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PRESENTATION ON

PROJECT EXPERIENCES

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INNOVATION ENGINEERING (IE) have done many projects since it is established, This presentation showcases few of them to display our capabilities.

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PRESENTATION
ON
PLANT ENGINEERING

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OIL AND GAS TREATMENT PLANT

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PROJECT: JURASSIC PRODUCTION FACILITIES (JPF) AT WEST RAUDHATAIN, NORTH KUWAIT

OWNER: **Kuwait Oil Company (KOC),**

SCOPE OF WORK:

Detail Engineering & Design:-

- Mechanical and Piping
- Supports and Structures
- Total Plant Design Using 3D software
- Stress Analysis of Piping

Crude Oil and treated Gas with a nameplate capacity of 40 STMBOPD Crude Oil and 104 MMSCFD Treated Gas from the Sour Gas Well fluids with an inlet maximum concentration of 4% (mole) H2S and 2% (mole) CO2.

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WASTE PAPER PLANT

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CADWORX

PROJECT: 800 TPD Waste Paper Plant

OWNER: **Saradha Paper Plant**

3D Software Used : Cadworx

SCOPE OF WORK:

Detail Engineering & Design:-

- Process & Civil
- Mechanical and Piping
- Total Plant Design Using 3D software
- Stress Analysis of Piping
- Supports and Structures

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WASTE WATER TREAMENT PLANT

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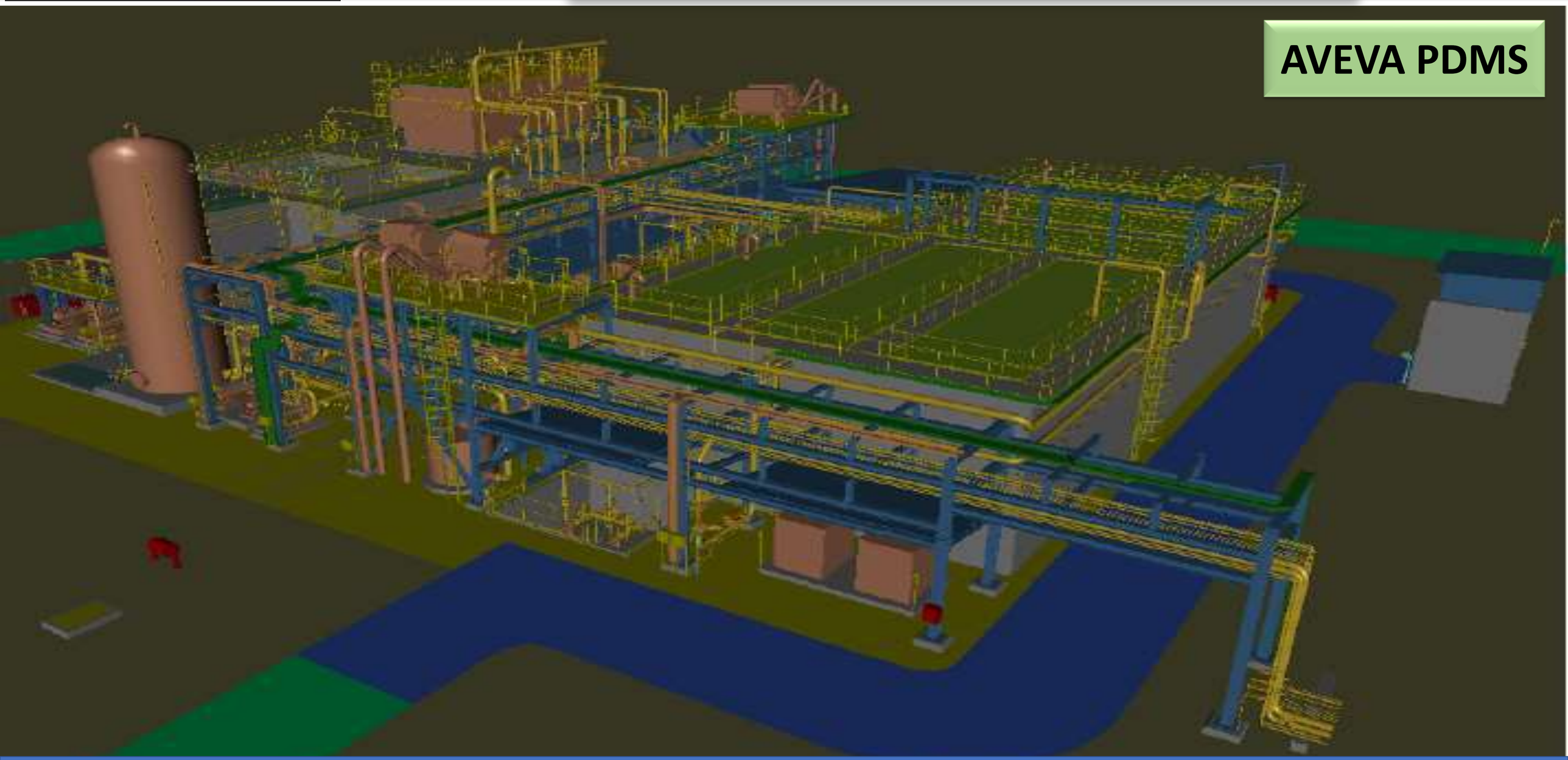

PROJECT: Qatar Gas waste water treatment plant

OWNER: **Qatar Gas**

3D Software Used : PDMS

SCOPE OF WORK:

Detail Engineering & Design:-

- Plot plan development
- Piping and Equipment Layout
- Total Plant Design Using 3D software
- Supports and Structures

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WATER TREAMENT PLANT

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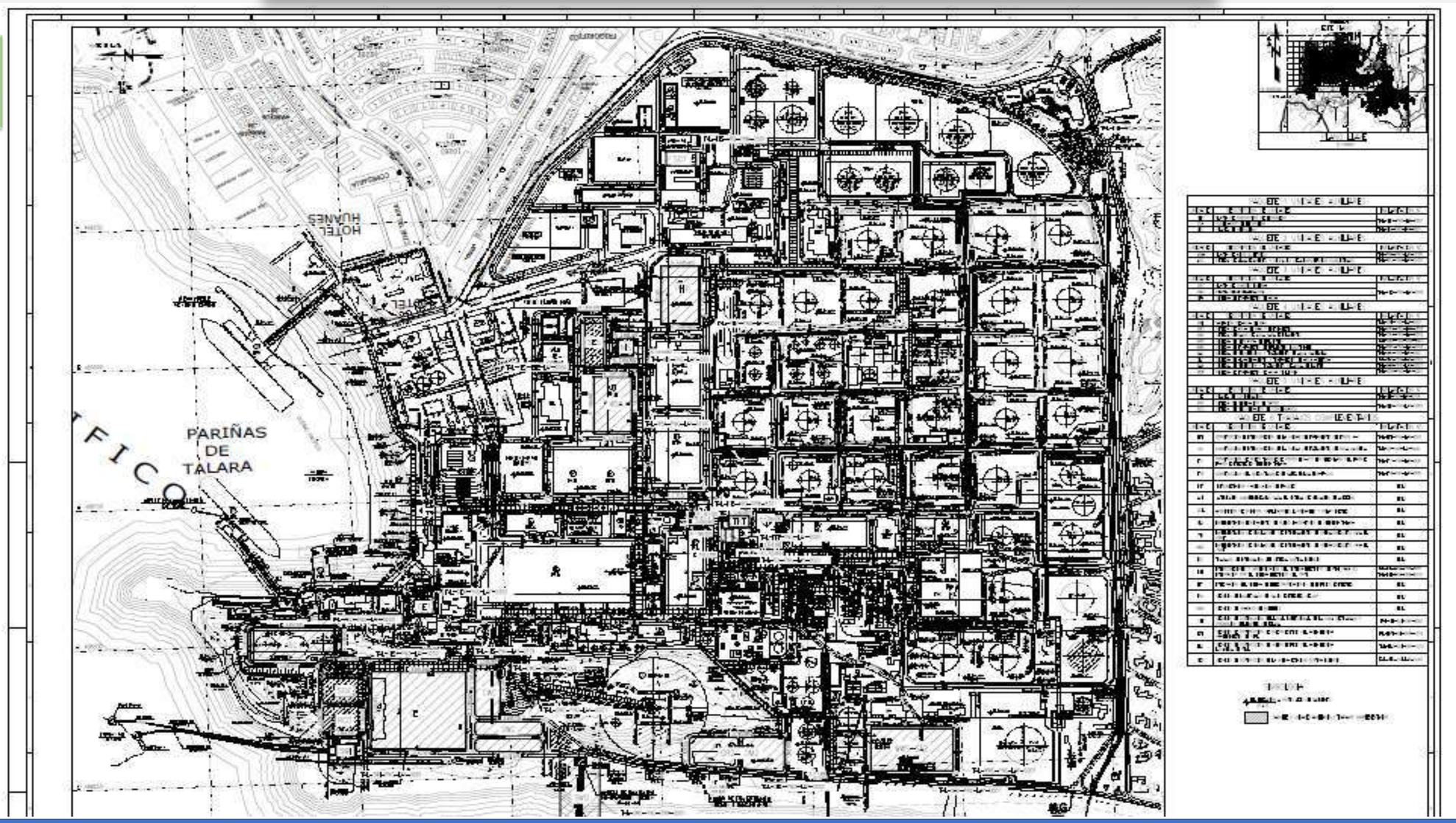
SMART PLANT 3D



PROJECT: TALARA REFINERY - DETAIL ENGINEERING UNITS OR2 & DM2

OWNER : **Talara Refinery**
Client : Abengoa Agua

3D Software : Smart Plant PID & 3D

Project Awarded Value : 570.267,00 EUROS

SCOPE OF WORK:

Detail Engineering & Design:-

- Management
- General (3D Modelling)
- Detailed engineering documentation – Process
- Detailed engineering - Civil and Steel Structures
- Detailed engineering - Piping and Mechanical
- Detailed engineering – Electrical and Instrumentation

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PRESENTATION
ON
PIPING & STRESS ANALYSIS

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PIPING

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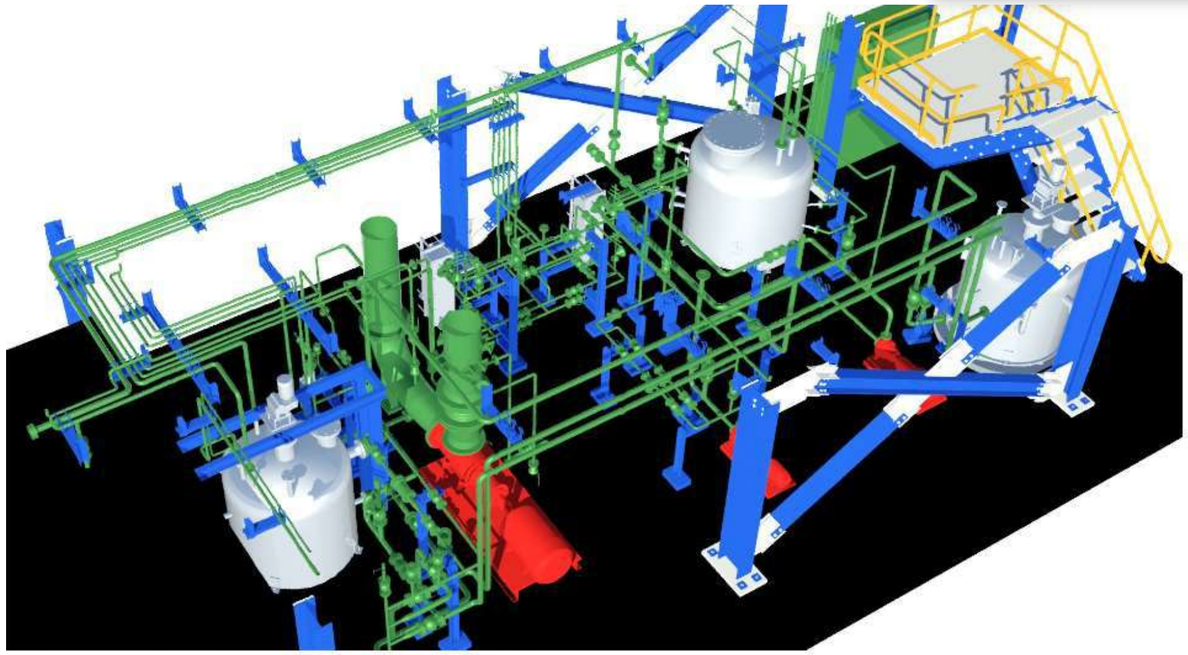

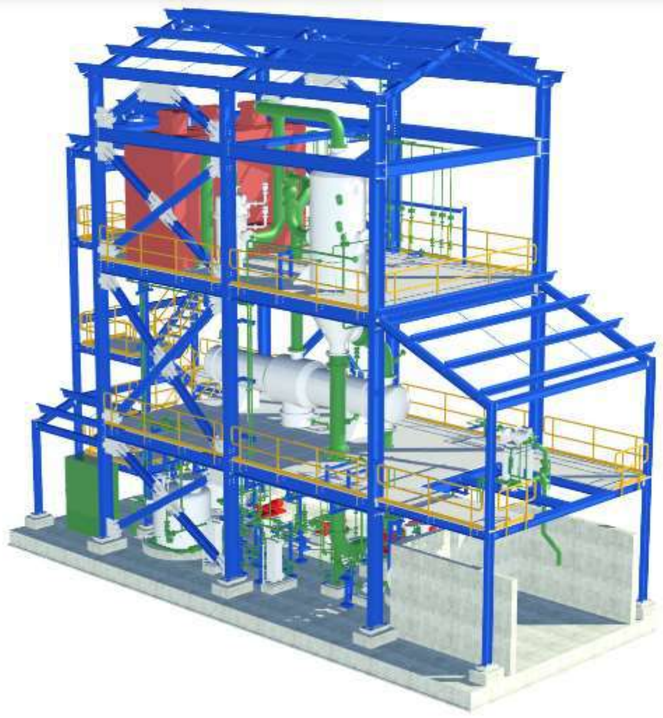

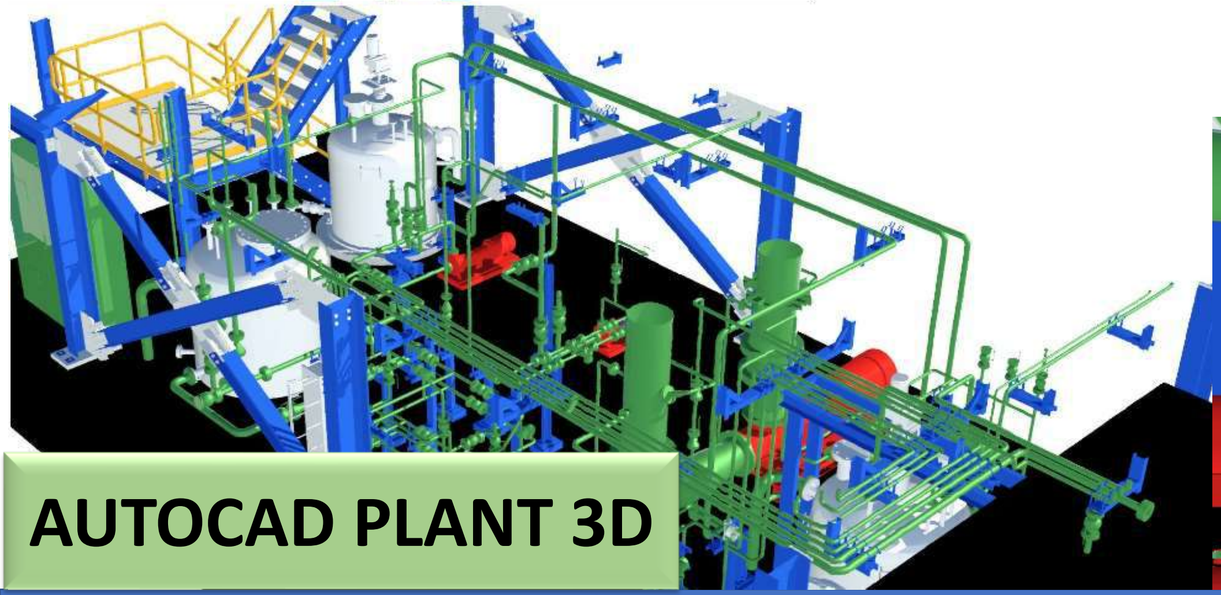

AUTOCAD PLANT 3D

PROJECT: Norte III Modelizado 3D-ZLD

Client: **ABENGOA AGUA**

3D Software Used : Autocad Plant 3D

SCOPE OF WORK:

- Pipe routing with support design.
- Piping Specification Includes CS & FRP

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STRESS ANALYSIS

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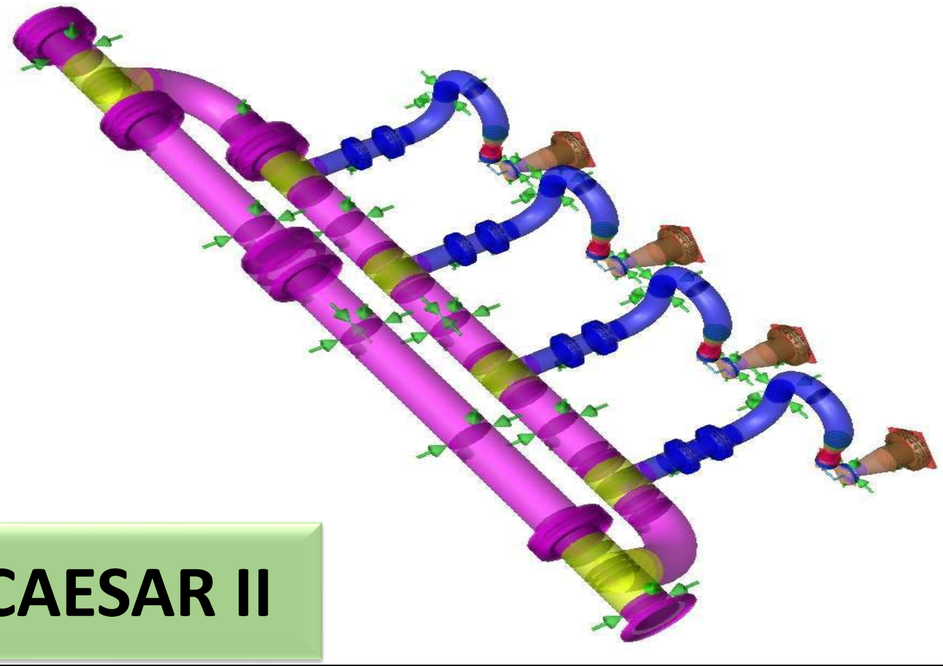
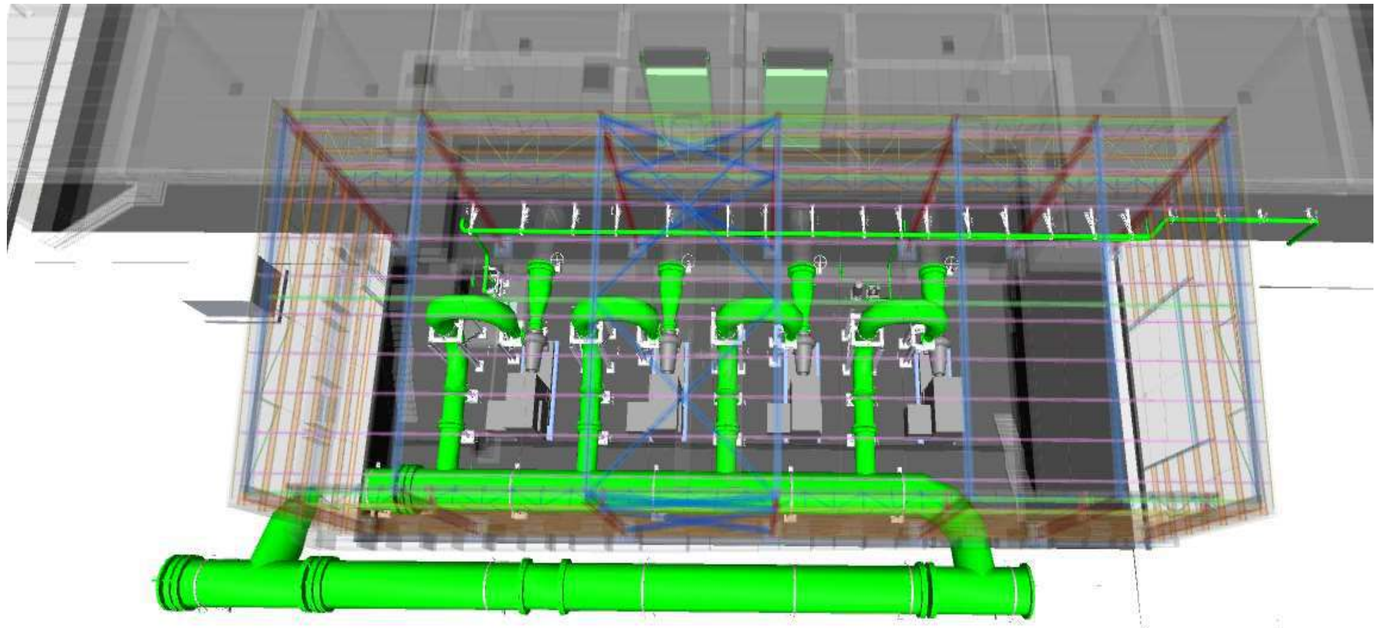
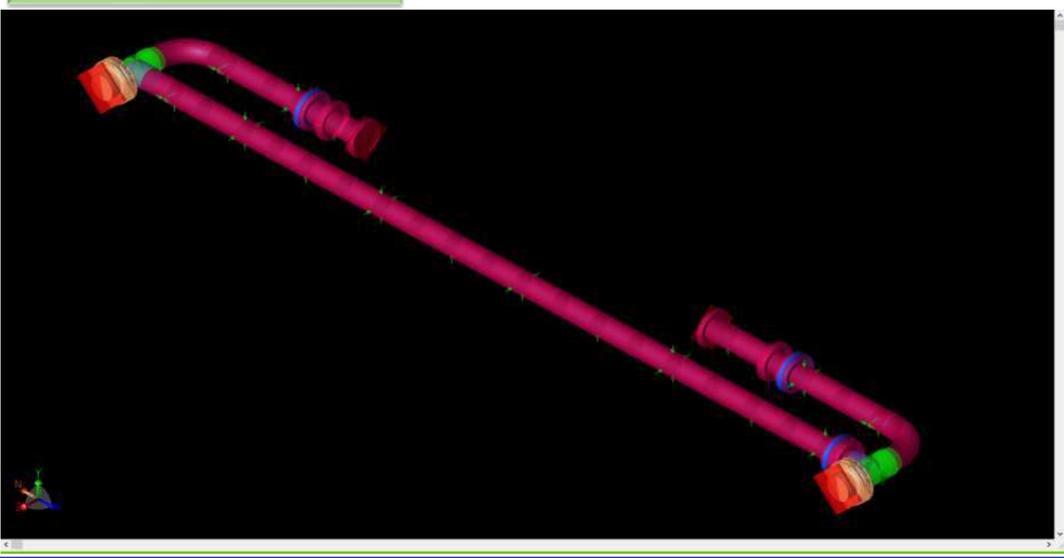
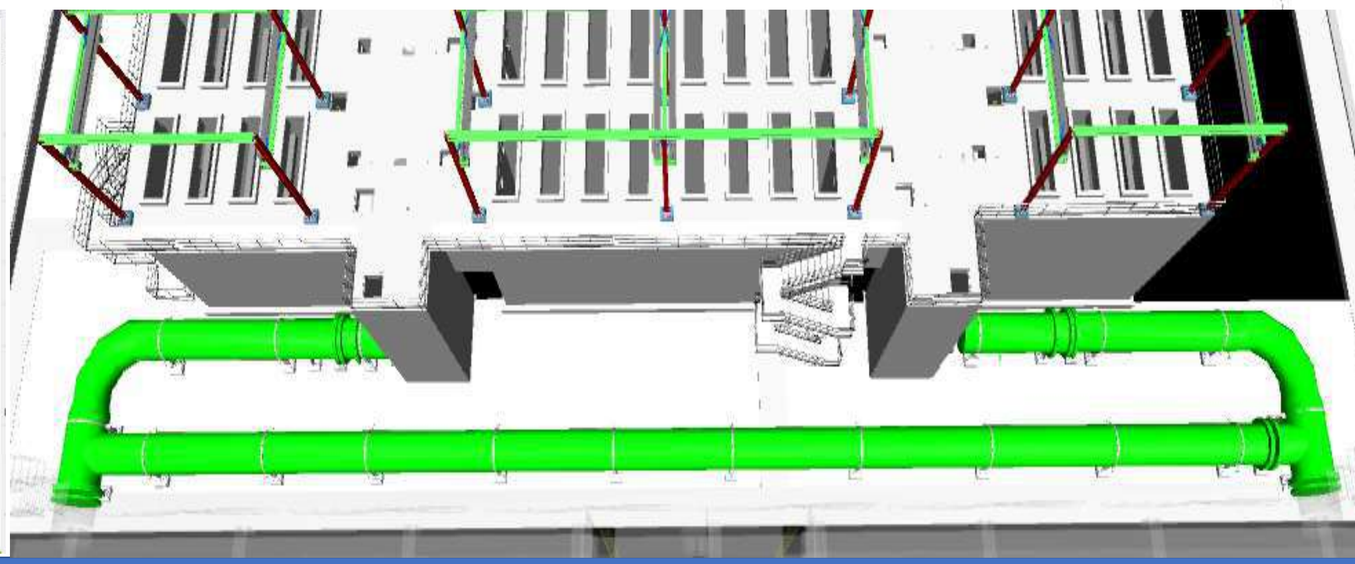




CAESAR II





PROJECT: Shuqaiq. Product Water

Client: **ACCIONA AGUA**

STD: AWWA C-950 GRP Piping

SCOPE OF WORK:

- Stress Analysis & Report in Caesar II.
- Support Analysis & Report in Staad Pro and Autodesk Robot.
- Base plate & Anchor calculations & Report in Hilti Profis.
- 3D Modelling in Autocad Plant 3D

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STRESS ANALYSIS

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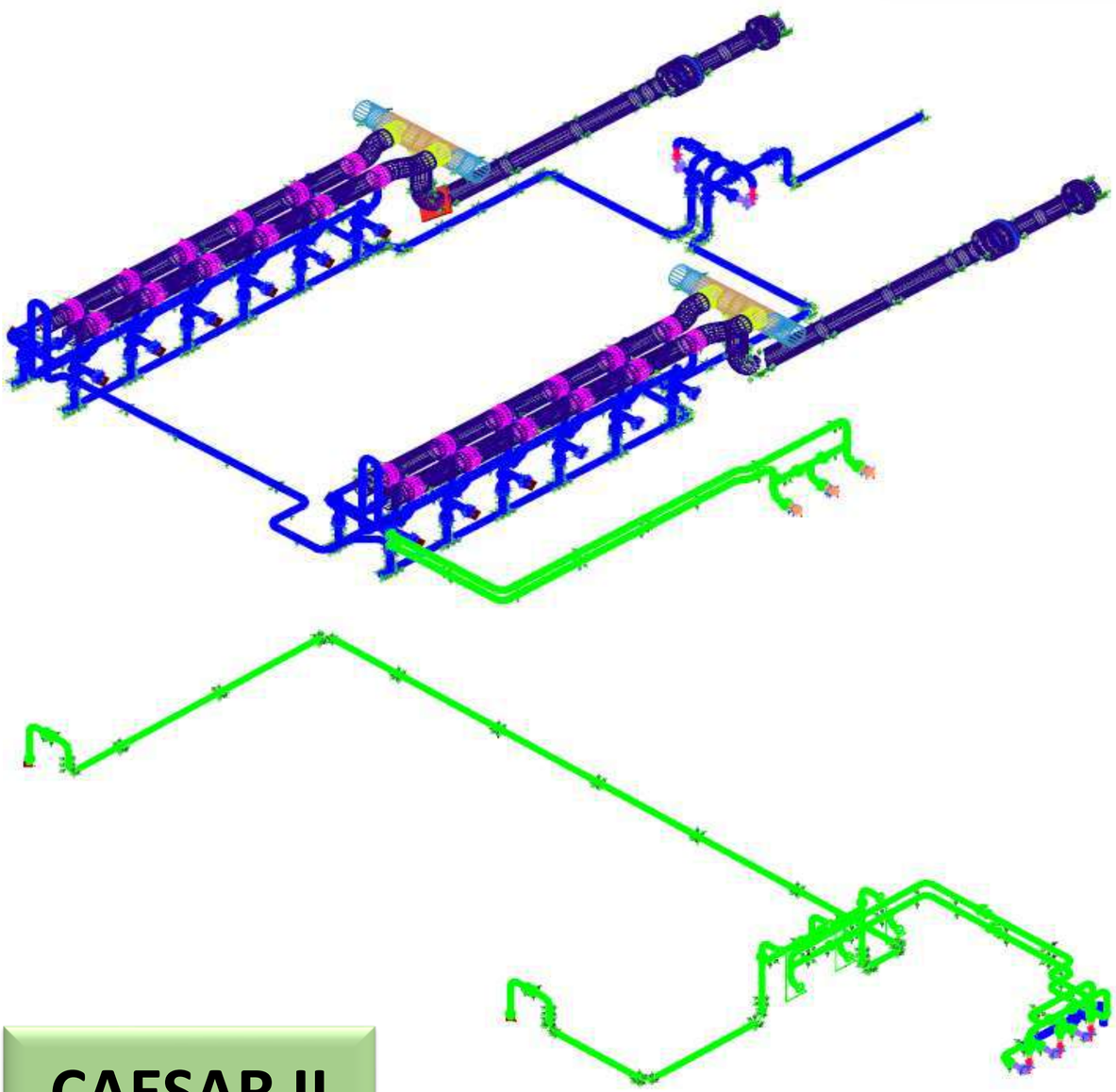

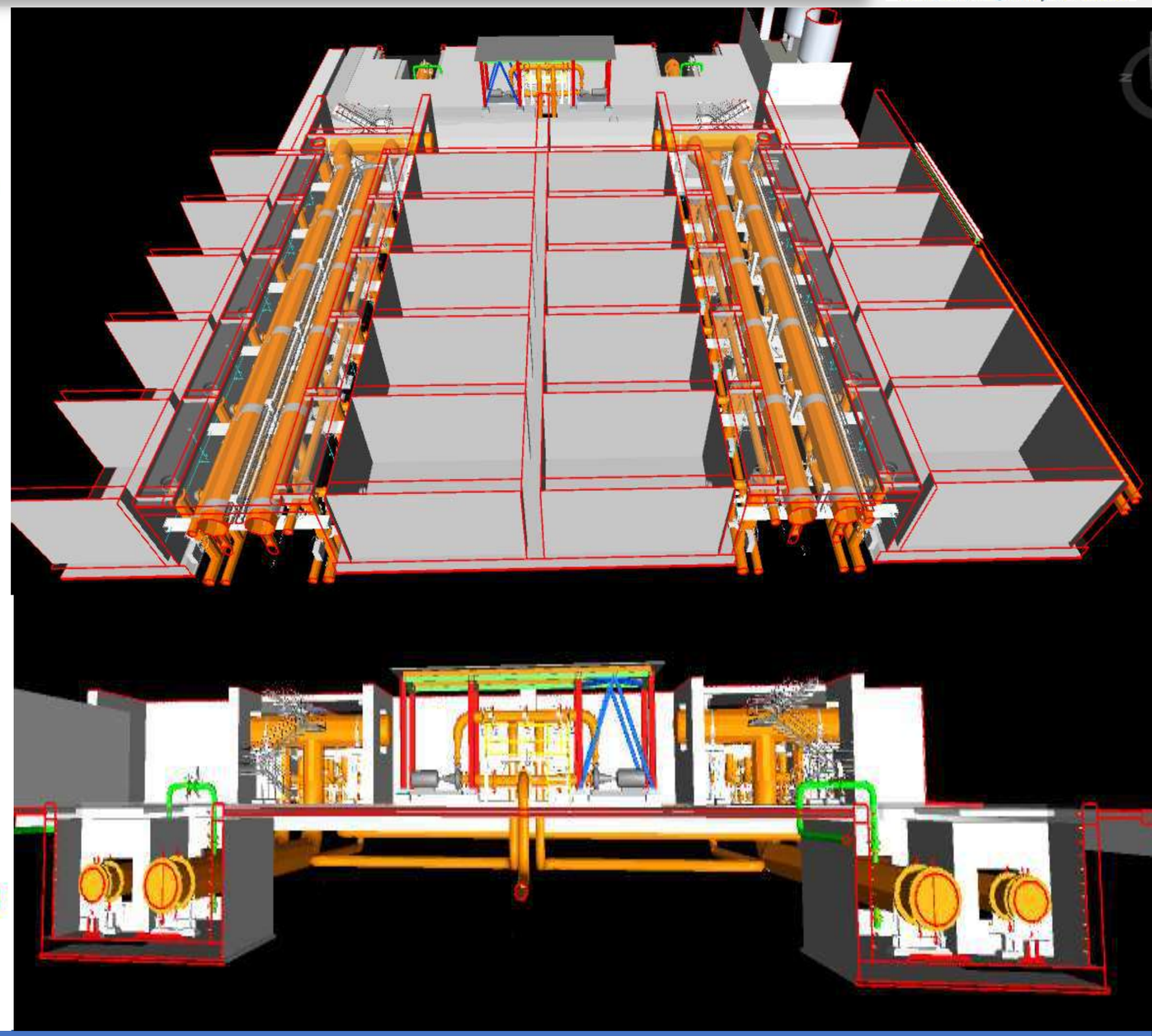

CAESAR II

PROJECT: Shuqaiq. Remineralization

Client: **ACCIONA AGUA**

STD: AWWA C-950 GRP Piping

SCOPE OF WORK:

- Stress Analysis & Report in Caesar II.
- Support Analysis & Report in Staad Pro and Autodesk Robot.
- Base plate & Anchor calculations & Report in Hilti Profis.
- 3D Modelling in Autocad Plant 3D

