

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	30	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	6.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	x
Maximum Rainfall (mm/hr)	500.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
02	0.029	6.00	56.670	1350	480665.839	177897.299	1.430	55.240
04	0.030	6.00	56.971	1350	480710.549	177916.032	1.521	55.450
06	0.096	6.00	56.495	1350	480704.301	177928.701	1.295	55.200
08	0.055	6.00	56.283	1350	480670.676	177913.634	1.383	54.900
10	0.083	6.00	56.171	1350	480664.185	177913.092	1.646	54.525
12	0.092	6.00	55.085	1350	480661.743	177942.382	1.460	53.625
14	0.121	6.00	54.394	1350	480665.082	177962.005	1.019	53.375
Ditch	0.000	6.00	53.869		480634.884	177979.683	0.629	53.240
Basin	0.044	6.00	53.850		480647.104	177969.786	0.700	53.150
16	0.000	6.00	54.190	1350	480680.657	177976.250	1.190	53.000
18	0.020	6.00	54.013	1350	480675.290	177980.982	1.313	52.700
20	0.000		54.002	1350	480678.968	177985.153	1.652	52.350
22	0.035	6.00	53.947	1350	480701.988	178002.197	1.747	52.200
24	0.015	6.00	54.032	1350	480691.806	177998.627	2.082	51.950
SA	0.000		54.195		480678.508	178000.459	2.295	51.900

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	02	10	15.879	0.600	55.240	54.600	0.640	24.8	225	6.10	133.5
2.000	04	06	14.126	0.600	55.450	55.200	0.250	56.5	225	6.14	133.2
2.001	06	08	36.846	0.600	55.200	54.900	0.300	122.8	300	6.57	129.5
2.002	08	10	6.514	0.600	54.900	54.525	0.375	17.4	300	6.60	129.2
1.001	10	12	29.392	0.600	54.525	53.700	0.825	35.6	300	6.78	127.6
1.002	12	14	19.905	0.600	53.625	53.450	0.175	113.7	375	6.98	126.8
1.003	14	Basin	6.841	0.600	53.375	53.150	0.225	30.4	450	7.01	125.7
3.000	Ditch	Basin	3.692	0.600	53.240	53.150	0.090	41.0	450	6.02	133.9
1.004	Basin	SA	6.706	0.600	53.150	51.900	1.250	5.4	450	7.02	123.6

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	2.637	104.9	14.0	1.205	1.346	0.029	0.0	55	1.842
2.000	1.743	69.3	14.4	1.296	1.070	0.030	0.0	70	1.388
2.001	1.417	100.2	59.0	0.995	1.083	0.126	0.0	166	1.472
2.002	3.790	267.9	84.5	1.083	1.346	0.181	0.0	116	3.376
1.001	2.642	186.8	135.1	1.346	1.085	0.293	0.0	190	2.869
1.002	1.698	187.5	176.4	1.085	0.569	0.385	0.0	291	1.919
1.003	3.697	588.0	229.9	0.569	0.250	0.506	0.0	195	3.477
3.000	3.181	505.9	0.0	0.179	0.250	0.000	0.0	0	0.000
1.004	8.820	1402.7	245.7	0.250	1.845	0.550	0.0	126	6.696

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
4.000	16	18	7.155	0.600	53.000	52.700	0.300	23.9	300	6.04	133.9
4.001	18	20	5.561	0.600	52.700	52.350	0.350	15.9	300	6.06	133.5
4.002	20	SA	4.811	0.600	52.350	51.900	0.450	10.7	300	6.08	132.4
5.000	22	24	10.790	0.600	52.200	51.950	0.250	43.2	300	6.07	133.6
5.001	24	SA	11.707	0.600	51.950	51.900	0.050	234.1	300	6.27	132.7

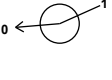
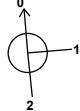
Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
4.000	3.232	228.5	0.0	0.890	1.013	0.000	0.0	0	0.000
4.001	3.963	280.1	9.6	1.013	1.352	0.020	0.0	38	1.879
4.002	4.834	341.7	9.6	1.352	1.995	0.020	0.0	34	2.159
5.000	2.399	169.6	16.9	1.447	1.782	0.035	0.0	64	1.551
5.001	1.023	72.3	24.0	1.782	1.995	0.050	0.0	119	0.921

