
Foul & Surface Water
Manhole Schedule and Longsection Booklet
for
SHD Development at Newtown, Malahide Road

Doc No. WS-03-A

Prepared by:



November 2019


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Unit 1, St. Therese's Place Flowerhill, Navan Co. Meath	Foul Network Details Malahide Road SHD Newtown, Malahide Road, Dublin	
Date 13/11/2019 File Malahide Road R14.mdx	Designed by JOR Consulting Engineers Checked by D O'Brien	
XP Solutions	Network 2016.1.1	


FOUL SEWERAGE DESIGN

Network Design Table for Foul - Main

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type
F1.000	22.215	0.784	28.3	0.000	20	0.0	0.600	o	150	Pipe/Conduit
F1.001	21.244	0.476	44.6	0.000	20	0.0	0.600	o	150	Pipe/Conduit
F1.002	22.084	0.513	43.0	0.000	20	0.0	0.600	o	150	Pipe/Conduit
F2.000	32.746	1.163	28.2	0.000	23	0.0	0.600	o	225	Pipe/Conduit
F1.003	18.548	0.214	86.5	0.000	10	0.0	0.600	o	225	Pipe/Conduit
F1.004	23.807	0.272	87.6	0.000	0	0.0	0.600	o	225	Pipe/Conduit
F3.000	28.171	1.549	18.2	0.000	20	0.0	0.600	o	225	Pipe/Conduit
F1.005	29.708	0.241	123.3	0.000	45	0.0	0.600	o	225	Pipe/Conduit
F1.006	8.135	0.108	75.4	0.000	20	0.0	0.600	o	225	Pipe/Conduit
F1.007	16.312	0.106	154.2	0.000	20	0.0	0.600	o	225	Pipe/Conduit
F1.008	4.875	0.037	131.8	0.000	0	0.0	0.600	o	225	Pipe/Conduit
F1.009	42.950	0.411	104.5	0.000	35	0.0	0.600	o	225	Pipe/Conduit
F1.010	17.449	0.574	30.4	0.000	35	0.0	0.600	o	225	Pipe/Conduit
F4.000	23.717	0.708	33.5	0.000	35	0.0	0.600	o	225	Pipe/Conduit
F4.001	18.595	0.708	26.3	0.000	0	0.0	0.600	o	225	Pipe/Conduit
F4.002	26.208	0.340	77.1	0.000	35	0.0	0.600	o	225	Pipe/Conduit

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Hse Add	Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
F1.000	30.916	0.000	0.0	20	0.0	14	0.71	1.90	33.6	0.6
F1.001	30.132	0.000	0.0	40	0.0	21	0.75	1.51	26.7	1.1
F1.002	29.656	0.000	0.0	60	0.0	25	0.86	1.54	27.2	1.7
F2.000	31.273	0.000	0.0	23	0.0	13	0.70	2.48	98.4	0.6
F1.003	29.068	0.000	0.0	93	0.0	33	0.72	1.41	55.9	2.6
F1.004	28.853	0.000	0.0	93	0.0	33	0.72	1.40	55.6	2.6
F3.000	30.424	0.000	0.0	20	0.0	11	0.78	3.08	122.6	0.6
F1.005	28.582	0.000	0.0	158	0.0	47	0.75	1.18	46.8	4.4
F1.006	28.341	0.000	0.0	178	0.0	44	0.92	1.51	59.9	5.0
F1.007	28.233	0.000	0.0	198	0.0	55	0.73	1.05	41.8	5.6
F1.008	28.127	0.000	0.0	198	0.0	53	0.78	1.14	45.2	5.6
F1.009	28.090	0.000	0.0	233	0.0	54	0.88	1.28	50.8	6.6
F1.010	27.679	0.000	0.0	268	0.0	43	1.44	2.38	94.7	7.5
F4.000	30.302	0.000	0.0	35	0.0	17	0.75	2.27	90.2	1.0
F4.001	29.594	0.000	0.0	35	0.0	16	0.82	2.56	101.9	1.0
F4.002	28.886	0.000	0.0	70	0.0	28	0.69	1.49	59.3	2.0

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FOUL SEWERAGE DESIGN

Network Design Table for Foul - Main

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type
F4.003	18.843	0.340	55.4	0.000	0	0.0	0.600	o	225	Pipe/Conduit
F4.004	17.298	0.345	50.1	0.000	13	0.0	0.600	o	225	Pipe/Conduit
F4.005	20.903	0.412	50.7	0.000	0	0.0	0.600	o	225	Pipe/Conduit
F4.006	27.382	0.412	66.5	0.000	0	0.0	0.600	o	225	Pipe/Conduit
F1.011	46.289	0.236	196.1	0.000	0	0.0	0.600	o	225	Pipe/Conduit

