



8-8a St. Johns Street Drainage Strategy

For Enabl

Date 28 June 2024

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P01	S2	10/08/2020	Draft
P02	S2	26/08/2020	Revised following Turley comments. Reference to phasing removed, greenroof systems included.
P03	S2	01/09/2020	Client reference changed.
P04	S2	28/06/2024	Client updated and UU response added.

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1. Introduction

This report has been prepared by Hydrock Consultants Limited on behalf of Enabl in support of a Planning Application to be submitted to Manchester City Council for a proposed commercial/industrial development at 8-8a St Johns Street.

The surface water drainage strategy has been produced in accordance with the with Non-Statutory Technical Standards for Sustainable Drainage Systems (March 2015) requirements.

This report should be read in conjunction with the following:

- » C16495-HYD-XX-XX-DR-C-0500_Proposed Drainage Layout
- » Proposed Microdrainage Calculations

2. Site Information

2.1 Location and Setting

The site is located on St John Street and Longworth Street in the centre of Manchester.

The development consists of a currently occupied office building, along with an external patio/yard area with planters and trees.

The site location is shown in Figure 1, with the full address and Ordnance Survey grid reference provided in Table 1.

Site Referencing Information	
Site Address	8-8a St John Street, Manchester, M3 4DU
Approximate Grid Reference	383459, 397928 SJ834979

Table 1: Site referencing information



Figure 1: Site location

3. Surface Water Strategy

3.1 Existing Site Drainage

United Utilities sewer records have been obtained (see Appendix A) which indicate existing combined sewers within Artillery Street to the north and Longworth Street to the east of the development. There are two no. combined chambers located nearby, 4902 falling west towards Bryom Street, and 4905 falling south towards St John Street. While United Utilities record information does not indicate depth information for these chambers it is assumed that they serve the neighbouring existing developments and will be of sufficient depth for a proposed drainage connection.

It is recommended that a drainage survey should be undertaken to confirm cover levels, invert levels, depths and condition of the existing sewer, along with confirming the presence of a positive connection from the existing site.

3.2 Existing Discharge Rates

In accordance with Non-Statutory Technical Standards for Sustainable Drainage Systems;

For developments which were previously developed, the peak runoff rate from the development to any drain, sewer or surface water body for the 1 in 1 year rainfall event and the 1 in 100 year rainfall event must be as close as reasonably practicable to the greenfield runoff rate from the development for the same rainfall event, but should never exceed the rate of discharge from the development prior to redevelopment for that event.

Greenfield run off for the external patio area (impermeable area of 0.021 Ha) of the development has been calculated using the ICP SUDS Mean Annual Flood method for determining the greenfield run-off. The resulting flows are indicated within Table 3 below. The full results can be found within the Appendix B).

Return Period (Years)	Greenfield Run Off Rate (l/s)
1	0.1
QBar	0.1
30	0.2
100	0.2

Table 2: Existing Run Off Rates

An additional review of the brownfield run off from the site has been calculated below using the modified rational method in order to comply with the non-statutory technical standards for sustainable drainage systems.

The following parameters were used to calculate the brownfield run-off from the site:

Peak Discharge $Q_p = 2.78 \times C_v \times C_r \times I \times A$ (Modified rational method as recommended by the Wallingford procedure)

Impermeable Area (A) = 0.021 Ha

Average Rainfall Intensity (i) = Based upon figures obtained from Microdrainage

Routing coefficient (dimensionless) (C_r) = 1.3 (as recommended by the Wallingford procedure)

Volumetric Runoff Coefficient (C_v) = 0.9 (catchment high in hardstanding areas)

Table 4 below summarises the calculated brownfield run-off rates for the 30 year and 100 year events.

Storm Event (Years)	Rainfall Intensity mm/hr (15min tc)	Brownfield Discharge Rate (L/s)
30	66	5.15
100	85	6.65

Table 3: Modified Rational Method Flow rates

3.3 Proposed Site Discharge

Based on discussions with United Utilities from the pre-development enquiry, it is proposed that the surface water discharge rate is reduced to 1.2L/s, which exceeds 50% betterment on the existing brownfield run off rates outlined above.

For the purpose of determining cover levels for this drainage exercise an assumed finished floor level of 34.150m AOD has been used based on the existing site topography. The proposed site layout allows for an external yard area to the south, joining onto Longworth Street, which is the proposed location for surface water manholes.

The proposed building has a catchment area of 0.021 Hectares, will be collected via rainwater pipes and channels. Attenuation to the measure of approximately 2.2m³ will be required to store proposed run off from this catchment area, before discharging to a new chamber built on the existing combined sewer in Longworth Street via a proposed combined chamber.

