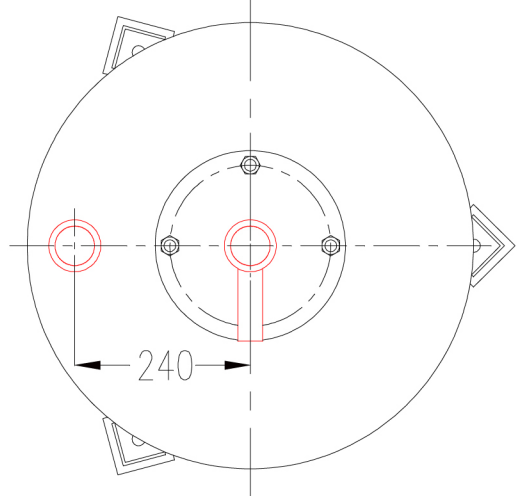
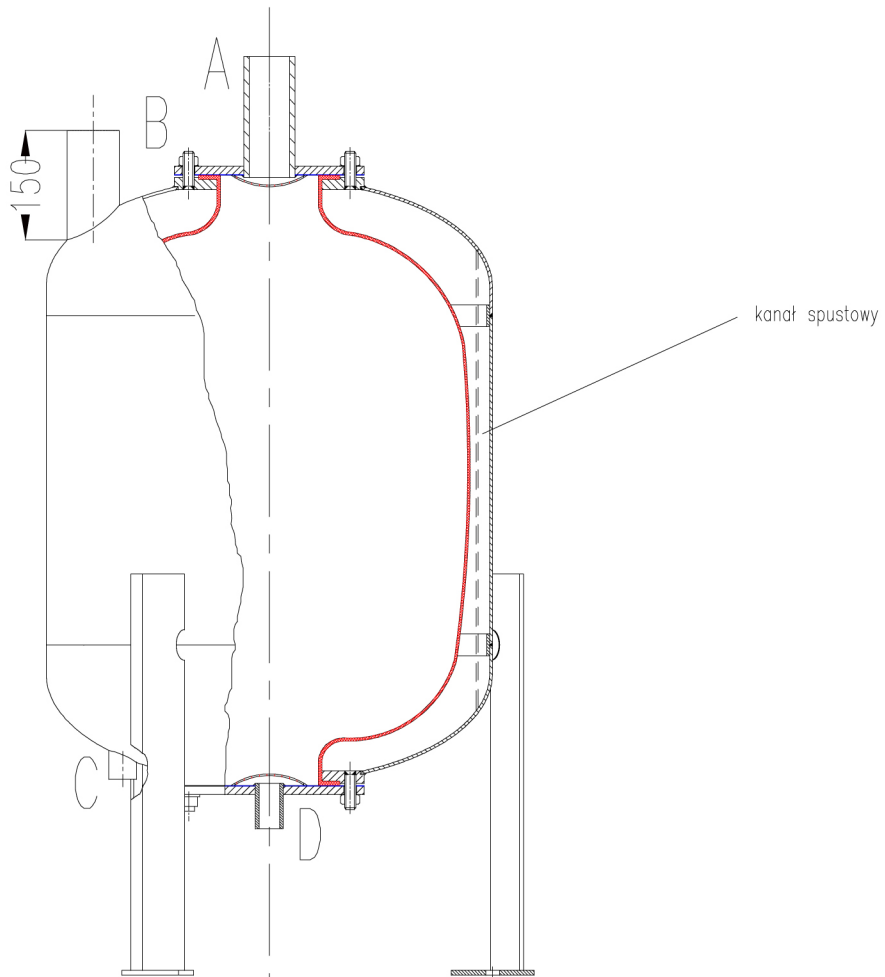


Króciec	DN	Przeznaczenie
A	M2"	Wlot/Wylot
B	M2"	Wlot/Wylot
C	M1"	Spust
D	M1"	Wlot/Wylot

M1", M2" – mufy z gwintami wewnętrznymi.



Mufa A,D wykonane ze stali nierdzewnej
 Pokrywy od strony czynnika wykonane ze stali nierdzewnej

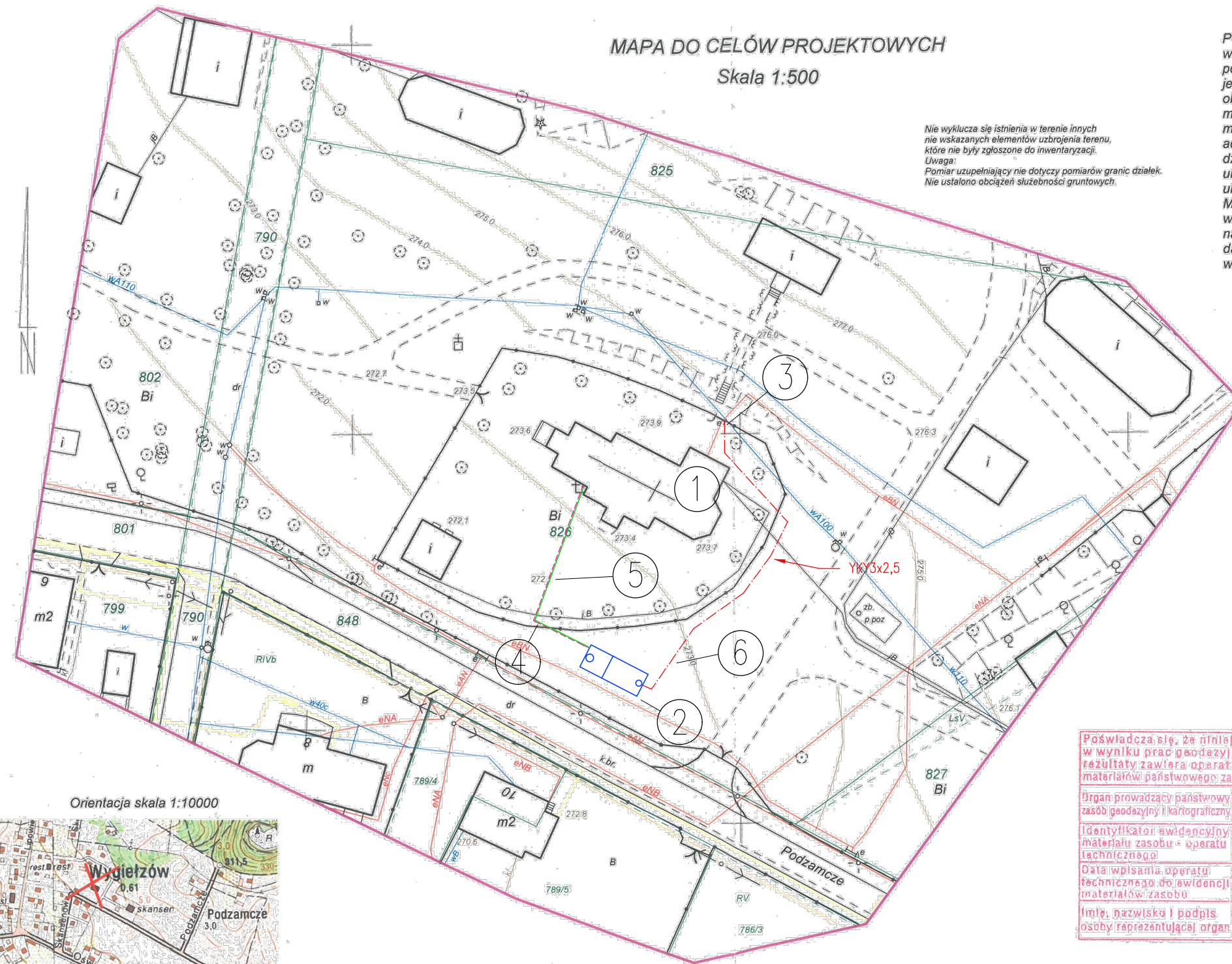
MAPA DO CELÓW PROJEKTOWYCH
Skala 1:500

Nie wyklucza się istnienia w terenie innych nie wskazanych elementów uzbrojenia terenu, które nie były zgłoszone do inwentaryzacji.
Uwaga:
Pomiar uzupełniający nie dotyczy pomiarów granic działek.
Nie ustalono obciążeń służebności gruntowych.

PODGIK 6640.1410.2016
województwo : małopolskie
powiat chrzanowski
jednostka ewidencyjna 120302_2, Babice
obręb : Babice nr 0001
mapa zasad. 162.431.15
mapa ewid. 5
adres: ul.
dz. 826
układ wysokości normalnych Kronsztadt'86
układ wsp. płaskich 1965/I
Mapa jest aktualna na dzień 28.05.2016r.
w zakresie sytuacji i uzbrojenia terenu
na podstawie pomiaru oraz wywiadu terenowego
data wyk. 28.05.2016r.
wyk. mgr inż. Marcin Stanisławczyk

GEODETA UPRAWNIONY
mgr inż. Marcin Stanisławczyk
Wygliszów, ul. Mickiewicza 29
32-551 Babice, tel. 628-100-87-22
Świadczenie Nr 13850, Ministerstwo
Gosp. Przemysłowej i Infrastruktury

USŁUGI GEODEZYJNE
Marcin Stanisławczyk
Wygliszów, ul. Mickiewicza 29
32-551 Babice
NIP 628-100-87-22, REGON 272325760
sporządził: tel. 032-613-42-09



Poświadczam, że niniejszy dokument został opracowany w wyniku prac geodezyjnych i kartograficznych, których rezultaty zawiera operat techniczny wpisany do ewidencji materiałów państwowego zasobu geodezyjnego i kartograficznego.

Organ prowadzący państwowy zasób geodezyjny i kartograficzny	Starosta Chrzanowski
Identyfikator ewidencyjny materiału zasobu + operatu technicznego	P.1203.2016.1369
Data wpisania operatu technicznego do ewidencji materiałów zasobu	29 CZE. 2016
Imię, nazwisko i podpis osoby reprezentującej organ	

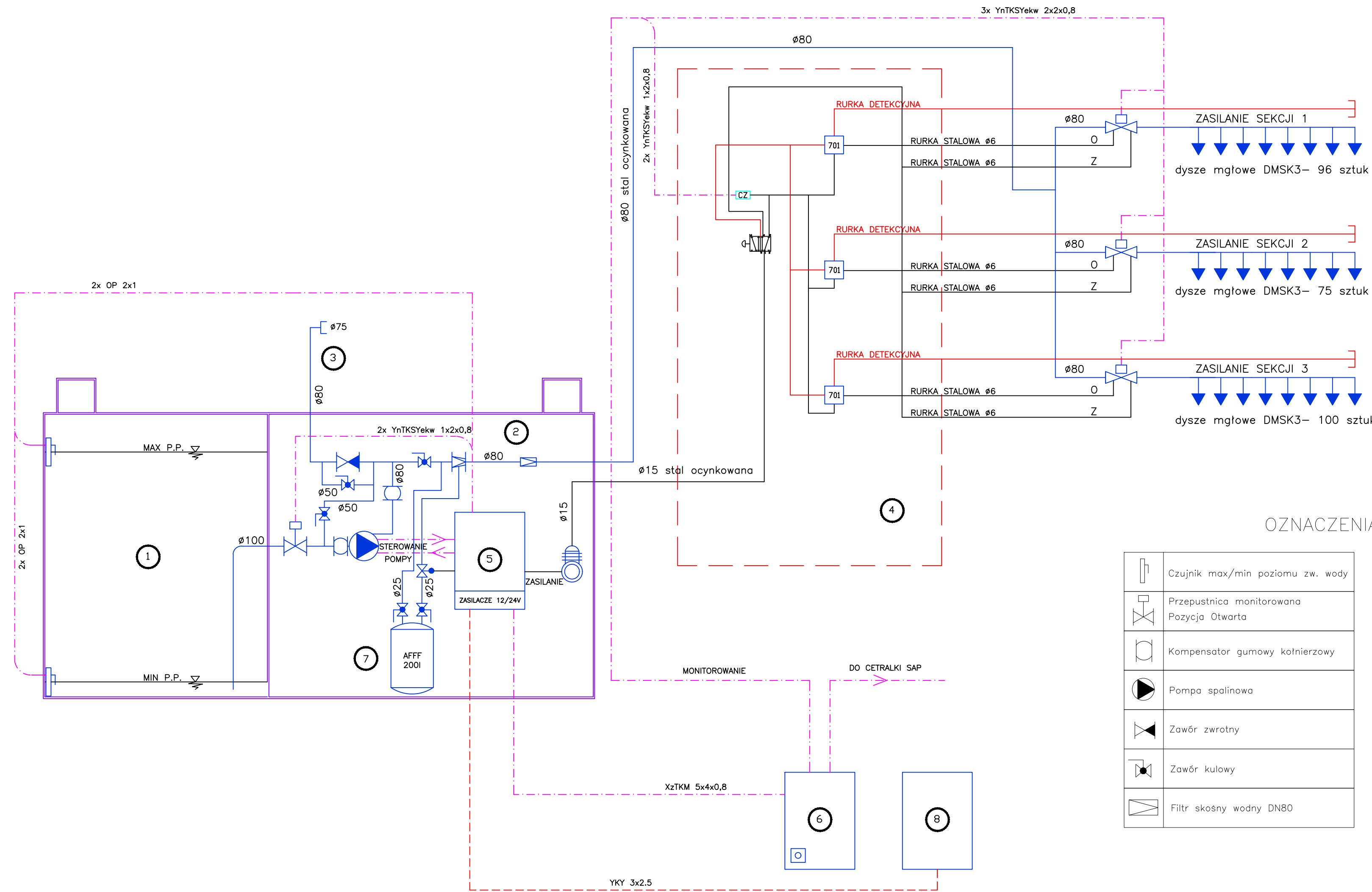
mgr inż. Marcin Stanisławczyk
Dyrektor Powiatowego Urzędu Geodezyjnego i Kartograficznego

OPIS OZNACZEŃ:

1. KOŚCIÓŁ PW. PODWYŻSZENIA KRZYŻA
2. PROJEKTOWANY ZBIORNIK
3. ISTN. SKRZYŃKA ELEKTRYCZNA ZPP
4. PROJEKTOWANA TRASA RUROCIĄGU WODY GAŚNICZEJ Ø80
5. PROJEKTOWANA TRASA RUROCIĄGU SPRĘŻONEGO POWIETRZA Ø15 ORAZ KABLI N.N.
6. ZASILANIE 230V DO POMPOWNI

- Rura zasilająca instalację MGŁOWĄ Ø80
UWAGA:
Prowadzić pod powierzchnią terenu na głębokość min 0,5m. Należy doprowadzić do pompowni.
- - - Przewód detekcyjny ze stali ocynkowanej Ø15 wraz z przewodami elektrycznymi.
UWAGA:
Prowadzić pod powierzchnią terenu na głębokość min 0,5m, równoległe do rury zasilającej instalację mgłową. Należy doprowadzić do pompowni.