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Hse	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
F4.003	28.546	0.000	0.0	70	0.0	26	0.78	1.76	70.0	2.0
F4.004	28.206	0.000	0.0	83	0.0	27	0.85	1.85	73.6	2.3
F4.005	27.861	0.000	0.0	83	0.0	27	0.84	1.84	73.2	2.3
F4.006	27.449	0.000	0.0	83	0.0	29	0.77	1.61	63.9	2.3
F1.011	27.037	0.000	0.0	351	0.0	79	0.79	0.93	37.0	9.9

Manhole Schedules for Foul - Main

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
FF1	32.348	1.432	Open Manhole	1200	F1.000	30.916	150				
FF2	32.347	2.215	Open Manhole	1200	F1.001	30.132	150	F1.000	30.132	150	
FF3	32.312	2.656	Open Manhole	1200	F1.002	29.656	150	F1.001	29.656	150	
FF13	32.350	1.077	Open Manhole	1200	F2.000	31.273	225				
FF4	32.222	3.155	Open Manhole	1200	F1.003	29.068	225	F1.002	29.143	150	
								F2.000	30.110	225	1042
FF5	32.156	3.303	Open Manhole	1200	F1.004	28.853	225	F1.003	28.853	225	
FF14	31.848	1.424	Open Manhole	1200	F3.000	30.424	225				
FF6	32.000	3.418	Open Manhole	1200	F1.005	28.582	225	F1.004	28.582	225	
								F3.000	28.875	225	294
FF7	31.347	3.006	Open Manhole	1200	F1.006	28.341	225	F1.005	28.341	225	
FF8	31.347	3.114	Open Manhole	1200	F1.007	28.233	225	F1.006	28.233	225	
FF9	31.350	3.223	Open Manhole	1200	F1.008	28.127	225	F1.007	28.127	225	
FF10	31.350	3.260	Open Manhole	1200	F1.009	28.090	225	F1.008	28.090	225	
FF11	30.696	3.017	Open Manhole	1200	F1.010	27.679	225	F1.009	27.679	225	
FF15	31.300	0.998	Open Manhole	1200	F4.000	30.302	225				
FF16	31.300	1.706	Open Manhole	1200	F4.001	29.594	225	F4.000	29.594	225	
FF17	31.300	2.414	Open Manhole	1200	F4.002	28.886	225	F4.001	28.886	225	
FF18	31.300	2.754	Open Manhole	1200	F4.003	28.546	225	F4.002	28.546	225	
FF19	31.300	3.094	Open Manhole	1200	F4.004	28.206	225	F4.003	28.206	225	
FF20	29.900	2.039	Open Manhole	1200	F4.005	27.861	225	F4.004	27.861	225	
FF21	30.000	2.551	Open Manhole	1200	F4.006	27.449	225	F4.005	27.449	225	
FF12	31.100	4.063	Open Manhole	1200	F1.011	27.037	225	F1.010	27.105	225	68
								F4.006	27.037	225	
FEX.F.MH	30.450	3.649	Open Manhole	0		OUTFALL		F1.011	26.801	225	

Unit 1, St. Therese's Place
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Co. Meath