The Proposed Drainage Layout can be found in Appendix C.

A S106 agreement will be required to be submitted by the contractor to United Utilities prior to construction and connection of proposed drainage, although it is understood this will not be required for submission for planning.

The surface water drainage attenuation has been modelled using Microdrainage for a range of events including the 1 in 1year, 1 in 30year and 1 in 100year + 40% climate change event.

The model indicates no flooding occurs during a 1 in 100 year plus climate change event within the surface water network

The proposed drainage Microdrainage calculations can be found within Appendix D

It is assumed that the works of converting existing office space into residential units will re-utilise the existing drainage infrastructure.

3.4 Hierarchy of Drainage Discharge

A hierarchy for the preferred discharge of surface water states that surface water runoff should be disposed of in the following order of preference:

Surface water runoff not collected for use must be discharged to one or more of the following in the order of priority shown:

1. into the ground (infiltration).
2. to a surface water body.
3. to a surface water sewer, highway drain or other drain.
4. to combined sewer:

The feasibility of each discharge method is outlined below:

1. Due to the small site area and locations of proposed and existing buildings the use of a soakaway / infiltrations is not suitable as a 5m distance from buildings cannot be achieved.
2. There are no existing watercourses nearby to the development. Due to the proximity to the nearest watercourse, it is unachievable to discharge surface water from the development to a watercourse. Discharge to a watercourse via highway drainage is not considered possible due to Manchester City Council restrictions on permitting private drainage flows into the highway drainage, and the likelihood of highway drainage discharging to the United Utilities public combined sewer and not a watercourse.
3. United Utility record information indicates no surface water sewers within the vicinity of the development, and therefore it is considered unachievable to connect into a surface water sewer.
4. Therefore, it is proposed to discharge surface water drainage to the existing combined sewer located with Longworth Street.

A Pre-Development Enquiry has been submitted to United Utilities regarding the discharge of surface water and an agreement has been made in principle for the discharge to the existing combined sewer running adjacent to the site (see Appendix E for correspondence). As discharge via infiltration and to a surface water body are not feasible, United Utilities have stated that they will consider a connection to the 450mm diameter public combined sewer, providing the agreed rate does not exceed 1.2l/s.

3.5 Suitability of SuDS Features

The following SuDS features have been considered during the design process, the table states which features have been incorporated and which have been excluded and reasons for their exclusion.

SuDS Feature	Incorporated within design	Reasoning
Green Roofs / BluRoofs	Yes	Greenroof systems will be included as part of the new building within the existing patio area
Attenuation Pond (Above Ground)	No	Attenuation ponds have been excluded for the site due to lack of available space within the development proposals
Rainwater Harvesting	No	Rainwater harvesting is not effective for this type of development where there are a limited number of toilets/ uses for harvested water
Infiltration Methods	No	Infiltration was ruled out due to the lack of space available and the proximity to buildings of less than 5m.
Raingardens/Bio-retention areas	No	Excluded due to the residential nature of the development and ground conditions
Filter strips and swales	No	Excluded due to lack of space, level constraints and ground conditions
Permeable Paving	No	Excluded, given the nature of the development
Below ground attenuation systems / Oversized Pipework	Yes	Below ground attenuation will be achieved through the use of attenuation crates

Table 4: Suitability of SuDS Features

3.6 Whole Life Maintenance of the Network

To enable the water treatment process to occur as intended the drainage network shall require maintenance. The maintenance strategy and responsibilities are as set out in the table below.

Component to be maintained	Actions	Frequency	Responsibility of:
Site wide external areas	Site to be generally kept free from litter and debris which may enter the drainage system.	On-going	Occupier / Owner
General network inc. pipes/ manholes/ catchpits	Manholes covers to be lifted and inspected for sediment build up, remove as required	Yearly	Occupier / Owner

Table 5: Maintenance Schedule

4. Foul Water Drainage

As part of the proposed building drainage strategy, it is proposed that foul drainage is to connect to a new combined chamber, before outfalling to a new chamber built on the existing public combined sewer located in Longworth Street.

United Utilities records indicate an existing 450 x 600mm sewer in this location however do not provide depth information. It is likely that the existing combined sewer serves neighbouring developments and will be of sufficient depth to support a gravity connection. Depths of the existing sewer at the proposed discharge location should be confirmed prior to construction.

A non return valve should be provided at the outfall to ensure surcharging from the public sewer does not enter the private drainage network.

Using the Units Discharge Method and the current architects site layout, an approximate peak flow has been calculated as 1.92 l/s for the proposed development.

It is assumed that the works of converting existing office space into residential units will re-utilise the existing drainage infrastructure.

