


GENERAL NOTES

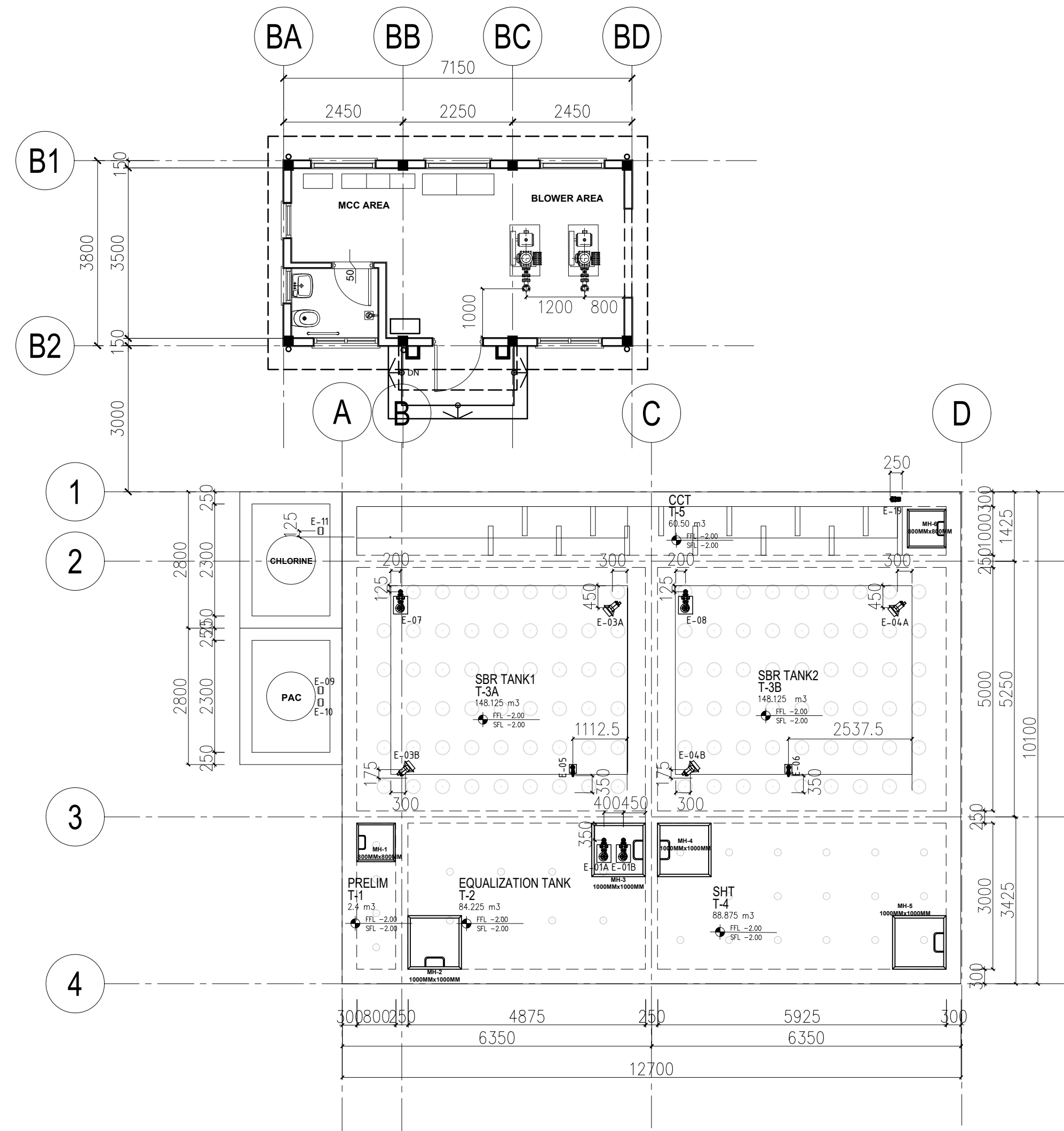
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
2. REMOVABLE RAILINGS FOR ACCESS AND EQUIPMENT MAINTENANCE SHALL BE POSITIONED UNDER THE DISCRETION OF THE CONTRACTOR ACCORDING TO SITE CONDITIONS.
3. PIPE ROUTING(S) AND EQUIPMENT LAYOUT MAY CHANGE DEPENDING ON SITE CONDITIONS; HOWEVER, CONTRACTOR SHALL ENSURE THAT PIPE ARRANGEMENT IS FULLY ABLE TO CARRY THRUST AND IS SUITABLE FOR EASE OF REPLACEMENT OF FITTINGS AND VALVE OPERATION AND MAINTENANCE.
4. ALL PIPING SHALL HAVE PROPER IDENTIFICATION (COLOR AND FLOW DIRECTION) IN ACCORDANCE TO ANSI STANDARDS.
5. FITTINGS SUCH AS ECCENTRIC REDUCERS AND CONCENTRIC INCREASERS SHALL BE INSTALLED OR REMOVED AS NEEDED BASED ON SELECTED PUMP DISCHARGE DIAMETER AND SUCTION DIAMETER. DISCHARGE PIPING SHALL BE KEPT AT LEAST ONE PIPE SIZE HIGHER THAN PUMP DISCHARGE DIAMETER.
6. AIRLINE PIPES THAT POSE A HAZARD FOR EMPLOYEES WHEN EXPOSED TO CONTACT DUE TO INCREASED TEMPERATURE SHALL BE COVERED WITH A HEAT-INSULATING MATERIAL, OR OTHERWISE PROPERLY GUARDED.
7. FLOAT SWITCHES SHALL BE ENCASED IN STILLING WELLS TO MINIMIZE MAINTENANCE.
8. PIPING CONNECTIONS SHALL BE DONE AS PER STANDARD ENGINEERING PRACTICE
9. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS AND SPECIFICATIONS AND WITH SUCH WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT.
10. AIR BLOWER IS TO BE INSTALLED WITH ALL STANDARD ACCESSORIES, SUCH AS, BUT NOT LIMITED TO:
  - SUCTION SILENCER
  - DISCHARGE SILENCER
  - FLEXIBLE CONNECTOR
  - VIBRATION ISOLATOR
  - PRESSURE GAUGE
  - RELIEF VALVE
  - DOUBLE BASE
  - MACHINE GUARD
12. SUBMERSIBLE PUMP IS TO BE INSTALLED WITH CHECK VALVE AND QUICK DISCHARGE CONNECTOR. GUIDE RAILS AND APPROPRIATE STAINLESS STEEL CHAIN MUST BE PROVIDED FOR EASE OF LIFTING.
13. ANOXIC MIXER IS TO BE INSTALLED WITH GUIDE RAILS AND APPROPRIATE STAINLESS STEEL CHAIN FOR EASE OF LIFTING.
14. CHEMICAL DOSING PUMPS ARE TO BE INSTALLED WITH FOOT VALVE WITH STRAINER.
15. CHEMICAL TANKS MUST BE TRANSLUCENT AND HAVE GRADUATION.
16. FINE BUBBLE DIFFUSERS ARE TO BE INSTALLED WITH RUBBER GROMMETS.
17. BASKET SCREEN SIZE IS TO BE APPROPRIATELY SIZED WITH THE DIMENSIONS OF THE EXISTING DRAINAGE.
18. APPROPRIATELY SIZED RUBBER GASKETS MUST BE PLACED IN ALL BOLTED PIPE CONNECTIONS.
19. SPECIFIC EQUIPMENT INSTALLATION AND MOUNTING REQUIREMENTS WILL COME FROM SUPPLIER SHOP DRAWINGS. IT IS UNDER THE CONTRACTOR'S DISCRETION TO RAISE THE EQUIPMENT INSTALLATION FOR FLOOD PROTECTION.
20. CHEMICAL TANKS MUST BE PLACED ON TOP OF A 500 LITER SPILL PALLET TO AVOID CONTAMINATION IN CASE OF TANK SPILL OR LEAK.
21. PIPE SUPPORTS (I.E. FOR AIR DISTRIBUTION PIPES) ARE TO BE FABRICATED WITH EQUAL 1 1/2 x 3/16THK S/s ANGLE BARS; AND TO BE FASTENED WITH 2" S/s U-BOLT x 5 1/2 WITH 3/8" S/s DYNABOLT.
22. PIPE SUPPORTS SHALL BE LOCATED AS NEAR AS PRACTICABLE TO CHANGES IN DIRECTION (VERTICAL OR LATERAL).
23. PIPES ARE PROVIDED WITH ENOUGH ALLOWANCE FROM TANK SURFACES TO ALLOW INSTALLATION OF PIPE SUPPORTS. THESE ALLOWANCES CAN BE ADJUSTED. DEPENDING ON SITE CONDITIONS, UNDER THE DISCRETION OF THE CONTRACTOR PROVIDED THAT THE PIPE SUPPORTS ARE ADJUSTED AS WELL.
24. PIPES ARE TO BE PAINTED ACCORDING TO DOLE OSHS RULE 1230. IDENTIFICATION OF PIPING SYSTEM:
  - RAW WASTE WATER: BLACK
  - SLUDGE: BLACK
  - TREATED WATER: GREEN
  - COMPRESSED AIR: LIGHT BLUE
  - CHEMICAL: VIOLET
  - ODOR CONTROL: YELLOW
25. FLEXIBLE CONNECTOR ALL NUTS & BOLTS ARE TO BE FASTENED WITH APPROPRIATE WASHERS.

ASSET TAGGING

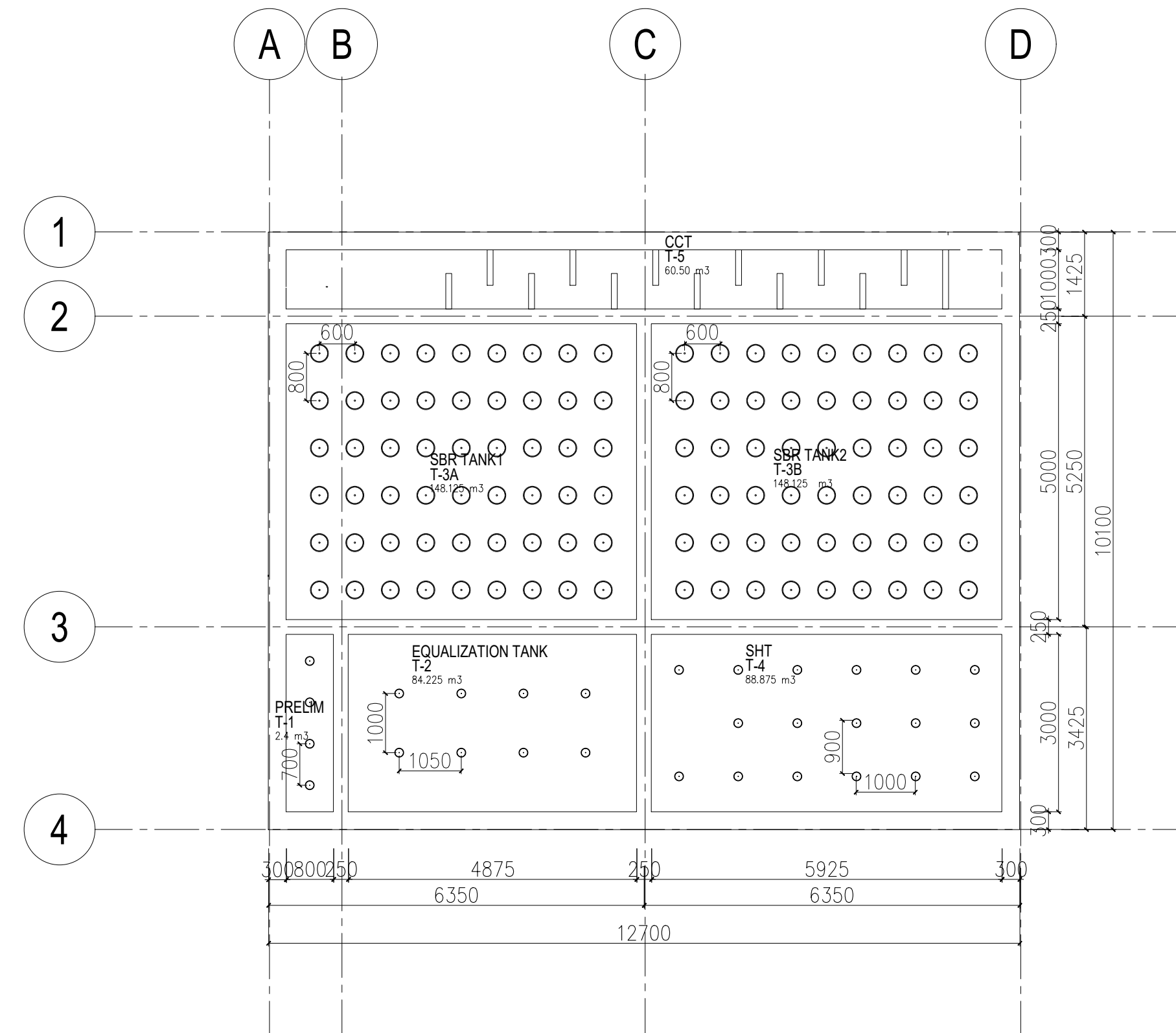
1. EQUIPMENT ARE TAGGED AS FOLLOWS:
  - E-01A EQT PUMP A
  - E-01B EQT PUMP B
  - E-02A AIR BLOWER A
  - E-02B AIR BLOWER B
  - E-03A ANOXIC MIXER 1A (SBR-1)
  - E-03B ANOXIC MIXER 1B (SBR-1)
  - E-04A ANOXIC MIXER 2A (SBR-2)
  - E-04B ANOXIC MIXER 2B (SBR-2)
  - E-05 WAS PUMP 1
  - E-06 WAS PUMP 2
  - E-7 DECANTING PUMP 1
  - E-8 DECANTING PUMP 2
  - E-9 PAC DOSING PUMP 1
  - E-10 PAC DOSING PUMP 2
  - E-11 CHLORINE DOSING PUMP
  - E-12 EQT 4-INCH COARSE BUBBLE DIFFUSERS
  - E-13 SHT 4-INCH COARSE BUBBLE DIFFUSERS
  - E-14 SBR-1 12-INCH FINE BUBBLE DIFFUSERS
  - E-15 SBR-2 12-INCH FINE BUBBLE DIFFUSERS
  - E-16 MANUAL BASKET SCREEN
  - E-17 RAW SEWAGE PUMP
  - E-18 PRELIM 4-INCH COARSE BUBBLE DIFFUSERS
  - E-19 REUSE WATER PUMP
2. VALVES ARE TAGGED AS FOLLOWS:
  - V-1A EQT PUMP A NON-RETURN VALVE (NRV)
  - V-1B EQT PUMP B NRV
  - V-2A EQT PUMP RAW SEWAGE MOTORIZED VALVE A
  - V-2B EQT PUMP RAW SEWAGE MOTORIZED VALVE B
  - V-3 EQT AIR LINE BUTTERFLY VALVE
  - V-4 SHT AIR LINE BUTTEFLY VALVE
  - V-5 SBR-1 AIR LINE MOTORIZED VALVE
  - V-6 SBR-2 AIR LINE MOTORIZED VALVE
  - V-7A COMBINED BLOWER A NRV
  - V-7B COMBINED BLOWER B NRV
  - V-8 WAS PUMP 1 NRV
  - V-9 WAS PUMP 2 NRV
  - V-10 DECANTING PUMP 1 NRV
  - V-11 DECANTING PUMP 2 NRV
  - V-12 PAC DOSING PUMP 1 NRV
  - V-13 PAC DOSING PUMP 2 NRV
  - V-14 CHLORINE DOSING PUMP NRV
  - V-15 EQT PUMP ISOLATION VALVE
  - V-16 RAW SEWAGE PUMP NRV
  - V-17 PRELIM AIR LINE BUTTERFLY VALVE
  - V-18 REUSE WATER PUMP FLOW REGULATION VALVE
  - V-19 REUSE WATER PUMP FOOT VALVE
  - V-20 DECANTING PUMP 1 FLOW REGULATION VALVE
  - V-21 DECANTING PUMP 2 FLOW REGULATION VALVE
3. PIPES ARE LABELED USING THE FOLLOWING CONVENTION:
  - <FLUID>-<NOMINAL SIZE IN MM>-<MATERIAL>
  - 3.1. TYPES OF FLUID ARE: RAW (RAW WASTE WATER); SLG (SLUDGE); AIR (COMPRESSED AIR) TW (PARTIALLY OR FULLY TREATED WATER); CHE (CHEMICAL)
  - 3.2. TYPES OF PIPE MATERIAL ARE: BI (BLACK IRON); PVC (PVC GRAY)

