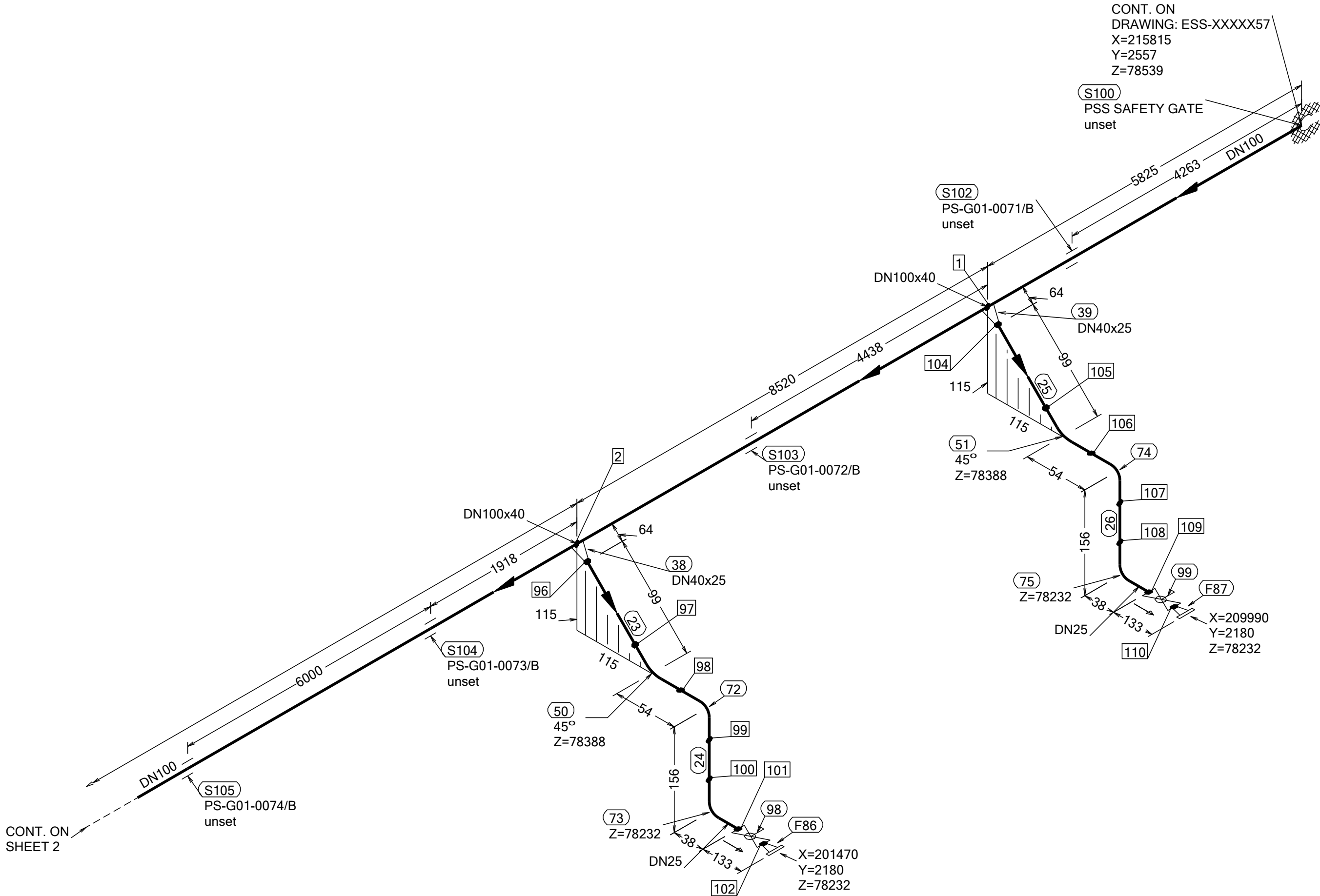
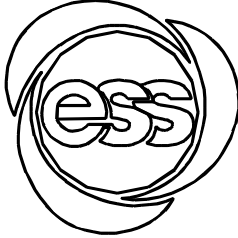