		SUPO - Cerber Sp. z o.o. Ul. Kuryłowicza 119, 30-698 Kraków tel.: (012) 650 49 20, fax (012) 451 17 81		NR PROJEKTU: 557/2016	FAZA: BUDOWLANA
OBIEKT:	KOŚCIÓŁ P.W. PODWYŻSZENIA KRZYŻA WYGLIŻÓW			BRANŻA: SANITARNIA	
LOKALIZACJA:	dz. nr 826, obr. Babice nr 0001, powiat chrzanowski, województwo małopolskie			DATA: 07.2016	
PRZEDMIOT OPRACOWANIA:	Instalacja gaśnicza z zastosowaniem systemu automatycznego gaszenia pożaru mgłą wodną niskociśnieniową (gaszenie na zewnątrz) obiektu sakralnego o konstrukcji drewnianej				
TREŚĆ RYSUNKU:	PROJEKT ZAGOSPODAROWANIA TERENU	NR UPR.	PODPIS:	SKALA: 1:500	
PROJEKTOWAŁ:	mgr inż. Przemysław Wojtasik	MAP.0365/PWBS/15			
SPRAWDZAJĄCY:	mgr inż. Wiesława Arcisz	GP.1.7342/457/10/94	NR RYSUNKU: 01		



OZNACZENIA GRAFICZNE

	Czujnik max/min poziomu zw. wody
	Przepustnica monitorowana Pozycja Otwarta
	Kompensator gumowy kołnierzowy
	Pompa spalinowa
	Zawór zwrotny
	Zawór kulowy
	Filtr skośny wodny DN80

	Zasysacz liniowy ZBR AFFF 3%
	Sprężarka elektryczna 50l
	Zawór pięciodrożny ręczny
	Czujnik spadku ciśnienia
	Zawór sterowniczy B0701
	Zawór pneumatyczny strefowy
	Przycisk STOP

OZNACZENIA LICZBOWE

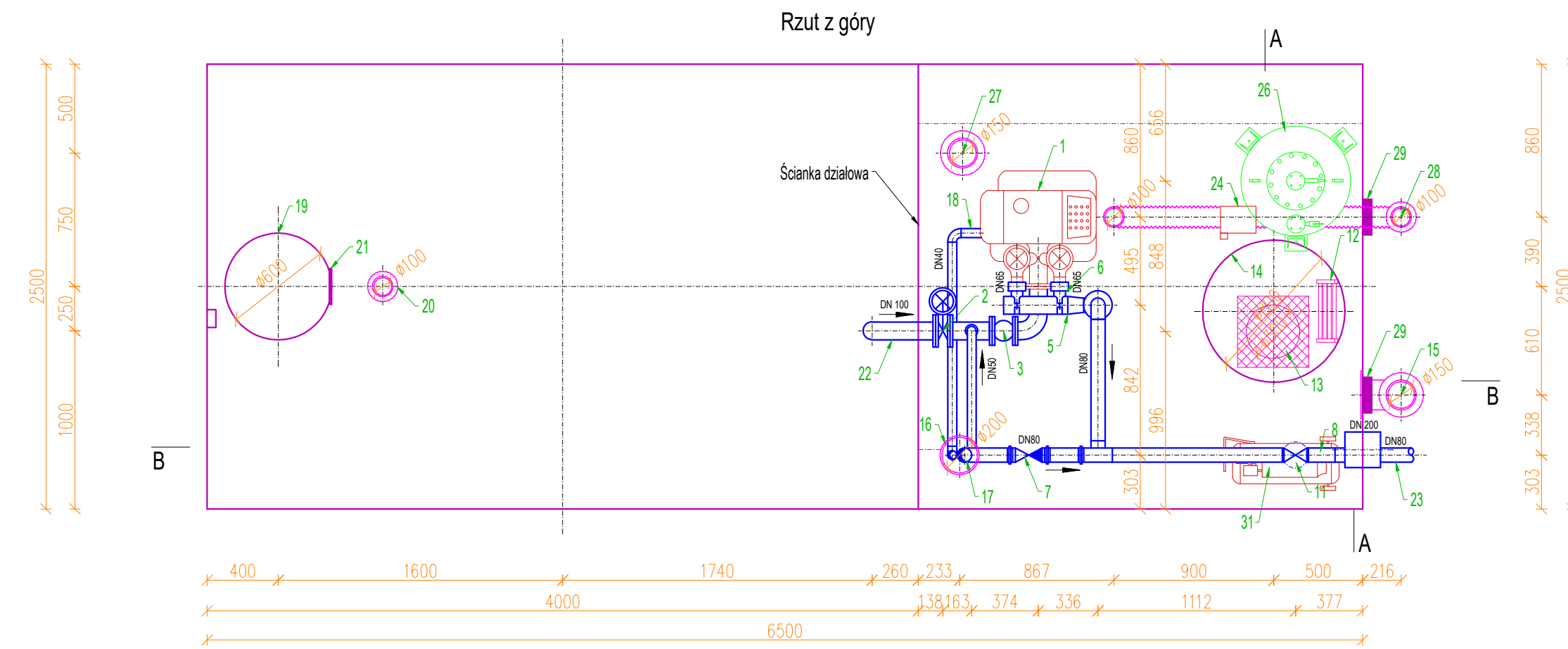
- ① – Zbiornik zapasu wody V = 20 m³
- ② – Pompownia
- ③ – Przyłącze straży pożarnej
- ④ – Sterownik pneumatyczny
- ⑤ – Szafka elektryczna sterująco-zasilająca
- ⑥ – Panel wizualizacyjny
- ⑦ – Dozujący Zbiornik Przeponowy 200l
- ⑧ – Istniejące złącze ZPP

		SUPO - Cerber Sp. z o.o. Ul. Kuryłowicza 119, 30-698 Kraków tel.: (012) 650 49 20, fax (012) 451 17 81		NR PROJEKTU: 557/2016	FAZA: BUDOWLANA
OBIEKT:	KOŚCIÓŁ P.W. PODWYŻSZENIA KRZYŻA WYGIĘLZÓW			BRANŻA: SANITARNA	
LOKALIZACJA:	dz. nr 826, obr. Babice nr 0001, powiat chrzanowski, województwo małopolskie			DATA: 07.2016	
PRZEDMIOT OPRACOWANIA:	Instalacja gaśnicza z zastosowaniem systemu automatycznego gaszenia pożaru mgłą wodną niskociśnieniową (gaszenie na zewnątrz) obiektu sakralnego o konstrukcji drewnianej				
TREŚĆ RYSUNKU:	SCHEMAT TECHNOLOGICZNY	NR UPR.	PODPIS:	SKALA:	
PROJEKTOWAŁ:	mgr inż. Przemysław Wojtasik	MAP/0365/PWBS/15		---	
SPRAWDZAJĄCY:	mgr inż. Wiesława Arcisz	GP.17342/457/10/94		NR RYSUNKU: 02	

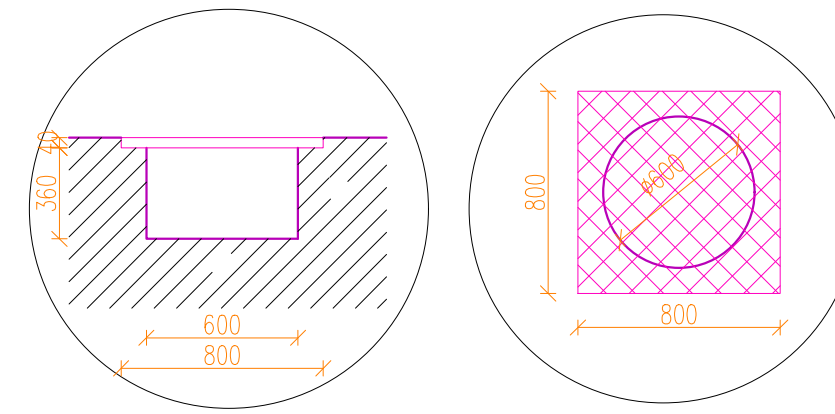
ZBIORNIK DWUKOMOROWY

Zbiornik wody ok 20m3

Pompownia



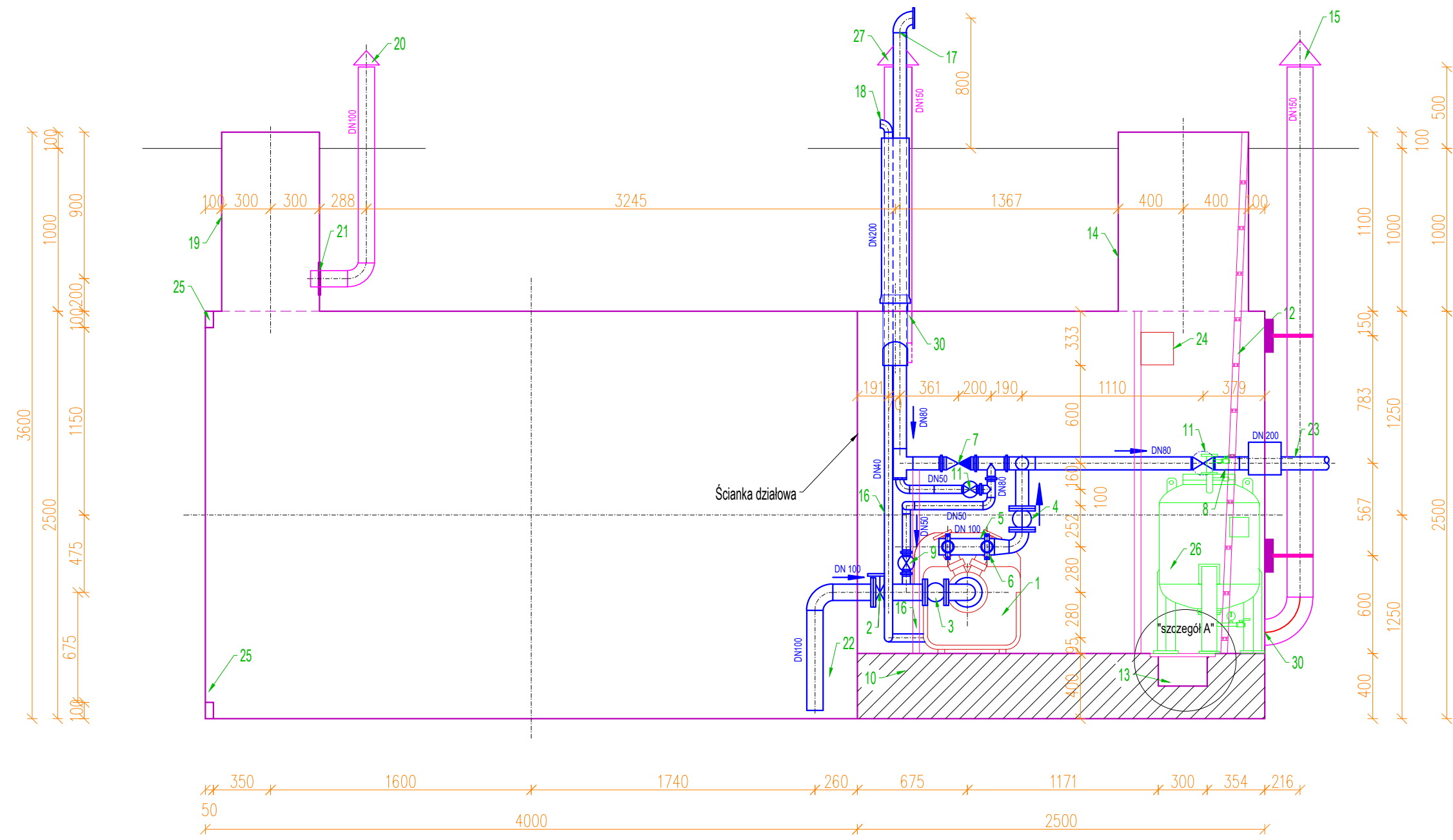
"szczegół A"



