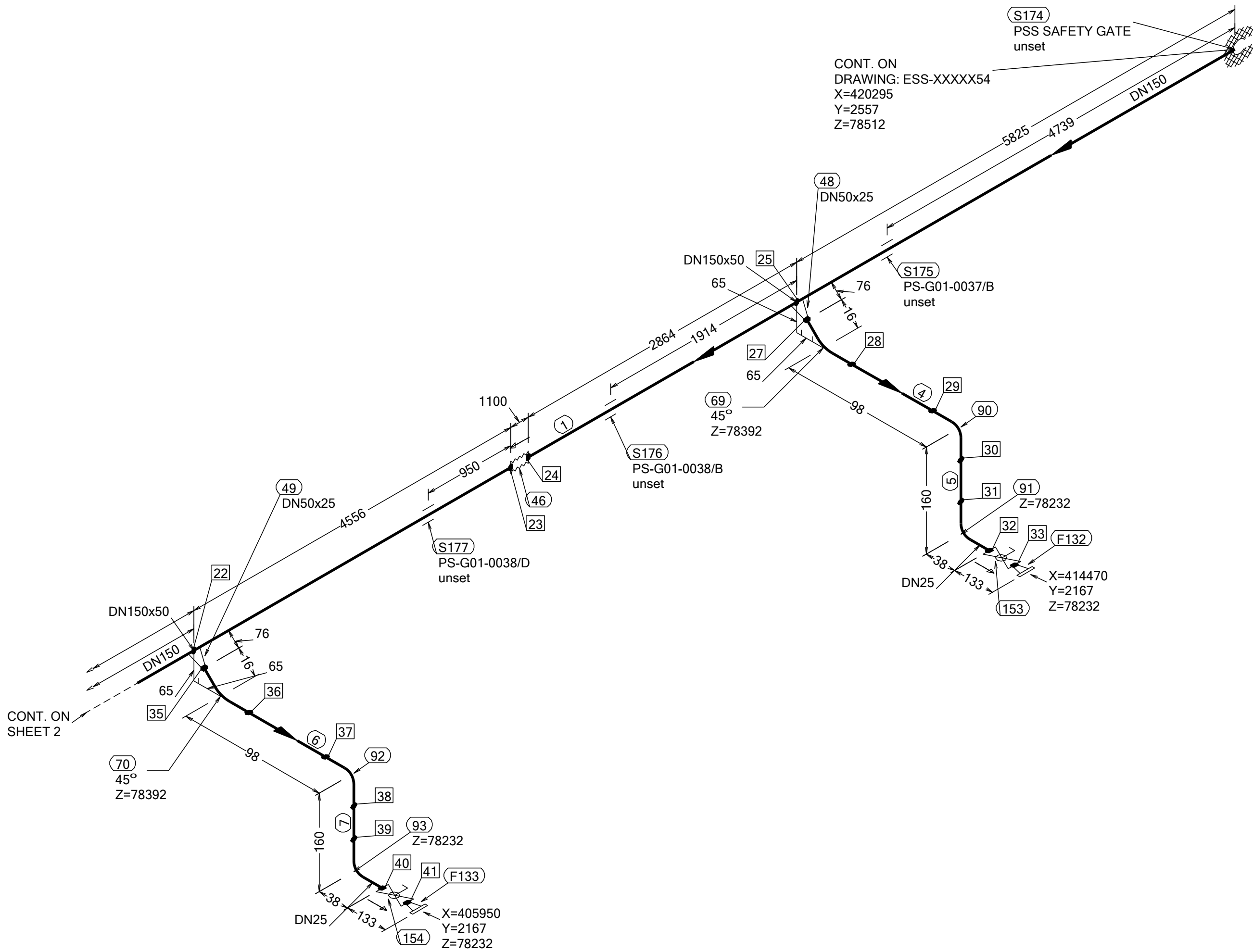
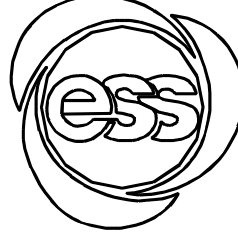


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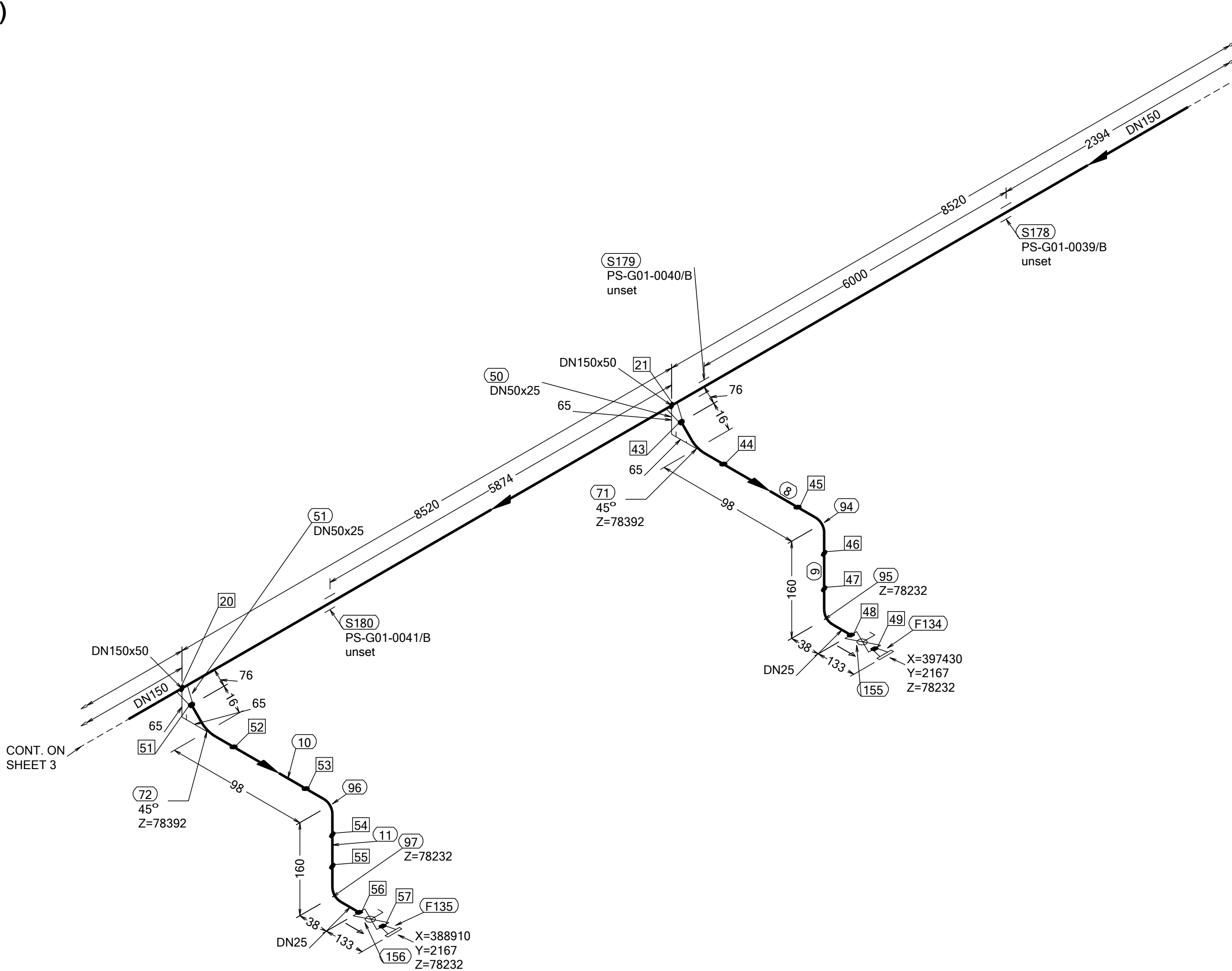
WELD	WPS	FABRICATION MATERIALS					
22		PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
23			PIPE				
24		1	PIPE, SS-EN 10217-7, TC1, 168.3x2.0	150	EN 1.4404	8689	SETON TEE SETON TEE
25		2	PIPE, SS-EN 10217-7, TC1, 168.3x2.0	150	EN 1.4404	4557	
26		4	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	44	
27		5	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
28		6	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	44	
29		7	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
30			FITTINGS				
31		46	ESS BELLOW	150		1	
32		48	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
33		49	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
34		69	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
35		70	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
36		90	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
37		91	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
38		92	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
39		93	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
40			FLANGES				
41		132	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
		133	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
			VALVES / IN-LINE ITEMS				
		153	WORCESTER BALL VALVE BW, A59-6666TT-BWJ DN25	25	EN 1.4404	1	
		154	WORCESTER BALL VALVE BW, A59-6666TT-BWJ DN25	25	EN 1.4404	1	

PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
SUPPORTS					
174	PENETRATION ATTA	150		1	
175	ESS Atta	150		1	
176	ESS Atta	150		1	
177	ESS Atta	150		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-HBL
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.WP0001		Scale -
Elevation (z) Acc To BCS	Quality Class MQC4-C	Insulation Thickness N/A					Format A2
	Media CWM	Allowance For Corrosion 0					Sheet 1 of 12
	Pipe Specification MQC4-W-PN16	Surface Treatment N/A			Document Number ESS-XXXXX56	Revision A1	

Rev	Description	Date	Drawn	Designed	Reviewed	Verified	Quality	Approved
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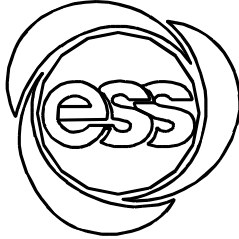
N (Y)



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, 168.3x2.0	150	EN 1.4404	17040	SETON TEE
8	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	44	
9	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
10	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	44	
11	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
	FITTINGS				
50	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
51	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
71	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
72	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
94	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
95	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
96	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
97	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
	FLANGES				
134	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
135	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
	VALVES / IN-LINE ITEMS				
155	WORCESTER BALL VALVE BW, A59-666TT-BWJ DN25	25	EN 1.4404	1	
156	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					
178	ESS Atta	150		1	
179	ESS Atta	150		1	
180	ESS Atta	150		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-HBL
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.WP0001		Scale -
Elevation (z) Acc To BCS	Quality Class MQC4-C	Insulation Thickness N/A					Format A2
	Media CWM	Allowance For Corrosion 0					Sheet 2 of 12
	Pipe Specification MQC4-W-PN16	Surface Treatment N/A					Revision A1

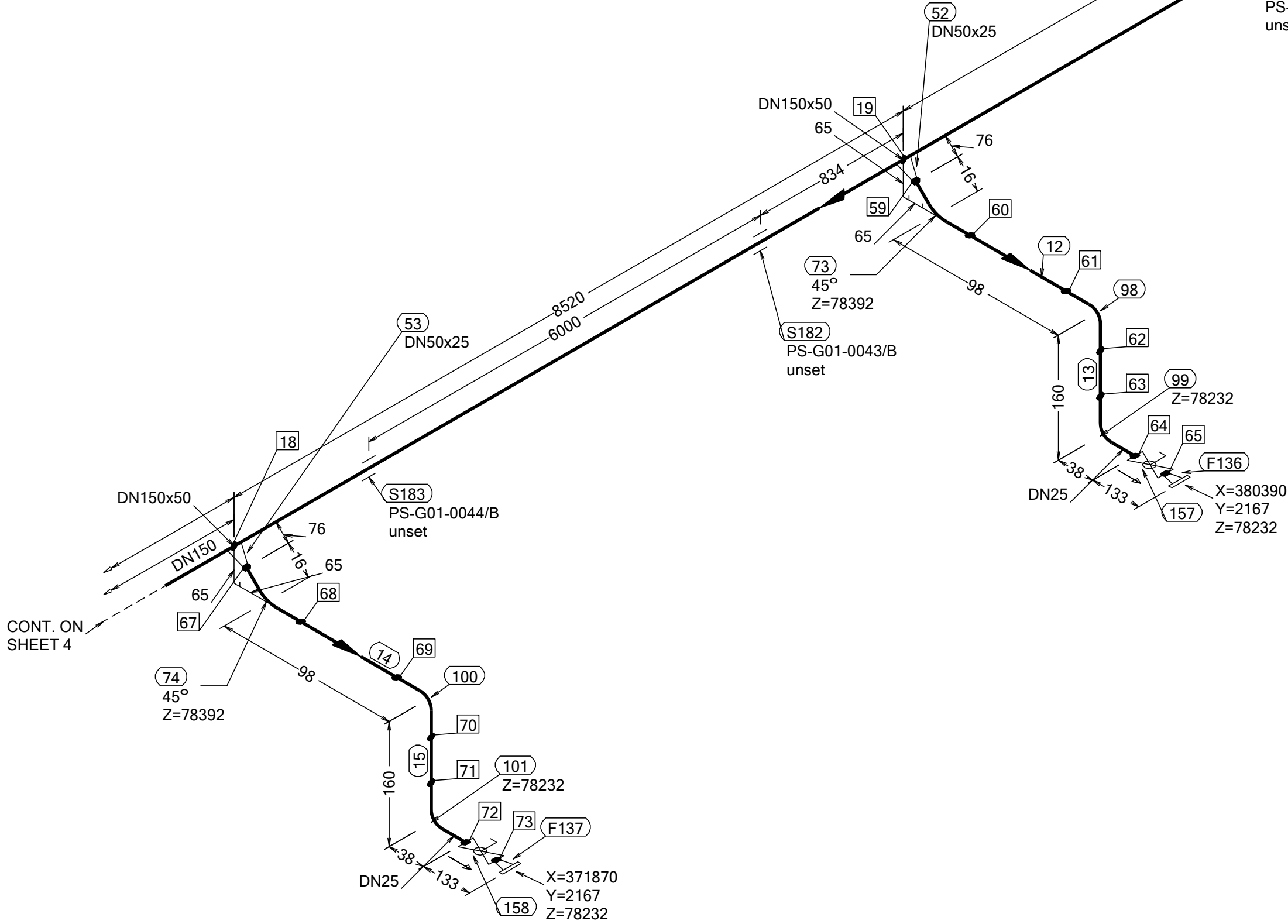
Rev	Description	Date	Drawn	Designed	Reviewed	Verified	Quality	Approved
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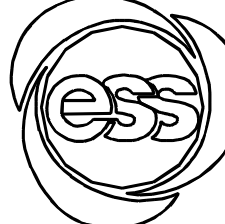
N (Y)

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, 168.3x2.0	150	EN 1.4404	17040	SETON TEE
12	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	44	
13	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
14	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	44	
15	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
	FITTINGS				
52	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
53	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
73	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
74	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
98	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
99	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
100	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
101	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
	FLANGES				
136	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
137	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
	VALVES / IN-LINE ITEMS				
157	WORCESTER BALL VALVE BW, A59-6666TT-BWJ DN25	25	EN 1.4404	1	
158	WORCESTER BALL VALVE BW, A59-6666TT-BWJ DN25	25	EN 1.4404	1	