Foul Long Sections
Malahide Road SHD
Newtown, Malahide Road, Dublin



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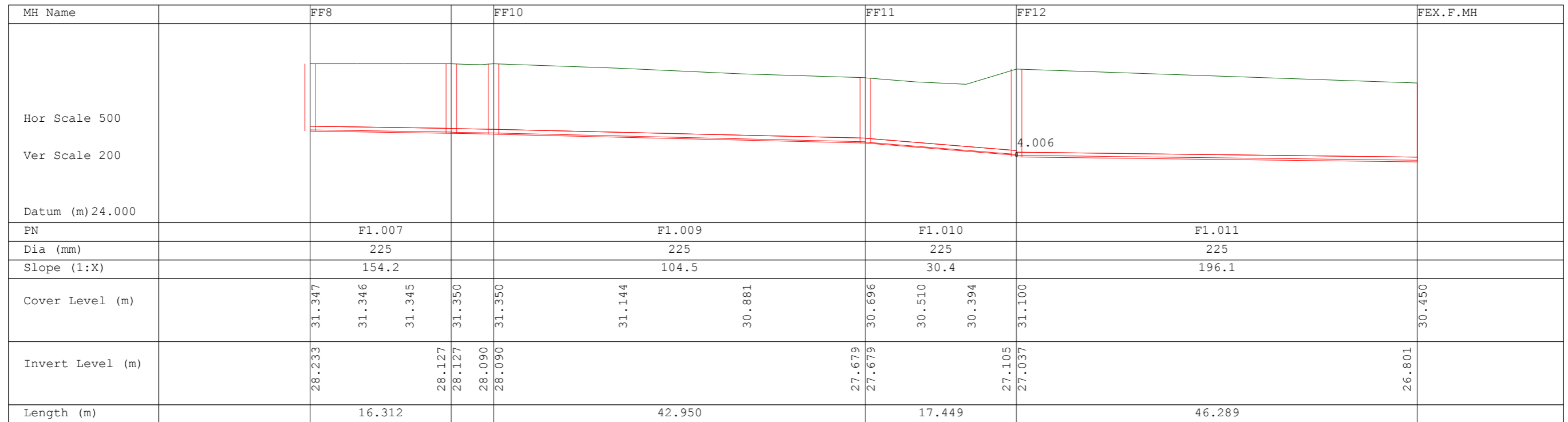
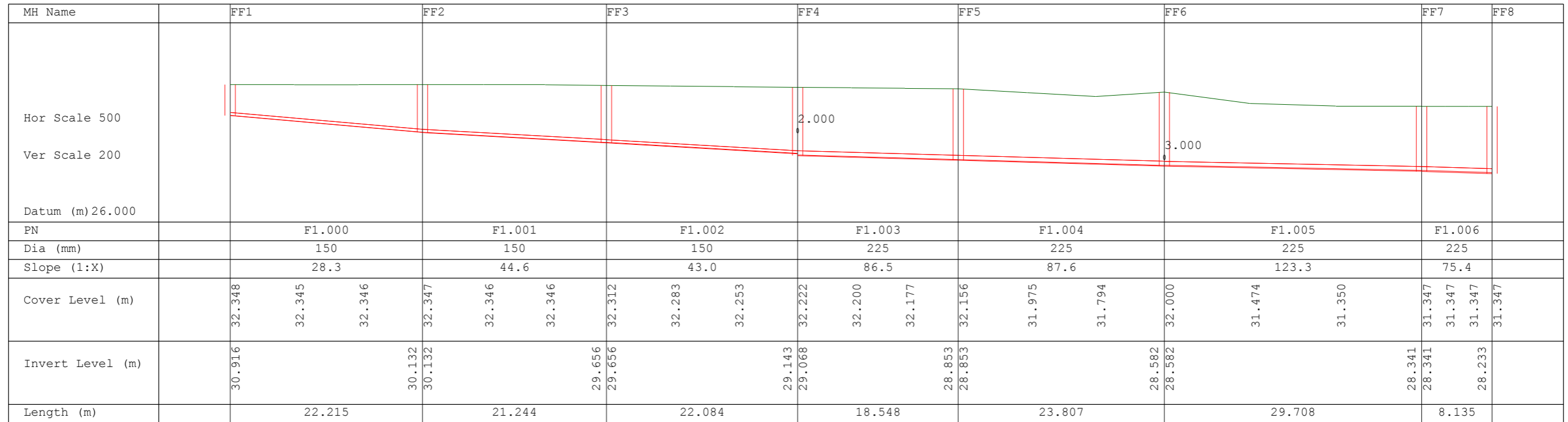
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XP Solutions

Network 2016.1.1



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MH Name	FF13	FF4
Hor Scale 500		
Ver Scale 200		
Datum (m) 26.000		
PN	F2.000	
Dia (mm)	225	
Slope (1:X)	28.2	
Cover Level (m)	32.350	32.222
Invert Level (m)	31.273	30.110
Length (m)	32.746	

MH Name	FF14	FF6
Hor Scale 500		
Ver Scale 200		
Datum (m) 26.000		
PN	F3.000	
Dia (mm)	225	
Slope (1:X)	18.2	
Cover Level (m)	31.848	32.000
Invert Level (m)	30.424	28.875
Length (m)	28.171	

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Network 2016.1.1

MH Name	FF15	FF16	FF17	FF18	FF19	FF20	FF21	
Hor Scale 500								
Ver Scale 200								
Datum (m) 25.000								
PN	F4.000		F4.001		F4.002		F4.003	
Dia (mm)	225		225		225		225	
Slope (1:X)	33.5		26.3		77.1		55.4	
Cover Level (m)	31.300	31.571 31.508	31.300	31.392 31.337	31.300	31.076 30.843	31.300	30.449 30.289
Invert Level (m)	30.302	29.594 29.594	28.886 28.886	28.546 28.546	28.206 28.206	27.861 27.861	27.449	30.000
Length (m)	23.717		18.595		26.208		18.843	