	UNIT 307, ECG BUILDING, GENERAL AVENUE TANDANG SORA, QUEZON CITY 1116 MM	<b>DESIGN ENGINEER:</b>	<b>PROJECT:</b>	<b>CLIENT:</b>	<b>REVISIONS:</b>	<b>CONTRACT NO.:</b> WW-22-JHMC-05	<b>STAGE:</b> DETAILED DESIGN																
	SERVICES OFFERED: PLANT DESIGN PLUMBING WORKS STRUCTURAL DESIGN ENGINEERING DESIGN AND REVIEW EQUIPMENT AND MATERIAL SELECTION ELECTRICAL DESIGN & CALCULATIONS	<b>ENGINEER'S NAME</b>	<b>JHMC WASTE WATER TREATMENT PLANT</b>			<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">NO.</th> <th style="width: 85%;">DESCRIPTION</th> <th style="width: 10%;">DATE</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0</td> <td>ORIGINAL ISSUE</td> <td style="text-align: center;">-</td> </tr> <tr> <td style="text-align: center;">1.1</td> <td></td> <td style="text-align: center;">-</td> </tr> <tr> <td style="text-align: center;">1.2</td> <td></td> <td style="text-align: center;">-</td> </tr> <tr> <td style="text-align: center;">1</td> <td></td> <td style="text-align: center;">-</td> </tr> </tbody> </table>	NO.	DESCRIPTION	DATE	0	ORIGINAL ISSUE	-	1.1		-	1.2		-	1		-	<b>SHEET CONTENTS:</b>	SHEET NO.
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1 EQUIPMENT LAYOUT  
M-02 PLAN SCALE 1:100



2 DIFFUSER LAYOUT  
M-02 PLAN SCALE 1:100



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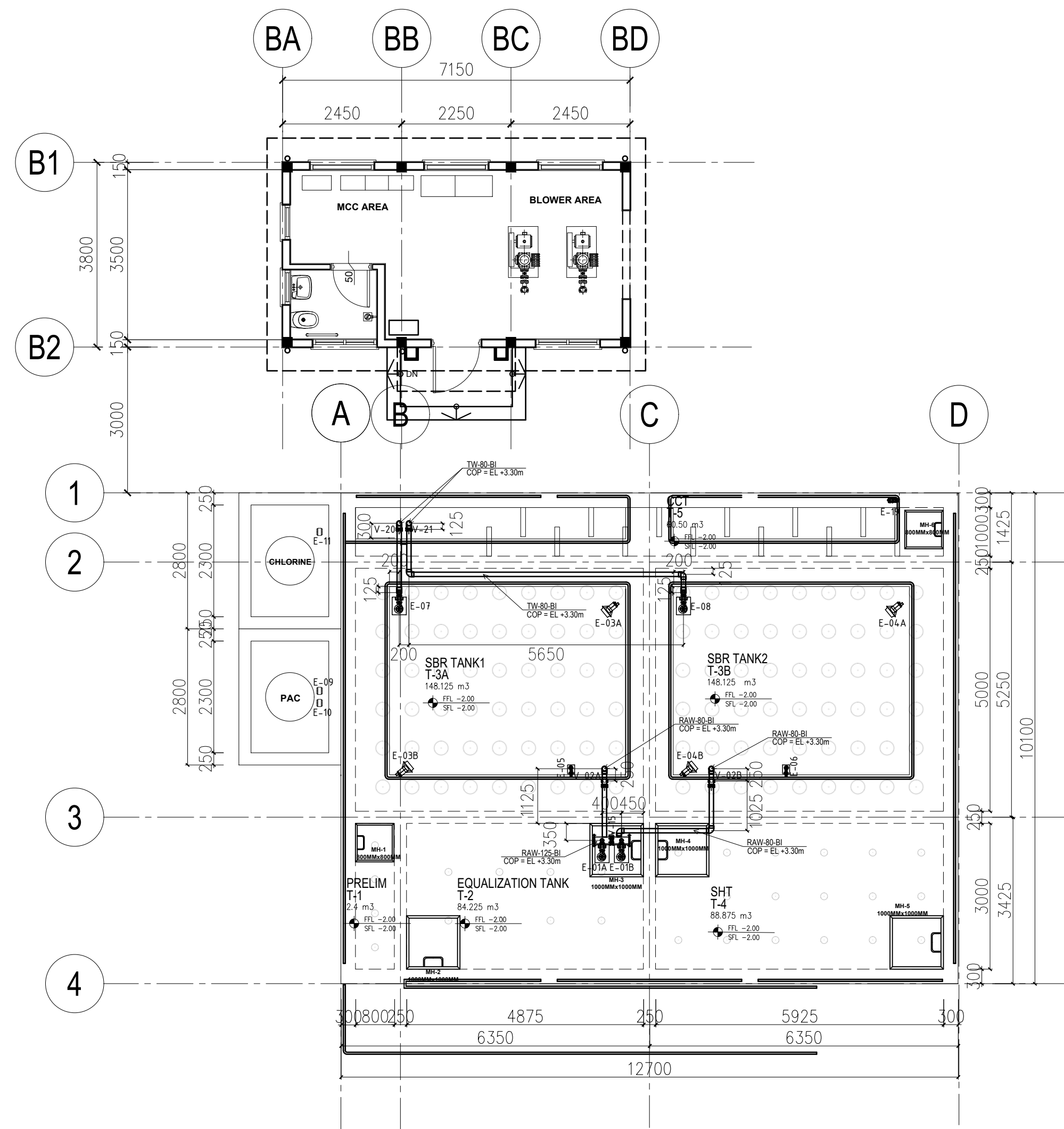
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ADDRESS:	CAMP JOHN HAY, BAGUIO

CLIENT:	CLIENT'S NAME
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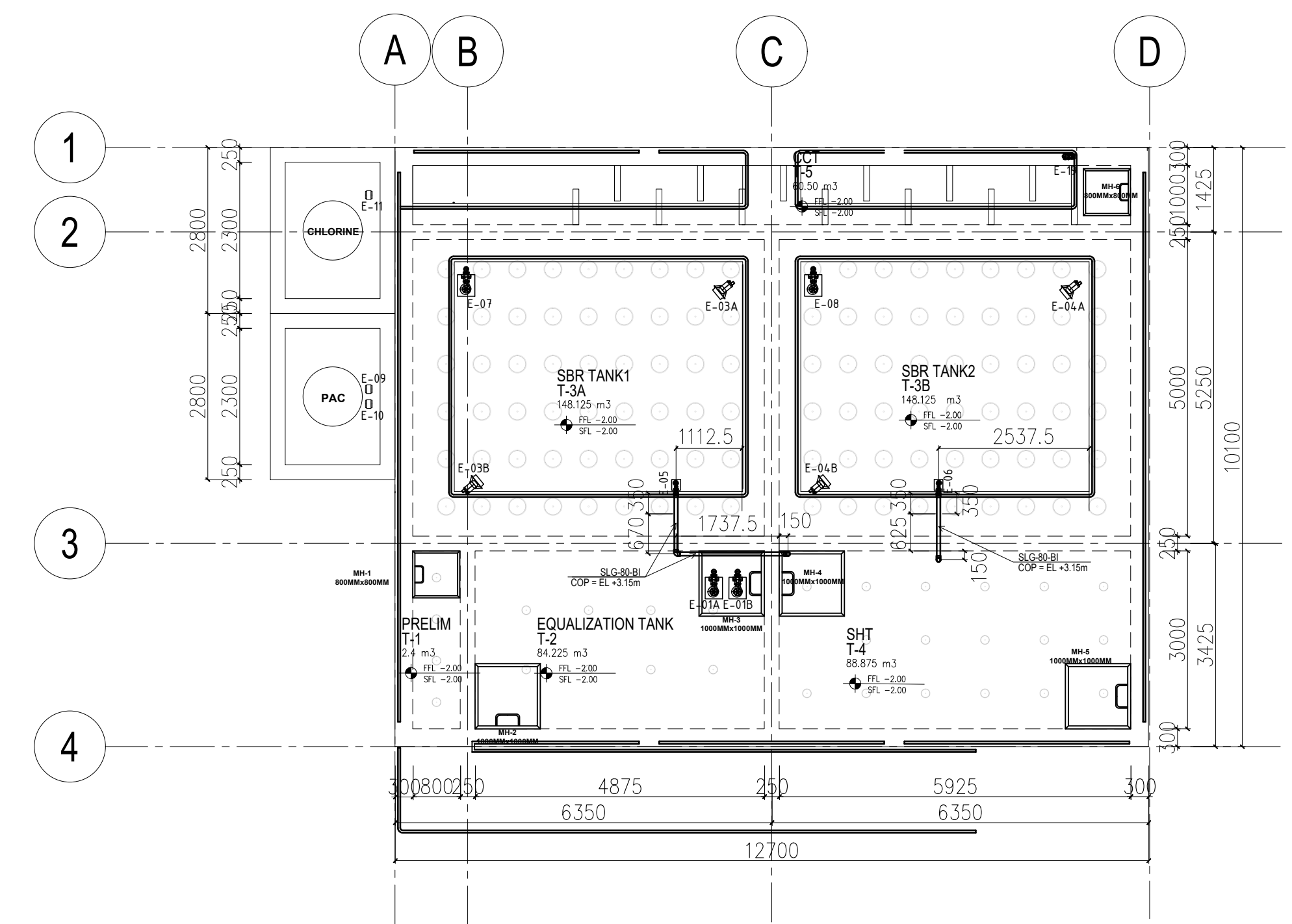
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DIFFUSER LAYOUT			
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**1 EQT & DECANTING PUMPS PIPING LAYOUT**  
 M-03 PLAN SCALE 1:100



**2 WAS PUMPS PIPING LAYOUT**  
 M-03 PLAN SCALE 1:100



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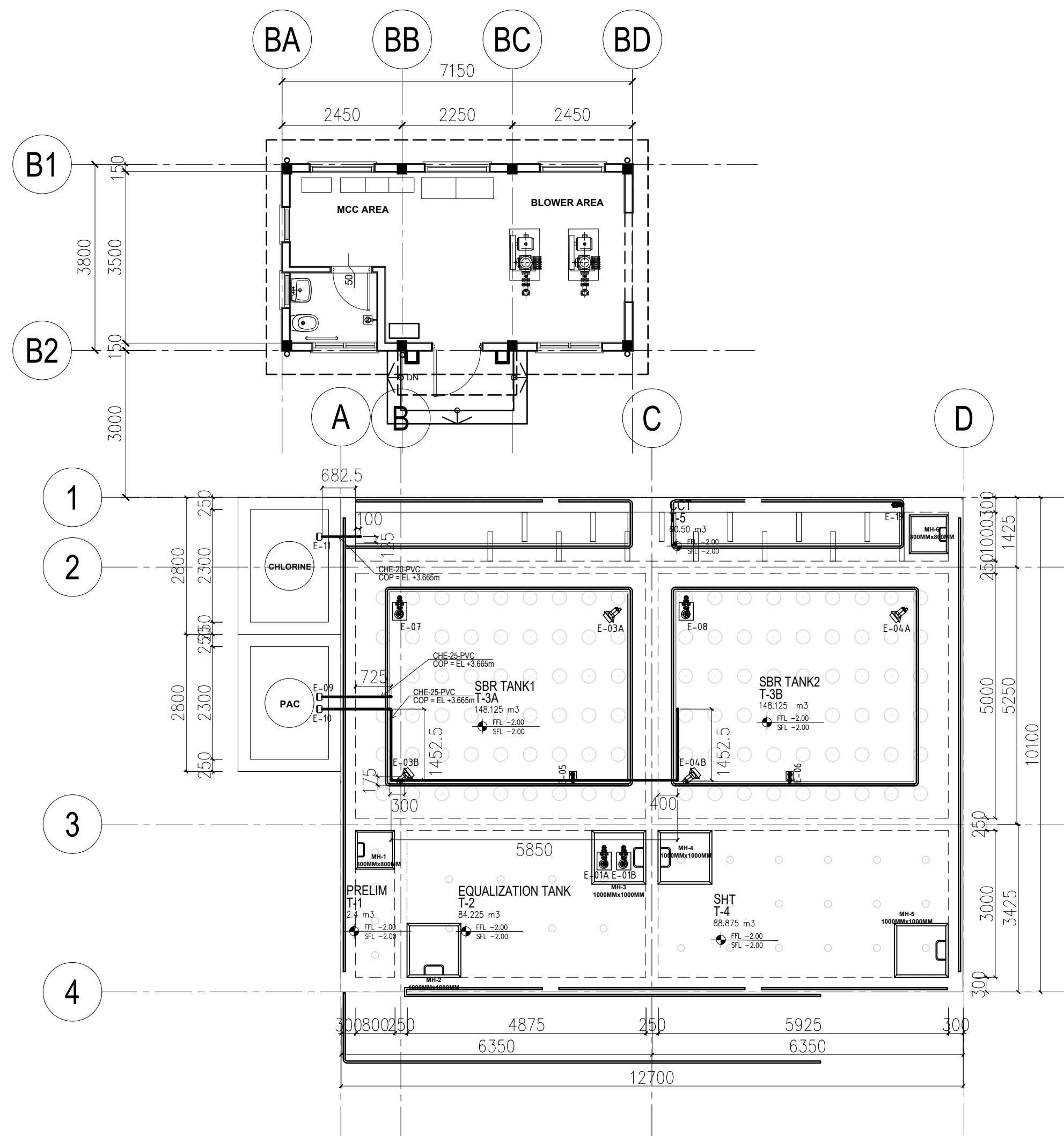
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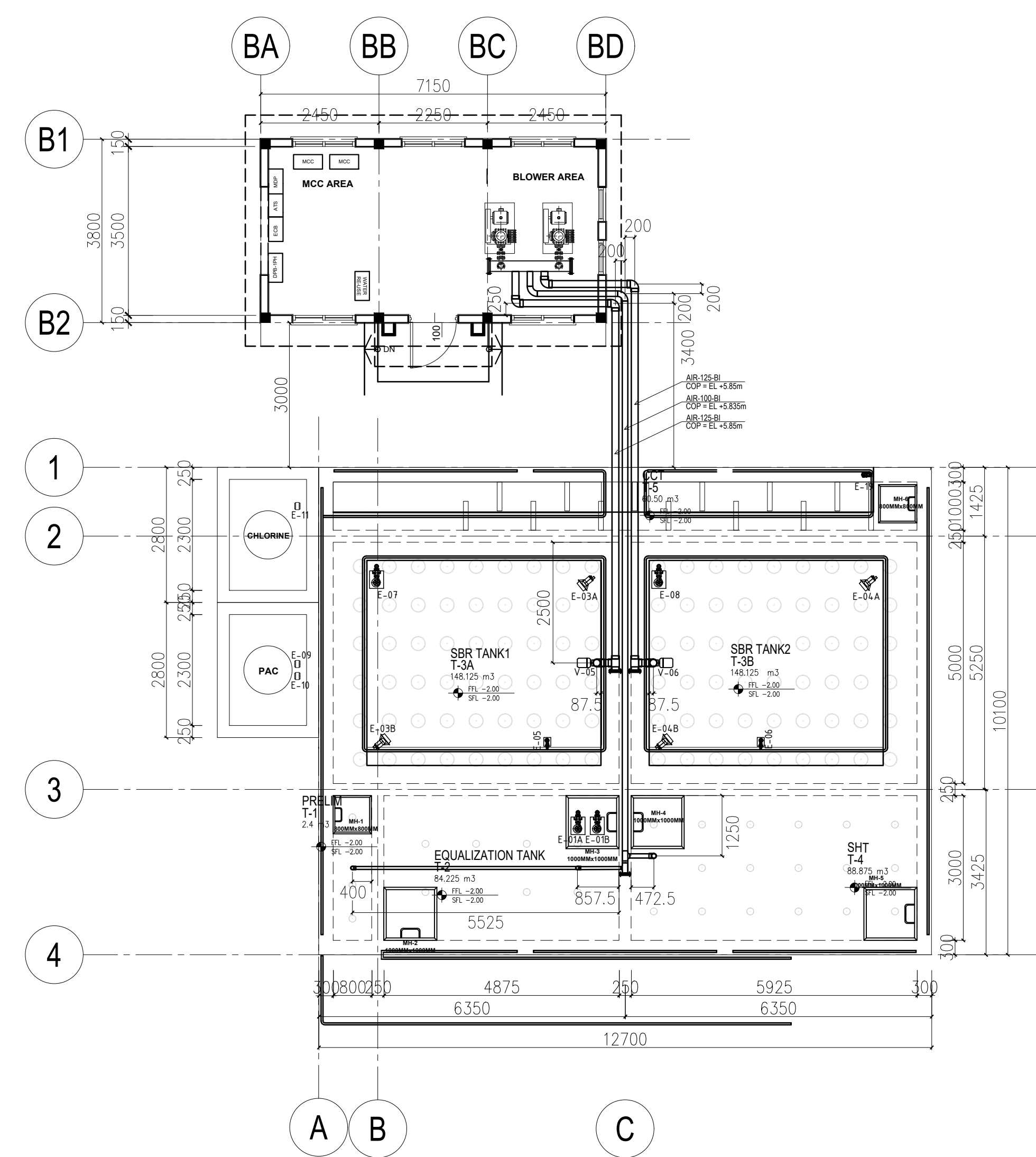
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 WAS PUMPS PIPING LAYOUT  
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**1 CHEMICAL PIPING LAYOUT**  
M-04 PLAN SCALE 1:100