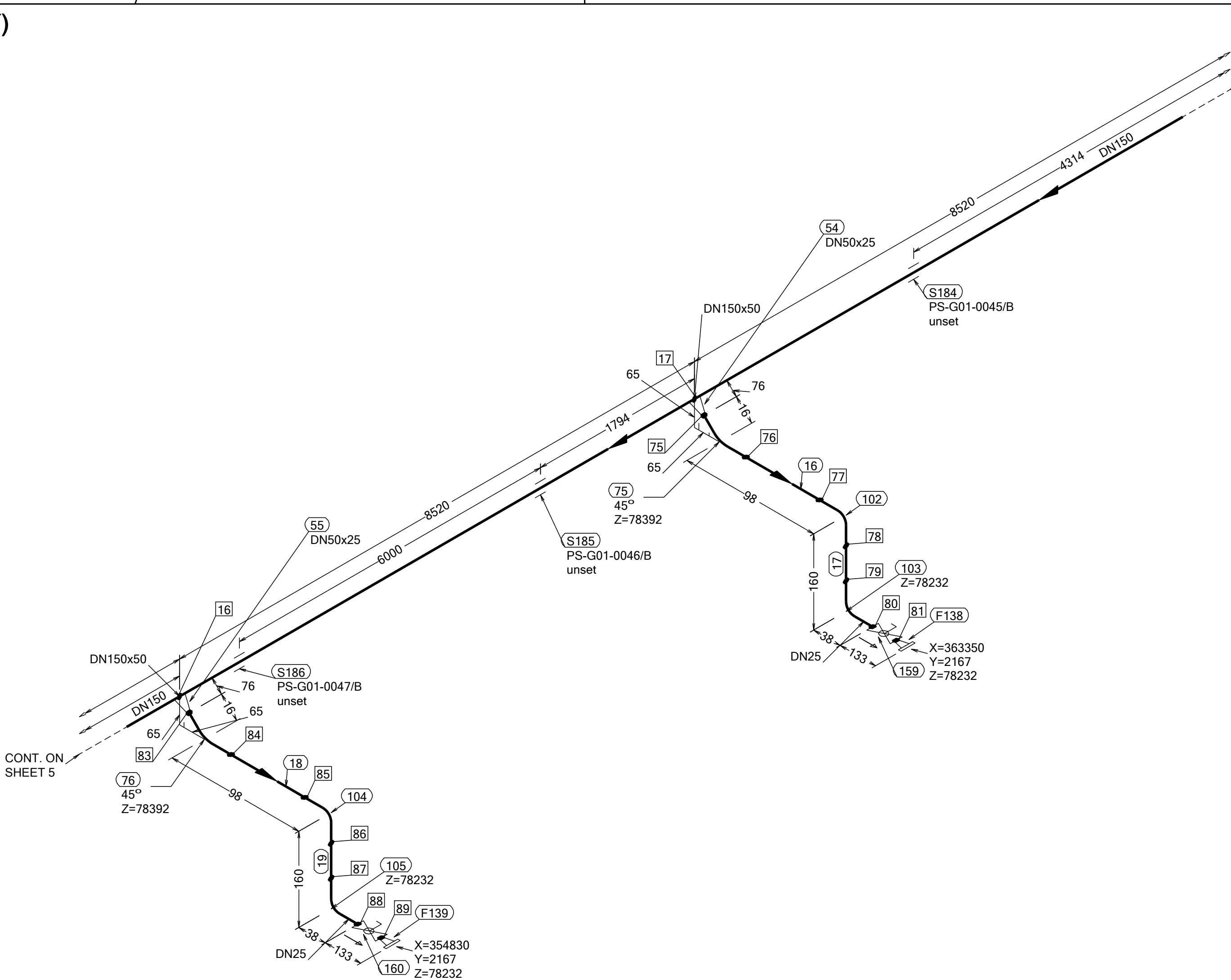
ERECTION MATERIALS					
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
SUPPORTS					
181	ESS Atta	150		1	
182	ESS Atta	150		1	
183	ESS Atta	150		1	



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-HBL
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.WP0001		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-XXXXX56		Sheet
	CWM	0					3 of 12
	Pipe Specification	Surface Treatment					Revision
	MQC4-W-PN16	N/A					A1

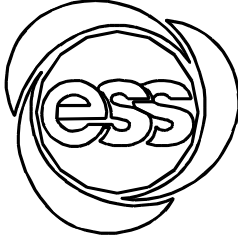
Rev	Description	Date	Drawn	Designed	Reviewed	Verified	Quality	Approved
A1	ISSUED FOR CDR	170522	FRPE	FRPE	AKCO	ANLU		

N (Y)



WELD	WPS	FABRICATION MATERIALS					
16		PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
17							
74							
75							
76							
77	FROM		PIPE				
178		2	PIPE, SS-EN 10217-7, TC1, 168.3x2.0	150	EN 1.4404	17040	SETON TEE
79		16	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	44	
80		17	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
81		18	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	44	
82		19	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
83							
84							
85			FITTINGS				
86							
87		54	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
88		55	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
89		75	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
		76	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
		102	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
		103	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
		104	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
		105	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
			FLANGES				
		138	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
		139	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
			VALVES / IN-LINE ITEMS				
		159	WORCESTER BALL VALVE BW, A59-666TT-BWJ DN25	25	EN 1.4404	1	
		160	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					
184	ESS Atta	150		1	
185	ESS Atta	150		1	
186	ESS Atta	150		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-HBL
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.WP0001		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-XXXXX56		Sheet
	CWM	0					4 of 12
	Pipe Specification	Surface Treatment					Revision
	MQC4-W-PN16	N/A					A1

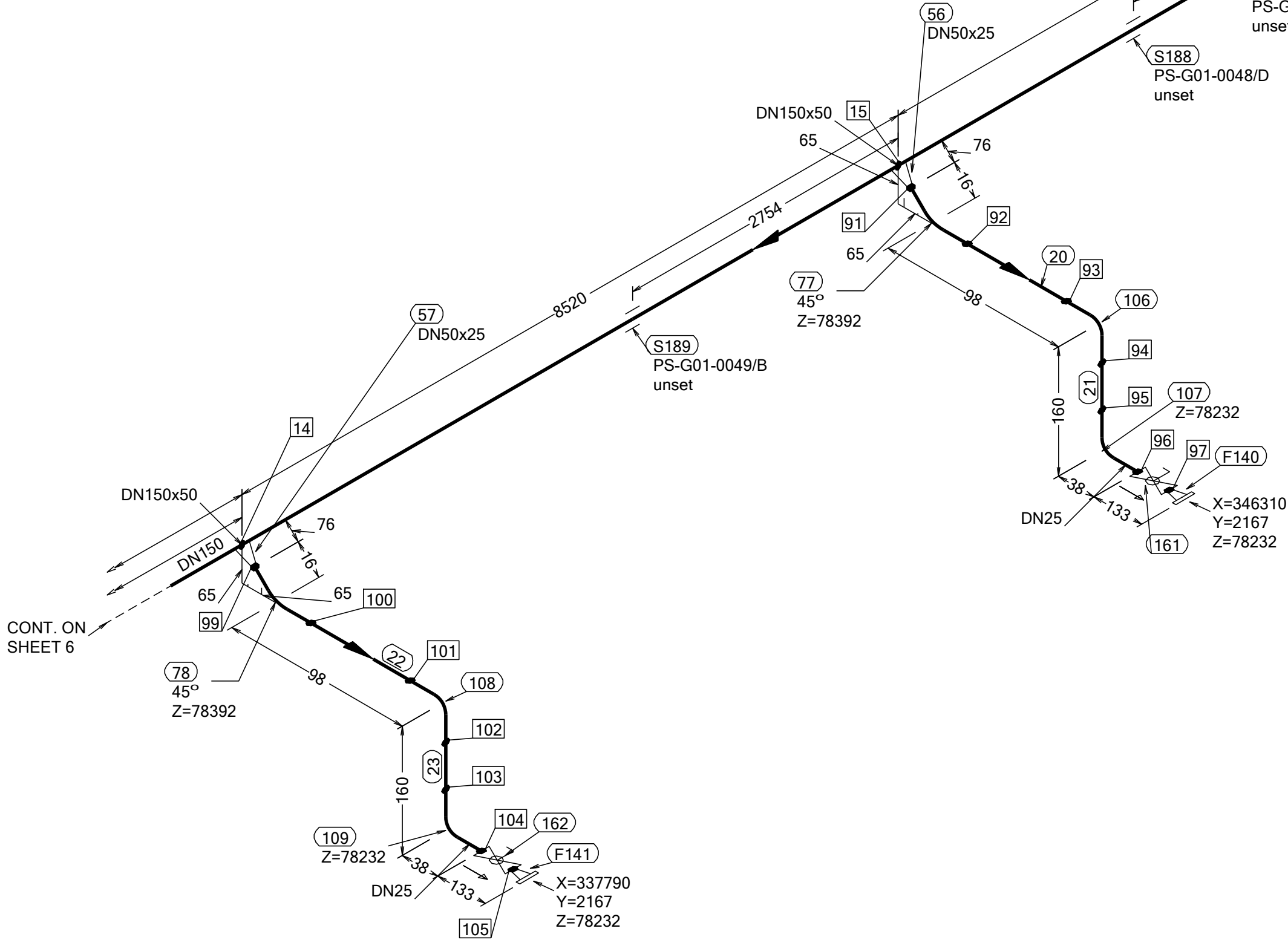
Rev	Description	Date	Drawn	Designed	Reviewed	Verified	Quality	Approved
A1	ISSUED FOR CDR	170522	FRPE	FRPE	AKCO	ANLU		

