

The Cowyards
 Blenheim Park, Oxford Road
 Woodstock OX20 1QR

Bicester Heritage
 New Technical Site
 Attenuation Basin



Date 19/08/2019 11:55
 File BICESTER NTS -TANK BASI...

Designed by MG
 Checked by SW

XP Solutions

Source Control 2018.1

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	1	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.410	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.755

Time (mins)	Area (ha)	Time (mins)	Area (ha)
From:	To:	From:	To:
0	4 0.304	4	8 0.451

Time Area Diagram


Total Area (ha) 0.168

Time (mins)	Area (ha)	Time (mins)	Area (ha)
From:	To:	From:	To:
0	4 0.124	4	8 0.045

Time Area Diagram

Total Area (ha) 0.000

Time (mins)	Area (ha)
From:	To:
0	4 0.000

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Model Details

Storage is Online Cover Level (m) 78.250

Tank or Pond Structure

Invert Level (m) 77.100

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	401.0	1.000	1196.6	1.150	1854.5
0.900	747.0	1.100	1673.3		

Complex Outflow Control


Hydro-Brake® Optimum

Unit Reference	MD-CHE-0057-1400-0774-1400
Design Head (m)	0.774
Design Flow (l/s)	1.4
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	No
Diameter (mm)	57
Invert Level (m)	77.084
Minimum Outlet Pipe Diameter (mm)	75
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.774	1.4
Flush-Flo™	0.138	1.3
Kick-Flo®	0.198	0.7
Mean Flow over Head Range	-	1.0

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.1	1.200	1.7	3.000	2.7	7.000	4.1
0.200	0.7	1.400	1.9	3.500	2.9	7.500	4.3
0.300	0.9	1.600	2.0	4.000	3.1	8.000	4.4
0.400	1.0	1.800	2.1	4.500	3.3	8.500	4.5
0.500	1.1	2.000	2.2	5.000	3.5	9.000	4.7
0.600	1.2	2.200	2.3	5.500	3.7	9.500	4.8
0.800	1.4	2.400	2.4	6.000	3.8		
1.000	1.6	2.600	2.5	6.500	4.0		

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Hydro-Brake® Optimum

Unit Reference	MD-SHE-0065-1300-0150-1300
Design Head (m)	0.150
Design Flow (l/s)	1.3
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	65
Invert Level (m)	77.858
Minimum Outlet Pipe Diameter (mm)	100
Suggested Manhole Diameter (mm)	1200


Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.150	1.3
Flush-Flo™	0.086	1.3
Kick-Flo®	0.130	1.2
Mean Flow over Head Range	-	0.9

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.3	1.200	3.3	3.000	5.2	7.000	8.0
0.200	1.5	1.400	3.6	3.500	5.6	7.500	8.3
0.300	1.8	1.600	3.8	4.000	6.0	8.000	8.6
0.400	2.0	1.800	4.0	4.500	6.4	8.500	8.8
0.500	2.2	2.000	4.3	5.000	6.8	9.000	9.1
0.600	2.4	2.200	4.5	5.500	7.1	9.500	9.3
0.800	2.8	2.400	4.7	6.000	7.4		
1.000	3.1	2.600	4.9	6.500	7.7		