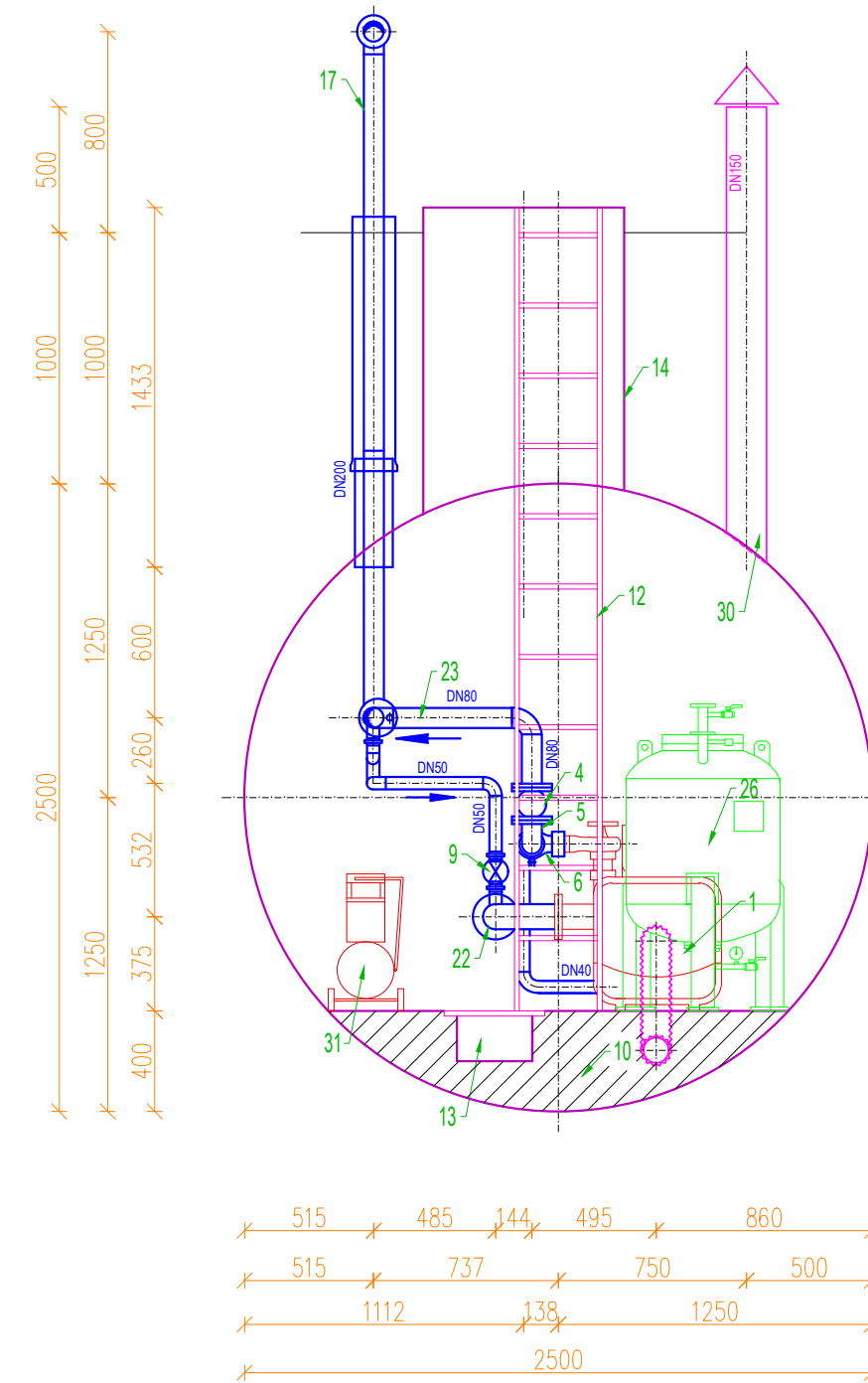
OPIS OZNACZEŃ:


1. Pompa spalinowa
2. Przepustnica DN100
3. Kompensator DN100
4. Kompensator DN80
5. Element spawany: rura DN100, zwężka 100/80, kolano 90° DN80
6. Obejmy skręcane DN100
7. Zawór zwrotny DN80
8. Filtr skośny do wody DN80
9. Kurek kulowy niklowany standard z dźwignią stalową DN50
10. Wylewka betonowa
11. Kurek kulowy niklowany standard z dźwignią stalową DN80
12. Drabinka
13. Niecka DN300
14. Właz ø800
15. Wywiewka komory pompowej DN150
16. Odprowadzenie spalin DN40
17. Przyłącz dla straży pożarnej DN80/75
18. Odprowadzenie spalin DN40
19. Właz ø600
20. Wywiewka komory zbiornika zapasu wody DN100
21. Ścianka pogrubiona
22. Króciec ssawny DN100
23. Tłoczenie DN80
24. Szafka elektryczna zasilająca
25. Wsporniki do mocowania szyny
26. Zbiornik przeponowy zapasu środka pianotwórczego typu AFFF3%
27. Wywiewka komory pompowni DN150
28. Rurociąg powietrza dla pompy spalinowej DN100
29. Zgrubienie umożliwiające montaż uchwyty rur o wymiarach 200x200x50
30. Kratka wentylacyjna na rurę DN150
31. Sprężarka 50l

Przekrój B-B



Przekrój A-A



 SUPO - Cerber Sp. z o.o. Ul. Kuryłowicza 119, 30-698 Kraków tel.: (012) 650 49 20, fax (012) 451 17 81		NR PROJEKTU: 557/2016	FAZA: BUDOWLANA
OBIEKT:	KOŚCIÓŁ P.W. PODWYŻSZENIA KRZYŻA WYGIĘLZÓW		BRANŻA: SANITARNA
LOKALIZACJA:	cz. nr 826, obr. Babice nr 0001, powiat chrzanowski, województwo małopolskie		DATA: 07.2016
PRZEDMIOT OPRACOWANIA:	Instalacja gaśnicza z zastosowaniem systemu automatycznego gaszenia pożaru mgłą wodną niskociśnieniową (gaszenie na zewnątrz) obiektu sakralnego o konstrukcji drewnianej		
TREŚĆ RYSUNKU:	ZBIORNIK DWUKOMOROWY	NR UPR.	PODPIS:
PROJEKTOWAŁ:	mgr inż. Przemysław Wojtasik	MAP/0365/PWBS/15	SKALA: 1:30
SPRAWDZAJĄCY:	mgr inż. Wiesława Arcisz	GP.1.7342/457/10/94	NR RYSUNKU: 03

FHC - Hydraulic Calculation Report

Submitted by FHC user number: 0637

SUPO-Cerber Sp.z o.o.

ul. Kurylowicza 119

Krakow

30-698

Poland

Tel: +48 12 451 17 81

Fax: +48 12 451 17 81 ex. 32

Project: Kosciol pw. Podwyzszenia Krzyza
Project Ref: 557/16
Area Ref: Most Unfavourable
Inst. Number: 1

Project Data and Design Parameters

Project name : Kosciol pw. Podwyzszenia Krzyza

Area reference : Most Unfavourable

Address / location : Wygielzow

Project number : 557/16

Installation number(s) : 1

Drawing number(s) : ---

Issue no / date : 07/16

Designers reference : Supo Cerber Sp.z o.o.

Project Data File : OBL WYGIELZOW 05-07-2016.FHC

Hazard classification : High Hazard

Design authority : National Fire Protection Association

Insurance company : ---

Specified density of discharge : 5.00 mm/min (l/min/m²)

Assumed maximum area of operation : 114.00 m²

Number of operating sprinkler heads : 95

Maximum area covered per head : 1.20 m²

Highest head / nozzle above source : 18.10 m

Number of pipes in system : 302 from 20 to 80 mm

Pressure loss equation used : Hazen-Williams

Fluid : Dry #1

Pipe Data Table : STD_PIPE.PDT

Maximum fluid velocity : 2.97 m/s in pipe 540 1974

Volume of pipework and fittings : 0.25 m³

Elbows are welded for : 0 mm and above

Comment : ---

Checked by & Date :

Source duty = 695.4 l/min @ 7.520 bar at node no 100

FHC - Hydraulic Calculation Report

Submitted by user number: 0637
 SUPO-Cerber Sp.z o.o.
 Tel: +48 12 451 17 81
 Fax: +48 12 451 17 81 ex. 32

Project: Kosciol pw. Podwyzszenia Krzyza
 Project Ref: 557/16
 Area Ref: Most Unfavourable
 Inst. Number: 1

Operating Sprinkler Heads, Nozzles and Hydrants

Head no	Node no	Size mm	'K' factor	Flow l/min	Area m2	Density mm/min		Pressure bar		Heights m	Pipe no
						Req.d	Actual	Min	Actual		
1	200	6.0	3.00	7.7	1.200	5.00	6.45	5.00	6.664	4.210	10
2	191	6.0	3.00	7.7	1.200	5.00	6.43	5.00	6.610	4.210	12
3	202	6.0	3.00	7.7	1.200	5.00	6.42	5.00	6.590	4.210	15
4	213	6.0	3.00	7.7	1.200	5.00	6.41	5.00	6.572	4.210	18
5	224	6.0	3.00	7.7	1.200	5.00	6.40	5.00	6.555	4.210	21
6	264	6.0	3.00	7.5	1.200	5.00	6.28	5.00	6.312	4.610	25
7	274	6.0	3.00	7.6	1.200	5.00	6.37	5.00	6.500	2.650	26
8	304	6.0	3.00	7.5	1.200	5.00	6.26	5.00	6.267	4.610	29
9	314	6.0	3.00	7.6	1.200	5.00	6.35	5.00	6.455	2.650	30
10	334	6.0	3.00	7.6	1.200	5.00	6.34	5.00	6.427	2.650	32
11	354	6.0	3.00	7.5	1.200	5.00	6.24	5.00	6.233	4.610	34
12	374	6.0	3.00	7.6	1.200	5.00	6.33	5.00	6.420	2.650	36
13	385	6.0	3.00	7.6	1.200	5.00	6.33	5.00	6.418	2.650	38
14	425	6.0	3.00	7.6	1.200	5.00	6.33	5.00	6.416	2.650	42
15	435	6.0	3.00	7.5	1.200	5.00	6.24	5.00	6.228	4.610	43
16	475	6.0	3.00	7.6	1.200	5.00	6.33	5.00	6.412	4.210	47
17	529	6.0	3.00	7.5	1.200	5.00	6.24	5.00	6.221	4.610	52
18	530	6.0	3.00	7.6	1.200	5.00	6.33	5.00	6.410	2.650	53
19	570	6.0	3.00	7.5	1.200	5.00	6.28	5.00	6.319	7.830	58
20	581	6.0	3.00	7.5	1.200	5.00	6.27	5.00	6.282	7.830	61
21	592	6.0	3.00	7.5	1.200	5.00	6.25	5.00	6.248	7.830	64
22	603	6.0	3.00	7.5	1.200	5.00	6.23	5.00	6.218	7.830	67
23	614	6.0	3.00	7.5	1.200	5.00	6.22	5.00	6.191	7.830	70
24	674	6.0	3.00	7.5	1.200	5.00	6.21	5.00	6.176	7.830	75
25	685	6.0	3.00	7.4	1.200	5.00	6.20	5.00	6.155	7.830	78
26	696	6.0	3.00	7.4	1.200	5.00	6.19	5.00	6.136	7.830	81
27	707	6.0	3.00	7.4	1.200	5.00	6.18	5.00	6.120	7.830	84
28	718	6.0	3.00	7.4	1.200	5.00	6.18	5.00	6.107	7.830	87
29	729	6.0	3.00	7.4	1.200	5.00	6.17	5.00	6.096	7.830	90
30	882	6.0	3.00	7.5	1.200	5.00	6.21	5.00	6.176	9.750	95
31	893	6.0	3.00	7.4	1.200	5.00	6.20	5.00	6.155	9.750	98
32	904	6.0	3.00	7.4	1.200	5.00	6.19	5.00	6.137	9.750	101
33	915	6.0	3.00	7.4	1.200	5.00	6.19	5.00	6.121	9.750	104
34	945	6.0	3.00	7.4	1.200	5.00	6.18	5.00	6.119	9.750	107
35	985	6.0	3.00	7.4	1.200	5.00	6.18	5.00	6.111	9.750	111
36	996	6.0	3.00	7.4	1.200	5.00	6.16	5.00	6.075	9.750	114
37	1007	6.0	3.00	7.4	1.200	5.00	6.15	5.00	6.047	9.750	117
38	1018	6.0	3.00	7.4	1.200	5.00	6.14	5.00	6.025	9.750	120
39	1058	6.0	3.00	7.4	1.200	5.00	6.13	5.00	6.012	9.750	124
40	1088	6.0	3.00	7.4	1.200	5.00	6.13	5.00	6.010	9.750	127
41	1099	6.0	3.00	7.3	1.200	5.00	6.12	5.00	6.002	9.750	130
42	1110	6.0	3.00	7.3	1.200	5.00	6.12	5.00	5.998	9.750	133
43	1121	6.0	3.00	7.3	1.200	5.00	6.12	5.00	5.993	9.750	136
44	1161	6.0	3.00	7.2	1.200	5.00	6.00	5.00	5.757	13.680	140
45	1172	6.0	3.00	7.2	1.200	5.00	5.99	5.00	5.745	13.680	143
46	1183	6.0	3.00	7.2	1.200	5.00	5.99	5.00	5.734	13.680	146
47	1194	6.0	3.00	7.2	1.200	5.00	5.98	5.00	5.725	13.680	149
48	1234	6.0	3.00	7.2	1.200	5.00	5.98	5.00	5.720	13.680	153
49	1245	6.0	3.00	7.2	1.200	5.00	5.97	5.00	5.699	13.680	156
50	1256	6.0	3.00	7.2	1.200	5.00	5.96	5.00	5.683	13.680	159
51	1267	6.0	3.00	7.1	1.200	5.00	5.95	5.00	5.672	13.680	162
52	1307	6.0	3.00	7.1	1.200	5.00	5.95	5.00	5.667	13.680	166
53	1318	6.0	3.00	7.1	1.200	5.00	5.95	5.00	5.662	13.680	169
54	1329	6.0	3.00	7.1	1.200	5.00	5.95	5.00	5.660	13.680	172
55	1340	6.0	3.00	7.1	1.200	5.00	5.95	5.00	5.660	13.680	175
56	1400	6.0	3.00	7.0	1.200	5.00	5.83	5.00	5.444	15.000	181
57	1450	6.0	3.00	7.0	1.200	5.00	5.83	5.00	5.434	15.000	186
58	1461	6.0	3.00	7.0	1.200	5.00	5.83	5.00	5.433	15.000	189

FHC - Hydraulic Calculation Report

Submitted by user number: 0637
 SUPO-Cerber Sp.z o.o.
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Project: Kosciol pw. Podwyzszenia Krzyza
 Project Ref: 557/16
 Area Ref: Most Unfavourable
 Inst. Number: 1