**2 AIR PIPING LAYOUT**  
M-04 PLAN SCALE 1:100



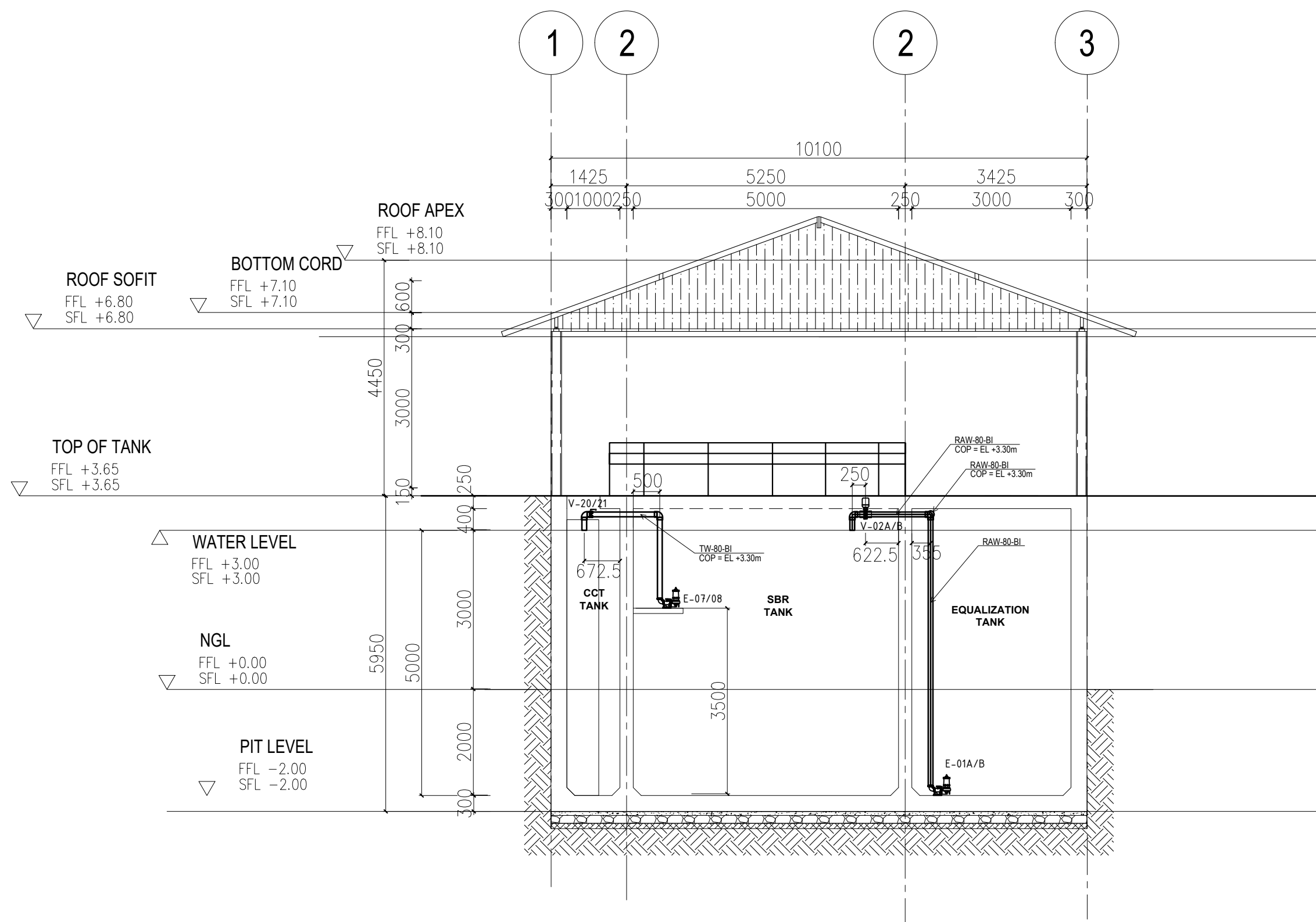
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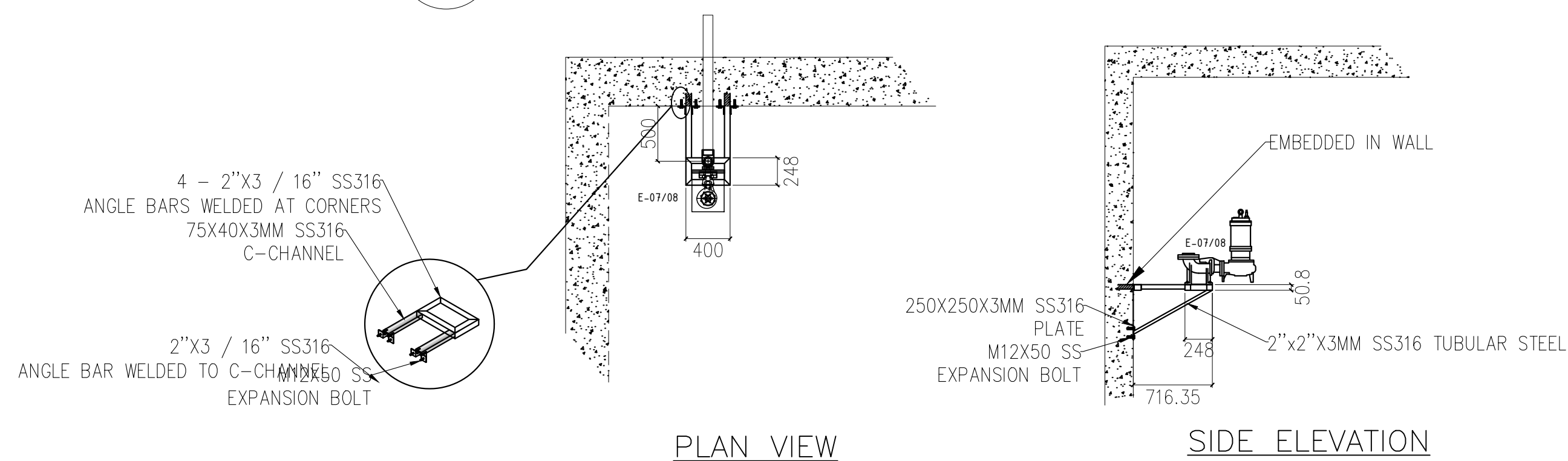
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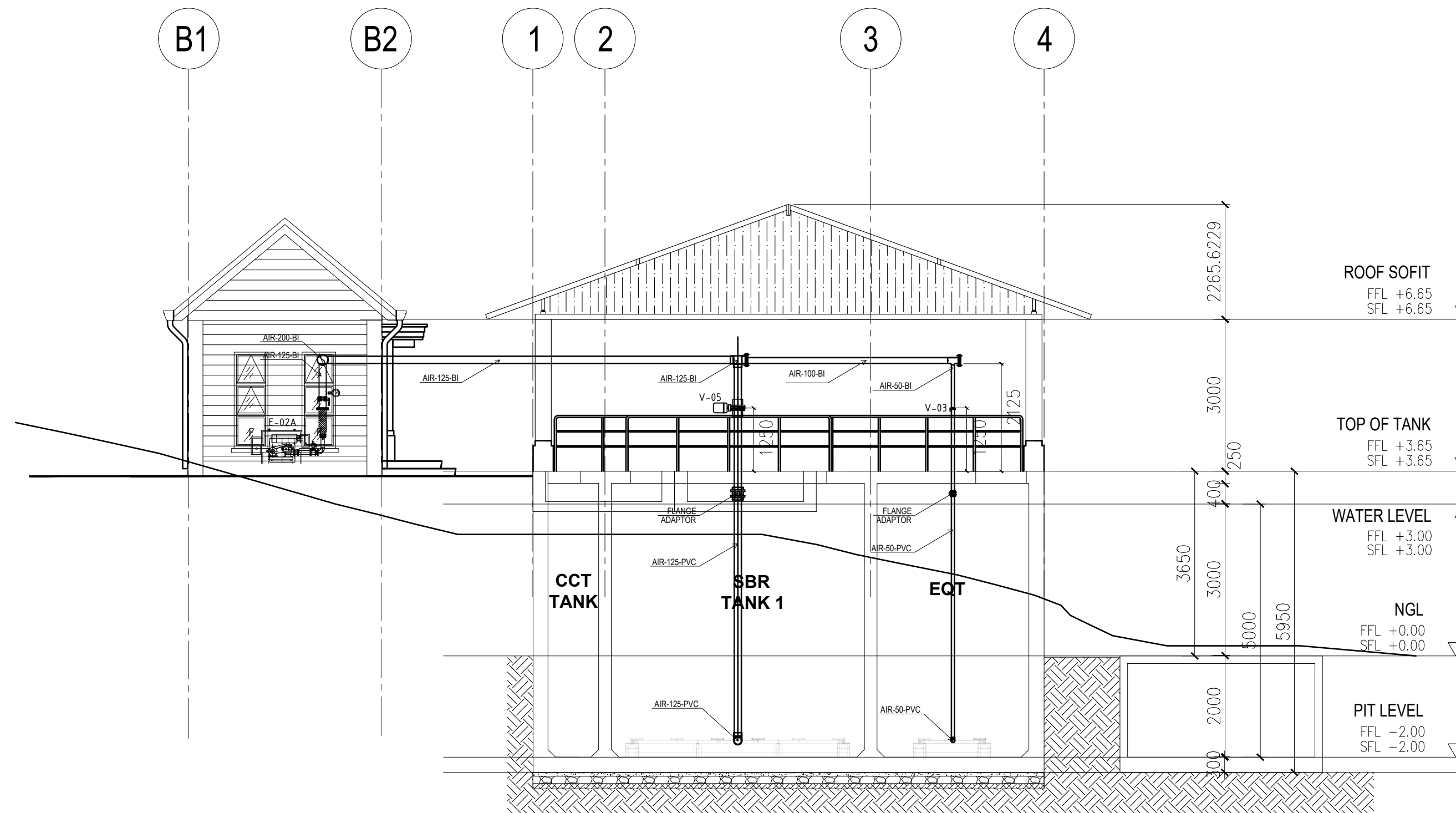
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1 EQT & DECANTING PUMPS SECTION  
M-05 SEC SCALE 1:100



2 DECANTING PUMP PLATFORM DETAIL  
M-05 PLAN NTS



3 COMBINED BLOWER SECTION  
M-05 SEC SCALE 1:100



UNIT 307, ECG BUILDING, GENERAL AVENUE  
TANDANG SORA, QUEZON CITY 1116 MM

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PLANT DESIGN  
PLUMBING WORKS  
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JHMC WASTE WATER  
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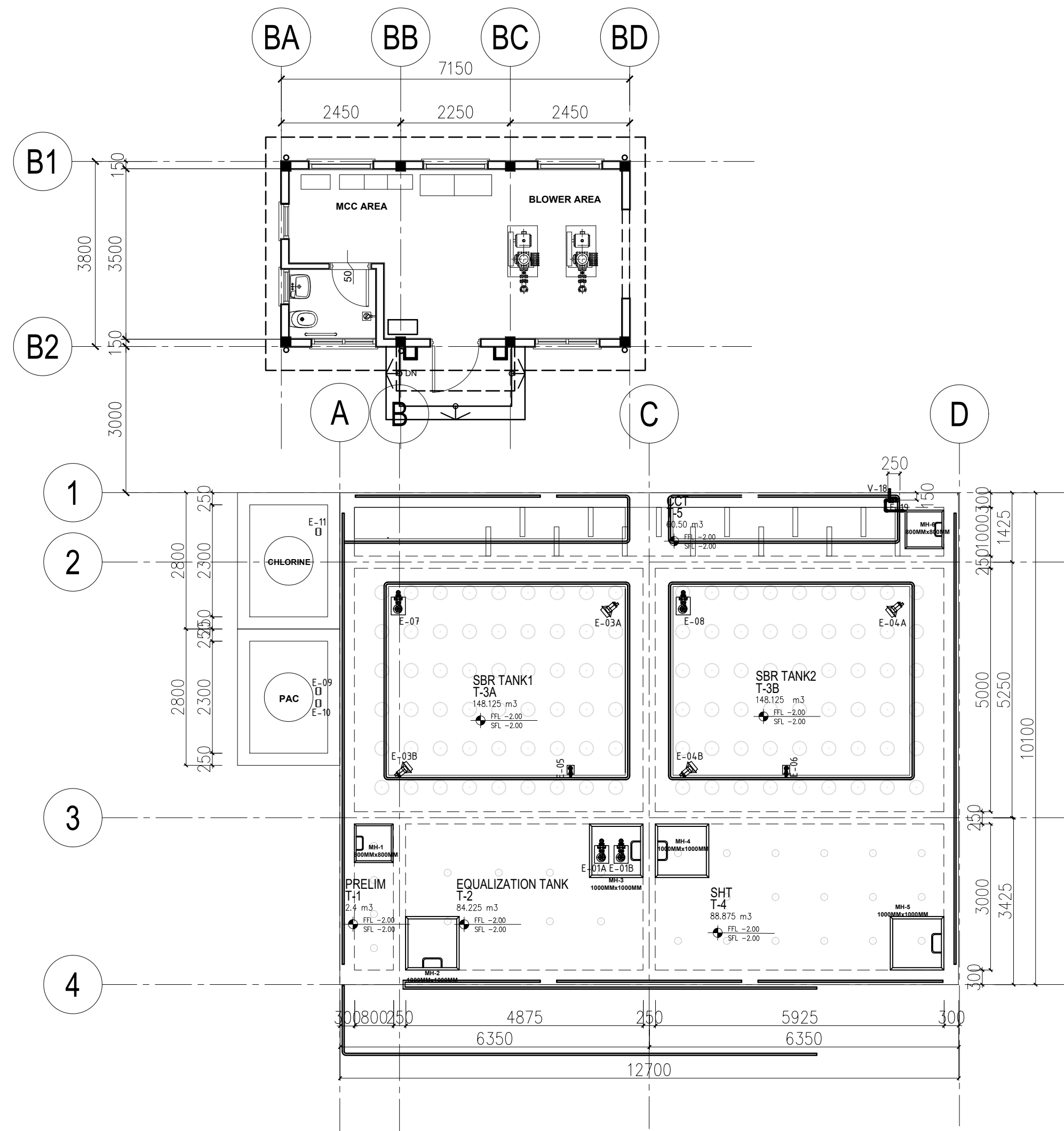
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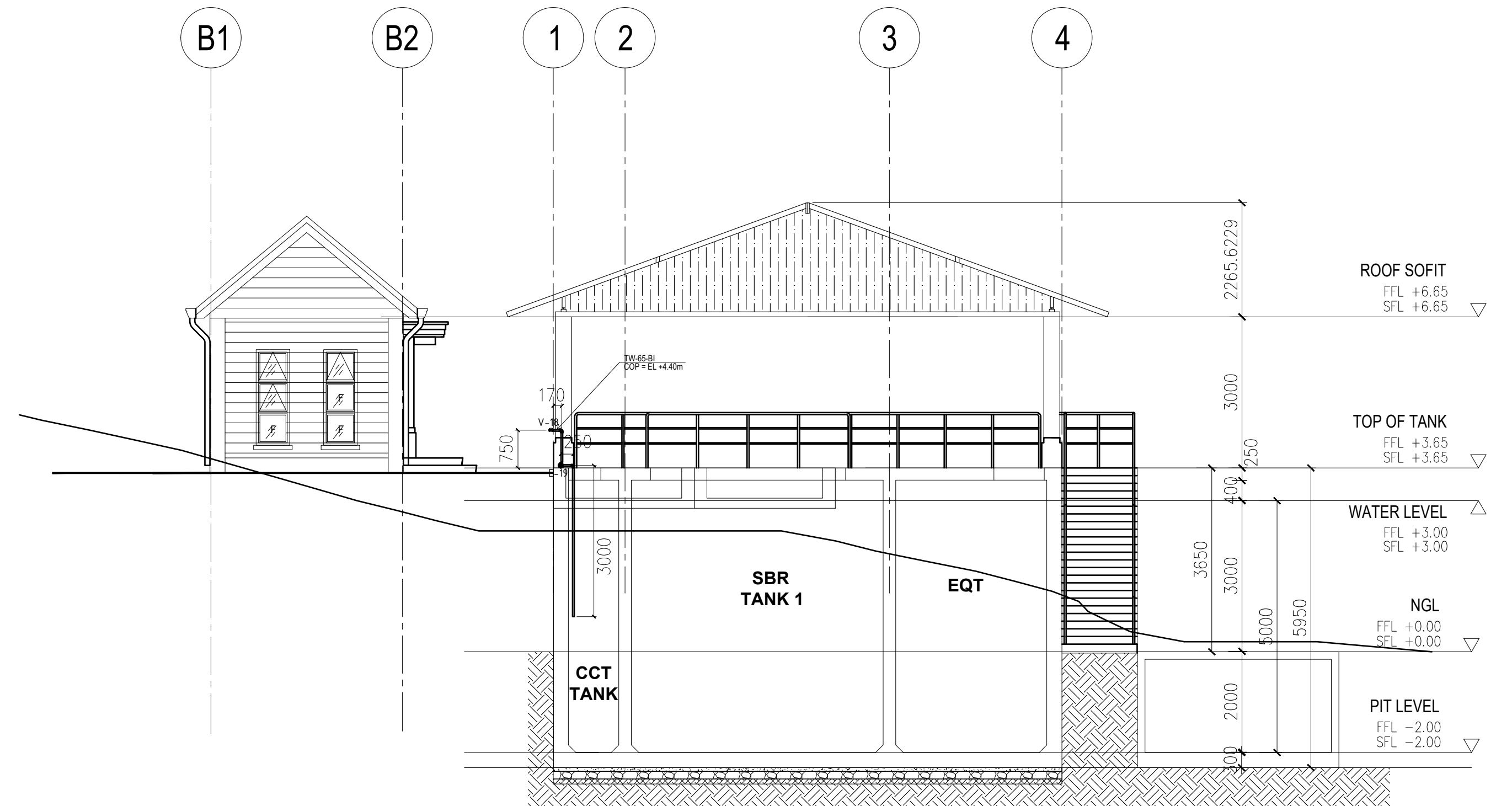
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**1 REUSE WATER PIPING LAYOUT**  
M-06 PLAN SCALE 1:100



