

MJA Consulting				Page 2			
54-62 Oak Street		Retail Area					
Abingdon		Oldlands Farm					
Oxon OX14 5BZ							
Date 19/06/2013 11:27		Designed by mcshane					
File Development prop...		Checked by					
Micro Drainage		Source Control 2013.1					
Cascade Summary of Results for Retail Parking Area.srx							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Central X (l/s)	Max Outflow (l/s)	Max Volume (m³)	Status
15 min Winter	2.789	0.239	0.0	5.1	5.1	612.6	OK
30 min Winter	2.787	0.287	0.0	5.6	5.6	839.1	OK
60 min Winter	2.871	0.371	0.0	6.3	6.3	1066.2	OK
120 min Winter	2.953	0.453	0.0	7.0	7.0	1346.8	OK
180 min Winter	3.011	0.511	0.0	7.4	7.4	1496.8	OK
240 min Winter	3.046	0.546	0.0	7.7	7.7	1596.2	OK
360 min Winter	3.093	0.593	0.0	8.0	8.0	1734.4	OK
480 min Winter	3.136	0.636	0.0	8.2	8.2	1830.2	Flood Risk
600 min Winter	3.149	0.649	0.0	8.4	8.4	1899.7	Flood Risk
720 min Winter	3.167	0.667	0.0	8.5	8.5	1951.6	Flood Risk
840 min Winter	3.191	0.691	0.0	8.6	8.6	2021.5	Flood Risk
1440 min Winter	3.213	0.712	0.0	8.8	8.8	2083.9	Flood Risk
2160 min Winter	3.213	0.713	0.0	8.8	8.8	2086.3	Flood Risk
2880 min Winter	3.206	0.706	0.0	8.7	8.7	2065.2	Flood Risk
4320 min Winter	3.183	0.682	0.0	8.6	8.6	1995.1	Flood Risk
5760 min Winter	3.149	0.649	0.0	8.4	8.4	1899.7	Flood Risk
7200 min Winter	3.113	0.613	0.0	8.1	8.1	1797.2	Flood Risk
8640 min Winter	3.078	0.578	0.0	7.9	7.9	1691.2	OK
10080 min Winter	3.043	0.543	0.0	7.7	7.7	1593.7	OK
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
15 min Winter	115.731	0.0	361.3	38			
30 min Winter	77.804	0.0	431.3	52			
60 min Winter	49.937	0.0	841.3	80			
120 min Winter	35.986	0.0	964.5	136			
180 min Winter	23.858	0.0	1011.3	196			
240 min Winter	18.577	0.0	1045.8	252			
360 min Winter	12.656	0.0	1095.8	358			
480 min Winter	10.874	0.0	1137.0	484			
600 min Winter	9.254	0.0	1146.3	608			
720 min Winter	8.046	0.0	1157.8	716			
840 min Winter	6.447	0.0	1165.5	846			
1440 min Winter	4.389	0.0	1144.3	1392			
2160 min Winter	3.432	0.0	2159.0	2098			
2880 min Winter	2.739	0.0	2146.3	2264			
4320 min Winter	1.989	0.0	2028.1	3180			
5760 min Winter	1.583	0.0	3234.5	4096			
7200 min Winter	1.325	0.0	3325.0	4976			
8640 min Winter	1.147	0.0	3354.7	5816			
10080 min Winter	1.015	0.0	3278.3	6672			
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58-62 Oak Street	Retail Area	
Abingdon	Oldlands Farm	
Oxon OX14 582		
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Micro Drainage	Source Control 2013.1	

Cascade Model Details for Retail Parking Area.srcc

Storage is Online Cover Level (m) 3.250

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	75.0
Membrane Percolation (mm/hr)	1000	Length (m)	136.0
Max Percolation (l/s)	2768.3	Slope (1%)	0.0
Safety Factor	1.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	0
Invert Level (m)	2.500	Cap Volume Depth (m)	0.000

Hydro-Brake® Outflow Control

Design Head (m) 0.750 Hydro-Brake® Type Md7 Invert Level (m) 2.500

Design Flow (l/s) 9.6 Diameter (mm) 124

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.1	1.200	11.4	3.000	18.0	7.000	27.5
0.200	4.8	1.400	12.3	3.500	19.4	7.500	28.4
0.300	5.7	1.600	13.1	4.000	20.8	8.000	29.3
0.400	6.6	1.800	13.9	4.500	22.0	8.500	30.3
0.500	7.3	2.000	14.7	5.000	23.2	9.000	31.1
0.600	8.0	2.200	15.4	5.500	24.3	9.500	32.0
0.800	9.3	2.400	16.1	6.000	25.4		
1.000	10.4	2.600	16.7	6.500	26.5		

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58-52 Oak Street	Emp 1	
Abingdon	Oldlands Farm	
Oxon OX14 582		
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Micro Drainage	Source Control 2013.1	

