Our Reference: 2024-047-02

Flood Risk and Drainage Solutions Ltd
144 New Lane
Oswaldtwistle
Lancashire
BB5 3QW
Tel: 07961477330
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Date: 09/04/25

Flood Risk and Drainage Impact Assessment to Support the Proposed Modular Youth Hub at Crumpsall Park, Crumpsall in Manchester

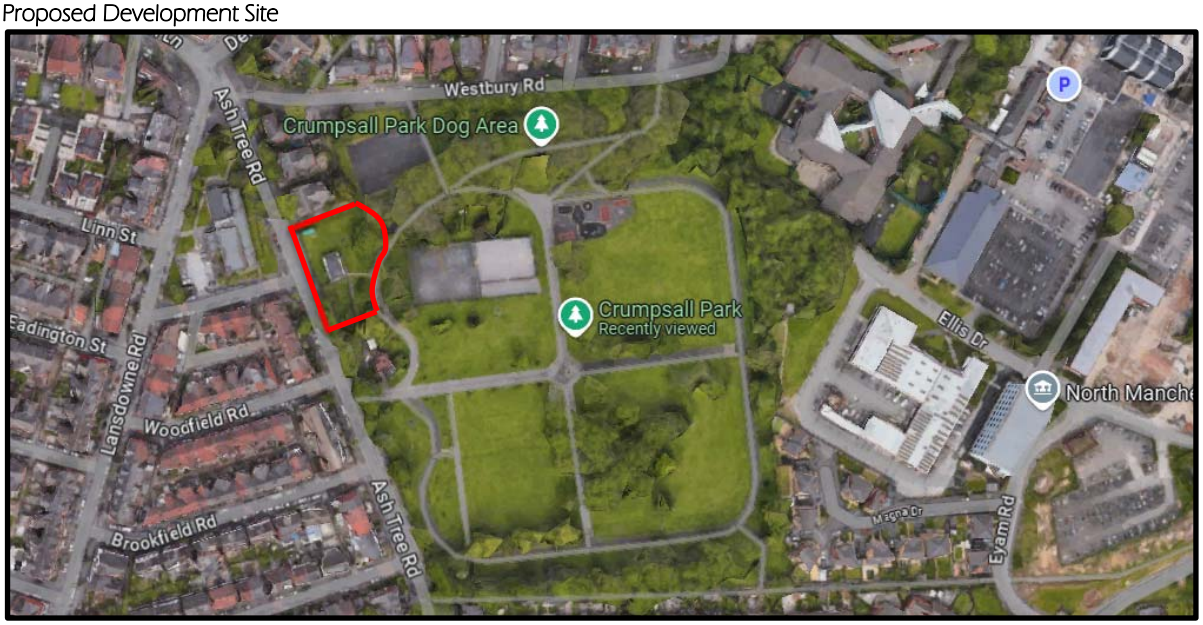
Introduction

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 Crumpsall Park, Crumpsall in Manchester.

Existing Site

The existing site currently comprises of the Crumpsall Park Day Care Centre building surrounded by grass, between the west of the park and east of Ash 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