5. Conclusions

In summary, the proposed building will be drained into separate surface water and foul networks, combining with a new chamber before outfalling to a new chamber built on existing United Utilities combined sewer located within Longworth Street.

An attenuation tank will be provided to ensure the proposed surface water discharge rate of 1.2l/s can be achieved, exceeding a 50% betterment to existing brownfield runoff rates.

It is assumed that the works of converting existing office space into residential units will re-utilise the existing drainage infrastructure

6. Appendices

Appendix A - United Utilities Records

Luke Pilsbury

**3
Bleatarn Road, Offerton
Stockport,
SK14NP**

FAO:

How to contact us:

**United Utilities Water Limited
Property Searches
Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP**

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

**Your Ref: C-16495
Our Ref: UUPS-ORD-180277
Date: 05/08/2020**

Dear Sirs

Location: 8-8a St John Street

I acknowledge with thanks your request dated 30/07/2020 for information on the location of our services.

Please find enclosed plans showing the approximate position of United Utilities' apparatus known to be in the vicinity of this site.

The enclosed plans are being provided to you subject to the United Utilities terms and conditions for both the wastewater and water distribution plans which are shown attached.

If you are planning works anywhere in the North West, please read United Utilities' access statement before you start work to check how it will affect our network. <http://www.unitedutilities.com/work-near-asset.aspx>.

I trust the above meets with your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter please [contact us](#).

Yours Faithfully,



Karen McCormack
Property Searches Manager

TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus) of United Utilities Water Limited "(UUWL)".

TERMS AND CONDITIONS:

- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and affect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.