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PIPING LAYOUT

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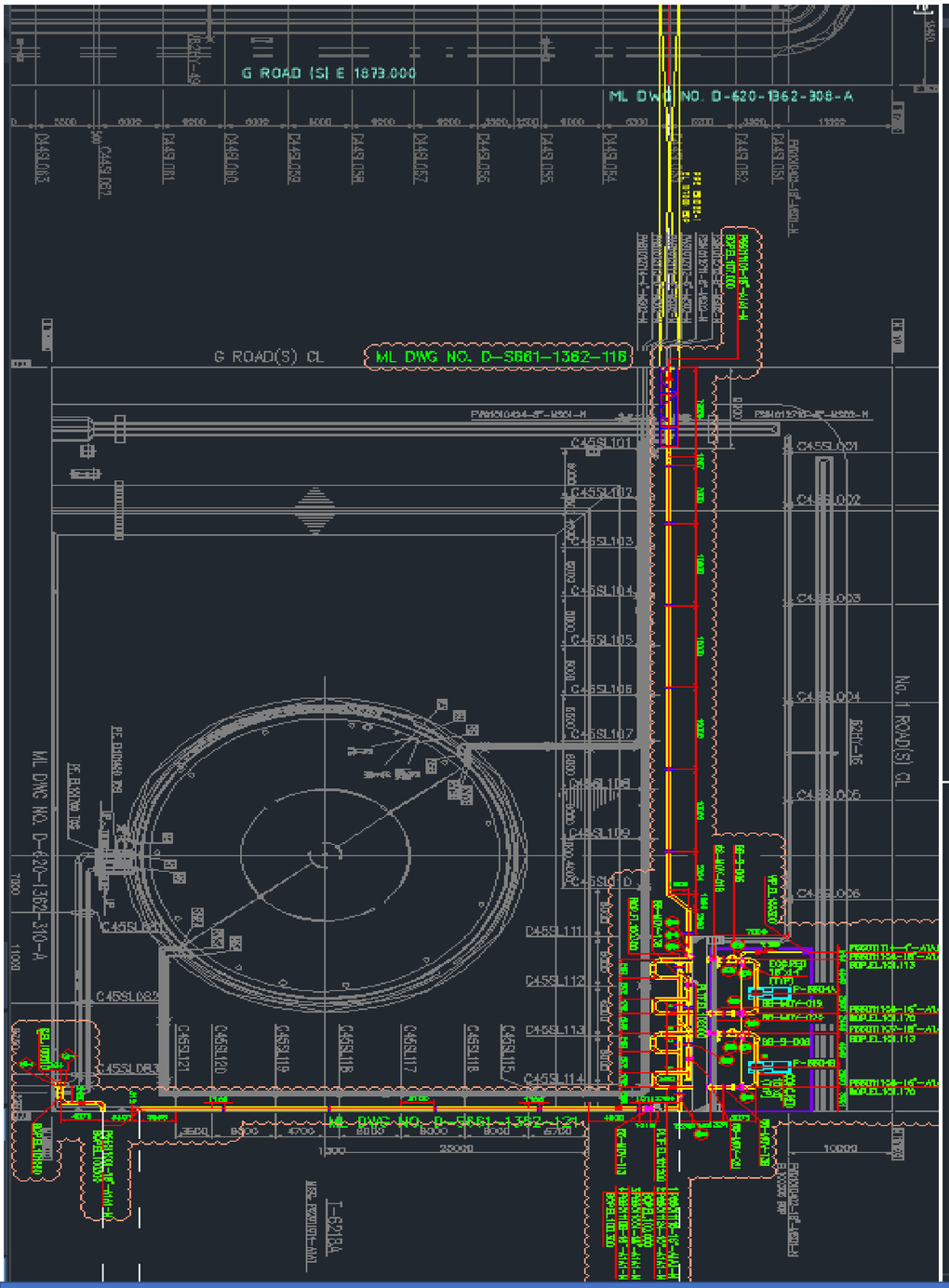
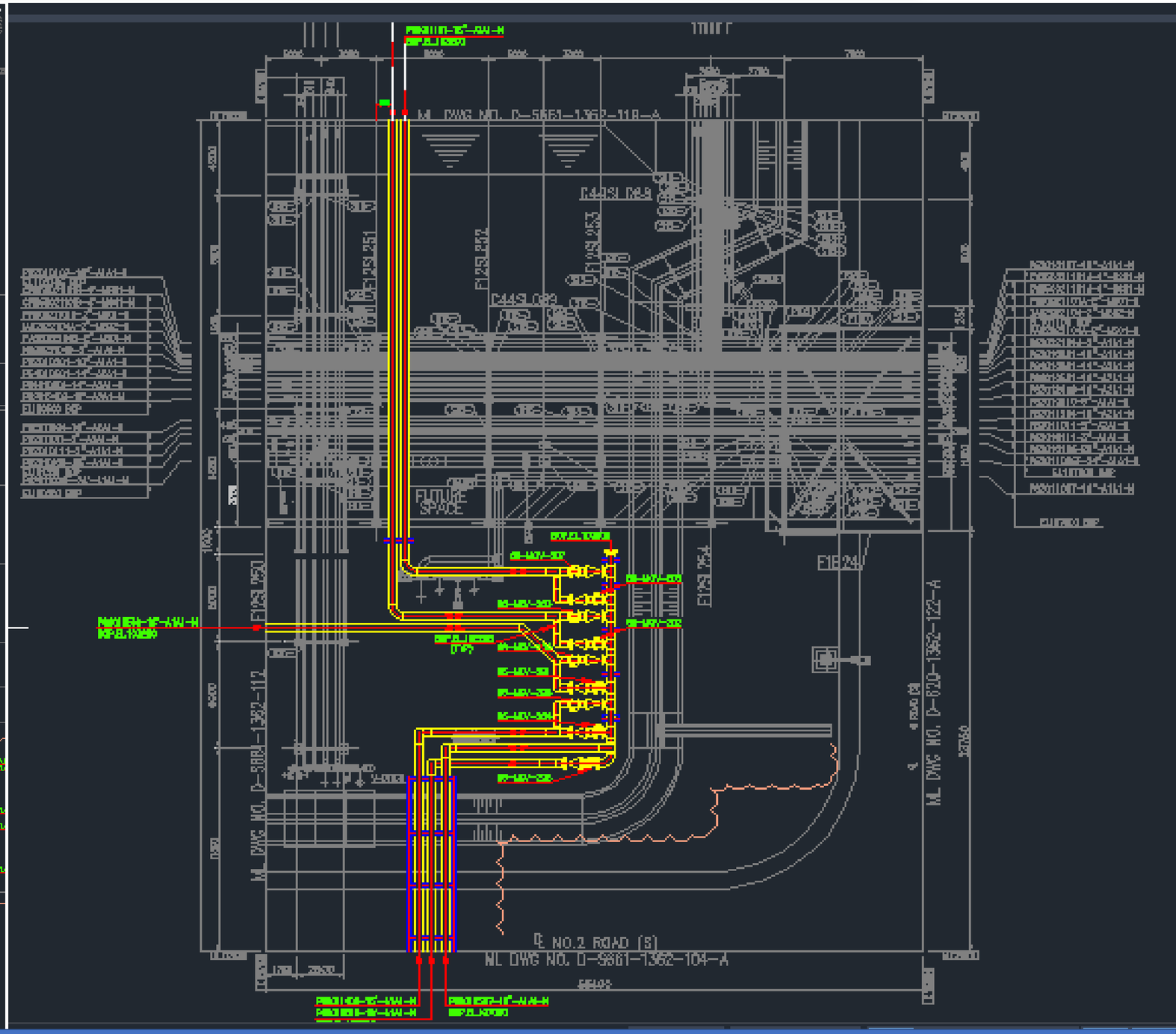
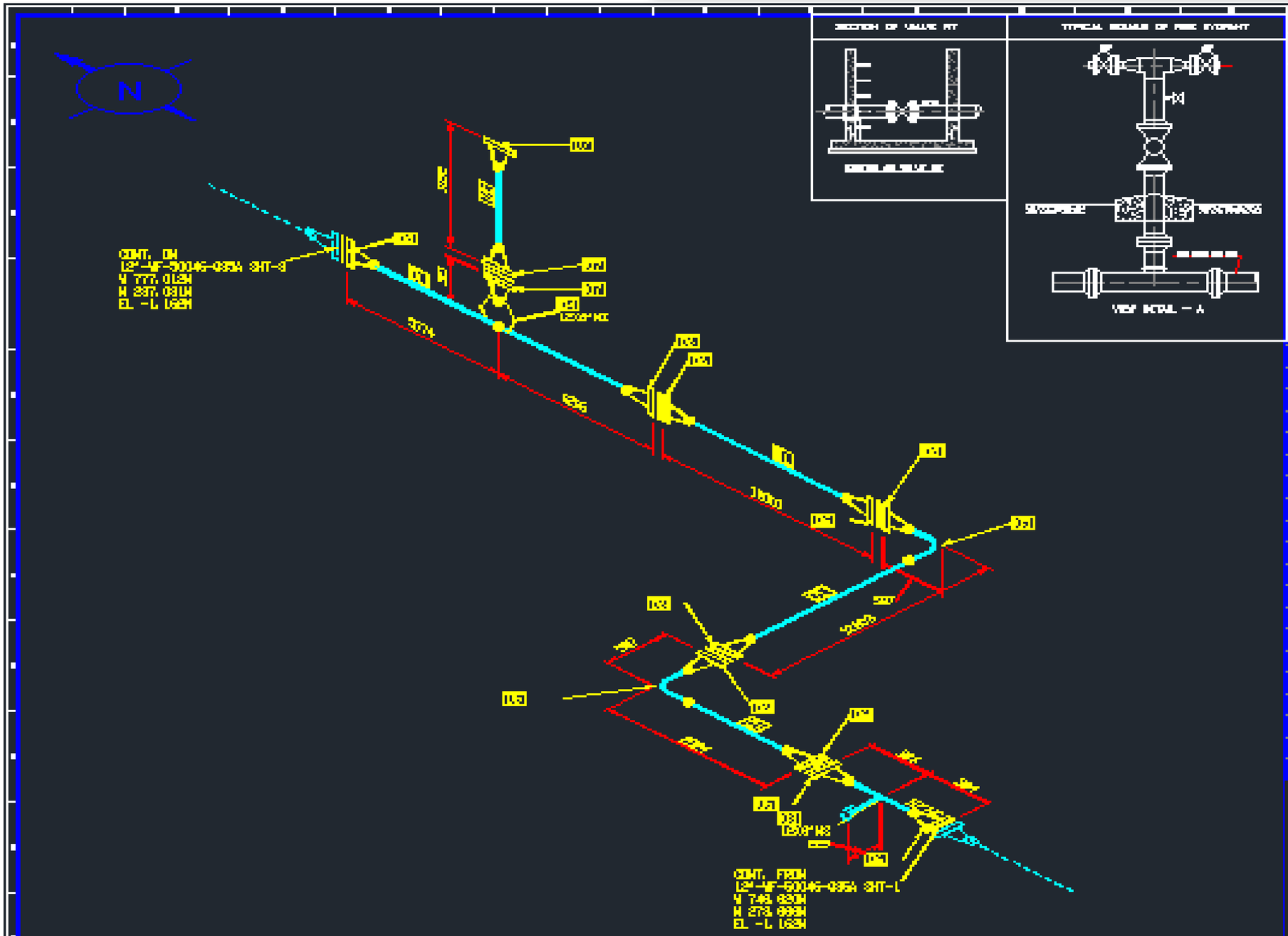




PIPING ISOMETRICS



BILL OF MATERIAL

SL. NO.	ITEM TYPE	SIZE	DESCRIPTION	QTY.
			BK.B, LIQUID EPOXY LINED BASE	
02	PIPE	6	PIPE, BE, SMLS, STD, B 36.10, API 5L	0.00 M
			BK.B, LIQUID EPOXY LINED BASE	
03	FITTINGS	12X6	REDUCING TEE, BW, STD, B 16.9, ASTM	1
			A234 WPB, LIQUID EPOXY LINED	
04	FITTINGS	12X6	WELO-O-LET STD, MSS-SP-97, ASTM	1
			A234 WPB, LIQUID EPOXY LINED	
05	FITTINGS	12	90 ELBOW, BW, SMLS, STD, B 16.9,	2
			A234 A234 WPB, LIQUID EPOXY LINED	
06	FLANGES	12	FLANGE, RF, WN, 300#, B 16.5, ASTM	10
07	FLANGES	6	FLANGE, RF, WN, 300#, B 16.5, ASTM	5
08	GASKETS	12	GASKET, COMPRESSED NON ASBESTOS	5
09	GASKETS	6	GASKET, COMPRESSED NON ASBESTOS	1
10	BOLTS	1.1/8	STUD BOLT, 300#, THREADED FULL	4
			BIBOLT BOLTMEN BK, BTM & NUTS ATM	
11	BOLTS	3/4	STUD BOLT, 300#, THREADED FULL	1
			BIBOLT BOLTMEN BK, BTM & NUTS ATM	
			BK, BTM (TOP LAM LS)	

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PIPING ISOMETRICS

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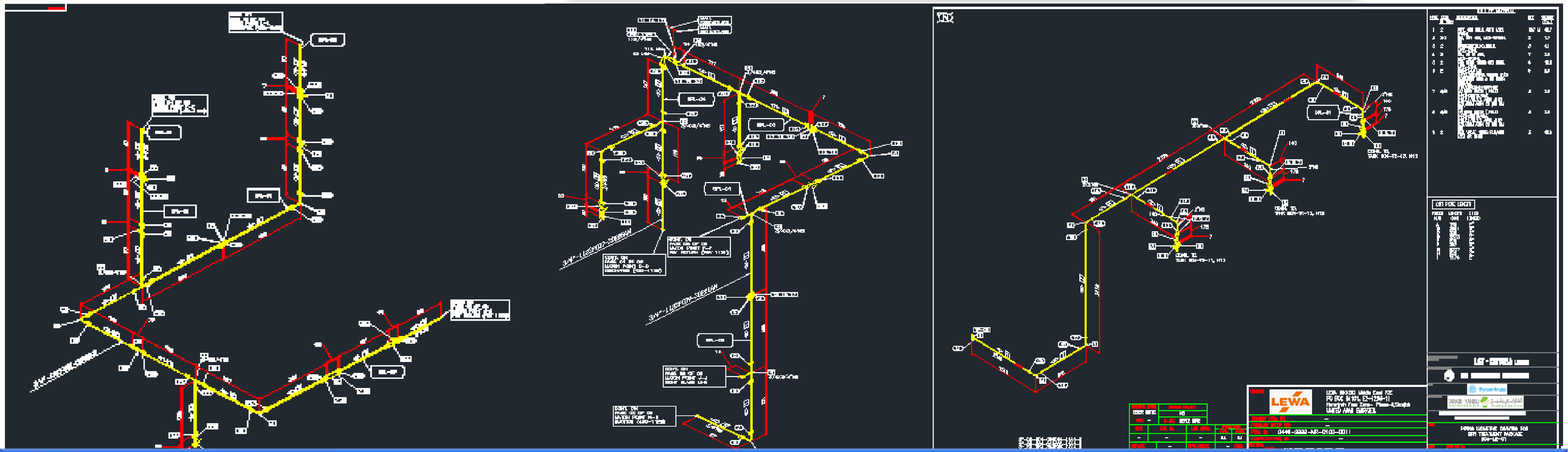
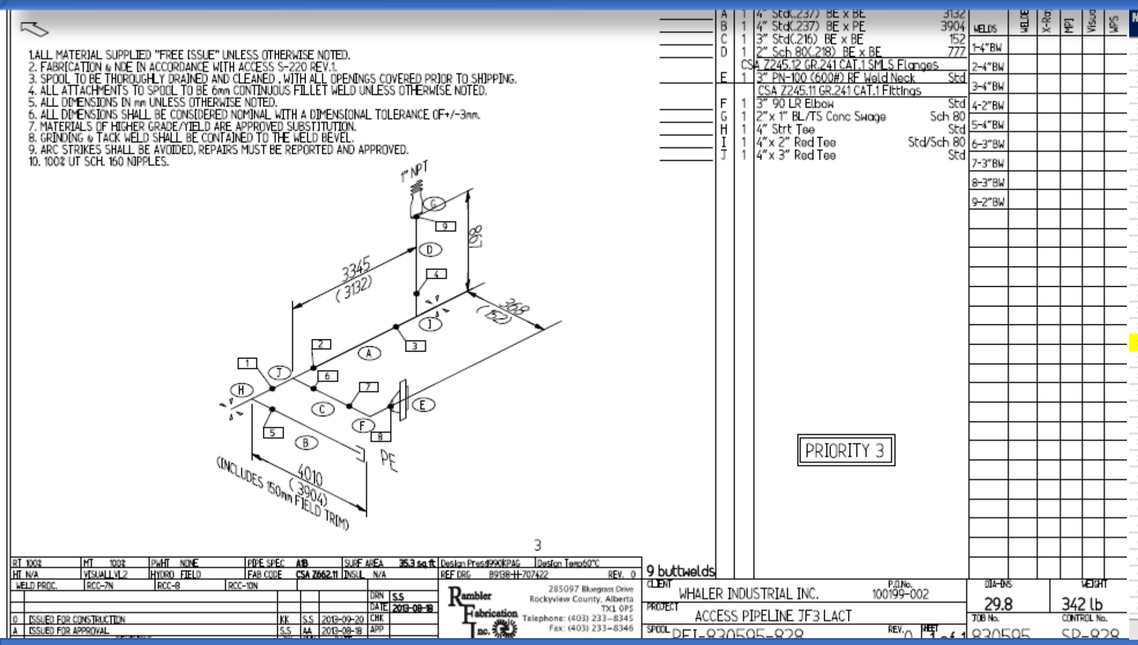


PIPING SPOOL DRAWINGS



MATERIAL TAKE-OFF

No	Num	er	No	Iso Number	Spool_N	Is	S	G	Iso	Item type	Description	Sp	Material	Size	e	g	B)	Abbr	Tag
2E+05	SP-963-A	1	1	B9138-H-707235	0 RFI-830595-96	02		A	521	A	16" Std(.375) BE x BE		CSA Z245.1 GR.241 CAT.	16	Std		112.334	Pipe	
2E+05	SP-963-B	2	1	B9138-H-707235	0 RFI-830595-96	02		B	1	A	16" PN-50 (300#) RF Weld Neck Std		CSA Z245.12 GR.241 CAT	16	Std	PN 50	258.300	Flange	
2E+05	SP-964-A	3	1	B9138-H-707235	0 RFI-830595-96	02		A	941	A	16" Std(.375) BE x BE		CSA Z245.1 GR.241 CAT.	16	Std		202.896	Pipe	
2E+05	SP-964-B	4	1	B9138-H-707235	0 RFI-830595-96	02		B	1	A	16" PN-50 (300#) RF Weld Neck Std		CSA Z245.12 GR.241 CAT	16	Std	PN 50	258.300	Flange	
2E+05	SP-964-C	5	1	B9138-H-707235	0 RFI-830595-96	02		C	1	A	16" PN-50 (300#) RF Weld Neck Std		CSA Z245.12 GR.241 CAT	16	Std	PN 50	258.300	Flange	
2E+05	SP-964-D	6	1	B9138-H-707235	0 RFI-830595-96	02		D	1	A	16" 90 LR Elbow Std		CSA Z245.11 GR.241 CAT	16	Std		216.749	Elbow-90 LR	
2E+05	SP-984-A	7	1	B9138-H-707235	0 RFI-830595-98	02		A	11000	A	16" Std(.375) BE x BE*		CSA Z245.1 GR.241 CAT.	16	Std		2371.430	Pipe-DRL	
2E+05	SP-984-B	8	1	B9138-H-707235	0 RFI-830595-98	02		B	1	A	16" PN-50 (300#) RF Weld Neck Std		CSA Z245.12 GR.241 CAT	16	Std	PN 50	258.300	Flange	
2E+05	SP-984-C	9	1	B9138-H-707235	0 RFI-830595-98	02		C	1	A	2" PN-50 (300#) RF Weld Neck Sch 80		CSA Z245.12 GR.241 CAT	2	Sch 80	PN 50	9.450	Flange	
2E+05	SP-984-D	10	1	B9138-H-707235	0 RFI-830595-98	02		D	1	A	2" WeldOlet Sch 80		CSA Z245.11 GR.241 CAT	2	Sch 80		1.995	Weldolet	
3E+05		11	1	B9138-H-707235	0		4		1	1 B	NIPPLE, SCH 160, SMLS,ASTM A106 GR. B TBE (100MM LG)		ASTM A106	1	SCH 160			NIPPLE	
3E+05		12	1	B9138-H-707235	0		7		3	1 B	GASKET, RF FLGD FOR PN50			16		PN 50		GASKET	
3E+05		13	1	B9138-H-707235	0		8		2	1 B	GASKET, RF FLGD FOR PN50			2		PN 50		GASKET	
3E+05		14	1	B9138-H-707235	0		9		60	1 B	BOLTING ASTM A193-B7 STUDS,WITH 2 ASTM A 194 2H HEAVY HEX NUTS			1 1/4X7 1/2		PN 50		FASTENERS	
3E+05		15	1	B9138-H-707235	0		10		16	1 B	BOLTING ASTM A193-B7 STUDS,WITH 2 ASTM A 194 2H HEAVY HEX NUTS			5/8X3 3/4		PN 50		FASTENERS	
3E+05		16	1	B9138-H-707235	0		11		1	1 B	BALL VALVE, RF, FLANGED,PN50,FP,DIB CSA Z245.15,CAT I,-29C			16		PN 50		Valve-Ball	MOV 70332
3E+05		17	1	B9138-H-707235	0		12		1	1 B	BALL VALVE, RF, FLANGED,PN50,FP,DIB CSA Z245.15,CAT I,-29C			2		PN 50		Valve-Ball	
3E+05		18	1	B9138-H-707235	0		14		1	1 B	RELIEF VALVE, 800LB THRD			1		800#		VALVE-RELIEF	TRV 70338
3E+05		19	1	B9138-H-707235	0		13		1	1 B	BLIND FLANGE, RF, PN50, D&T NPT 1, CSA Z245.12 GR.241 CAT I -29C			2	-	PN 50		FLANGE	
3E+05		20	1	B9138-H-707235	0				4	1 C	CS2			16				CS2	
3E+05		21	1	B9138-H-707235	0		B-01		1	1 D	BOLT UP			16		PN 50		BOLT UP	
3E+05		22	1	B9138-H-707235	0		B-02		1	1 D	BOLT UP			16		PN 50		BOLT UP	
3E+05		23	1	B9138-H-707235	0		B-03		1	1 D	BOLT UP			16		PN 50		BOLT UP	
3E+05		24	1	B9138-H-707235	0		B-04		1	1 D	BOLT UP			2		PN 50		BOLT UP	
3E+05		25	1	B9138-H-707235	0		B-05		1	1 D	BOLT UP			2		PN 50		BOLT UP	
3E+05		26	1	B9138-H-707235	0		FW-01		1	1 E	Field Weld			16	STD			FW	FW-235-01
4E+05	SP-961	27	1	B9138-H-707235	RFI-830595-96	2		9		G	Shop weld	C1B		8	Std			Butt-Weld	
4E+05	SP-963	28	1	B9138-H-707235	RFI-830595-96	2		1		G	Shop weld	B1B		16	Std			Butt-Weld	
4E+05	SP-964	29	1	B9138-H-707235	RFI-830595-96	2		1		G	Shop weld	B1B		16	Std			Butt-Weld	
4E+05	SP-964	30	1	B9138-H-707235	RFI-830595-96	2		2		G	Shop weld	B1B		16	Std			Butt-Weld	
4E+05	SP-983	31	1	B9138-H-707235	RFI-830595-98	3		9		G	Shop weld	B1B		6	Std			Butt-Weld	
4E+05	SP-984	32	1	B9138-H-707235	RFI-830595-98	2		1		G	Shop weld	B1B		2	Sch 80			Olet Weld	
4E+05	SP-984	33	1	B9138-H-707235	RFI-830595-98	2		2		G	Shop weld	B1B		16	Std			Butt-Weld	
2E+05	SP-965-A	34	1	B9138-H-707236	0 RFI-830595-96	02		A	439	A	16" Std(.375) BE x BE		CSA Z245.1 GR.241 CAT.	16	Std		107.568	Pipe	
2E+05	SP-965-B	35	1	B9138-H-707236	0 RFI-830595-96	02		B	2187	A	16" Std(.375) BE x BE*		CSA Z245.1 GR.241 CAT.	16	Std		471.516	Pipe	

Cover Sheet | C Sheet | Acorn Material Report Dump | Acorn weld Report | Acorn I

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PIPING SUPPORT DETAILING

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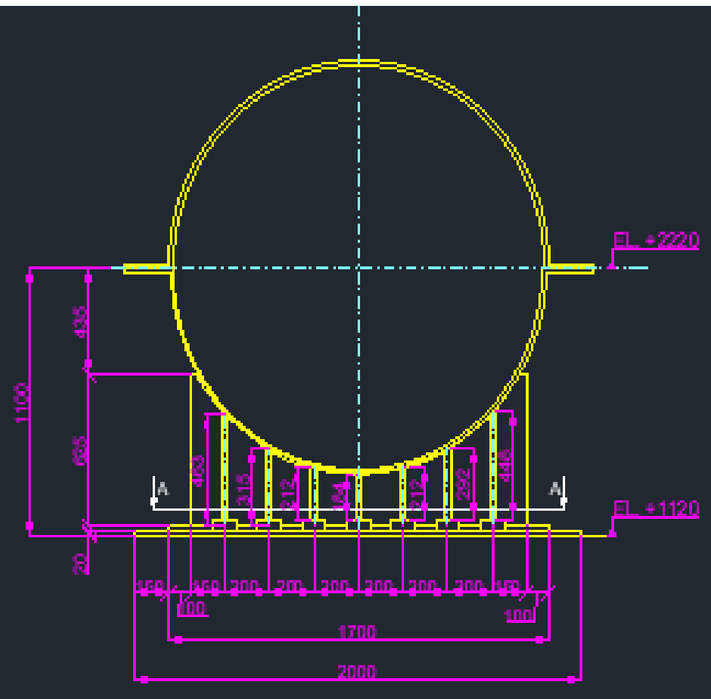
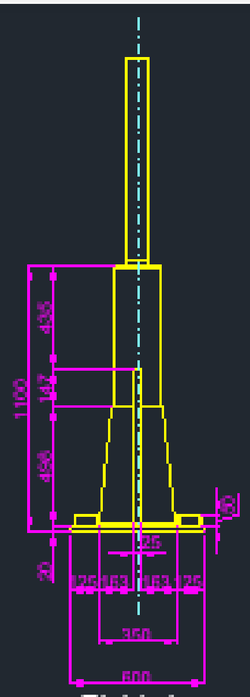
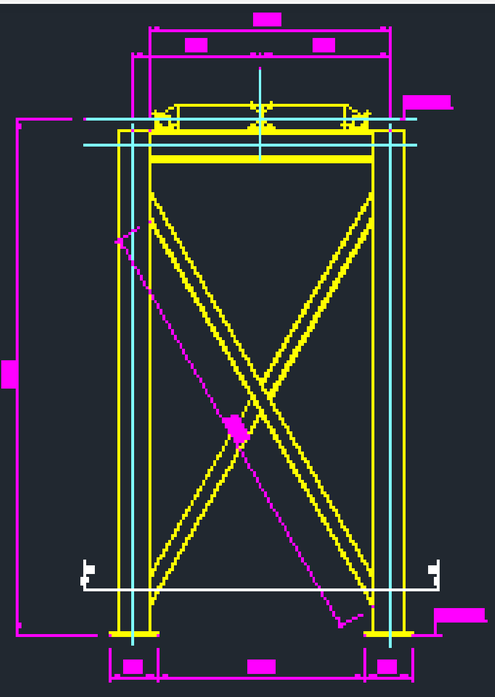


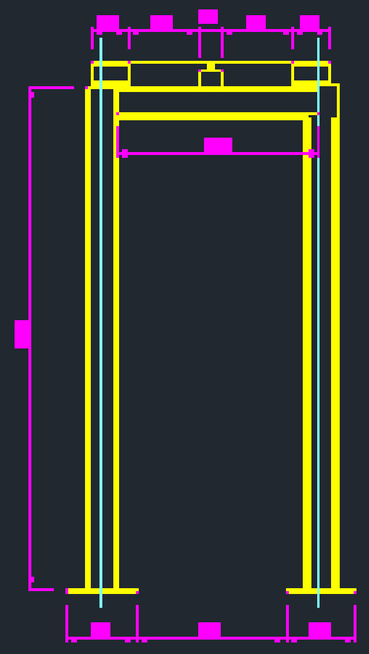
Front view
Scale: 1/1



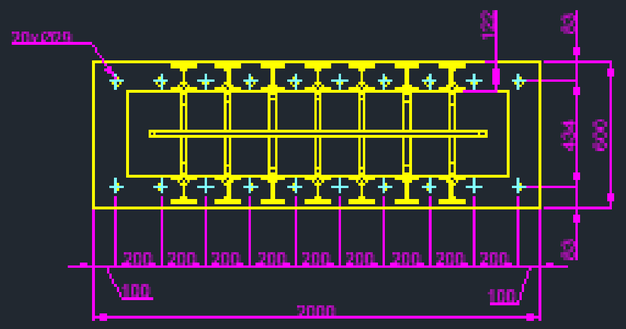
Right view
Scale: 1/1



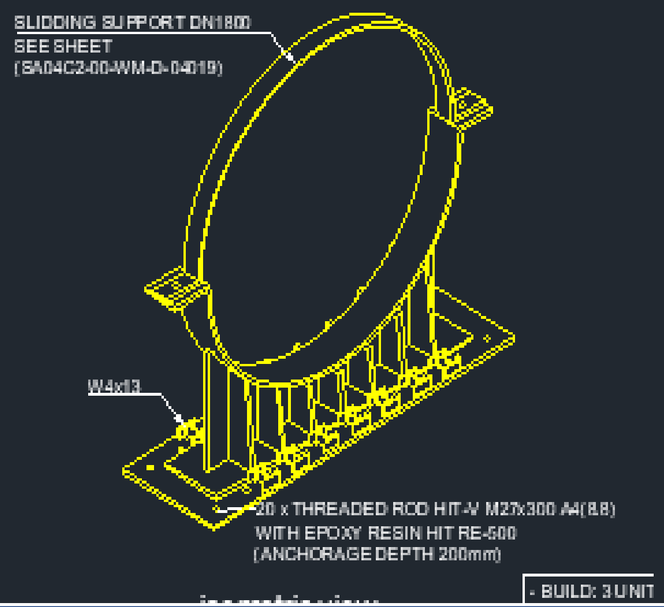
Front view
Scale: 1/1

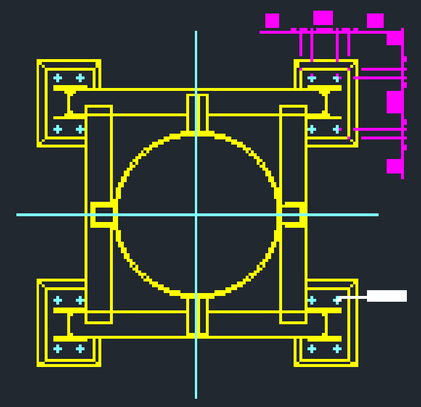


Right view
Scale: 1/1

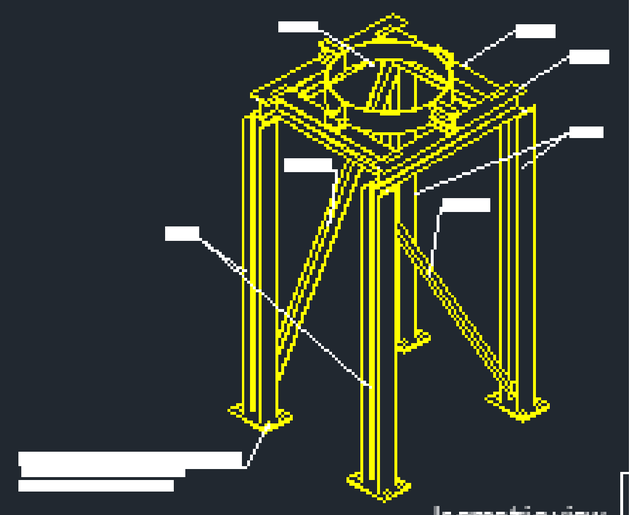


Section:A-A
Scale: 1/1



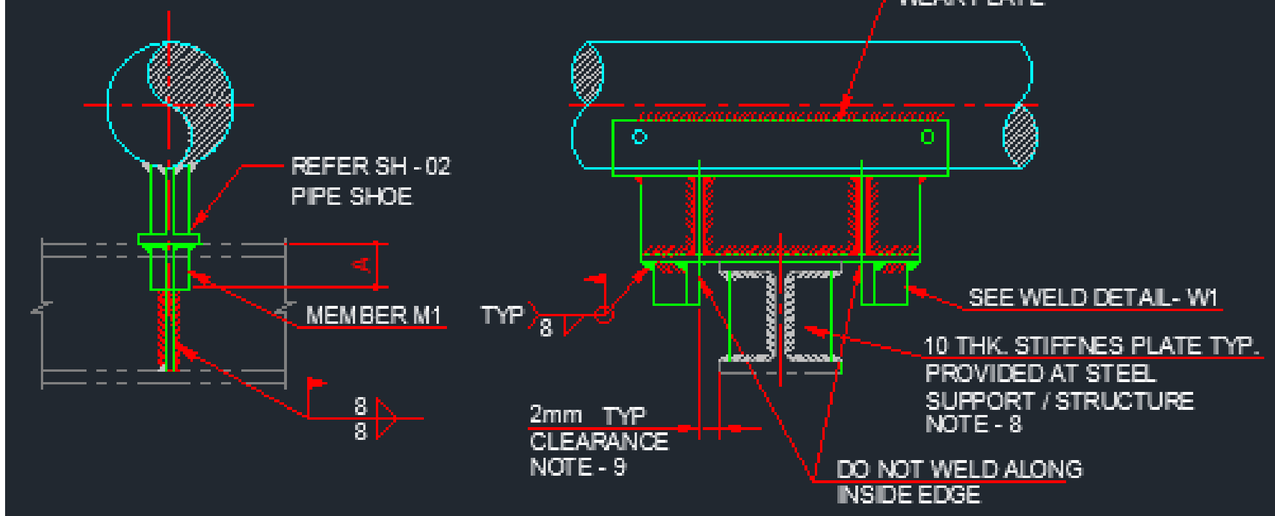


Section A-A
Scale: 1/1

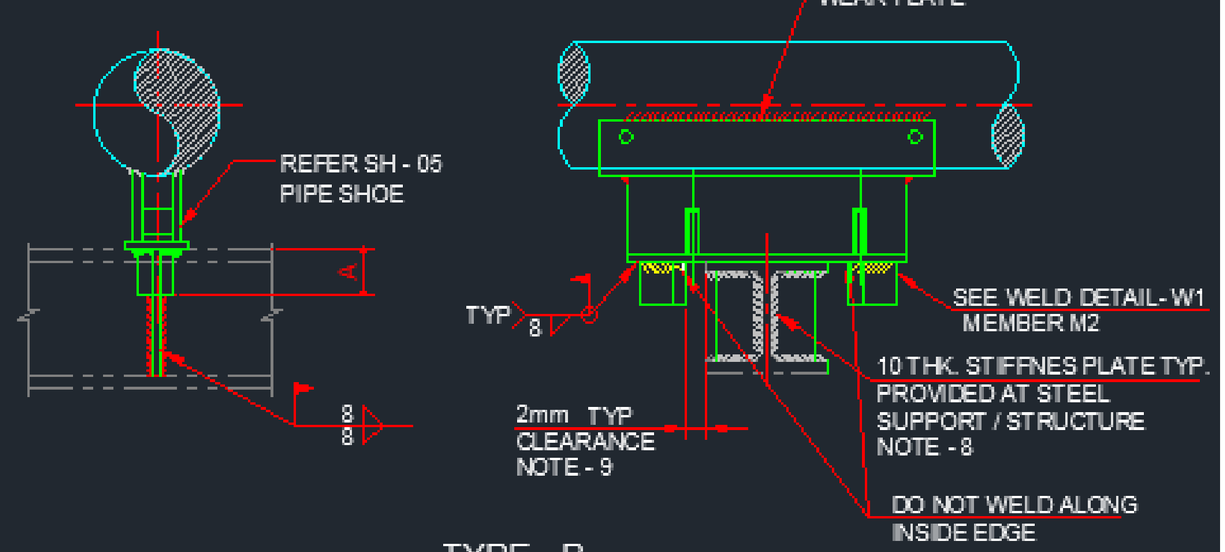


Isometric view

PIPING SUPPORT DETAILING



TYPE - A
PIPE SIZE NB 16" THRU. NB 24"



