STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes M8 CJV Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	50	PIMP (%)	50
M5-60 (mm)	18.500	Add Flow / Climate Change (%)	0
Ratio R	0.315	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	0.600
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	0.80
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

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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 0.300
Region England and Wales Cv (Summer) 0.750
M5-60 (mm) 18.800 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years) 25
Climate Change (%) 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.000	S1	15 Winter	25	+40%					71.666
S1.001	S2	15 Winter	25	+40%					71.306
S1.002	S3	15 Winter	25	+40%					71.025
S1.003	S4	15 Winter	25	+40%					70.750
S1.004	S5	15 Winter	25	+40%					70.554
S1.005	S6	15 Winter	25	+40%					70.329
S1.006	S7	15 Winter	25	+40%					70.229
S2.000	S8	15 Winter	25	+40%					70.984
S2.001	S9	15 Winter	25	+40%					70.695
S1.007	S10	15 Winter	25	+40%					70.072
S1.008	S11	120 Winter	25	+40%	25/15 Summer				69.932
S1.009	S12	120 Winter	25	+40%	25/15 Summer				69.927
S1.010	S13	60 Summer	25	+40%					60.716

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	-0.089	0.000	0.35			5.9	OK	

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

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.001	S2	-0.149	0.000	0.24			11.8	OK	
S1.002	S3	-0.130	0.000	0.36			17.5	OK	
S1.003	S4	-0.105	0.000	0.54			23.4	OK	
S1.004	S5	-0.061	0.000	0.86			29.4	OK	
S1.005	S6	-0.136	0.000	0.56			34.6	OK	
S1.006	S7	-0.123	0.000	0.64			39.1	OK	
S2.000	S8	-0.066	0.000	0.60			10.2	OK	
S2.001	S9	-0.053	0.000	0.73			12.2	OK	
S1.007	S10	-0.208	0.000	0.20			49.3	OK	
S1.008	S11	0.581	0.000	0.40			18.5	SURCHARGED	
S1.009	S12	0.729	0.000	0.02		88	5.0	SURCHARGED	
S1.010	S13	-0.160	0.000	0.19			5.0	OK	

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