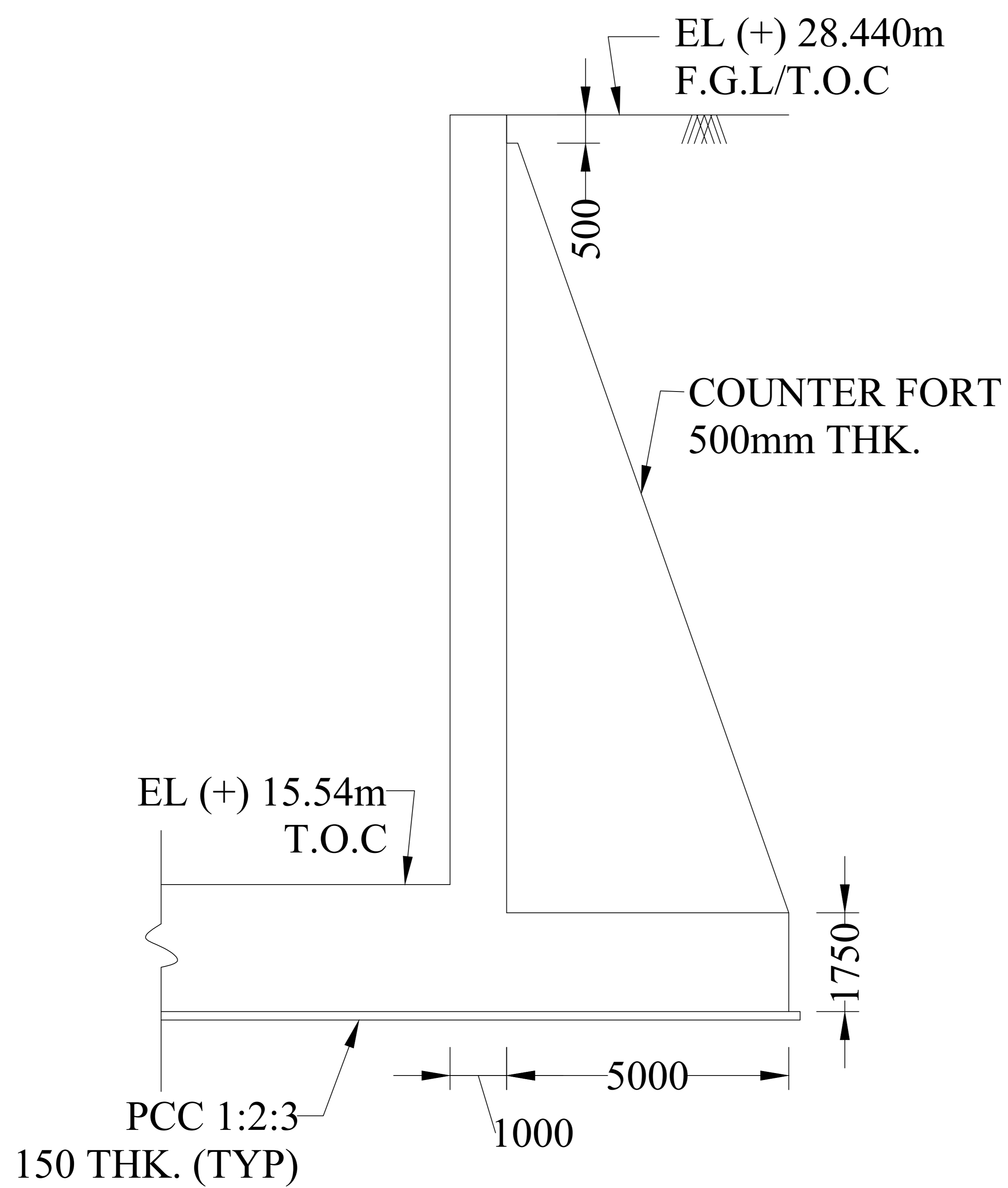
- NOTE:
- ALL DIMENSIONS ARE IN MILLIMETER AND ELEVATIONS ARE IN METERS, UNLESS OTHERWISE SPECIFIED.
 - NO DIMENSION SHALL BE SCALED OUT, ONLY WRITTEN DIMENSIONS ARE TO BE TAKEN AS CORRECT.

REV.	DATE	DESCRIPTION	DRN	CHD	APD

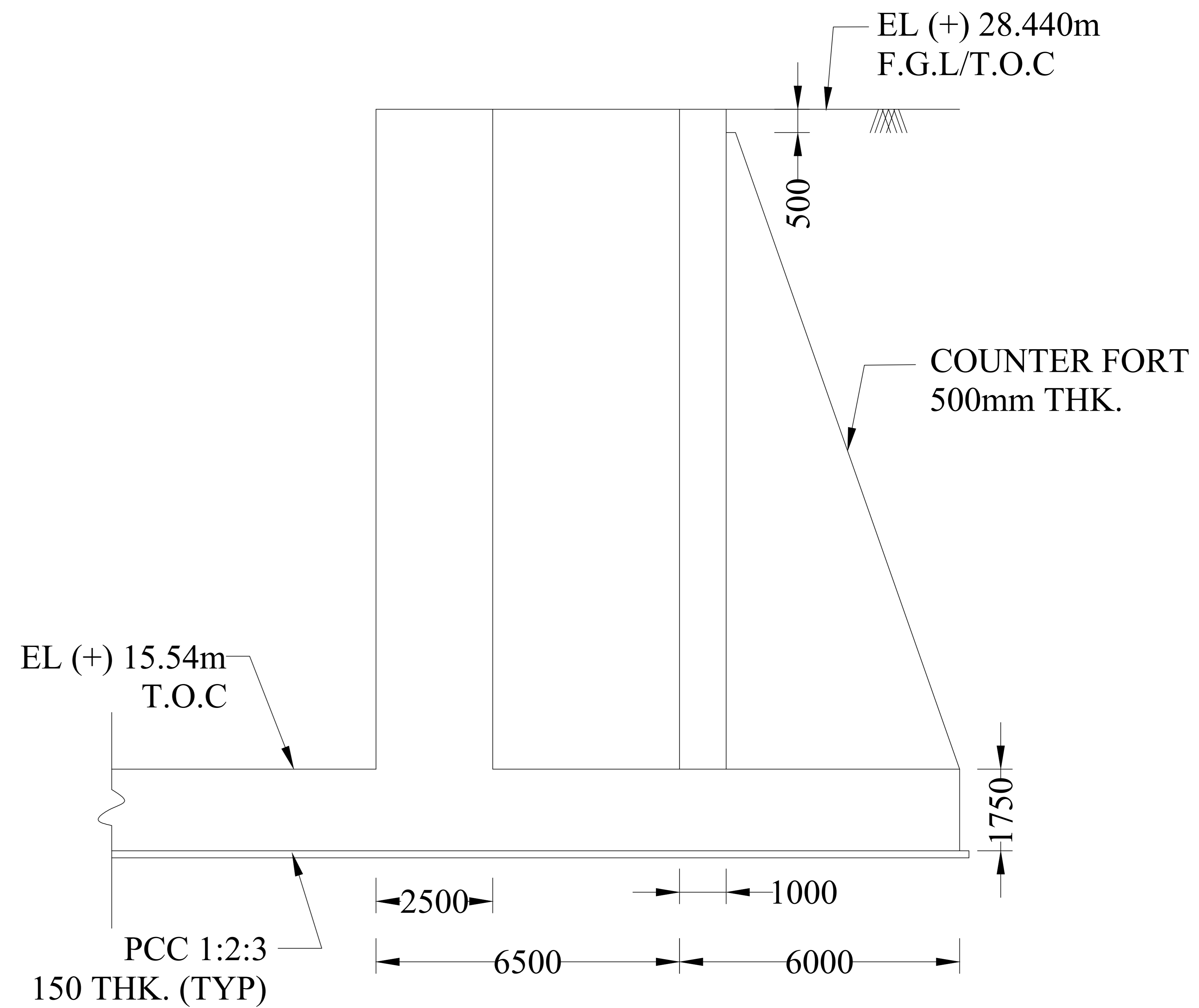
INLAND WATERWAYS AUTHORITY OF INDIA					
PROJECT CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR THE WORK OF RENOVATION / MODERNIZATION OF EXISTING NAVIGATION LOCK AT FARAKKA					
CONSULTANT			NAME	SIGN	DATE
PKS FLOODKON JV			DRN		
			CHD		
			APD		
TITLE			JOB. NO.	DRG. NO.	
GENERAL ARRANGEMENT DRAWING OF EXISTING NAVIGATION LOCK, FARAKKA				ENL003	
REV. DATE DESCRIPTION DRN CHD APD			SIZE: A0	REV. R1	



PLAN





**SECTION S2X-S2X
NUM. DETAIL FOR LOCK PORTION**

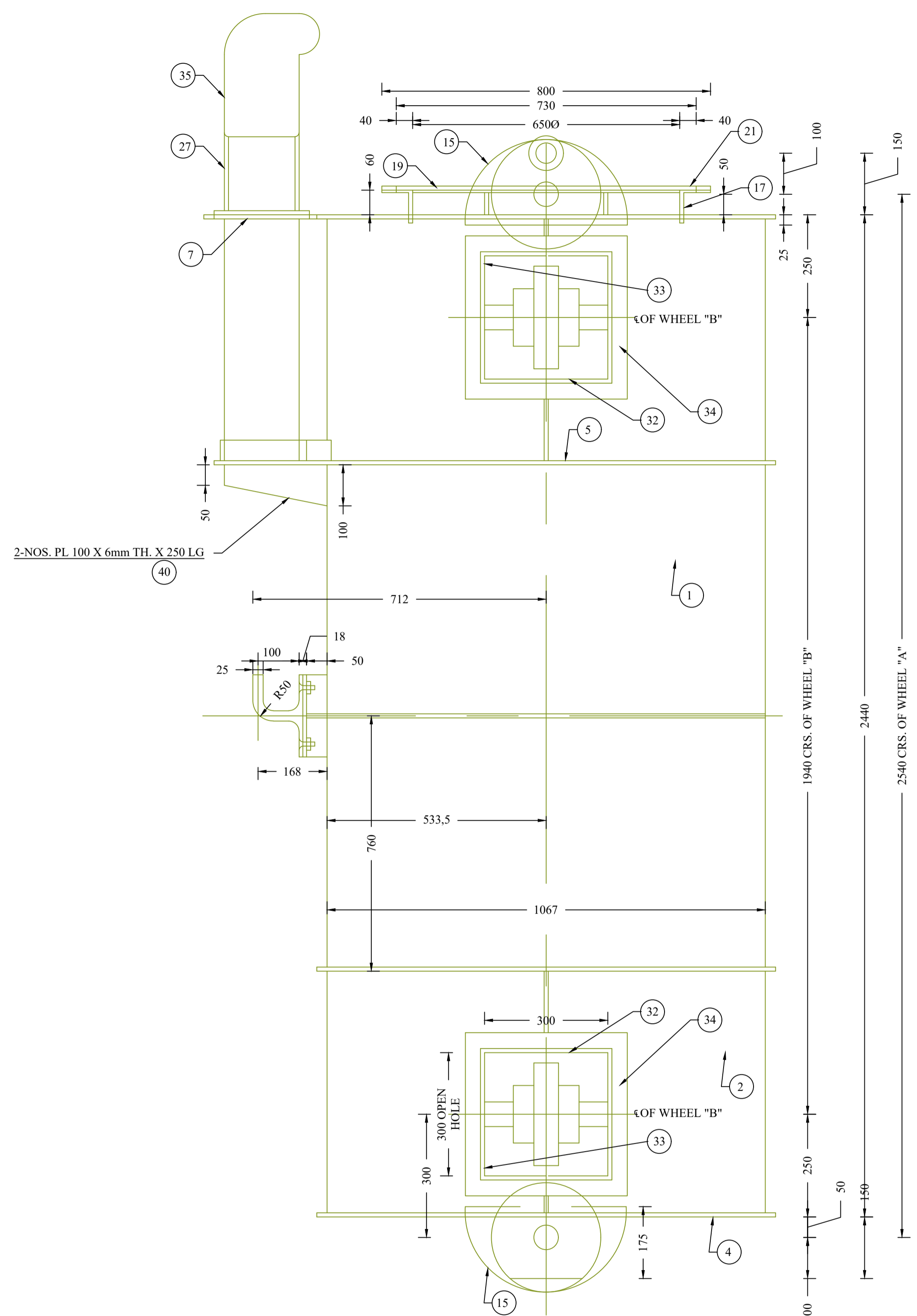


**SECTION S1X-S1X
NUM. DETAIL FOR LOCK PORTION**

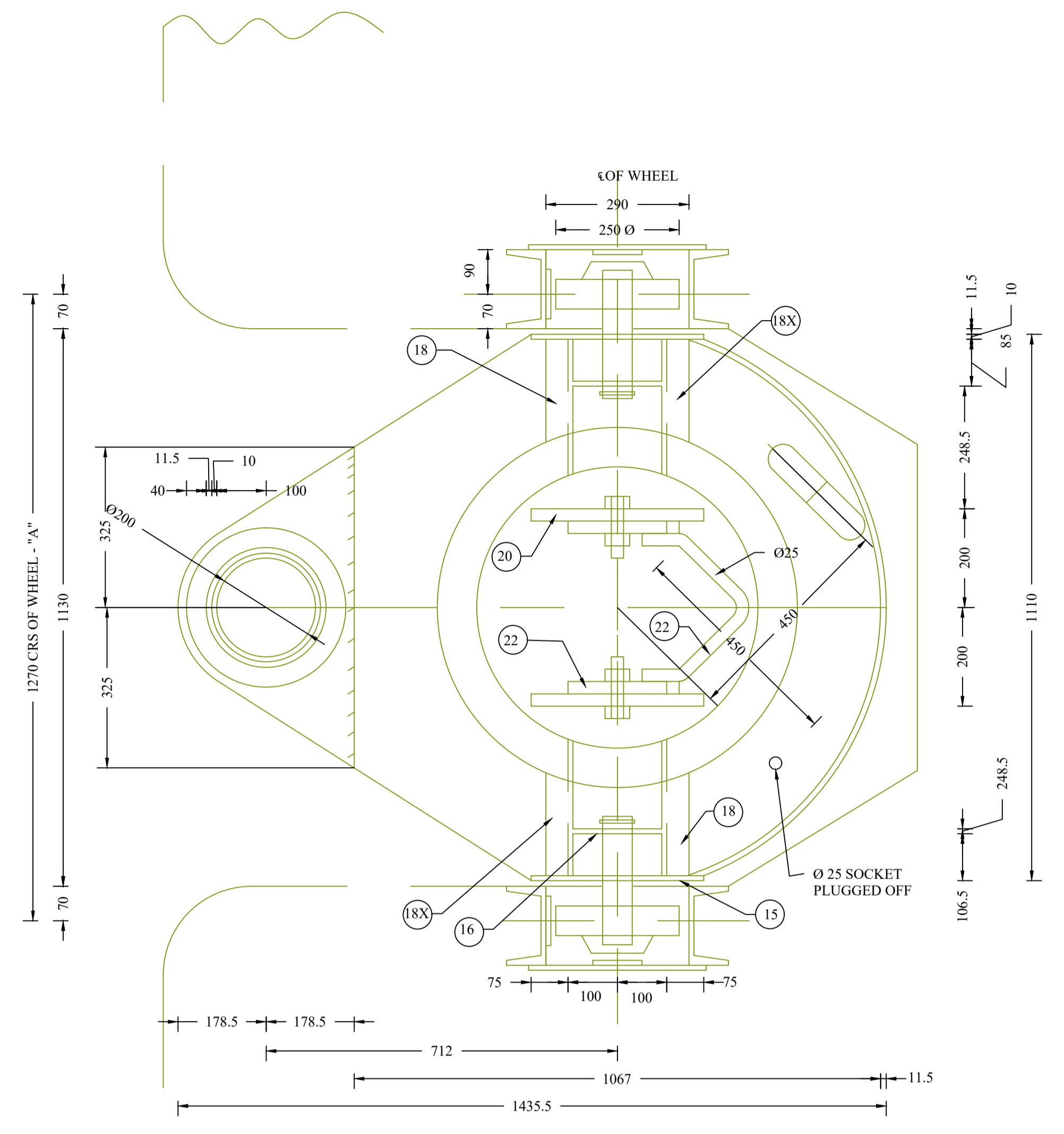
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REV.	DATE	DESCRIPTION	DRN	CHD	APD

INLAND WATERWAYS AUTHORITY OF INDIA			
PROJECT CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR THE WORK OF RENOVATION / MODERNIZATION OF EXISTING NAVIGATION LOCK AT FARAKKA			
CONSULTANT	NAME	SIGN	DATE
 PKS FLOODKON JV 	DRN		
	CHD		
	APD		
TITLE GENERAL ARRANGEMENT DRAWING AND DETAIL OF PARKING BAY OF EXISTING NAVIGATION LOCK		JOB. NO.	DRG. NO. ENL004
REV. DATE		SIZE: A0	REV. R1





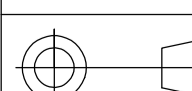
SECTIONAL PLAN

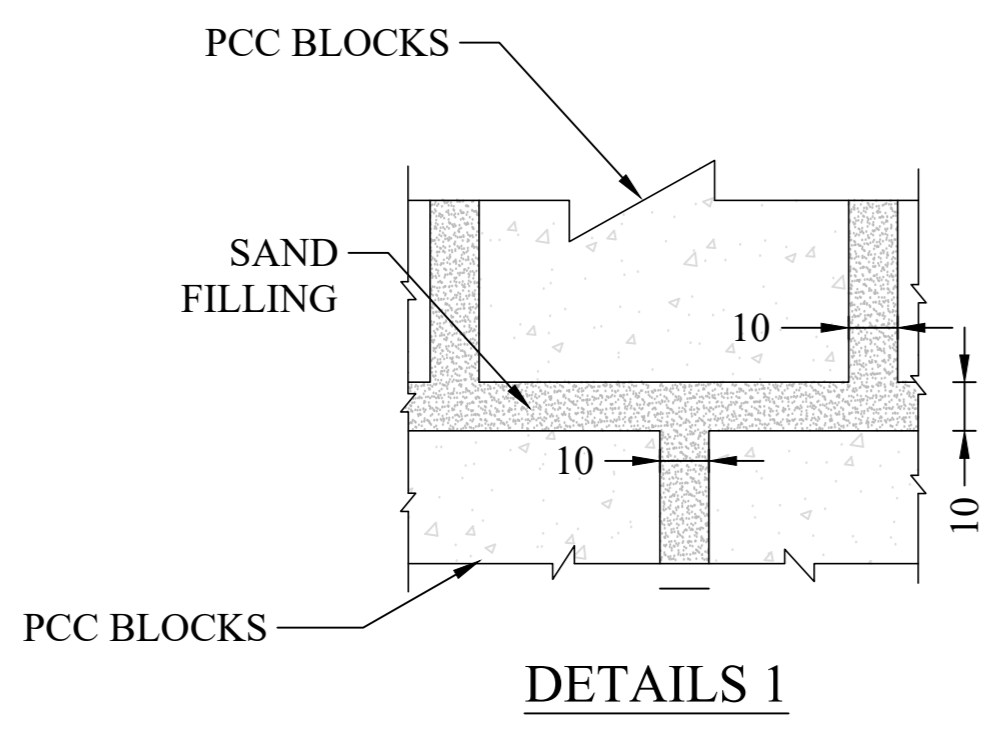
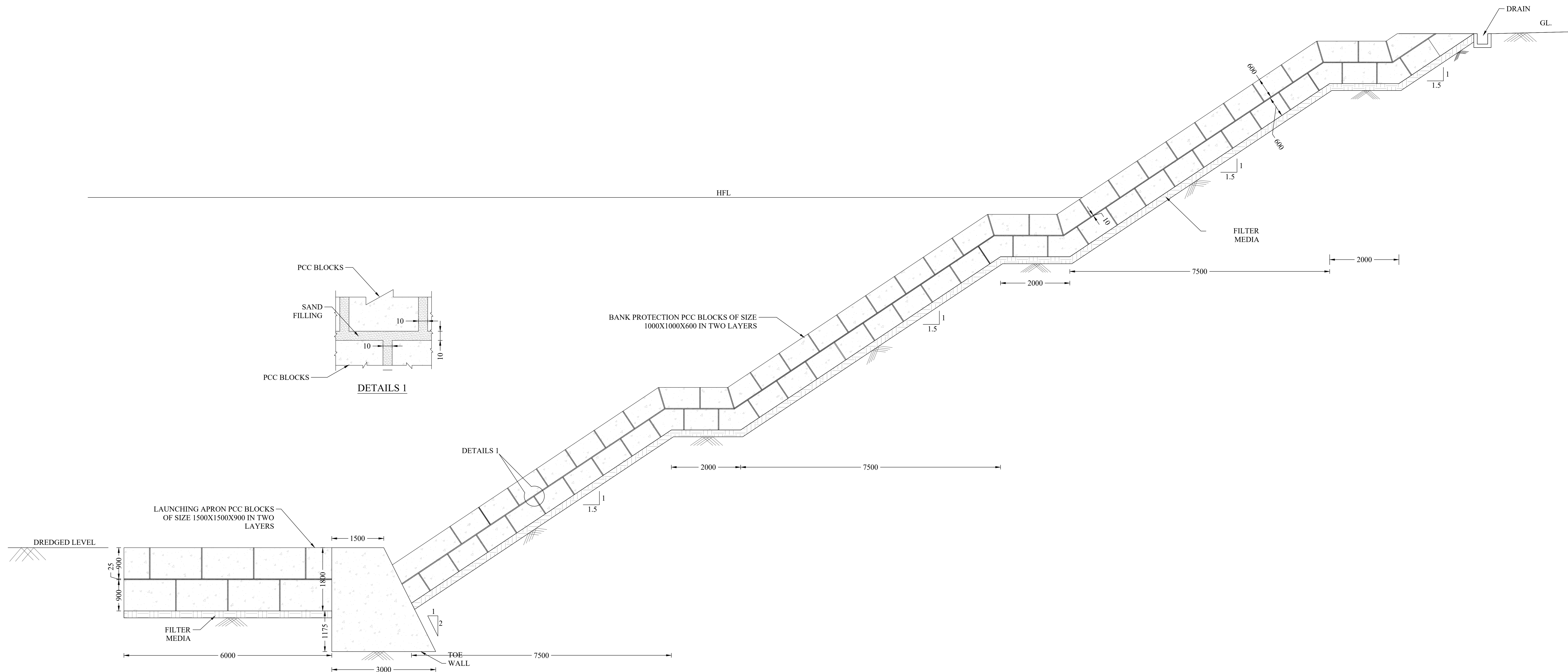


TOP PLAN

NOTE:
 1. ALL DIMENSIONS ARE IN MILLIMETERS AND ELEVATIONS IN METERS, UNLESS OTHERWISE SPECIFIED.
 2. NO DIMENSION SHALL BE SCALED OUT, ONLY WRITTEN DIMENSIONS ARE TO BE TAKEN AS CORRECT.

REV	DATE	DESCRIPTION	DRN	CHD	APD

INLAND WATERWAYS AUTHORITY OF INDIA				
PROJECT CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR THE WORK OF RENOVATION/MODERNIZATION OF EXISTING NAVIGATION LOCK AT FARAKKA				
CONSULTANT		NAME	SIGN	DATE
 PKS Infra Engineers <small>partners of excellence</small>		PKS Floodkon JV		
TITLE		JOB. NO.	DRG. NO.	
GENERAL ARRANGEMENT DRAWING OF MOORING EQUIPMENT			ENL005	
			Size : A0	REV. R1


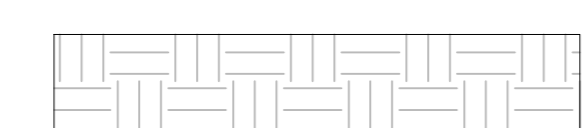



LAUNCHING APRON PCC BLOCKS OF SIZE 1500X1500X900 IN TWO LAYERS

BANK PROTECTION PCC BLOCKS OF SIZE 1000X1000X600 IN TWO LAYERS

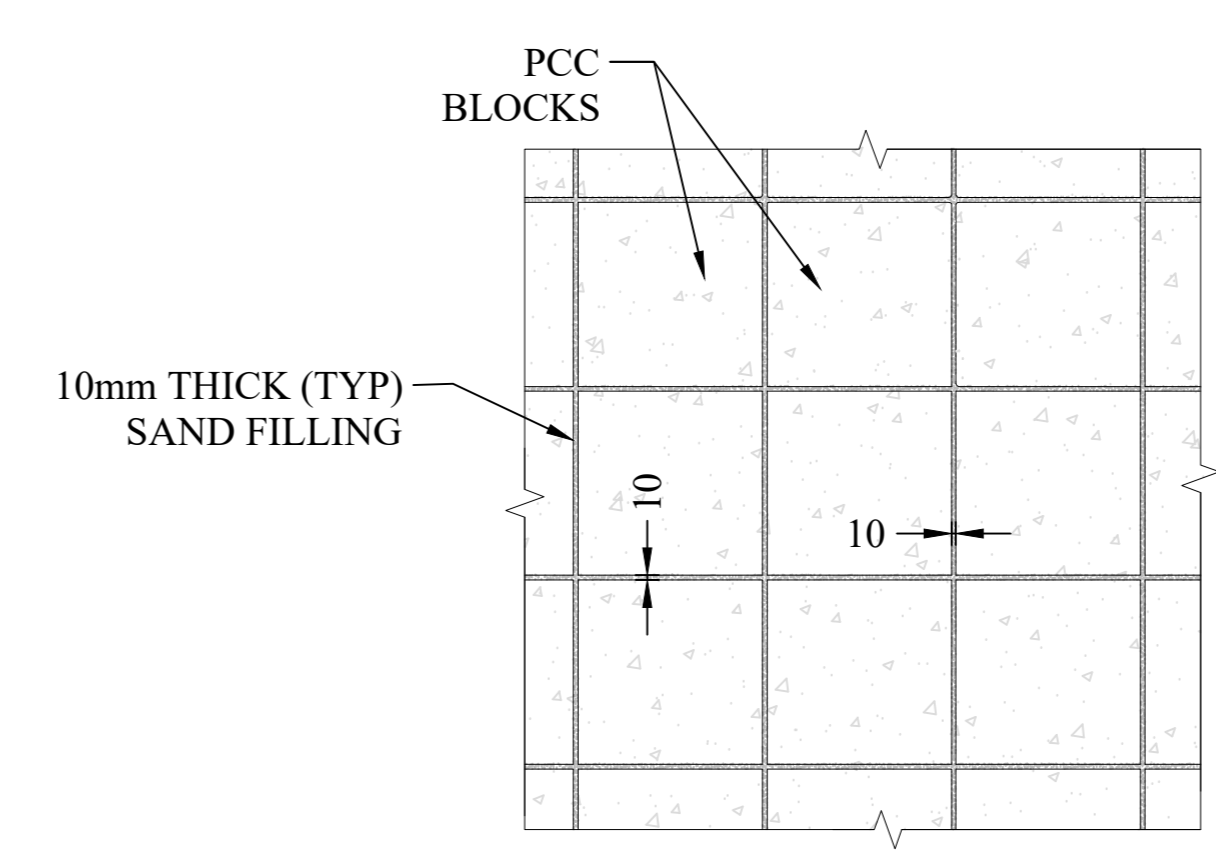
SECTION OF U/S BANK PROTECTION

LEGEND :-

-  PCC
-  FILTER MEDIA
-  SAND



NOTES :-

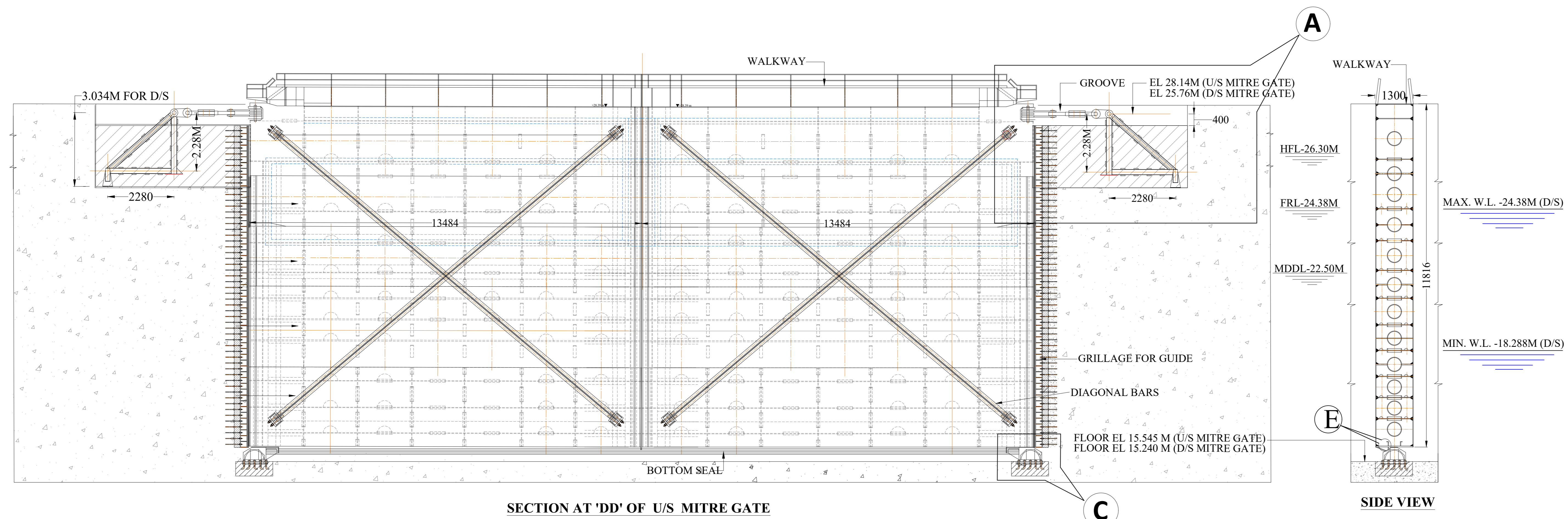
1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
2. PCC SHALL BE OF GRADE M15 AS PER IS 456:2000.