Pipeline Schedule

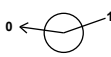
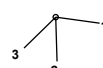
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	15.879	24.8	225	Circular_Default Sewer Type	56.670	55.240	1.205	56.171	54.600	1.346
2.000	14.126	56.5	225	Circular_Default Sewer Type	56.971	55.450	1.296	56.495	55.200	1.070
2.001	36.846	122.8	300	Circular_Default Sewer Type	56.495	55.200	0.995	56.283	54.900	1.083
2.002	6.514	17.4	300	Circular_Default Sewer Type	56.283	54.900	1.083	56.171	54.525	1.346
1.001	29.392	35.6	300	Circular_Default Sewer Type	56.171	54.525	1.346	55.085	53.700	1.085
1.002	19.905	113.7	375	Circular_Default Sewer Type	55.085	53.625	1.085	54.394	53.450	0.569
1.003	6.841	30.4	450	Circular_Default Sewer Type	54.394	53.375	0.569	53.850	53.150	0.250
3.000	3.692	41.0	450	Circular_Default Sewer Type	53.869	53.240	0.179	53.850	53.150	0.250
1.004	6.706	5.4	450	Circular_Default Sewer Type	53.850	53.150	0.250	54.195	51.900	1.845
4.000	7.155	23.9	300	Circular_Default Sewer Type	54.190	53.000	0.890	54.013	52.700	1.013
4.001	5.561	15.9	300	Circular_Default Sewer Type	54.013	52.700	1.013	54.002	52.350	1.352
4.002	4.811	10.7	300	Circular_Default Sewer Type	54.002	52.350	1.352	54.195	51.900	1.995
5.000	10.790	43.2	300	Circular_Default Sewer Type	53.947	52.200	1.447	54.032	51.950	1.782
5.001	11.707	234.1	300	Circular_Default Sewer Type	54.032	51.950	1.782	54.195	51.900	1.995

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	02	1350	Manhole	Adoptable	10	1350	Manhole	Adoptable
2.000	04	1350	Manhole	Adoptable	06	1350	Manhole	Adoptable
2.001	06	1350	Manhole	Adoptable	08	1350	Manhole	Adoptable
2.002	08	1350	Manhole	Adoptable	10	1350	Manhole	Adoptable
1.001	10	1350	Manhole	Adoptable	12	1350	Manhole	Adoptable
1.002	12	1350	Manhole	Adoptable	14	1350	Manhole	Adoptable
1.003	14	1350	Manhole	Adoptable	Basin		Junction	
3.000	Ditch		Junction		Basin		Junction	
1.004	Basin		Junction		SA		Junction	
4.000	16	1350	Manhole	Adoptable	18	1350	Manhole	Adoptable
4.001	18	1350	Manhole	Adoptable	20	1350	Manhole	Adoptable
4.002	20	1350	Manhole	Adoptable	SA		Junction	
5.000	22	1350	Manhole	Adoptable	24	1350	Manhole	Adoptable
5.001	24	1350	Manhole	Adoptable	SA		Junction	

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
02	480665.839	177897.299	56.670	1.430	1350		0	1.000	55.240	225
04	480710.549	177916.032	56.971	1.521	1350		0	2.000	55.450	225
06	480704.301	177928.701	56.495	1.295	1350		1	2.000	55.200	225
08	480670.676	177913.634	56.283	1.383	1350		0	2.001	55.200	300
10	480664.185	177913.092	56.171	1.646	1350		1	2.001	54.900	300
12	480661.743	177942.382	55.085	1.460	1350		0	2.002	54.900	300
14	480665.082	177962.005	54.394	1.019	1350		1	2.002	54.525	300
Ditch	480634.884	177979.683	53.869	0.629			2	1.000	54.600	225
Basin	480647.104	177969.786	53.850	0.700			0	1.001	54.525	300
16	480680.657	177976.250	54.190	1.190	1350		1	1.001	53.700	300
18	480675.290	177980.982	54.013	1.313	1350		0	1.002	53.625	375
20	480678.968	177985.153	54.002	1.652	1350		1	1.002	53.450	375
22	480701.988	178002.197	53.947	1.747	1350		0	1.003	53.375	450

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
24	480691.806	177998.627	54.032	2.082	1350		1	5.000	51.950	300
							0	5.001	51.950	300
SA	480678.508	178000.459	54.195	2.295			1	5.001	51.900	300
							2	4.002	51.900	300
							3	1.004	51.900	450

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	✓	Check Discharge Rate(s)	x
Summer CV	1.000	Drain Down Time (mins)	1440	Check Discharge Volume	x
Winter CV	1.000	Additional Storage (m³/ha)	0.0		

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	40	0	0

Node Basin Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	53.150
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	0

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	295.0	0.0	0.700	440.0	0.0

Node SA Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.34524	Safety Factor	2.0	Invert Level (m)	51.200
Side Inf Coefficient (m/hr)	0.34524	Porosity	0.95	Time to half empty (mins)	174