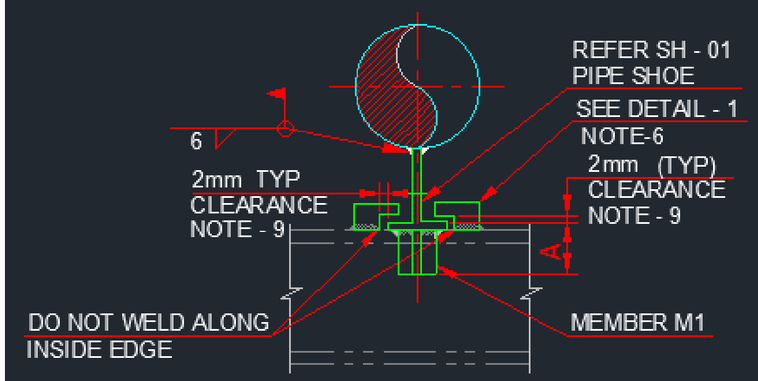
TYPE - B
PIPE SIZE NB 26" THRU. NB 30"

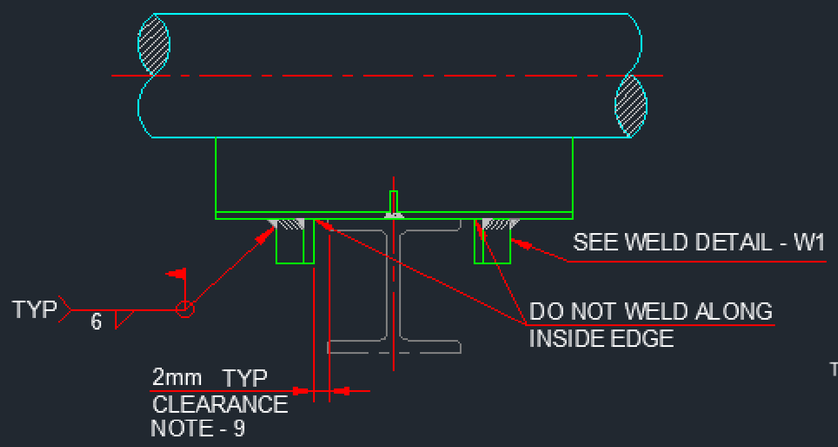
TYPE	PIPE NB INCH	A in mm	MEMBER M1&M2
A	16"	100	T- BAR (UC 203x203x46
	18"		

SUPPORT TAG

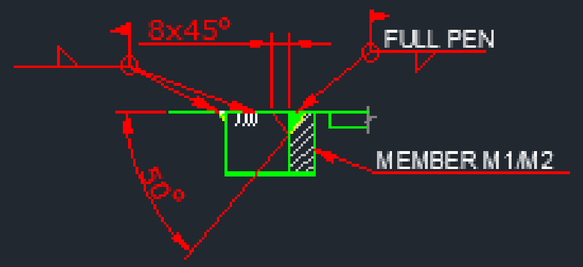
AS03 - A - D

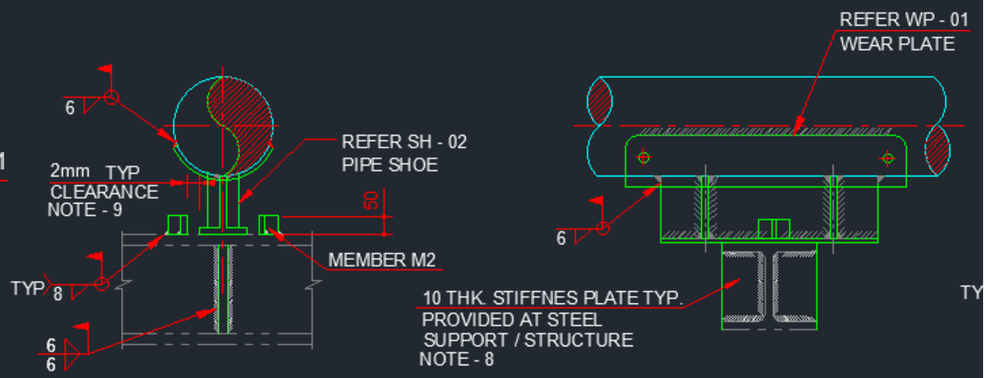
SUPPORT CODE





TYPE - A
PIPE SIZE NB 1 1/2" THRU. NB 6"
FIXED POINT - HOLD DOWN TYPE





TYPE - C
PIPE SIZE NB 16" THRU. NB 24"

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PIPING SUPPORT MAPPING GAD

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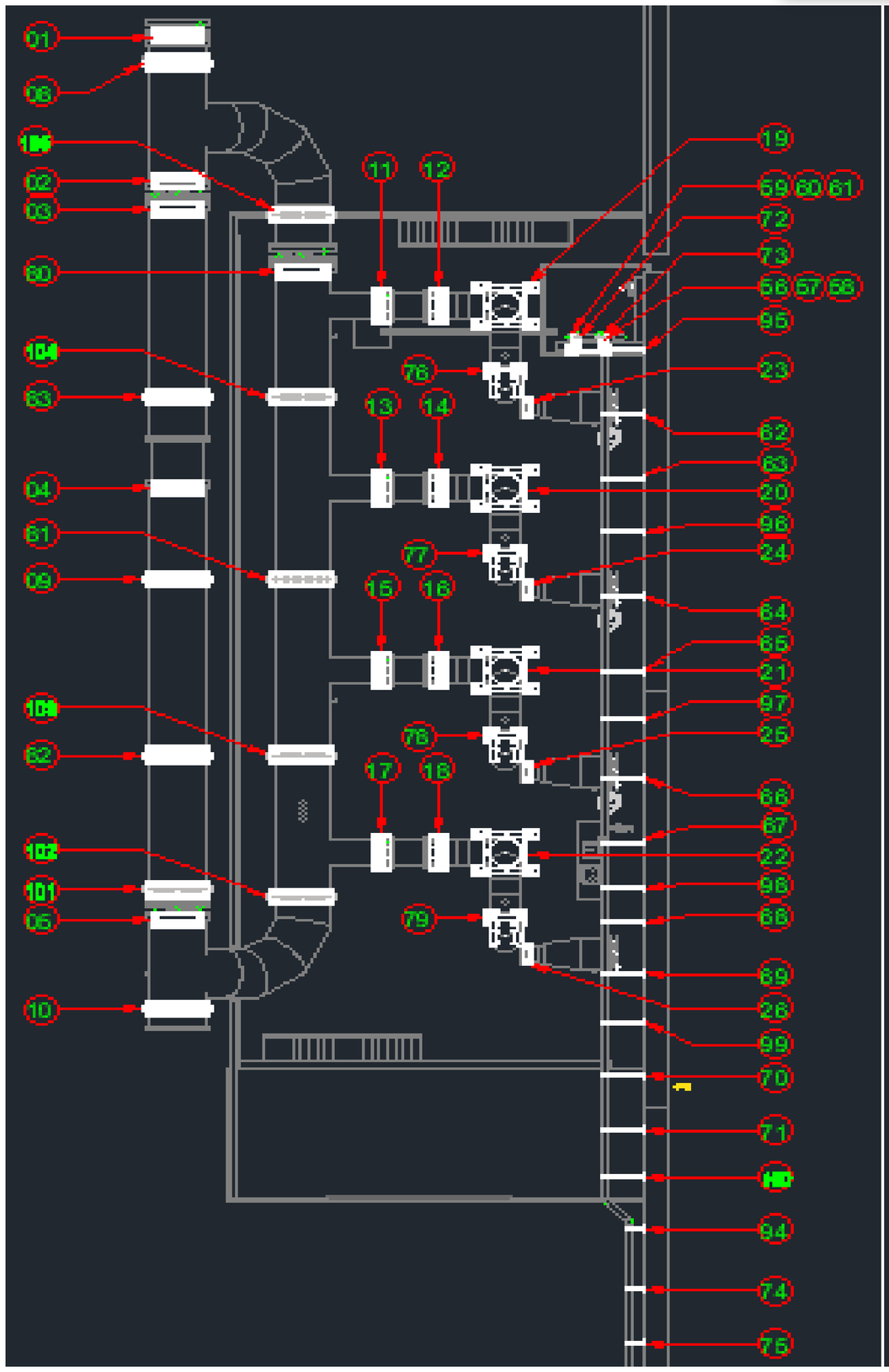

PIPE SUPPORTS COORDINATES				
S.NO.	SUPPORT TAG NUMBER	X (M)	Y (M)	Z (M)
1	07-SP-001.01	7.005	174.461	5.200
2	07-SP-001.02	7.005	174.474	5.200
3	07-SP-001.03	7.005	173.390	5.200
4	07-SP-001.04	7.005	162.544	5.200
5	07-SP-001.05	7.005	145.749	5.200
6	07-SP-001.06	90.871	186.825	5.150
7	07-SP-001.07	90.884	123.224	5.150
8	07-SP-002.01	7.005	179.104	5.200
9	07-SP-002.02	7.005	158.985	5.200
10	07-SP-002.03	7.005	142.225	5.200
11	07-SP-003.01	13.863	169.635	2.670
12	07-SP-003.02	15.772	169.635	2.670
13	07-SP-003.03	13.863	162.535	2.670
14	07-SP-003.04	15.772	162.535	2.670
15	07-SP-003.05	13.863	155.435	2.670
16	07-SP-003.06	15.772	155.435	2.670
17	07-SP-003.07	13.863	148.335	2.670
18	07-SP-003.08	15.759	148.335	2.670
19	07-SP-004.01	18.045	169.635	4.781
20	07-SP-004.02	18.045	162.535	4.781
21	07-SP-004.03	18.045	155.435	4.781
22	07-SP-004.04	18.045	148.335	4.781
23	07-SP-005.01	18.860	165.675	2.770
24	07-SP-005.02	18.860	158.575	2.770
25	07-SP-005.03	18.860	151.475	2.770
26	07-SP-005.04	18.860	144.375	2.770
27	07-SP-006.01	92.185	177.245	5.150
28	07-SP-006.02	92.185	165.427	5.150
29	07-SP-006.03	92.185	153.219	5.150
30	07-SP-006.04	92.185	139.938	5.150
31	07-SP-006.05	92.185	127.126	5.150
32	07-SP-006.06	96.775	177.195	5.150
33	07-SP-006.07	96.775	172.744	5.150
34	07-SP-006.08	96.775	133.473	5.150
48	DELETED			
49	DELETED			
50	DELETED			
51	DELETED			
52	07-SP-008.01	96.744	175.796	5.150
53	07-SP-008.02	96.744	174.396	5.150
54	07-SP-008.03	96.744	136.166	5.150
55	07-SP-008.04	96.744	134.57	5.150
56	07-SP-009.01	21.39	168.378	3.300
57	07-SP-009.02	21.205	168.375	2.756
58	07-SP-009.03	21.205	168.375	2.212
59	07-SP-009.04	20.257	168.378	3.300
60	07-SP-009.05	20.455	168.375	2.756
61	07-SP-009.06	20.455	168.375	2.212
62	07-SP-010.01	21.403	165.424	7.240
63	07-SP-010.02	21.403	162.924	7.240
64	07-SP-010.03	21.403	158.324	7.240
65	07-SP-010.04	21.403	155.774	7.240
66	07-SP-010.05	21.403	151.224	7.240
67	07-SP-010.06	21.403	148.724	7.240
68	07-SP-010.07	21.403	145.608	7.240
69	07-SP-010.08	21.403	143.608	7.240
70	07-SP-010.09	21.403	139.621	7.240
71	07-SP-010.10	21.403	137.521	7.240
72	07-SP-011.01	20.455	168.375	0.518
73	07-SP-011.02	21.205	168.375	0.518
74	07-SP-012.01	22.204	131.317	7.240
75	07-SP-012.02	22.204	129.254	7.240
76	07-SP-013.01	18.045	166.545	3.820
77	07-SP-013.02	18.045	159.245	3.820
78	07-SP-013.03	18.045	152.145	3.820
79	07-SP-013.04	18.045	145.045	3.820
80	07-SP-014.01	11.205	170.973	2.670
81	07-SP-015.01	11.205	158.985	2.670
82	07-SP-016.01	7.005	152.135	5.200
83	07-SP-016.02	7.005	166.085	5.200
84	07-SP-017.01	92.185	133.533	5.150

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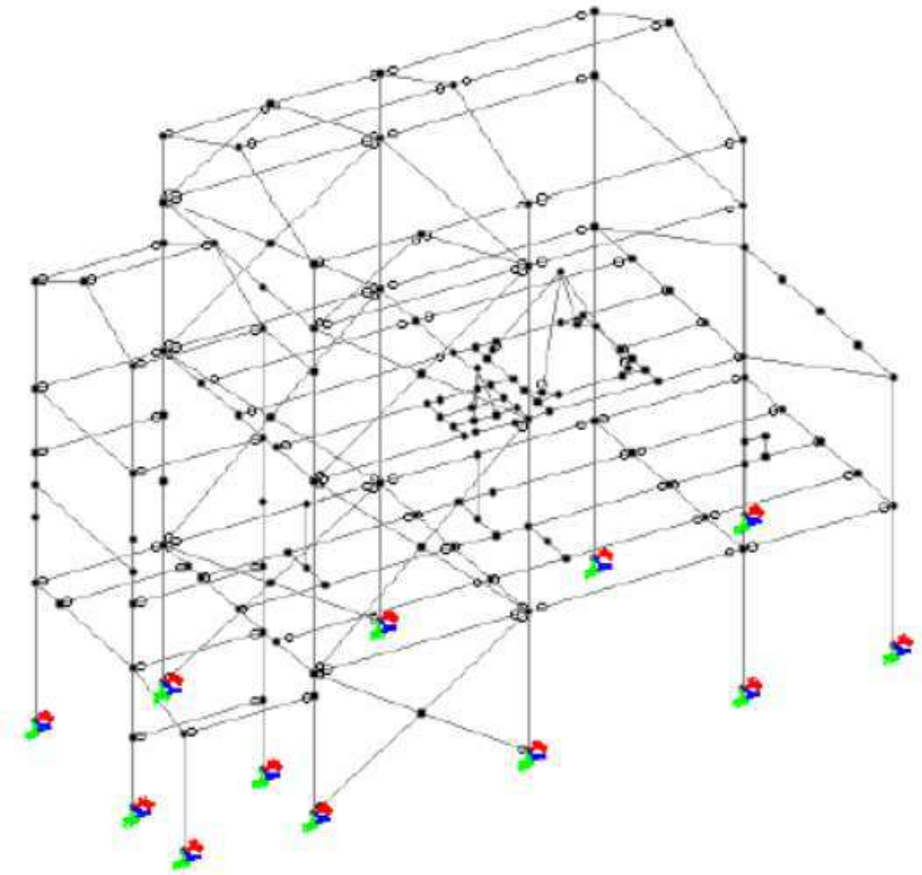


Figure 2

Structure ZLD , Analytical model in STAAD Pro

Dynamic pressure base :

$$q_z = 0.0048\, G V_D^2 \text{ (en kg/m}^2\text{)}$$

V_D = 186.72 km/h

$G = \dfrac{0.392\,\Omega}{273 + \tau}$

where:

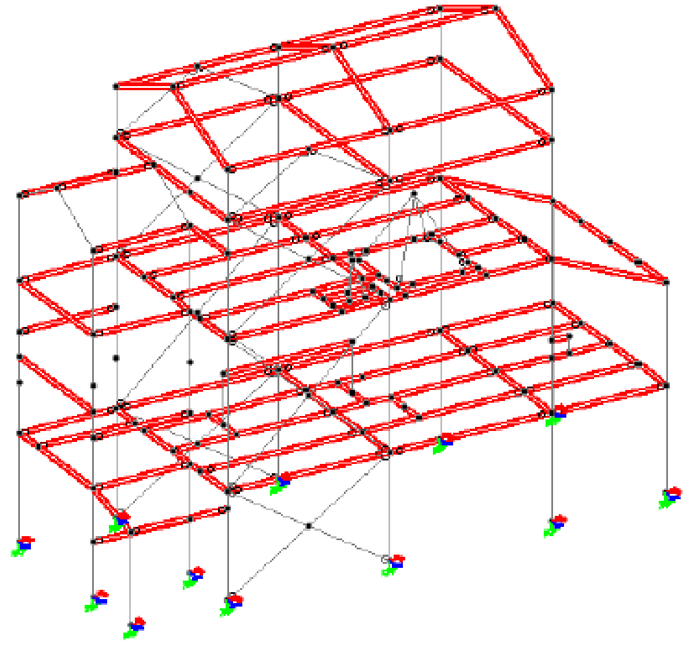
Ω It is the barometric pressure in mm Hg, and

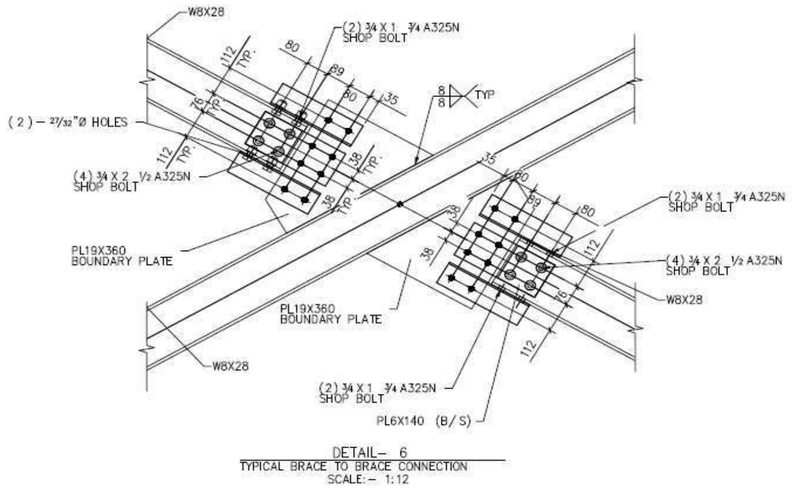
τ room temperature, in ° C.

Altitude	=	1257	m	(0348-MEM-AEE-000C-050-0001_Rev07)
Ω	=	654.44	(MmHg)	(Table 4.2.5 of CFE-WIND 2008)
τ	=	21.8	deg.C	(0348-MEM-AEE-000C-050-0001_Rev07)
G	=	0.87		
q_z	=	145.594	kg/m2	
	=	1.456	kN/m2	

Acting Pressure on Structures

pz	=	$C_p\, q_z$
Cp	=	Pressure coefficient
Cp	=	2.05
pz	=	2.985 kN/m2





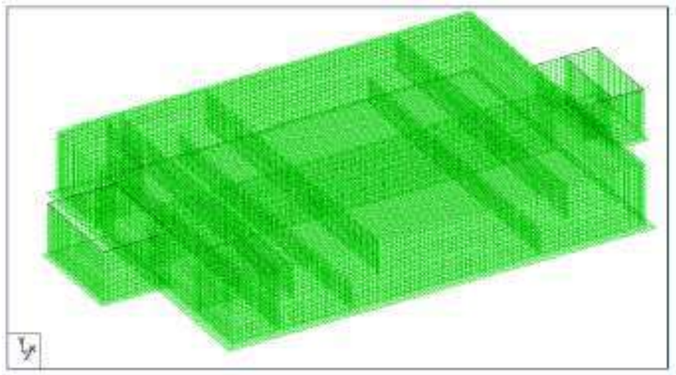
PROJECT: Norte III Modelizado 3D-ZLD

Client: **ABENGOA AGUA**

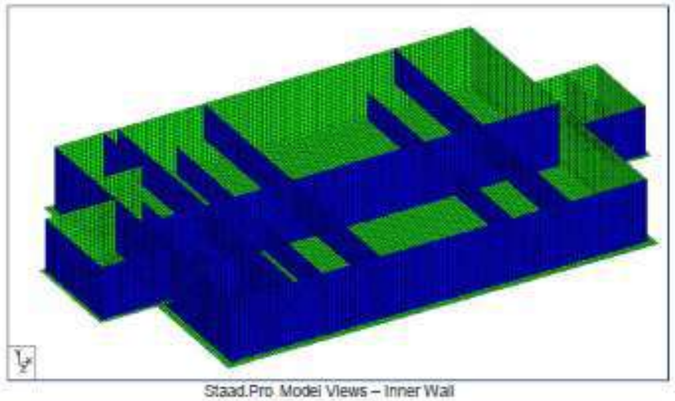
SCOPE OF WORK:

- Support Analysis & Report in Staad Pro.
- 3D Modelling in TEKLA
- Shop drawing Extraction with BOQ

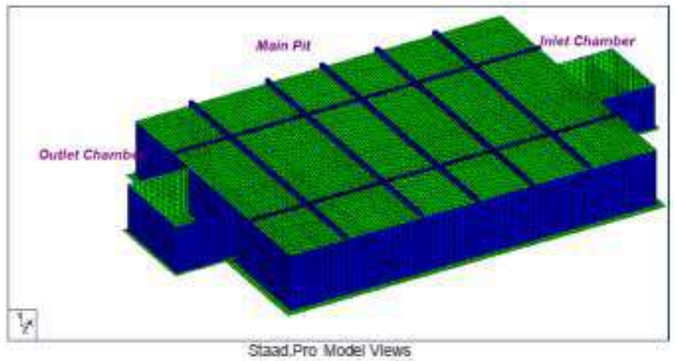
STAAD PRO ANALAYSIS



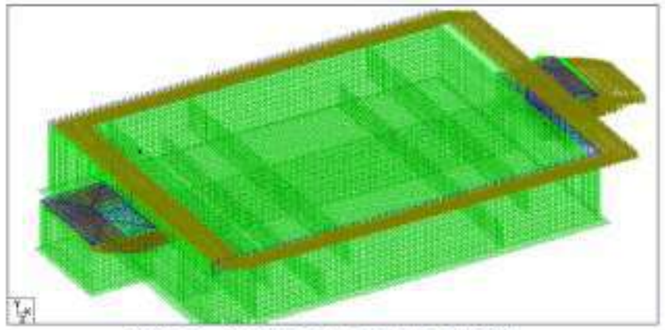
Staad.Pro Model Views



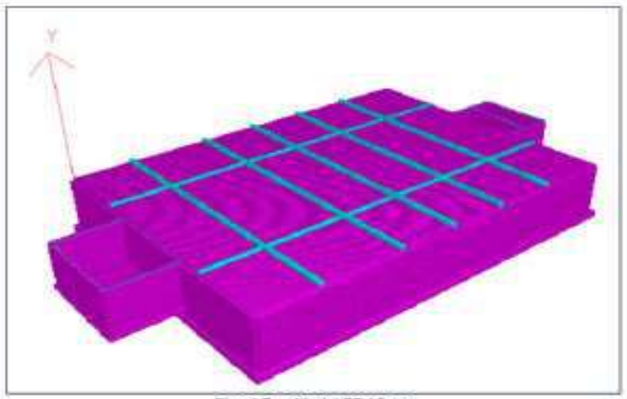
Staad.Pro Model Views – Inner Wall



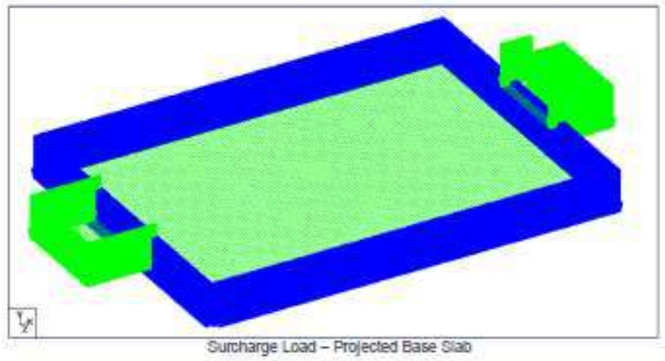
Staad.Pro Model Views



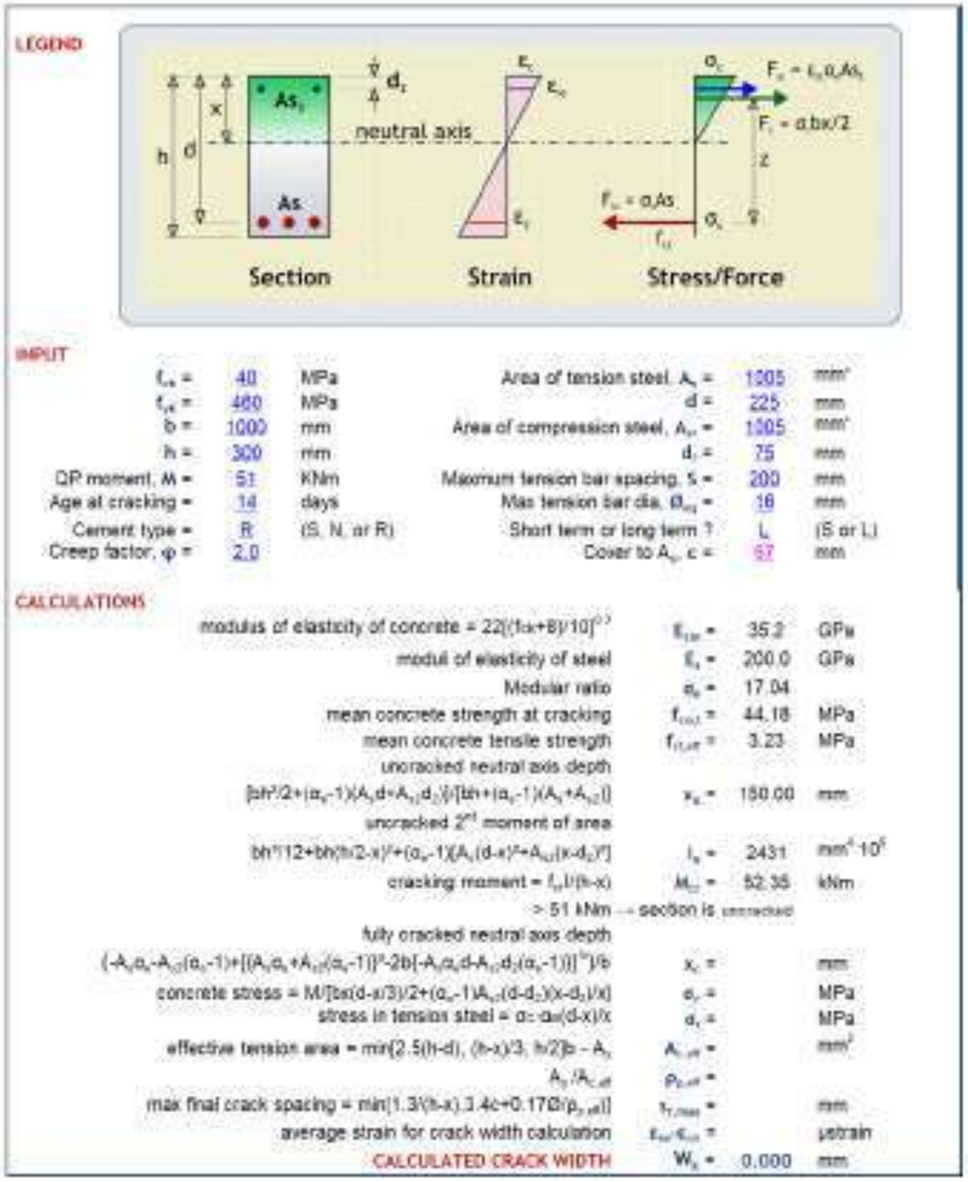
Dead Load – Checkered Plate ,Handrail & Cover Slab



Staad.Pro Model 3D Views



Surcharge Load – Projected Base Slab



PROJECT: BU HASA project

Client: **INITEC Plantas Industriales**

SCOPE OF WORK:

- calculation of retention pond together with two chambers (inlet and outlet).
- Detail Drawing for the same.

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AUTODESK ROBOT SUPPORT ANALYSIS & HILTI PROFIS BASE PLATE ANALYSIS

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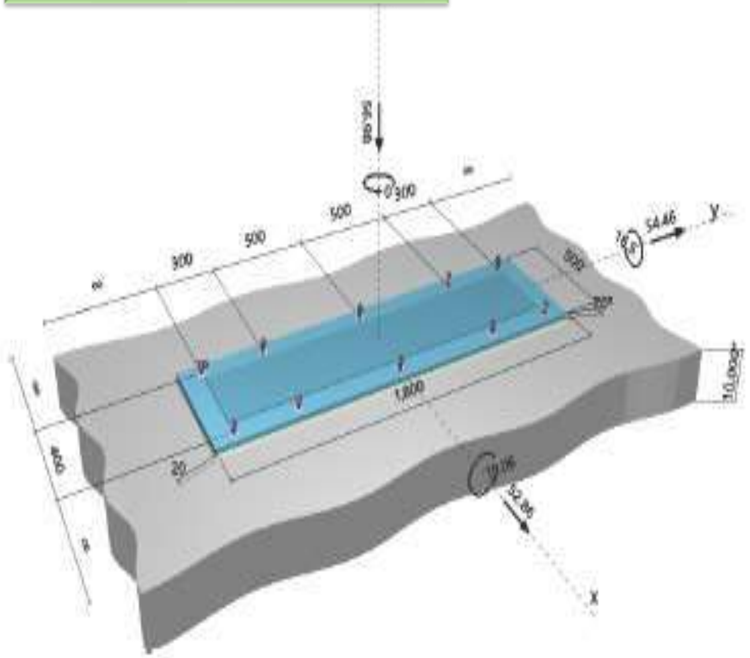
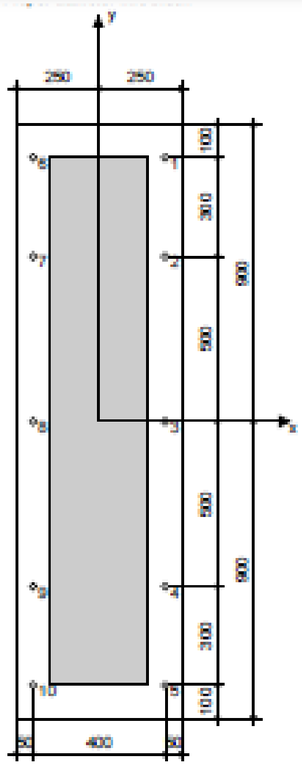
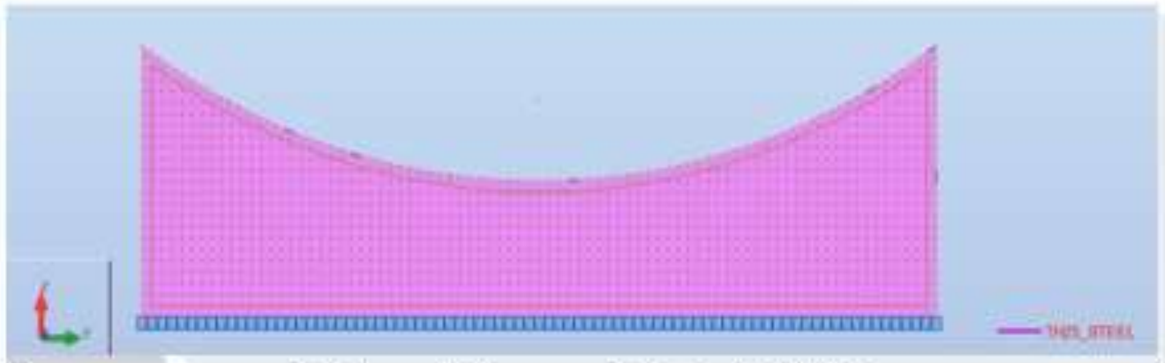
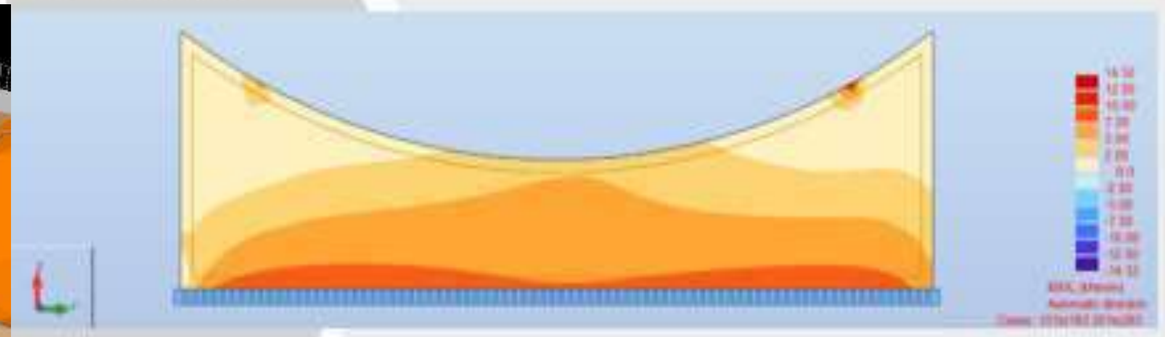


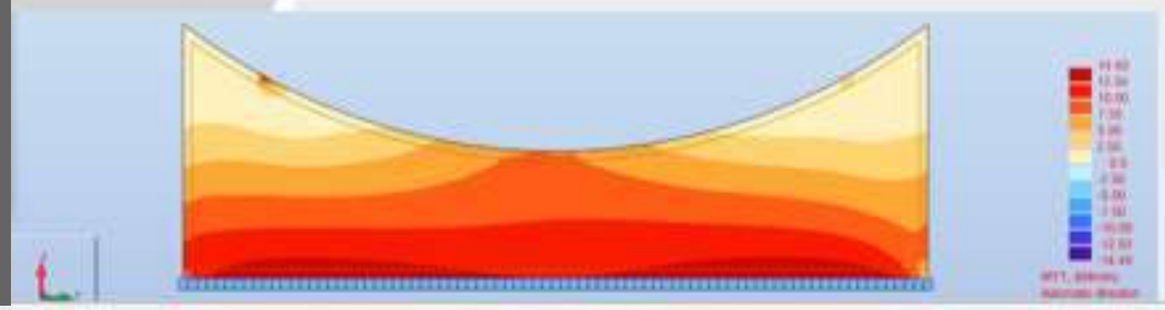


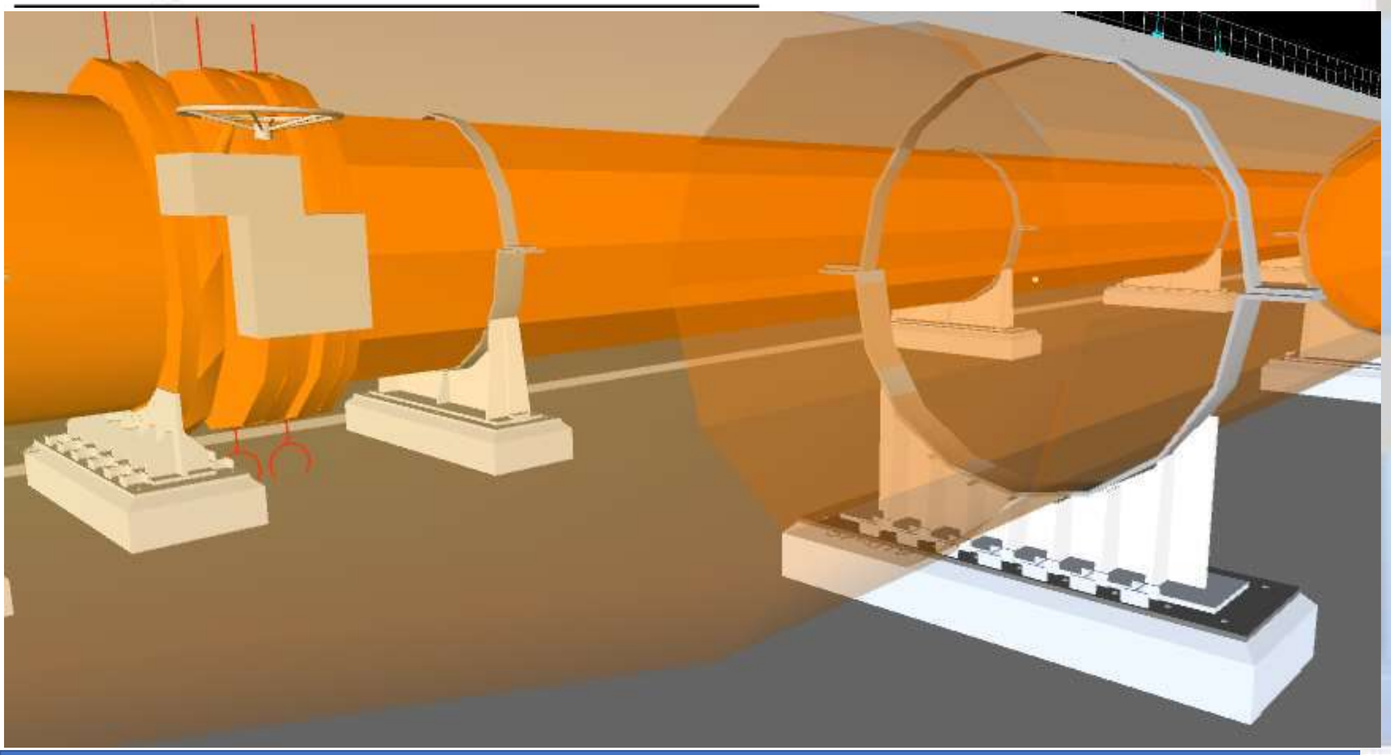


Case	Load type	List	Load values (m) (kN) (Deg)
1:Self Weight	self-weight	1	' PZ Negative Factor=1.10
2:Exp Dead Load	nodal force	2260	' FZ=-86.11(kN)
3:Exp Operating Load	nodal force	2260	
4:Exp Hydro Test Load	nodal force	2260	' FX=-21.14(kN) FY=-0.02(kN) FZ=0.03(kN)
5:Wind +X	nodal force	2260	
6:Wind -X	nodal force	2260	
7:Wind +Y	nodal force	2260	
8:Wind -Y	nodal force	2260	
10:Seismic X	nodal force	2260	' FX=30.14(kN) FY=0.33(kN)
11:Seismic Y	nodal force	2260	' FX=33.87(kN) FY=0.34(kN) FZ=10.68(kN)
12:Seismic Z	nodal force	2260	