**2 REUSE WATER SECTION**  
M-06 SEC SCALE 1:100



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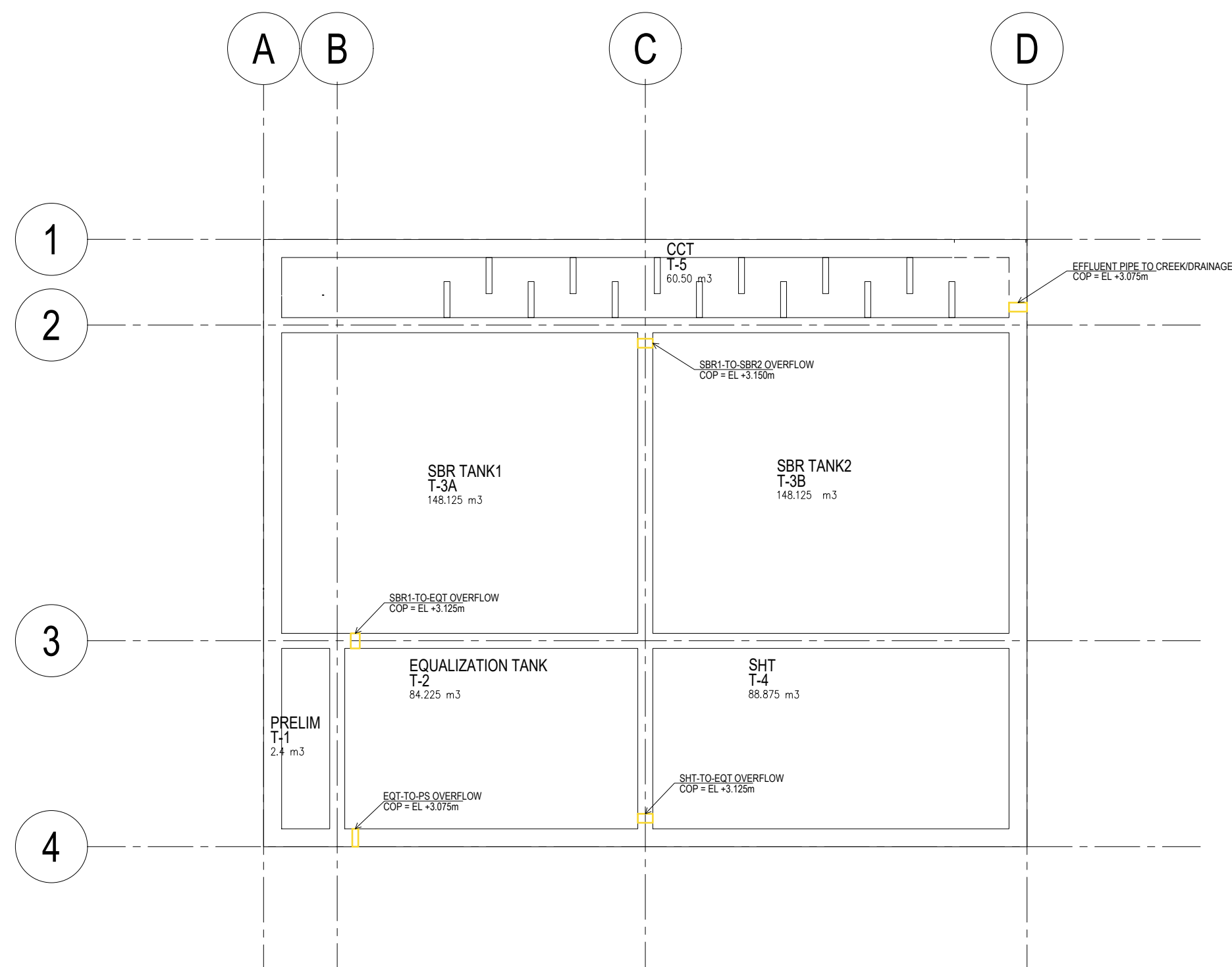
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REUSE WATER PIPING LAYOUT  
REUSE WATER SECTION

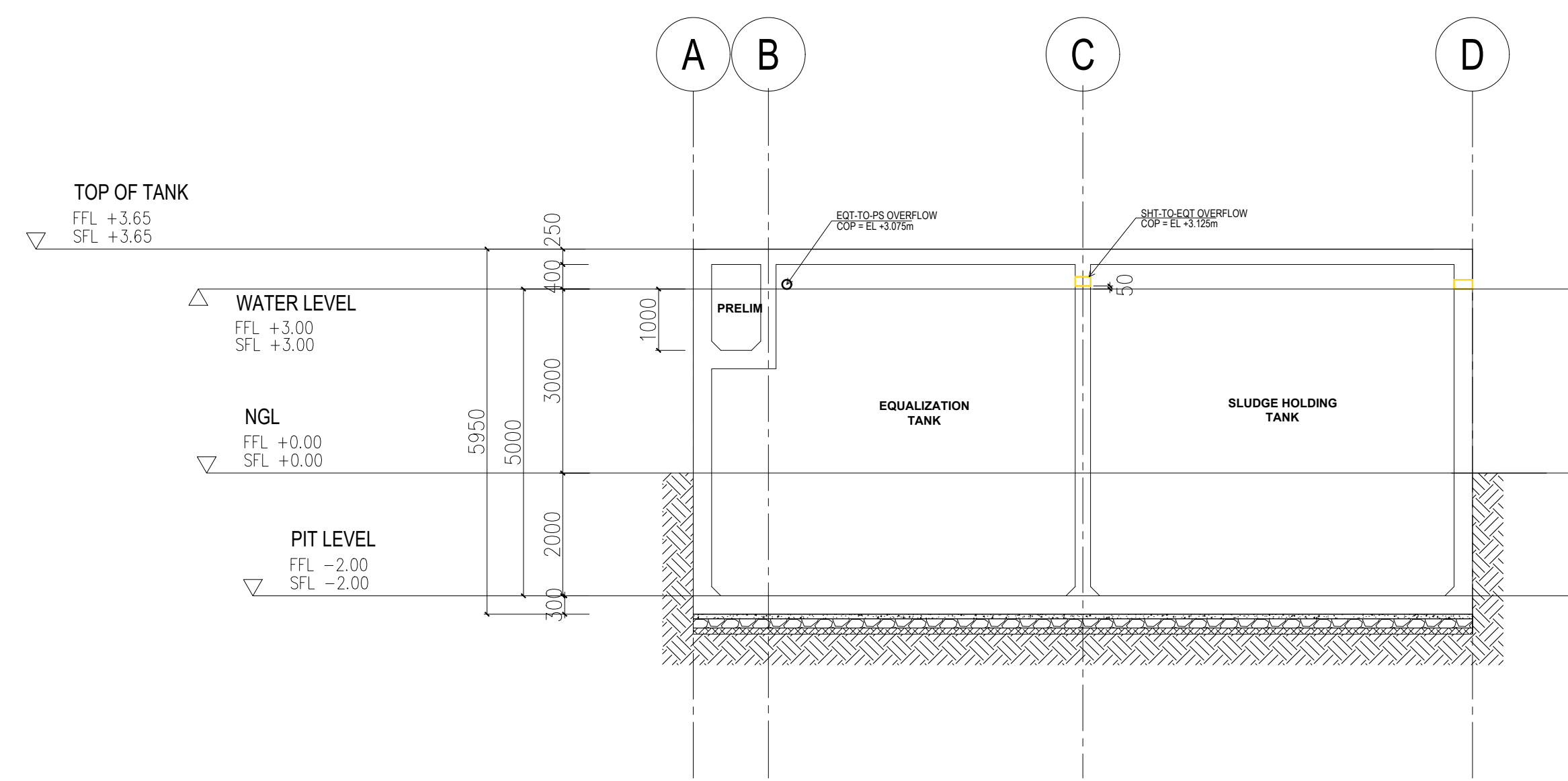
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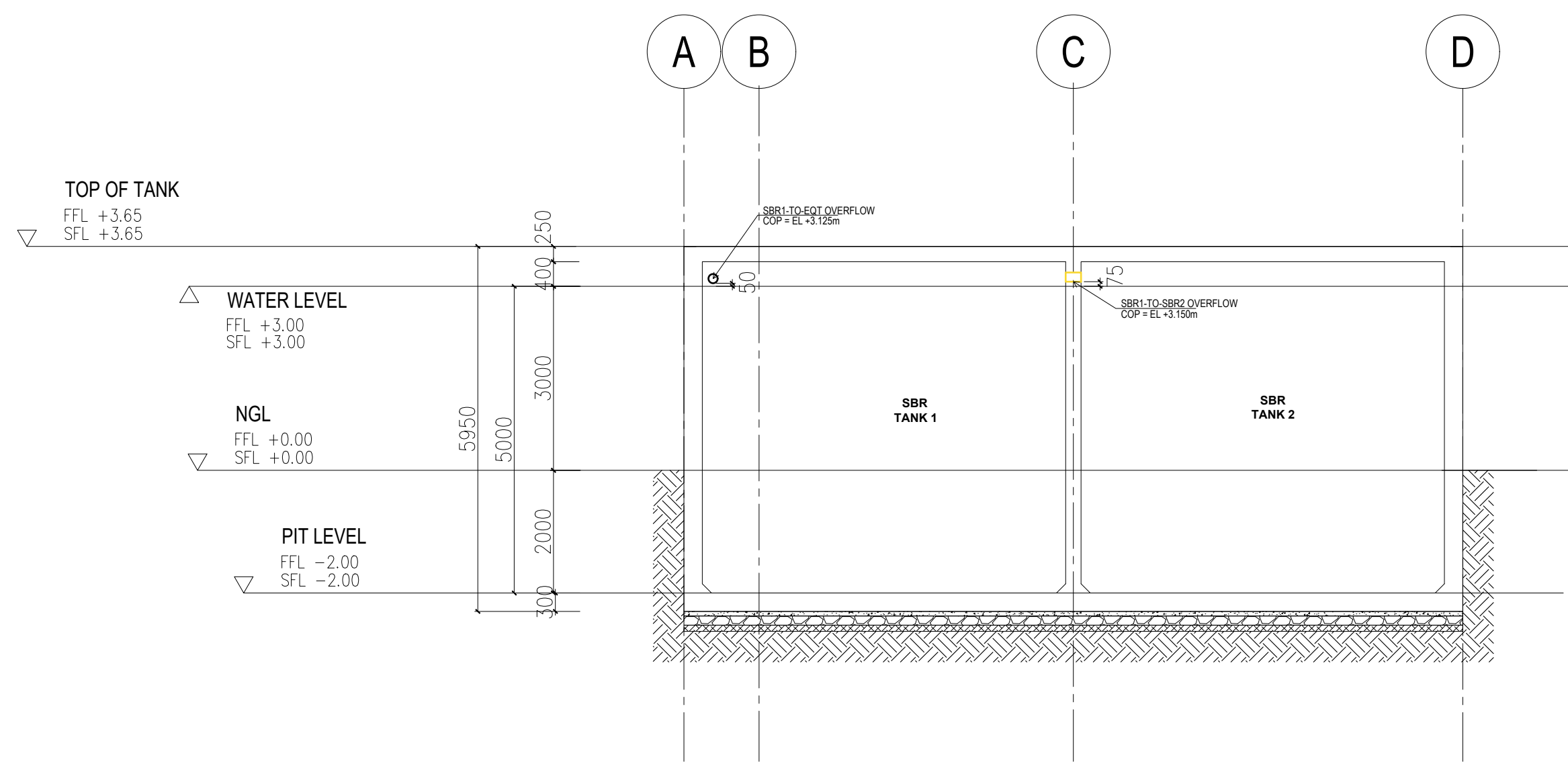
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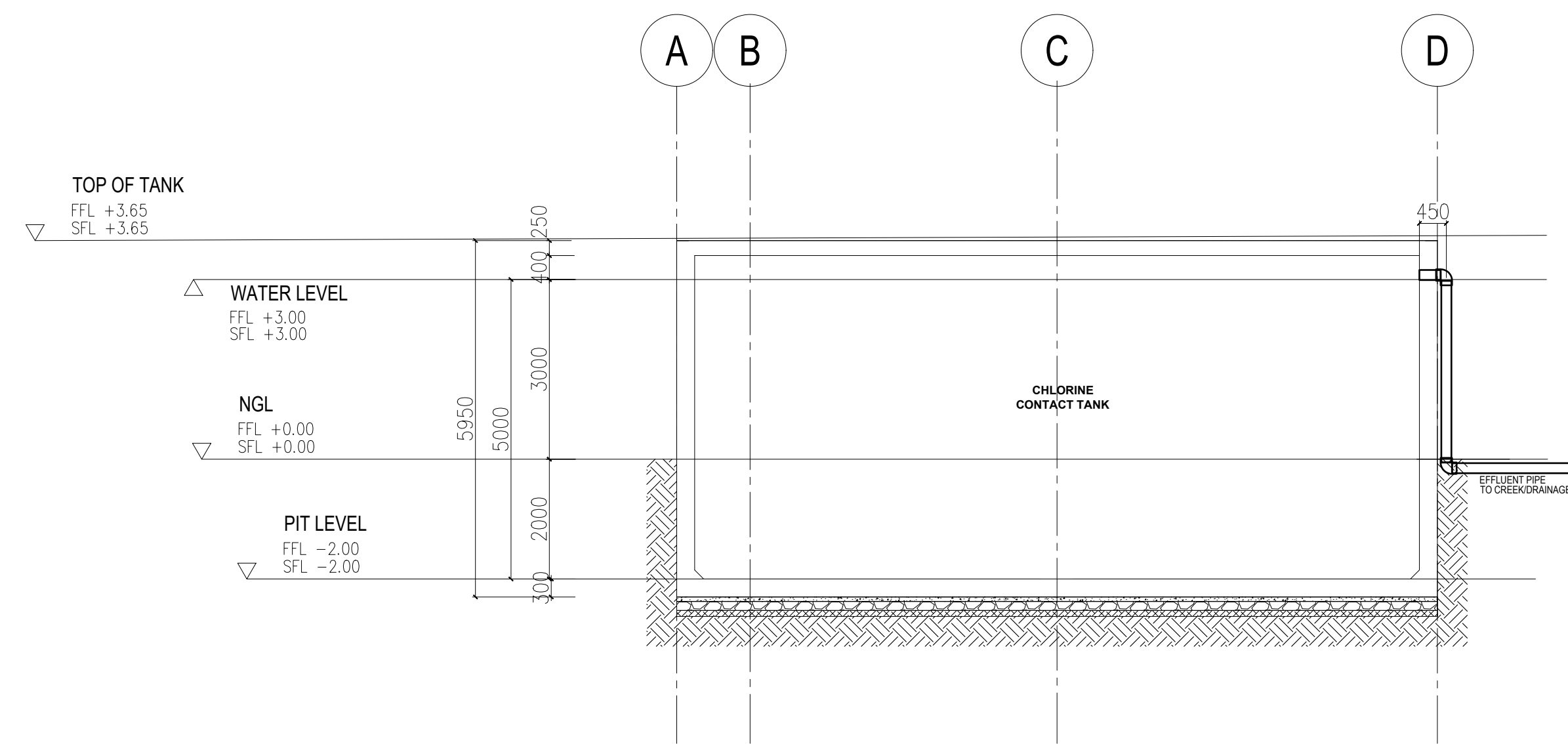
**1 OVERFLOW PIPING LAYOUT**  
M-07 PLAN SCALE 1:100



