Our Reference: 2024-047-05

Flood Risk and Drainage Solutions Ltd
144 New Lane
Oswaldtwistle
Lancashire
BB5 3QW
Tel: 07961477330
Email: info@floodrisk-drainage.co.uk

Date: 09/04/25

Flood Risk and Drainage Impact Assessment to Support the Proposed Modular Youth Hub at the Former OMYOP Depot, Yew Tree Road, Withington, Manchester

Introduction

Flood Risk and Drainage Solutions Ltd have been commissioned by YIF Youth Investment Fund to provide a Flood Risk and Drainage Impact Assessment to support the planning application for the proposed modular Youth Hub at the Former OMYOP Depot, Yew Tree Road, Withington, Manchester.

Existing Site

The existing site currently comprises of the Former OMYOP Depot building surrounded by areas of tarmac. Located to the west of Yew Tree Road.

Proposed Development Site

Development Proposals

Development proposals comprise of the erection of a Modular Youth Hub Building located centrally within the site.

Flood Risk Assessment

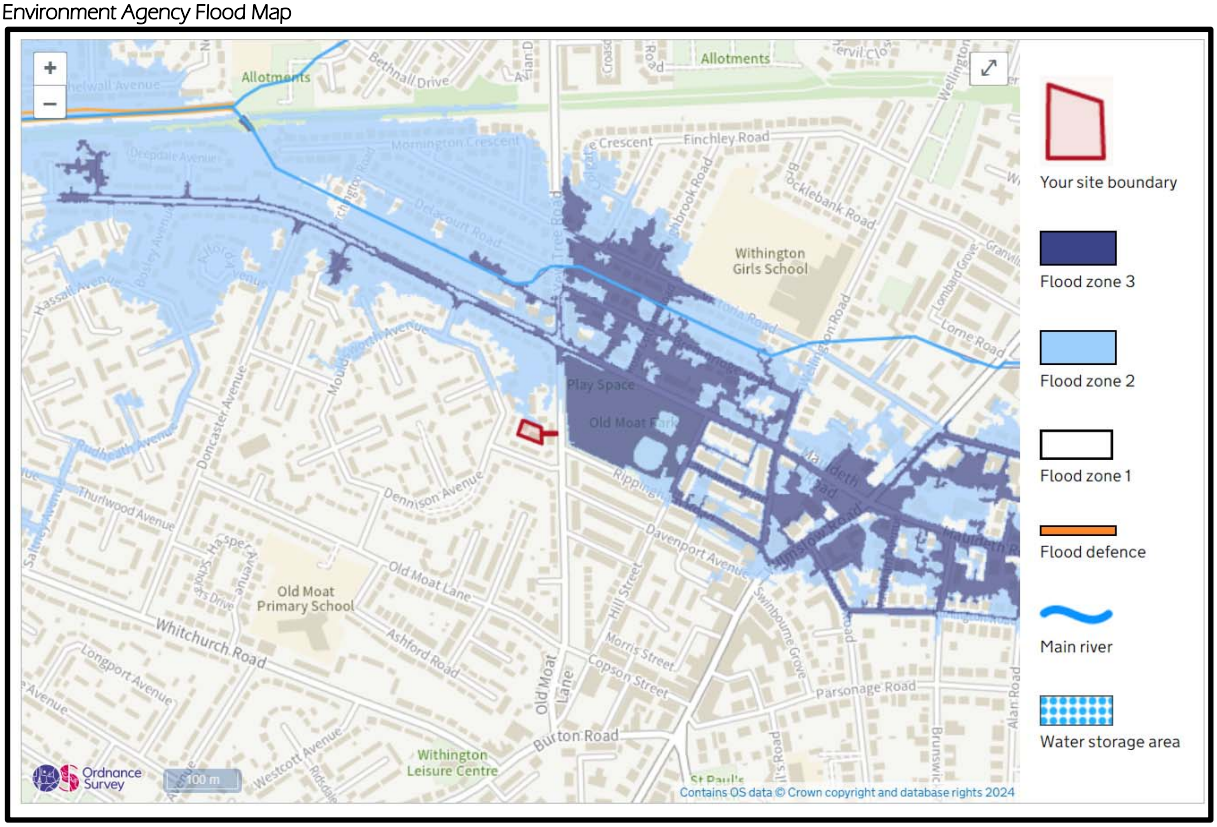
Sources of Flooding

Source/Pathway	Significant?	Comment/Reason
Fluvial	No	Flood Zone 1
Canal	No	Not Applicable
Tidal/Coastal	No	Flood Zone 1
Reservoir	No	EA Map shows flooding from reservoirs possible when combined with flooding from rivers.
Pluvial (urban drainage)	Yes	Site will require a new SUDS Strategy
Groundwater	No	SFRA Map states that no evidence of GWF affecting the vicinity.
Surface Water Flooding	No	The application site is considered to have a low risk of surface water flooding.
Overland Flow	No	The application site is considered to have a low risk of surface water flooding.
Blockage	No	Not Applicable
Infrastructure failure	No	Not Applicable
Rainfall Ponding	No	Risk of ponding considered to be low

Fluvial/Tidal/Coastal Flooding

The application site is located within Flood Zone 1, therefore the risk of fluvial, tidal and coastal flooding is considered to be low.

Environment Agency Flood Map



- Flood Zone 1 is classified as having less than a 0.1% annual probability of river or sea flooding, equating to less than 1 in 1000 chance.

Reservoir Flooding

The Environment Agency's Flooding from Reservoirs Map identifies the site to be located inside of the area affected by flooding from reservoirs when combined with flooding from rivers.

Flooding from reservoirs is extremely unlikely and even less likely to occur in the same instance as fluvial flooding.

