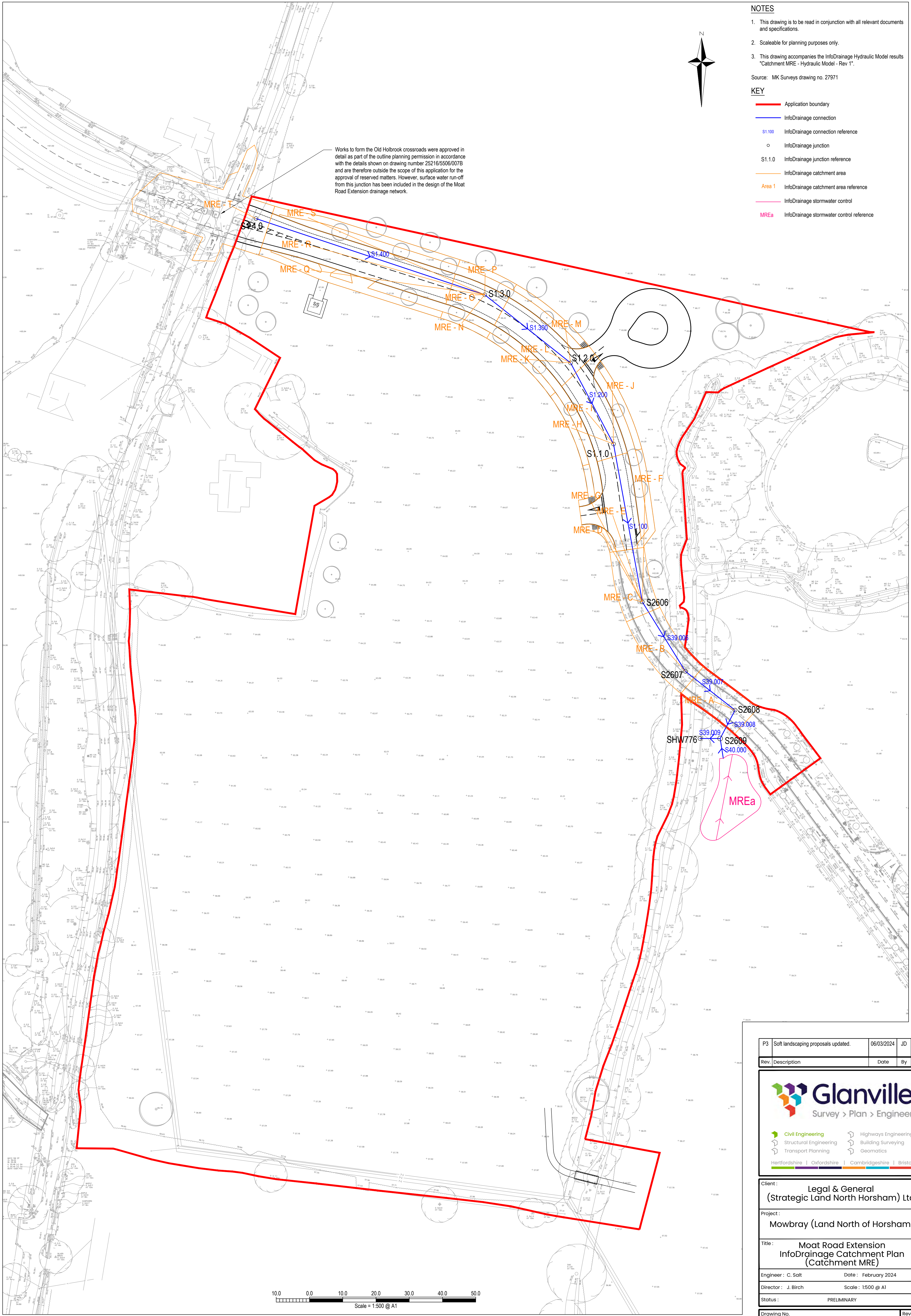




NOTES

1. This drawing is to be read in conjunction with all relevant documents and specifications.

2. Scaleable for planning purposes only.

3. This drawing accompanies the InfoDrainage Hydraulic Model results "Catchment MRE - Hydraulic Model - Rev 1".

Source: MK Surveys drawing no. 27971

KEY

Application boundary

InfoDrainage connection

S1.100 InfoDrainage connection reference

InfoDrainage junction

S1.1.0 InfoDrainage junction reference

InfoDrainage catchment area

Area 1 InfoDrainage catchment area reference

InfoDrainage stormwater control

MREa InfoDrainage stormwater control reference

P3	Soft landscaping proposals updated.	06/03/2024	JD	CS
Rev.	Description	Date	By	Chkd



Civil Engineering

Structural Engineering

Transport Planning

Highways Engineering

Building Surveying

Geomatics

Hertfordshire | Oxfordshire | Cambridgeshire | Bristol

Client: Legal & General
(Strategic Land North Horsham) Ltd

Project: Mowbray (Land North of Horsham)

Title: Moat Road Extension
InfoDrainage Catchment Plan
(Catchment MRE)

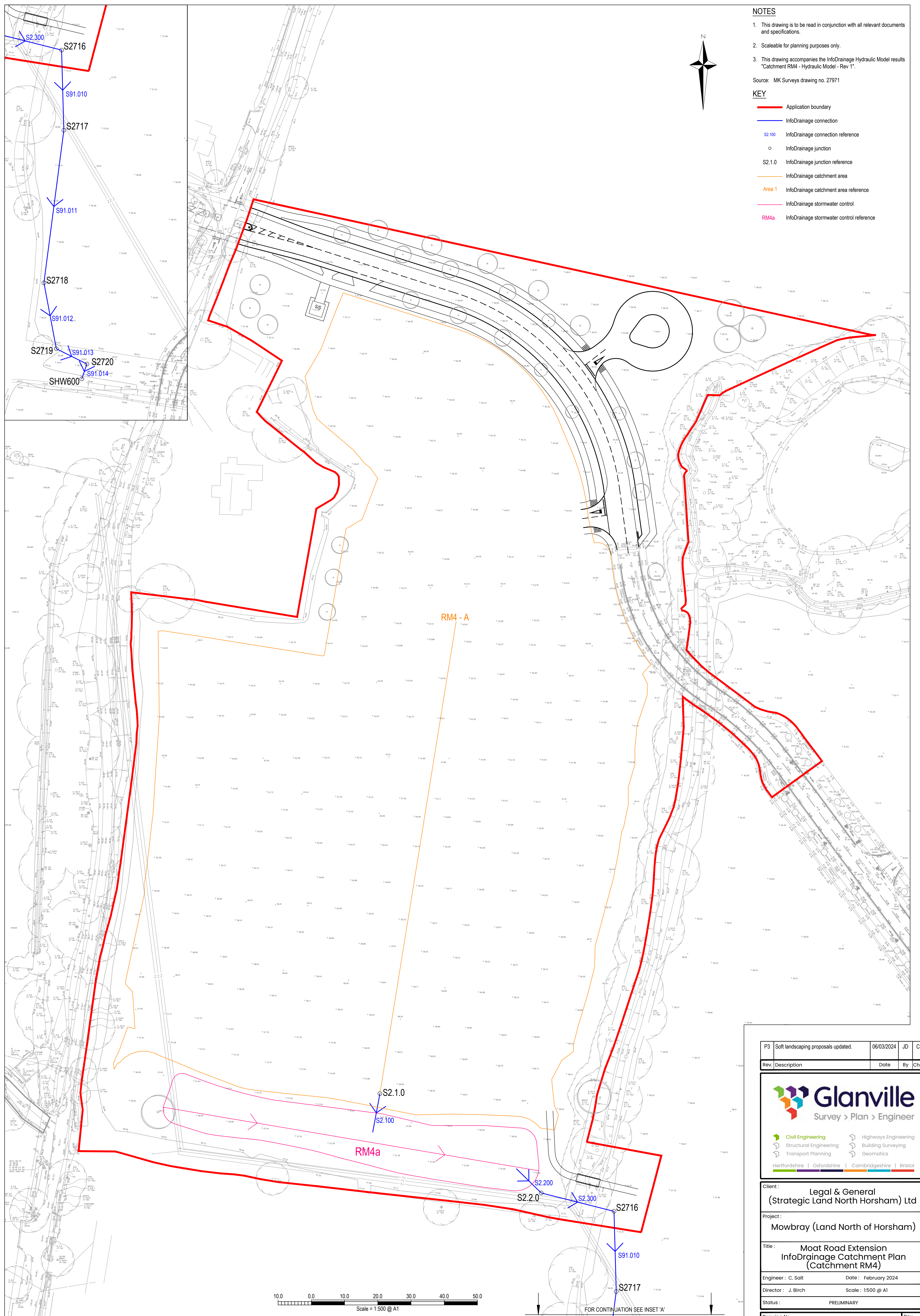
Engineer: C. Salt Date: February 2024

Director: J. Birch Scale: 1:500 @ A1

Status: PRELIMINARY

Drawing No. MOW-GLA-MRE-PHI-D-C-1401

Rev P3



P3	Soft landscaping proposals updated.	06/03/2024	JD	CS
Rev.	Description	Date	By	Chkd



Glanville

Survey > Plan > Engineer

 **Civil Engineering**

 Structural Engineering

 Transport Planning

 Highways Engineering

 Building Surveying

 Geomatics

Hertfordshire



Oxfordshire



Cambridgeshire



Bristol



Client :	Legal & General (Strategic Land North Horsham) Ltd
Project :	Mowbray (Land North of Horsham)
Title :	Moat Road Extension InfoDrainage Catchment Plan (Catchment RM4)
Engineer : C. Salt	Date : February 2024
Director : J. Birch	Scale : 1:500 @ A1
Status : PRELIMINARY	

Drawing No.	Rev
MOW-GLA-MRE-PHI-D-C-1402	P3

Appendix G

InfoDrainage Calculations – 1 in 100 year +20% Climate Change Design Event

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Junctions Storm Phase: Phase		Revision: Rev 1			

Name	Junction Type	Easting (m)	Northing (m)	Cover Level (m)	Depth (m)	Invert Level (m)	Chamber Shape	Diameter (m)
S1.4.0	Manhole	518541.680	134258.717	68.500	1.725	66.775	Circular	1.200
S1.3.0	Manhole	518610.487	134235.797	67.075	1.500	65.575	Circular	1.200
S1.2.0	Manhole	518636.317	134215.288	65.975	1.500	64.475	Circular	1.200
S1.1.0	Manhole	518649.225	134190.886	64.625	1.500	63.125	Circular	1.200
S2606	Manhole	518657.903	134143.353	62.618	1.660	60.958	Circular	1.200
S2607	Manhole	518670.859	134122.455	61.798	1.520	60.278	Circular	1.200
S2608	Manhole	518685.784	134110.804	61.403	1.990	59.413	Circular	1.200
S2609	Manhole	518681.302	134102.272	60.700	1.750	58.950	Circular	1.500
SHW776	Manhole	518675.215	134102.272	60.260	1.498	58.762	Circular	1.200

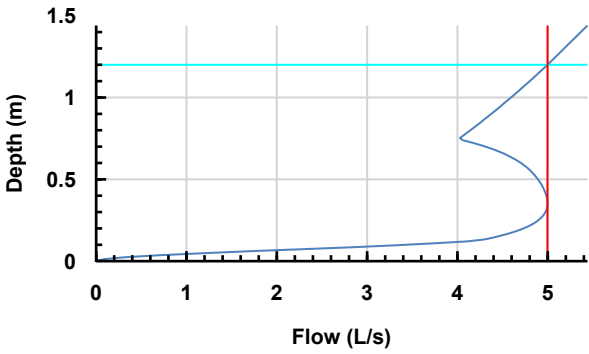
Name	Lock
S1.4.0	None
S1.3.0	None
S1.2.0	None
S1.1.0	None
S2606	None
S2607	None
S2608	None
S2609	None
SHW776	None

Inlets

Junction	Inlet Name	Incoming Item(s)	Bypass Destination	Capacity Type
S1.4.0	Inlet	MRE - T	(None)	No Restriction
S1.3.0	Inlet	S1.400 MRE - Q MRE - S MRE - R MRE - P MRE - N MRE - O	(None)	No Restriction
S1.2.0	Inlet	MRE - L MRE - K MRE - M S1.300	(None)	No Restriction
S1.1.0	Inlet	S1.200 MRE - H MRE - J MRE - I	(None)	No Restriction
S2606	Inlet	S1.100 MRE - C MRE - G MRE - E MRE - D MRE - F	(None)	No Restriction
S2607	Inlet	S39.006 MRE - B	(None)	No Restriction
S2608	Inlet	S39.007 MRE - A	(None)	No Restriction
S2609	Inlet	S39.008 S40.000	(None)	No Restriction
SHW776	Inlet	S39.009	(None)	No Restriction

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Junctions Storm Phase: Phase		Revision: Rev 1			

Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
S1.4.0	Outlet	S1.400	Free Discharge
S1.3.0	Outlet	S1.300	Free Discharge
S1.2.0	Outlet	S1.200	Free Discharge
S1.1.0	Outlet	S1.100	Free Discharge
S2606	Outlet	S39.006	Free Discharge
S2607	Outlet	S39.007	Free Discharge
S2608	Outlet	S39.008	Free Discharge
S2609	Outlet	S39.009	Hydro-Brake®
	Invert Level (m)	58.950	
	Design Depth (m)	1.200	
	Design Flow (L/s)	5.0	
	Objective	Minimise Upstream Storage Requirements	
	Application	Surface Water Only	
	Sump Available	☒	
	Unit Reference	SHE-0103-5000-1200-5000	
			

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model	Date: 29/02/2024		
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt
Report Details: Type: Stormwater Controls Storm Phase: Phase	Revision: Rev 1		



MREa

Type : Pond

Dimensions

Exceedance Level (m)	60.600
Depth (m)	1.600
Base Level (m)	59.000
Freeboard (mm)	300
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:X)	2.597
Total Volume (m³)	195.483

Depth (m)	Area (m²)	Volume (m³)
0.000	82.383	0.000
1.000	190.192	132.583
1.300	229.767	195.483
1.600	270.300	270.411

Outlets

Outlet

Outgoing Connection	S40.000
Outlet Type	Free Discharge

Advanced

Perimeter	Circular
Length (m)	27.777
Friction Scheme	Manning's n
n	0.03

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Manhole Schedule Storm Phase: Phase		Revision: Rev 1			

Name	Cover Level (m) Invert Level (m)		Connection Details				Type
Coordinates (m)	Depth (m)	Manhole Size (m)	Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
S1.4.0	68.500 66.775	Diameter / Length: 1.200					Manhole
E:518541.680	1.725						
N:134258.717			{a} S1.400	Pipe	66.775	Diam/Width:225	Not Applicable
S1.3.0	67.075 65.575	Diameter / Length: 1.200	{1} S1.400	Pipe	65.575	Diam/Width:225	Manhole
E:518610.487	1.500						
N:134235.797			{a} S1.300	Pipe	65.575	Diam/Width:225	Not Applicable
S1.2.0	65.975 64.475	Diameter / Length: 1.200	{1} S1.300	Pipe	64.475	Diam/Width:225	Manhole
E:518636.317	1.500						
N:134215.288			{a} S1.200	Pipe	64.475	Diam/Width:225	Not Applicable
S1.1.0	64.625 63.125	Diameter / Length: 1.200	{1} S1.200	Pipe	63.125	Diam/Width:225	Manhole
E:518649.225	1.500						
N:134190.886			{a} S1.100	Pipe	63.125	Diam/Width:225	Not Applicable
S2606	62.618 60.958	Diameter / Length: 1.200	{1} S1.100	Pipe	60.958	Diam/Width:225	Manhole
E:518657.903	1.660						
N:134143.353			{a} S39.006	Pipe	60.958	Diam/Width:225	Not Applicable

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Manhole Schedule Storm Phase: Phase		Revision: Rev 1			

Name	Cover Level (m) Invert Level (m)		Connection Details				Type
Coordinates (m)	Depth (m)	Manhole Size (m)	Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
S2607	61.798 60.278	Diameter / Length: 1.200	{1} S39.006	Pipe	60.278	Diam/Width:225	Manhole
E:518670.859 N:134122.455	1.520		{a} S39.007	Pipe	60.278	Diam/Width:225	Not Applicable
S2608	61.403 59.413	Diameter / Length: 1.200	{1} S39.007	Pipe	59.413	Diam/Width:225	Manhole
E:518685.784 N:134110.804	1.990		{a} S39.008	Pipe	59.413	Diam/Width:225	Not Applicable
S2609	60.700 58.950	Diameter / Length: 1.500	{1} S39.008	Pipe	58.950	Diam/Width:225	Manhole
E:518681.302 N:134102.272	1.750		{2} S40.000	Pipe	58.950	Diam/Width:225	
			{a} S39.009	Pipe	58.950	Diam/Width:225	Not Applicable
SHW776	60.260 58.762	Diameter / Length: 1.200	{1} S39.009	Pipe	58.762	Diam/Width:225	Manhole
E:518675.215 N:134102.272	1.498						Not Applicable

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Inflow Summary Storm Phase: Phase		Revision: Rev 1			

