



CORNBROOK RESIDENTIAL, MANCHESTER

BUILDING SAFETY ACT DRAINAGE NARRATIVE

Project No: 2306-18

July 2025

Rev: C01

CBR-REN -XX-XX-RP-C-00022

This report has been prepared for the sole benefit, use and information of **FG Vivere Manchester Ltd** for the purposes set out in the report or instructions commissioning it. The liability of **renaissance** in respect of the information contained in the report will not extend to any third party. This document should not be used in whole or part by any third parties without the express written permission of **renaissance**. If any unauthorised third party comes into possession of this report, they rely on it at their own risk and **renaissance** do not owe them any Duty of Care.

Author **SELVANA AHMAD**

Date **25.07.2025**

Approved **PHILIP WHITESMITH**

Date **25.07.2025**

Contact Details:

2nd Floor Tribeca House,

21-27 Dale Street,

Manchester M1 1EY

t: 0161 393 6509

Rev.	Description	Author	Checked	Date
C01	Stage 4 gateway submission	S Ahmad	P Whitesmith	25.07.25

Contents

1	<i>THE SITE</i>	1
1.1	<i>Site Location</i>	1
2	<i>DRAINAGE STRATEGY</i>	2
2.1	<i>Surface Water System</i>	2
2.2	<i>Foul Water System</i>	2

APPENDIX A – HYDRAULIC CALCULATIONS

APPENDIX B - FLOW CONTROL AND TANK DETAILS

APPENDIX C – UNITED UTILITIES CORRESPONDENCE

1 THE SITE

1.1 Site Location

The proposed development site is located off Cornbrook Road. Manchester.

The site location is described below:

- Post Code M15 4YG
- OS Reference 382421 , 397060
- National Grid Reference SJ824970



Figure 1.1: Site Location

2 DRAINAGE STRATEGY

Reference should be made to the following drawings:

Below Ground Drainage Plan - CBR-REN-XX-00-DR-C-01100

Proposed Drained Areas Plan - CBR-REN-XX-00-DR-C-00060

Below Ground Drainage Details Sheet 1 CBR-REN-XX-00-DR-C-03100

Below Ground Drainage Details Sheet 2 - CBR-REN-XX-00-DR-C-03101

Below Ground Drainage Details Sheet 3 - CBR-REN-XX-00-DR-C-03102

Non-Adopted Pavement Buildup Plan - CBR-REN-XX-00-DR-C-01400

Non-Adopted Pavement Buildups Details - CBR-REN-XX-00-DR-C-01401

2.1 Surface Water System

The development will have a dedicated surface water network that is to collect the rainwater from the proposed building roofs, car park, and impermeable external areas. The system will then discharge under gravity to the public surface water sewer that is located within Dinton Street.

The surface water discharge rate is to be limited to 3.2 l/s via a Keytec AquaBrake flow control device within the final manhole on site prior to discharge into public sewer. The final design of the flow control has been coordinated with the technical data received from KEYTEC, refer to Appendix B for further details.

The new connection into the public sewer has been approved in principle by Manchester City Council, refer to Appendix C for further details.

Attenuation on site will be provided by a Polystorm-R Modular geo-cellular storage tank, refer to Appendix B for attenuation tank information that has been captured in the design including all associated buoyancy checks.

The surface water discharging from the site will be from the building roof, car park and external hard landscaping. As the run-off is to discharge into a surface water sewer which connects into a water course, treatment is required to improve water quality prior to entering the public sewer.

The surface water drainage network has been designed in accordance with Building Regulations Part H, BS EN 752 and Codes for Adoption.

The surface water system has been designed to accommodate the 1, 2, 30 and 100 year events with 45% climate change allowance for the 100 year event as outlined in the planning requirements for this development.

Infodrainage calculations for the proposed surface water system and Microdrainage calculations for the proposed foul water system are available in Appendix A.

2.2 Foul Water System

The site will have a dedicated foul water network that will collect the foul water associated with the development that will discharge to the public combined sewer adjacent to Dinton Street. A pre-development enquiry with United Utilities has confirmed that foul water will be able to discharge at an unrestricted rate.

The new foul water drainage connection will be subject to separate section 106 application with United Utilities.

The drainage system is to be designed in accordance with Building Regulations Part H, BS EN 752 and Codes for Adoption.

APPENDIX A HYDRAULIC CALCULATIONS

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details: Type: Inflows Storm Phase: Surface Water	Company Address:			



S2.00-65m2

Type : Catchment Area

Area (ha)	0.007
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



S1.00-26m2

Type : Catchment Area

Area (ha)	0.003
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



S7.01 -28m2

Type : Catchment Area

Area (ha)	0.003
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details:	Company Address:			
Type: Inflows Storm Phase: Surface Water				



S1.05-29m2

Type : Catchment Area

Area (ha)	0.003
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



S6.04-430m2

Type : Catchment Area

Area (ha)	0.04
-----------	------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



RWP25 - 48.4m2

Type : Catchment Area

Area (ha)	0.005
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details: Type: Inflows Storm Phase: Surface Water	Company Address:			



RWP37 - 8.4m2

Type : Catchment Area

Area (ha)	0.001
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



RWP38 - 8.4m2

Type : Catchment Area

Area (ha)	0.001
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



RWP06 - 62.3m2

Type : Catchment Area

Area (ha)	0.006
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details: Type: Inflows Storm Phase: Surface Water	Company Address:			



RWP07 - 62.3m2

Type : Catchment Area

Area (ha)	0.006
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



RWP39 - 8.4m2

Type : Catchment Area

Area (ha)	0.001
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



RWP27 - 31.6m2

Type : Catchment Area

Area (ha)	0.003
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details:	Company Address:			
Type: Inflows Storm Phase: Surface Water				



RWP29 - 8.4m2

Type : Catchment Area

Area (ha)	0.001
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



RWP40 - 37.5m2

Type : Catchment Area

Area (ha)	0.004
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



RWP10 - 85.9m2

Type : Catchment Area

Area (ha)	0.009
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Project:	Date: 13/05/2025		
	Designed by: SelvanaAhmad	Checked by:	Approved By:
Report Details: Type: Inflows Storm Phase: Surface Water	Company Address:		





RWP23-40m2

Type : Catchment Area

Area (ha)	0.004
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



RWP08 - 62.3m2

Type : Catchment Area

Area (ha)	0.006
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



S4.00-25m2

Type : Catchment Area

Area (ha)	0.003
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Project:	Date: 13/05/2025			
	Designed by:	Checked by:	Approved By:	
Report Details:	Company Address:			
Type: Inflows Storm Phase: Surface Water				



RWP09 - 86.5m2

Type : Catchment Area

Area (ha)	0.009
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



RWP01 - 79.8m2

Type : Catchment Area

Area (ha)	0.008
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



RWP02 - 79.8m2

Type : Catchment Area

Area (ha)	0.008
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details:	Company Address:			
Type: Inflows Storm Phase: Surface Water				



S5.01-741m2

Type : Catchment Area

Area (ha)	0.007
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



S1.06-206m2

Type : Catchment Area

Area (ha)	0.021
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



RWP21 - 31.6m2

Type : Catchment Area

Area (ha)	0.003
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details:	Company Address:			
Type: Inflows Storm Phase: Surface Water				



RWP19 - 31.6m2

Type : Catchment Area

Area (ha)	0.003
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



S7.00 - 34m2

Type : Catchment Area

Area (ha)	0.003
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



RWP03 - 79.8m2

Type : Catchment Area

Area (ha)	0.008
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details: Type: Inflows Storm Phase: Surface Water	Company Address:			



RWP04 - 79.8m2

Type : Catchment Area

Area (ha)	0.008
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



RWP05 - 79.8m2

Type : Catchment Area

Area (ha)	0.008
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



RWP18 - 15.8m2

Type : Catchment Area

Area (ha)	0.002
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details: Type: Inflows Storm Phase: Surface Water	Company Address:			



S6.00 - 22m2

Type : Catchment Area

Area (ha)	0.002
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



S6.01- 35m2

Type : Catchment Area

Area (ha)	0.004
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



RWP17 - 15.8m2

Type : Catchment Area

Area (ha)	0.002
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details: Type: Inflows Storm Phase: Surface Water	Company Address:			



S1.04 23 m2

Type : Catchment Area

Area (ha)	0.002
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	0.750
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.750
Time of Concentration (mins)	5
Percentage Impervious (%)	100



S6.04 50m2

Type : Catchment Area

Area (ha)	0.005
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	0.750
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.750
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Project:	Date: 13/05/2025		
	Designed by: SelvanaAhmad	Checked by:	Approved By:
Report Details: Type: Junctions Storm Phase: Surface Water	Company Address:		



Name	Junction Type	Easting (m)	Northing (m)	Cover Level (m)	Depth (m)	Invert Level (m)	Chamber Shape	Diameter (m)
S1.00	Manhole	382383.212	397022.966	28.244	1.346	26.898	Circular	0.450
S1.02	Manhole	382383.203	397038.569	28.250	1.508	26.742	Circular	0.450
S1.03	Manhole	382383.558	397042.404	28.250	1.560	26.690	Circular	0.450
S1.04	Manhole	382396.310	397042.557	28.209	1.647	26.562	Circular	0.450
S1.05	Manhole	382396.318	397046.051	28.170	1.643	26.527	Circular	1.200
S1.06	Manhole	382403.318	397055.671	28.200	1.792	26.408	Circular	1.200
S3.00	Manhole	382380.705	397038.537	28.250	1.483	26.767	Circular	0.450
S4.00	Manhole	382396.311	397022.412	28.476	1.689	26.787	Circular	0.450
S5.00	Manhole	382403.360	397039.525	28.700	2.004	26.696	Circular	0.450
S5.01	Manhole	382403.197	397042.168	28.643	2.013	26.630	Circular	0.450
S6.00	Manhole	382433.282	397032.635	28.967	1.117	27.850	Circular	0.450
S6.01	Manhole	382433.349	397043.031	28.925	1.179	27.746	Circular	0.450
S6.02	Manhole	382426.950	397042.977	28.733	1.051	27.682	Circular	0.450
S6.03	Manhole	382424.422	397043.562	28.650	1.414	27.236	Circular	0.450
S6.04	Manhole	382419.123	397044.756	28.612	1.979	26.633	Circular	1.200
S1.01	Simple Junction	382383.213	397027.031					
S2.00	Manhole	382368.929	397027.109	28.083	1.083	27.000	Circular	0.450
S1.08	Manhole	382403.197	397065.163	28.104	2.465	25.639	Circular	1.000
S1.09 HYDROBRAKE	Manhole	382401.283	397066.276	28.156	2.539	25.617	Circular	1.350
S1.10	Manhole	382395.488	397066.733	28.200	2.641	25.559	Circular	1.350
S7.00	Manhole	382414.058	397021.953	28.776	1.226	27.550	Circular	0.450
S7.01	Manhole	382424.427	397022.532	28.987	1.541	27.446	Circular	0.450
S8.00	Manhole	382411.972	397060.709	28.127	1.427	26.700	Circular	1.200

Name	Lock
S1.00	None
S1.02	None
S1.03	None
S1.04	None
S1.05	None
S1.06	None
S3.00	None
S4.00	None
S5.00	None
S5.01	None
S6.00	None
S6.01	None
S6.02	None
S6.03	None
S6.04	None
S1.01	
S2.00	None
S1.08	None
S1.09 HYDROBRAKE	None
S1.10	None
S7.00	None
S7.01	None
S8.00	None

Project:	Date: 13/05/2025		
	Designed by: SelvanaAhmad	Checked by:	Approved By:
Report Details: Type: Junctions Storm Phase: Surface Water	Company Address:		



Inlets

Junction	Inlet Name	Incoming Item(s)	Bypass Destination	Capacity Type
S1.00	Inlet	S1.00-26m2 RWP25 - 48.4m2	(None)	No Restriction
	Inlet (1)	RWP37 - 8.4m2	(None)	No Restriction
S1.02	Inlet	S1.001	(None)	No Restriction
	Inlet (1)	S3.000	(None)	No Restriction
S1.03	Inlet	RWP40 - 37.5m2 RWP10 - 85.9m2 1.002	(None)	No Restriction
	Inlet	S1.003 S1.04 23 m2 RWP09 - 86.5m2	(None)	No Restriction
S1.04	Inlet	S1.003 S1.04 23 m2 RWP09 - 86.5m2	(None)	No Restriction
	Inlet (1)	S4.000	(None)	No Restriction
S1.05	Inlet	S1.004 S1.05-29m2	(None)	No Restriction
	Inlet (1)	S5.001	(None)	No Restriction
S1.06	Inlet	S1.005	(None)	No Restriction
	Inlet (1)	S1.06-206m2	(None)	No Restriction
S3.00	Inlet	RWP39 - 8.4m2	(None)	No Restriction
	Inlet (1)	RWP27 - 31.6m2 RWP29 - 8.4m2	(None)	No Restriction
S4.00	Inlet	RWP23-40m2 RWP08 - 62.3m2	(None)	No Restriction
	Inlet (1)	S4.00-25m2	(None)	No Restriction
S5.00	Inlet	RWP01 - 79.8m2	(None)	No Restriction
	Inlet (1)	RWP02 - 79.8m2	(None)	No Restriction
S5.01	Inlet	S5.000	(None)	No Restriction
	Inlet (1)	S5.01-741m2	(None)	No Restriction
S6.00	Inlet	RWP18 - 15.8m2 S6.00 - 22m2	(None)	No Restriction
	Inlet	S6.000	(None)	No Restriction
S6.01	Inlet	S6.000	(None)	No Restriction
	Inlet (1)	S6.01- 35m2	(None)	No Restriction
S6.02	Inlet	S6.001 RWP17 - 15.8m2	(None)	No Restriction
	Inlet	S6.002	(None)	No Restriction
S6.03	Inlet	S6.002	(None)	No Restriction
	Inlet (1)	S7.001	(None)	No Restriction
S6.04	Inlet	S6.003 S6.04 50m2	(None)	No Restriction
	Inlet	S1.000	(None)	No Restriction
S1.01	Inlet	S1.000	(None)	No Restriction
	Inlet (1)	S2.000 RWP06 - 62.3m2	(None)	No Restriction
	Inlet (2)	RWP07 - 62.3m2	(None)	No Restriction
S2.00	Inlet	S2.00-65m2	(None)	No Restriction
	Inlet (1)	RWP38 - 8.4m2	(None)	No Restriction
S1.08	Inlet	S1.007	(None)	No Restriction
S1.09 HYDROBRAKE	Inlet	S1.008	(None)	No Restriction
S1.10	Inlet	S1.009	(None)	No Restriction
S7.00	Inlet	RWP21 - 31.6m2 S7.00 - 34m2	(None)	No Restriction
	Inlet (1)	RWP19 - 31.6m2	(None)	No Restriction
S7.01	Inlet	S7.000 S7.01 -28m2 RWP05 - 79.8m2	(None)	No Restriction
	Inlet (1)	RWP03 - 79.8m2 RWP04 - 79.8m2	(None)	No Restriction
	Inlet	S6.04-430m2	(None)	No Restriction
S8.00	Inlet	S6.04-430m2	(None)	No Restriction

Outlets

Project:	Date: 13/05/2025		
	Designed by: SelvanaAhmad	Checked by:	Approved By:
Report Details: Type: Junctions Storm Phase: Surface Water	Company Address:		



