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Network 2019.1

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type
6.001	4.166	0.042	100.0	0.047	0.00	0.0	0.600	o	150	Pipe/Conduit
6.002	9.102	0.091	100.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit
1.006	5.967	0.317	18.8	0.036	0.00	0.0	0.600	o	225	Pipe/Conduit
1.007	36.439	0.364	100.0	0.019	0.00	0.0	0.600	o	225	Pipe/Conduit
7.000	12.801	0.160	80.0	0.000	5.00	0.0	0.600	o	150	Pipe/Conduit
7.001	10.694	0.135	79.4	0.024	0.00	0.0	0.600	o	150	Pipe/Conduit
7.002	8.790	0.110	80.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit
7.003	5.986	0.063	95.0	0.033	0.00	0.0	0.600	o	150	Pipe/Conduit
8.000	8.681	0.087	100.0	0.040	5.00	0.0	0.600	o	150	Pipe/Conduit
8.001	5.531	0.581	9.5	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit
7.004	11.974	0.332	36.1	0.024	0.00	0.0	0.600	o	225	Pipe/Conduit
1.008	14.458	0.100	144.6	0.027	0.00	0.0	0.600	o	225	Pipe/Conduit
9.000	24.345	0.520	46.8	0.018	5.00	0.0	0.600	o	225	Pipe/Conduit
9.001	28.800	0.650	44.3	0.045	0.00	0.0	0.600	o	225	Pipe/Conduit
9.002	6.021	0.767	7.9	0.057	0.00	0.0	0.600	o	225	Pipe/Conduit

	PN	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Vel (m/s)	Cap (l/s)
	6.001	84.850	0.051	0.0	1.00	17.8
	6.002	84.808	0.051	0.0	1.00	17.8
	1.006	84.717	0.179	0.0	3.03	120.5
	1.007	84.400	0.198	0.0	1.31	52.0
	7.000	84.100	0.000	0.0	1.12	19.9
	7.001	83.940	0.024	0.0	1.13	20.0
	7.002	83.805	0.024	0.0	1.12	19.9
	7.003	83.695	0.057	0.0	1.03	18.2
	8.000	84.300	0.040	0.0	1.00	17.8
	8.001	84.213	0.040	0.0	3.29	58.1
	7.004	83.632	0.121	0.0	2.19	86.9
	1.008	83.300	0.346	0.0	1.09	43.2
	9.000	85.535	0.018	0.0	1.92	76.2
	9.001	85.015	0.063	0.0	1.97	78.4
	9.002	84.365	0.120	0.0	4.70	186.9

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PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type
10.000	26.660	0.267	100.0	0.050	5.00	0.0	0.600	o	225	Pipe/Conduit
9.003	14.020	0.258	54.3	0.054	0.00	0.0	0.600	o	225	Pipe/Conduit
9.004	10.318	0.140	73.7	0.013	0.00	0.0	0.600	o	225	Pipe/Conduit
1.009	17.180	0.172	99.9	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit
1.010	20.648	0.438	47.1	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit
1.011	21.259	0.214	99.3	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit
1.012	2.416	0.012	200.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit

PN	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Vel (m/s)	Cap (l/s)
10.000	83.865	0.050	0.0	1.31	52.0
9.003	83.598	0.225	0.0	1.78	70.7
9.004	83.340	0.238	0.0	1.53	60.6
1.009	83.200	0.584	0.0	1.31	52.0
1.010	83.028	0.584	0.0	1.47	26.0
1.011	82.590	0.584	0.0	1.31	52.2
1.012	81.539	0.584	0.0	0.92	36.0

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PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., (mm)	I*W
9.002	o	225	25	85.790	84.365	1.200	Open Manhole		1500
10.000	o	225	26	85.290	83.865	1.200	Open Manhole		1500
9.003	o	225	27	85.750	83.598	1.927	Open Manhole		1200
9.004	o	225	28	85.800	83.340	2.235	Open Manhole		1500
1.009	o	225	TANK	85.600	83.200	2.175	Open Manhole		1200
1.010	o	150	FCC1	85.300	83.028	2.122	Open Manhole		1500
1.011	o	225	C1	85.230	82.590	2.415	Open Manhole		1500
1.012	o	225	C2	85.045	81.539	3.281	Open Manhole		1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., (mm)	I*W
9.002	6.021	7.9	27	85.750	83.598	1.927	Open Manhole		1200
10.000	26.660	100.0	27	85.750	83.598	1.927	Open Manhole		1200
9.003	14.020	54.3	28	85.800	83.340	2.235	Open Manhole		1500
9.004	10.318	73.7	TANK	85.600	83.200	2.175	Open Manhole		1200
1.009	17.180	99.9	FCC1	85.300	83.028	2.047	Open Manhole		1500
1.010	20.648	47.1	C1	85.230	82.590	2.490	Open Manhole		1500
1.011	21.259	99.3	C2	85.045	82.376	2.444	Open Manhole		1200
1.012	2.416	200.0		84.859	81.527	3.107	Open Manhole		0