Cascade Summary of Results for Employment Area 1.srcc

Upstream Structures	Outflow To	Overflow To
(None)	Pinal Pond.srcc	(None)

Half Drain Time : 1185 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control E (l/s)	Max Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	2.423	0.173	0.0	2.4	2.4	155.6	OK
30 min Summer	2.487	0.237	0.0	2.8	2.8	213.5	OK
60 min Summer	2.557	0.307	0.0	3.2	3.2	276.0	OK
120 min Summer	2.627	0.377	0.0	3.5	3.5	339.7	OK
180 min Summer	2.666	0.416	0.0	3.7	3.7	374.6	OK
240 min Summer	2.690	0.440	0.0	3.8	3.8	398.4	OK
360 min Summer	2.721	0.473	0.0	3.9	3.9	423.8	OK
480 min Summer	2.739	0.489	0.0	4.0	4.0	439.9	OK
600 min Summer	2.749	0.499	0.0	4.0	4.0	449.3	OK
720 min Summer	2.754	0.504	0.0	4.1	4.1	457.9	OK
840 min Summer	2.758	0.508	0.0	4.1	4.1	467.1	OK
1440 min Summer	2.758	0.508	0.0	4.1	4.1	467.6	OK
2160 min Summer	2.750	0.500	0.0	4.0	4.0	449.6	OK
2880 min Summer	2.734	0.484	0.0	4.0	4.0	436.0	OK
4320 min Summer	2.699	0.449	0.0	3.8	3.8	403.7	OK
5760 min Summer	2.662	0.412	0.0	3.7	3.7	371.1	OK
7200 min Summer	2.623	0.373	0.0	3.5	3.5	341.1	OK
8640 min Summer	2.599	0.349	0.0	3.4	3.4	314.3	OK
10080 min Summer	2.573	0.323	0.0	3.2	3.2	290.8	OK

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	115.733	0.0	127.2	34
30 min Summer	77.894	0.0	173.1	48
60 min Summer	49.937	0.0	264.4	76
120 min Summer	30.996	0.0	338.7	134
180 min Summer	23.658	0.0	369.5	192
240 min Summer	18.577	0.0	385.9	250
360 min Summer	13.656	0.0	432.5	368
480 min Summer	10.974	0.0	457.4	486
600 min Summer	9.254	0.0	474.2	602
720 min Summer	8.046	0.0	485.1	720
840 min Summer	6.447	0.0	493.9	840
1440 min Summer	4.709	0.0	492.8	1080
2160 min Summer	3.432	0.0	495.0	1408
2880 min Summer	2.739	0.0	733.2	1904
4320 min Summer	1.989	0.0	769.6	2728
5760 min Summer	1.583	0.0	854.5	3520
7200 min Summer	1.325	0.0	886.6	4328
8640 min Summer	1.147	0.0	912.3	5104
10080 min Summer	1.013	0.0	936.7	5836

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58-62 Ock Street		Emp 1					
Abingdon		Oldlands Farm					
Oxon OX14 5BE							
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File Development prop...		Checked by					
Micro Drainage		Source Control 2013.1					
Cascade Summary of Results for Employment Area 1.sxcX							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control 2 (l/s)	Max Outflow Volume (l/s)	Max Volume (m³)	Status
15 min Winter	2.446	0.186	0.0	2.5	2.5	176.2	O K
30 min Winter	2.518	0.268	0.0	3.0	3.0	241.3	O K
60 min Winter	2.596	0.346	0.0	3.4	3.4	311.5	O K
120 min Winter	2.676	0.426	0.0	3.7	3.7	383.3	O K
180 min Winter	2.720	0.470	0.0	3.9	3.9	423.0	O K
240 min Winter	2.748	0.498	0.0	4.0	4.0	448.2	O K
360 min Winter	2.783	0.533	0.0	4.2	4.2	489.1	O K
480 min Winter	2.805	0.555	0.0	4.3	4.3	499.6	O K
600 min Winter	2.818	0.568	0.0	4.3	4.3	511.4	O K
720 min Winter	2.826	0.576	0.0	4.3	4.3	518.3	O K
840 min Winter	2.833	0.581	0.0	4.4	4.4	523.8	O K
1440 min Winter	2.827	0.577	0.0	4.3	4.3	519.0	O K
2160 min Winter	2.811	0.561	0.0	4.3	4.3	505.1	O K
2880 min Winter	2.787	0.537	0.0	4.2	4.2	483.5	O K
4320 min Winter	2.723	0.483	0.0	4.0	4.0	434.4	O K
5760 min Winter	2.680	0.430	0.0	3.7	3.7	387.1	O K
7200 min Winter	2.633	0.383	0.0	3.5	3.5	344.6	O K
8640 min Winter	2.592	0.342	0.0	3.3	3.3	307.8	O K
10080 min Winter	2.557	0.307	0.0	3.2	3.2	275.9	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
15 min Winter	115.731	0.0	144.0	34			
30 min Winter	77.804	0.0	192.0	48			
60 min Winter	49.937	0.0	298.2	76			
120 min Winter	30.956	0.0	371.4	132			
180 min Winter	23.858	0.0	413.6	196			
240 min Winter	18.577	0.0	441.8	246			
360 min Winter	13.656	0.0	478.5	362			
480 min Winter	10.373	0.0	503.2	476			
600 min Winter	9.254	0.0	517.4	538			
720 min Winter	8.046	0.0	525.1	700			
840 min Winter	6.847	0.0	532.8	814			
1440 min Winter	4.789	0.0	534.7	1142			
2160 min Winter	3.432	0.0	751.0	1694			
2880 min Winter	2.739	0.0	873.3	2056			
4320 min Winter	1.989	0.0	854.5	2948			
5760 min Winter	1.583	0.0	953.7	3760			
7200 min Winter	1.325	0.0	1000.9	4698			
8640 min Winter	1.147	0.0	1031.2	5368			
10080 min Winter	1.015	0.0	1054.1	6160			
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58-62 Oak Street	Emp 1	
Abingdon	Oldlands Farm	
Oxon OX14 5BZ		
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Micro Drainage	Source Control 2013.1	

