



Simon Beale + Associates
Chartered Engineers

STORMWATER DRAINAGE STRATEGY

for

Polaris Property Developments LTD

on the premises at

Pinner Road, Northwood, London, HA6 1DD

on

26th July 2022

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Table of Contents

1	INTRODUCTION	1
2	PURPOSE OF THIS REPORT	1
3	THE SITE/DEVELOPMENT	2
3.1	Development/Site Name.....	2
3.2	Existing Development/Site (if any).....	3
3.3	Proposed Development/Site	4
3.4	Development/Site Constraints.....	4
3.5	Onsite Attenuation of Stormwater	5
4	CONCLUSIONS/RECOMMENDATIONS	7

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1 INTRODUCTION

SIMON BEALE + ASSOCIATES have been retained by Polaris Property Developments LTD to prepare a Stormwater Drainage Strategy for a development at Pinner Road, Northwood, London, UK, HA6 1DD

2 PURPOSE OF THIS REPORT

The purpose of this report is to recommend a suitable stormwater drainage strategy for said development. The strategy will consist of using an attenuation tank system as the main SUDS component to temporary store surface run-off before being discharged at a controlled rate to a public sewer. Due to the compact nature of the site, this allows for the viable management of stormwater on site.

3 THE SITE/DEVELOPMENT

3.1 Development/Site Name

The site is located along Pinner Road, Northwood, London, UK, HA6 1DD. The site was previously used as a car dealership. The site mainly consisted of a tarmac yard with a small office with associated storage facilities adjacent to the small office. It is understood that the proposed development will consist of removing the tarmac yard, vegetation and constructing a three storey nine residential apartment unit with gated onsite parking. The building consists of a commercial unit and parking at ground floor level, five apartment units on the first-floor level and four apartment units on the second-floor level. An outdoor amenity area and inaccessible planted area is present at roof level.

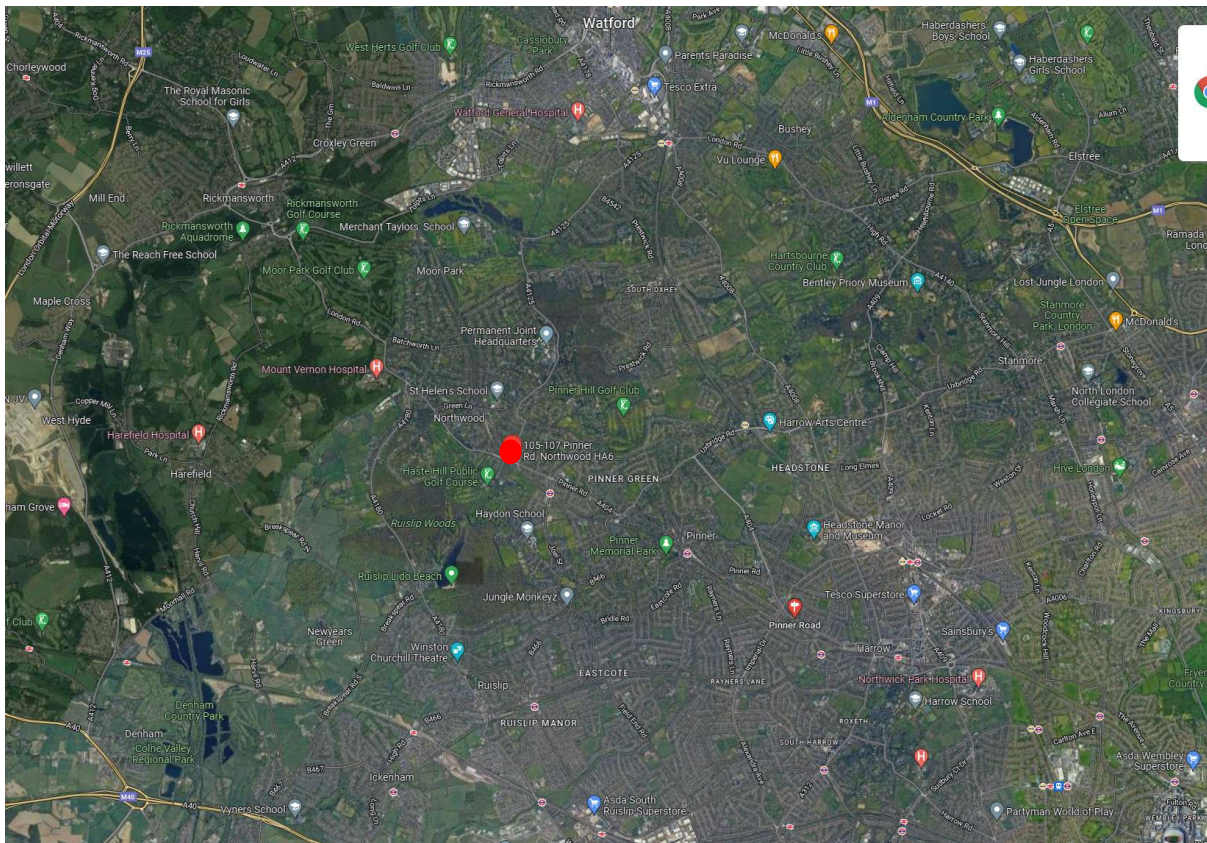


Figure 1.1 Site location map (Source: Google Maps)

The location of the site is marked with a 'red dot' in the above photo.



Figure 1.2 Site location map (site outlined in 'red')(Source: Google Maps)

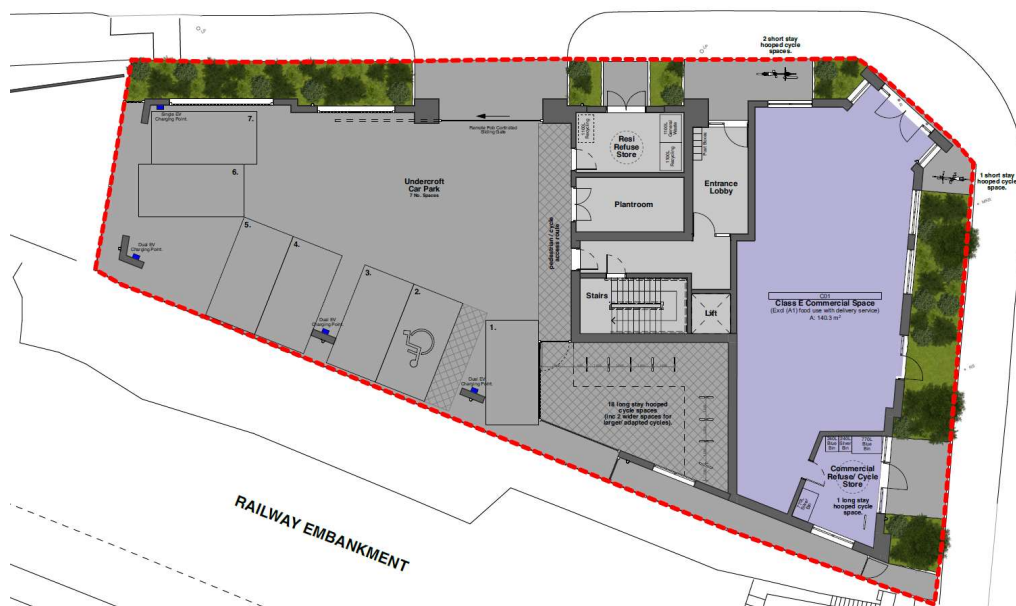


Figure 1.3 Proposed Site Layout (outline in 'red' below)

3.2 Existing Development/Site (if any)

The site previously consisted of a tarmac yard with a small office with associated storage facilities adjacent to the small office. There were shrubs and a small number of trees lining

the boundary fence along the road. The site is adjacent to a main railway line that is at a higher elevation to the tarmac yard. The railway line is present along the South-West boundary. There are two main gates present onsite. The first gate is present on the North side of the boundary and leads onto the A404 main road. The second gate is present on the North-East side of the boundary and leads onto a junction between the A404 and Chestnut Ave. A public footpath is present along the North and East boundaries with a pedestrian crossing present North-West of the site crossing the A404. The topographical survey conducted onsite (by others) indicate elevations varying from 65.200mAOD to 65.590mAOD. The topographical survey would indicate that the existing site generally slopes towards the West.

Based on the information provided by the client, the boundary line (outlined in red see figure 1.3 previously) is approximately 673m² (0.063ha).

The existing tarmac yard is considered impermeable. The runoff generated by the tarmac is assumed to be collected into gully's and discharged to the public sewer (to be confirmed on site). A small portion of the site consists of vegetation which is considered permeable. The existing permeable area and impermeable area will more than likely remain marginally the same. Despite marginal changes to the post development permeable and impermeable areas, it is proposed that the post developments run offs are reduced to aid in preventing floods.

3.3 Proposed Development/Site

It is understood that the development will consist of removing the existing tarmac yard, associated buildings, and vegetation within the site boundary and with a residential development being constructed in its place. It is understood that the development will consist of a ground floor commercial unit, nine apartment units with onsite gated parking.

3.4 Development/Site Constraints

Due to the compact nature of the proposed development and in the interest of reducing flooding in the future. It is proposed that the surface water generated from a storm is temporally stored onsite via an attenuation tank and discharged at a controlled rate to a public sewer. A planted area and an outdoor amenity area is currently proposed for the roof area with small green areas also present at first and second floor level. The planter area will

help reduce the rate at which the surface water enters the drainage system providing some attenuation reducing the load on the proposed drainage network.

3.5 Onsite Attenuation of Stormwater

The design life for the residential site is 100 years and an allowance should be made in the calculation to account for climate change. A 40% climate change allowance is included in the calculation for the storage structure for said development without flooding. See extract from the of Peak rainfall intensity allowance.

Applies across all of England	Total potential change anticipated for the '2020s' (2015 to 2039)	Total potential change anticipated for the '2050s' (2040 to 2069)	Total potential change anticipated for the '2080s' (2070 to 2115)
Upper end	10%	20%	40%
Central	5%	10%	20%

Figure 1.4 Peak rainfall intensity allowance

It is proposed that the main system used to collect and attenuate stormwater before being discharged to the public sewer at a controlled rate is an attenuation tank with a hydro brake. The attenuation tank will retain the surface run off during a storm period while the hydro brake controls the rate of discharge to the public sewer. Controlling the discharge rate to the public sewer will help to reduce the public sewer becoming overwhelmed which could cause localised flooding.

A rainfall simulation using Micro Drainage was carried out in order to estimate a critical storm to give the largest volume for typical storm durations for the proposed site with the controlled discharge in place. A 1 in 100 year storm with 40% (to account for climate change). The calculations can be found in Appendix A of this report. The calculation assumes a cover level and invert level to complete the simulation. The final cover level and invert level of the tank are to be confirmed prior to works being carried out.

The attenuation tank system is required to temporally attenuate 27m³ for 120 minute winter storm. (Storm simulated at 1 in 100year plus 40%CC)

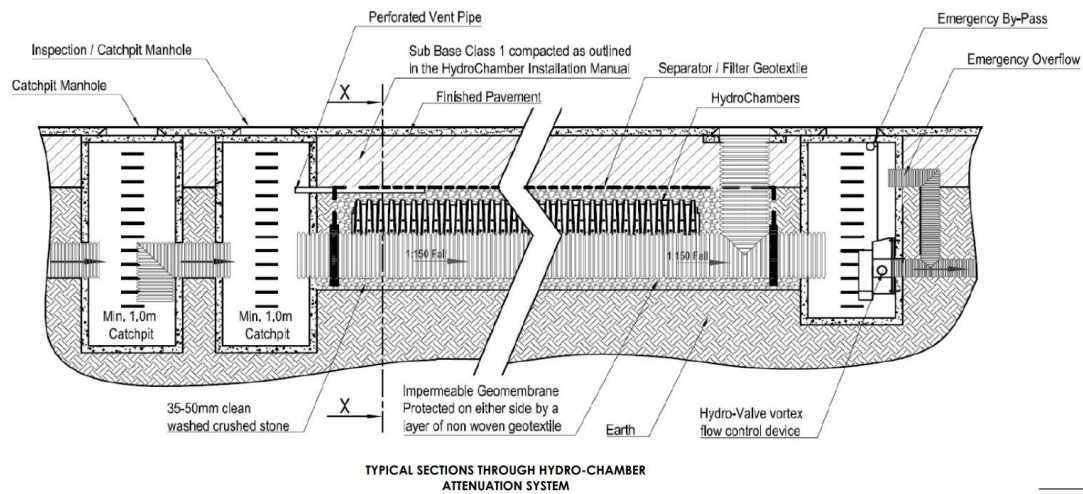


Figure 1.5 Attenuation section detail (Source JFC)

The attenuation system should be fitted, maintained, and sized in accordance with manufactures specifications and details. A proprietary system should be provided by a supplier and incorporated into the proposed development at detailed design stage. A selected supplier should be contacted at the detailed design stage to calculate, design and provide specification for the system required at the development.

Other storage methods for runoff generated by the hardstanding at ground level should be explored subject to ground conditions. It is suggested that permeable paving with temporary storage is to be used to help control the discharge rate into the public sewer.

The runoff generated by the roof during a storm event should be considered as uncontaminated and can be simply treated by sediment filters at downpipes or other appropriate discharge points to decrease the risk of contamination.

4 CONCLUSIONS/RECOMMENDATIONS

In order to mitigate flood risk posed by the proposed development, a controlled system to manage the stormwater generated by the hardstanding (impermeable areas). An attenuation tank system will be used to capture the stormwater and temporally store before discharging at controlled rate to a public sewer. It is suggested that permeable paving with temporary storage is to be used to help control the discharge rate into the public sewer also.

The site currently consists of a tarmac yard with small trees, shrubs and a fence lining the boundary. The existing permeable area and impermeable area will more than likely remain marginable the same. Despite marginal changes to the post development permeable and impermeable areas, it is proposed that the post developments run offs are reduced.

It is proposed that an attenuation tank system at ground level is used to temporally store runoff during a storm period. It is suggested using an attenuation tank system as the main SUDS component to temporary store surface runoff before being discharged at a controlled rate to a public sewer. Due to the compact nature of the site, this allows the management of stormwater viable onsite. The attenuation tank system is required to temporally attenuate 27m³.

All onsite drainage networks within the site would be privately maintained. A maintenance schedule should be implemented by the owner of the development. The drainage network should be inspected and clean at regular intervals. Inspections should be conducted following storms to remove debris from manholes and/or grate covers. The attenuation tank system should be maintained in accordance with the manufacturer's guidelines.

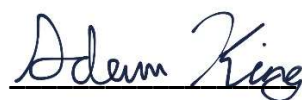
Signed:

SIMON BEALE + ASSOCIATES



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ADAM KING

BEng (Hons), MIEI



APPENDIX A - Calculations

Simon Beale Associates		Page 1
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	100	PIMP (%)	100
M5-60 (mm)	20.300	Add Flow / Climate Change (%)	40
Ratio R	0.414	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)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Inverts

Time Area Diagram for Storm

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.045	4-8	0.016

Total Area Contributing (ha) = 0.061

Total Pipe Volume (m³) = 0.866

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	4.291	0.072	60.0	0.009	5.00	0.0	0.600	o	100	Pipe/Conduit	
2.000	7.775	0.130	60.0	0.011	5.00	0.0	0.600	o	100	Pipe/Conduit	
2.001	5.052	0.084	60.0	0.004	0.00	0.0	0.600	o	100	Pipe/Conduit	
3.000	1.025	0.017	60.0	0.020	5.00	0.0	0.600	o	100	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	I.Area (ha)	Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	5.07	63.900	0.009	0.0	0.0	0.5	1.00	7.8	1.7
2.000	50.00	5.13	64.042	0.011	0.0	0.0	0.6	1.00	7.8	2.1
2.001	50.00	5.21	63.912	0.015	0.0	0.0	0.8	1.00	7.8	2.8
3.000	50.00	5.02	63.900	0.020	0.0	0.0	1.1	1.00	7.8	3.8

Simon Beale Associates		Page 2
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.001	8.603	0.034	253.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.002	9.264	0.154	60.2	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.003	15.490	0.258	60.0	0.017	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.004	7.580	0.126	60.2	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.001	50.00	5.44	63.828	0.044	0.0	0.0	2.4	0.63	11.1	8.3
1.002	50.00	5.56	63.794	0.044	0.0	0.0	2.4	1.30	23.0	8.3
1.003	50.00	5.76	63.640	0.061	0.0	0.0	3.3	1.30	23.0	11.6
1.004	50.00	5.86	63.382	0.061	0.0	0.0	3.3	1.30	23.0	11.6

Simon Beale Associates		Page 3
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.009	0.009	0.009
2.000	-	-	100	0.011	0.011	0.011
2.001	-	-	100	0.004	0.004	0.004
3.000	-	-	100	0.020	0.020	0.020
1.001	-	-	100	0.000	0.000	0.000
1.002	-	-	100	0.000	0.000	0.000
1.003	-	-	100	0.017	0.017	0.017
1.004	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.061	0.061	0.061

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.004	Public Surface Sewer	65.080	63.256	62.770	150	0

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m ³ /ha Storage	2.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1
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	Profile Type	Summer
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.300	Storm Duration (mins)	30
Ratio R	0.414		

Simon Beale Associates		Page 4
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Online Controls for Storm

Hydro-Brake® Optimum Manhole: 7, DS/PN: 1.004, Volume (m³): 2.4

Unit Reference	MD-SHE-0070-2000-0800-2000
Design Head (m)	0.800
Design Flow (l/s)	2.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	70
Invert Level (m)	63.382
Minimum Outlet Pipe Diameter (mm)	100
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.800	2.0
Flush-Flo™	0.240	2.0
Kick-Flo®	0.504	1.6
Mean Flow over Head Range	-	1.7

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	1.8	1.200	2.4	3.000	3.7	7.000	5.5
0.200	2.0	1.400	2.6	3.500	3.9	7.500	5.6
0.300	2.0	1.600	2.7	4.000	4.2	8.000	5.8
0.400	1.9	1.800	2.9	4.500	4.4	8.500	6.0
0.500	1.6	2.000	3.0	5.000	4.7	9.000	6.2
0.600	1.8	2.200	3.2	5.500	4.9	9.500	6.3
0.800	2.0	2.400	3.3	6.000	5.1		
1.000	2.2	2.600	3.4	6.500	5.3		

Simon Beale Associates		Page 5																		
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK																			
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB																			
Innovyze Network 2020.1.3																				
Storage Structures for Storm Cellular Storage Manhole: 5, DS/PN: 1.002 Invert Level (m) 63.828 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table><thead><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr></thead><tbody><tr><td>0.000</td><td>33.8</td><td>0.0</td><td>0.801</td><td>0.0</td><td>0.0</td></tr><tr><td>0.800</td><td>33.8</td><td>0.0</td><td></td><td></td><td></td></tr></tbody></table>			Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	33.8	0.0	0.801	0.0	0.0	0.800	33.8	0.0			
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)															
0.000	33.8	0.0	0.801	0.0	0.0															
0.800	33.8	0.0																		
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Simon Beale Associates		Page 7
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze		Network 2020.1.3

Summary Wizard of 30 minute 5 year Summer I+40% 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 Coefficient 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 0.414
 Region England and Wales Cv (Summer) 0.750
 M5-60 (mm) 20.300 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 DVD Status ON
 Inertia 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) 5, 30, 100
 Climate Change (%) 40, 40, 40

WARNING: Half Drain Time has not been calculated as the structure is too full.