There has been no loss of lives as a result of reservoir failure during the past 100 years, taking this into consideration the risk of flooding from this mechanism is considered to be low.

Pluvial (Urban Drainage)

Following development the site will require a new SUDS Drainage Strategy which will manage surface water resulting from the site.

Groundwater Flooding

Map GW 2.1 from the Manchester City, Salford City and Trafford Council Level 2 Strategic Flood Risk Assessment shows that the application site is located in an area defined as being at risk of groundwater rebound.

In general groundwater is at higher risk to development with below ground structures like basements and car parks.

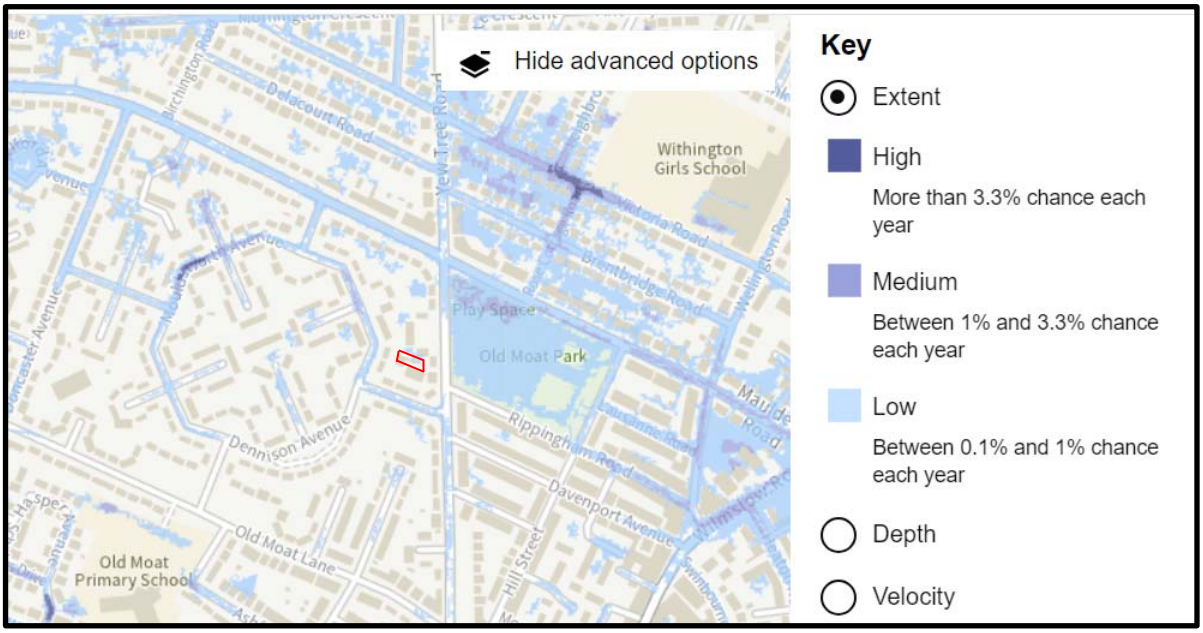
Taking the above into consideration the risk of groundwater flooding the proposed development is considered to be low.

Surface Water Flooding

The Environment Agency's Surface Water Flood Map identifies the proposed development site to be located within an area considered to be low risk.

- Low - each year, the area has a chance of flooding of between 1 in 1000 (0.1%) and 1 in 100 (1%)

Environment Agency Surface Water Flood Risk Map



A small area of surface water ponding is visible at the north of the site which is considered to be low risk. Following development, the site will be served by a new positive drainage system, therefore the areas of ponding will be intercepted and present a low risk.

It must also be highlighted that the application site is located within the Conurbation Core Critical Drainage Area within Mapp SS 4.5 of the Manchester City, Salford City and Trafford Level 2 SFRA.

Flood Mitigation Measures

Following a review of flooding mechanisms, it is recommended that the finished floor level of the building is elevated a minimum of 150mm above existing ground levels on-site, therefore the risk of flooding can be suitably managed.