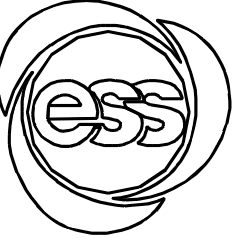
N (Y)

WELD	WPS
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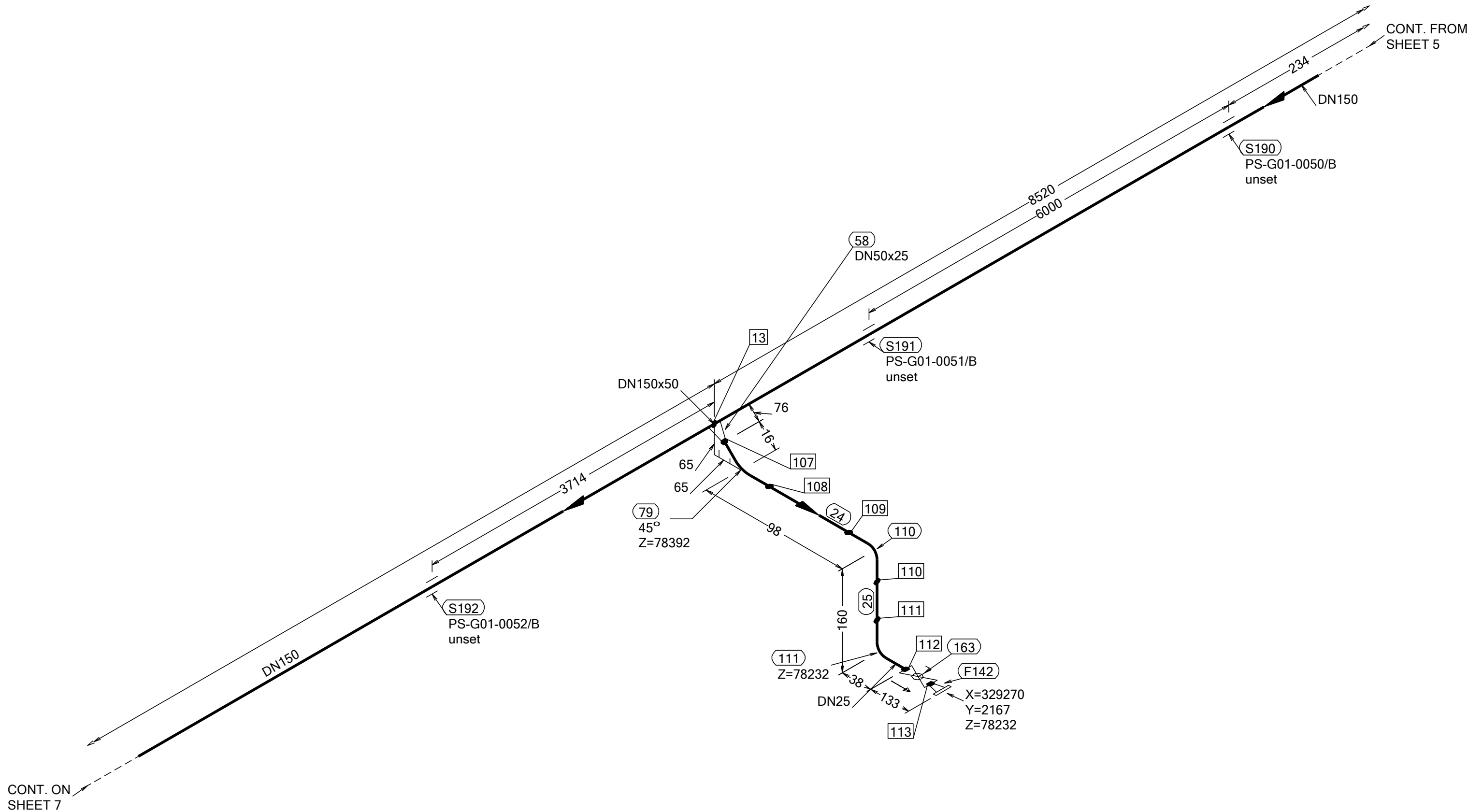
FABRICATION MATERIALS					
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
	PIPE				
2	PIPE, SS-EN 10217-7, TC1, 168.3x2.0	150	EN 1.4404	17040	SETON TEE
20	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	44	
21	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
22	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	44	
23	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
	FITTINGS				
56	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
57	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
77	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
106	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
107	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
108	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
109	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
	FLANGES				
140	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
141	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
	VALVES / IN-LINE ITEMS				
161	WORCESTER BALL VALVE BW, A59-666TT-BWJ DN25	25	EN 1.4404	1	
162	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					
187	ESS Atta	150		1	
188	ESS Atta	150		1	
189	ESS Atta	150		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-HBL
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.WP0001		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 12
	Pipe Specification MQC4-W-PN16	Surface Treatment N/A					Revision A1
Rev A1	Description ISSUED FOR CDR	Date 170522	Drawn FRPE	Designed FRPE	Reviewed AKCO	Verified ANLU	Quality Approved

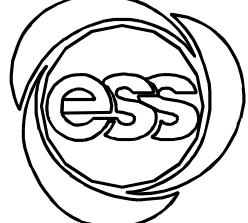
N (Y)