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
MRE - A	S2608		Time of Concentration	0.021	100	0	100	0.021
MRE - B	S2607		Time of Concentration	0.027	100	0	100	0.027
MRE - C	S2606		Time of Concentration	0.022	100	0	100	0.022
MRE - D	S2606		Time of Concentration	0.003	100	0	100	0.003
MRE - E	S2606		Time of Concentration	0.031	100	0	100	0.031
MRE - F	S2606		Time of Concentration	0.006	100	0	100	0.006
MRE - G	S2606		Time of Concentration	0.003	100	0	100	0.003
MRE - H	S1.1.0		Time of Concentration	0.005	100	0	100	0.005
MRE - I	S1.1.0		Time of Concentration	0.028	100	0	100	0.028
MRE - J	S1.1.0		Time of Concentration	0.006	100	0	100	0.006
MRE - K	S1.2.0		Time of Concentration	0.005	100	0	100	0.005
MRE - L	S1.2.0		Time of Concentration	0.030	100	0	100	0.030
MRE - M	S1.2.0		Time of Concentration	0.006	100	0	100	0.006
MRE - N	S1.3.0		Time of Concentration	0.003	100	0	100	0.003
MRE - O	S1.3.0		Time of Concentration	0.016	100	0	100	0.016
MRE - P	S1.3.0		Time of Concentration	0.004	100	0	100	0.004
MRE - Q	S1.3.0		Time of Concentration	0.014	100	0	100	0.014
MRE - R	S1.3.0		Time of Concentration	0.056	100	0	100	0.056
MRE - S	S1.3.0		Time of Concentration	0.012	100	0	100	0.012
MRE - T	S1.4.0		Time of Concentration	0.070	100	0	100	0.070
TOTAL		0.0		0.367				0.367

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Details: Type: Network Design Criteria Storm Phase: Phase	Revision: Rev 1			

Flow Options

Peak Flow Calculation	(UK) Modified Rational Method
Min. Time of Entry (mins)	5
Max. Travel Time (mins)	30

Pipe Options

Lock Slope Options	None
Design Options	Minimise Excavation
Design Level	Level Soffits
Min. Cover Depth (m)	1.200
Min. Slope (1:X)	500.00
Max. Slope (1:X)	40.00
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	☐
Reduce Channel Depths	☐

Manhole Options

Apply Offset	☐
--------------	--------------------------

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Details: Type: Outfall Details Storm Phase: Phase	Revision: Rev 1			

Outfalls

Outfall	Outfall Type	Fixed Surcharged Level (m)	Level Curve
SHW776	Free Discharge		

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Title: Rainfall Analysis Criteria	Revision: Rev 1			

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall

100yr Event (+20% CC)	Type: FEH
Site Location	GB 518600 133700 TQ 18600 33700
Rainfall Version	2022
Summer	☒
Winter	☒

Return Period

Return Period (years)	Increase Rainfall (%)
2.0	0.000
30.0	0.000
100.0	20.000

Storm Durations

Duration (mins)	Run Time (mins)
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440
960	1920
1440	2880
2160	4320
2880	5760
4320	8640
5760	11520
7200	14400
8640	17280
10080	20160

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Junctions Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Outflow

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
S1.4.0	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	68.500	66.775	66.823	0.048	6.6	0.054	0.000	6.6	13.875	OK
S1.3.0	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	67.075	65.575	65.639	0.064	16.4	0.073	0.000	16.4	34.581	OK
S1.2.0	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	65.975	64.475	64.539	0.064	20.2	0.072	0.000	20.2	42.593	OK
S1.1.0	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	64.625	63.125	63.196	0.071	23.8	0.080	0.000	23.8	50.108	OK
S2606	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	62.618	60.958	61.054	0.096	29.9	0.108	0.000	29.9	62.973	OK
S2607	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	61.798	60.278	60.365	0.087	32.4	0.099	0.000	32.4	68.340	OK
S2608	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	61.403	59.413	59.496	0.083	34.4	0.094	0.000	34.4	72.546	OK
S2609	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	60.700	58.950	59.432	0.482	34.4	0.852	0.000	5.0	106.304	Surcharged
SHW776	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Winter	60.260	58.762	58.798	0.036	5.0	0.000	0.000	5.0	62.497	OK

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Junctions Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Outflow

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
S1.4.0	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	68.500	66.775	66.843	0.068	13.4	0.077	0.000	13.4	28.149	OK
S1.3.0	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	67.075	65.575	65.669	0.094	33.3	0.107	0.000	33.3	70.142	OK
S1.2.0	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	65.975	64.475	64.570	0.095	41.0	0.107	0.000	41.0	86.403	OK
S1.1.0	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	64.625	63.125	63.229	0.104	48.2	0.118	0.000	48.2	101.663	OK
S2606	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	62.618	60.958	61.109	0.151	60.6	0.171	0.000	60.6	127.703	OK
S2607	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	61.798	60.278	60.403	0.125	65.8	0.142	0.000	65.8	138.483	OK
S2608	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	61.403	59.413	59.957	0.544	69.9	0.615	0.000	69.3	146.220	Surcharged
S2609	100yr Event (+20% CC): 30 years: +0 %: 360 mins: Summer	60.700	58.950	59.877	0.927	33.3	1.638	0.000	5.0	290.555	Surcharged
SHW776	100yr Event (+20% CC): 30 years: +0 %: 360 mins: Summer	60.260	58.762	58.798	0.036	5.0	0.000	0.000	5.0	180.327	OK

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Junctions Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Outflow

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
S1.4.0	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	68.500	66.775	66.860	0.085	20.2	0.096	0.000	20.2	42.505	OK
S1.3.0	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	67.075	65.575	65.696	0.121	50.3	0.137	0.000	50.3	105.937	OK
S1.2.0	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	65.975	64.475	64.596	0.121	61.9	0.137	0.000	61.9	130.488	OK
S1.1.0	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	64.625	63.125	63.260	0.135	72.9	0.153	0.000	72.9	153.474	OK
S2606	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	62.618	60.958	62.162	1.204	91.5	1.361	0.000	90.7	192.781	Surcharged
S2607	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	61.798	60.278	61.368	1.090	98.5	1.233	0.000	97.7	209.196	Surcharged
S2608	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	61.403	59.413	60.627	1.214	103.9	1.373	0.000	103.1	220.785	Surcharged
S2609	100yr Event (+20% CC): 100 years: +20 %: 240 mins: Winter	60.700	58.950	60.288	1.338	45.2	2.363	0.000	5.2	326.227	Surcharged
SHW776	100yr Event (+20% CC): 100 years: +20 %: 240 mins: Winter	60.260	58.762	58.798	0.036	5.2	0.000	0.000	5.2	133.531	OK

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
MREa	100yr Event (+20% CC): 2 years: +0 %: 240 mins: Summer	59.454	59.454	0.454	0.454	18.8	46.914	0.000	0.000	4.9	46.386	OK

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Revision: Rev 1			



100yr Event (+20% CC): 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
MREa	100yr Event (+20% CC): 30 years: +0 %: 180 mins: Winter	59.912	59.912	0.912	0.912	32.0	116.278	0.000	0.000	4.4	44.291	OK

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
MREa	100yr Event (+20% CC): 100 years: +20 %: 240 mins: Winter	60.288	60.288	1.288	1.288	40.4	192.653	0.000	0.000	5.0	68.760	OK

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Details: Type: Connections Summary Storm Phase: Phase	Revision: Rev 1			



100yr Event (+20% CC): 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
S39.009	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Winter	Pipe	S2609	SHW776	60.700	59.428	0.037	62.497	1.2	0.05	5.0	Surcharged
S39.008	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	Pipe	S2608	S2609	61.403	59.496	0.225	72.546	0.9	0.3	34.4	OK
S39.007	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	Pipe	S2607	S2608	61.798	60.365	0.085	68.340	2.3	0.29	32.4	OK
S39.006	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	Pipe	S2606	S2607	62.618	61.054	0.092	62.973	2.0	0.34	29.9	OK
S1.100	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	Pipe	S1.1.0	S2606	64.625	63.196	0.083	50.108	1.8	0.21	23.8	OK
S1.200	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	Pipe	S1.2.0	S1.1.0	65.975	64.539	0.067	42.593	2.0	0.17	20.2	OK
S1.400	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	Pipe	S1.4.0	S1.3.0	68.500	66.823	0.056	13.875	0.9	0.1	6.6	OK
S40.000	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	Pipe	MREa	S2609	60.600	59.432	0.225	0.000	0.2	0.1	4.9	Surcharged
S1.300	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	Pipe	S1.3.0	S1.2.0	67.075	65.639	0.064	34.581	1.8	0.17	16.4	OK

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Details: Type: Connections Summary Storm Phase: Phase	Revision: Rev 1			



100yr Event (+20% CC): 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
S39.009	100yr Event (+20% CC): 30 years: +0 %: 960 mins: Summer	Pipe	S2609	SHW776	60.700	59.727	0.037	237.837	1.2	0.05	5.0	Surcharged
S39.008	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	Pipe	S2608	S2609	61.403	59.957	0.225	146.220	1.7	0.6	69.3	Surcharged
S39.007	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	Pipe	S2607	S2608	61.798	60.403	0.225	138.483	2.5	0.59	65.8	OK
S39.006	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	Pipe	S2606	S2607	62.618	61.109	0.138	127.703	2.4	0.7	60.6	OK
S1.100	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	Pipe	S1.1.0	S2606	64.625	63.229	0.128	101.663	2.1	0.44	48.2	OK
S1.200	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	Pipe	S1.2.0	S1.1.0	65.975	64.570	0.099	86.403	2.4	0.35	41.0	OK
S1.400	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	Pipe	S1.4.0	S1.3.0	68.500	66.843	0.081	28.149	1.0	0.2	13.4	OK
S40.000	100yr Event (+20% CC): 30 years: +0 %: 600 mins: Summer	Pipe	MREa	S2609	60.600	59.820	0.225	0.000	0.2	0.1	4.9	Surcharged
S1.300	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	Pipe	S1.3.0	S1.2.0	67.075	65.669	0.095	70.142	2.1	0.35	33.3	OK

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Details: Type: Connections Summary Storm Phase: Phase	Revision: Rev 1			



100yr Event (+20% CC): 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
S39.009	100yr Event (+20% CC): 100 years: +20 %: 240 mins: Winter	Pipe	S2609	SHW776	60.700	60.288	0.037	133.531	1.2	0.06	5.2	Surcharged
S39.008	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	Pipe	S2608	S2609	61.403	60.627	0.225	220.785	2.6	0.9	103.1	Surcharged
S39.007	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	Pipe	S2607	S2608	61.798	61.368	0.225	209.196	2.5	0.87	97.7	Surcharged
S39.006	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	Pipe	S2606	S2607	62.618	62.162	0.225	192.781	2.3	1.05	90.7	Surcharged
S1.100	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	Pipe	S1.1.0	S2606	64.625	63.260	0.225	153.474	2.1	0.66	72.9	OK
S1.200	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	Pipe	S1.2.0	S1.1.0	65.975	64.596	0.128	130.488	2.6	0.54	61.9	OK
S1.400	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	Pipe	S1.4.0	S1.3.0	68.500	66.860	0.103	42.505	1.1	0.3	20.2	OK
S40.000	100yr Event (+20% CC): 100 years: +20 %: 240 mins: Winter	Pipe	MREa	S2609	60.600	60.288	0.225	0.000	0.1	0.11	5.0	Surcharged
S1.300	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	Pipe	S1.3.0	S1.2.0	67.075	65.696	0.121	105.937	2.3	0.53	50.3	OK

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Junctions Storm Phase: Phase		Revision: Rev 1			

Name	Junction Type	Easting (m)	Northing (m)	Cover Level (m)	Depth (m)	Invert Level (m)	Chamber Shape	Diameter (m)
S2720	Manhole	518656.492	133866.377	55.850	1.650	54.200	Circular	1.200
SHW600	Manhole	518654.933	133861.928	54.840	0.855	53.985	Circular	1.200
S2719	Manhole	518647.273	133870.981	55.800	1.539	54.261	Circular	1.200
S2718	Manhole	518643.542	133890.831	55.900	1.520	54.380	Circular	1.200
S2717	Manhole	518649.546	133936.715	56.847	2.059	54.788	Circular	1.200
S2716	Manhole	518648.872	133960.844	57.424	2.424	55.000	Circular	1.200
S2.2.0	Manhole	518626.967	133966.367	57.808	2.597	55.211	Circular	1.200
S2.1.0	Manhole	518578.414	133996.264	57.950	1.900	56.050	Circular	1.200

Name	Lock
S2720	None
SHW600	None
S2719	None
S2718	None
S2717	None
S2716	None
S2.2.0	None
S2.1.0	None

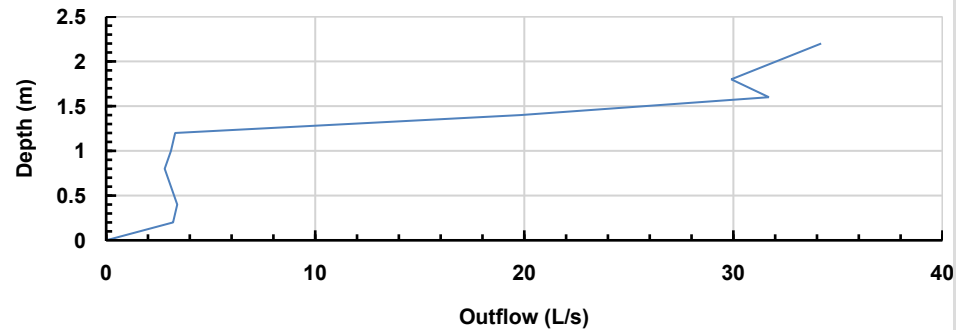
Inlets

Junction	Inlet Name	Incoming Item(s)	Bypass Destination	Capacity Type
S2720	Inlet	S91.013	(None)	No Restriction
SHW600	Inlet	S91.014	(None)	No Restriction
S2719	Inlet	S91.012	(None)	No Restriction
S2718	Inlet	S91.011	(None)	No Restriction
S2717	Inlet	S91.010	(None)	No Restriction
S2716	Inlet	S2.300	(None)	No Restriction
S2.2.0	Inlet	S2.200	(None)	No Restriction
S2.1.0	Inlet	RM4 - A	(None)	No Restriction

Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
S2720	Outlet	S91.014	Free Discharge
S2719	Outlet	S91.013	Free Discharge
S2718	Outlet	S91.012	Free Discharge
S2717	Outlet	S91.011	Free Discharge
S2716	Outlet	S91.010	Free Discharge
	Outlet	S2.300	Multiple
	Invert Level (m)	55.211	

Combined Outflow



Hydro-Brake®

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model	Date: 29/02/2024		
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt
Report Details: Type: Junctions Storm Phase: Phase	Revision: Rev 1		



Junction	Outlet Name	Outgoing Connection	Outlet Type
S2.2.0	Depth Above Invert (m) Design Depth (m) Design Flow (L/s) Objective Application Sump Available	0.000 1.245 3.4 Minimise Upstream Storage Requirements Surface Water Only ☒	
	Unit Reference	SHE-0084-3400-1245-3400	
	Hydro-Brake®		
	Depth Above Invert (m) Design Depth (m) Design Flow (L/s) Objective Application Sump Available	1.245 0.755 28.0 Minimise Upstream Storage Requirements Surface Water Only ☒	
	Unit Reference	SHE-0233-2800-0755-2800	
S2.1.0	Outlet	S2.100	Free Discharge

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model	Date: 29/02/2024		
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt
Report Details: Type: Stormwater Controls Storm Phase: Phase	Revision: Rev 1		



RM4a

Type : Pond

Dimensions

Exceedance Level (m)	57.000
Depth (m)	1.700
Base Level (m)	55.300
Freeboard (mm)	300
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:X)	11.731
Total Volume (m³)	1314.447

Depth (m)	Area (m²)	Volume (m³)
0.000	40.640	0.000
0.100	173.055	9.919
0.200	368.429	36.385
0.300	631.271	85.784
0.400	807.841	157.558
0.500	876.047	241.729
0.600	944.828	332.752
0.700	1014.185	430.682
0.800	1084.118	535.577
0.900	1154.626	647.496
1.000	1225.710	766.495
1.100	1297.370	892.632
1.200	1369.607	1025.965
1.300	1442.419	1166.550
1.400	1515.807	1314.447
1.500	1590.740	1469.759
1.600	1665.187	1632.541
1.700	1740.794	1802.826

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	S2.100
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	S2.200
Outlet Type	Free Discharge

Advanced

Perimeter	Circular
Length (m)	116.505
Friction Scheme	Manning's n
n	0.03

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Manhole Schedule Storm Phase: Phase		Revision: Rev 1			

Name	Cover Level (m) Invert Level (m)		Connection Details				Type
Coordinates (m)	Depth (m)	Manhole Size (m)	Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
S2720	55.850 54.200	Diameter / Length: 1.200	{1} S91.013	Pipe	54.200	Diam/Width:300	Manhole
E:518656.492 N:133866.377	1.650		{a} S91.014	Pipe	54.200	Diam/Width:300	Not Applicable
SHW600	54.840 53.985	Diameter / Length: 1.200	{1} S91.014	Pipe	53.985	Diam/Width:300	Manhole
E:518654.933 N:133861.928	0.855						Not Applicable
S2719	55.800 54.261	Diameter / Length: 1.200	{1} S91.012	Pipe	54.261	Diam/Width:300	Manhole
E:518647.273 N:133870.981	1.539		{a} S91.013	Pipe	54.261	Diam/Width:300	Not Applicable
S2718	55.900 54.380	Diameter / Length: 1.200	{1} S91.011	Pipe	54.380	Diam/Width:300	Manhole
E:518643.542 N:133890.831	1.520		{a} S91.012	Pipe	54.380	Diam/Width:300	Not Applicable
S2717	56.847 54.788	Diameter / Length: 1.200	{1} S91.010	Pipe	54.788	Diam/Width:300	Manhole
E:518649.546 N:133936.715	2.059		{a} S91.011	Pipe	54.788	Diam/Width:300	Not Applicable