Operating Sprinkler Heads, Nozzles and Hydrants

Head no	Node no	Size mm	'K' factor	Flow		Area		Density mm/min		Pressure bar		Heights m	Pipe no
				l/min	m2	Req.d	Actual	Min	Actual				
59	1501	6.0	3.00	7.0	1.200	5.00	5.83	5.00	5.433	15.000	193		
60	1512	6.0	3.00	7.0	1.200	5.00	5.83	5.00	5.433	15.000	196		
61	1523	6.0	3.00	7.0	1.200	5.00	5.83	5.00	5.435	15.000	199		
62	1563	6.0	3.00	7.0	1.200	5.00	5.83	5.00	5.436	15.000	203		
63	1574	6.0	3.00	7.0	1.200	5.00	5.83	5.00	5.442	15.000	206		
64	1585	6.0	3.00	7.0	1.200	5.00	5.84	5.00	5.452	15.000	209		
65	1625	6.0	3.00	7.0	1.200	5.00	5.84	5.00	5.460	15.000	213		
66	1636	6.0	3.00	7.0	1.200	5.00	5.85	5.00	5.478	15.000	216		
67	1647	6.0	3.00	7.0	1.200	5.00	5.86	5.00	5.502	15.000	219		
68	1707	6.0	3.00	6.7	1.200	5.00	5.59	5.00	5.002	18.100	225		
69	1747	6.0	3.00	6.7	1.200	5.00	5.59	5.00	5.000	18.100	229		
70	1758	6.0	3.00	6.7	1.200	5.00	5.59	5.00	5.000	18.100	232		
71	1798	6.0	3.00	6.7	1.200	5.00	5.59	5.00	5.000	18.100	236		
72	1809	6.0	3.00	6.7	1.200	5.00	5.59	5.00	5.000	18.100	239		
73	1849	6.0	3.00	6.7	1.200	5.00	5.59	5.00	5.002	18.100	243		
74	1860	6.0	3.00	6.7	1.200	5.00	5.59	5.00	5.005	18.100	246		
75	1708	6.0	3.00	6.7	1.200	5.00	5.59	5.00	5.002	18.100	249		
76	1678	6.0	3.00	6.7	1.200	5.00	5.59	5.00	5.005	18.100	251		
77	1900	6.0	3.00	7.4	1.200	5.00	6.17	5.00	6.089	7.830	255		
78	1911	6.0	3.00	7.4	1.200	5.00	6.15	5.00	6.061	7.830	258		
79	1922	6.0	3.00	7.4	1.200	5.00	6.14	5.00	6.038	7.830	261		
80	1933	6.0	3.00	7.4	1.200	5.00	6.13	5.00	6.021	7.830	264		
81	1963	6.0	3.00	7.4	1.200	5.00	6.13	5.00	6.009	7.830	267		
82	2004	6.0	3.00	7.6	1.200	5.00	6.31	5.00	6.375	7.100	270		
83	2024	6.0	3.00	7.8	1.200	5.00	6.47	5.00	6.689	3.850	272		
84	2044	6.0	3.00	7.6	1.200	5.00	6.31	5.00	6.371	7.100	274		
85	2064	6.0	3.00	7.8	1.200	5.00	6.46	5.00	6.686	3.850	276		
86	1985	6.0	3.00	7.4	1.200	5.00	6.16	5.00	6.064	7.100	280		
87	2084	6.0	3.00	7.6	1.200	5.00	6.31	5.00	6.379	3.850	282		
88	2104	6.0	3.00	7.4	1.200	5.00	6.15	5.00	6.060	7.100	284		
89	2124	6.0	3.00	7.6	1.200	5.00	6.31	5.00	6.376	3.850	286		
90	2164	6.0	3.00	7.5	1.200	5.00	6.23	5.00	6.209	9.750	290		
91	2204	6.0	3.00	7.3	1.200	5.00	6.12	5.00	5.994	9.750	294		
92	476	6.0	3.00	7.6	1.200	5.00	6.32	5.00	6.393	4.210	296		
93	487	6.0	3.00	7.6	1.200	5.00	6.32	5.00	6.389	4.210	298		
94	498	6.0	3.00	7.6	1.200	5.00	6.32	5.00	6.386	4.210	300		
95	509	6.0	3.00	7.6	1.200	5.00	6.32	5.00	6.386	4.210	302		

0 heads are under the required density / minimum pressures

FHC - Hydraulic Calculation Report

Submitted by user number: 0637
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Project: Kosciol pw. Podwyzszenia Krzyza
 Project Ref: 557/16
 Area Ref: Most Unfavourable
 Inst. Number: 1

Hydraulically Significant Pipes in System

Pipe no	NUMBERS		P I P E		F L O W		DIMENSIONS			ANGLE	VALUES	HEIGHT M	PRESSURES BARS	
	Start End	Size Bore	Type 'C'	L/min Vel m/s	Length EL	VJ T VT	Dir. Slope	Eq. len mbar/m	Start End	Start End	Fric Static			
1	100	80mm	GMW	695.4	2.000		90	2.00	0.000	7.520	-0.023			
	110	80.51	100	2.3	0 0		0.0	11.4	0.000	7.497	+0.000			
2	110	80mm	GMW	695.4	18.000		0	19.28	0.000	7.497	-0.221			
	120	80.51	100	2.3	1 0		0.0	11.4	0.000	7.277	+0.000			
3	120	80mm	GMW	695.4	5.000		Up	6.28	0.000	7.277	-0.072			
	130	80.51	100	2.3	1 0		90.0	11.4	5.000	6.715	-0.490			
4	130	80mm	GMW	695.4	1.850		Up	1.85	5.000	6.715	-0.021			
	140	80.51	100	2.3	0 0		90.0	11.4	6.850	6.513	-0.181			
5	140	40mm	GMW	167.2	0.560		270	2.46	6.850	6.513	-0.050			
	150	41.69	100	2.0	0 1		0.0	20.2	6.850	6.463	+0.000			
6	150	40mm	GMW	167.2	2.240		Dn	2.72	6.850	6.463	-0.055			
	160	41.69	100	2.0	1 0		-90.0	20.2	4.610	6.628	+0.219			
7	160	40mm	GMW	159.5	0.970		270	2.87	4.610	6.628	-0.053			
	170	41.69	100	1.9	0 1		0.0	18.5	4.610	6.575	+0.000			
8	160	40mm	GMW	7.7	0.230		90	2.13	4.610	6.628	-0.000			
	180	41.69	100	0.1	0 1		0.0	0.1	4.610	6.628	+0.000			
9	180	22mm	CP	7.7	0.300		180	0.66	4.610	6.628	-0.001			
	190	20.21	150	0.4	1 0		0.0	1.1	4.610	6.627	+0.000			
10	190	22mm	CP	7.7	0.400		Dn	0.76	4.610	6.627	-0.001			
	200	20.21	150	0.4	1 0		-90.0	1.1	4.210	6.665	+0.039			
11	170	22mm	CP	7.7	0.300		180	1.75	4.610	6.575	-0.002			
	181	20.21	150	0.4	0 1		0.0	1.1	4.610	6.573	+0.000			
12	181	22mm	CP	7.7	0.400		Dn	0.76	4.610	6.573	-0.001			
	191	20.21	150	0.4	1 0		-90.0	1.1	4.210	6.611	+0.039			
13	170	40mm	GMW	151.8	1.200		270	1.20	4.610	6.575	-0.020			
	182	41.69	100	1.9	0 0		0.0	16.9	4.610	6.554	+0.000			
14	182	22mm	CP	7.7	0.300		180	1.75	4.610	6.554	-0.002			
	192	20.21	150	0.4	0 1		0.0	1.1	4.610	6.552	+0.000			
15	192	22mm	CP	7.7	0.400		Dn	0.76	4.610	6.552	-0.001			
	202	20.21	150	0.4	1 0		-90.0	1.1	4.210	6.591	+0.039			
16	182	40mm	GMW	144.1	1.200		270	1.20	4.610	6.554	-0.018			
	193	41.69	100	1.8	0 0		0.0	15.3	4.610	6.536	+0.000			
17	193	22mm	CP	7.7	0.300		180	1.75	4.610	6.536	-0.002			
	203	20.21	150	0.4	0 1		0.0	1.1	4.610	6.534	+0.000			
18	203	22mm	CP	7.7	0.400		Dn	0.76	4.610	6.534	-0.001			
	213	20.21	150	0.4	1 0		-90.0	1.1	4.210	6.572	+0.039			
19	193	40mm	GMW	136.4	1.200		270	1.20	4.610	6.536	-0.017			
	204	41.69	100	1.7	0 0		0.0	13.8	4.610	6.519	+0.000			
20	204	22mm	CP	7.7	0.300		180	1.75	4.610	6.519	-0.002			
	214	20.21	150	0.4	0 1		0.0	1.1	4.610	6.517	+0.000			
21	214	22mm	CP	7.7	0.400		Dn	0.76	4.610	6.517	-0.001			
	224	20.21	150	0.4	1 0		-90.0	1.1	4.210	6.556	+0.039			
22	204	32mm	GMW	128.7	2.780		0	4.22	4.610	6.519	-0.110			
	234	35.80	100	2.1	0 1		0.0	26.1	4.610	6.409	+0.000			
23	234	25mm	GMW	90.8	0.520		270	1.71	4.610	6.409	-0.090			
	244	27.14	100	2.6	0 1		0.0	52.7	4.610	6.319	+0.000			
24	244	22mm	CP	15.2	0.200		180	1.65	4.610	6.319	-0.006			
	254	20.21	150	0.8	0 1		0.0	3.8	4.610	6.312	+0.000			
25	254	22mm	CP	7.5	0.200		180	0.20	4.610	6.312	-0.000			
	264	20.21	150	0.4	0 0		0.0	1.0	4.610	6.312	+0.000			
26	254	22mm	CP	7.6	1.960		Dn	3.41	4.610	6.312	-0.004			
	274	20.21	150	0.4	0 1		-90.0	1.1	2.650	6.501	+0.192			
27	244	25mm	GMW	75.6	1.200		270	1.20	4.610	6.319	-0.045			
	284	27.14	100	2.2	0 0		0.0	37.6	4.610	6.274	+0.000			
28	284	22mm	CP	15.1	0.200		180	1.65	4.610	6.274	-0.006			
	294	20.21	150	0.8	0 1		0.0	3.8	4.610	6.267	+0.000			
29	294	22mm	CP	7.5	0.200		180	0.20	4.610	6.267	-0.000			
	304	20.21	150	0.4	0 0		0.0	1.0	4.610	6.267	+0.000			

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 Project Ref: 557/16
 Area Ref: Most Unfavourable
 Inst. Number: 1

Hydraulically Significant Pipes in System

Pipe no	NUMBERS		P I P E		F L O W		DIMENSIONS			ANGLE	VALUES	HEIGHT M	PRESSURES BARS	
	Start	End	Size	Type	L/min	Vel m/s	Length	VJ	Dir.	Slope	Eq. len	Start	Start	Fric
			Bore	'C'			EL	T	VT		mbar/m	End	End	Static
30	294	314	22mm	CP	7.6	0.4	1.960			Dn	3.41	4.610	6.267	-0.004
			20.21	150			0	1		-90.0	1.1	2.650	6.456	+0.192
31	284	324	25mm	GMW	60.5	1.7	0.200			0	1.39	4.610	6.274	-0.035
			27.14	100			0	1		0.0	24.9	4.610	6.239	+0.000
32	324	334	22mm	CP	7.6	0.4	1.960			Dn	3.41	4.610	6.239	-0.004
			20.21	150			0	1		-90.0	1.1	2.650	6.427	+0.192
33	324	344	25mm	GMW	52.9	1.5	0.200			0	0.20	4.610	6.239	-0.004
			27.14	100			0	0		0.0	19.3	4.610	6.235	+0.000
34	344	354	22mm	CP	7.5	0.4	0.200			270	1.65	4.610	6.235	-0.002
			20.21	150			0	1		0.0	1.0	4.610	6.233	+0.000
35	344	364	25mm	GMW	45.4	1.3	0.200			0	0.20	4.610	6.235	-0.003
			27.14	100			0	0		0.0	14.5	4.610	6.232	+0.000
36	364	374	22mm	CP	7.6	0.4	1.960			Dn	3.41	4.610	6.232	-0.004
			20.21	150			0	1		-90.0	1.1	2.650	6.421	+0.192
37	364	375	25mm	GMW	37.8	1.1	0.200			0	0.20	4.610	6.232	-0.002
			27.14	100			0	0		0.0	10.4	4.610	6.230	+0.000
38	375	385	22mm	CP	7.6	0.4	1.960			Dn	3.41	4.610	6.230	-0.004
			20.21	150			0	1		-90.0	1.1	2.650	6.418	+0.192
39	375	395	25mm	GMW	30.2	0.9	0.200			0	0.20	4.610	6.230	-0.001
			27.14	100			0	0		0.0	6.8	4.610	6.229	+0.000
40	395	405	25mm	GMW	15.1	0.4	1.200			90	2.39	4.610	6.229	-0.005
			27.14	100			0	1		0.0	1.9	4.610	6.224	+0.000
41	395	415	25mm	GMW	15.1	0.4	0.200			0	0.20	4.610	6.229	-0.000
			27.14	100			0	0		0.0	1.9	4.610	6.228	+0.000
42	415	425	22mm	CP	7.6	0.4	1.960			Dn	3.41	4.610	6.228	-0.004
			20.21	150			0	1		-90.0	1.1	2.650	6.417	+0.192
43	415	435	25mm	GMW	7.5	0.2	0.200			0	0.20	4.610	6.228	-0.000
			27.14	100			0	0		0.0	0.5	4.610	6.228	+0.000
44	234	445	25mm	GMW	37.9	1.1	3.330			0	3.33	4.610	6.409	-0.035
			27.14	100			0	0		0.0	10.5	4.610	6.374	+0.000
45	445	455	25mm	GMW	30.3	0.9	1.200			90	2.39	4.610	6.374	-0.017
			27.14	100			0	1		0.0	6.9	4.610	6.357	+0.000
46	445	465	22mm	CP	7.6	0.4	0.300			0	0.30	4.610	6.374	-0.000
			20.21	150			0	0		0.0	1.1	4.610	6.374	+0.000
47	465	475	22mm	CP	7.6	0.4	0.400			Dn	0.76	4.610	6.374	-0.001
			20.21	150			1	0		-90.0	1.1	4.210	6.412	+0.039
48	455	467	25mm	GMW	22.7	0.7	1.200			90	1.20	4.610	6.357	-0.005
			27.14	100			0	0		0.0	4.1	4.610	6.353	+0.000
49	467	478	25mm	GMW	15.2	0.4	1.200			90	1.20	4.610	6.353	-0.002
			27.14	100			0	0		0.0	1.9	4.610	6.350	+0.000
50	478	489	22mm	CP	7.6	0.4	1.200			90	1.20	4.610	6.350	-0.001
			20.21	150			0	0		0.0	1.1	4.610	6.349	+0.000
51	405	519	22mm	CP	15.1	0.8	0.200			0	0.56	4.610	6.224	-0.002
			20.21	150			1	0		0.0	3.8	4.610	6.222	+0.000
52	519	529	22mm	CP	7.5	0.4	0.200			0	0.20	4.610	6.222	-0.000
			20.21	150			0	0		0.0	1.0	4.610	6.222	+0.000
53	519	530	22mm	CP	7.6	0.4	1.960			Dn	3.41	4.610	6.222	-0.004
			20.21	150			0	1		-90.0	1.1	2.650	6.410	+0.192
54	140	540	80mm	GMW	528.2	1.7	1.450			Up	1.45	6.850	6.513	-0.010
			80.51	100			0	0		90.0	6.9	8.300	6.361	-0.142
55	540	1974	32mm	GMW	179.5	3.0	0.200			270	1.64	8.300	6.361	-0.079
			35.80	100			0	1		0.0	48.3	8.300	6.281	+0.000