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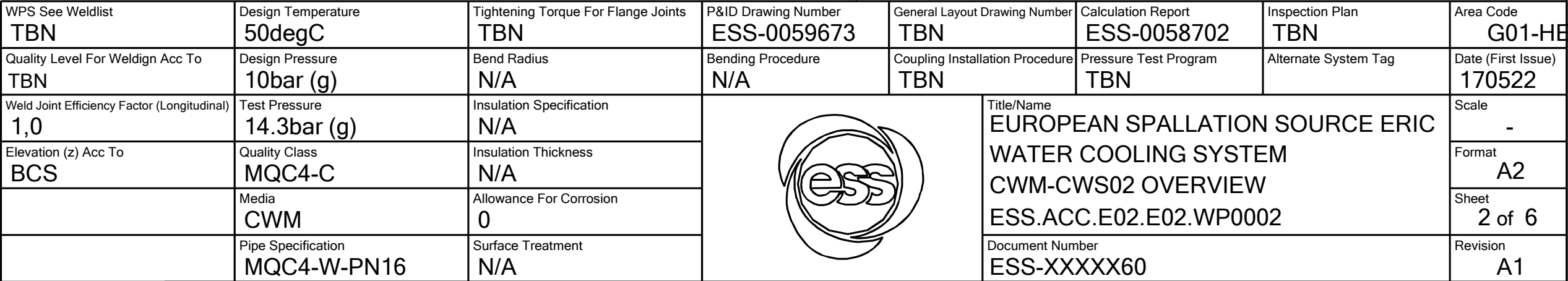
WELD	WPS	FABRICATION MATERIALS					
1		PT	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
2		NO					
95							
96							
97							
98							
99							
100							
101							
102							
103							
104							
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108							
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ERECTION MATERIALS				
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)
SUPPORTS				
100	PENETRATION ATTA	100		1
102	ESS Atta	100		1
103	ESS Atta	100		1
104	ESS Atta	100		1
105	ESS Atta	100		1