- Plate Stress







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AUTODESK ROBOT SUPPORT ANALYSIS & HILTI PROFIS BASE PLATE ANALYSIS

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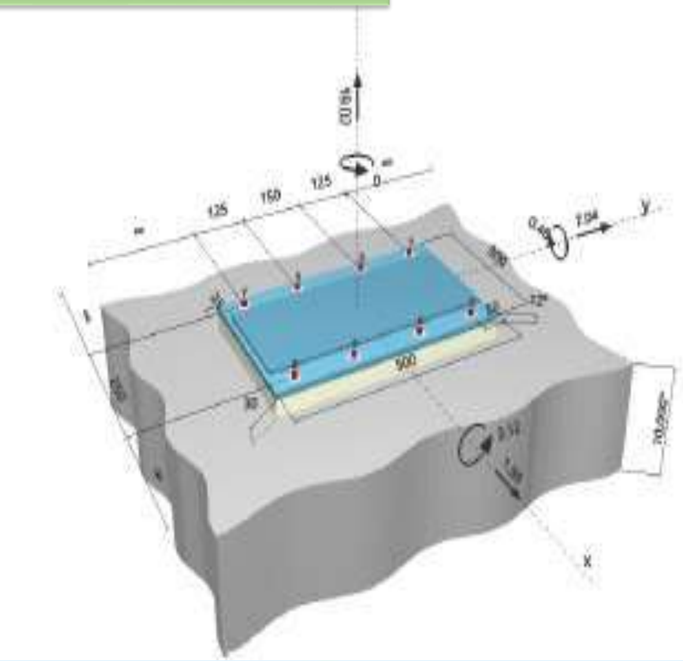
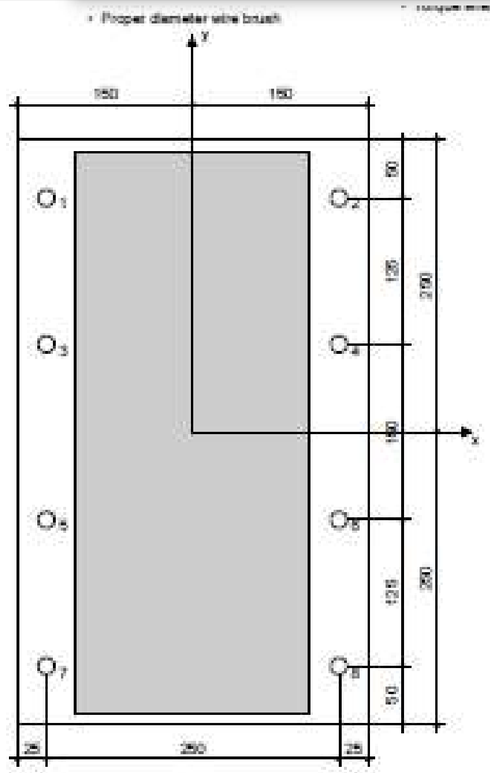
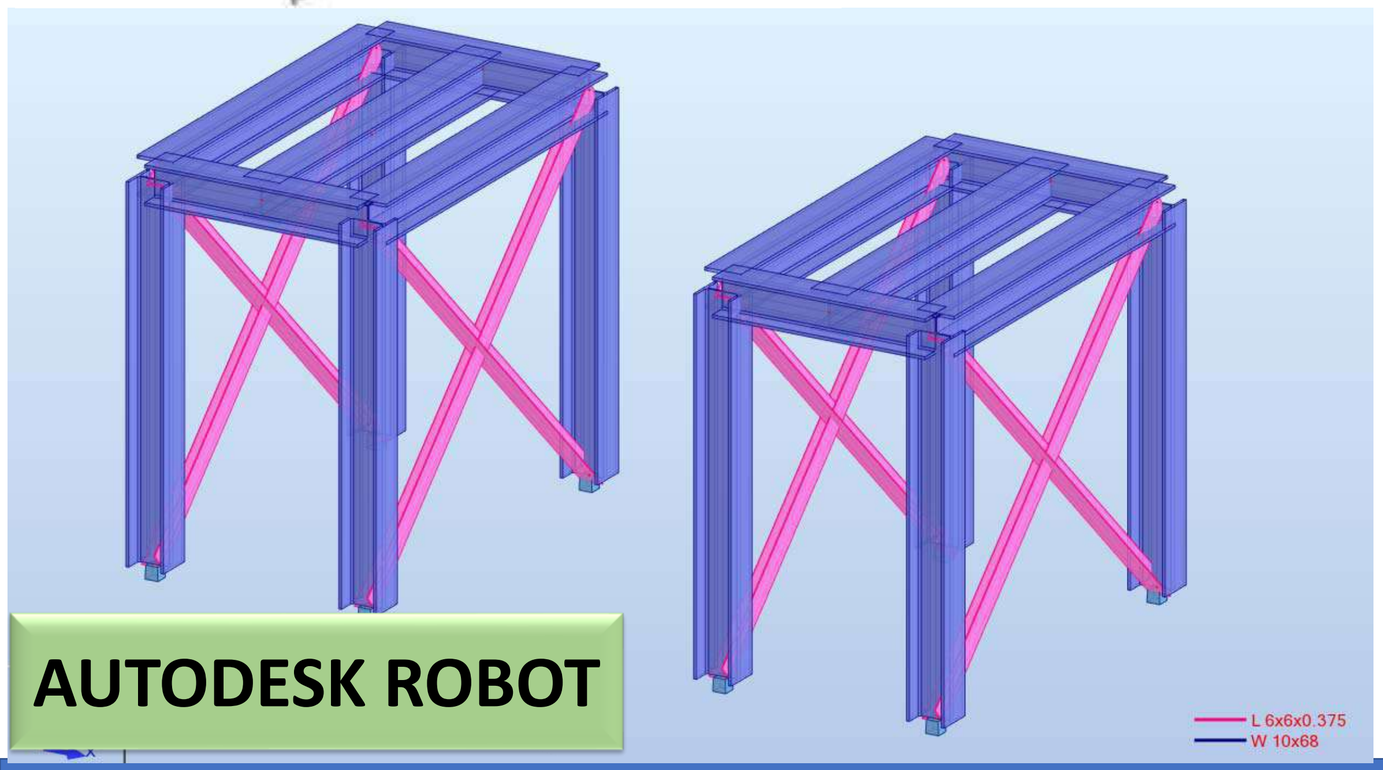




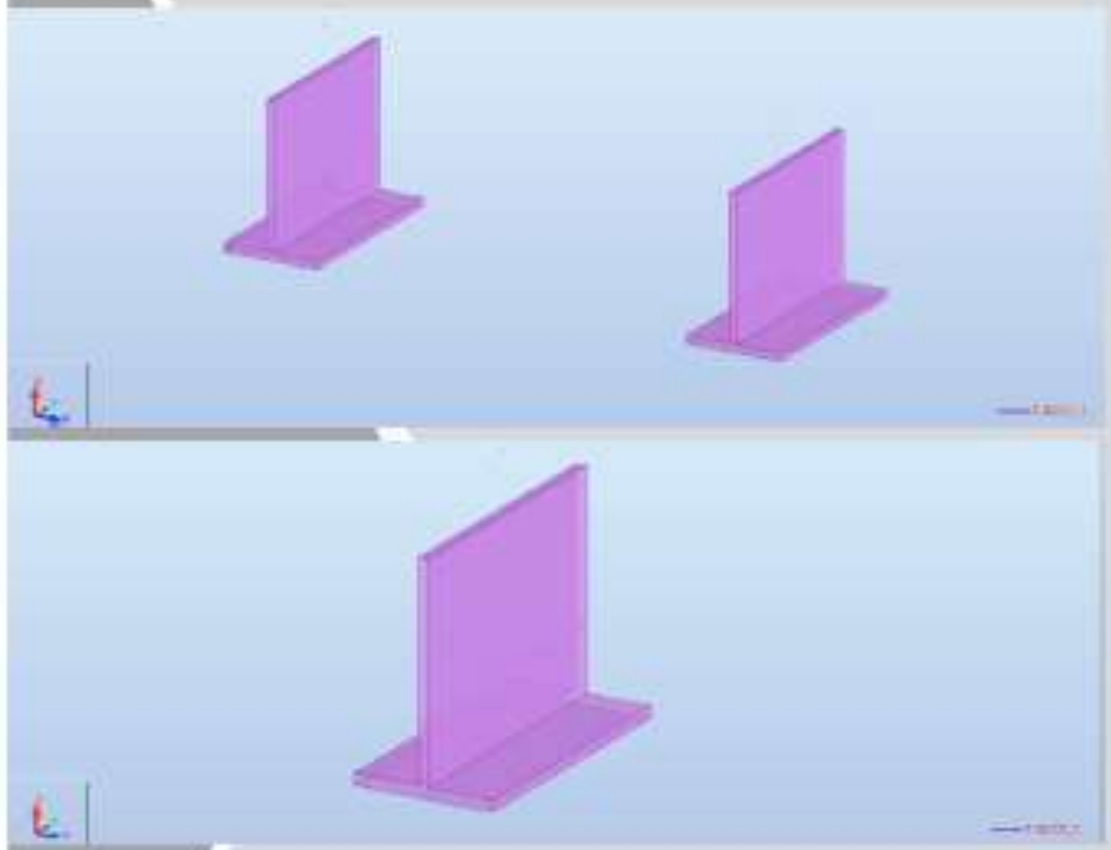
AUTODESK ROBOT



4.2 PIPE SUPPORT SP-002

The following Node number taken as support Type SP-002

Node	Support Type
8330	SP-002



Case	Load type	List	Load values (m) (kN) (Deg)
1:Self Weight	self-weight	2	' PZ Negative Factor=1.10
9:Thermal	thermal load	2	' TX=25.00(°C)
2:Pipe Dead Load	nodal force	8330	' FZ=-1.65(kN)
3:Pipe Operating Load	nodal force	8330	' FZ=-3.73(kN)
4:Pipe Hydro Test Load	nodal force	8330	' FZ=-8.24(kN)
10:Seismic X	nodal force	8330	' FZ=-5.38(kN)
11:Seismic Y	nodal force	8330	' FZ=-5.90(kN)
12:Seismic Z	nodal force	8330	' FZ=-5.96(kN)

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TEKLA MODEL & SHOP DRAWING EXTRACTION

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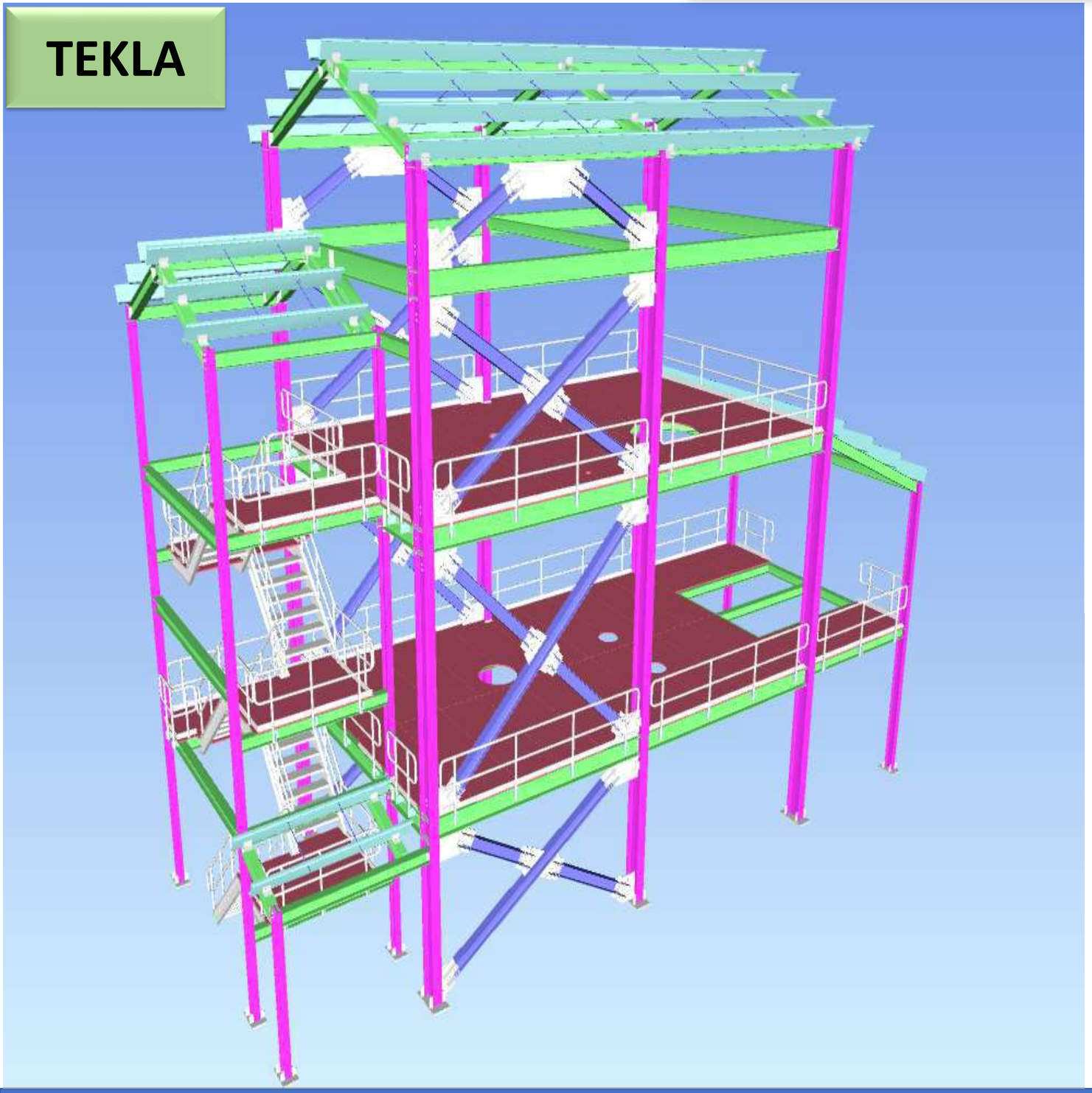
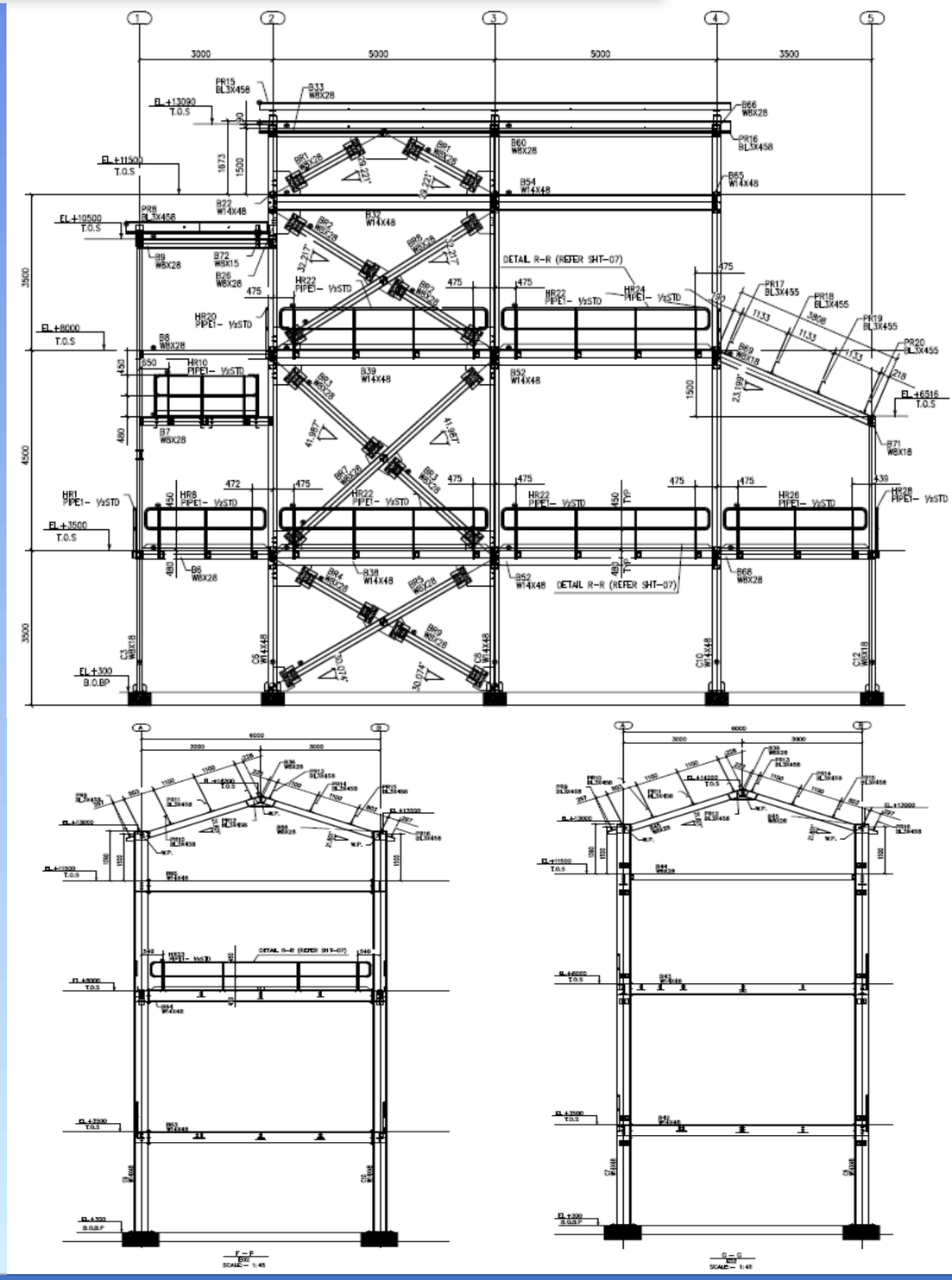
TEKLA





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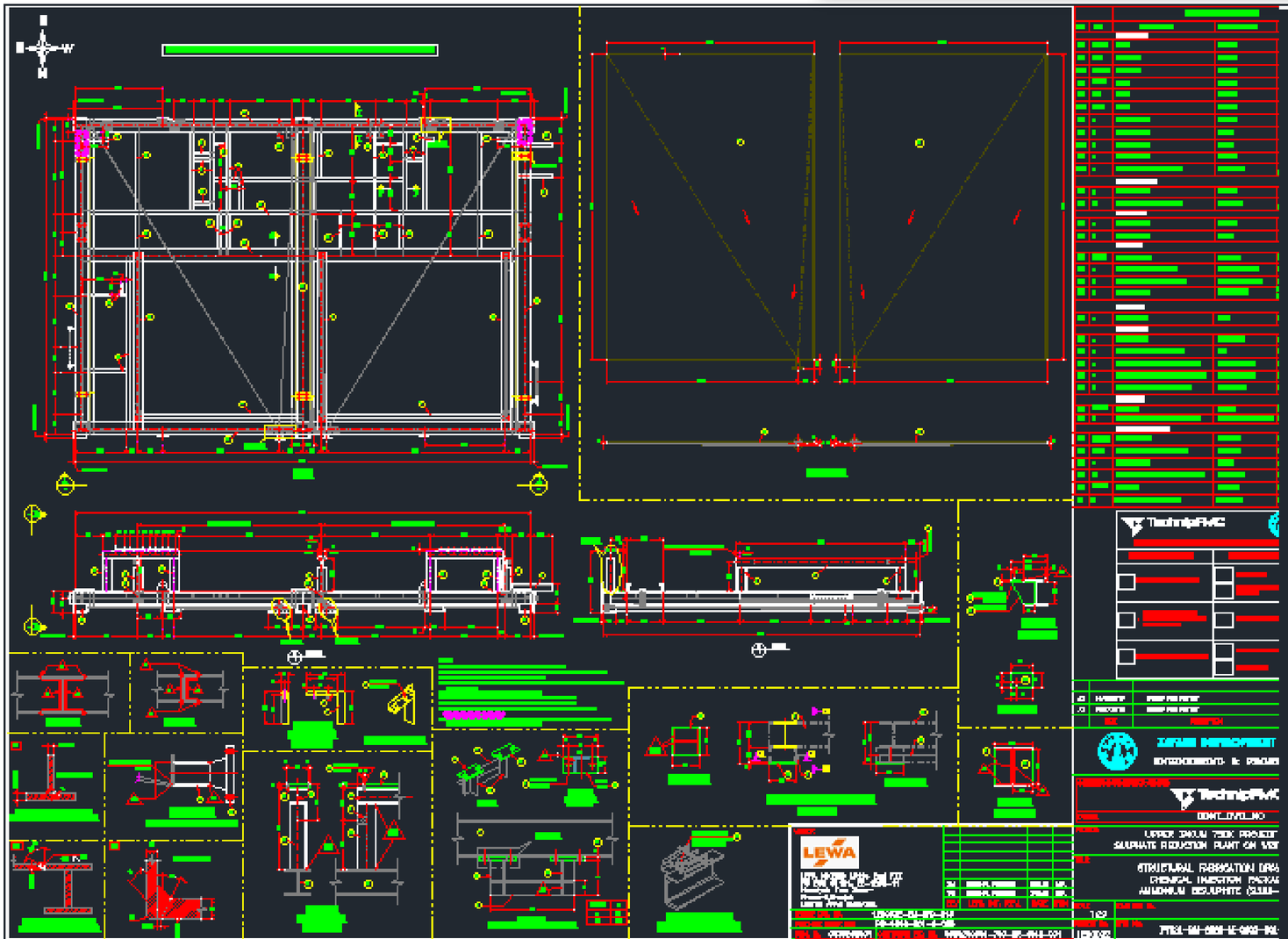

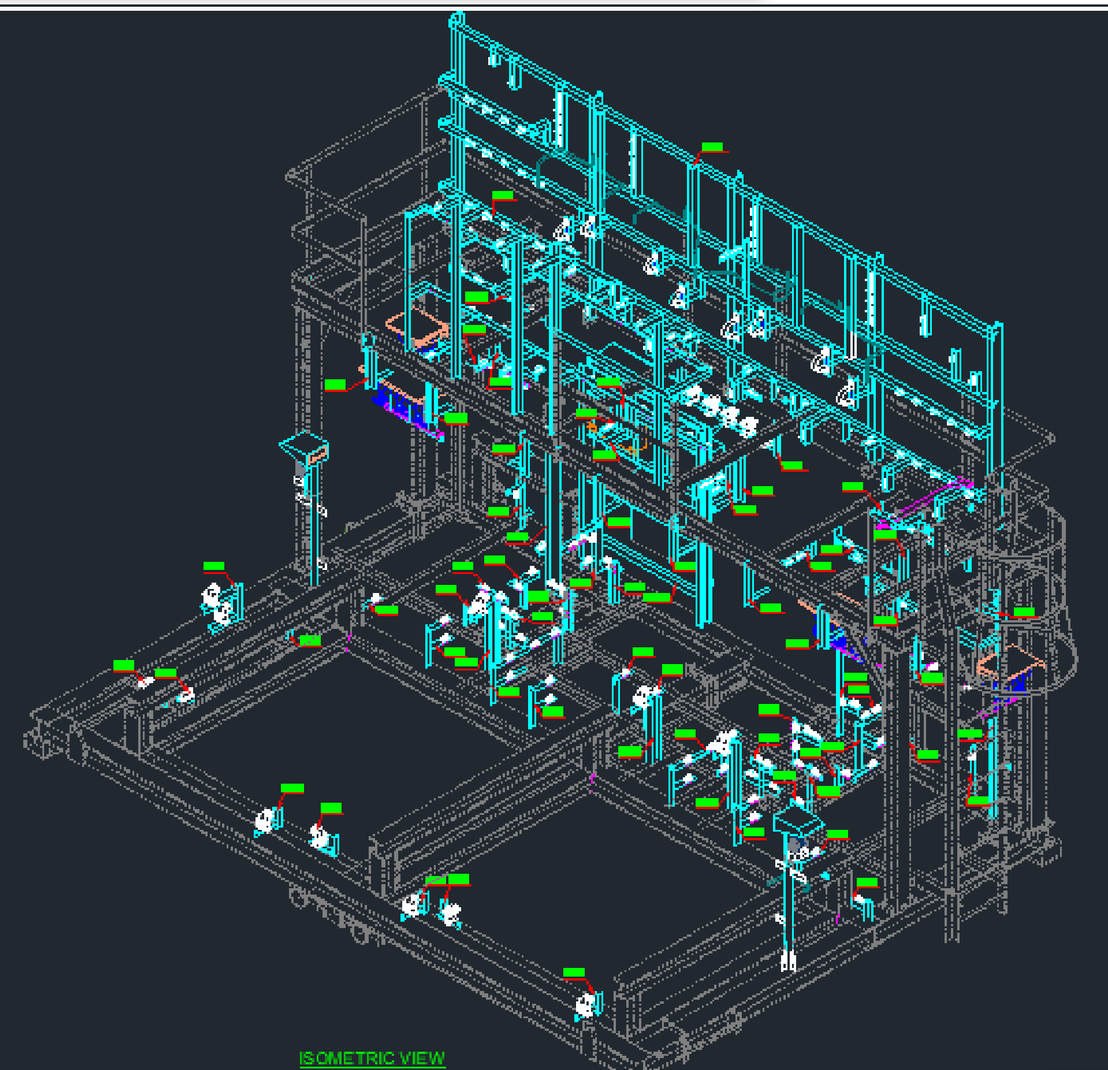

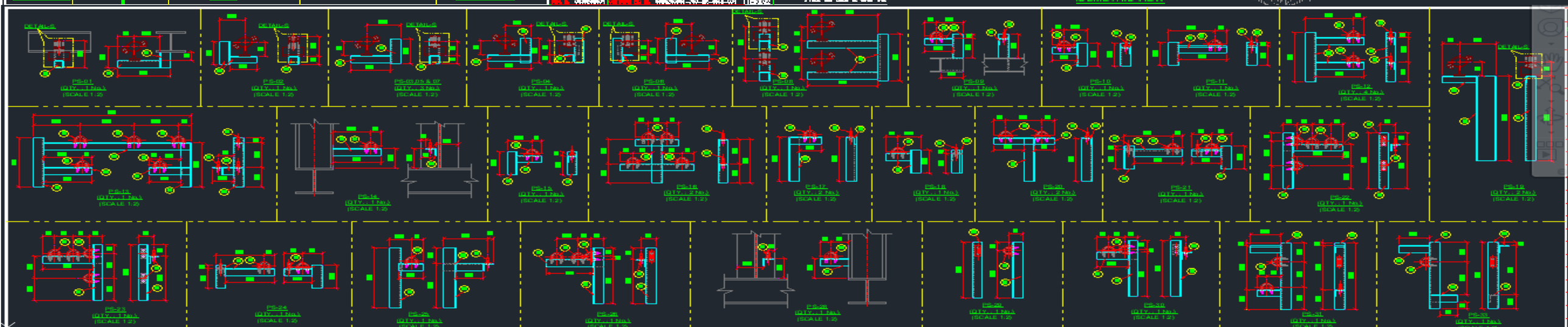

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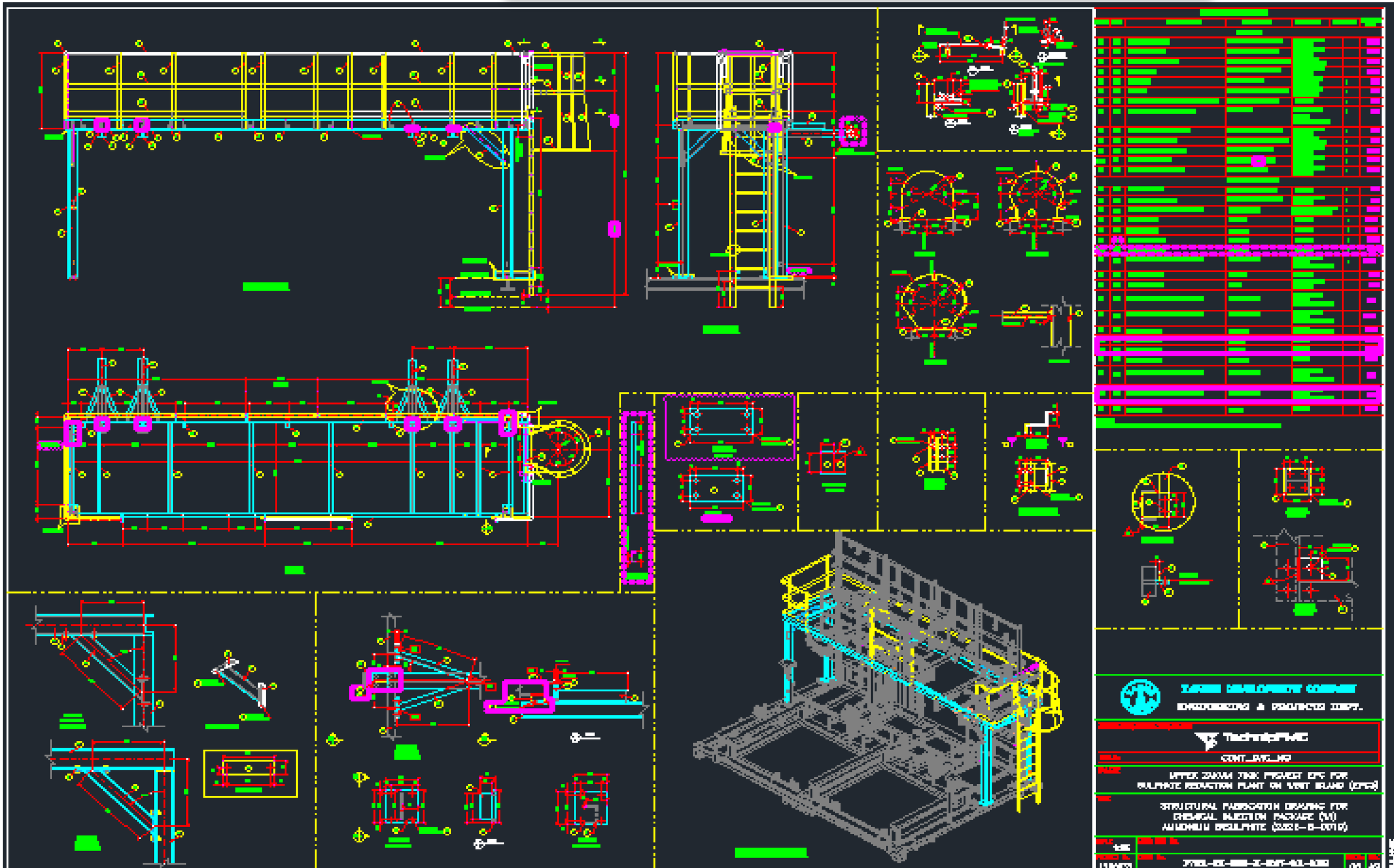

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PIT DETAIL DRAWING

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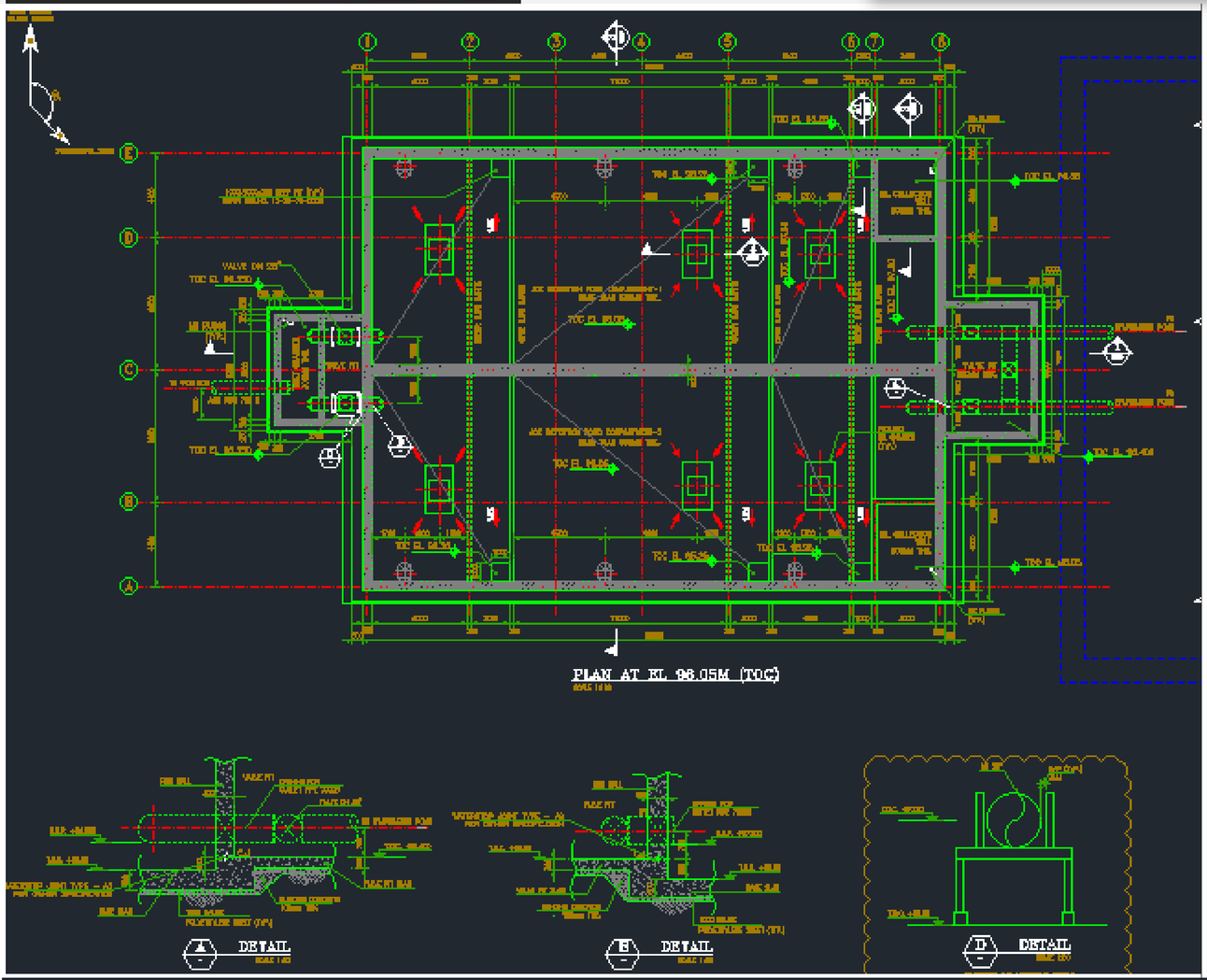