MH Name	FF21	FF12
Hor Scale 500		
Ver Scale 200		
Datum (m) 24.000		
PN	F4.006	
Dia (mm)	225	
Slope (1:X)	66.5	
Cover Level (m)	30.000	29.795 30.037
Invert Level (m)	27.449	27.037
Length (m)	27.382	

Surface Water Manhole Schedule and Longsection Booklet
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Name	Area (ha)	Cover Level (m)	Diameter (mm)	Width (mm)	Depth (m)	Notes
S1	0.016	32.331	1200		0.881	
S2	0.033	32.340	1200		1.440	
S3	0.033	32.349	1350		1.573	
S4		32.320	1350		1.726	
S5		32.254	1500		2.104	
S6		32.135	1500		2.089	
S11	0.070	32.204	1200		1.204	
S12		32.203	1200		1.425	
S7		32.095	1350		2.182	
S8		32.000	1350		2.213	
S9		31.340	1350		1.855	
S10		31.223	1350		1.876	
S15	0.114	31.300	1350		1.788	
S16	0.161	31.300	1350		1.960	
S17	0.004	31.300	1500		2.980	
S24	0.104	31.600	1200		0.900	
S25	0.083	31.815	1350		2.955	
S18		31.937	1350		3.686	
S19	0.029	32.000	1350		3.770	
S20	0.030	31.347	1350		3.212	
S21	0.023	31.221	1350		3.421	
S22		30.542	1350		2.842	
S26		29.900	1350		1.852	
S28	0.020	29.900	1350		1.852	
S27	0.045	29.900	1350		1.903	
S23	0.023	30.100	1350		2.423	
S13		30.377	1350		2.711	
Outfall		30.200	1350		2.568	

Name	US Node	DS Node	Length (m)	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	Link Type
1.000	S1	S2	13.779	31.450	30.900	0.550	25.1	2251	STANDARD
1.001	S2	S3	30.285	30.900	30.776	0.124	244.2	2251	STANDARD
1.002	S3	S4	15.707	30.776	30.594	0.182	86.3	2251	STANDARD
1.003	S4	S5	4.375	30.594	30.535	0.059	74.2	2251	STANDARD
1.004	S5	S6	34.443	30.150	30.046	0.104	331.2	30003	Stormtech 1
1.005	S6	S7	5.535	30.046	29.913	0.133	41.6	2251	STANDARD
2.000	S11	S12	17.979	31.000	30.778	0.222	81.0	2251	STANDARD
2.001	S12	S7	15.671	30.778	30.628	0.150	104.5	2251	STANDARD
1.006	S7	S8	25.124	29.913	29.787	0.126	199.4	2251	STANDARD
1.007	S8	S9	38.812	29.787	29.485	0.302	128.5	2251	STANDARD
1.008	S9	S10	22.254	29.485	29.347	0.138	161.3	2251	STANDARD
1.009	S10	S13	56.690	29.347	28.902	0.445	127.4	2251	STANDARD
3.000	S15	S16	38.400	29.512	29.340	0.172	223.3	3001	STANDARD
3.001	S16	S17	43.913	29.340	29.024	0.316	139.0	3001	STANDARD
3.002	S17	S18	34.634	28.320	28.251	0.069	500.0	30004	Stormtech 2
4.000	S24	S25	107.264	30.700	30.168	0.532	201.6	2251	STANDARD
4.001	S25	S18	6.072	28.860	28.820	0.040	151.8	2251	STANDARD
3.003	S18	S19	9.538	28.251	28.230	0.021	450.0	4501	STANDARD
3.004	S19	S20	42.818	28.230	28.135	0.095	450.0	4501	STANDARD
3.005	S20	S21	25.151	28.135	28.079	0.056	450.0	4501	STANDARD
3.006	S21	S22	44.906	27.800	27.700	0.100	450.0	20005	Stormtech 3
3.007	S22	S23	10.374	27.700	27.677	0.023	450.0	4501	STANDARD
5.000	S26	S27	15.358	28.048	27.997	0.051	300.0	48006	Concrete tank
6.000	S28	S27	13.526	28.048	28.003	0.045	300.0	48006	Concrete tank
5.001	S27	S23	55.932	27.997	27.773	0.224	250.0	4501	STANDARD
3.008	S23	S13	4.440	27.677	27.666	0.011	403.6	4501	STANDARD
1.010	S13	Outfall	11.105	27.666	27.632	0.034	326.6	2251	STANDARD