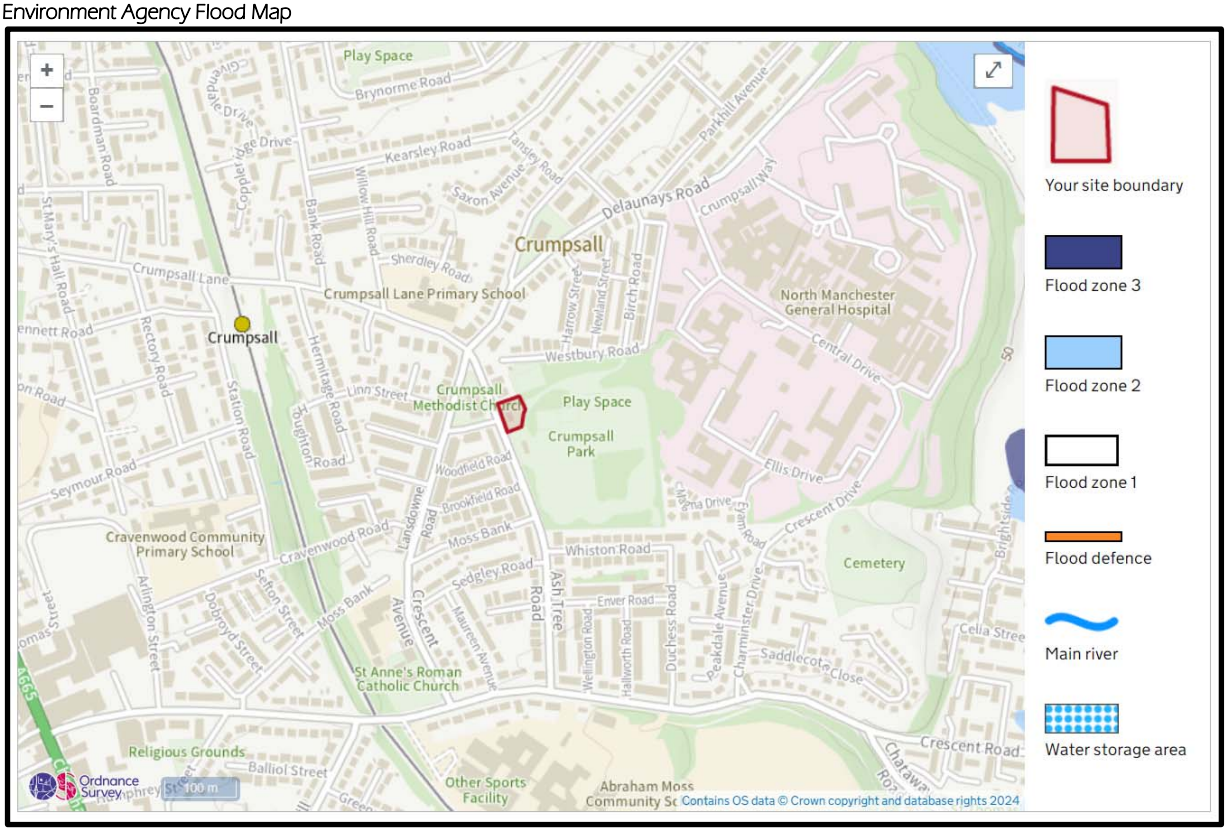
Sources of Flooding

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 as unlikely
Pluvial (urban drainage)	Yes	Site will require a new SUDS Strategy
Groundwater	No	SFRA Map shows site outside area at risk of groundwater flooding.
Surface Water Flooding	No	The application site is considered to have a low risk of surface water flooding, high risk located within adjacent highways.
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 outside of the area affected by this flooding mechanism.

Flooding from reservoirs is extremely unlikely. An area is considered at risk if people's lives could be threatened in the event of a dam or reservoir failure.

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

A review of the Manchester City, Salford City and Trafford Councils SFRA determined that the site is located outside of areas considered to be high risk of groundwater flooding.

Local borehole logs viewed on the BGS online service identify that groundwater within the vicinity of the site is approximately 2.8m below ground level.