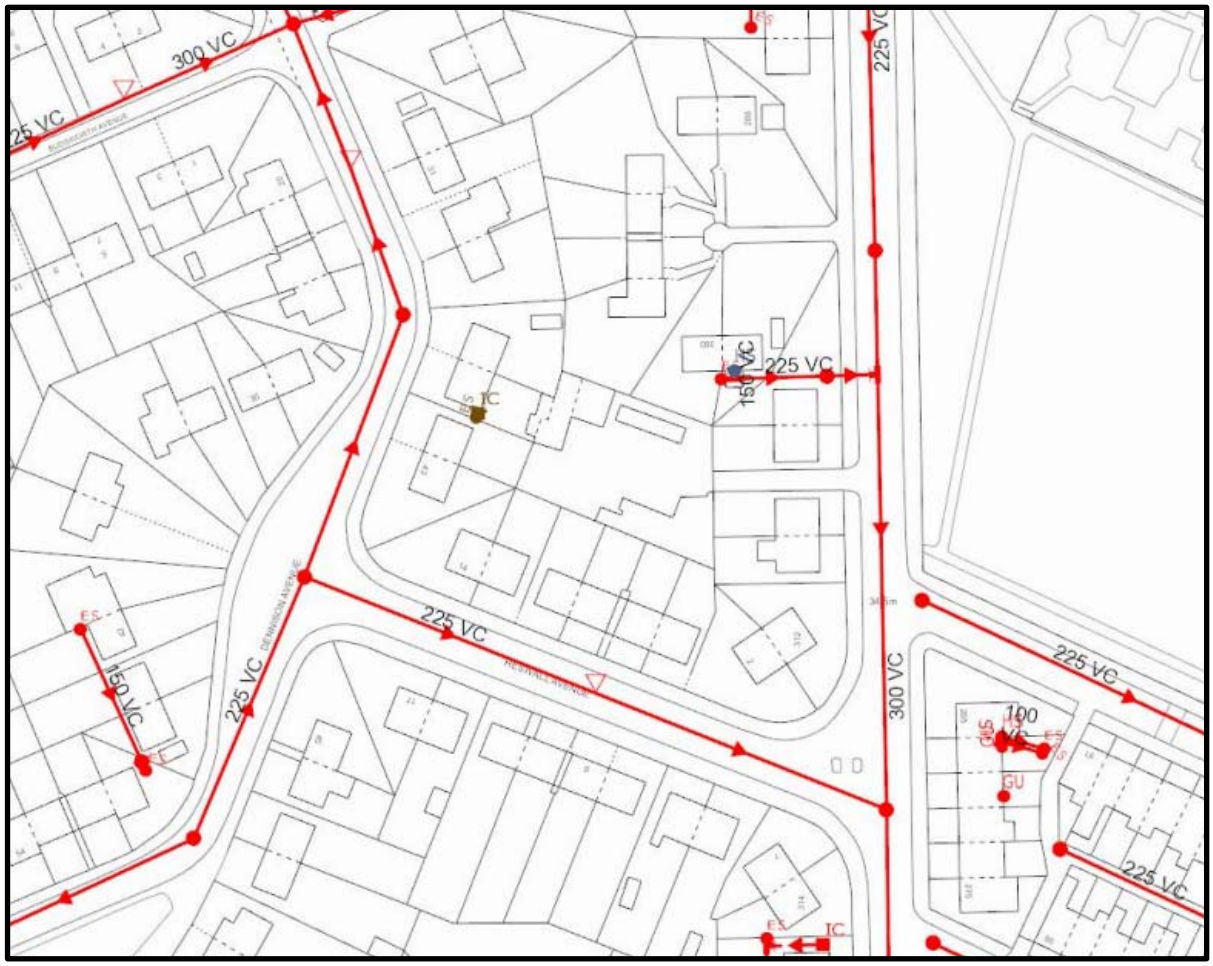
- Finished floor levels to be set no less than 150mm above existing ground levels.

Drainage Impact Assessment

Existing Drainage

The application site comprises of existing building surrounded by tarmacked area.

United Utilities Sewer Records



United Utilities Sewer Records identify the following sewers within close proximity to the site.

- 225mm diameter Public Surface Combined Sewer located within Yew Tree Grove east of the site

No public surface water sewers are located within the vicinity of the site.

At the time of writing a CCTV Survey was not available, however the UU Sewer Records show a private combined sewer serving the existing building which is likely to discharge into public combined sewer.

*United Utilities Sewer Records provided as an attachment

Hierarchy of Surface Water Disposal

The hierarchy for disposal of surface water from new developments is outlined within the Building Regulations Approved Document H and specifies the following methods in order of preference:

- Infiltration via soakaway or other suitable infiltration device
- Discharge to watercourse
- Discharge to public surface water sewer
- Discharge to public combined sewer

Infiltration

A review of Soilscape Maps identify that the underlying ground is described as 'Slowly permeable seasonally wet acid loamy and clayey soils'.

Local borehole logs suggest the presence of clay down to below 4.5m BGL.

Taking the above into consideration the use of infiltration methods such as soakaways may not be considered viable for inclusion within the drainage strategy.

Watercourse

There are no watercourses within a suitable distance in which surface water from the site could be disposed.

Sewer

Due to the fact that the use of soakaways and discharge to watercourse are considered to be unfeasible, surface water from the proposed development site could be directed to the public combined sewer located within Yew Tree Grove, east of the site.

Brownfield Ruoff Rates

Brownfield runoff rates have been calculated using the total roof area of the redline boundary which equates to 800m^2, using the Modified Rational Method

- 2.78 x 0.080 x 50 = 11.1l/s

Restricted Discharge Rates

Due to the application site being located within a Critical Drainage Area it is recommended that proposed discharge rates are restricted to no more than 50% of the existing discharge rate.

- 8.2l/s x 0.5 = 5.6l/s

Indicative Attenuation Volumes

Indicative attenuation volumes have been calculated using an impermeable area of the proposed site of 0.08Ha during the 1 in 100 year + 50% climate change event for both scenarios.

Discharge to Public Sewer 5.6l/s

- 1 in 100 Year + 50% Climate Change Volume = 18m^3 – 30m^3

Sustainable Drainage Systems

SuDS act to reduce the impact of surface water runoff from the development by limiting runoff volumes and rates from leaving the site.

Undertaking an assessment using the SUDS Planner a number of different methods could be used within the development. A summary of the results is tabulated overleaf:

SUDS Planner

SUDS Criteria	Rank 1	Rank 2	Rank 3
Hydrological	Green Roof	Permeable Paving	On/offline Storage
Land Use	Infiltration Trench/Soakaway	Bioretention Area	On/offline Storage
Site Features	Green Roof	Permeable Paving	Filtration Techniques
Community & Environment	Bioretention Area	Infiltration Trench/Soakaway	Stormwater Wetlands
Economics & Maintenance	Wet Ponds	Grassed Swales	Dry Detention
Total	Green Roof	Permeable Paving	On/offline Storage

1. Source Control

The inclusion of source control in SUDS schemes is one of the more important principles of SUDS design, and source control components should be upstream of any pond, wetland or other SUDS component.

Source control can help provide interception storage which can handle and treat some of the more frequent but smaller, polluting events (at least 5mm).

Most source control components will be located within the private properties or highway areas. Their purpose is to manage rainfall close to where it falls, not allowing it to become a problem elsewhere.