Junction	Outlet Name	Outgoing Connection	Outlet Type
S1.00	Outlet	S1.000	Free Discharge
S1.02	Outlet	1.002	Free Discharge
S1.03	Outlet	S1.003	Free Discharge
S1.04	Outlet	S1.004	Free Discharge
S1.05	Outlet	S1.005	Free Discharge
S1.06	Outlet	S1.006	Free Discharge
S3.00	Outlet	S3.000	Free Discharge
S4.00	Outlet	S4.000	Free Discharge
S5.00	Outlet	S5.000	Free Discharge
S5.01	Outlet	S5.001	Free Discharge
S6.00	Outlet	S6.000	Free Discharge
S6.01	Outlet	S6.001	Free Discharge
S6.02	Outlet	S6.002	Free Discharge
S6.03	Outlet	S6.003	Free Discharge
S6.04	Outlet	S6.004	Free Discharge
S1.01	Outlet	S1.001	Free Discharge
S2.00	Outlet	S2.000	Free Discharge
S1.08	Outlet	S1.008	Free Discharge
Invert Level (m)		S1.009	Depth / Flow
		25.617	
Depth (m)		Outflow (L/s)	
0.100		2.4	
0.200		3.0	
0.300		3.1	
0.400		3.1	
0.500		3.1	
0.600		2.9	
0.700		2.6	
0.800		2.9	
0.900		3.2	
1.000		3.4	
1.100		3.6	
1.200		3.8	
1.300		4.0	
1.400		4.2	
1.500		4.4	
1.600		4.5	
1.700		4.8	
1.800		5.2	
1.900		5.5	
2.000		5.9	
2.100		6.2	
2.200		6.4	
2.300		6.7	
2.400		7.0	
2.500		7.2	
2.600		7.5	
2.700		7.7	
2.800		7.9	
2.900		8.1	
3.000		8.3	
3.100		0.0	
3.200		0.0	
3.300		0.0	
3.400		0.0	
3.500		0.0	
3.600		0.0	
3.700		0.0	
3.800		0.0	
3.900		0.0	
4.000		0.0	
4.100		0.0	
4.200		0.0	
4.300		0.0	
4.400		0.0	
4.500		0.0	
4.600		0.0	
4.700		0.0	

Project:	Date: 13/05/2025		
	Designed by: SelvanaAhmad	Checked by:	Approved By:
Report Details: Type: Junctions Storm Phase: Surface Water	Company Address:		



Junction	Outlet Name	Outgoing Connection	Outlet Type
S1.09 HYDROBRAKE	4.800	0.0	
	4.900	0.0	
	5.000	0.0	
	5.100	0.0	
	5.200	0.0	
	5.300	0.0	
	5.400	0.0	
	5.500	0.0	
	5.600	0.0	
	5.700	0.0	
	5.800	0.0	
	5.900	0.0	
	6.000	0.0	
	6.100	0.0	
	6.200	0.0	
	6.300	0.0	
	6.400	0.0	
	6.500	0.0	
	6.600	0.0	
	6.700	0.0	
	6.800	0.0	
	6.900	0.0	
	7.000	0.0	
	7.100	0.0	
	7.200	0.0	
	7.300	0.0	
	7.400	0.0	
	7.500	0.0	
	7.600	0.0	
	7.700	0.0	
	7.800	0.0	
	7.900	0.0	
	8.000	0.0	
	8.100	0.0	
	8.200	0.0	
	8.300	0.0	
	8.400	0.0	
	8.500	0.0	
	8.600	0.0	
	8.700	0.0	
	8.800	0.0	
	8.900	0.0	
	9.000	0.0	
	9.100	0.0	
	9.200	0.0	
	9.300	0.0	
	9.400	0.0	
	9.500	0.0	
	9.600	0.0	
	9.700	0.0	
	9.800	0.0	
	9.900	0.0	
	10.000	0.0	
S7.00	Outlet	S7.000	Free Discharge
S7.01	Outlet	S7.001	Free Discharge
S8.00	Outlet	8.000	Free Discharge

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details:	Company Address:			
Type: Stormwater Controls Storm Phase: Surface Water				



S1.07 -TANK

Type : Cellular Storage

Dimensions

Exceedance Level (m)	27.980
Depth (m)	1.200
Base Level (m)	25.685
Number of Crates Long	19
Number of Crates Wide	11
Number of Crates High	3
Porosity (%)	95
Crate Length (m)	1
Crate Width (m)	0.5
Crate Height (m)	0.4
Total Volume (m³)	120.225

Inlets

Inlet 1.000

Inlet Type	Point Inflow
Incoming Item(s)	S1.006
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet 6.000

Inlet Type	Point Inflow
Incoming Item(s)	S6.004
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet 8.000

Inlet Type	Point Inflow
Incoming Item(s)	8.000
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet 1.00

Outgoing Connection	S1.007
Outlet Type	Free Discharge

Project:	Date: 13/05/2025		
	Designed by: SelvanaAhmad	Checked by:	Approved By:
Report Details: Type: Connections Storm Phase: Surface Water		Company Address:	



Name	Length (m)	Connection Type	Slope (1:X)	Manning's n	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)	Upstream Invert Level (m)
S1.003	12.753	Pipe	100.000		0.6	150	28.250	26.690
S1.004	3.494	Pipe	100.000		0.6	150	28.209	26.562
S1.005	11.898	Pipe	100.000		0.6	150	28.170	26.527
S3.000	2.498	Pipe	100.000		0.6	150	28.250	26.767
S4.000	20.145	Pipe	90.000		0.6	150	28.476	26.787
S5.000	2.648	Pipe	40.000		0.6	150	28.700	26.696
S5.001	7.899	Pipe	76.689		0.6	150	28.643	26.630
S6.000	10.396	Pipe	100.000		0.6	150	28.967	27.850
S6.001	6.400	Pipe	100.000		0.6	150	28.925	27.746
S6.002	2.595	Pipe	5.816		0.6	150	28.733	27.682
S6.003	5.432	Pipe	9.010		0.6	150	28.650	27.236
S1.006	2.130	Pipe	100.000		0.6	225	28.200	26.408
S6.004	2.351	Pipe	100.000		0.6	225	28.612	26.633
S1.000	4.066	Pipe	100.000		0.6	150	28.244	26.898
S1.001	11.538	Pipe	100.000		0.6	150	28.250	26.857
S2.000	14.285	Pipe	100.000		0.6	150	28.083	27.000
S1.008	2.214	Pipe	100.000		0.6	225	28.104	25.639
S1.009	5.814	Pipe	100.000		0.6	225	28.156	25.617
S1.007	4.581	Pipe	100.000		0.6	225	27.980	25.685
S7.000	10.385	Pipe	100.000		0.6	150	28.776	27.550
S7.001	21.030	Pipe	100.000		0.6	150	28.987	27.446
1.002	3.851	Pipe	100.000		0.6	150	28.250	26.742
8.000	2.277	Pipe	25.000		0.6	150	28.127	26.700

Name	Downstream Cover Level (m)	Downstream Invert Level (m)	Part Family	Lock	Flow Restriction (L/s)	Velocity (m/s)	Culvert Type	Culvert Entrance
S1.003	28.209	26.562		None			(None)	(None)
S1.004	28.170	26.527		Levels			(None)	(None)
S1.005	28.200	26.408		None			(None)	(None)
S3.000	28.250	26.742		Levels			(None)	(None)
S4.000	28.209	26.563		Levels			(None)	(None)
S5.000	28.643	26.630		None			(None)	(None)
S5.001	28.170	26.527		Levels			(None)	(None)
S6.000	28.925	27.746		None			(None)	(None)
S6.001	28.733	27.682		None			(None)	(None)
S6.002	28.650	27.236		None			(None)	(None)
S6.003	28.612	26.633		None			(None)	(None)
S1.006	27.980	26.387		Levels			(None)	(None)
S6.004	27.980	26.609		Levels			(None)	(None)
S1.000	0.100	26.857		None			(None)	(None)
S1.001	28.250	26.742		None			(None)	(None)
S2.000	0.100	26.857		None			(None)	(None)
S1.008	28.156	25.617		None			(None)	(None)
S1.009	28.200	25.559		None	7.3		(None)	(None)
S1.007	28.104	25.639		None			(None)	(None)
S7.000	28.987	27.446		None			(None)	(None)
S7.001	28.650	27.236		None			(None)	(None)
1.002	28.250	26.703		None			(None)	(None)
8.000	27.980	26.609		Levels			(None)	(None)

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details: Type: Manhole Schedule Storm Phase: Surface Water	Company Address:			

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
S1.00	28.244 26.898	Diameter / Length: 0.450					Manhole
E:382383.212 N:397022.966	1.346		{a} S1.000	Pipe	26.898	Diam/Width:150	Not Applicable
S1.02	28.250 26.742	Diameter / Length: 0.450	{1} S1.001	Pipe	26.742	Diam/Width:150	Manhole
E:382383.203 N:397038.569	1.508		{2} S3.000	Pipe	26.742	Diam/Width:150	
			{a} 1.002	Pipe	26.742	Diam/Width:150	Not Applicable
S1.03	28.250 26.690	Diameter / Length: 0.450	{1} 1.002	Pipe	26.703	Diam/Width:150	Manhole
E:382383.558 N:397042.404	1.560						
			{a} S1.003	Pipe	26.690	Diam/Width:150	Not Applicable
S1.04	28.209 26.562	Diameter / Length: 0.450	{1} S1.003	Pipe	26.562	Diam/Width:150	Manhole
E:382396.310 N:397042.557	1.647		{2} S4.000	Pipe	26.563	Diam/Width:150	
			{a} S1.004	Pipe	26.562	Diam/Width:150	Not Applicable

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details: Type: Manhole Schedule Storm Phase: Surface Water	Company Address:			

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
S1.05	28.170 26.527	Diameter / Length: 1.200	{1} S1.004	Pipe	26.527	Diam/Width:150	Manhole
E:382396.318 N:397046.051	1.643		{2} S5.001	Pipe	26.527	Diam/Width:150	
			{a} S1.005	Pipe	26.527	Diam/Width:150	Not Applicable
S1.06	28.200 26.408	Diameter / Length: 1.200	{1} S1.005	Pipe	26.408	Diam/Width:150	Manhole
E:382403.318 N:397055.671	1.792						
			{a} S1.006	Pipe	26.408	Diam/Width:225	Not Applicable
S3.00	28.250 26.767	Diameter / Length: 0.450					Manhole
E:382380.705 N:397038.537	1.483						
			{a} S3.000	Pipe	26.767	Diam/Width:150	Not Applicable
S4.00	28.476 26.787	Diameter / Length: 0.450					Manhole
E:382396.311 N:397022.412	1.689						
			{a} S4.000	Pipe	26.787	Diam/Width:150	Not Applicable
S5.00	28.700 26.696	Diameter / Length: 0.450					Manhole
E:382403.360 N:397039.525	2.004						
			{a} S5.000	Pipe	26.696	Diam/Width:150	Not Applicable

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details: Type: Manhole Schedule Storm Phase: Surface Water	Company Address:			

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
S5.01	28.643 26.630	Diameter / Length: 0.450	{1} S5.000	Pipe	26.630	Diam/Width:150	Manhole
E:382403.197 N:397042.168	2.013		{a} S5.001	Pipe	26.630	Diam/Width:150	Not Applicable
S6.00	28.967 27.850	Diameter / Length: 0.450					Manhole
E:382433.282 N:397032.635	1.117		{a} S6.000	Pipe	27.850	Diam/Width:150	Not Applicable
S6.01	28.925 27.746	Diameter / Length: 0.450	{1} S6.000	Pipe	27.746	Diam/Width:150	Manhole
E:382433.349 N:397043.031	1.179		{a} S6.001	Pipe	27.746	Diam/Width:150	Not Applicable
S6.02	28.733 27.682	Diameter / Length: 0.450	{1} S6.001	Pipe	27.682	Diam/Width:150	Manhole
E:382426.950 N:397042.977	1.051		{a} S6.002	Pipe	27.682	Diam/Width:150	Not Applicable
S6.03	28.650 27.236	Diameter / Length: 0.450	{1} S6.002	Pipe	27.236	Diam/Width:150	Manhole
E:382424.422 N:397043.562	1.414		{2} S7.001	Pipe	27.236	Diam/Width:150	
			{a} S6.003	Pipe	27.236	Diam/Width:150	Not Applicable

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details: Type: Manhole Schedule Storm Phase: Surface Water	Company Address:			

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
S6.04	28.612 26.633	Diameter / Length: 1.200	{1} S6.003	Pipe	26.633	Diam/Width:150	Manhole
E:382419.123 N:397044.756	1.979		{a} S6.004	Pipe	26.633	Diam/Width:225	Not Applicable
S1.01		Diameter / Length: 0.450	{1} S1.000	Pipe	26.857	Diam/Width:150	Simple Junction
E:382383.213 N:397027.031			{2} S2.000	Pipe	26.857	Diam/Width:150	
			{a} S1.001	Pipe	26.857	Diam/Width:150	Not Applicable
S2.00	28.083 27.000	Diameter / Length: 0.450					Manhole
E:382368.929 N:397027.109	1.083						
			{a} S2.000	Pipe	27.000	Diam/Width:150	Not Applicable
S1.08	28.104 25.639	Diameter / Length: 1.000	{1} S1.007	Pipe	25.639	Diam/Width:225	Manhole
E:382403.197 N:397065.163	2.465						
			{a} S1.008	Pipe	25.639	Diam/Width:225	Not Applicable
S1.09 HYDROBRAKE	28.156 25.617	Diameter / Length: 1.350	{1} S1.008	Pipe	25.617	Diam/Width:225	Manhole
E:382401.283 N:397066.276	2.539						
			{a} S1.009	Pipe	25.617	Diam/Width:225	Not Applicable

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details: Type: Manhole Schedule Storm Phase: Surface Water	Company Address:			

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
S1.10	28.200 25.559	Diameter / Length: 1.350	{1} S1.009	Pipe	25.559	Diam/Width:225	Manhole
E:382395.488	2.641						
N:397066.733							Not Applicable
S7.00	28.776 27.550	Diameter / Length: 0.450					Manhole
E:382414.058	1.226						
N:397021.953			{a} S7.000	Pipe	27.550	Diam/Width:150	Not Applicable
S7.01	28.987 27.446	Diameter / Length: 0.450	{1} S7.000	Pipe	27.446	Diam/Width:150	Manhole
E:382424.427	1.541						
N:397022.532			{a} S7.001	Pipe	27.446	Diam/Width:150	Not Applicable
S8.00	28.127 26.700	Diameter / Length: 1.200					Manhole
E:382411.972	1.427						
N:397060.709			{a} 8.000	Pipe	26.700	Diam/Width:150	Not Applicable

Project:	Date: 13/05/2025		
	Designed by: SelvanaAhmad	Checked by:	Approved By:
Report Details: Type: Inflow Summary Storm Phase: Surface Water	Company Address:		



Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
RWP01 - 79.8m2	S5.00		Time of Concentration	0.008	100	0	100	0.008
RWP02 - 79.8m2	S5.00		Time of Concentration	0.008	100	0	100	0.008
RWP03 - 79.8m2	S7.01		Time of Concentration	0.008	100	0	100	0.008
RWP04 - 79.8m2	S7.01		Time of Concentration	0.008	100	0	100	0.008
RWP05 - 79.8m2	S7.01		Time of Concentration	0.008	100	0	100	0.008
RWP06 - 62.3m2	S1.01		Time of Concentration	0.006	100	0	100	0.006
RWP07 - 62.3m2	S1.01		Time of Concentration	0.006	100	0	100	0.006
RWP08 - 62.3m2	S4.00		Time of Concentration	0.006	100	0	100	0.006
RWP09 - 86.5m2	S1.04		Time of Concentration	0.009	100	0	100	0.009
RWP10 - 85.9m2	S1.03		Time of Concentration	0.009	100	0	100	0.009
RWP17 - 15.8m2	S6.02		Time of Concentration	0.002	100	0	100	0.002
RWP18 - 15.8m2	S6.00		Time of Concentration	0.002	100	0	100	0.002
RWP19 - 31.6m2	S7.00		Time of Concentration	0.003	100	0	100	0.003
RWP21 - 31.6m2	S7.00		Time of Concentration	0.003	100	0	100	0.003
RWP23-40m2	S4.00		Time of Concentration	0.004	100	0	100	0.004
RWP25 - 48.4m2	S1.00		Time of Concentration	0.005	100	0	100	0.005
RWP27 - 31.6m2	S3.00		Time of Concentration	0.003	100	0	100	0.003
RWP29 - 8.4m2	S3.00		Time of Concentration	0.001	100	0	100	0.001
RWP37 - 8.4m2	S1.00		Time of Concentration	0.001	100	0	100	0.001
RWP38 - 8.4m2	S2.00		Time of Concentration	0.001	100	0	100	0.001
RWP39 - 8.4m2	S3.00		Time of Concentration	0.001	100	0	100	0.001
RWP40 - 37.5m2	S1.03		Time of Concentration	0.004	100	0	100	0.004
S1.00-26m2	S1.00		Time of Concentration	0.003	100	0	100	0.003
S1.04 23 m2	S1.04		Time of Concentration	0.002	100	0	100	0.002
S1.05-29m2	S1.05		Time of Concentration	0.003	100	0	100	0.003
S1.06-206m2	S1.06		Time of Concentration	0.021	100	0	100	0.021
S2.00-65m2	S2.00		Time of Concentration	0.007	100	0	100	0.007
S4.00-25m2	S4.00		Time of Concentration	0.003	100	0	100	0.003
S5.01-741m2	S5.01		Time of Concentration	0.007	100	0	100	0.007
S6.00 - 22m2	S6.00		Time of Concentration	0.002	100	0	100	0.002
S6.01- 35m2	S6.01		Time of Concentration	0.004	100	0	100	0.004
S6.04 50m2	S6.04		Time of Concentration	0.005	100	0	100	0.005
S6.04-430m2	S8.00		Time of Concentration	0.040	100	0	100	0.040