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Hydraulically Significant Pipes in System

Pipe no	NUMBERS		P I P E		F L O W		DIMENSIONS			ANGLE	VALUES	HEIGHT M	PRESSURES BARS	
	Start	End	Size	Type	L/min	Vel m/s	Length	VJ	Dir.	Slope	Eq. len	Start	Start	Fric
		Bore	'C'			EL	T	VT		mbar/m	End	End	Static	
56	1974	32mm	GMW	148.9	0.140	270				0.14	8.300	6.281	-0.005	
	550	35.80	100	2.5	0	0				34.0	8.300	6.277	+0.000	
57	550	22mm	CP	7.5	0.300	180				1.75	8.300	6.277	-0.002	
	560	20.21	150	0.4	0	1				1.0	8.300	6.275	+0.000	
58	560	22mm	CP	7.5	0.470	Dn				0.83	8.300	6.275	-0.001	
	570	20.21	150	0.4	1	0				1.0	7.830	6.320	+0.046	
59	550	32mm	GMW	141.3	1.200	270				1.20	8.300	6.277	-0.037	
	561	35.80	100	2.3	0	0				31.0	8.300	6.239	+0.000	
60	561	22mm	CP	7.5	0.300	180				1.75	8.300	6.239	-0.002	
	571	20.21	150	0.4	0	1				1.0	8.300	6.238	+0.000	
61	571	22mm	CP	7.5	0.470	Dn				0.83	8.300	6.238	-0.001	
	581	20.21	150	0.4	1	0				1.0	7.830	6.283	+0.046	
62	561	32mm	GMW	133.8	1.200	270				1.20	8.300	6.239	-0.034	
	572	35.80	100	2.2	0	0				28.1	8.300	6.206	+0.000	
63	572	22mm	CP	7.5	0.300	180				1.75	8.300	6.206	-0.002	
	582	20.21	150	0.4	0	1				1.0	8.300	6.204	+0.000	
64	582	22mm	CP	7.5	0.470	Dn				0.83	8.300	6.204	-0.001	
	592	20.21	150	0.4	1	0				1.0	7.830	6.249	+0.046	
65	572	32mm	GMW	126.3	1.200	270				1.20	8.300	6.206	-0.030	
	583	35.80	100	2.1	0	0				25.2	8.300	6.175	+0.000	
66	583	22mm	CP	7.5	0.300	180				1.75	8.300	6.175	-0.002	
	593	20.21	150	0.4	0	1				1.0	8.300	6.174	+0.000	
67	593	22mm	CP	7.5	0.470	Dn				0.83	8.300	6.174	-0.001	
	603	20.21	150	0.4	1	0				1.0	7.830	6.219	+0.046	
68	583	32mm	GMW	118.8	1.200	270				1.20	8.300	6.175	-0.027	
	594	35.80	100	2.0	0	0				22.5	8.300	6.148	+0.000	
69	594	22mm	CP	7.5	0.300	180				1.75	8.300	6.148	-0.002	
	604	20.21	150	0.4	0	1				1.0	8.300	6.147	+0.000	
70	604	22mm	CP	7.5	0.470	Dn				0.83	8.300	6.147	-0.001	
	614	20.21	150	0.4	1	0				1.0	7.830	6.192	+0.046	
71	594	32mm	GMW	111.4	0.100	270				0.10	8.300	6.148	-0.002	
	624	35.80	100	1.8	0	0				19.8	8.300	6.146	+0.000	
72	624	32mm	GMW	111.4	0.100	0				0.58	8.300	6.146	-0.012	
	634	35.80	100	1.8	1	0				20.0	8.300	6.135	+0.000	
73	634	32mm	GMW	111.4	0.100	0				0.10	8.300	6.135	-0.002	
	654	35.80	100	1.8	0	0				19.8	8.300	6.133	+0.000	
74	654	22mm	CP	7.5	0.300	270				1.75	8.300	6.133	-0.002	
	664	20.21	150	0.4	0	1				1.0	8.300	6.131	+0.000	
75	664	22mm	CP	7.5	0.470	Dn				0.83	8.300	6.131	-0.001	
	674	20.21	150	0.4	1	0				1.0	7.830	6.176	+0.046	
76	654	32mm	GMW	103.9	1.200	0				1.20	8.300	6.133	-0.021	
	665	35.80	100	1.7	0	0				17.6	8.300	6.112	+0.000	
77	665	22mm	CP	7.4	0.300	270				1.75	8.300	6.112	-0.002	
	675	20.21	150	0.4	0	1				1.0	8.300	6.110	+0.000	
78	675	22mm	CP	7.4	0.470	Dn				0.83	8.300	6.110	-0.001	
	685	20.21	150	0.4	1	0				1.0	7.830	6.155	+0.046	
79	665	32mm	GMW	96.5	1.200	0				1.20	8.300	6.112	-0.018	
	676	35.80	100	1.6	0	0				15.3	8.300	6.093	+0.000	
80	676	22mm	CP	7.4	0.300	270				1.75	8.300	6.093	-0.002	
	686	20.21	150	0.4	0	1				1.0	8.300	6.091	+0.000	
81	686	22mm	CP	7.4	0.470	Dn				0.83	8.300	6.091	-0.001	
	696	20.21	150	0.4	1	0				1.0	7.830	6.137	+0.046	

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Project: Kosciol pw. Podwyzszenia Krzyza
 Project Ref: 557/16
 Area Ref: Most Unfavourable
 Inst. Number: 1

Hydraulically Significant Pipes in System

Pipe no	NUMBERS		P I P E		F L O W		DIMENSIONS			ANGLE	VALUES	HEIGHT M	PRESSURES BARS	
	Start	End	Size	Type	L/min	Vel m/s	Length	VJ	Dir.	Slope	Eq. len	Start	Start	Fric
		Bore	'C'				EL	T	VT		mbar/m	End	End	Static
82	676	687	32mm	GMW	89.0	1.5	1.200	0	0	0	1.20	8.300	6.093	-0.016
			35.80	100	1.5	0	0	0	0	0.0	13.2	8.300	6.077	+0.000
83	687	697	22mm	CP	7.4	0.4	0.300	270	1	0	1.75	8.300	6.077	-0.002
			20.21	150	0.4	0	1	0	0	0.0	1.0	8.300	6.076	+0.000
84	697	707	22mm	CP	7.4	0.4	0.470	Dn	1	0	0.83	8.300	6.076	-0.001
			20.21	150	0.4	1	0	-90.0	0	0	1.0	7.830	6.121	+0.046
85	687	698	32mm	GMW	81.6	1.4	1.200	0	0	0	1.20	8.300	6.077	-0.014
			35.80	100	1.4	0	0	0	0	0.0	11.2	8.300	6.064	+0.000
86	698	708	22mm	CP	7.4	0.4	0.300	270	0	1	1.75	8.300	6.064	-0.002
			20.21	150	0.4	0	1	0	0	0.0	1.0	8.300	6.062	+0.000
87	708	718	22mm	CP	7.4	0.4	0.470	Dn	1	0	0.83	8.300	6.062	-0.001
			20.21	150	0.4	1	0	-90.0	0	0	1.0	7.830	6.107	+0.046
88	698	709	32mm	GMW	74.2	1.2	1.200	0	0	0	1.20	8.300	6.064	-0.011
			35.80	100	1.2	0	0	0	0	0.0	9.4	8.300	6.053	+0.000
89	709	719	22mm	CP	7.4	0.4	0.300	270	0	1	1.75	8.300	6.053	-0.002
			20.21	150	0.4	0	1	0	0	0.0	1.0	8.300	6.051	+0.000
90	719	729	22mm	CP	7.4	0.4	0.470	Dn	1	0	0.83	8.300	6.051	-0.001
			20.21	150	0.4	1	0	-90.0	0	0	1.0	7.830	6.096	+0.046
91	709	739	32mm	GMW	66.8	1.1	0.100	0	0	0	0.10	8.300	6.053	-0.001
			35.80	100	1.1	0	0	0	0	0.0	7.7	8.300	6.052	+0.000
92	540	852	80mm	GMW	348.7	1.1	1.700	Up	0	0	1.70	8.300	6.361	-0.005
			80.51	100	1.1	0	0	90.0	0	0	3.2	10.000	6.189	-0.167
93	852	862	32mm	GMW	110.8	1.8	0.300	270	0	1	1.74	10.000	6.189	-0.035
			35.80	100	1.8	0	1	0	0	0.0	19.8	10.000	6.154	+0.000
94	862	872	22mm	CP	7.5	0.4	0.300	180	0	1	1.75	10.000	6.154	-0.002
			20.21	150	0.4	0	1	0	0	0.0	1.0	10.000	6.153	+0.000
95	872	882	22mm	CP	7.5	0.4	0.250	Dn	1	0	0.61	10.000	6.153	-0.001
			20.21	150	0.4	1	0	-90.0	0	0	1.0	9.750	6.176	+0.024
96	862	873	32mm	GMW	103.4	1.7	1.200	270	0	0	1.20	10.000	6.154	-0.021
			35.80	100	1.7	0	0	0	0	0.0	17.4	10.000	6.133	+0.000
97	873	883	22mm	CP	7.4	0.4	0.300	180	0	1	1.75	10.000	6.133	-0.002
			20.21	150	0.4	0	1	0	0	0.0	1.0	10.000	6.132	+0.000
98	883	893	22mm	CP	7.4	0.4	0.250	Dn	1	0	0.61	10.000	6.132	-0.001
			20.21	150	0.4	1	0	-90.0	0	0	1.0	9.750	6.156	+0.024
99	873	884	32mm	GMW	95.9	1.6	1.200	270	0	0	1.20	10.000	6.133	-0.018
			35.80	100	1.6	0	0	0	0	0.0	15.2	10.000	6.115	+0.000
100	884	894	22mm	CP	7.4	0.4	0.300	180	0	1	1.75	10.000	6.115	-0.002
			20.21	150	0.4	0	1	0	0	0.0	1.0	10.000	6.113	+0.000
101	894	904	22mm	CP	7.4	0.4	0.250	Dn	1	0	0.61	10.000	6.113	-0.001
			20.21	150	0.4	1	0	-90.0	0	0	1.0	9.750	6.137	+0.024
102	884	895	32mm	GMW	88.5	1.5	1.200	270	0	0	1.20	10.000	6.115	-0.016
			35.80	100	1.5	0	0	0	0	0.0	13.1	10.000	6.100	+0.000
103	895	905	22mm	CP	7.4	0.4	0.300	180	0	1	1.75	10.000	6.100	-0.002
			20.21	150	0.4	0	1	0	0	0.0	1.0	10.000	6.098	+0.000
104	905	915	22mm	CP	7.4	0.4	0.250	Dn	1	0	0.61	10.000	6.098	-0.001
			20.21	150	0.4	1	0	-90.0	0	0	1.0	9.750	6.122	+0.024
105	895	925	32mm	GMW	81.1	1.3	0.200	270	0	0	0.20	10.000	6.100	-0.002
			35.80	100	1.3	0	0	0	0	0.0	11.1	10.000	6.097	+0.000
106	925	935	22mm	CP	7.4	0.4	0.300	180	0	1	1.75	10.000	6.097	-0.002
			20.21	150	0.4	0	1	0	0	0.0	1.0	10.000	6.096	+0.000
107	935	945	22mm	CP	7.4	0.4	0.250	Dn	1	0	0.61	10.000	6.096	-0.001
			20.21	150	0.4	1	0	-90.0	0	0	1.0	9.750	6.119	+0.024

FHC - Hydraulic Calculation Report

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Hydraulically Significant Pipes in System