PN	US/MH Name	Storm Rank	Water		Surcharged	Flooded	Flow / Overflow (l/s)	Half Drain	Pipe	Status
			Level (m)	Depth (m)	Volume (m³)	Time (mins)		Flow (l/s)		
1.000	1	40	64.005	0.005	0.000	0.36			2.4	SURCHARGED
2.000	2	33	64.088	-0.054	0.000	0.43			3.1	OK
2.001	3	39	64.020	0.007	0.000	0.59			4.0	SURCHARGED
3.000	4	38	64.030	0.030	0.000	1.39			5.5	SURCHARGED
1.001	4	39	64.003	0.025	0.000	1.23			12.0	SURCHARGED
1.002	5	39	63.999	0.055	0.000	0.16			3.2	SURCHARGED
1.003	6	39	63.995	0.205	0.000	0.18			3.9	SURCHARGED
1.004	7	39	63.987	0.455	0.000	0.10			2.0	SURCHARGED

Simon Beale Associates		Page 9
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Summary Wizard of 120 minute 5 year Summer I+40% for Storm

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		

Synthetic Rainfall Details

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia Status	ON

PN	US/MH Name	Storm Rank	Water	Surcharged	Flooded	Flow / Cap.	Overflow (l/s)	Half Drain	Pipe	Status
			Level (m)	Depth (m)	Volume (m³)			Time (mins)	Flow (l/s)	
1.000	1	44	63.988	-0.012	0.000	0.18			1.2	OK
2.000	2	37	64.073	-0.069	0.000	0.21			1.5	OK
2.001	3	44	63.989	-0.024	0.000	0.29			2.0	OK
3.000	4	44	63.987	-0.013	0.000	0.69			2.7	OK
1.001	4	44	63.986	0.008	0.000	0.60			5.8	SURCHARGED
1.002	5	43	63.982	0.038	0.000	0.14		55	2.8	SURCHARGED
1.003	6	43	63.978	0.188	0.000	0.16			3.4	SURCHARGED
1.004	7	43	63.971	0.439	0.000	0.10			2.0	SURCHARGED

Simon Beale Associates							Page 10			
The Old School House Casement Street Ballina, Ireland				SUDS Design Pinner Road, Northwood, UK						
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...				Designed by AK Checked by SB						
Innovyze				Network 2020.1.3						
<u>Summary Wizard of 180 minute 5 year Summer I+40% for Storm</u>										
<u>Simulation Criteria</u>										
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 Coefficient		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				
<u>Synthetic Rainfall Details</u>										
Rainfall Model		FSR		Ratio R		0.414				
Region England and Wales Cv (Summer)		0.750								
M5-60 (mm)		20.300		Cv (Winter)		0.840				
Margin for Flood Risk Warning (mm)						300.0				
Analysis Timestep		2.5		Second Increment (Extended)						
DTS Status						OFF				
DVD Status						ON				
Inertia 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)		5, 30, 100								
Climate Change (%)		40, 40, 40								

Simon Beale Associates							Page 11																																																																																																					
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3.000	4	54	63.934	-0.066	0.000	0.25			1.0	OK																																																																																																													
1.001	4	57	63.876	-0.102	0.000	0.23			2.2	OK																																																																																																													
1.002	5	57	63.865	-0.079	0.000	0.11		29	2.1	OK																																																																																																													
1.003	6	57	63.860	0.070	0.000	0.12			2.6	SURCHARGED																																																																																																													
1.004	7	57	63.853	0.321	0.000	0.10			2.0	SURCHARGED																																																																																																													
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Simon Beale Associates							Page 14																																																																																																																													
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<u>Summary Wizard of 600 minute 5 year Summer I+40% for Storm</u>																																																																																																																																				
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 Coefficient 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 0.414 Region England and Wales Cv (Summer) 0.750 M5-60 (mm) 20.300 Cv (Winter) 0.840 Margin for Flood Risk Warning (mm) 300.0 Analysis Timestep 2.5 Second Increment (Extended) DTS Status OFF DVD Status ON Inertia 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) 5, 30, 100 Climate Change (%) 40, 40, 40																																																																																																																																				
<table><tr><th colspan="2"></th><th colspan="3">Water Surcharged</th><th colspan="2">Flooded</th><th colspan="2">Half Drain</th><th>Pipe</th><th></th></tr><tr><th></th><th>US/MH</th><th>Storm</th><th>Level</th><th>Depth</th><th>Volume</th><th>Flow /</th><th>Overflow</th><th>Time</th><th>Flow</th><th>Status</th></tr><tr><th>PN</th><th>Name</th><th>Rank</th><th>(m)</th><th>(m)</th><th>(m³)</th><th>Cap.</th><th>(l/s)</th><th>(mins)</th><th>(l/s)</th><th></th></tr><tr><td>1.000</td><td>1</td><td>58</td><td>63.915</td><td>-0.085</td><td>0.000</td><td>0.06</td><td></td><td></td><td>0.4</td><td>OK</td></tr><tr><td>2.000</td><td>2</td><td>57</td><td>64.059</td><td>-0.083</td><td>0.000</td><td>0.06</td><td></td><td></td><td>0.5</td><td>OK</td></tr><tr><td>2.001</td><td>3</td><td>57</td><td>63.933</td><td>-0.080</td><td>0.000</td><td>0.09</td><td></td><td></td><td>0.6</td><td>OK</td></tr><tr><td>3.000</td><td>4</td><td>57</td><td>63.931</td><td>-0.069</td><td>0.000</td><td>0.21</td><td></td><td></td><td>0.8</td><td>OK</td></tr><tr><td>1.001</td><td>4</td><td>59</td><td>63.872</td><td>-0.106</td><td>0.000</td><td>0.19</td><td></td><td></td><td>1.9</td><td>OK</td></tr><tr><td>1.002</td><td>5</td><td>60</td><td>63.837</td><td>-0.107</td><td>0.000</td><td>0.09</td><td></td><td>18</td><td>1.9</td><td>OK</td></tr><tr><td>1.003</td><td>6</td><td>60</td><td>63.833</td><td>0.043</td><td>0.000</td><td>0.12</td><td></td><td></td><td>2.5</td><td>SURCHARGED</td></tr><tr><td>1.004</td><td>7</td><td>60</td><td>63.825</td><td>0.293</td><td>0.000</td><td>0.10</td><td></td><td></td><td>2.0</td><td>SURCHARGED</td></tr></table>														Water Surcharged			Flooded		Half Drain		Pipe			US/MH	Storm	Level	Depth	Volume	Flow /	Overflow	Time	Flow	Status	PN	Name	Rank	(m)	(m)	(m³)	Cap.	(l/s)	(mins)	(l/s)		1.000	1	58	63.915	-0.085	0.000	0.06			0.4	OK	2.000	2	57	64.059	-0.083	0.000	0.06			0.5	OK	2.001	3	57	63.933	-0.080	0.000	0.09			0.6	OK	3.000	4	57	63.931	-0.069	0.000	0.21			0.8	OK	1.001	4	59	63.872	-0.106	0.000	0.19			1.9	OK	1.002	5	60	63.837	-0.107	0.000	0.09		18	1.9	OK	1.003	6	60	63.833	0.043	0.000	0.12			2.5	SURCHARGED	1.004	7	60	63.825	0.293	0.000	0.10			2.0	SURCHARGED
		Water Surcharged			Flooded		Half Drain		Pipe																																																																																																																											
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Simon Beale Associates							Page 15																																																																																																																	
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<u>Summary Wizard of 720 minute 5 year Summer I+40% for Storm</u>																																																																																																																								
<u>Simulation Criteria</u>																																																																																																																								
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 Coefficient		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																																																																																																																		
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Region England and Wales Cv (Summer)		0.750																																																																																																																						
M5-60 (mm)		20.300		Cv (Winter)		0.840																																																																																																																		
Margin for Flood Risk Warning (mm)						300.0																																																																																																																		
Analysis Timestep		2.5		Second Increment (Extended)																																																																																																																				
DTS Status						OFF																																																																																																																		
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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)		5, 30, 100																																																																																																																						
Climate Change (%)		40, 40, 40																																																																																																																						
<table><tr><th colspan="2"></th><th colspan="3">Water Surcharged</th><th colspan="2">Flooded</th><th colspan="2">Half Drain</th><th>Pipe</th><th rowspan="2">Status</th></tr><tr><th>PN</th><th>US/MH Name</th><th>Storm Rank</th><th>Level (m)</th><th>Depth (m)</th><th>Volume (m³)</th><th>Flow / Cap.</th><th>Overflow (l/s)</th><th>Time (mins)</th><th>Flow (l/s)</th></tr><tr><td>1.000</td><td>1</td><td>61</td><td>63.914</td><td>-0.086</td><td>0.000</td><td>0.05</td><td></td><td></td><td>0.3</td><td>OK</td></tr><tr><td>2.000</td><td>2</td><td>61</td><td>64.057</td><td>-0.085</td><td>0.000</td><td>0.06</td><td></td><td></td><td>0.4</td><td>OK</td></tr><tr><td>2.001</td><td>3</td><td>61</td><td>63.931</td><td>-0.081</td><td>0.000</td><td>0.08</td><td></td><td></td><td>0.6</td><td>OK</td></tr><tr><td>3.000</td><td>4</td><td>61</td><td>63.929</td><td>-0.071</td><td>0.000</td><td>0.19</td><td></td><td></td><td>0.7</td><td>OK</td></tr><tr><td>1.001</td><td>4</td><td>61</td><td>63.869</td><td>-0.109</td><td>0.000</td><td>0.17</td><td></td><td></td><td>1.6</td><td>OK</td></tr><tr><td>1.002</td><td>5</td><td>61</td><td>63.822</td><td>-0.122</td><td>0.000</td><td>0.08</td><td></td><td>84</td><td>1.6</td><td>OK</td></tr><tr><td>1.003</td><td>6</td><td>62</td><td>63.674</td><td>-0.116</td><td>0.000</td><td>0.11</td><td></td><td></td><td>2.2</td><td>OK</td></tr><tr><td>1.004</td><td>7</td><td>62</td><td>63.655</td><td>0.123</td><td>0.000</td><td>0.10</td><td></td><td></td><td>2.0</td><td>SURCHARGED</td></tr></table>														Water Surcharged			Flooded		Half Drain		Pipe	Status	PN	US/MH Name	Storm Rank	Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	1.000	1	61	63.914	-0.086	0.000	0.05			0.3	OK	2.000	2	61	64.057	-0.085	0.000	0.06			0.4	OK	2.001	3	61	63.931	-0.081	0.000	0.08			0.6	OK	3.000	4	61	63.929	-0.071	0.000	0.19			0.7	OK	1.001	4	61	63.869	-0.109	0.000	0.17			1.6	OK	1.002	5	61	63.822	-0.122	0.000	0.08		84	1.6	OK	1.003	6	62	63.674	-0.116	0.000	0.11			2.2	OK	1.004	7	62	63.655	0.123	0.000	0.10			2.0	SURCHARGED
		Water Surcharged			Flooded		Half Drain		Pipe	Status																																																																																																														
PN	US/MH Name	Storm Rank	Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)																																																																																																															
1.000	1	61	63.914	-0.086	0.000	0.05			0.3	OK																																																																																																														
2.000	2	61	64.057	-0.085	0.000	0.06			0.4	OK																																																																																																														
2.001	3	61	63.931	-0.081	0.000	0.08			0.6	OK																																																																																																														
3.000	4	61	63.929	-0.071	0.000	0.19			0.7	OK																																																																																																														
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1.002	5	61	63.822	-0.122	0.000	0.08		84	1.6	OK																																																																																																														
1.003	6	62	63.674	-0.116	0.000	0.11			2.2	OK																																																																																																														
1.004	7	62	63.655	0.123	0.000	0.10			2.0	SURCHARGED																																																																																																														
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Simon Beale Associates		Page 16
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze Network 2020.1.3		

Summary Wizard of 960 minute 5 year Summer I+40% 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 Coefficient	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	0.414
Region England and Wales Cv (Summer)	0.750		
M5-60 (mm)	20.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia 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)	5, 30, 100
Climate Change (%)	40, 40, 40

PN	US/MH Name	Storm Rank	Water		Surcharged		Flooded		Half Drain		Pipe	Status
			Level (m)	Depth (m)	Volume (m³)	Flow / Overflow Cap. (l/s)	Time (mins)	Flow (l/s)				
1.000	1	66	63.913	-0.087	0.000	0.04				0.3	OK	
2.000	2	66	64.056	-0.086	0.000	0.05				0.3	OK	
2.001	3	66	63.929	-0.084	0.000	0.06				0.4	OK	
3.000	4	66	63.926	-0.074	0.000	0.15				0.6	OK	
1.001	4	66	63.864	-0.114	0.000	0.13				1.3	OK	
1.002	5	66	63.819	-0.125	0.000	0.06			121	1.3	OK	
1.003	6	66	63.669	-0.121	0.000	0.08				1.8	OK	
1.004	7	66	63.488	-0.044	0.000	0.09				1.8	OK	

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Simon Beale Associates		Page 17
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze Network 2020.1.3		

Summary Wizard of 1440 minute 5 year Summer I+40% 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 Coefficient	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	0.414
Region England and Wales Cv (Summer)	0.750		
M5-60 (mm)	20.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia 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)	5, 30, 100
Climate Change (%)	40, 40, 40

PN	US/MH Name	Storm Rank	Water Surcharged Flooded			Half Drain		Pipe	Status
			Level (m)	Depth (m)	Volume (m³)	Flow / Overflow Cap. (l/s)	Time (mins)	Flow (l/s)	
1.000	1	73	63.911	-0.089	0.000	0.03		0.2	OK
2.000	2	73	64.054	-0.088	0.000	0.03		0.2	OK
2.001	3	73	63.926	-0.086	0.000	0.05		0.3	OK
3.000	4	73	63.922	-0.078	0.000	0.11		0.4	OK
1.001	4	73	63.859	-0.119	0.000	0.10		0.9	OK
1.002	5	73	63.815	-0.129	0.000	0.05	165	0.9	OK
1.003	6	73	63.664	-0.126	0.000	0.06		1.3	OK
1.004	7	73	63.450	-0.082	0.000	0.07		1.3	OK

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Simon Beale Associates		Page 18
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Summary Wizard of 2160 minute 5 year Summer I+40% 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 Coefficient 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 0.414
 Region England and Wales Cv (Summer) 0.750
 M5-60 (mm) 20.300 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 DVD Status ON
 Inertia 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) 5, 30, 100
 Climate Change (%) 40, 40, 40

			Water	Surcharged	Flooded				Half Drain	Pipe	
	US/MH	Storm	Level	Depth	Volume	Flow /	Overflow		Time	Flow	
PN	Name	Rank	(m)	(m)	(m³)	Cap.	(l/s)		(mins)	(l/s)	Status
1.000	1	80	63.910	-0.090	0.000	0.02				0.1	OK
2.000	2	80	64.052	-0.090	0.000	0.02				0.2	OK
2.001	3	80	63.924	-0.088	0.000	0.03				0.2	OK
3.000	4	80	63.919	-0.081	0.000	0.08				0.3	OK
1.001	4	80	63.854	-0.124	0.000	0.07				0.7	OK
1.002	5	80	63.812	-0.132	0.000	0.03			183	0.7	OK
1.003	6	80	63.660	-0.130	0.000	0.05				1.0	OK
1.004	7	80	63.435	-0.097	0.000	0.05				1.0	OK

Simon Beale Associates		Page 19
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze Network 2020.1.3		

Summary Wizard of 2880 minute 5 year Summer I+40% 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 Coefficient	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	0.414
Region England and Wales Cv (Summer)	0.750		
M5-60 (mm)	20.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia 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)	5, 30, 100
Climate Change (%)	40, 40, 40

PN	US/MH Name	Storm Rank	Water	Surcharged	Flooded	Half Drain		Pipe	Status
			Level (m)	Depth (m)	Volume (m³)	Flow / Overflow Cap. (l/s)	Time (mins)	Flow (l/s)	
1.000	1	84	63.908	-0.092	0.000	0.02		0.1	OK
2.000	2	84	64.051	-0.091	0.000	0.02		0.1	OK
2.001	3	84	63.923	-0.089	0.000	0.03		0.2	OK
3.000	4	84	63.916	-0.084	0.000	0.06		0.3	OK
1.001	4	84	63.851	-0.127	0.000	0.06		0.6	OK
1.002	5	84	63.810	-0.134	0.000	0.03	198	0.6	OK
1.003	6	84	63.658	-0.132	0.000	0.04		0.8	OK
1.004	7	84	63.428	-0.104	0.000	0.04		0.8	OK

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Simon Beale Associates		Page 20
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
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Summary Wizard of 4320 minute 5 year Summer I+40% 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 Coefficient	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	0.414
Region England and Wales Cv (Summer)	0.750		
M5-60 (mm)	20.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia 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)	5, 30, 100
Climate Change (%)	40, 40, 40

PN	US/MH Name	Storm Rank	Water	Surcharged	Flooded	Half Drain		Pipe	Status
			Level (m)	Depth (m)	Volume (m³)	Flow / Overflow Cap. (l/s)	Time (mins)	Flow (l/s)	
1.000	1	91	63.906	-0.094	0.000	0.01		0.1	OK
2.000	2	91	64.049	-0.093	0.000	0.01		0.1	OK
2.001	3	91	63.922	-0.090	0.000	0.02		0.1	OK
3.000	4	91	63.914	-0.086	0.000	0.05		0.2	OK
1.001	4	91	63.848	-0.130	0.000	0.04		0.4	OK
1.002	5	91	63.808	-0.136	0.000	0.02	231	0.4	OK
1.003	6	91	63.656	-0.134	0.000	0.03		0.6	OK
1.004	7	91	63.420	-0.112	0.000	0.03		0.6	OK

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Simon Beale Associates							Page 21			
The Old School House Casement Street Ballina, Ireland				SUDS Design Pinner Road, Northwood, UK						
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...				Designed by AK Checked by SB						
Innovyze				Network 2020.1.3						
<u>Summary Wizard of 5760 minute 5 year Summer I+40% for Storm</u>										
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 Coefficient		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		0.414				
Region England and Wales Cv (Summer)		0.750								
M5-60 (mm)		20.300		Cv (Winter)		0.840				
Margin for Flood Risk Warning (mm)						300.0				
Analysis Timestep		2.5		Second Increment (Extended)						
DTS Status						OFF				
DVD Status						ON				
Inertia 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)		5, 30, 100								
Climate Change (%)		40, 40, 40								
Water Surcharged Flooded Half Drain Pipe										
PN	US/MH Name	Storm Rank	Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Pipe Flow (l/s)	Status
1.000	1	98	63.905	-0.095	0.000	0.01			0.1	OK
2.000	2	98	64.047	-0.095	0.000	0.01			0.1	OK
2.001	3	98	63.920	-0.092	0.000	0.02			0.1	OK
3.000	4	98	63.912	-0.088	0.000	0.04			0.1	OK
1.001	4	98	63.846	-0.132	0.000	0.03			0.3	OK
1.002	5	98	63.805	-0.139	0.000	0.02		265	0.3	OK
1.003	6	98	63.655	-0.135	0.000	0.02			0.5	OK
1.004	7	98	63.415	-0.117	0.000	0.02			0.5	OK
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Simon Beale Associates		Page 22
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Summary Wizard of 7200 minute 5 year Summer I+40% 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 Coefficient 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 0.414
 Region England and Wales Cv (Summer) 0.750
 M5-60 (mm) 20.300 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 DVD Status ON
 Inertia 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) 5, 30, 100
 Climate Change (%) 40, 40, 40

			Water	Surcharged	Flooded				Half Drain	Pipe	
	US/MH	Storm	Level	Depth	Volume	Flow /	Overflow		Time	Flow	
PN	Name	Rank	(m)	(m)	(m³)	Cap.	(l/s)		(mins)	(l/s)	Status
1.000	1	104	63.904	-0.096	0.000	0.01				0.1	OK
2.000	2	104	64.047	-0.095	0.000	0.01				0.1	OK
2.001	3	104	63.919	-0.094	0.000	0.01				0.1	OK
3.000	4	104	63.912	-0.088	0.000	0.03				0.1	OK
1.001	4	104	63.845	-0.133	0.000	0.03				0.3	OK
1.002	5	104	63.804	-0.140	0.000	0.01			268	0.3	OK
1.003	6	104	63.653	-0.137	0.000	0.02				0.4	OK
1.004	7	104	63.412	-0.120	0.000	0.02				0.4	OK

Simon Beale Associates							Page 23				
The Old School House Casement Street Ballina, Ireland				SUDS Design Pinner Road, Northwood, UK							
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...				Designed by AK Checked by SB							
Innovyze				Network 2020.1.3							
<u>Summary Wizard of 8640 minute 5 year Summer I+40% for Storm</u>											
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 Coefficient		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		0.414					
Region England and Wales Cv (Summer)		0.750									
M5-60 (mm)		20.300		Cv (Winter)		0.840					
Margin for Flood Risk Warning (mm)						300.0					
Analysis Timestep		2.5 Second Increment (Extended)									
DTS Status						OFF					
DVD Status						ON					
Inertia 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)		5, 30, 100									
Climate Change (%)		40, 40, 40									
Water Surcharged Flooded Half Drain Pipe											
PN	US/MH Name	Storm Rank	Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Pipe Flow (l/s)	Status	
1.000	1	107	63.903	-0.097	0.000	0.01			0.0	OK	
2.000	2	107	64.046	-0.096	0.000	0.01			0.1	OK	
2.001	3	107	63.918	-0.094	0.000	0.01			0.1	OK	
3.000	4	107	63.911	-0.089	0.000	0.03			0.1	OK	
1.001	4	107	63.844	-0.134	0.000	0.02			0.2	OK	
1.002	5	107	63.802	-0.142	0.000	0.01		323	0.2	OK	
1.003	6	107	63.651	-0.139	0.000	0.02			0.3	OK	
1.004	7	107	63.410	-0.122	0.000	0.02			0.3	OK	
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Simon Beale Associates		Page 24
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze Network 2020.1.3		

Summary Wizard of 10080 minute 5 year Summer I+40% 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 Coefficient	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

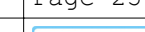
Rainfall Model	FSR	Ratio R	0.414
Region England and Wales Cv (Summer)	0.750		
M5-60 (mm)	20.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia 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)	5, 30, 100
Climate Change (%)	40, 40, 40

PN	US/MH Name	Storm Rank	Water	Surcharged	Flooded	Half Drain		Pipe	Status
			Level (m)	Depth (m)	Volume (m³)	Flow / Overflow Cap. (l/s)	Time (mins)	Flow (l/s)	
1.000	1	110	63.903	-0.097	0.000	0.01		0.0	OK
2.000	2	110	64.046	-0.096	0.000	0.01		0.1	OK
2.001	3	110	63.917	-0.095	0.000	0.01		0.1	OK
3.000	4	110	63.910	-0.090	0.000	0.02		0.1	OK
1.001	4	110	63.843	-0.135	0.000	0.02		0.2	OK
1.002	5	110	63.801	-0.143	0.000	0.01		377 0.2	OK
1.003	6	110	63.650	-0.140	0.000	0.01		0.3	OK
1.004	7	110	63.408	-0.124	0.000	0.01		0.3	OK

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Simon Beale Associates		Page 25
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

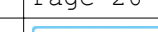
Summary Wizard of 15 minute 30 year Summer I+40% for Storm

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m ³ /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		

Synthetic Rainfall Details

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia Status	ON

WARNING: Half Drain Time has not been calculated as the structure is too full.