The main types of source control include:

- Green roofs
- Rainwater harvesting
- Permeable paving
- Other permeable surfaces

Source control methods look to maximize permeability within a site to promote attenuation, treatment and infiltration, thereby reducing the need for off-site conveyance.

a) Green Roofs

Green roof solutions generally comprise of a multi-layered system that covers the roof of a building with vegetation cover, and/or landscaping over a drainage layer, designed to intercept and retain rainfall.

The incorporation of green roofs is to be decided by the architect/developers during the final design stage and is largely dependent on the final building design.

The likelihood of green roofs being utilised is considered to be low due to the increase in structural cost of the development.

b) Rainwater Harvesting

Rainwater harvesting provides a source of non-potable water, for purposes such as car washing; and landscaped area irrigation etc... and can be used for some industrial processes to reduce consumption of water from conventional supplies.

This SUDS solution, like green roof technology, is also designed to provide interception storage i.e. acts to reduce the volume of surface water leaving the proposed development; thereby helping to alleviate the current pressures on the receiving watercourse.

Rainwater harvesting can be installed at relatively low costs dependant on the chosen structure providing that the development site has scope.

c) Permeable Paving

Pervious surfaces can be either porous or permeable. The important distinction between the two is:

Porous surfacing is a surface that infiltrates water across the entire surface. Permeable surfacing is formed of material that is itself impervious to water but, by virtue of voids formed through the surface, allows infiltration through the pattern of voids.

Pervious surfaces provide a surface suitable for pedestrian and/or vehicular traffic, while allowing rainwater to infiltrate through the surface and into underlying layers.

The water can be temporarily stored before infiltration to the ground, reused, or discharged to a watercourse or other drainage system. Surfaces with an aggregate sub-base can provide good water quality treatment.

2. On/offline Storage

This is a traditional form of surface water attenuation and may be provided via online or offline structures such as oversized pipes; or shallow attenuation structures such as geo-cellular crate systems e.g. Hydro-International's Stormcell System or similar. These structures may be easily placed within either hardstanding or landscaped areas to provide ease of access for maintenance purposes.

Preliminary Surface Water Drainage Strategy

Surface water flows from the roof and areas of hardstanding could be collected via rainwater down pipes and gullies before being discharged into the public combined sewer within Yew Tree Road, reusing an existing connection where possible.

Flows to be restricted via means of a flow control chamber to no more than 5.6l/s during the 1 in 100 year + 50% climate change event, flows in excess of this could be attenuated within a geo-cellular tank and or permeable paving.

Foul Flows

Foul flows from the proposed development should be directed into the public combined sewer located within Yew Tree Road.

The proposed drainage strategy is to be finalised during the detailed design phase. Principles outlines within this report determined that surface water resulting from the development proposals can be suitably drained.

Attachments

- Development Proposals
- United Utilities Sewer Records
- Desk Top Ground Conditions
- Indicative Attenuation Volumes

We trust that the above is acceptable and look forward to hearing from you in due course; however, should you have any queries, please do not hesitate to contact me.

