

HUYTON SOVEREIGN DISTILLERY

PHASE 1

Phase 1 Drainage Strategy and Maintenance Strategy Plan

784-B029681

NETWORK SPACE

January 2022

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1.0 INTRODUCTION

1.1 PURPOSE OF THIS REPORT

This report outlines the drainage strategy for the proposed Phase 1 development of the Huyton Sovereign Distillery site located in Liverpool. The site is located between Wilson Road and Cronton Road (A5080) with the Phase 1 development area sitting to the North.

The Flood Risk Assessment prepared by Tetra Tech in December 2021 and this Drainage Strategy outlines the overall drainage strategy for the Phase 1 site.

This Drainage Strategy has been produced as a requirement for the planning application for the Phase 1 works hereby referred to as the 'Proposed Development'.

The Proposed Phase 1 Development comprises the redevelopment through part refurbishment, part demolition and new build to provide a range of urban logistic units suitable for commerce and distribution. The site will be a split-level site with a trief kerb and landscaping between the north and south part of the phase 1 area.

The Local Planning Authority, Environment Agency and Local Lead Flooding Authority (LLFA) need to be satisfied that the granting of planning permission will address the risk of flooding to the development site and that the proposals will not in turn increase the risk of flooding to neighbouring land and property.

The report will also look at a Phase 1 surface water drainage strategy for the scheme to establish constraints and design requirements and to promote the use of Sustainable Drainage Systems (SuDS), as applicable.

The drainage strategy assesses the potential for sustainable surface water drainage measures whilst designing the Proposed Development in accordance with the Knowsley Council planning advisory note for surface water drainage and flood risk management and maintaining the principles outlined in the original FRA. (Strategy document to be read in conjunction with FRA)

2.0 SURFACE WATER DRAINAGE ASSESMENT

2.1 INTRODUCTION

This section demonstrates the application site is able to discharge surface water without risk of increasing post-development flood risk to the development site and neighbouring areas. The strategy will demonstrate that the surface water drainage network discharges in compliance with the hierarchy outlined in the National Planning Policy Framework and that appropriate consideration has been given to the implementation of SUDS in line with the LLFA guidance.

The drainage strategy considers the following:

- Existing site layout and discharge arrangements.
- Existing impermeable and permeable area arrangements.
- Proposed impermeable and permeable area arrangements.
- Proposed site layout and discharge arrangements.
- Climate change.
- Attenuation requirements and measures.

2.2 EXISTING SITE DRAINAGE

Existing sewers run through the Phase 1 site. A UU Combined sewer runs through the northwest part of the site with diameter of 300. Two other UU Combined sewers and a Surface water sewer, flow from the west to the east towards Wilson Road. Combined sewer one north central, surface water slightly south and then the final combined sewer as the most southern. Ranging diameters of 825, 750 and 450 respectively.

Site Topography is provided in Appendix A.

UU records included in Appendix B and an existing drainage plan in Appendix C

2.3 DISCHARGE RATES

In line with Knowsley Council's Pro-Forma 2 for Sustainable Drainage Systems the site has been classified as Brownfield. Therefore a 50% in discharge rate from the current Brownfield rate will be applied.

The Brownfield discharge rate was previously calculated in the Phase 1 Drainage strategy by Tetra Tech for the whole site development. The final outfall from the Phase 1 network is set at 248.4l/s with the north network (Units G1, G2 and hardstanding) discharging at 78.4l/s, the south 1 network (F1-6 and hard standing) at 100.7/s and the south 2 network (Unit C and hardstanding) at 69.3l/s subsequent approval by United Utilities.

2.4 IMPERMEABLE AREA

The proposed overall impermeable area of the Phase 1 site is approximately 3.472 ha. This area will drainage via three gravity networks to the existing Phase 1 sewers. Impermeable areas were split into north, south 1 and south 2 equating to 1.026 ha, 1.449 ha and 0.997 ha respectively.