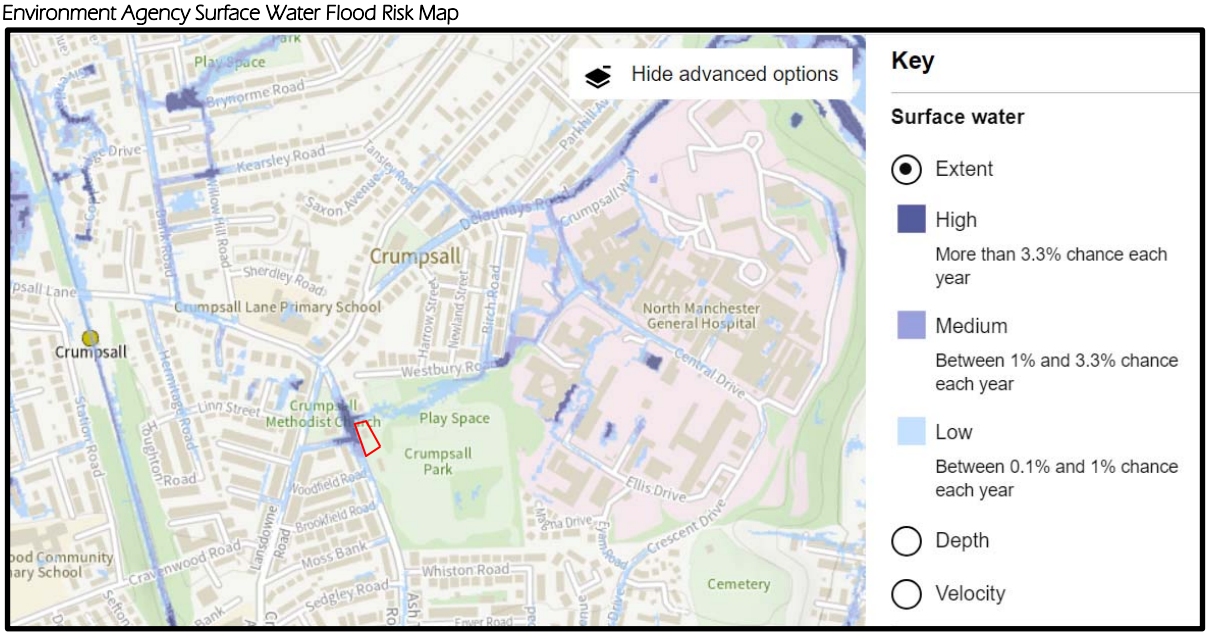
Taking the above into consideration the risk of groundwater flooding is considered to be low.

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



Two areas of flooding have been identified located west within Ash Tree Road and a flow route along the north boundary through an alleyway. It is noted that the application site is elevated above the highway and the alleyway. The flood depths and velocities within the two areas for various scenarios are identified below:

High Risk Event

- Flood Depth = Between 30cm and 90cm
- Velocity = Less than 0.25m/s

Medium Risk Event

- Flood Depth = Between 30cm and 90cm
- Velocity = More than 0.25m/s

Low Risk Event

- Flood Depth = Between 30cm and 90cm
- Velocity = More than 0.25m/s

Flooding within these areas is likely a result of incapacity within the drainage network serving the highway. It is highlighted that the footprint of the proposed building will be located outside of the areas identified as areas of flooding.

A review of the Manchester City, Salford City and Trafford Councils SFRA determined that the site is located within the Critical Drainage area defined as the Contribution Core, as such the area is known for having capacity issues within the public drainage network.

Taking the above into consideration, providing that the finished floor levels of the building are elevated a minimum of 150mm above existing ground levels on-site, therefore the risk of flooding can be suitably managed.