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model		Date: 29/02/2024			
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Report Details: Type: Manhole Schedule Storm Phase: Phase		Revision: Rev 1			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
S2716	57.424 55.000	Diameter / Length: 1.200	{1} S2.300	Pipe	55.000	Diam/Width:300	Manhole
E:518648.872 N:133960.844	2.424		{a} S91.010	Pipe	55.000	Diam/Width:300	Not Applicable
S2.2.0	57.808 55.211	Diameter / Length: 1.200	{1} S2.200	Pipe	55.211	Diam/Width:300	Manhole
E:518626.967 N:133966.367	2.597		{a} S2.300	Pipe	55.211	Diam/Width:300	Not Applicable
S2.1.0	57.950 56.050	Diameter / Length: 1.200					Manhole
E:518578.414 N:133996.264	1.900		{a} S2.100	Pipe	56.050	Diam/Width:450	Not Applicable

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Details: Type: Inflow Summary Storm Phase: Phase	Revision: Rev 1			

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
RM4 - A	S2.1.0		Time of Concentration	2.613	69.9	0	69.9	1.827
TOTAL		0.0		2.613				1.827

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Details: Type: Network Design Criteria Storm Phase: Phase	Revision: Rev 1			

Flow Options

Peak Flow Calculation	(UK) Modified Rational Method
Min. Time of Entry (mins)	5
Max. Travel Time (mins)	30

Pipe Options

Lock Slope Options	None
Design Options	Minimise Excavation
Design Level	Level Soffits
Min. Cover Depth (m)	1.200
Min. Slope (1:X)	500.00
Max. Slope (1:X)	40.00
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	☐
Reduce Channel Depths	☐

Manhole Options

Apply Offset	☐
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Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Details: Type: Outfall Details Storm Phase: Phase	Revision: Rev 1			

Outfalls

Outfall	Outfall Type	Fixed Surcharged Level (m)	Level Curve
SHW600	Free Discharge		

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Title: Rainfall Analysis Criteria	Revision: Rev 1			

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall

100yr Event (+20% CC)	Type: FEH
Site Location	GB 518600 133700 TQ 18600 33700
Rainfall Version	2022
Summer	☒
Winter	☒

Return Period

Return Period (years)	Increase Rainfall (%)
2.0	0.000
30.0	0.000
100.0	20.000

Storm Durations

Duration (mins)	Run Time (mins)
60	120
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440
960	1920
1440	2880
2160	4320
2880	5760
4320	8640
5760	11520
7200	14400
8640	17280
10080	20160

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Junctions Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Outflow

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
S2720	100yr Event (+20% CC): 2 years: +0 %: 480 mins: Summer	55.850	54.200	54.226	0.026	3.4	0.029	0.000	3.4	161.517	OK
SHW600	100yr Event (+20% CC): 2 years: +0 %: 480 mins: Summer	54.840	53.985	54.010	0.025	3.4	0.000	0.000	3.4	161.517	OK
S2719	100yr Event (+20% CC): 2 years: +0 %: 480 mins: Summer	55.800	54.261	54.303	0.042	3.4	0.048	0.000	3.4	161.566	OK
S2718	100yr Event (+20% CC): 2 years: +0 %: 480 mins: Summer	55.900	54.380	54.421	0.041	3.4	0.047	0.000	3.4	161.695	OK
S2717	100yr Event (+20% CC): 2 years: +0 %: 360 mins: Summer	56.847	54.788	54.825	0.037	3.4	0.042	0.000	3.4	120.801	OK
S2716	100yr Event (+20% CC): 2 years: +0 %: 180 mins: Summer	57.424	55.000	55.037	0.037	3.4	0.042	0.000	3.4	62.365	OK
S2.2.0	100yr Event (+20% CC): 2 years: +0 %: 180 mins: Summer	57.808	55.211	55.956	0.745	3.5	0.843	0.000	3.4	62.565	Surcharged
S2.1.0	100yr Event (+20% CC): 2 years: +0 %: 60 mins: Summer	57.950	56.050	56.234	0.184	215.1	0.209	0.000	214.7	269.381	OK

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model		Date: 29/02/2024			
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Report Details: Type: Junctions Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Outflow

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
S2720	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	55.850	54.200	54.231	0.031	4.7	0.035	0.000	4.7	570.855	OK
SHW600	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	54.840	53.985	54.014	0.029	4.7	0.000	0.000	4.7	570.855	OK
S2719	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	55.800	54.261	54.311	0.050	4.7	0.056	0.000	4.7	570.906	OK
S2718	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	55.900	54.380	54.429	0.049	4.7	0.055	0.000	4.7	571.041	OK
S2717	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	56.847	54.788	54.831	0.043	4.7	0.049	0.000	4.7	571.272	OK
S2716	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	57.424	55.000	55.044	0.044	4.7	0.050	0.000	4.7	571.474	OK
S2.2.0	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	57.808	55.211	56.495	1.284	4.7	1.453	0.000	4.7	571.682	Surcharged
S2.1.0	100yr Event (+20% CC): 30 years: +0 %: 60 mins: Summer	57.950	56.050	56.370	0.320	488.4	0.362	0.000	489.5	610.378	OK

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model		Date: 29/02/2024			
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Report Details: Type: Junctions Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Outflow

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
S2720	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	55.850	54.200	54.279	0.079	28.0	0.090	0.000	28.0	1222.891	OK
SHW600	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	54.840	53.985	54.054	0.069	28.0	0.000	0.000	28.0	1222.891	OK
S2719	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	55.800	54.261	54.381	0.120	28.0	0.136	0.000	28.0	1222.944	OK
S2718	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	55.900	54.380	54.505	0.125	28.0	0.142	0.000	28.0	1223.082	OK
S2717	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	56.847	54.788	54.895	0.107	28.0	0.121	0.000	28.0	1223.319	OK
S2716	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	57.424	55.000	55.111	0.111	28.0	0.126	0.000	28.0	1223.522	OK
S2.2.0	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	57.808	55.211	56.664	1.453	28.0	1.643	0.000	28.0	1223.730	Surcharged
S2.1.0	100yr Event (+20% CC): 100 years: +20 %: 60 mins: Summer	57.950	56.050	57.199	1.149	752.6	1.300	0.000	749.5	941.396	Surcharged

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
RM4a	100yr Event (+20% CC): 2 years: +0 %: 960 mins: Winter	56.083	56.083	0.783	0.783	30.0	516.780	0.000	0.000	3.4	328.792	OK

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Revision: Rev 1			



100yr Event (+20% CC): 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
RM4a	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	56.496	56.496	1.196	1.196	38.1	1020.123	0.000	0.000	4.7	573.317	OK

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
RM4a	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	56.674	56.674	1.374	1.374	90.3	1275.10	0.000	0.000	28.0	1225.406	OK

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Details: Type: Connections Summary Storm Phase: Phase	Revision: Rev 1			



100yr Event (+20% CC): 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
S2.100	100yr Event (+20% CC): 2 years: +0 %: 60 mins: Summer	Pipe	S2.1.0	RM4a	57.950	56.234	0.286	269.381	2.1	0.26	214.7	OK
S2.200	100yr Event (+20% CC): 2 years: +0 %: 180 mins: Winter	Pipe	RM4a	S2.2.0	57.000	55.957	0.300	63.264	0.3	0.04	4.3	Surcharged
S2.300	100yr Event (+20% CC): 2 years: +0 %: 240 mins: Summer	Pipe	S2.2.0	S2716	57.808	55.990	0.037	81.768	0.7	0.03	3.4	Surcharged
S91.010	100yr Event (+20% CC): 2 years: +0 %: 180 mins: Summer	Pipe	S2716	S2717	57.424	55.037	0.037	62.365	0.7	0.03	3.4	OK
S91.011	100yr Event (+20% CC): 2 years: +0 %: 360 mins: Summer	Pipe	S2717	S2718	56.847	54.825	0.039	120.801	0.6	0.03	3.4	OK
S91.012	100yr Event (+20% CC): 2 years: +0 %: 480 mins: Summer	Pipe	S2718	S2719	55.900	54.421	0.042	161.695	0.6	0.04	3.4	OK
S91.013	100yr Event (+20% CC): 2 years: +0 %: 480 mins: Summer	Pipe	S2719	S2720	55.800	54.303	0.034	161.566	0.8	0.04	3.4	OK
S91.014	100yr Event (+20% CC): 2 years: +0 %: 480 mins: Summer	Pipe	S2720	SHW600	55.850	54.226	0.025	161.517	1.2	0.01	3.4	OK

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Details: Type: Connections Summary Storm Phase: Phase	Revision: Rev 1			



100yr Event (+20% CC): 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
S2.100	100yr Event (+20% CC): 30 years: +0 %: 60 mins: Summer	Pipe	S2.1.0	RM4a	57.950	56.370	0.450	610.370	3.1	0.6	489.5	OK
S2.200	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	Pipe	RM4a	S2.2.0	57.000	56.496	0.300	573.317	0.2	0.05	4.7	Surcharged
S2.300	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	Pipe	S2.2.0	S2716	57.808	56.495	0.044	571.625	0.7	0.04	4.7	Surcharged
S91.010	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	Pipe	S2716	S2717	57.424	55.044	0.044	571.474	0.7	0.05	4.7	OK
S91.011	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	Pipe	S2717	S2718	56.847	54.831	0.046	571.272	0.7	0.05	4.7	OK
S91.012	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	Pipe	S2718	S2719	55.900	54.429	0.049	571.041	0.6	0.06	4.7	OK
S91.013	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	Pipe	S2719	S2720	55.800	54.311	0.040	570.906	0.8	0.06	4.7	OK
S91.014	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	Pipe	S2720	SHW600	55.850	54.231	0.030	570.855	1.3	0.02	4.7	OK

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Connections Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
S2.100	100yr Event (+20% CC): 100 years: +20 %: 60 mins: Summer	Pipe	S2.1.0	RM4a	57.950	57.199	0.450	941.386	4.7	0.92	749.5	Surcharged
S2.200	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	RM4a	S2.2.0	57.000	56.674	0.300	1225.405	0.4	0.27	28.0	Surcharged
S2.300	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	S2.2.0	S2716	57.808	56.664	0.111	1223.674	1.2	0.26	28.0	Surcharged
S91.010	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	S2716	S2717	57.424	55.111	0.109	1223.522	1.2	0.27	28.0	OK
S91.011	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	S2717	S2718	56.847	54.895	0.116	1223.319	1.1	0.27	28.0	OK
S91.012	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	S2718	S2719	55.900	54.505	0.123	1223.082	1.0	0.33	28.0	OK
S91.013	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	S2719	S2720	55.800	54.381	0.100	1222.944	1.4	0.33	28.0	OK
S91.014	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	S2720	SHW600	55.850	54.279	0.074	1222.891	2.1	0.12	28.0	OK

Appendix H

InfoDrainage Calculations – Surcharged Outfall

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model Surcharged Outfall		Date: 29/02/2024			
Report Details: Type: Network Design Criteria Storm Phase: Phase		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
		Revision: Rev 1			

Flow Options

Peak Flow Calculation	(UK) Modified Rational Method
Min. Time of Entry (mins)	5
Max. Travel Time (mins)	30

Pipe Options

Lock Slope Options	None
Design Options	Minimise Excavation
Design Level	Level Soffits
Min. Cover Depth (m)	1.200
Min. Slope (1:X)	500.00
Max. Slope (1:X)	40.00
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	☐
Reduce Channel Depths	☐

Manhole Options

Apply Offset	☐
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Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model Surcharged Outfall		Date: 29/02/2024			
Report Details: Type: Outfall Details Storm Phase: Phase		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
		Revision: Rev 1			

Outfalls

Outfall	Outfall Type	Fixed Surcharged Level (m)	Level Curve
SHW600	Fixed Surcharged Level	54.540	
100yr Event (+20% CC) : 2 years: +0 %: 60 mins: Summer		54.540	
100yr Event (+20% CC) : 2 years: +0 %: 60 mins: Winter		54.540	
100yr Event (+20% CC) : 30 years: +0 %: 60 mins: Summer		54.540	
100yr Event (+20% CC) : 30 years: +0 %: 60 mins: Winter		54.540	
100yr Event (+20% CC) : 100 years: +20 %: 60 mins: Summer		54.540	
100yr Event (+20% CC) : 100 years: +20 %: 60 mins: Winter		54.540	
100yr Event (+20% CC) : 2 years: +0 %: 120 mins: Summer		54.540	
100yr Event (+20% CC) : 2 years: +0 %: 120 mins: Winter		54.540	
100yr Event (+20% CC) : 30 years: +0 %: 120 mins: Summer		54.540	
100yr Event (+20% CC) : 30 years: +0 %: 120 mins: Winter		54.540	
100yr Event (+20% CC) : 100 years: +20 %: 120 mins: Summer		54.540	
100yr Event (+20% CC) : 100 years: +20 %: 120 mins: Winter		54.540	
100yr Event (+20% CC) : 2 years: +0 %: 180 mins: Summer		54.540	
100yr Event (+20% CC) : 2 years: +0 %: 180 mins: Winter		54.540	
100yr Event (+20% CC) : 30 years: +0 %: 180 mins: Summer		54.540	
100yr Event (+20% CC) : 30 years: +0 %: 180 mins: Winter		54.540	
100yr Event (+20% CC) : 100 years: +20 %: 180 mins: Summer		54.540	
100yr Event (+20% CC) : 100 years: +20 %: 180 mins: Winter		54.540	
100yr Event (+20% CC) : 2 years: +0 %: 240 mins: Summer		54.540	
100yr Event (+20% CC) : 2 years: +0 %: 240 mins: Winter		54.540	
100yr Event (+20% CC) : 30 years: +0 %: 240 mins: Summer		54.540	
100yr Event (+20% CC) : 30 years: +0 %: 240 mins: Winter		54.540	
100yr Event (+20% CC) : 100 years: +20 %: 240 mins: Summer		54.540	
100yr Event (+20% CC) : 100 years: +20 %: 240 mins: Winter		54.540	
100yr Event (+20% CC) : 2 years: +0 %: 360 mins: Summer		54.540	
100yr Event (+20% CC) : 2 years: +0 %: 360 mins: Winter		54.540	
100yr Event (+20% CC) : 30 years: +0 %: 360 mins: Summer		54.540	
100yr Event (+20% CC) : 30 years: +0 %: 360 mins: Winter		54.540	
100yr Event (+20% CC) : 100 years: +20 %: 360 mins: Summer		54.540	
100yr Event (+20% CC) : 100 years: +20 %: 360 mins: Winter		54.540	
100yr Event (+20% CC) : 2 years: +0 %: 480 mins: Summer		54.540	
100yr Event (+20% CC) : 2 years: +0 %: 480 mins: Winter		54.540	

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model Surcharged Outfall		Date: 29/02/2024			
Report Details: Type: Outfall Details Storm Phase: Phase		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
		Revision: Rev 1			

100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 480 mins: Summer			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 480 mins: Winter			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 480 mins: Summer			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 480 mins: Winter			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 600 mins: Summer			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 600 mins: Winter			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 600 mins: Summer			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 600 mins: Winter			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 600 mins: Summer			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 600 mins: Winter			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 720 mins: Summer			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 720 mins: Winter			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 720 mins: Summer			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 720 mins: Winter			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 720 mins: Summer			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 720 mins: Winter			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 960 mins: Summer			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 960 mins: Winter			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 960 mins: Summer			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 960 mins: Winter			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 960 mins: Summer			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 960 mins: Winter			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 1440 mins: Summer			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 1440 mins: Winter			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 1440 mins: Summer			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 1440 mins: Winter			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 1440 mins: Summer			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 1440 mins: Winter			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 2160 mins: Summer			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 2160 mins: Winter			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 2160 mins: Summer			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 2160 mins: Winter			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 2160 mins: Summer			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 2160 mins: Winter			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 2880 mins: Summer			

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model Surcharged Outfall	Date: 29/02/2024			
	Designed by:	Checked by:	Approved By:	
	J. Dunesby	C. Salt	C. Salt	
Report Details: Type: Outfall Details Storm Phase: Phase			Revision: Rev 1	

100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 2880 mins: Winter			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 2880 mins: Summer			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 2880 mins: Winter			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 2880 mins: Summer			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 2880 mins: Winter			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 4320 mins: Summer			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 4320 mins: Winter			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 4320 mins: Summer			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 4320 mins: Winter			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 4320 mins: Summer			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 4320 mins: Winter			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 5760 mins: Summer			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 5760 mins: Winter			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 5760 mins: Summer			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 5760 mins: Winter			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 5760 mins: Summer			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 5760 mins: Winter			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 7200 mins: Summer			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 7200 mins: Winter			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 7200 mins: Summer			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 7200 mins: Winter			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 7200 mins: Summer			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 7200 mins: Winter			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 8640 mins: Summer			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 8640 mins: Winter			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 8640 mins: Summer			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 8640 mins: Winter			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 8640 mins: Summer			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 8640 mins: Winter			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 10080 mins: Summer			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 10080 mins: Winter			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 10080 mins: Summer			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 10080 mins: Winter			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 10080 mins: Summer			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 10080 mins: Winter			

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model Surcharged Outfall	Date: 29/02/2024			
Report Title: Rainfall Analysis Criteria	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
	Revision: Rev 1			