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Innovyze	Network 2019.1	
<u>Online Controls for Storm</u> <u>Complex Manhole: FCC1, DS/PN: 1.010, Volume (m³): 4.6</u> <u>Orifice</u> Diameter (m) 0.095 Discharge Coefficient 0.600 Invert Level (m) 83.028 <u>Orifice</u> Diameter (m) 0.070 Discharge Coefficient 0.600 Invert Level (m) 83.773		
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File Site 1 proposed drainag...	Checked by																			
Innovyze	Network 2019.1																			
Storage Structures for Storm Cellular Storage Manhole: TANK, DS/PN: 1.009 Invert Level (m) 83.200 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table><thead><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr></thead><tbody><tr><td>0.000</td><td>235.0</td><td>0.0</td><td>0.801</td><td>0.0</td><td>0.0</td></tr><tr><td>0.800</td><td>235.0</td><td>0.0</td><td></td><td></td><td></td></tr></tbody></table>			Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	235.0	0.0	0.801	0.0	0.0	0.800	235.0	0.0			
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)															
0.000	235.0	0.0	0.801	0.0	0.0															
0.800	235.0	0.0																		
©1982-2019 Innovyze																				

Curtins Consulting Ltd							Page 9	
. . .							Micro Drainage	
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Network 2019.1								
Summary of Critical Results by Maximum Level (Rank 1) for Storm								
Simulation Criteria								
Areal Reduction Factor 1.000								
Additional Flow - % of Total Flow 0.000								
Hot Start (mins) 0								
MADD Factor * 10m³/ha Storage 2.000								
Hot Start Level (mm) 0								
Inlet Coeffiecient 0.800								
Manhole Headloss Coeff (Global) 0.500								
Flow per Person per Day (l/per/day) 0.000								
Foul Sewage per hectare (l/s) 0.000								
Number of Input Hydrographs 0								
Number of Storage Structures 1								
Number of Online Controls 1								
Number of Time/Area Diagrams 0								
Number of Offline Controls 0								
Number of Real Time Controls 0								
Synthetic Rainfall Details								
Rainfall Model								
FSR								
Ratio R 0.336								
Region England and Wales Cv (Summer) 0.750								
M5-60 (mm)								
18.400 Cv (Winter) 0.840								
Margin for Flood Risk Warning (mm)								
300.0								
Analysis Timestep 2.5 Second Increment (Extended)								
DTS Status								
ON								
DVD Status								
OFF								
Inertia Status								
OFF								
Profile(s)								
Summer and Winter								
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440								
Return Period(s) (years)								
1								
Climate Change (%)								
0								
Water								
US/MH								
Return Climate First (X) First (Y) First (Z) Overflow Level								
PN Name Storm Period Change Surcharge Flood Overflow Act. (m)								
1.000								
1 15 Winter								
1								
+0%								
85.877								
1.001								
2 15 Winter								
1								
+0%								
85.774								
2.000								
3 15 Winter								
1								
+0%								
86.171								
1.002								
4 15 Winter								
1								
+0%								
85.514								
1.003								
5 15 Winter								
1								
+0%								
85.378								
3.000								
6 15 Winter								
1								
+0%								
85.821								
4.000								
7A 60 Winter								
1								
+0%								
86.180								
3.001								
7 15 Winter								
1								
+0%								
85.704								
1.004								
8 15 Winter								
1								
+0%								
85.345								
5.000								
9 15 Winter								
1								
+0%								
86.177								
5.001								
10 15 Winter								
1								
+0%								
85.917								
1.005								
11 15 Winter								
1								
+0%								
85.231								
6.000								
12 15 Winter								
1								
+0%								
85.820								
6.001								
13 15 Winter								
1								
+0%								
84.918								
6.002								
14 15 Winter								
1								
+0%								
84.869								
1.006								
15 15 Winter								
1								
+0%								
84.790								
1.007								
16 15 Winter								
1								
+0%								
84.501								
7.000								
17A 60 Winter								
1								
+0%								
84.100								
7.001								
17 15 Winter								
1								
+0%								
83.977								
7.002								
18A 15 Winter								
1								
+0%								
83.843								
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Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH	Surcharged	Flooded	Flow / Cap.	Overflow (l/s)	Pipe	Level Exceeded
	Name	Depth (m)	Volume (m³)			Flow (l/s)	
1.000	1	-0.143	0.000	0.01		0.2	OK
1.001	2	-0.131	0.000	0.04		0.7	OK
2.000	3	-0.149	0.000	0.00		0.1	OK
1.002	4	-0.110	0.000	0.16		2.6	OK
1.003	5	-0.104	0.000	0.20		3.0	OK
3.000	6	-0.119	0.000	0.09		1.8	OK
4.000	7A	-0.150	0.000	0.00		0.0	OK
3.001	7	-0.116	0.000	0.12		3.3	OK
1.004	8	-0.082	0.000	0.42		7.1	OK
5.000	9	-0.143	0.000	0.01		0.2	OK
5.001	10	-0.133	0.000	0.03		0.4	OK
1.005	11	-0.162	0.000	0.17		9.6	OK
6.000	12	-0.140	0.000	0.01		0.5	OK
6.001	13	-0.082	0.000	0.41		5.3	OK
6.002	14	-0.089	0.000	0.34		5.3	OK
1.006	15	-0.152	0.000	0.23		18.5	OK
1.007	16	-0.124	0.000	0.41		20.3	OK
7.000	17A	-0.150	0.000	0.00		0.0	OK
7.001	17	-0.113	0.000	0.14		2.5	OK
7.002	18A	-0.112	0.000	0.14		2.5	OK