Flood Mitigation Measures

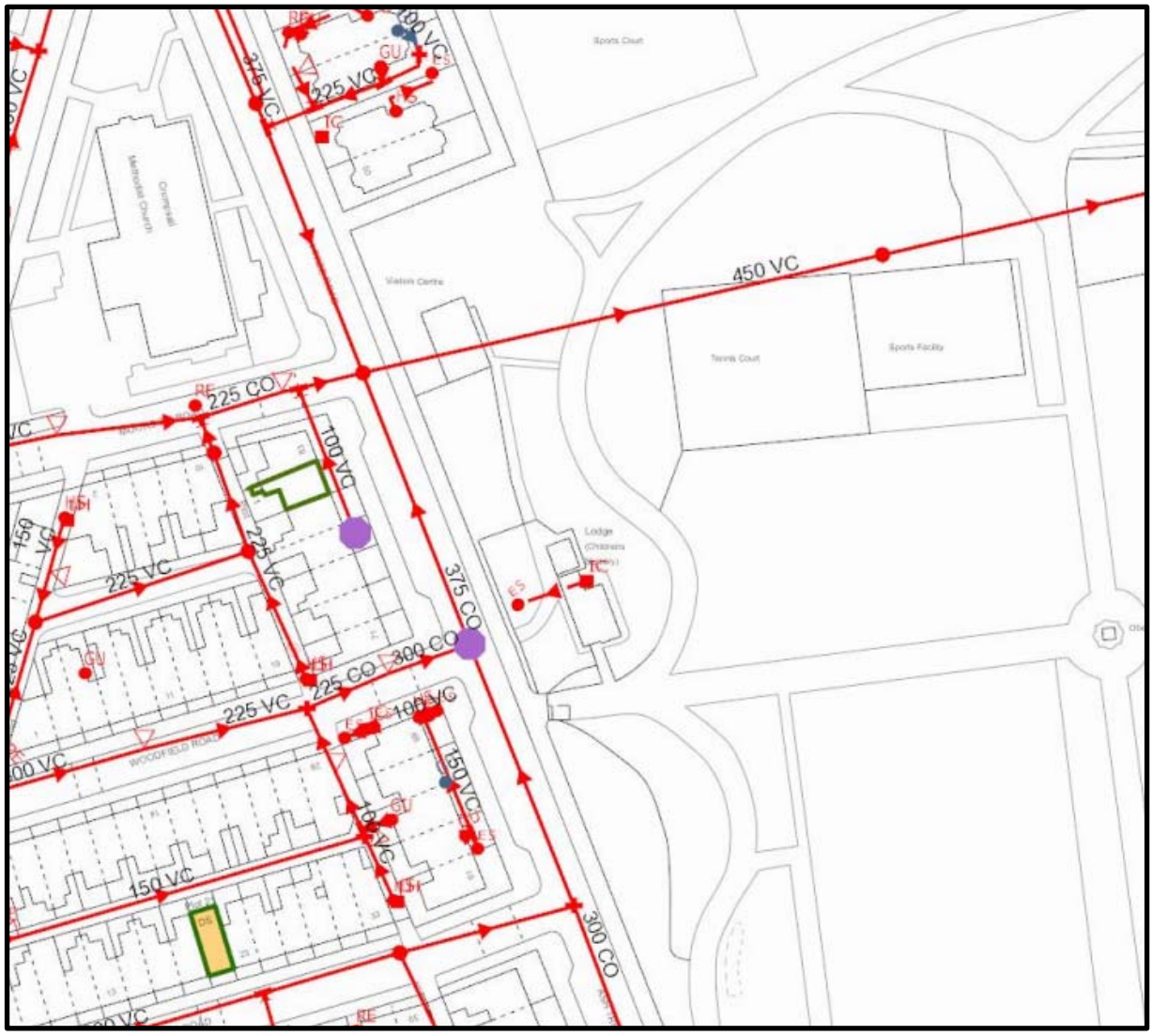
- Finished floor levels to be set no less than 150mm above existing ground levels.

Drainage Impact Assessment

Existing Drainage

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

United Utilities Sewer Records



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

- Public Combined Sewer located within Ash Tree Road

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 engineering judgment suggests that surface water flows from the existing building are 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 10m 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 Ash Tree Road.

Brownfield Ruoff Rates

Brownfield runoff rates have been calculated using the total roof area of the existing building which equates to 115m^2, using the Modified Rational Method

- 2.78 x 0.0115 x 50 = 1.6l/s

Restricted Discharge Rates

Restricting flow to 50% of the existing runoff rate would result in an aperture within the flow control device of less than 50mm which would cause blockage and siltation.

As such, flows from the site should be restricted to no more than 5l/s during the 1 in 100 year + 50% climate change event.

Indicative Attenuation Volumes

Indicative attenuation volumes have been calculated using an impermeable area of the proposed site of 0.043Ha during the 1 in 100 year + 50% climate change event for both scenarios.

Discharge to Public Sewer 5l/s

- 1 in 100 Year + 50% Climate Change Volume = 7m^3 – 13m^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 Ash Tree Street.

Flows to be restricted via means of a flow control chamber to no more than 5l/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 Ash Tree Street.

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,



Chris Vose BSc

Managing Director
Flood Risk and Drainage Solutions Ltd

Development Proposals



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	Covered cycle shelter added, external stores placed away from road.	07.02.25	LC	CH
P-00	Planning Issue	14.08.2024	LC	CH