Cascade Model Details for Employment Area 1.sxcx

Storage is Online Cover Level (m) 3.000

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	30.0
Membrane Percolation (mm/hr)	1000	Length (m)	100.0
Max Percolation (l/s)	833.3	Slope (1:X)	0.0
Safety Factor	1.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	2.250	Cap Volume Depth (m)	0.000

Hydro-Brake® Outflow Control

Design Head (m) 0.750 Hydro-Brake® Type M37 Invert Level (m) 2.250

Design Flow (l/s) 9.0 Diameter (mm) 92

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.1	1.200	6.3	3.000	9.9	7.000	15.1
0.200	2.6	1.400	6.8	3.500	10.7	7.500	15.6
0.300	3.1	1.600	7.2	4.000	11.4	8.000	16.2
0.400	3.6	1.800	7.7	4.500	12.1	8.500	16.7
0.500	4.0	2.000	8.1	5.000	12.8	9.000	17.1
0.600	4.4	2.200	8.5	5.500	13.4	9.500	17.6
0.800	5.1	2.400	8.8	6.000	14.0		
1.000	5.7	2.600	9.2	6.500	14.6		

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58-62 Oak Street	Emp 2	
Abingdon	Oldlands Farm	
Oxon OX14 5BE		
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Micro Drainage	Source Control 2013.1	

Cascade Summary of Results for Employment Area 2.srccx

Upstream Structures	Outflow To	Overflow To
(None)	Final Pond.srccx	(None)

Half Drain Time : 1675 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	2.293	0.142	0.0	2.4	2.4	191.1	OK
30 min Summer	2.446	0.196	0.0	2.5	2.5	264.3	OK
60 min Summer	2.504	0.254	0.0	2.9	2.9	342.5	OK
120 min Summer	2.545	0.315	0.0	3.2	3.2	425.0	OK
180 min Summer	2.600	0.350	0.0	3.4	3.4	472.2	OK
240 min Summer	2.622	0.372	0.0	3.5	3.5	502.4	OK
360 min Summer	2.652	0.402	0.0	3.6	3.6	542.4	OK
480 min Summer	2.671	0.421	0.0	3.7	3.7	568.6	OK
600 min Summer	2.684	0.434	0.0	3.8	3.8	585.1	OK
720 min Summer	2.693	0.443	0.0	3.8	3.8	597.8	OK
960 min Summer	2.702	0.452	0.0	3.8	3.8	615.2	OK
1440 min Summer	2.704	0.456	0.0	3.9	3.9	615.5	OK
2160 min Summer	2.705	0.455	0.0	3.9	3.9	613.8	OK
2880 min Summer	2.698	0.448	0.0	3.8	3.8	605.4	OK
4320 min Summer	2.678	0.428	0.0	3.7	3.7	578.3	OK
5760 min Summer	2.655	0.405	0.0	3.6	3.6	546.5	OK
7200 min Summer	2.631	0.381	0.0	3.5	3.5	514.3	OK
8640 min Summer	2.609	0.359	0.0	3.4	3.4	484.2	OK
10080 min Summer	2.588	0.338	0.0	3.3	3.3	456.3	OK