**2 OVERFLOW DETAIL THRU '4'**  
M-07 SEC SCALE 1:100



**3 OVERFLOW DETAIL THRU '3'**  
M-07 SEC SCALE 1:100



**4 OVERFLOW DETAIL THRU '2'**  
M-07 SEC SCALE 1:100



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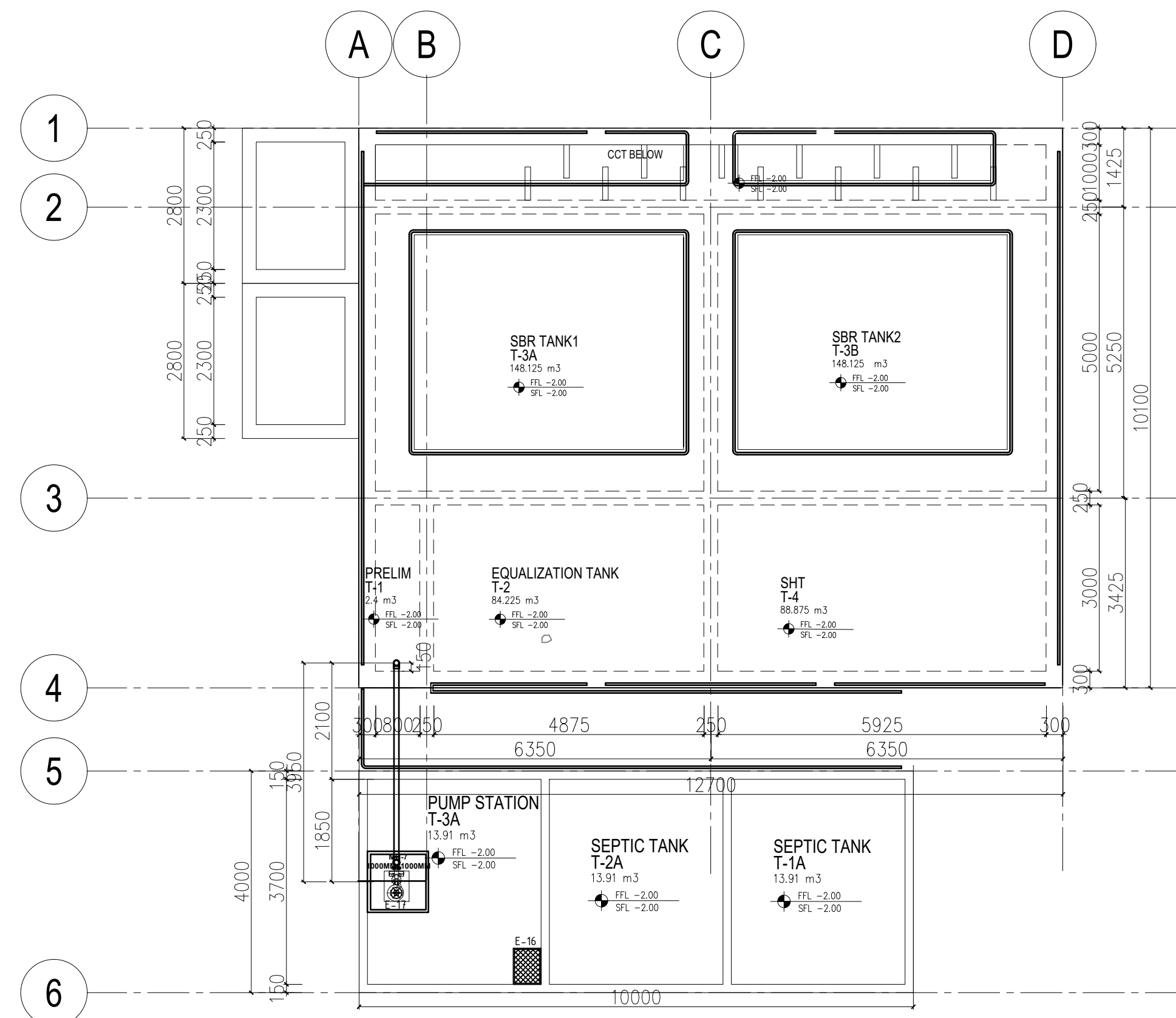
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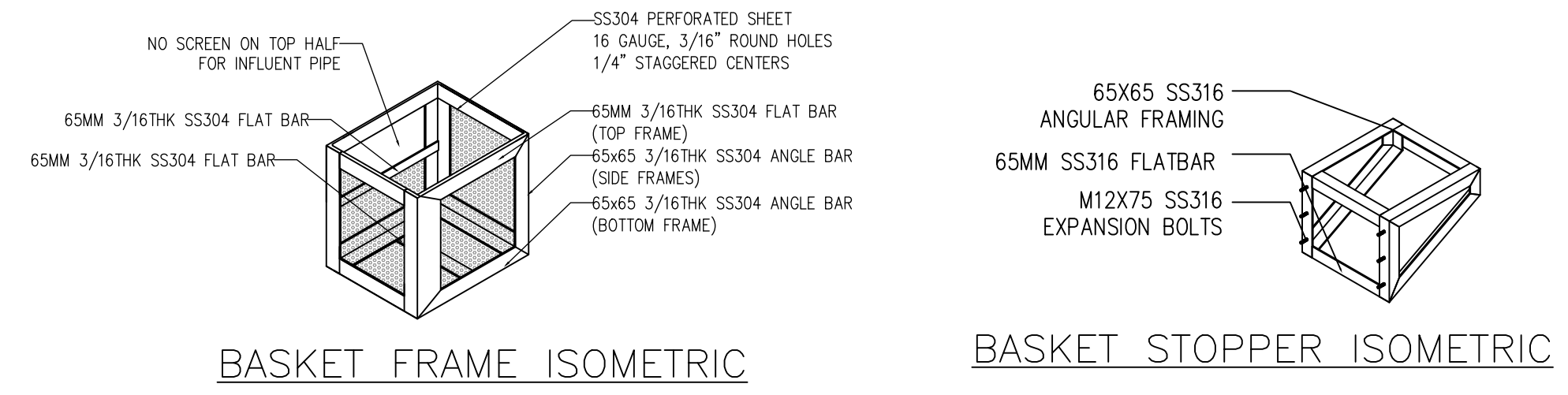
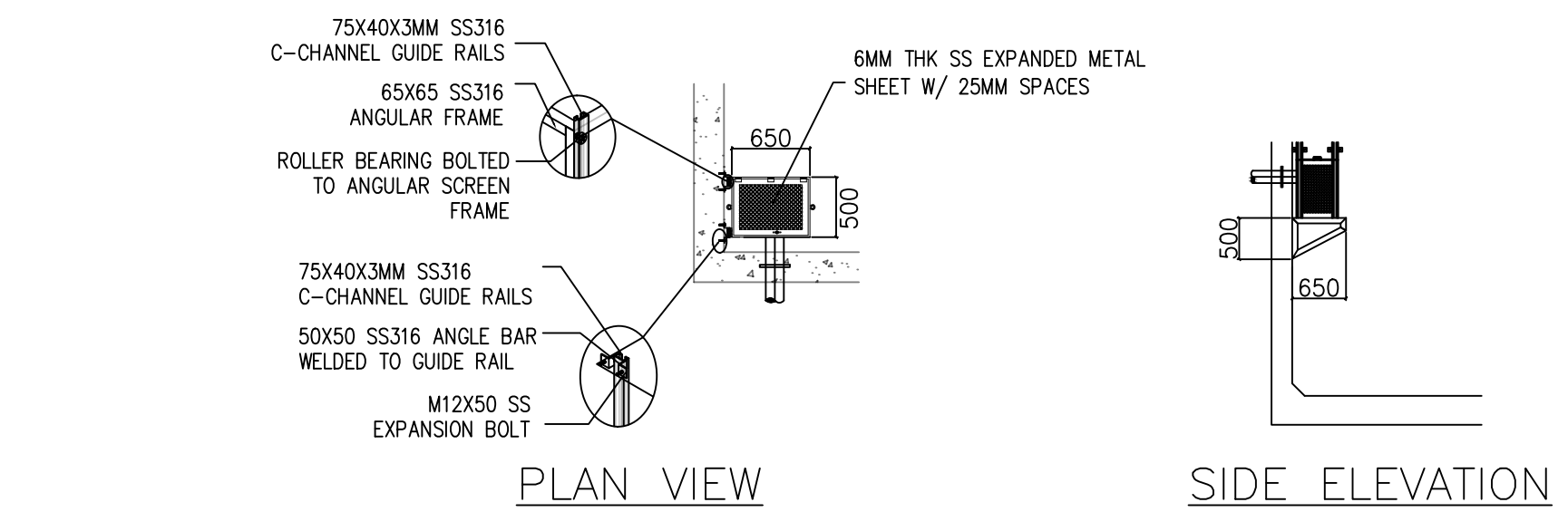
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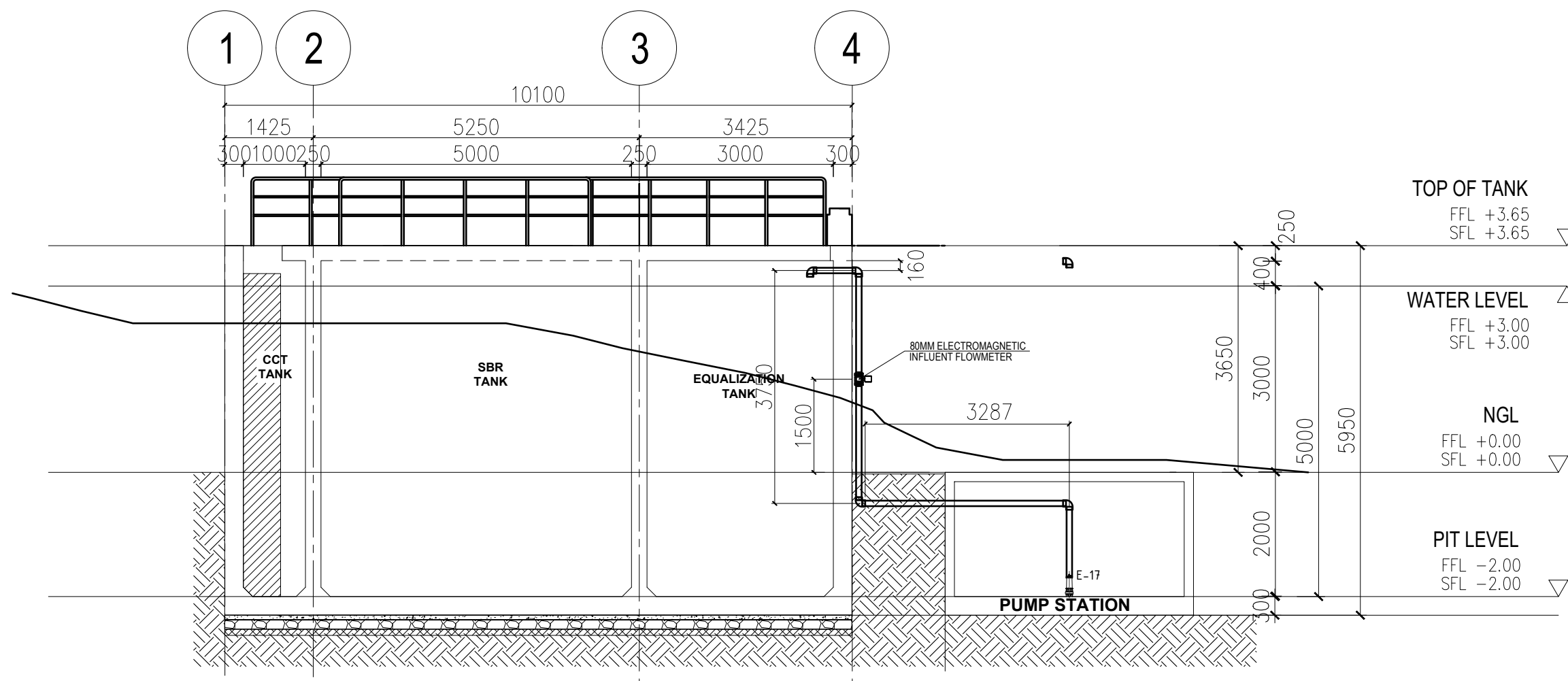
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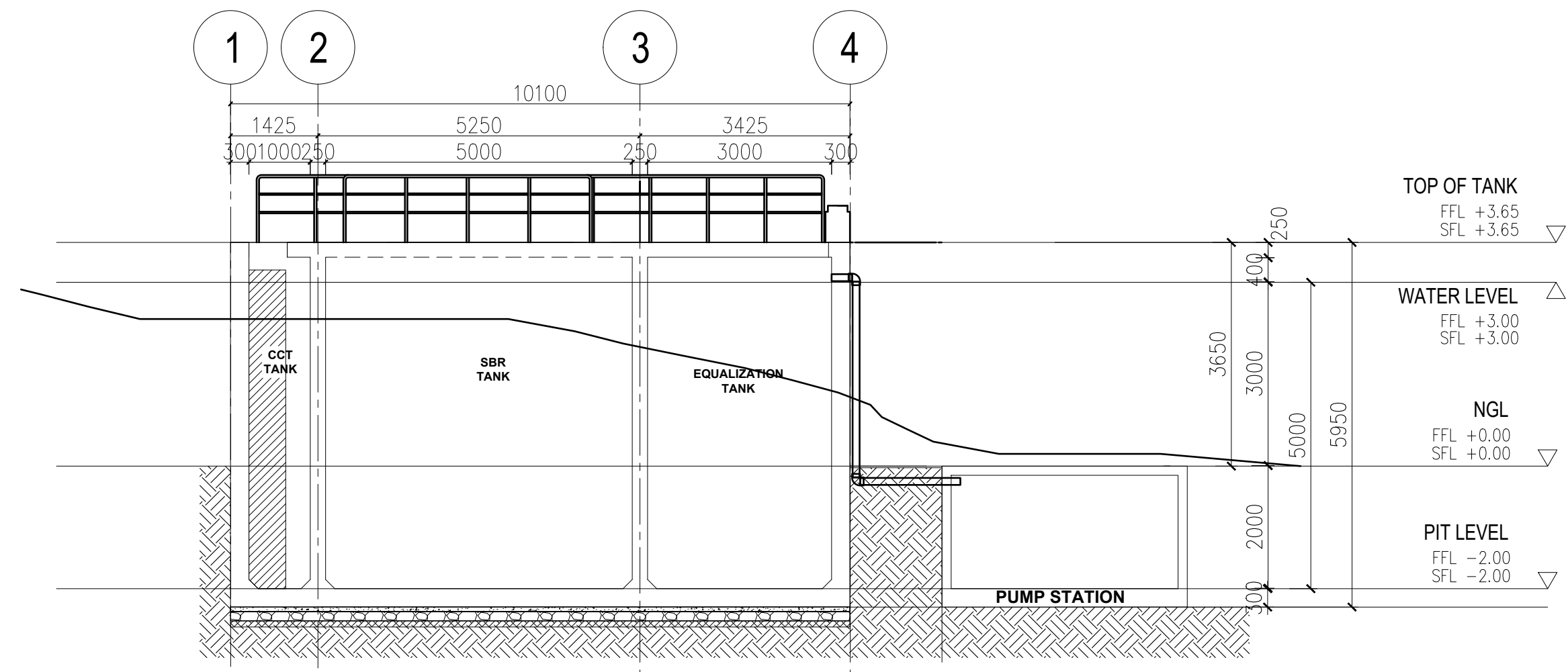
**1 PUMP STATION LAYOUT**  
M-08 PLAN SCALE 1:100