Weir Overflow Control


Discharge Coef 0.544 Width (m) 0.250 Invert Level (m) 78.180

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Summary of Results for 1 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Overflow (l/s)	Max Outflow (l/s)	Max Volume (m ³)	Status
15 min Summer	77.226	0.126	1.3	0.0	1.3	53.1	O K
30 min Summer	77.261	0.161	1.3	0.0	1.3	68.8	O K
60 min Summer	77.298	0.198	1.3	0.0	1.3	86.1	O K
120 min Summer	77.337	0.237	1.3	0.0	1.3	104.4	O K
180 min Summer	77.360	0.260	1.3	0.0	1.3	115.6	O K
240 min Summer	77.376	0.276	1.3	0.0	1.3	123.5	O K
360 min Summer	77.396	0.296	1.3	0.0	1.3	133.7	O K
480 min Summer	77.409	0.309	1.3	0.0	1.3	139.9	O K
600 min Summer	77.417	0.317	1.3	0.0	1.3	144.0	O K
720 min Summer	77.422	0.322	1.3	0.0	1.3	146.8	O K
960 min Summer	77.428	0.328	1.3	0.0	1.3	149.6	O K
1440 min Summer	77.428	0.328	1.3	0.0	1.3	150.0	O K
2160 min Summer	77.425	0.325	1.3	0.0	1.3	148.2	O K
2880 min Summer	77.419	0.319	1.3	0.0	1.3	145.0	O K
4320 min Summer	77.403	0.303	1.3	0.0	1.3	136.9	O K
5760 min Summer	77.385	0.285	1.3	0.0	1.3	128.2	O K
7200 min Summer	77.368	0.268	1.3	0.0	1.3	119.6	O K
8640 min Summer	77.350	0.250	1.3	0.0	1.3	110.9	O K
10080 min Summer	77.332	0.232	1.3	0.0	1.3	102.0	O K
15 min Winter	77.240	0.140	1.3	0.0	1.3	59.6	O K
30 min Winter	77.279	0.179	1.3	0.0	1.3	77.3	O K


Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Overflow Volume (m ³)	Time-Peak (mins)
15 min Summer	31.246	0.0	52.9	0.0	23
30 min Summer	20.306	0.0	66.6	0.0	38
60 min Summer	12.800	0.0	88.4	0.0	68
120 min Summer	7.903	0.0	109.3	0.0	126
180 min Summer	5.931	0.0	122.1	0.0	186
240 min Summer	4.833	0.0	131.0	0.0	246
360 min Summer	3.601	0.0	142.2	0.0	364
480 min Summer	2.913	0.0	147.7	0.0	484
600 min Summer	2.471	0.0	149.4	0.0	604
720 min Summer	2.161	0.0	148.6	0.0	722
960 min Summer	1.748	0.0	142.8	0.0	962
1440 min Summer	1.296	0.0	138.0	0.0	1282
2160 min Summer	0.962	0.0	239.7	0.0	1664
2880 min Summer	0.779	0.0	256.9	0.0	2048
4320 min Summer	0.577	0.0	260.4	0.0	2896
5760 min Summer	0.467	0.0	310.2	0.0	3744
7200 min Summer	0.396	0.0	329.1	0.0	4544
8640 min Summer	0.347	0.0	345.4	0.0	5368
10080 min Summer	0.310	0.0	360.0	0.0	6248
15 min Winter	31.246	0.0	58.7	0.0	22
30 min Winter	20.306	0.0	72.3	0.0	37

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Summary of Results for 1 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Overflow (l/s)	Max Outflow (l/s)	Max Volume (m ³)	Status
60 min Winter	77.321	0.221	1.3	0.0	1.3	96.6	O K
120 min Winter	77.364	0.264	1.3	0.0	1.3	117.4	O K
180 min Winter	77.389	0.289	1.3	0.0	1.3	130.1	O K
240 min Winter	77.407	0.307	1.3	0.0	1.3	139.2	O K
360 min Winter	77.431	0.331	1.3	0.0	1.3	151.2	O K
480 min Winter	77.445	0.345	1.3	0.0	1.3	158.6	O K
600 min Winter	77.455	0.355	1.3	0.0	1.3	163.8	O K
720 min Winter	77.462	0.362	1.3	0.0	1.3	167.4	O K
960 min Winter	77.470	0.370	1.3	0.0	1.3	171.7	O K
1440 min Winter	77.474	0.374	1.3	0.0	1.3	173.7	O K
2160 min Winter	77.467	0.367	1.3	0.0	1.3	170.4	O K
2880 min Winter	77.459	0.359	1.3	0.0	1.3	165.9	O K
4320 min Winter	77.435	0.335	1.3	0.0	1.3	153.4	O K
5760 min Winter	77.408	0.308	1.3	0.0	1.3	139.3	O K
7200 min Winter	77.378	0.278	1.3	0.0	1.3	124.7	O K
8640 min Winter	77.347	0.247	1.3	0.0	1.3	109.4	O K
10080 min Winter	77.308	0.208	1.3	0.0	1.3	90.8	O K


Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Overflow Volume (m ³)	Time-Peak (mins)
60 min Winter	12.800	0.0	99.1	0.0	66
120 min Winter	7.903	0.0	121.7	0.0	124
180 min Winter	5.931	0.0	134.5	0.0	184
240 min Winter	4.833	0.0	143.0	0.0	242
360 min Winter	3.601	0.0	151.0	0.0	358
480 min Winter	2.913	0.0	152.1	0.0	476
600 min Winter	2.471	0.0	149.7	0.0	590
720 min Winter	2.161	0.0	145.9	0.0	706
960 min Winter	1.748	0.0	144.4	0.0	932
1440 min Winter	1.296	0.0	146.5	0.0	1368
2160 min Winter	0.962	0.0	267.7	0.0	1732
2880 min Winter	0.779	0.0	282.7	0.0	2192
4320 min Winter	0.577	0.0	268.1	0.0	3116
5760 min Winter	0.467	0.0	347.4	0.0	4040
7200 min Winter	0.396	0.0	368.6	0.0	4968
8640 min Winter	0.347	0.0	386.9	0.0	5872
10080 min Winter	0.310	0.0	403.2	0.0	6760

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Summary of Results for 30 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Overflow (l/s)	Max Outflow (l/s)	Max Volume (m ³)	Status
15 min Summer	77.393	0.293	1.2	0.0	1.2	131.8	O K
30 min Summer	77.468	0.368	1.2	0.0	1.2	170.4	O K
60 min Summer	77.540	0.440	1.3	0.0	1.3	210.0	O K
120 min Summer	77.610	0.510	1.3	0.0	1.3	249.9	O K
180 min Summer	77.649	0.549	1.2	0.0	1.2	272.6	O K
240 min Summer	77.674	0.574	1.2	0.0	1.2	288.1	O K
360 min Summer	77.708	0.608	1.3	0.0	1.3	308.8	O K
480 min Summer	77.730	0.630	1.3	0.0	1.3	322.8	O K
600 min Summer	77.746	0.646	1.3	0.0	1.3	332.6	O K
720 min Summer	77.757	0.657	1.3	0.0	1.3	339.7	O K
960 min Summer	77.771	0.671	1.3	0.0	1.3	348.6	O K
1440 min Summer	77.779	0.679	1.3	0.0	1.3	354.4	O K
2160 min Summer	77.771	0.671	1.3	0.0	1.3	349.1	O K
2880 min Summer	77.759	0.659	1.3	0.0	1.3	341.4	O K
4320 min Summer	77.734	0.634	1.3	0.0	1.3	325.5	O K
5760 min Summer	77.710	0.610	1.3	0.0	1.3	310.1	O K
7200 min Summer	77.686	0.586	1.3	0.0	1.3	295.4	O K
8640 min Summer	77.663	0.563	1.3	0.0	1.3	281.5	O K
10080 min Summer	77.641	0.541	1.3	0.0	1.3	268.2	O K
15 min Winter	77.424	0.324	1.2	0.0	1.2	147.7	O K
30 min Winter	77.506	0.406	1.2	0.0	1.2	191.0	O K


Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Overflow Volume (m ³)	Time-Peak (mins)
15 min Summer	76.671	0.0	69.6	0.0	23
30 min Summer	49.712	0.0	76.7	0.0	38
60 min Summer	30.811	0.0	155.5	0.0	68
120 min Summer	18.537	0.0	167.2	0.0	128
180 min Summer	13.628	0.0	175.4	0.0	186
240 min Summer	10.910	0.0	180.8	0.0	246
360 min Summer	7.952	0.0	187.6	0.0	366
480 min Summer	6.352	0.0	191.9	0.0	486
600 min Summer	5.333	0.0	194.7	0.0	606
720 min Summer	4.621	0.0	196.6	0.0	724
960 min Summer	3.685	0.0	198.4	0.0	964
1440 min Summer	2.675	0.0	197.5	0.0	1442
2160 min Summer	1.940	0.0	371.1	0.0	2012
2880 min Summer	1.543	0.0	371.7	0.0	2340
4320 min Summer	1.117	0.0	358.4	0.0	3112
5760 min Summer	0.887	0.0	589.8	0.0	3920
7200 min Summer	0.742	0.0	614.6	0.0	4760
8640 min Summer	0.641	0.0	615.0	0.0	5616
10080 min Summer	0.567	0.0	582.4	0.0	6448
15 min Winter	76.671	0.0	71.6	0.0	23
30 min Winter	49.712	0.0	81.0	0.0	37

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Summary of Results for 30 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Overflow (l/s)	Max Outflow (l/s)	Max Volume (m ³)	Status
60 min Winter	77.585	0.485	1.2	0.0	1.2	235.5	O K
120 min Winter	77.662	0.562	1.2	0.0	1.2	280.6	O K
180 min Winter	77.704	0.604	1.3	0.0	1.3	306.5	O K
240 min Winter	77.732	0.632	1.3	0.0	1.3	324.2	O K
360 min Winter	77.770	0.670	1.3	0.0	1.3	348.3	O K
480 min Winter	77.795	0.695	1.3	0.0	1.3	364.8	O K
600 min Winter	77.813	0.713	1.4	0.0	1.4	376.6	O K
720 min Winter	77.826	0.726	1.4	0.0	1.4	385.4	O K
960 min Winter	77.844	0.744	1.4	0.0	1.4	397.2	O K
1440 min Winter	77.858	0.758	1.4	0.0	1.4	407.3	O K
2160 min Winter	77.857	0.757	1.4	0.0	1.4	406.3	O K
2880 min Winter	77.843	0.743	1.4	0.0	1.4	396.7	O K
4320 min Winter	77.814	0.714	1.4	0.0	1.4	377.0	O K
5760 min Winter	77.782	0.682	1.3	0.0	1.3	356.1	O K
7200 min Winter	77.749	0.649	1.3	0.0	1.3	335.0	O K
8640 min Winter	77.717	0.617	1.3	0.0	1.3	314.6	O K
10080 min Winter	77.685	0.585	1.3	0.0	1.3	294.9	O K


Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Overflow Volume (m ³)	Time-Peak (mins)
60 min Winter	30.811	0.0	161.4	0.0	68
120 min Winter	18.537	0.0	177.4	0.0	126
180 min Winter	13.628	0.0	185.9	0.0	184
240 min Winter	10.910	0.0	191.3	0.0	244
360 min Winter	7.952	0.0	198.1	0.0	360
480 min Winter	6.352	0.0	202.3	0.0	478
600 min Winter	5.333	0.0	204.9	0.0	596
720 min Winter	4.621	0.0	206.6	0.0	712
960 min Winter	3.685	0.0	208.0	0.0	944
1440 min Winter	2.675	0.0	206.2	0.0	1400
2160 min Winter	1.940	0.0	393.9	0.0	2056
2880 min Winter	1.543	0.0	393.3	0.0	2656
4320 min Winter	1.117	0.0	378.3	0.0	3324
5760 min Winter	0.887	0.0	659.8	0.0	4216
7200 min Winter	0.742	0.0	674.2	0.0	5120
8640 min Winter	0.641	0.0	647.9	0.0	6048
10080 min Winter	0.567	0.0	631.1	0.0	6952