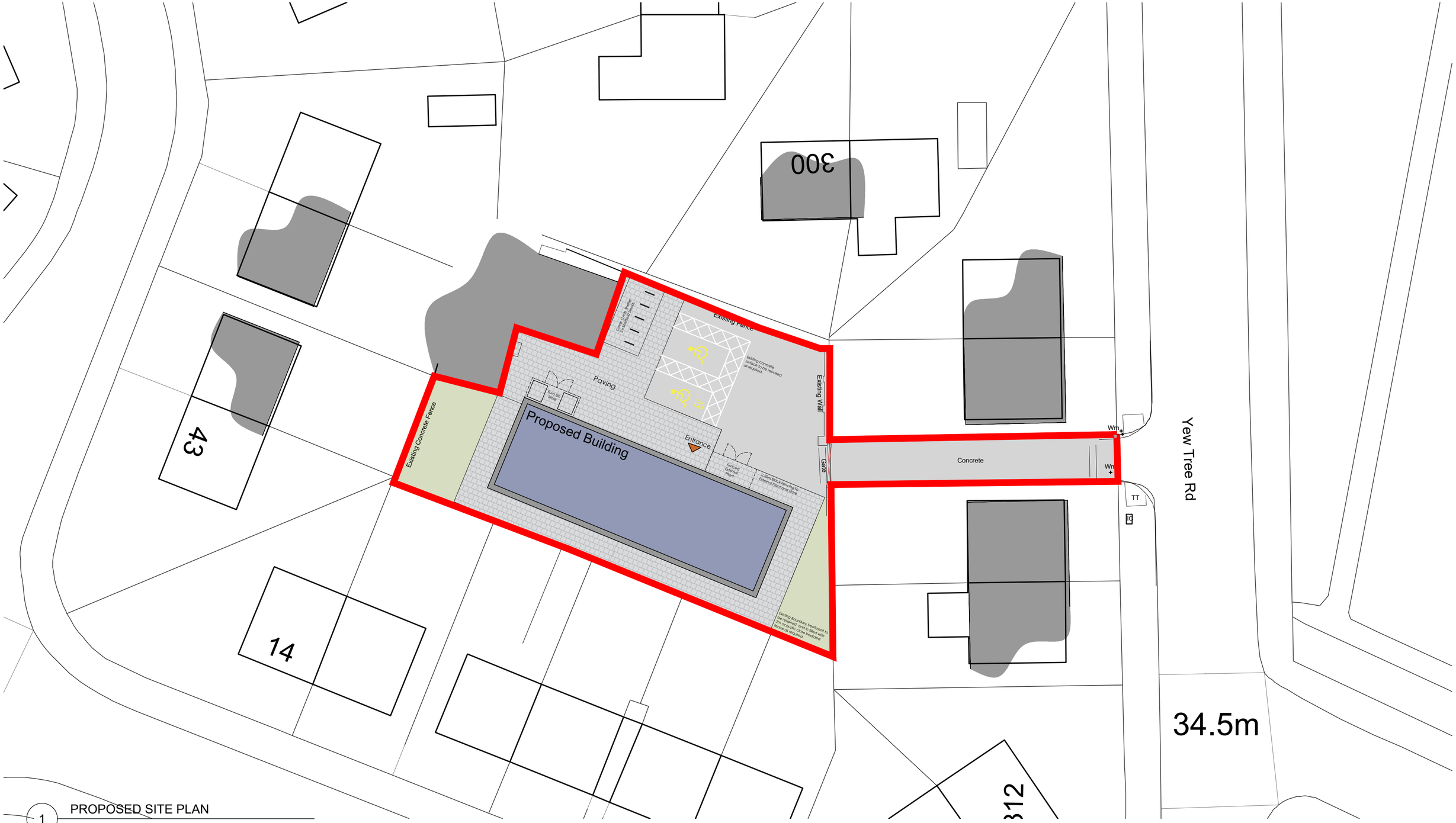
Yours Sincerely,

[redacted]

Chris Vose BSc

Managing Director
Flood Risk and Drainage Solutions Ltd

Development Proposals



1 PROPOSED SITE PLAN
1:200

NORTH

0 1.0 2.0 3.0 4.0 5.0 10.0m

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Rev.	Description	Date	Drw.	Chk.
P-01	Updated based on pre app discussion and end user comments	07.02.25	LC	CH
P-00	Planning Issue	11.10.24	LC	CH

Client
YIF
Youth Investment Fund

Project
Modular Youth Hub
OMYOP Depot M20 3GF

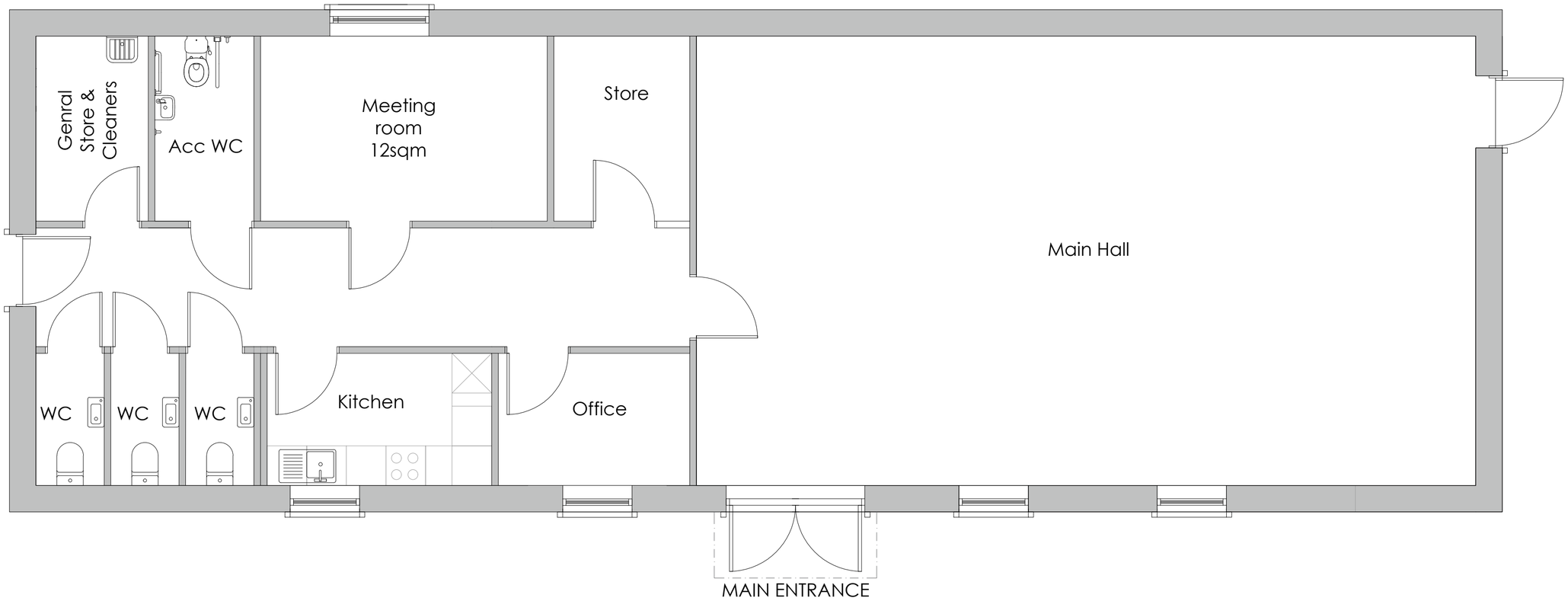
Drawing Title
Proposed Site Plan

Drawing Status
PLANNING

Corstorphine & Wright
Tamworth Studio
5 Aldergate, Tamworth, B79 7DJ
01827 671 23
corstorphine-wright.com

Drawing No.	Revision
23519-0321	P-01

Drawn	Checked	Paper Size	Scale	Date
SK	LC	A2	1:200	19.03.24



1 Proposed Floor Plan

1:50

NORTH

0 0.5 1.0 1.5 2.0 2.5 5.0m

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Rev.	Description	Date	Drw.	Chk.
P-02	Updated based on end user comments	20.03.25	LC	CH
P-01	Updated based on end user comments	07.02.25	LC	CH
P-00	Planning Issue	11.10.24	LC	CH

Design in accordance with Modular provider constraints

Client
YIF
Youth Investment Fund

Project
Modular Youth Hub
OMYOP Depot

Drawing Title
Proposed Floor Plan

Drawing Status
PLANNING

Corstorphine & Wright

Tamworth Studio
5 Aldergate, Tamworth, B79 7DJ
01827 671 23

corstorphine-wright.com

Drawing No.	Revision
23519-0371	P-02

Drawn	Checked	Paper Size	Scale	Date
LC	CH	A2	1:50	19.03.24

United Utilities Sewer Records

United Utilities
Water for the North West

[redacted]

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: OMYOP DEPOT
Our Ref: UUPS-ORD-590217
Date: 02/08/2024

Dear Sirs

Location: 2 OLD MOAT LANE, MANCHESTER, M20 3GF

I acknowledge with thanks your request dated 29/07/2024 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,

[redacted]

Karen McCormack
Property Searches Manager

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP

Water for the North West

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)".