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	115.121	0.0	194.5	37
30 min Summer	77.804	0.0	180.3	50
60 min Summer	49.937	0.0	304.4	80
120 min Summer	30.956	0.0	376.1	138
180 min Summer	23.050	0.0	414.2	196
240 min Summer	18.577	0.0	437.3	254
360 min Summer	13.656	0.0	463.2	370
480 min Summer	10.974	0.0	475.6	480
600 min Summer	9.254	0.0	481.3	600
720 min Summer	8.046	0.0	486.9	720
960 min Summer	6.447	0.0	499.8	960
1440 min Summer	4.705	0.0	487.4	1228
2160 min Summer	3.432	0.0	924.5	1596
2880 min Summer	2.739	0.0	849.8	1996
4320 min Summer	1.885	0.0	617.1	2820
5760 min Summer	1.583	0.0	1046.5	3640
7200 min Summer	1.325	0.0	1082.1	4464
8640 min Summer	1.147	0.0	1108.3	5272
10080 min Summer	1.015	0.0	1125.2	6056

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24-22 Oak Street		Emp 2					
Abingdon		Oldlands Farm					
Oxon OX14 5SS							
Date 18/06/2013 11:27		Designed by mcshane					
File Development prop...		Checked by					
Micro Drainage		Source Control 2013.1					
Cascade Summary of Results for Employment Area 2.srcc							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max S Outflow (l/s)	Max Volume (m³)	Status
15 min Winter	2.411	0.161	0.0	2.4	2.4	217.0	O K
30 min Winter	2.471	0.221	0.0	2.7	2.7	239.0	O K
60 min Winter	2.537	0.287	0.0	3.1	3.1	388.0	O K
120 min Winter	2.606	0.356	0.0	3.4	3.4	488.6	O K
180 min Winter	2.645	0.395	0.0	3.6	3.6	533.2	O K
240 min Winter	2.670	0.420	0.0	3.7	3.7	567.6	O K
360 min Winter	2.705	0.455	0.0	3.9	3.9	613.6	O K
480 min Winter	2.727	0.477	0.0	3.9	3.9	644.1	O K
600 min Winter	2.743	0.493	0.0	4.0	4.0	664.9	O K
720 min Winter	2.753	0.503	0.0	4.1	4.1	679.4	O K
960 min Winter	2.766	0.516	0.0	4.1	4.1	696.3	O K
1440 min Winter	2.771	0.521	0.0	4.1	4.1	783.4	O K
2160 min Winter	2.765	0.515	0.0	4.1	4.1	695.3	O K
2880 min Winter	2.754	0.504	0.0	4.1	4.1	680.9	O K
4320 min Winter	2.723	0.473	0.0	3.9	3.9	637.9	O K
5760 min Winter	2.687	0.437	0.0	3.8	3.8	589.8	O K
7200 min Winter	2.652	0.402	0.0	3.6	3.6	542.6	O K
8640 min Winter	2.620	0.370	0.0	3.5	3.5	499.3	O K
10080 min Winter	2.580	0.340	0.0	3.3	3.3	458.7	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
15 min Winter	115.731	0.0	153.3	37			
30 min Winter	77.804	0.0	156.5	50			
60 min Winter	49.937	0.0	141.9	70			
120 min Winter	38.856	0.0	117.3	136			
180 min Winter	29.858	0.0	854.4	192			
240 min Winter	18.577	0.0	475.0	350			
360 min Winter	13.656	0.0	496.1	366			
480 min Winter	10.974	0.0	868.9	488			
600 min Winter	9.254	0.0	519.2	594			
720 min Winter	8.046	0.0	526.1	708			
960 min Winter	6.447	0.0	522.4	918			
1440 min Winter	4.709	0.0	576.6	1356			
2160 min Winter	3.432	0.0	911.9	1698			
2880 min Winter	2.739	0.0	934.5	2148			
4320 min Winter	1.989	0.0	892.5	3064			
5760 min Winter	1.583	0.0	1182.1	3928			
7200 min Winter	1.325	0.0	1223.5	4768			
8640 min Winter	1.187	0.0	1254.4	5624			
10080 min Winter	1.015	0.0	1272.6	6446			
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Abingdon	Oldlands Farm	
Oxon OX14 5SZ		
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Micro Drainage	Source Control 2013.1	

Cascade Model Details for Employment Area 2.srccx

Storage is Online Cover Level (m) 3.000

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	45.0
Membrane Percolation (mm/hr)	1000	Length (m)	100.0
Max Percolation (l/s)	1250.0	Slope (1:X)	0.0
Safety Factor	1.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	2
Invert Level (m)	2.250	Cap Volume Depth (m)	0.000

Hydro-Brake® Outflow Control

Design Head (m) 0.750 Hydro-Brake® Type M47 Invert Level (m) 2.250

Design Flow (l/s) 5.0 Diameter (mm) 92

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.3	1.200	6.3	3.000	8.9	7.000	15.1
0.200	2.6	1.400	6.8	3.500	10.7	7.500	15.8
0.300	3.1	1.600	7.2	4.000	11.4	8.000	16.2
0.400	3.6	1.800	7.7	4.500	12.1	8.500	16.7
0.500	4.0	2.000	8.1	5.000	12.8	9.000	17.1
0.600	4.4	2.200	8.5	5.500	13.4	9.500	17.6
0.800	5.1	2.400	8.8	6.000	14.0		
1.000	5.7	2.600	9.2	6.500	14.6		