Client
YIF
Youth Investment Fund

Project
Modular Youth Hub
Crumpsall Visitors Centre

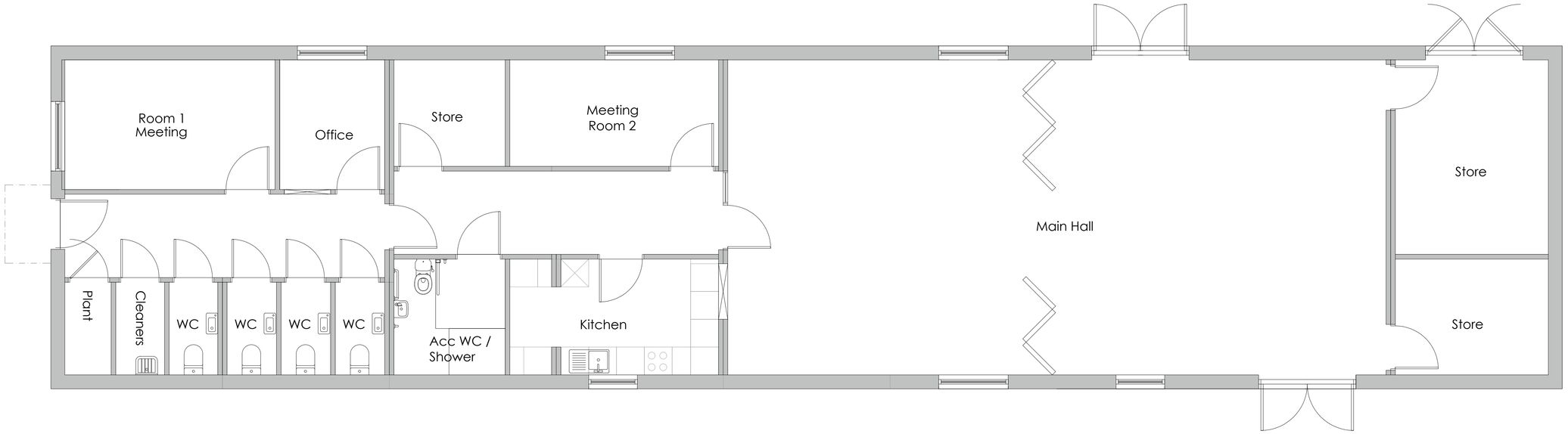
Drawing Title
Proposed Site Plan

Drawing Status
PLANNING

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

Drawing No.	Revision
23519-0320	P-01

Drawn	Checked	Paper Size	Scale	Date
SK	LC	A1	1:100	19.03.24



NORTH

0 0.5 1.0 1.5 2.0 2.5 5.0m

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Rev.	Description	Date	Drw.	Chk.
P-01	Hatch added to meeting room	07.02.25	LC	CH
P-00	Planning Issue	24.07.24	LC	CH

Plans in accordance with Modular provider constraints.

Client
YIF
Youth Investment Fund

Project
Modular Youth Hub
Crumpsall Park

Drawing Title
Proposed Floor Plans

Drawing Status
PLANNING

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

Drawing No. 23519-0370
Revision P-01

Drawn	Checked	Paper Size	Scale	Date
LC	CH	A1	1:50	20.05.24

United Utilities
Water for the North West

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

Christian vose

144
New Lane,
ACCRINGTON,
BB5 3QW

FAO:

Your Ref: CRUMPSALL PARK
Our Ref: UUPS-ORD-590216
Date: 02/08/2024

Dear Sirs

Location: 1 WESTBURY ROAD, MANCHESTER, M8 5RX

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,

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)".

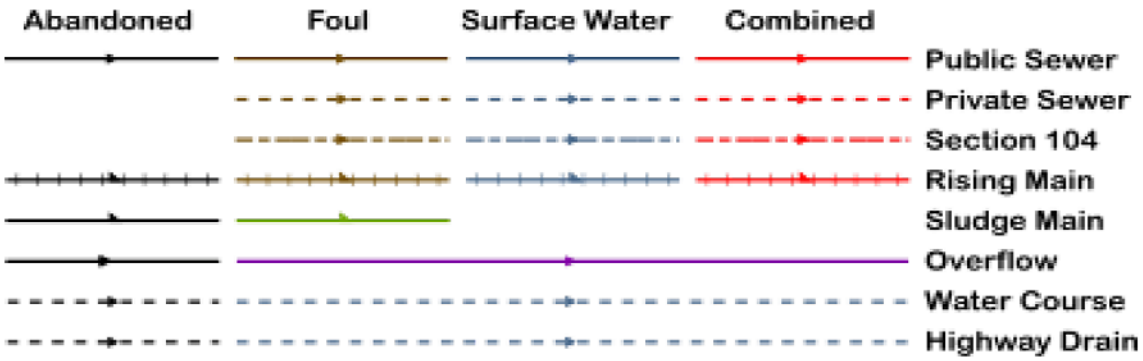
TERMS AND CONDITIONS:

- 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

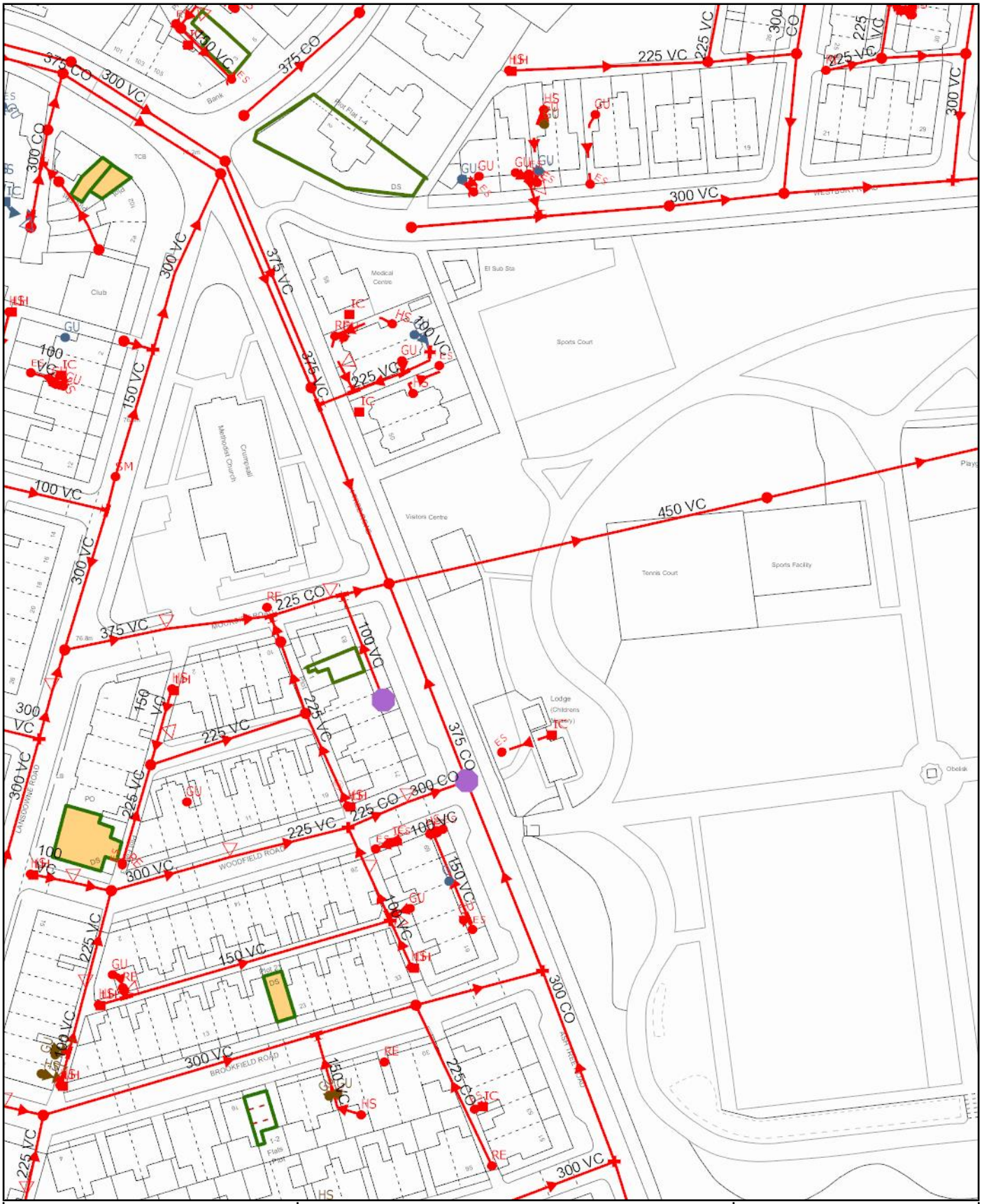
United Utilities
Water for the North West