**2 BASKET SCREEN DETAIL**  
M-08 NTS



**3 PUMP STATION SECTION**  
M-08 ELEV SCALE 1:100



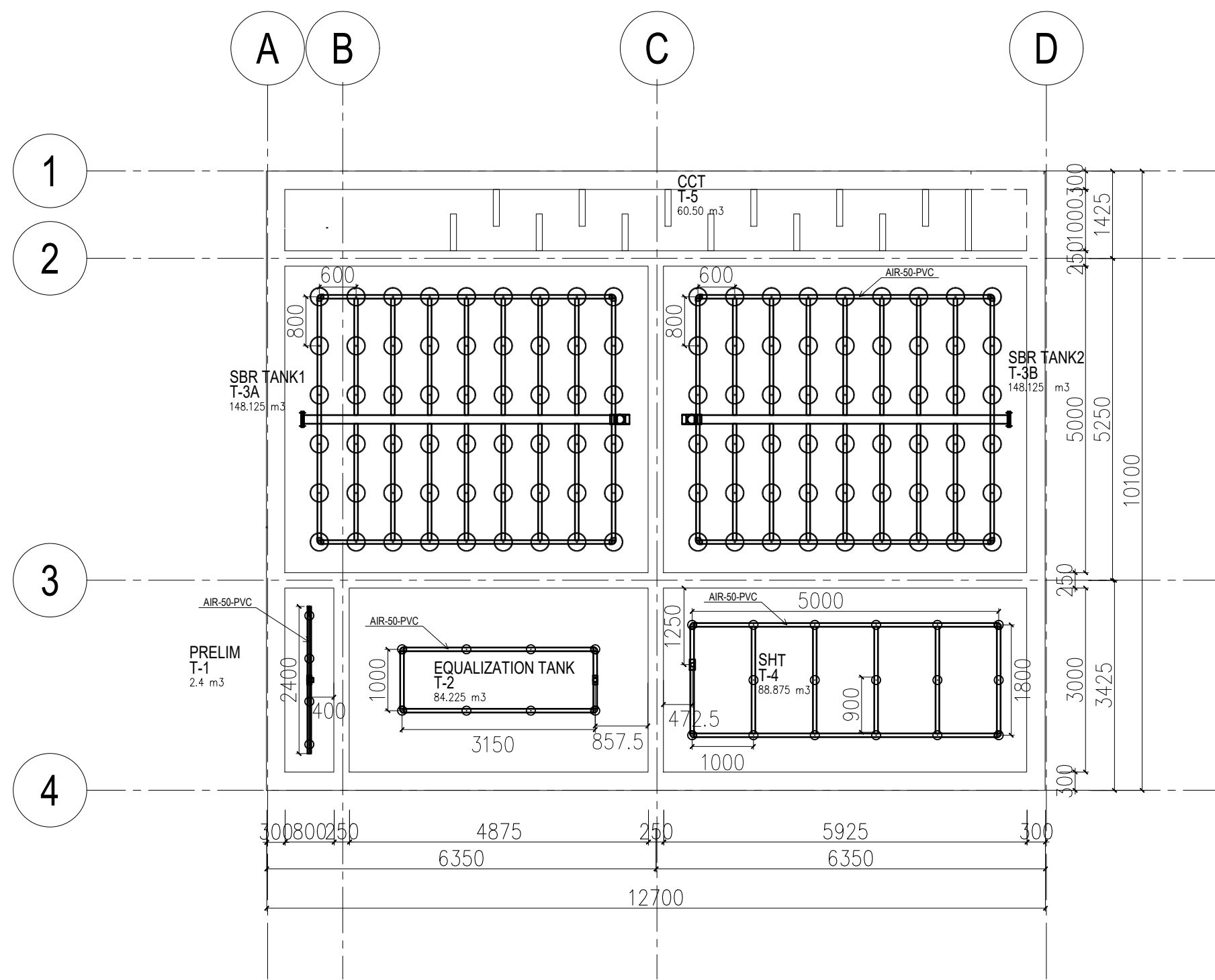
**3 EQT-TO-PS OVERFLOW**  
M-08 ELEV SCALE 1:100



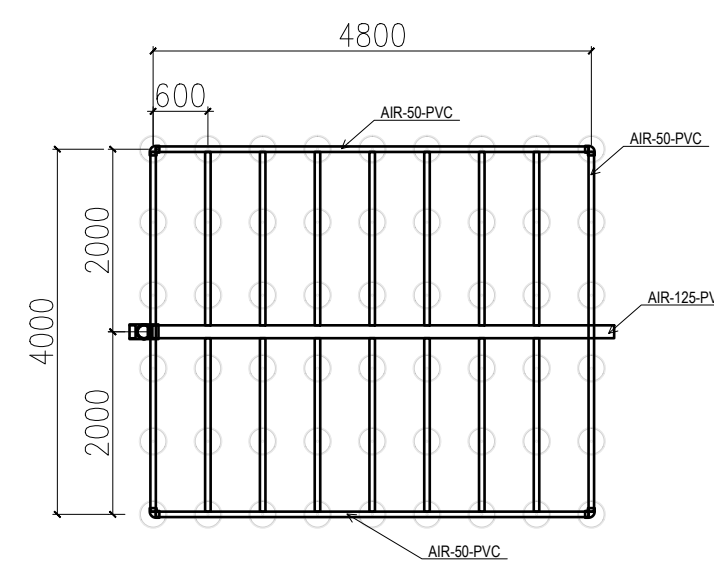
<b>DESIGN ENGINEER:</b> ENGINEER'S NAME PTR NO.:                      PRC NO.: DATE ISSUED:                VALID UNTIL: PLACE ISSUED:                PLACE ISSUED:		<b>PROJECT:</b> JHMC WASTE WATER TREATMENT PLANT ADDRESS: CAMP JOHN HAY, BAGUIO		<b>CLIENT:</b> CLIENT'S NAME		<b>REVISIONS:</b> <table border="1"> <thead> <tr> <th>NO.</th> <th>DESCRIPTION</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>ORIGINAL ISSUE</td> <td>-</td> </tr> <tr> <td>1.1</td> <td></td> <td>-</td> </tr> <tr> <td>1.2</td> <td></td> <td>-</td> </tr> <tr> <td>1</td> <td></td> <td>-</td> </tr> </tbody> </table>		NO.	DESCRIPTION	DATE	0	ORIGINAL ISSUE	-	1.1		-	1.2		-	1		-	<b>CONTRACT NO.:</b> WW-22-JHMC-DC-05 <b>STAGE:</b> DETAILED DESIGN		<b>SHEET CONTENTS:</b> PUMP STATION LAYOUT BASKET SCREEN DETAIL PUMP STATION SECTION SCALE                      DATE		<b>SHEET NO.</b> MECHANICAL 08 11	
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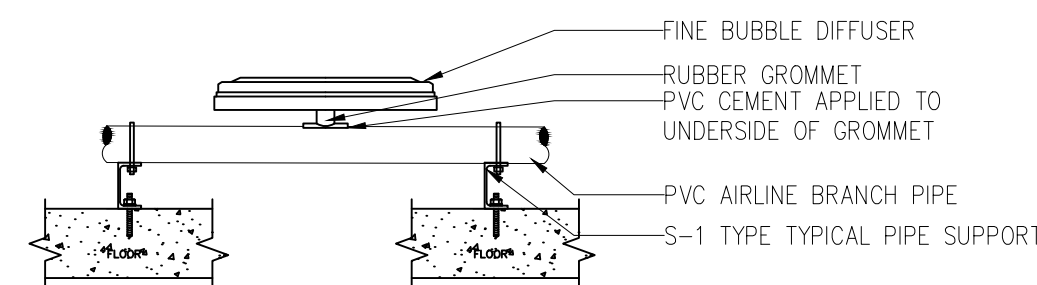




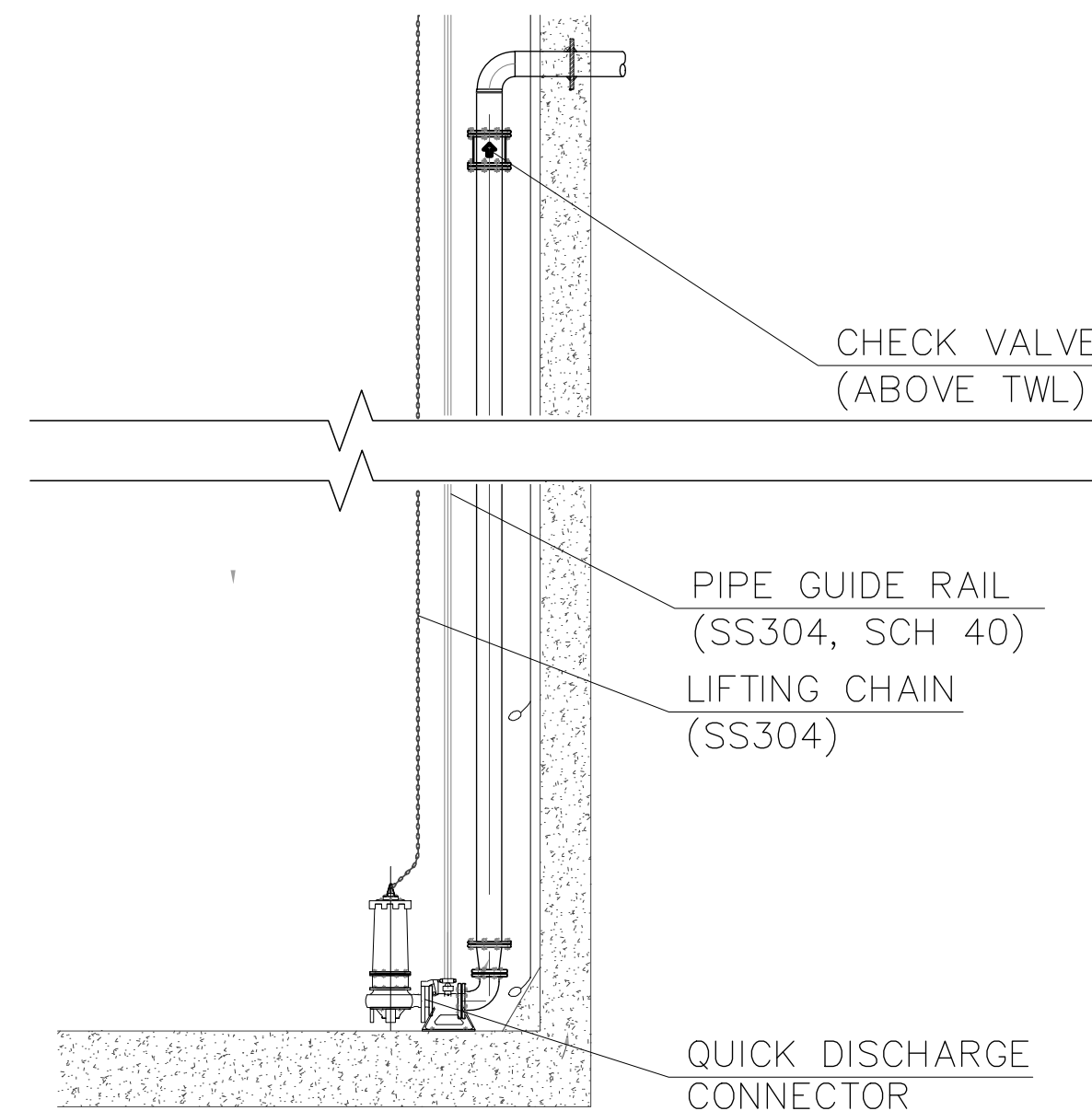
**1 AIRLINE BRANCH PIPE LAYOUT**  
M-09 PLAN SCALE 1:100



**2 SBR AIRLINE PIPING DETAIL**  
M-09 PLAN SCALE 1:100

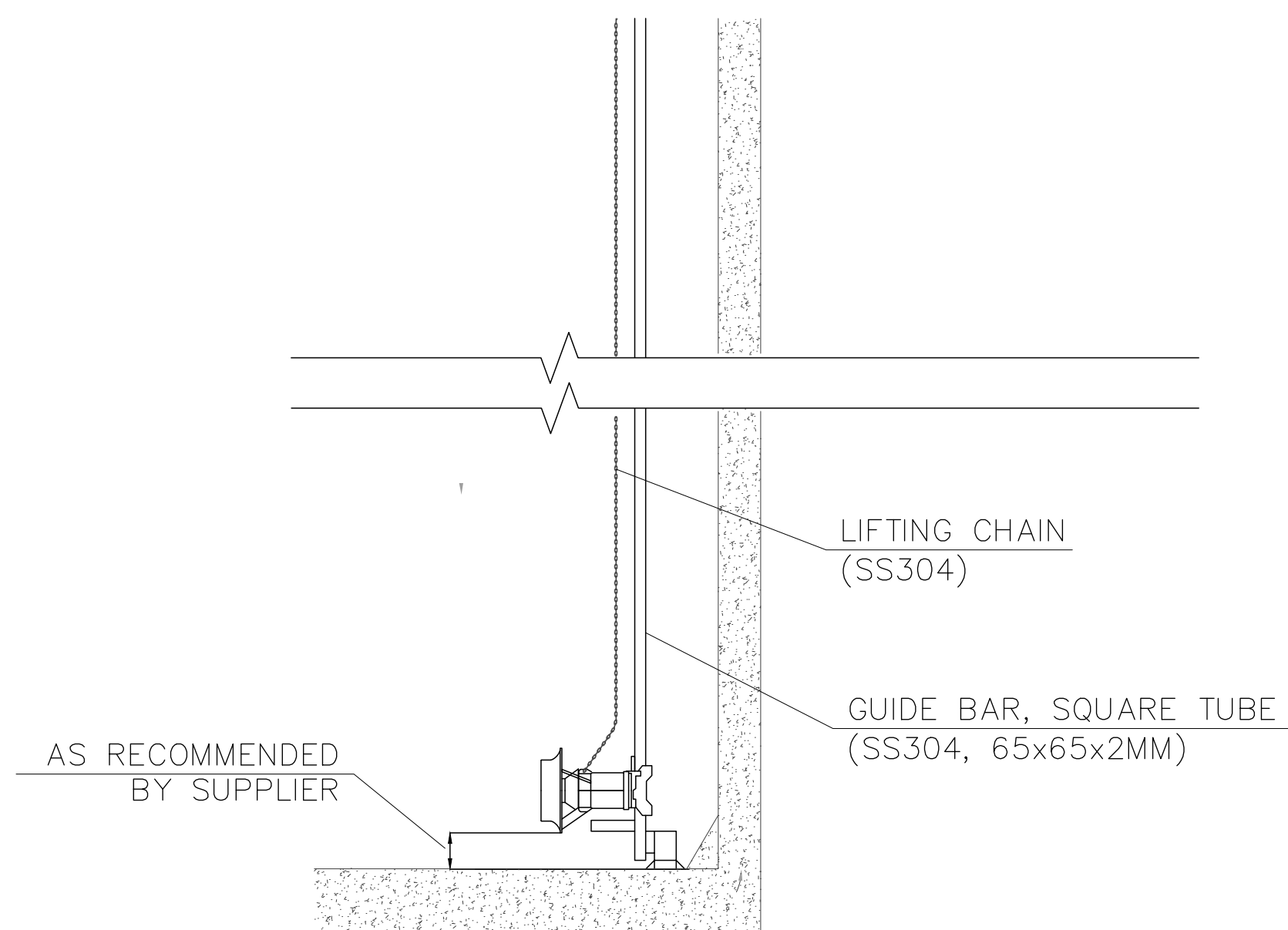


**3 DIFFUSER INSTALLATION DETAIL**  
M-09 ELEV NTS



**4 SUBMERSIBLE PUMP INSTALLATION**  
M-09 ELEV NTS

SUBMERSIBLE PUMP INSTALLATION		
PUMP TAG	GUIDE RAIL (mm)	CHECK VALVE (mm)
E-1A/B	40	80
E-5/6	25	50
E-7/8	40	80
E-17	40	80