Project:			Date:					
			13/05/2025					
Designed by:		Checked by:		Approved By:				
SelvanaAhmad								
Report Details:			Company Address:					
Type: Inflow Summary								
Storm Phase: Surface Water								

S7.00 - 34m2	S7.00		Time of Concentration	0.003	100	0	100	0.003
S7.01 -28m2	S7.01		Time of Concentration	0.003	100	0	100	0.003
TOTAL		0.0		0.209				0.209

Project:	Date: 13/05/2025		
	Designed by: SelvanaAhmad	Checked by:	Approved By:
Report Details: Type: Network Design Criteria Storm Phase: Surface Water		Company Address:	



Flow Options

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

Manchester City Council

Type: FSR

Return Period (years)	30.0
Region	England And Wales
M5-60 (mm)	18.0
Ratio R	0.360

Pipe Options

Lock Slope Options	None
Design Options	Minimise Excavation
Design Level	Level Soffits
Min. Cover Depth (m)	1.000
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	☐

Pipe Size Library

Pipe Size Library

Add. Increment (mm)	150
Max. Diameter (mm)	600

Diameter (mm)	Min. Slope (1:X)	Max. Slope (1:X)
150	150.00	0.00
225	150.00	0.00
300	200.00	0.00
450	200.00	0.00

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details:	Company Address:			
Type: Network Design Criteria Storm Phase: Surface Water				

Manhole Options

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

Manhole Size Library

Manhole Lib HW

Diameter / Width

Connection (mm)	Diameter / Length (m)	Width (m)
150	0.450	0.000
225	0.600	0.000
375	1.200	0.000
450	1.350	0.000
700	1.500	0.000
900	1.800	0.000

Additional Sizing

Connection (mm)	900
Diameter / Length (m)	0.900
Width (m)	0.000

Depth

Depth (m)	Diameter / Length (m)	Width (m)
0.000	0.450	0.000
3.000	1.200	0.000

Access

Depth (m)	Ladder Protrusion (mm)
0.000	130
3.000	230

Benching Requirements

Landing Width (mm)	500
Benching Width (mm)	225

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details: Type: Outfall Details Storm Phase: Surface Water	Company Address:			

Outfalls

Outfall	Outfall Type	Gated	Fixed Surcharged Level (m)	Level Curve
S1.10	Free Discharge			

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details: Type: Inflows Foul Phase: Foul Water	Company Address:			



Catchment Area

Type : Catchment Area

Area (ha)	0.002
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	0.750
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Foul
Volumetric Runoff Coefficient	0.750
Calculation Method	Discharge Unit
Total Discharge Units	462.3
Frequency Factor	0.5
Resulting Flow Rate (L/s)	10.751



Catchment Area (1)

Type : Catchment Area

Area (ha)	0.002
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	0.750
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Foul
Volumetric Runoff Coefficient	0.750
Calculation Method	Discharge Unit
Total Discharge Units	73.5
Frequency Factor	0.5
Resulting Flow Rate (L/s)	4.287

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details: Type: Inflows Foul Phase: Foul Water	Company Address:			



Catchment Area (2)

Type : Catchment Area

Area (ha)	0.002
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	0.750
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Foul
Volumetric Runoff Coefficient	0.750
Calculation Method	Discharge Unit
Total Discharge Units	33.3
Frequency Factor	0.5
Resulting Flow Rate (L/s)	2.885



Catchment Area (3)

Type : Catchment Area

Area (ha)	0.002
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	0.750
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Foul
Volumetric Runoff Coefficient	0.750
Calculation Method	Discharge Unit
Total Discharge Units	15.0
Frequency Factor	0.5
Resulting Flow Rate (L/s)	1.936

Project:	Date: 13/05/2025		
	Designed by: SelvanaAhmad	Checked by:	Approved By:
Report Details: Type: Inflows Foul Phase: Foul Water	Company Address:		





Catchment Area (4)

Type : Catchment Area

Area (ha)	0.002
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	0.750
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Foul
Volumetric Runoff Coefficient	0.750
Calculation Method	Discharge Unit
Total Discharge Units	62.7
Frequency Factor	0.5
Resulting Flow Rate (L/s)	3.959



Catchment Area (5)

Type : Catchment Area

Area (ha)	0.002
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	0.750
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Foul
Volumetric Runoff Coefficient	0.750
Calculation Method	Discharge Unit
Total Discharge Units	223.4
Frequency Factor	0.5
Resulting Flow Rate (L/s)	7.473

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details: Type: Inflows Foul Phase: Foul Water	Company Address:			



Catchment Area (6)

Type : Catchment Area

Area (ha)	0.002
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	0.750
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Foul
Volumetric Runoff Coefficient	0.750
Calculation Method	Discharge Unit
Total Discharge Units	38.5
Frequency Factor	0.5
Resulting Flow Rate (L/s)	3.102



Catchment Area (7)

Type : Catchment Area

Area (ha)	0.002
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	0.750
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Foul
Volumetric Runoff Coefficient	0.750
Calculation Method	Discharge Unit
Total Discharge Units	229.9
Frequency Factor	0.5
Resulting Flow Rate (L/s)	7.581

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details: Type: Inflows Foul Phase: Foul Water	Company Address:			



Catchment Area (8)

Type : Catchment Area

Area (ha)	0.002
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	0.750
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Foul
Volumetric Runoff Coefficient	0.750
Calculation Method	Discharge Unit
Total Discharge Units	3.4
Frequency Factor	0.5
Resulting Flow Rate (L/s)	0.922



Catchment Area (9)

Type : Catchment Area

Area (ha)	0.002
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	0.750
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Foul
Volumetric Runoff Coefficient	0.750
Calculation Method	Discharge Unit
Total Discharge Units	306.1
Frequency Factor	0.5
Resulting Flow Rate (L/s)	8.748

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details: Type: Inflows Foul Phase: Foul Water	Company Address:			



Catchment Area (10)

Type : Catchment Area

Area (ha)	0.002
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	0.750
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Foul
Volumetric Runoff Coefficient	0.750
Calculation Method	Discharge Unit
Total Discharge Units	163.5
Frequency Factor	0.5
Resulting Flow Rate (L/s)	6.393



Catchment Area (11)

Type : Catchment Area

Area (ha)	0.002
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	0.750
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Foul
Volumetric Runoff Coefficient	0.750
Calculation Method	Discharge Unit
Total Discharge Units	143.1
Frequency Factor	0.5
Resulting Flow Rate (L/s)	5.981

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details: Type: Inflows Foul Phase: Foul Water	Company Address:			



Catchment Area (12)

Type : Catchment Area

Area (ha)	0.002
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	0.750
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Foul
Volumetric Runoff Coefficient	0.750
Calculation Method	Discharge Unit
Total Discharge Units	281.7
Frequency Factor	0.5
Resulting Flow Rate (L/s)	8.392



Catchment Area (13)

Type : Catchment Area

Area (ha)	0.002
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	0.750
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Foul
Volumetric Runoff Coefficient	0.750
Calculation Method	Discharge Unit
Total Discharge Units	39.2
Frequency Factor	0.5
Resulting Flow Rate (L/s)	3.13

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details: Type: Inflows Foul Phase: Foul Water	Company Address:			



Catchment Area (14)

Type : Catchment Area

Area (ha)	0.002
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	0.750
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Foul
Volumetric Runoff Coefficient	0.750
Domestic Flow (L/s/ha)	0.0
Domestic Peak Flow Factor	0.00
Calculation Method	Discharge Unit
Total Discharge Units	3.8
Frequency Factor	0.5
Resulting Flow Rate (L/s)	0.975

Project:	Date: 13/05/2025		
	Designed by: SelvanaAhmad	Checked by:	Approved By:
Report Details: Type: Junctions Foul Phase: Foul Water	Company Address:		



Name	Junction Type	Easting (m)	Northing (m)	Cover Level (m)	Depth (m)	Invert Level (m)	Chamber Shape	Diameter (m)
F1.00	Manhole	382426.012	397022.495	28.986	1.811	27.175	Circular	0.450
F1.01	Manhole	382426.012	397042.511	28.734	1.809	26.925	Circular	0.450
F1.02	Manhole	382420.754	397043.179	28.658	1.799	26.859	Circular	0.450
F1.03	Manhole	382408.802	397043.173	28.635	1.924	26.711	Circular	0.450
F1.04	Manhole	382405.446	397043.181	28.649	1.980	26.669	Circular	0.450
F1.05	Manhole	382398.039	397046.912	28.038	1.961	26.077	Circular	0.600
F1.06	Manhole	382389.876	397052.968	28.117	2.168	25.949	Circular	0.600
F1.07	Manhole	382385.787	397056.541	28.150	2.269	25.881	Circular	0.450
F2.00	Manhole	382418.141	397030.281	29.000	0.680	28.320	Circular	0.450
F2.01	Manhole	382420.892	397037.937	28.700	1.776	26.924	Circular	0.450
F3.00	Manhole	382408.131	397022.911	28.700	0.754	27.946	Circular	0.450
F3.01	Manhole	382408.131	397036.590	28.700	2.925	25.775	Circular	0.450
F3.02	Manhole	382408.829	397037.345	28.700	2.938	25.762	Circular	0.450
F4.00	Manhole	382401.878	397022.949	80.693	53.668	27.025	Circular	0.450
F4.01	Manhole	382401.878	397036.077	28.700	1.839	26.861	Circular	0.450
F4.02	Manhole	382401.878	397041.979	28.643	2.313	26.330	Circular	0.450
F5.00	Manhole	382397.044	397022.949	28.671	2.241	26.430	Circular	0.450
F5.02	Manhole	382397.044	397042.014	28.214	2.075	26.139	Circular	0.450
F6.00	Manhole	382384.833	397022.908	28.242	1.342	26.900	Circular	0.450
F6.01	Manhole	382384.831	397034.115	28.250	1.860	26.390	Circular	0.450
F6.02	Manhole	382384.813	397041.936	28.250	1.958	26.292	Circular	0.450
F7.00	Manhole	382376.340	397034.137	28.250	1.350	26.900	Circular	0.450
F8.00	Manhole	382380.657	397042.154	28.250	1.855	26.395	Circular	0.450

Name	Lock
F1.00	None
F1.01	None
F1.02	None
F1.03	None
F1.04	None
F1.05	None
F1.06	None
F1.07	None
F2.00	None
F2.01	None
F3.00	None
F3.01	None
F3.02	None
F4.00	None
F4.01	None
F4.02	None
F5.00	None
F5.02	None
F6.00	None
F6.01	None
F6.02	None
F7.00	None
F8.00	None

Project:	Date: 13/05/2025		
	Designed by: SelvanaAhmad	Checked by:	Approved By:
Report Details: Type: Junctions Foul Phase: Foul Water	Company Address:		



Inlets

Junction	Inlet Name	Incoming Item(s)	Bypass Destination	Capacity Type
F1.00	Inlet	Catchment Area	(None)	No Restriction
F1.01	Inlet	F1.000 Catchment Area (1)	(None)	No Restriction
F1.02	Inlet	F1.001	(None)	No Restriction
	Inlet (1)	F2.001	(None)	No Restriction
F1.03	Inlet	F1.002	(None)	No Restriction
	Inlet (1)	F3.002	(None)	No Restriction
F1.04	Inlet	F1.003	(None)	No Restriction
F1.05	Inlet	F1.004	(None)	No Restriction
	Inlet (1)	F4.002	(None)	No Restriction
	Inlet (2)	F5.001	(None)	No Restriction
F1.06	Inlet	F1.005	(None)	No Restriction
F1.07	Inlet	F1.006	(None)	No Restriction
F2.00	Inlet	Catchment Area (2)	(None)	No Restriction
F2.01	Inlet	F2.000 Catchment Area (3)	(None)	No Restriction
F3.00	Inlet	Catchment Area (4)	(None)	No Restriction
F3.01	Inlet	F3.000 Catchment Area (5)	(None)	No Restriction
F3.02	Inlet	F3.001	(None)	No Restriction
	Inlet (1)	Catchment Area (6)	(None)	No Restriction
F4.00	Inlet	Catchment Area (7)	(None)	No Restriction
F4.01	Inlet	F4.000 Catchment Area (8)	(None)	No Restriction
F4.02	Inlet	F4.001	(None)	No Restriction
F5.00	Inlet	Catchment Area (9)	(None)	No Restriction
F5.02	Inlet	F5.000	(None)	No Restriction
	Inlet (1)	F6.002	(None)	No Restriction
F6.00	Inlet	Catchment Area (10)	(None)	No Restriction
F6.01	Inlet	F6.000	(None)	No Restriction
	Inlet (1)	F7.000	(None)	No Restriction
	Inlet (2)	Catchment Area (11)	(None)	No Restriction
F6.02	Inlet	F6.001 Catchment Area (14)	(None)	No Restriction
	Inlet (1)	F8.000	(None)	No Restriction
F7.00	Inlet	Catchment Area (12)	(None)	No Restriction
F8.00	Inlet	Catchment Area (13)	(None)	No Restriction

Project:	Date: 13/05/2025		
	Designed by: SelvanaAhmad	Checked by:	Approved By:
Report Details: Type: Junctions Foul Phase: Foul Water	Company Address:		



Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
F1.00	Outlet	F1.000	Free Discharge
F1.01	Outlet	F1.001	Free Discharge
F1.02	Outlet	F1.002	Free Discharge
F1.03	Outlet	F1.003	Free Discharge
F1.04	Outlet	F1.004	Free Discharge
F1.05	Outlet	F1.005	Free Discharge
F1.06	Outlet	F1.006	Free Discharge
F2.00	Outlet	F2.000	Free Discharge
F2.01	Outlet	F2.001	Free Discharge
F3.00	Outlet	F3.000	Free Discharge
F3.01	Outlet	F3.001	Free Discharge
F3.02	Outlet	F3.002	Free Discharge
F4.00	Outlet	F4.000	Free Discharge
F4.01	Outlet	F4.001	Free Discharge
F4.02	Outlet	F4.002	Free Discharge
F5.00	Outlet	F5.000	Free Discharge
F5.02	Outlet	F5.001	Free Discharge
F6.00	Outlet	F6.000	Free Discharge
F6.01	Outlet	F6.001	Free Discharge
F6.02	Outlet	F6.002	Free Discharge
F7.00	Outlet	F7.000	Free Discharge
F8.00	Outlet	F8.000	Free Discharge

Project:	Date: 13/05/2025		
	Designed by: SelvanaAhmad	Checked by:	Approved By:
Report Details: Type: Connections Foul Phase: Foul Water	Company Address:		