Simon Beale Associates		Page 26
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

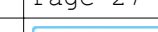
Summary Wizard of 30 minute 30 year Summer I+40% for Storm

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m ³ /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		

Synthetic Rainfall Details

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)	5, 30, 100
Climate Change (%)	40, 40, 40

PN	US/MH Name	Storm Rank	Water	Surcharged	Flooded	Flow / Cap.	Overflow (l/s)	Half Drain	Pipe	Status
			Level (m)	Depth (m)	Volume (m³)			Time (mins)	Flow (l/s)	
1.000	1	23	64.133	0.133	0.000	0.49			3.3	SURCHARGED
2.000	2	20	64.180	0.038	0.000	0.58			4.1	SURCHARGED
2.001	3	23	64.142	0.129	0.000	0.77			5.2	SURCHARGED
3.000	4	20	64.164	0.164	0.000	1.99			7.8	SURCHARGED
1.001	4	22	64.131	0.153	0.000	1.64			16.0	SURCHARGED
1.002	5	23	64.125	0.181	0.000	0.14			2.9	SURCHARGED
1.003	6	23	64.120	0.330	0.000	0.18			3.7	SURCHARGED
1.004	7	23	64.112	0.580	0.000	0.10			2.0	SURCHARGED

Simon Beale Associates		Page 27
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

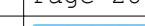
Summary Wizard of 60 minute 30 year Summer I+40% for Storm

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m ³ /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		

Synthetic Rainfall Details

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)	5, 30, 100
Climate Change (%)	40, 40, 40

PN	US/MH Name	Storm Rank	Water		Surcharged	Flooded	Flow / Cap.	Overflow (l/s)	Half Drain	Pipe	Status
			Level (m)	Depth (m)	Volume (m³)	Time (mins)			Flow (l/s)		
1.000	1	20	64.148	0.148	0.000	0.35			2.4	SURCHARGED	
2.000	2	23	64.152	0.010	0.000	0.47			3.4	SURCHARGED	
2.001	3	22	64.150	0.137	0.000	0.61			4.1	SURCHARGED	
3.000	4	23	64.148	0.148	0.000	1.44			5.7	SURCHARGED	
1.001	4	20	64.147	0.169	0.000	1.21			11.7	SURCHARGED	
1.002	5	20	64.142	0.198	0.000	0.13			2.6	SURCHARGED	
1.003	6	20	64.138	0.348	0.000	0.14			3.1	SURCHARGED	
1.004	7	20	64.130	0.598	0.000	0.10			2.0	SURCHARGE	

Simon Beale Associates		Page 28
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Summary Wizard of 120 minute 30 year Summer I+40% for Storm

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		

Synthetic Rainfall Details

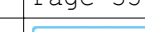
Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	5, 30, 100
Climate Change (%)	40, 40, 40

Simon Beale Associates							Page 29																																																																																																																
The Old School House Casement Street Ballina, Ireland				SUDS Design Pinner Road, Northwood, UK																																																																																																																			
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...				Designed by AK Checked by SB																																																																																																																			
Innovyze				Network 2020.1.3																																																																																																																			
<u>Summary Wizard of 180 minute 30 year Summer I+40% for Storm</u>																																																																																																																							
<u>Simulation Criteria</u>																																																																																																																							
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 Coefficient		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																																																																																																																	
<u>Synthetic Rainfall Details</u>																																																																																																																							
Rainfall Model		FSR		Ratio R		0.414																																																																																																																	
Region England and Wales Cv (Summer)		0.750																																																																																																																					
M5-60 (mm)		20.300		Cv (Winter)		0.840																																																																																																																	
Margin for Flood Risk Warning (mm)						300.0																																																																																																																	
Analysis Timestep		2.5		Second Increment (Extended)																																																																																																																			
DTS Status						OFF																																																																																																																	
DVD Status						ON																																																																																																																	
Inertia 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)		5, 30, 100																																																																																																																					
Climate Change (%)		40, 40, 40																																																																																																																					
<table><tr><th colspan="2"></th><th colspan="3">Water Surcharged</th><th colspan="2">Flooded</th><th colspan="2">Half Drain</th><th>Pipe</th><th rowspan="2">Status</th></tr><tr><th>PN</th><th>US/MH Name</th><th>Storm Rank</th><th>Level (m)</th><th>Depth (m)</th><th>Volume (m³)</th><th>Flow / Cap.</th><th>Overflow (l/s)</th><th>Time (mins)</th><th>Flow (l/s)</th></tr><tr><td>1.000</td><td>1</td><td>27</td><td>64.111</td><td>0.111</td><td>0.000</td><td>0.18</td><td></td><td></td><td>1.2</td><td>SURCHARGED</td></tr><tr><td>2.000</td><td>2</td><td>27</td><td>64.115</td><td>-0.027</td><td>0.000</td><td>0.24</td><td></td><td></td><td>1.7</td><td>OK</td></tr><tr><td>2.001</td><td>3</td><td>27</td><td>64.113</td><td>0.100</td><td>0.000</td><td>0.31</td><td></td><td></td><td>2.1</td><td>SURCHARGED</td></tr><tr><td>3.000</td><td>4</td><td>27</td><td>64.111</td><td>0.111</td><td>0.000</td><td>0.74</td><td></td><td></td><td>2.9</td><td>SURCHARGED</td></tr><tr><td>1.001</td><td>4</td><td>26</td><td>64.110</td><td>0.132</td><td>0.000</td><td>0.61</td><td></td><td></td><td>5.9</td><td>SURCHARGED</td></tr><tr><td>1.002</td><td>5</td><td>26</td><td>64.106</td><td>0.162</td><td>0.000</td><td>0.13</td><td></td><td>88</td><td>2.6</td><td>SURCHARGED</td></tr><tr><td>1.003</td><td>6</td><td>26</td><td>64.101</td><td>0.311</td><td>0.000</td><td>0.15</td><td></td><td></td><td>3.2</td><td>SURCHARGED</td></tr><tr><td>1.004</td><td>7</td><td>26</td><td>64.093</td><td>0.561</td><td>0.000</td><td>0.10</td><td></td><td></td><td>2.0</td><td>SURCHARGED</td></tr></table>													Water Surcharged			Flooded		Half Drain		Pipe	Status	PN	US/MH Name	Storm Rank	Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	1.000	1	27	64.111	0.111	0.000	0.18			1.2	SURCHARGED	2.000	2	27	64.115	-0.027	0.000	0.24			1.7	OK	2.001	3	27	64.113	0.100	0.000	0.31			2.1	SURCHARGED	3.000	4	27	64.111	0.111	0.000	0.74			2.9	SURCHARGED	1.001	4	26	64.110	0.132	0.000	0.61			5.9	SURCHARGED	1.002	5	26	64.106	0.162	0.000	0.13		88	2.6	SURCHARGED	1.003	6	26	64.101	0.311	0.000	0.15			3.2	SURCHARGED	1.004	7	26	64.093	0.561	0.000	0.10			2.0	SURCHARGED
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Simon Beale Associates							Page 30				
The Old School House Casement Street Ballina, Ireland				SUDS Design Pinner Road, Northwood, UK							
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Innovyze				Network 2020.1.3							
<u>Summary Wizard of 240 minute 30 year Summer I+40% for Storm</u>											
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		0.414					
Region England and Wales Cv (Summer)		0.750									
M5-60 (mm)		20.300		Cv (Winter)		0.840					
Margin for Flood Risk Warning (mm)						300.0					
Analysis Timestep		2.5		Second Increment (Extended)							
DTS Status						OFF					
DVD Status						ON					
Inertia 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)		5, 30, 100									
Climate Change (%)		40, 40, 40									
Water Surcharged Flooded Half Drain Pipe											
PN	US/MH Name	Storm Rank	Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Status	
1.000	1	29	64.089	0.089	0.000	0.14			1.0	SURCHARGED	
2.000	2	29	64.093	-0.049	0.000	0.19			1.4	OK	
2.001	3	29	64.091	0.078	0.000	0.25			1.7	SURCHARGED	
3.000	4	29	64.089	0.089	0.000	0.62			2.4	SURCHARGED	
1.001	4	29	64.088	0.110	0.000	0.50			4.9	SURCHARGED	
1.002	5	28	64.084	0.140	0.000	0.12		94	2.4	SURCHARGED	
1.003	6	28	64.079	0.289	0.000	0.14			3.0	SURCHARGED	
1.004	7	28	64.071	0.539	0.000	0.10			2.0	SURCHARGED	
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Simon Beale Associates							Page 33																																																																																																																		
The Old School House Casement Street Ballina, Ireland				SUDS Design Pinner Road, Northwood, UK																																																																																																																					
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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																																																																																																																					
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Rainfall Model				FSR		Ratio R 0.414																																																																																																																			
Region England and Wales Cv (Summer)				0.750																																																																																																																					
M5-60 (mm)				20.300		Cv (Winter) 0.840																																																																																																																			
Margin for Flood Risk Warning (mm)				300.0																																																																																																																					
Analysis Timestep 2.5				Second Increment (Extended)																																																																																																																					
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Return Period(s) (years)				5, 30, 100																																																																																																																					
Climate Change (%)				40, 40, 40																																																																																																																					
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		Water Surcharged			Flooded		Half Drain		Pipe																																																																																																																
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1.000	1	48	63.967	-0.033	0.000	0.08			0.6	OK																																																																																																															
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3.000	4	48	63.966	-0.034	0.000	0.31			1.2	OK																																																																																																															
1.001	4	48	63.965	-0.013	0.000	0.28			2.7	OK																																																																																																															
1.002	5	48	63.961	0.017	0.000	0.10		70	2.1	SURCHARGED																																																																																																															
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1.004	7	48	63.950	0.418	0.000	0.10			2.0	SURCHARGED																																																																																																															
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Simon Beale Associates							Page 34			
The Old School House Casement Street Ballina, Ireland				SUDS Design Pinner Road, Northwood, UK						
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...				Designed by AK Checked by SB						
Innovyze				Network 2020.1.3						
<u>Summary Wizard of 720 minute 30 year Summer I+40% for Storm</u>										
<u>Simulation Criteria</u>										
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 Coefficient		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				
<u>Synthetic Rainfall Details</u>										
Rainfall Model		FSR		Ratio R		0.414				
Region England and Wales Cv (Summer)		0.750								
M5-60 (mm)		20.300		Cv (Winter)		0.840				
Margin for Flood Risk Warning (mm)						300.0				
Analysis Timestep		2.5		Second Increment (Extended)						
DTS Status						OFF				
DVD Status						ON				
Inertia 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)		5, 30, 100								
Climate Change (%)		40, 40, 40								

Simon Beale Associates		Page 35
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Summary Wizard of 960 minute 30 year Summer I+40% for Storm

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m ³ /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		

Synthetic Rainfall Details

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia Status	ON

PN	US/MH Name	Storm Rank	Water	Surcharged	Flooded	Flow / Cap.	Overflow (l/s)	Half Drain	Pipe	Status
			Level (m)	Depth (m)	Volume (m³)			Time (mins)	Flow (l/s)	
1.000	1	57	63.915	-0.085	0.000	0.06			0.4	OK
2.000	2	56	64.059	-0.083	0.000	0.07			0.5	OK
2.001	3	56	63.933	-0.080	0.000	0.09			0.6	OK
3.000	4	56	63.931	-0.069	0.000	0.22			0.8	OK
1.001	4	58	63.873	-0.105	0.000	0.19			1.9	OK
1.002	5	58	63.860	-0.084	0.000	0.09		36	1.9	OK
1.003	6	58	63.856	0.066	0.000	0.11			2.4	SURCHARGED
1.004	7	58	63.848	0.316	0.000	0.10			2.0	SURCHARGED

Simon Beale Associates		Page 36
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze Network 2020.1.3		

Summary Wizard of 1440 minute 30 year Summer I+40% 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 Coefficient	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	0.414
Region England and Wales Cv (Summer)	0.750		
M5-60 (mm)	20.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia 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)	5, 30, 100
Climate Change (%)	40, 40, 40

PN	US/MH Name	Storm Rank	Water	Surcharged	Flooded	Half Drain		Pipe	Status
			Level (m)	Depth (m)	Volume (m³)	Flow / Overflow Cap. (l/s)	Time (mins)	Flow (l/s)	
1.000	1	63	63.913	-0.087	0.000	0.04		0.3	OK
2.000	2	63	64.056	-0.086	0.000	0.05		0.3	OK
2.001	3	63	63.929	-0.083	0.000	0.07		0.5	OK
3.000	4	63	63.926	-0.074	0.000	0.16		0.6	OK
1.001	4	63	63.865	-0.113	0.000	0.14		1.4	OK
1.002	5	63	63.819	-0.125	0.000	0.07	186	1.4	OK
1.003	6	63	63.670	-0.120	0.000	0.09		1.9	OK
1.004	7	63	63.511	-0.021	0.000	0.09		1.9	OK

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Simon Beale Associates		Page 37
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze Network 2020.1.3		

Summary Wizard of 2160 minute 30 year Summer I+40% 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 Coefficient	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	0.414
Region England and Wales Cv (Summer)	0.750		
M5-60 (mm)	20.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia 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)	5, 30, 100
Climate Change (%)	40, 40, 40

PN	US/MH Name	Storm Rank	Water Surcharged Flooded			Half Drain		Pipe	Status
			Level (m)	Depth (m)	Volume (m³)	Flow / Overflow Cap. (l/s)	Time (mins)	Flow (l/s)	
1.000	1	70	63.911	-0.089	0.000	0.03		0.2	OK
2.000	2	70	64.054	-0.088	0.000	0.03		0.2	OK
2.001	3	70	63.927	-0.086	0.000	0.05		0.3	OK
3.000	4	70	63.922	-0.078	0.000	0.11		0.4	OK
1.001	4	70	63.860	-0.118	0.000	0.10		1.0	OK
1.002	5	70	63.815	-0.129	0.000	0.05	256	1.0	OK
1.003	6	70	63.665	-0.125	0.000	0.06		1.4	OK
1.004	7	70	63.453	-0.079	0.000	0.07		1.4	OK

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Simon Beale Associates							Page 38			
The Old School House Casement Street Ballina, Ireland				SUDS Design Pinner Road, Northwood, UK						
Date 27/07/2022 15:54				Designed by AK						
File 22-182 Pinner Road, Nor...				Checked by SB						
Innovyze				Network 2020.1.3						
<u>Summary Wizard of 2880 minute 30 year Summer I+40% for Storm</u>										
<u>Simulation Criteria</u>										
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 Coefficient		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				
<u>Synthetic Rainfall Details</u>										
Rainfall Model		FSR		Ratio R		0.414				
Region England and Wales Cv (Summer)		0.750								
M5-60 (mm)		20.300		Cv (Winter)		0.840				
Margin for Flood Risk Warning (mm)						300.0				
Analysis Timestep		2.5 Second Increment (Extended)								
DTS Status						OFF				
DVD Status						ON				
Inertia 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)						5, 30, 100				
Climate Change (%)						40, 40, 40				

Simon Beale Associates		Page 39
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze Network 2020.1.3		

Summary Wizard of 4320 minute 30 year Summer I+40% 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 Coefficient	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	0.414
Region England and Wales Cv (Summer)	0.750		
M5-60 (mm)	20.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia 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)	5, 30, 100
Climate Change (%)	40, 40, 40

PN	US/MH Name	Storm Rank	Water		Surcharged		Flooded		Half Drain		Pipe	Status
			Level (m)	Depth (m)	Volume (m³)	Flow / Overflow Cap. (l/s)	Time (mins)	Flow (l/s)				
1.000	1	82	63.908	-0.092	0.000	0.02				0.1	OK	
2.000	2	82	64.051	-0.091	0.000	0.02				0.1	OK	
2.001	3	82	63.923	-0.089	0.000	0.03				0.2	OK	
3.000	4	82	63.917	-0.083	0.000	0.07				0.3	OK	
1.001	4	82	63.851	-0.127	0.000	0.06				0.6	OK	
1.002	5	82	63.810	-0.134	0.000	0.03			285	0.6	OK	
1.003	6	82	63.658	-0.132	0.000	0.04				0.8	OK	
1.004	7	82	63.428	-0.104	0.000	0.04				0.8	OK	

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Simon Beale Associates		Page 40
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Summary Wizard of 5760 minute 30 year Summer I+40% 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 Coefficient 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 0.414
 Region England and Wales Cv (Summer) 0.750
 M5-60 (mm) 20.300 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 DVD Status ON
 Inertia 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) 5, 30, 100
 Climate Change (%) 40, 40, 40

PN	US/MH Name	Storm Rank	Water Surcharged			Flooded		Half Drain Time (mins)	Pipe Flow (l/s)	Status
			Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)			
1.000	1	89	63.906	-0.094	0.000	0.01			0.1	OK
2.000	2	89	64.049	-0.093	0.000	0.02			0.1	OK
2.001	3	89	63.923	-0.090	0.000	0.02			0.2	OK
3.000	4	89	63.915	-0.085	0.000	0.05			0.2	OK
1.001	4	89	63.849	-0.129	0.000	0.05			0.4	OK
1.002	5	89	63.809	-0.135	0.000	0.02		325	0.4	OK
1.003	6	89	63.657	-0.133	0.000	0.03			0.6	OK
1.004	7	89	63.422	-0.110	0.000	0.03			0.6	OK

Simon Beale Associates		Page 41
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze Network 2020.1.3		

Summary Wizard of 7200 minute 30 year Summer I+40% 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 Coefficient	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	0.414
Region England and Wales Cv (Summer)	0.750		
M5-60 (mm)	20.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia 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)	5, 30, 100
Climate Change (%)	40, 40, 40

PN	US/MH Name	Storm Rank	Water	Surcharged	Flooded	Half Drain		Pipe	Status
			Level (m)	Depth (m)	Volume (m³)	Flow / Overflow Cap. (l/s)	Time (mins)	Flow (l/s)	
1.000	1	95	63.905	-0.095	0.000	0.01		0.1	OK
2.000	2	95	64.048	-0.094	0.000	0.01		0.1	OK
2.001	3	95	63.921	-0.091	0.000	0.02		0.1	OK
3.000	4	95	63.913	-0.087	0.000	0.04		0.2	OK
1.001	4	95	63.847	-0.131	0.000	0.04		0.4	OK
1.002	5	95	63.807	-0.137	0.000	0.02		340 0.4	OK
1.003	6	95	63.656	-0.134	0.000	0.02		0.5	OK
1.004	7	95	63.418	-0.114	0.000	0.03		0.5	OK