3.0 SUSTAINABLE DRAINAGE HIERARCHY

The surface water flow from the proposed development must drain in accordance with the SuDS hierarchy as outlined in the National Planning Practice Guidance (NPPG) and LLFA planning guidance. The National Planning Practice Guidance stipulates that sites should “aim to discharge surface water run-off as high up the SUDs hierarchy as reasonably practicable”. These were assessed in the order below:

Table 3-1 SuDS Hierarchy

Order of Priority	Sustainable Drainage Measures	Suitability (Y/N)	Comments
1	Store rainwater for later use	N	Discounted - based on the lack of accommodating room for a storage tank and pumping facilities as well as the reuse of existing water supplies on site. Proposed development is predominantly logistics based meaning water demand will be lower and thus recycling infrastructure is deemed to be unsustainable.
2	Use infiltration techniques, such as porous surfaces in non-clay areas	N	Discounted – the site is underlain by non-productive clays and made ground. Percolation testing will be undertaken at a later stage of development to verify this.
3	Attenuate rainwater in ponds or open water features for gradual release	N	Discounted - based on the lack of accommodating room, however permeable paving and soft landscaping where possible will be used to increase the rate of evapotranspiration across the site and reduce impermeable areas and thus reduce attenuation required.
4	Attenuate rainwater by storing in tanks or sealed water features for gradual release	Y	Underground attenuation storage crates to be provided via a sealed tank alongside attenuation provided in lined permeable paving.
5	Discharge rainwater direct to a watercourse	N	Discounted – no nearby suitable watercourse
6	Discharge rainwater to a surface water sewer/drain	Y	Drainage will discharge to existing Surface Water Sewer
7	Discharge rainwater to the combined sewer.	N	Drainage will discharge to existing Surface Water Sewer

4.0 PROPOSED SURFACE WATER DRAINAGE

4.1 CLIMATE CHANGE

The NCC planning guidance and Knowsley Councils SUDS Pro-Forma document outlines climate change should be considered at 40%.

4.2 PROPOSED DRAINAGE STRATEGY FOR PHASE 1

For the first part of Phase 1 (north) surface water system that includes Units G1, G2 and hard standing, is proposed to outfall via an existing manhole connection on an existing surface water sewer (750 Diameter) flowing between the west and east parts of site. Upstream attenuation is provided in the form of below ground crate storage tanks with a flow control, lined permeable paving to accommodate the proposed flows. The attenuation is proposed with an Aco-Q Brake flow control with discharge rate of 78.4/s prior the connection.

For the second part of the Phase 1 (south 1) surface water system that includes F1-6 and hard standing, is proposed to discharge to the same manhole at the north part of site. Two upstream attenuation crate storage tanks are provided with flow control and lined permeable paving to accommodate the proposed flows. The attenuation for the part of site is also proposed with an Aco-Q Brake flow control with discharge rate of 100.7/s prior to connection.

The most southern network of Phase 1 (south 2) includes Unit C and hard standing. Proposed discharge is an existing manhole to the south east of site (MH27) shown in Appendix C. An upstream attenuation crate storage tank is provided with flow control and lined permeable paving to accommodate the proposed flows. The attenuation for this part of site controlled with an Aco-Q Brake flow control with discharge rate of 69.3l/s prior to connection.

For all three surface water networks Bypass separators is included to treat any lightly contaminated water before the attenuation and the outfall to the existing sewer. Additional treatment of upstream flows is provided via lined permeable paving in car park areas. As per proposed Phase 1 drainage General Arrangement drawing in Appendix F.

All of the proposed surface water networks will be designed in Micro drainage to ensure no flooding is presented for up to the 1:100 year event with a 40% allowance for climate change. Calculations for the Micro drainage storage estimation are provided in Appendix D.

The proposed new connections to the existing UU sewers should be captured under S106 Agreement.

4.3 SOFT LANDSCAPING, PERMEABLE PAVING AND ATTENUATION REQUIREMENTS

To reduce the site surface water discharge rate attenuation will be required. Options for proposed attenuation have been assessed in accordance with the SUDS hierarchy as per CIRIA SuDS Manual C753 (below).

Storage options are limited for the proposed site, ponds and swales are not feasible due to ground conditions and spatial constraints nor do they fit in with the vision for the site. Several potential storage options are available including lined permeable paving and below ground storage tanks or oversized pipes.