Name	Length (m)	Connection Type	Slope (1:X)	Manning's n	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)	Upstream Invert Level (m)
F1.000	20.015	Pipe	80.061		1.5	150	28.986	27.175
F1.001	5.301	Pipe	80.000		1.5	150	28.734	26.925
F1.002	11.951	Pipe	80.000		1.5	150	28.658	26.860
F1.003	3.356	Pipe	79.903		1.5	150	28.635	26.711
F1.004	8.293	Pipe	13.998		1.5	150	28.649	26.669
F1.005	10.164	Pipe	79.706		1.5	225	28.038	26.077
F1.006	5.430	Pipe	80.000		1.5	225	28.117	25.949
F2.000	8.135	Pipe	5.827		1.5	150	29.000	28.320
F2.001	5.244	Pipe	80.000		1.5	150	28.700	26.926
F3.000	13.680	Pipe	6.301		1.5	150	28.700	27.946
F3.001	1.028	Pipe	79.113		1.5	150	28.700	25.775
F3.002	5.827	Pipe	5.545		1.5	150	28.700	27.762
F4.000	13.128	Pipe	80.000		1.5	150	80.693	27.025
F4.001	5.902	Pipe	11.117		1.5	150	28.700	26.861
F4.002	6.251	Pipe	24.659		1.5	150	28.643	26.330
F5.000	19.064	Pipe	65.513		1.5	150	28.671	26.430
F5.001	4.998	Pipe	80.000		1.5	150	28.214	26.139
F6.000	11.207	Pipe	21.975		1.5	150	28.242	26.900
F6.001	7.821	Pipe	80.000		1.5	150	28.250	26.390
F6.002	12.231	Pipe	80.000		1.5	150	28.250	26.292
F7.000	8.491	Pipe	16.649		1.5	150	28.250	26.900
F8.000	4.161	Pipe	40.402		1.5	150	28.250	26.395

Name	Downstream Cover Level (m)	Downstream Invert Level (m)	Part Family	Lock	Velocity (m/s)	Culvert Type	Culvert Entrance
F1.000	28.734	26.925		None		(None)	(None)
F1.001	28.658	26.859		None		(None)	(None)
F1.002	28.635	26.711		Levels		(None)	(None)
F1.003	28.649	26.669		None		(None)	(None)
F1.004	28.038	26.077		None		(None)	(None)
F1.005	28.117	25.949		None		(None)	(None)
F1.006	28.150	25.881		None		(None)	(None)
F2.000	28.700	26.924		None		(None)	(None)
F2.001	28.658	26.860		Levels		(None)	(None)
F3.000	28.700	25.775		None		(None)	(None)
F3.001	28.700	25.762		None		(None)	(None)
F3.002	28.635	26.711		Levels		(None)	(None)
F4.000	28.700	26.861		None		(None)	(None)
F4.001	28.643	26.330		None		(None)	(None)
F4.002	28.038	26.077		None		(None)	(None)
F5.000	28.214	26.139		None		(None)	(None)
F5.001	28.038	26.077		None		(None)	(None)
F6.000	28.250	26.390		None		(None)	(None)
F6.001	28.250	26.292		None		(None)	(None)
F6.002	28.214	26.139		None		(None)	(None)
F7.000	28.250	26.390		None		(None)	(None)
F8.000	28.250	26.292		None		(None)	(None)

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details: Type: Manhole Schedule Foul Phase: Foul Water	Company Address:			

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
F1.00	28.986 27.175	Diameter / Length: 0.450					Manhole
E:382426.012	1.811						
N:397022.495			{a} F1.000	Pipe	27.175	Diam/Width:150	Not Applicable
F1.01	28.734 26.925	Diameter / Length: 0.450	{1} F1.000	Pipe	26.925	Diam/Width:150	Manhole
E:382426.012	1.809						
N:397042.511			{a} F1.001	Pipe	26.925	Diam/Width:150	Not Applicable
F1.02	28.658 26.859	Diameter / Length: 0.450	{1} F1.001	Pipe	26.859	Diam/Width:150	Manhole
E:382420.754	1.799		{2} F2.001	Pipe	26.860	Diam/Width:150	
N:397043.179			{a} F1.002	Pipe	26.860	Diam/Width:150	Not Applicable
F1.03	28.635 26.711	Diameter / Length: 0.450	{1} F1.002	Pipe	26.711	Diam/Width:150	Manhole
E:382408.802	1.924		{2} F3.002	Pipe	26.711	Diam/Width:150	
N:397043.173			{a} F1.003	Pipe	26.711	Diam/Width:150	Not Applicable
F1.04	28.649 26.669	Diameter / Length: 0.450	{1} F1.003	Pipe	26.669	Diam/Width:150	Manhole
E:382405.446	1.980						
N:397043.181			{a} F1.004	Pipe	26.669	Diam/Width:150	Not Applicable

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details: Type: Manhole Schedule Foul Phase: Foul Water	Company Address:			

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
F1.05	28.038 26.077	Diameter / Length: 0.600	{1} F1.004	Pipe	26.077	Diam/Width:150	Manhole
E:382398.039	1.961		{2} F4.002	Pipe	26.077	Diam/Width:150	
N:397046.912			{3} F5.001	Pipe	26.077	Diam/Width:150	
			{a} F1.005	Pipe	26.077	Diam/Width:225	Not Applicable
F1.06	28.117 25.949	Diameter / Length: 0.600	{1} F1.005	Pipe	25.949	Diam/Width:225	Manhole
E:382389.876	2.168		{a} F1.006	Pipe	25.949	Diam/Width:225	Not Applicable
N:397052.968							
F1.07	28.150 25.881	Diameter / Length: 0.450	{1} F1.006	Pipe	25.881	Diam/Width:225	Manhole
E:382385.787	2.269						Not Applicable
N:397056.541							
F2.00	29.000 28.320	Diameter / Length: 0.450					Manhole
E:382418.141	0.680		{a} F2.000	Pipe	28.320	Diam/Width:150	Not Applicable
N:397030.281							

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details: Type: Manhole Schedule Foul Phase: Foul Water	Company Address:			

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
F2.01	28.700 26.924	Diameter / Length: 0.450	{1} F2.000	Pipe	26.924	Diam/Width:150	Manhole
E:382420.892 N:397037.937	1.776		{a} F2.001	Pipe	26.926	Diam/Width:150	Not Applicable
F3.00	28.700 27.946	Diameter / Length: 0.450					Manhole
E:382408.131 N:397022.911	0.754		{a} F3.000	Pipe	27.946	Diam/Width:150	Not Applicable
F3.01	28.700 25.775	Diameter / Length: 0.450	{1} F3.000	Pipe	25.775	Diam/Width:150	Manhole
E:382408.131 N:397036.590	2.925		{a} F3.001	Pipe	25.775	Diam/Width:150	Not Applicable
F3.02	28.700 25.762	Diameter / Length: 0.450	{1} F3.001	Pipe	25.762	Diam/Width:150	Manhole
E:382408.829 N:397037.345	2.938		{a} F3.002	Pipe	27.762	Diam/Width:150	Not Applicable
F4.00	80.693 27.025	Diameter / Length: 0.450					Manhole
E:382401.878 N:397022.949	53.668		{a} F4.000	Pipe	27.025	Diam/Width:150	Not Applicable

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details: Type: Manhole Schedule Foul Phase: Foul Water	Company Address:			

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
F4.01	28.700 26.861	Diameter / Length: 0.450	{1} F4.000	Pipe	26.861	Diam/Width:150	Manhole
E:382401.878 N:397036.077	1.839		{a} F4.001	Pipe	26.861	Diam/Width:150	Not Applicable
F4.02	28.643 26.330	Diameter / Length: 0.450	{1} F4.001	Pipe	26.330	Diam/Width:150	Manhole
E:382401.878 N:397041.979	2.313		{a} F4.002	Pipe	26.330	Diam/Width:150	Not Applicable
F5.00	28.671 26.430	Diameter / Length: 0.450					Manhole
E:382397.044 N:397022.949	2.241		{a} F5.000	Pipe	26.430	Diam/Width:150	Not Applicable
F5.02	28.214 26.139	Diameter / Length: 0.450	{1} F5.000	Pipe	26.139	Diam/Width:150	Manhole
E:382397.044 N:397042.014	2.075		{2} F6.002	Pipe	26.139	Diam/Width:150	
			{a} F5.001	Pipe	26.139	Diam/Width:150	Not Applicable
F6.00	28.242 26.900	Diameter / Length: 0.450					Manhole
E:382384.833 N:397022.908	1.342		{a} F6.000	Pipe	26.900	Diam/Width:150	Not Applicable

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details: Type: Manhole Schedule Foul Phase: Foul Water	Company Address:			

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
F6.01	28.250 26.390	Diameter / Length: 0.450	{1} F6.000	Pipe	26.390	Diam/Width:150	Manhole
E:382384.831 N:397034.115	1.860		{2} F7.000	Pipe	26.390	Diam/Width:150	
			{a} F6.001	Pipe	26.390	Diam/Width:150	Not Applicable
F6.02	28.250 26.292	Diameter / Length: 0.450	{1} F6.001	Pipe	26.292	Diam/Width:150	Manhole
E:382384.813 N:397041.936	1.958		{2} F8.000	Pipe	26.292	Diam/Width:150	
			{a} F6.002	Pipe	26.292	Diam/Width:150	Not Applicable
F7.00	28.250 26.900	Diameter / Length: 0.450					Manhole
E:382376.340 N:397034.137	1.350						
			{a} F7.000	Pipe	26.900	Diam/Width:150	Not Applicable
F8.00	28.250 26.395	Diameter / Length: 0.450					Manhole
E:382380.657 N:397042.154	1.855						
			{a} F8.000	Pipe	26.395	Diam/Width:150	Not Applicable

Project:	Date: 13/05/2025		
	Designed by: SelvanaAhmad	Checked by:	Approved By:
Report Details: Type: Inflow Summary Foul Phase: Foul Water	Company Address:		



Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Catchment Area	F1.00		Foul	0.002		0		0.00
Catchment Area (1)	F1.01		Foul	0.002		0		0.00
Catchment Area (2)	F2.00		Foul	0.002		0		0.00
Catchment Area (3)	F2.01		Foul	0.002		0		0.00
Catchment Area (4)	F3.00		Foul	0.002		0		0.00
Catchment Area (5)	F3.01		Foul	0.002		0		0.00
Catchment Area (6)	F3.02		Foul	0.002		0		0.00
Catchment Area (7)	F4.00		Foul	0.002		0		0.00
Catchment Area (8)	F4.01		Foul	0.002		0		0.00
Catchment Area (9)	F5.00		Foul	0.002		0		0.00
Catchment Area (10)	F6.00		Foul	0.002		0		0.00
Catchment Area (11)	F6.01		Foul	0.002		0		0.00
Catchment Area (12)	F7.00		Foul	0.002		0		0.00
Catchment Area (13)	F8.00		Foul	0.002		0		0.00
Catchment Area (14)	F6.02		Foul	0.002		0		0.00
TOTAL		0.0		0.030				0.00

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details: Type: Network Design Criteria Foul Phase: Foul Water	Company Address:			

Pipe Options

Lock Slope Options	None
Design Options	Minimise Excavation
Design Level	Level Inverts
Min. Slope (1:X)	200.00
Max. Slope (1:X)	20.00
Min. Backdrop (m)	0.500
Max. Backdrop (m)	1.500
Velocity Criteria	(UK) 1/3 Proportional Velocity
Min. Velocity (m/s)	0.2
Max. Velocity (m/s)	4.0
Use Flow Restriction	☐
Reduce Channel Depths	☐

Pipe Size Library

Pipe Size Library

Add. Increment (mm)	150
Max. Diameter (mm)	600

Diameter (mm)	Min. Slope (1:X)	Max. Slope (1:X)
100	0.00	0.00
150	150.00	0.00
225	150.00	0.00
300	200.00	0.00
450	200.00	0.00

Project:	Date: 13/05/2025		
	Designed by: SelvanaAhmad	Checked by:	Approved By:
Report Details: Type: Network Design Criteria Foul Phase: Foul Water		Company Address:	



Manhole Options

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

Manhole Size Library

Manhole Lib HW

Diameter / Width

Connection (mm)	Diameter / Length (m)	Width (m)
0	1.200	0.000
375	1.200	0.000
500	1.500	0.000
750	1.800	0.000
150	0.450	0.000
225	0.600	0.000
450	1.350	0.000
700	1.500	0.000
900	1.800	0.000

Additional Sizing

Connection (mm)	900
Diameter / Length (m)	0.900
Width (m)	0.000

Depth

Depth (m)	Diameter / Length (m)	Width (m)
0.000	1.050	0.000
1.500	1.200	0.000
0.000	0.450	0.000
3.000	1.200	0.000

Access

Depth (m)	Ladder Protrusion (mm)
0.000	130
3.000	230

Benching Requirements

Landing Width (mm)	500
Benching Width (mm)	225

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Details: Type: Outfall Details Foul Phase: Foul Water	Company Address:			

Outfalls

Outfall	Outfall Type	Gated	Fixed Surcharged Level (m)	Level Curve
F1.07	Free Discharge			

Project:	Date: 13/05/2025			
	Designed by: SelvanaAhmad	Checked by:	Approved By:	
Report Title: Rainfall Analysis Criteria	Company Address:			

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

Manchester City Council Type: FSR

Region	England And Wales
M5-60 (mm)	18.0
Ratio R	0.360
Summer	☒
Winter	☒

Return Period

Return Period (years)	Increase Rainfall (%)
1.0	0.000
2.0	0.000
30.0	40.000
100.0	45.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440
960	1920
1440	2880

Project:	Date: 13/05/2025			
	Designed by:	Checked by:	Approved By:	
	SelvanaAhmad			
Report Title: Dry Weather Flow Analysis Criteria	Company Address:			

Run Time (mins)	0
Output Interval (mins)	5
Time Step	Default
Junction Flood Risk Margin (mm)	300

Renaissance Assoc.		Page 1
Carvers Warehouse 77 Dale Street Manchester M1 2HG	Cornbrook Residential Foul Water model	
Date 23/07/2025 15:28 File 250718 FOUL WATER NETWO...	Designed by SA Checked by	
Innovyze	Network 2020.1.3	

FOUL SEWERAGE DESIGN

Network Design Table for foul

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Units	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
F1.000	20.018	0.250	80.0	0.000	462.3	0.0	1.500	o	150	Pipe/Conduit	
F1.001	5.293	0.066	80.0	0.000	73.5	0.0	1.500	o	150	Pipe/Conduit	
F2.000	8.135	0.102	80.0	0.000	33.3	0.0	1.500	o	150	Pipe/Conduit	
F2.001	5.239	0.065	80.0	0.000	15.0	0.0	1.500	o	150	Pipe/Conduit	
F1.002	11.933	0.149	80.0	0.000	0.0	0.0	1.500	o	150	Pipe/Conduit	
F3.000	13.680	0.171	80.0	0.000	62.7	0.0	1.500	o	150	Pipe/Conduit	
F3.001	1.035	0.013	80.0	0.000	253.4	0.0	1.500	o	150	Pipe/Conduit	
F3.002	5.811	1.053	5.5	0.000	38.5	0.0	1.500	o	150	Pipe/Conduit	
F1.003	3.372	0.042	80.0	0.000	0.0	0.0	1.500	o	150	Pipe/Conduit	
F1.004	8.287	0.627	13.2	0.000	0.0	0.0	1.500	o	150	Pipe/Conduit	
F4.000	13.128	0.164	80.0	0.000	229.9	0.0	1.500	o	150	Pipe/Conduit	
F4.001	5.902	0.527	11.2	0.000	4.9	0.0	1.500	o	150	Pipe/Conduit	
F4.002	6.249	0.294	21.3	0.000	0.0	0.0	1.500	o	150	Pipe/Conduit	
F5.000	19.043	0.291	65.4	0.000	306.1	0.0	1.500	o	150	Pipe/Conduit	