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MJA Consulting		Page 1
58-62 Oak Street	Exp 3	
Abingdon	Oldlands Farm	
Oxon OX14 59Z		
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File Development prop...	Checked by	
Micro Drainage	Source Control 2013.1	

Cascade Summary of Results for Employment Area 3.srccx

Upstream Outflow To Overflow To
Structures

(None) Final Pond.srccx (None)

Half Drain Time : 1001 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max E Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	2.375	0.125	0.0	2.4	2.4	112.6	O K
30 min Summer	2.423	0.173	0.0	2.4	2.4	155.9	O K
60 min Summer	2.473	0.223	0.0	2.7	2.7	202.4	O K
120 min Summer	2.527	0.277	0.0	3.0	3.0	249.4	O K
180 min Summer	2.555	0.305	0.0	3.2	3.2	274.9	O K
240 min Summer	2.573	0.323	0.0	3.2	3.2	290.5	O K
300 min Summer	2.594	0.344	0.0	3.3	3.3	309.5	O K
360 min Summer	2.606	0.356	0.0	3.4	3.4	329.0	O K
480 min Summer	2.632	0.381	0.0	3.4	3.4	323.3	O K
600 min Summer	2.632	0.381	0.0	3.4	3.4	323.3	O K
720 min Summer	2.634	0.386	0.0	3.4	3.4	327.5	O K
960 min Summer	2.617	0.367	0.0	3.5	3.5	339.0	O K
1440 min Summer	2.636	0.386	0.0	3.5	3.5	329.8	O K
2160 min Summer	2.650	0.398	0.0	3.4	3.4	322.1	O K
2880 min Summer	2.595	0.345	0.0	3.4	3.4	316.1	O K
4320 min Summer	2.560	0.314	0.0	3.2	3.2	283.0	O K
5760 min Summer	2.535	0.285	0.0	3.1	3.1	256.6	O K
7200 min Summer	2.508	0.258	0.0	2.9	2.9	232.6	O K
8640 min Summer	2.485	0.235	0.0	2.8	2.8	211.7	O K
10080 min Summer	2.465	0.215	0.0	2.6	2.6	193.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	115.731	0.0	60.2	34
30 min Summer	77.818	0.0	128.2	49
60 min Summer	49.937	0.0	193.3	76
120 min Summer	30.956	0.0	243.9	134
180 min Summer	23.058	0.0	278.0	192
240 min Summer	18.577	0.0	294.9	250
300 min Summer	13.656	0.0	324.8	366
360 min Summer	10.874	0.0	346.7	484
480 min Summer	9.254	0.0	363.4	602
720 min Summer	8.046	0.0	376.4	882
960 min Summer	6.467	0.0	394.4	790
1440 min Summer	4.709	0.0	405.2	1040
2160 min Summer	3.432	0.0	514.3	1452
2880 min Summer	2.739	0.0	542.5	1860
4320 min Summer	1.989	0.0	575.8	2664
5760 min Summer	1.583	0.0	627.2	3464
7200 min Summer	1.325	0.0	648.9	4256
8640 min Summer	1.147	0.0	665.4	5016
10080 min Summer	1.015	0.0	676.4	5752