Most Sustainable	SUDS technique	Flood Reduction	Pollution Reduction	Landscape & Wildlife Benefit
	Living roofs	✓	✓	✓
	Basins and ponds	✓	✓	✓
	- Constructed wetlands			
	- Balancing ponds			
	- Detention basins			
	- Retention ponds			
	Filter strips and swales	✓	✓	✓
	Infiltration devices	✓	✓	✓
	- soakaways			
	- infiltration trenches and basins			
	Permeable surfaces and filter drains	✓	✓	
Least Sustainable	- gravelled areas			
	- solid paving blocks			
	- porous paviers			
	Tanked systems	✓		
	- over-sized pipes/tanks			
	- storms cells			

Figure 1 - SUDs Manual C753 storage option hierarchy

This attenuation will be predominantly provided via crate buried attenuation tank with some assistance from lined permeable paving to reduce the rate at which surface water enters the sewers. This will follow a cascading SuDS principle looking to attenuate surface water as close to the source as possible. This is subject to subsequent detailed design.

5.0 FLOOD EXCEEDANCE ROUTES

Flood exceedance routes have been assessed in accordance with the NCC planning guidance note as follows:

Low Flow Routes – These are provided via the pipe networks and linear drainage at pavement level to ensure flows are adequately conveyed away from the proposed building into the surface water network.

Overflows – Proposed 3D alignment allows for overflows during blockages to bypass certain areas of the system and be captured via additional downstream linear drainage or lined permeable paving.

Exceedance Routes – If the system becomes overwhelmed by an exceptional rainfall event the levels of the site have been designed as such to allow exceedance flows to convey to the low side of the site adjacent to Caton Road.

A flood exceedance plan showing exceedance routes and the 3D geometry of the site in the form of contours is provided in Appendix E.

6.0 PROPOSED FOUL WATER DRAINAGE

Foul drainage networks have been designed as a gravity network in compliance with Building Regulations Part H.

For Units G1 and G2 main gravity foul drainage is designed to run on the low side of the development and connect to the existing combined sewer (825 diameter) under an approved Section 106 agreement with United Utilities.

The foul drainage on the south side of the development (Units F1-6 and C) will also gravity drain to the same existing combined sewer (825 diameter). This will be captured within the proposed Section 106 agreement for connection of the foul network to United Utilities combined system.

Foul flows will be calculated during the detailed design stage.

7.0 MAINTANENCE STRATEGY PLAN

7.1 INTRODUCTION

The maintenance of SuDS, attenuation and separation features are vital in ensuring that they work as efficiently as intended. Client and the sewerage undertaker, the below ground surface water components will be maintained by the maintenance team responsible for the Phase 1 site. Regular inspection will be the responsibility of tenant.

During construction, it is the responsibility of the Principal Contractor to ensure the relevant management and maintenance requirements outlined below are implemented. The Principal Contractor will retain responsibility during construction up to the handing over.

7.2 CONSTRUCTION

Heavy construction vehicles and equipment not directly involved in the construction of the proposed vegetation should be kept away from these areas. Excavations for the soft landscaping ground make-up should aim to be undertaken in times of dry weather, when possible, to prevent mobilisation of sediments from exposed surfaces. Exposed surfaces after excavations should be stabilised where required as soon as possible with grass seed and straw mulch. Perimeter controls should be installed prior to construction to protect neighbouring properties.

7.3 MAINTENANCE SCHEDULE

SuDS element	Maintenance Task	Recommended Frequency
Pipes	- Remove debris from catchment surface - Remove sediment from pre-treatment structures - Inspect inlets and outlets - Survey inside of the pipes	- Every 12 months - Every 12 months - Every 12 months - Every 5 years
Lined Permeable Paving	- Brushing and vacuuming - Weed removal - Rehabilitation of surface and upper substructure - Remediation of depressions and cracked blocks - Remediation of landscaping.	- Every 12 months - Every 12 months - As required - As required - As required
Underground Attenuation Tank	- Remove debris from catchment surface - Remove sediment from pre-treatment structures - Inspect inlets and outlets - Survey inside of the tank	- Every 12 months - Every 12 months - Every 12 months - Every 5 years
Channel Drains	- Inspect surface and remove litter - Inspect pre – treatment systems, inlets and perforated pipe - Remove silt and sediment - Wash and/or replace filter medium - Clear blockages	- Monthly - Every 6 months - Every 12 months - Every 5 years - As Required