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Shortest
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall

100yr Event (+20% CC)	Type: FEH
Site Location	GB 518600 133700 TQ 18600 33700
Rainfall Version	2022
Summer	☒
Winter	☒

Return Period

Return Period (years)	Increase Rainfall (%)
2.0	0.000
30.0	0.000
100.0	20.000

Storm Durations

Duration (mins)	Run Time (mins)
60	120
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440
960	1920
1440	2880
2160	4320
2880	5760
4320	8640
5760	11520
7200	14400
8640	17280
10080	20160

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model Surcharged Outfall	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Details: Type: Junctions Summary Storm Phase: Phase	Revision: Rev 1			



100yr Event (+20% CC): 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Outflow

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
S2720	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	55.850	54.200	54.569	0.369	28.0	0.418	0.000	28.0	1219.697	Surcharged
SHW600	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	54.840	53.985	54.562	0.577	28.0	0.653	0.000	28.0	1228.048	Flood Risk
S2719	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	55.800	54.261	54.580	0.319	28.0	0.360	0.000	28.0	1220.767	Surcharged
S2718	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	55.900	54.380	54.597	0.217	28.0	0.246	0.000	28.0	1222.126	OK
S2717	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	56.847	54.788	54.893	0.105	28.0	0.118	0.000	28.0	1223.570	OK
S2716	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	57.424	55.000	55.111	0.111	28.0	0.126	0.000	28.0	1223.758	OK
S2.2.0	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	57.808	55.211	56.664	1.453	28.0	1.643	0.000	28.0	1223.966	Surcharged
S2.1.0	100yr Event (+20% CC): 100 years: +20 %: 60 mins: Summer	57.950	56.050	57.202	1.152	753.5	1.303	0.000	750.4	941.321	Surcharged

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model Surcharged Outfall		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
RM4a	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	56.674	56.674	1.374	1.374	90.3	1275.204	0.000	0.000	28.0	1225.640	OK

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model Surcharged Outfall	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Details: Type: Connections Summary Storm Phase: Phase	Revision: Rev 1			



100yr Event (+20% CC): 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
S2.100	100yr Event (+20% CC): 100 years: +20 %: 60 mins: Summer	Pipe	S2.1.0	RM4a	57.950	57.202	0.450	941.284	4.7	0.92	750.4	Surcharged
S2.200	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	RM4a	S2.2.0	57.000	56.674	0.300	1225.640	0.4	0.27	28.0	Surcharged
S2.300	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	S2.2.0	S2716	57.808	56.664	0.111	1223.911	1.2	0.26	28.0	Surcharged
S91.010	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	S2716	S2717	57.424	55.111	0.108	1223.758	1.2	0.27	28.0	OK
S91.011	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	S2717	S2718	56.847	54.893	0.161	1223.570	0.7	0.27	28.0	OK
S91.012	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	S2718	S2719	55.900	54.597	0.268	1222.126	0.5	0.33	28.0	OK
S91.013	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	S2719	S2720	55.800	54.580	0.300	1220.767	0.7	0.33	28.0	Surcharged
S91.014	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	S2720	SHW600	55.850	54.569	0.300	1219.697	0.4	0.12	28.0	Surcharged

Appendix I

SuDS Management and Maintenance Plan

Mowbray, North Horsham, West Sussex (Phase 1)

Phase 1 – SuDS Management and Maintenance Plan

1.0 Site and Drainage Description

- 1.1 The wider Mowbray development at North Horsham is currently under construction with various applications for the approval of reserved matters for individual infrastructure elements and sub-phases, both under consideration and determined.
- 1.2 This SuDS Management and Maintenance Plan relates to the drainage infrastructure proposed as part of Phase 1 of the development.
- 1.3 Surface water run-off generated by the Phase 1 of the development will be discharged to the existing network of watercourses running through and around Phase 1, utilising attenuation provided by basins located across the phase and serving various land parcels.
- 1.4 Foul effluent generated by the residential parcels will be conveyed by gravity sewer networks, which will gravitate flows to the various pump stations proposed.
- 1.5 This plan should be read alongside the accompanying drainage reports for the various applications submitted for individual infrastructure elements and residential parcels located across Phase 1. This SuDS Management and Maintenance Plan does not constitute a complete maintenance schedule and should be developed at the appropriate design stage, taking into account advice and recommendations from system manufacturers and installers. Appropriate health and safety measures should also be put in place.

2.0 Management Responsibilities

- 2.1 The proposed surface water pipe network and associated drainage infrastructure serving the development parcels of Phase 1 are to be adopted by the sewerage undertaker, which will have the responsibility to keep them maintained. There are some exceptions to this where small sections of proposed surface water drainage infrastructure will remain private. The accompanying drainage reports for the various applications submitted for individual infrastructure elements and development parcels should be referred to.
- 2.2 Gullies, gully connections and other surface water drainage infrastructure solely serving highway land are to be adopted by West Sussex County Council (WSCC) in its role as highway authority. Surface water drainage infrastructure adopted by WSCC will be their responsibility to maintain.
- 2.3 Foul water drainage infrastructure constructed as part of Phase 1 and serving the residential parcels are to be adopted by the sewerage undertaker and will have the responsibility to keep them maintained.
- 2.4 All attenuation basins will remain private and be the responsibility of a management company to maintain.

3.0 Maintenance Activities

- 3.1 This section details the type and frequency of maintenance activities for the drainage infrastructure which will be implemented as part of Phase 1 of the Mowbray development.

Conventional Pipe Network / Inspection Chambers / Catchpits / Gullies

- 3.2 Piped network components require regular inspection and maintenance to ensure that the individual components continue to operate as designed, both in terms of hydraulic capacity and potential pollutant removal. All gullies, inspection chambers and catchpits will therefore be inspected and cleaned regularly, with typical maintenance activities detailed in Table 1.

Table 1: Conventional Pipe Network / Inspection Chambers / Gullies – Typical Maintenance Activities

Maintenance Schedule	Maintenance Activity	Inspection Frequency
Regular Maintenance	Inspect and identify any features that are not operating correctly. If required, take remedial action.	Monthly (for first three months), then six monthly
	Remove debris from catchment surface / gratings (where it may cause risk to performance).	Quarterly and after large storms
	Inspect and remove sediment, debris, and silt from gullies, silt traps, and catchpit chambers.	Annually, or as required
	Inspect pipework for blockages, root ingress, displaced joints, or other signs of differential settlement.	Annually, or as required
Remedial Actions	Clear pipework of blockages, root ingress, repair joints or repair other signs of differential settlement.	As required
	Replacement of gullies / pipe system.	As required
	Repair / rehabilitation of gratings, inlets and outlets.	As required
Monitoring	Inspect / check all gratings, manholes, gullies, and catchpits to ensure that they are in good condition and operating as designed.	Annually and after large storm events
Structure Rehabilitation / Repair	Regular maintenance and monitoring to identify if repair and / or replacement of features or pipe system is required.	As required

Attenuation Basin

- 3.3 Attenuation basins are landscaped depressions which surface water is attenuated within prior to being discharged to the network of watercourses running through and around Phase 1 of the Mowbray development. To ensure the effective operation of the basins with limited erosion and silt accumulation, regular inspection and maintenance is required including the typical maintenance activities detailed in Table 2.

Table 2: Attenuation Basins – Typical Maintenance Activities

Maintenance Schedule	Maintenance Activity	Inspection Frequency
Regular Maintenance	Mow grass access paths and verges surrounding basins, at 35mm-50mm minimum and 75mm maximum.	Monthly (during growing season), or as required
	Mow rough grass areas for occasional access or habitat reasons at 100mm and 150mm maximum with cutting removed to wildlife piles.	As required
	Manage other vegetation and remove nuisance plants.	Monthly (for first three months, then as required)
	Inspect for signs of clogging and remove any litter / debris found.	Monthly, or as required
	Inspect and clear inlets, outlets, and overflows of any blockages.	Annually, or as required
	Inspect inlets and pre-treatment systems for silt accumulation; establish appropriate silt removal frequencies.	Monthly (for first year), then annually, or as required
	Inspect banksides for evidence of physical damage and repair as appropriate.	Annually, or as required
	Cut (trim) wetland vegetation at 100mm and remove cuttings.	Annually, or as required
	Reseed areas of poor vegetation growth.	As required
	Prune and trim any trees and remove cuttings.	Every 2 years, or as required
Occasional Maintenance	Where silt accumulates on apron or area in front of inlet or outlet then remove and spread above design profile of SuDS. Where silt accumulates more than 150mm in base of basins undertake a phased removal of silt subject to Client approval. Remove silt but not more than 30% of basin area at any one time and to an agreed depth. Retain as much representative existing vegetation as possible to ensure rapid re-colonisation of open areas. Stack excavated material adjacent to basin to allow dewatering of silt. Undertake silt removal during September-October to minimise damage to protected wildlife and ensure re-growth of aquatic vegetation before winter. Spread excavated material on site above SUDS design profile.	Every 3 years, or as required (likely to be minimal requirements where effective upstream source control is provided)
Remedial Actions	Repair erosion or other damage by reseedling or re-turfing.	As required

Inlet / Outlets / Controls

- 3.4 Headwalls, flow control chambers and outfalls direct the flow in and control the flow rate out of the proposed basins across Phase 1. To prevent surface water exceedance, regular inspection and maintenance of these structures are required to remove potential blockages and ensure the intended design flow rates are achieved. Typical maintenance activities for these structures are included in Table 3.

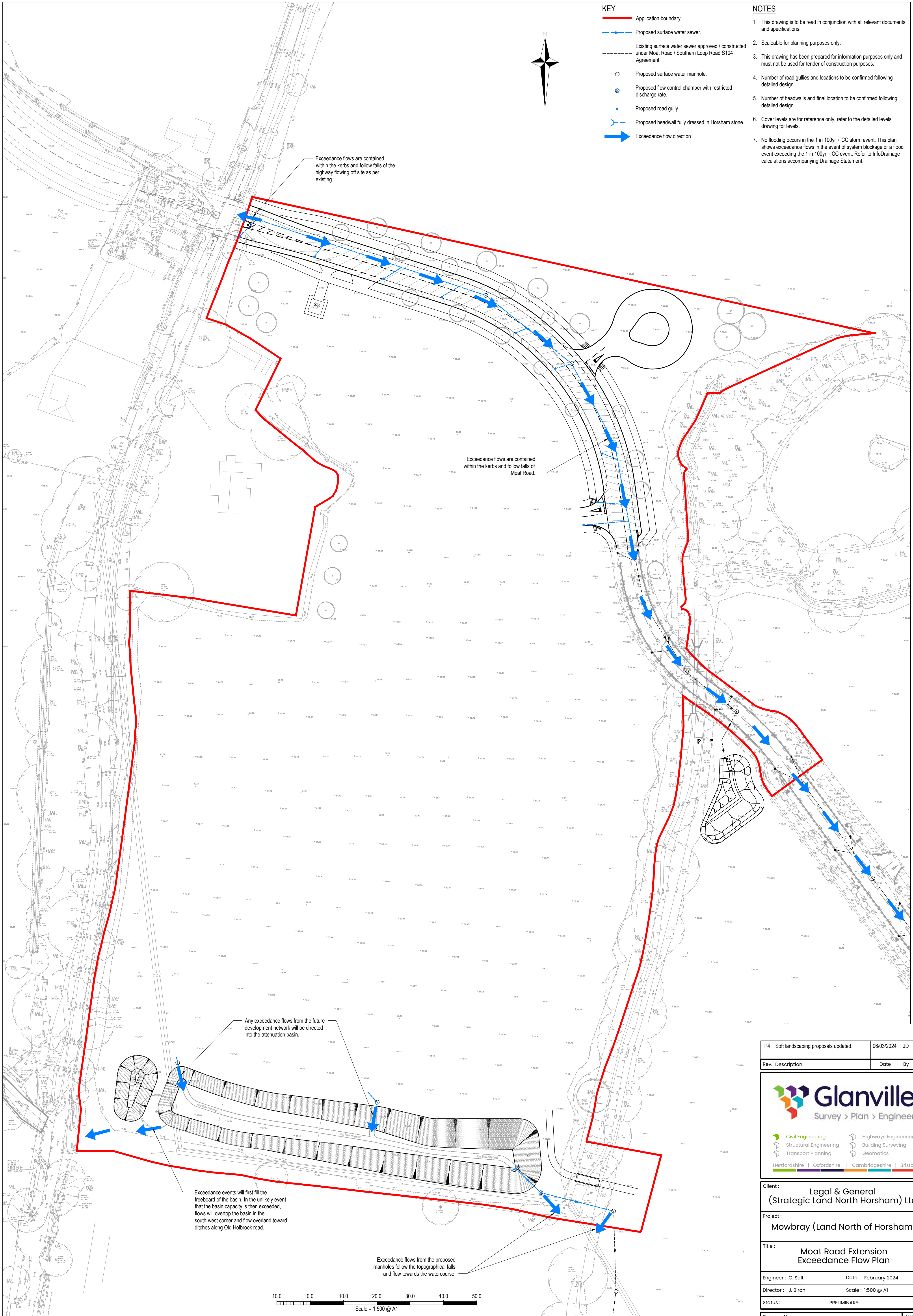
Table 3: Inlets / Outlets / Flow Control Devices* – Typical Maintenance Activities

Maintenance Schedule	Maintenance Activity	Inspection Frequency
Regular Maintenance	Inspect control chamber and remove any sediment, debris, and silt to ensure water is flowing freely.	Quarterly, or as required
	Inspect chamber and incoming / outgoing pipework for blockage or root ingress.	Six monthly, or as required
	Inspect surface structures for physical damage.	Quarterly, or as required
	Cut (Strim) vegetation 1m minimum from the surround of structures.	Six monthly (spring and autumn)
	Remove debris and silt from hard head wall aprons.	Quarterly, or as required
	Inspect and clear headwall grills.	Quarterly, or as required
	Undertake general inspection after Autumn leaf fall.	Annually
Occasional Maintenance	Check topsoil levels are 20mm above chamber edges to avoid mower damage.	As required
Remedial Actions	Clear chamber and incoming / outgoing pipework of blockages.	As required
	Repair physical damage or replace missing grills or controls.	As required

*Refer to manufacturer's guidance for specific maintenance instructions

Appendix J

Exceedance Flow Route Plan



P4	Soft landscaping proposals updated.	06/03/2024	JD	CS
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Rev	Description	Date	By	Chkd
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**Glanville**
Survey > Plan > Engineer

 Civil Engineering

 Structural Engineering

 Transport Planning

 Highways Engineering

 Building Surveying

 Geomatics

 Hertfordshire

 Oxfordshire

 Cambridgeshire

 Bristol

Client:	Legal & General (Strategic Land North Horsham) Ltd
Project:	Mowbray (Land North of Horsham)
Title:	Moat Road Extension Exceedance Flow Plan
Engineer:	C. Salt
Director:	J. Birch
Status:	PRELIMINARY
Drawing No.	MOW-GLA-MRE-PHI-D-C-1203
Rev	P4

Appendix K

Approved Site-Wide Foul Water Strategy



- KEY:
- PROPOSED FOUL NETWORK
 - POTENTIAL PUMPING STATION
 - PROPOSED FOUL RISING MAIN
 - EXISTING FOUL SEWER
 - PROPOSED SOUTHERN WATER FOUL PUMPED MAIN

G	DRAWING TITLE AMENDED	JHW	10.12.19	IJF
F	FOUL AMENDED TO SUIT NEW MASTERPLAN PS3 RELOCATED	JNC	29.11.19	IJF
E	RISING MAIN ROUTE AMENDED	RVH	30.10.19	IJF
D	REVISIONS TO PS1 + 4 LOCATIONS & PHASE 1. AND COMMERCIAL LAYOUT	RMLM	25.10.19	IJF
C	AMENDED TO SUIT NEW MASTERPLAN 2153-160	JC	28.06.19	IJF
B	AMENDED TO SUIT NEW MASTERPLAN 2153-150Q	JW	26.05.16	IJF
A	NEW MASTERPLAN BASE	JW	03.02.16	IJF
Mark	Revision	Drawn	Date	Chkd

SCALING NOTE: Do not scale from this drawing. If in doubt, ask.
UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty is made or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake his own investigation where the presence of any existing sewers, services, plant or apparatus may affect his operations.