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Units	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
F1.000	27.175	0.000	0.0	462.3	0.0	86	1.03	0.98	17.3	10.8
F1.001	26.925	0.000	0.0	535.8	0.0	90	1.05	0.98	17.3	11.6
F2.000	28.320	0.000	0.0	33.3	0.0	42	0.72	0.98	17.3	2.9
F2.001	26.924	0.000	0.0	48.3	0.0	46	0.76	0.98	17.3	3.5
F1.002	26.859	0.000	0.0	584.1	0.0	92	1.06	0.98	17.3	12.1
F3.000	27.946	0.000	0.0	62.7	0.0	49	0.79	0.98	17.3	4.0
F3.001	27.775	0.000	0.0	316.1	0.0	76	0.99	0.98	17.3	8.9
F3.002	27.762	0.000	0.0	354.6	0.0	38	2.64	3.75	66.2	9.4
F1.003	26.709	0.000	0.0	938.7	0.0	110	1.11	0.98	17.3	15.3
F1.004	26.667	0.000	0.0	938.7	0.0	62	2.22	2.42	42.7	15.3
F4.000	27.025	0.000	0.0	229.9	0.0	70	0.95	0.98	17.3	7.6
F4.001	26.861	0.000	0.0	234.8	0.0	41	1.94	2.63	46.4	7.7
F4.002	26.334	0.000	0.0	234.8	0.0	49	1.54	1.91	33.7	7.7
F5.000	26.430	0.000	0.0	306.1	0.0	71	1.06	1.08	19.2	8.7

Renaissance Assoc.		Page 2
Carvers Warehouse 77 Dale Street Manchester M1 2HG	Cornbrook Residential Foul Water model	
Date 23/07/2025 15:28 File 250718 FOUL WATER NETWO...	Designed by SA Checked by	
Innovyze	Network 2020.1.3	

FOUL SEWERAGE DESIGN

Network Design Table for foul

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Units	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
F6.000	11.218	0.511	22.0	0.000	163.5	0.0	1.500	o	150	Pipe/Conduit	
F7.000	8.478	0.511	16.6	0.000	96.7	0.0	1.500	o	150	Pipe/Conduit	
F6.001	7.806	0.098	80.0	0.000	143.1	0.0	1.500	o	150	Pipe/Conduit	
F8.000	4.168	0.103	40.5	0.000	39.2	0.0	1.500	o	150	Pipe/Conduit	
F6.002	12.225	0.153	80.0	0.000	3.8	0.0	1.500	o	150	Pipe/Conduit	
F5.001	5.036	0.099	50.9	0.000	0.0	0.0	1.500	o	150	Pipe/Conduit	
F1.005	10.172	0.127	80.0	0.000	0.0	0.0	1.500	o	225	Pipe/Conduit	
F1.006	5.739	0.072	80.0	0.000	0.0	0.0	1.500	o	225	Pipe/Conduit	

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Units	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
F6.000	26.900	0.000	0.0	163.5	0.0	45	1.44	1.87	33.1	6.4
F7.000	26.900	0.000	0.0	96.7	0.0	36	1.48	2.16	38.1	4.9
F6.001	26.389	0.000	0.0	403.3	0.0	82	1.02	0.98	17.3	10.0
F8.000	26.395	0.000	0.0	39.2	0.0	36	0.94	1.38	24.4	3.1
F6.002	26.292	0.000	0.0	446.3	0.0	85	1.03	0.98	17.3	10.6
F5.001	26.139	0.000	0.0	752.4	0.0	86	1.30	1.23	21.7	13.7
F1.005	25.965	0.000	0.0	1925.9	0.0	103	1.24	1.28	51.1	21.9
F1.006	25.838	0.000	0.0	1925.9	0.0	103	1.24	1.28	51.1	21.9

Renaissance Assoc.		Page 3
Carvers Warehouse 77 Dale Street Manchester M1 2HG	Cornbrook Residential Foul Water model	
Date 23/07/2025 15:28 File 250718 FOUL WATER NETWO...	Designed by SA Checked by	
Innovyze	Network 2020.1.3	

PIPELINE SCHEDULES for foul

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
F1.000	o	150	1.00	28.986	27.175	1.661	Open Manhole	450
F1.001	o	150	1.01	28.734	26.925	1.659	Open Manhole	450
F2.000	o	150	2.00	29.000	28.320	0.530	Open Manhole	450
F2.001	o	150	2.01	28.700	26.924	1.626	Open Manhole	450
F1.002	o	150	1.02	28.658	26.859	1.649	Open Manhole	450
F3.000	o	150	3.00	28.700	27.946	0.604	Open Manhole	450
F3.001	o	150	3.01	28.700	27.775	0.775	Open Manhole	450
F3.002	o	150	3.02	28.700	27.762	0.788	Open Manhole	450
F1.003	o	150	1.03	28.635	26.709	1.776	Open Manhole	450
F1.004	o	150	1.04	28.649	26.667	1.832	Open Manhole	450
F4.000	o	150	4.00	28.693	27.025	1.518	Open Manhole	450
F4.001	o	150	4.01	28.700	26.861	1.689	Open Manhole	450
F4.002	o	150	4.02	28.643	26.334	2.159	Open Manhole	450
F5.000	o	150	5.00	28.671	26.430	2.091	Open Manhole	450

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
F1.000	20.018	80.0	1.01	28.734	26.925	1.659	Open Manhole	450
F1.001	5.293	80.0	1.02	28.658	26.859	1.649	Open Manhole	450
F2.000	8.135	80.0	2.01	28.700	28.218	0.332	Open Manhole	450
F2.001	5.239	80.0	1.02	28.658	26.859	1.649	Open Manhole	450
F1.002	11.933	80.0	1.03	28.635	26.709	1.776	Open Manhole	450
F3.000	13.680	80.0	3.01	28.700	27.775	0.775	Open Manhole	450
F3.001	1.035	80.0	3.02	28.700	27.762	0.788	Open Manhole	450
F3.002	5.811	5.5	1.03	28.635	26.709	1.776	Open Manhole	450
F1.003	3.372	80.0	1.04	28.649	26.667	1.832	Open Manhole	450
F1.004	8.287	13.2	1.05	28.038	26.040	1.848	Open Manhole	600
F4.000	13.128	80.0	4.01	28.700	26.861	1.689	Open Manhole	450
F4.001	5.902	11.2	4.02	28.643	26.334	2.159	Open Manhole	450
F4.002	6.249	21.3	1.05	28.038	26.040	1.848	Open Manhole	600
F5.000	19.043	65.4	5.01	28.214	26.139	1.925	Open Manhole	450

Renaissance Assoc.		Page 4
Carvers Warehouse 77 Dale Street Manchester M1 2HG	Cornbrook Residential Foul Water model	
Date 23/07/2025 15:28 File 250718 FOUL WATER NETWO...	Designed by SA Checked by	
Innovyze	Network 2020.1.3	

PIPELINE SCHEDULES for foul

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
F6.000	o	150	6.00	28.671	26.900	1.621	Open Manhole	450
F7.000	o	150	7.00	28.250	26.900	1.200	Open Manhole	450
F6.001	o	150	6.01	28.250	26.389	1.711	Open Manhole	450
F8.000	o	150	8.00	28.250	26.395	1.705	Open Manhole	450
F6.002	o	150	6.02	28.250	26.292	1.808	Open Manhole	450
F5.001	o	150	5.01	28.214	26.139	1.925	Open Manhole	450
F1.005	o	225	1.05	28.038	25.965	1.848	Open Manhole	600
F1.006	o	225	1.06	28.117	25.838	2.054	Open Manhole	600

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
F6.000	11.218	22.0	6.01	28.250	26.389	1.711	Open Manhole	450
F7.000	8.478	16.6	6.01	28.250	26.389	1.711	Open Manhole	450
F6.001	7.806	80.0	6.02	28.250	26.292	1.808	Open Manhole	450
F8.000	4.168	40.5	6.02	28.250	26.292	1.808	Open Manhole	450
F6.002	12.225	80.0	5.01	28.214	26.139	1.925	Open Manhole	450
F5.001	5.036	50.9	1.05	28.038	26.040	1.848	Open Manhole	600
F1.005	10.172	80.0	1.06	28.117	25.838	2.054	Open Manhole	600
F1.006	5.739	80.0		28.150	25.766	2.159	Open Manhole	0

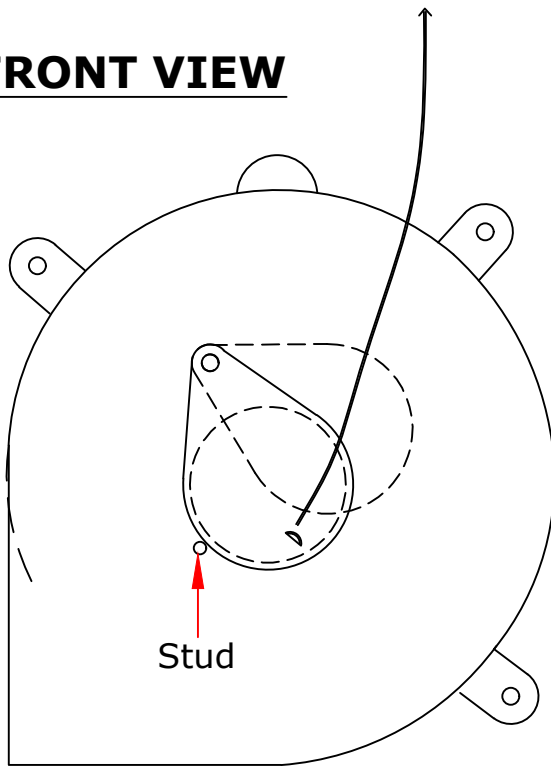
Free Flowing Outfall Details for foul

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
F1.006		28.150	25.766	0.000	0	0

APPENDIX B

FLOW CONTROL AND ATTENUATION TANK DETAILS

FRONT VIEW



Stainless Steel
Straps

Sleeve Dia (O.D) - 100 mm

90 mm

150 mm

TOP VIEW

6 mm Ø Wire
Lifting Lug

490 mm

3 Nos. Stainless steel
straps with 10 mm hole
- welded

Sleeve

82 mm

Outlet

3 mm

NOTES:

1. Quantity - 1
2. Outlet - 82 mm
3. All welds continuous,
unless otherwise noted

SECTION VIEW

KEYTEC
INSTALLATION SERVICES

ROYLE HOUSE,
COWM TOP LN,
ROCHDALE
OL11 2PU
TEL: 01706 374416
FAX 01706 376785

FLUIDIC-AMP AQUABRAKE
STAINLESS STEEL STRAP
ATTACHMENT FABRICATION
DRAWING

DATE
23/07/2025

DRAWN
KZ

NAME:

SCALE
N.T.S.

CHECKED
FA

JOB No.

REVISION No.

HEAD 1.225m
DISCHARGE 3.20 l/sec
(TYPE 3)

AquaBrake Flow Control



Project :- Conrbrook

Technical Information :-

AquaBrake Type : 82mm Orifice - TYPE3

Head = 1.225mH / Flow = 3.20 l/s

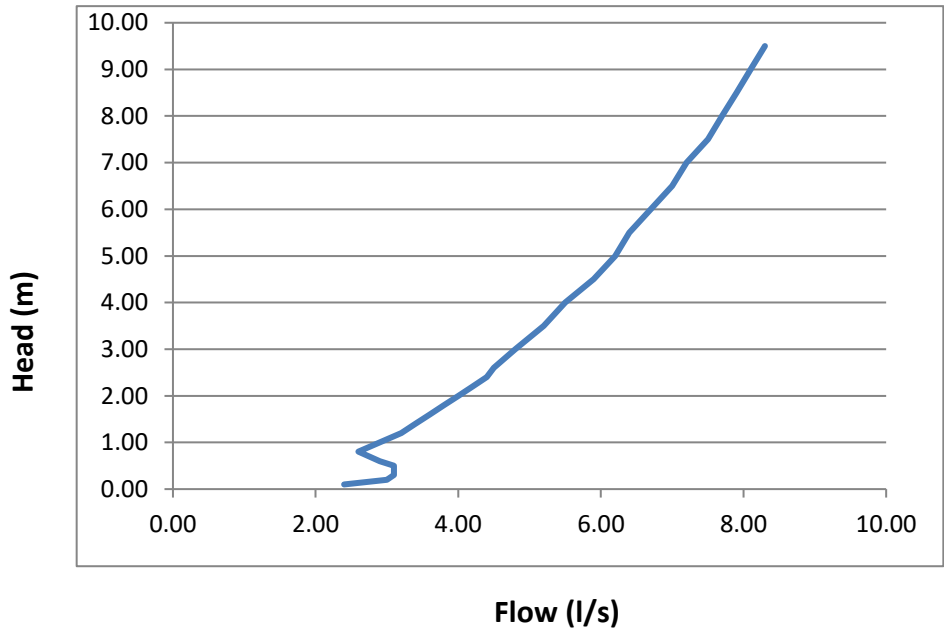
Primary Design Point (A)

Control Points	Head (m)	Flow (l/s)
Wash-Flo (B)	0.400	24.00
Hit-Flo ©	0.800	21.20

Wash-Flo (B)
The point at which the vortex begins to initiate and have a throttling effect. This point on the AquaBrake curve is usually much nearer to the maximum design flow (Design Point) than other vortex flow controls leading to more water passing through the unit during the earlier stages of a storm, thus reducing the amount of water that needs to be stored upstream.

Hit-Flo (C)
The point at which the vortex has initiated and at which the curve begins to return back to follow the orifice curve and reach the same design point or desired head / flow condition.

Head / Flow characteristic



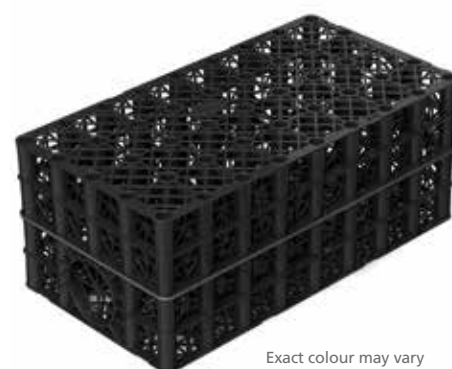
Flow (l/s)	Head (m)
2.40	0.10
3.00	0.20
3.10	0.30
3.10	0.40
3.10	0.50
2.90	0.60
2.60	0.80
2.90	1.00
3.20	1.20
3.40	1.40
3.60	1.60
3.80	1.80
4.00	2.00
4.20	2.20
4.40	2.40
4.50	2.60
4.80	3.00
5.20	3.50
5.50	4.00
5.90	4.50
6.20	5.00
6.40	5.50
6.70	6.00
7.00	6.50
7.20	7.00
7.50	7.50
7.70	8.00
7.90	8.50
8.10	9.00
8.30	9.50

ROYLE HOUSE,
COWM TOP LN,
ROCHDALE
OL11 2PU
TEL: 01706 374416

Product code: PSM1A

The Polystorm-R modular cell is ideally suited for loaded applications at greater depths, such as housing, commercial and infrastructure projects and has a compressive strength of up to 61 tonnes/m². It offers all the proven performance of the Polystorm cell, with the added benefits of being manufactured from over 90% recycled material content.

Wherever performance criteria and standards allow, we will always maximise the sustainability of our products by using post consumer plastics in their manufacture. By sourcing and carefully controlling the quality of the recycled material we use our precision injection moulding. Therefore we are able to guarantee consistent quality in our recycled plastic, giving you the confidence and the performance levels you expect from the market leader.



Exact colour may vary due to recycled materials.