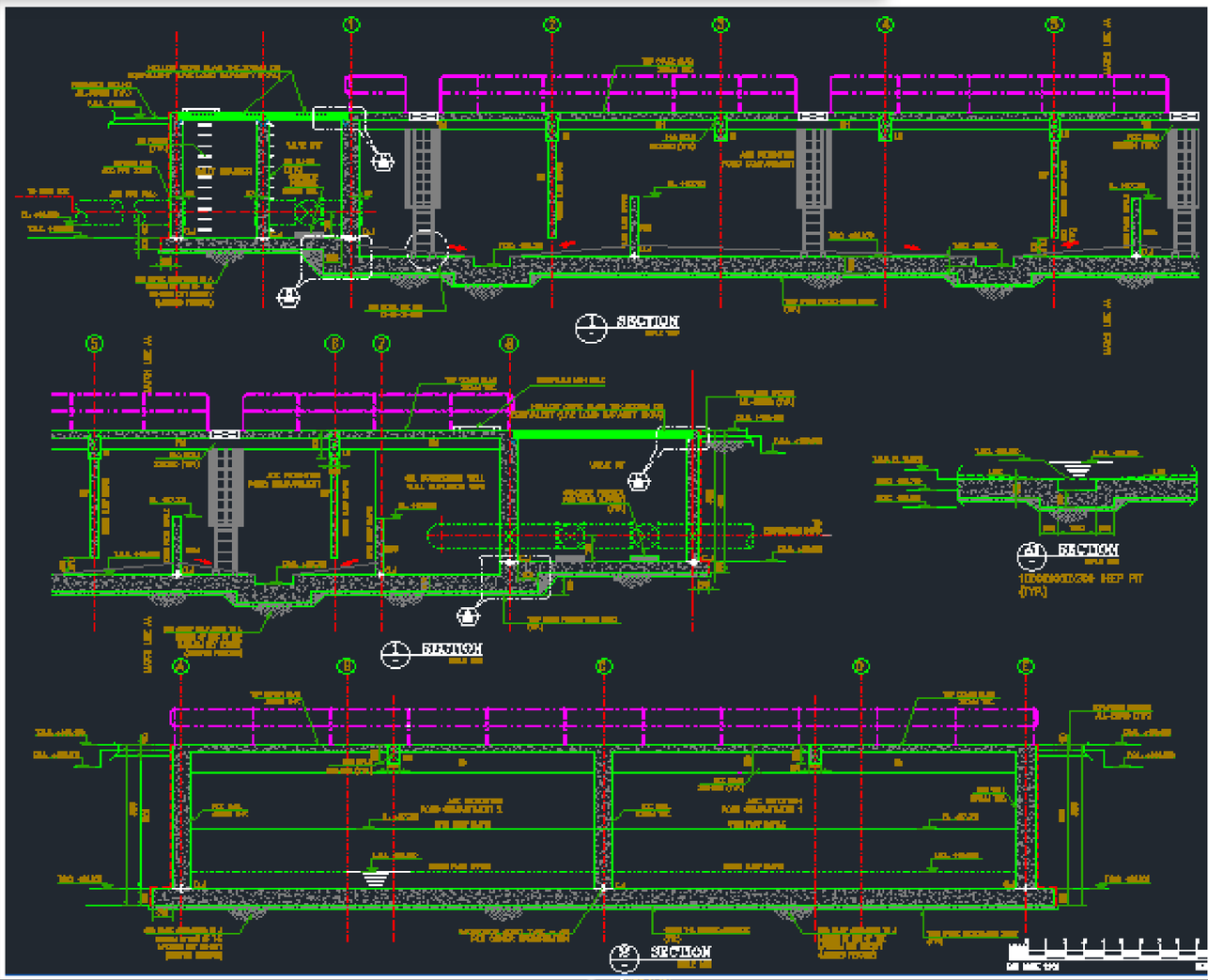

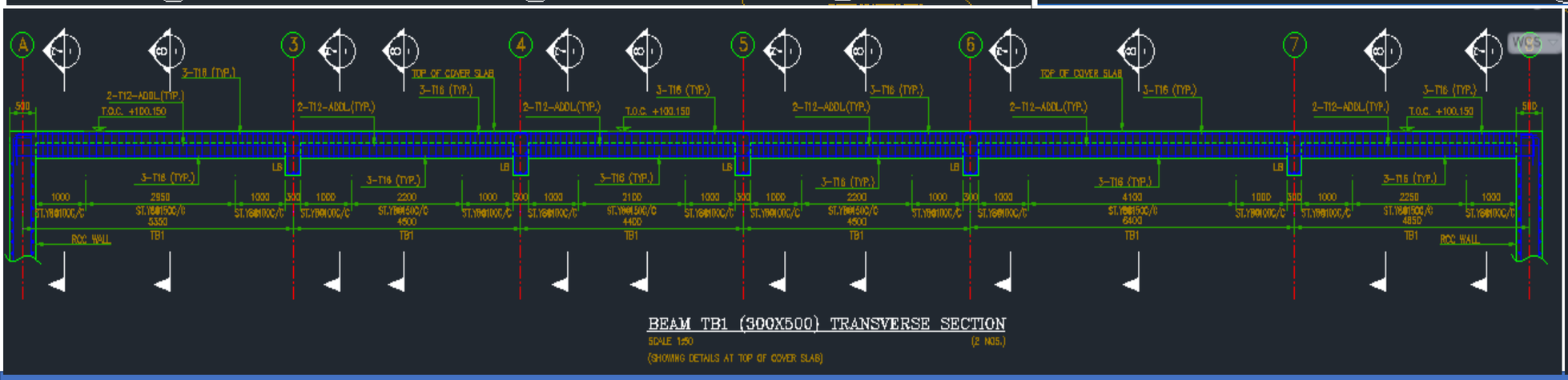

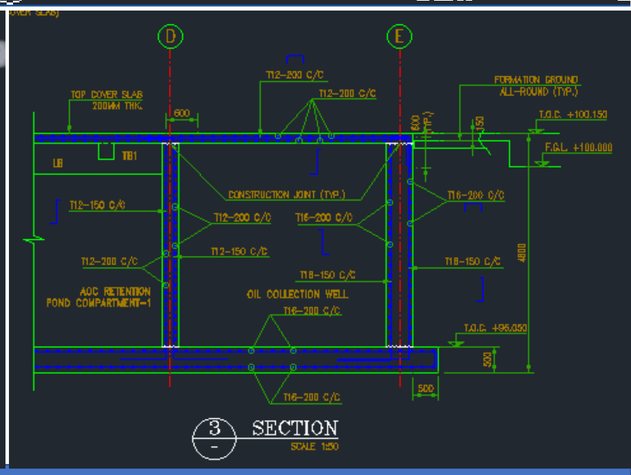

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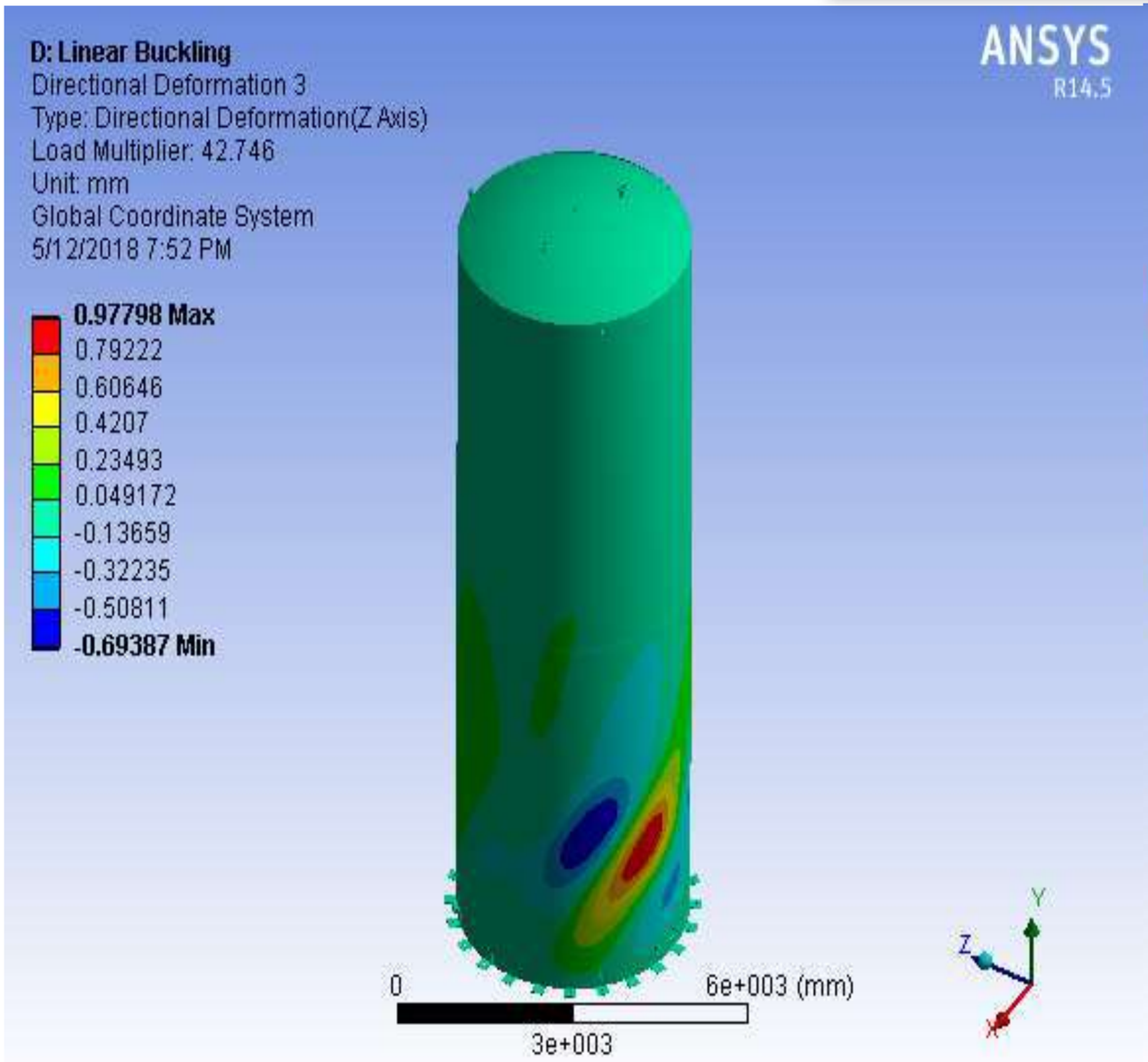
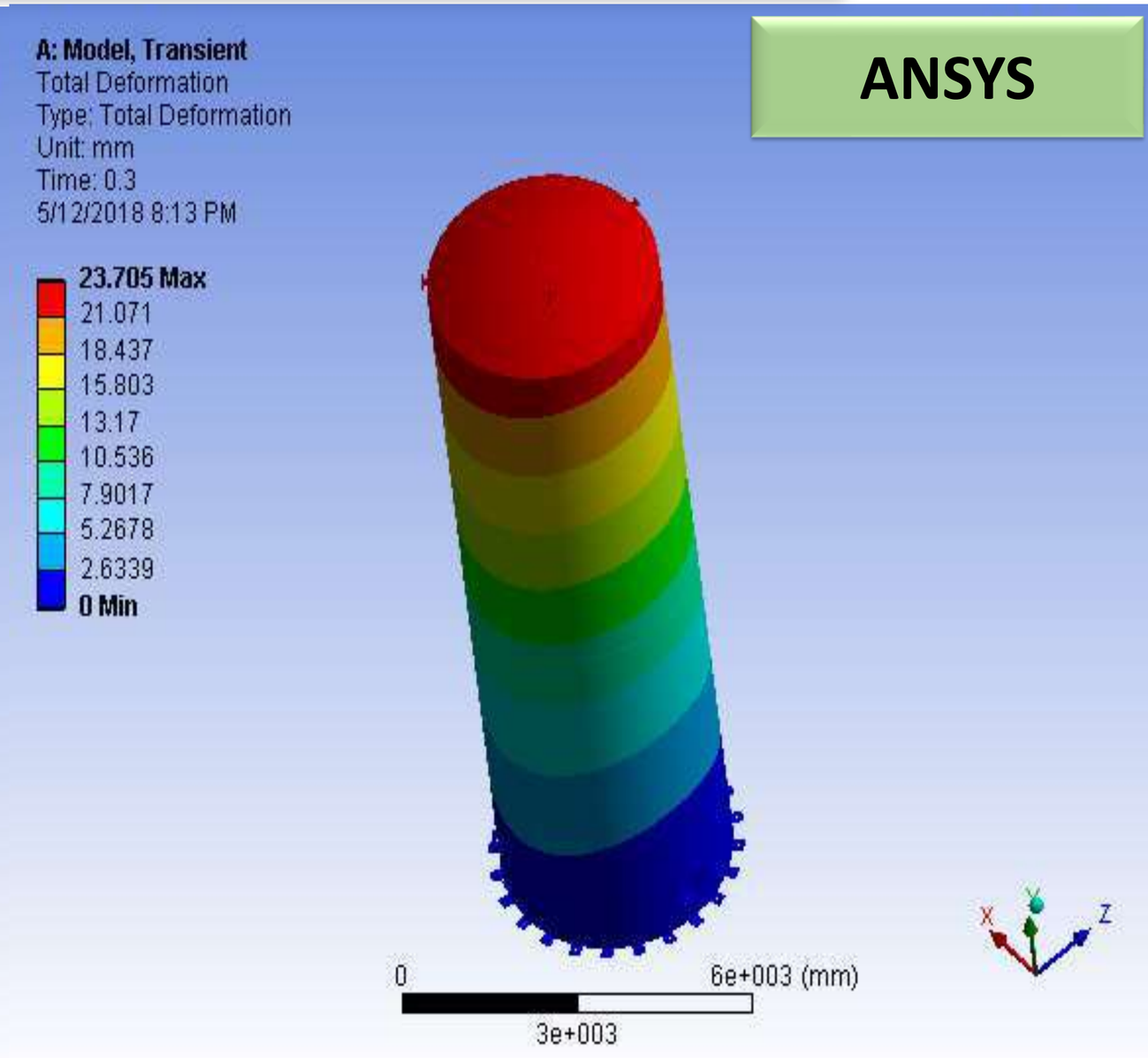
ANSYS





PROJECT: Norte III-Cálculo sísmico dinâmico depósito

Client: **ABENGOA AGUA**

SCOPE OF WORK:

- Vessel Static & Dynamic Analysis & Report from ANSYS.

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ANSYS ANALAYSIS AND CALCULATION FOR ANCHOR BOLTS

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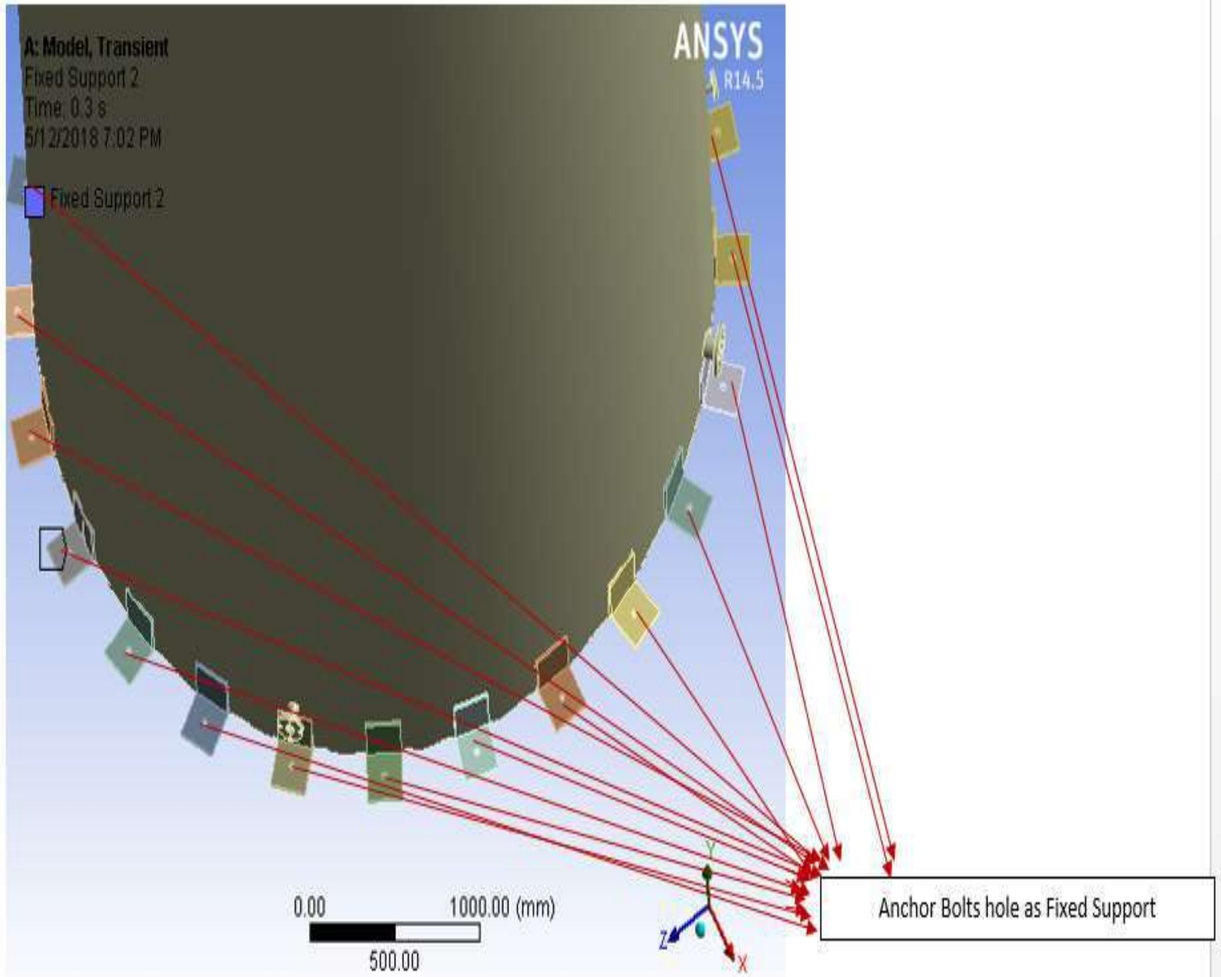
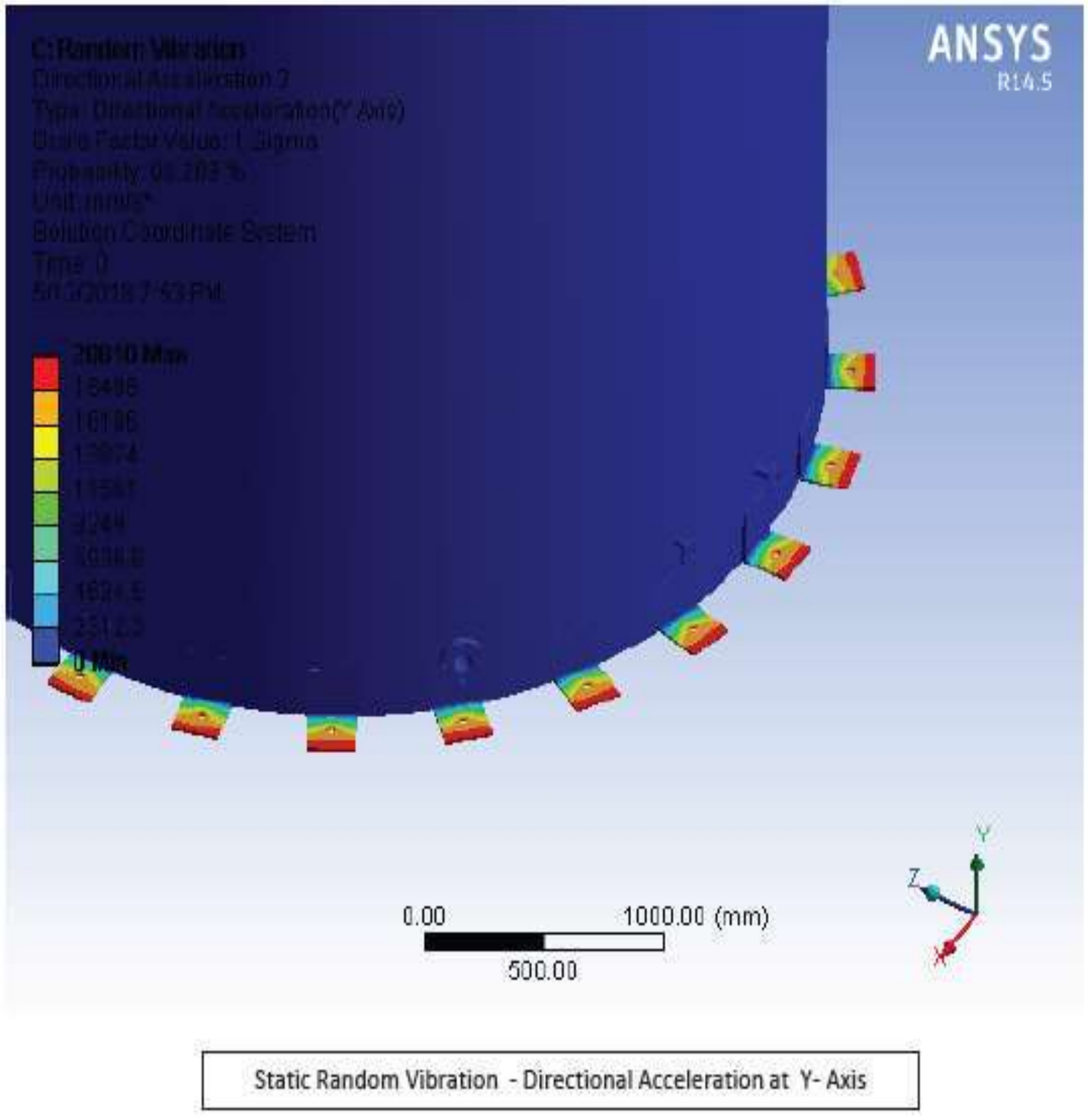
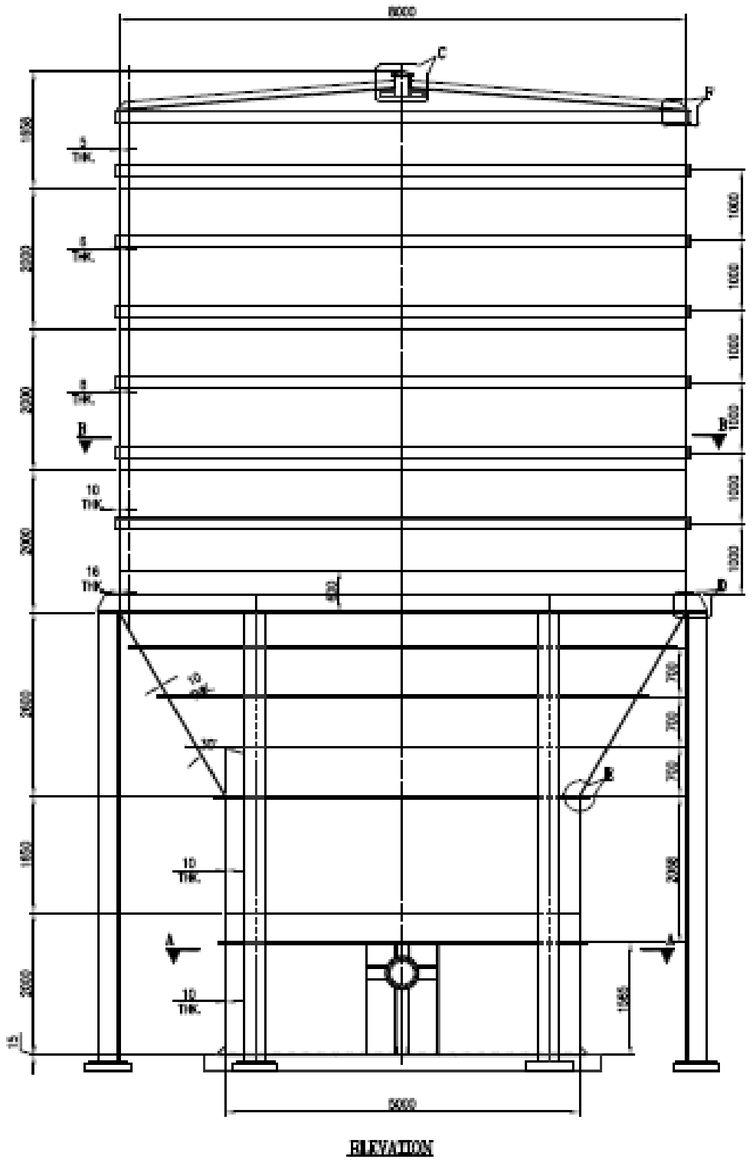
Analysis & Results – Boundary Condition





PV ELITE ANALAYSIS AND CALCULATION



ORLOGA STORGAR TANK
PV Elite 2018 SP2 Licensee: SPLM Licensed User
FileName : OROLGA-LEG SUPPORT
Element and Detail Weights: Step: 6 9:39am Jun 4,2020

40	Legs	1411.85	1411.85	21509.4	...	1411.85
Legs	50	705.924	705.924	10754.7	...	705.924
50	60	3489.45	73863	73830.8	...	3489.45
60	70	4432.18	104970	104920	...	4432.18
70	80	4168.36	104706	104656	2701.29	4168.36
80	90	1657.08	41872.2	58925.3	...	1657.08
90	100	3271.88	3271.88	47261.8	3369.12	3271.88

Cumulative Vessel Weight

From	To	Cumulative Ops Wgt. No Liquid kgm	Cumulative Oper. Wgt. kgm	Cumulative Hydro. Wgt. kgm
10	20	...	...	...
20	30	-2072.84	-2072.84	-13678.5
30	40	-7252.44	-68124.9	-79700.2
40	Legs	-14446.8	-163129	-174664
Legs	50	17724.9	329389	398348
50	60	17018.9	328683	387594
60	70	13529.5	254820	313763
70	80	9097.31	149850	208843
80	90	4928.95	45144	104187
90	100	3271.88	3271.88	47261.8

Note: The cumulative operating weights no liquid in the column above are the cumulative operating weights minus the operating liquid weight minus any weights absent in the empty condition.

Cumulative Vessel Moment

From	To	Cumulative Empty Mom. N-m	Cumulative Oper. Mom. N-m	Cumulative Hydro. Mom. N-m
10	20	...	...	...
20	30	13989.2	13989.2	13989.2
30	40	13989.2	13989.2	13989.2
40	Legs	13989.2	13989.2	13989.2
Legs	50	6070.41	6070.41	6070.41
50	60	6070.41	6070.41	6070.41
60	70	6070.41	6070.41	6070.41
70	80	6070.41	6070.41	6070.41
80	90	3369.12	3369.12	3369.12
90	100	3369.12	3369.12	3369.12

ORLOGA STORGAR TANK
PV Elite 2018 SP2 Licensee: SPLM
FileName : OROLGA-LEG SUPPORT
External Pressure Calculations:

PV ELITE

External Pressure Calculation Results :

External Pressure Calculations:

From	To	Section Length mm	Outside Diameter mm	Corroded Thickness mm	Factor A	Factor B psi
10	20	No Calc	5020	10	0.00024851	3475.16
20	Ring	1350	5020	10	0.00046581	6513.88
Ring	Ring	1747	5020	10	0.00035258	4930.43
Ring	30	No Calc	5020	10	0.0036773	11996.3
30	Ring	651.492	5030.78	10	0.00080326	8881.1
Ring	Ring	657.196	5038.47	10	0.0007484	8725.56
Ring	Ring	1093.89	8019.63	10	0.00038406	5370.64
Ring	40	2.99936	8023.09	10	0.0013043	9021.34
40	Ring	No Calc	...	10	No Calc	No Calc
Ring	Ring	500	8020	10	0.0012237	9787.03
Ring	50	1000	8020	10	0.00052582	7353.13
50	Ring	1000	8020	10	0.00052582	7353.13
Ring	60	1000	8020	10	0.00052582	7353.13
60	Ring	1000	8016	8	0.0003708	5185.33
Ring	Ring	1000	8016	8	0.0003708	5185.33
Ring	70	1000	8016	8	0.0003708	5185.33
70	Ring	1000	8012	6	0.00023686	3312.22
Ring	Ring	1000	8012	6	0.00023686	3312.22
Ring	Ring	No Calc	....	6	No Calc	No Calc
Ring	80	1000	8012	6	0.00023686	3312.22
80	Ring	1000	8010	5	0.0001802	2612.95
Ring	90	1101.99	8010	5	0.00016273	2359.64
90	100	No Calc	8018	6	0.00009	1308.06

External Pressure Calculations:

From	To	External Actual T. mm	External Required T. mm	External Design Pressure psig	External M.A.W.P. psig
10	20	10	1.5	...	6.90886
20	Ring	10	No Calc	...	17.2011
Ring	Ring	10	No Calc	...	13.0954
Ring	30	10	No Calc	...	No Calc
30	Ring	10	No Calc	...	17.591
Ring	Ring	10	No Calc	...	15.1801
Ring	Ring	10	No Calc	...	7.73431
Ring	40	10	No Calc	...	14.2816
40	Ring	10	No Calc	...	No Calc
Ring	Ring	10	No Calc	...	16.271
Ring	50	10	No Calc	...	12.2246
50	Ring	10	No Calc	...	12.2246
Ring	60	10	No Calc	...	12.2246
60	Ring	8	No Calc	...	6.89997
Ring	Ring	8	No Calc	...	6.89997
Ring	70	8	No Calc	...	6.89997
70	Ring	6	No Calc	...	3.30726
Ring	Ring	6	No Calc	...	3.30726
Ring	Ring	6	No Calc	...	No Calc
Ring	80	6	No Calc	...	3.30726
80	Ring	5	No Calc	...	2.17474
Ring	90	5	No Calc	...	1.96393
90	100	6	1.5	...	0.97884
Minimum					0.979

PROJECT: DEPOSITO PASTAS 350 m3 PREPARACION PASTAS

Client: **ORLOGO**

Software: PV-Elite

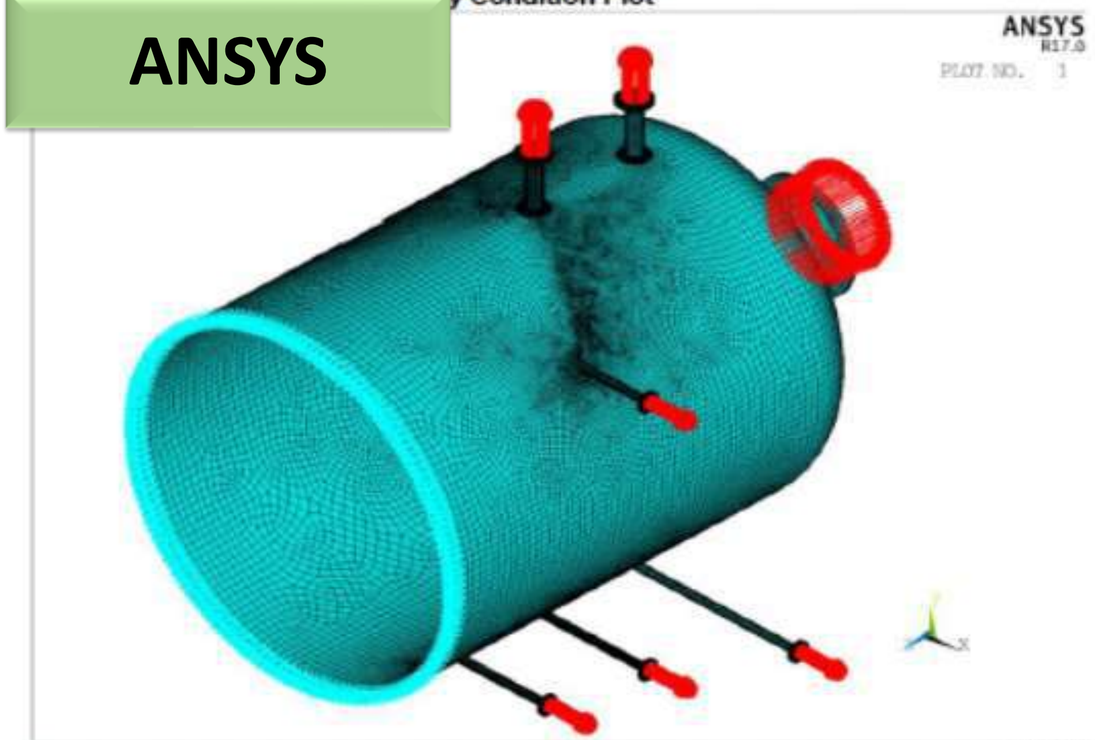
SCOPE OF WORK:

- Vessel Analysis & Report in PV-Elite.
- GA drawing preparation in Autocad.