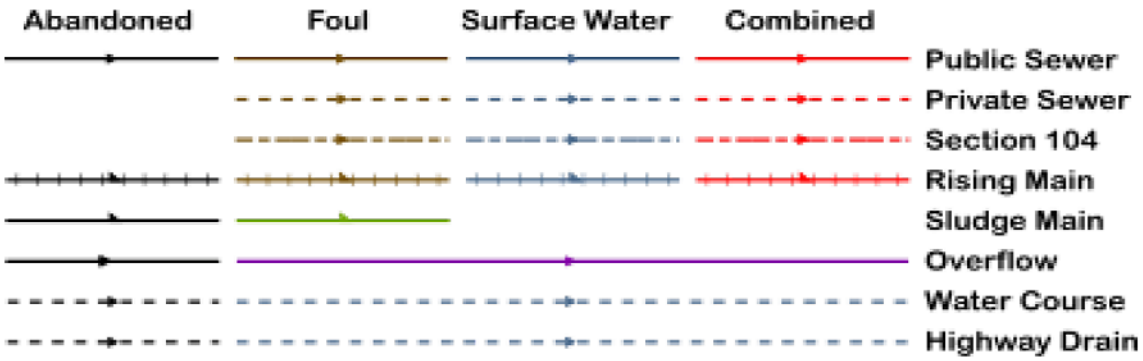
TERMS AND CONDITIONS:

- 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.

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP

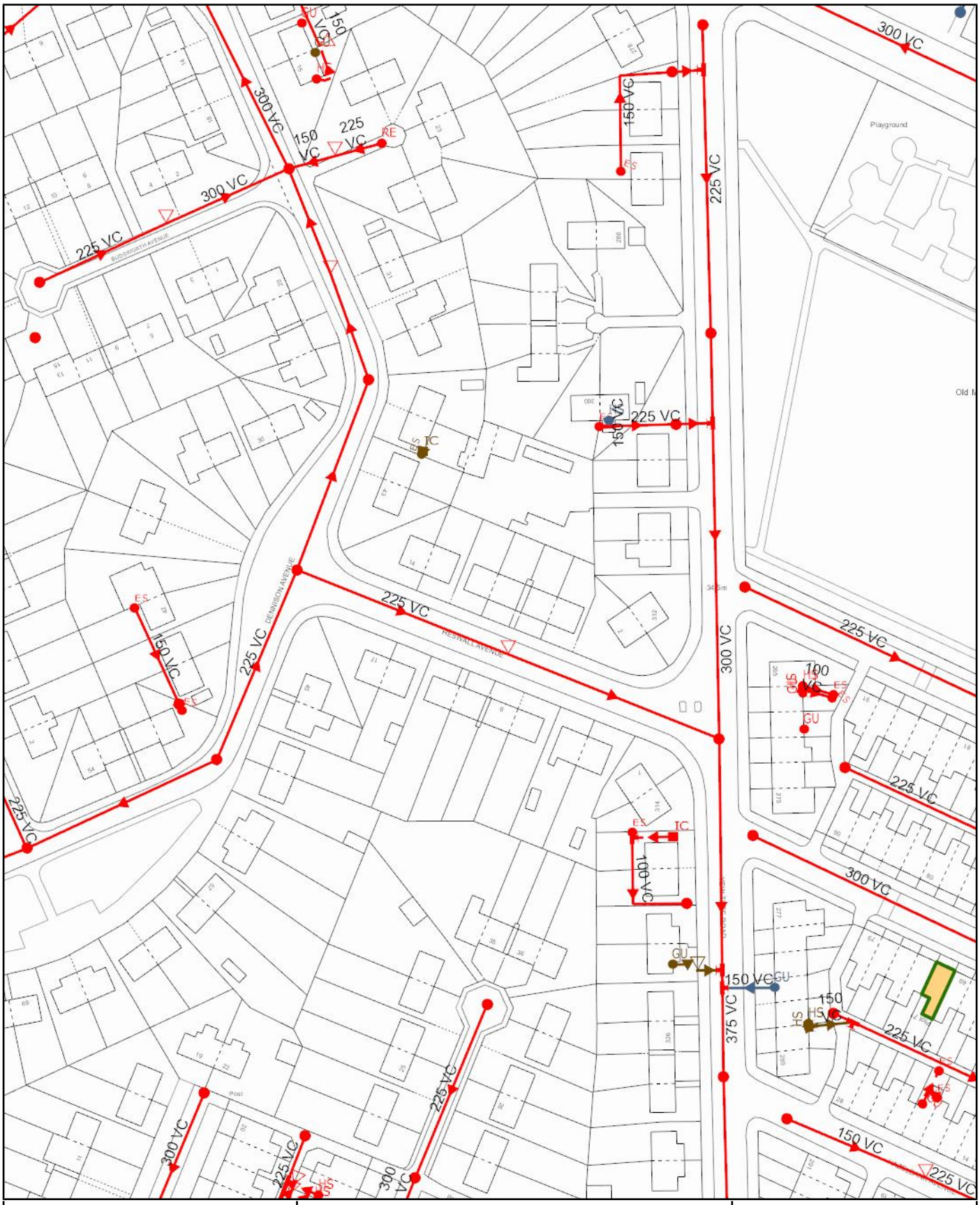
United Utilities
Water for the North West