Reho	Cover	Func	Invert	Size x	Size y	Shape	Mat	Length	Grad
3503	30.86	CO	27.63	300			VC	28.7214	1 in 161
3615		CO		225			VC	37.10795	
4007		CO		225			VC	6.17599	
4803		CO		0			VC	6.69542	
4103	30.8	CO	28.29	525			CO	5.173639	1 in 127
3106	30.8	CO	26.68	525			CO	18.97892	1 in 90
4712		CO		150			CO	9.008602	1 in 240
5701	35.76	CO	32.7	450			CO	69.57011	
5202	32.81	CO	31.85	150			CO	3.050399	
2706	37.02	CO	31.39	1500			CO	23.78975	1 in 10
6603		CO		0			VC	18.12295	
3604		CO		31.39			CO	13	
2102	28.41	CO	25.48	460			BR	8.246211	
5202	35.26	CO	31.23	150			CO	9.846858	
6802	18.48	CO	14.43	600			CO	35.72598	
4107	39.9	CO	28.97	525			CO	7.788209	
4609		CO		2400			BR	19.89062	
3009	30.93	CO	23.25	450			VC	11.7047	
5704		CO		0			CO	79.71198	
5104	34.99	CO	0	1500			CO	14.62149	
5001	34.18	CO	31.23	220			CO	35.1534	
3600	34.2	CO	27.14	1500			CO	48.76961	1 in 139
4107	39.9	CO	28.97	525			BR	15.04418	1 in 84
2006	28.55	CO	26.22	150			VC	4	
2701	33.05	CO	28.12	300			BR	10.1884	
2703	33.04	CO	25.9	1500			CO	14.58341	
1703	31.98	CO	22.21	620			BR	106.6077	
4104	30.8	CO	26.47	525			CO	8.909722	1 in 53
6602	36.37	CO	22.74	900			BR	19.39703	1 in 129
7101	35.72	CO	31.06	450			VC	49.61968	1 in 66
3710		CO		225			VC	12.82427	
2802		CO		150			VC	10.86396	
4106		CO		225			VC	47.43575	
3007	30.93	CO	27.38	300			VC	8.062258	1 in 17
4205	30.9	CO	27.84	225			VC	9.446328	1 in 189
4904		CO		150			VC	2.78273	
4003	30.83	CO	26.11	450			VC	8.062258	
5902	34.19	CO	31.03	375			CO	55.66567	
4100	33.12	CO	28.27	600			CO	71.86215	1 in 87
2903	32.21	CO	28.18	520			BR	77.7945	1 in 37
3105	30.9	CO	28.87	525			BR	22.526	1 in 78
5912		CO		0			VC	5.017198	
4009		CO		150			VC	2.155489	
4802	34.21	CO	31.75	150			VC	42.37624	1 in 202
4608		CO		2400			BR	27.90048	
1906		CO		375			VC	39.10498	1 in 81
6601	35.88	CO	32.13	1500			CO	74.2159	1 in 100
3072	31.73	CO	27.84	300			CO	25.08125	
2001		CO		100			CO	5.741253	
3602	33.74	CO	0	500			BR	41.14608	
2707	33.5	CO	22.19	600			BR	63.15853	1 in 1263
6906	18.09	CO	0	450			VC	18.24829	
7907	37.12	CO	36.04	1500			VC	1.09092	
3001	39.2	CO	27.02	675			CO	45.35416	1 in 1402
7907	37.12	CO	36.04	1500			BR	94.1997	
7901	28.04	CO	22.74	610			VC	66.28725	
4204	30.9	CO	28.19	525			CO	48.85856	1 in 147
6607	38.01	CO	0	300			CO	10.29693	
2022		CO		100			VC	13.99364	1 in 919
2601	33.75	CO	26.77	1500			VC	61.91747	
2806	33.42	CO	31.38	225			VC	32.69555	
3003	29	CO	23.4	500			VC	41.97618	
6907	27.13	CO	25.03	450			VC	22.56103	
2004	29.38	CO	22.86	610			BR	66.45038	1 in 3585
3701	34.12	CO	22.12	600			BR	35.8489	
5025		CO		150			VC	3.688209	
2005	26.13	CO	23.27	375			VC	13.67288	
1106	27.68	CO	22.82	610			BR	57.98276	
5805		CO		0			VC	5.502263	
7803	39.37	CO	34.88	450			CO	4.472136	
6908		CO		150			VC	1.124853	
4001		CO		450			VC	8.062258	
2003	29.3	CO	25.97	675			CO	34.48188	
4203		CO		330			BR	29.31742	
6802	18.46	CO	0	600			CO	35.6743	
2906		CO		225			CO	38.38915	
6801		CO		450			CO	61.98387	1 in 54
2808		CO		375			CO	21.99962	
5602	35.48	CO	31.92	450			CO	80.65358	
7905	37.89	CO	34.47	300			BR	25.491	1 in 67
4704	35.36	CO	21.81	2400			BR	137.6483	
2901		CO		225			VC	9.54094	
4803	34.44	CO	31.43	450			BR	43.9659	1 in 92
2702	33.12	CO	25.87	1500			CO	14.56022	1 in 89
6016	36.47	CO	31.34	300			CO	95.60154	
5109		CO		1500			CO	11.49039	1 in 803
6105	35.85	CO	31.64	450			BR	32.11074	
3601	33.28	CO	25.58	540			BR	48.27007	
5801		CO		150			VC	5.380016	
4711		CO		150			FO	10.16274	1 in
6215		CO		150			BR	14.88882	
5224		CO		330			BR	41.62415	
2103		CO		150			VC	25.4521	
2804		CO		100			SW	15.08994	
5101		CO		225			VC	11.71805	
4714		CO		150			VC	12.22432	
2203	26.62	CO	22.95	150			BR	12.20556	
5016	34.43	CO	22.9	1500			CO	11.04536	1 in 33
3905	33.63	CO	31.01	225			VC	9.216544	
4805	35.27	CO	21.7	2300			BR	113.3019	1 in 872
4013		CO		375			CO	89.73551	
2902		CO		675			VC	66.76077	
3011	30.95	CO	27.85	675			VC	3.98645	
4008		CO		225			VC	4.939635	
4801	34.39	CO	31.94	300			CO	17.72095	1 in 104
5801	34.79	CO	21.81	2400			BR	70.2282	1 in 760
5703	17.87	CO	0	450			CO	32.57299	
7907	37.82	CO	36.14	375			VC	191.1125	1 in 342
3807	33.44	CO	30.27	375			BR	48.00018	
7211	37.01	CO	30.72	450			BR	37.57699	
4707		CO		225			VC	8.214025	
3005	30.09	CO	28.98	225			VC	2	
4706		CO		150			VC	2.107917	
4713		FO		150			VC	7.194736	
2001	27.9	CO	0	900			VC	6.324555	1 in 1
6006		CO		150			VC	4.035575	
3806	33.49	CO	30.48	440			BR	12.59996	1 in 17
3008	30.99	CO	22.45	610			BR	15.29706	
6901	36.94	CO	34	375			CO	11.80175	
3601	33.4	CO	0	300			VC	31.89044	
6104	35.31	CO	22.7	500			BR	84.45054	
4105		CO		225			VC	36.7216	
5903	34.5	CO	29.58	450			CO	9.432611	1 in 81
6204	35.52	CO	36.3	450			VC	6.324555	
7608	37.09	SW	34.32	300			VC	33.52811	1 in 17
3804	34.07	CO	33.04	225			VC	4.170818	
5026		CO		225			CO	26.30589	
6812		CO		32.83	470		VC	4.046947	
2801	33.17	CO	30.67	300			BR	20.89061	1 in 54
1708	32.57	CO	26.15	600			VC	56.73385	
5604	35.71	CO	32.67	450			CO	31.62278	
4809		CO		0			VC	6.123645	
5105	34.92	CO	29.32	600			BR	16.05497	
3603		CO		360			BR	5.385165	
4808	35.15	CO	31.85	450			BR	25	
3601	34.38	CO	26.9	375			VC	28.6531	1 in 60
6107	35.29	CO	32.29	450			VC	28.4212	
5017		CO		150			VC	7.74434	
5102	34.62	CO	29.04	1500			CO	95.58445	
3707	34.82	CO	30.88	100			VC	52.80151	
4805		CO		150			VC	1.887158	
3702	34.7	CO	22.08	600			BR	23.78973	
4715		CO		225			BR	8.51484	
5006	33.26	CO	30.04	500			VC	36.34556	
3004	30.09	CO	0	300			VC	77.88453	
3025		CO		150			VC	2.959502	
2704	33.44	CO	30.36	480			BR	19.64688	
5211		CO		150			VC	6.686747	
3618		CO		100			VC	13.90268	1 in 38
1004	25.65	CO	22.97	675			CO	40.34083	
5029		CO		225			VC	18.49644	
5028		CO		225			VC	10.58126	
1104	27.31	CO	23.02	680			BR	7.211022	
5229		CO		150			BR	3.336106	
2007		CO		610			BR	61.04326	
5004	34.65	CO	21.88	2300			BR	2.55029	
4102	30.9	CO	27.43	550			VC	4.330457	
3620		CO		150			VC	12.20024	
5027		CO		100					