MJA Consulting				Page 2			
58-62 Oak Street		Emp 3					
Abingdon		Oldlands Farm					
Oxon OX14 5SZ							
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File Development prop...		Checked by					
Micro Drainage		Source Control 2013.1					
Cascade Summary of Results for Employment Area 3.srck							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max 3 Outflow (l/s)	Max Volume (m³)	Status
15 min Winter	2.392	0.142	0.0	2.4	2.4	128.0	OK
30 min Winter	2.446	0.196	0.0	2.5	2.5	176.7	OK
60 min Winter	2.504	0.254	0.0	2.9	2.9	258.9	OK
120 min Winter	2.563	0.313	0.0	3.2	3.2	282.0	OK
180 min Winter	2.596	0.346	0.0	3.4	3.4	311.0	OK
240 min Winter	2.616	0.366	0.0	3.5	3.5	329.0	OK
360 min Winter	2.640	0.390	0.0	3.6	3.6	351.2	OK
480 min Winter	2.655	0.405	0.0	3.6	3.6	364.1	OK
600 min Winter	2.662	0.412	0.0	3.7	3.7	371.2	OK
720 min Winter	2.666	0.416	0.0	3.7	3.7	374.8	OK
960 min Winter	2.667	0.417	0.0	3.7	3.7	375.5	OK
1440 min Winter	2.664	0.414	0.0	3.7	3.7	372.2	OK
2160 min Winter	2.648	0.398	0.0	3.6	3.6	358.0	OK
2880 min Winter	2.626	0.376	0.0	3.5	3.5	339.7	OK
4320 min Winter	2.581	0.331	0.0	3.3	3.3	297.7	OK
5760 min Winter	2.539	0.289	0.0	3.1	3.1	259.7	OK
7200 min Winter	2.501	0.251	0.0	2.9	2.9	226.3	OK
8640 min Winter	2.470	0.220	0.0	2.7	2.7	197.7	OK
10080 min Winter	2.442	0.192	0.0	2.5	2.5	172.5	OK
Storm Event	Rain (mm/hr)		Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)		
15 min Winter	115.733		0.0	103.9	24		
30 min Winter	77.884		0.0	145.0	48		
60 min Winter	49.937		0.0	219.9	76		
120 min Winter	30.956		0.0	275.4	132		
180 min Winter	23.658		0.0	308.9	188		
240 min Winter	18.577		0.0	331.9	246		
360 min Winter	13.656		0.0	364.8	360		
480 min Winter	10.974		0.0	398.4	474		
600 min Winter	9.254		0.0	406.0	586		
720 min Winter	8.046		0.0	419.2	696		
960 min Winter	6.467		0.0	436.7	892		
1440 min Winter	4.709		0.0	439.6	1110		
2160 min Winter	3.432		0.0	579.8	1569		
2880 min Winter	2.738		0.0	611.7	2020		
4320 min Winter	1.989		0.0	688.2	2868		
5760 min Winter	1.581		0.0	709.4	3696		
7200 min Winter	1.325		0.0	735.6	4480		
8640 min Winter	1.147		0.0	755.1	5280		
10080 min Winter	1.015		0.0	768.4	6056		
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Oldlands Farm

Designed by: ecstasy

Checked by _____

Source Control 2013.1



Cascade Rainfall Details For Employment Area 3.arcx

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
MS-60 (mm)	18,000	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10000
Summer Storms	Yes	Climate Change Δ	+30

Time Area Diagram

Total Area: 0.000

Time (mins)	Area	Time (mins)	Area	Time (mins)	Area
From: To:	(ha)	From: To:	(ha)	From: To:	(ha)
0 4	0.150	8 12	0.150	16 20	0.100
4 8	0.150	12 16	0.100		

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58-62 Oak Street	Emp. 3	
Abingdon	Oldlands Farm	
Oxon OX14 5BE		
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Micro Drainage	Source Control 2013.1	

Cascade Model Details for Employment Area 3.srcc

Storage is Online Cover Level (m) 3.000

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	60.0
Membrane Percolation (mm/hr)	1000	Length (m)	60.0
Max Percolation (l/s)	833.3	Slope (1:X)	0.6
Safety Factor	1.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	2.250	Cap Volume Depth (m)	0.000

Hydro-Brake® Outflow Control

Design Head (m) 0.756 Hydro-Brake® Type M47 Invert Level (m) 2.250

Design Flow (l/s) 5.0 Diameter (mm) 92

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.1	1.200	6.3	3.000	9.9	7.000	15.1
0.200	2.6	1.400	6.8	3.500	10.7	7.500	15.8
0.300	3.1	1.600	7.2	4.000	11.4	8.000	16.2
0.400	3.6	1.800	7.7	4.500	12.1	8.500	16.7
0.500	4.0	2.000	8.1	5.000	12.8	9.000	17.1
0.600	4.4	2.200	8.5	5.500	13.4	9.500	17.6
0.800	5.1	2.400	8.8	6.000	14.0		
1.000	5.7	2.600	9.2	6.500	14.6		