TYPICAL VIEW OF P.C.C BLOCKS

REV.	DATE	DESCRIPTION	DRN	CHD	APD

INLAND WATERWAYS AUTHORITY OF INDIA				
PROJECT CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR THE WORK OF RENOVATION / MODERNIZATION OF EXISTING NAVIGATION LOCK AT FARAKKA				
CONSULTANT		NAME	SIGN	DATE
 PKS FLOODKON JV 		DRN		
		CHD		
		APD		
TITLE		JOB. NO.	DRG. NO.	
GENERAL ARRANGEMENT DRAWING AND DETAIL OF BANK PROTECTION OF EXISTING NAVIGATION LOCK			ENL006	
REV. DATE		SIZE: A0		REV. R1



SECTION AT 'DD' OF U/S MITRE GATE

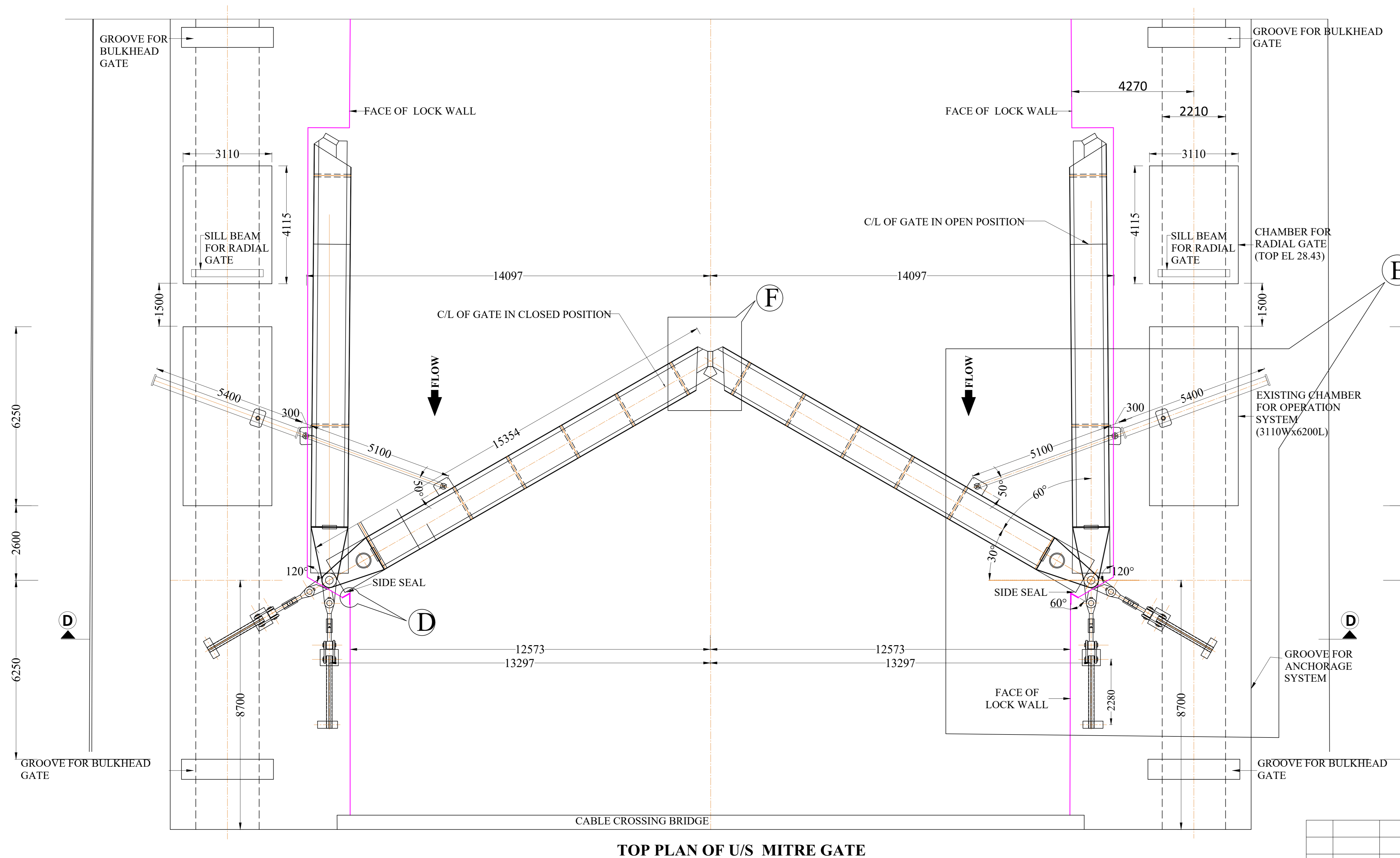
SIDE VIEW

DETAILS OF HYDRAULIC HOIST	
1	TYPE OF HOIST : DOUBLE ACTING
2	NO OF HOIST : 1+1=2 FOR EACH GATE
3	HOISTING CAPACITY : ADEQUATE FOR OPERATION OF GATE
4	WORKING / DESIGN PRESSURE : MAX.200KG/CM2
5	TEST PRESSURE : 1.5 TIMES OF THE DESIGN PRESSURE
6	STROKE : 5.4M
7	SPEED OF OPENING : 0.50M/MIN
8	HOIST : BOUGHT OUT ITEM
9	MAKE OF HYDRAULIC CYLINDER : MONTAN HYDRAULIK/BOSCH REXROTH/EATON
10	MAKE OF POWER PACK : MONTAN HYDRAULIK / BOSCH REXROTH /EATON



TECHNICAL DETAILS	
1	NO.OF GATES : 2NOS. (U/S & D/S)
2	VENT WIDTH : 25.146M
3	FLOOR LEVEL : 15.545M (U/S) AND 15.240M (D/S)
4	TOP OF WALL : 27.74M (U/S) AND 25.36M (D/S)
5	HEIGHT OF GATE LEAF : 27.74M (U/S) AND 25.36M (D/S)
6	OPERATION : HYDRAULIC HOIST
7	SKIN PLATE : RIVER SIDE OF GATE (U/S) AND LOCK SIDE OF GATE (D/S)

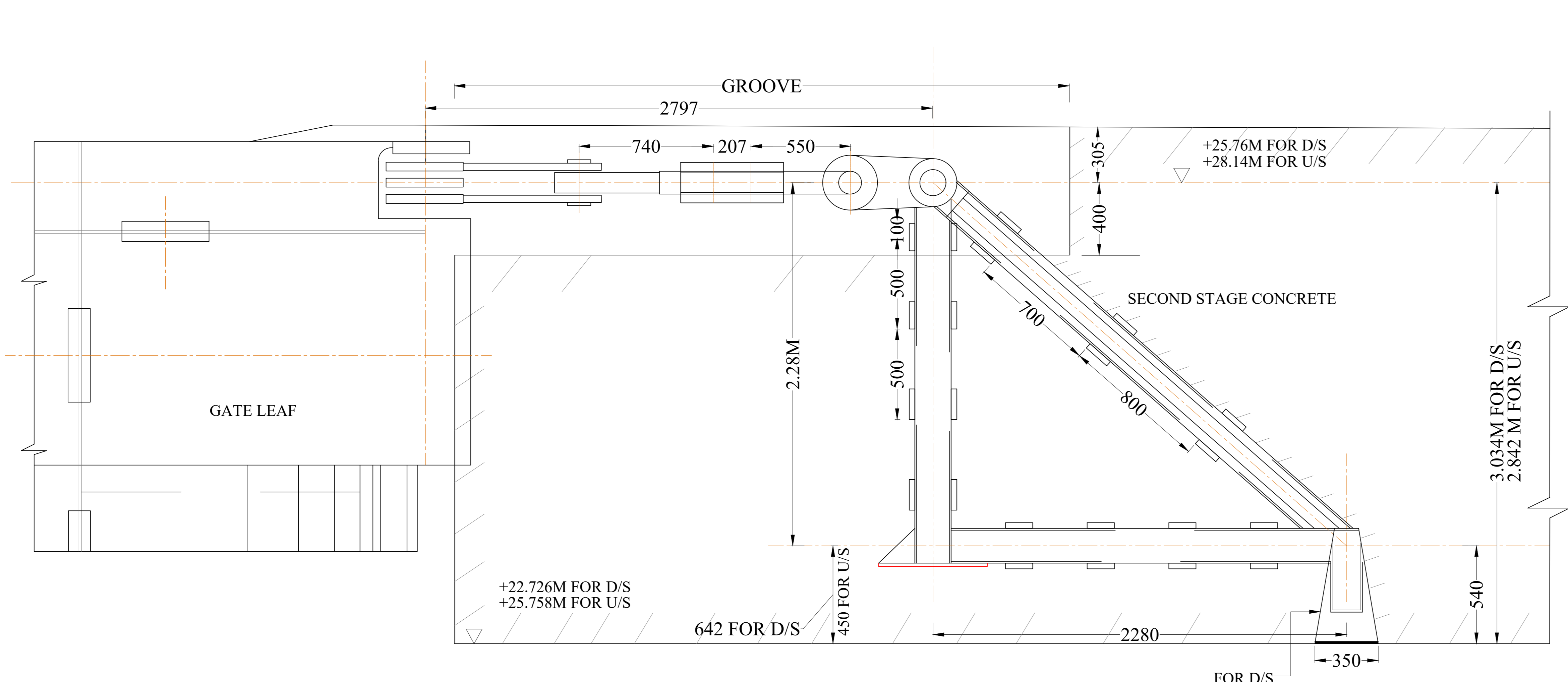
NOTE:

1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS IN METERS UNLESS OTHERWISE SPECIFIED.
2. ALL STRUCTURAL STEEL CONFIRMING TO IS:2062 GRADE E-250B.
3. NO DIMENSION SHALL BE SCALED OUT, ONLY WRITTEN DIMENSIONS ARE TO BE TAKEN AS CORRECT.

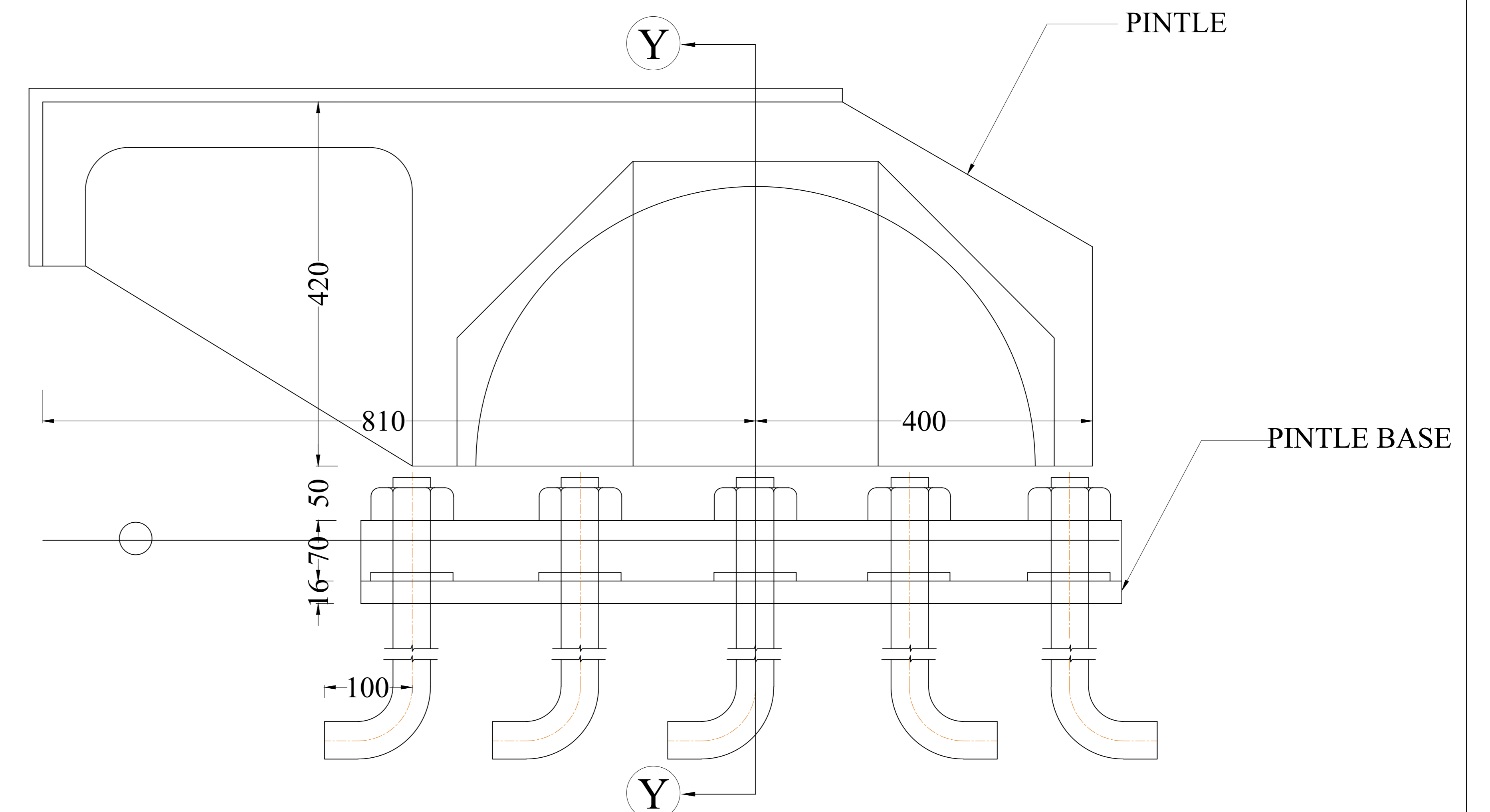


TOP PLAN OF U/S MITRE GATE

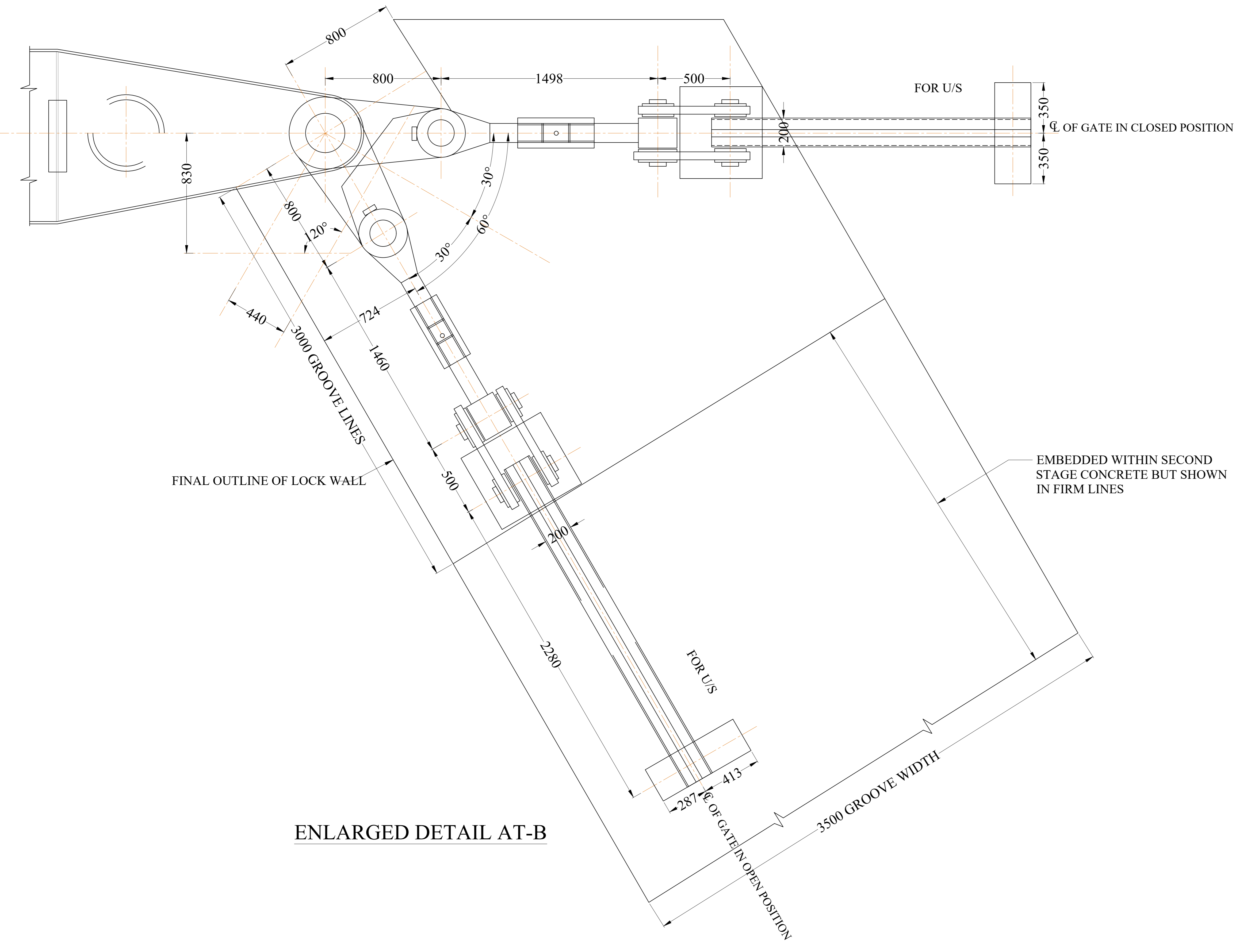
INLAND WATERWAYS AUTHORITY OF INDIA			
PROJECT CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR THE WORK OF RENOVATION / MODERNIZATION OF EXISTING NAVIGATION LOCK AT FARAKKA			
CONSULTANT		NAME	SIGN
 PKS FLOODKON JV 		DRN	
		CHD	
		APD	
TITLE		JOB. NO.	DRG. NO.
GENERAL ARRANGEMENT DRAWING AND DETAIL OF MITRE GATE OF EXISTING NAVIGATION LOCK (SHEET NO. 01 OF 03)			ENL007-SH1
REV.	DATE	DESCRIPTION	DRN CHD APD
		SIZE : A0	REV. R1



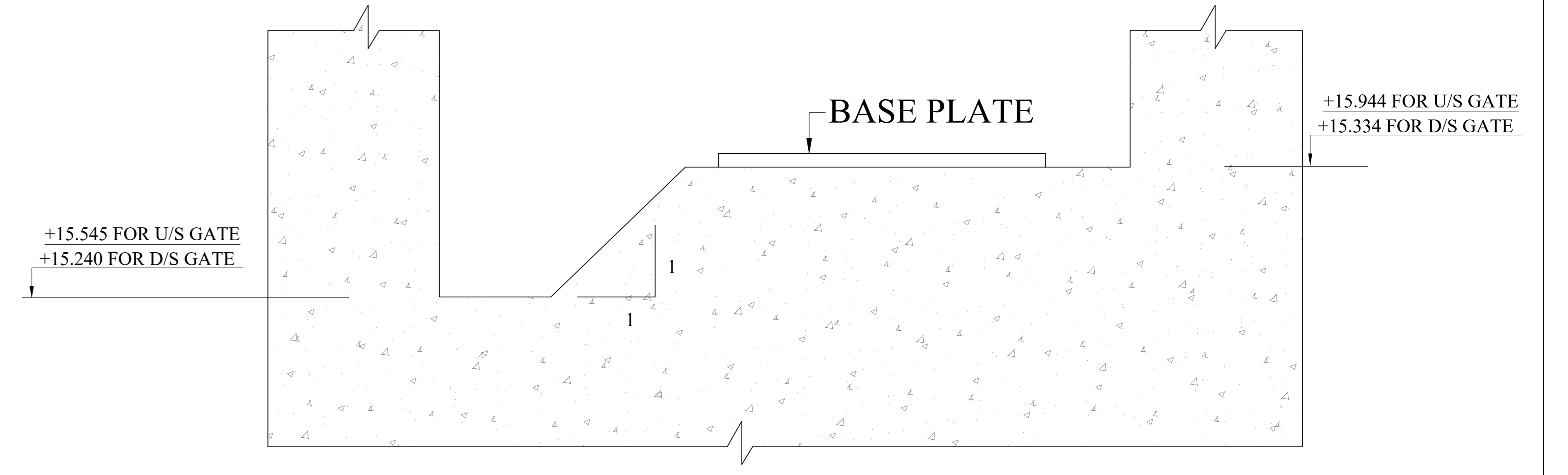
ENLARGED DETAIL AT -A



PINTLE & ITS BASE ARRANGEMENT
DETAIL AT - C





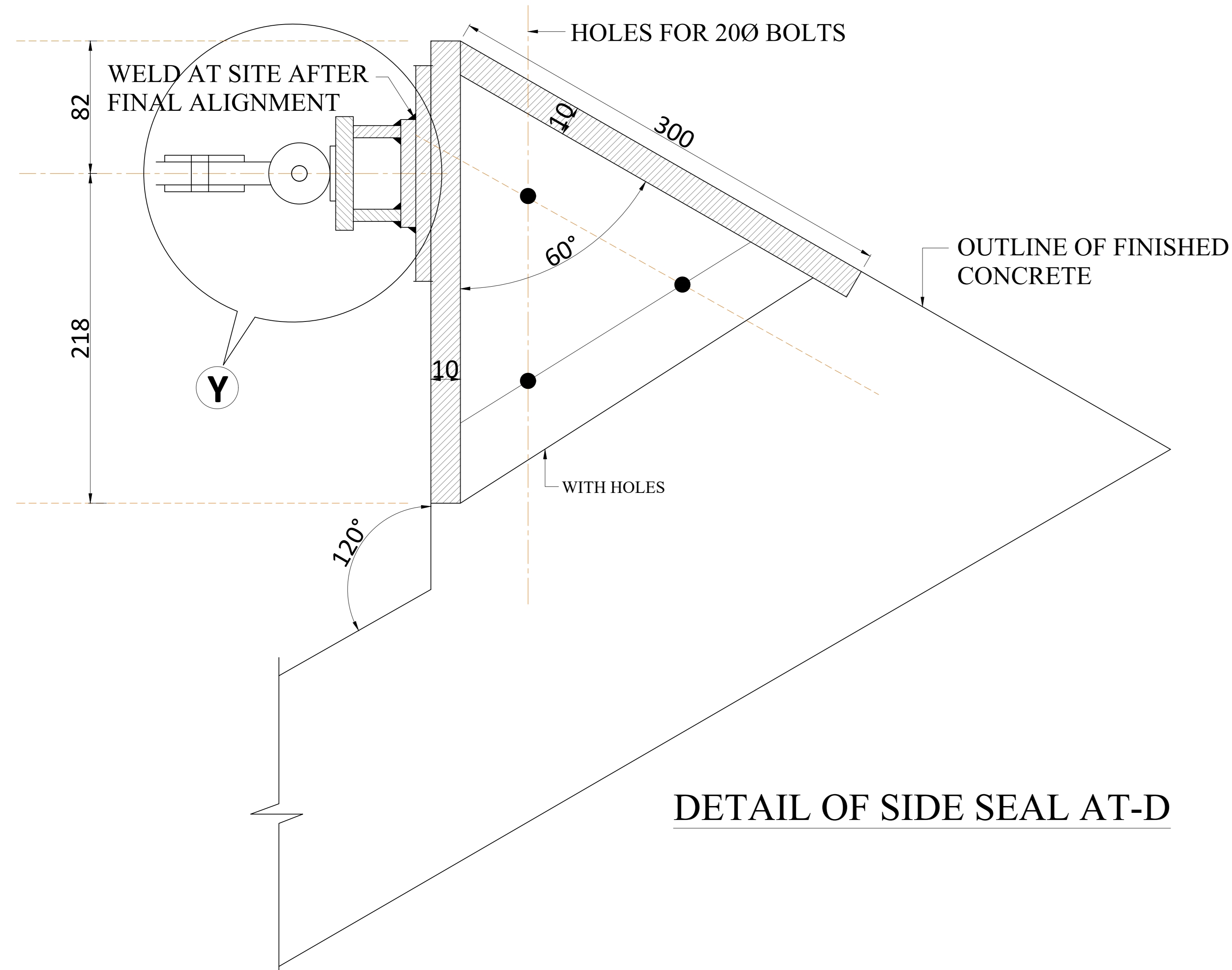
ENLARGED DETAIL AT-B



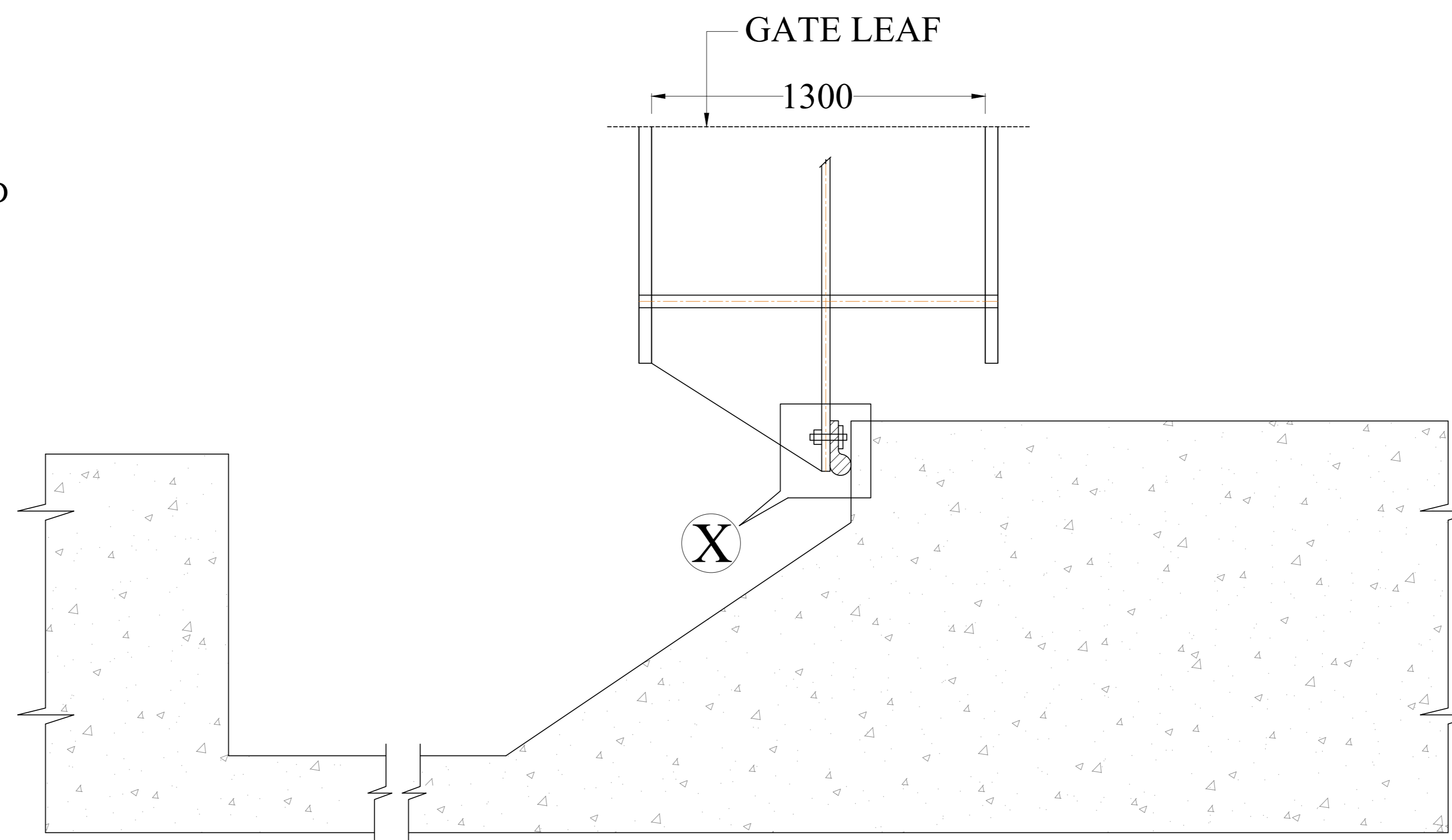
SECTION Y-Y

- NOTE:
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 3. NO DIMENSION SHALL BE SCALED OUT, ONLY WRITTEN DIMENSIONS ARE TO BE TAKEN AS CORRECT.