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Summary of Critical Results by Maximum Level (Rank 1) for Storm

									Water
	US/MH		Return	Climate	First (X)	First (Y)	First (Z)	Overflow	Level
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Act.	(m)
7.003	18	15	Winter	1	+0%				83.760
8.000	19	15	Winter	1	+0%				84.357
8.001	20	15	Winter	1	+0%				84.245
7.004	21	15	Winter	1	+0%				83.696
1.008	22	15	Winter	1	+0%				83.474
9.000	23	15	Winter	1	+0%				85.561
9.001	24	15	Winter	1	+0%				85.061
9.002	25	15	Winter	1	+0%				84.413
10.000	26	15	Winter	1	+0%				83.918
9.003	27	15	Winter	1	+0%				83.696
9.004	28	15	Winter	1	+0%				83.454
1.009	TANK	120	Winter	1	+0%				83.363
1.010	FCC1	120	Winter	1	+0%	1/15	Summer		83.349
1.011	C1	120	Winter	1	+0%				82.659
1.012	C2	120	Winter	1	+0%				81.631

PN	Surcharged Flooded			Flow / Cap.	Overflow (l/s)	Pipe	Status	Level Exceeded
	US/MH Name	Depth (m)	Volume (m³)			Flow (l/s)		
7.003	18	-0.085	0.000	0.38		5.8	OK	
8.000	19	-0.093	0.000	0.31		4.8	OK	
8.001	20	-0.118	0.000	0.10		4.7	OK	
7.004	21	-0.161	0.000	0.17		13.0	OK	
1.008	22	-0.051	0.000	0.94		35.6	OK	
9.000	23	-0.199	0.000	0.03		2.2	OK	
9.001	24	-0.179	0.000	0.09		6.7	OK	
9.002	25	-0.177	0.000	0.10		12.5	OK	
10.000	26	-0.172	0.000	0.12		6.0	OK	
9.003	27	-0.127	0.000	0.39		24.1	OK	
9.004	28	-0.111	0.000	0.50		25.6	OK	
1.009	TANK	-0.062	0.000	0.22		10.1	OK	
1.010	FCC1	0.171	0.000	0.40		9.8	SURCHARGED	
1.011	C1	-0.156	0.000	0.21		9.8	OK	
1.012	C2	-0.133	0.000	0.35		9.8	OK	