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Summary of Results for 100 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Overflow (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	77.469	0.369	1.2	0.0	1.2	171.3	O K
30 min Summer	77.564	0.464	1.2	0.0	1.2	223.4	O K
60 min Summer	77.656	0.556	1.2	0.0	1.2	276.8	O K
120 min Summer	77.741	0.641	1.3	0.0	1.3	329.8	O K
180 min Summer	77.787	0.687	1.3	0.0	1.3	359.4	O K
240 min Summer	77.817	0.717	1.4	0.0	1.4	378.9	O K
360 min Summer	77.855	0.755	1.4	0.0	1.4	405.1	O K
480 min Summer	77.881	0.781	1.6	0.0	1.6	422.7	O K
600 min Summer	77.897	0.797	2.0	0.0	2.0	433.9	O K
720 min Summer	77.907	0.807	2.2	0.0	2.2	440.7	O K
960 min Summer	77.915	0.815	2.4	0.0	2.4	446.5	O K
1440 min Summer	77.913	0.813	2.4	0.0	2.4	445.4	O K
2160 min Summer	77.907	0.807	2.2	0.0	2.2	441.3	O K
2880 min Summer	77.900	0.800	2.1	0.0	2.1	436.3	O K
4320 min Summer	77.883	0.783	1.7	0.0	1.7	424.5	O K
5760 min Summer	77.861	0.761	1.4	0.0	1.4	408.9	O K
7200 min Summer	77.833	0.733	1.4	0.0	1.4	390.0	O K
8640 min Summer	77.807	0.707	1.4	0.0	1.4	372.5	O K
10080 min Summer	77.782	0.682	1.3	0.0	1.3	356.0	O K
15 min Winter	77.508	0.408	1.2	0.0	1.2	191.9	O K
30 min Winter	77.611	0.511	1.2	0.0	1.2	250.4	O K


Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Overflow Volume (m³)	Time-Peak (mins)
15 min Summer	99.536	0.0	76.9	0.0	23
30 min Summer	65.075	0.0	87.2	0.0	38
60 min Summer	40.510	0.0	175.9	0.0	68
120 min Summer	24.362	0.0	192.7	0.0	128
180 min Summer	17.855	0.0	201.1	0.0	188
240 min Summer	14.239	0.0	206.3	0.0	246
360 min Summer	10.317	0.0	212.7	0.0	366
480 min Summer	8.210	0.0	217.5	0.0	486
600 min Summer	6.871	0.0	223.1	0.0	604
720 min Summer	5.939	0.0	228.6	0.0	724
960 min Summer	4.714	0.0	237.0	0.0	962
1440 min Summer	3.400	0.0	244.8	0.0	1316
2160 min Summer	2.448	0.0	444.1	0.0	1708
2880 min Summer	1.937	0.0	440.0	0.0	2132
4320 min Summer	1.391	0.0	409.6	0.0	3072
5760 min Summer	1.099	0.0	721.2	0.0	4032
7200 min Summer	0.915	0.0	705.0	0.0	4832
8640 min Summer	0.787	0.0	688.2	0.0	5704
10080 min Summer	0.693	0.0	666.5	0.0	6464
15 min Winter	99.536	0.0	81.3	0.0	23
30 min Winter	65.075	0.0	91.9	0.0	38

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Summary of Results for 100 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Overflow (l/s)	Max Outflow (l/s)	Max Volume (m ³)	Status
60 min Winter	77.710	0.610	1.3	0.0	1.3	310.4	O K
120 min Winter	77.804	0.704	1.4	0.0	1.4	370.3	O K
180 min Winter	77.854	0.754	1.4	0.0	1.4	403.9	O K
240 min Winter	77.885	0.785	1.7	0.0	1.7	425.8	O K
360 min Winter	77.924	0.824	2.6	0.0	2.6	452.9	O K
480 min Winter	77.946	0.846	2.8	0.0	2.8	469.2	O K
600 min Winter	77.962	0.862	2.8	0.0	2.8	480.2	O K
720 min Winter	77.972	0.872	2.8	0.0	2.8	487.8	O K
960 min Winter	77.984	0.884	2.8	0.0	2.8	496.4	O K
1440 min Winter	77.987	0.887	2.8	0.0	2.8	498.6	O K
2160 min Winter	77.976	0.876	2.8	0.0	2.8	490.8	O K
2880 min Winter	77.964	0.864	2.8	0.0	2.8	481.9	O K
4320 min Winter	77.935	0.835	2.8	0.0	2.8	461.2	O K
5760 min Winter	77.914	0.814	2.4	0.0	2.4	446.0	O K
7200 min Winter	77.896	0.796	2.0	0.0	2.0	433.3	O K
8640 min Winter	77.876	0.776	1.6	0.0	1.6	419.5	O K
10080 min Winter	77.845	0.745	1.4	0.0	1.4	398.2	O K


Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Overflow Volume (m ³)	Time-Peak (mins)
60 min Winter	40.510	0.0	186.5	0.0	68
120 min Winter	24.362	0.0	203.7	0.0	126
180 min Winter	17.855	0.0	212.3	0.0	184
240 min Winter	14.239	0.0	218.7	0.0	244
360 min Winter	10.317	0.0	234.8	0.0	360
480 min Winter	8.210	0.0	248.8	0.0	476
600 min Winter	6.871	0.0	259.2	0.0	590
720 min Winter	5.939	0.0	267.1	0.0	706
960 min Winter	4.714	0.0	278.1	0.0	930
1440 min Winter	3.400	0.0	289.4	0.0	1358
2160 min Winter	2.448	0.0	502.0	0.0	1688
2880 min Winter	1.937	0.0	506.6	0.0	2136
4320 min Winter	1.391	0.0	482.2	0.0	3028
5760 min Winter	1.099	0.0	797.2	0.0	3976
7200 min Winter	0.915	0.0	767.2	0.0	4968
8640 min Winter	0.787	0.0	743.7	0.0	6048
10080 min Winter	0.693	0.0	716.6	0.0	7056

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Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Overflow (l/s)	Max Outflow (l/s)	Max Volume (m ³)	Status
15 min Summer	77.593	0.493	1.2	0.0	1.2	240.1	O K
30 min Summer	77.715	0.615	1.3	0.0	1.3	313.3	O K
60 min Summer	77.831	0.731	1.4	0.0	1.4	388.6	O K
120 min Summer	77.937	0.837	2.8	0.0	2.8	462.1	O K
180 min Summer	77.991	0.891	2.8	0.0	2.8	502.0	O K
240 min Summer	78.024	0.924	2.9	0.0	2.9	528.0	O K
360 min Summer	78.061	0.961	3.1	0.0	3.1	561.9	O K
480 min Summer	78.082	0.982	3.1	0.0	3.1	583.9	O K
600 min Summer	78.095	0.995	3.2	0.0	3.2	598.7	O K
720 min Summer	78.103	1.003	3.2	0.0	3.2	608.7	O K
960 min Summer	78.112	1.012	3.3	0.0	3.3	619.4	O K
1440 min Summer	78.113	1.013	3.3	0.0	3.3	620.9	O K
2160 min Summer	78.109	1.009	3.2	0.0	3.2	615.3	O K
2880 min Summer	78.101	1.001	3.2	0.0	3.2	606.5	O K
4320 min Summer	78.081	0.981	3.1	0.0	3.1	582.8	O K
5760 min Summer	78.056	0.956	3.0	0.0	3.0	557.2	O K
7200 min Summer	78.031	0.931	2.9	0.0	2.9	533.3	O K
8640 min Summer	78.004	0.904	2.8	0.0	2.8	511.9	O K
10080 min Summer	77.977	0.877	2.8	0.0	2.8	491.6	O K
15 min Winter	77.643	0.543	1.2	0.0	1.2	269.0	O K
30 min Winter	77.774	0.674	1.3	0.0	1.3	351.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Overflow Volume (m ³)	Time-Peak (mins)
15 min Summer	139.350	0.0	90.3	0.0	23
30 min Summer	91.106	0.0	101.7	0.0	38
60 min Summer	56.713	0.0	208.5	0.0	68
120 min Summer	34.106	0.0	239.2	0.0	128
180 min Summer	24.997	0.0	265.5	0.0	186
240 min Summer	19.934	0.0	283.2	0.0	246
360 min Summer	14.444	0.0	308.7	0.0	366
480 min Summer	11.493	0.0	327.4	0.0	484
600 min Summer	9.620	0.0	341.7	0.0	604
720 min Summer	8.314	0.0	353.1	0.0	724
960 min Summer	6.600	0.0	370.0	0.0	962
1440 min Summer	4.760	0.0	390.3	0.0	1342
2160 min Summer	3.427	0.0	626.8	0.0	1672
2880 min Summer	2.712	0.0	637.6	0.0	2052
4320 min Summer	1.948	0.0	635.0	0.0	2892
5760 min Summer	1.538	0.0	979.4	0.0	3696
7200 min Summer	1.281	0.0	962.4	0.0	4536
8640 min Summer	1.102	0.0	941.0	0.0	5360
10080 min Summer	0.970	0.0	907.4	0.0	6152
15 min Winter	139.350	0.0	95.1	0.0	23
30 min Winter	91.106	0.0	106.8	0.0	38