WELD	WPS
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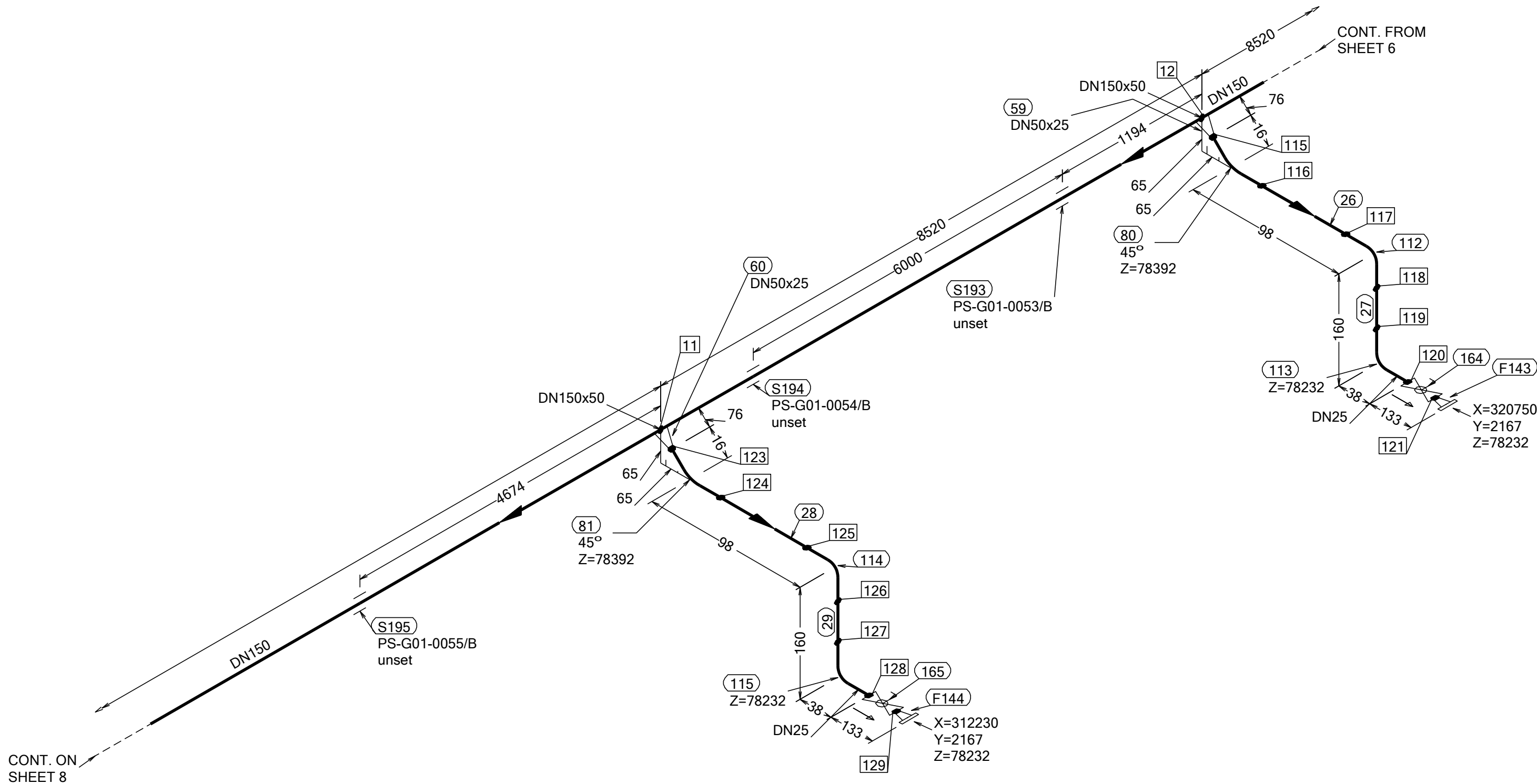
FABRICATION MATERIALS					
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
	<u>PIPE</u>				
2	PIPE, SS-EN 10217-7, TC1, 168.3x2.0	150	EN 1.4404	17038	SETON TEE
24	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	44	
25	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
	<u>FITTINGS</u>				
58	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
79	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
110	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
111	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
	<u>FLANGES</u>				
142	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
	<u>VALVES / IN-LINE ITEMS</u>				
163	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					
190	ESS Atta	150		1	
191	ESS Atta	150		1	
192	ESS Atta	150		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-HBL
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.WP0001		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-XXXXX56		Sheet
	CWM	0					6 of 12
	Pipe Specification	Surface Treatment					Revision
	MQC4-W-PN16	N/A					A1

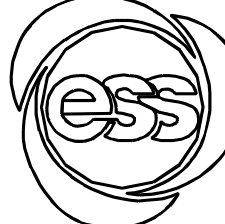
Rev	Description	Date	Drawn	Designed	Reviewed	Verified	Quality	Approved
A1	ISSUED FOR CDR	170522	FRPE	FRPE	AKCO	ANLU		

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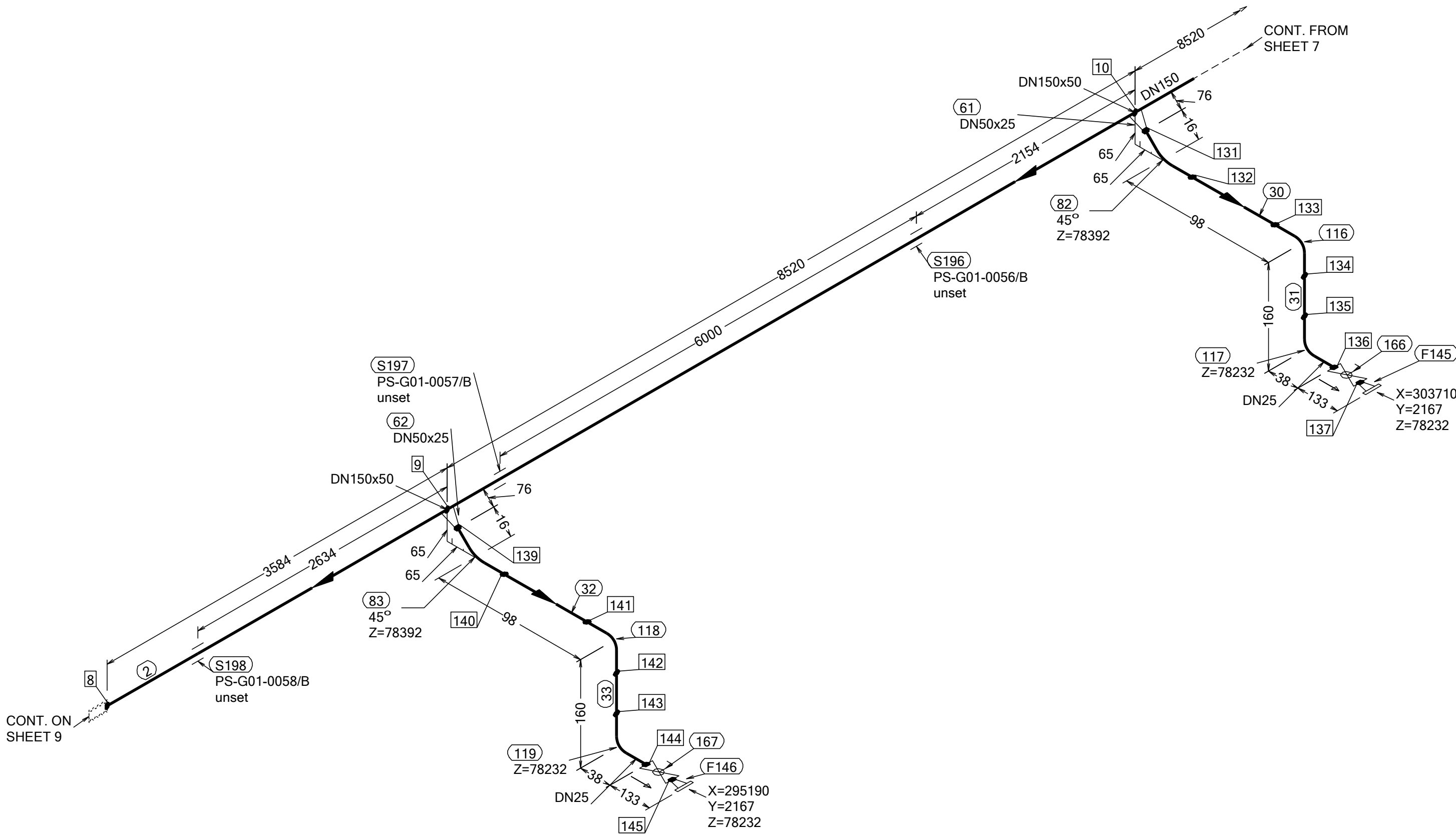
WELD	WPS	FABRICATION MATERIALS					
11		PT	COMPONENT DESCRIPTION	DN	MATERIAL	QTY	REMARKS
12		NO				(mm)	
114							
115							
116							
117							
118							
119							
120							
121							
122							
123							
124							
125							
126							
127							
128							
129							
		</					

PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
SUPPORTS					
193	ESS Atta	150		1	
194	ESS Atta	150		1	
195	ESS Atta	150		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-HBL
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.WP0001		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-XXXXX56		Sheet
	CWM	0					7 of 12
	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		

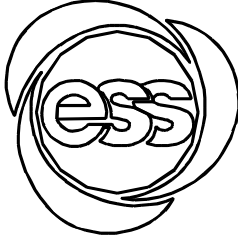
N (Y)



WELD	WPS
8	
9	
10	
130	
131	
132	
133	
134	
135	
136	
137	
138	
139	
140	
141	
142	
143	
144	
145	

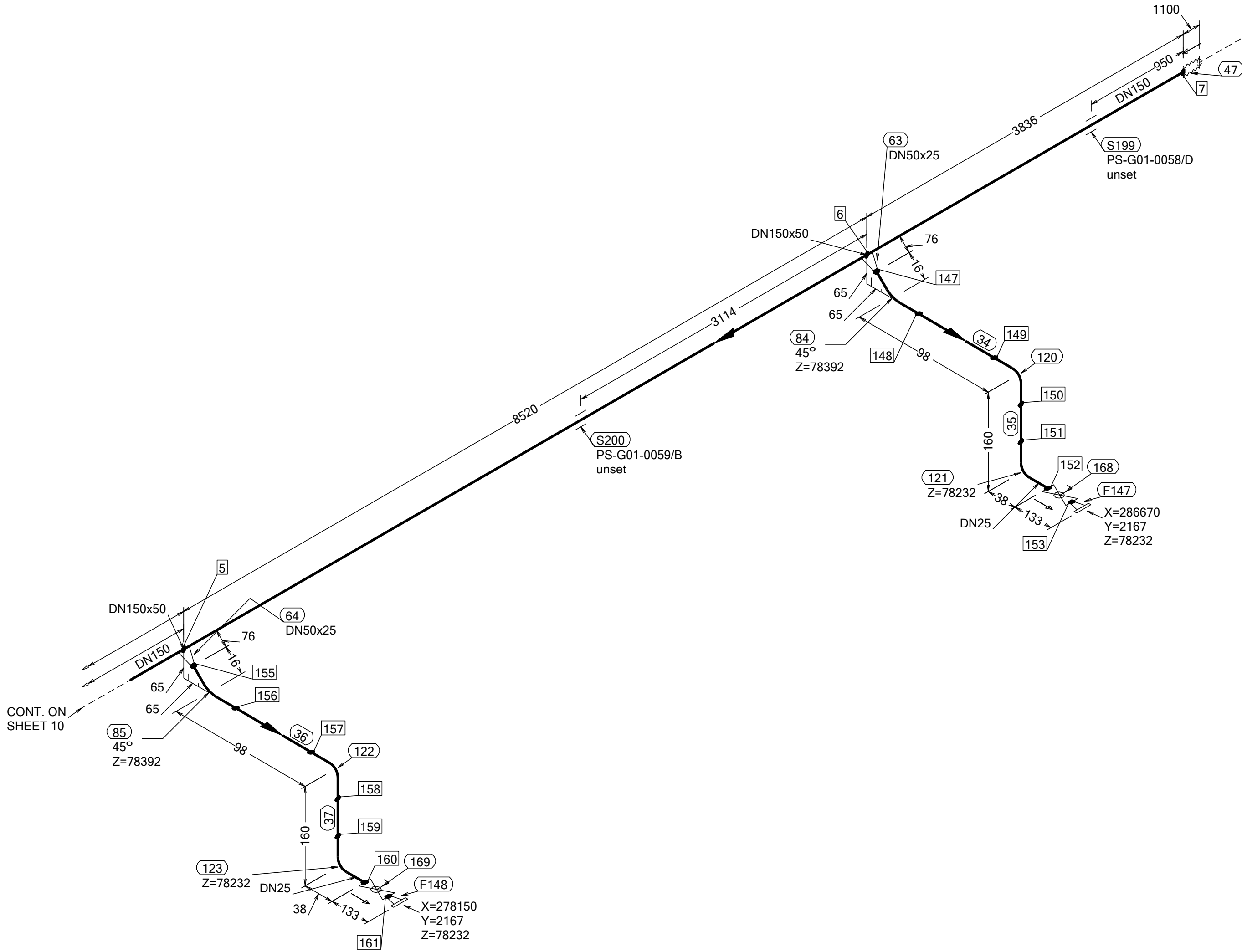
FABRICATION MATERIALS					
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
	<u>PIPE</u>				
2	PIPE, SS-EN 10217-7, TC1, 168.3x2.0	150	EN 1.4404	12105	SETON TEE
30	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	44	
31	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
32	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	44	
33	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
	<u>FITTINGS</u>				
61	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
62	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
82	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
83	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
116	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
117	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
118	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
119	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
	<u>FLANGES</u>				
145	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
146	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
	<u>VALVES / IN-LINE ITEMS</u>				
166	WORCESTER BALL VALVE BW, A59-6666TT-BWJ DN25	25	EN 1.4404	1	
167	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					
196	ESS Atta	150		1	
197	ESS Atta	150		1	
198	ESS Atta	150		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-HBL
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.WP0001		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-XXXXX56		Sheet
	CWM	0					8 of 12
	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		

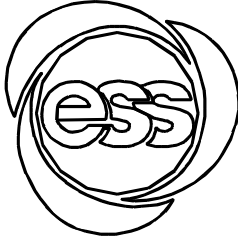
N (Y)