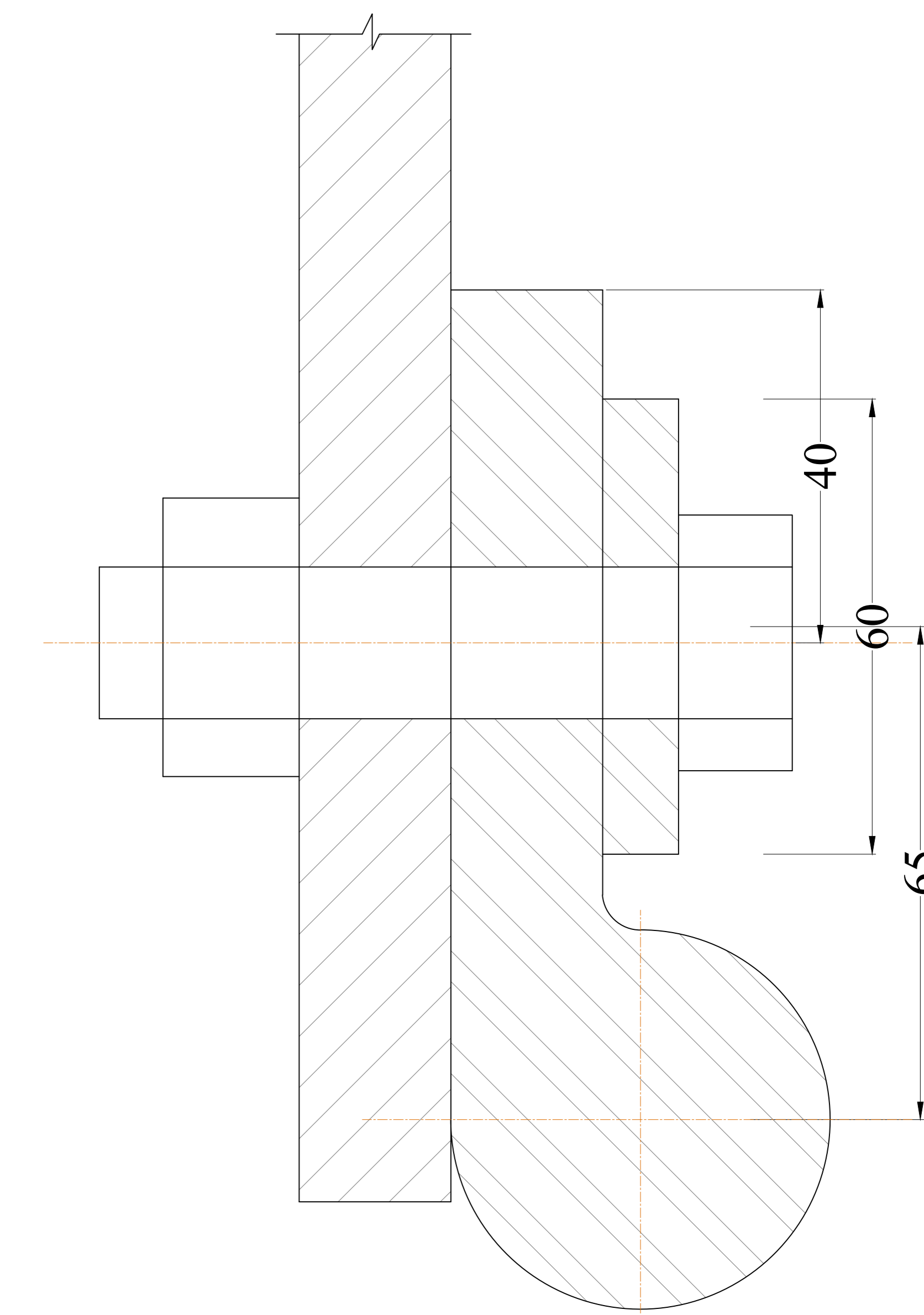
INLAND WATERWAYS AUTHORITY OF INDIA					
PROJECT CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR THE WORK OF RENOVATION / MODERNIZATION OF EXISTING NAVIGATION LOCK AT FARAKKA					
CONSULTANT		NAME	SIGN	DATE	
 PKS FLOODKON JV 		DRN			
		CHD			
		APD			
TITLE		JOB. NO.	DRG. NO.		
GENERAL ARRANGEMENT DRAWING AND DETAIL OF MITRE GATE OF NAVIGATION LOCK (SHEET NO. 02 OF 03)			ENL007-SH2		
REV.	DATE	DESCRIPTION	DRN	CHD	APD
			SIZE: A0	REV. R1	



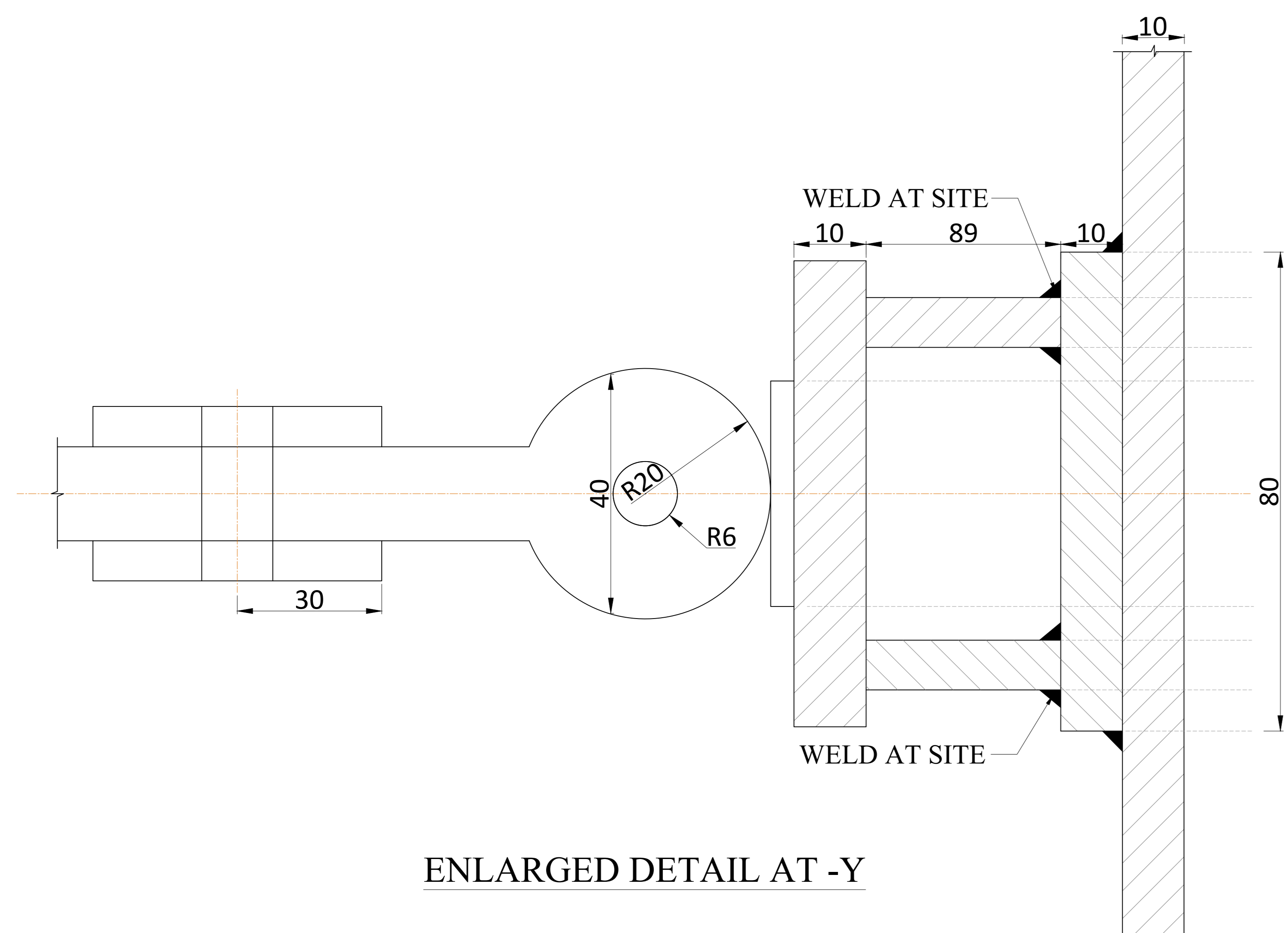
DETAIL OF SIDE SEAL AT-D



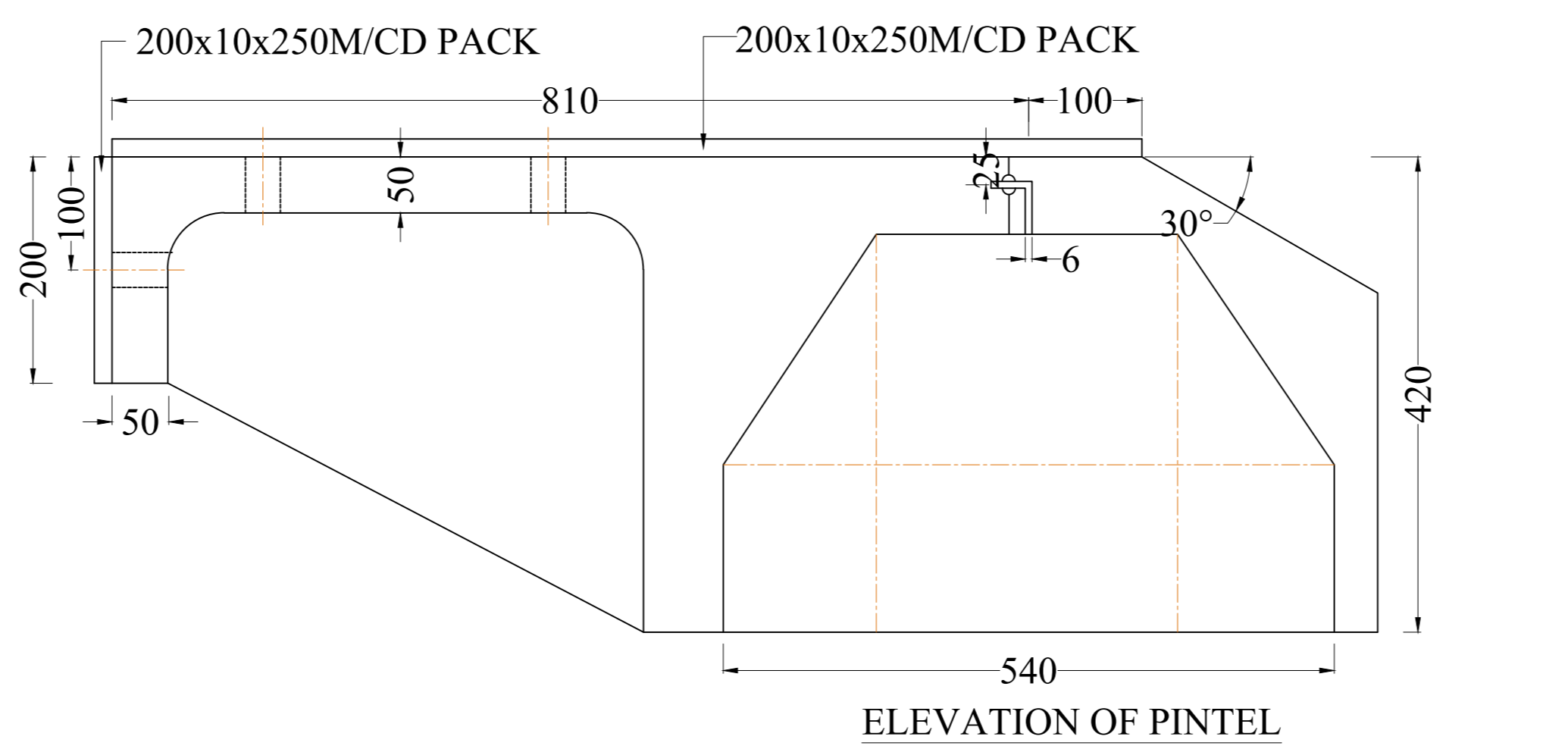
DETAIL OF BOTTOM SEAL AT-E



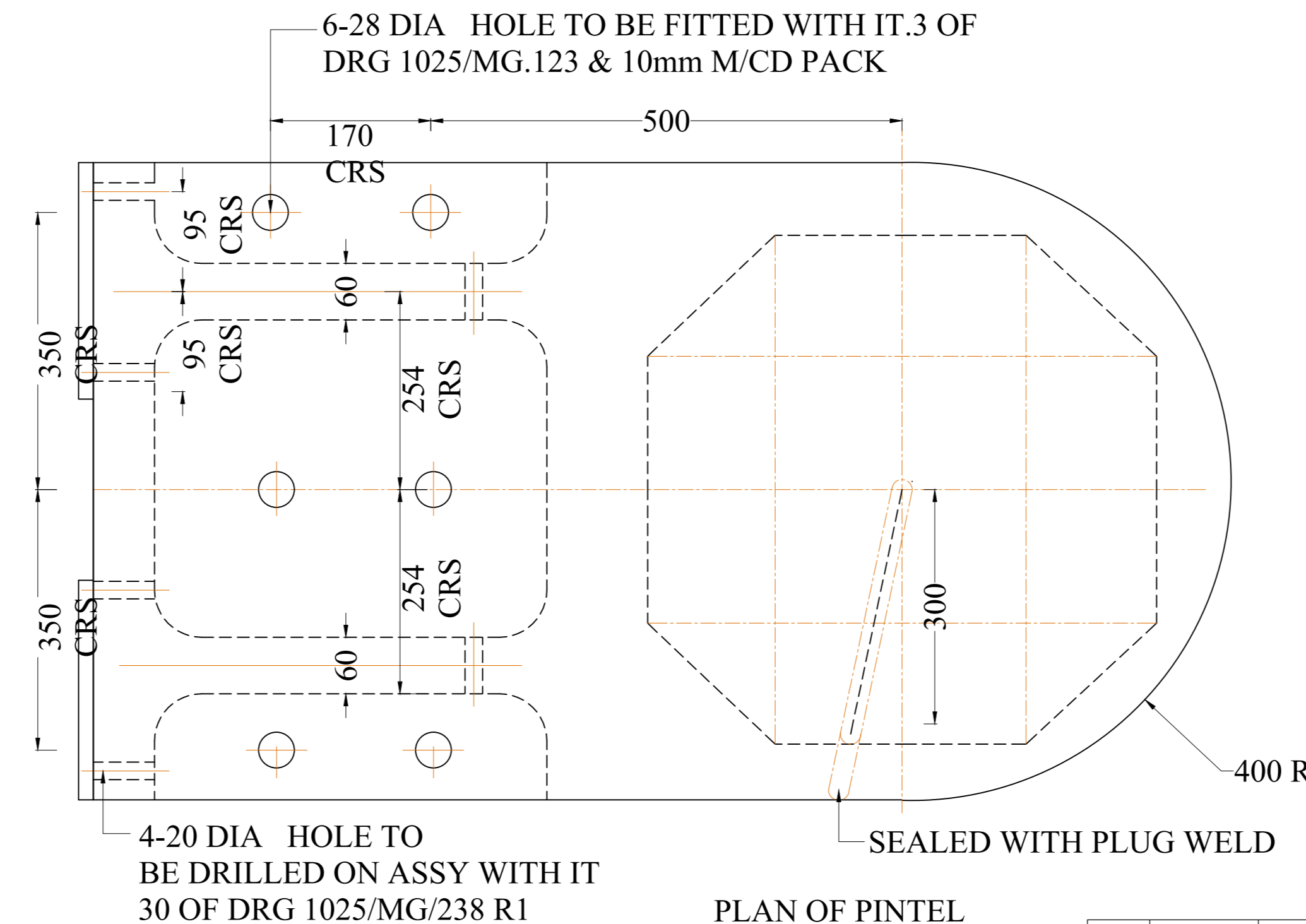
ENLARGED DETAIL AT -X



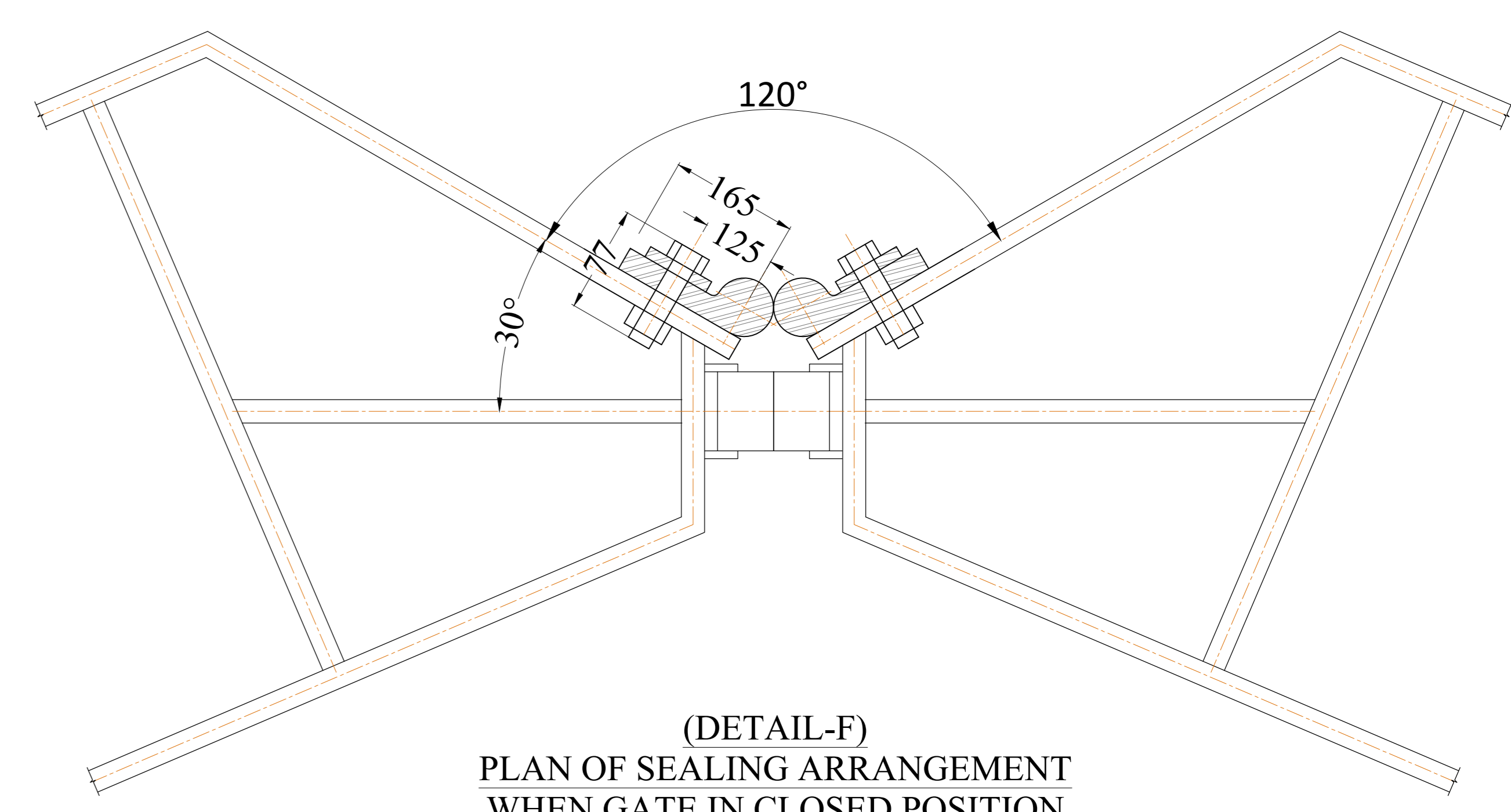
ENLARGED DETAIL AT -Y



ELEVATION OF PINTEL




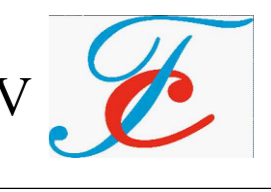
PLAN OF PINTEL

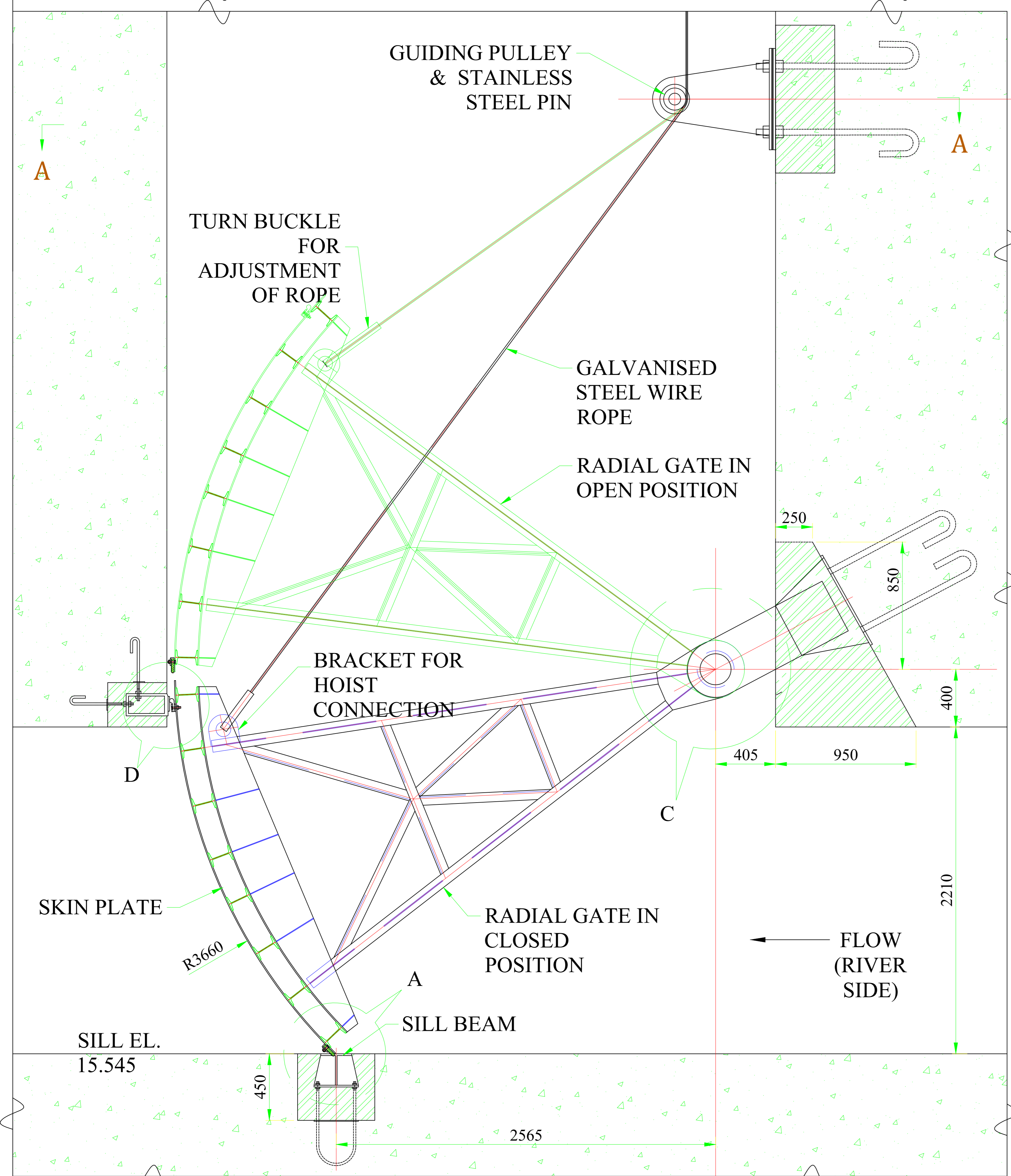
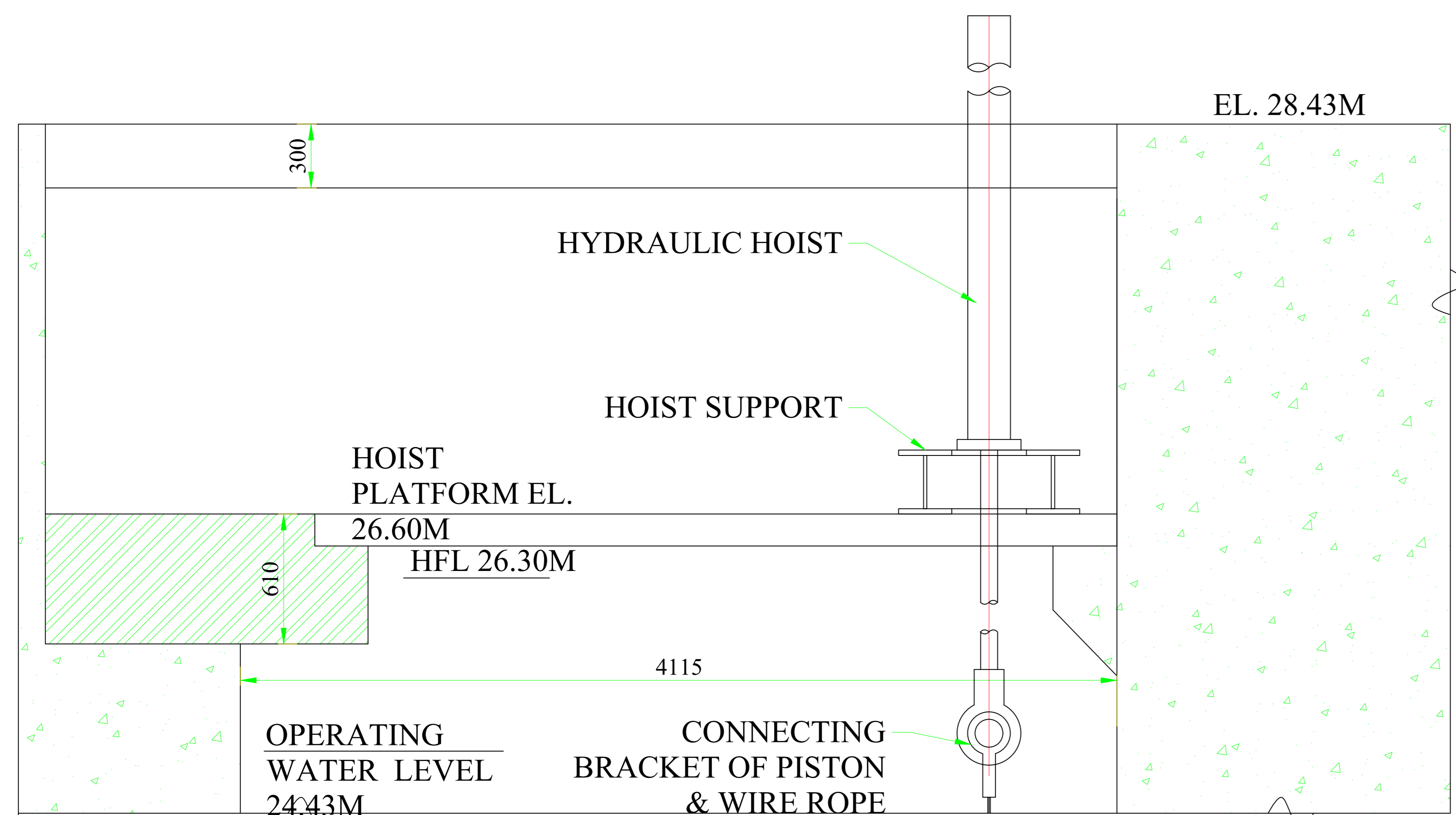


(DETAIL-F)
PLAN OF SEALING ARRANGEMENT
WHEN GATE IN CLOSED POSITION

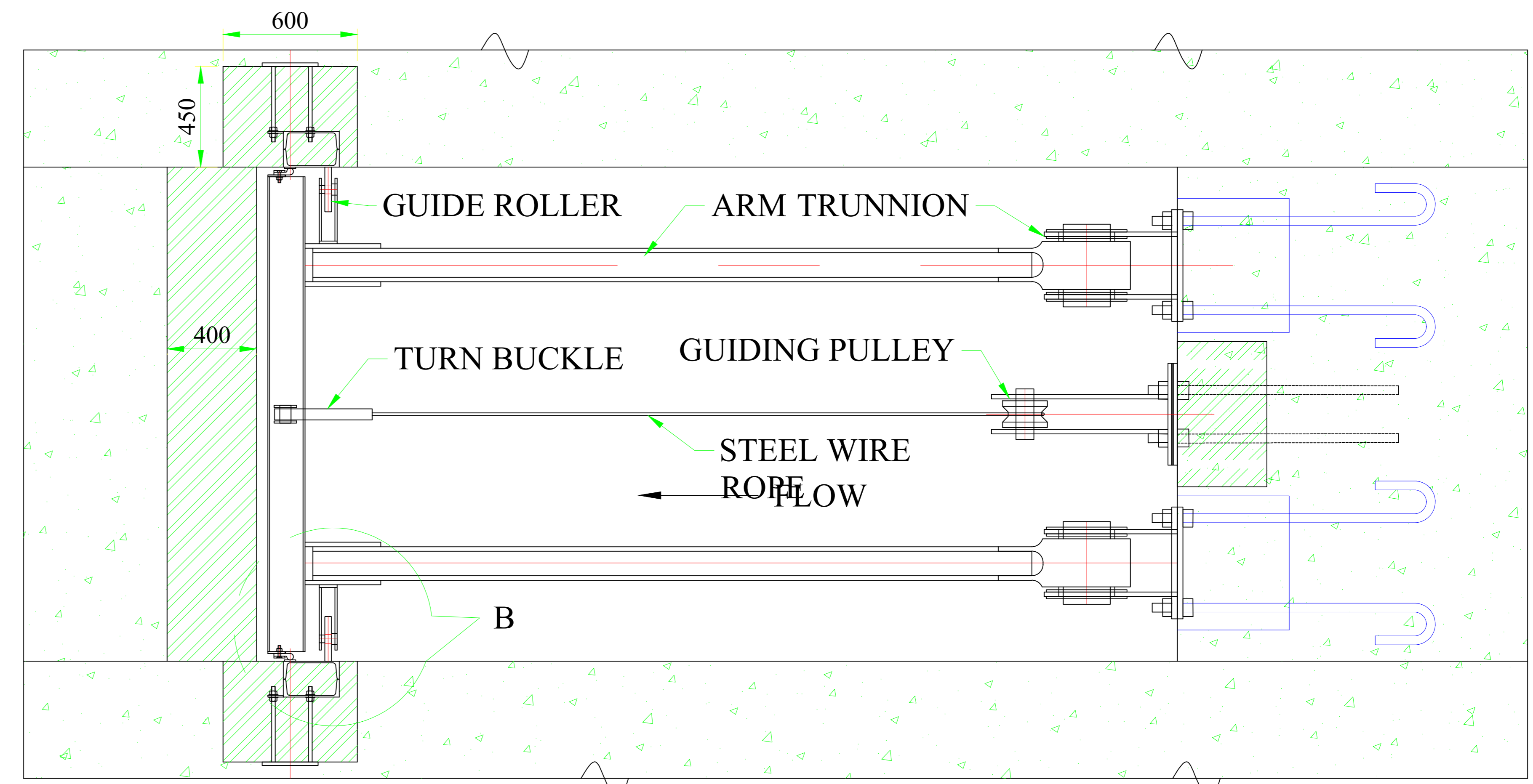
- NOTE:
1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS IN METERS UNLESS OTHERWISE SPECIFIED.
 2. ALL STRUCTURAL STEEL CONFIRMING TO IS:2062 GRADE E-250B.
 3. NO DIMENSION SHALL BE SCALED OUT, ONLY WRITTEN DIMENSIONS ARE TO BE TAKEN AS CORRECT.