**5 SUBMERSIBLE MIXER INSTALLATION**  
M-09 ELEV NTS



UNIT 307, ECG BUILDING, GENERAL AVENUE  
TANDANG SORA, QUEZON CITY 1116 MM

SERVICES OFFERED:  
PLANT DESIGN  
PLUMBING WORKS  
STRUCTURAL DESIGN  
ENGINEERING DESIGN AND REVIEW  
EQUIPMENT AND MATERIAL SELECTION  
ELECTRICAL DESIGN & CALCULATIONS

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ENGINEER'S NAME

PTR NO.:                      PRC NO.:  
DATE ISSUED:                      VALID UNTIL:                      -  
PLACE ISSUED:                      PLACE ISSUED:                      -

PROJECT:  
JHMC WASTE WATER  
TREATMENT PLANT

CLIENT:  
CLIENT'S NAME

ADDRESS:  
CAMP JOHN HAY, BAGUIO

REVISIONS:

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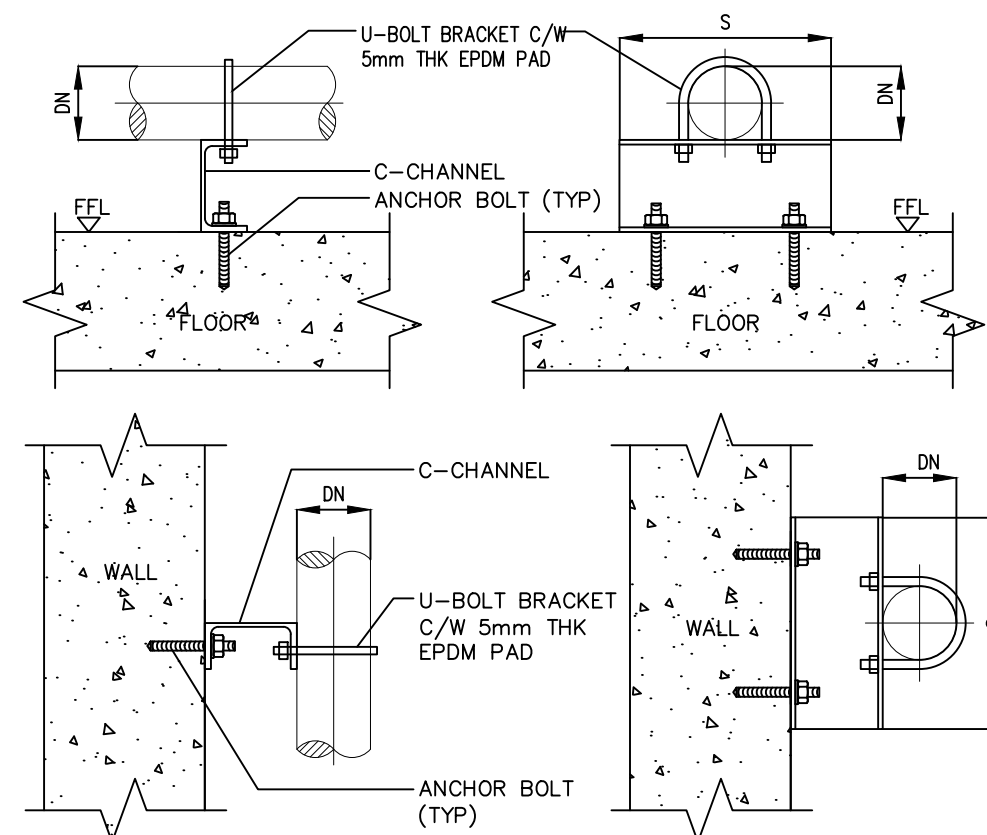
CONTRACT NO.: WW-22-JHMC-DC-05      STAGE: DETAILED DESIGN

SHEET CONTENTS:  
AIRLINE BRANCH PIPE LAYOUT  
SBR AIRLINE PIPING DETAIL  
DIFFUSER INSTALLATION DETAIL  
SUBMERSIBLE PUMP INSTALLATION  
SUBMERSIBLE MIXER INSTALLATION

SCALE                      DATE

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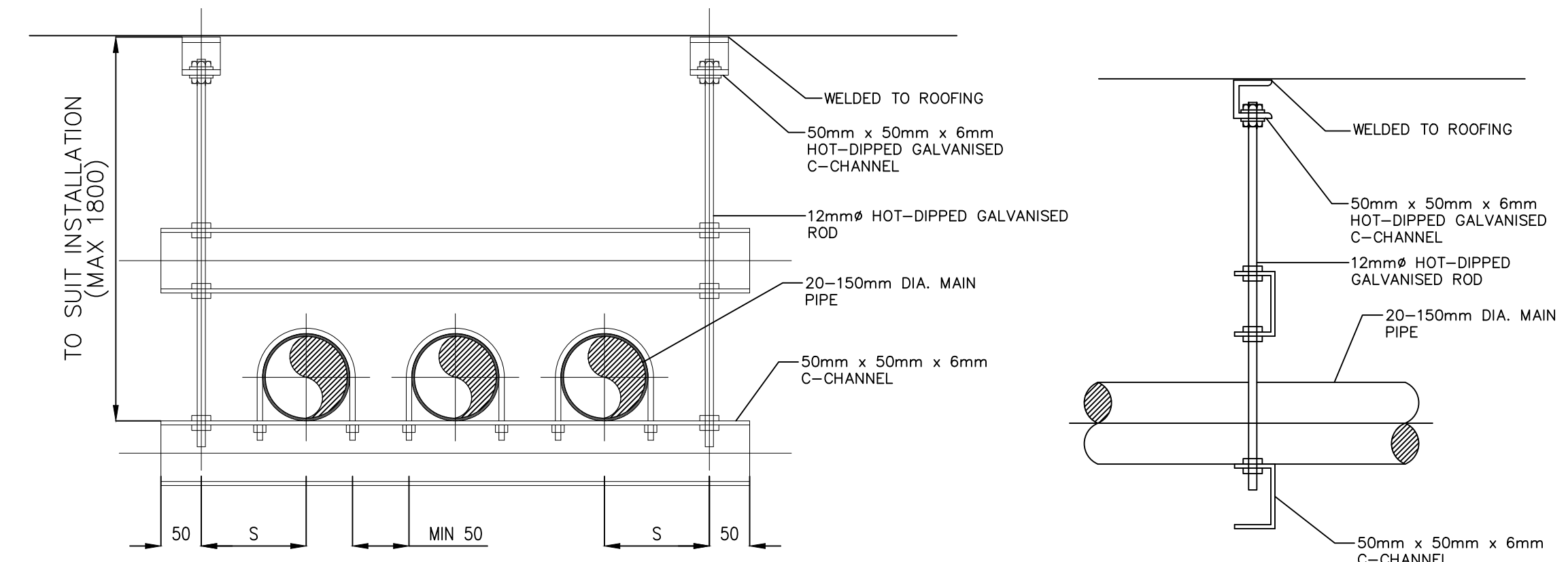


FOR VERTICAL PIPE

FOR HORIZONTAL PIPE

NOMINAL PIPE SIZE (mm)	PIPE SUPPORT (S1 TYPE)				
	S	U-BOLT	STRUCTURAL ANCHOR BOLTS	EMBEDMENT DEPTH (MIN) (mm)	
50	200	M10	C150x75x6.5	2-M10	80
80	230	M10	C150x75x6.5	2-M10	80
100	250	M12	C150x75x6.5	2-M12	100
150	300	M12	C150x75x6.5	2-M12	100
200	350	M12	C150x75x6.5	2-M12	100
250	400	M16	C150x75x6.5	2-M12	100

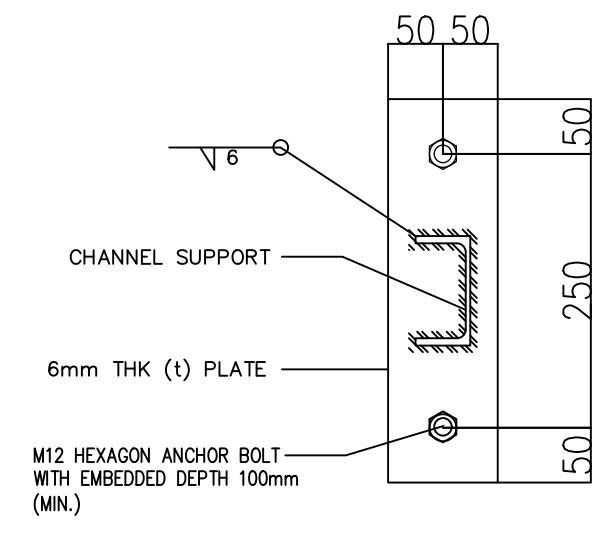
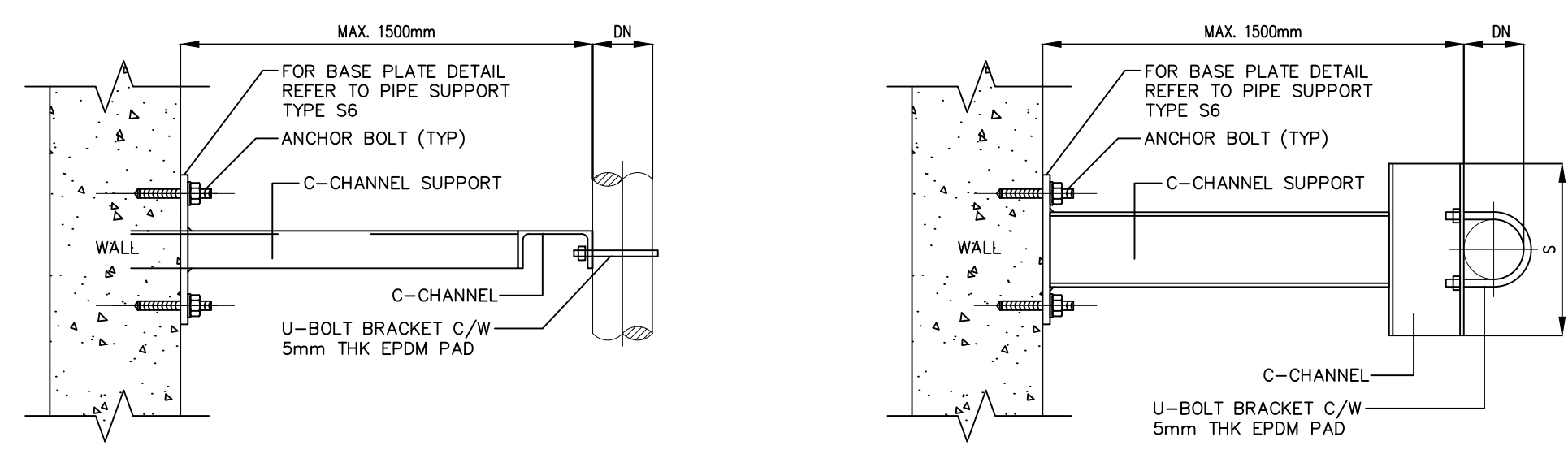
1 TYPICAL PIPE SUPPORT S-1 TYPE  
M-10 NTS



- LEGENDS:**  
 THK - THICKNESS  
 mm - MILLIMETER  
 SHS - STEEL HOLLOW SECTION  
 PFC - STEEL PARALLEL FLANGE CHANNEL-C-SECTION
- NOTES:**  
 1. ALL PIPE CONNECTIONS ARE RIGID JOINTS.  
 2. ALL STRUCTURAL MEMBERS TO BE GRADE 275 AND GALVANIZED.  
 3. ALL PIPE SUPPORTS FOR ABOVE GROUND INSTALLATION ONLY.  
 4. THE ANCHOR SHALL BE THUNDER STUB CONCRETE WEDGE TYPE. IT SHALL INCLUDE NUT AND WASHER.

NOMINAL PIPE SIZE (mm)	PIPE SUPPORT (S3 TYPE)		
	S	U-BOLT	MAX SPAN OF PIPE (mm)
20	50	M10	2500
25	55	M10	2500
50	65	M10	2500
80	80	M10	2500
100	90	M12	2500
125	125	M12	2500
150	150	M12	2500

3 PIPE HANGER (S-3 TYPE PIPE SUPPORT)  
M-10 NTS



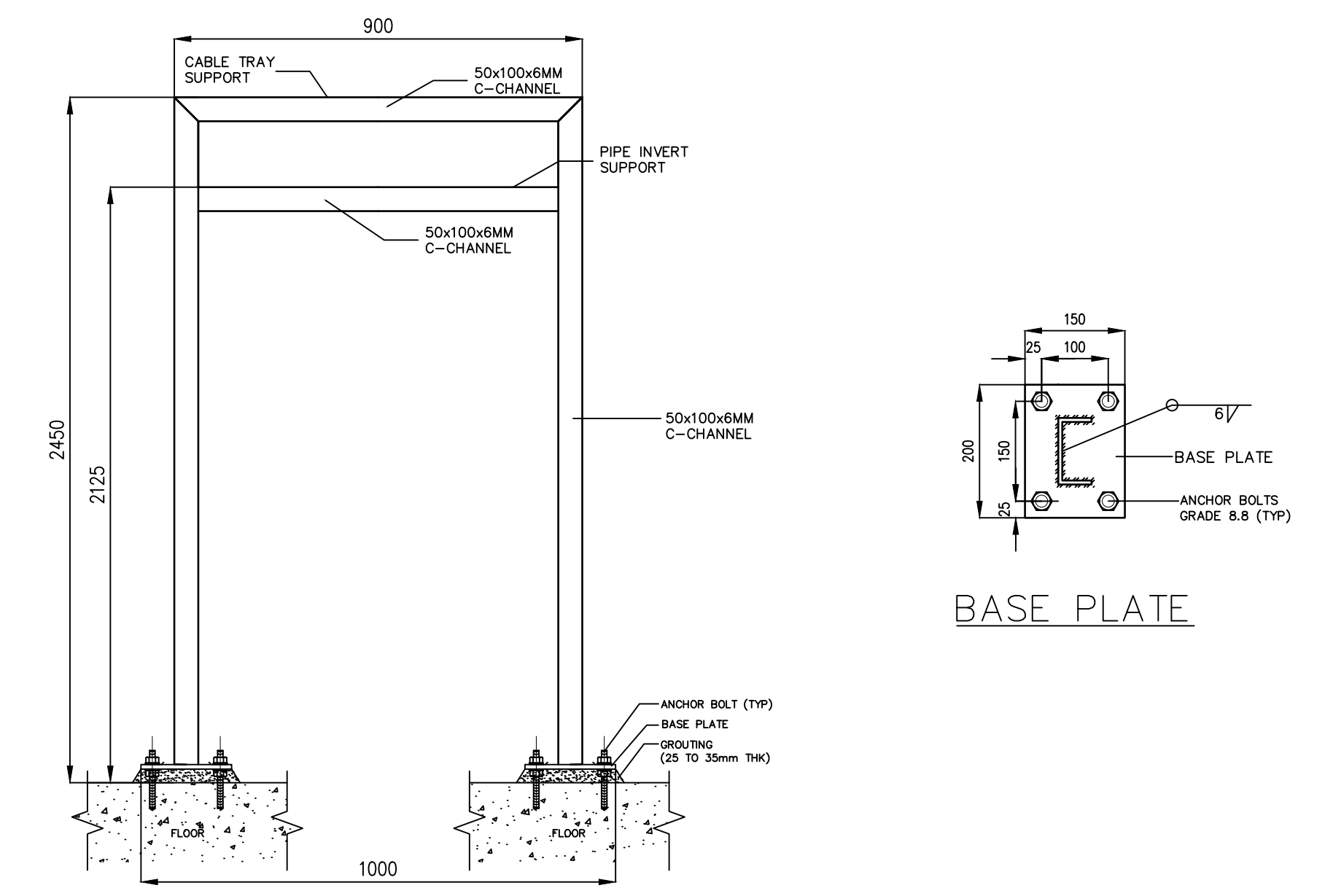
**LEGENDS:**  
 THK - THICKNESS  
 mm - MILLIMETER  
 SHS - STEEL HOLLOW SECTION  
 PFC - STEEL PARALLEL FLANGE CHANNEL-C-SECTION

**NOTES:**  
 1. ALL PIPE CONNECTIONS ARE RIGID JOINTS.  
 2. ALL STRUCTURAL MEMBERS TO BE GRADE 275 AND GALVANIZED.  
 3. ALL PIPE SUPPORTS FOR ABOVE GROUND INSTALLATION ONLY.  
 4. THE ANCHOR SHALL BE THUNDER STUB CONCRETE WEDGE TYPE. IT SHALL INCLUDE NUT AND WASHER.