LEGEND

Abandoned

Foul

Surface Water

Combined

Public Sewer

Private Sewer

Section 104

Rising Main

Sludge Main

Overflow

Water Course

Highway Drain

All point assets follow the standard colour convention:
red - combined
brown - foul
blue - surface water
purple - overflow

Manhole

Head of System

Extent of Survey

Rodding Eye

Inlet

Discharge Point

Vortex

Penstock

Valve Chamber

Washout Chamber

Valve

Air Valve

Non Return Valve

Soakaway

Gully

Cascade

Flow Meter

Hatch Box

Oil Interceptor

Summit

Drop Shaft

Orifice Plate

Side Entry Manhole

Appendix B - ICP SuDS QBar Calculation

Hydrock Consultants Ltd		Page 1
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Date 12/08/2020 10:45	Designed by Lukepilsbury	
File	Checked by	
Innovyze	Source Control 2018.1.1	
<p style="text-align: center;"><u>ICP SUDS Mean Annual Flood</u></p> <p style="text-align: center;">Input</p> <p>Return Period (years) 2 Soil 0.450</p> <p>Area (ha) 0.021 Urban 0.000</p> <p>SAAR (mm) 869 Region Number Region 10</p> <p style="text-align: center;">Results 1/s</p> <p>QBAR Rural 0.1</p> <p>QBAR Urban 0.1</p> <p>Q2 years 0.1</p> <p>Q1 year 0.1</p> <p>Q30 years 0.2</p> <p>Q100 years 0.2</p>		
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Appendix C - Proposed Drainage Layout



- NOTES**
- THIS DRAWING IS NOT TO BE SCALED.
 - ALL DIMENSIONS AND LEVELS ARE TO BE CHECKED ON SITE BEFORE THE COMMENCEMENT OF WORKS. ANY DISCREPANCIES ARE TO BE REPORTED TO THE ARCHITECT AND ENGINEER FOR VERIFICATION. FIGURED DIMENSIONS ONLY ARE TO BE TAKEN FROM THIS DRAWING.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERS' AND SERVICE ENGINEERS' DRAWINGS AND SPECIFICATIONS.
 - ALL LEVELS ARE IN METRES UNLESS NOTED OTHERWISE
 - EXISTING GROUND INFORMATION SHOWN ON THIS DRAWING IS BASED upon CPLS TOPOGRAPHICAL SURVEY "130520JC-01" DATED 13.05.20.
 - PROPOSED SITE LAYOUT AND DRAINAGE LAYOUT BASED UPON TIM GROOM ARCHITECTS GROUND FLOOR PLAN DRAWING "1084-TGA-B2-00-DR-A-0300" REV P2 DATED 03/18/20.
 - EXISTING PUBLIC DRAINAGE BASED UPON UNITED UTILITIES RECORDS DRAWING "180277-05-08-2020-02-08-51.PDF" DATED 05/08/20.