Pipe no	NUMBERS		P I P E		F L O W		DIMENSIONS			ANGLE	VALUES	HEIGHT M	PRESSURES BARS	
	Start	End	Size	Type	L/min	Vel m/s	Length	VJ	Dir.	Slope	Eq. len	Start	Start	Fric
			Bore	'C'			EL	T	VT		mbar/m	End	End	Static
108	925	955	32mm	GMW	73.6	1.2	0	0		270	0.10	10.000	6.097	-0.001
			35.80	100						0.0	9.2	10.000	6.096	+0.000
109	955	965	32mm	GMW	73.6	1.2	1	0		0	0.78	10.000	6.096	-0.007
			35.80	100						0.0	9.3	10.000	6.089	+0.000
110	965	975	22mm	CP	7.4	0.4	0	1		270	1.75	10.000	6.089	-0.002
			20.21	150						0.0	1.0	10.000	6.087	+0.000
111	975	985	22mm	CP	7.4	0.4	1	0		Dn	0.61	10.000	6.087	-0.001
			20.21	150						-90.0	1.0	9.750	6.111	+0.024
112	965	976	25mm	GMW	66.2	1.9	0	0		0	1.20	10.000	6.089	-0.035
			27.14	100						0.0	29.4	10.000	6.054	+0.000
113	976	986	22mm	CP	7.4	0.4	0	1		270	1.75	10.000	6.054	-0.002
			20.21	150						0.0	1.0	10.000	6.052	+0.000
114	986	996	22mm	CP	7.4	0.4	1	0		Dn	0.61	10.000	6.052	-0.001
			20.21	150						-90.0	1.0	9.750	6.076	+0.024
115	976	987	25mm	GMW	58.8	1.7	0	0		0	1.20	10.000	6.054	-0.028
			27.14	100						0.0	23.6	10.000	6.025	+0.000
116	987	997	22mm	CP	7.4	0.4	0	1		270	1.75	10.000	6.025	-0.002
			20.21	150						0.0	1.0	10.000	6.024	+0.000
117	997	1007	22mm	CP	7.4	0.4	1	0		Dn	0.61	10.000	6.024	-0.001
			20.21	150						-90.0	1.0	9.750	6.048	+0.024
118	987	998	25mm	GMW	51.5	1.5	0	0		0	1.20	10.000	6.025	-0.022
			27.14	100						0.0	18.4	10.000	6.003	+0.000
119	998	1008	22mm	CP	7.4	0.4	0	1		270	1.75	10.000	6.003	-0.002
			20.21	150						0.0	1.0	10.000	6.002	+0.000
120	1008	1018	22mm	CP	7.4	0.4	1	0		Dn	0.61	10.000	6.002	-0.001
			20.21	150						-90.0	1.0	9.750	6.025	+0.024
121	998	1028	25mm	GMW	44.1	1.3	0	0		0	0.34	10.000	6.003	-0.005
			27.14	100						0.0	13.8	10.000	5.999	+0.000
122	1028	1038	25mm	GMW	44.1	1.3	1	0		90	0.58	10.000	5.999	-0.008
			27.14	100						0.0	13.9	10.000	5.991	+0.000
123	1038	1048	22mm	CP	7.4	0.4	0	1		0	1.75	10.000	5.991	-0.002
			20.21	150						0.0	1.0	10.000	5.989	+0.000
124	1048	1058	22mm	CP	7.4	0.4	1	0		Dn	0.61	10.000	5.989	-0.001
			20.21	150						-90.0	1.0	9.750	6.013	+0.024
125	1038	1068	25mm	GMW	36.7	1.1	0	0		90	0.20	10.000	5.991	-0.002
			27.14	100						0.0	9.8	10.000	5.989	+0.000
126	1068	1078	22mm	CP	7.4	0.4	0	1		0	1.75	10.000	5.989	-0.002
			20.21	150						0.0	1.0	10.000	5.987	+0.000
127	1078	1088	22mm	CP	7.4	0.4	1	0		Dn	0.61	10.000	5.987	-0.001
			20.21	150						-90.0	1.0	9.750	6.011	+0.024
128	1068	1079	25mm	GMW	29.4	0.8	0	0		90	1.20	10.000	5.989	-0.008
			27.14	100						0.0	6.5	10.000	5.981	+0.000
129	1079	1089	22mm	CP	7.3	0.4	0	1		0	1.75	10.000	5.981	-0.002
			20.21	150						0.0	1.0	10.000	5.979	+0.000
130	1089	1099	22mm	CP	7.3	0.4	1	0		Dn	0.61	10.000	5.979	-0.001
			20.21	150						-90.0	1.0	9.750	6.003	+0.024
131	1079	1090	25mm	GMW	22.0	0.6	0	0		90	1.20	10.000	5.981	-0.005
			27.14	100						0.0	3.8	10.000	5.976	+0.000
132	1090	1100	22mm	CP	7.3	0.4	0	1		0	1.75	10.000	5.976	-0.002
			20.21	150						0.0	1.0	10.000	5.974	+0.000
133	1100	1110	22mm	CP	7.3	0.4	1	0		Dn	0.61	10.000	5.974	-0.001
			20.21	150						-90.0	1.0	9.750	5.998	+0.024

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Pipe no	NUMBERS		P I P E		F L O W		DIMENSIONS			ANGLE	VALUES	HEIGHT M	PRESSURES BARS	
	Start	End	Size	Type	L/min	Vel m/s	Length	VJ	Dir.	Slope	Eq.len	Start	Start	Fric
			Bore	'C'			EL	T	VT		mbar/m	End	End	Static
134	1090	1101	22mm	CP	14.7		1.200			90	1.20	10.000	5.976	-0.004
			20.21	150	0.8		0	0		0.0	3.6	10.000	5.972	+0.000
135	1101	1111	22mm	CP	7.3		0.300			0	1.75	10.000	5.972	-0.002
			20.21	150	0.4		0	1		0.0	1.0	10.000	5.970	+0.000
136	1111	1121	22mm	CP	7.3		0.250			Dn	0.61	10.000	5.970	-0.001
			20.21	150	0.4		1	0		-90.0	1.0	9.750	5.994	+0.024
137	852	1131	50mm	GMW	230.4		4.000			Up	4.00	10.000	6.189	-0.046
			52.81	100	1.8		0	0		90.0	11.5	14.000	5.751	-0.392
138	1131	1141	32mm	GMW	85.9		0.350			270	1.79	14.000	5.751	-0.022
			35.80	100	1.4		0	1		0.0	12.4	14.000	5.729	+0.000
139	1141	1151	22mm	CP	7.2		0.300			180	1.75	14.000	5.729	-0.002
			20.21	150	0.4		0	1		0.0	1.0	14.000	5.727	+0.000
140	1151	1161	22mm	CP	7.2		0.320			Dn	0.68	14.000	5.727	-0.001
			20.21	150	0.4		1	0		-90.0	1.0	13.680	5.758	+0.031
141	1141	1152	32mm	GMW	78.7		1.200			270	1.20	14.000	5.729	-0.013
			35.80	100	1.3		0	0		0.0	10.5	14.000	5.716	+0.000
142	1152	1162	22mm	CP	7.2		0.300			180	1.75	14.000	5.716	-0.002
			20.21	150	0.4		0	1		0.0	1.0	14.000	5.714	+0.000
143	1162	1172	22mm	CP	7.2		0.320			Dn	0.68	14.000	5.714	-0.001
			20.21	150	0.4		1	0		-90.0	1.0	13.680	5.745	+0.031
144	1152	1163	32mm	GMW	71.6		1.200			270	1.20	14.000	5.716	-0.011
			35.80	100	1.2		0	0		0.0	8.8	14.000	5.705	+0.000
145	1163	1173	22mm	CP	7.2		0.300			180	1.75	14.000	5.705	-0.002
			20.21	150	0.4		0	1		0.0	1.0	14.000	5.704	+0.000
146	1173	1183	22mm	CP	7.2		0.320			Dn	0.68	14.000	5.704	-0.001
			20.21	150	0.4		1	0		-90.0	1.0	13.680	5.734	+0.031
147	1163	1174	32mm	GMW	64.4		1.200			270	1.20	14.000	5.705	-0.009
			35.80	100	1.1		0	0		0.0	7.2	14.000	5.697	+0.000
148	1174	1184	22mm	CP	7.2		0.300			180	1.75	14.000	5.697	-0.002
			20.21	150	0.4		0	1		0.0	1.0	14.000	5.695	+0.000
149	1184	1194	22mm	CP	7.2		0.320			Dn	0.68	14.000	5.695	-0.001
			20.21	150	0.4		1	0		-90.0	1.0	13.680	5.726	+0.031
150	1174	1204	32mm	GMW	57.2		0.200			270	0.20	14.000	5.697	-0.001
			35.80	100	0.9		0	0		0.0	5.8	14.000	5.696	+0.000
151	1204	1214	32mm	GMW	57.2		0.200			0	0.68	14.000	5.696	-0.004
			35.80	100	0.9		1	0		0.0	5.8	14.000	5.692	+0.000
152	1214	1224	22mm	CP	7.2		0.300			270	1.75	14.000	5.692	-0.002
			20.21	150	0.4		0	1		0.0	1.0	14.000	5.690	+0.000
153	1224	1234	22mm	CP	7.2		0.320			Dn	0.68	14.000	5.690	-0.001
			20.21	150	0.4		1	0		-90.0	1.0	13.680	5.721	+0.031
154	1214	1225	25mm	GMW	50.0		1.200			0	1.20	14.000	5.692	-0.021
			27.14	100	1.4		0	0		0.0	17.5	14.000	5.671	+0.000
155	1225	1235	22mm	CP	7.2		0.300			270	1.75	14.000	5.671	-0.002
			20.21	150	0.4		0	1		0.0	1.0	14.000	5.669	+0.000
156	1235	1245	22mm	CP	7.2		0.320			Dn	0.68	14.000	5.669	-0.001
			20.21	150	0.4		1	0		-90.0	1.0	13.680	5.700	+0.031
157	1225	1236	25mm	GMW	42.9		1.200			0	1.20	14.000	5.671	-0.016
			27.14	100	1.2		0	0		0.0	13.1	14.000	5.655	+0.000
158	1236	1246	22mm	CP	7.2		0.300			270	1.75	14.000	5.655	-0.002
			20.21	150	0.4		0	1		0.0	1.0	14.000	5.653	+0.000
159	1246	1256	22mm	CP	7.2		0.320			Dn	0.68	14.000	5.653	-0.001
			20.21	150	0.4		1	0		-90.0	1.0	13.680	5.684	+0.031

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	Start	End	Size	Type	L/min	Vel m/s	Length	VJ	Dir.	Slope	Eq. len	Start	Start	Fric
			Bore	'C'			EL	T	VT		mbar/m	End	End	Static
160	1236	1247	25mm	GMW	35.7		1.200			0	1.20	14.000	5.655	-0.011
			27.14	100	1.0		0	0		0.0	9.4	14.000	5.644	+0.000
161	1247	1257	22mm	CP	7.1		0.300			270	1.75	14.000	5.644	-0.002
			20.21	150	0.4		0	1		0.0	0.9	14.000	5.642	+0.000
162	1257	1267	22mm	CP	7.1		0.320			Dn	0.68	14.000	5.642	-0.001
			20.21	150	0.4		1	0		-90.0	0.9	13.680	5.673	+0.031
163	1247	1277	25mm	GMW	28.6		0.200			0	0.20	14.000	5.644	-0.001
			27.14	100	0.8		0	0		0.0	6.2	14.000	5.642	+0.000
164	1277	1287	25mm	GMW	28.6		0.200			90	0.68	14.000	5.642	-0.004
			27.14	100	0.8		1	0		0.0	6.2	14.000	5.638	+0.000
165	1287	1297	22mm	CP	7.1		0.300			0	1.75	14.000	5.638	-0.002
			20.21	150	0.4		0	1		0.0	0.9	14.000	5.636	+0.000
166	1297	1307	22mm	CP	7.1		0.320			Dn	0.68	14.000	5.636	-0.001
			20.21	150	0.4		1	0		-90.0	0.9	13.680	5.667	+0.031
167	1287	1298	25mm	GMW	21.4		1.200			90	1.20	14.000	5.638	-0.004
			27.14	100	0.6		0	0		0.0	3.6	14.000	5.634	+0.000
168	1298	1308	22mm	CP	7.1		0.300			0	1.75	14.000	5.634	-0.002
			20.21	150	0.4		0	1		0.0	0.9	14.000	5.632	+0.000
169	1308	1318	22mm	CP	7.1		0.320			Dn	0.68	14.000	5.632	-0.001
			20.21	150	0.4		1	0		-90.0	0.9	13.680	5.663	+0.031
170	1298	1309	25mm	GMW	14.3		1.200			90	1.20	14.000	5.634	-0.002
			27.14	100	0.4		0	0		0.0	1.7	14.000	5.632	+0.000
171	1309	1319	22mm	CP	7.1		0.300			0	1.75	14.000	5.632	-0.002
			20.21	150	0.4		0	1		0.0	0.9	14.000	5.630	+0.000
172	1319	1329	22mm	CP	7.1		0.320			Dn	0.68	14.000	5.630	-0.001
			20.21	150	0.4		1	0		-90.0	0.9	13.680	5.661	+0.031
173	1309	1320	22mm	CP	7.1		1.200			90	1.20	14.000	5.632	-0.001
			20.21	150	0.4		0	0		0.0	0.9	14.000	5.631	+0.000
174	1320	1330	22mm	CP	7.1		0.300			0	0.66	14.000	5.631	-0.001
			20.21	150	0.4		1	0		0.0	0.9	14.000	5.630	+0.000
175	1330	1340	22mm	CP	7.1		0.320			Dn	0.68	14.000	5.630	-0.001
			20.21	150	0.4		1	0		-90.0	0.9	13.680	5.661	+0.031
176	1131	1350	32mm	GMW	144.4		0.400			Up	0.40	14.000	5.751	-0.013
			35.80	100	2.4		0	0		90.0	32.3	14.400	5.699	-0.039
177	1350	1360	32mm	GMW	144.4		0.950			270	1.43	14.400	5.699	-0.046
			35.80	100	2.4		1	0		0.0	32.3	14.400	5.652	+0.000
178	1360	1370	32mm	GMW	144.4		0.800			Up	2.72	14.400	5.652	-0.088
			35.80	100	2.4		1	1		90.0	32.3	15.200	5.486	-0.078
179	1370	1380	25mm	GMW	84.1		0.100			270	1.29	15.200	5.486	-0.059
			27.14	100	2.4		0	1		0.0	45.8	15.200	5.427	+0.000
180	1380	1390	22mm	CP	7.0		0.200			180	1.65	15.200	5.427	-0.002
			20.21	150	0.4		0	1		0.0	0.9	15.200	5.425	+0.000
181	1390	1400	22mm	CP	7.0		0.200			Dn	0.56	15.200	5.425	-0.001
			20.21	150	0.4		1	0		-90.0	0.9	15.000	5.444	+0.020
182	1380	1410	25mm	GMW	77.1		0.200			270	0.20	15.200	5.427	-0.008
			27.14	100	2.2		0	0		0.0	38.8	15.200	5.419	+0.000
183	1410	1420	25mm	GMW	60.4		3.000			Up	4.19	15.200	5.419	-0.104
			27.14	100	1.7		0	1		90.0	24.8	18.200	5.021	-0.294
184	1410	1430	25mm	GMW	16.7		1.000			270	1.00	15.200	5.419	-0.002
			27.14	100	0.5		0	0		0.0	2.3	15.200	5.417	+0.000
185	1430	1440	22mm	CP	7.0		0.200			180	1.65	15.200	5.417	-0.002
			20.21	150	0.4		0	1		0.0	0.9	15.200	5.415	+0.000