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58-62 Oak Street		Final Pond					
Abingdon		Oldlands Farm					
Oxon OX14 5BE		100 yr + CC					
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Micro Drainage		Source Control 2013.1					
Cascade Summary of Results for Final Pond.srccx							
Upstream Structures		ASDA Tank.srccx		(None)		(None)	
		Retail Parking Area.srccx					
		Employment Area 1.srccx					
		Employment Area 2.srccx					
		Employment Area 3.srccx					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Overflow (l/s)	Max Overflow 2 (l/s)	Max Outflow Volume (m³)	Status
15 min Summer	1.358	0.358	53.8	0.0	53.8	896.8	O K
30 min Summer	1.473	0.473	54.0	0.0	54.0	1344.2	O K
60 min Summer	1.589	0.589	54.0	0.0	54.0	1706.6	O K
120 min Summer	1.696	0.696	54.0	0.0	54.0	2054.5	O K
180 min Summer	1.748	0.748	54.0	0.0	54.0	2227.7	O K
240 min Summer	1.776	0.776	54.0	0.0	54.0	2323.7	O K
300 min Summer	1.806	0.806	54.0	0.0	54.0	2423.8	O K
360 min Summer	1.818	0.818	54.0	0.0	54.0	2466.9	O K
420 min Summer	1.821	0.821	54.0	0.0	54.0	2477.0	O K
480 min Summer	1.818	0.818	54.0	0.0	54.0	2467.3	O K
540 min Summer	1.805	0.805	54.0	0.0	54.0	2423.6	O K
1440 min Summer	1.779	0.779	54.0	0.0	54.0	2331.8	O K
2160 min Summer	1.738	0.738	54.0	0.0	54.0	2192.3	O K
2880 min Summer	1.692	0.692	54.0	0.0	54.0	2048.4	O K
4320 min Summer	1.594	0.594	54.0	0.0	54.0	1721.5	O K
5760 min Summer	1.495	0.495	54.0	0.0	54.0	1412.6	O K
7200 min Summer	1.408	0.408	54.0	0.0	54.0	1145.8	O K
8640 min Summer	1.338	0.338	53.6	0.0	53.6	939.3	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Overflow Volume (m³)	Time-Peak (mins)		
15 min Summer	115.781	0.0	2273.2	0.0	42		
30 min Summer	77.804	0.0	3011.1	0.0	54		
60 min Summer	49.937	0.0	4474.4	0.0	82		
120 min Summer	30.956	0.0	5472.5	0.0	138		
180 min Summer	23.058	0.0	6014.9	0.0	196		
240 min Summer	18.577	0.0	6380.9	0.0	254		
300 min Summer	13.656	0.0	6623.9	0.0	372		
360 min Summer	19.974	0.0	7139.3	0.0	488		
480 min Summer	9.254	0.0	7368.0	0.0	606		
720 min Summer	8.046	0.0	7549.6	0.0	724		
960 min Summer	6.447	0.0	7814.4	0.0	860		
1440 min Summer	4.789	0.0	7968.6	0.0	1136		
2160 min Summer	3.432	0.0	11416.0	0.0	1524		
2880 min Summer	2.739	0.0	11823.8	0.0	1932		
4320 min Summer	1.989	0.0	11888.6	0.0	2732		
5760 min Summer	1.583	0.0	14714.1	0.0	3472		
7200 min Summer	1.325	0.0	15311.4	0.0	4382		
8640 min Summer	1.147	0.0	15782.3	0.0	4856		
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58-62 Oak Street		Final Pond					
Abingdon		Oldlands Farm					
Oxon OX14 5BE		100 yr + CC					
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File Development prep...		Checked by					
Micro Drainage		Source Control 2013.1					
<u>Cascade Summary of Results for Final Pond.srcx</u>							
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Overflow (l/s)	Max Outflow (l/s)	Max Volume (m³)	Status
10080 min Summer	1.286	0.286	52.7	0.0	52.7	785.6	O.K.
15 min Winter	1.401	0.401	54.0	0.0	54.0	1125.1	O.K.
30 min Winter	1.529	0.529	54.0	0.0	54.0	1518.3	O.K.
60 min Winter	1.659	0.659	54.0	0.0	54.0	1932.6	O.K.
120 min Winter	1.781	0.781	54.0	0.0	54.0	2338.2	O.K.
180 min Winter	1.841	0.841	54.0	0.0	54.0	2547.4	O.K.
240 min Winter	1.875	0.875	54.3	0.0	54.3	2669.0	O.K.
360 min Winter	1.914	0.914	54.7	0.0	54.7	2886.9	O.K.
480 min Winter	1.933	0.933	54.9	0.0	54.9	2877.7	O.K.
600 min Winter	1.942	0.942	55.0	0.0	55.0	2909.1	O.K.
720 min Winter	1.944	0.944	55.0	0.0	55.0	2916.8	O.K.
960 min Winter	1.936	0.936	54.9	0.0	54.9	2889.3	O.K.
1440 min Winter	1.900	0.900	54.5	0.0	54.5	2757.1	O.K.
2160 min Winter	1.843	0.843	54.0	0.0	54.0	2555.1	O.K.
2880 min Winter	1.780	0.780	54.0	0.0	54.0	2335.4	O.K.
4320 min Winter	1.633	0.633	54.0	0.0	54.0	1849.5	O.K.
5760 min Winter	1.482	0.482	54.0	0.0	54.0	1371.8	O.K.
7200 min Winter	1.358	0.358	53.8	0.0	53.8	996.8	O.K.
8640 min Winter	1.274	0.274	52.4	0.0	52.4	751.3	O.K.
10080 min Winter	1.217	0.217	50.3	0.0	50.3	590.5	O.K.
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Overflow Volume (m³)	Time-Peak (mins)		
10080 min Summer	1.015	0.0	16095.8	0.0	5560		
15 min Winter	115.731	0.0	2547.1	0.0	43		
30 min Winter	77.804	0.0	3310.4	0.0	54		
60 min Winter	49.933	0.0	4591.3	0.0	82		
120 min Winter	39.956	0.0	6044.1	0.0	138		
180 min Winter	29.058	0.0	6588.8	0.0	194		
240 min Winter	19.577	0.0	6955.3	0.0	250		
360 min Winter	13.656	0.0	7435.2	0.0	366		
480 min Winter	10.974	0.0	7772.6	0.0	480		
600 min Winter	9.254	0.0	8050.5	0.0	596		
720 min Winter	8.046	0.0	8235.0	0.0	708		
960 min Winter	5.447	0.0	8425.8	0.0	932		
1440 min Winter	4.709	0.0	8763.9	0.0	1344		
2160 min Winter	3.432	0.0	12646.2	0.0	1872		
2880 min Winter	2.739	0.0	12988.1	0.0	2132		
4320 min Winter	1.989	0.0	13179.4	0.0	2992		
5760 min Winter	1.583	0.0	16515.8	0.0	3752		
7200 min Winter	1.325	0.0	17188.7	0.0	4608		
8640 min Winter	1.147	0.0	17688.0	0.0	5184		
10080 min Winter	1.615	0.0	17987.0	0.0	5752		
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Final Form