REV.	DATE	DESCRIPTION	DRN	CHD	APD

INLAND WATERWAYS AUTHORITY OF INDIA						
PROJECT CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR THE WORK OF RENOVATION / MODERNIZATION OF EXISTING NAVIGATION LOCK AT FARAKKA						
CONSULTANT				NAME	SIGN	DATE
 PKS FLOODKON JV 				DRN		
				CHD		
				APD		
TITLE				JOB. NO.	DRG. NO.	
GENERAL ARRANGEMENT DRAWING AND DETAIL OF MITRE GATE OF EXISTING NAVIGATION LOCK (SHEET NO. 03 OF 03)					ENL007-SH3	
				SIZE: A0	REV. R1	



SECTIONAL ELEVATION AT C/L OF VENT



SECTION : A-A

TECHNICAL DETAILS OF RADIAL GATE :

- NO. OF FILLING CULVERTS : 2NOS. (1 IN EACH SIDE OF LOCK WALL)
- NO. OF EMPTYING CULVERTS: 2 NOS. (1 IN EACH SIDE OF LOCK WALL)
- TOTAL NO. OF OPENINGS : 4 Nos.
- NO. OF RADIAL GATES : 4 Nos.
- SIZE OF GATE OPENING : 2210MM X 2210MM
- SILL LEVEL : 15.545M
- TOP OF OPENING : 17.755 M
- TOP SEAL LEVEL : 17.855 M
- TRUNNION LEVEL : 18.155 M
- OPERATING BY : HYDRULIC HOIST
- HOIST STROKE : 2.275M (TENTATIVE)

NOTE:

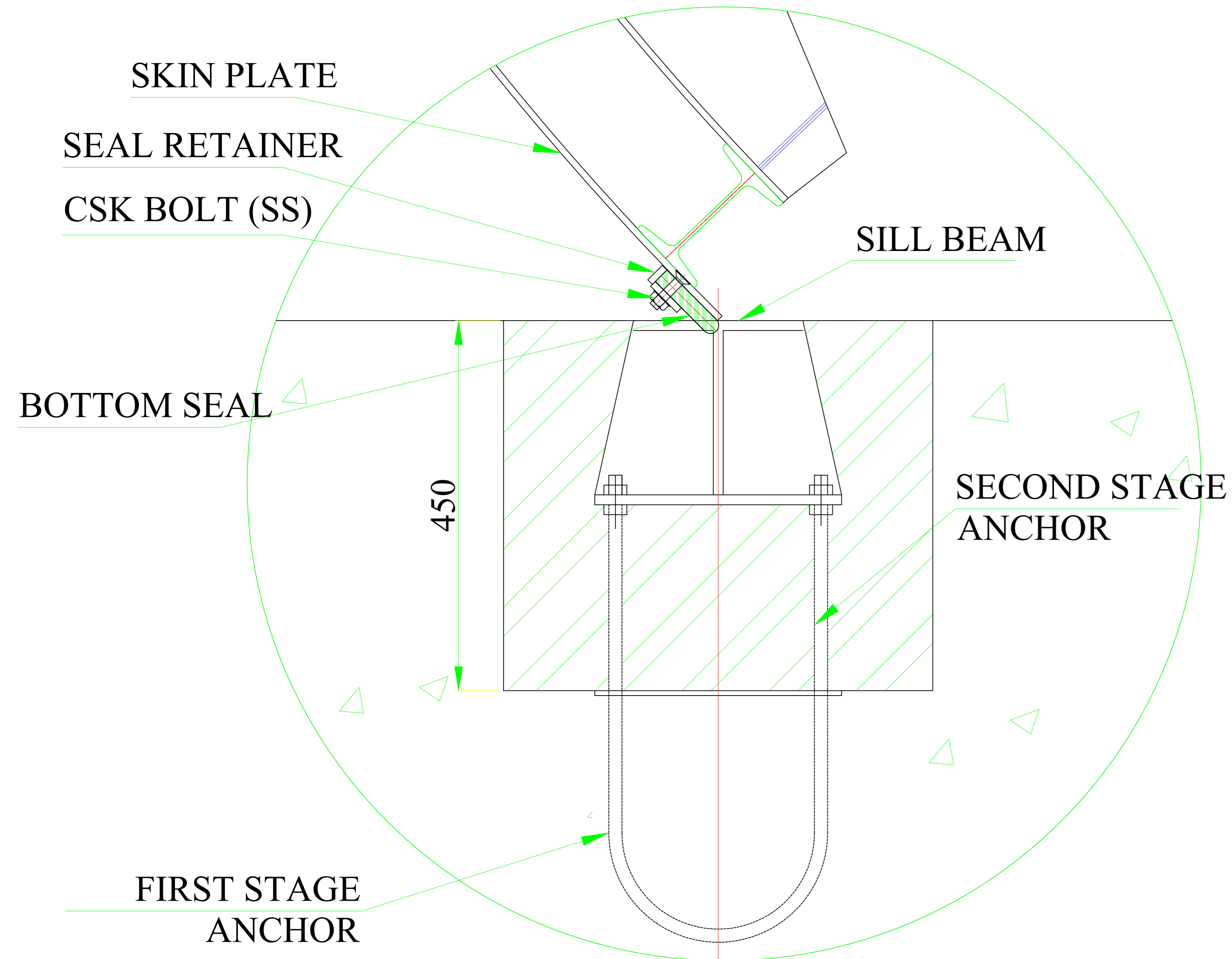
1. ALL DIMENSIONS ARE IN MILLIMETERS AND ELEVATIONS IN METERS, UNLESS OTHERWISE SPECIFIED.
2. NO DIMENSION SHALL BE SCALED OUT, ONLY WRITTEN DIMENSIONS ARE TO BE TAKEN AS CORRECT.
3. CONCRETE IN BLOCK OUTS SHALL BE TO ONE GRADE HIGHER THAN FIRST STAGE CONCRETE BUT NOT LESS THAN M-25 OF IS:456 (LATEST VERSION)
4. SURFACE OF CONCRETE BLOCK OUTS SHALL BE THOROUGHLY ROUGH FOR PROPER BONDAGE BETWEEN FIRST STAGE AND SECOND STAGE CONCRETE.
5. THE GATE SHALL BE OPERATED BY HYDRAULIC HOIST OF ADEQUATE CAPACITY, CONNECTED ON UPSTREAM (RIVER) SIDE.
6. EACH HOIST SHALL CONSIST OF A CYLINDER, INDEPENDENT POWER PACK, GATE POSITION INDICATOR ETC.
7. ALL FILLET WELDS SHALL BE CONTINUOUS AND MINIMUM OF 6MM LEG SIZE UNLESS STATED OTHERWISE. ALL BUTT WELDS SHALL BE FULL PENETRATION WELDS.
8. REFER SHEET 2 OF 2 FOR OTHER NOTES.

LEGENDS:

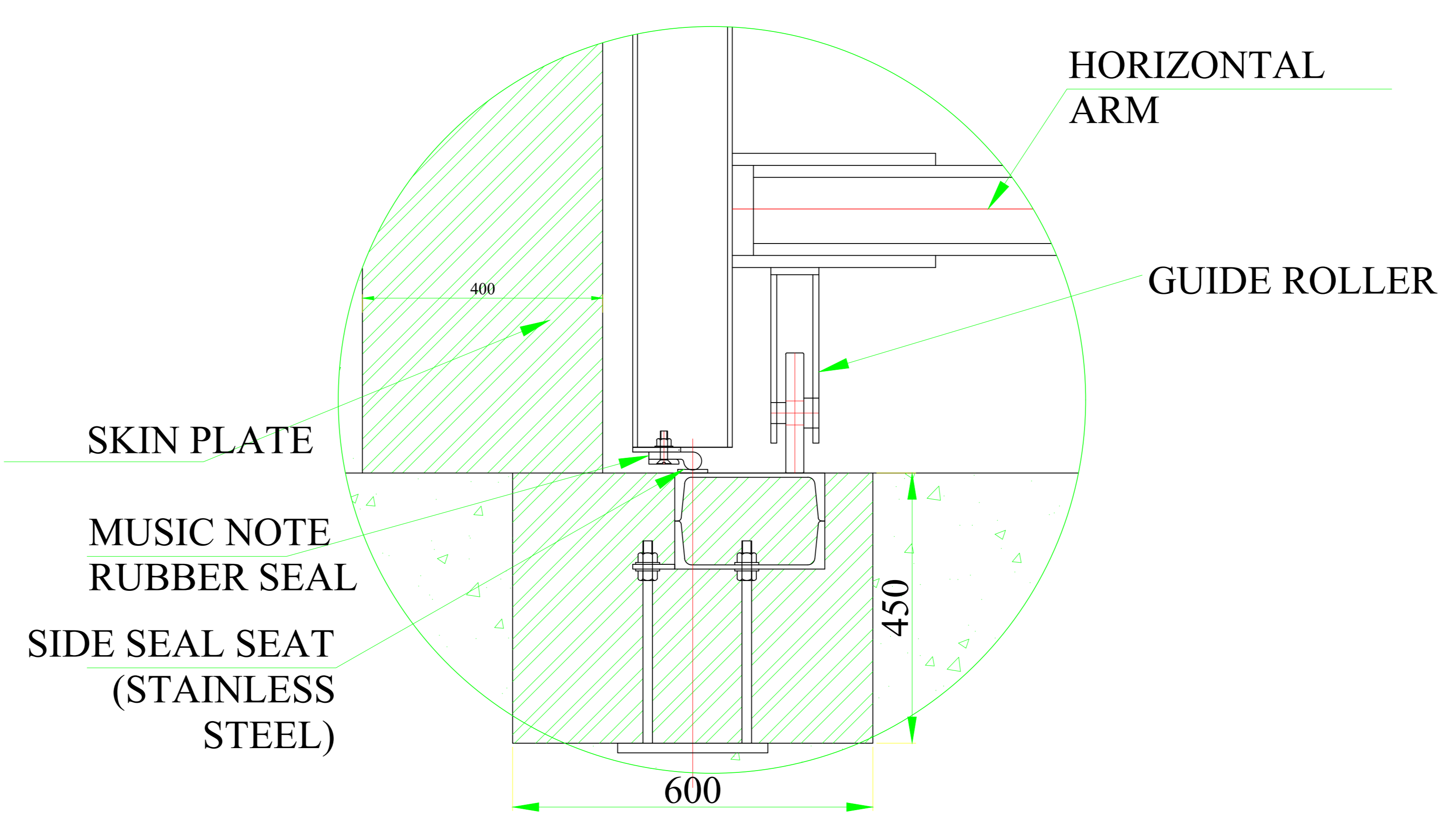
- 1st STAGE CONCRETING (PRIMARY)
- 2nd STAGE CONCRETING (SECONDARY)

REV.	DATE	DESCRIPTION	DRN	CHD	APD

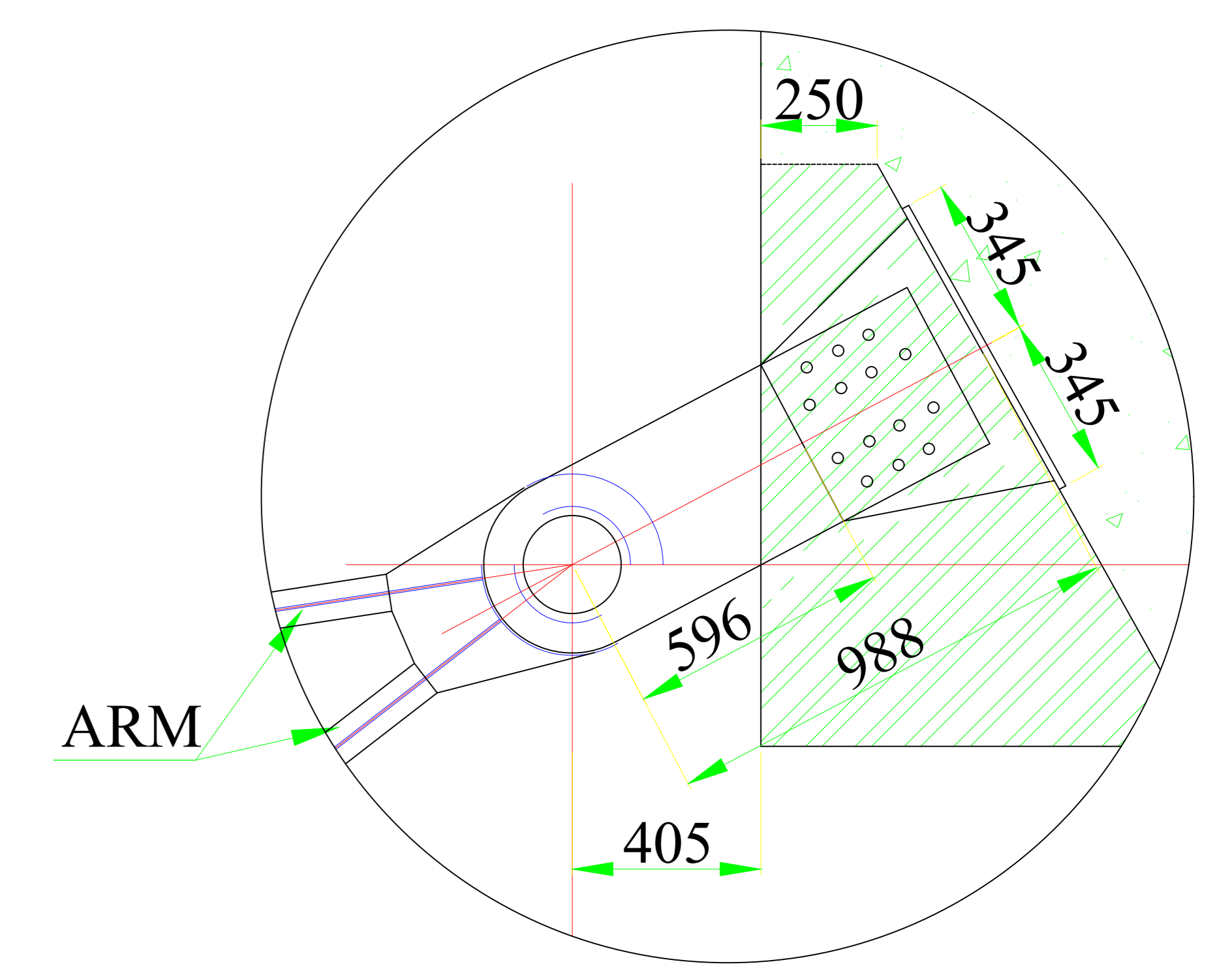
INLAND WATERWAYS AUTHORITY OF INDIA					
PROJECT CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR THE WORK OF RENOVATION / MODERNIZATION OF EXISTING NAVIGATION LOCK AT FARAKKA					
CONSULTANT			NAME	SIGN	DATE
PKS FLOODKON JV			DRN		
			CHD		
			APD		
TITLE			JOB. NO.	DRG. NO.	
GENERAL ARRANGEMENT DRAWING AND DETAIL OF RADIAL GATE OF EXISTING NAVIGATION LOCK (SHEET NO. 01 OF 2)				ENL008-SH1	
REV. DATE DESCRIPTION DRN CHD APD			SIZE: A0 REV. R1		



DETAIL - A
(REFER SHEET 1 OF 2)



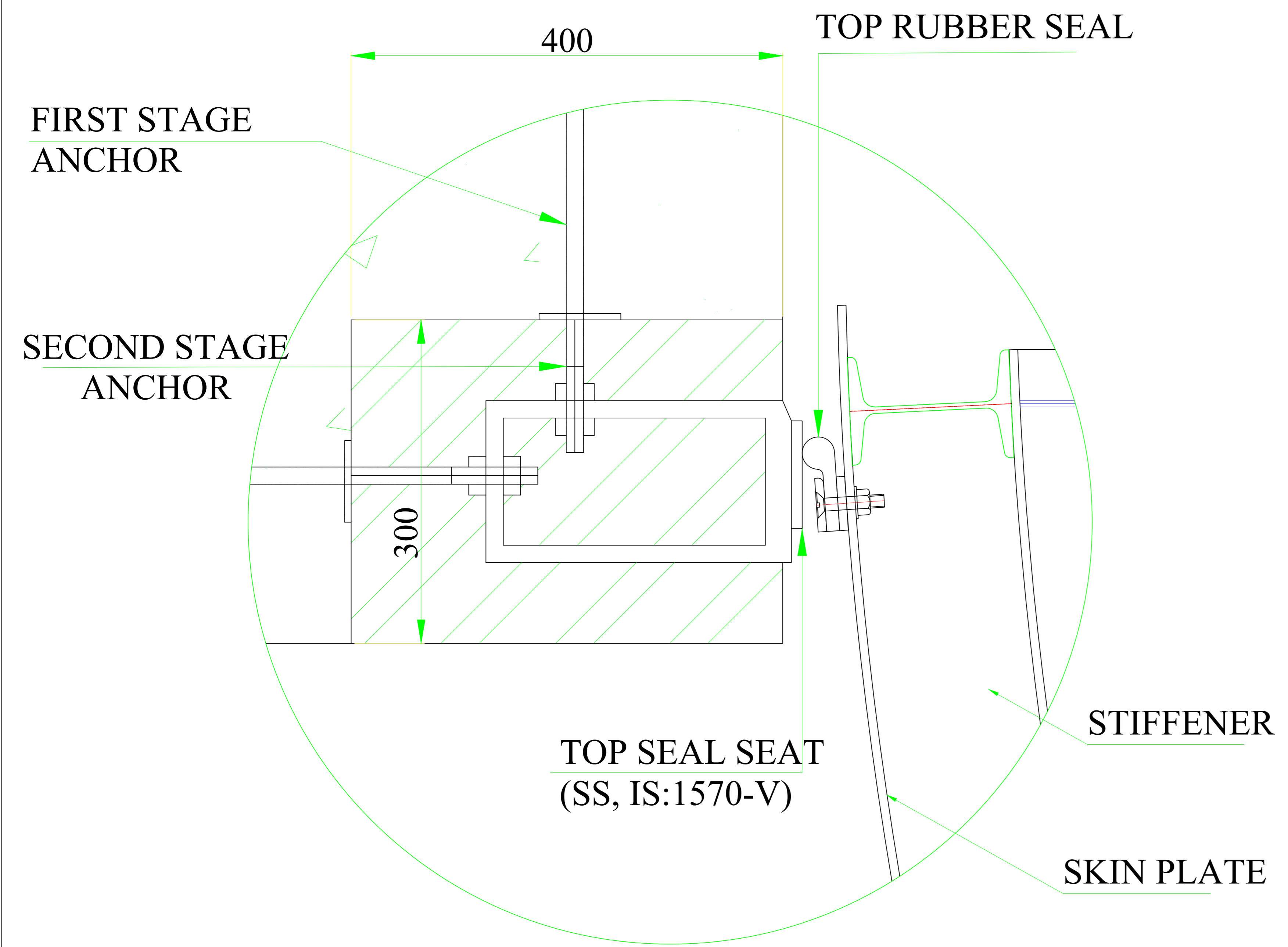
DETAILS - B
(REFER SHEET 1 OF 2)



DETAILS - C
(REFER SHEET 1 OF 2)

NOTE:

1. ALL THE SEALS SHALL BE CONTINUOUS AND WATER TIGHT.
2. ALL CORNERS AND EDGES IN CONTACT WITH RUBBER SEALS AND WELDING SHALL BE SMOOTH AND ROUNDED WITH MINIMUM ROUNDS OF 6MM.
3. THE GATE TRUNNIONS SHALL BE FITTED WITH EITHER SPHERICAL PLAIN BEARINGS OR SELF LUBRICATING TYPE BUSHINGS.
4. WELDING OF ALIGNMENT STUDS TO ANCHOR PLATES SHALL DEVELOP THE FULL STRENGTH OF THE STUD.
5. ARRANGEMENT SHOWN FOR BOTTOM SEAL IN THE DRAWING IS INDICATIVE TYPE ONLY. THE CONTRACTOR MAY PROPOSE AN ALTERNATIVE SUITABLE ARRANGEMENT FOR THE BOTTOM OF SEAL OF THE GATE KEEPING IN VIEW HEAVY SEDIMENT LOAD OF RIVER BUT IT SHALL BE ADOPTED, CONSIDERED APPROPRIATE BY THE EMPLOYER.
6. EXISTING SECOND STAGE EMBEDDED PARTS PROVIDED IN BLOCK OUTS SHALL BE MAINTAINED, HOWEVER IF THEY ARE FOUND INADEQUATE THE NEW EMBEDDED PARTS SHALL BE DESIGNED AND PROVIDED TO SUIT THE BLOCK OUTS PROVIDED AT SITE.
7. GATE SHALL BE DESIGNED IN ACCORDANCE WITH THE PROVISIONS OF IS 4623 TO SUIT THE SIZE OF OPENING AND CHAMBER WHICH SHALL BE VERIFIED BY ACTUAL MEASUREMENT AT SITE.
8. THE METHODOLOGY FOR REMOVAL OF EXISTING GATES SHALL BE FINALIZED CONSIDERING THE BOTTLENECKS AT SITE, TRANSPORTATION LIMITATIONS ETC. THE SITE SHALL BE CLEARED OF ALL THE REPLACED MATERIALS.
9. THE TOLERANCES FOR EMBEDDED PARTS & COMPONENTS OF GATE SHALL BE AS PER ANNEX.-E OF IS 4623.



DETAILS - D
(REFER SHEET 1 OF 2)

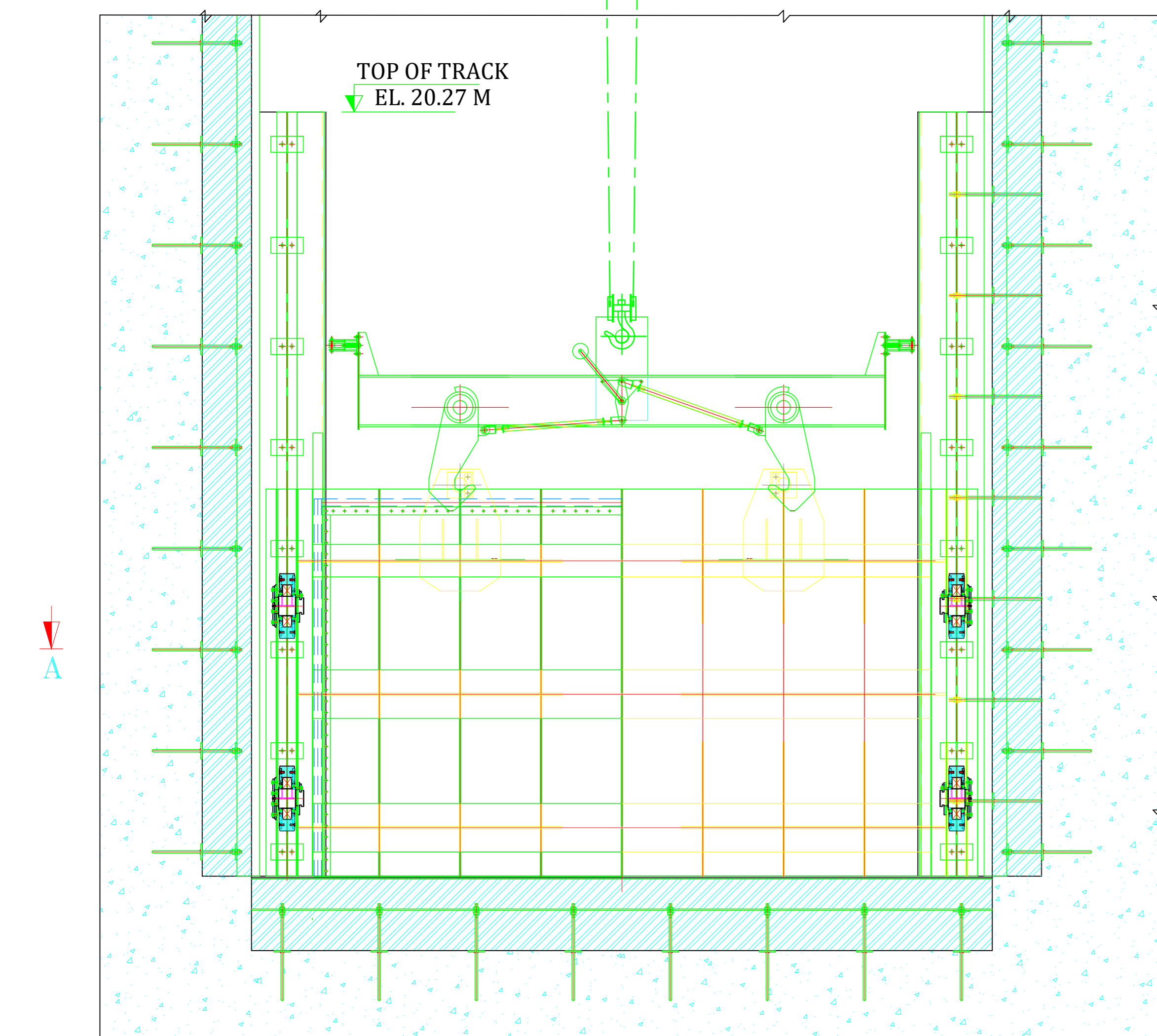
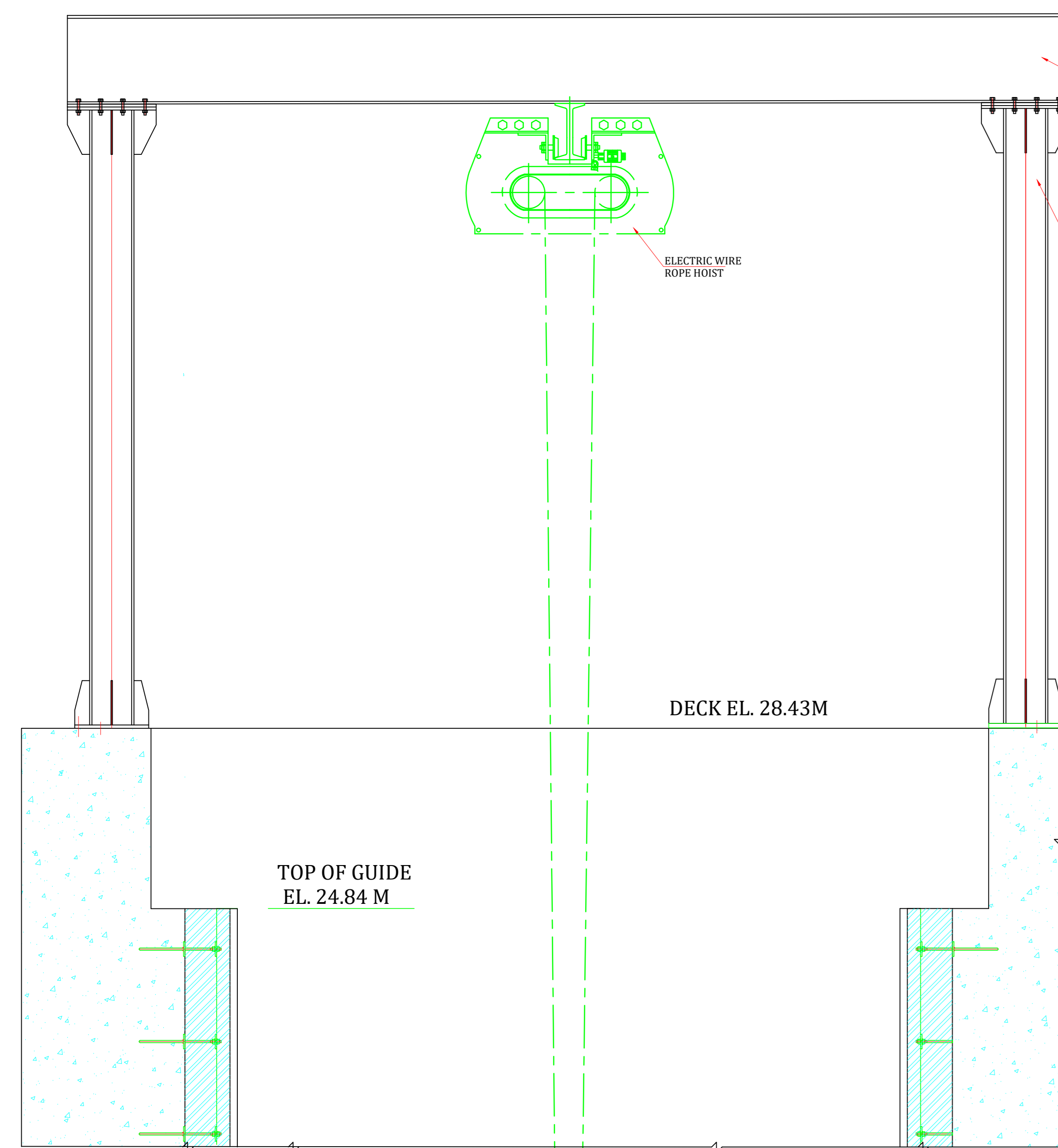
MACHINING DETAILS :	
▽	FOR GUIDES & PIN
▽▽	FOR TRACKS
▽▽▽	FOR SEAL SEATS