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	300.0	300.0	1.200	300.0	300.0	1.201	0.0	300.0

Approval Settings

Node Size	✓	Crossings	✓
Node Losses	✓	Cover Depth	✓
Link Size	✓	Minimum Cover Depth (m)	
Minimum Diameter (mm)	150	Maximum Cover Depth (m)	3.000
Link Length	✓	Backdrops	✓
Maximum Length (m)	100.000	Minimum Backdrop Height (m)	
Coordinates	✓	Maximum Backdrop Height (m)	1.500
Accuracy (m)	1.000	Full Bore Velocity	✓

Approval Settings

Minimum Full Bore Velocity (m/s)		Flooding	✓
Maximum Full Bore Velocity (m/s)	3.000	Return Period (years)	30
Proportional Velocity	✓	Time to Half Empty	x
Return Period (years)		Discharge Rates	✓
Minimum Proportional Velocity (m/s)	0.750	Discharge Volume	✓
Maximum Proportional Velocity (m/s)	3.000	100 year 360 minute (m³)	
Surcharged Depth	✓	First Flush	✓
Return Period (years)		Return Period (years)	30
Maximum Surcharged Depth (m)	0.100	First Flush Depth (mm)	5

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.63%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	02	11	55.271	0.031	4.2	0.0448	0.0000	OK
15 minute summer	04	11	55.488	0.038	4.4	0.0548	0.0000	OK
15 minute summer	06	11	55.292	0.092	18.4	0.1314	0.0000	OK
15 minute summer	08	11	54.965	0.065	26.4	0.0936	0.0000	OK
15 minute summer	10	11	54.626	0.101	42.7	0.1446	0.0000	OK
15 minute summer	12	11	53.775	0.150	56.1	0.2151	0.0000	OK
15 minute summer	14	11	53.494	0.119	73.8	0.1704	0.0000	OK
15 minute summer	Ditch	1	53.240	0.000	0.0	0.0000	0.0000	OK
30 minute summer	Basin	21	53.212	0.062	73.9	18.7563	0.0000	OK
15 minute summer	16	1	53.000	0.000	0.0	0.0000	0.0000	OK
15 minute summer	18	11	52.723	0.023	2.9	0.0324	0.0000	OK
15 minute summer	20	11	52.370	0.020	2.9	0.0288	0.0000	OK
15 minute summer	22	11	52.236	0.036	5.1	0.0509	0.0000	OK
15 minute summer	24	11	52.015	0.065	7.3	0.0933	0.0000	OK
180 minute summer	SA	124	51.359	-0.541	39.7	45.3314	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute summer	02	1.000	10	4.2	1.279	0.040	0.0521
15 minute summer	04	2.000	06	4.4	0.464	0.063	0.1390
15 minute summer	06	2.001	08	18.4	1.253	0.184	0.5444
15 minute summer	08	2.002	10	26.4	1.658	0.099	0.1047
15 minute summer	10	1.001	12	42.6	2.109	0.228	0.5944
15 minute summer	12	1.002	14	56.1	1.435	0.299	0.7780
15 minute summer	14	1.003	Basin	73.8	3.924	0.125	0.1509
15 minute summer	Ditch	3.000	Basin	0.0	0.000	0.000	0.0240
30 minute summer	Basin	1.004	SA	58.8	4.475	0.042	0.0882
15 minute summer	16	4.000	18	0.0	0.000	0.000	0.0086
15 minute summer	18	4.001	20	2.9	1.318	0.010	0.0122
15 minute summer	20	4.002	SA	2.9	1.470	0.008	0.0095
15 minute summer	22	5.000	24	5.1	0.658	0.030	0.0861
15 minute summer	24	5.001	SA	7.3	0.658	0.101	0.1297
180 minute summer	SA	Infiltration		14.4			