WELD	WPS
5	
6	
7	
146	
147	
149	
150	
151	
152	
153	
154	
155	
156	
157	
158	
159	
160	
161	

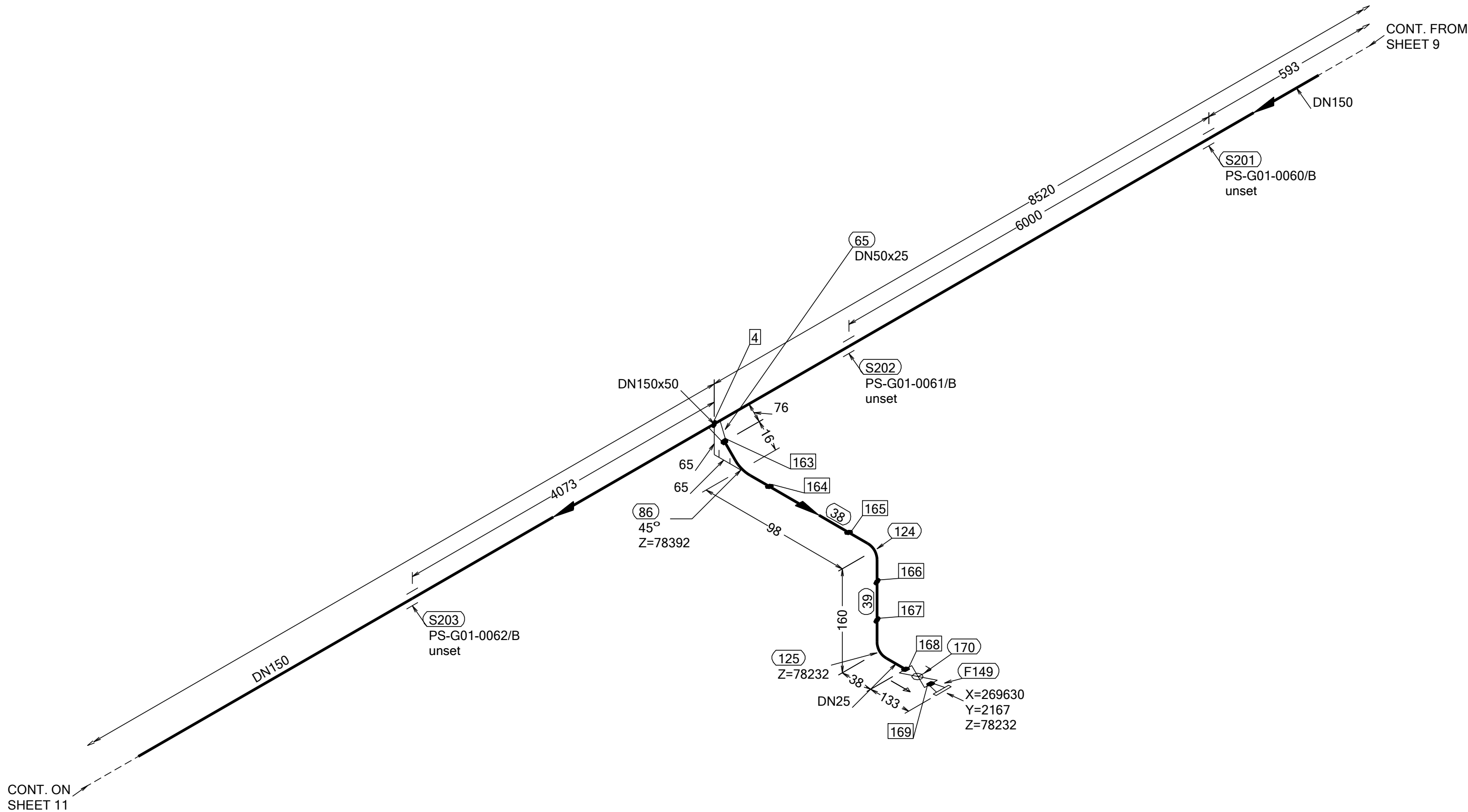
FABRICATION MATERIALS					
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
	<u>PIPE</u>				
3	PIPE, SS-EN 10217-7, TC1, 168.3x2.0	150	EN 1.4404	12357	SETON TEE
34	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	44	
35	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
36	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	44	
37	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
	<u>FITTINGS</u>				
47	ESS BELLOW	150		1	
63	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
64	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
84	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
85	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
120	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
121	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
122	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
123	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
	<u>FLANGES</u>				
147	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
148	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
	<u>VALVES / IN-LINE ITEMS</u>				
168	WORCESTER BALL VALVE BW, A59-6666TT-BWJ DN25	25	EN 1.4404	1	
169	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					
199	ESS Atta	150		1	
200	ESS Atta	150		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-HBL
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.WP0001		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-XXXXX56		Sheet
	CWM	0					9 of 12
	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)



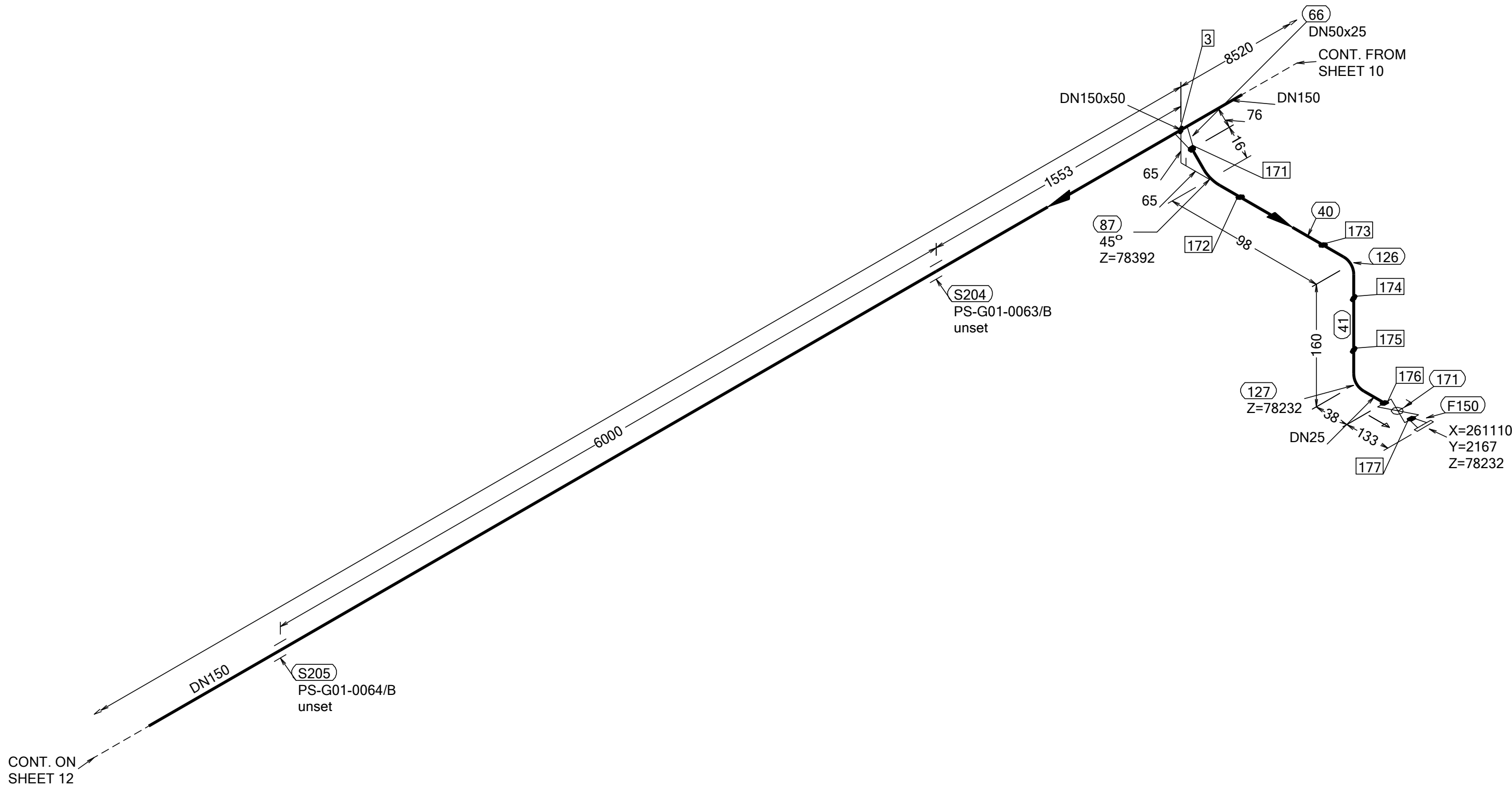
WELD	WPS	FABRICATION MATERIALS					
4		PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
162							
163							
164							
165			<u>PIPE</u>				
166							
167		3	PIPE, SS-EN 10217-7, TC1, 168.3x2.0	150	EN 1.4404	17038	SETON TEE
168		38	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	44	
169		39	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
			<u>FITTINGS</u>				
		65	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
		86	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
		124	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
		125	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
			<u>FLANGES</u>				
		149	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
			<u>VALVES / IN-LINE ITEMS</u>				
		170	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				
201	ESS Atta	150		1	
202	ESS Atta	150		1	
203	ESS Atta	150		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-HBL
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.WP0001	Scale -
Elevation (z) Acc To BCS	Quality Class MQC4-C	Insulation Thickness N/A				Format A2	
	Media CWM	Allowance For Corrosion 0				Sheet 10 of 12	
	Pipe Specification MQC4-W-PN16	Surface Treatment N/A				Revision A1	