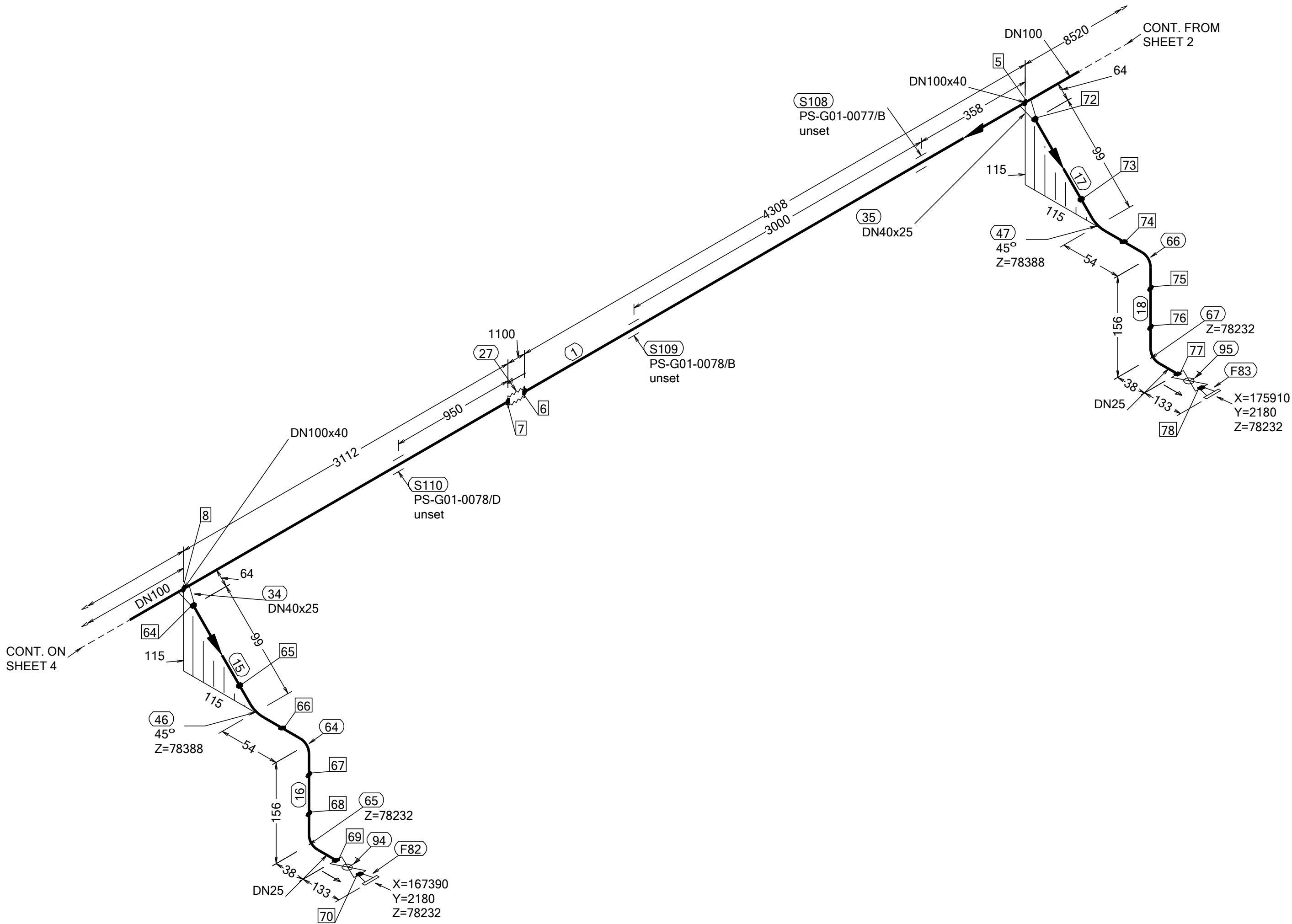
WPS See Weldlist	Design Temperature	Tightening Torque For Flange Joints	P&ID Drawing Number	General Layout Drawing Number	Calculation Report	Inspection Plan	Area Code
TBN	50degC	TBN	ESS-0059673	TBN	ESS-0058702	TBN	G01-HEB
Quality Level For Weldign Acc To	Design Pressure	Bend Radius	Bending Procedure	Coupling Installation Procedure	Pressure Test Program	Alternate System Tag	Date (First Issue)
TBN	10bar (g)	N/A	N/A	TBN	TBN		170522
Weld Joint Efficiency Factor (Longitudinal)	Test Pressure	Insulation Specification			Title/Name EUROPEAN SPALLATION SOURCE ERIC WATER COOLING SYSTEM CWM-CWS02 OVERVIEW ESS.ACC.E02.E02.WP0002		Scale
1,0	14.3bar (g)	N/A					-
Elevation (z) Acc To	Quality Class	Insulation Thickness					Format
BCS	MQC4-C	N/A					A2
	Media	Allowance For Corrosion			Document Number ESS-XXXXX60		Sheet
	CWM	0					1 of 6
	Pipe Specification	Surface Treatment					Revision
	MQC4-W-PN16	N/A					A1

Rev	Description	Date	Drawn	Designed	Reviewed	Verified	Quality	Approved
A1	ISSUED FOR CDR	170522	FRPE	FRPE	AKCO	ANLU		

FABRICATION MATERIALS					
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
	<u>PIPE</u>				
1	PIPE, SS-EN 10217-7, TC1, 114.3x2.0	100	EN 1.4404	17040	SETON TEE
19	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	83	
20	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	80	
21	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	83	
22	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	80	
	<u>FITTINGS</u>				
36	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 48.3x2.0 / 33.7x2.0	40 x 25	EN 1.4404	1	
37	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 48.3x2.0 / 33.7x2.0	40 x 25	EN 1.4404	1	
48	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
49	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
68	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
69	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
70	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
71	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
	<u>FLANGES</u>				
84	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
85	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
	<u>VALVES / IN-LINE ITEMS</u>				
96	WORCESTER BALL VALVE BW, A59-6666TT-BWJ DN25	25	EN 1.4404	1	
97	WORCESTER BALL VALVE BW, A59-6666TT-BWJ DN25	25	EN 1.4404	1	



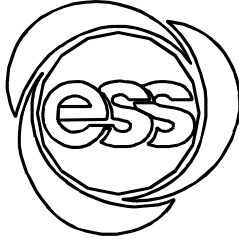
N (Y)