Drawing Issue Status
FOR PLANNING

LAND NORTH OF HORSHAM
PLANNING APPLICATION
INDICATIVE FOUL DRAINAGE NETWORK

Client		 Strategic Land North Horsham Ltd		 Offices throughout the UK and Europe www.peterbrett.com © Peter Brett Associates LLP READING Tel: 0118 950 0761	
Date of 1st Issue	17.07.15	Drawn by	JW	Checked by	IJF
A2 Scale	nts	Revision	G	Drawing Number	25216/2007/SK06

Location	Peak Pumped Flow	
PS1	32.7	Excludes PS4 flow
SW Faygate pumped flow	8.0	
PS2	8.0	
PS3	9.3	
PS4	8.0	
PS5	8.0	
Rusper Road South Gravity outfall	56.7	

Hertfordshire

|

Oxfordshire

|

Cambridgeshire

|

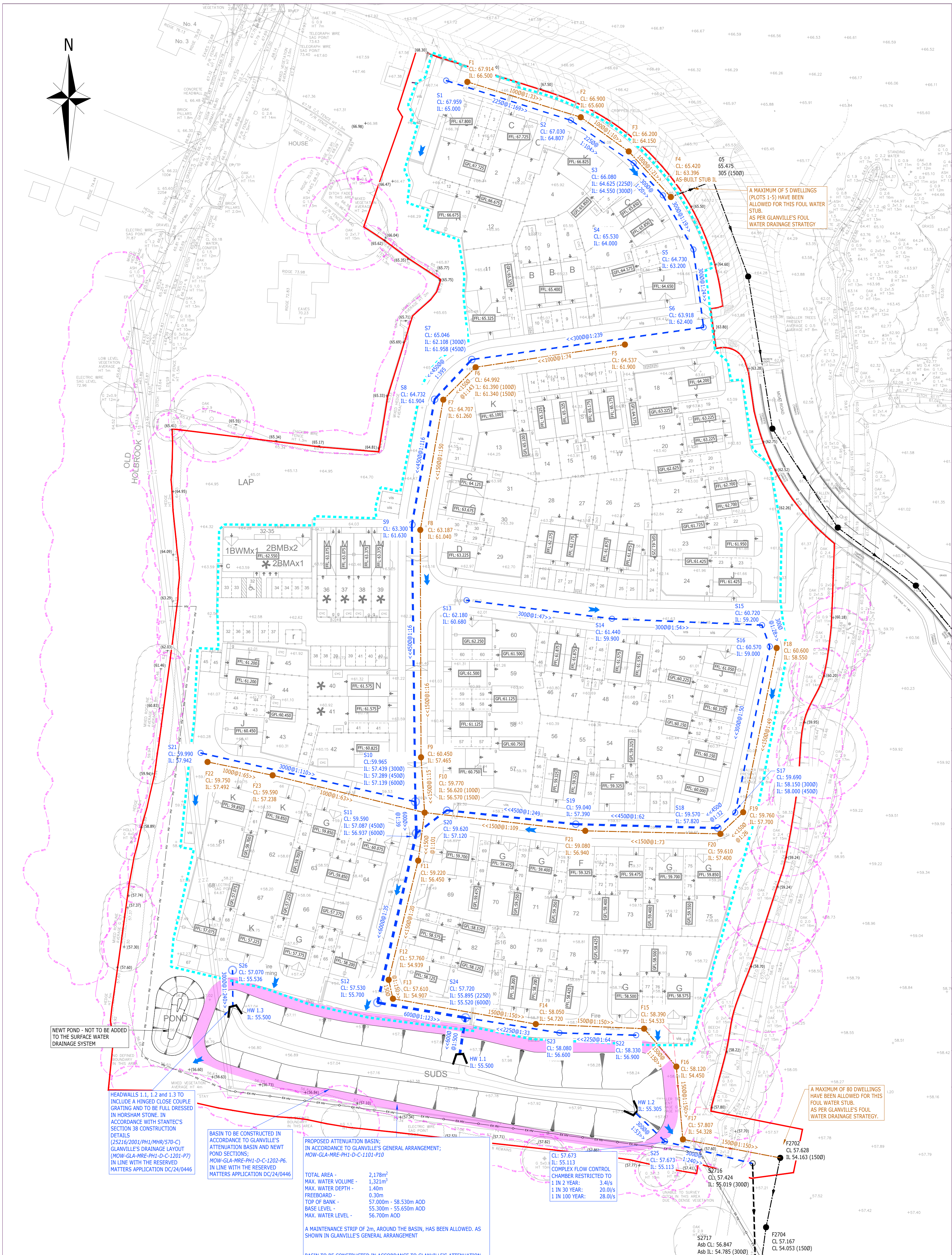
Bristol

postbox@glanvillegroup.com | www.glanvillegroup.com

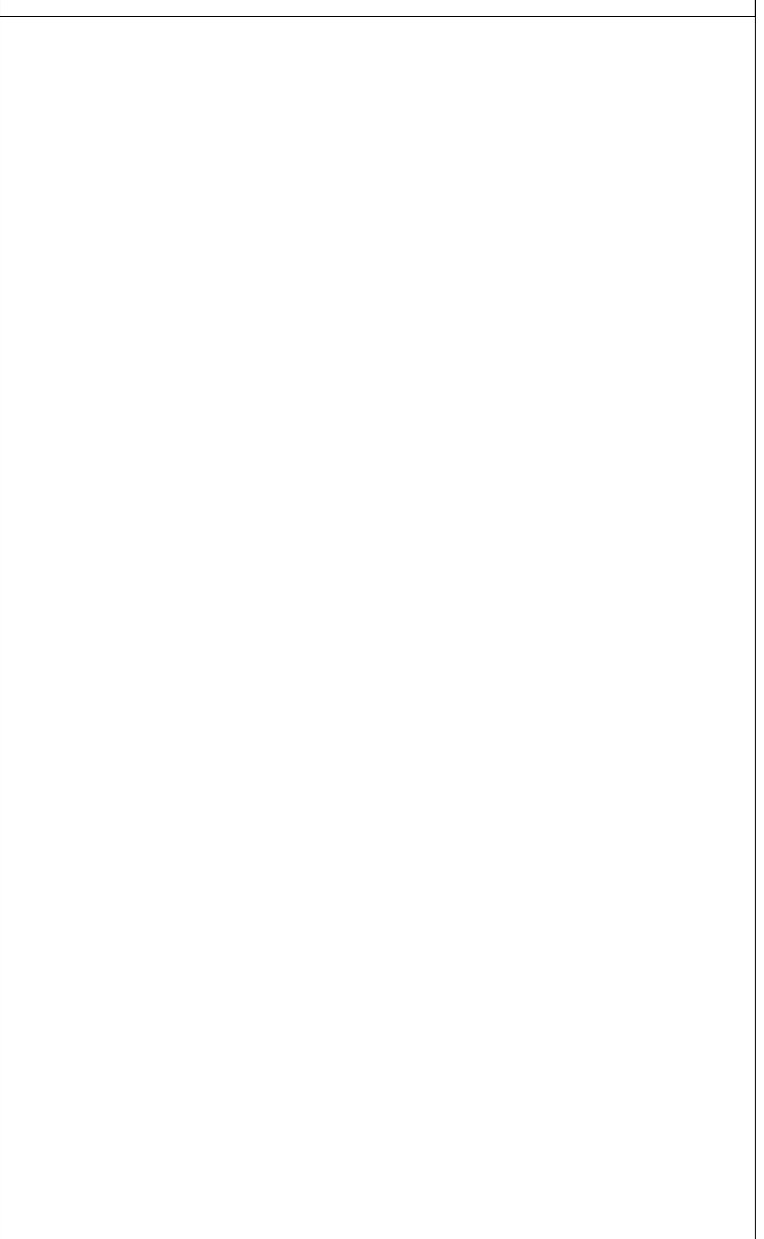


Glanville Consultants Ltd, Registered office: 3 Grovelands Business Centre,
Boundary Way, Hemel Hempstead, Hertfordshire, HP2 7TE

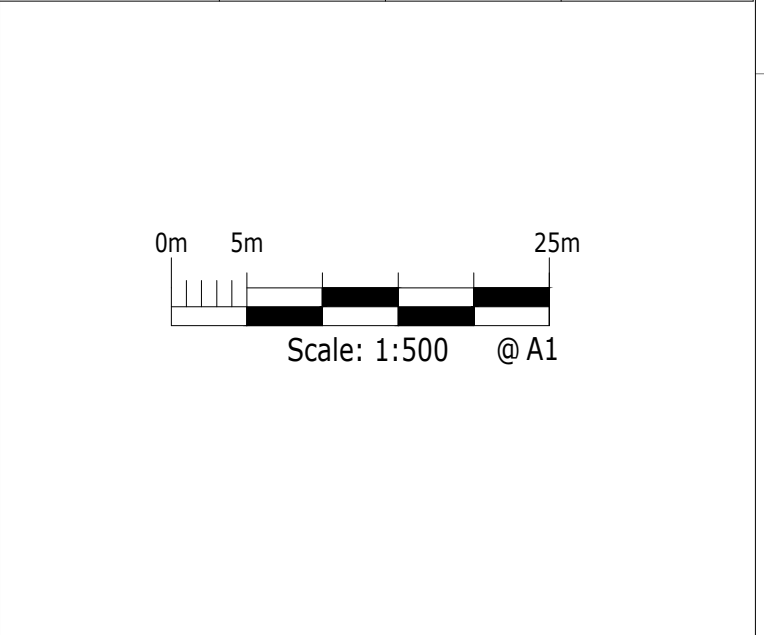
Appendix E
Proposed Drainage Strategy



- NOTES:
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT SPECIFICATION, INC. RISK ASSESSMENTS AND ALL OTHER RELATED DRAWINGS ISSUED BY THE ENGINEER.
 - DO NOT SCALE FROM THIS DRAWING. WORK FROM FIGURED DIMENSIONS ONLY.
 - ALL DIMENSIONS SHOWN ON THIS DRAWING ARE IN METRES UNLESS OTHERWISE STATED.
 - ALL DIMENSIONS, LEVELS AND SURVEY GRID CO-ORDINATES ARE TO BE CHECKED ON SITE AND THE ENGINEER NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO THE COMMENCEMENT OF THE WORKS.
 - NO DEVIATION FROM THE DETAILS SHOWN ON THIS DRAWING IS PERMITTED WITHOUT PRIOR PERMISSION FROM THE ENGINEER.
 - ANY WORKS OUTSIDE RED SITE BOUNDARY ARE FOR INFORMATION PURPOSES ONLY. UNLESS SPECIFICALLY NOTED, ALL WORKS OUTSIDE THE SITE BOUNDARY WILL BE UNDERTAKEN BY OTHERS UNDER A SEPARATE CONTRACT.
- KEY
- SITE BOUNDARY
 - PROPOSED DEVELOPABLE AREA
 - PROPOSED FOUL WATER SEWER
 - PROPOSED SURFACE WATER SEWER
 - EXISTING FOUL WATER SEWER
 - EXISTING SURFACE WATER SEWER
 - ROOT PROTECTION AREA
 - PROPOSED HEADWALL
 - FLOODED EXCEEDANCE ROUTE ARROWS
 - FINISHED FLOOR LEVEL
 - GARAGE FLOOR LEVEL
 - DIVERTED HV CABLES
 - EXISTING HV CABLES
 - MAINTENANCE STRIP



INFORMATION SUMMARY			
INFORMATION TYPE	SOURCE	REFERENCE	REVISION & DATE
SITE LAYOUT	MDD	BSL-010-SL-0 1	14/05/26 Rev. A
TOPOGRAPHICAL SURVEY	MKSURVEYS	27971 001-006	JAN 2020 REV. -
ROOT PROTECTION AREA	PJC	PJC/S265/20/ A 002-003	13/07/2020 REV. 2
MOAT ROAD AS-BUILT SURVEY	VENDOR PACK	31246-R1 MOAT ROAD AND SLR	-
STRATEGIC SURFACE WATER DRAINAGE	GLANVILLE	MOW-GLA-PH1 -RM4-1104	14.06.2024 REV. FC1
STRATEGIC FOUL WATER DRAINAGE	GLANVILLE	MOW-GLA-PH1 -RM4-1105	14.06.2024 REV. FC1
RESERVED MATTERS DRAINAGE STATEMENT	GLANVILLE	119_8220585_JD_Drainage_Statement_MRE	06.03.2024 REV. 3
LAND TO BE TRANSFERRED	GLANVILLE	MOWBRAY-GL A-PH1-RM4-1 102	APRIL 2024 REV. FC1
ATTENUATION BASIN & NEWT POND SECTIONS	GLANVILLE	MOWBRAY-GL A-PH1-RM4-1 202	10/06/2024 REV. P6
GENERAL ARRANGEMENT	GLANVILLE	MOWBRAY-GL A-PH1-RM4-1 101	10/06/2024 REV. P10



HEADWALLS 1.1, 1.2 AND 1.3 TO INCLUDE A HINGED CLOSE COUPLE GRATING AND TO BE FULL DRESSED IN HORSHAM STONE. IN ACCORDANCE WITH STANTEC'S SECTION 38 CONSTRUCTION DETAILS (25216/2001/PH1/MHR/570-C) GLANVILLE'S DRAINAGE LAYOUT (MOW-GLA-MRE-PH1-D-C-1201-P7) IN LINE WITH THE RESERVED MATTERS APPLICATION DC/24/0446

NEWT POND - NOT TO BE ADDED TO THE SURFACE WATER DRAINAGE SYSTEM

BASIN TO BE CONSTRUCTED IN ACCORDANCE TO GLANVILLE'S ATTENUATION BASIN AND NEWT POND SECTIONS; MOW-GLA-MRE-PH1-D-C-1202-P6. IN LINE WITH THE RESERVED MATTERS APPLICATION DC/24/0446

PROPOSED ATTENUATION BASIN; IN ACCORDANCE TO GLANVILLE'S GENERAL ARRANGEMENT; MOW-GLA-MRE-PH1-D-C-1101-P10

TOTAL AREA - 2,178m²
MAX. WATER VOLUME - 1,321m³
MAX. WATER DEPTH - 1.40m
FREEBOARD - 0.30m
TOP OF BANK - 57.00m - 58.53m AOD
BASE LEVEL - 55.30m - 55.65m AOD
MAX. WATER LEVEL - 56.70m AOD

A MAINTENANCE STRIP OF 2m, AROUND THE BASIN, HAS BEEN ALLOWED. AS SHOWN IN GLANVILLE'S GENERAL ARRANGEMENT

BASIN TO BE CONSTRUCTED IN ACCORDANCE TO GLANVILLE'S ATTENUATION BASIN AND NEWT POND SECTIONS; MOW-GLA-MRE-PH1-D-C-1202-P6. IN LINE WITH THE RESERVED MATTERS APPLICATION DC/24/0446

BELLWAY IS RESPONSIBLE FOR DETAILED DESIGN AND CONSTRUCTION OF THIS INFRASTRUCTURE AS WELL AS THE ADOPTION OF THE SEWER INLETS AND THE SEWER OUTFALL TO MANHOLE S2716 AND F2702. A LOW FLOW CHANNEL IS REQUIRED IN THE BOTTOM OF THE ATTENUATION BASIN BETWEEN HW1.1 - HW1.2 AND ALL HEADWALLS MUST BE DRESSED IN HORSHAM STONE.

BELLWAY ARE RESPONSIBLE TO TRANSFER THIS LAND BACK TO THE ESTATE MANAGEMENT COMPANY, WHICH IS OUTLINED IN GLANVILLE CONTRACTUAL PLAN; MOWBRAY-GLA-PH1-RM4-1102

STORAGE SUMMARY

TOTAL SITE AREA:
IMPERMEABLE AREA:

USING THE FLOW SOFTWARE AND BASED ON THE IMPERMEABLE AREA, THE FOLLOWING STORAGE VOLUMES WILL BE REQUIRED FOR THE FOLLOWING CLIMATE CHANGE ALLOWANCES:

- 20%: 931m³ (at 1.123m DEPTH)
- 40%: 1103m³ (at 1.239m DEPTH)

A SENSITIVITY ANALYSIS WAS UNDERTAKEN WITH 45% CLIMATE CHANGE AND A CV VALUE OF 1. THE FOLLOWING STORAGE IS REQUIRED:

- 45%: 1,404m³ (at 1.452m DEPTH)

STORAGE PROVIDED FROM BASIN A

TOTAL DEPTH: 1.700m (INCL. 300mm FREEBOARD)
TOTAL VOLUME: 1,321m³ (at 1.400m DEPTH)
1,800m³ (at 1.700m DEPTH)

THEREFORE THERE IS SUFFICIENT VOLUME PROVIDED WITHIN BASIN A, EXCLUDING THE 300mm FREEBOARD.