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.51%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	02	11	55.292	0.052	12.5	0.0748	0.0000	OK
15 minute summer	04	11	55.516	0.066	13.0	0.0940	0.0000	OK
15 minute summer	06	11	55.366	0.166	54.5	0.2380	0.0000	OK
15 minute summer	08	11	55.029	0.129	78.3	0.1840	0.0000	OK
15 minute summer	10	11	54.715	0.190	126.6	0.2712	0.0000	OK
15 minute summer	12	11	53.935	0.310	166.4	0.4437	0.0000	OK
15 minute summer	14	11	53.586	0.211	218.6	0.3016	0.0000	OK
15 minute summer	Ditch	13	53.267	0.027	0.5	0.0000	0.0000	OK
15 minute summer	Basin	13	53.267	0.117	237.6	35.8942	0.0000	OK
15 minute summer	16	1	53.000	0.000	0.0	0.0000	0.0000	OK
15 minute summer	18	11	52.739	0.039	8.6	0.0555	0.0000	OK
15 minute summer	20	11	52.384	0.034	8.6	0.0485	0.0000	OK
15 minute summer	22	11	52.260	0.060	15.1	0.0860	0.0000	OK
15 minute summer	24	11	52.065	0.115	21.6	0.1650	0.0000	OK
120 minute winter	SA	118	51.806	-0.094	89.9	172.6850	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute summer	02	1.000	10	12.5	1.348	0.119	0.2165
15 minute summer	04	2.000	06	13.0	0.630	0.188	0.2903
15 minute summer	06	2.001	08	54.5	1.583	0.544	1.2699
15 minute summer	08	2.002	10	78.3	2.066	0.292	0.2467
15 minute summer	10	1.001	12	126.7	2.411	0.678	1.5596
15 minute summer	12	1.002	14	166.3	1.823	0.887	1.8100
15 minute summer	14	1.003	Basin	218.6	4.676	0.372	0.3535
15 minute summer	Ditch	3.000	Basin	-0.5	-0.052	-0.001	0.0671
15 minute summer	Basin	1.004	SA	212.6	6.535	0.152	0.2182
15 minute summer	16	4.000	18	0.0	0.000	0.000	0.0190
15 minute summer	18	4.001	20	8.6	1.781	0.031	0.0269
15 minute summer	20	4.002	SA	8.6	2.028	0.025	0.0204
15 minute summer	22	5.000	24	15.1	0.885	0.089	0.1886
15 minute summer	24	5.001	SA	21.6	0.889	0.299	0.2846
120 minute winter	SA	Infiltration		14.4			

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.83%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	02	12	55.681	0.441	22.5	0.6311	0.0000	SURCHARGED
15 minute summer	04	12	56.148	0.698	26.5	0.9989	0.0000	SURCHARGED
15 minute summer	06	12	56.116	0.916	91.6	1.3114	0.0000	SURCHARGED
15 minute summer	08	12	55.825	0.925	130.1	1.3237	0.0000	SURCHARGED
15 minute summer	10	12	55.649	1.124	209.4	1.6079	0.0000	SURCHARGED
15 minute summer	12	12	54.343	0.718	275.8	1.0268	0.0000	SURCHARGED
15 minute summer	14	12	53.662	0.287	364.4	0.4103	0.0000	OK
15 minute summer	Ditch	13	53.308	0.068	0.6	0.0000	0.0000	OK
15 minute summer	Basin	13	53.307	0.157	397.2	49.0227	0.0000	OK
240 minute winter	16	228	53.423	0.423	21.4	0.6050	0.0000	SURCHARGED
120 minute winter	18	124	53.385	0.685	35.4	0.9802	0.0000	SURCHARGED
120 minute winter	20	124	53.357	1.007	48.5	1.4416	0.0000	SURCHARGED
120 minute winter	22	124	53.399	1.199	12.0	1.7158	0.0000	SURCHARGED
180 minute summer	24	184	53.370	1.420	26.0	2.0317	0.0000	SURCHARGED
180 minute summer	SA	160	53.329	1.429	173.5	342.1425	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute summer	02	1.000	10	22.7	1.286	0.217	0.6315
15 minute summer	04	2.000	06	28.7	0.773	0.415	0.5618
15 minute summer	06	2.001	08	89.4	1.594	0.892	2.5947
15 minute summer	08	2.002	10	128.6	2.032	0.480	0.4587
15 minute summer	10	1.001	12	208.5	2.961	1.116	2.0698
15 minute summer	12	1.002	14	275.9	2.501	1.471	2.1722
15 minute summer	14	1.003	Basin	364.5	5.031	0.620	0.5331
15 minute summer	Ditch	3.000	Basin	-0.6	-0.037	-0.001	0.1188
15 minute summer	Basin	1.004	SA	378.9	7.698	0.270	0.3302
240 minute winter	16	4.000	18	24.0	0.341	0.105	0.5039
120 minute winter	18	4.001	20	35.0	1.556	0.125	0.3916
120 minute winter	20	4.002	SA	-48.5	1.755	-0.142	0.3388
120 minute winter	22	5.000	24	19.6	0.775	0.115	0.7598
180 minute summer	24	5.001	SA	29.3	0.792	0.406	0.8244
180 minute summer	SA	Infiltration		14.4			