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
- CA Catchpit
- VC Valve Chamber
- Vent Column
- Vortex Chamber
- Penstock Chamber
- T Network Storage Tank
- V Sewer Overflow
- WwTW Ww Treatment Works
- Ww Pumping Station
- Septic Tank
- CK Control Kiosk
- DNM Network Monitoring Point
- Change of Characteristic

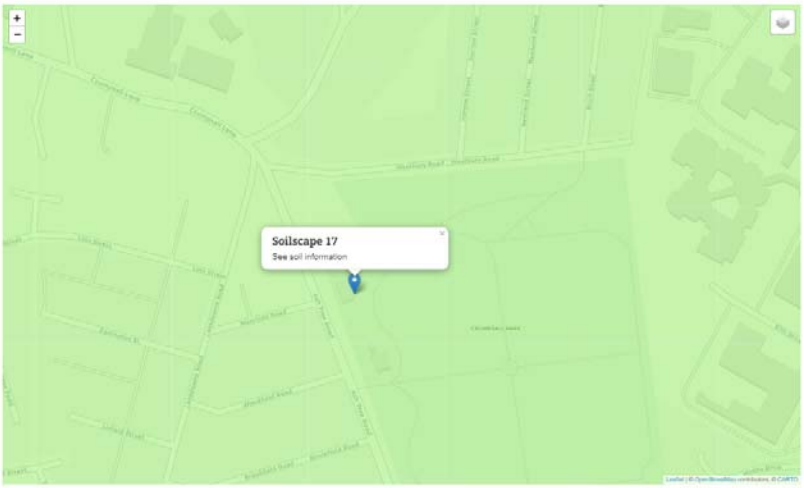


Scale:	1:1250	**SEWER RECORDS**	United Utilities Water for the North West
Date:	02/08/2024		
Address or Site Reference:	1 WESTBURY ROAD, MANCHESTER, M8 5RX		
Printed by:	Property Searches		

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: 13.1%,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:

384708
402471

Sampling		Properties			Strata			
Depth	Type	Cu kPa	w%	SPT N	Description	Depth	Level	Legend
					MADE GROUND: Tarmacadam over stone sets over concrete.	GL		
						0.70		
1.00-1.45	CB			26	MADE GROUND: Comprising soft grey brown silty sandy clay with some fine gravel.	0.90		
1.00-1.50	B							
					MADE GROUND: Comprising brown and black very clayey coarse SAND with much angular fine to medium gravel of predominantly ash.			
2.00-2.45	CB			39				
2.00-2.50	B							
3.00-3.45	SD			7		2.90		
3.00-3.50	B				Loose brown and grey very silty very clayey fine to medium SAND with traces of sub-rounded fine to medium gravel above 3.50m.			
4.00-4.50	SD			9				
4.00-4.50	B							
5.00-5.45	SD			6				
5.00-5.50	B							
5.80-6.25	SD			8		5.80		
5.80-6.30	B				Loose light brown silty clayey fine medium to coarse SAND with occasional thin bands of grey silt.			
6.80-7.25	SD			7				
6.80-7.30	B							
7.80-8.25	SD			9				
7.80-8.30	B							
8.50-8.95	CB			26		8.50		
8.50-9.00	B				Soft grey silty sandy CLAY with some sub-rounded fine medium to coarse gravel.			
9.50-9.95	CB			44				
9.50-10.00	B							
					End of Borehole	10.00		

Drilling

Type	From	To	Size	Fluid
Shell and Auger	GL	10.00	0.15	-

Groundwater

Struck	Behaviour	Sealed	Date	Hole	Cased	Water
2.10	Rose to 2.80m	-	21.3.88	10.00	8.50	2.80

Remarks Service Location Plan excavated to 1.00m.

Borehole Record

exploration associates

Project Manchester City Council
Delanays Road
Sewer Renewal Road

Contract E6531/16

Borehole 9 (1 of 1)

Contact BGS: ngdc@bgs.ac.uk

Indicative Attenuation Volumes

Storage Estimate

Return Period (years)	100		OK
Climate Change (%)	50		Cancel
Impermeable Area (ha)	0.043	Update	
Peak Discharge (l/s)	5.000		
Infiltration Coefficient (m/hr) (leave blank if no infiltration)		Calc	
Required Storage (m³)	Calc		
from	7		
to	13		
With infiltration (m³)			
from			
to			