B	UPDATED TO REVISED LAYOUT	JTM	DC	JM	25.05.26
A	FOR SUBMISSION	DC	TR	JM	20.02.26
Rev	Description	Drn	Chk	App	Date
Purpose:	PRELIMINARY	Status:	NOT YET APPROVED		

ARDENT CONSULTING ENGINEERS

AN EMPLOYEE OWNED COMPANY

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The Hallmark Building
52-56 Leadenhall Street
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Tel: 020 7680 4088
Web: www.ardent-ce.co.uk
E-mail: enquiries@ardent-ce.co.uk

Client

BELLWAY HOMES

Project Title:

RM4, LAND NORTH OF HORSHAM

Drawing Title:

PROPOSED DRAINAGE STRATEGY

Drawn by: DC
Checked by: TR
Approved by: JM
Revision: B

A1 Scale: 1:500@A1
Date: FEB 2026

Drawing Number: 2500120_A-ACE-XX-XX-DR-C-0601

Appendix F
Flow Network Calculations

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	32.700	169.4	225	Circular	67.916	65.000	2.691	67.030	64.807	1.998
1.001	18.963	104.2	225	Circular	67.030	64.807	1.998	66.085	64.625	1.235
1.002	10.843	19.7	300	Circular	66.085	64.550	1.235	65.528	64.000	1.228
1.003	15.533	19.4	300	Circular	65.528	64.000	1.228	64.733	63.200	1.233
1.004	19.594	24.5	300	Circular	64.733	63.200	1.233	63.934	62.400	1.234
1.005	58.436	200.1	300	Circular	63.934	62.400	1.234	65.044	62.108	2.636
1.006	13.581	251.5	450	Circular	65.044	61.958	2.636	64.729	61.904	2.375
1.007	31.341	114.4	450	Circular	64.729	61.904	2.375	63.330	61.630	1.250
1.008	70.841	16.3	450	Circular	63.330	61.630	1.250	60.004	57.289	2.265
2.000	36.619	46.9	300	Circular	62.211	60.680	1.231	61.461	59.900	1.261
2.001	37.482	53.5	300	Circular	61.461	59.900	1.261	60.730	59.200	1.230
2.002	5.696	28.5	300	Circular	60.730	59.200	1.230	60.581	59.000	1.281
2.003	42.346	49.8	300	Circular	60.581	59.000	1.281	59.699	58.150	1.249
2.004	5.820	38.8	450	Circular	59.699	58.000	1.249	59.572	57.850	1.272
2.005	35.479	77.1	450	Circular	59.572	57.850	1.272	59.041	57.390	1.201
2.006	32.313	398.9	450	Circular	59.041	57.390	1.201	59.678	57.309	1.919
2.007	10.415	306.3	450	Circular	59.678	57.309	1.919	59.685	57.275	1.960
3.000	55.298	109.9	300	Circular	59.989	57.942	1.747	60.004	57.439	2.265
1.009	6.745	481.8	600	Circular	60.004	57.139	2.265	59.685	57.125	1.960
1.010	44.422	33.5	600	Circular	59.685	57.125	1.960	57.644	55.800	1.244
1.011	25.601	213.3	600	Circular	57.644	55.800	1.244	58.088	55.680	1.808
1.012	8.831	49.1	600	Circular	58.088	55.680	1.808	57.000	55.500	0.900
1.013	5.000	25.6	600	Circular	57.000	55.500	0.900	57.000	55.305	1.095
4.000	20.748	60.5	225	Circular	58.388	56.943	1.220	58.088	56.600	1.263
4.001	20.718	29.8	225	Circular	58.088	56.600	1.263	58.088	55.905	1.958

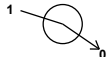
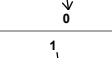
Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S1	1200	Manhole	Adoptable	S2	1200	Manhole	Adoptable
1.001	S2	1200	Manhole	Adoptable	S3	1350	Manhole	Adoptable
1.002	S3	1350	Manhole	Adoptable	S4	1350	Manhole	Adoptable
1.003	S4	1350	Manhole	Adoptable	S5	1350	Manhole	Adoptable
1.004	S5	1350	Manhole	Adoptable	S6	1350	Manhole	Adoptable
1.005	S6	1350	Manhole	Adoptable	S7	1350	Manhole	Adoptable
1.006	S7	1350	Manhole	Adoptable	S8	1350	Manhole	Adoptable
1.007	S8	1350	Manhole	Adoptable	S9	1350	Manhole	Adoptable
1.008	S9	1350	Manhole	Adoptable	S10	1500	Manhole	Adoptable
2.000	S13	1350	Manhole	Adoptable	S 14	1350	Manhole	Adoptable
2.001	S 14	1350	Manhole	Adoptable	S 15	1350	Manhole	Adoptable
2.002	S 15	1350	Manhole	Adoptable	S16	1350	Manhole	Adoptable
2.003	S16	1350	Manhole	Adoptable	S17	1350	Manhole	Adoptable
2.004	S17	1350	Manhole	Adoptable	S18	1350	Manhole	Adoptable
2.005	S18	1350	Manhole	Adoptable	S19	1350	Manhole	Adoptable
2.006	S19	1350	Manhole	Adoptable	S20	1350	Manhole	Adoptable
2.007	S20	1350	Manhole	Adoptable	S11	1500	Manhole	Adoptable
3.000	S21	1350	Manhole	Adoptable	S10	1500	Manhole	Adoptable
1.009	S10	1500	Manhole	Adoptable	S11	1500	Manhole	Adoptable
1.010	S11	1500	Manhole	Adoptable	S12	1500	Manhole	Adoptable
1.011	S12	1500	Manhole	Adoptable	S24	1500	Manhole	Adoptable
1.012	S24	1500	Manhole	Adoptable	HW 1.1		Junction	
1.013	HW 1.1		Junction		BASIN A		Junction	
4.000	S22	1350	Manhole	Adoptable	S23	1350	Manhole	Adoptable
4.001	S23	1350	Manhole	Adoptable	S24	1500	Manhole	Adoptable

Pipeline Schedule

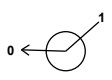
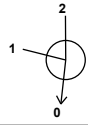
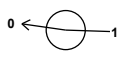
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.014	10.230	53.3	600	Circular	57.000	55.305	1.095	57.714	55.113	2.001
1.015	22.446	238.8	300	Circular	57.714	55.113	2.301	57.410	55.019	2.091

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.014	BASIN A		Junction		S25	1800	Manhole	Adoptable
1.015	S25	1800	Manhole	Adoptable	END OF PIPE	1200	Manhole	Adoptable

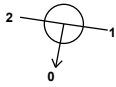
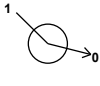
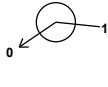
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S1	518572.340	134231.181	67.916	2.916	1200				
						0	1.000	65.000	225
S2	518603.495	134221.248	67.030	2.223	1200				
						0	1.001	64.807	225
						1	1.001	64.625	225
S3	518619.143	134210.535	66.085	1.535	1350				
						0	1.002	64.550	300
						1	1.002	64.000	300
S4	518626.443	134202.518	65.528	1.528	1350				
						0	1.003	64.000	300
S5	518634.092	134189.000	64.733	1.533	1350				
						0	1.004	63.200	300
						1	1.004	62.400	300
S6	518636.626	134169.571	63.934	1.534	1350				
						0	1.005	62.400	300
						1	1.005	62.108	300
S7	518578.746	134161.529	65.044	3.086	1350				
						0	1.006	61.958	450
S8	518569.478	134151.602	64.729	2.825	1350				
						0	1.007	61.904	450
						1	1.007	61.630	450
S9	518564.243	134120.701	63.330	1.700	1350				
						0	1.008	61.630	450

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S13	518577.429	134101.428	62.211	1.531	1350				
						0	2.000	60.680	300
S 14	518613.755	134096.814	61.461	1.561	1350		1	2.000	59.900
						0	2.001	59.900	300
S 15	518651.204	134095.241	60.730	1.530	1350		1	2.001	59.200
						0	2.002	59.200	300
S16	518653.158	134089.890	60.581	1.581	1350		1	2.002	59.000
						0	2.003	59.000	300
S17	518644.525	134048.434	59.699	1.699	1350		1	2.003	58.150
						0	2.004	58.000	450
S18	518640.162	134044.583	59.572	1.722	1350		1	2.004	57.850
						0	2.005	57.850	450
S19	518604.700	134045.686	59.041	1.651	1350		1	2.005	57.390
						0	2.006	57.390	450
S21	518511.050	134063.330	59.989	2.047	1350				
						0	3.000	57.942	300
S10	518564.682	134049.861	60.004	2.865	1500		1	3.000	57.439
						2	1.008	57.289	450
						0	1.009	57.139	600
S11	518563.944	134043.156	59.685	2.560	1500		1	2.007	57.275
						2	1.009	57.125	600
						0	1.010	57.125	600
S12	518553.198	134000.054	57.644	1.844	1500		1	1.010	55.800
						0	1.011	55.800	600
S22	518619.759	133992.622	58.388	1.445	1350				
						0	4.000	56.943	225
S23	518599.021	133993.291	58.088	1.488	1350		1	4.000	56.600
						0	4.001	56.600	225

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S24	518578.510	133996.210	58.088	2.408	1500		1 4.001	55.905	225
							2 1.011	55.680	600
							0 1.012	55.680	600
HW 1.1	518576.866	133987.534	57.000	1.500			1 1.012	55.500	600
							0 1.013	55.500	600
BASIN A	518619.692	133973.522	57.000	1.695			1 1.013	55.305	600
							0 1.014	55.305	600
S25	518626.986	133966.349	57.714	2.601	1800		1 1.014	55.113	600
							0 1.015	55.113	300
END OF PIPE	518648.752	133960.867	57.410	2.391	1200		1 1.015	55.019	300
S20	518572.558	134049.010	59.678	2.369	1350		1 2.006	57.309	450
							0 2.007	57.309	450

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Starting Level (m)
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s) x
Summer CV	0.750	Drain Down Time (mins)	4320	Check Discharge Volume x
Winter CV	0.840	Additional Storage (m³/ha)	0.0	

Storm Durations

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

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	20	0	0
100	40	0	0

Node S25 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	55.113	Product Number	CTL-SHE-0079-3400-1587-3400
Design Depth (m)	1.587	Min Outlet Diameter (m)	0.100
Design Flow (l/s)	3.4	Min Node Diameter (mm)	1200

Node S25 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	56.100	Product Number	CTL-SHE-0222-2460-0600-2460
Design Depth (m)	0.600	Min Outlet Diameter (m)	0.300
Design Flow (l/s)	24.6	Min Node Diameter (mm)	1500

Node BASIN A Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	55.300
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	435

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	40.6	0.0	0.500	876.0	0.0	1.000	1225.7	0.0	1.500	1590.7	0.0
0.100	173.1	0.0	0.600	944.8	0.0	1.100	1297.3	0.0	1.600	1665.2	0.0
0.200	368.4	0.0	0.700	1014.1	0.0	1.200	1369.6	0.0	1.700	1740.7	0.0
0.300	631.3	0.0	0.800	1084.1	0.0	1.300	1442.4	0.0			
0.400	807.8	0.0	0.900	1154.6	0.0	1.400	1515.8	0.0			

Results for 2 year Critical Storm Duration. Lowest mass balance: 96.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	10	65.055	0.055	5.5	0.0625	0.0000	OK
15 minute winter	S2	11	64.879	0.072	10.8	0.0813	0.0000	OK
15 minute winter	S3	10	64.602	0.052	15.8	0.0742	0.0000	OK
15 minute winter	S4	10	64.059	0.059	21.2	0.0841	0.0000	OK
15 minute winter	S5	11	63.269	0.069	26.5	0.0982	0.0000	OK
15 minute winter	S6	11	62.552	0.152	39.7	0.2181	0.0000	OK
15 minute winter	S7	11	62.124	0.166	51.4	0.2369	0.0000	OK
15 minute winter	S8	11	62.055	0.151	64.1	0.2166	0.0000	OK
15 minute winter	S9	11	61.724	0.094	76.8	0.1347	0.0000	OK
15 minute winter	S13	10	60.738	0.058	13.5	0.0826	0.0000	OK
15 minute winter	S 14	10	59.984	0.084	26.8	0.1198	0.0000	OK
15 minute winter	S 15	10	59.302	0.102	39.8	0.1453	0.0000	OK
15 minute winter	S16	11	59.123	0.123	52.7	0.1753	0.0000	OK
15 minute winter	S17	11	58.129	0.129	65.2	0.1841	0.0000	OK
15 minute winter	S18	10	57.989	0.139	78.1	0.1987	0.0000	OK
15 minute winter	S19	11	57.647	0.257	91.1	0.3679	0.0000	OK
15 minute winter	S21	11	58.013	0.071	13.5	0.1022	0.0000	OK
15 minute winter	S10	11	57.352	0.213	101.8	0.3759	0.0000	OK
15 minute winter	S11	11	57.290	0.165	204.9	0.2909	0.0000	OK
15 minute winter	S12	11	56.095	0.295	216.8	0.5208	0.0000	OK
15 minute winter	S22	10	57.011	0.068	13.5	0.0977	0.0000	OK
15 minute winter	S23	10	56.685	0.085	26.9	0.1212	0.0000	OK
1440 minute winter	S24	1320	55.944	0.264	46.7	0.4666	0.0000	OK
600 minute winter	HW 1.1	465	55.989	0.489	245.8	0.0000	0.0000	OK
1440 minute winter	BASIN A	1350	55.944	0.639	178.9	376.8849	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S1	1.000	S2	5.3	0.584	0.134	0.2999	
15 minute winter	S2	1.001	S3	10.6	0.996	0.208	0.2013	
15 minute winter	S3	1.002	S4	15.7	1.774	0.063	0.0966	
15 minute winter	S4	1.003	S5	21.0	1.929	0.083	0.1694	
15 minute winter	S5	1.004	S6	26.2	1.155	0.116	0.4707	
15 minute winter	S6	1.005	S7	38.7	1.103	0.495	2.0529	
15 minute winter	S7	1.006	S8	51.4	1.033	0.253	0.6768	
15 minute winter	S8	1.007	S9	64.1	1.832	0.212	1.1094	
15 minute winter	S9	1.008	S10	76.1	3.215	0.095	1.6771	
15 minute winter	S13	2.000	S 14	13.3	1.055	0.082	0.4669	
15 minute winter	S 14	2.001	S 15	26.3	1.424	0.173	0.6935	
15 minute winter	S 15	2.002	S16	39.2	1.644	0.188	0.1362	
15 minute winter	S16	2.003	S17	52.5	1.991	0.333	1.1172	
15 minute winter	S17	2.004	S18	65.3	1.659	0.126	0.2293	
15 minute winter	S18	2.005	S19	78.4	1.187	0.213	2.3959	
15 minute winter	S19	2.006	S20	91.4	1.017	0.568	2.9036	
15 minute winter	S21	3.000	S10	13.0	1.025	0.123	0.7015	
15 minute winter	S10	1.009	S11	101.7	1.342	0.326	0.5128	
15 minute winter	S11	1.010	S12	204.1	2.059	0.171	4.4506	
15 minute winter	S12	1.011	S24	214.2	1.882	0.456	2.9505	
15 minute winter	S22	4.000	S23	13.4	1.125	0.200	0.2470	
15 minute winter	S23	4.001	S24	26.5	2.006	0.277	0.2735	
1440 minute winter	S24	1.012	HW 1.1	58.5	1.232	0.059	1.5315	
600 minute winter	HW 1.1	1.013	BASIN A	212.3	1.216	0.156	1.3191	
1440 minute winter	BASIN A	1.014	S25	38.5	-0.423	0.041	2.8816	

Results for 2 year Critical Storm Duration. Lowest mass balance: 96.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	S25	1350	55.944	0.831	38.5	2.1150	0.0000	SURCHARGED
30 minute winter	END OF PIPE	649	55.059	0.040	2.9	0.0000	0.0000	OK
15 minute winter	S20	11	57.549	0.240	91.4	0.3440	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
1440 minute winter	S25	1.015	END OF PIPE	2.9	0.506	0.041	0.1296	602.1
15 minute winter	S20	2.007	S11	90.5	1.145	0.492	0.8230	

Results for 30 year Critical Storm Duration. Lowest mass balance: 96.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	10	65.090	0.090	14.0	0.1023	0.0000	OK
15 minute winter	S2	10	64.931	0.124	27.8	0.1403	0.0000	OK
15 minute winter	S3	10	64.636	0.086	40.9	0.1233	0.0000	OK
15 minute winter	S4	10	64.098	0.098	54.8	0.1406	0.0000	OK
15 minute winter	S5	10	63.312	0.112	68.4	0.1603	0.0000	OK
15 minute winter	S6	11	62.821	0.421	102.6	0.6031	0.0000	SURCHARGED
15 minute winter	S7	11	62.248	0.290	129.8	0.4147	0.0000	OK
15 minute winter	S8	11	62.159	0.255	162.2	0.3655	0.0000	OK
15 minute winter	S9	11	61.778	0.148	194.6	0.2125	0.0000	OK
15 minute winter	S13	10	60.773	0.093	34.6	0.1327	0.0000	OK
15 minute winter	S 14	10	60.040	0.140	68.9	0.2000	0.0000	OK
15 minute winter	S 15	10	59.398	0.198	102.5	0.2833	0.0000	OK
15 minute winter	S16	11	59.228	0.228	135.6	0.3261	0.0000	OK
15 minute winter	S17	11	58.246	0.246	167.3	0.3513	0.0000	OK
15 minute winter	S18	11	58.118	0.268	200.6	0.3834	0.0000	OK
15 minute winter	S19	11	57.974	0.584	232.9	0.8352	0.0000	SURCHARGED
15 minute winter	S21	10	58.060	0.118	34.6	0.1689	0.0000	OK
15 minute winter	S10	11	57.495	0.356	260.4	0.6299	0.0000	OK
15 minute winter	S11	11	57.406	0.281	525.5	0.4957	0.0000	OK
15 minute winter	S12	11	56.350	0.550	558.0	0.9719	0.0000	OK
15 minute winter	S22	10	57.062	0.119	34.6	0.1701	0.0000	OK
15 minute winter	S23	10	56.754	0.154	68.9	0.2198	0.0000	OK
600 minute winter	S24	480	56.231	0.551	165.5	0.9730	0.0000	OK
480 minute summer	HW 1.1	256	56.277	0.777	309.7	0.0000	0.0000	SURCHARGED
600 minute winter	BASIN A	465	56.230	0.925	249.6	684.8099	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S1	1.000	S2	13.8	0.738	0.346	0.6105	
15 minute winter	S2	1.001	S3	27.2	1.264	0.534	0.4076	
15 minute winter	S3	1.002	S4	40.8	2.229	0.162	0.1992	
15 minute winter	S4	1.003	S5	54.4	2.474	0.215	0.3420	
15 minute winter	S5	1.004	S6	68.0	1.368	0.302	0.9248	
15 minute winter	S6	1.005	S7	97.3	1.405	1.243	3.8379	
15 minute winter	S7	1.006	S8	129.7	1.299	0.639	1.3632	
15 minute winter	S8	1.007	S9	162.1	2.353	0.537	2.1689	
15 minute winter	S9	1.008	S10	194.4	3.625	0.242	4.1257	
15 minute winter	S13	2.000	S 14	34.3	1.360	0.211	0.9277	
15 minute winter	S 14	2.001	S 15	67.9	1.662	0.446	1.5269	
15 minute winter	S 15	2.002	S16	101.0	1.894	0.483	0.3033	
15 minute winter	S16	2.003	S17	134.8	2.445	0.854	2.3329	
15 minute winter	S17	2.004	S18	167.6	1.957	0.322	0.5436	
15 minute winter	S18	2.005	S19	200.4	1.399	0.544	4.5562	
15 minute winter	S19	2.006	S20	232.9	1.470	1.448	5.1164	
15 minute winter	S21	3.000	S10	33.5	1.331	0.316	1.3908	
15 minute winter	S10	1.009	S11	260.4	1.714	0.835	1.0241	
15 minute winter	S11	1.010	S12	525.5	2.525	0.441	8.8799	
15 minute winter	S12	1.011	S24	555.9	2.357	1.182	5.9161	
15 minute winter	S22	4.000	S23	34.3	1.379	0.512	0.5201	
15 minute winter	S23	4.001	S24	68.3	2.455	0.714	0.5966	
600 minute winter	S24	1.012	HW 1.1	135.7	1.398	0.138	2.4394	
480 minute summer	HW 1.1	1.013	BASIN A	241.6	1.539	0.177	1.4084	
600 minute winter	BASIN A	1.014	S25	33.7	0.326	0.036	2.8816	