LEGENDS:

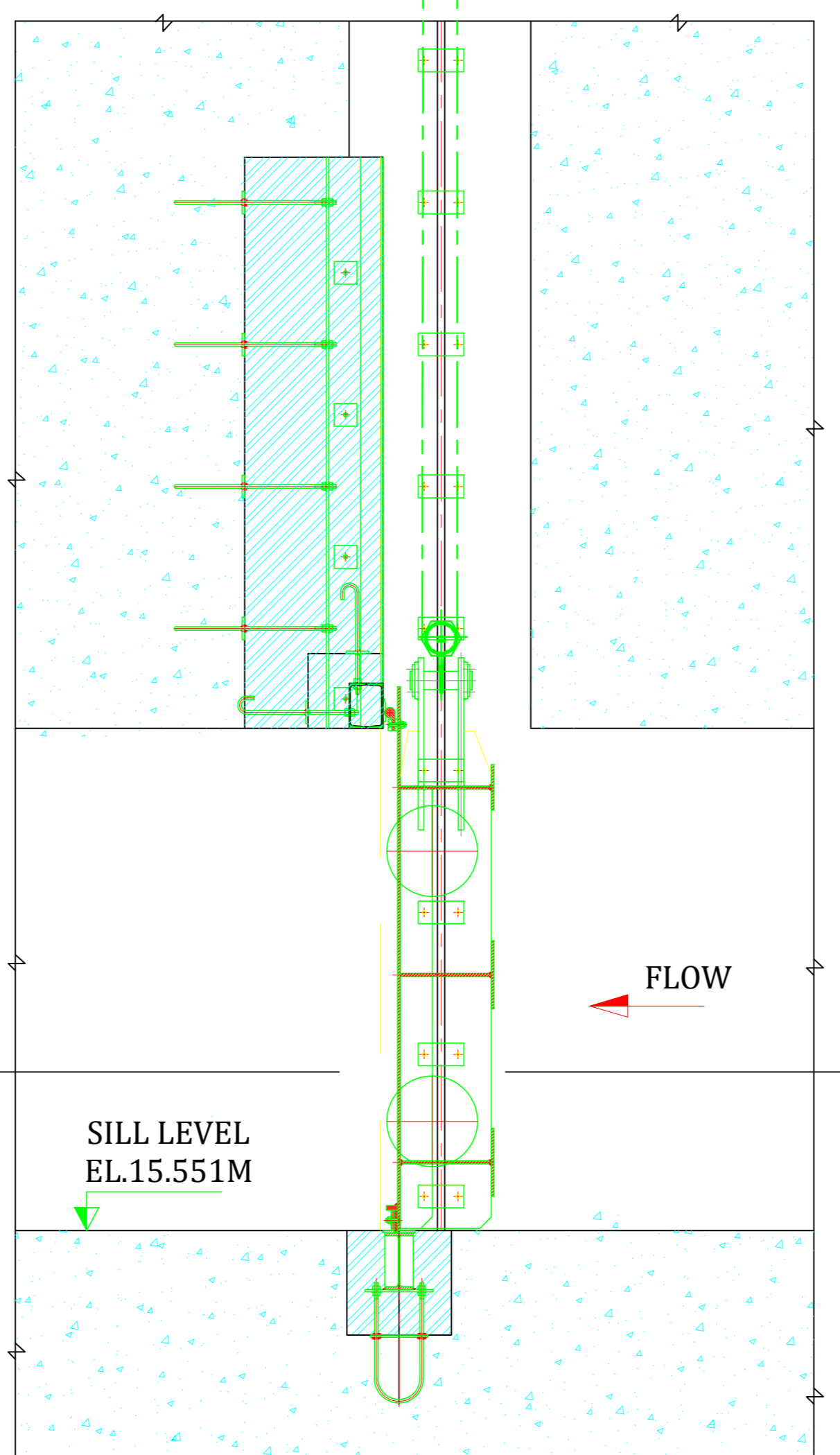
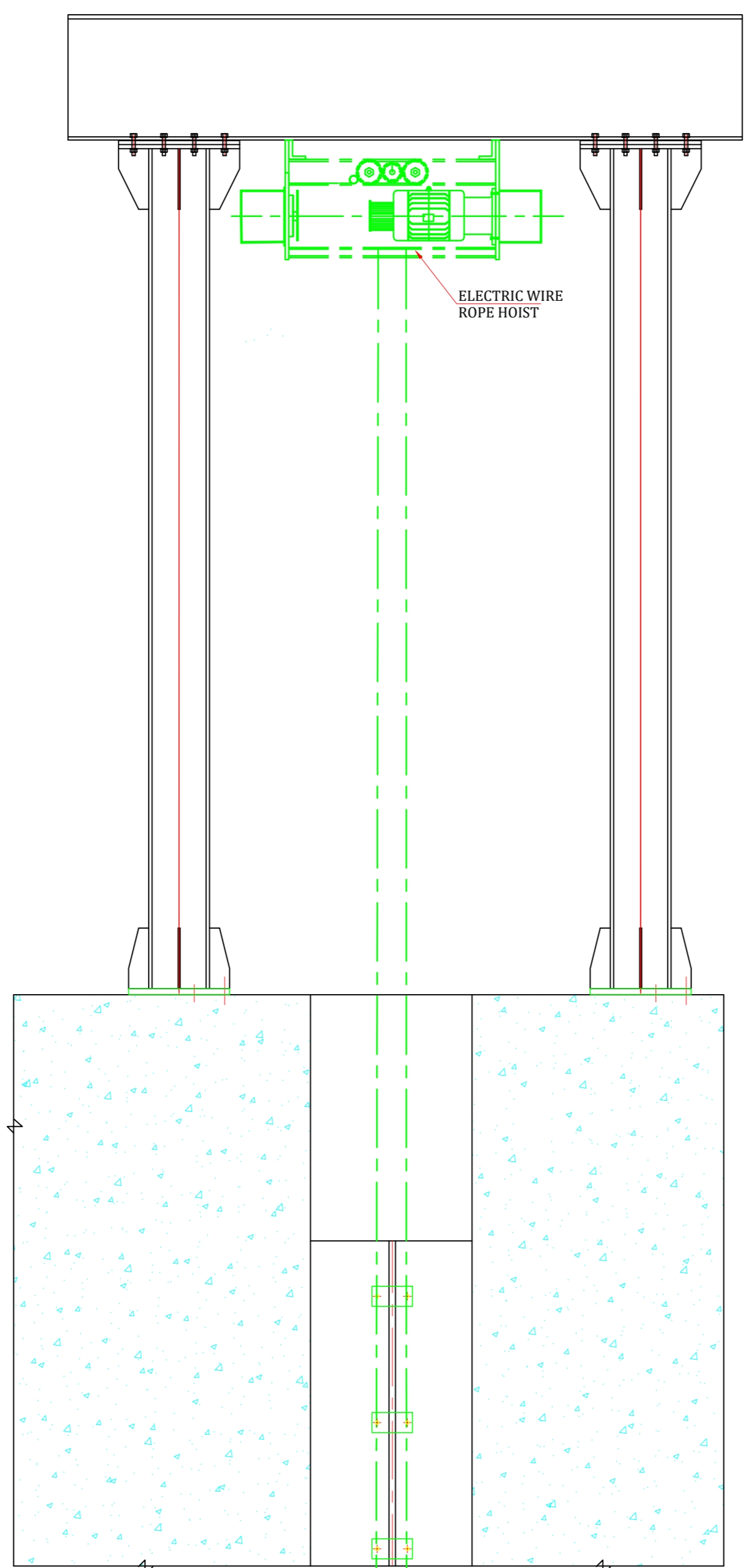
- 1st STAGE CONCRETING (PRIMARY)
- 2nd STAGE CONCRETING (SECONDARY)

REV.	DATE	DESCRIPTION	DRN	CHD	APD

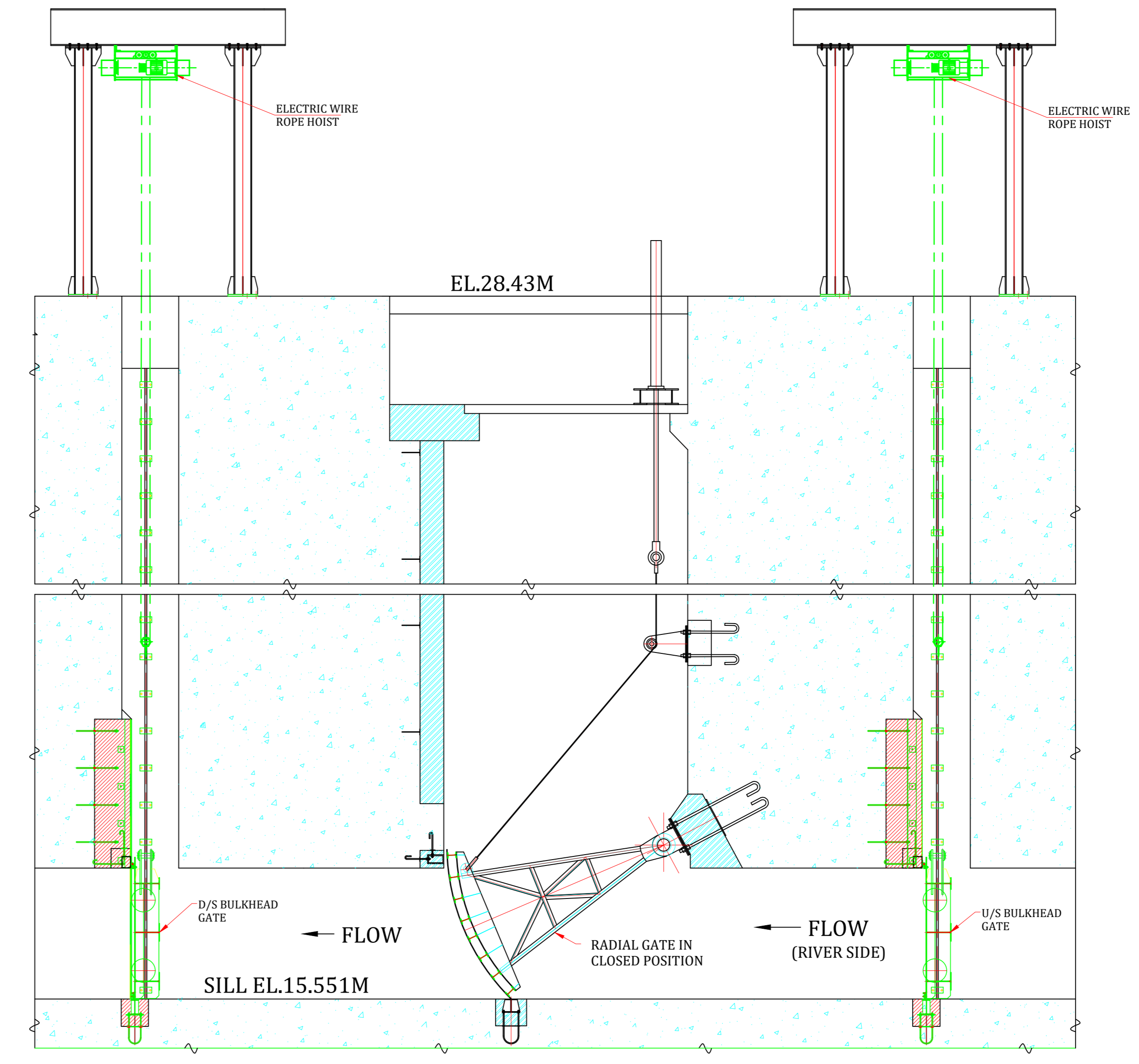
INLAND WATERWAYS AUTHORITY OF INDIA			
PROJECT CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR THE WORK OF RENOVATION / MODERNIZATION OF EXISTING NAVIGATION LOCK AT FARAKKA			
CONSULTANT		NAME	SIGN
PKS FLOODKON JV		DRN	
		CHD	
		APD	
TITLE		JOB. NO.	DRG. NO.
GENERAL ARRANGEMENT DRAWING AND DETAIL OF RADIAL GATE OF EXISTING NAVIGATION LOCK (SHEET NO. 2 OF 2)			ENL008-SH2
REV. DATE		SIZE : A0	REV. R1



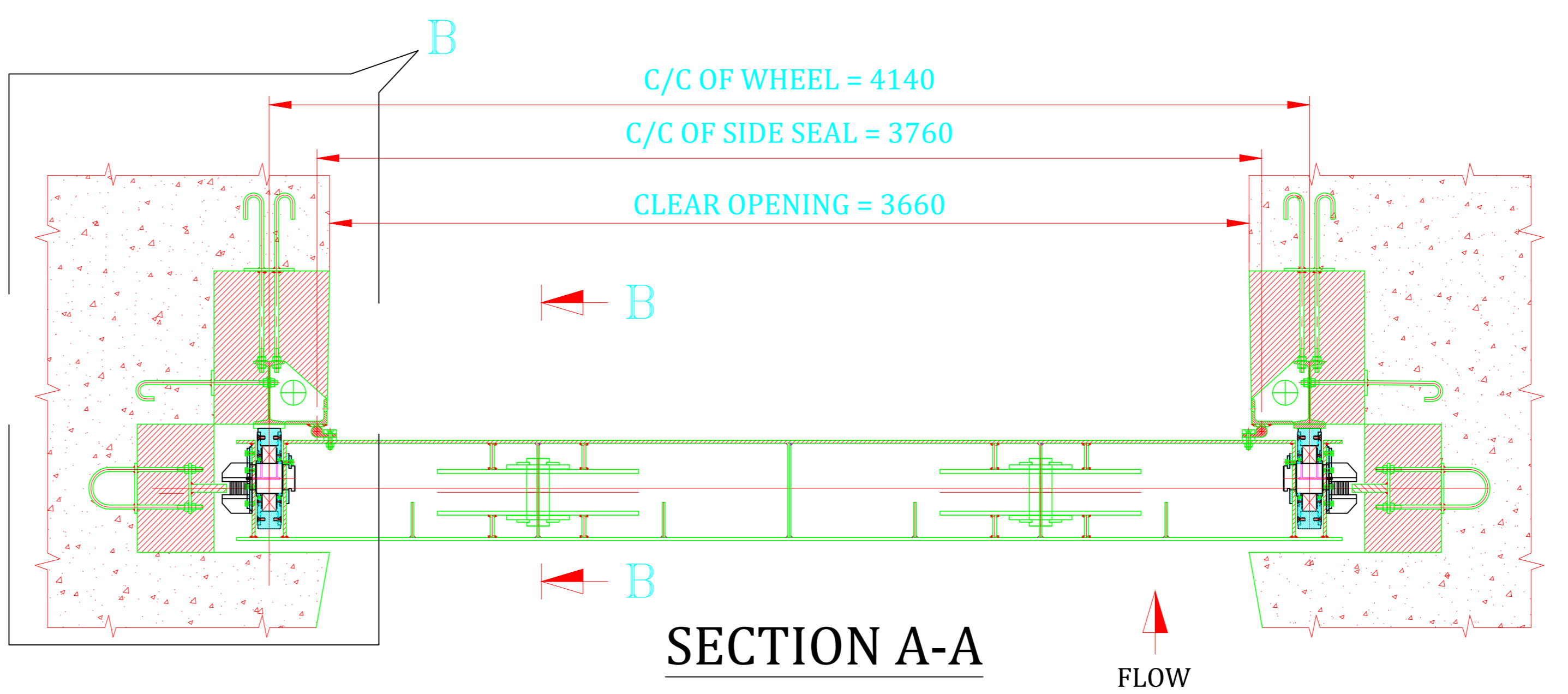
ELEVATION



SECTION : B-B



KEY ELEVATION



SECTION A-A

- NOTES :-
1. ALL DIMENSIONS ARE IN MILLIMETERS AND ELEVATIONS IN METERS UNLESS OTHERWISE SPECIFIED.
 2. DIMENSIONS & BLOCK OUT SIZES INDICATED IN THE DRAWING ARE AS PER EXISTING STRUCTURE & MAY VARY AT SITE.
 3. ALL STRUCTURAL STEEL CONFORMING TO IS-2062 GRADE E-250.
 4. NO DIMENSIONS SHALL BE SCALED OUT ONLY WRITTEN DIMENSIONS ARE TO BE TAKEN AS CORRECT.
 5. ALL SEALING ARRANGEMENT (BOTTOM, SIDE & TOP) SHALL BE WATER TIGHT.
 6. ERECTION TOLERANCE FOR EMBEDDED PARTS & GATES TO BE AS PER IS : 4622.
 7. DRY TESTING OF GATE SHALL BE CARRIED OUT BEFORE COMMISSIONING.
 7. ALL FILLET WELDS SHALL BE CONTINUOUS AND MINIMUM OF 6MM LEG SIZE UNLESS STATED OTHERWISE. ALL BUTT WELDS SHALL BE FULL PENETRATION WELDS.
 8. THE LEVELS AND DIMENSIONS SHALL BE VERIFIED AT SITE FOR ALL THE GATES.
 9. REFER SHEET 2 OF 2 FOR OTHER NOTES.

Location of Gate	Filling culvert		Emptying culvert		No. of gates
	Width (m)	Height (m)	Height	Width	
Bulk Head Gate on U/S of upstream radial gates Type A	3.658 m	2.21	-	-	2
Bulk Head Gate on D/S of upstream radial gates Type B	3.268 m	-	-	-	2
Bulk Head Gate on upstream and downstream for D/S radial gates. Type C	-	-	2.210 m	2.205 m	(2+2)=4

TECHNICAL DATA			
DESCRIPTION	GATE: TYPE-A	TYPE-B	TYPE-C
• TOTAL NO. OF OPENING	02	02	04
• TOTAL NO. OF GATES	02	02	04
• OPENING WIDTH	3.66M	3.27M	2.20M
• DESIGN WATER LEVEL	24.38M	24.38M	24.38M
• C/C OF ROLLER TRACKS	4.14M	3.75M	2.68M
• C/C OF SIDE SEAL	3.76M	3.37M	2.30M
• OPERATING BY	ELECTRIC WIRE ROPE HOIST		

- LEGENDS:
- 1st STAGE CONCRETING (PRIMARY)
 - 2nd STAGE CONCRETING (SECONDARY)

INLAND WATERWAYS AUTHORITY OF INDIA

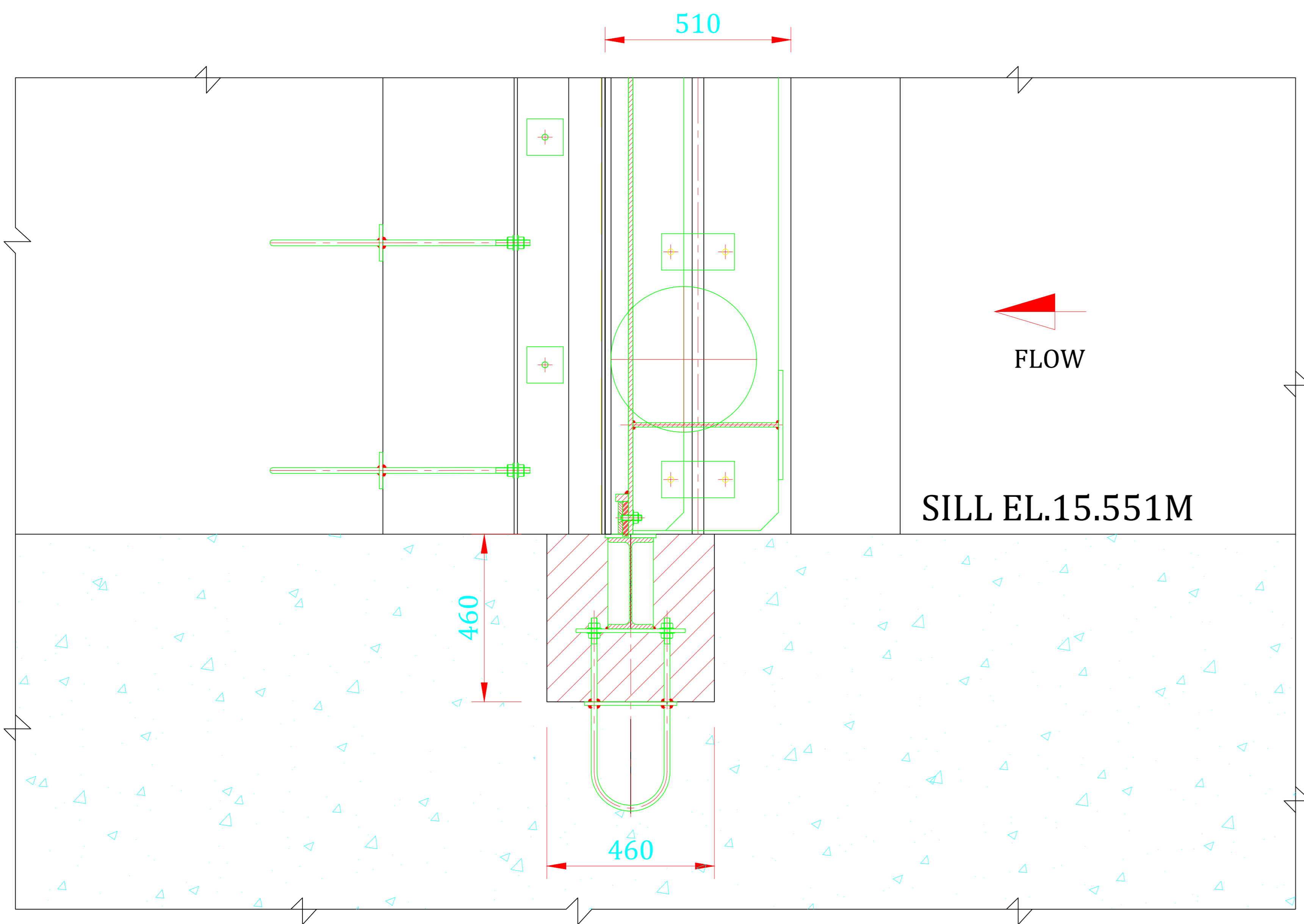
PROJECT CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR THE WORK OF RENOVATION / MODERNIZATION OF EXISTING NAVIGATION LOCK AT FARAKKA

CONSULTANT	NAME	SIGN	DATE
PKS FLOODKON JV	DRN		
	CHD		
	APD		

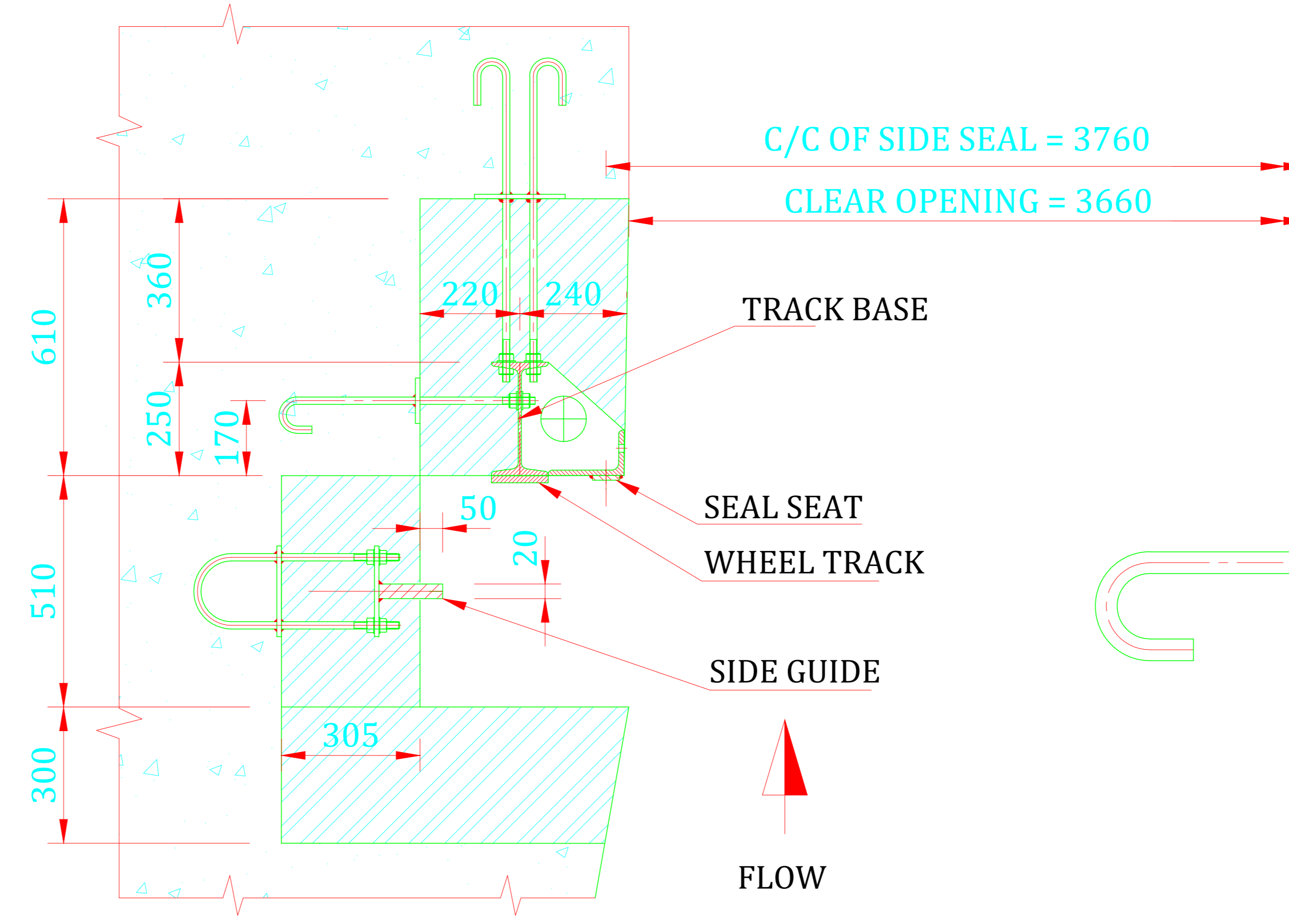
TITLE GENERAL ARRANGEMENT DRAWING AND DETAIL OF BULKHEAD GATE OF EXISTING NAVIGATION LOCK (SHEET NO. 01 OF 02)