- LEGEND**
- Proposed Building Works Boundary
 - Proposed Office Conversion Boundary
 - Proposed Surface Water Drainage
 - Proposed Rain Water Pipe
 - Proposed Drainage Channel
 - Proposed Attenuation Tank
 - Proposed Foul Drainage
 - Proposed Combined Drainage
 - Existing Combined Sewer

P03	FLOW CONTROL DESIGN HEAD & ATTENUATION TANK VOLUME UPDATED					
	S. Jones	28.06.24	C. Fell	28.06.24	N. Byrne	28.06.24
P02	LEGEND AMENDED TO REMOVE PHASE REFERENCE					
	L. W. Pilsbury	26.08.20	R. Henshall	26.08.20	R. Henshall	26.08.20
P01	PRELIMINARY ISSUE					
	L. W. Pilsbury	12.08.20	R. Henshall	12.08.20	R. Henshall	12.08.20

REV	REVISION NOTES/COMMENTS					
	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE



North Assurance Buildings
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Manchester
M2 4DN
t: +44(0)161 804 5550
e: manchester@hydrock.com

CLIENT

MATHER & CO

PROJECT

8-8A ST JOHN STREET,
MANCHESTER

TITLE

PROPOSED DRAINAGE STRATEGY

HYDROCK PROJECT NO. C-16495		SCALE @ A1 1:100	
STATUS DESCRIPTION INFORMATION			STATUS
DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER) C16495-HYD-XX-XX-DR-C-0500			REVISION P03

Appendix D - Proposed Drainage Calculations

Hydrock Consultants Ltd		Page 2
<div><div></div><div></div><div></div></div>		
Date 28/06/2024	Designed by SJ	
File Surface Water-P02.MDX	Checked by NB	
Innovyze	Network 2020.1.3	
<div>Online Controls for Storm</div> <div>Hydro-Brake® Optimum Manhole: SFLOW CONTROL CHAMBER, DS/PN: S1.001, Volume (m³): 2.1</div> <div><div>Unit Reference MD-SHE-0054-1200-0800-1200</div><div>Design Head (m)0.800</div><div>Design Flow (l/s)1.2</div><div>Flush-Flo™Calculated</div><div>ObjectiveMinimise upstream storage</div><div>ApplicationSurface</div><div>Sump AvailableYes</div><div>Diameter (mm)54</div><div>Invert Level (m)33.086</div><div>Minimum Outlet Pipe Diameter (mm)75</div><div>Suggested Manhole Diameter (mm)1200</div></div> <div><div>Control Points</div><div>Head (m)</div><div>Flow (l/s)</div><div>Design Point (Calculated)0.8001.2</div><div>Flush-Flo™0.2381.2</div><div>Kick-Flo®0.4821.0</div><div>Mean Flow over Head Range-1.0</div></div> <div>The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated</div> <div><div>Depth (m)</div><div>Flow (l/s)</div><div>Depth (m)</div><div>Flow (l/s)</div><div>Depth (m)</div><div>Flow (l/s)</div><div>Depth (m)</div><div>Flow (l/s)</div><div>0.1001.0</div><div>1.2001.4</div><div>3.0002.2</div><div>7.0003.2</div><div>0.2001.2</div><div>1.4001.5</div><div>3.5002.3</div><div>7.5003.3</div><div>0.3001.2</div><div>1.6001.6</div><div>4.0002.5</div><div>8.0003.4</div><div>0.4001.1</div><div>1.8001.7</div><div>4.5002.6</div><div>8.5003.5</div><div>0.5001.0</div><div>2.0001.8</div><div>5.0002.8</div><div>9.0003.6</div><div>0.6001.1</div><div>2.2001.9</div><div>5.5002.9</div><div>9.5003.7</div><div>0.8001.2</div><div>2.4002.0</div><div>6.0003.0</div><div></div><div>1.0001.3</div><div>2.6002.0</div><div>6.5003.1</div><div></div></div> <div>©1982-2020 Innovyze</div>		

Hydrock Consultants Ltd		Page 3												
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Date 28/06/2024	Designed by SJ													
File Surface Water-P02.MDX	Checked by NB													
Innovyze	Network 2020.1.3													
<p><u>Storage Structures for Storm</u></p> <p><u>Tank or Pond Manhole: SFLOW CONTROL CHAMBER, DS/PN: S1.001</u></p> <p>Invert Level (m) 33.086</p> <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th></tr><tr><td>0.000</td><td>4.0</td><td>0.550</td><td>4.0</td><td>0.551</td><td>0.0</td></tr></table>			Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	0.000	4.0	0.550	4.0	0.551	0.0
Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)									
0.000	4.0	0.550	4.0	0.551	0.0									
©1982-2020 Innovyze														

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Date	28/06/2024
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File Surface Water-P02.MDX

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Innovyze

Network 2020.1.3



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

Simulation Criteria

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

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.363
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	18.000	Cv (Winter)	0.840