FHC - Hydraulic Calculation Report

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Project: Kosciol pw. Podwyzszenia Krzyza
 Project Ref: 557/16
 Area Ref: Most Unfavourable
 Inst. Number: 1

Hydraulically Significant Pipes in System

Pipe no	NUMBERS		P I P E		F L O W		DIMENSIONS			ANGLE	VALUES	HEIGHT M	PRESSURES BARS	
	Start	End	Size	Type	L/min	Vel m/s	Length	VJ	Dir.	Slope	Eq. len	Start	Start	Fric
			Bore	'C'			EL	T	VT		mbar/m	End	End	Static
186	1440	1450	22mm	CP	7.0	0.4	0.200			Dn	0.56	15.200	5.415	-0.001
			20.21	150			1	0		-90.0	0.9	15.000	5.434	+0.020
187	1430	1441	25mm	GMW	9.8	0.3	1.200			270	1.20	15.200	5.417	-0.001
			27.14	100			0	0		0.0	0.9	15.200	5.416	+0.000
188	1441	1451	22mm	CP	7.0	0.4	0.200			180	1.65	15.200	5.416	-0.002
			20.21	150			0	1		0.0	0.9	15.200	5.414	+0.000
189	1451	1461	22mm	CP	7.0	0.4	0.200			Dn	0.56	15.200	5.414	-0.001
			20.21	150			1	0		-90.0	0.9	15.000	5.433	+0.020
190	1441	1471	25mm	GMW	2.8	0.1	0.100			270	0.10	15.200	5.416	-0.000
			27.14	100			0	0		0.0	0.1	15.200	5.416	+0.000
191	1471	1481	25mm	GMW	2.8	0.1	0.100			0	0.58	15.200	5.416	-0.000
			27.14	100			1	0		0.0	0.1	15.200	5.416	+0.000
192	1481	1491	22mm	CP	7.0	0.4	0.200			270	1.65	15.200	5.416	-0.002
			20.21	150			0	1		0.0	0.9	15.200	5.414	+0.000
193	1491	1501	22mm	CP	7.0	0.4	0.200			Dn	0.56	15.200	5.414	-0.001
			20.21	150			1	0		-90.0	0.9	15.000	5.433	+0.020
194	1481	1492	25mm	GMW	-4.2	0.1	1.200			0	1.20	15.200	5.416	+0.000
			27.14	100			0	0		0.0	0.2	15.200	5.416	+0.000
195	1492	1502	22mm	CP	7.0	0.4	0.200			270	1.65	15.200	5.416	-0.002
			20.21	150			0	1		0.0	0.9	15.200	5.414	+0.000
196	1502	1512	22mm	CP	7.0	0.4	0.200			Dn	0.56	15.200	5.414	-0.001
			20.21	150			1	0		-90.0	0.9	15.000	5.433	+0.020
197	1492	1503	25mm	GMW	-11.2	0.3	1.200			0	1.20	15.200	5.416	+0.001
			27.14	100			0	0		0.0	1.1	15.200	5.417	+0.000
198	1503	1513	22mm	CP	7.0	0.4	0.200			270	1.65	15.200	5.417	-0.002
			20.21	150			0	1		0.0	0.9	15.200	5.416	+0.000
199	1513	1523	22mm	CP	7.0	0.4	0.200			Dn	0.56	15.200	5.416	-0.001
			20.21	150			1	0		-90.0	0.9	15.000	5.435	+0.020
200	1503	1533	25mm	GMW	-18.2	0.5	0.100			0	0.10	15.200	5.417	+0.000
			27.14	100			0	0		0.0	2.7	15.200	5.417	+0.000
201	1533	1543	25mm	GMW	-18.2	0.5	0.100			90	0.58	15.200	5.417	+0.002
			27.14	100			1	0		0.0	2.7	15.200	5.419	+0.000
202	1543	1553	22mm	CP	7.0	0.4	0.200			0	1.65	15.200	5.419	-0.002
			20.21	150			0	1		0.0	0.9	15.200	5.418	+0.000
203	1553	1563	22mm	CP	7.0	0.4	0.200			Dn	0.56	15.200	5.418	-0.001
			20.21	150			1	0		-90.0	0.9	15.000	5.437	+0.020
204	1543	1554	25mm	GMW	-25.2	0.7	1.200			90	1.20	15.200	5.419	+0.006
			27.14	100			0	0		0.0	4.9	15.200	5.425	+0.000
205	1554	1564	22mm	CP	7.0	0.4	0.200			0	1.65	15.200	5.425	-0.002
			20.21	150			0	1		0.0	0.9	15.200	5.423	+0.000
206	1564	1574	22mm	CP	7.0	0.4	0.200			Dn	0.56	15.200	5.423	-0.001
			20.21	150			1	0		-90.0	0.9	15.000	5.443	+0.020
207	1554	1565	25mm	GMW	-32.2	0.9	1.200			90	1.20	15.200	5.425	+0.009
			27.14	100			0	0		0.0	7.8	15.200	5.434	+0.000
208	1565	1575	22mm	CP	7.0	0.4	0.200			0	1.65	15.200	5.434	-0.002
			20.21	150			0	1		0.0	0.9	15.200	5.433	+0.000
209	1575	1585	22mm	CP	7.0	0.4	0.200			Dn	0.56	15.200	5.433	-0.001
			20.21	150			1	0		-90.0	0.9	15.000	5.452	+0.020
210	1565	1595	25mm	GMW	-39.2	1.1	0.100			90	0.10	15.200	5.434	+0.001
			27.14	100			0	0		0.0	11.1	15.200	5.435	+0.000
211	1595	1605	25mm	GMW	-39.2	1.1	0.100			180	0.58	15.200	5.435	+0.006
			27.14	100			1	0		0.0	11.1	15.200	5.442	+0.000

FHC - Hydraulic Calculation Report

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 Project Ref: 557/16
 Area Ref: Most Unfavourable
 Inst. Number: 1

Hydraulically Significant Pipes in System

Pipe no	NUMBERS		P I P E		F L O W		DIMENSIONS			ANGLE	VALUES	HEIGHT M	PRESSURES BARS	
	Start	End	Size	Type	L/min	Vel m/s	Length	VJ	Dir.	Slope	Eq. len	Start	Start	Fric
			Bore	'C'			EL	T	VT		mbar/m	End	End	Static
212	1605	1615	25mm	GMW	7.0	0.2	0.200			90	1.39	15.200	5.442	-0.001
			27.14	100	0.2	0	1			0.0	0.5	15.200	5.441	+0.000
213	1615	1625	22mm	CP	7.0	0.4	0.200			Dn	0.56	15.200	5.441	-0.001
			20.21	150	0.4	1	0			-90.0	0.9	15.000	5.460	+0.020
214	1605	1616	25mm	GMW	-46.2	1.3	1.200			180	1.20	15.200	5.442	+0.018
			27.14	100	1.3	0	0			0.0	15.1	15.200	5.460	+0.000
215	1616	1626	25mm	GMW	7.0	0.2	0.200			90	1.39	15.200	5.460	-0.001
			27.14	100	0.2	0	1			0.0	0.5	15.200	5.459	+0.000
216	1626	1636	22mm	CP	7.0	0.4	0.200			Dn	0.56	15.200	5.459	-0.001
			20.21	150	0.4	1	0			-90.0	0.9	15.000	5.478	+0.020
217	1616	1627	25mm	GMW	-53.2	1.5	1.200			180	1.20	15.200	5.460	+0.024
			27.14	100	1.5	0	0			0.0	19.6	15.200	5.484	+0.000
218	1627	1637	25mm	GMW	7.0	0.2	0.200			90	1.39	15.200	5.484	-0.001
			27.14	100	0.2	0	1			0.0	0.5	15.200	5.483	+0.000
219	1637	1647	22mm	CP	7.0	0.4	0.200			Dn	0.56	15.200	5.483	-0.001
			20.21	150	0.4	1	0			-90.0	0.9	15.000	5.502	+0.020
220	1627	1370	25mm	GMW	-60.3	1.7	0.100			180	0.10	15.200	5.484	+0.002
			27.14	100	1.7	0	0			0.0	24.5	15.200	5.486	+0.000
221	1420	1657	22mm	CP	27.9	1.5	0.100			90	1.92	18.200	5.021	-0.023
			20.21	150	1.5	1	1			0.0	11.8	18.200	4.998	+0.000
222	1420	1658	22mm	CP	32.4	1.7	0.100			270	1.55	18.200	5.021	-0.024
			20.21	150	1.7	0	1			0.0	15.6	18.200	4.997	+0.000
223	1658	1687	22mm	CP	25.7	1.3	0.300			270	0.30	18.200	4.997	-0.003
			20.21	150	1.3	0	0			0.0	10.1	18.200	4.994	+0.000
224	1687	1697	22mm	CP	6.7	0.3	0.200			180	1.65	18.200	4.994	-0.001
			20.21	150	0.3	0	1			0.0	0.8	18.200	4.992	+0.000
225	1697	1707	22mm	CP	6.7	0.3	0.100			Dn	0.46	18.200	4.992	-0.000
			20.21	150	0.3	1	0			-90.0	0.8	18.100	5.002	+0.010
226	1687	1717	20mm	GMW	12.3	0.6	0.100			270	0.10	18.200	4.994	-0.000
			21.46	100	0.6	0	0			0.0	4.1	18.200	4.993	+0.000
227	1717	1727	22mm	CP	12.3	0.6	0.100			0	0.46	18.200	4.993	-0.001
			20.21	150	0.6	1	0			0.0	2.6	18.200	4.992	+0.000
228	1727	1737	22mm	CP	6.7	0.3	0.200			270	1.65	18.200	4.992	-0.001
			20.21	150	0.3	0	1			0.0	0.8	18.200	4.991	+0.000
229	1737	1747	22mm	CP	6.7	0.3	0.100			Dn	0.46	18.200	4.991	-0.000
			20.21	150	0.3	1	0			-90.0	0.8	18.100	5.000	+0.010
230	1727	1738	22mm	CP	5.6	0.3	0.400			0	0.40	18.200	4.992	-0.000
			20.21	150	0.3	0	0			0.0	0.6	18.200	4.992	+0.000
231	1738	1748	22mm	CP	6.7	0.3	0.200			270	1.65	18.200	4.992	-0.001
			20.21	150	0.3	0	1			0.0	0.8	18.200	4.991	+0.000
232	1748	1758	22mm	CP	6.7	0.3	0.100			Dn	0.46	18.200	4.991	-0.000
			20.21	150	0.3	1	0			-90.0	0.8	18.100	5.000	+0.010
233	1738	1768	22mm	CP	-1.1	0.1	0.100			0	0.10	18.200	4.992	+0.000
			20.21	150	0.1	0	0			0.0	0.0	18.200	4.992	+0.000
234	1768	1778	22mm	CP	-1.1	0.1	0.100			90	0.46	18.200	4.992	+0.000
			20.21	150	0.1	1	0			0.0	0.0	18.200	4.992	+0.000
235	1778	1788	22mm	CP	6.7	0.3	0.200			0	1.65	18.200	4.992	-0.001
			20.21	150	0.3	0	1			0.0	0.8	18.200	4.991	+0.000
236	1788	1798	22mm	CP	6.7	0.3	0.100			Dn	0.46	18.200	4.991	-0.000
			20.21	150	0.3	1	0			-90.0	0.8	18.100	5.000	+0.010
237	1778	1789	22mm	CP	-7.8	0.4	0.400			90	0.40	18.200	4.992	+0.000
			20.21	150	0.4	0	0			0.0	1.1	18.200	4.992	+0.000

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Hydraulically Significant Pipes in System