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Simon Beale Associates		Page 42
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze Network 2020.1.3		

Summary Wizard of 8640 minute 30 year Summer I+40% 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 Coefficient	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	0.414
Region England and Wales Cv (Summer)	0.750		
M5-60 (mm)	20.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia 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)	5, 30, 100
Climate Change (%)	40, 40, 40

PN	US/MH Name	Storm Rank	Water	Surcharged	Flooded	Half Drain		Pipe	Status
			Level (m)	Depth (m)	Volume (m³)	Flow / Overflow Cap. (l/s)	Time (mins)	Flow (l/s)	
1.000	1	100	63.905	-0.095	0.000	0.01		0.1	OK
2.000	2	100	64.047	-0.095	0.000	0.01		0.1	OK
2.001	3	100	63.920	-0.092	0.000	0.02		0.1	OK
3.000	4	100	63.912	-0.088	0.000	0.04		0.1	OK
1.001	4	100	63.846	-0.132	0.000	0.03		0.3	OK
1.002	5	100	63.805	-0.139	0.000	0.02	409	0.3	OK
1.003	6	100	63.655	-0.135	0.000	0.02		0.4	OK
1.004	7	100	63.415	-0.117	0.000	0.02		0.4	OK

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Simon Beale Associates							Page 43																																																																																																								
The Old School House Casement Street Ballina, Ireland				SUDS Design Pinner Road, Northwood, UK																																																																																																											
Date 27/07/2022 15:54				Designed by AK																																																																																																											
File 22-182 Pinner Road, Nor...				Checked by SB																																																																																																											
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<u>Summary Wizard of 10080 minute 30 year Summer I+40% for Storm</u>																																																																																																															
<u>Simulation Criteria</u>																																																																																																															
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 Coefficient		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																																																																																																									
<u>Synthetic Rainfall Details</u>																																																																																																															
Rainfall Model		FSR		Ratio R		0.414																																																																																																									
Region England and Wales Cv (Summer)		0.750																																																																																																													
M5-60 (mm)		20.300		Cv (Winter)		0.840																																																																																																									
Margin for Flood Risk Warning (mm)						300.0																																																																																																									
Analysis Timestep		2.5 Second Increment (Extended)																																																																																																													
DTS Status						OFF																																																																																																									
DVD Status						ON																																																																																																									
Inertia 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)		5, 30, 100																																																																																																													
Climate Change (%)		40, 40, 40																																																																																																													
<table><tr><th colspan="7">Water Surcharged Flooded</th><th>Half Drain</th><th>Pipe</th><th></th></tr><tr><th>PN</th><th>US/MH Name</th><th>Storm Rank</th><th>Level (m)</th><th>Depth (m)</th><th>Volume (m³)</th><th>Flow / Overflow Cap.</th><th>Time (mins)</th><th>Flow (l/s)</th><th>Status</th></tr><tr><td>1.000</td><td>1</td><td>103</td><td>63.904</td><td>-0.096</td><td>0.000</td><td>0.01</td><td></td><td>0.1</td><td>OK</td></tr><tr><td>2.000</td><td>2</td><td>103</td><td>64.047</td><td>-0.095</td><td>0.000</td><td>0.01</td><td></td><td>0.1</td><td>OK</td></tr><tr><td>2.001</td><td>3</td><td>103</td><td>63.919</td><td>-0.093</td><td>0.000</td><td>0.01</td><td></td><td>0.1</td><td>OK</td></tr><tr><td>3.000</td><td>4</td><td>103</td><td>63.912</td><td>-0.088</td><td>0.000</td><td>0.03</td><td></td><td>0.1</td><td>OK</td></tr><tr><td>1.001</td><td>4</td><td>103</td><td>63.845</td><td>-0.133</td><td>0.000</td><td>0.03</td><td></td><td>0.3</td><td>OK</td></tr><tr><td>1.002</td><td>5</td><td>103</td><td>63.804</td><td>-0.140</td><td>0.000</td><td>0.01</td><td>480</td><td>0.3</td><td>OK</td></tr><tr><td>1.003</td><td>6</td><td>103</td><td>63.653</td><td>-0.137</td><td>0.000</td><td>0.02</td><td></td><td>0.4</td><td>OK</td></tr><tr><td>1.004</td><td>7</td><td>103</td><td>63.413</td><td>-0.119</td><td>0.000</td><td>0.02</td><td></td><td>0.4</td><td>OK</td></tr></table>												Water Surcharged Flooded							Half Drain	Pipe		PN	US/MH Name	Storm Rank	Level (m)	Depth (m)	Volume (m³)	Flow / Overflow Cap.	Time (mins)	Flow (l/s)	Status	1.000	1	103	63.904	-0.096	0.000	0.01		0.1	OK	2.000	2	103	64.047	-0.095	0.000	0.01		0.1	OK	2.001	3	103	63.919	-0.093	0.000	0.01		0.1	OK	3.000	4	103	63.912	-0.088	0.000	0.03		0.1	OK	1.001	4	103	63.845	-0.133	0.000	0.03		0.3	OK	1.002	5	103	63.804	-0.140	0.000	0.01	480	0.3	OK	1.003	6	103	63.653	-0.137	0.000	0.02		0.4	OK	1.004	7	103	63.413	-0.119	0.000	0.02		0.4	OK
Water Surcharged Flooded							Half Drain	Pipe																																																																																																							
PN	US/MH Name	Storm Rank	Level (m)	Depth (m)	Volume (m³)	Flow / Overflow Cap.	Time (mins)	Flow (l/s)	Status																																																																																																						
1.000	1	103	63.904	-0.096	0.000	0.01		0.1	OK																																																																																																						
2.000	2	103	64.047	-0.095	0.000	0.01		0.1	OK																																																																																																						
2.001	3	103	63.919	-0.093	0.000	0.01		0.1	OK																																																																																																						
3.000	4	103	63.912	-0.088	0.000	0.03		0.1	OK																																																																																																						
1.001	4	103	63.845	-0.133	0.000	0.03		0.3	OK																																																																																																						
1.002	5	103	63.804	-0.140	0.000	0.01	480	0.3	OK																																																																																																						
1.003	6	103	63.653	-0.137	0.000	0.02		0.4	OK																																																																																																						
1.004	7	103	63.413	-0.119	0.000	0.02		0.4	OK																																																																																																						
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Simon Beale Associates		Page 44
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Summary Wizard of 15 minute 100 year Summer I+40% 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 Coefficient 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

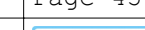
Rainfall Model FSR Ratio R 0.414
 Region England and Wales Cv (Summer) 0.750
 M5-60 (mm) 20.300 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 DVD Status ON
 Inertia 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) 5, 30, 100
 Climate Change (%) 40, 40, 40

WARNING: Half Drain Time has not been calculated as the structure is too full.

PN	US/MH Name	Storm Rank	Water	Surcharged	Flooded	Flow / Cap.	Overflow (l/s)	Half Drain	Pipe	Status
			Level (m)	Depth (m)	Volume (m³)			Time (mins)	Flow (l/s)	
1.000	1	11	64.242	0.242	0.000	0.68			4.6	SURCHARGED
2.000	2	3	64.369	0.227	0.000	0.78			5.5	SURCHARGED
2.001	3	8	64.292	0.280	0.000	1.03			7.1	SURCHARGED
3.000	4	4	64.349	0.349	0.000	2.78			10.9	SURCHARGED
1.001	4	13	64.216	0.238	0.000	2.24			21.8	SURCHARGED
1.002	5	17	64.162	0.218	0.000	0.16			3.3	SURCHARGED
1.003	6	17	64.156	0.366	0.000	0.26			5.5	SURCHARGED
1.004	7	17	64.148	0.616	0.000	0.10			2.0	SURCHARGED

Simon Beale Associates		Page 45
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Summary Wizard of 30 minute 100 year Summer I+40% for Storm

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		

Synthetic Rainfall Details

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)	5, 30, 100
Climate Change (%)	40, 40, 40

PN	US/MH Name	Storm Rank	Water	Surcharged	Flooded	Flow / Cap.	Overflow (l/s)	Half Drain	Pipe	Status
			Level	Depth	Volume			Time	Flow	
			(m)	(m)	(m³)			(mins)	(l/s)	
1.000	1	10	64.253	0.253	0.000	0.59			4.0	SURCHARGED
2.000	2	6	64.352	0.210	0.000	0.69			4.9	SURCHARGED
2.001	3	9	64.291	0.279	0.000	0.91			6.2	SURCHARGED
3.000	4	6	64.334	0.334	0.000	2.48			9.8	SURCHARGED
1.001	4	10	64.251	0.273	0.000	1.99			19.3	SURCHARGED
1.002	5	9	64.245	0.301	0.000	0.16			3.2	SURCHARGED
1.003	6	9	64.239	0.449	0.000	0.19			4.1	SURCHARGED
1.004	7	9	64.230	0.698	0.000	0.10			2.1	SURCHARGED

Simon Beale Associates		Page 46
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze		Network 2020.1.3

Summary Wizard of 60 minute 100 year Summer I+40% 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 Coefficient 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 0.414
 Region England and Wales Cv (Summer) 0.750
 M5-60 (mm) 20.300 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 DVD Status ON
 Inertia 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) 5, 30, 100
 Climate Change (%) 40, 40, 40

WARNING: Half Drain Time has not been calculated as the structure is too full.

PN	US/MH Name	Storm Rank	Water	Surcharged	Flooded	Flow / Cap.	Overflow (l/s)	Half Drain	Pipe	Status
			Level (m)	Depth (m)	Volume (m³)			Time (mins)	Flow (l/s)	
1.000	1	5	64.296	0.296	0.000	0.45			3.0	SURCHARGED
2.000	2	8	64.301	0.159	0.000	0.53			3.8	SURCHARGED
2.001	3	6	64.298	0.285	0.000	0.70			4.8	SURCHARGED
3.000	4	8	64.296	0.296	0.000	1.87			7.3	SURCHARGED
1.001	4	5	64.294	0.316	0.000	1.51			14.7	SURCHARGED
1.002	5	5	64.289	0.345	0.000	0.12			2.4	SURCHARGED
1.003	6	5	64.284	0.494	0.000	0.14			3.0	SURCHARGED
1.004	7	5	64.275	0.743	0.000	0.11			2.1	SURCHARGED

Simon Beale Associates							Page 47				
The Old School House Casement Street Ballina, Ireland				SUDS Design Pinner Road, Northwood, UK							
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...				Designed by AK Checked by SB							
Innovyze				Network 2020.1.3							
<u>Summary Wizard of 120 minute 100 year Summer I+40% for Storm</u>											
<u>Simulation Criteria</u>											
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 Coefficient		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					
<u>Synthetic Rainfall Details</u>											
Rainfall Model		FSR		Ratio R		0.414					
Region England and Wales Cv (Summer)		0.750									
M5-60 (mm)		20.300		Cv (Winter)		0.840					
Margin for Flood Risk Warning (mm)						300.0					
Analysis Timestep		2.5		Second Increment (Extended)							
DTS Status						OFF					
DVD Status						ON					
Inertia 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)		5, 30, 100									
Climate Change (%)		40, 40, 40									
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Simon Beale Associates							Page 48																																																																																																																	
The Old School House Casement Street Ballina, Ireland				SUDS Design Pinner Road, Northwood, UK																																																																																																																				
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Innovyze				Network 2020.1.3																																																																																																																				
<u>Summary Wizard of 180 minute 100 year Summer I+40% for Storm</u>																																																																																																																								
<u>Simulation Criteria</u>																																																																																																																								
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 Coefficient		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																																																																																																																		
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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)		5, 30, 100																																																																																																																						
Climate Change (%)		40, 40, 40																																																																																																																						
<table><tr><th colspan="2"></th><th colspan="3">Water Surcharged</th><th colspan="2">Flooded</th><th colspan="2">Half Drain</th><th>Pipe</th><th rowspan="2">Status</th></tr><tr><th>PN</th><th>US/MH Name</th><th>Storm Rank</th><th>Level (m)</th><th>Depth (m)</th><th>Volume (m³)</th><th>Flow / Cap.</th><th>Overflow (l/s)</th><th>Time (mins)</th><th>Flow (l/s)</th></tr><tr><td>1.000</td><td>1</td><td>9</td><td>64.254</td><td>0.254</td><td>0.000</td><td>0.23</td><td></td><td></td><td>1.6</td><td>SURCHARGED</td></tr><tr><td>2.000</td><td>2</td><td>11</td><td>64.259</td><td>0.117</td><td>0.000</td><td>0.30</td><td></td><td></td><td>2.1</td><td>SURCHARGED</td></tr><tr><td>2.001</td><td>3</td><td>11</td><td>64.256</td><td>0.243</td><td>0.000</td><td>0.39</td><td></td><td></td><td>2.6</td><td>SURCHARGED</td></tr><tr><td>3.000</td><td>4</td><td>11</td><td>64.254</td><td>0.254</td><td>0.000</td><td>0.94</td><td></td><td></td><td>3.7</td><td>SURCHARGED</td></tr><tr><td>1.001</td><td>4</td><td>9</td><td>64.253</td><td>0.275</td><td>0.000</td><td>0.78</td><td></td><td></td><td>7.6</td><td>SURCHARGED</td></tr><tr><td>1.002</td><td>5</td><td>8</td><td>64.248</td><td>0.304</td><td>0.000</td><td>0.12</td><td></td><td>112</td><td>2.4</td><td>SURCHARGED</td></tr><tr><td>1.003</td><td>6</td><td>8</td><td>64.243</td><td>0.453</td><td>0.000</td><td>0.14</td><td></td><td></td><td>3.0</td><td>SURCHARGED</td></tr><tr><td>1.004</td><td>7</td><td>8</td><td>64.234</td><td>0.702</td><td>0.000</td><td>0.10</td><td></td><td></td><td>2.1</td><td>SURCHARGED</td></tr></table>														Water Surcharged			Flooded		Half Drain		Pipe	Status	PN	US/MH Name	Storm Rank	Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	1.000	1	9	64.254	0.254	0.000	0.23			1.6	SURCHARGED	2.000	2	11	64.259	0.117	0.000	0.30			2.1	SURCHARGED	2.001	3	11	64.256	0.243	0.000	0.39			2.6	SURCHARGED	3.000	4	11	64.254	0.254	0.000	0.94			3.7	SURCHARGED	1.001	4	9	64.253	0.275	0.000	0.78			7.6	SURCHARGED	1.002	5	8	64.248	0.304	0.000	0.12		112	2.4	SURCHARGED	1.003	6	8	64.243	0.453	0.000	0.14			3.0	SURCHARGED	1.004	7	8	64.234	0.702	0.000	0.10			2.1	SURCHARGED
		Water Surcharged			Flooded		Half Drain		Pipe	Status																																																																																																														
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Simon Beale Associates		Page 49
The Old School House Casement Street Ballina, Ireland		
SUDS Design Pinner Road, Northwood, UK		
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...		
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Innovyze		Network 2020.1.3

Summary Wizard of 240 minute 100 year Summer I+40% 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 Coefficient	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	0.414
Region England and Wales Cv (Summer)	0.750		
M5-60 (mm)	20.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia 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)	5, 30, 100
Climate Change (%)	40, 40, 40

PN	US/MH Name	Storm Rank	Water Surcharged			Flooded		Half Drain Time (mins)	Pipe Flow (l/s)	Status
			Level (m)	Depth (m)	Volume (m³)	Flow / Overflow Cap. (l/s)				
1.000	1	12	64.229	0.229	0.000	0.19		1.3	SURCHARGED	
2.000	2	13	64.233	0.091	0.000	0.25		1.8	SURCHARGED	
2.001	3	12	64.230	0.218	0.000	0.32		2.2	SURCHARGED	
3.000	4	12	64.228	0.228	0.000	0.76		3.0	SURCHARGED	
1.001	4	11	64.227	0.249	0.000	0.64		6.3	SURCHARGED	
1.002	5	10	64.222	0.278	0.000	0.12	118	2.4	SURCHARGED	
1.003	6	10	64.217	0.427	0.000	0.14		2.9	SURCHARGED	
1.004	7	10	64.209	0.677	0.000	0.10		2.0	SURCHARGED	

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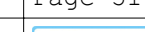
Simon Beale Associates		Page 50
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Summary Wizard of 360 minute 100 year Summer I+40% for Storm

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		

Synthetic Rainfall Details

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)	5, 30, 100
Climate Change (%)	40, 40, 40

Simon Beale Associates		Page 51
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

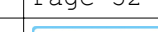
Summary Wizard of 480 minute 100 year Summer I+40% for Storm

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m ³ /ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coefficient	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		

Synthetic Rainfall Details

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia Status	ON

PN	US/MH Name	Storm Rank	Water	Surcharged	Flooded	Flow / Cap.	Overflow (l/s)	Half Drain	Pipe	Status
			Level (m)	Depth (m)	Volume (m³)			Time (mins)	Flow (l/s)	
1.000	1	22	64.133	0.133	0.000	0.11			0.7	SURCHARGED
2.000	2	24	64.137	-0.005	0.000	0.15			1.0	OK
2.001	3	24	64.134	0.122	0.000	0.19			1.3	SURCHARGED
3.000	4	24	64.133	0.133	0.000	0.45			1.8	SURCHARGED
1.001	4	21	64.132	0.154	0.000	0.38			3.7	SURCHARGED
1.002	5	21	64.127	0.183	0.000	0.11		115	2.2	SURCHARGED
1.003	6	21	64.123	0.333	0.000	0.12			2.7	SURCHARGED
1.004	7	21	64.114	0.582	0.000	0.10			2.0	SURCHARGED

Simon Beale Associates		Page 52
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Summary Wizard of 600 minute 100 year Summer I+40% for Storm

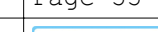
Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m ³ /ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Synthetic Rainfall Details

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)	5, 30, 100
Climate Change (%)	40, 40, 40

Simon Beale Associates							Page 53																																																																																																																	
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<u>Summary Wizard of 720 minute 100 year Summer I+40% for Storm</u>																																																																																																																								
<u>Simulation Criteria</u>																																																																																																																								
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 Coefficient			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																																																																																																																
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Return Period(s) (years)								5, 30, 100																																																																																																																
Climate Change (%)								40, 40, 40																																																																																																																
<table><tr><th colspan="2"></th><th colspan="3">Water Surcharged</th><th colspan="2">Flooded</th><th colspan="2">Half Drain</th><th>Pipe</th><th rowspan="2">Status</th></tr><tr><th>PN</th><th>US/MH Name</th><th>Storm Rank</th><th>Level (m)</th><th>Depth (m)</th><th>Volume (m³)</th><th>Flow / Cap.</th><th>Overflow (l/s)</th><th>Time (mins)</th><th>Flow (l/s)</th></tr><tr><td>1.000</td><td>1</td><td>32</td><td>64.050</td><td>0.050</td><td>0.000</td><td>0.09</td><td></td><td></td><td>0.6</td><td>SURCHARGED</td></tr><tr><td>2.000</td><td>2</td><td>44</td><td>64.064</td><td>-0.078</td><td>0.000</td><td>0.11</td><td></td><td></td><td>0.8</td><td>OK</td></tr><tr><td>2.001</td><td>3</td><td>32</td><td>64.052</td><td>0.039</td><td>0.000</td><td>0.15</td><td></td><td></td><td>1.0</td><td>SURCHARGED</td></tr><tr><td>3.000</td><td>4</td><td>34</td><td>64.050</td><td>0.050</td><td>0.000</td><td>0.35</td><td></td><td></td><td>1.4</td><td>SURCHARGED</td></tr><tr><td>1.001</td><td>4</td><td>32</td><td>64.049</td><td>0.071</td><td>0.000</td><td>0.30</td><td></td><td></td><td>2.9</td><td>SURCHARGED</td></tr><tr><td>1.002</td><td>5</td><td>32</td><td>64.045</td><td>0.101</td><td>0.000</td><td>0.10</td><td></td><td>99</td><td>2.0</td><td>SURCHARGED</td></tr><tr><td>1.003</td><td>6</td><td>32</td><td>64.040</td><td>0.250</td><td>0.000</td><td>0.11</td><td></td><td></td><td>2.4</td><td>SURCHARGED</td></tr><tr><td>1.004</td><td>7</td><td>32</td><td>64.033</td><td>0.501</td><td>0.000</td><td>0.10</td><td></td><td></td><td>2.0</td><td>SURCHARGED</td></tr></table>														Water Surcharged			Flooded		Half Drain		Pipe	Status	PN	US/MH Name	Storm Rank	Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	1.000	1	32	64.050	0.050	0.000	0.09			0.6	SURCHARGED	2.000	2	44	64.064	-0.078	0.000	0.11			0.8	OK	2.001	3	32	64.052	0.039	0.000	0.15			1.0	SURCHARGED	3.000	4	34	64.050	0.050	0.000	0.35			1.4	SURCHARGED	1.001	4	32	64.049	0.071	0.000	0.30			2.9	SURCHARGED	1.002	5	32	64.045	0.101	0.000	0.10		99	2.0	SURCHARGED	1.003	6	32	64.040	0.250	0.000	0.11			2.4	SURCHARGED	1.004	7	32	64.033	0.501	0.000	0.10			2.0	SURCHARGED
		Water Surcharged			Flooded		Half Drain		Pipe	Status																																																																																																														
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Simon Beale Associates							Page 54			
The Old School House Casement Street Ballina, Ireland				SUDS Design Pinner Road, Northwood, UK						
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...				Designed by AK Checked by SB						
Innovyze				Network 2020.1.3						
<u>Summary Wizard of 960 minute 100 year Summer I+40% for Storm</u>										
<u>Simulation Criteria</u>										
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 Coefficient		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				
<u>Synthetic Rainfall Details</u>										
Rainfall Model		FSR		Ratio R		0.414				
Region England and Wales Cv (Summer)		0.750								
M5-60 (mm)		20.300		Cv (Winter)		0.840				
Margin for Flood Risk Warning (mm)						300.0				
Analysis Timestep		2.5		Second Increment (Extended)						
DTS Status						OFF				
DVD Status						ON				
Inertia 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)		5, 30, 100								
Climate Change (%)		40, 40, 40								