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

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH			Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	
	Name		Storm						
S1.000			SS01	30	Winter	1	+0%	100/15	Summer
S1.001	SFLOW	CONTROL	CHAMBER	30	Winter	1	+0%	30/15	Summer
S1.002			SC01	30	Winter	1	+0%		

PN	US/MH Name	Overflow Act.	Water	Surcharged	Flooded	Flow / Cap.	Overflow (l/s)
			Level (m)	Depth (m)	Volume (m ³)		
S1.000	SS01		33.192	-0.208	0.000	0.03	
S1.001	SFLOW CONTROL CHAMBER		33.192	-0.044	0.000	0.08	
S1.002	SC01		33.097	-0.124	0.000	0.07	

PN	US/MH Name	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	SS01		1.7	OK	

Hydrock Consultants Ltd			Page 5	
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Date 28/06/2024		Designed by SJ		
File Surface Water-P02.MDX		Checked by NB		
Innovyze		Network 2020.1.3		
<u>1 year Return Period Summary of Critical Results by Maximum Level (Rank 1)</u>				
<u>for Storm</u>				

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Date	28/06/2024
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Designed by SJ

File Surface Water-P02.MDX

Checked by NB

Innovyze

Network 2020.1.3

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.001	SFLOW CONTROL CHAMBER		1.2	SURCHARGED	
S1.002	SC01		1.2	OK	

Hydrock Consultants Ltd			Page 9		
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Date 28/06/2024		Designed by SJ			
File Surface Water-P02.MDX		Checked by NB			
Innovyze		Network 2020.1.3			
<u>100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm</u>					
PN	US/MH Name	Half Drain Time (mins)	Pipe Flow (l/s)	Status Level Exceeded	
S1.001	SFLOW CONTROL CHAMBER		1.2	FLOOD RISK	
S1.002	SC01		1.2	OK	
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Appendix E - United Utilities Correspondence

Sophie Jones

From: Sophie Jones
Sent: 26 June 2024 16:34
To: Sophie Jones
Subject: FW: Pre Development Enquiry for:8a St John St, Manchester, M3 4DU UU
Reference Number : 05879935

From: seweradoptions@uuplc.co.uk <seweradoptions@uuplc.co.uk>
Sent: 18 June 2024 08:59
To: Tom Flanagan <tomflanagan@hydrock.com>
Subject: Pre Development Enquiry for:8a St John St, Manchester, M3 4DU UU Reference Number : 05879935

You don't often get email from seweradoptions@uuplc.co.uk. [Learn why this is important](#)

CAUTION: This email originated from outside of Hydrock. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Good morning Tom,
Pre Development Enquiry for:8a St John St, Manchester, M3 4DU UU Reference Number : 05879935

We have carried out an assessment of your application which is based on the information provided. This pre-development advice on your drainage strategy will be valid for 12 months. Your drainage strategy will need to be reviewed by other competent authorities as part of the planning process, and we advise that you carry out the necessary site investigations to confirm the viability of your proposals.

If your investigations require access to our public sewer network, we ask that you contact our network engineers with a request for an access certificate via our main contact telephone number 0345 6723 723 or refer to the link below:

<https://www.unitedutilities.com/builders-developers/working-near-our-assets/>

Foul Water

Foul flow from this site will be allowed to drain into the public foul water/combined sewer system. Our preferred point of discharge would be to the 450mm diameter public combined sewer within Deansgate located to the East of your proposed development at an unrestricted rate.

If you are able to identify an alternative, more suitable point of discharge, we request that you contact us at your earliest convenience so that we can assess suitability.

(Delete if appropriate) In accordance with our infrastructure plans we may ask you to change your point of connection. Therefore please contact us when you are ready to formalise your drainage proposals, we would suggest before you submit for Full Planning.

Surface Water

All surface water flow from the proposed development should drain in-line with the drainage hierarchy, as outlined in Paragraph 80, (Reference ID: 7-080-20150323), of the National Planning Practice Guidance. We also recommend you prioritise the use of multi-functional sustainable drainage systems for the management of surface water in accordance with national planning policy.

Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable.

This is outlined as follows, in order of priority:

1. **into the ground (infiltration);**
2. **to a surface waterbody;**

3. to a surface water sewer or highway drain;

4. to a combined sewer.

For guidance, The [North West SuDS Pro-Forma](#) provides information on the appropriate evidence required at each stage of the hierarchy, to demonstrate how each level has been discounted.

The Lead Local Flood Authority has responsibility for all surface water drainage concerns and their input to your proposal is critical. You should also consider whether it is necessary to discuss your proposal with the Environment Agency, or Internal Drainage Board (if operating in your area).