ANSYS NOZZLE ANALAYSIS AND CALCULATION

ANSYS

y Condition Plot



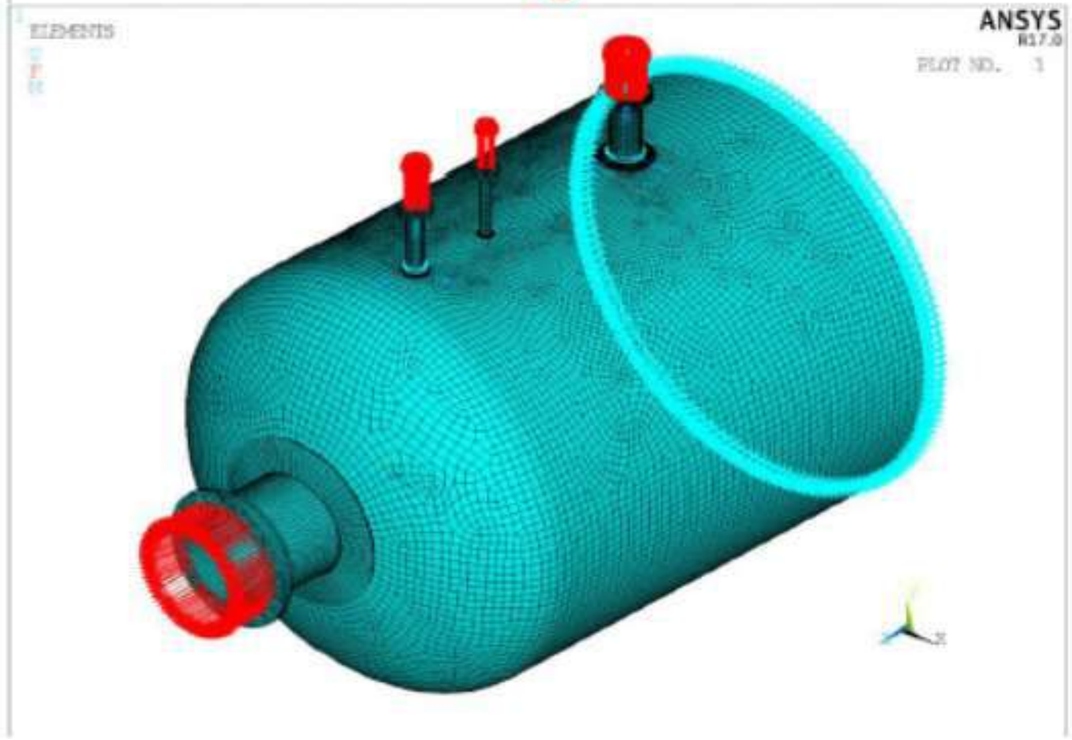
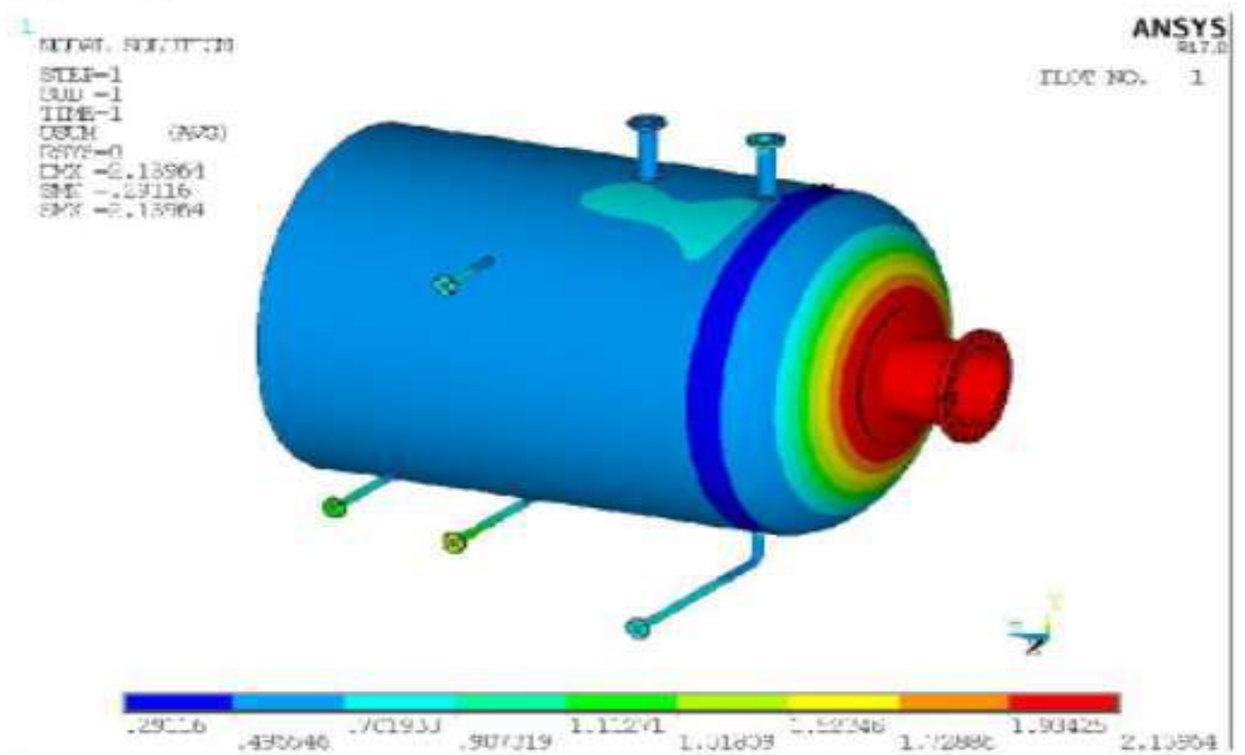
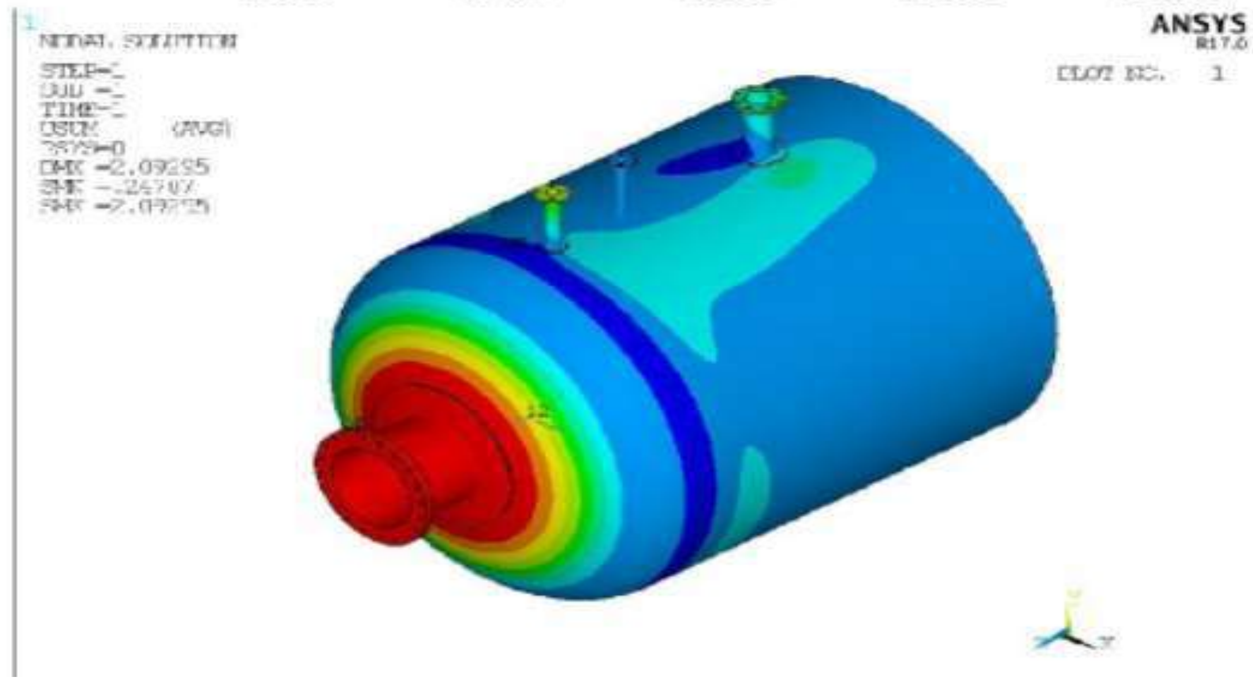


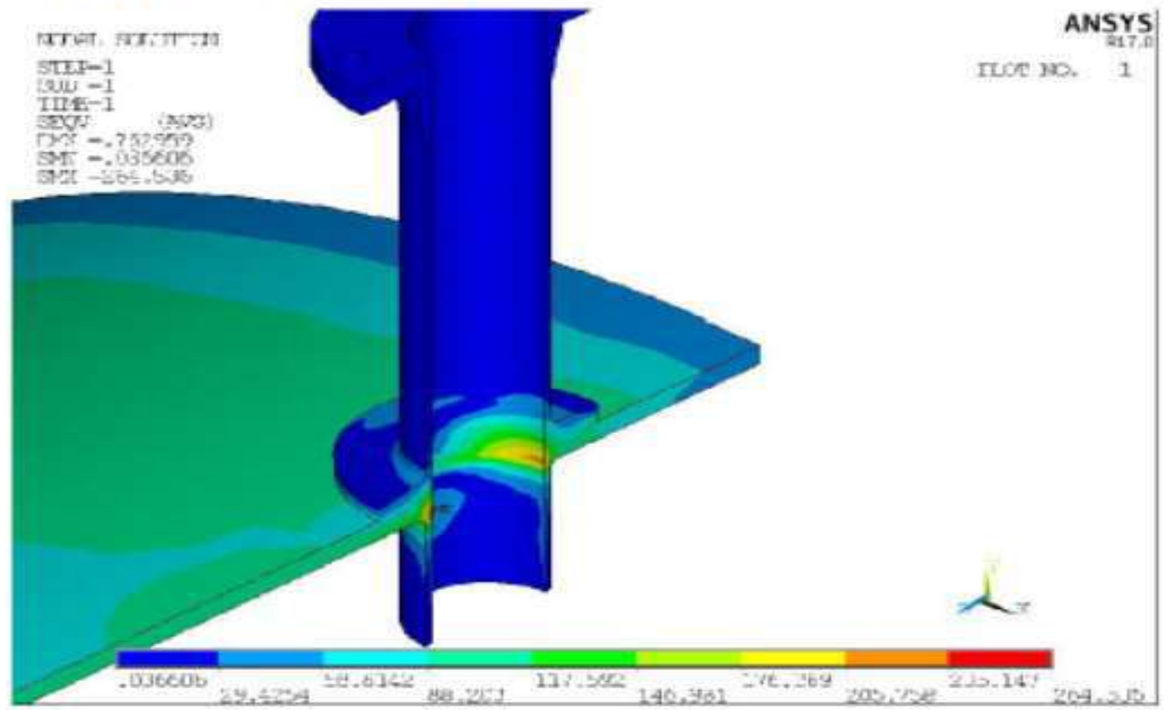
Fig. 1: Displacement Plot





PV ELITE NOZZLE ANALAYSIS AND CALCULATION

Fig. 4: Von Mises Stress Plot for Nozzle N10



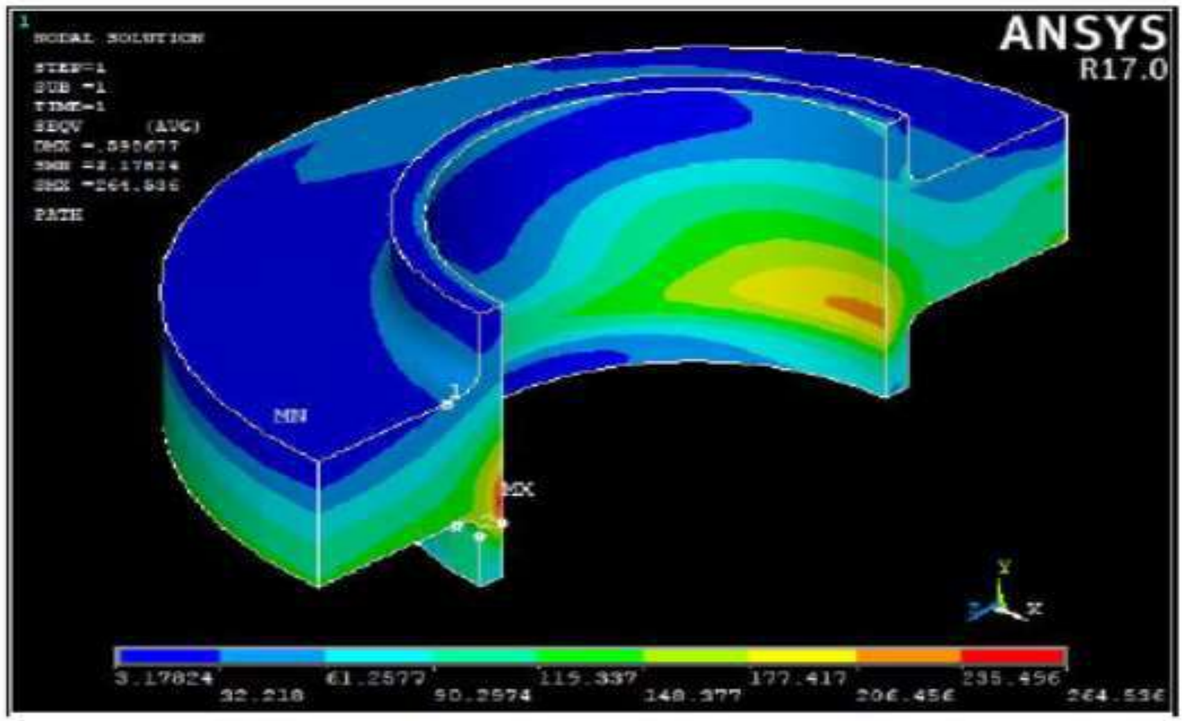
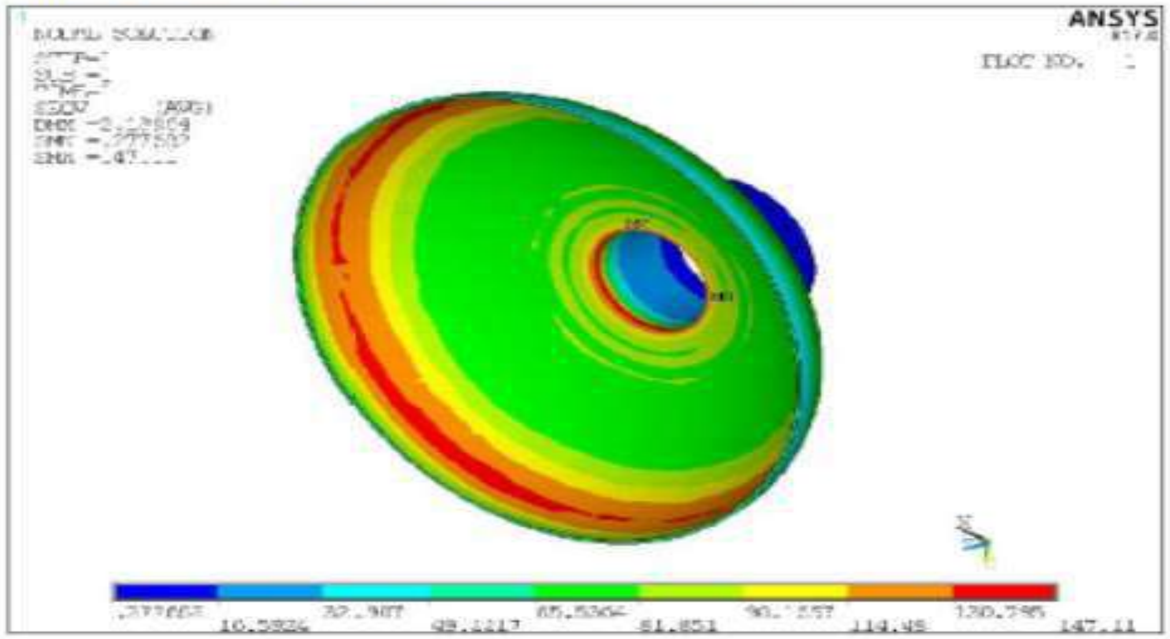
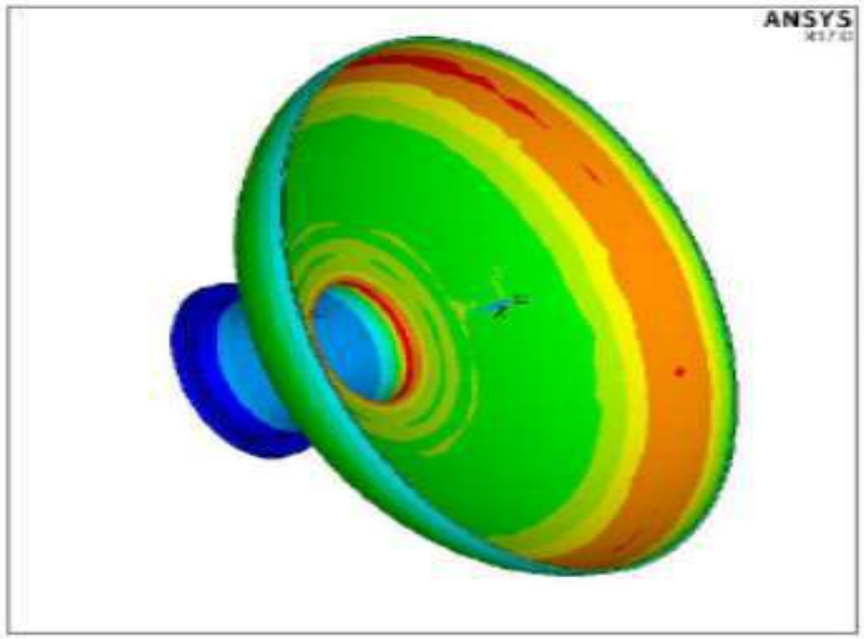


Fig. 3: Von Mises Stress Plot for Nozzle N9A & N9B





STRESS	INDUCED STRESS	ALL. STRESS	REMARK
PL+Q	147.152	345	SAFE

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FABRICATION DRAWINGS

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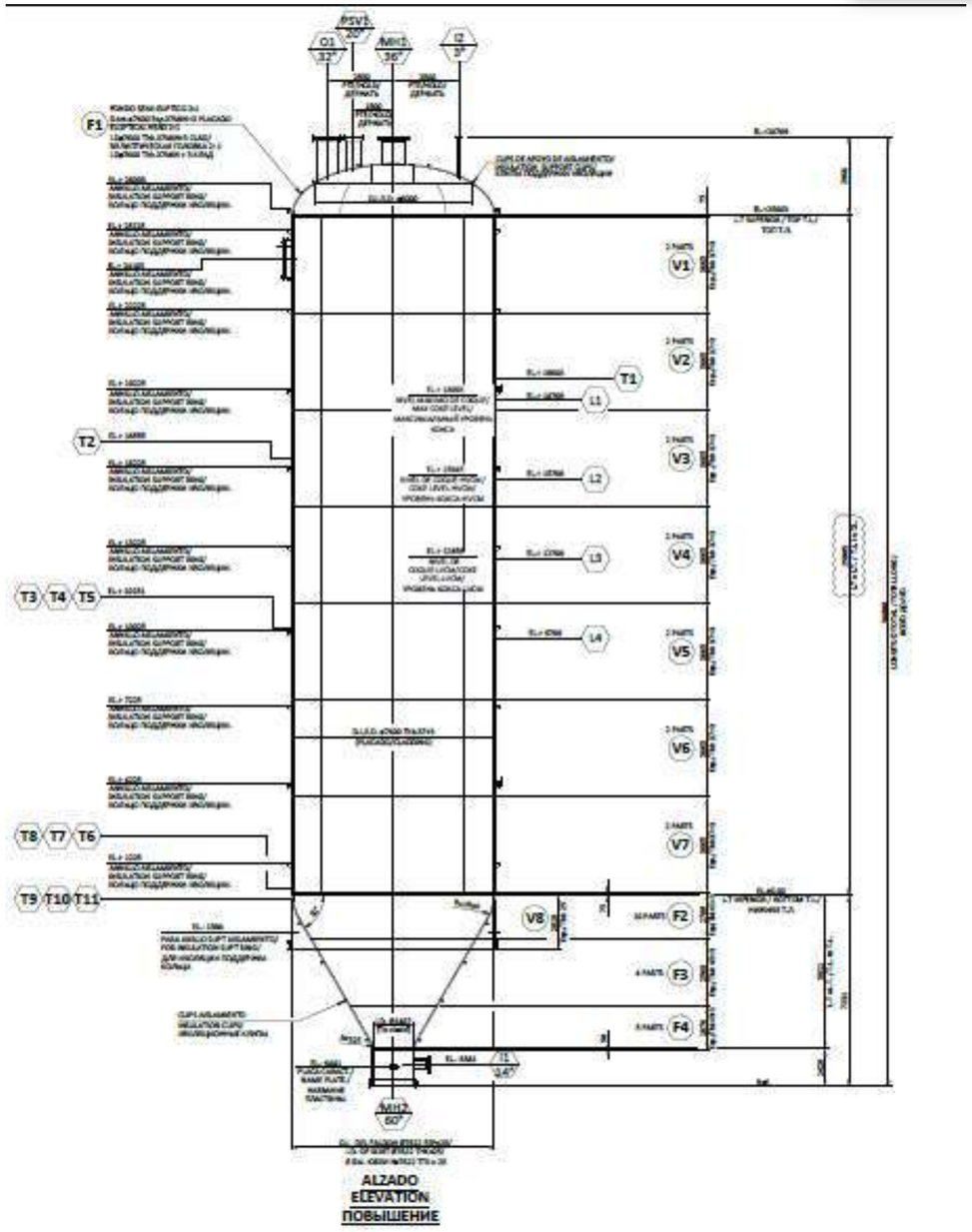

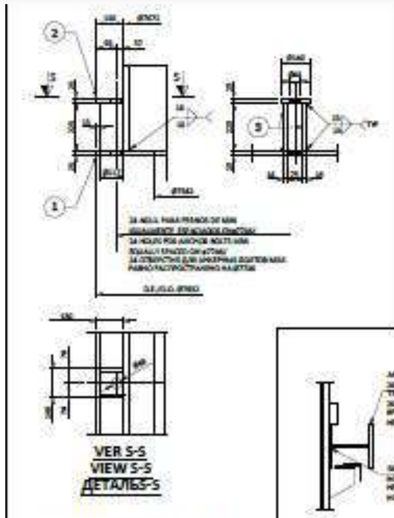

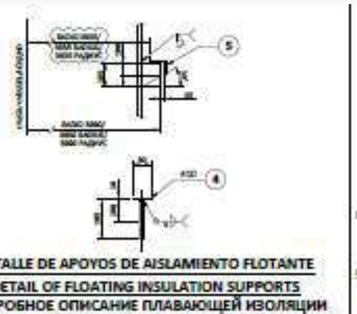

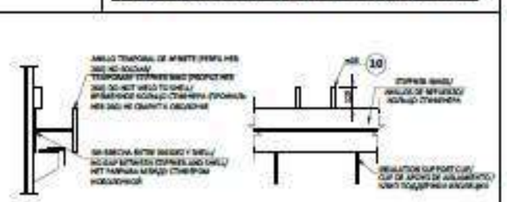

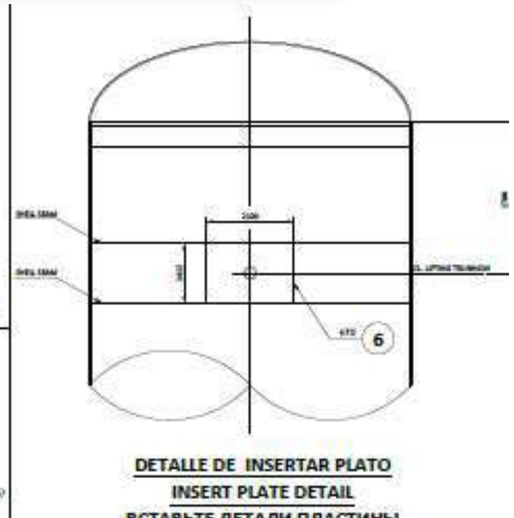

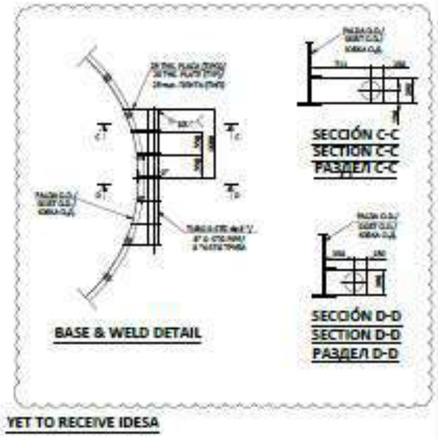

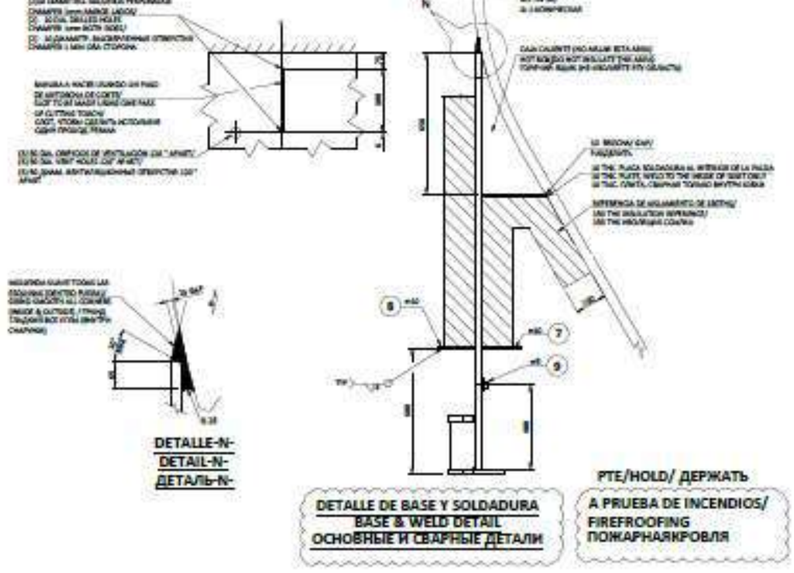

Client: **IDESA**

Software: Autocad

SCOPE OF WORK:

- Fabrication drawing preparation in Autocad.

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FABRICATION DRAWINGS

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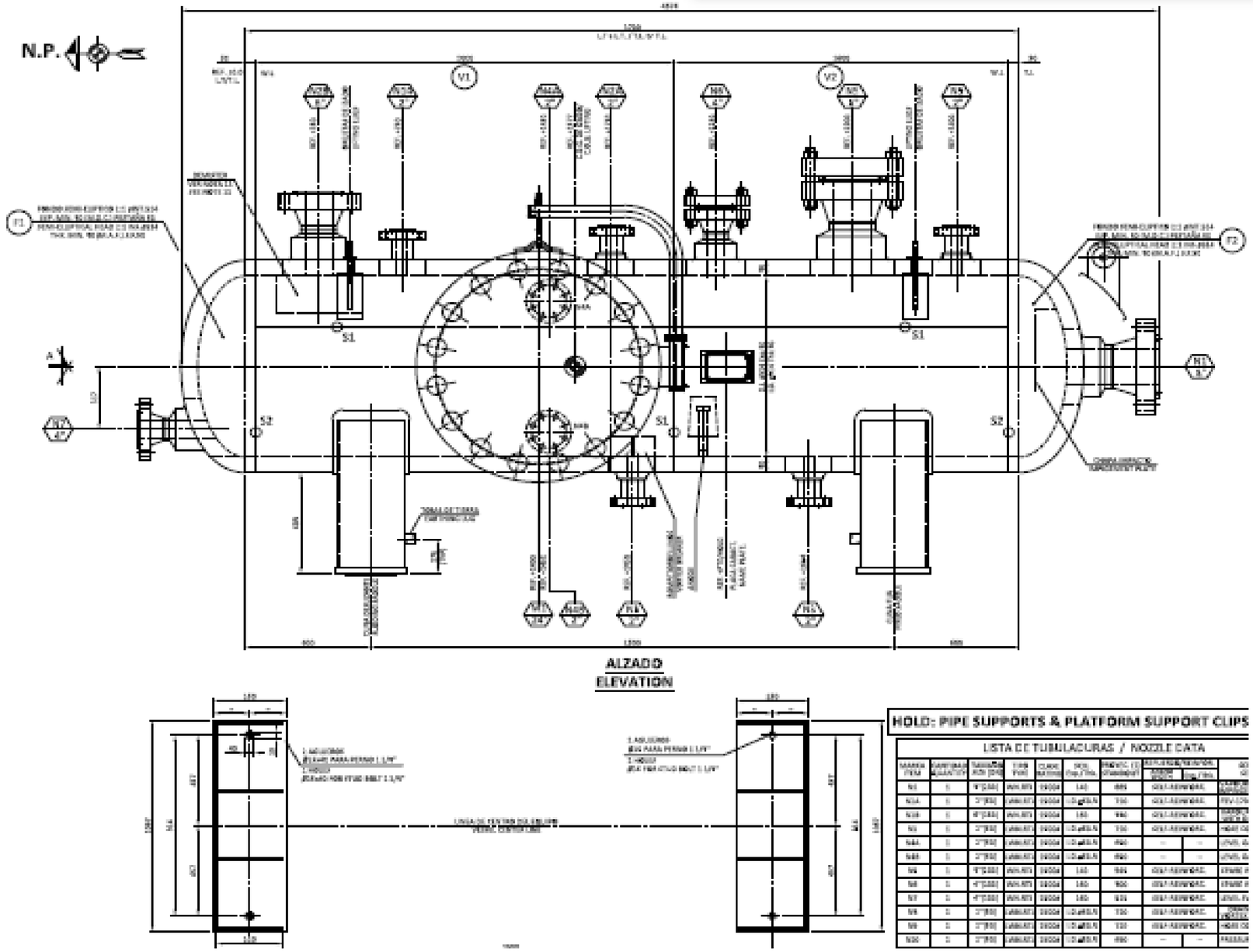

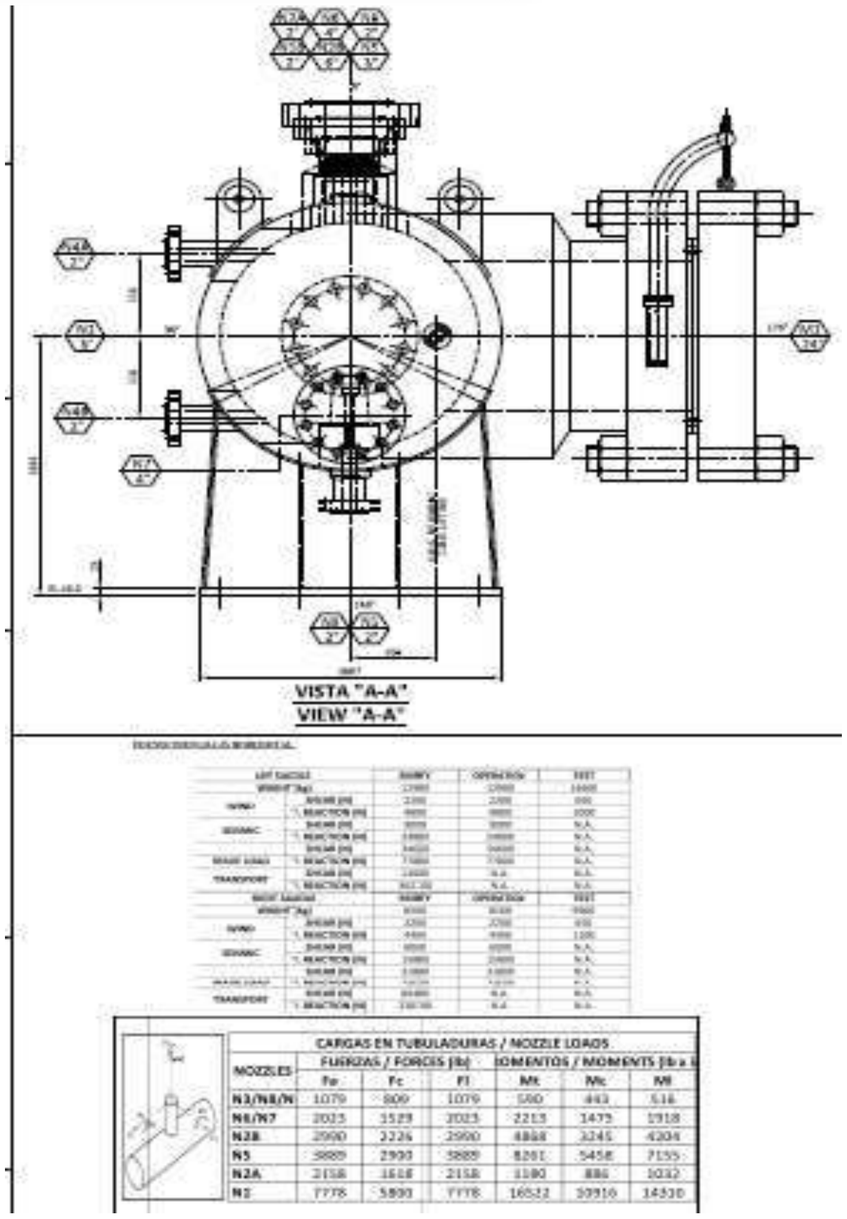

Client: **IDESA**

Software: Autocad

SCOPE OF WORK:

- Fabrication drawing preparation in Autocad.

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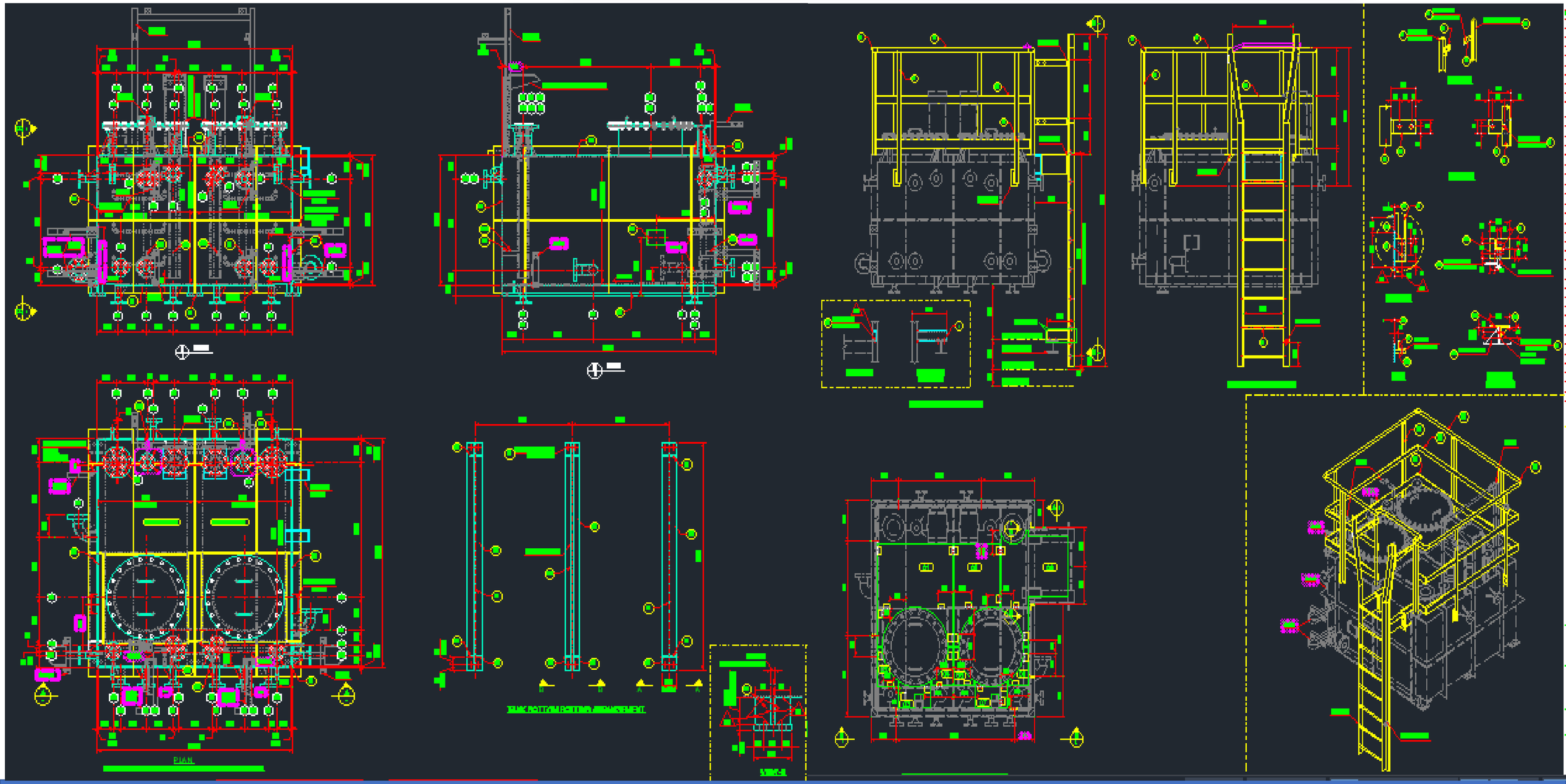

Client: **LEWA**

Software: Autocad

SCOPE OF WORK:

- Fabrication drawing preparation in Autocad.