Wastewater Symbology



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

- Manhole
- HS Head of System
- ES Extent of Survey
- RE Rodding Eye
- IN Inlet
- DP Discharge Point
- HY Vortex
- PE Penstock
- WO Washout Chamber
- VA Valve
- AV Air Valve
- NRV Non Return Valve
- SO Soakaway
- GU Gully
- CA Cascade
- FM Flow Meter
- HA Hatch Box
- OI Oil Interceptor
- SM Summit
- DS Drop Shaft
- OP Orifice Plate
- Side Entry Manhole
- Outfall
- Screen Chamber
- IC Inspection Chamber
- Bifurcation Chamber
- LH Lamp Hole
- T Junction / Saddle
- Catchpit
- Valve Chamber
- Vent Column
- Vortex Chamber
- Penstock Chamber
- T Network Storage Tank
- V Sewer Overflow
- WwTW Ww Treatment Works
- Ww Pumping Station
- Septic Tank
- Control Kiosk
- DNM Network Monitoring Point
- Change of Characteristic



Scale: 1:1250 **Date:** 02/08/2024	**SEWER RECORDS**	United Utilities Water for the North West
Address or Site Reference: 2 OLD MOAT LANE, MANCHESTER, M20 3GF **Printed by:** Property Searches		

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

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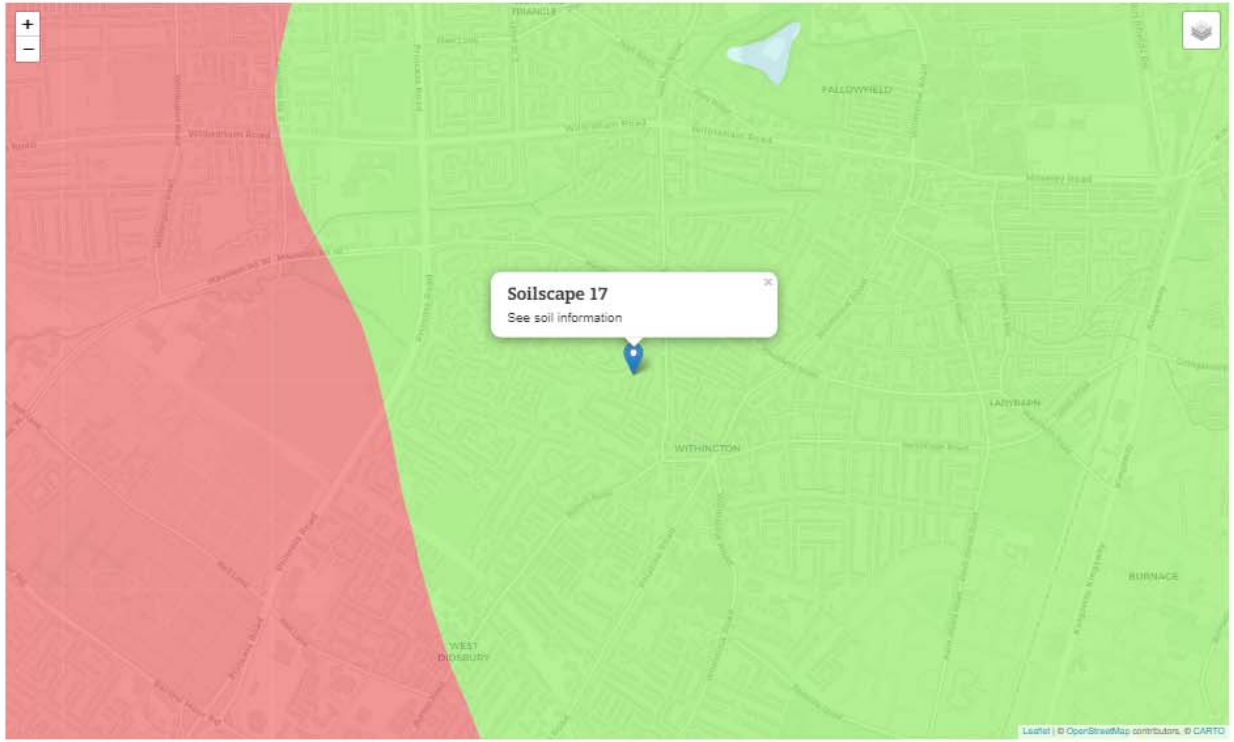
Desk Top Ground Conditions



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Soil Information

Soilscape 17:

Slowly permeable seasonally wet acid loamy and clayey soils

Texture:
Loamy and clayey

Coverage:
England: 7.0%,**Wales:** 15.1%,**England & Wales:**8.2%

Drainage:
Impeded drainage

Fertility:
Low

Landcover:
Grassland with some arable and forestry

Habitats:
Seasonally wet pastures and woodlands

Carbon:
Medium

Drains to:
Stream network

Water protection:
Main risks are associated with overland flow from compacted or poached fields. Organic slurry, dirty water, fertiliser, pathogens and fine sediment can all move in suspension or solution with overland flow or drain water

General cropping:
Mostly suited to grass production for dairying or beef; some cereal production often for feed. Timeliness of stocking and fieldwork is important, and wet ground conditions should be avoided at the beginning and end of the growing season to prevent damage to soil structure. Land is tile drained and periodic moling or subsoiling will assist drainage