JOB. NO. DRG. NO. ENL009-SH1

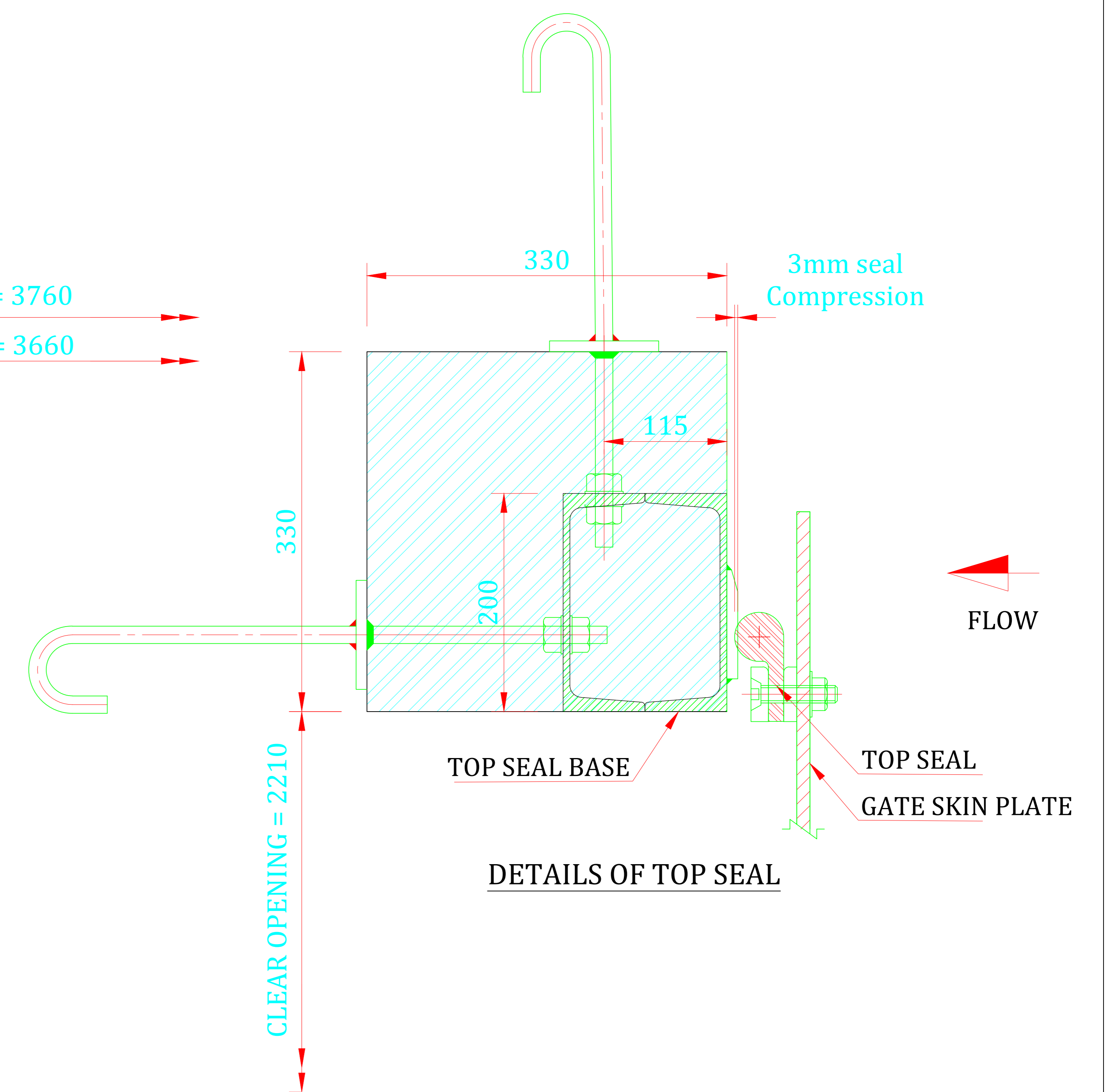
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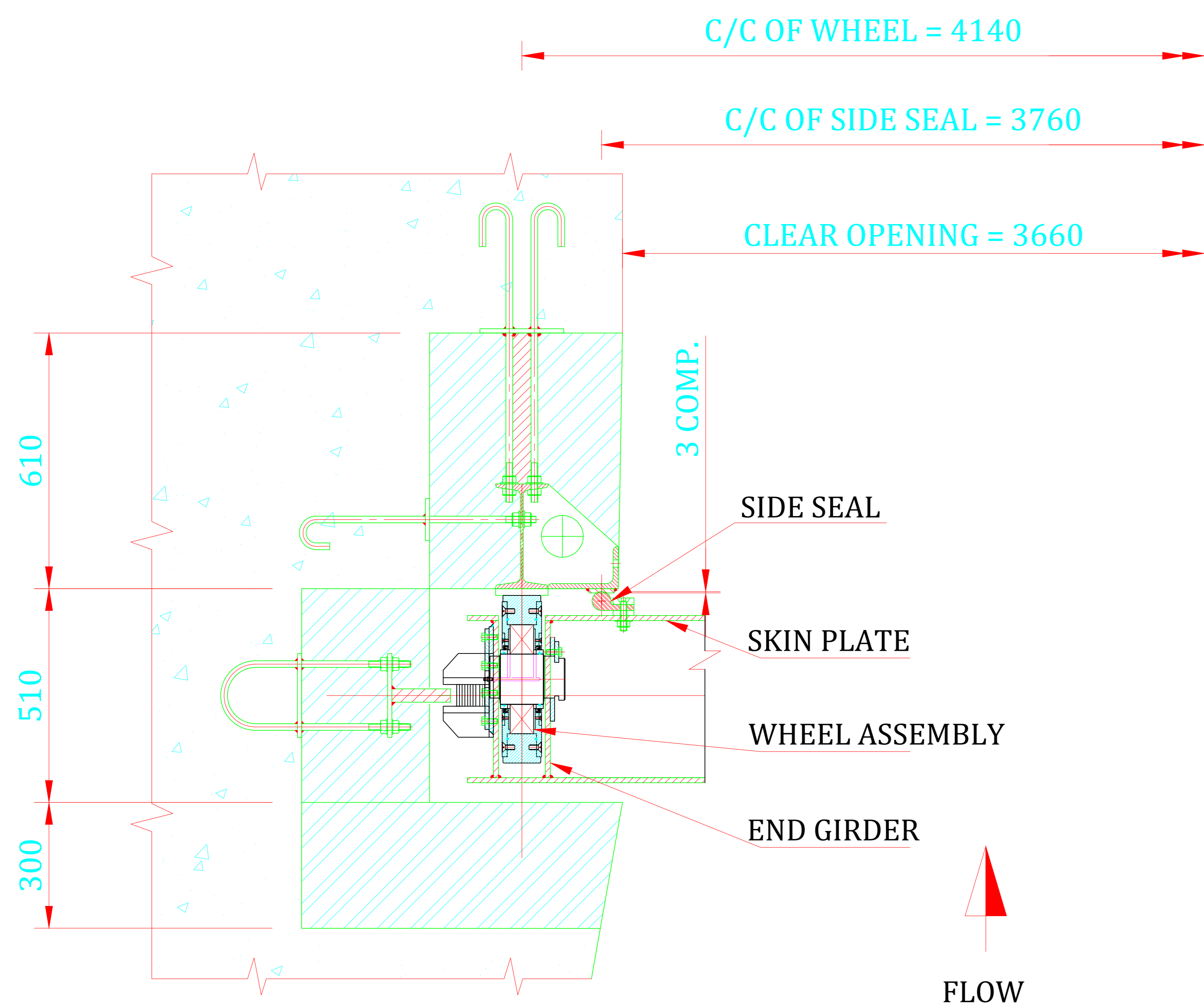
DETAIL : A
(REFER SHEET 1 OF 2)



GATE GROOVE DETAIL



DETAILS OF TOP SEAL



DETAIL : B
(REFER SHEET 1 OF 2)

NOTE:

1. ALL THE SEALS SHALL BE CONTINUOUS AND WATER TIGHT.
2. ALL CORNERS AND EDGES IN CONTACT WITH RUBBER SEALS AND WELDING SHALL BE SMOOTH AND ROUNDED WITH MINIMUM ROUNDS OF 6MM.
3. EXISTING SECOND STAGE EMBEDDED PARTS PROVIDED IN BLOCK OUTS SHALL BE MAINTAINED, HOWEVER IF THEY ARE FOUND INADEQUATE THE NEW EMBEDDED PARTS SHALL BE DESIGNED AND PROVIDED TO SUIT THE BLOCK OUTS PROVIDED AT SITE.
4. GATE SHALL BE DESIGNED IN ACCORDANCE WITH THE PROVISIONS OF IS 4622 TO SUIT THE SIZE OF OPENING AND CHAMBER WHICH SHALL BE VERIFIED BY ACTUAL MEASUREMENT AT SITE.
5. THE METHODOLOGY FOR REMOVAL OF EXISTING GATES SHALL BE FINALIZED CONSIDERING THE BOTTLENECKS AT SITE, TRANSPORTATION LIMITATIONS ETC. THE SITE SHALL BE CLEARED OF ALL THE REPLACED MATERIALS.
6. THE TOLERANCES FOR EMBEDDED PARTS & COMPONENTS OF GATE SHALL BE AS PER ANNEX.-E OF IS 4622.

MACHINING DETAILS :

	FOR GUIDES & PIN
	FOR TRACKS
	FOR SEAL SEATS

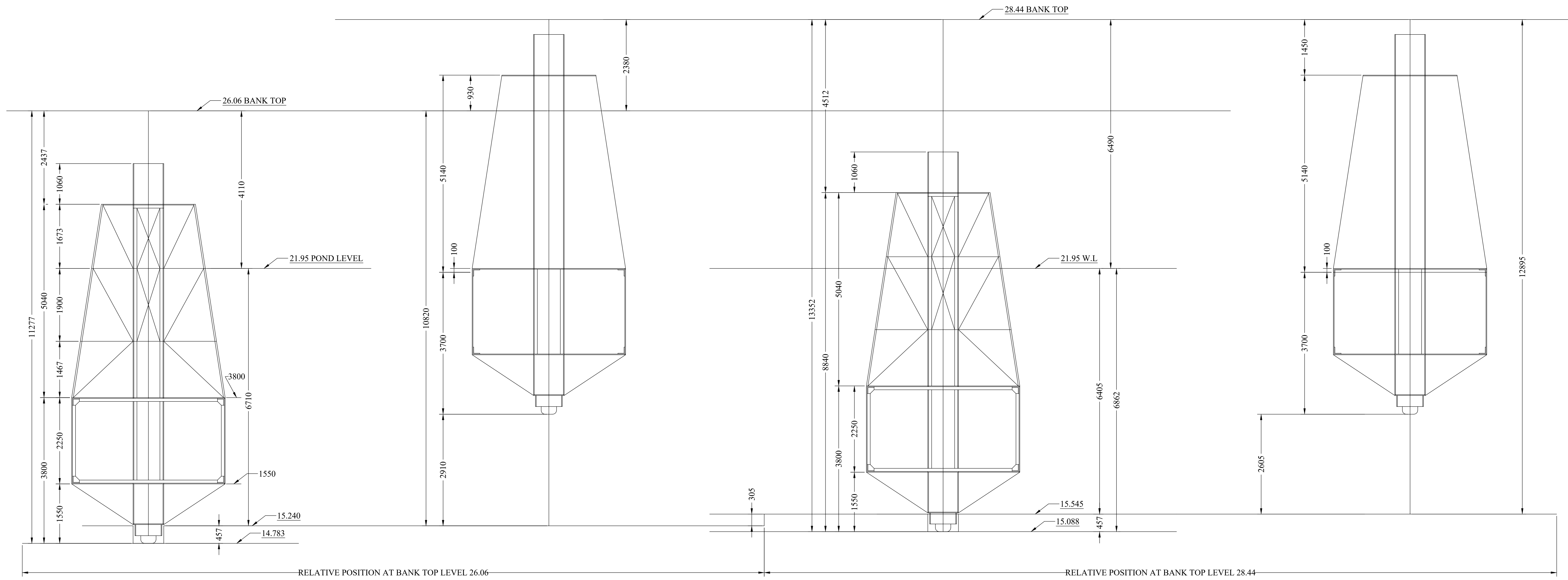
LEGENDS :

	Ist STAGE CONCRETING (PRIMARY)
	IIInd STAGE CONCRETING (SECONDARY)

REV.	DATE	DESCRIPTION	DRN	CHD	APD

INLAND WATERWAYS AUTHORITY OF INDIA				
PROJECT	CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR THE WORK OF RENOVATION / MODERNIZATION OF EXISTING NAVIGATION LOCK AT FARAKKA			
CONSULTANT			NAME	SIGN
			DRN	
			CHD	
			APD	
TITLE	GENERAL ARRANGEMENT DRAWING AND DETAIL OF BULKHEAD GATE OF EXISTING NAVIGATION LOCK (SHEET NO. 02 OF 02)		JOB. NO.	DRG. NO.
				ENL009-SH2

SIZE:	A0	REV. R1
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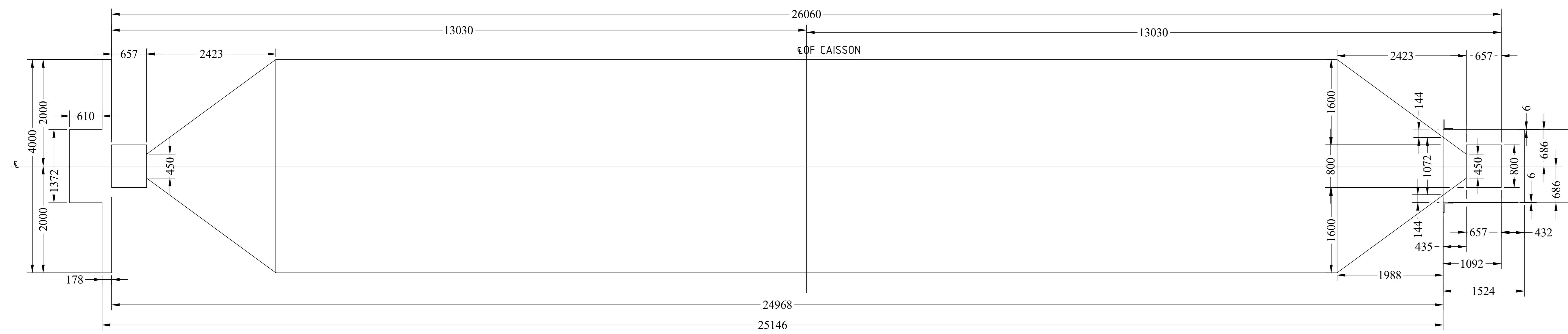


CAISSON GATE
SUNK

CAISSON GATE
FLOATING

CAISSON GATE
SUNK

CAISSON GATE
FLOATING



PLAN

- NOTE:
1. ALL DIMENSIONS ARE IN MILLIMETER AND ELEVATIONS ARE IN METERS, UNLESS OTHERWISE SPECIFIED.
 2. NO DIMENSION SHALL BE SCALED OUT, ONLY WRITTEN DIMENSIONS ARE TO BE TAKEN AS CORRECT.

INLAND WATERWAYS AUTHORITY OF INDIA

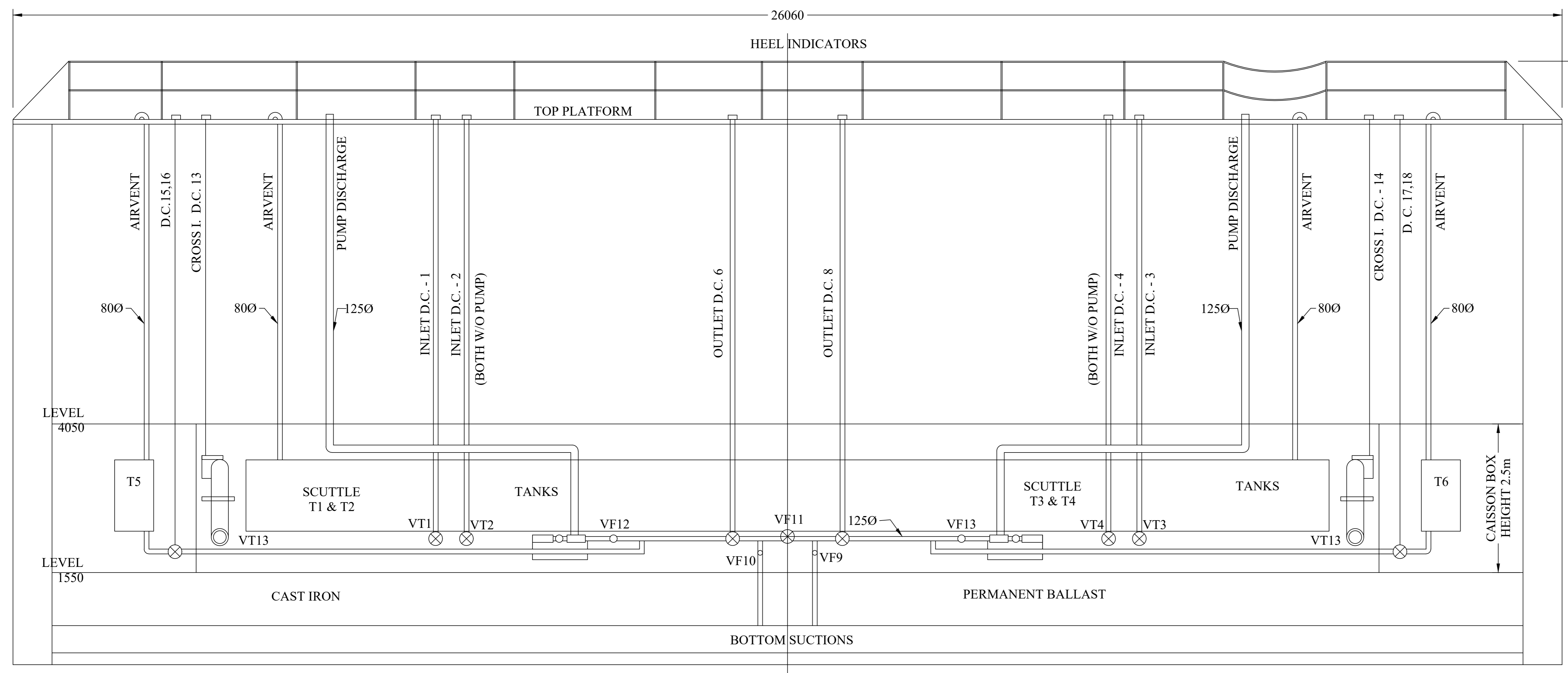
PROJECT CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR THE WORK OF RENOVATION / MODERNIZATION OF EXISTING NAVIGATION LOCK AT FARAKKA

CONSULTANT	NAME	SIGN	DATE
 PKS FLOODKON JV 	DRN		
	CHD		
	APD		

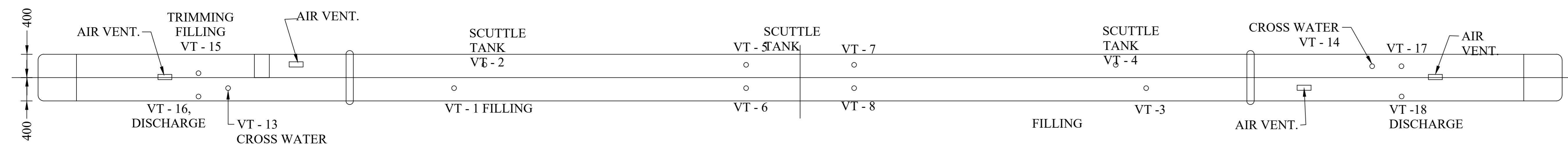
TITLE GENERAL ARRANGEMENT DRAWING AND DETAIL OF CAISSON GATE OF EXISTING NAVIGATION LOCK (SHEET NO. 01 OF 04)

JOB. NO. DRG. NO. ENL010-SH1

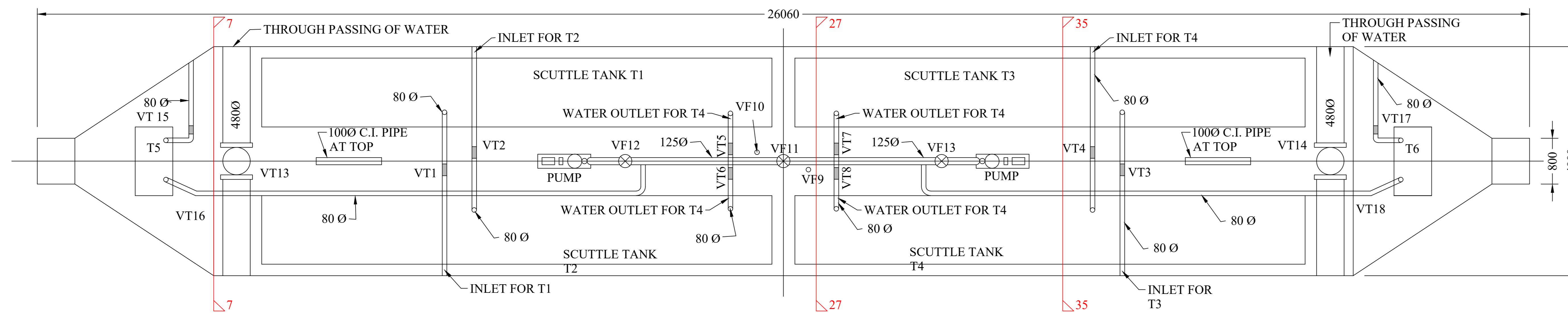
REV.	DATE	DESCRIPTION	DRN	CHD	APD



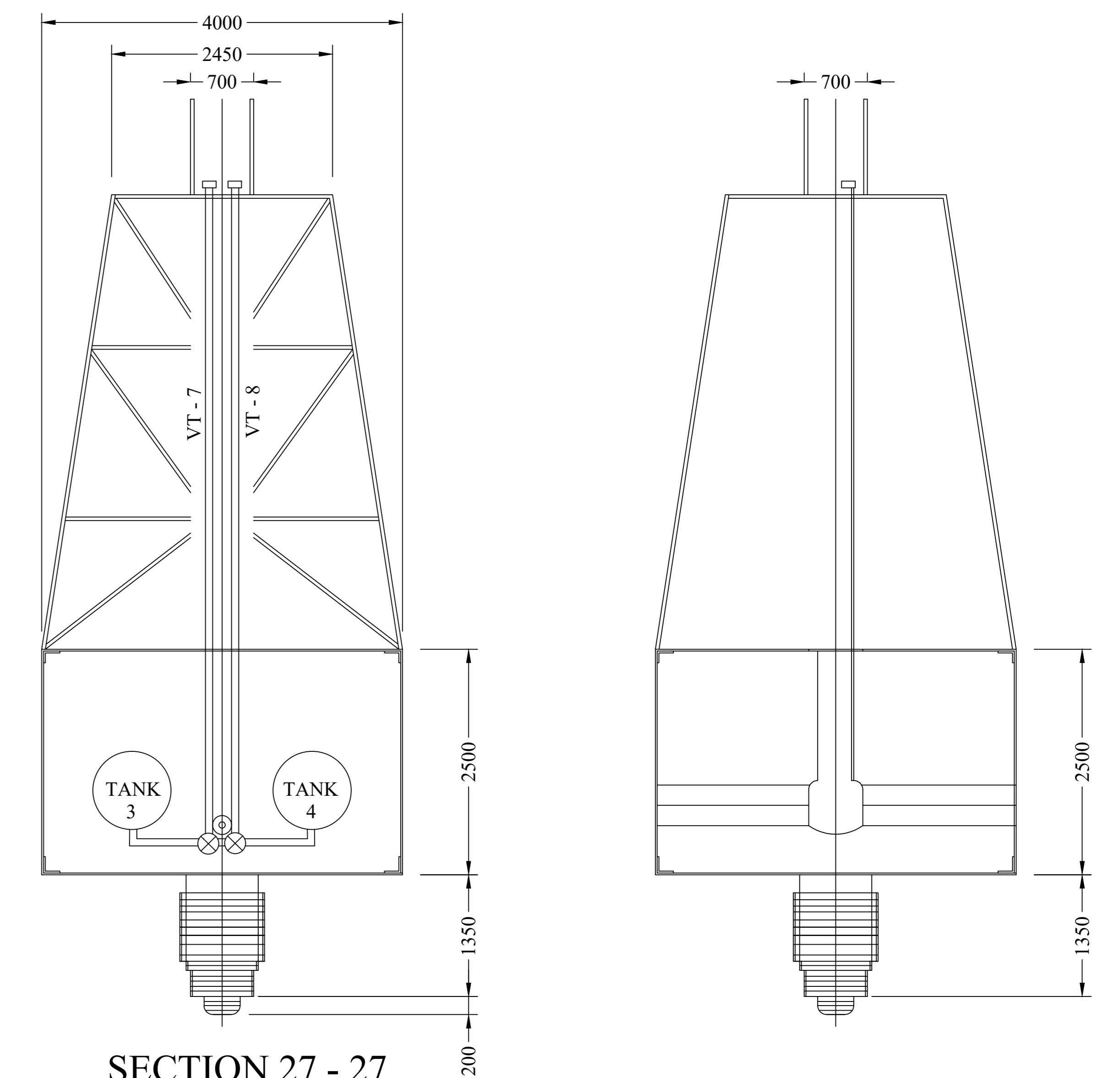
SECTIONAL ELEVATION



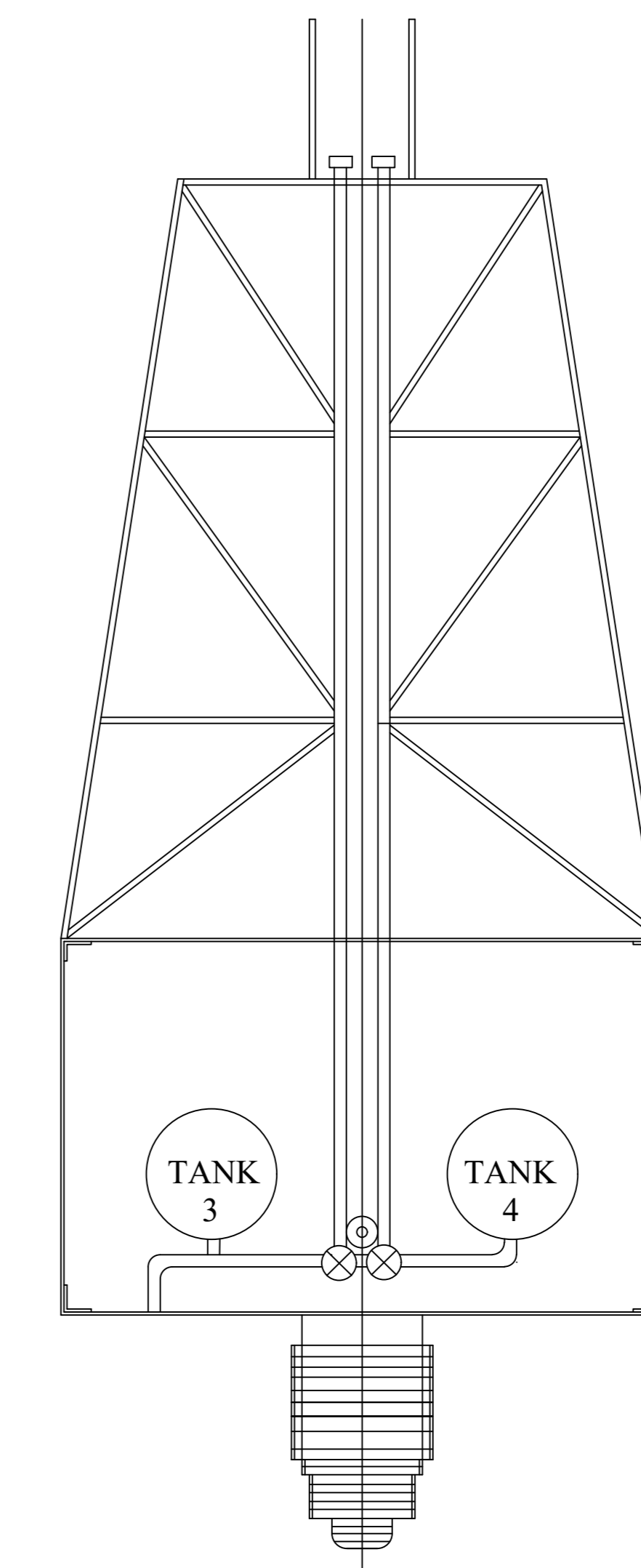
PLAN AT LEVEL 9090



PLAN AT LEVEL (1550-4050)



SECTION 27 - 27



SECTION 35 - 35

- NOTE:
1. ALL DIMENSIONS ARE IN MILLIMETER AND ELEVATIONS ARE IN METERS, UNLESS OTHERWISE SPECIFIED.
 2. NO DIMENSION SHALL BE SCALED OUT, ONLY WRITTEN DIMENSIONS ARE TO BE TAKEN AS CORRECT.