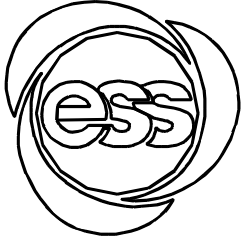
Rev	Description	Date	Drawn	Designed	Reviewed	Verified	Quality	Approved
A1	ISSUED FOR CDR	170522	FRPE	FRPE	AKCO	ANLU		

N (Y)



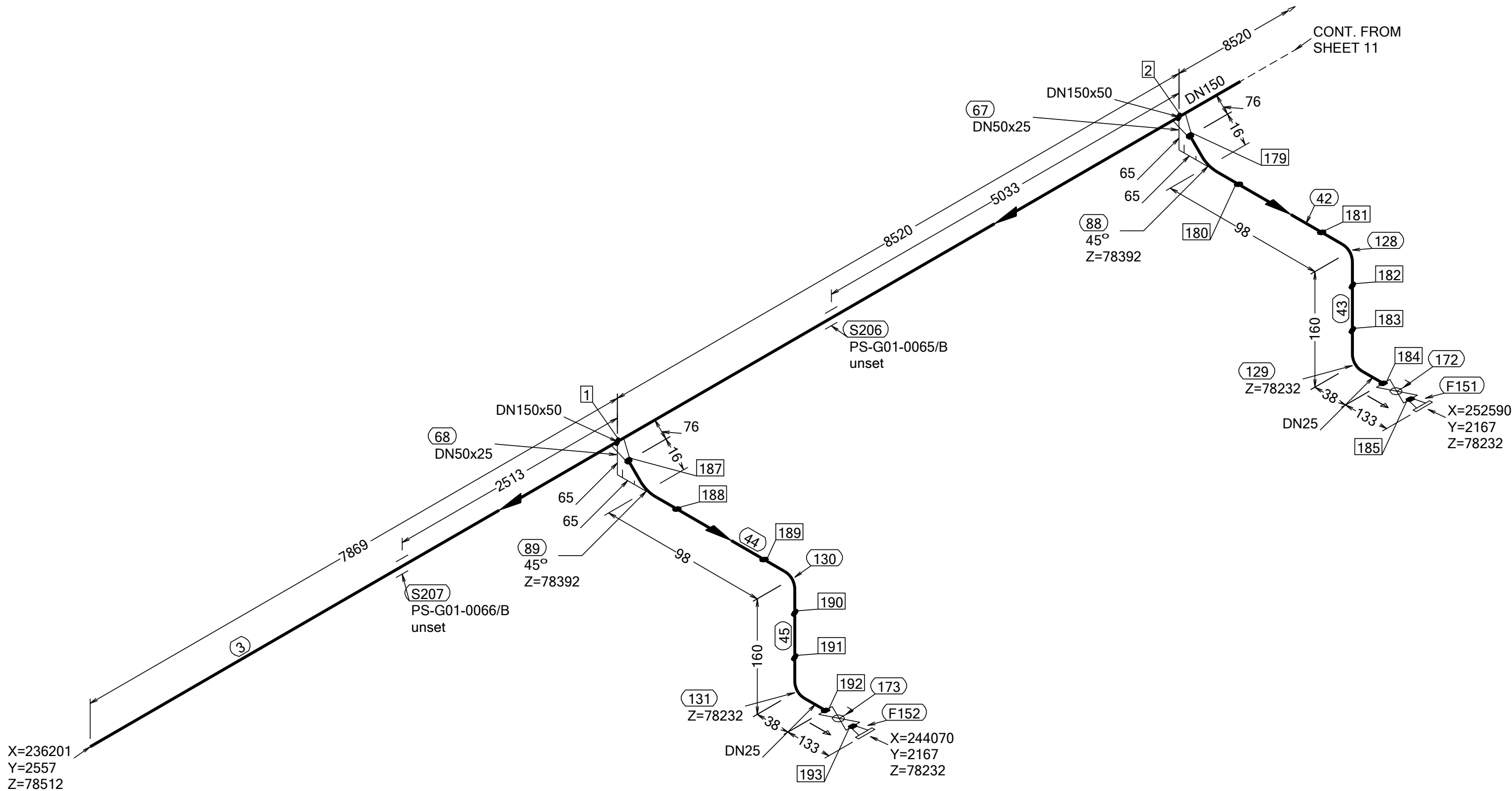
WELD	WPS	FABRICATION MATERIALS					
3		PT	COMPONENT DESCRIPTION	DN	MATERIAL	QTY	REMARKS
170		NO				(mm)	
171							
172							
173							
174							
175							
176							
177							
PIPE							
3		PIPE, SS-EN 10217-7, TC1, 168.3x2.0	150	EN 1.4404	8520	SETON TEE	
40		PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	44		
41		PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84		
FITTINGS							
66		REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1		
87		ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1		
126		ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1		
127		ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1		
FLANGES							
150		FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1		
VALVES / IN-LINE ITEMS							
171		WORCESTER BALL VALVE BW, A59-6666TT-BWJ DN25	25	EN 1.4404	1		

ERECTION MATERIALS					
PT	COMPONENT DESCRIPTION	DN	MATERIAL	QTY	REMARKS
NO				(mm)	
SUPPORTS					
204	ESS Atta	150		1	
205	ESS Atta	150		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-HBL
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.WP0001		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-XXXXX56		Sheet
	CWM	0					1 of 12
	Pipe Specification	Surface Treatment					Revision
	MQC4-W-PN16	N/A					A1

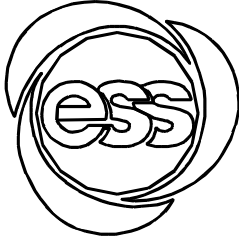
Rev	Description	Date	Drawn	Designed	Reviewed	Verified	Quality	Approved
A1	ISSUED FOR CDR	170522	FRPE	FRPE	AKCO	ANLU		

N (Y)



WELD	WPS	FABRICATION MATERIALS					
1		PT	COMPONENT DESCRIPTION	DN	MATERIAL	QTY	REMARKS
2		NO				(mm)	
178							
179							
180			PIPE				
181							
182		3	PIPE, SS-EN 10217-7, TC1, 168.3x2.0	150	EN 1.4404	16390	SETON TEE
183		42	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	44	
184		43	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
185		44	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	44	
186		45	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
187							
188			FITTINGS				
189							
190		67	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
191		68	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
192							
193							
		88	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
		89	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
		128	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
		129	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
		130	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
		131	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
			FLANGES				
		151	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
		152	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
			VALVES / IN-LINE ITEMS				
		172	WORCESTER BALL VALVE BW, A59-666TT-BWJ DN25	25	EN 1.4404	1	
		173	WORCESTER BALL VALVE BW, A59-666TT-BWJ DN25	25	EN 1.4404	1	

ERECTION MATERIALS					
PT	COMPONENT DESCRIPTION	DN	MATERIAL	QTY	REMARKS
NO				(mm)	
	SUPPORTS				
206	ESS Atta	150		1	
207	ESS Atta	150		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-HBL
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.WP0001		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-XXXXX56		Sheet
	CWM	0					12 of 12
	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		