Results for 30 year Critical Storm Duration. Lowest mass balance: 96.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute winter	S25	465	56.230	1.117	33.7	2.8434	0.0000	SURCHARGED
600 minute winter	END OF PIPE	480	55.110	0.091	14.5	0.0000	0.0000	OK
15 minute winter	S20	11	57.755	0.446	232.9	0.6380	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
600 minute winter	S25	1.015	END OF PIPE	14.5	0.788	0.203	0.4147	919.8
15 minute winter	S20	2.007	S11	232.6	1.584	1.265	1.4934	

Results for 100 year +20% CC Critical Storm Duration. Lowest mass balance: 96.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	10	65.115	0.115	21.3	0.1298	0.0000	OK
15 minute winter	S2	10	64.973	0.166	42.2	0.1882	0.0000	OK
15 minute winter	S3	10	64.661	0.111	62.2	0.1582	0.0000	OK
15 minute winter	S4	11	64.120	0.120	83.2	0.1713	0.0000	OK
15 minute winter	S5	11	63.664	0.464	104.6	0.6644	0.0000	SURCHARGED
15 minute winter	S6	11	63.458	1.058	145.3	1.5146	0.0000	SURCHARGED
15 minute winter	S7	11	62.346	0.388	192.3	0.5559	0.0000	OK
15 minute winter	S8	11	62.234	0.330	241.5	0.4721	0.0000	OK
15 minute winter	S9	11	61.814	0.184	289.4	0.2628	0.0000	OK
15 minute winter	S13	10	60.796	0.116	52.4	0.1654	0.0000	OK
15 minute winter	S 14	12	60.476	0.576	104.4	0.8241	0.0000	SURCHARGED
15 minute winter	S 15	12	60.168	0.968	144.8	1.3851	0.0000	SURCHARGED
15 minute winter	S16	12	59.986	0.986	178.5	1.4105	0.0000	SURCHARGED
15 minute winter	S17	11	58.733	0.733	223.2	1.0495	0.0000	SURCHARGED
15 minute winter	S18	11	58.654	0.804	272.0	1.1511	0.0000	SURCHARGED
15 minute winter	S19	11	58.323	0.933	321.0	1.3354	0.0000	SURCHARGED
15 minute winter	S21	10	58.092	0.150	52.4	0.2140	0.0000	OK
15 minute winter	S10	11	57.670	0.531	388.8	0.9388	0.0000	OK
15 minute winter	S11	11	57.560	0.435	758.5	0.7686	0.0000	OK
15 minute winter	S12	11	56.766	0.966	807.4	1.7069	0.0000	SURCHARGED
15 minute winter	S22	11	57.329	0.386	52.4	0.5524	0.0000	SURCHARGED
15 minute winter	S23	11	57.101	0.501	97.8	0.7163	0.0000	SURCHARGED
600 minute winter	S24	450	56.429	0.749	96.6	1.3230	0.0000	SURCHARGED
600 minute winter	HW 1.1	450	56.429	0.928	132.9	0.0000	0.0000	SURCHARGED
600 minute winter	BASIN A	450	56.428	1.123	209.7	931.8120	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S1	1.000	S2	21.0	0.803	0.526	0.8475	
15 minute winter	S2	1.001	S3	41.3	1.376	0.810	0.5679	
15 minute winter	S3	1.002	S4	61.9	2.523	0.246	0.2677	
15 minute winter	S4	1.003	S5	83.3	2.512	0.329	0.7505	
15 minute winter	S5	1.004	S6	96.6	1.471	0.429	1.3798	
15 minute winter	S6	1.005	S7	143.0	2.031	1.827	4.0500	
15 minute winter	S7	1.006	S8	192.2	1.423	0.946	1.8336	
15 minute winter	S8	1.007	S9	240.1	2.574	0.794	2.9045	
15 minute winter	S9	1.008	S10	289.3	3.606	0.360	7.2256	
15 minute winter	S13	2.000	S 14	52.0	1.468	0.320	1.7322	
15 minute winter	S 14	2.001	S 15	95.5	1.675	0.628	2.6395	
15 minute winter	S 15	2.002	S16	135.2	1.920	0.647	0.4011	
15 minute winter	S16	2.003	S17	179.6	2.551	1.138	2.9820	
15 minute winter	S17	2.004	S18	223.7	1.957	0.430	0.9221	
15 minute winter	S18	2.005	S19	271.7	1.715	0.738	5.6214	
15 minute winter	S19	2.006	S20	321.0	2.026	1.996	5.1198	
15 minute winter	S21	3.000	S10	52.6	1.412	0.497	2.5320	
15 minute winter	S10	1.009	S11	388.1	1.746	1.245	1.6281	
15 minute winter	S11	1.010	S12	758.1	2.811	0.636	11.1169	
15 minute winter	S12	1.011	S24	806.7	2.885	1.716	6.8770	
15 minute winter	S22	4.000	S23	48.5	1.393	0.725	0.8252	
15 minute winter	S23	4.001	S24	97.2	2.509	1.017	0.8240	
600 minute winter	S24	1.012	HW 1.1	132.9	1.569	0.135	2.4875	
600 minute winter	HW 1.1	1.013	BASIN A	203.4	1.342	0.149	1.4084	
600 minute winter	BASIN A	1.014	S25	38.4	0.379	0.041	2.8816	

Results for 100 year +20% CC Critical Storm Duration. Lowest mass balance: 96.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute winter	S25	450	56.428	1.315	38.4	3.3470	0.0000	SURCHARGED
600 minute winter	END OF PIPE	450	55.146	0.127	27.5	0.0000	0.0000	OK
15 minute winter	S20	11	57.895	0.586	321.0	0.8386	0.0000	SURCHARGED
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
600 minute winter	S25	1.015	END OF PIPE	27.5	0.932	0.384	0.6629	1373.0
15 minute winter	S20	2.007	S11	321.1	2.033	1.746	1.5885	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 96.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	10	65.126	0.126	24.8	0.1426	0.0000	OK
15 minute winter	S2	11	64.999	0.191	49.2	0.2166	0.0000	OK
15 minute winter	S3	10	64.668	0.118	72.3	0.1691	0.0000	OK
15 minute winter	S4	11	64.221	0.221	97.1	0.3159	0.0000	OK
15 minute winter	S5	11	64.111	0.911	117.1	1.3039	0.0000	SURCHARGED
15 minute winter	S6	11	63.847	1.447	167.3	2.0713	0.0000	FLOOD RISK
15 minute winter	S7	11	62.406	0.448	222.9	0.6408	0.0000	OK
15 minute winter	S8	11	62.275	0.371	280.3	0.5308	0.0000	OK
15 minute winter	S9	11	61.830	0.200	337.9	0.2864	0.0000	OK
15 minute winter	S13	12	61.198	0.518	61.1	0.7419	0.0000	SURCHARGED
15 minute winter	S 14	12	61.110	1.210	120.6	1.7308	0.0000	SURCHARGED
15 minute winter	S 15	12	60.730	1.530	151.5	2.1894	0.5001	FLOOD
15 minute winter	S16	11	60.544	1.544	193.6	2.2095	0.0000	FLOOD RISK
15 minute winter	S17	11	59.044	1.044	248.8	1.4933	0.0000	SURCHARGED
15 minute winter	S18	11	58.948	1.098	304.4	1.5708	0.0000	SURCHARGED
15 minute winter	S19	11	58.545	1.155	359.8	1.6535	0.0000	SURCHARGED
15 minute winter	S21	10	58.102	0.160	61.1	0.2294	0.0000	OK
15 minute winter	S10	12	57.878	0.739	453.7	1.3062	0.0000	SURCHARGED
15 minute winter	S11	12	57.790	0.665	833.2	1.1754	0.0000	SURCHARGED
15 minute winter	S12	12	56.920	1.120	883.8	1.9796	0.0000	SURCHARGED
15 minute winter	S22	11	57.787	0.844	61.1	1.2082	0.0000	SURCHARGED
15 minute winter	S23	11	57.477	0.877	114.2	1.2549	0.0000	SURCHARGED
720 minute winter	S24	540	56.554	0.874	105.8	1.5450	0.0000	SURCHARGED
720 minute winter	HW 1.1	540	56.554	1.054	327.0	0.0000	0.0000	SURCHARGED
720 minute winter	BASIN A	540	56.554	1.249	169.5	1103.0850	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S1	1.000	S2	24.4	0.823	0.614	0.9611	
15 minute winter	S2	1.001	S3	48.1	1.402	0.946	0.6500	
15 minute winter	S3	1.002	S4	72.3	2.502	0.288	0.4334	
15 minute winter	S4	1.003	S5	92.3	2.593	0.364	0.9785	
15 minute winter	S5	1.004	S6	114.7	1.629	0.509	1.3798	
15 minute winter	S6	1.005	S7	165.4	2.348	2.112	4.1125	
15 minute winter	S7	1.006	S8	222.8	1.474	1.097	2.0238	
15 minute winter	S8	1.007	S9	280.4	2.649	0.928	3.2575	
15 minute winter	S9	1.008	S10	337.9	3.528	0.421	8.0247	
15 minute winter	S13	2.000	S 14	59.5	1.456	0.366	2.5787	
15 minute winter	S 14	2.001	S 15	103.8	1.679	0.682	2.6395	
15 minute winter	S 15	2.002	S16	145.5	2.066	0.696	0.4011	
15 minute winter	S16	2.003	S17	192.9	2.740	1.223	2.9820	
15 minute winter	S17	2.004	S18	246.9	1.902	0.475	0.9221	
15 minute winter	S18	2.005	S19	302.3	1.908	0.821	5.6214	
15 minute winter	S19	2.006	S20	356.6	2.251	2.217	5.1198	
15 minute winter	S21	3.000	S10	60.4	1.371	0.570	2.9778	
15 minute winter	S10	1.009	S11	437.3	1.724	1.403	1.8999	
15 minute winter	S11	1.010	S12	836.1	2.969	0.702	12.5127	
15 minute winter	S12	1.011	S24	885.0	3.142	1.882	7.2111	
15 minute winter	S22	4.000	S23	56.6	1.424	0.846	0.8252	
15 minute winter	S23	4.001	S24	113.2	2.846	1.184	0.8240	
720 minute winter	S24	1.012	HW 1.1	129.9	1.472	0.132	2.4875	
720 minute winter	HW 1.1	1.013	BASIN A	-197.1	1.342	-0.145	1.4084	
720 minute winter	BASIN A	1.014	S25	36.1	0.397	0.038	2.8816	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 96.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	S25	540	56.554	1.441	36.1	3.6668	0.0000	SURCHARGED
960 minute summer	END OF PIPE	720	55.146	0.127	27.5	0.0000	0.0000	OK
15 minute winter	S20	12	58.035	0.726	356.6	1.0393	0.0000	SURCHARGED
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
720 minute winter	S25	1.015	END OF PIPE	27.5	0.932	0.384	0.6629	1672.8
15 minute winter	S20	2.007	S11	352.6	2.225	1.918	1.6502	

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	32.700	169.4	225	Circular	67.916	65.000	2.691	67.030	64.807	1.998
1.001	18.963	104.2	225	Circular	67.030	64.807	1.998	66.085	64.625	1.235
1.002	10.843	19.7	300	Circular	66.085	64.550	1.235	65.528	64.000	1.228
1.003	15.533	19.4	300	Circular	65.528	64.000	1.228	64.733	63.200	1.233
1.004	19.594	24.5	300	Circular	64.733	63.200	1.233	63.934	62.400	1.234
1.005	58.436	200.1	300	Circular	63.934	62.400	1.234	65.044	62.108	2.636
1.006	13.581	251.5	450	Circular	65.044	61.958	2.636	64.729	61.904	2.375
1.007	31.341	114.4	450	Circular	64.729	61.904	2.375	63.330	61.630	1.250
1.008	70.841	16.3	450	Circular	63.330	61.630	1.250	60.004	57.289	2.265
2.000	36.619	46.9	300	Circular	62.211	60.680	1.231	61.461	59.900	1.261
2.001	37.482	53.5	300	Circular	61.461	59.900	1.261	60.730	59.200	1.230
2.002	5.696	28.5	300	Circular	60.730	59.200	1.230	60.581	59.000	1.281
2.003	42.346	49.8	300	Circular	60.581	59.000	1.281	59.699	58.150	1.249
2.004	5.820	38.8	450	Circular	59.699	58.000	1.249	59.572	57.850	1.272
2.005	35.479	77.1	450	Circular	59.572	57.850	1.272	59.041	57.390	1.201
2.006	32.313	398.9	450	Circular	59.041	57.390	1.201	59.678	57.309	1.919
2.007	10.415	306.3	450	Circular	59.678	57.309	1.919	59.685	57.275	1.960
3.000	55.298	109.9	300	Circular	59.989	57.942	1.747	60.004	57.439	2.265
1.009	6.745	481.8	600	Circular	60.004	57.139	2.265	59.685	57.125	1.960
1.010	44.422	33.5	600	Circular	59.685	57.125	1.960	57.644	55.800	1.244
1.011	25.601	213.3	600	Circular	57.644	55.800	1.244	58.088	55.680	1.808
1.012	8.831	49.1	600	Circular	58.088	55.680	1.808	57.000	55.500	0.900
1.013	5.000	25.6	600	Circular	57.000	55.500	0.900	57.000	55.305	1.095
4.000	20.748	60.5	225	Circular	58.388	56.943	1.220	58.088	56.600	1.263
4.001	20.718	29.8	225	Circular	58.088	56.600	1.263	58.088	55.905	1.958

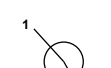
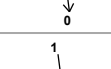
Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S1	1200	Manhole	Adoptable	S2	1200	Manhole	Adoptable
1.001	S2	1200	Manhole	Adoptable	S3	1350	Manhole	Adoptable
1.002	S3	1350	Manhole	Adoptable	S4	1350	Manhole	Adoptable
1.003	S4	1350	Manhole	Adoptable	S5	1350	Manhole	Adoptable
1.004	S5	1350	Manhole	Adoptable	S6	1350	Manhole	Adoptable
1.005	S6	1350	Manhole	Adoptable	S7	1350	Manhole	Adoptable
1.006	S7	1350	Manhole	Adoptable	S8	1350	Manhole	Adoptable
1.007	S8	1350	Manhole	Adoptable	S9	1350	Manhole	Adoptable
1.008	S9	1350	Manhole	Adoptable	S10	1500	Manhole	Adoptable
2.000	S13	1350	Manhole	Adoptable	S 14	1350	Manhole	Adoptable
2.001	S 14	1350	Manhole	Adoptable	S 15	1350	Manhole	Adoptable
2.002	S 15	1350	Manhole	Adoptable	S16	1350	Manhole	Adoptable
2.003	S16	1350	Manhole	Adoptable	S17	1350	Manhole	Adoptable
2.004	S17	1350	Manhole	Adoptable	S18	1350	Manhole	Adoptable
2.005	S18	1350	Manhole	Adoptable	S19	1350	Manhole	Adoptable
2.006	S19	1350	Manhole	Adoptable	S20	1350	Manhole	Adoptable
2.007	S20	1350	Manhole	Adoptable	S11	1500	Manhole	Adoptable
3.000	S21	1350	Manhole	Adoptable	S10	1500	Manhole	Adoptable
1.009	S10	1500	Manhole	Adoptable	S11	1500	Manhole	Adoptable
1.010	S11	1500	Manhole	Adoptable	S12	1500	Manhole	Adoptable
1.011	S12	1500	Manhole	Adoptable	S24	1500	Manhole	Adoptable
1.012	S24	1500	Manhole	Adoptable	HW 1.1		Junction	
1.013	HW 1.1		Junction		BASIN A		Junction	
4.000	S22	1350	Manhole	Adoptable	S23	1350	Manhole	Adoptable
4.001	S23	1350	Manhole	Adoptable	S24	1500	Manhole	Adoptable

Pipeline Schedule

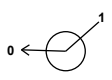
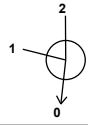
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.014	10.230	53.3	600	Circular	57.000	55.305	1.095	57.714	55.113	2.001
1.015	22.446	238.8	300	Circular	57.714	55.113	2.301	57.410	55.019	2.091