Key Benefits

- Made from specially selected and controlled recycled materials
- Environmentally friendly, sustainable solution
- Has undergone stringent testing to ensure product performance
- Compressive strength of 61 tonnes/m²
- Ideal for retention, attenuation and infiltration applications with a suitable geomembrane or geotextile
- BBA approved
- Allow flexibility of shape - ideal for shallow excavation systems, narrow strips or use in restricted areas
- Can be used as part of a value engineered hybrid system with Polystorm, Polystorm Lite and Polystorm Xtra
- Integrated inlet and outlet
- 3D flow throughout the structure
- 95% void ratio
- Light weight yet robust - excellent Health and Safety and installation benefits
- 60 years creep limited life expectancy

Technical Support

Detailed guidance and assistance is available.

For further information, please contact our Technical Team on **+44 (0) 1509 615100** or email civils@polypipe.com



ELEMENT	VALUE
PHYSICAL PROPERTIES	
Length	1m
Width	0.5m
Depth	0.4m
Total volume	0.2m ³
Unit weight	9kg (approx)
Unit storage volume	0.19m ³ (190 litres)
Void ratio	95%
SHORT TERM COMPRESSIVE STRENGTH	
Vertical	610 kN/m ² **
Lateral	63 kN/m ² **
SHORT TERM DEFLECTION	
Short-term vertical deflection	60 kN/m ² per mm
LONG TERM DEFLECTION	
Estimated long term vertical deflection (creep)	0.2798 Ln (design life in hrs) +0.485 [Based on an applied test load = 162 kN/m ²] Creep data limit 60 years
Estimated long term lateral deflection (creep)	1.0192 Ln (design life in hrs) -3.864 [Based on an applied test load = 30.8 kN/m ²] Creep data limit 60 years

Note: Polystorm-R is ideal for use in trafficked and pedestrian applications subject to a structural design check and suitable installation conditions

* Each unit includes 4 Clips and 2 Shear Connectors.

** Compressive strength at yield, maximum recommended value for design purposes.

RECOMMENDED MAXIMUM DEPTH OF INSTALLATION (to cell invert) [m]

TYPICAL SOIL TYPE	TYPICAL ANGLE OF SHEAR RESISTANCE	SOIL WEIGHT kN/m ³	WITHOUT GROUNDWATER (below base of cells) NORMAL CASE		WITH GROUNDWATER AT 1M BELOW GROUND LEVEL AND UNITS WRAPPED IN GEOMEMBRANE	
			Pedestrian	Trafficked (cars) <3000kg GVW	Pedestrian	Trafficked (cars) <3000kg GVW
Stiff over consolidated clay e.g. London clay	24	20.0	2.2	1.9	1.8	1.6
Normally consolidated silty sandy clay e.g. alluvium, made ground	26	19.0	2.4	2.2	1.9	1.7
Loose sand and gravel	30	18.0	3.0	2.7	2.0	1.9
Medium dense sand and gravel	33	19.0	3.2	2.9	2.0	1.9
Dense sand and gravel	38	20.0	3.7	3.5	2.1	2.0

Note:

1) Stated depths based on the calculation methodology detailed within CIRIA C680 (2008)

2) Assuming water density = 10.0kN/m³

3) Assumed ultimate limit state (ULS) partial factor of safety applied to: Material = 2.75 Lateral pressure = 1.35

Durability

The polymer material used in the manufacture of the Polystorm-R unit has an adequate resistance to attack from the type and quantities of chemicals that may be expected to naturally occur in uncontaminated soils and rainwater runoff. When installed in accordance with our recommendations, it is expected that the Polystorm-R unit will have a design life in excess of 60 years*. The installer of a proposed geocellular structure should ensure that an appropriate design check has been undertaken, in accordance with the recommended methodology and factors of safety given in CIRIA C680 (2008), Structural Design of Modular Geocellular Drainage Tanks, prior to the commencement of construction activities.

* Derived from long term extrapolated creep testing

Notes

1. Unless stated, all values are nominal and may vary within normal production tolerances.
2. The characteristic unit parameters stated have been based on Polypipe BBA certificate N° 06/4297, sheet 3.
3. Polypipe reserve the right to change product specifications without prior notice.
4. This document is uncontrolled and updates will not be issued automatically.

RECOMMENDED MINIMUM COVER LEVELS [m]

LIVE LOAD CONDITIONS	PEDESTRIAN	LIGHT TRAFFICKED	
		Car park with vehicle mass <GVW	
Minimum cover depth required (m)	0.50	<3000kg 0.50	<9000kg 0.65

Note

1) Stated depths based on the calculation methodology detailed within CIRIA C680 (2008)

2) Assumed serviceability limit state (SLS) partial factor of safety applied to: Material = 1.5 Live load = 1.0 Dead load = 1.0

3) Shallower minimum burial depths may be applicable subject to an assessment of the specific site conditions. For further details please consult our Technical Team on 01509 615100.

All descriptions and illustrations in this publication are intended for guidance only and shall not constitute a 'sale by description'. All dimensions given are nominal and Polypipe may modify and change the information, products and specifications from time to time for a variety of reasons, without prior notice. The information in this publication is provided 'as is' on September 2017. Updates will not be issued automatically. This information is not intended to have any legal effect, whether by way of advice, representation or warranty (express or implied). We accept no liability whatsoever (to the extent permitted by law) if you place any reliance on this publication you must do so at your own risk. All rights reserved. Copyright in this publication belongs to Polypipe and all such copyright may not be used, sold, copied or reproduced in whole or part in any manner in any media to any person without prior consent. Polypipe is a registered trademark of Polypipe. All Polypipe products are protected by Design Right under CDPA 1988. Copyright © 2016 Polypipe. All rights reserved.

Polypipe Civils

Charnwood Business Park, Loughborough, Leicestershire LE11 1LE

Tel: +44 (0) 1509 615100 Fax: +44 (0) 1509 610215 Email: civils@polypipe.com

www.polypipe.com/wms



Product code: PSM4

The Polystorm Inspect cell is complementary to the Polystorm range of modular cell solutions. Its primary purpose is to provide a tunnel along the length of a fully installed Polystorm structure to enable access for inspection and maintenance. Polystorm Inspect is a high strength thermoplastic cell which evenly distributes its load through the Polystorm structure. The tunnel end is left open by default but the unit can be closed off if required by clipping into place the moulded end plate. For purposes of identification the cell features a yellow centre section and end plate.



Key Benefits

- Creates a horizontal tunnel running through the middle of the tank to provide access for inspection and maintenance, i.e. jetting and rodding
- Can be used with Polystorm Lite, Polystorm-R and Polystorm (cannot be used in the same layer as Polystorm Xtra as the Polystorm Inspect cell is deeper)
- Tunnel can be used as a flow inlet track achieving greater stormwater flow distribution within the unit
- Large access tunnel (height 320mm and width 172mm nominal) – allows maximum field of vision while maintaining the system's structural performance
- High strength to weight ratio
- Light weight cell allows easier handling and reduced Health and Safety risk
- Utilises the same Shear Connectors and Clips as the Polystorm range
- The tunnel restricts the dissipation of silt in to the overall structure making inspection and maintenance easier
- Polystorm Inspect cells with 225mm (PSM4CRD225) or 300mm (PSM4CRD300) inlets are available

Applications

Polystorm Inspect is designed to work with the rest of the Polystorm range within a layered hybrid system enabling an intelligently engineered attenuation or infiltration structure to be created. It is intended to be used from the inlet point of the Polystorm structure. If used other than along an inlet tract, the Polystorm Inspect end plate should be used to cap off the tunnel entrance. The most cost effective way to create a tank is to use a combination of Polystorm Inspect cells and other Polystorm modular cells.

UNIT TYPE	VALUE
PHYSICAL PROPERTIES	
Length	1m
Width	0.5m
Depth	0.4m
Total volume	0.2m ³
Unit weight	11.6kg*
Cube storage volume	0.188m ³ (188 litres)
Volumetric void ratio	94%
SHORT TERM COMPRESSIVE STRENGTH	
Vertical	Minimum 440kN/m ²
Lateral	Minimum 63kN/m ²
SHORT TERM DEFLECTION	
Short-term vertical deflection	Minimum 70.1kN/m ²
LONG TERM DEFLECTION	
Estimated long term vertical deflection (creep)	0.6113Ln (design life in hrs)

Note: The table above is applicable to PSM4 without the end plate.

*Approximate weight

End plates to be purchased separately as required.

Please note: The use of Polystorm Inspect does not negate the requirement for a Silt Trap to be installed prior to the Polystorm structure. The use of a Silt Trap or other silt prevention device would always be recommended.

Technical Support

Detailed guidance and assistance is available.

For further information, please contact our Technical Team on **+44 (0) 1509 615100** or email civils@polypipe.com

RECOMMENDED MAXIMUM DEPTH OF INSTALLATION (to cell invert) [m]

TYPICAL SOIL TYPE	TYPICAL ANGLE OF SHEAR RESISTANCE	WITHOUT GROUNDWATER (below base of cells) NORMAL CASE		WITH GROUNDWATER AT 1M BELOW GROUND LEVEL AND UNITS WRAPPED IN GEOMEMBRANE	
		Pedestrian	Trafficked (cars)	Pedestrian	Trafficked (cars)
Stiff over consolidated clay e.g. London clay	24°	2.3	2.0	1.8	1.7
Normally consolidated silty sandy clay e.g. alluvium, made ground	26°	2.4	2.2	1.9	1.7
Loose sand and gravel	30°	2.8	2.6	2.0	1.8
Medium dense sand and gravel	33°	3.2	2.9	2.1	1.9
Dense sand and gravel	38°	3.9	3.6	2.2	2.1

- Note:
- 1) Stated depths based on the calculation methodology detailed within CIRIA C680 (2008)
 - 2) Assuming a soil density = 19 kN/m³ water density = 9.81 kN/m³
 - 3) Assumed ultimate limit state (ULS) partial factor of safety applied to: Material = 2.75 Live load = 1.5 Dead load = 1.35

Notes:

1. Unless stated, all values are nominal and may vary within normal production tolerances.
2. Polypipe reserve the right to change product specifications without prior notice.
3. This document is uncontrolled and updates will not be issued automatically.

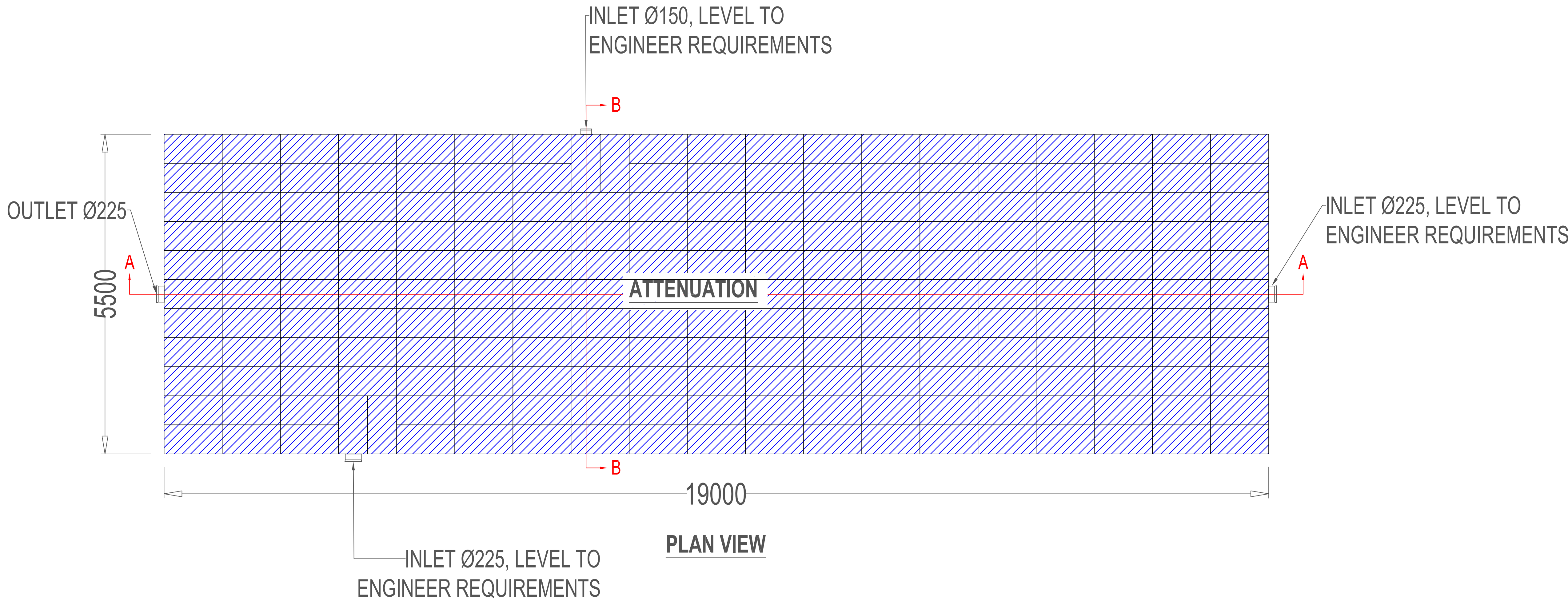
RECOMMENDED MINIMUM COVER LEVELS [m]

LIVE LOAD CONDITIONS	PEDESTRIAN	LIGHT TRAFFICKED
		Car park with vehicle mass <6000kg
Minimum cover depth required (m)	0.50	0.60

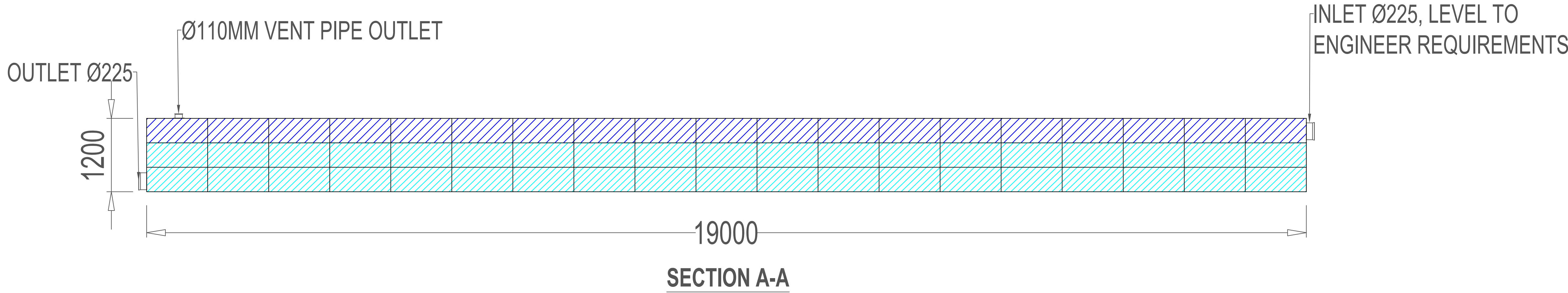
- Note:
- 1) Stated depths based on the calculation methodology detailed within CIRIA C680 (2008)
 - 2) Assumed serviceability limit state (SLS) partial factor of safety applied to: Material = 1.5 Live load = 1.0 Dead load = 1.0
 - 3) Shallower minimum burial depths may be applicable subject to specific site conditions.

All descriptions and illustrations in this publication are intended for guidance only and shall not constitute a 'sale by description'. All dimensions given are nominal and Polypipe may modify and change the information, products and specifications from time to time for a variety of reasons, without prior notice. The information in this publication is provided 'as is' on January 2016. Updates will not be issued automatically. This information is not intended to have any legal effect, whether by way of advice, representation or warranty (express or implied). We accept no liability whatsoever (to the extent permitted by law) if you place any reliance on this publication you must do so at your own risk. All rights reserved. Copyright in this publication belongs to Polypipe and all such copyright may not be used, sold, copied or reproduced in whole or part in any manner in any media to any person without prior consent. © Polypipe is a registered trademark of Polypipe. All Polypipe products are protected by Design Right under CDPA 1988. Copyright © 2016 Polypipe. All rights reserved.