Olden's Farm

100 100 100 100

Designed by tooshare

Checked by

Source Control 2013.1



Cascade Rainfall Details for Final Pond.arxx

Wainfall Model	FEF	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
MS-60 (mm)	19,000	Shortest Storm (mins)	12
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Flow Area Diagram

Total Area (ha) 1,950

Time (mins)	Area	Time (mins)	Area	Time (mins)	Area	Time (mins)	Area
From: To:	(ha)	From: To:	(ha)	From: To:	(ha)	From: To:	(ha)
0 4	0.500	8 12	1.000	16 20	0.500	24 28	0.250
4 8	1.000	12 16	1.000	20 24	0.500	28 32	0.200

MJA Consulting		Page 4
58-62 Oak Street	Final Pond	
Abingdon	Oldlands Farm	
Oxon OX14 5BE	100 yr + CC	
Date 18/06/2013 11:28	Designed by ecshane	
File Development prop...	Checked by	
Micro Drainage	Source Control 2013.1	

Cascade Model Details for Final Pond.srrx

Storage is Online Cover Level (m) 2.250

Tank or Pond Structure

Invert Level (m) 1.000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	2615.0	0.700	3300.0	1.400	7500.0	2.100	7500.0
0.100	2715.0	0.800	3450.0	1.500	7500.0	2.200	7500.0
0.200	2800.0	0.900	3615.0	1.600	7500.0	2.300	7500.0
0.300	2900.0	1.000	3750.0	1.700	7500.0	2.400	7500.0
0.400	3000.0	1.100	3930.0	1.800	7500.0	2.500	7500.0
0.500	3100.0	1.200	4100.0	1.900	7500.0		
0.600	3200.0	1.300	7500.0	2.000	7500.0		

Hydro-Brake® Outflow Control

Design Head (m) 1.200 Hydro-Brake® Type M35 SW Only Invert Level (m) 0.800

Design Flow (l/s) 56.0 Diameter (mm) 284

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	19.3	1.200	55.7	3.000	84.1	7.000	128.4
0.200	26.6	1.400	58.7	3.500	93.8	7.500	132.9
0.300	41.1	1.600	62.0	4.000	97.1	8.000	137.3
0.400	49.4	1.800	65.4	4.500	103.0	8.500	141.5
0.500	53.0	2.000	68.8	5.000	108.5	9.000	145.8
0.600	54.0	2.200	72.1	5.500	113.8	9.500	149.6
0.800	53.3	2.400	75.2	6.000	119.9		
1.000	53.7	2.600	76.3	6.500	123.8		

Wall Overflow Control

Discharge Coef 0.544 Width (m) 3.000 Invert Level (m) 2.150

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Appendix I

Phased Floodplain Compensation Plans



KEY

Levels 2.00m	_____
Total Area 26300m ²	
Levels 1.90m	_____
Total Area 23000m ²	
Levels 1.80m	_____
Total Area 19300m ²	
Levels 1.70m	_____
Total Area 15950m ²	
Levels 1.60m	_____
Total Area 13325m ²	
Levels 1.50m	_____
Total Area 11800m ²	
Levels 1.40m	_____
Total Area 10050m ²	
Levels 1.30m	_____
Total Area 7300m ²	
Levels 1.20m	_____
Total Area 3700m ²	
Levels 1.10m	_____
Total Area 900m ²	
Levels 1.00m	_____
Total Area 13m ²	

REV. No.	DATE	DESCRIPTION	INITIALS
Client		MJA CONSULTING CIVIL AND STRUCTURAL ENGINEERS 65-67 Oak Street, Abingdon Oxon, OX14 3BZ Tel: 01235 555173 Fax: 01235 523225	
Project	Oldlands Farm, Bognor Regis		
Title	PH1 Raised Levels Plan	Scale 1:500 Checked	Date 28/05/12 Drawn HJS
		Drawing No. 4692:P:905	Rev