WELD	WPS
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FABRICATION MATERIALS					
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
PIPE					
1	PIPE, SS-EN 10217-7, TC1, 114.3x2.0	100	EN 1.4404	4309	SETON TEE SETON TEE
2	PIPE, SS-EN 10217-7, TC1, 114.3x2.0	100	EN 1.4404	3113	
15	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	83	
16	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	80	
17	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	83	
18	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	80	
FITTINGS					
27	ESS BELLOW	100		1	
34	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 48.3x2.0 / 33.7x2.0	40 x 25	EN 1.4404	1	
35	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 48.3x2.0 / 33.7x2.0	40 x 25	EN 1.4404	1	
46	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
47	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
64	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
65	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
66	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
67	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
FLANGES					
82	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
83	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
VALVES / IN-LINE ITEMS					
94	WORCESTER BALL VALVE BW, A59-6666TT-BWJ DN25	25	EN 1.4404	1	
95	WORCESTER BALL VALVE BW, A59-6666TT-BWJ DN25	25	EN 1.4404	1	

ERECTION MATERIALS					
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
SUPPORTS					
108	ESS Atta	100		1	
109	ESS Atta	100		1	
110	ESS Atta	100		1	

WPS See Weldlist	Design Temperature	Tightening Torque For Flange Joints	P&ID Drawing Number	General Layout Drawing Number	Calculation Report	Inspection Plan	Area Code
TBN	50degC	TBN	ESS-0059673	TBN	ESS-0058702	TBN	G01-HEB
Quality Level For Weldign Acc To	Design Pressure	Bend Radius	Bending Procedure	Coupling Installation Procedure	Pressure Test Program	Alternate System Tag	Date (First Issue)
TBN	10bar (g)	N/A	N/A	TBN	TBN		170522
Weld Joint Efficiency Factor (Longitudinal)	Test Pressure	Insulation Specification			Title/Name EUROPEAN SPALLATION SOURCE ERIC WATER COOLING SYSTEM CWM-CWS02 OVERVIEW ESS.ACC.E02.E02.WP0002		Scale
1,0	14.3bar (g)	N/A					-
Elevation (z) Acc To	Quality Class	Insulation Thickness					Format
BCS	MQC4-C	N/A					A2
	Media	Allowance For Corrosion			Document Number ESS-XXXXX60		Sheet
	CWM	0					3 of 6
	Pipe Specification	Surface Treatment					Revision
	MQC4-W-PN16	N/A					A1

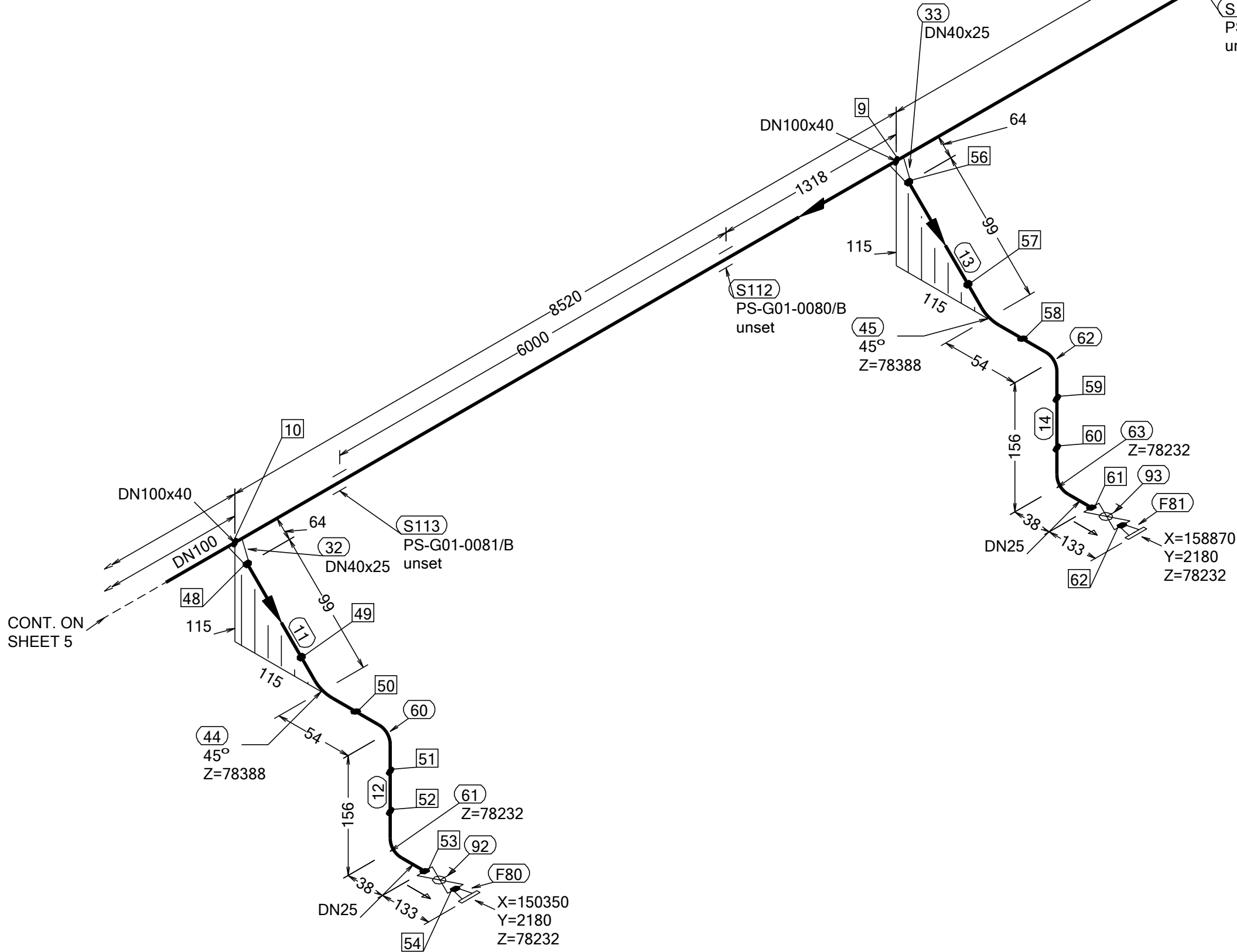
Rev	Description	Date	Drawn	Designed	Reviewed	Verified	Quality	Approved
A1	ISSUED FOR CDR	170522	FRPE	FRPE	AKCO	ANLU		