Simon Beale Associates		Page 55
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Summary Wizard of 1440 minute 100 year Summer I+40% for Storm

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m ³ /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

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia 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)	5, 30, 100
Climate Change (%)	40, 40, 40

PN	US/MH Name	Storm Rank	Water	Surcharged	Flooded	Flow / Cap.	Overflow (l/s)	Half Drain	Pipe	Status
			Level (m)	Depth (m)	Volume (m³)			Time (mins)	Flow (l/s)	
1.000	1	59	63.915	-0.085	0.000	0.05			0.4	OK
2.000	2	59	64.058	-0.084	0.000	0.06			0.4	OK
2.001	3	59	63.932	-0.080	0.000	0.09			0.6	OK
3.000	4	59	63.930	-0.070	0.000	0.20			0.8	OK
1.001	4	60	63.871	-0.107	0.000	0.18			1.7	OK
1.002	5	59	63.854	-0.090	0.000	0.08		39	1.7	OK
1.003	6	59	63.849	0.059	0.000	0.11			2.3	SURCHARGED
1.004	7	59	63.842	0.310	0.000	0.10			2.0	SURCHARGED

Simon Beale Associates							Page 56																																																																																																															
The Old School House Casement Street Ballina, Ireland				SUDS Design Pinner Road, Northwood, UK																																																																																																																		
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...				Designed by AK Checked by SB																																																																																																																		
Innovyze				Network 2020.1.3																																																																																																																		
<u>Summary Wizard of 2160 minute 100 year Summer I+40% for Storm</u>																																																																																																																						
<u>Simulation Criteria</u>																																																																																																																						
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 Coefficient		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																																																																																																																
<u>Synthetic Rainfall Details</u>																																																																																																																						
Rainfall Model		FSR		Ratio R		0.414																																																																																																																
Region England and Wales Cv (Summer)		0.750																																																																																																																				
M5-60 (mm)		20.300		Cv (Winter)		0.840																																																																																																																
Margin for Flood Risk Warning (mm)						300.0																																																																																																																
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DTS Status						OFF																																																																																																																
DVD Status						ON																																																																																																																
Inertia 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)		5, 30, 100																																																																																																																				
Climate Change (%)		40, 40, 40																																																																																																																				
<table><tr><th colspan="7">Water Surcharged Flooded</th><th>Half Drain</th><th>Pipe</th><th></th></tr><tr><th>PN</th><th>US/MH Name</th><th>Storm Rank</th><th>Level (m)</th><th>Depth (m)</th><th>Volume (m³)</th><th>Flow / Cap.</th><th>Overflow (l/s)</th><th>Time (mins)</th><th>Flow (l/s)</th><th>Status</th></tr><tr><td>1.000</td><td>1</td><td>68</td><td>63.912</td><td>-0.088</td><td>0.000</td><td>0.04</td><td></td><td></td><td>0.3</td><td>OK</td></tr><tr><td>2.000</td><td>2</td><td>68</td><td>64.055</td><td>-0.087</td><td>0.000</td><td>0.04</td><td></td><td></td><td>0.3</td><td>OK</td></tr><tr><td>2.001</td><td>3</td><td>68</td><td>63.928</td><td>-0.084</td><td>0.000</td><td>0.06</td><td></td><td></td><td>0.4</td><td>OK</td></tr><tr><td>3.000</td><td>4</td><td>68</td><td>63.925</td><td>-0.075</td><td>0.000</td><td>0.14</td><td></td><td></td><td>0.6</td><td>OK</td></tr><tr><td>1.001</td><td>4</td><td>68</td><td>63.863</td><td>-0.115</td><td>0.000</td><td>0.13</td><td></td><td></td><td>1.2</td><td>OK</td></tr><tr><td>1.002</td><td>5</td><td>68</td><td>63.818</td><td>-0.126</td><td>0.000</td><td>0.06</td><td></td><td>279</td><td>1.2</td><td>OK</td></tr><tr><td>1.003</td><td>6</td><td>68</td><td>63.668</td><td>-0.122</td><td>0.000</td><td>0.08</td><td></td><td></td><td>1.7</td><td>OK</td></tr><tr><td>1.004</td><td>7</td><td>68</td><td>63.473</td><td>-0.059</td><td>0.000</td><td>0.09</td><td></td><td></td><td>1.7</td><td>OK</td></tr></table>										Water Surcharged Flooded							Half Drain	Pipe		PN	US/MH Name	Storm Rank	Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Status	1.000	1	68	63.912	-0.088	0.000	0.04			0.3	OK	2.000	2	68	64.055	-0.087	0.000	0.04			0.3	OK	2.001	3	68	63.928	-0.084	0.000	0.06			0.4	OK	3.000	4	68	63.925	-0.075	0.000	0.14			0.6	OK	1.001	4	68	63.863	-0.115	0.000	0.13			1.2	OK	1.002	5	68	63.818	-0.126	0.000	0.06		279	1.2	OK	1.003	6	68	63.668	-0.122	0.000	0.08			1.7	OK	1.004	7	68	63.473	-0.059	0.000	0.09			1.7	OK
Water Surcharged Flooded							Half Drain	Pipe																																																																																																														
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Simon Beale Associates							Page 57				
The Old School House Casement Street Ballina, Ireland				SUDS Design Pinner Road, Northwood, UK							
Date 27/07/2022 15:54				Designed by AK							
File 22-182 Pinner Road, Nor...				Checked by SB							
Innovyze				Network 2020.1.3							
<u>Summary Wizard of 2880 minute 100 year Summer I+40% for Storm</u>											
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 Coefficient		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		0.414					
Region England and Wales Cv (Summer)		0.750									
M5-60 (mm)		20.300		Cv (Winter)		0.840					
Margin for Flood Risk Warning (mm)						300.0					
Analysis Timestep		2.5 Second Increment (Extended)									
DTS Status						OFF					
DVD Status						ON					
Inertia 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)		5, 30, 100									
Climate Change (%)		40, 40, 40									
Water Surcharged Flooded Half Drain Pipe											
PN	US/MH Name	Storm Rank	Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Pipe Flow (l/s)	Status	
1.000	1	71	63.911	-0.089	0.000	0.03			0.2	OK	
2.000	2	71	64.054	-0.088	0.000	0.03			0.2	OK	
2.001	3	71	63.927	-0.086	0.000	0.05			0.3	OK	
3.000	4	71	63.922	-0.078	0.000	0.11			0.4	OK	
1.001	4	71	63.860	-0.118	0.000	0.10			1.0	OK	
1.002	5	71	63.815	-0.129	0.000	0.05		342	1.0	OK	
1.003	6	71	63.665	-0.125	0.000	0.06			1.4	OK	
1.004	7	71	63.453	-0.079	0.000	0.07			1.4	OK	
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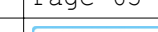
Simon Beale Associates							Page 58																																																																																																														
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Innovyze				Network 2020.1.3																																																																																																																	
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Simulation Criteria <table><tr><td>Areal Reduction Factor</td><td>1.000</td><td>Additional Flow - % of Total Flow</td><td>0.000</td></tr><tr><td>Hot Start (mins)</td><td>0</td><td>MADD Factor * 10m³/ha Storage</td><td>2.000</td></tr><tr><td>Hot Start Level (mm)</td><td>0</td><td>Inlet Coefficient</td><td>0.800</td></tr><tr><td>Manhole Headloss Coeff (Global)</td><td>0.500</td><td>Flow per Person per Day (l/per/day)</td><td>0.000</td></tr><tr><td>Foul Sewage per hectare (l/s)</td><td>0.000</td><td></td><td></td></tr></table> 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												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 Coefficient	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																																																																																								
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Synthetic Rainfall Details <table><tr><td>Rainfall Model</td><td>FSR</td><td>Ratio R</td><td>0.414</td></tr><tr><td>Region England and Wales Cv (Summer)</td><td>0.750</td><td></td><td></td></tr><tr><td>M5-60 (mm)</td><td>20.300</td><td>Cv (Winter)</td><td>0.840</td></tr></table> Margin for Flood Risk Warning (mm) 300.0 Analysis Timestep 2.5 Second Increment (Extended) DTS Status OFF DVD Status ON Inertia 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) 5, 30, 100 Climate Change (%) 40, 40, 40												Rainfall Model	FSR	Ratio R	0.414	Region England and Wales Cv (Summer)	0.750			M5-60 (mm)	20.300	Cv (Winter)	0.840																																																																																														
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PN	US/MH Name	Storm Rank	Water Surcharged Flooded			Flow / Overflow		Half Drain	Pipe	Status																																																																																																											
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The Old School House Casement Street Ballina, Ireland				SUDS Design Pinner Road, Northwood, UK						
Date 27/07/2022 15:54				Designed by AK						
File 22-182 Pinner Road, Nor...				Checked by SB						
Innovyze				Network 2020.1.3						
<u>Summary Wizard of 5760 minute 100 year Summer I+40% for Storm</u>										
<u>Simulation Criteria</u>										
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 Coefficient		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				
<u>Synthetic Rainfall Details</u>										
Rainfall Model		FSR		Ratio R		0.414				
Region England and Wales Cv (Summer)		0.750								
M5-60 (mm)		20.300		Cv (Winter)		0.840				
Margin for Flood Risk Warning (mm)						300.0				
Analysis Timestep		2.5 Second Increment (Extended)								
DTS Status						OFF				
DVD Status						ON				
Inertia 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)						5, 30, 100				
Climate Change (%)						40, 40, 40				

Simon Beale Associates							Page 60																																																																																																																	
The Old School House Casement Street Ballina, Ireland				SUDS Design Pinner Road, Northwood, UK																																																																																																																				
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Simon Beale Associates							Page 61																																																																																																																	
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Duration(s) (mins)		15, 30, 60, 120, 180, 240, 360, 480, 600,				720, 960, 1440, 2160, 2880, 4320, 5760,																																																																																																																		
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Water Surcharged Flooded							Half Drain	Pipe																																																																																																																
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Water Surcharged Flooded							Half Drain	Pipe																																																																																																															
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Simon Beale Associates		Page 65
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Summary Wizard of 60 minute 5 year Winter I+40% 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

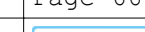
Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.414
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	20.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia 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)	5, 30, 100
Climate Change (%)	40, 40, 40

PN	US/MH Name	Storm Rank	Water	Surcharged	Flooded	Flow / Cap.	Half Drain	Pipe	Status
			Level (m)	Depth (m)	Volume (m³)		Overflow (l/s)	Time (mins)	
1.000	1	34	64.038	0.038	0.000	0.21	47	1.4	SURCHARGED
2.000	2	36	64.076	-0.066	0.000	0.26		1.8	OK
2.001	3	36	64.040	0.027	0.000	0.36		2.4	SURCHARGED
3.000	4	36	64.038	0.038	0.000	0.85		3.3	SURCHARGED
1.001	4	34	64.037	0.059	0.000	0.72		7.0	SURCHARGED
1.002	5	34	64.033	0.089	0.000	0.15		3.1	SURCHARGED
1.003	6	34	64.029	0.239	0.000	0.17		3.6	SURCHARGED
1.004	7	34	64.021	0.489	0.000	0.10		2.0	SURCHARGED

Simon Beale Associates		Page 66
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Summary Wizard of 120 minute 5 year Winter I+40% for Storm

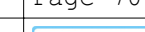
Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m ³ /ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Synthetic Rainfall Details

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)	5, 30, 100
Climate Change (%)	40, 40, 40

Simon Beale Associates							Page 67																																																																																																																	
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<u>Summary Wizard of 180 minute 5 year Winter I+40% for Storm</u>																																																																																																																								
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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 Coefficient		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																																																																																																																		
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Region England and Wales Cv (Summer)		0.750																																																																																																																						
M5-60 (mm)		20.300		Cv (Winter)		0.840																																																																																																																		
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2.000	2	54	64.059	-0.083	0.000	0.07			0.5	OK																																																																																																													
2.001	3	55	63.933	-0.079	0.000	0.10			0.7	OK																																																																																																													
3.000	4	55	63.932	-0.068	0.000	0.23			0.9	OK																																																																																																													
1.001	4	55	63.886	-0.092	0.000	0.20			2.0	OK																																																																																																													
1.002	5	55	63.881	-0.063	0.000	0.09		36	1.9	OK																																																																																																													
1.003	6	55	63.877	0.087	0.000	0.11			2.4	SURCHARGED																																																																																																													
1.004	7	55	63.870	0.338	0.000	0.10			2.0	SURCHARGED																																																																																																													
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Simon Beale Associates		Page 70
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Summary Wizard of 480 minute 5 year Winter I+40% for Storm

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m ³ /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		

Synthetic Rainfall Details

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)	5, 30, 100
Climate Change (%)	40, 40, 40

Simon Beale Associates		Page 71
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Network 2020.1.3

Summary Wizard of 600 minute 5 year Winter I+40% 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 Coefficient 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 0.414
 Region England and Wales Cv (Summer) 0.750
 M5-60 (mm) 20.300 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 DVD Status ON
 Inertia 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) 5, 30, 100
 Climate Change (%) 40, 40, 40

			Water	Surcharged	Flooded				Half Drain	Pipe	
	US/MH	Storm	Level	Depth	Volume	Flow /	Overflow		Time	Flow	
PN	Name	Rank	(m)	(m)	(m³)	Cap.	(l/s)		(mins)	(l/s)	Status
1.000	1	65	63.913	-0.087	0.000	0.04				0.3	OK
2.000	2	65	64.056	-0.086	0.000	0.05				0.3	OK
2.001	3	65	63.929	-0.083	0.000	0.07				0.5	OK
3.000	4	65	63.926	-0.074	0.000	0.15				0.6	OK
1.001	4	65	63.865	-0.113	0.000	0.14				1.3	OK
1.002	5	65	63.819	-0.125	0.000	0.07			131	1.3	OK
1.003	6	65	63.670	-0.120	0.000	0.09				1.9	OK
1.004	7	65	63.504	-0.028	0.000	0.09				1.8	OK

Simon Beale Associates							Page 72																																																																																																								
The Old School House Casement Street Ballina, Ireland				SUDS Design Pinner Road, Northwood, UK																																																																																																											
Date 27/07/2022 15:54				Designed by AK																																																																																																											
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<u>Summary Wizard of 720 minute 5 year Winter I+40% for Storm</u>																																																																																																															
<u>Simulation Criteria</u>																																																																																																															
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 Coefficient		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																																																																																																									
<u>Synthetic Rainfall Details</u>																																																																																																															
Rainfall Model		FSR		Ratio R		0.414																																																																																																									
Region England and Wales Cv (Summer)		0.750																																																																																																													
M5-60 (mm)		20.300		Cv (Winter)		0.840																																																																																																									
Margin for Flood Risk Warning (mm)						300.0																																																																																																									
Analysis Timestep		2.5 Second Increment (Extended)																																																																																																													
DTS Status						OFF																																																																																																									
DVD Status						ON																																																																																																									
Inertia 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)		5, 30, 100																																																																																																													
Climate Change (%)		40, 40, 40																																																																																																													
<table><tr><th colspan="7">Water Surcharged Flooded</th><th>Half Drain</th><th>Pipe</th><th></th></tr><tr><th>PN</th><th>US/MH Name</th><th>Storm Rank</th><th>Level (m)</th><th>Depth (m)</th><th>Volume (m³)</th><th>Flow / Overflow Cap.</th><th>Time (mins)</th><th>Flow (l/s)</th><th>Status</th></tr><tr><td>1.000</td><td>1</td><td>69</td><td>63.912</td><td>-0.088</td><td>0.000</td><td>0.04</td><td></td><td>0.2</td><td>OK</td></tr><tr><td>2.000</td><td>2</td><td>69</td><td>64.055</td><td>-0.087</td><td>0.000</td><td>0.04</td><td></td><td>0.3</td><td>OK</td></tr><tr><td>2.001</td><td>3</td><td>69</td><td>63.928</td><td>-0.085</td><td>0.000</td><td>0.06</td><td></td><td>0.4</td><td>OK</td></tr><tr><td>3.000</td><td>4</td><td>69</td><td>63.924</td><td>-0.076</td><td>0.000</td><td>0.13</td><td></td><td>0.5</td><td>OK</td></tr><tr><td>1.001</td><td>4</td><td>69</td><td>63.862</td><td>-0.116</td><td>0.000</td><td>0.12</td><td></td><td>1.2</td><td>OK</td></tr><tr><td>1.002</td><td>5</td><td>69</td><td>63.817</td><td>-0.127</td><td>0.000</td><td>0.06</td><td>152</td><td>1.2</td><td>OK</td></tr><tr><td>1.003</td><td>6</td><td>69</td><td>63.667</td><td>-0.123</td><td>0.000</td><td>0.08</td><td></td><td>1.6</td><td>OK</td></tr><tr><td>1.004</td><td>7</td><td>69</td><td>63.467</td><td>-0.065</td><td>0.000</td><td>0.08</td><td></td><td>1.6</td><td>OK</td></tr></table>												Water Surcharged Flooded							Half Drain	Pipe		PN	US/MH Name	Storm Rank	Level (m)	Depth (m)	Volume (m³)	Flow / Overflow Cap.	Time (mins)	Flow (l/s)	Status	1.000	1	69	63.912	-0.088	0.000	0.04		0.2	OK	2.000	2	69	64.055	-0.087	0.000	0.04		0.3	OK	2.001	3	69	63.928	-0.085	0.000	0.06		0.4	OK	3.000	4	69	63.924	-0.076	0.000	0.13		0.5	OK	1.001	4	69	63.862	-0.116	0.000	0.12		1.2	OK	1.002	5	69	63.817	-0.127	0.000	0.06	152	1.2	OK	1.003	6	69	63.667	-0.123	0.000	0.08		1.6	OK	1.004	7	69	63.467	-0.065	0.000	0.08		1.6	OK
Water Surcharged Flooded							Half Drain	Pipe																																																																																																							
PN	US/MH Name	Storm Rank	Level (m)	Depth (m)	Volume (m³)	Flow / Overflow Cap.	Time (mins)	Flow (l/s)	Status																																																																																																						
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Simon Beale Associates							Page 73																																																																																																								
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Hot Start (mins)		0		MADD Factor * 10m³/ha Storage		2.000																																																																																																									
Hot Start Level (mm)		0		Inlet Coefficient		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																																																																																																									
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Rainfall Model		FSR		Ratio R		0.414																																																																																																									
Region England and Wales Cv (Summer)		0.750																																																																																																													
M5-60 (mm)		20.300		Cv (Winter)		0.840																																																																																																									
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Duration(s) (mins)		15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080																																																																																																													
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Water Surcharged Flooded							Half Drain	Pipe																																																																																																							
PN	US/MH Name	Storm Rank	Level (m)	Depth (m)	Volume (m³)	Flow / Overflow Cap.	Time (mins)	Flow (l/s)	Status																																																																																																						
1.000	1	74	63.911	-0.089	0.000	0.03		0.2	OK																																																																																																						
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2.001	3	74	63.926	-0.086	0.000	0.05		0.3	OK																																																																																																						
3.000	4	74	63.922	-0.078	0.000	0.11		0.4	OK																																																																																																						
1.001	4	74	63.859	-0.119	0.000	0.10		0.9	OK																																																																																																						
1.002	5	74	63.815	-0.129	0.000	0.05	188	0.9	OK																																																																																																						
1.003	6	74	63.664	-0.126	0.000	0.06		1.3	OK																																																																																																						
1.004	7	74	63.450	-0.082	0.000	0.07		1.3	OK																																																																																																						
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Simon Beale Associates		Page 74
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Summary Wizard of 1440 minute 5 year Winter I+40% 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 Coefficient 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 0.414
 Region England and Wales Cv (Summer) 0.750
 M5-60 (mm) 20.300 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 DVD Status ON
 Inertia 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) 5, 30, 100
 Climate Change (%) 40, 40, 40