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SKID MOUNTED PACKAGES

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AMMONIUM BISULPHITE INJECTON PACKAGE

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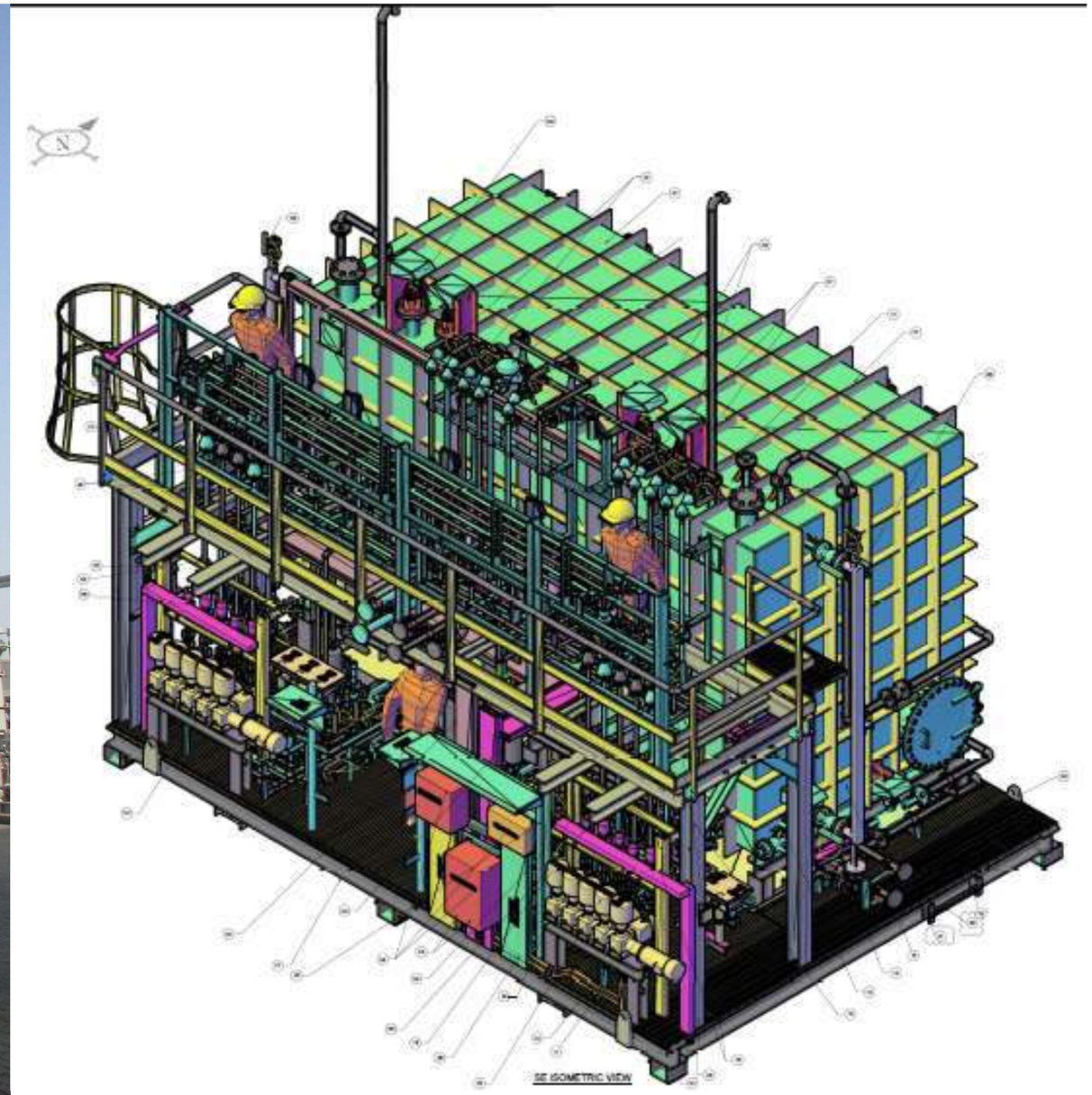

Client: **LEWA**

Software: CADWORX & Autocad

SCOPE OF WORK:

- 3D Model & GAD preparation.
- Tank Fabrication drawing.
- Structural Fabrication drawing.
- Isometric drawing extraction.

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CATALYST PACKAGE

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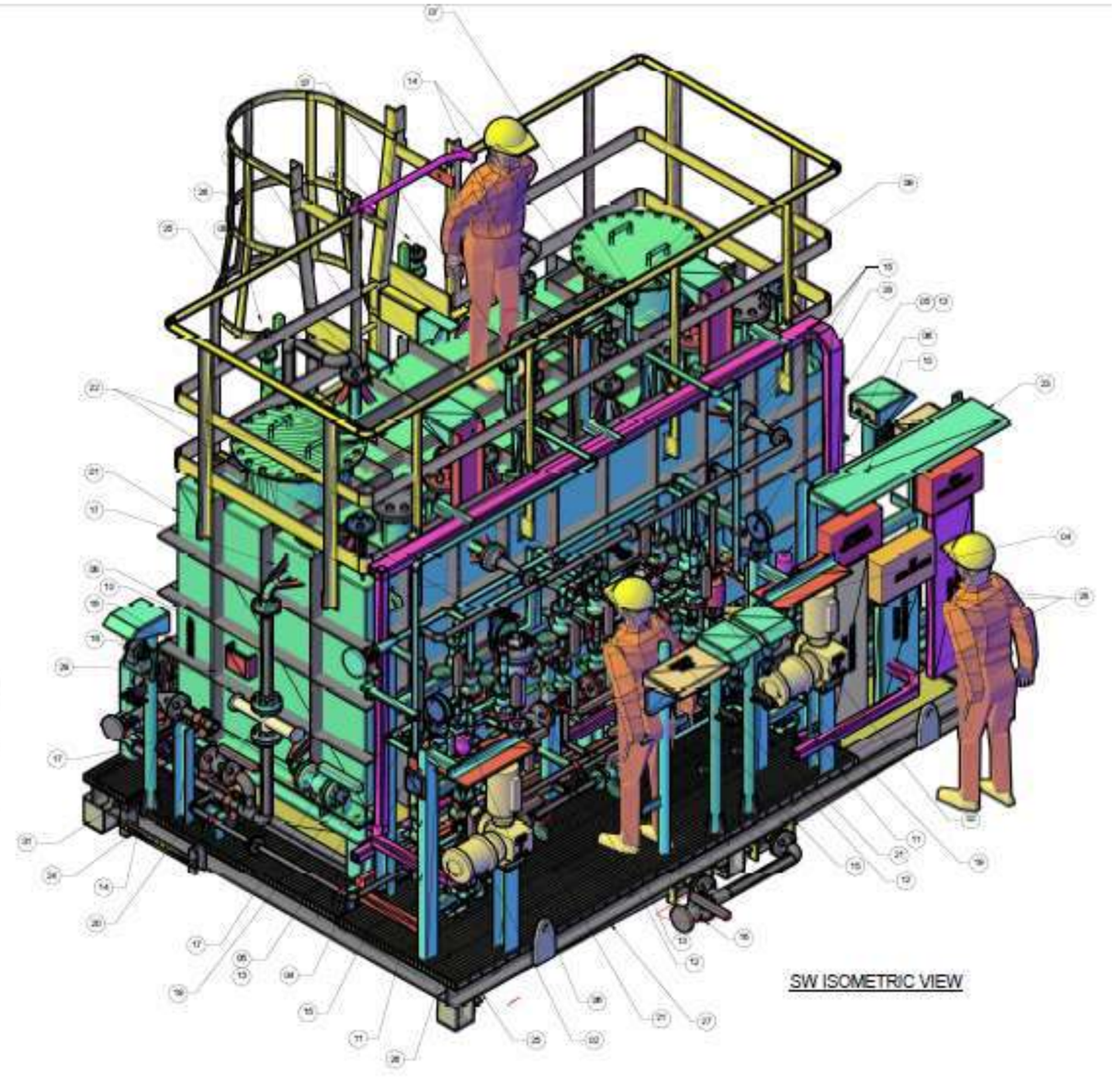

Client: **LEWA**

Software: CADWORX & Autocad

SCOPE OF WORK:

- 3D Model & GAD preparation.
- Tank Fabrication drawing.
- Structural Fabrication drawing.
- Isometric drawing extraction.

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CORROSION INHIBITOR INJECTION PACKAGE

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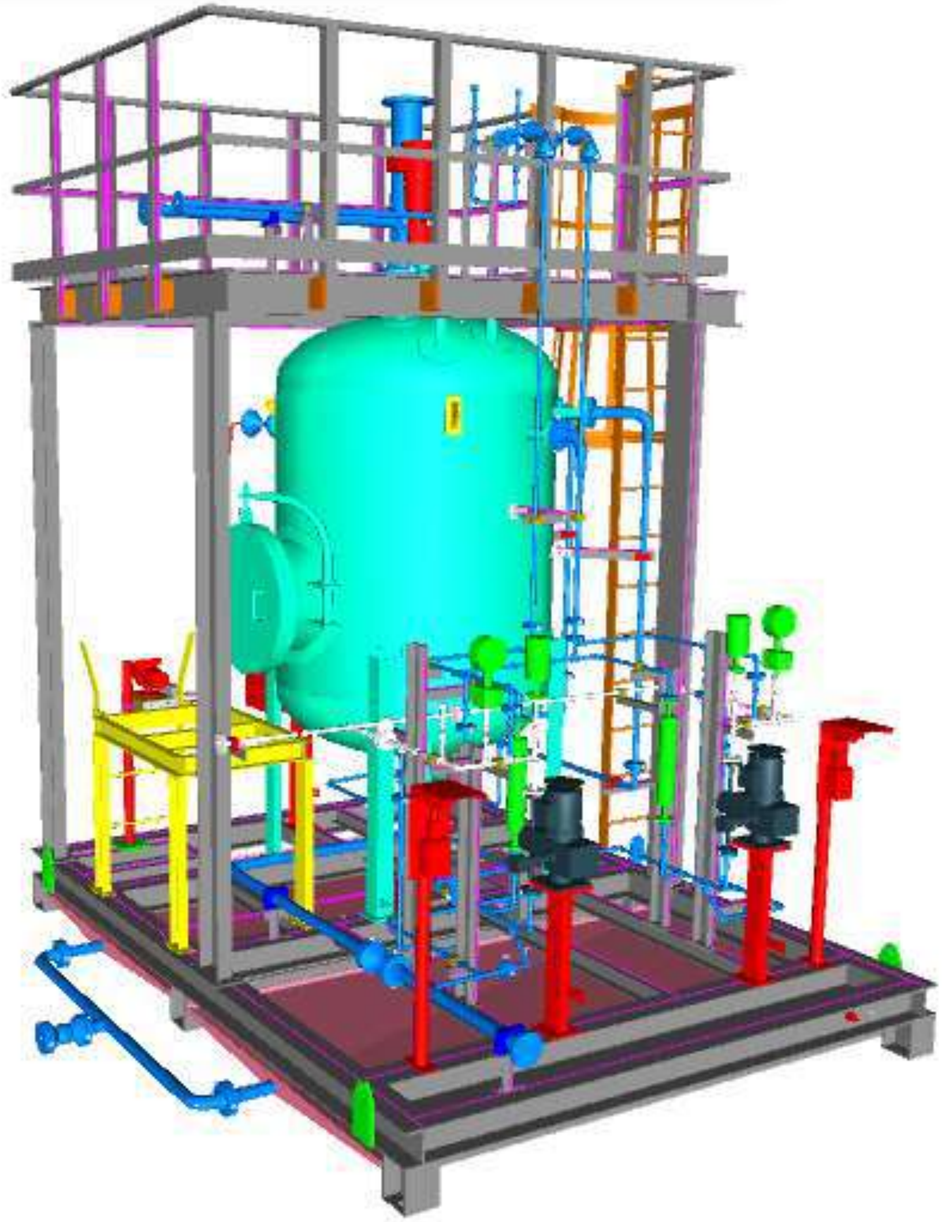

Client: **SEKO**

Software: CADWORX & Autocad

SCOPE OF WORK:

- 3D Model & GAD preparation.
- Tank Fabrication drawing.
- Structural Fabrication drawing.
- Isometric drawing extraction.

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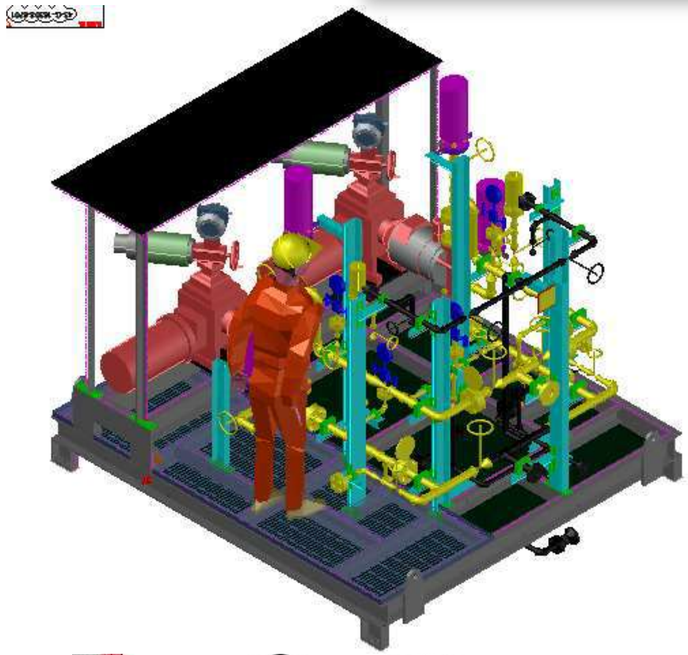
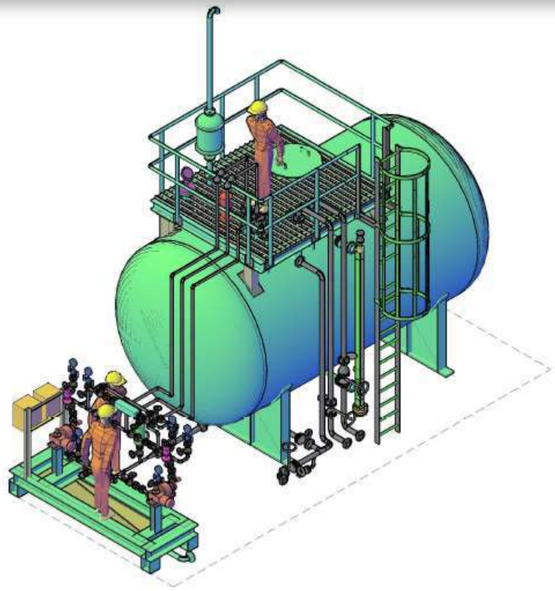
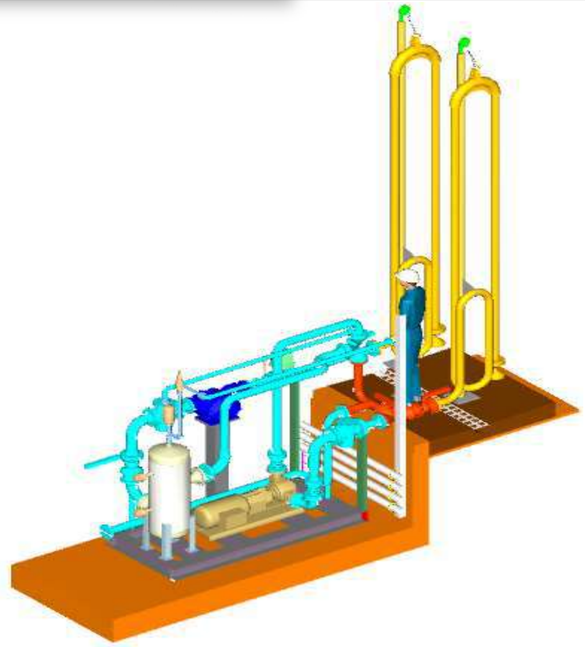
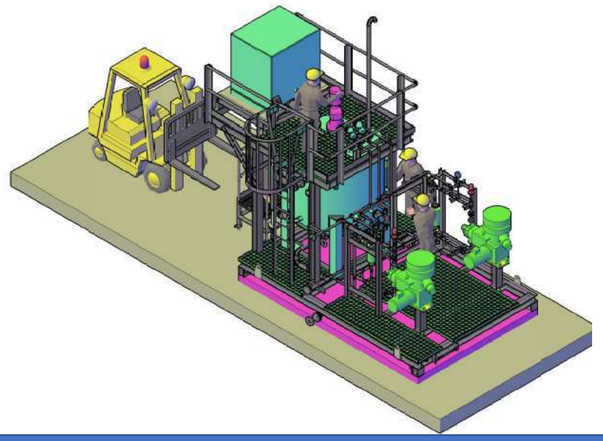
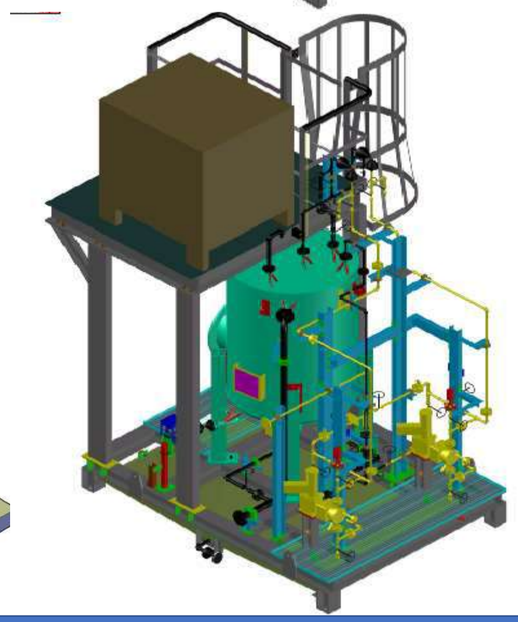
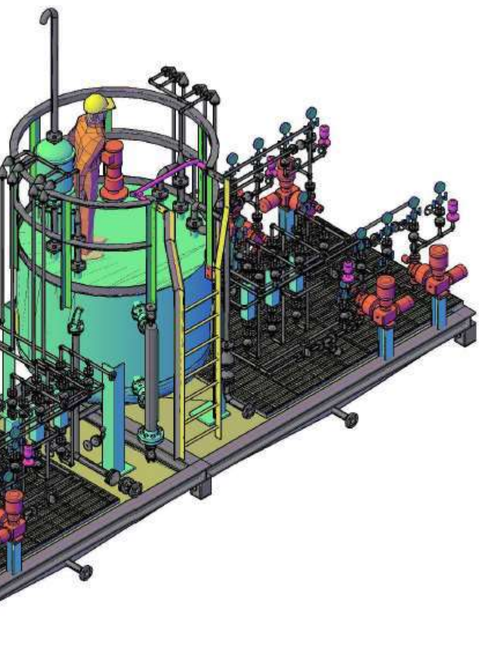
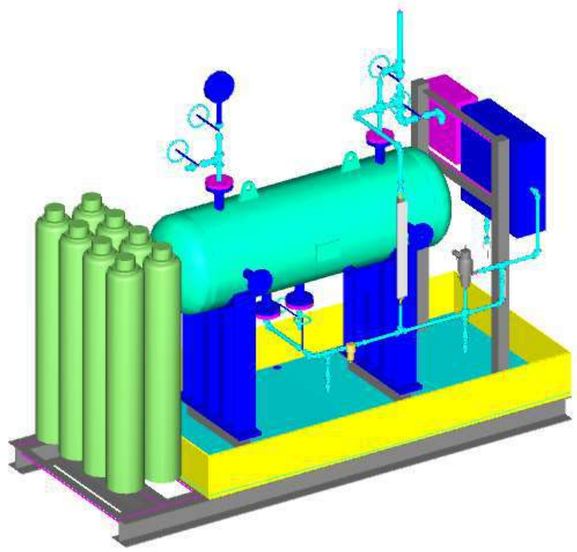

Client: **SEKO, LEWA & OTHERS**

Software: CADWORX & Autocad

SCOPE OF WORK:

- 3D Model & GAD preparation.
- Tank Fabrication drawing.
- Structural Fabrication drawing.
- Isometric drawing extraction.

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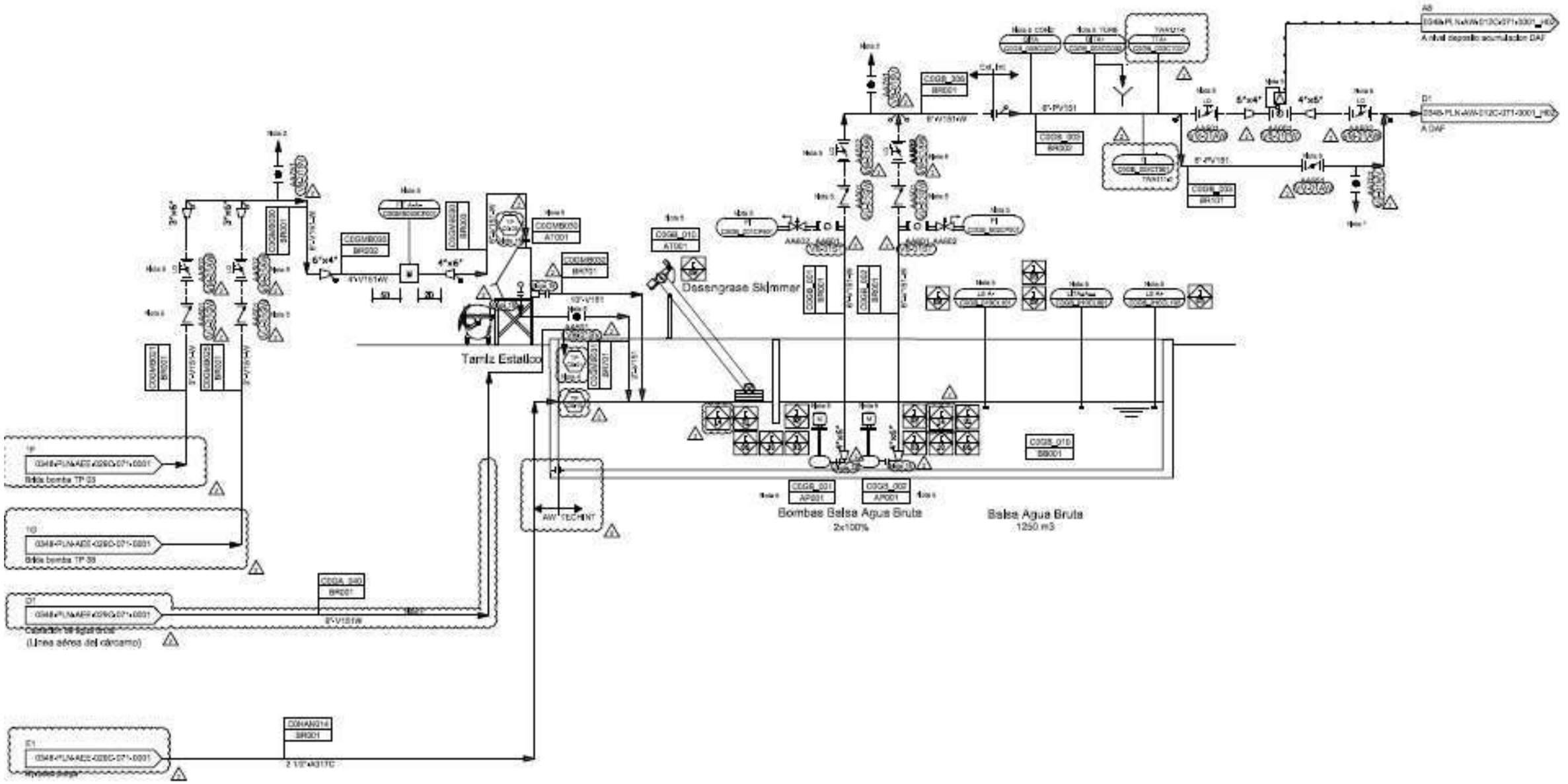
PRESENTATION ON

INTELLIGENT P&ID

INTELLIGENT P&ID CONVERTION IN AUTOCAD PLANT P&ID



PROJECT: Norte III Delineación

Client: **ABENGOA AGUA**

Software: Autocad Plant P&ID

Project Description:

We have converted **65 nos** of P&IDs to Intelligent P&IDs from the existing Autocad P&ID. Also we have updated additional comment markups provided by client.

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INTELLIGENT P&ID CONVERTION IN CADWORX P&ID

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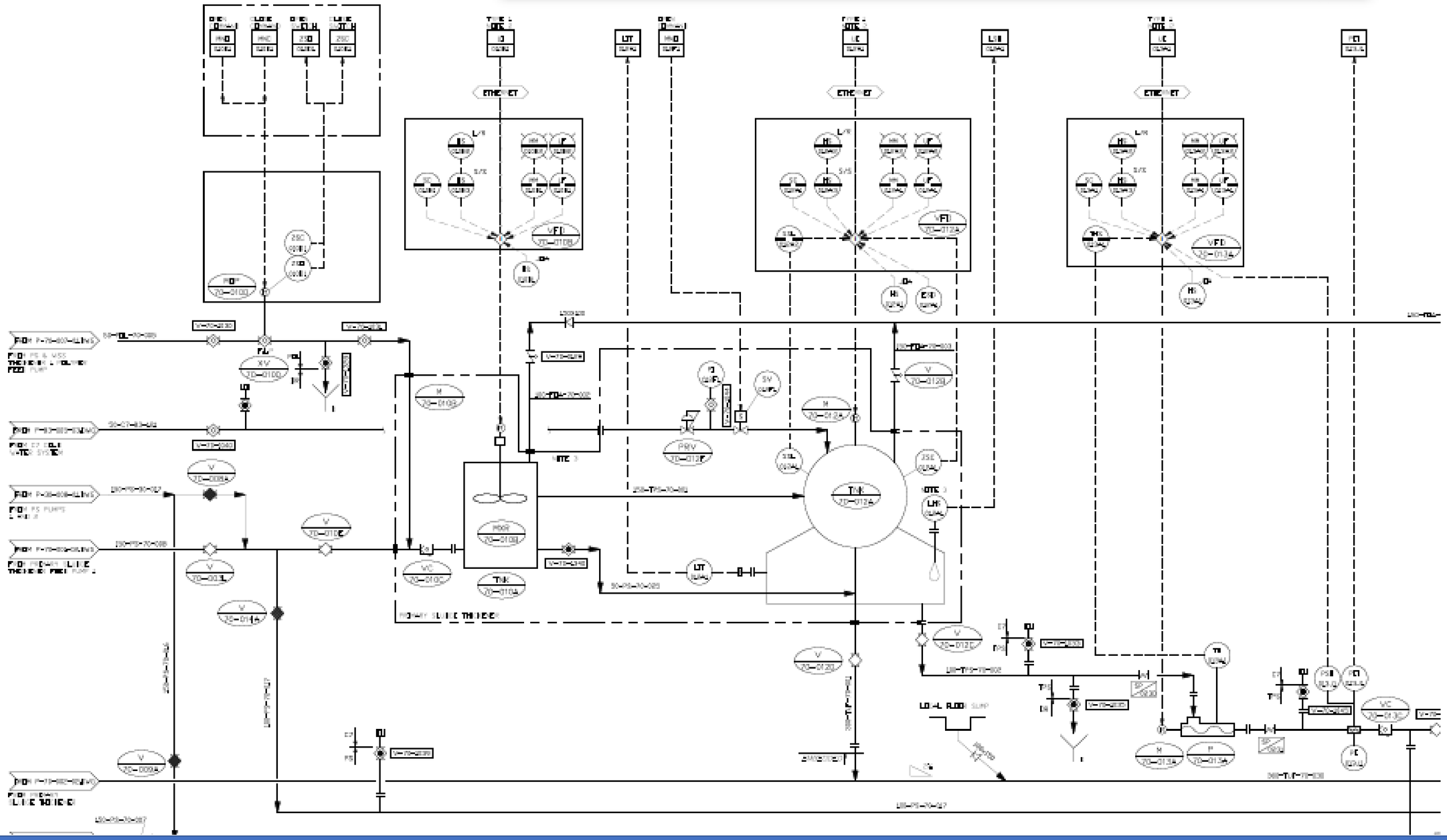

PROJECT: **SWERAGE AND DRAINAGE**

Client: **ACCIONA /Estudios e Ingeniería Aplicada XXI**

Software: CADWorx P&ID

Project Description:

We have converted **448 nos** of P&IDs to Intelligent P&IDs from the existing Autocad P&ID. Also we have updated additional comment markups provided by client.

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INTELLIGENT P&ID PREPARATION IN SMART PLANT P&ID

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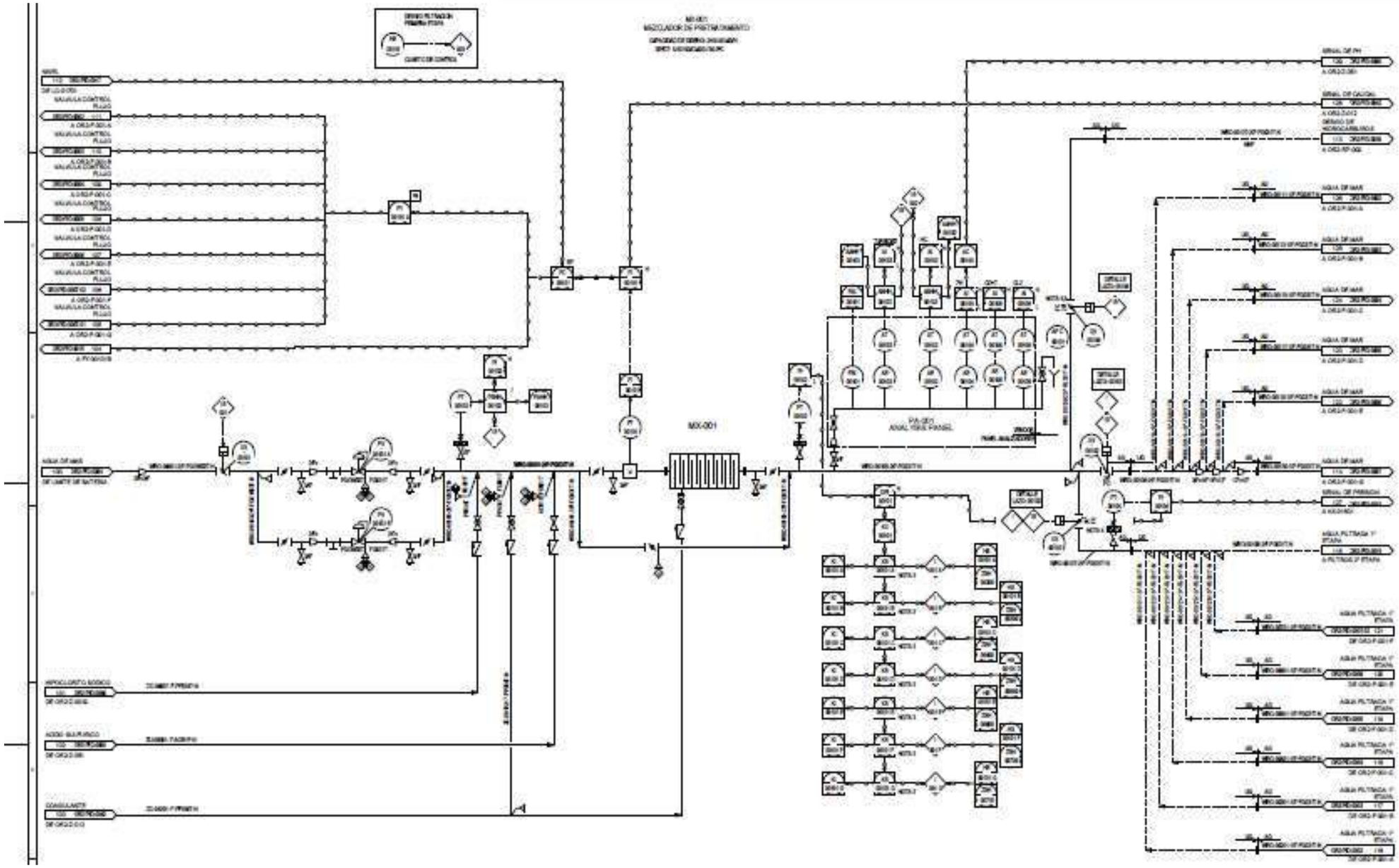
Bureau of Quality Standard

ASQS
ACCREDITED CERTIFIER



PROJECT: **Talara Refinery Modernization**

Client: **Abengoa Agua**

Software: Smart Plant P&ID

Project Description:

We were awarded to created Intelligent P&IDs for a complete water treatment plant.