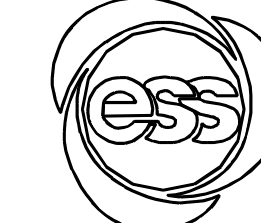
N (Y)

WELD	WPS
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FABRICATION MATERIALS					
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
	<u>PIPE</u>				
2	PIPE, SS-EN 10217-7, TC1, 114.3x2.0	100	EN 1.4404	17040	SETON TEE
11	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	83	
12	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	80	
13	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	83	
14	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	80	
	<u>FITTINGS</u>				
32	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 48.3x2.0 / 33.7x2.0	40 x 25	EN 1.4404	1	
33	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 48.3x2.0 / 33.7x2.0	40 x 25	EN 1.4404	1	
44	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
45	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
60	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
61	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
62	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
63	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
	<u>FLANGES</u>				
80	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
81	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
	<u>VALVES / IN-LINE ITEMS</u>				
92	WORCESTER BALL VALVE BW, A59-666TT-BWJ DN25	25	EN 1.4404	1	
93	WORCESTER BALL VALVE BW, A59-666TT-BWJ DN25	25	EN 1.4404	1	

ERECTION MATERIALS					
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
SUPPORTS					
111	ESS Atta	100		1	
112	ESS Atta	100		1	
113	ESS Atta	100		1	



WPS See Weldlist TBN	Design Temperature 50degC	Tightening Torque For Flange Joints TBN	P&ID Drawing Number ESS-0059673	General Layout Drawing Number TBN	Calculation Report ESS-0058702	Inspection Plan TBN	Area Code G01-HE
Quality Level For Weldign Acc To TBN	Design Pressure 10bar (g)	Bend Radius N/A	Bending Procedure N/A	Coupling Installation Procedure TBN	Pressure Test Program TBN	Alternate System Tag	Date (First Issue) 170522
Weld Joint Efficiency Factor (Longitudinal) 1,0	Test Pressure 14.3bar (g)	Insulation Specification N/A				Title/Name EUROPEAN SPALLATION SOURCE ERIC WATER COOLING SYSTEM CWM-CWS02 OVERVIEW ESS.ACC.E02.E02.WP0002	Scale -
Elevation (z) Acc To BCS	Quality Class MQC4-C	Insulation Thickness N/A				Format A2	
	Media CWM	Allowance For Corrosion 0				Sheet 4 of 6	
	Pipe Specification MQC4-W-PN16	Surface Treatment N/A				Document Number ESS-XXXXX60	Revision A1