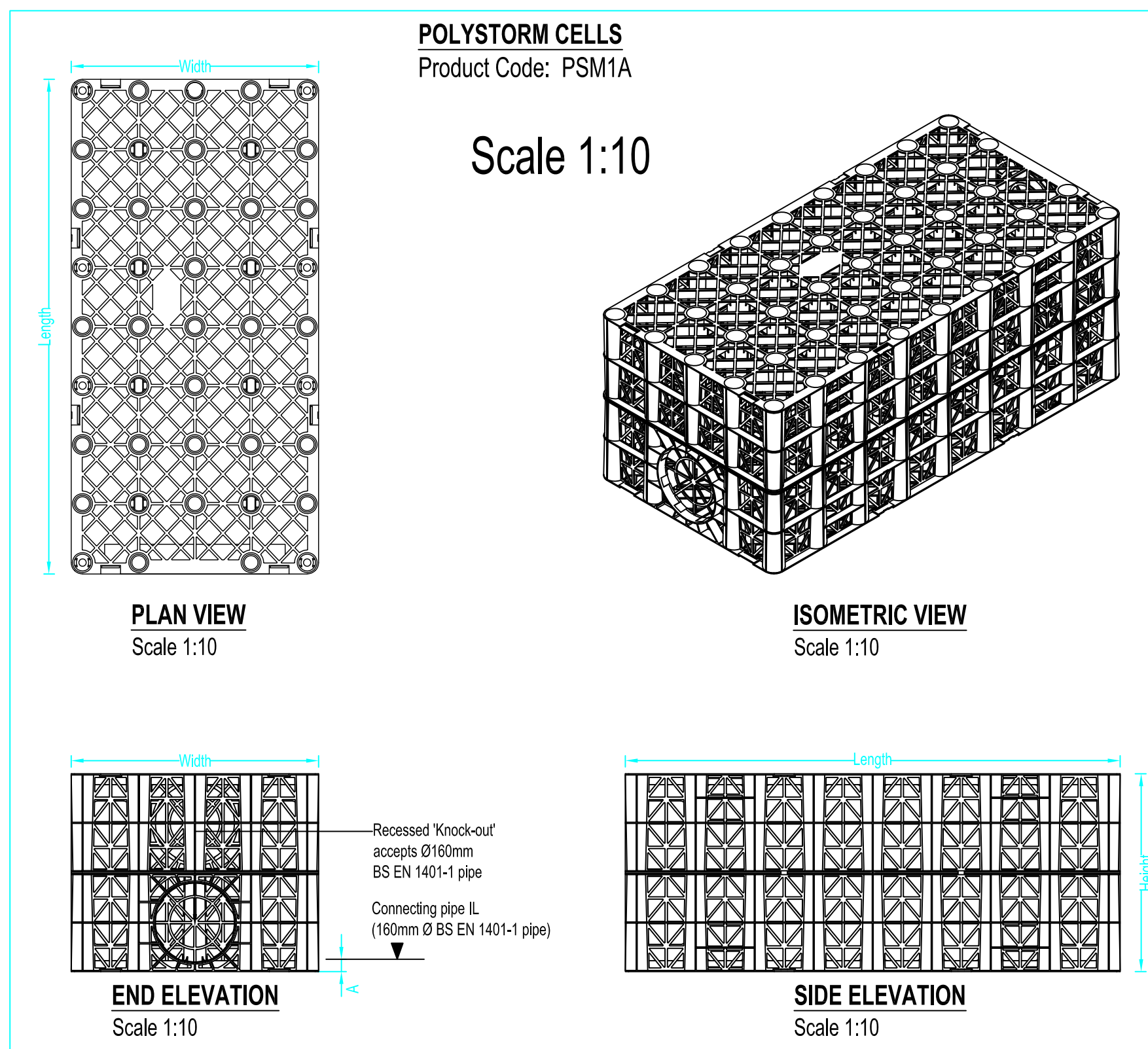
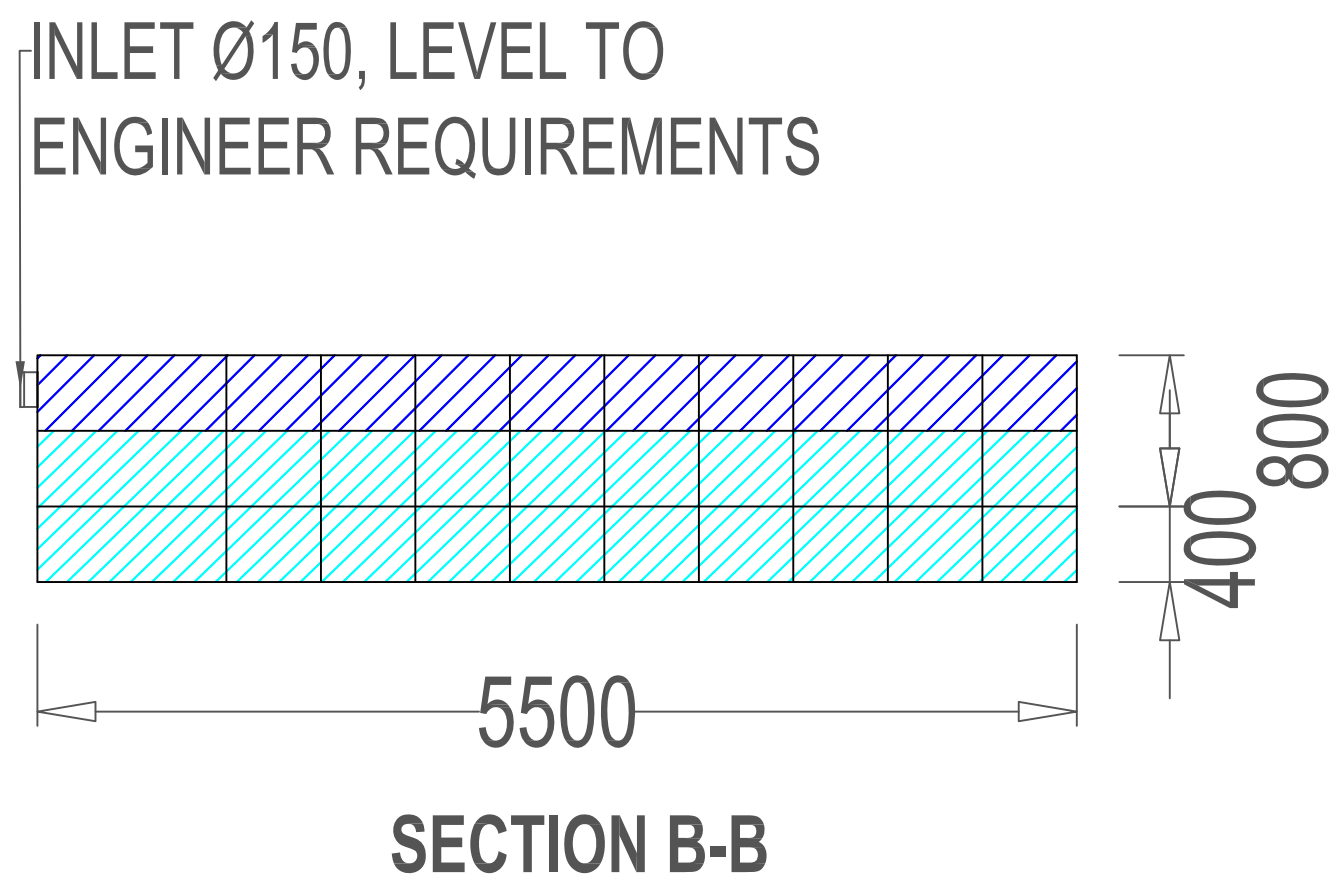
Scale 1:40



Scale 1:40



Scale 1:40



PROPOSED POLYSTORM STRUCTURE

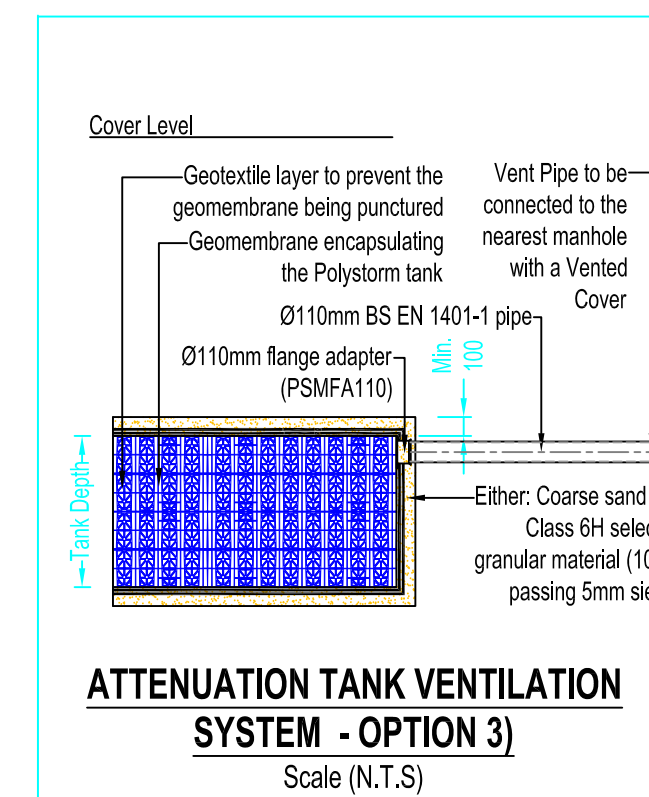
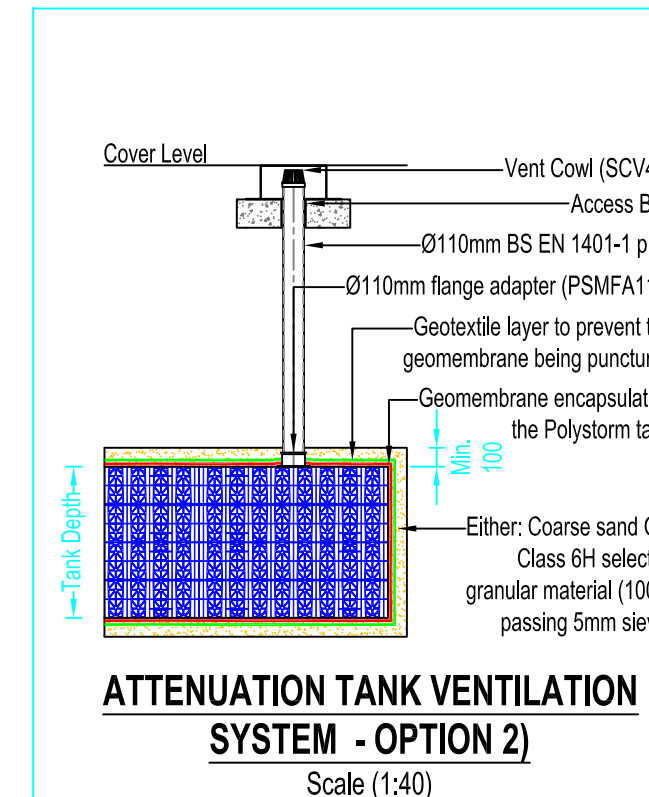
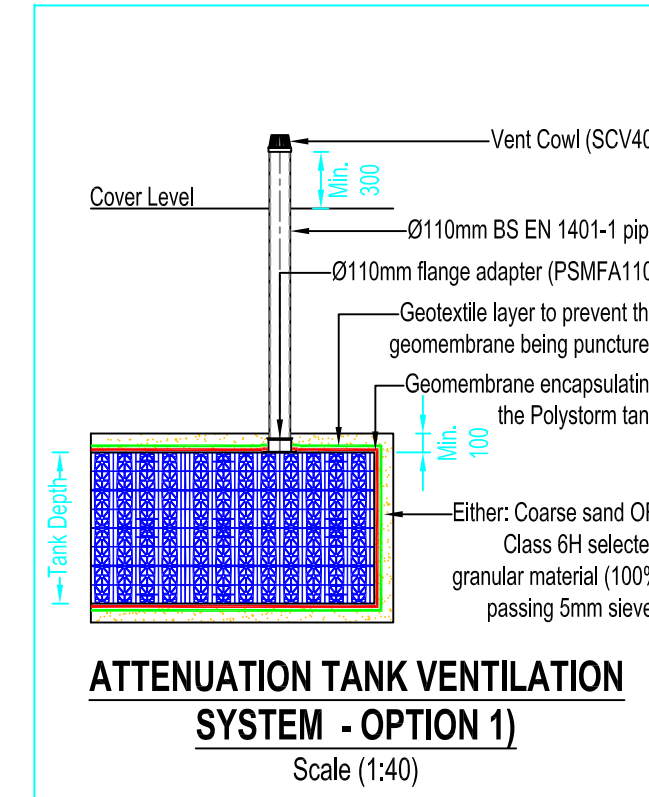
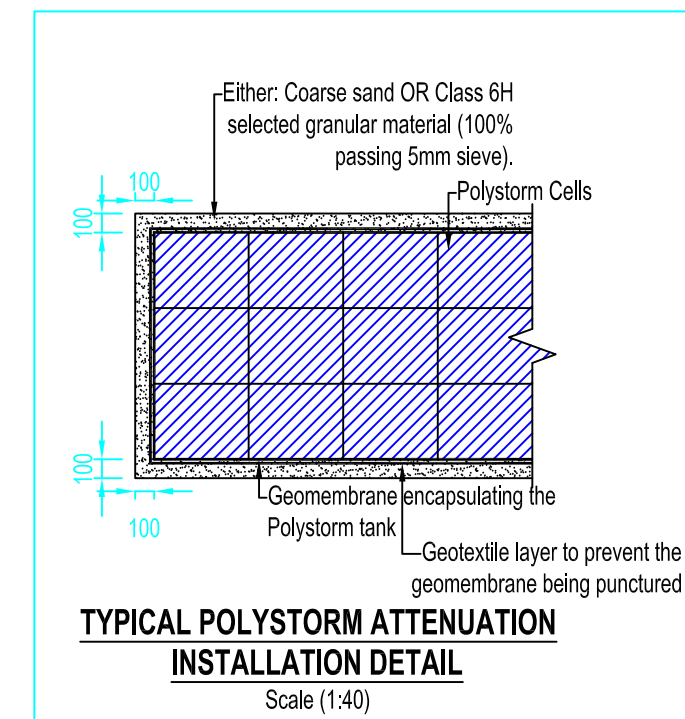
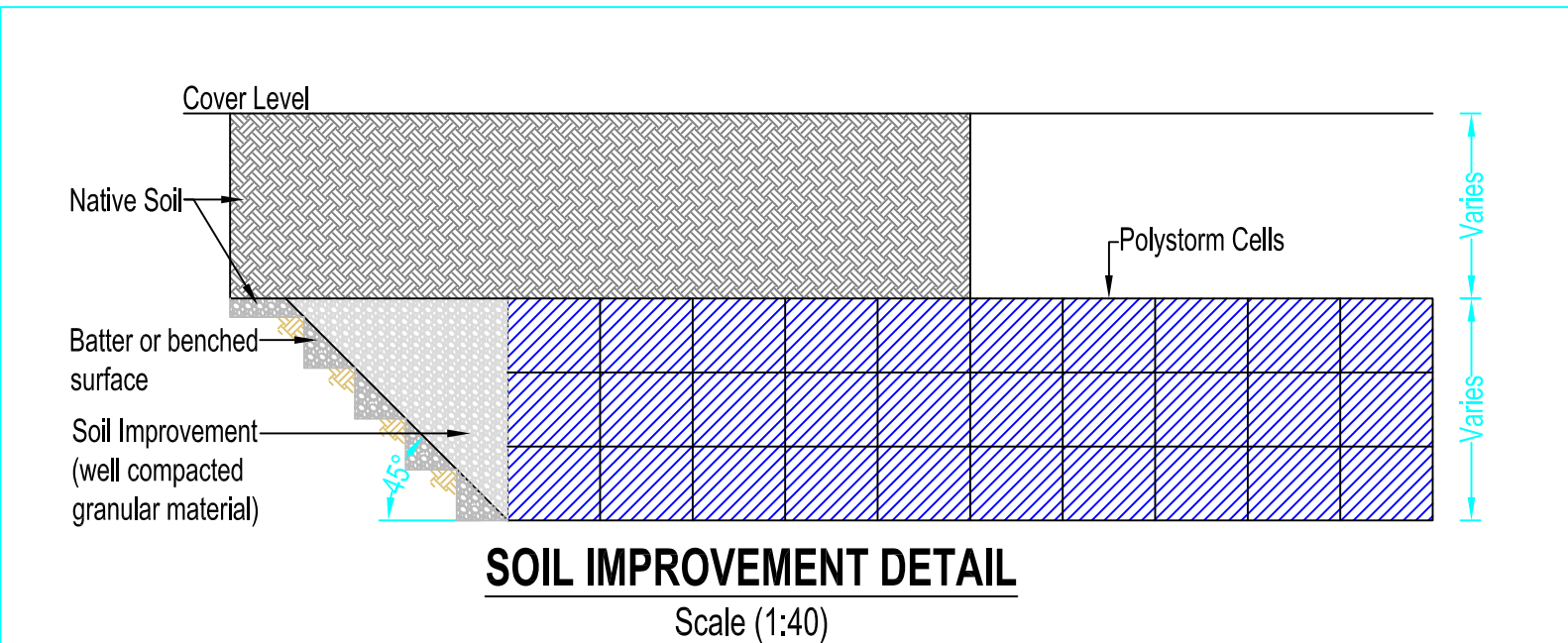
Plan Area	104.50m ²
Tank Volume	125.40m ³
Storage	119.13m ³
Polystorm-R Units	209(PSM1A)
Polystorm- Deep	418(PSM5)

LEGEND:

	Polystorm-R Units (PSM1A)
	Polystorm-Deep Units (PSM5)

NOTE:

- Fall Arrest Grill to be provided by the developer / contractor (please refer to Consultant's drawings).
- The final position of the access cover should be confirmed by the Consultant and detailed on their drawing.
- Lifting Eyes are to be painted type - to be provided by the Developer / Contractor (please refer to Consultant's drawings).
- All Polystorm tanks to be installed with a 1:500 fall, please note tank would still drain even if left flat due to our cells 3D flow.