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PRESENTATION ON

3D MODELLING, CONVERSIONS, LASER SCANNING & CITRIX

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CADWORX MODEL TO SMARTPLANT 3D CONVERTION THROUGH CITRIX

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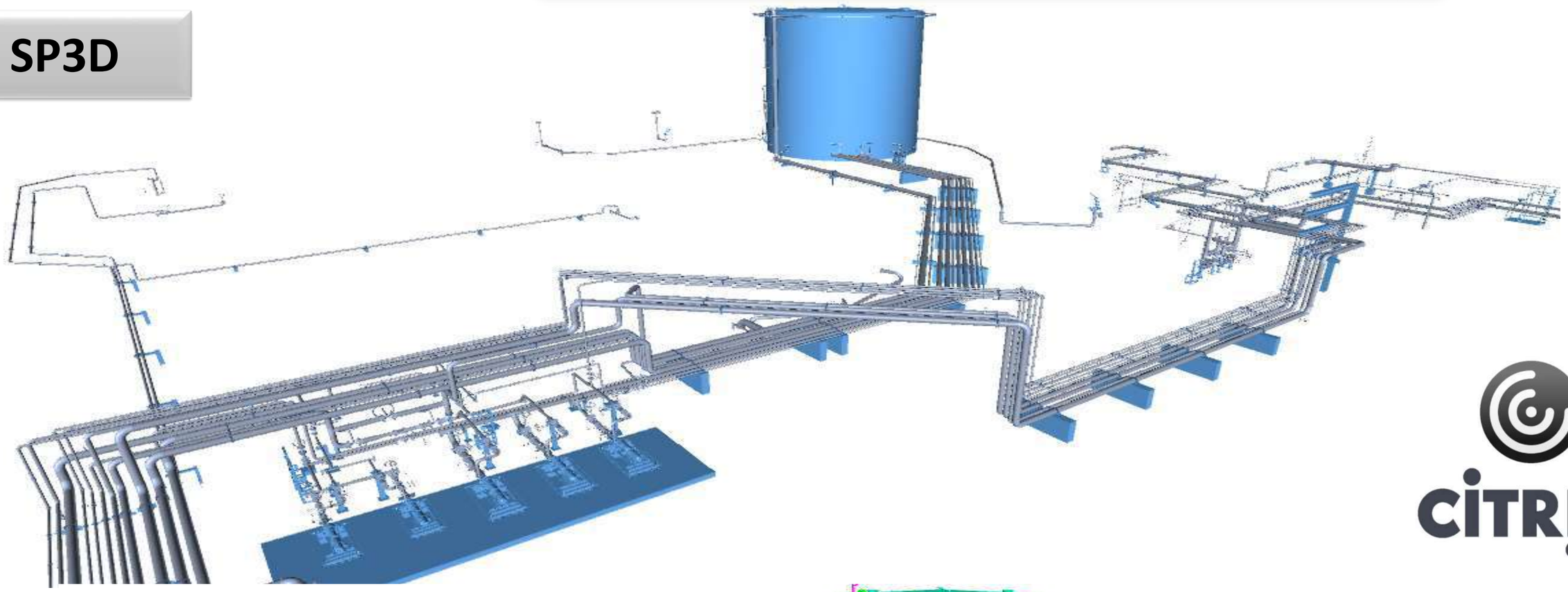
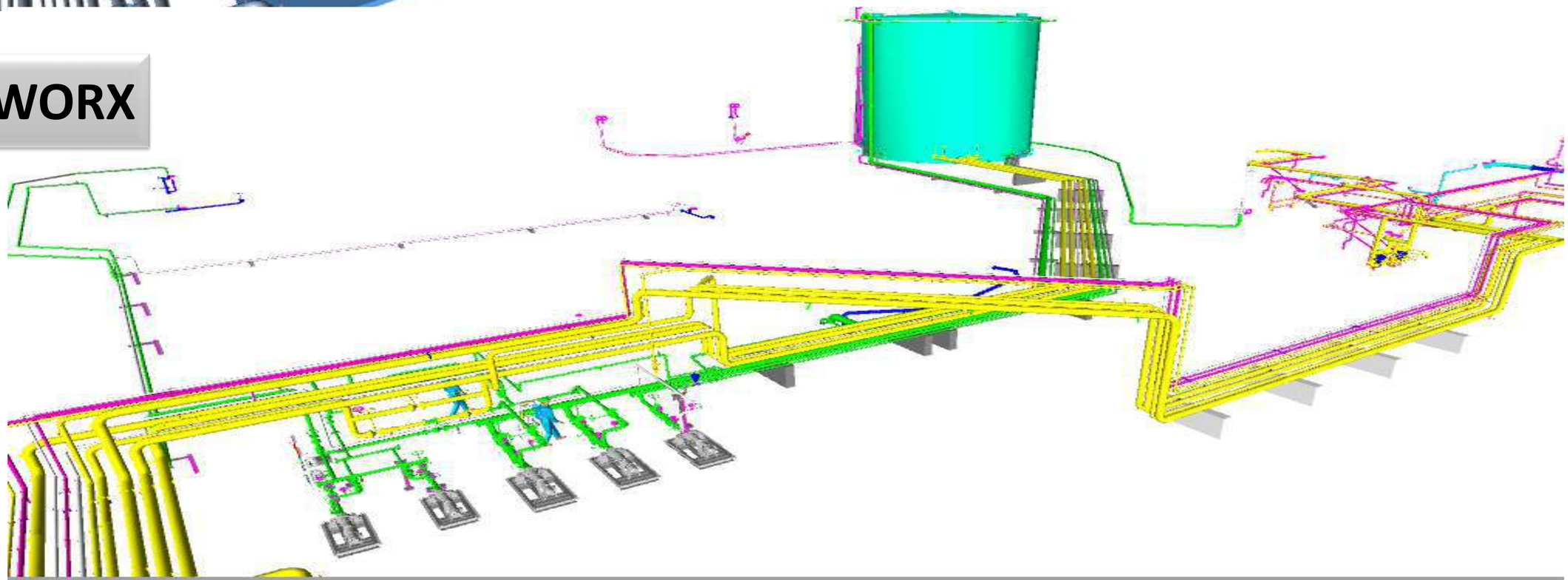
CITRIX

SP3D



CADWORX



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3D MODEL UPDATION & ISOMETRICS GENERATION IN AVEVA E3D THROUGH CITRIX

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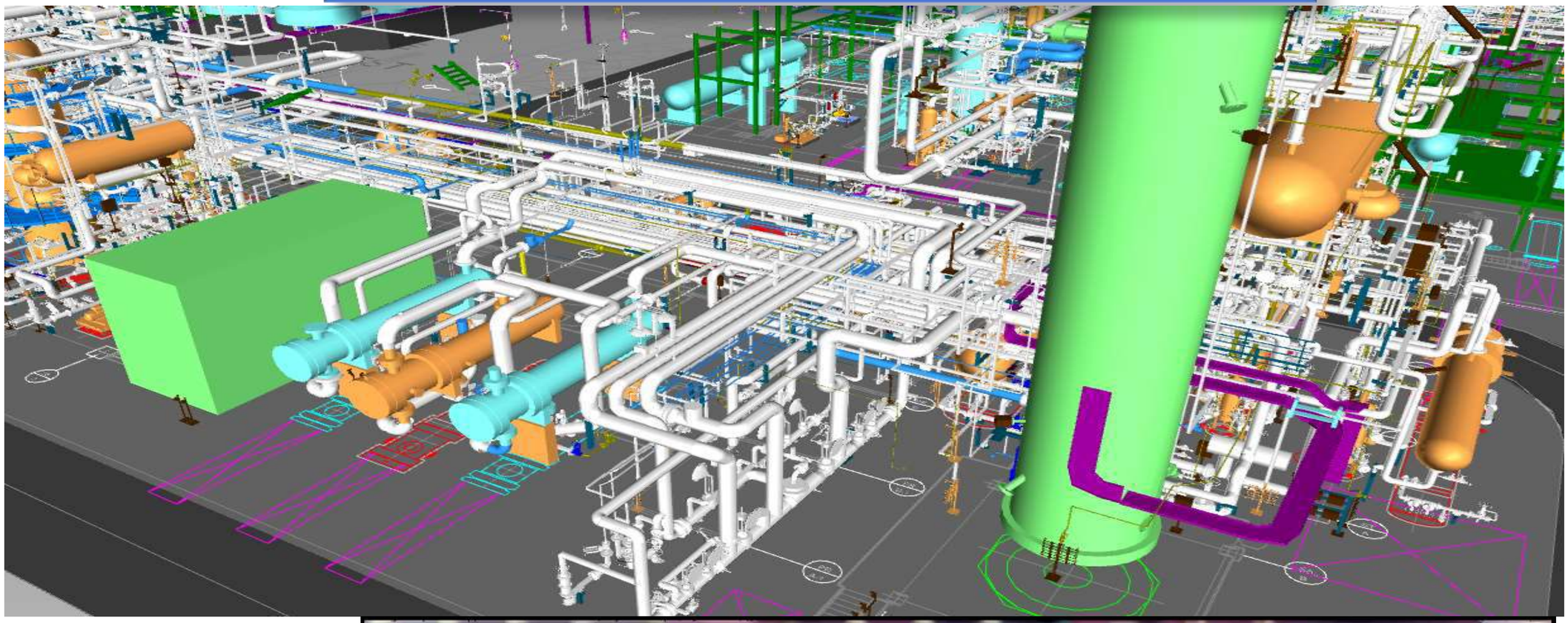
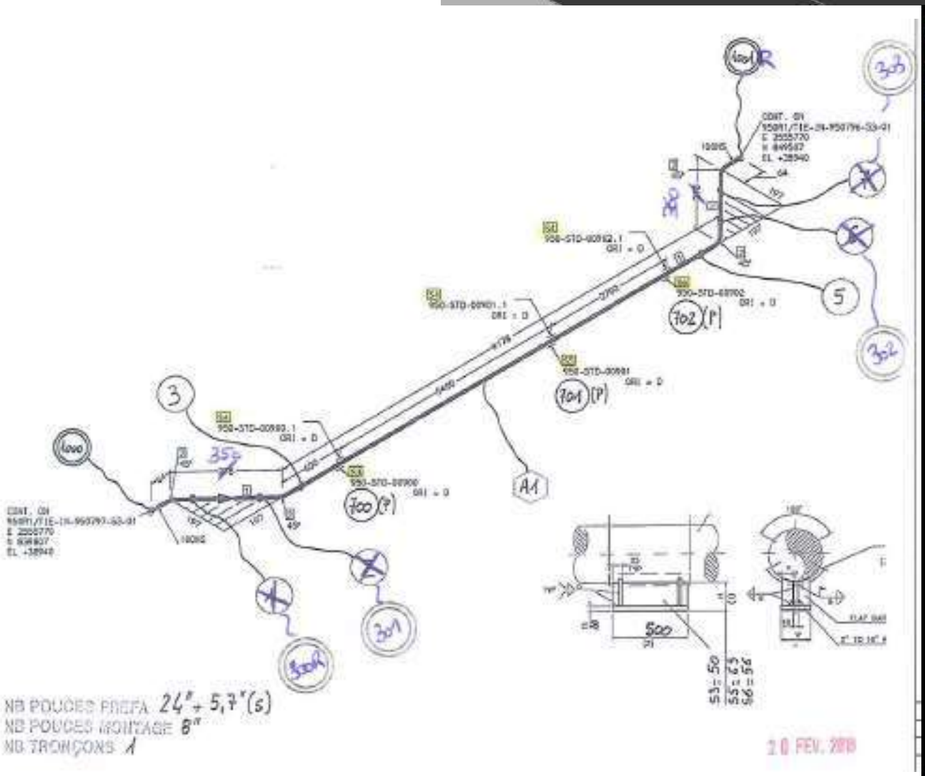
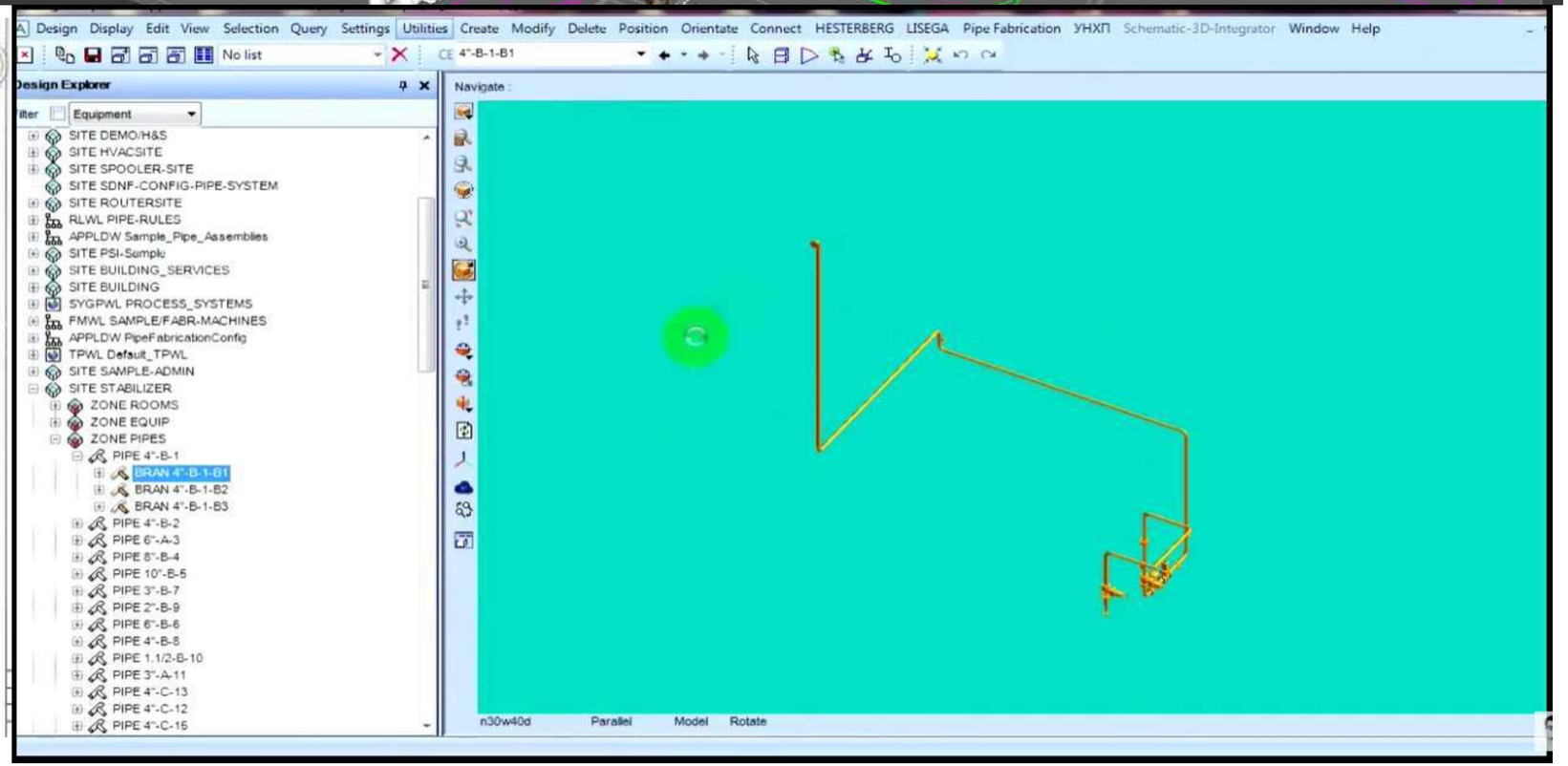
AVEVA E3D

CITRIX







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CONVERTED 70 Nos. OF SKIDS CADWORX MODEL TO PDMS MODEL

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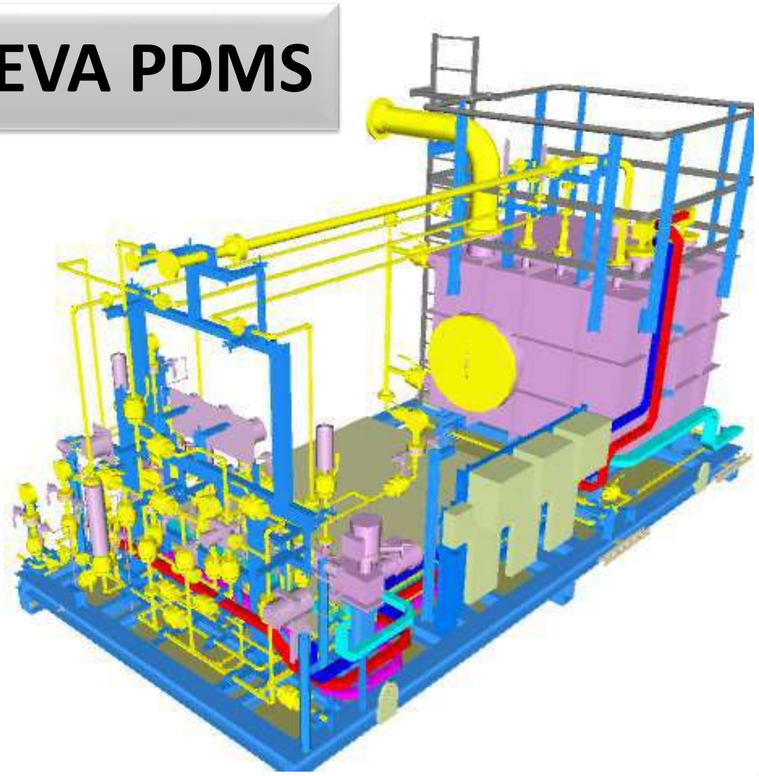
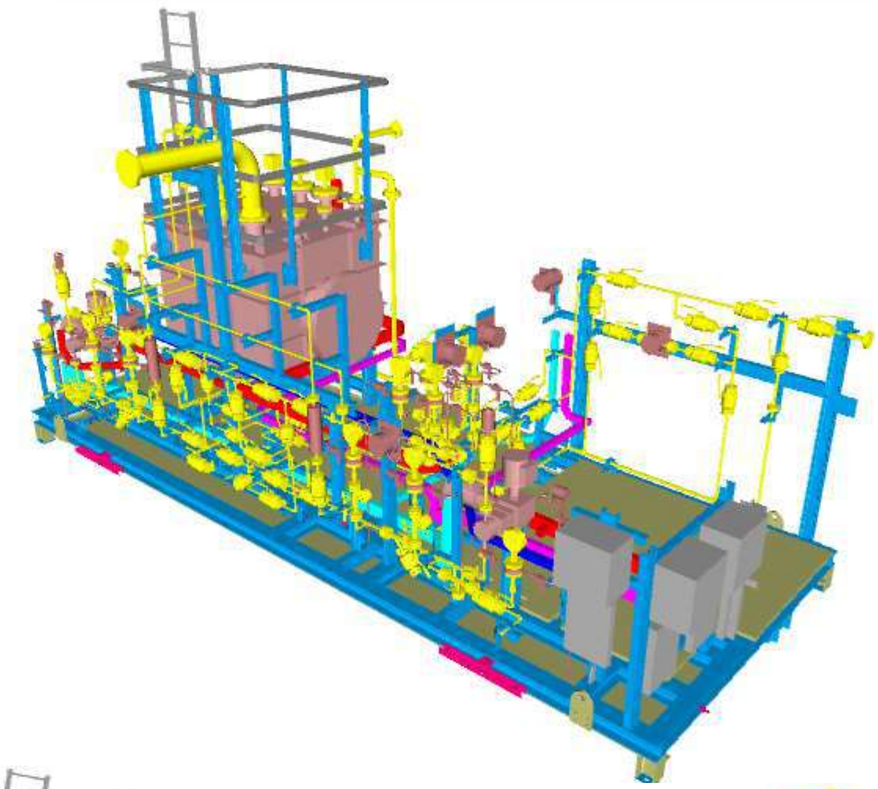
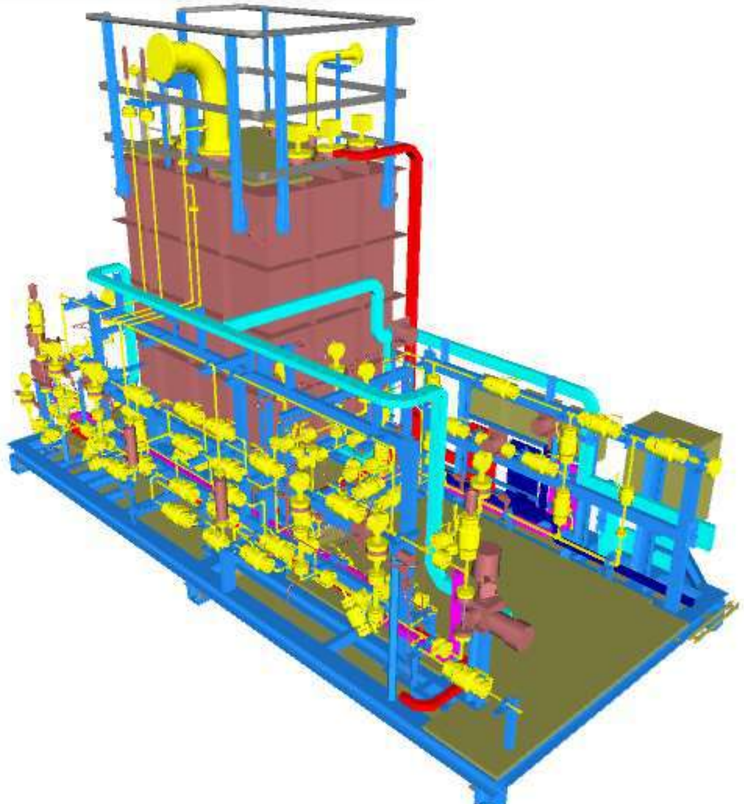
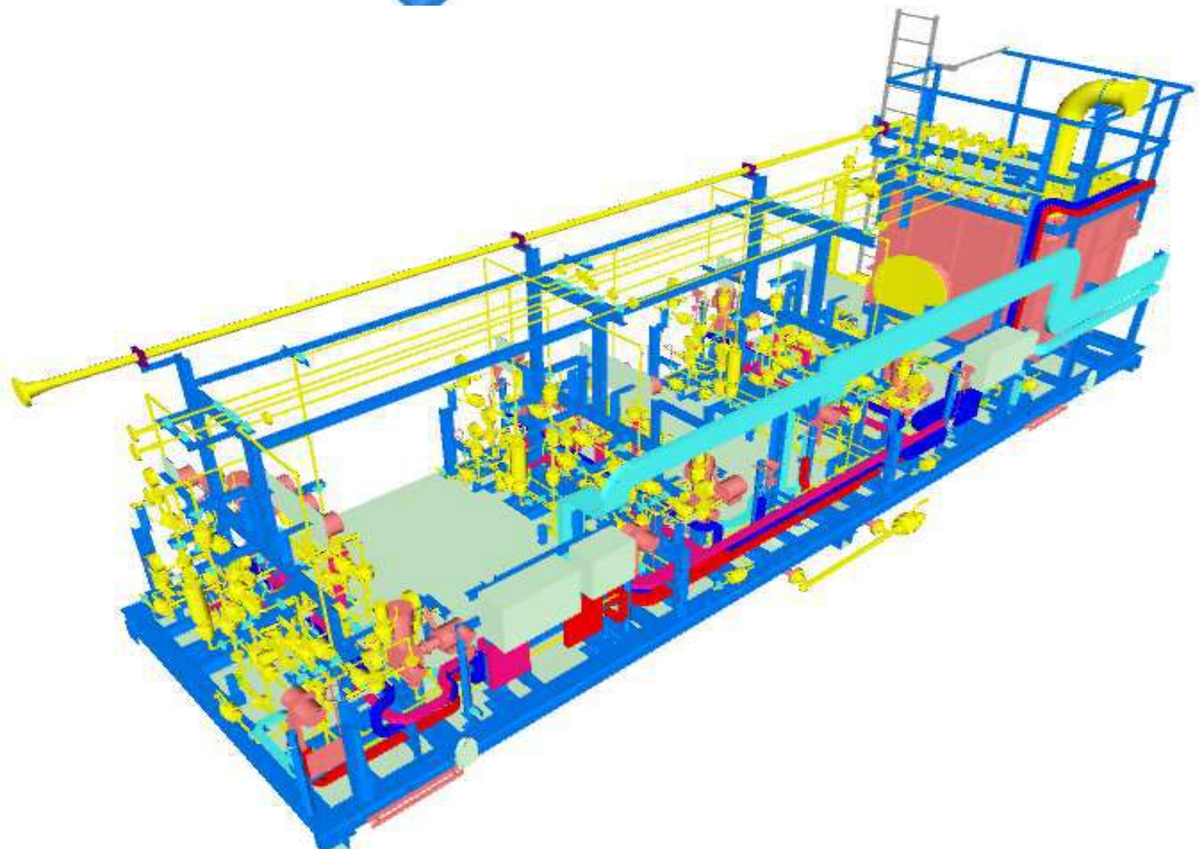
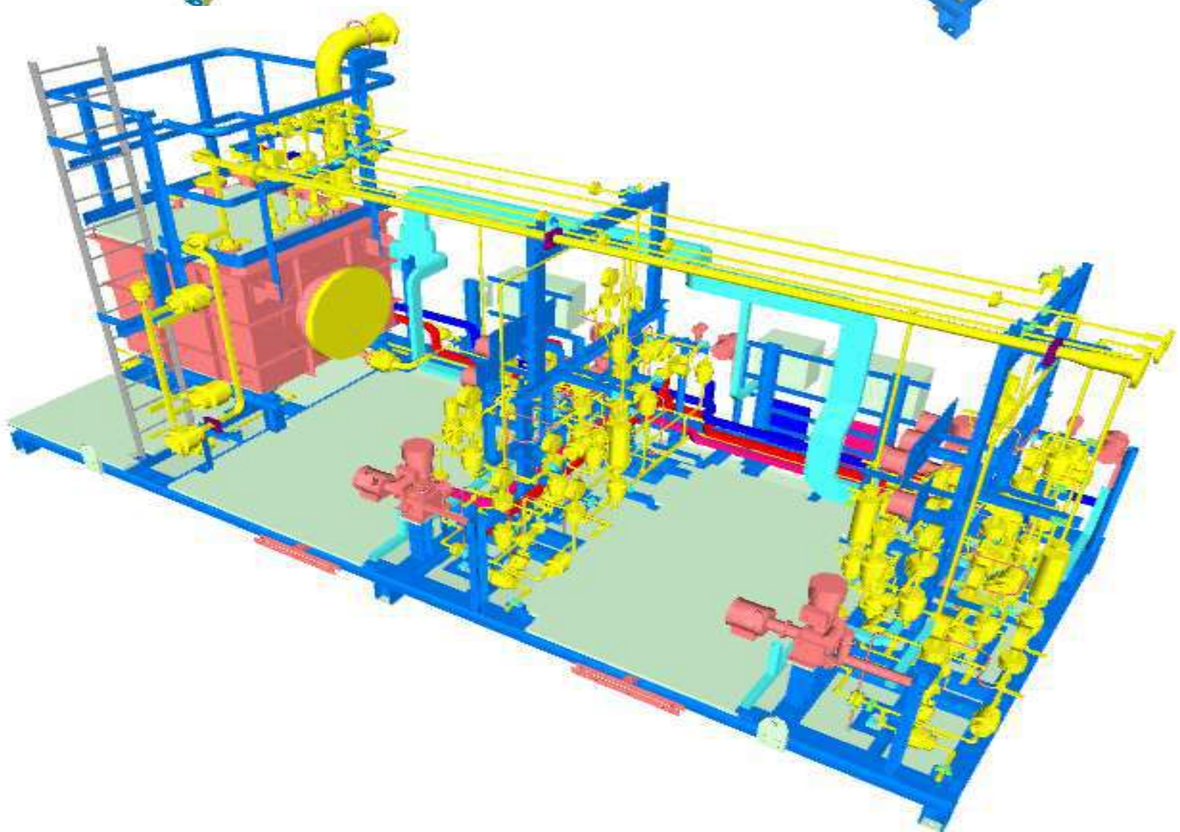
AVEVA PDMS











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LASER SCANNING TO 3D MODEL CONVERTION

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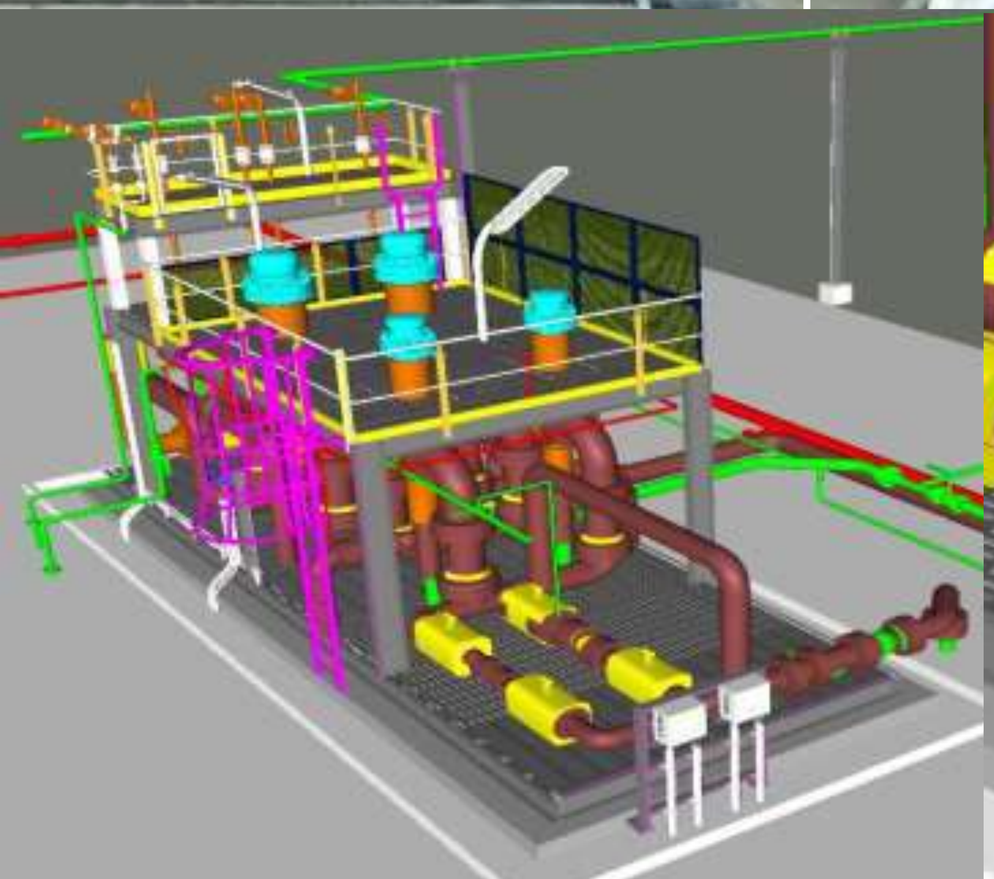

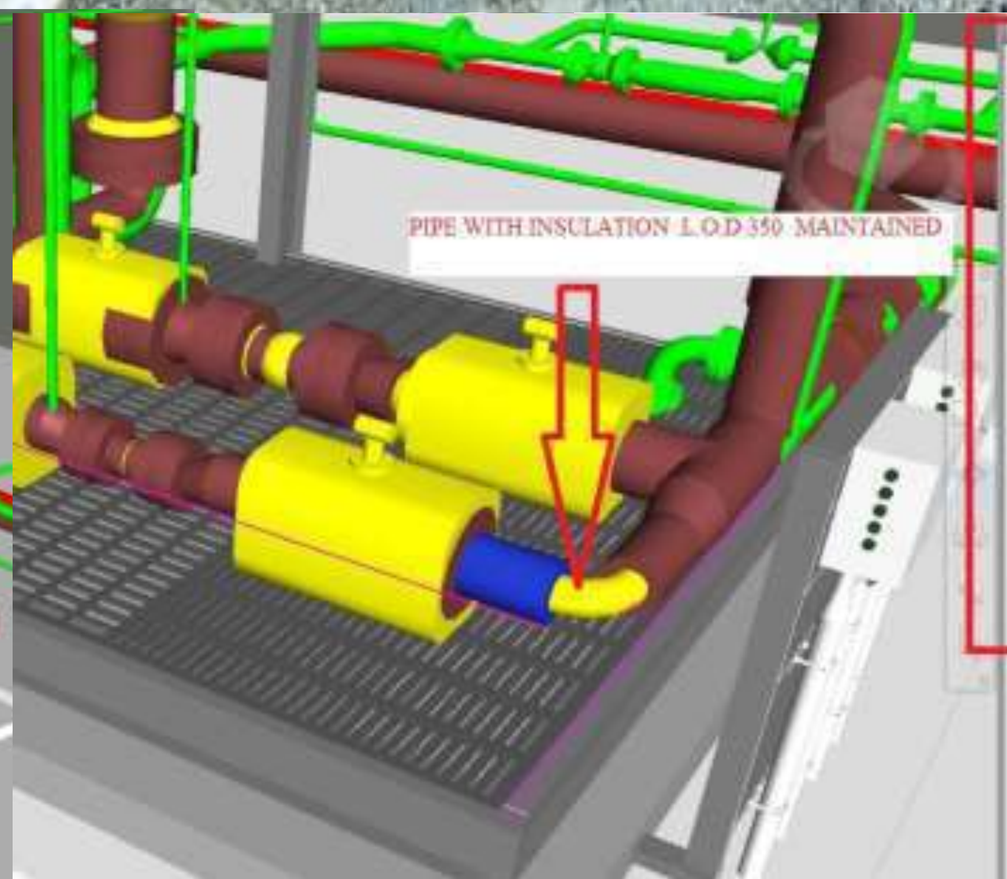

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2D TO 3D MODEL CONVERTION

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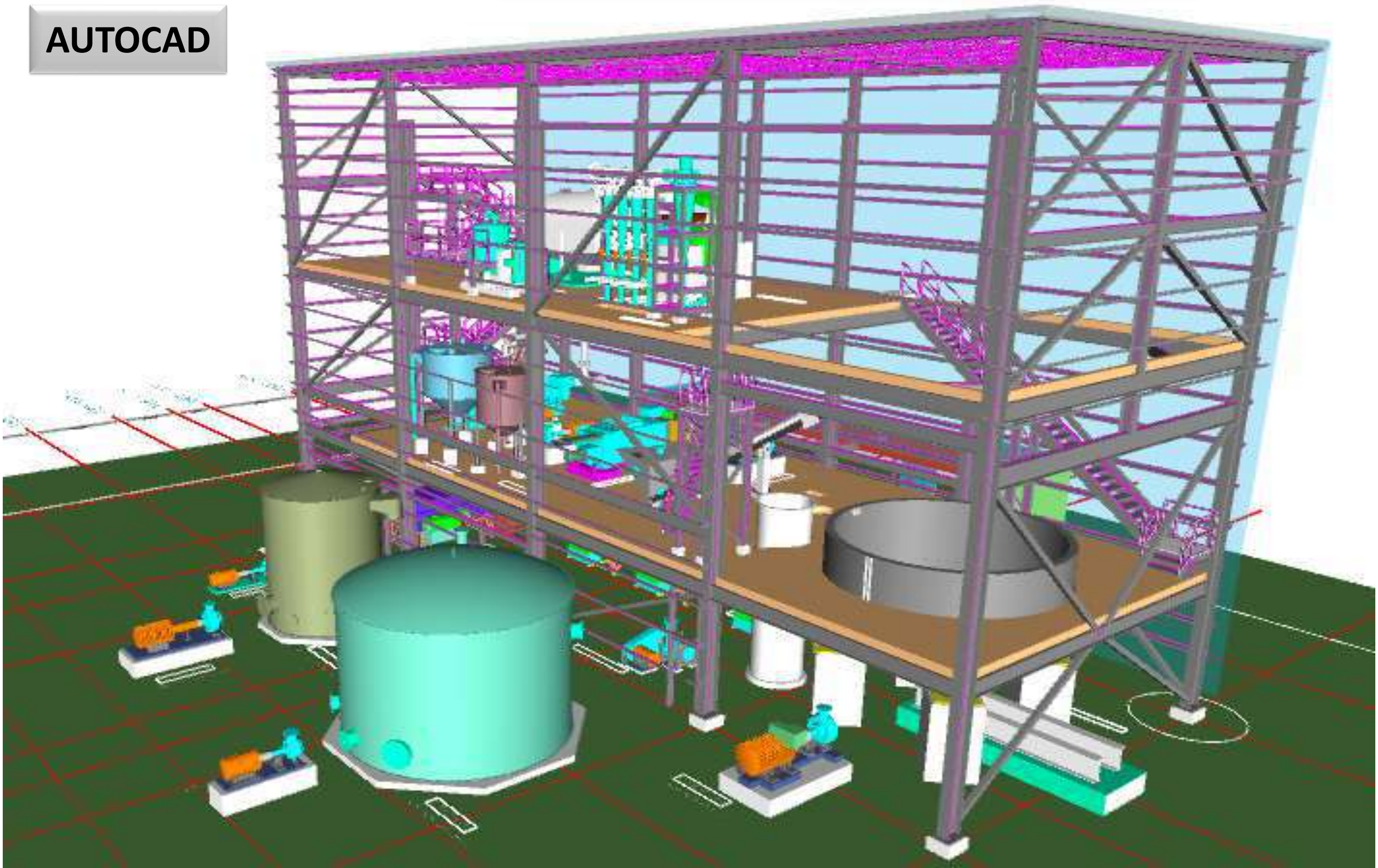
AUTOCAD



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Thank you!

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