The Local Planning Authority are the determining authority for any application for planning permission and the appropriate authority for determining cost viability of a proposed drainage scheme, such assessments are outside of the jurisdiction of United Utilities.

Infiltration

Surface water runoff generated from this development should discharge to the ground via infiltration system where feasible.

A detailed evidence based feasibility assessment must be carried out in line with Chapter 25 of the CIRIA SuDS Manual 2015 to determine whether infiltration is a suitable method of surface water disposal.

Particular attention must be paid to Ground Water Source Protection Zones to ensure that the risk of pollution to these valuable resources is not compromised. Details can be obtained from the government website:

<https://www.gov.uk/guidance/groundwater-source-protection-zones-spzs#find-groundwater-spzs>

If your site is in a Groundwater Source Protection Zone, you should have regard to the Environment Agency's approach to Groundwater Protection. Information on this is available via the link below:

<https://www.gov.uk/government/publications/groundwater-protection-position-statements>

Please note that such a location could have implications for the principle of your development and the need for additional mitigating measures to protect the groundwater environment and public water supply in the detailed design of your site.

Highway Drainage

If an evidence based assessment has been carried out and confirms that infiltration is not feasible, we recommend that you investigate the possibility of draining surface water to the highway drain where this ultimately discharges to a watercourse, by contacting the relevant Highway Authority.

Public Sewer

In accordance with the hierarchy of drainage options within the National Planning Practice Guidance, both discharge to ground via infiltration and discharge to a waterbody should be discounted prior to consideration of discharging surface water to the public sewer system. Evidence should be provided to demonstrate how these have been discounted, as outlined in the North West SuDS pro-forma.

Once evidence is provided as outlined above, United Utilities will consider a connection to the 450mm diameter public combined sewer within Deansgate located East of the proposed site at a pass forward flow to be agreed by the Lead Local Flood Authority. United Utilities request that any agreed rate does not exceed 1.2l/s.

As a Water Company, we have no obligation to accept highway drainage into our public sewer network. However, should your proposals include runoff from highways, we would request that consideration is given to SuDS components that deliver source control are incorporated within the design of the scheme to reduce the volume and frequency of discharges of these flows to the public sewer.

Levels

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, we recommend that you contact us to discuss further. It could affect the detailed design of your site and result in the need to incorporate appropriate mitigating measures in your drainage scheme.

Land drainage / Overland flows / track drainage

United Utilities have no obligation, and furthermore we do not accept land drainage, overland flows or track

drainage into the public sewerage network under any circumstances

Existing Wastewater Assets Crossing the Site

We have reviewed our records and can confirm that there does not appear to be any charted public sewers located within the boundary of proposed development. However, due to the accuracy of the records and the public sewer transfer legislation in 2011, not all public sewers are shown on our records so we would ask that you proceed with caution and carry out your own site investigation works. If any uncharted sewers are identified while carrying out your works we would ask that you contact United Utilities at the earliest opportunity so that we can offer guidance and update our records.

Existing Water Assets Crossing the Site

It is the developer responsibility to identify utilities on-site. Where clean water assets are shown on our records, we recommend that you contact our Water Pre-Development Team, via the following email address: DeveloperServicesWater@uuplc.co.uk. Further information for this service can be found on our website via the link below:

<https://www.unitedutilities.com/builders-developers/larger-developments/pre-development/water-pre-dev/>

Connection Application

Although we may discuss and agree discharge points and rates in principle, please be aware that you will have to apply for a formal sewer connection. This is so that we can assess the method of construction, Health & Safety requirements and to ultimately inspect the connection when it is made. Details of the application process and the form itself can be obtained from our website by following the link below:

<https://www.unitedutilities.com/builders-developers/wastewater-services/sewer-connections/sewer-connection/>

We recommend that the detailed design should confirm the locations of all utilities in the area and ensure that any proposed drainage solution considers routing and clash checks where required.

If we can be of any further assistance please don't hesitate to contact us further.

Kind Regards



Lewis Barr
Assistant Developer Engineer
Developer Services & Metering
Customer Services
01925 429064
unitedutilities.com

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

Visit: <http://unitedutilities.thewowawards.co.uk/nominate>

----- Original Message -----

From: seweradoptions@uuplc.co.uk [seweradoptions@uuplc.co.uk]

Sent: 17/06/2024 10:42

To: tomflanagan@hydrock.com

Subject: 05879935 - Wastewater Pre-Development Enquiry Submission

Good Morning,

Please accept this email as receipt of your repeat Pre Development enquiry the above development received 12/06/2024. This has now been logged on our system and the job reference is 05879935 we would ask that you quote this reference in all future correspondence.