INLAND WATERWAYS AUTHORITY OF INDIA

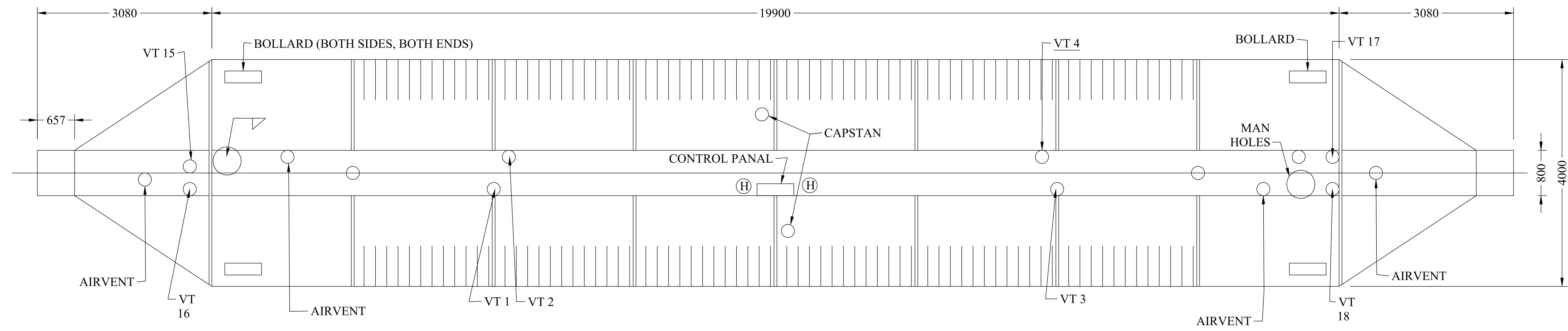
PROJECT CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR THE WORK OF RENOVATION / MODERNIZATION OF EXISTING NAVIGATION LOCK AT FARAKKA

CONSULTANT	NAME	SIGN	DATE
 PKS FLOODKON JV	DRN		
	CHD		
	APD		

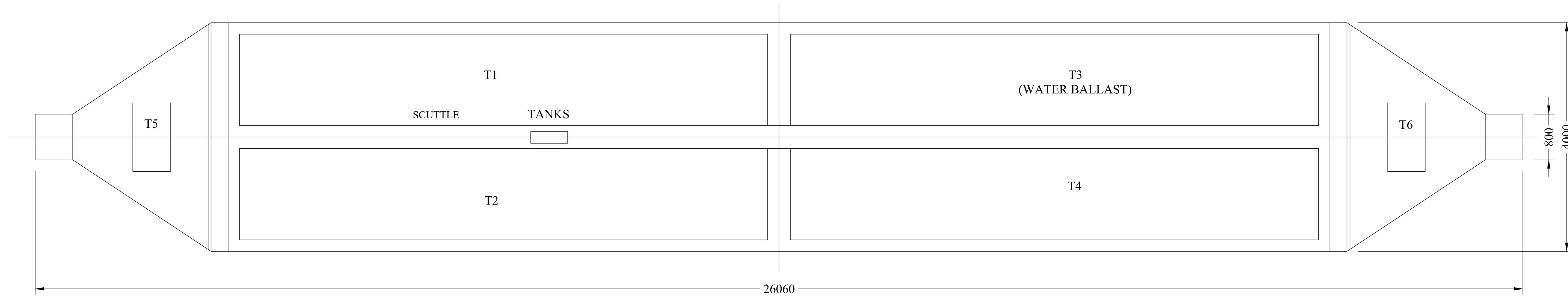
TITLE GENERAL ARRANGEMENT DRAWING AND DETAIL OF CAISSON GATE OF EXISTING NAVIGATION LOCK (SHEET NO. 02 OF 04)

JOB. NO. DRG. NO. ENL010-SH2

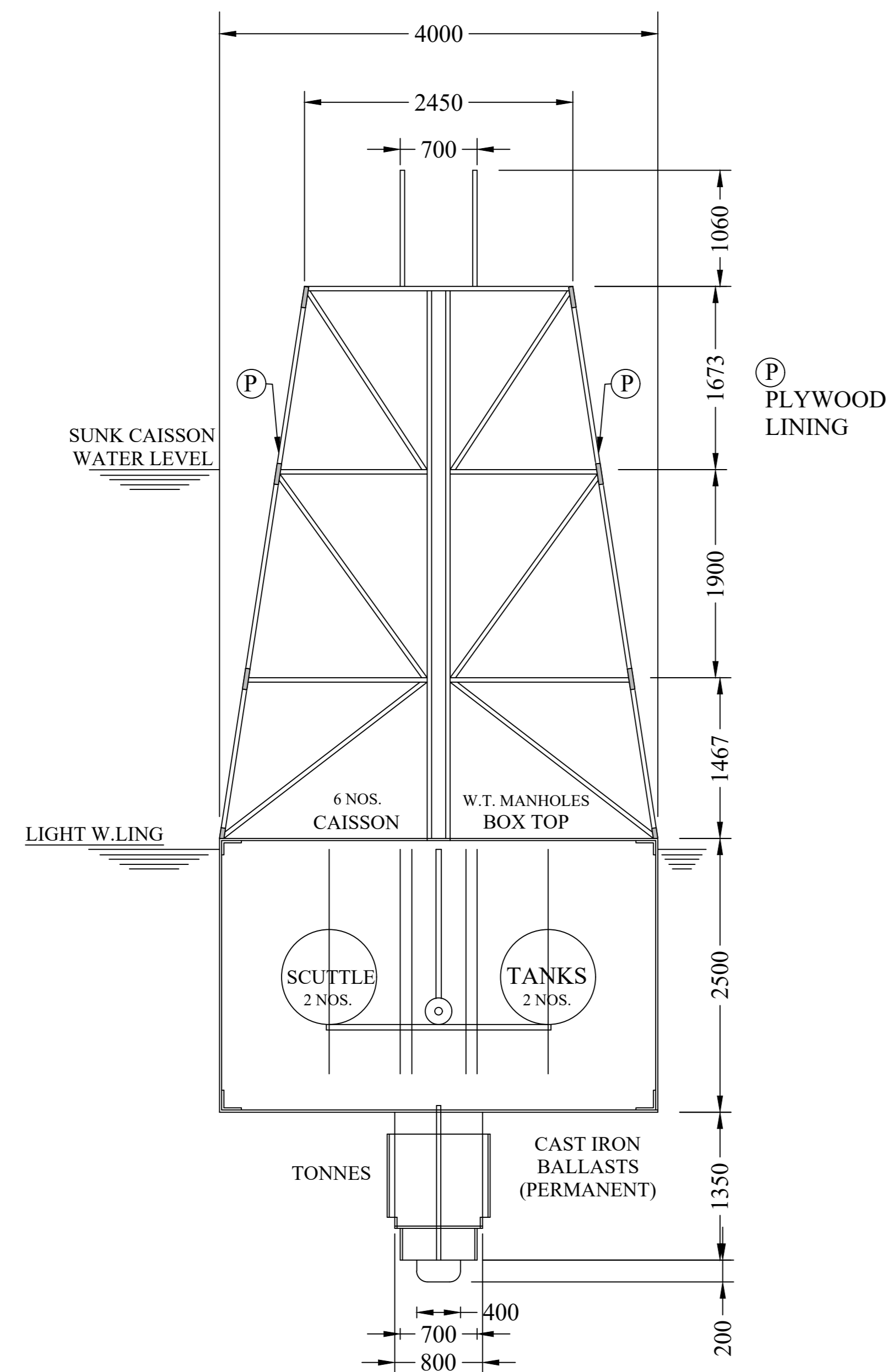
REV.	DATE	DESCRIPTION	DRN	CHD	APD



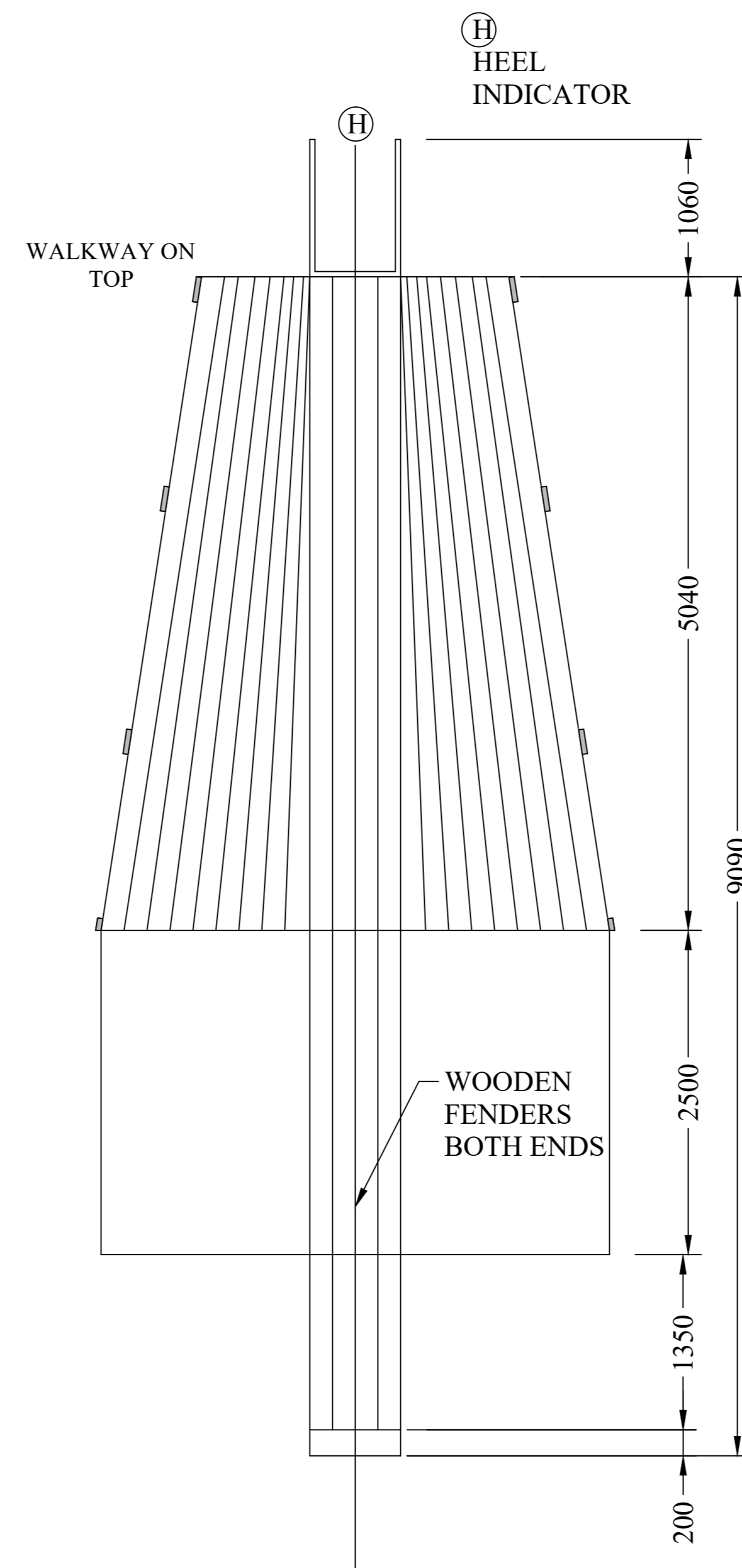
TOP PLAN



**SECTIONAL PLAN SHOWING (T1 TO T4)
SCUTTLE & TRIMMING TANKS (T5, T6)**



SECTIONAL VIEW



SIDE VIEW

NOTE:

1. ALL DIMENSIONS ARE IN MILLIMETER AND ELEVATIONS ARE IN METERS, UNLESS OTHERWISE SPECIFIED.
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INLAND WATERWAYS AUTHORITY OF INDIA

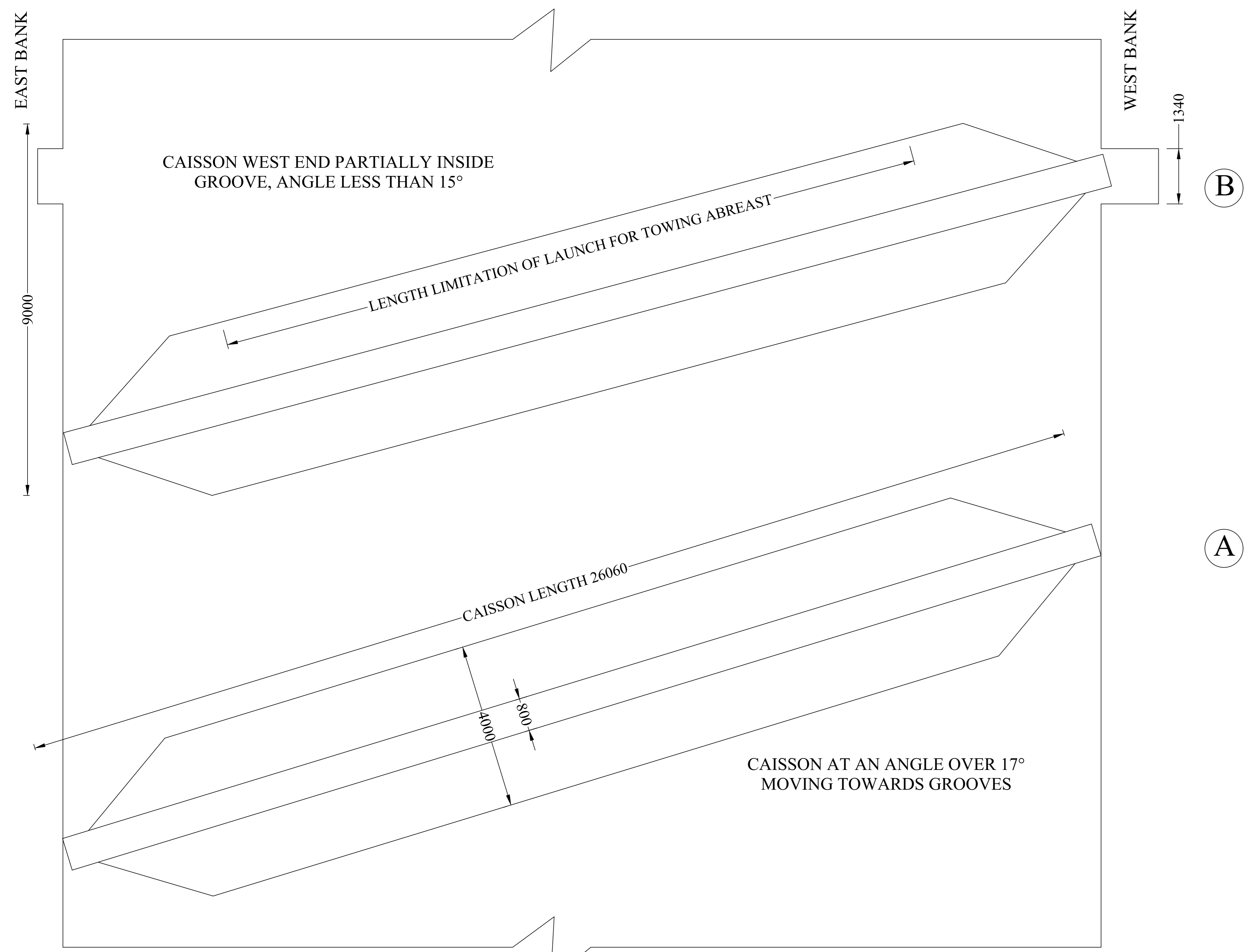
PROJECT CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR THE WORK OF RENOVATION / MODERNIZATION OF EXISTING NAVIGATION LOCK AT FARAKKA

CONSULTANT	NAME	SIGN	DATE
 PKS FLOODKON JV 	DRN		
	CHD		
	APD		

TITLE GENERAL ARRANGEMENT DRAWING AND DETAIL OF CAISSON GATE OF EXISTING NAVIGATION LOCK (SHEET NO. 03 OF 04)

JOB. NO. DRG. NO. ENL010-SH3

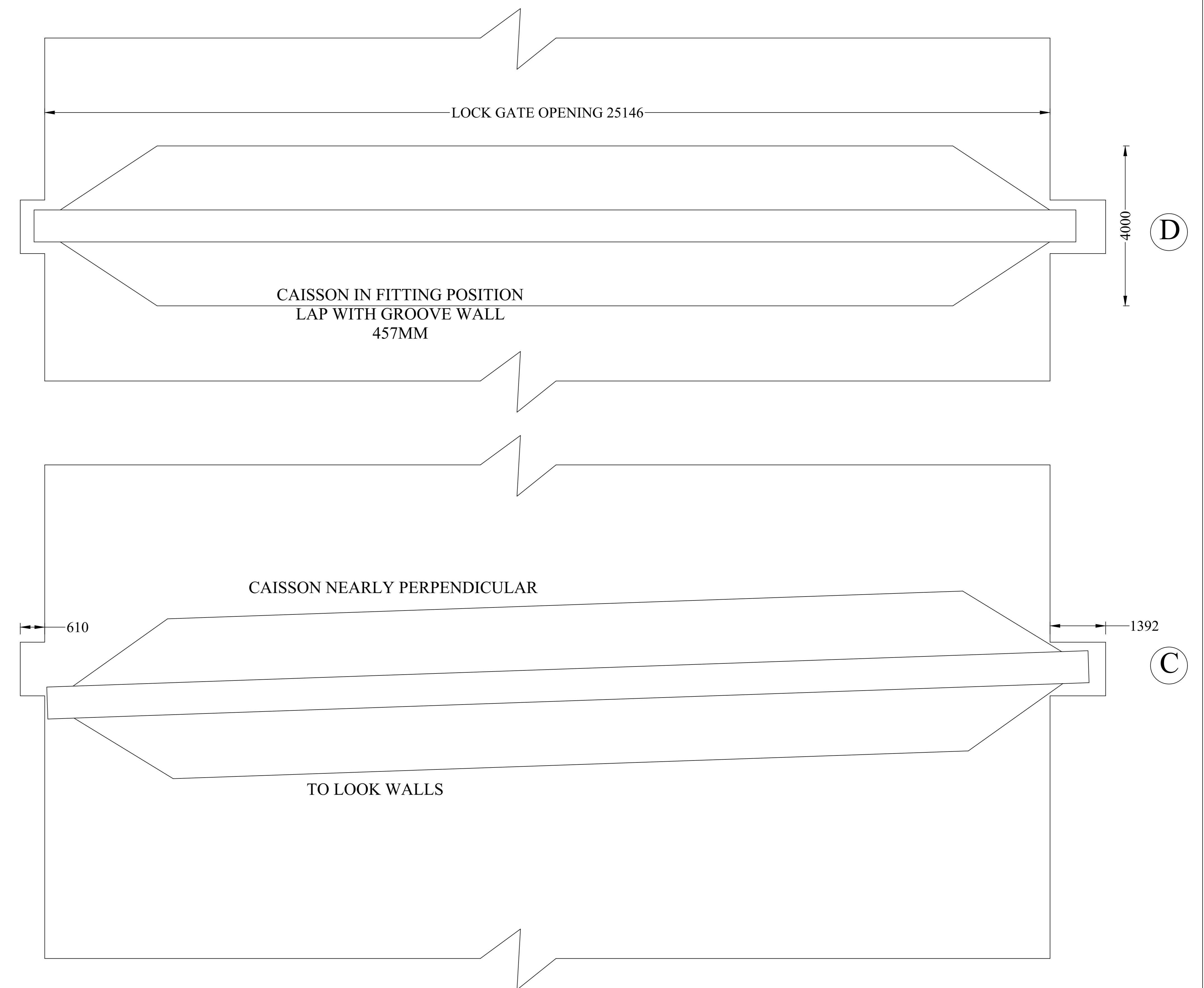
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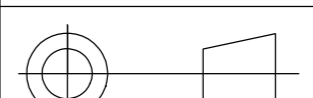
STAGES OF MOVEMENT

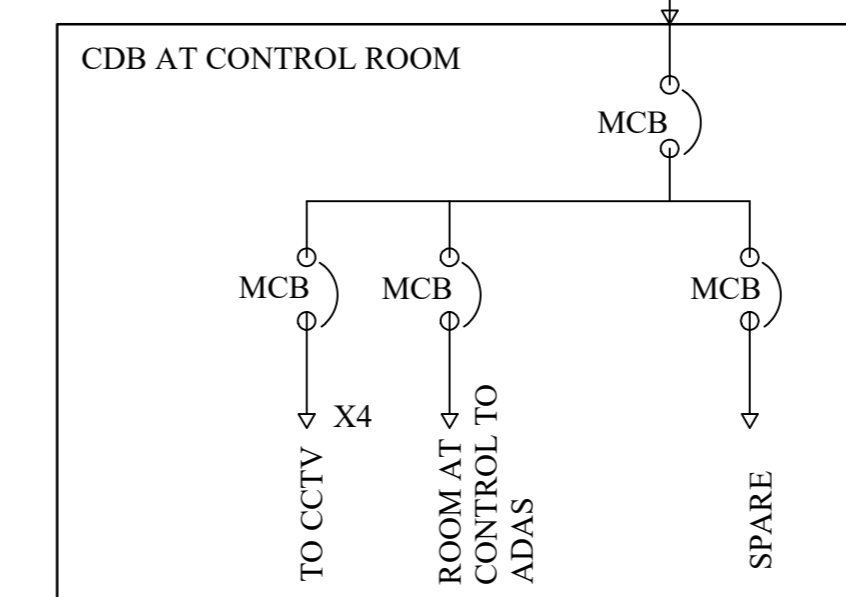
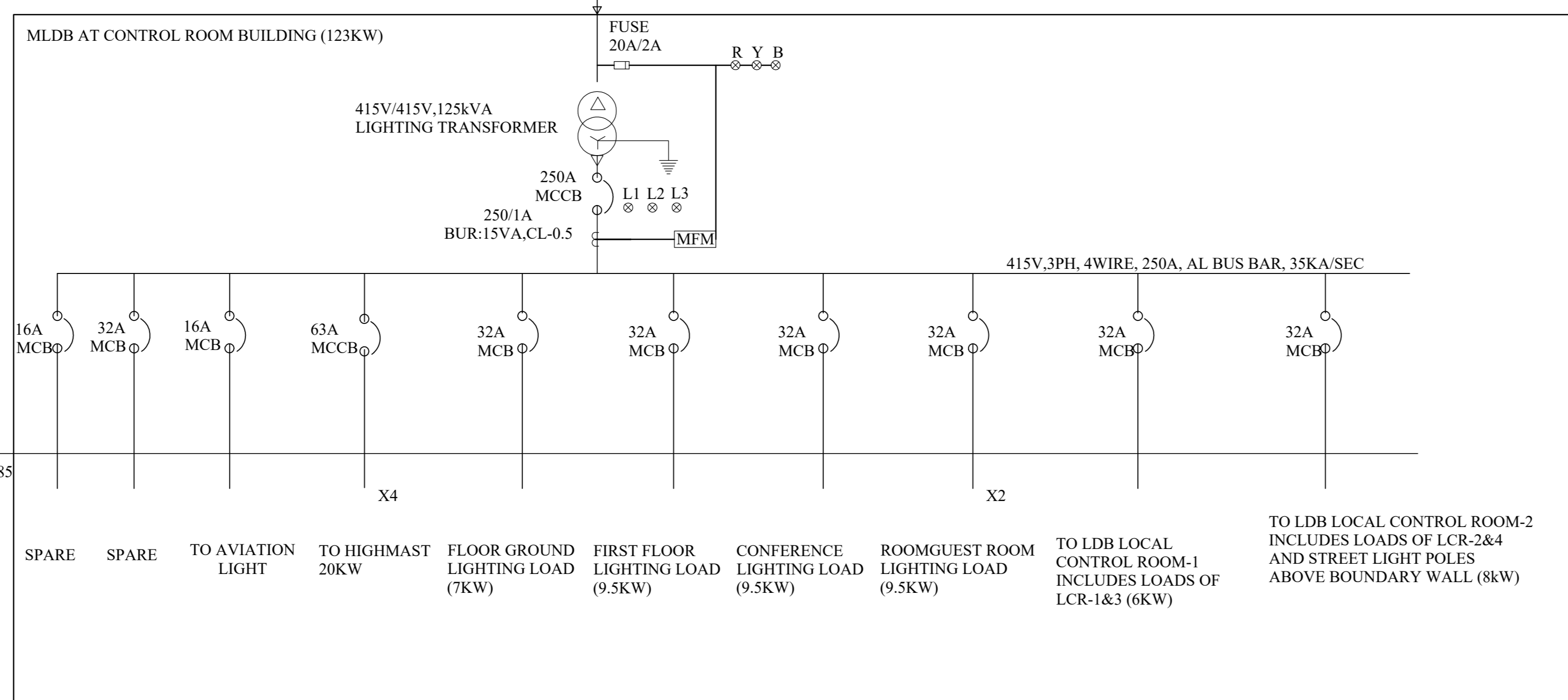
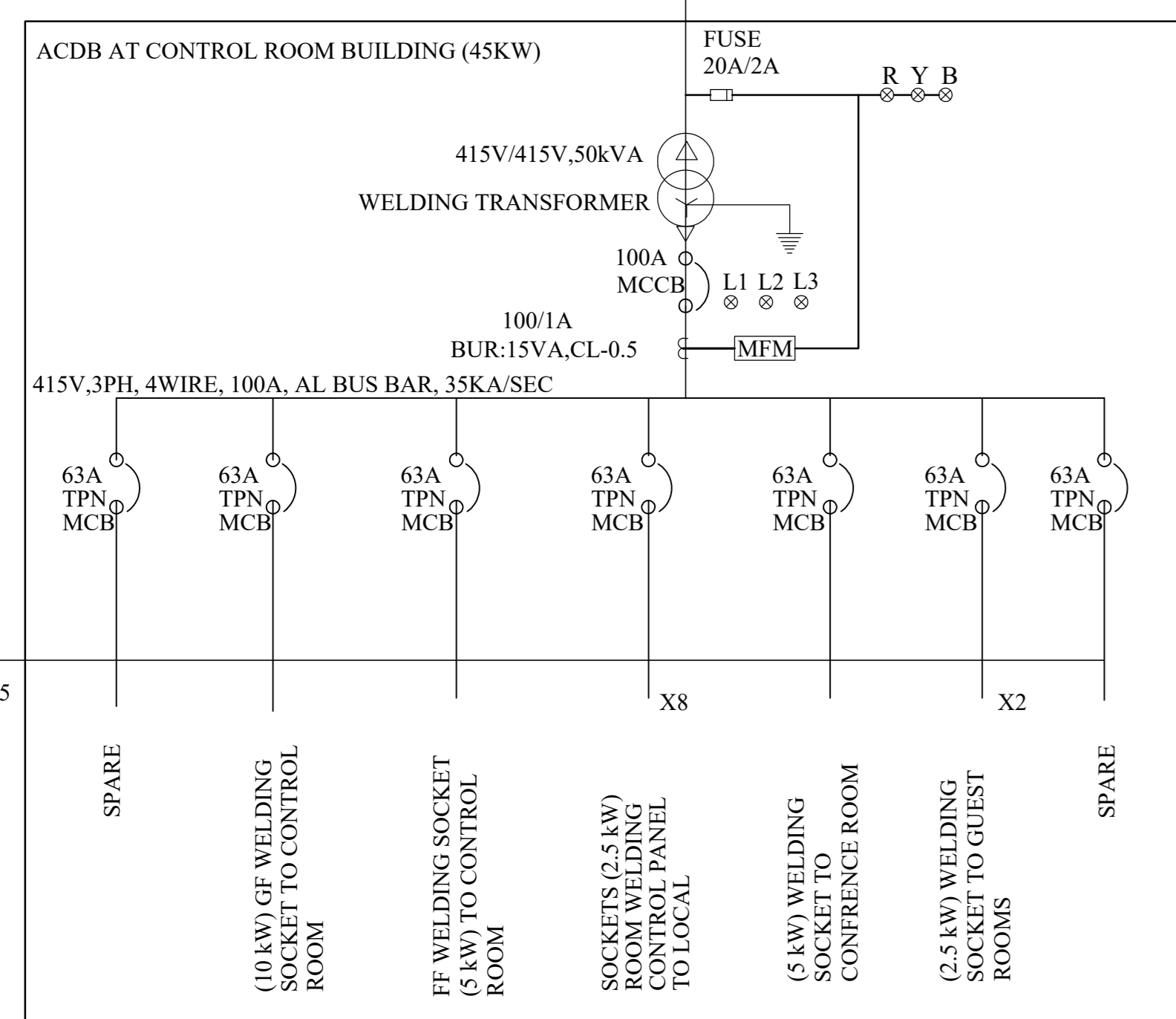
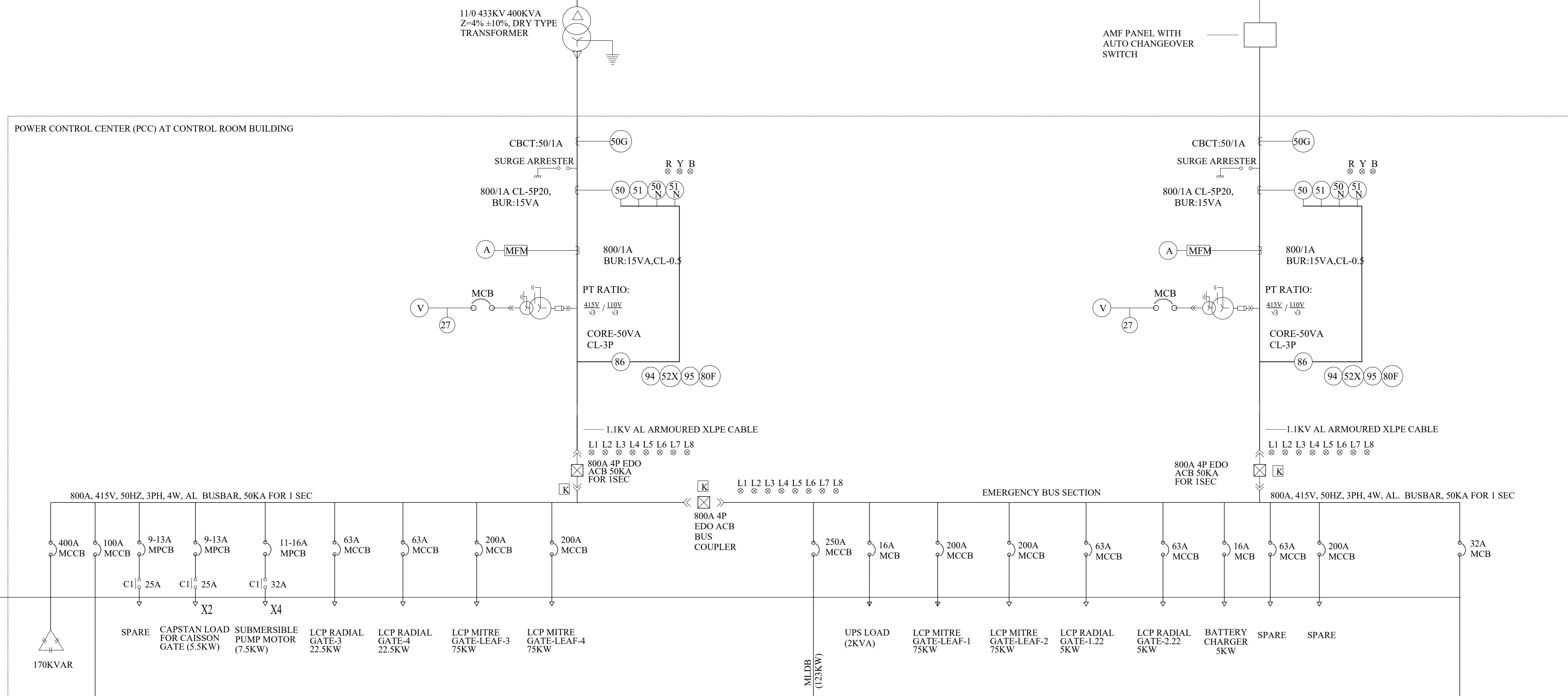
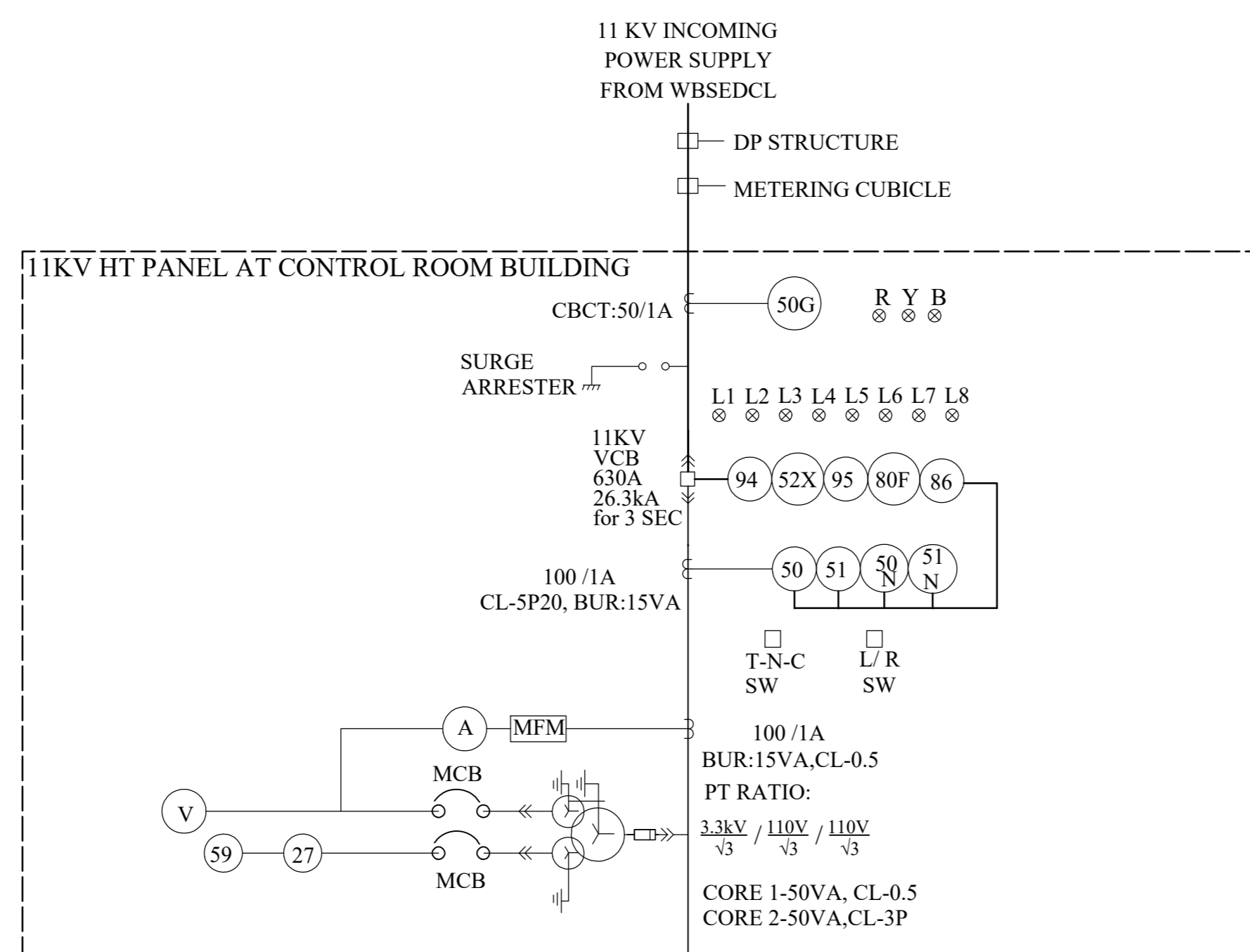
NOTE:

1. ALL DIMENSIONS ARE IN MILLIMETER AND ELEVATIONS ARE IN METERS, UNLESS OTHERWISE SPECIFIED.
2. NO DIMENSION SHALL BE SCALED OUT, ONLY WRITTEN DIMENSIONS ARE TO BE TAKEN AS CORRECT.