PN	US/MH Name	Storm Rank	Water		Surcharged	Flooded		Half Drain Time (mins)	Pipe	Status
			Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)		Flow (l/s)	
1.000	1	81	63.910	-0.090	0.000	0.02			0.1	OK
2.000	2	81	64.052	-0.090	0.000	0.02			0.2	OK
2.001	3	81	63.924	-0.088	0.000	0.03			0.2	OK
3.000	4	81	63.919	-0.081	0.000	0.08			0.3	OK
1.001	4	81	63.854	-0.124	0.000	0.07			0.7	OK
1.002	5	81	63.812	-0.132	0.000	0.03		234	0.7	OK
1.003	6	81	63.660	-0.130	0.000	0.04			0.9	OK
1.004	7	81	63.435	-0.097	0.000	0.05			0.9	OK

Simon Beale Associates		Page 75
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Summary Wizard of 2160 minute 5 year Winter I+40% 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 Coefficient 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 0.414
 Region England and Wales Cv (Summer) 0.750
 M5-60 (mm) 20.300 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 DVD Status ON
 Inertia 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) 5, 30, 100
 Climate Change (%) 40, 40, 40

PN	US/MH Name	Storm Rank	Water Surcharged		Flooded		Flow / Cap.	Overflow (l/s)	Half Drain	Pipe	Status
			Level (m)	Depth (m)	Volume (m³)	Time (mins)			Flow (l/s)		
1.000	1	87	63.907	-0.093	0.000	0.02				0.1	OK
2.000	2	87	64.050	-0.092	0.000	0.02				0.1	OK
2.001	3	87	63.923	-0.089	0.000	0.02				0.2	OK
3.000	4	87	63.915	-0.085	0.000	0.06				0.2	OK
1.001	4	87	63.850	-0.128	0.000	0.05				0.5	OK
1.002	5	87	63.810	-0.134	0.000	0.02			273	0.5	OK
1.003	6	87	63.658	-0.132	0.000	0.03				0.7	OK
1.004	7	87	63.425	-0.107	0.000	0.04				0.7	OK

Simon Beale Associates							Page 76																																																																																																																	
The Old School House Casement Street Ballina, Ireland				SUDS Design Pinner Road, Northwood, UK																																																																																																																				
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File 22-182 Pinner Road, Nor...				Checked by SB																																																																																																																				
Innovyze				Network 2020.1.3																																																																																																																				
<u>Summary Wizard of 2880 minute 5 year Winter I+40% for Storm</u>																																																																																																																								
<u>Simulation Criteria</u>																																																																																																																								
Areal Reduction Factor		1.000		Additional Flow - % of Total Flow		0.000																																																																																																																		
Hot Start (mins)		0		MADD Factor * 10m³/ha Storage		2.000																																																																																																																		
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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																																																																																																																		
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Rainfall Model		FSR		Ratio R		0.414																																																																																																																		
Region England and Wales Cv (Summer)		0.750																																																																																																																						
M5-60 (mm)		20.300		Cv (Winter)		0.840																																																																																																																		
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Duration(s) (mins)		15, 30, 60, 120, 180, 240, 360, 480, 600,				720, 960, 1440, 2160, 2880, 4320, 5760,																																																																																																																		
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Return Period(s) (years)						5, 30, 100																																																																																																																		
Climate Change (%)						40, 40, 40																																																																																																																		
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Water Surcharged Flooded							Half Drain	Pipe																																																																																																																
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Simon Beale Associates							Page 77																																																																																																															
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Areal Reduction Factor		1.000		Additional Flow - % of Total Flow		0.000																																																																																																																
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Water Surcharged Flooded							Half Drain	Pipe																																																																																																														
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Simon Beale Associates		Page 78
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze Network 2020.1.3		

Summary Wizard of 5760 minute 5 year Winter I+40% 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 Coefficient	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	0.414
Region England and Wales Cv (Summer)	0.750		
M5-60 (mm)	20.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia 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)	5, 30, 100
Climate Change (%)	40, 40, 40

PN	US/MH Name	Storm Rank	Water	Surcharged	Flooded	Half Drain		Pipe	Status
			Level (m)	Depth (m)	Volume (m³)	Flow / Overflow Cap. (l/s)	Time (mins)	Flow (l/s)	
1.000	1	108	63.903	-0.097	0.000	0.01		0.0	OK
2.000	2	108	64.046	-0.096	0.000	0.01		0.1	OK
2.001	3	108	63.918	-0.094	0.000	0.01		0.1	OK
3.000	4	108	63.911	-0.089	0.000	0.03		0.1	OK
1.001	4	108	63.844	-0.134	0.000	0.02		0.2	OK
1.002	5	108	63.802	-0.142	0.000	0.01	494	0.2	OK
1.003	6	108	63.651	-0.139	0.000	0.02		0.3	OK
1.004	7	108	63.410	-0.122	0.000	0.02		0.3	OK

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3.000	4	112	63.910	-0.090	0.000	0.02		0.1	OK																																																																																																						
1.001	4	112	63.842	-0.136	0.000	0.02		0.2	OK																																																																																																						
1.002	5	112	63.801	-0.143	0.000	0.01	471	0.2	OK																																																																																																						
1.003	6	112	63.649	-0.141	0.000	0.01		0.3	OK																																																																																																						
1.004	7	112	63.407	-0.125	0.000	0.01		0.3	OK																																																																																																						
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Simon Beale Associates		Page 80
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Network 2020.1.3

Summary Wizard of 8640 minute 5 year Winter I+40% 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 Coefficient 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 0.414
 Region England and Wales Cv (Summer) 0.750
 M5-60 (mm) 20.300 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 DVD Status ON
 Inertia 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) 5, 30, 100
 Climate Change (%) 40, 40, 40

PN	US/MH Name	Storm Rank	Water Surcharged			Flooded		Half Drain Time (mins)	Pipe Flow (l/s)	Status
			Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)			
1.000	1	113	63.902	-0.098	0.000	0.01			0.0	OK
2.000	2	113	64.045	-0.097	0.000	0.01			0.0	OK
2.001	3	113	63.916	-0.096	0.000	0.01			0.1	OK
3.000	4	113	63.909	-0.091	0.000	0.02			0.1	OK
1.001	4	113	63.841	-0.137	0.000	0.02			0.2	OK
1.002	5	113	63.800	-0.144	0.000	0.01		457	0.2	OK
1.003	6	113	63.648	-0.142	0.000	0.01			0.2	OK
1.004	7	113	63.406	-0.126	0.000	0.01			0.2	OK

Simon Beale Associates		Page 81
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze Network 2020.1.3		

Summary Wizard of 10080 minute 5 year Winter I+40% 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 Coefficient	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	0.414
Region England and Wales Cv (Summer)	0.750		
M5-60 (mm)	20.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia 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)	5, 30, 100
Climate Change (%)	40, 40, 40

PN	US/MH Name	Storm Rank	Water	Surcharged	Flooded	Half Drain		Pipe	Status
			Level (m)	Depth (m)	Volume (m³)	Flow / Overflow Cap. (l/s)	Time (mins)	Flow (l/s)	
1.000	1	114	63.902	-0.098	0.000	0.00		0.0	OK
2.000	2	114	64.045	-0.097	0.000	0.01		0.0	OK
2.001	3	114	63.916	-0.096	0.000	0.01		0.1	OK
3.000	4	114	63.908	-0.092	0.000	0.02		0.1	OK
1.001	4	114	63.839	-0.139	0.000	0.02		0.2	OK
1.002	5	114	63.799	-0.145	0.000	0.01	366	0.2	OK
1.003	6	114	63.647	-0.143	0.000	0.01		0.2	OK
1.004	7	114	63.404	-0.128	0.000	0.01		0.2	OK

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Simon Beale Associates		Page 83
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Summary Wizard of 30 minute 30 year Winter I+40% 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 Coefficient 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

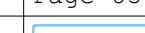
Rainfall Model FSR Ratio R 0.414
 Region England and Wales Cv (Summer) 0.750
 M5-60 (mm) 20.300 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 DVD Status ON
 Inertia 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) 5, 30, 100
 Climate Change (%) 40, 40, 40

WARNING: Half Drain Time has not been calculated as the structure is too full.

PN	US/MH Name	Storm Rank	Water		Surcharged	Flooded	Flow / Cap.	Overflow (l/s)	Half Drain	Pipe	Status
			Level (m)	Depth (m)	Volume (m³)	Time (mins)			Flow (l/s)		
1.000	1	16	64.182	0.182	0.000	0.43			2.9	SURCHARGED	
2.000	2	18	64.189	0.047	0.000	0.53			3.8	SURCHARGED	
2.001	3	16	64.184	0.172	0.000	0.71			4.8	SURCHARGED	
3.000	4	18	64.182	0.182	0.000	1.77			7.0	SURCHARGED	
1.001	4	16	64.180	0.202	0.000	1.45			14.1	SURCHARGED	
1.002	5	15	64.174	0.230	0.000	0.15			3.1	SURCHARGED	
1.003	6	15	64.169	0.379	0.000	0.19			4.0	SURCHARGED	
1.004	7	15	64.160	0.628	0.000	0.10			2.0	SURCHARGED	

Simon Beale Associates		Page 85
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Summary Wizard of 120 minute 30 year Winter I+40% for Storm

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		

Synthetic Rainfall Details

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)	5, 30, 100
Climate Change (%)	40, 40, 40

Simon Beale Associates							Page 86																																																																																																																
The Old School House Casement Street Ballina, Ireland				SUDS Design Pinner Road, Northwood, UK																																																																																																																			
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<u>Summary Wizard of 180 minute 30 year Winter I+40% for Storm</u>																																																																																																																							
<u>Simulation Criteria</u>																																																																																																																							
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 Coefficient		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																																																																																																																	
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Rainfall Model		FSR		Ratio R		0.414																																																																																																																	
Region England and Wales Cv (Summer)		0.750																																																																																																																					
M5-60 (mm)		20.300		Cv (Winter)		0.840																																																																																																																	
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DTS Status						OFF																																																																																																																	
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Return Period(s) (years)		5, 30, 100																																																																																																																					
Climate Change (%)		40, 40, 40																																																																																																																					
<table><tr><th colspan="2"></th><th colspan="3">Water Surcharged</th><th colspan="2">Flooded</th><th colspan="2">Half Drain</th><th>Pipe</th><th rowspan="2">Status</th></tr><tr><th>PN</th><th>US/MH Name</th><th>Storm Rank</th><th>Level (m)</th><th>Depth (m)</th><th>Volume (m³)</th><th>Flow / Cap.</th><th>Overflow (l/s)</th><th>Time (mins)</th><th>Flow (l/s)</th></tr><tr><td>1.000</td><td>1</td><td>18</td><td>64.158</td><td>0.158</td><td>0.000</td><td>0.13</td><td></td><td></td><td>0.9</td><td>SURCHARGED</td></tr><tr><td>2.000</td><td>2</td><td>21</td><td>64.162</td><td>0.020</td><td>0.000</td><td>0.17</td><td></td><td></td><td>1.2</td><td>SURCHARGED</td></tr><tr><td>2.001</td><td>3</td><td>19</td><td>64.160</td><td>0.147</td><td>0.000</td><td>0.23</td><td></td><td></td><td>1.6</td><td>SURCHARGED</td></tr><tr><td>3.000</td><td>4</td><td>21</td><td>64.158</td><td>0.158</td><td>0.000</td><td>0.54</td><td></td><td></td><td>2.1</td><td>SURCHARGED</td></tr><tr><td>1.001</td><td>4</td><td>18</td><td>64.157</td><td>0.179</td><td>0.000</td><td>0.45</td><td></td><td></td><td>4.4</td><td>SURCHARGED</td></tr><tr><td>1.002</td><td>5</td><td>18</td><td>64.152</td><td>0.208</td><td>0.000</td><td>0.12</td><td></td><td>91</td><td>2.4</td><td>SURCHARGED</td></tr><tr><td>1.003</td><td>6</td><td>18</td><td>64.147</td><td>0.357</td><td>0.000</td><td>0.14</td><td></td><td></td><td>3.0</td><td>SURCHARGED</td></tr><tr><td>1.004</td><td>7</td><td>18</td><td>64.139</td><td>0.607</td><td>0.000</td><td>0.10</td><td></td><td></td><td>2.0</td><td>SURCHARGED</td></tr></table>													Water Surcharged			Flooded		Half Drain		Pipe	Status	PN	US/MH Name	Storm Rank	Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	1.000	1	18	64.158	0.158	0.000	0.13			0.9	SURCHARGED	2.000	2	21	64.162	0.020	0.000	0.17			1.2	SURCHARGED	2.001	3	19	64.160	0.147	0.000	0.23			1.6	SURCHARGED	3.000	4	21	64.158	0.158	0.000	0.54			2.1	SURCHARGED	1.001	4	18	64.157	0.179	0.000	0.45			4.4	SURCHARGED	1.002	5	18	64.152	0.208	0.000	0.12		91	2.4	SURCHARGED	1.003	6	18	64.147	0.357	0.000	0.14			3.0	SURCHARGED	1.004	7	18	64.139	0.607	0.000	0.10			2.0	SURCHARGED
		Water Surcharged			Flooded		Half Drain		Pipe	Status																																																																																																													
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Simon Beale Associates							Page 87																																																																																																																								
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PN	US/MH Name	Storm Rank	Water		Surcharged		Flooded		Half Drain		Pipe				Status																																																																																																																
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The Old School House

Casement Street

Ballina, Ireland

SUDS Design

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Page 89



Summary Wizard of 480 minute 30 year Winter I+40% 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 0.414

Region England and Wales Cv (Summer) 0.750

M5-60 (mm) 20.300

Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0

Analysis Timestep 2.5

Second Increment (Extended)

DTS Status OFF

DVD Status ON

Inertia 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) 5, 30, 100

Climate Change (%) 40, 40, 40

		Water Surcharged			Flooded		Half Drain		Pipe	Status
PN	US/MH Name	Storm Rank	Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	
1.000	1	43	63.995	-0.005	0.000	0.07			0.5	OK
2.000	2	51	64.061	-0.081	0.000	0.08			0.6	OK
2.001	3	43	63.996	-0.016	0.000	0.12			0.8	OK
3.000	4	43	63.995	-0.005	0.000	0.27			1.1	OK
1.001	4	43	63.994	0.016	0.000	0.24			2.3	SURCHARGED
1.002	5	42	63.990	0.046	0.000	0.10		80	1.9	SURCHARGED
1.003	6	42	63.986	0.196	0.000	0.11			2.4	SURCHARGED
1.004	7	42	63.978	0.446	0.000	0.10			2.0	SURCHARGED

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The Old School House Casement Street Ballina, Ireland				SUDS Design Pinner Road, Northwood, UK																																																																																																																					
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			Water Surcharged		Flooded		Half Drain		Pipe																																																																																																																
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The Old School House Casement Street Ballina, Ireland				SUDS Design Pinner Road, Northwood, UK						
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<u>Summary Wizard of 720 minute 30 year Winter I+40% for Storm</u>										
<u>Simulation Criteria</u>										
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 Coefficient		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				
<u>Synthetic Rainfall Details</u>										
Rainfall Model		FSR		Ratio R		0.414				
Region England and Wales Cv (Summer)		0.750								
M5-60 (mm)		20.300		Cv (Winter)		0.840				
Margin for Flood Risk Warning (mm)						300.0				
Analysis Timestep		2.5		Second Increment (Extended)						
DTS Status						OFF				
DVD Status						ON				
Inertia 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)		5, 30, 100								
Climate Change (%)		40, 40, 40								

Simon Beale Associates		Page 92
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
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Summary Wizard of 960 minute 30 year Winter I+40% 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 Coefficient 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 0.414
 Region England and Wales Cv (Summer) 0.750
 M5-60 (mm) 20.300 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 DVD Status ON
 Inertia 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) 5, 30, 100
 Climate Change (%) 40, 40, 40

PN	US/MH Name	Storm Rank	Water			Surcharged		Flow / Overflow	Half Drain		Pipe	Status
			Level	Depth	Volume	Flow	Cap.		Time	Flow		
			(m)	(m)	(m ³)			(l/s)	(mins)	(l/s)		
1.000	1	64	63.913	-0.087	0.000	0.04				0.3	OK	
2.000	2	64	64.056	-0.086	0.000	0.05				0.3	OK	
2.001	3	64	63.929	-0.083	0.000	0.07				0.5	OK	
3.000	4	64	63.926	-0.074	0.000	0.16				0.6	OK	
1.001	4	64	63.865	-0.113	0.000	0.14				1.3	OK	
1.002	5	64	63.819	-0.125	0.000	0.07			216	1.3	OK	
1.003	6	64	63.670	-0.120	0.000	0.09				1.9	OK	
1.004	7	64	63.510	-0.022	0.000	0.09				1.9	OK	

Simon Beale Associates		Page 93
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
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Summary Wizard of 1440 minute 30 year Winter I+40% 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 Coefficient 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 0.414
 Region England and Wales Cv (Summer) 0.750
 M5-60 (mm) 20.300 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 DVD Status ON
 Inertia 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) 5, 30, 100
 Climate Change (%) 40, 40, 40

			Water	Surcharged	Flooded				Half Drain	Pipe	
	US/MH	Storm	Level	Depth	Volume	Flow /	Overflow		Time	Flow	
PN	Name	Rank	(m)	(m)	(m³)	Cap.	(l/s)		(mins)	(l/s)	Status
1.000	1	72	63.911	-0.089	0.000	0.03				0.2	OK
2.000	2	72	64.054	-0.088	0.000	0.03				0.2	OK
2.001	3	72	63.927	-0.086	0.000	0.05				0.3	OK
3.000	4	72	63.922	-0.078	0.000	0.11				0.4	OK
1.001	4	72	63.860	-0.118	0.000	0.10				1.0	OK
1.002	5	72	63.815	-0.129	0.000	0.05			289	1.0	OK
1.003	6	72	63.665	-0.125	0.000	0.06				1.4	OK
1.004	7	72	63.453	-0.079	0.000	0.07				1.4	OK

Simon Beale Associates		Page 94
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
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Summary Wizard of 2160 minute 30 year Winter I+40% 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 Coefficient	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	0.414
Region England and Wales Cv (Summer)	0.750		
M5-60 (mm)	20.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia 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)	5, 30, 100
Climate Change (%)	40, 40, 40

PN	US/MH Name	Storm Rank	Water	Surcharged	Flooded	Half Drain		Pipe	Status
			Level (m)	Depth (m)	Volume (m³)	Flow / Overflow Cap. (l/s)	Time (mins)	Flow (l/s)	
1.000	1	77	63.910	-0.090	0.000	0.02		0.1	OK
2.000	2	77	64.053	-0.089	0.000	0.02		0.2	OK
2.001	3	77	63.925	-0.088	0.000	0.04		0.2	OK
3.000	4	77	63.919	-0.081	0.000	0.08		0.3	OK
1.001	4	77	63.855	-0.123	0.000	0.07		0.7	OK
1.002	5	77	63.812	-0.132	0.000	0.03		367 0.7	OK
1.003	6	77	63.661	-0.129	0.000	0.05		1.0	OK
1.004	7	77	63.436	-0.096	0.000	0.05		1.0	OK