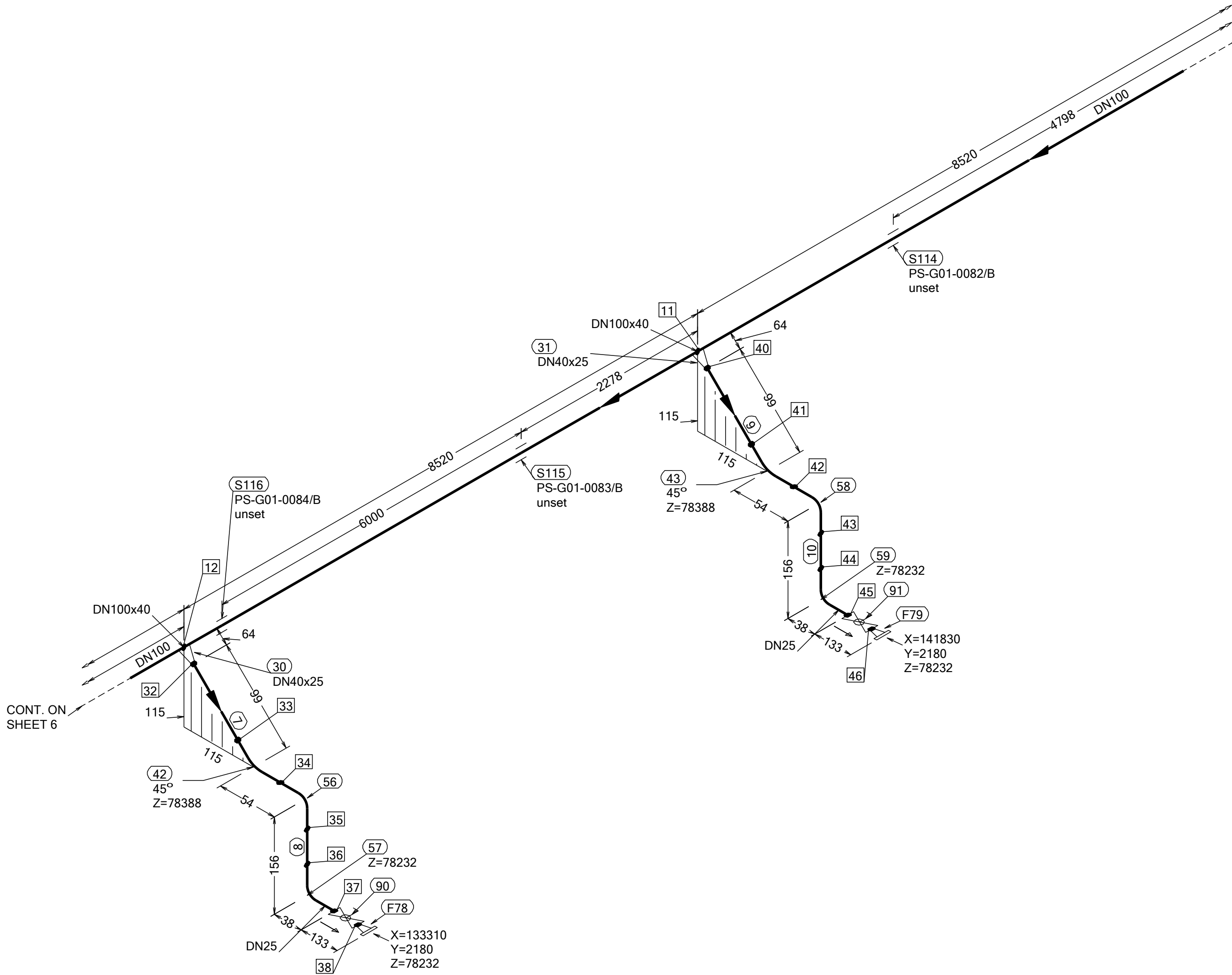
Rev	Description	Date	Drawn	Designed	Reviewed	Verified	Quality	Approved
A1	ISSUED FOR CDR	170522	FRPE	FRPE	AKCO	ANLU		