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Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Overflow (l/s)	Max Outflow (l/s)	Max Volume (m ³)	Status
60 min Winter	77.899	0.799	2.0	0.0	2.0	435.3	O K
120 min Winter	78.011	0.911	2.8	0.0	2.8	517.4	O K
180 min Winter	78.062	0.962	3.1	0.0	3.1	563.1	O K
240 min Winter	78.090	0.990	3.2	0.0	3.2	592.9	O K
360 min Winter	78.122	1.022	3.3	0.0	3.3	632.1	O K
480 min Winter	78.141	1.041	3.4	0.0	3.4	658.2	O K
600 min Winter	78.154	1.054	3.4	0.0	3.4	676.2	O K
720 min Winter	78.163	1.063	3.4	0.0	3.4	688.9	O K
960 min Winter	78.173	1.073	3.5	0.0	3.5	704.0	O K
1440 min Winter	78.178	1.078	3.5	0.0	3.5	711.8	O K
2160 min Winter	78.171	1.071	3.5	0.0	3.5	701.0	O K
2880 min Winter	78.163	1.063	3.4	0.0	3.4	689.8	O K
4320 min Winter	78.140	1.040	3.4	0.0	3.4	656.7	O K
5760 min Winter	78.112	1.012	3.3	0.0	3.3	619.7	O K
7200 min Winter	78.083	0.983	3.1	0.0	3.1	584.9	O K
8640 min Winter	78.053	0.953	3.0	0.0	3.0	553.8	O K
10080 min Winter	78.023	0.923	2.9	0.0	2.9	526.7	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Overflow Volume (m ³)	Time-Peak (mins)
60 min Winter	56.713	0.0	223.0	0.0	68
120 min Winter	34.106	0.0	273.0	0.0	126
180 min Winter	24.997	0.0	303.0	0.0	184
240 min Winter	19.934	0.0	323.7	0.0	242
360 min Winter	14.444	0.0	353.2	0.0	360
480 min Winter	11.493	0.0	374.9	0.0	476
600 min Winter	9.620	0.0	391.5	0.0	592
720 min Winter	8.314	0.0	404.7	0.0	708
960 min Winter	6.600	0.0	424.7	0.0	934
1440 min Winter	4.760	0.0	443.2	0.0	1372
2160 min Winter	3.427	0.0	698.9	0.0	1752
2880 min Winter	2.712	0.0	712.8	0.0	2192
4320 min Winter	1.948	0.0	715.1	0.0	3112
5760 min Winter	1.538	0.0	1076.9	0.0	3984
7200 min Winter	1.281	0.0	1078.4	0.0	4832
8640 min Winter	1.102	0.0	1055.3	0.0	5704
10080 min Winter	0.970	0.0	1018.3	0.0	6464