NOTES - PE STUB PIPE ADAPTERS

PE ADAPTOR	PIPE ADAPTOR
Ø160mm SDR26 PE - Ø150mm Polysewer	PS109
Ø200mm SDR26 PE - Ø150mm Polysewer	PS108
Ø315mm SDR41 PE - Ø300mm Polysewer	PS128

see note below"

see note below"

see note below"

see note below"

For this transition, Flansols are required, please refer to their website.

POLYSTORM NOTES

- This drawing needs to be read in conjunction with all relevant Architects, Engineers and specialist drawings.
- Stormwater Attenuation / Infiltration system shall be Polytype Civils Polystorm pre-formed geocellular system, with minimum 94% volumetric void. Units shall be installed using recommended joining clips to maintain rigidity and minimise deflection.
- Multi-layered Polystorm tank configurations shall be fixed with proprietary shear connectors between each individual layer to maintain rigidity and minimise lateral displacement.
- Drawings should be read in conjunction with the supporting structural calculations, which are illustrative and should be validated by a suitably qualified Engineer, or similar.
- For Field conditions, backfill should be placed and compacted in layers no greater than 150mm and for trafficked areas, backfill should be placed and compacted in layers no greater than 150mm.
- The installer shall ensure that all expected temporary construction transient loads have been considered as part of the structural design and a minimum of 300mm backfill should be placed prior to initial compaction.
- Polystorm Tanks should be installed in accordance with Polytype Civils recommendations (refer to technical guidance for further information).

COVER SLAB THICKNESS

- Where cover slabs are applicable, the slab thickness (shown in red) has been assumed and therefore needs to be confirmed by others.

STANDARD TOLERANCES

ALL DIMENSIONS IN MILLIMETRES, UNLESS OTHERWISE STATED:

Benching Slope	1:10 to 1:30 (1.9° - 5.7°)
Angles	±1.5°
All Dimensions	±50mm / -30mm
STANDARD SPOTS IN ACCORDANCE WITH SPEC. ES23	

Team Leader Inspection points identified by:

1	2	3
---	---	---

JOINTING KEY

	Socket	RS	Ring seal joint
	Internal extrusion	IEW	Internal extrusion joint
	Split	EF	Electro-fusion joint

GENERAL NOTES

- This drawing details Polytype Civils proposed offering, reflecting our interpretation of the information provided.
- Polytype bespoke Ridgstorm-XL chambers are complete pre-formed with.
- Polytype products to be installed in accordance with KEYTEC recommendations (refer to KEYTEC technical guidance for further information), giving due consideration to the requirements of the organisation who will take ultimate ownership of the installation.
- Site conditions may require specific installation requirements. The installer should verify that the proposed installation method is acceptable, giving due consideration to the requirements of the relevant approving and adopting authorities, before construction activities commence.
- Advice on any system requirements specific to the proposed Ridgstorm XL system should be sought from Polytype Civils.
- All PE slab connections will require adaptors (to be supplied by Contractor / Developer).

DRAWING NOTES

- Drawings should not be scaled, refer to figured dimensions only.
- All dimensions in millimetres, unless otherwise stated.
- All dimensions are normal and may vary within manufacturing or construction tolerances.
- All site temporary and enabling works by others.
- This drawing is intended for guidance only. Confirmation of the information contained within this document should be sought from the consulting engineers before final design or construction activities commence.

R1 / 16-07-25 / PSM5 MODULES ADDED



PROJECT

CORNHROOK RESIDENTIAL STAGE 4
ATTENUATION TANK (OPTION 2)

TITLE

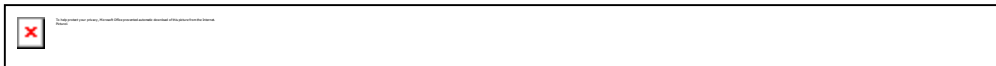
DETAILS OF ATTENUATION/STORAGE TANK DETAILS
USING PSM1A & PSM5 UNITS

Scale	Drawn	Checked
N.T.S.	KZ	FA
Date	Drawing No.	Revision
03/07/2025	PSM - 3.0	R1

APPENDIX C
UNITED UTILITIES CORRESPONDENCE

Selvana Ahmad

From: seweradoptions@uuplc.co.uk
Sent: 22 July 2025 12:23
To: Aria Shino
Cc: [REDACTED]
Subject: 04916303 - Adoption of Cornbrook Manchester and Point of Connection for Vivere Building
Follow Up Flag: Follow up
Flag Status: Flagged



Hello Aria

Thank you for taking my phone call today.

As discussed,

This is to confirm that the United Utilities in engaged with FG Vivere Manchester Ltd to complete the adoption of development at Cornbrook Manchester under a section 104:

DS ref: 4200024208 / 04916303
Legal: WHO11.9758

Following adoptions of the surface water assets relating to the above section 104 application, this is an agreement in principle that a point of connection will be given to Vivere Building on this surface water network proposed as part of the development of Cornbrook Manchester.

Kind Regards

Gulshan

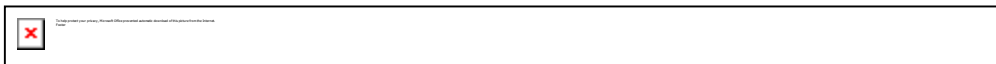


Gulshan Seetulparsad, MEng (Hons)
Developer Engineer (Greater
Manchester Area)
Developer Services & Metering
Customer Services
T: 01925 429092
unitedutilities.com



If you have received a great service today why not tell us?

Visit: [unitedutilities.com/wow](https://www.unitedutilities.com/wow)



The information contained in this e-mail is intended only for the individual to whom it is addressed. It may contain legally privileged or confidential information or otherwise be exempt from disclosure. If you have received this Message in error or there are any problems, please notify the sender immediately and delete the message from your computer. You must not use, disclose, copy or alter this message for any unauthorised purpose. Neither United Utilities Group PLC nor any of its subsidiaries will be liable for any direct, special, indirect or consequential damages as a result of any virus being passed on, or arising from the alteration of the contents of this message by a third party.

United Utilities Group PLC, Haweswater House, Lingley Mere
Business Park, Lingley Green Avenue, Great Sankey,
Warrington, WA5 3LP
Registered in England and Wales. Registered No 6559020

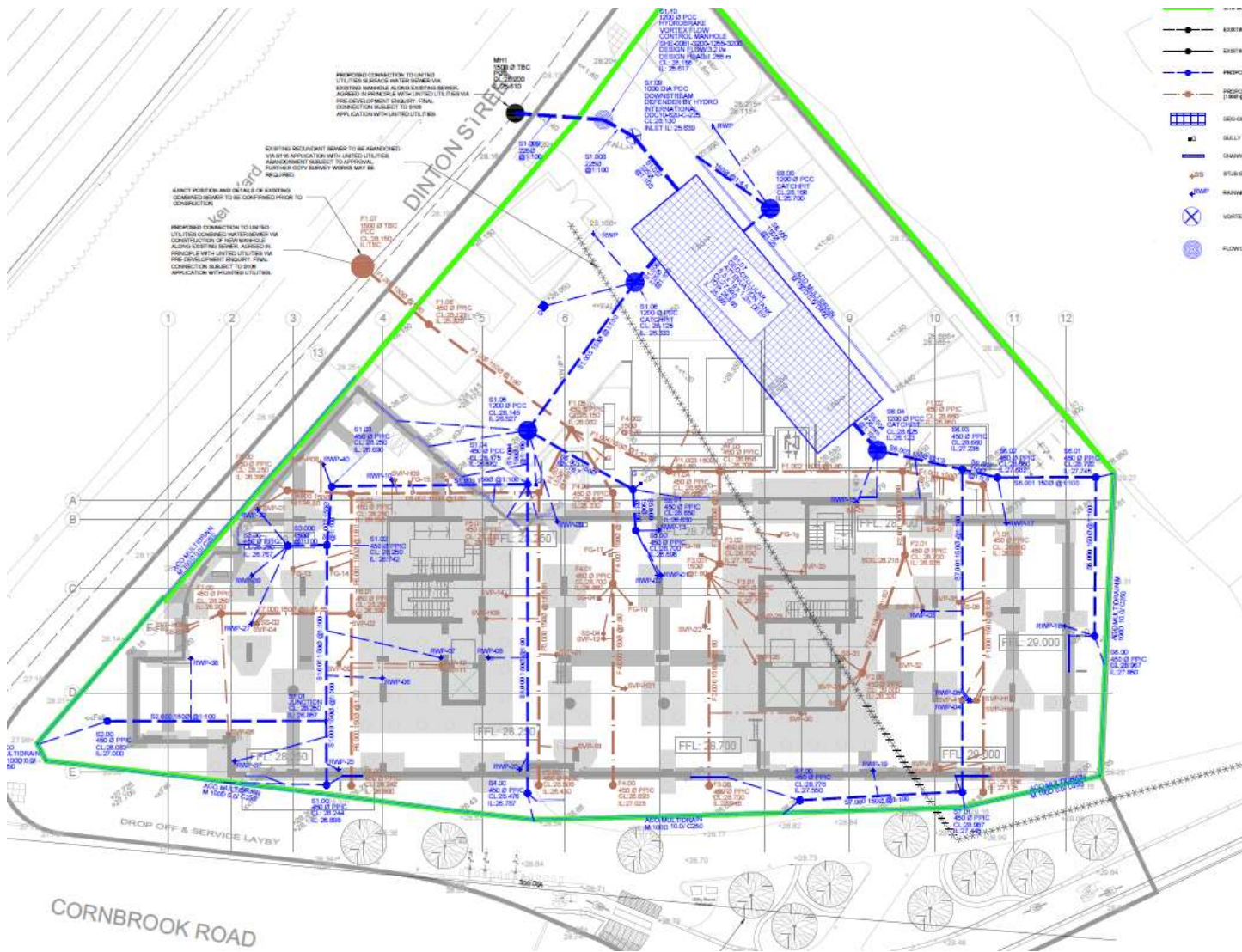
www.unitedutilities.com
www.unitedutilities.com/subsidiaries

S106 Part 1 'Application to connect to a public sewer' Approval Notice



United Utilities Reference Number:		07778715				
Applicant details						
Applicant name	SELVANA AHMAD					
Applicant address (including postcode)	RENAISSANCE ASSOCIATES LIMITED 2ND FLOOR, TRIBECA HOUSE, 21-27 DALE STREET, MANCHESTER, M1 1EY					
Applicant email	[REDACTED]					
Site details: The site / property which is proposed for connection to the public sewer						
Site address (including postcode)	CORNBROOK ROAD, MANCHESTER M15 4YG					
APPROVED Your application for connection to the public sewer has been approved, to be made via a new connection:						
To a private drain	☐	You may appoint your contractor and advise your appointed building control body (who should inspect the work). United Utilities should be advised when this work is complete.				
Direct to the public sewer	☒	Further action required. You may now appoint an appropriately qualified contractor. Your appointed contractor is responsible for obtaining authorisation to work on a public sewer. (The S106 Part 2 application form 'Request for permission to work on a public sewer' is available on our website; Sewer connections - United Utilities).				
Mode of connection approved	New manhole					
Sewer connection type	Foul	☒	Surface water	☐	Combined	☐
This approval is valid for 12 months from the date below. This approval does not grant access to third party land, permission should be sought if required between applicant and landowner. If the new connection renders access unsafe or is otherwise detrimental to the manhole or sewer, a new/upgraded manhole will be requested.						
Comments						
As per email correspondence and phone call 07/07/25 to Selvana Ahmad, advising this application is a foul only connection And Surface water to a watercourse. Approval granted for a 150mm foul only connection to the existing 500mm combined sewer in Dinton Street via a new manhole The new manhole must be constructed in line with Water UK Sewerage Sector Guidance Appendix C with the appropriate openings, ring size, benching/pipe configuration, channels and landing. Please ensure a plan of your proposals is submitted with your contractor's Part 2 application. For low-lying sites, (where the ground level of the site or the level of a basement is below the ground level at the point where the drainage connects to the public sewer), care should be taken to ensure that the property is not at increased risk of flooding. If these circumstances exist it could affect the detailed design of your site and result in the need to incorporate appropriate mitigating measures in your drainage scheme. Please note, if you are proposing to connect to an existing, unchartered drain or sewer then it is the developer's responsibility to confirm that it communicates with the Public Sewer						

If you have any further queries about sewer closures, please contact the team at seweradoptions@uuplc.co.uk



Developer Services Inspector	Lynne Berry
Contact number	[REDACTED]
Date	07/07/2025



Water for the Northwest

United Utilities Water Ltd - Developer Services and Metering

Grasmere House, Second Floor, Lingley Mere
Business Park, Lingley Green Avenue, Great Sankey,
Warrington WA5 3LP

Telephone 01925 234000
www.unitedutilities.com

Date

Dear Sirs

Re: S116 Sewer Closure Application at Cornbrook Manchester – M15 4YG

Thank you for your recent correspondence 22/07/2025 I can confirm that your submission is **incomplete** and have listed the missing information below. I have also reviewed the information provided so far and have the have the following comments:

Please provide all the information listed on the linked document below:

[Application to close a public sewer \(S116\)](#)

A location plan (including at least two road names for reference) with site boundary clearly identified
A scaled site drainage plan showing the sections of the public sewer to be closed and the positions of the lateral drains as specified in United Utilities' Sewer closure guide
CCTV survey footage and reports as specified in United Utilities' Sewer Closure guide

Please resubmit your application and fee to address on the form.

I look forward to receiving your amended drawings etc.

Yours faithfully,

Development Engineer

Gulshan Seetulparsad



Gulshan Seetulparsad, MEng (Hons)
Developer Engineer (Greater Manchester Area)
Developer Services & Metering
Customer Services
T: 01925 429092
unitedutilities.com

If you have received a great service today why not tell us?

Visit: unitedutilities.com/wow