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Simon Beale Associates		Page 95
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze Network 2020.1.3		

Summary Wizard of 2880 minute 30 year Winter I+40% 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 Coefficient	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

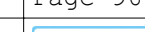
Rainfall Model	FSR	Ratio R	0.414
Region England and Wales Cv (Summer)	0.750		
M5-60 (mm)	20.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia 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)	5, 30, 100
Climate Change (%)	40, 40, 40

PN	US/MH Name	Storm Rank	Water	Surcharged	Flooded	Half Drain		Pipe	Status
			Level (m)	Depth (m)	Volume (m³)	Flow / Overflow Cap. (l/s)	Time (mins)	Flow (l/s)	
1.000	1	83	63.908	-0.092	0.000	0.02		0.1	OK
2.000	2	83	64.051	-0.091	0.000	0.02		0.1	OK
2.001	3	83	63.923	-0.089	0.000	0.03		0.2	OK
3.000	4	83	63.917	-0.083	0.000	0.07		0.3	OK
1.001	4	83	63.851	-0.127	0.000	0.06		0.6	OK
1.002	5	83	63.810	-0.134	0.000	0.03	426	0.6	OK
1.003	6	83	63.658	-0.132	0.000	0.04		0.8	OK
1.004	7	83	63.428	-0.104	0.000	0.04		0.8	OK

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Simon Beale Associates		Page 96
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Summary Wizard of 4320 minute 30 year Winter I+40% for Storm

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		

Synthetic Rainfall Details

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)	5, 30, 100
Climate Change (%)	40, 40, 40

Simon Beale Associates		Page 97
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze Network 2020.1.3		

Summary Wizard of 5760 minute 30 year Winter I+40% 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 Coefficient	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	0.414
Region England and Wales Cv (Summer)	0.750		
M5-60 (mm)	20.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia 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)	5, 30, 100
Climate Change (%)	40, 40, 40

PN	US/MH Name	Storm Rank	Water	Surcharged	Flooded	Half Drain		Pipe	Status
			Level (m)	Depth (m)	Volume (m³)	Flow / Overflow Cap. (l/s)	Time (mins)	Flow (l/s)	
1.000	1	99	63.905	-0.095	0.000	0.01		0.1	OK
2.000	2	99	64.047	-0.095	0.000	0.01		0.1	OK
2.001	3	99	63.920	-0.092	0.000	0.02		0.1	OK
3.000	4	99	63.912	-0.088	0.000	0.04		0.1	OK
1.001	4	99	63.846	-0.132	0.000	0.03		0.3	OK
1.002	5	99	63.805	-0.139	0.000	0.02	611	0.3	OK
1.003	6	99	63.655	-0.135	0.000	0.02		0.4	OK
1.004	7	99	63.415	-0.117	0.000	0.02		0.4	OK

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Simon Beale Associates		Page 98
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Summary Wizard of 7200 minute 30 year Winter I+40% 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 Coefficient 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 0.414
 Region England and Wales Cv (Summer) 0.750
 M5-60 (mm) 20.300 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 DVD Status ON
 Inertia 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) 5, 30, 100
 Climate Change (%) 40, 40, 40

			Water	Surcharged	Flooded				Half Drain	Pipe	
	US/MH	Storm	Level	Depth	Volume	Flow /	Overflow		Time	Flow	
PN	Name	Rank	(m)	(m)	(m³)	Cap.	(l/s)		(mins)	(l/s)	Status
1.000	1	105	63.904	-0.096	0.000	0.01				0.1	OK
2.000	2	105	64.046	-0.096	0.000	0.01				0.1	OK
2.001	3	105	63.919	-0.094	0.000	0.01				0.1	OK
3.000	4	105	63.911	-0.089	0.000	0.03				0.1	OK
1.001	4	105	63.844	-0.134	0.000	0.03				0.3	OK
1.002	5	105	63.803	-0.141	0.000	0.01			629	0.3	OK
1.003	6	105	63.653	-0.137	0.000	0.02				0.4	OK
1.004	7	105	63.412	-0.120	0.000	0.02				0.4	OK

Simon Beale Associates		Page 99
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Summary Wizard of 8640 minute 30 year Winter I+40% 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 Coefficient 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 0.414
 Region England and Wales Cv (Summer) 0.750
 M5-60 (mm) 20.300 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 DVD Status ON
 Inertia 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) 5, 30, 100
 Climate Change (%) 40, 40, 40

PN	US/MH Name	Storm Rank	Water			Surcharged		Flow / Overflow Cap.	Half Drain Time (mins)	Pipe Flow (l/s)	Status
			Level (m)	Depth (m)	Volume (m ³)	Flow	Overflow				
1.000	1	109	63.903	-0.097	0.000	0.01				0.0	OK
2.000	2	109	64.046	-0.096	0.000	0.01				0.1	OK
2.001	3	109	63.918	-0.095	0.000	0.01				0.1	OK
3.000	4	109	63.911	-0.089	0.000	0.03				0.1	OK
1.001	4	109	63.844	-0.134	0.000	0.02				0.2	OK
1.002	5	109	63.802	-0.142	0.000	0.01			733	0.2	OK
1.003	6	109	63.651	-0.139	0.000	0.02				0.3	OK
1.004	7	109	63.410	-0.122	0.000	0.02				0.3	OK

Simon Beale Associates							Page 100																																																																																																								
The Old School House Casement Street Ballina, Ireland				SUDS Design Pinner Road, Northwood, UK																																																																																																											
Date 27/07/2022 15:54				Designed by AK																																																																																																											
File 22-182 Pinner Road, Nor...				Checked by SB																																																																																																											
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<u>Summary Wizard of 10080 minute 30 year Winter I+40% for Storm</u>																																																																																																															
<u>Simulation Criteria</u>																																																																																																															
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 Coefficient		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																																																																																																									
<u>Synthetic Rainfall Details</u>																																																																																																															
Rainfall Model		FSR		Ratio R		0.414																																																																																																									
Region England and Wales Cv (Summer)		0.750																																																																																																													
M5-60 (mm)		20.300		Cv (Winter)		0.840																																																																																																									
Margin for Flood Risk Warning (mm)						300.0																																																																																																									
Analysis Timestep		2.5 Second Increment (Extended)																																																																																																													
DTS Status						OFF																																																																																																									
DVD Status						ON																																																																																																									
Inertia 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)		5, 30, 100																																																																																																													
Climate Change (%)		40, 40, 40																																																																																																													
<table><tr><th colspan="7">Water Surcharged Flooded</th><th>Half Drain</th><th>Pipe</th><th></th></tr><tr><th>PN</th><th>US/MH Name</th><th>Storm Rank</th><th>Level (m)</th><th>Depth (m)</th><th>Volume (m³)</th><th>Flow / Overflow Cap.</th><th>Time (mins)</th><th>Flow (l/s)</th><th>Status</th></tr><tr><td>1.000</td><td>1</td><td>111</td><td>63.903</td><td>-0.097</td><td>0.000</td><td>0.01</td><td></td><td>0.0</td><td>OK</td></tr><tr><td>2.000</td><td>2</td><td>111</td><td>64.045</td><td>-0.097</td><td>0.000</td><td>0.01</td><td></td><td>0.1</td><td>OK</td></tr><tr><td>2.001</td><td>3</td><td>111</td><td>63.917</td><td>-0.095</td><td>0.000</td><td>0.01</td><td></td><td>0.1</td><td>OK</td></tr><tr><td>3.000</td><td>4</td><td>111</td><td>63.910</td><td>-0.090</td><td>0.000</td><td>0.02</td><td></td><td>0.1</td><td>OK</td></tr><tr><td>1.001</td><td>4</td><td>111</td><td>63.843</td><td>-0.135</td><td>0.000</td><td>0.02</td><td></td><td>0.2</td><td>OK</td></tr><tr><td>1.002</td><td>5</td><td>111</td><td>63.801</td><td>-0.143</td><td>0.000</td><td>0.01</td><td>784</td><td>0.2</td><td>OK</td></tr><tr><td>1.003</td><td>6</td><td>111</td><td>63.650</td><td>-0.140</td><td>0.000</td><td>0.01</td><td></td><td>0.3</td><td>OK</td></tr><tr><td>1.004</td><td>7</td><td>111</td><td>63.408</td><td>-0.124</td><td>0.000</td><td>0.01</td><td></td><td>0.3</td><td>OK</td></tr></table>												Water Surcharged Flooded							Half Drain	Pipe		PN	US/MH Name	Storm Rank	Level (m)	Depth (m)	Volume (m³)	Flow / Overflow Cap.	Time (mins)	Flow (l/s)	Status	1.000	1	111	63.903	-0.097	0.000	0.01		0.0	OK	2.000	2	111	64.045	-0.097	0.000	0.01		0.1	OK	2.001	3	111	63.917	-0.095	0.000	0.01		0.1	OK	3.000	4	111	63.910	-0.090	0.000	0.02		0.1	OK	1.001	4	111	63.843	-0.135	0.000	0.02		0.2	OK	1.002	5	111	63.801	-0.143	0.000	0.01	784	0.2	OK	1.003	6	111	63.650	-0.140	0.000	0.01		0.3	OK	1.004	7	111	63.408	-0.124	0.000	0.01		0.3	OK
Water Surcharged Flooded							Half Drain	Pipe																																																																																																							
PN	US/MH Name	Storm Rank	Level (m)	Depth (m)	Volume (m³)	Flow / Overflow Cap.	Time (mins)	Flow (l/s)	Status																																																																																																						
1.000	1	111	63.903	-0.097	0.000	0.01		0.0	OK																																																																																																						
2.000	2	111	64.045	-0.097	0.000	0.01		0.1	OK																																																																																																						
2.001	3	111	63.917	-0.095	0.000	0.01		0.1	OK																																																																																																						
3.000	4	111	63.910	-0.090	0.000	0.02		0.1	OK																																																																																																						
1.001	4	111	63.843	-0.135	0.000	0.02		0.2	OK																																																																																																						
1.002	5	111	63.801	-0.143	0.000	0.01	784	0.2	OK																																																																																																						
1.003	6	111	63.650	-0.140	0.000	0.01		0.3	OK																																																																																																						
1.004	7	111	63.408	-0.124	0.000	0.01		0.3	OK																																																																																																						
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Simon Beale Associates		Page 101
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Summary Wizard of 15 minute 100 year Winter I+40% 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 Coefficient 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 0.414
 Region England and Wales Cv (Summer) 0.750
 M5-60 (mm) 20.300 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 DVD Status ON
 Inertia 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) 5, 30, 100
 Climate Change (%) 40, 40, 40

WARNING: Half Drain Time has not been calculated as the structure is too full.

PN	US/MH Name	Storm Rank	Water Surcharged Flooded				Half Drain Time (mins)	Pipe Flow (l/s)	Status
			Level (m)	Depth (m)	Volume (m ³)	Flow / Overflow Cap. (l/s)			
1.000	1	7	64.283	0.283	0.000	0.68		4.6	SURCHARGED
2.000	2	1	64.414	0.272	0.000	0.79		5.7	SURCHARGED
2.001	3	3	64.340	0.328	0.000	1.04		7.1	SURCHARGED
3.000	4	1	64.394	0.394	0.000	2.87		11.3	SURCHARGED
1.001	4	8	64.255	0.277	0.000	2.29		22.2	SURCHARGED
1.002	5	12	64.210	0.266	0.000	0.18		3.7	SURCHARGED
1.003	6	12	64.204	0.414	0.000	0.27		5.8	SURCHARGED
1.004	7	12	64.195	0.663	0.000	0.10		2.0	SURCHARGED

Simon Beale Associates		Page 102
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

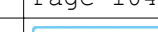
Summary Wizard of 30 minute 100 year Winter I+40% for Storm

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		

Synthetic Rainfall Details

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)	5, 30, 100
Climate Change (%)	40, 40, 40

PN	US/MH Name	Storm Rank	Water	Surcharged	Flooded	Flow / Cap.	Overflow (l/s)	Half Drain	Pipe	Status
			Level (m)	Depth (m)	Volume (m³)			Time (mins)	Flow (l/s)	
1.000	1	4	64.317	0.317	0.000	0.54			3.6	SURCHARGED
2.000	2	5	64.358	0.216	0.000	0.63			4.5	SURCHARGED
2.001	3	5	64.320	0.308	0.000	0.84			5.8	SURCHARGED
3.000	4	5	64.337	0.337	0.000	2.26			8.9	SURCHARGED
1.001	4	4	64.315	0.337	0.000	1.83			17.8	SURCHARGED
1.002	5	4	64.308	0.364	0.000	0.17			3.4	SURCHARGED
1.003	6	4	64.302	0.512	0.000	0.21			4.4	SURCHARGED
1.004	7	4	64.293	0.761	0.000	0.11			2.1	SURCHARGED

Simon Beale Associates		Page 104
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
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Summary Wizard of 120 minute 100 year Winter I+40% for Storm

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m ³ /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		

Synthetic Rainfall Details

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)	5, 30, 100
Climate Change (%)	40, 40, 40

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The Old School House
Casement Street
Ballina, Ireland

Date 27/07/2022 15:54
File 22-182 Pinner Road, Nor...

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Northwood, UK

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Network 2020.1.3

Page 105



Summary Wizard of 180 minute 100 year Winter I+40% 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 Coefficient 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 0.414

Region England and Wales Cv (Summer) 0.750

M5-60 (mm) 20.300 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0

Analysis Timestep 2.5 Second Increment (Extended)

DTS Status OFF

DVD Status ON

Inertia Status ON

Profile(s)

Duration(s) (mins)

Return Period(s) (years)

Climate Change (%)

Summer and Winter

15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080

5, 30, 100

40, 40, 40

Water Surcharged Flooded

Half Drain Pipe

US/MH Storm Level Depth Volume Flow / Overflow Time Flow

PN Name Rank (m) (m) (m³) Cap. (l/s) (mins) (l/s) Status

1.000 1 3 64.330 0.330 0.000 0.17 1.2 SURCHARGED

2.000 2 7 64.334 0.192 0.000 0.22 1.6 SURCHARGED

2.001 3 4 64.331 0.319 0.000 0.28 1.9 SURCHARGED

3.000 4 7 64.329 0.329 0.000 0.70 2.8 SURCHARGED

1.001 4 3 64.328 0.350 0.000 0.57 5.6 SURCHARGED

1.002 5 3 64.323 0.379 0.000 0.12 115 2.4 SURCHARGED

1.003 6 3 64.318 0.528 0.000 0.14 3.0 SURCHARGED

1.004 7 3 64.309 0.777 0.000 0.11 2.1 SURCHARGED

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The Old School House Casement Street Ballina, Ireland				SUDS Design Pinner Road, Northwood, UK																																																																																																																					
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<u>Summary Wizard of 240 minute 100 year Winter I+40% for Storm</u>																																																																																																																									
<u>Simulation Criteria</u>																																																																																																																									
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 Coefficient 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																																																																																																																					
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Number of Offline Controls 0				Number of Real Time Controls 0																																																																																																																					
<u>Synthetic Rainfall Details</u>																																																																																																																									
Rainfall Model				FSR		Ratio R 0.414																																																																																																																			
Region England and Wales Cv (Summer)				0.750																																																																																																																					
M5-60 (mm)				20.300		Cv (Winter) 0.840																																																																																																																			
Margin for Flood Risk Warning (mm)				300.0																																																																																																																					
Analysis Timestep				2.5 Second Increment (Extended)																																																																																																																					
DTS Status				OFF																																																																																																																					
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Return Period(s) (years)				5, 30, 100																																																																																																																					
Climate Change (%)				40, 40, 40																																																																																																																					
<table><tr><th colspan="2"></th><th colspan="3">Water Surcharged</th><th colspan="2">Flooded</th><th colspan="2">Half Drain</th><th>Pipe</th><th></th></tr><tr><th>PN</th><th>US/MH Name</th><th>Storm Rank</th><th>Level (m)</th><th>Depth (m)</th><th>Volume (m³)</th><th>Flow / Cap.</th><th>Overflow (l/s)</th><th>Time (mins)</th><th>Flow (l/s)</th><th>Status</th></tr><tr><td>1.000</td><td>1</td><td>6</td><td>64.293</td><td>0.293</td><td>0.000</td><td>0.14</td><td></td><td></td><td>0.9</td><td>SURCHARGED</td></tr><tr><td>2.000</td><td>2</td><td>9</td><td>64.298</td><td>0.156</td><td>0.000</td><td>0.18</td><td></td><td></td><td>1.3</td><td>SURCHARGED</td></tr><tr><td>2.001</td><td>3</td><td>7</td><td>64.295</td><td>0.282</td><td>0.000</td><td>0.23</td><td></td><td></td><td>1.6</td><td>SURCHARGED</td></tr><tr><td>3.000</td><td>4</td><td>9</td><td>64.293</td><td>0.293</td><td>0.000</td><td>0.56</td><td></td><td></td><td>2.2</td><td>SURCHARGED</td></tr><tr><td>1.001</td><td>4</td><td>6</td><td>64.292</td><td>0.314</td><td>0.000</td><td>0.47</td><td></td><td></td><td>4.5</td><td>SURCHARGED</td></tr><tr><td>1.002</td><td>5</td><td>6</td><td>64.287</td><td>0.343</td><td>0.000</td><td>0.12</td><td></td><td>120</td><td>2.4</td><td>SURCHARGED</td></tr><tr><td>1.003</td><td>6</td><td>6</td><td>64.282</td><td>0.492</td><td>0.000</td><td>0.13</td><td></td><td></td><td>2.8</td><td>SURCHARGED</td></tr><tr><td>1.004</td><td>7</td><td>6</td><td>64.273</td><td>0.741</td><td>0.000</td><td>0.11</td><td></td><td></td><td>2.1</td><td>SURCHARGED</td></tr></table>														Water Surcharged			Flooded		Half Drain		Pipe		PN	US/MH Name	Storm Rank	Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Status	1.000	1	6	64.293	0.293	0.000	0.14			0.9	SURCHARGED	2.000	2	9	64.298	0.156	0.000	0.18			1.3	SURCHARGED	2.001	3	7	64.295	0.282	0.000	0.23			1.6	SURCHARGED	3.000	4	9	64.293	0.293	0.000	0.56			2.2	SURCHARGED	1.001	4	6	64.292	0.314	0.000	0.47			4.5	SURCHARGED	1.002	5	6	64.287	0.343	0.000	0.12		120	2.4	SURCHARGED	1.003	6	6	64.282	0.492	0.000	0.13			2.8	SURCHARGED	1.004	7	6	64.273	0.741	0.000	0.11			2.1	SURCHARGED
		Water Surcharged			Flooded		Half Drain		Pipe																																																																																																																
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Simon Beale Associates		Page 108
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Summary Wizard of 480 minute 100 year Winter I+40% 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 Coefficient 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

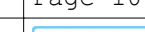
Synthetic Rainfall Details

Rainfall Model FSR Ratio R 0.414
 Region England and Wales Cv (Summer) 0.750
 M5-60 (mm) 20.300 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 DVD Status ON
 Inertia 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) 5, 30, 100
 Climate Change (%) 40, 40, 40

PN	US/MH Name	Storm Rank	Water		Surcharged	Flooded	Flow / Cap.	Overflow (l/s)	Half Drain	Pipe	Status
			Level (m)	Depth (m)	Volume (m³)	Time (mins)			Flow (l/s)		
1.000	1	19	64.150	0.150	0.000	0.08				0.6	SURCHARGED
2.000	2	22	64.154	0.012	0.000	0.11				0.8	SURCHARGED
2.001	3	21	64.151	0.139	0.000	0.14				1.0	SURCHARGED
3.000	4	22	64.149	0.149	0.000	0.33				1.3	SURCHARGED
1.001	4	19	64.148	0.170	0.000	0.28				2.7	SURCHARGED
1.002	5	19	64.144	0.200	0.000	0.10		125		2.0	SURCHARGED
1.003	6	19	64.139	0.349	0.000	0.12				2.5	SURCHARGED
1.004	7	19	64.131	0.599	0.000	0.10				2.0	SURCHARGED

Simon Beale Associates		Page 109
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

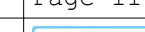
Summary Wizard of 600 minute 100 year Winter I+40% for Storm

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m ³ /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		