REV.	DATE	DESCRIPTION	DRN	CHD	APD

INLAND WATERWAYS AUTHORITY OF INDIA					
PROJECT CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR THE WORK OF RENOVATION / MODERNIZATION OF EXISTING NAVIGATION LOCK AT FARAKKA					
CONSULTANT			NAME	SIGN	DATE
 PKS FLOODKON JV 			DRN		
			CHD		
			APD		
TITLE GENERAL ARRANGEMENT DRAWING AND DETAIL OF CAISSON GATE MOVEMENT FOR OPERATION OF EXISTING NAVIGATION LOCK (SHEET NO. 04 OF 04)			JOB. NO.	DRG. NO. ENL010-SH4	
			SIZE: A0	REV. R1	



NOTES:-

- 1) HT & LT SWITCHGEAR PANEL SHALL BE SUITABLE FOR FUTURE EXPANSION ON BOTH SIDES.
- 2) AT LEAST 20% SPARE FEEDERS OF EACH TYPE AND RATING SHALL BE PROVIDED IN LT SWITCHBOARD.
- 3) DESIGN AMBIENT TEMPERATURE: 45°C.
- 4) CABLE SIZES & TRANSFORMER RATINGS SHALL BE AS PER APPROVED CALCULATIONS.
- 5) WELDING SOCKETS SHALL BE FED FROM 3PH, 4WIRE, AC DISTRIBUTION BOARD (ACDB) IN CONTROL ROOM.
- 6) POWER SOCKETS & LIGHTING LOAD SHALL BE FED FROM MAIN LIGHTING DISTRIBUTION BOARD (MLDB).
- 7) RATING OF COMPONENTS SHALL BE SELECTED AS PER TYPE-2 CO-ORDINATION OF IS 13947.
- 8) INDICATING LAMPS SHALL BE CLUSTER LED.
- 9) EACH PANEL OF HT & LT SWITCHGEAR SHALL BE PROVIDED WITH FLUORESCENT LIGHTING FIXTURE RATED FOR 240V, 50 HZ SUPPLY FOR INTERNAL ILLUMINATION. FITTING SHALL BE CONTROLLED BY THE RESPECTIVE PANEL DOOR SWITCH.
- 10) VA RATINGS OF CTs & PTs ARE INDICATIVE ONLY. VENDOR HAS TO CHECK THE SAME BASED ON LOAD.
- 11) ALL INCOMERS AND OUTGOINGS 125A AND ABOVE SHALL HAVE MICROPROCESSOR BASED O/L, S/C & E/F RELEASES AND BELOW 125A SHALL HAVE THERMAL MAGNETIC BASED O/L, S/C & THERMAL MAGNETIC BASED O/L, S/C & E/F RELEASES.
- 12) ALL RELAYS SHALL BE OF NUMERICAL TYPE.
- 13) DG SET RATING IS BASED ON EMERGENCY LOADS TO BE OPERATED IN CASE OF MAIN SUPPLY POWER FAILURE.
- 14) MLDB IN CONTROL ROOM SHALL FED POWER TO LIGHTING LOAD & POWER SOCKET LOAD OF CONTROL ROOM GROUND FLOOR, CONTROL ROOM FIRST FLOOR, CONFERENCE ROOM, GUEST ROOM-1&2 AND STAIRCASE LIGHTING.
- 15) LDB IN LOCAL CONTROL ROOM-1 SHALL FED POWER TO LIGHTING LOAD & POWER SOCKET LOAD OF LOCAL CONTROL ROOMS- 1 & 3.
- 16) LDB IN LOCAL CONTROL ROOM-2 SHALL FED POWER TO LIGHTING LOAD & POWER SOCKET LOAD OF LOCAL CONTROL ROOMS-2 & 4 AND STREET LIGHTING POLES ABOVE BOUNDARY WALL.

SYMBOL	DESCRIPTION
ACDB	AC DISTRIBUTION BOARD
CDB	CONTROL DISTRIBUTION BOARD
GF	GROUND FLOOR
FF	FIRST FLOOR
ADAS	AUTOMATIC DATA ACQUISITION SYSTEM
LCR	LOCAL CONTROL ROOM

SYMBOL	DESCRIPTION
	TRANSFORMER
	DG SET
	MCCB/MPCB
	CONTACTOR
	ACB
	VCB
	INDICATION
	UNDER VOLTAGE RELAY
	INSTANTANEOUS OVER CURRENT RELAY
	INSTANTANEOUS EARTH FAULT RELAY
	IDMT OVER CURRENT RELAY
	IDMT EARTH FAULT RELAY
	LOCK OUT RELAY
	ANTI PUMPING RELAY
	INSTANTANEOUS GROUND FAULT RELAY
	DC FAIL RELAY
	BREAKER CONTACT MULTIPLIER RELAY
	TRIP CIRCUIT SUP. RELAY
	OVER VOLTAGE RELAY
	SURGE ARRESTER
	BREAKER ON RED
	BREAKER OFF GREEN
	BREAKER TRIP AMBER
	SPRING CHARGED RED
	TRIP CIRCUIT HEALTHY
	BREAKER IN TEST POSITION
	BREAKER IN SERVICE POSITION
	DC FAIL
	POTENTIAL TRANSFORMER
	ELECTRICAL & MECHANICAL INTERLOCK
	LIGHTING DISTRIBUTION BOARD
	MAIN LIGHTING DISTRIBUTION BOARD

POWER SINGLE LINE DIAGRAM

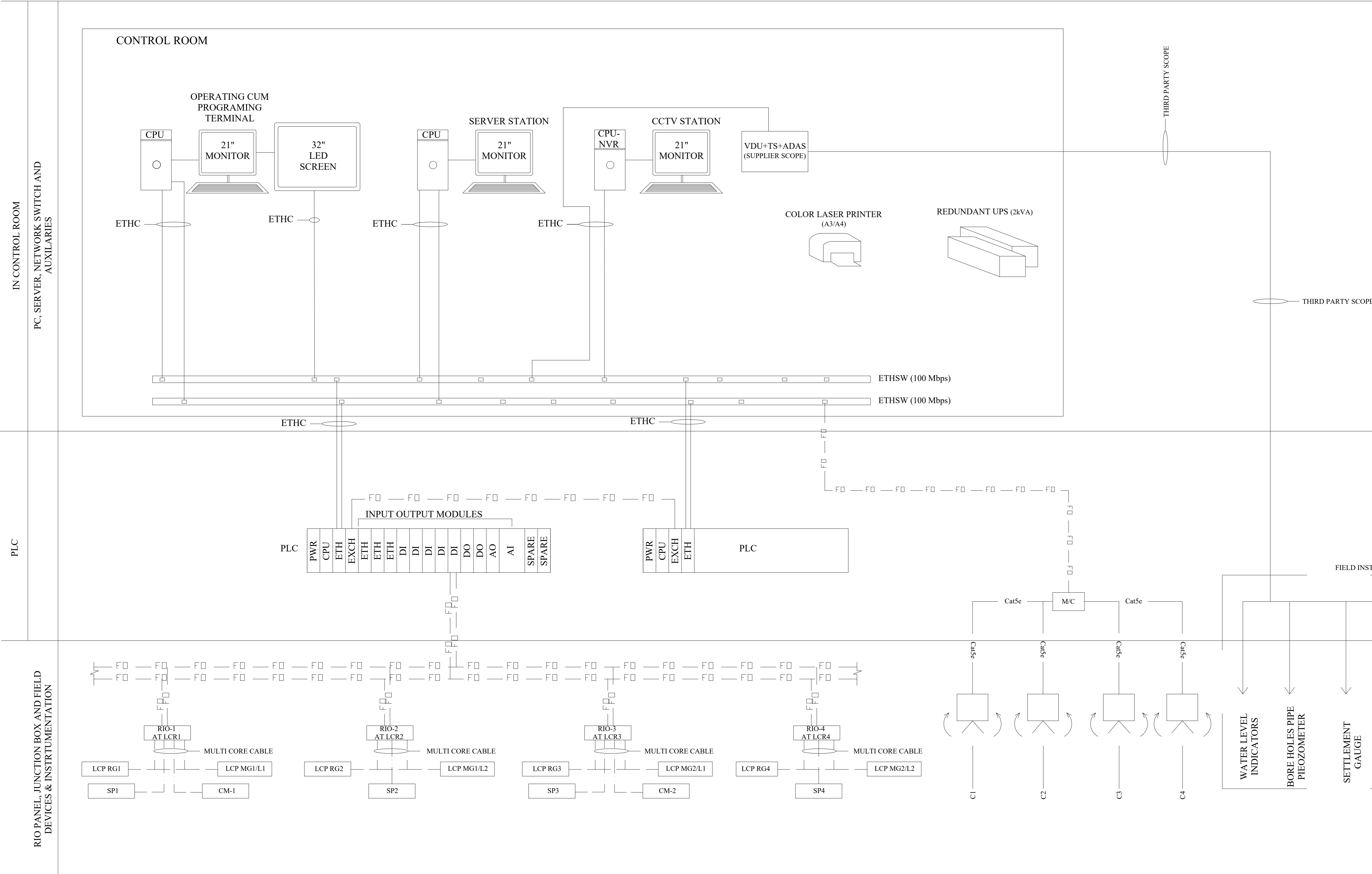
INLAND WATERWAYS AUTHORITY OF INDIA

PROJECT CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR THE WORK OF RENOVATION / MODERNIZATION OF EXISTING NAVIGATION LOCK AT FARAKKA

CONSULTANT	NAME SIGN DATE
 PKS FLOODKON JV	DRN
	CHD
	APD
TITLE	JOB. NO. DRG. NO.
POWER SINGLE LINE DIAGRAM OF EXISTING NAVIGATION LOCK, FARAKKA	ENL011

REV.	DATE	DESCRIPTION	DRN	CHD	APD

SIZE : A0 REV. R1



LEGEND:-

UPS	UNINTERRUPTED POWER SUPPLY
ETHSW	ETHERNET SWITCH
PLC	PROGRAMMABLE LOGIC CONTROLLER
PWR	PLC POWER SUPPLY
CPU	PLC CENTRAL PROCESSING UNIT
EXCH	PLC MEMORY EXCHANGE WITH REDUNDANT PLC
ETH	PLC ETHERNET MODULE
DI	PLC DIGITAL INPUT MODULES
DO	PLC DIGITAL OUTPUT MODULES
SPARE	PLC SPARE I/O BASE
LCP	LOCAL CONTROL PANEL
CPU	CENTRAL PROCESSING UNIT
RG	RADIAL GATE
JB	JUNCTION BOX
MG/L	MITRE GATE/LEAF
CM	CAPSTAN MOTOR FOR CASSION GATE
SP	SUBMERSIBLE PUMP MOTOR
RIO	REMOTE INPUT OUTPUT
(CCTV)	CCTV CAMERA (Pan Tilt Zoom)
NVR	NETWORK VIDEO RECORDER
LCR	LOCAL CONTROL ROOM

CABLE LEGEND

FD	FIBRE OPTIC CABLE
ETHC	ETHERNET CABLE (ETHC)
MC	MULTICORE/MULTIPAIR CABLES
Cat5e	Cat 5e ETHERNET CABLE

INLAND WATERWAYS AUTHORITY OF INDIA

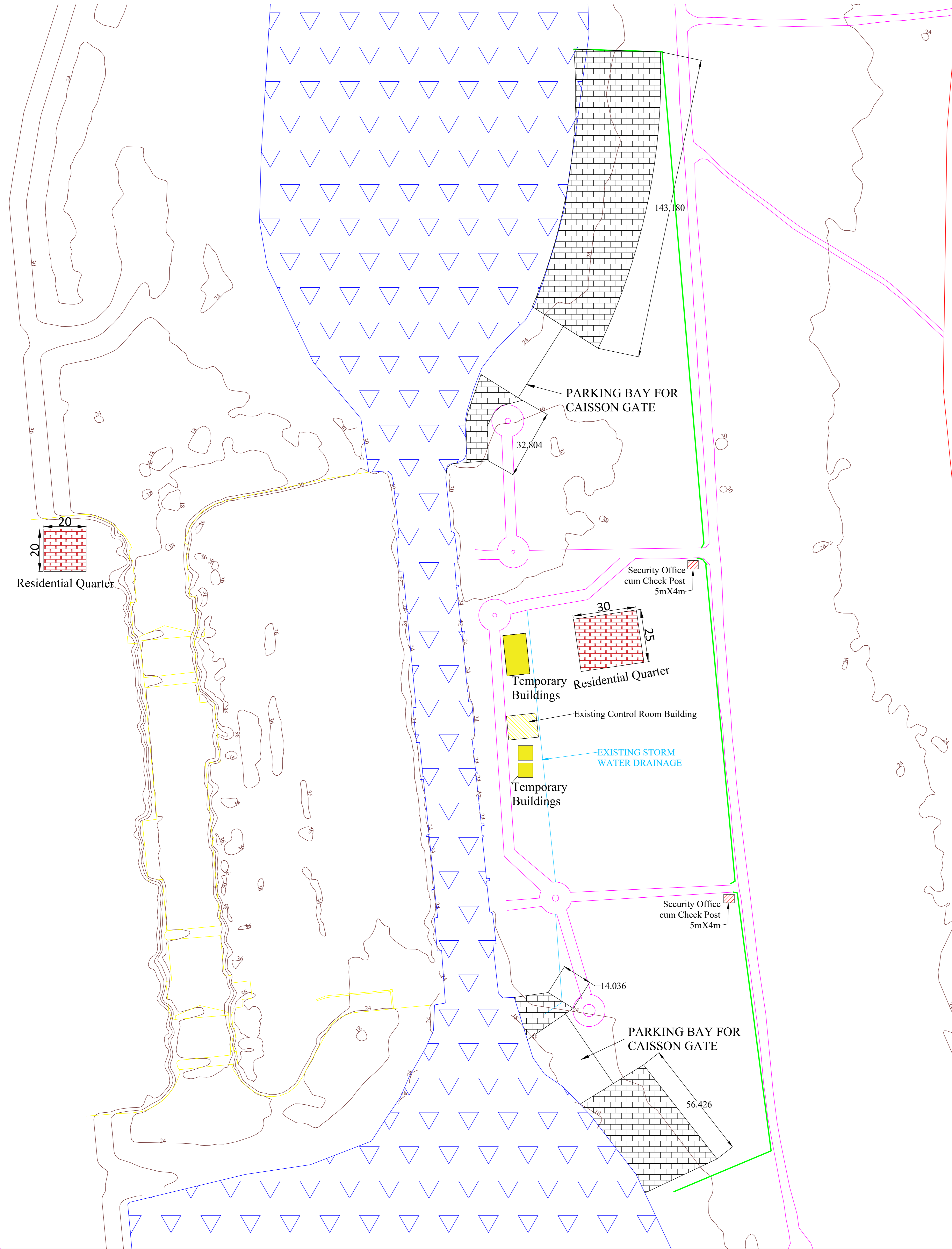
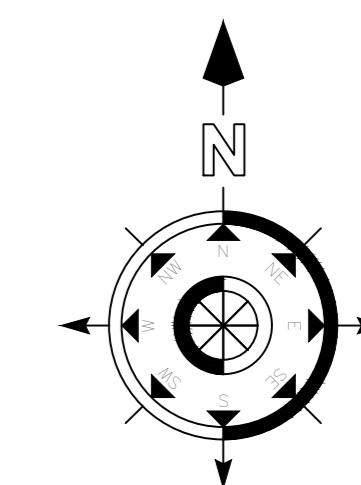
PROJECT CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR THE WORK OF RENOVATION / MODERNIZATION OF EXISTING NAVIGATION LOCK AT FARAKKA

CONSULTANT	PKS FLOODKON JV	NAME	SIGN	DATE
		DRN		
		CHD		
		APD		

TITLE **BASIC CONTROL ARCHITECTURE OF EXISTING NAVIGATION LOCK, FARAKKA**

JOB. NO. DRG. NO.
ENL012

REV.	DATE	DESCRIPTION	DRN	CHD	APD



Legends

- Contour Lines
- Roads
- Canal
- Bank Protection
- Temporary Buildings
- Residential Quarter
- Boundary Wall
- Security Office cum Check Post
- Existing Control Room Building

NOTE:

1. ALL DIMENSIONS AND ELEVATIONS ARE IN METERS, UNLESS OTHERWISE SPECIFIED.
2. NO DIMENSION SHALL BE SCALED OUT, ONLY WRITTEN DIMENSIONS ARE TO BE TAKEN AS CORRECT.

REV.	DATE	DESCRIPTION	DRN	CHD	APD

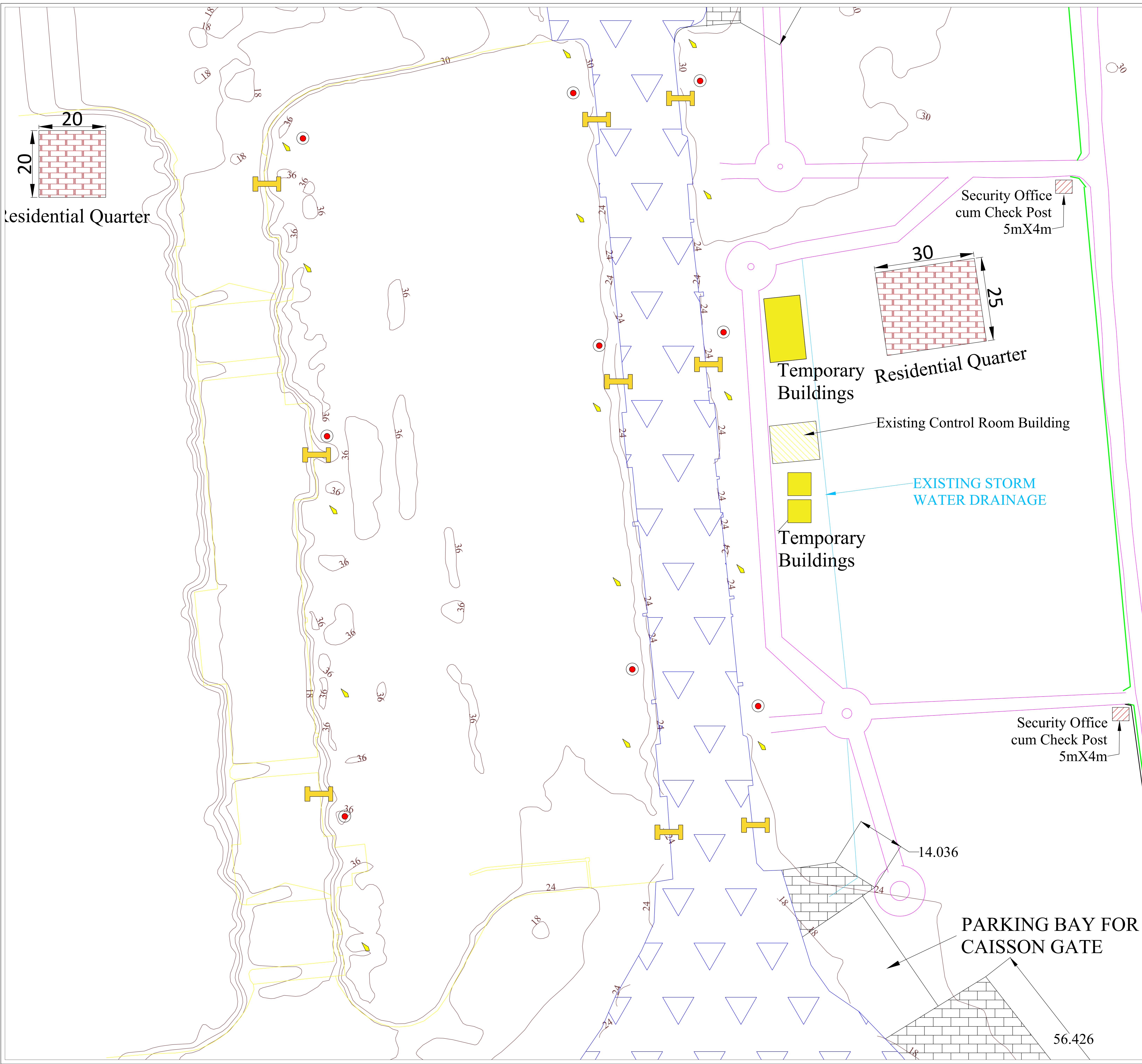
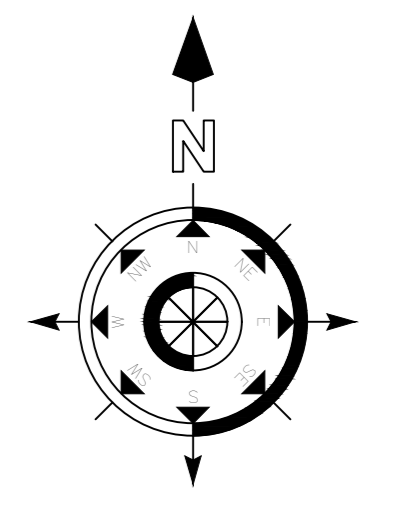
INLAND WATERWAYS AUTHORITY OF INDIA

PROJECT CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR THE WORK OF RENOVATION / MODERNIZATION OF EXISTING NAVIGATION LOCK AT FARAKKA

CONSULTANT	NAME	SIGN	DATE
PKS FLOODKON JV	DRN		
	CHD		
	APD		

TITLE GENERAL ARRANGEMENT DRAWING OF BANK PROTECTION, PARKING BAY, STORM WATER DRAINAGE AND ROAD, RETIRING AREA OF EXISTING NAVIGATION LOCK, FARAKKA

JOB. NO.	DRG. NO.
	ENL013



Legends

- Piezometer (15 N0.)
- Settlement Gauge (9 N0.)
- Inclinometer (9 No.)
- New Navigation Lock
- Contour Lines
- Roads

NOTE:

1. ALL DIMENSIONS AND ELEVATIONS ARE IN METERS, UNLESS OTHERWISE SPECIFIED.
2. NO DIMENSION SHALL BE SCALED OUT, ONLY WRITTEN DIMENSIONS ARE TO BE TAKEN AS CORRECT.

REV.	DATE	DESCRIPTION	DRN	CHD	APD

INLAND WATERWAYS AUTHORITY OF INDIA

PROJECT CONSULTANCY SERVICES FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR THE WORK OF RENOVATION / MODERNIZATION OF EXISTING NAVIGATION LOCK AT FARAKKA

CONSULTANT	NAME	SIGN	DATE
PKS FLOODKON JV	DRN		
	CHD		
	APD		
TITLE	JOB. NO.	DRG. NO.	
GENERAL LOCATION PLAN FOR MONITORING INSTRUMENTATION OF EXISTING NAVIGATION LOCK, FARAKKA		ENL014	

SIZE: A0 REV. R1

E 87°54'0"

E 87°54'20"

E 87°54'40"

N 24°49'20"

N 24°49'20"

N 24°49'0"

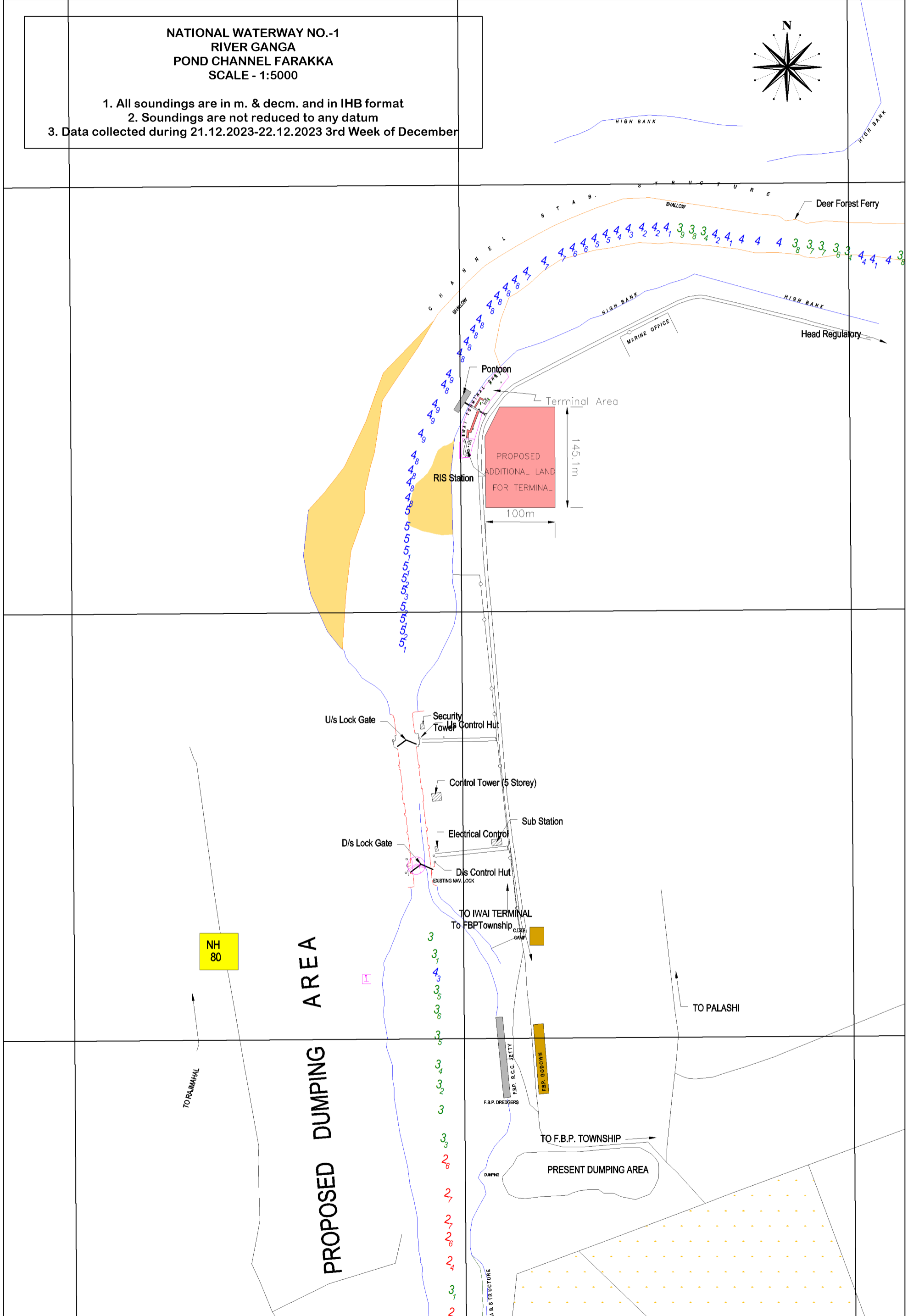
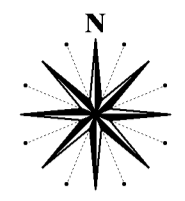
N 24°49'0"

N 24°48'40"

N 24°48'40"

NATIONAL WATERWAY NO.-1
 RIVER GANGA
 POND CHANNEL FARAKKA
 SCALE - 1:5000

1. All soundings are in m. & decm. and in IHB format
 2. Soundings are not reduced to any datum
 3. Data collected during 21.12.2023-22.12.2023 3rd Week of December



E 87°54'0"

E 87°54'20"

E 87°54'40"