

Drainage Design Report

Flow

v6.0

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Network	Storm Network
Filename	X:\1316 - Low Lane\5. Design\5.3 Flow\Drive Drainage.pfd
Username	Office2-PC\George
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Rainfall Methodology	FSR
Return Period (years)	30
Additional Flow (%)	0
FSR Region	England and Wales
M5-60 (mm)	20.000
Ratio-R	0.400
CV	0.750
Time of Entry (mins)	5.00
Maximum Time of Concentration (mins)	30.00
Maximum Rainfall (mm/hr)	50.0
Minimum Velocity (m/s)	1.00
Connection Type	Level Soffits
Minimum Backdrop Height (m)	0.200
Preferred Cover Depth (m)	1.200
Enforce best practice design rules	

	Name	Area (ha)	T of E (mins)	Add Inflow (l/s)	Cover Level (m)	Node Type	Manhole Type	Diameter (mm)	Width (mm)	Easting (m)	Northing (m)	Depth (m)	Notes
1		0.004	5.00		3.350	Manhole	Adoptable	1200				0.500	
2					3.350	Manhole	Adoptable	1200				0.568	

	Name	US Node	DS Node	Length (m)	ks (mm) / n	Velocity Equation	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	Link Type	T of C (mins)	Rain (mm/hr)	Con Offset (m)	Min DS IL (m)
?	1	1	2	4.000	0.600	Colebrook-White	2.850	2.782	0.068	58.8	100	Circular	5.07	50.0		

	Name	US Node	DS Node	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Minimum Depth (m)	Maximum Depth (m)	Σ Area (ha)	Σ Add Inflow (ha)	Pro Depth (mm)	Pro Velocity (m/s)	Notes
?	1	1	2	1.006	7.9	0.5	0.400	0.468	0.400	0.468	0.004	0.0	18	0.567	Upstream Depth is less than the specified minimum Downstream Depth is less than the specified minimum

Link ID	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)	US Node ID	Dia (mm)	Width (mm)	Node Type	MH Type	DS Node ID	Dia (mm)	Width (mm)	Node Type	MH Type
1	4.000	58.8	100	Circular	3.350	2.850	0.400	3.350	2.782	0.468	1	1200		Manhole	Adoptable	2	1200		Manhole	Adoptable

Node ID	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Width (mm)	Node Type	MH Type		Link ID	IL (m)	Dia (mm)	Link Type
1			3.350	0.500	1200		Manhole	Adoptable					
									0	1	2.850	100	Circular
2			3.350	0.568	1200		Manhole	Adoptable	1	1	2.782	100	Circular

Rainfall Methodology	FSR		Return Period (years)	Climate Change (%)
FSR Region	England and Wales		2	0
M5-60 (mm)	20.000		30	0
Ratio-R	0.400		100	30
Summer CV	0.750			
Winter CV	0.840			
Analysis Speed	Normal			
Drain Down Time (mins)	240			
Additional Storage (m³/ha)	20.0			
Storm Durations (mins)	15			
	30			
	60			
	120			
	180			
	240			
	360			
	480			
	600			
	720			
	960			
	1440			
Check Discharge Rate(s)	x			
1 year (l/s)				
30 year (l/s)				
100 year (l/s)				
Check Discharge Volume	x			
100 year 360 minute (m³)				

Soakaway											
Node	Base Inf Coefficient (m/hr)	Side Inf Coefficient (m/hr)	Safety Factor	Porosity	Invert Level (m)	Time to half empty (mins)	Pit Width (m)	Pit Length (m)	Depth (m)	Inf Depth (m)	Number Required
2	0.00430	0.00430	2.0	0.30	2.782	966	5.000	2.500	0.400		1

Results for 2 year Critical Storm Duration. Lowest mass balance: 100.00%															
Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
480 minute winter	1	312	2.907	0.057	0.1	0.0741	0.0000	OK	1	2	0.1	0.509	0.018	0.0249	
480 minute winter	2	312	2.907	0.125	0.1	0.6122	0.0000	OK	Infiltration		0.0				

Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%															
Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
960 minute winter	1	630	3.031	0.181	0.1	0.2341	0.0000	SURCHARGED	1	2	0.1	0.372	0.015	0.0313	
960 minute winter	2	630	3.031	0.249	0.1	1.2171	0.0000	OK	Infiltration		0.0				

Results for 100 year +30% Critical Storm Duration. Lowest mass balance: 100.00%															
Event	US Node ID	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status	Link ID	DS Node ID	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute winter	1	344	3.323	0.473	0.3	0.6101	0.0000	FLOOD RISK	1	2	0.2	0.509	0.030	0.0313	
360 minute winter	2	344	3.323	0.541	0.2	2.1133	0.0000	OK	Infiltration		0.0				