Pipe no	NUMBERS		P I P E		F L O W		DIMENSIONS			ANGLE	VALUES	HEIGHT M	PRESSURES BARS	
	Start	End	Size	Type	L/min	Vel m/s	Length	VJ	Dir.	Slope	Eq.len	Start	Start	Fric
			Bore	'C'			EL	T	VT		mbar/m	End	End	Static
238	1789	1799	22mm	CP	6.7	0.3	0.200			0	1.65	18.200	4.992	-0.001
			20.21	150		0	1			0.0	0.8	18.200	4.991	+0.000
239	1799	1809	22mm	CP	6.7	0.3	0.100			Dn	0.46	18.200	4.991	-0.000
			20.21	150		1	0			-90.0	0.8	18.100	5.000	+0.010
240	1789	1819	22mm	CP	-14.5	0.8	0.100			90	0.10	18.200	4.992	+0.000
			20.21	150		0	0			0.0	3.5	18.200	4.993	+0.000
241	1819	1829	22mm	CP	-14.5	0.8	0.100			180	0.46	18.200	4.993	+0.002
			20.21	150		1	0			0.0	3.5	18.200	4.994	+0.000
242	1829	1839	22mm	CP	6.7	0.3	0.200			90	1.65	18.200	4.994	-0.001
			20.21	150		0	1			0.0	0.8	18.200	4.993	+0.000
243	1839	1849	22mm	CP	6.7	0.3	0.100			Dn	0.46	18.200	4.993	-0.000
			20.21	150		1	0			-90.0	0.8	18.100	5.002	+0.010
244	1829	1840	22mm	CP	-21.2	1.1	0.400			180	0.40	18.200	4.994	+0.003
			20.21	150		0	0			0.0	7.1	18.200	4.997	+0.000
245	1840	1850	22mm	CP	6.7	0.3	0.200			90	1.65	18.200	4.997	-0.001
			20.21	150		0	1			0.0	0.8	18.200	4.996	+0.000
246	1850	1860	22mm	CP	6.7	0.3	0.100			Dn	0.46	18.200	4.996	-0.000
			20.21	150		1	0			-90.0	0.8	18.100	5.005	+0.010
247	1840	1657	22mm	CP	-27.9	1.5	0.100			180	0.10	18.200	4.997	+0.001
			20.21	150		0	0			0.0	11.7	18.200	4.998	+0.000
248	1687	1698	22mm	CP	6.7	0.3	0.200			180	1.65	18.200	4.994	-0.001
			20.21	150		0	1			0.0	0.8	18.200	4.992	+0.000
249	1698	1708	22mm	CP	6.7	0.3	0.100			Dn	0.46	18.200	4.992	-0.000
			20.21	150		1	0			-90.0	0.8	18.100	5.002	+0.010
250	1658	1668	22mm	CP	6.7	0.3	0.200			180	1.65	18.200	4.997	-0.001
			20.21	150		0	1			0.0	0.8	18.200	4.996	+0.000
251	1668	1678	22mm	CP	6.7	0.3	0.100			Dn	0.46	18.200	4.996	-0.000
			20.21	150		1	0			-90.0	0.8	18.100	5.005	+0.010
252	739	1870	32mm	GMW	66.8	1.1	0.100			0	0.10	8.300	6.052	-0.001
			35.80	100		0	0			0.0	7.7	8.300	6.051	+0.000
253	1870	1880	32mm	GMW	66.8	1.1	0.100			90	0.58	8.300	6.051	-0.005
			35.80	100		1	0			0.0	7.8	8.300	6.046	+0.000
254	1880	1890	22mm	CP	7.4	0.4	0.300			0	1.75	8.300	6.046	-0.002
			20.21	150		0	1			0.0	1.0	8.300	6.045	+0.000
255	1890	1900	22mm	CP	7.4	0.4	0.470			Dn	0.83	8.300	6.045	-0.001
			20.21	150		1	0			-90.0	1.0	7.830	6.090	+0.046
256	1880	1891	25mm	GMW	59.4	1.7	1.200			90	1.20	8.300	6.046	-0.029
			27.14	100		0	0			0.0	24.1	8.300	6.018	+0.000
257	1891	1901	22mm	CP	7.4	0.4	0.300			0	1.75	8.300	6.018	-0.002
			20.21	150		0	1			0.0	1.0	8.300	6.016	+0.000
258	1901	1911	22mm	CP	7.4	0.4	0.470			Dn	0.83	8.300	6.016	-0.001
			20.21	150		1	0			-90.0	1.0	7.830	6.061	+0.046
259	1891	1902	25mm	GMW	52.0	1.5	1.200			90	1.20	8.300	6.018	-0.023
			27.14	100		0	0			0.0	18.8	8.300	5.995	+0.000
260	1902	1912	22mm	CP	7.4	0.4	0.300			0	1.75	8.300	5.995	-0.002
			20.21	150		0	1			0.0	1.0	8.300	5.993	+0.000
261	1912	1922	22mm	CP	7.4	0.4	0.470			Dn	0.83	8.300	5.993	-0.001
			20.21	150		1	0			-90.0	1.0	7.830	6.038	+0.046
262	1902	1913	25mm	GMW	44.6	1.3	1.200			90	1.20	8.300	5.995	-0.017
			27.14	100		0	0			0.0	14.2	8.300	5.978	+0.000
263	1913	1923	22mm	CP	7.4	0.4	0.300			0	1.75	8.300	5.978	-0.002
			20.21	150		0	1			0.0	1.0	8.300	5.976	+0.000

FHC - Hydraulic Calculation Report

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Project: Kosciol pw. Podwyzszenia Krzyza
 Project Ref: 557/16
 Area Ref: Most Unfavourable
 Inst. Number: 1

Hydraulically Significant Pipes in System

Pipe no	NUMBERS		P I P E		F L O W		DIMENSIONS			ANGLE	VALUES	HEIGHT M	PRESSURES BARS	
	Start	End	Size	Type	L/min	Vel m/s	Length	VJ	Dir.	Slope	Eq.len	Start	Start	Fric
			Bore	'C'			EL	T	VT		mbar/m	End	End	Static
264	1923	1933	22mm	CP	7.4	0.4	0.470			Dn	0.83	8.300	5.976	-0.001
			20.21	150	0.4	1	0			-90.0	1.0	7.830	6.021	+0.046
265	1913	1943	25mm	GMW	37.3	1.1	1.200			90	1.20	8.300	5.978	-0.012
			27.14	100	1.1	0	0			0.0	10.2	8.300	5.966	+0.000
266	1943	1953	22mm	CP	7.4	0.4	0.300			0	1.75	8.300	5.966	-0.002
			20.21	150	0.4	0	1			0.0	1.0	8.300	5.964	+0.000
267	1953	1963	22mm	CP	7.4	0.4	0.470			Dn	0.83	8.300	5.964	-0.001
			20.21	150	0.4	1	0			-90.0	1.0	7.830	6.009	+0.046
268	1974	1984	25mm	GMW	30.7	0.9	1.200			Dn	2.39	8.300	6.281	-0.017
			27.14	100	0.9	0	1			-90.0	7.1	7.100	6.382	+0.118
269	1984	1994	25mm	GMW	30.7	0.9	0.200			180	0.68	7.100	6.382	-0.005
			27.14	100	0.9	1	0			0.0	7.1	7.100	6.377	+0.000
270	1994	2004	22mm	CP	7.6	0.4	0.200			270	1.65	7.100	6.377	-0.002
			20.21	150	0.4	0	1			0.0	1.1	7.100	6.375	+0.000
271	1994	2014	25mm	GMW	23.1	0.7	0.100			180	0.10	7.100	6.377	-0.000
			27.14	100	0.7	0	0			0.0	4.1	7.100	6.377	+0.000
272	2014	2024	22mm	CP	7.8	0.4	3.250			Dn	4.70	7.100	6.377	-0.005
			20.21	150	0.4	0	1			-90.0	1.1	3.850	6.690	+0.318
273	2014	2034	22mm	CP	15.3	0.8	1.000			180	1.00	7.100	6.377	-0.004
			20.21	150	0.8	0	0			0.0	3.9	7.100	6.373	+0.000
274	2034	2044	22mm	CP	7.6	0.4	0.200			270	1.65	7.100	6.373	-0.002
			20.21	150	0.4	0	1			0.0	1.1	7.100	6.371	+0.000
275	2034	2054	22mm	CP	7.8	0.4	0.100			180	0.10	7.100	6.373	-0.000
			20.21	150	0.4	0	0			0.0	1.1	7.100	6.373	+0.000
276	2054	2064	22mm	CP	7.8	0.4	3.250			Dn	3.61	7.100	6.373	-0.004
			20.21	150	0.4	1	0			-90.0	1.1	3.850	6.687	+0.318
277	1943	1954	25mm	GMW	29.9	0.9	0.140			90	0.14	8.300	5.966	-0.001
			27.14	100	0.9	0	0			0.0	6.7	8.300	5.965	+0.000
278	1954	1964	25mm	GMW	29.9	0.9	1.200			Dn	1.68	8.300	5.965	-0.011
			27.14	100	0.9	1	0			-90.0	6.8	7.100	6.071	+0.118
279	1964	1975	25mm	GMW	29.9	0.9	0.200			0	0.68	7.100	6.071	-0.005
			27.14	100	0.9	1	0			0.0	6.8	7.100	6.066	+0.000
280	1975	1985	22mm	CP	7.4	0.4	0.200			270	1.65	7.100	6.066	-0.002
			20.21	150	0.4	0	1			0.0	1.0	7.100	6.065	+0.000
281	1975	2074	25mm	GMW	22.5	0.6	0.100			0	0.10	7.100	6.066	-0.000
			27.14	100	0.6	0	0			0.0	4.0	7.100	6.066	+0.000
282	2074	2084	22mm	CP	7.6	0.4	3.250			Dn	4.70	7.100	6.066	-0.005
			20.21	150	0.4	0	1			-90.0	1.1	3.850	6.379	+0.318
283	2074	2094	22mm	CP	15.0	0.8	1.000			0	1.00	7.100	6.066	-0.004
			20.21	150	0.8	0	0			0.0	3.7	7.100	6.062	+0.000
284	2094	2104	22mm	CP	7.4	0.4	0.200			270	1.65	7.100	6.062	-0.002
			20.21	150	0.4	0	1			0.0	1.0	7.100	6.061	+0.000
285	2094	2114	22mm	CP	7.6	0.4	0.100			0	0.10	7.100	6.062	-0.000
			20.21	150	0.4	0	0			0.0	1.0	7.100	6.062	+0.000
286	2114	2124	22mm	CP	7.6	0.4	3.250			Dn	3.61	7.100	6.062	-0.004
			20.21	150	0.4	1	0			-90.0	1.1	3.850	6.377	+0.318
287	852	2134	22mm	CP	7.5	0.4	0.300			90	1.75	10.000	6.189	-0.002
			20.21	150	0.4	0	1			0.0	1.0	10.000	6.187	+0.000
288	2134	2144	22mm	CP	7.5	0.4	0.300			0	0.66	10.000	6.187	-0.001
			20.21	150	0.4	1	0			0.0	1.0	10.000	6.186	+0.000
289	2144	2154	22mm	CP	7.5	0.4	0.300			90	0.66	10.000	6.186	-0.001
			20.21	150	0.4	1	0			0.0	1.0	10.000	6.186	+0.000

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Hydraulically Significant Pipes in System

Pipe no	NUMBERS		P I P E		F L O W		DIMENSIONS			ANGLE	VALUES	HEIGHT M	PRESSURES BARS	
	Start	End	Size	Type	L/min	Vel m/s	Length	VJ	Dir.	Slope	Eq.len	Start	Start	Fric
			Bore	'C'			EL	T	VT		mbar/m	End	End	Static
290	2154	2164	22mm	CP	7.5	0.4	0.250			Dn	0.61	10.000	6.186	-0.001
			20.21	150			1	0		-90.0	1.0	9.750	6.210	+0.024
291	1101	2174	22mm	CP	7.3	0.4	0.300			90	0.30	10.000	5.972	-0.000
			20.21	150			0	0		0.0	1.0	10.000	5.972	+0.000
292	2174	2184	22mm	CP	7.3	0.4	0.300			180	0.66	10.000	5.972	-0.001
			20.21	150			1	0		0.0	1.0	10.000	5.971	+0.000
293	2184	2194	22mm	CP	7.3	0.4	0.300			90	0.66	10.000	5.971	-0.001
			20.21	150			1	0		0.0	1.0	10.000	5.970	+0.000
294	2194	2204	22mm	CP	7.3	0.4	0.250			Dn	0.61	10.000	5.970	-0.001
			20.21	150			1	0		-90.0	1.0	9.750	5.994	+0.024
295	455	466	22mm	CP	7.6	0.4	0.300			0	1.75	4.610	6.357	-0.002
			20.21	150			0	1		0.0	1.1	4.610	6.356	+0.000
296	466	476	22mm	CP	7.6	0.4	0.400			Dn	0.76	4.610	6.356	-0.001
			20.21	150			1	0		-90.0	1.1	4.210	6.394	+0.039
297	467	477	22mm	CP	7.6	0.4	0.300			0	1.75	4.610	6.353	-0.002
			20.21	150			0	1		0.0	1.1	4.610	6.351	+0.000
298	477	487	22mm	CP	7.6	0.4	0.400			Dn	0.76	4.610	6.351	-0.001
			20.21	150			1	0		-90.0	1.1	4.210	6.389	+0.039
299	478	488	22mm	CP	7.6	0.4	0.300			0	1.75	4.610	6.350	-0.002
			20.21	150			0	1		0.0	1.1	4.610	6.348	+0.000
300	488	498	22mm	CP	7.6	0.4	0.400			Dn	0.76	4.610	6.348	-0.001
			20.21	150			1	0		-90.0	1.1	4.210	6.387	+0.039
301	489	499	22mm	CP	7.6	0.4	0.300			0	0.66	4.610	6.349	-0.001
			20.21	150			1	0		0.0	1.1	4.610	6.348	+0.000
302	499	509	22mm	CP	7.6	0.4	0.400			Dn	0.76	4.610	6.348	-0.001
			20.21	150			1	0		-90.0	1.1	4.210	6.387	+0.039

Maximum flow rate error at nodes : 0.00000 L/min
 Maximum pressure drop error at nodes : 0.00092 bar
 Maximum pressure drop error in loops : 0.00000 bar
 Overall head flow balance error : 0.00033 %