Synthetic Rainfall Details

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia Status	ON

PN	US/MH Name	Storm Rank	Water	Surcharged	Flooded	Flow / Cap.	Overflow (l/s)	Half Drain	Pipe	Status
			Level (m)	Depth (m)	Volume (m³)			Time (mins)	Flow (l/s)	
1.000	1	30	64.086	0.086	0.000	0.07			0.5	SURCHARGED
2.000	2	32	64.090	-0.052	0.000	0.09			0.6	OK
2.001	3	30	64.087	0.075	0.000	0.12			0.8	SURCHARGED
3.000	4	30	64.086	0.086	0.000	0.29			1.1	SURCHARGED
1.001	4	30	64.085	0.107	0.000	0.24			2.4	SURCHARGED
1.002	5	29	64.081	0.137	0.000	0.09		112	1.9	SURCHARGED
1.003	6	29	64.076	0.286	0.000	0.11			2.4	SURCHARGED
1.004	7	29	64.068	0.536	0.000	0.10			2.0	SURCHARGED

Simon Beale Associates		Page 110
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Summary Wizard of 720 minute 100 year Winter I+40% for Storm

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m ³ /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		

Synthetic Rainfall Details

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)	5, 30, 100
Climate Change (%)	40, 40, 40

Simon Beale Associates							Page 111			
The Old School House Casement Street Ballina, Ireland				SUDS Design Pinner Road, Northwood, UK						
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...				Designed by AK Checked by SB						
Innovyze				Network 2020.1.3						
<u>Summary Wizard of 960 minute 100 year Winter I+40% for Storm</u>										
<u>Simulation Criteria</u>										
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 Coefficient		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				
<u>Synthetic Rainfall Details</u>										
Rainfall Model		FSR		Ratio R		0.414				
Region England and Wales Cv (Summer)		0.750								
M5-60 (mm)		20.300		Cv (Winter)		0.840				
Margin for Flood Risk Warning (mm)						300.0				
Analysis Timestep		2.5		Second Increment (Extended)						
DTS Status						OFF				
DVD Status						ON				
Inertia 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)		5, 30, 100								
Climate Change (%)		40, 40, 40								

Simon Beale Associates		Page 112
The Old School House Casement Street Ballina, Ireland	SUDS Design Pinner Road, Northwood, UK	
Date 27/07/2022 15:54 File 22-182 Pinner Road, Nor...	Designed by AK Checked by SB	
Innovyze	Network 2020.1.3	

Summary Wizard of 1440 minute 100 year Winter I+40% 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 Coefficient 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 0.414
 Region England and Wales Cv (Summer) 0.750
 M5-60 (mm) 20.300 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 DVD Status ON
 Inertia 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) 5, 30, 100
 Climate Change (%) 40, 40, 40

PN	US/MH Name	Storm Rank	Water	Surcharged	Flooded	Flow / Cap.	Overflow (1/s)	Half Drain	Pipe	Status
			Level (m)	Depth (m)	Volume (m³)			Time (mins)	Flow (1/s)	
1.000	1	67	63.912	-0.088	0.000	0.04			0.3	OK
2.000	2	67	64.055	-0.087	0.000	0.04			0.3	OK
2.001	3	67	63.928	-0.084	0.000	0.06			0.4	OK
3.000	4	67	63.925	-0.075	0.000	0.14			0.6	OK
1.001	4	67	63.863	-0.115	0.000	0.13			1.2	OK
1.002	5	67	63.818	-0.126	0.000	0.06		316	1.2	OK
1.003	6	67	63.668	-0.122	0.000	0.08			1.7	OK
1.004	7	67	63.474	-0.058	0.000	0.09			1.7	OK

Simon Beale Associates							Page 113																																																																																																																	
The Old School House Casement Street Ballina, Ireland				SUDS Design Pinner Road, Northwood, UK																																																																																																																				
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Innovyze							Network 2020.1.3																																																																																																																	
<u>Summary Wizard of 2160 minute 100 year Winter I+40% for Storm</u>																																																																																																																								
<u>Simulation Criteria</u>																																																																																																																								
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 Coefficient			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																																																																																																																
<u>Synthetic Rainfall Details</u>																																																																																																																								
Rainfall Model			FSR		Ratio R			0.414																																																																																																																
Region England and Wales Cv (Summer)			0.750																																																																																																																					
M5-60 (mm)			20.300		Cv (Winter)			0.840																																																																																																																
Margin for Flood Risk Warning (mm)								300.0																																																																																																																
Analysis Timestep			2.5 Second Increment (Extended)																																																																																																																					
DTS Status								OFF																																																																																																																
DVD Status								ON																																																																																																																
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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																																																																																																																					
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Climate Change (%)			40, 40, 40																																																																																																																					
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<u>Summary of Results for 100 year Return Period (+40%)</u> Half Drain Time : 104 minutes. <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Control (l/s)</th><th>Max Σ Outflow (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>64.288</td><td>0.460</td><td>0.0</td><td>2.1</td><td>2.1</td><td>14.8</td><td>O K</td></tr><tr><td>30 min Summer</td><td>64.393</td><td>0.565</td><td>0.0</td><td>2.2</td><td>2.2</td><td>18.2</td><td>O K</td></tr><tr><td>60 min Summer</td><td>64.450</td><td>0.622</td><td>0.0</td><td>2.3</td><td>2.3</td><td>20.0</td><td>O K</td></tr><tr><td>120 min Summer</td><td>64.427</td><td>0.599</td><td>0.0</td><td>2.3</td><td>2.3</td><td>19.2</td><td>O K</td></tr><tr><td>180 min Summer</td><td>64.395</td><td>0.567</td><td>0.0</td><td>2.2</td><td>2.2</td><td>18.2</td><td>O K</td></tr><tr><td>240 min Summer</td><td>64.361</td><td>0.533</td><td>0.0</td><td>2.2</td><td>2.2</td><td>17.1</td><td>O K</td></tr><tr><td>360 min Summer</td><td>64.298</td><td>0.470</td><td>0.0</td><td>2.1</td><td>2.1</td><td>15.1</td><td>O K</td></tr><tr><td>480 min Summer</td><td>64.240</td><td>0.412</td><td>0.0</td><td>2.1</td><td>2.1</td><td>13.2</td><td>O K</td></tr><tr><td>600 min Summer</td><td>64.186</td><td>0.358</td><td>0.0</td><td>2.0</td><td>2.0</td><td>11.5</td><td>O K</td></tr><tr><td>720 min Summer</td><td>64.137</td><td>0.309</td><td>0.0</td><td>1.9</td><td>1.9</td><td>9.9</td><td>O K</td></tr><tr><td>960 min Summer</td><td>64.051</td><td>0.223</td><td>0.0</td><td>1.8</td><td>1.8</td><td>7.2</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>63.925</td><td>0.097</td><td>0.0</td><td>1.8</td><td>1.8</td><td>3.1</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>63.828</td><td>0.000</td><td>0.0</td><td>1.8</td><td>1.8</td><td>0.0</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>63.828</td><td>0.000</td><td>0.0</td><td>1.4</td><td>1.4</td><td>0.0</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>63.828</td><td>0.000</td><td>0.0</td><td>1.0</td><td>1.0</td><td>0.0</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>63.828</td><td>0.000</td><td>0.0</td><td>0.8</td><td>0.8</td><td>0.0</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>63.828</td><td>0.000</td><td>0.0</td><td>0.7</td><td>0.7</td><td>0.0</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>63.828</td><td>0.000</td><td>0.0</td><td>0.6</td><td>0.6</td><td>0.0</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>63.828</td><td>0.000</td><td>0.0</td><td>0.5</td><td>0.5</td><td>0.0</td><td>O K</td></tr><tr><td>15 min Winter</td><td>64.350</td><td>0.522</td><td>0.0</td><td>2.2</td><td>2.2</td><td>16.8</td><td>O K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Discharge Volume (m³)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>142.122</td><td>0.0</td><td>16.8</td><td>18</td></tr><tr><td>30 min Summer</td><td>92.733</td><td>0.0</td><td>21.9</td><td>32</td></tr><tr><td>60 min Summer</td><td>57.587</td><td>0.0</td><td>27.3</td><td>60</td></tr><tr><td>120 min Summer</td><td>34.536</td><td>0.0</td><td>32.6</td><td>94</td></tr><tr><td>180 min Summer</td><td>25.268</td><td>0.0</td><td>35.9</td><td>128</td></tr><tr><td>240 min Summer</td><td>20.125</td><td>0.0</td><td>38.1</td><td>162</td></tr><tr><td>360 min Summer</td><td>14.575</td><td>0.0</td><td>41.4</td><td>230</td></tr><tr><td>480 min Summer</td><td>11.589</td><td>0.0</td><td>43.8</td><td>298</td></tr><tr><td>600 min Summer</td><td>9.694</td><td>0.0</td><td>45.8</td><td>362</td></tr><tr><td>720 min Summer</td><td>8.375</td><td>0.0</td><td>47.4</td><td>428</td></tr><tr><td>960 min Summer</td><td>6.644</td><td>0.0</td><td>50.3</td><td>550</td></tr><tr><td>1440 min Summer</td><td>4.787</td><td>0.0</td><td>54.2</td><td>794</td></tr><tr><td>2160 min Summer</td><td>3.444</td><td>0.0</td><td>58.6</td><td>0</td></tr><tr><td>2880 min Summer</td><td>2.723</td><td>0.0</td><td>61.8</td><td>0</td></tr><tr><td>4320 min Summer</td><td>1.954</td><td>0.0</td><td>66.5</td><td>0</td></tr><tr><td>5760 min Summer</td><td>1.543</td><td>0.0</td><td>70.0</td><td>0</td></tr><tr><td>7200 min Summer</td><td>1.283</td><td>0.0</td><td>72.8</td><td>0</td></tr><tr><td>8640 min Summer</td><td>1.104</td><td>0.0</td><td>75.1</td><td>0</td></tr><tr><td>10080 min Summer</td><td>0.972</td><td>0.0</td><td>77.1</td><td>0</td></tr><tr><td>15 min Winter</td><td>142.122</td><td>0.0</td><td>18.8</td><td>18</td></tr></table>								Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status	15 min Summer	64.288	0.460	0.0	2.1	2.1	14.8	O K	30 min Summer	64.393	0.565	0.0	2.2	2.2	18.2	O K	60 min Summer	64.450	0.622	0.0	2.3	2.3	20.0	O K	120 min Summer	64.427	0.599	0.0	2.3	2.3	19.2	O K	180 min Summer	64.395	0.567	0.0	2.2	2.2	18.2	O K	240 min Summer	64.361	0.533	0.0	2.2	2.2	17.1	O K	360 min Summer	64.298	0.470	0.0	2.1	2.1	15.1	O K	480 min Summer	64.240	0.412	0.0	2.1	2.1	13.2	O K	600 min Summer	64.186	0.358	0.0	2.0	2.0	11.5	O K	720 min Summer	64.137	0.309	0.0	1.9	1.9	9.9	O K	960 min Summer	64.051	0.223	0.0	1.8	1.8	7.2	O K	1440 min Summer	63.925	0.097	0.0	1.8	1.8	3.1	O K	2160 min Summer	63.828	0.000	0.0	1.8	1.8	0.0	O K	2880 min Summer	63.828	0.000	0.0	1.4	1.4	0.0	O K	4320 min Summer	63.828	0.000	0.0	1.0	1.0	0.0	O K	5760 min Summer	63.828	0.000	0.0	0.8	0.8	0.0	O K	7200 min Summer	63.828	0.000	0.0	0.7	0.7	0.0	O K	8640 min Summer	63.828	0.000	0.0	0.6	0.6	0.0	O K	10080 min Summer	63.828	0.000	0.0	0.5	0.5	0.0	O K	15 min Winter	64.350	0.522	0.0	2.2	2.2	16.8	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	15 min Summer	142.122	0.0	16.8	18	30 min Summer	92.733	0.0	21.9	32	60 min Summer	57.587	0.0	27.3	60	120 min Summer	34.536	0.0	32.6	94	180 min Summer	25.268	0.0	35.9	128	240 min Summer	20.125	0.0	38.1	162	360 min Summer	14.575	0.0	41.4	230	480 min Summer	11.589	0.0	43.8	298	600 min Summer	9.694	0.0	45.8	362	720 min Summer	8.375	0.0	47.4	428	960 min Summer	6.644	0.0	50.3	550	1440 min Summer	4.787	0.0	54.2	794	2160 min Summer	3.444	0.0	58.6	0	2880 min Summer	2.723	0.0	61.8	0	4320 min Summer	1.954	0.0	66.5	0	5760 min Summer	1.543	0.0	70.0	0	7200 min Summer	1.283	0.0	72.8	0	8640 min Summer	1.104	0.0	75.1	0	10080 min Summer	0.972	0.0	77.1	0	15 min Winter	142.122	0.0	18.8	18
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status																																																																																																																																																																																																																																																																																	
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2160 min Summer	63.828	0.000	0.0	1.8	1.8	0.0	O K																																																																																																																																																																																																																																																																																	
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1440 min Summer	4.787	0.0	54.2	794																																																																																																																																																																																																																																																																																				
2160 min Summer	3.444	0.0	58.6	0																																																																																																																																																																																																																																																																																				
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The Old School House Casement Street Ballina, Ireland			Prop. SUDS Design Pinner Road, Northwood, UK				
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Innovyze			Source Control 2020.1.3				
<u>Summary of Results for 100 year Return Period (+40%)</u>							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	64.476	0.648	0.0	2.3	2.3	20.8	O K
60 min Winter	64.553	0.725	0.0	2.4	2.4	23.3	O K
120 min Winter	64.538	0.710	0.0	2.4	2.4	22.8	O K
180 min Winter	64.490	0.662	0.0	2.3	2.3	21.2	O K
240 min Winter	64.442	0.614	0.0	2.3	2.3	19.7	O K
360 min Winter	64.348	0.520	0.0	2.2	2.2	16.7	O K
480 min Winter	64.261	0.433	0.0	2.1	2.1	13.9	O K
600 min Winter	64.182	0.354	0.0	2.0	2.0	11.4	O K
720 min Winter	64.112	0.284	0.0	1.9	1.9	9.1	O K
960 min Winter	63.994	0.166	0.0	1.8	1.8	5.3	O K
1440 min Winter	63.828	0.000	0.0	1.8	1.8	0.0	O K
2160 min Winter	63.828	0.000	0.0	1.3	1.3	0.0	O K
2880 min Winter	63.828	0.000	0.0	1.0	1.0	0.0	O K
4320 min Winter	63.828	0.000	0.0	0.7	0.7	0.0	O K
5760 min Winter	63.828	0.000	0.0	0.6	0.6	0.0	O K
7200 min Winter	63.828	0.000	0.0	0.5	0.5	0.0	O K
8640 min Winter	63.828	0.000	0.0	0.4	0.4	0.0	O K
10080 min Winter	63.828	0.000	0.0	0.4	0.4	0.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
30 min Winter	92.733	0.0	24.5	32			
60 min Winter	57.587	0.0	30.4	60			
120 min Winter	34.536	0.0	36.5	100			
180 min Winter	25.268	0.0	40.2	138			
240 min Winter	20.125	0.0	42.7	176			
360 min Winter	14.575	0.0	46.3	250			
480 min Winter	11.589	0.0	49.1	320			
600 min Winter	9.694	0.0	51.2	388			
720 min Winter	8.375	0.0	53.2	454			
960 min Winter	6.644	0.0	56.3	578			
1440 min Winter	4.787	0.0	60.8	0			
2160 min Winter	3.444	0.0	65.6	0			
2880 min Winter	2.723	0.0	69.2	0			
4320 min Winter	1.954	0.0	74.5	0			
5760 min Winter	1.543	0.0	78.4	0			
7200 min Winter	1.283	0.0	81.5	0			
8640 min Winter	1.104	0.0	84.1	0			
10080 min Winter	0.972	0.0	86.4	0			
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Date 28/07/2022 10:07 File TANK SIZE 1_100 YEAR ST...	Designed by AK Checked by SB																																																																																																										
Innovyze		Source Control 2020.1.3																																																																																																									
<u>Model Details</u> Storage is Online Cover Level (m) 65.300 <u>Cellular Storage Structure</u> Invert Level (m) 63.828 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table border="1"> <thead> <tr> <th>Depth (m)</th> <th>Area (m²)</th> <th>Inf. Area (m²)</th> <th>Depth (m)</th> <th>Area (m²)</th> <th>Inf. Area (m²)</th> </tr> </thead> <tbody> <tr> <td>0.000</td> <td>33.8</td> <td>0.0</td> <td>0.801</td> <td>0.0</td> <td>0.0</td> </tr> <tr> <td>0.800</td> <td>33.8</td> <td>0.0</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <u>Hydro-Brake® Optimum Outflow Control</u> Unit Reference MD-SHE-0070-2000-0800-2000 Design Head (m) 0.800 Design Flow (l/s) 2.0 Flush-Flo™ Calculated Objective Minimise upstream storage Application Surface Sump Available Yes Diameter (mm) 70 Invert Level (m) 63.382 Minimum Outlet Pipe Diameter (mm) 100 Suggested Manhole Diameter (mm) 1200 <table border="1"> <thead> <tr> <th>Control Points</th> <th>Head (m)</th> <th>Flow (l/s)</th> </tr> </thead> <tbody> <tr> <td>Design Point (Calculated)</td> <td>0.800</td> <td>2.0</td> </tr> <tr> <td>Flush-Flo™</td> <td>0.240</td> <td>2.0</td> </tr> <tr> <td>Kick-Flo®</td> <td>0.504</td> <td>1.6</td> </tr> <tr> <td>Mean Flow over Head Range</td> <td>-</td> <td>1.7</td> </tr> </tbody> </table> 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 <table border="1"> <thead> <tr> <th>Depth (m)</th> <th>Flow (l/s)</th> <th>Depth (m)</th> <th>Flow (l/s)</th> <th>Depth (m)</th> <th>Flow (l/s)</th> <th>Depth (m)</th> <th>Flow (l/s)</th> </tr> </thead> <tbody> <tr> <td>0.100</td> <td>1.8</td> <td>1.200</td> <td>2.4</td> <td>3.000</td> <td>3.7</td> <td>7.000</td> <td>5.5</td> </tr> <tr> <td>0.200</td> <td>2.0</td> <td>1.400</td> <td>2.6</td> <td>3.500</td> <td>3.9</td> <td>7.500</td> <td>5.6</td> </tr> <tr> <td>0.300</td> <td>2.0</td> <td>1.600</td> <td>2.7</td> <td>4.000</td> <td>4.2</td> <td>8.000</td> <td>5.8</td> </tr> <tr> <td>0.400</td> <td>1.9</td> <td>1.800</td> <td>2.9</td> <td>4.500</td> <td>4.4</td> <td>8.500</td> <td>6.0</td> </tr> <tr> <td>0.500</td> <td>1.6</td> <td>2.000</td> <td>3.0</td> <td>5.000</td> <td>4.7</td> <td>9.000</td> <td>6.2</td> </tr> <tr> <td>0.600</td> <td>1.8</td> <td>2.200</td> <td>3.2</td> <td>5.500</td> <td>4.9</td> <td>9.500</td> <td>6.3</td> </tr> <tr> <td>0.800</td> <td>2.0</td> <td>2.400</td> <td>3.3</td> <td>6.000</td> <td>5.1</td> <td></td> <td></td> </tr> <tr> <td>1.000</td> <td>2.2</td> <td>2.600</td> <td>3.4</td> <td>6.500</td> <td>5.3</td> <td></td> <td></td> </tr> </tbody> </table>			Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	0.000	33.8	0.0	0.801	0.0	0.0	0.800	33.8	0.0				Control Points	Head (m)	Flow (l/s)	Design Point (Calculated)	0.800	2.0	Flush-Flo™	0.240	2.0	Kick-Flo®	0.504	1.6	Mean Flow over Head Range	-	1.7	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	0.100	1.8	1.200	2.4	3.000	3.7	7.000	5.5	0.200	2.0	1.400	2.6	3.500	3.9	7.500	5.6	0.300	2.0	1.600	2.7	4.000	4.2	8.000	5.8	0.400	1.9	1.800	2.9	4.500	4.4	8.500	6.0	0.500	1.6	2.000	3.0	5.000	4.7	9.000	6.2	0.600	1.8	2.200	3.2	5.500	4.9	9.500	6.3	0.800	2.0	2.400	3.3	6.000	5.1			1.000	2.2	2.600	3.4	6.500	5.3		
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