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.014	BASIN A		Junction		S25	1800	Manhole	Adoptable
1.015	S25	1800	Manhole	Adoptable	END OF PIPE	1200	Manhole	Adoptable

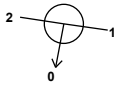
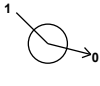
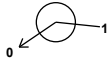
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S1	518572.340	134231.181	67.916	2.916	1200		0	1.000	65.000	225
S2	518603.495	134221.248	67.030	2.223	1200		1	1.000	64.807	225
						0	1.001	64.807	225	
S3	518619.143	134210.535	66.085	1.535	1350		1	1.001	64.625	225
						0	1.002	64.550	300	
S4	518626.443	134202.518	65.528	1.528	1350		1	1.002	64.000	300
						0	1.003	64.000	300	
S5	518634.092	134189.000	64.733	1.533	1350		1	1.003	63.200	300
						0	1.004	63.200	300	
S6	518636.626	134169.571	63.934	1.534	1350		1	1.004	62.400	300
						0	1.005	62.400	300	
S7	518578.746	134161.529	65.044	3.086	1350		1	1.005	62.108	300
						0	1.006	61.958	450	
S8	518569.478	134151.602	64.729	2.825	1350		1	1.006	61.904	450
						0	1.007	61.904	450	
S9	518564.243	134120.701	63.330	1.700	1350		1	1.007	61.630	450
						0	1.008	61.630	450	

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S13	518577.429	134101.428	62.211	1.531	1350				
						0	2.000	60.680	300
S 14	518613.755	134096.814	61.461	1.561	1350		1	2.000	59.900
						0	2.001	59.900	300
S 15	518651.204	134095.241	60.730	1.530	1350		1	2.001	59.200
						0	2.002	59.200	300
S16	518653.158	134089.890	60.581	1.581	1350		1	2.002	59.000
						0	2.003	59.000	300
S17	518644.525	134048.434	59.699	1.699	1350		1	2.003	58.150
						0	2.004	58.000	450
S18	518640.162	134044.583	59.572	1.722	1350		1	2.004	57.850
						0	2.005	57.850	450
S19	518604.700	134045.686	59.041	1.651	1350		1	2.005	57.390
						0	2.006	57.390	450
S21	518511.050	134063.330	59.989	2.047	1350				
						0	3.000	57.942	300
S10	518564.682	134049.861	60.004	2.865	1500		1	3.000	57.439
						2	1.008	57.289	450
						0	1.009	57.139	600
S11	518563.944	134043.156	59.685	2.560	1500		1	2.007	57.275
						2	1.009	57.125	600
						0	1.010	57.125	600
S12	518553.198	134000.054	57.644	1.844	1500		1	1.010	55.800
						0	1.011	55.800	600
S22	518619.759	133992.622	58.388	1.445	1350				
						0	4.000	56.943	225
S23	518599.021	133993.291	58.088	1.488	1350		1	4.000	56.600
						0	4.001	56.600	225

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S24	518578.510	133996.210	58.088	2.408	1500		1 4.001	55.905	225
							2 1.011	55.680	600
							0 1.012	55.680	600
HW 1.1	518576.866	133987.534	57.000	1.500			1 1.012	55.500	600
							0 1.013	55.500	600
BASIN A	518619.692	133973.522	57.000	1.695			1 1.013	55.305	600
							0 1.014	55.305	600
S25	518626.986	133966.349	57.714	2.601	1800		1 1.014	55.113	600
							0 1.015	55.113	300
END OF PIPE	518648.752	133960.867	57.410	2.391	1200		1 1.015	55.019	300
S20	518572.558	134049.010	59.678	2.369	1350		1 2.006	57.309	450
							0 2.007	57.309	450

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Starting Level (m)
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s) x
Summer CV	1.000	Drain Down Time (mins)	4320	Check Discharge Volume x
Winter CV	1.000	Additional Storage (m³/ha)	0.0	

Storm Durations

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

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
100	45	0	0

Node S25 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	55.113	Product Number	CTL-SHE-0079-3400-1587-3400
Design Depth (m)	1.587	Min Outlet Diameter (m)	0.100
Design Flow (l/s)	3.4	Min Node Diameter (mm)	1200

Node S25 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	56.100	Product Number	CTL-SHE-0222-2460-0600-2460
Design Depth (m)	0.600	Min Outlet Diameter (m)	0.300
Design Flow (l/s)	24.6	Min Node Diameter (mm)	1500

Node BASIN A Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	55.300
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	705

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	40.6	0.0	0.500	876.0	0.0	1.000	1225.7	0.0	1.500	1590.7	0.0
0.100	173.1	0.0	0.600	944.8	0.0	1.100	1297.3	0.0	1.600	1665.2	0.0
0.200	368.4	0.0	0.700	1014.1	0.0	1.200	1369.6	0.0	1.700	1740.7	0.0
0.300	631.3	0.0	0.800	1084.1	0.0	1.300	1442.4	0.0			
0.400	807.8	0.0	0.900	1154.6	0.0	1.400	1515.8	0.0			

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 98.56%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S1	11	65.301	0.301	32.6	0.3400	0.0000	SURCHARGED
15 minute summer	S2	11	65.160	0.353	62.4	0.3992	0.0000	SURCHARGED
15 minute summer	S3	11	64.814	0.264	93.7	0.3784	0.0000	OK
15 minute summer	S4	11	64.717	0.717	122.4	1.0259	0.0000	SURCHARGED
15 minute summer	S5	11	64.444	1.244	153.3	1.7798	0.0000	FLOOD RISK
15 minute summer	S6	10	63.934	1.534	229.7	2.1952	10.1057	FLOOD
15 minute summer	S7	10	62.477	0.518	243.8	0.7420	0.0000	SURCHARGED
15 minute summer	S8	10	62.339	0.435	323.8	0.6221	0.0000	OK
15 minute summer	S9	10	61.851	0.221	402.5	0.3161	0.0000	OK
15 minute summer	S13	10	61.708	1.028	80.3	1.4704	0.0000	SURCHARGED
15 minute summer	S 14	10	61.461	1.561	156.1	2.2338	1.7038	FLOOD
30 minute summer	S 15	17	60.730	1.530	215.0	2.1894	16.6549	FLOOD
15 minute summer	S16	10	60.581	1.581	202.6	2.2624	6.4237	FLOOD
15 minute summer	S17	10	59.570	1.570	254.5	2.2465	0.0000	FLOOD RISK
15 minute summer	S18	10	59.483	1.633	319.2	2.3368	0.0000	FLOOD RISK
15 minute summer	S19	10	59.041	1.651	388.4	2.3626	6.4369	FLOOD
15 minute summer	S21	11	58.852	0.910	80.3	1.3023	0.0000	SURCHARGED
15 minute summer	S10	11	58.556	1.417	549.4	2.5043	0.0000	SURCHARGED
15 minute summer	S11	11	58.418	1.293	942.1	2.2839	0.0000	SURCHARGED
30 minute summer	S12	19	57.314	1.514	985.1	2.6758	0.0000	SURCHARGED
15 minute summer	S22	10	58.388	1.445	80.3	2.0678	2.6752	FLOOD
15 minute summer	S23	10	58.088	1.488	137.3	2.1293	0.2330	FLOOD
960 minute summer	S24	660	56.758	1.078	142.3	1.9044	0.0000	SURCHARGED
960 minute summer	HW 1.1	660	56.758	1.258	262.7	0.0000	0.0000	FLOOD RISK
960 minute summer	BASIN A	660	56.757	1.452	251.6	1404.7790	0.0000	FLOOD RISK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S1	1.000	S2	31.3	0.844	0.787	1.3005	
15 minute summer	S2	1.001	S3	62.6	1.575	1.230	0.7344	
15 minute summer	S3	1.002	S4	91.3	2.421	0.363	0.7382	
15 minute summer	S4	1.003	S5	122.2	2.475	0.482	1.0938	
15 minute summer	S5	1.004	S6	153.1	2.174	0.679	1.3798	
15 minute summer	S6	1.005	S7	170.3	2.419	2.175	4.1150	
15 minute summer	S7	1.006	S8	243.5	1.537	1.199	2.1410	
15 minute summer	S8	1.007	S9	322.2	2.672	1.066	3.6707	
15 minute summer	S9	1.008	S10	401.3	3.497	0.499	8.3537	
15 minute summer	S13	2.000	S 14	76.8	1.523	0.473	2.5787	
15 minute summer	S 14	2.001	S 15	140.9	2.001	0.926	2.6395	
30 minute summer	S 15	2.002	S16	144.8	2.057	0.693	0.4011	
15 minute summer	S16	2.003	S17	186.1	2.643	1.180	2.9820	
15 minute summer	S17	2.004	S18	242.7	1.913	0.466	0.9221	
15 minute summer	S18	2.005	S19	311.8	1.968	0.846	5.6214	
15 minute summer	S19	2.006	S20	377.6	2.384	2.348	5.1198	
15 minute summer	S21	3.000	S10	75.1	1.423	0.709	3.8940	
15 minute summer	S10	1.009	S11	546.9	1.942	1.755	1.8999	
15 minute summer	S11	1.010	S12	941.7	3.343	0.790	12.5127	
30 minute summer	S12	1.011	S24	986.4	3.502	2.098	7.2112	
15 minute summer	S22	4.000	S23	62.4	1.569	0.932	0.8252	
15 minute summer	S23	4.001	S24	134.1	3.372	1.402	0.8240	
960 minute summer	S24	1.012	HW 1.1	241.8	1.398	0.246	2.4875	
960 minute summer	HW 1.1	1.013	BASIN A	251.6	1.230	0.185	1.4084	
960 minute summer	BASIN A	1.014	S25	43.5	0.463	0.046	2.8816	

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 98.56%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute summer	S25	660	56.757	1.644	43.5	4.1843	0.0000	SURCHARGED
960 minute summer	END OF PIPE	660	55.149	0.130	29.0	0.0000	0.0000	OK
15 minute summer	S20	11	58.622	1.313	377.6	1.8794	0.0000	SURCHARGED
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
960 minute summer	S25	1.015	END OF PIPE	29.0	0.945	0.405	0.6890	2170.7
15 minute summer	S20	2.007	S11	366.3	2.312	1.992	1.6502	

Appendix G
West Sussex SuDS Proforma

Surface Water Drainage Proforma

West Sussex County Council (WSCC) as Lead Local Flood Authority recommends this proforma is completed and submitted to support any planning application for a major development. The information contained in this form will be used by WSCC officers in their role as 'statutory consultee' on surface water drainage. The proforma should accompany the site-specific Flood Risk Assessment and Drainage Strategy submitted as part of the planning application.

1. Site Details

No.	Requirement	Answer	Application Type
1.1	Address including postcode	Land North of Horsham	Outline & Full
1.2	OS grid reference (easting and northing)	518589, 134083	Outline & Full
1.3	Planning application reference		Outline & Full
1.4	Total site area (hectares)	3.43	Outline & Full
1.5	Pre-development use	Greenfield site	Outline & Full
1.6	Proposed design life		Outline & Full
1.7	Have agreements in principle for discharge been provided (where applicable)? (YES/NO)	Yes	
1.8	Topographic Survey Plan showing existing site layout, site levels and drainage system	Yes	Outline & Full

2. Discharge Hierarchy/Methods of Discharge¹

No.	Requirement	Answer	Application Type
2.1	Store rainwater for later use (reuse) (YES/NO)	NO	Full
2.2	Infiltration techniques such as soakaways, permeable paving, etc (YES/NO)	NO	Outline & Full
2.3	Hybrid (YES/NO)	NO	Outline & Full

¹ Runoff may be discharged via one or multiple methods.

No.	Requirement	Answer	Application Type
2.4	Attenuation with restricted discharge to watercourse (YES/NO)	NO	Outline & Full
2.5	Attenuation with restricted discharge to surface water sewer (YES/NO)	YES	Outline & Full
2.6	Attenuation with restricted discharge to combined sewer (YES/NO)	NO	Outline & Full

3. Calculation Inputs

No.	Requirement	Answer	Application Type
3.1	Area within site which is drained by SuDS ² (hectares)	1.827 ha (includes urban creep, as agreed in DC/24/0446)	Outline & Full
3.2	Impermeable area drained pre-development ³ (hectares)		Outline & Full
3.3	Impermeable area drained post-development ³ (hectares)	1.827 ha	Outline & Full
3.4	Urban Creep (hectares)	1.827 ha	Outline & Full
3.5	Climate change factor applied (1 in 30 and 1 in 100) (percentage)	20% climate change and 40% for exceedence in the 1 in 100 year. Climate change for 1 in 30 year is not considered, part of the approved Reserved Matters Application DC/24/0446	Outline & Full

4. Infiltration Feasibility/Ground Investigations

No.	Requirement	Answer	Application Type
4.1	Has winter groundwater monitoring and infiltration been undertaken? (YES/NO)	Yes	Outline & Full
4.2	Period of winter groundwater monitoring (from/to)	Yes	Outline & Full
4.3	Depth to highest recorded groundwater level (mAOD)	2.2 mbgl	Full
4.4	Infiltration rate		Outline & Full

² Impermeable area should be measured pre and post development. Impermeable surfaces include roofs, pavements, driveways and paths, where runoff is conveyed to the drainage system.

³ 10% Urban Creep should be added to the volumes required for storage and not increase discharge rates.

No.	Requirement	Answer	Application Type
4.5	Depth of infiltration structure (mAOD)	N/A	Full
4.6	Safety factor used for sizing infiltration storage	N/A	Outline & Full

5. Calculation Outputs: Greenfield Runoff Rates⁴

No.	Requirement	Answer	Application Type
5.1	Q _{bar} (l/s)	5.20	Outline & Full
5.2	1 in 2 year rainfall (l/s)	4.40	Outline & Full
5.3	1 in 30 year rainfall (l/s)	11.80	Outline & Full
5.4	1 in 100 year rainfall (l/s)	16.50	Outline & Full

6. Calculation Outputs: Brownfield Runoff Rates (including Urban Creep) (if applicable)

No.	Requirement	Answer	Application Type
6.1	1 in 1 year rainfall (l/s)	N/A	Outline & Full
6.2	1 in 30 year rainfall (l/s)	N/A	Outline & Full
6.3	1 in 100 year rainfall (l/s)	N/A	Outline & Full

7. Calculation Outputs: Volume Control/Infiltration Provision

No.	Requirement	Answer	Application Type
7.1	Infiltration (m ³)		Outline & Full
7.2	Attenuation (m ³)	1,321m ³	Outline & Full
7.3	Separate volume designated as long-term storage ⁵ (m ³)		Full
7.4	Total volume control (sum of inputs for 7.1 to 7.3) (m ³)		Full

⁴ Flows within long term storage areas should be infiltrated to the ground or discharged at low flow rate of maximum 2 litres per second per hectare (l/s/ha).

⁵ In calculations and for the avoidance of doubt FEH shall be used FSR is not acceptable, and CV values must equal 1.

8. Calculation Outputs: Attenuation/Restricted Discharge

No.	Requirement		Answer	Application Type
8.1	Proposed discharge rate (critical storm)	1 in 1 (100%) AEP (m/s)	3.54 l/s	Outline & Full
		1 in 30 (3.33%) AEP (m/s)	20 l/s	Outline & Full
		1 in 30 (3.33%) AEP plus climate change (m/s)		Outline & Full
		1 in 100 (1%) AEP (m/s)	28.0 l/s	Outline & Full
		1 in 100 (1%) AEP plus climate change (m/s)	28.0 l/s	Outline & Full
8.2	Calculations show critical storm durations (both by max height and max discharge) for 1 in 1, 1 in 30, 1 in 30 plus climate change, 1 in 100 and 1 in 100 year plus climate change allowance can be accommodated on site (YES/NO)		Yes	Outline & Full
8.3	Has treatment of potential contaminants been considered? (YES/NO)		Yes	Outline & Full
8.4	Demonstration of source control features with substantive evidence why these cannot be used if not (YES/NO)		Yes	Full
8.5	If discharging into a watercourse, piped system or the sea, has the proposed drainage network been modelled against predicted top water levels for the 1 in 100 year storm event plus climate change allowance, within the existing system? (YES/NO)		No	Full

9. Other Supporting Details

No.	Requirement	Answer	Application Type
9.1	Plan detailing location of groundwater monitoring and infiltration testing	Yes	Outline & Full
9.2	Detailed drainage design layout	Yes	Full
9.3	Maintenance strategy	Yes	Full

No.	Requirement	Answer	Application Type
9.4	Detailed development layout	Yes	Full
9.5	Impermeable area plan	No	Full
9.6	Phasing plan?	No	Full
9.7	If ground levels are being raised over 300mm above existing levels and is unavoidable, have detailed plans been provided, together with drainage proposals, to address any potential drainage related issues?	Yes	Full

The above form should be completed using evidence from information which should be appended to this form. The information being submitted should be proportionate to the site conditions, flood risks and magnitude of development. It should serve as a summary of the drainage proposals and should clearly show that the proposed discharge rate and volume as a result of development will not be increasing. Where there is an increase in discharge rate or volume, then the relevant section of this form must be completed with clear evidence demonstrating how the requirements will be met.

This form is completed using factual information and can be used as a summary of the surface water drainage strategy on this site.

Form completed by	Dominic Cronin
Qualification of person responsible for signing off this proforma	BEng Civil Engineering
Company	Ardent Consulting
On behalf of (client's details)	Bellway
Date	13/028/26