**NOTE:** S2-TYPE PIPE SUPPORT IS NOT DESIGN TO TAKE HORIZONTAL AND VERTICAL LOAD, IT IS DESIGN TO HOLD THE PIPES IN POSITION.

NOMINAL PIPE SIZE (mm)	PIPE SUPPORT (S2 TYPE)				
	S	U-BOLT	STRUCTURAL ANCHOR BOLTS	EMBEDMENT DEPTH (MIN) (mm)	
50	200	M10	C100x50x5	M10	80
80	230	M10	C100x50x5	M10	80
100	250	M12	C150x75x6.5	M12	100
150	300	M12	C150x75x6.5	M12	100
200	350	M12	C150x75x6.5	M12	100
250	400	M12	C150x75x6.5	M12	100
300	450	M12	C150x75x6.5	M12	100

2 TYPICAL PIPE SUPPORT S-2 TYPE  
M-10 NTS



3 U-FRAME PIPE SUPPORT (S-4 TYPE)  
M-10 PLAN NTS



UNIT 307, ECG BUILDING, GENERAL AVENUE  
 TANDANG SORA, QUEZON CITY 1116 MM

SERVICES OFFERED:  
 PLANT DESIGN  
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REVISIONS:

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1.1		-
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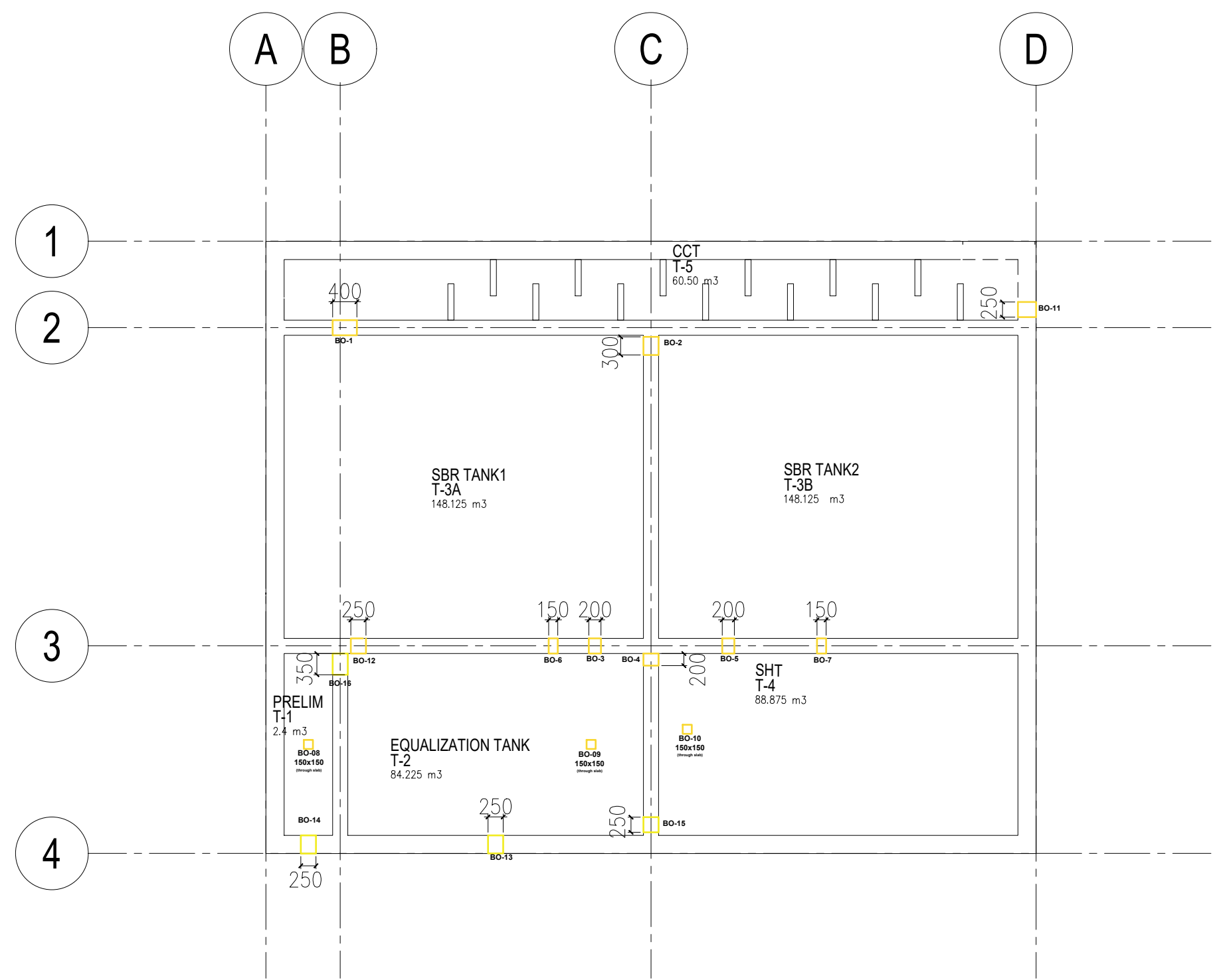
CONTRACT NO.: WW-22-JHMC-DC-05 STAGE: DETAILED DESIGN

SHEET CONTENTS:  
 TYPICAL PIPE SUPPORT S-1 TYPE  
 TYPICAL PIPE SUPPORT S-2 TYPE  
 OVERHEAD PIPE SUPPORT

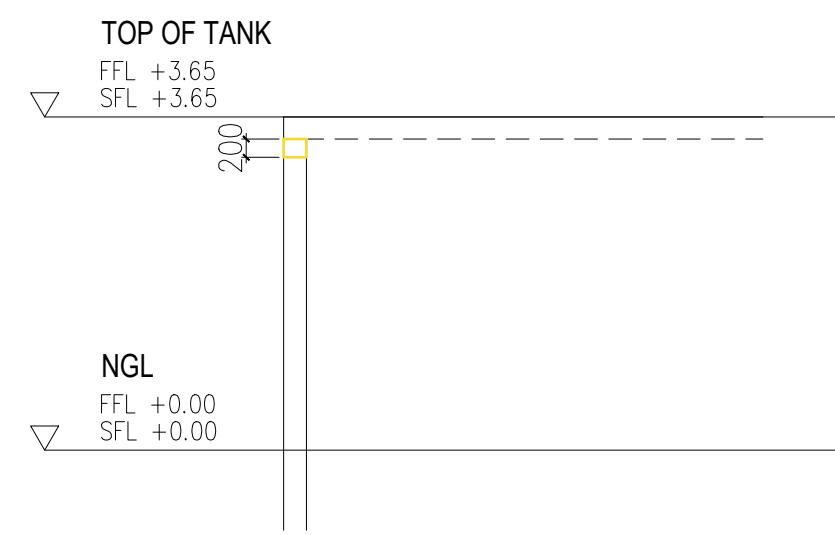
SCALE: DATE

SHEET NO. 10 11  
 MECHANICAL

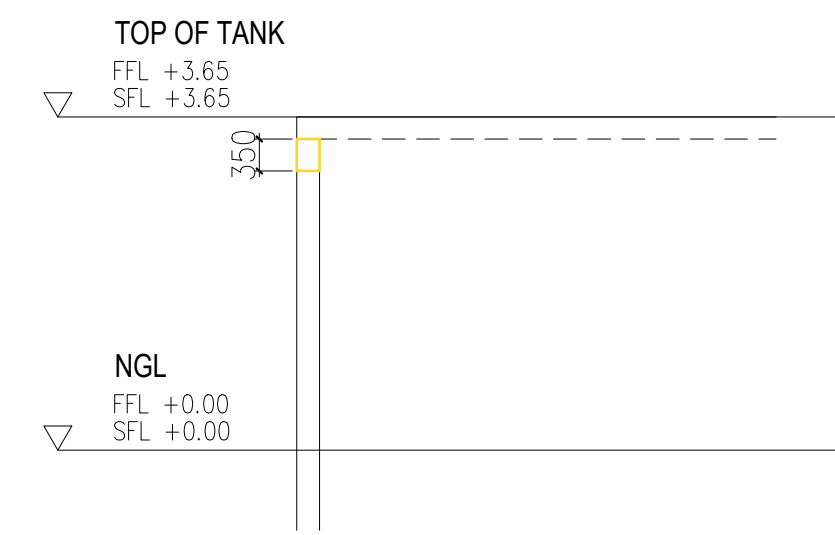
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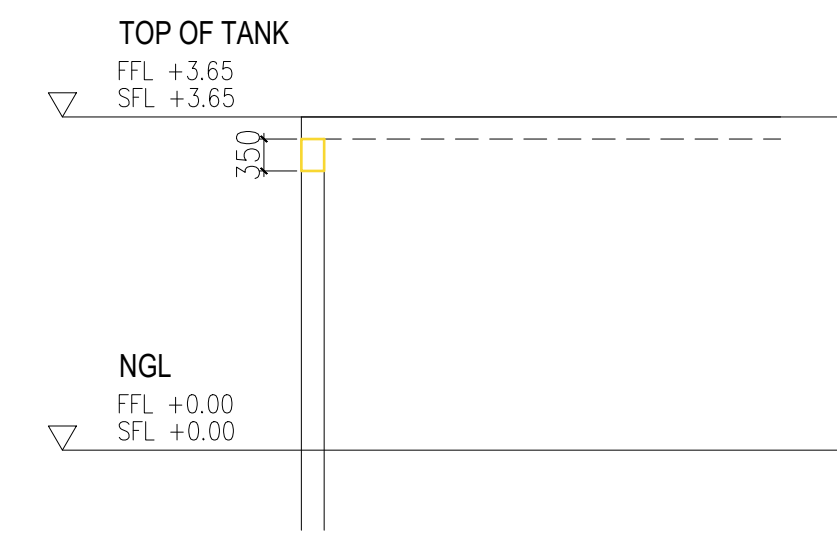
**1 BLOCKOUT LAYOUT**  
M-11 PLAN SCALE 1:100



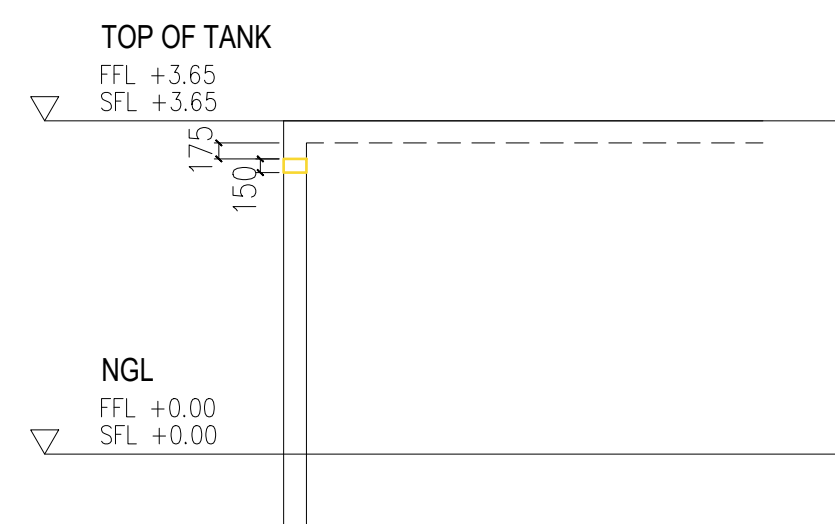
**BO-1,3,5**



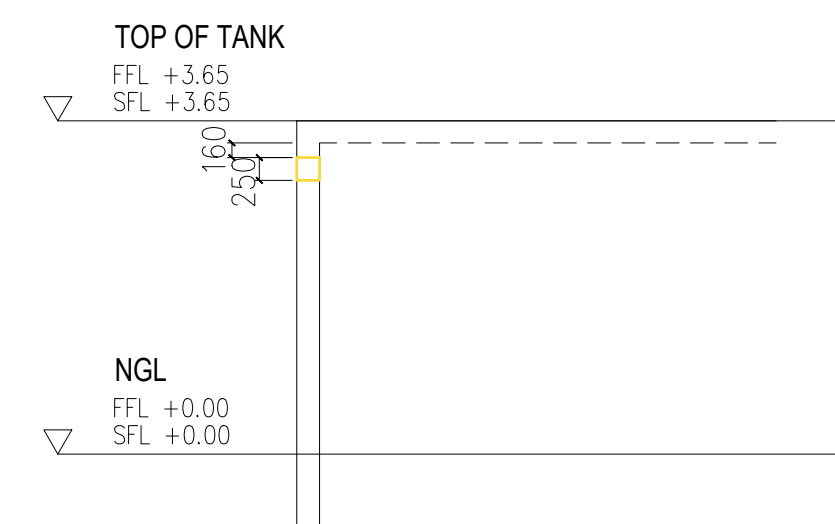
**BO-2**



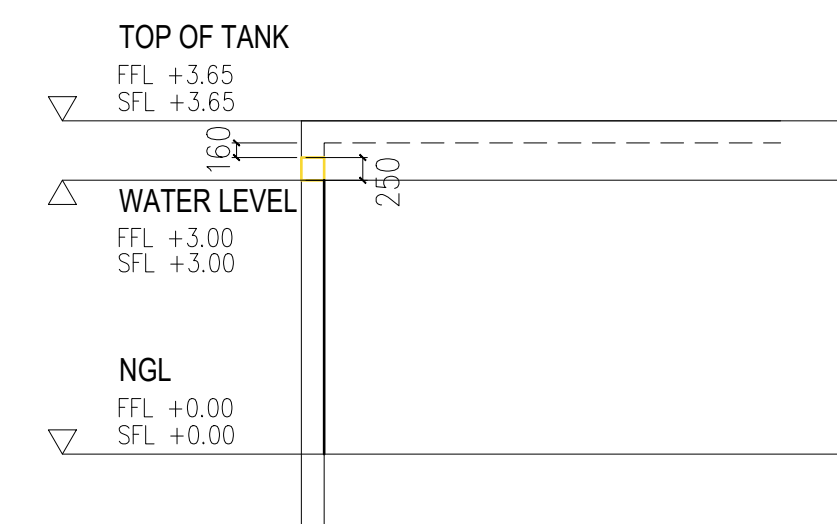
**BO-4**



**BO-6,7**



**BO-11,12,13,14,15**



**BO-16**

**2 BLOCKOUT SECTIONS**  
M-11 SEC SCALE 1:100



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TANDANG SORA, QUEZON CITY 1116 MM  
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DESIGN ENGINEER:		PROJECT:	
ENGINEER'S NAME		JHMC WASTE WATER TREATMENT PLANT	
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CLIENT'S NAME	

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1.1		-
1.2		-
1		-

CONTRACT NO.:	WW-22-JHMC-DC-05	STAGE:	DETAILED DESIGN
SHEET CONTENTS:			
OVERFLOW PIPING			
SCALE	-	DATE	

SHEET NO.	11 11
MECHANICAL	

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