N (Y)

WELD	WPS
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FABRICATION MATERIALS					
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
	PIPE				
2	PIPE, SS-EN 10217-7, TC1, 114.3x2.0	100	EN 1.4404	17040	SETON TEE
7	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	83	
8	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	80	
9	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	83	
10	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	80	
	FITTINGS				
30	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 48.3x2.0 / 33.7x2.0	40 x 25	EN 1.4404	1	
31	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 48.3x2.0 / 33.7x2.0	40 x 25	EN 1.4404	1	
42	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
43	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
56	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
57	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
58	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
59	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
	FLANGES				
78	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
79	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
	VALVES / IN-LINE ITEMS				
90	WORCESTER BALL VALVE BW, A59-6666TT-BWJ DN25	25	EN 1.4404	1	
91	WORCESTER BALL VALVE BW, A59-6666TT-BWJ DN25	25	EN 1.4404	1	

PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
SUPPORTS					
114	ESS Atta	100		1	
115	ESS Atta	100		1	
116	ESS Atta	100		1	

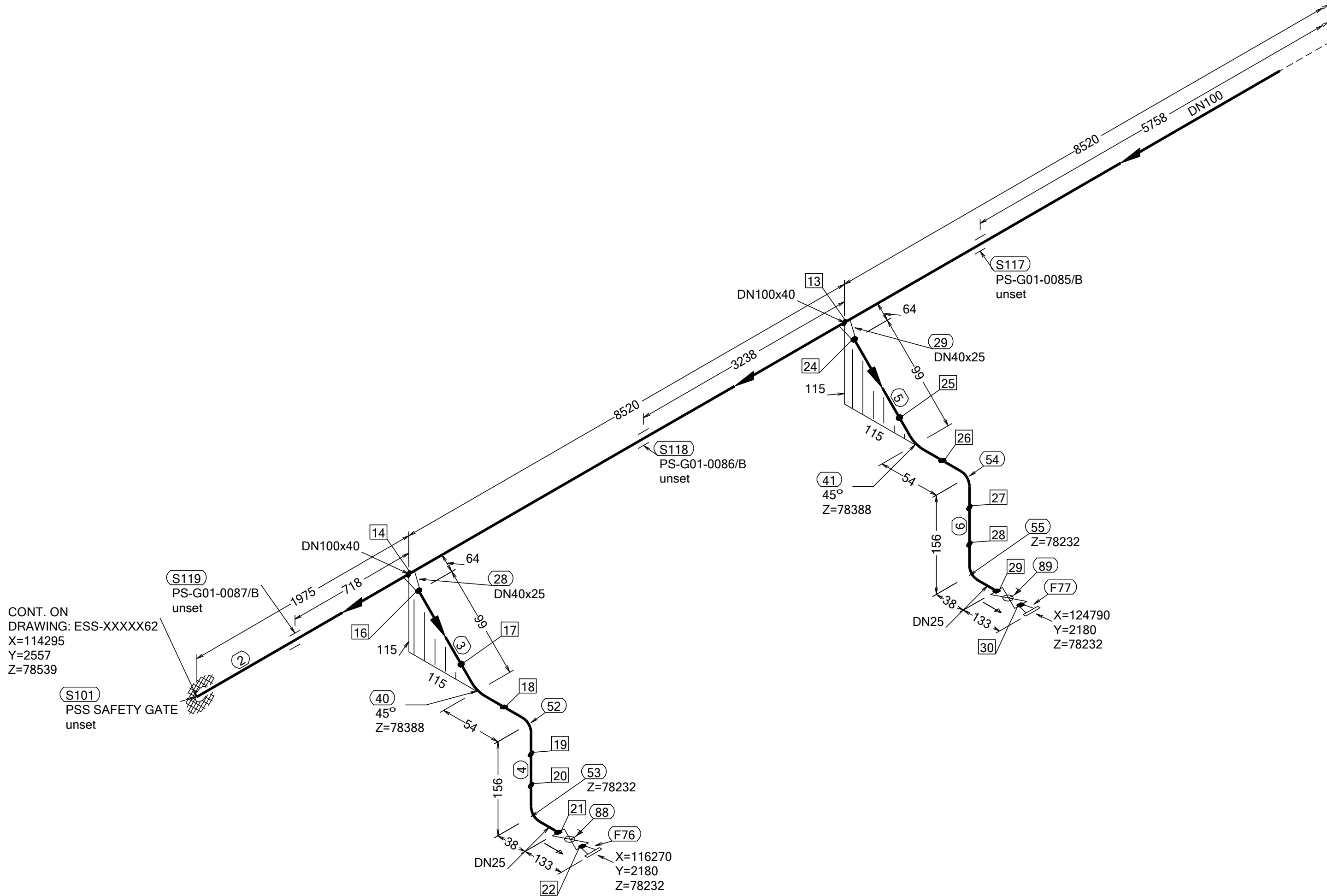



WPS See Weldlist	Design Temperature 50degC	Tightening Torque For Flange Joints TBN	P&ID Drawing Number ESS-0059673	General Layout Drawing Number TBN	Calculation Report ESS-0058702	Inspection Plan TBN	Area Code G01-HEB
Quality Level For Weldign Acc To TBN	Design Pressure 10bar (g)	Bend Radius N/A	Bending Procedure N/A	Coupling Installation Procedure TBN	Pressure Test Program TBN	Alternate System Tag	Date (First Issue) 170522
Weld Joint Efficiency Factor (Longitudinal) 1,0	Test Pressure 14.3bar (g)	Insulation Specification N/A			Title/Name EUROPEAN SPALLATION SOURCE ERIC WATER COOLING SYSTEM CWM-CWS02 OVERVIEW ESS.ACC.E02.E02.WP0002		Scale -
Elevation (z) Acc To BCS	Quality Class MQC4-C	Insulation Thickness N/A					Format A2
	Media CWM	Allowance For Corrosion 0					Sheet 5 of 6
	Pipe Specification MQC4-W-PN16	Surface Treatment N/A					Revision A1

Rev	Description	Date	Drawn	Designed	Reviewed	Verified	Quality	Approved