British Geological Survey
BGS ID: 865296 : BGS Reference: SJ89SW413
British National Grid (27700) : 384877,393303

8589(SW) 8480 9329 413

STRATA SURVEYS LIMITED

Job No.: **MEDC 97-1**

Location: **Mauldeth Road, Manchester**

Client: **Manchester City Council**

Project Ref.:

Borehole No. **BH2**

Sheet 1 of 1

Equipment and methods: **Light cable percussion**

Drilled by: CB

Ground level: m AOD

Start Date: 18/01/97 End Date: 18/01/9 Final Depth: 5.00

Co-ordinates: E N

Casing Depth (m)	Water Depth (m)	Field Records	Depth (m) from	Depth (m) to	Sample Type	Sample No	SPT (N) {Cu}	Description	Depth & Thickness (m)	Reduced Level (m AOD)	Strata Legend
			0.30		D	1		Made Ground (75mm bituminous surfacing , over 175mm of stone setts. over ash and clinker)	(0.40) 0.40		
								Made Ground (firm-stiff yellow orange brown Clay Fill with ashescinders and brick pieces)			
			1.20	1.65	U	1			(1.40)		
			1.70	1.70	D	2			1.80		
			2.00	2.45	U	2	{113}	stiff to very stiff brown silty and sandy CLAY with stone and coal inclusions			
			2.50	2.50	D	3					
			3.00	3.45	U	3	{269}		(2.30)		
			3.50	3.50	D	4					
			4.10	4.50	B	1			4.10		
			4.50	5.00	S	1	(13)	medium dense orange and brown weathered SANDSTONE	(0.90)		
		{18/01/97}						**Borehole Completed**	5.00		

Remarks

Diameter (mm)	Depth (m)
150	5.00

1) No water encountered during boring.

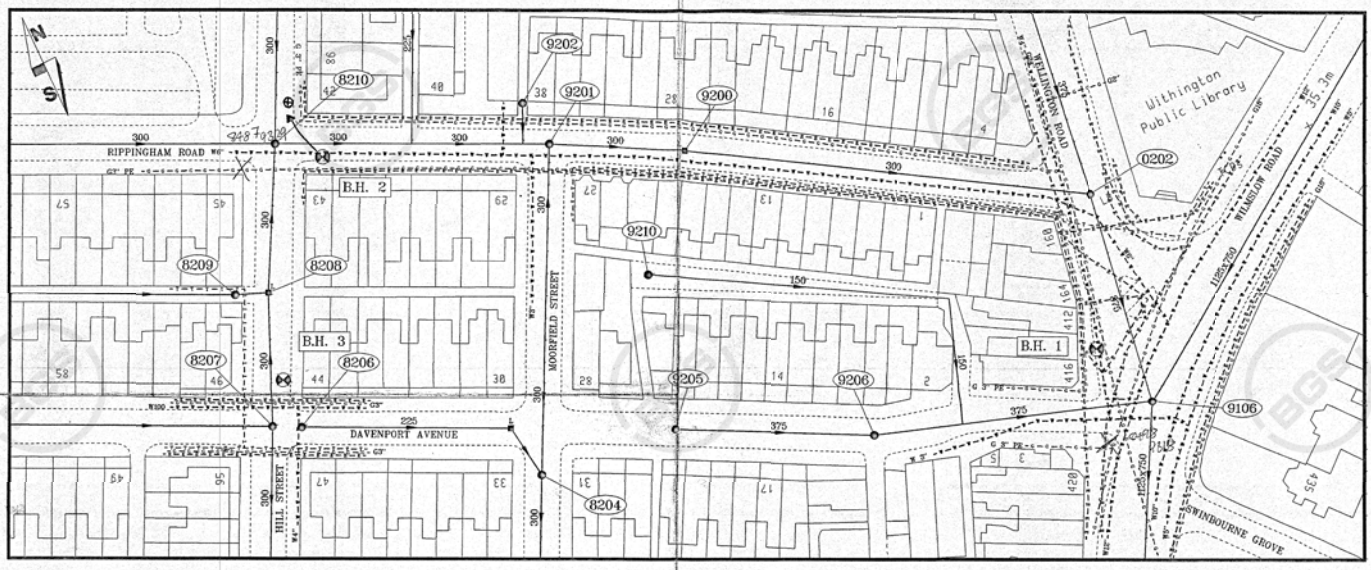
Date Borehole Backfilled : 18/01/97

Logged by: MJC

FIG No.

Contact BGS: ngdc@bgs.ac.uk

No2 moved because of parked cars



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KEY:-

- COMBINED SEWER
- BOREHOLE LOCATION
- ELECTRIC
- GAS
- WATER
- TELECOM

NOTE

	DEPTH (M)
BH1	7.0
BH2	5.0
BH3	6.0

REV	REVISION DESCRIPTION
A	

MANCHESTER
City Council

TECHNICAL SERVICES DEPARTMENT

PROJECT TITLE	MAULDETH ROAD WEST FLOOD PREVENTION
DRAWING TITLE	BOREHOLE LOCATION PLAN

DRAWN BY	CHECKED BY	APPROVED FOR ISSUE BY
C.S.M.	M.J.A.	
DATE DRAWN	DATE CHECKED	DATE APPROVED
NOV 96	NOV 96	
SCALE		
1:500	A2/014304/006/-	

Indicative Attenuation Volumes

Storage Estimate

Return Period (years)	100		OK
Climate Change (%)	50		Cancel
Impermeable Area (ha)	0.080	Update	
Peak Discharge (l/s)	5.600		
Infiltration Coefficient (m/hr) (leave blank if no infiltration)		Calc	
Required Storage (m³)	Calc		
from	18		
to	30		
With infiltration (m³)			
from			
to			