A1	ISSUED FOR CDR	170522	FRPE	FRPE	AKCO	ANLU		

FABRICATION MATERIALS					
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
	<u>PIPE</u>				
2	PIPE, SS-EN 10217-7, TC1, 114.3x2.0	100	EN 1.4404	19014	SETON TEE
3	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	83	
4	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	80	
5	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	83	
6	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	80	
	<u>FITTINGS</u>				
28	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 48.3x2.0 / 33.7x2.0	40 x 25	EN 1.4404	1	
29	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 48.3x2.0 / 33.7x2.0	40 x 25	EN 1.4404	1	
40	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
41	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
52	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
53	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
54	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
55	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
	<u>FLANGES</u>				
76	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
77	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
	<u>VALVES / IN-LINE ITEMS</u>				
88	WORCESTER BALL VALVE BW, A59-6666TT-BWJ DN25	25	EN 1.4404	1	
89	WORCESTER BALL VALVE BW, A59-6666TT-BWJ DN25	25	EN 1.4404	1	

ERECTION MATERIALS					
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
	SUPPORTS				
101	PENETRATION ATTA	100		1	
117	ESS Atta	100		1	
118	ESS Atta	100		1	
119	ESS Atta	100		1	



WPS See Weldlist TBN	Design Temperature 50degC	Tightening Torque For Flange Joints TBN	P&ID Drawing Number ESS-0059673	General Layout Drawing Number TBN	Calculation Report ESS-0058702	Inspection Plan TBN	Area Code G01-HE
Quality Level For Weldign Acc To TBN	Design Pressure 10bar (g)	Bend Radius N/A	Bending Procedure N/A	Coupling Installation Procedure TBN	Pressure Test Program TBN	Alternate System Tag	Date (First Issue) 170522
Weld Joint Efficiency Factor (Longitudinal) 1,0	Test Pressure 14.3bar (g)	Insulation Specification N/A			Title/Name EUROPEAN SPALLATION SOURCE ERIC WATER COOLING SYSTEM CWM-CWS02 OVERVIEW ESS.ACC.E02.E02.WP0002		Scale -
Elevation (z) Acc To BCS	Quality Class MQC4-C	Insulation Thickness N/A					Format A2
	Media CWM	Allowance For Corrosion 0					Sheet 6 of 6
	Pipe Specification MQC4-W-PN16	Surface Treatment N/A			Document Number ESS-XXXXX60		Revision A1