8.0 CONCLUSION

- This report outlines the drainage strategy for the proposed Phase 1 development of the Huyton Sovereign Distillery site located in Liverpool.
- The site is located between Wilson Road and Cronton Road (A5080) with the Phase 1 development area sitting to the North of the Phase 2 development.
- Brownfield Site, discharge rate calculated using modified rational method with 50% betterment
- For Units G1, G2 and hard standing, proposed to outfall via an existing manhole connection on an existing surface water sewer (750 Diameter) Upstream attenuation is provided in the form of below ground crate storage tanks with an Aco-Q Brake flow control with discharge rate of 78.4/s prior the connection.
- F1-6 and hard standing will discharge to the same manhole as the north part of site. Two upstream attenuation crate storage tanks are provided with flow control. The attenuation is also proposed with an Aco-Q Brake flow control with discharge rate of 100.7/s prior to connection.
- Unit C and hard standing. Proposed discharge is an existing manhole to the south east of site (MH27) shown in Appendix C. An upstream attenuation crate storage tank is provided controlled with an Aco-Q Brake flow control with discharge rate of 69.3l/s prior to connection.
- All areas have lined permeable paving to accommodate the proposed flows.
- For all three surface water networks Bypass separators is included to treat any lightly contaminated water before the attenuation and the outfall to the existing sewer.
- Connection into existing systems for the surface water are subsequent for approval by United utilities.
- Site levels have been designed to comply with flood exceedance route requirements.
- The proposed SuDS measures will require future maintenance in order to ensure long term effective operation.
- For Units G1 and G2 main gravity foul drainage is designed to run on the low side of the development. The foul drainage on the south side of the development (Units F1-6 and C) will also gravity drain to the same existing combined sewer (825 diameter).
- Both proposed foul connections to United Utilities combined system will be captured within the proposed Section 106 agreements.
- Foul flows will be calculated during the detailed design stage.

APPENDIX A – SITE TOPOGRAPHY



OS Note:
Some services may have been omitted due to parked vehicles.
The Ordnance Survey tile is to be used as a guide only.

OS Buildings Surveyed Buildings

This survey has been orientated to the Ordnance Survey (O.S.) National Grid OSGB36(15) via Global Navigational Satel

Systems (GNSS) and the O.S. Active Network (OS Net). A true OSGB36 coordinate has been established near to the site centre via a transformation using the OSTN15GB & OSGM15GB transformation models. The survey has been correlated to this point and a further one or more OSGB36 (15) points established to create a true O.S. bearing for angle orientation.

No scale factor has been applied to the survey therefore the coordinates shown are arbitrary & not true O.S. Coordinates which have a scale factor applied.

Please refer to Survey Station Table to enable establishment of the on-site grid and datum.

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Rev	Date	Description	Drawn	Q. Re



24 Riverside Studios
Amethyst Road
Newcastle Business Park
Newcastle
NE4 7YL
t. (0191) 273 6391
newcastle@greenhatch-group.co.uk
www.greenhatch-group.co.uk

CLIENT **AEW Architects**

PROJECT

Sovereign Distillery

**Huyton Business Park
Liverpool**

Topographical Survey

<i>DRAWN</i>	<i>QUALITY REF</i>
JT	

Job number	40493
Drawing No.	

40493_T	0
<i>Comments</i> <i>This plan should only be used for its original purpose. Greenhatch Group accepts no responsibility for this plan if supplied to any party other than the original client.</i> <i>All dimensions should be checked on site prior to design and construction.</i> <i>Drainage information (where applicable) has been visually inspected from the surface and therefore should be treated as approximate only.</i>	



APPENDIX B – UNITED UTILITIES EXISTING DRAINAGE PLAN

Graham Mawdsley

**Quay West at Media City Uk
Trafford Wharf Road,
Manchester,
M17 1HH**

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: B029681-Sewer Plans
Our Ref: UUPS-ORD-298068
Date: 15/06/2021**

Dear Sirs

Location: Sovereign Distillery Sovereign Distillery Wilson Road, Huyton, L36 6AD

I acknowledge with thanks your request dated 15/06/2021 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

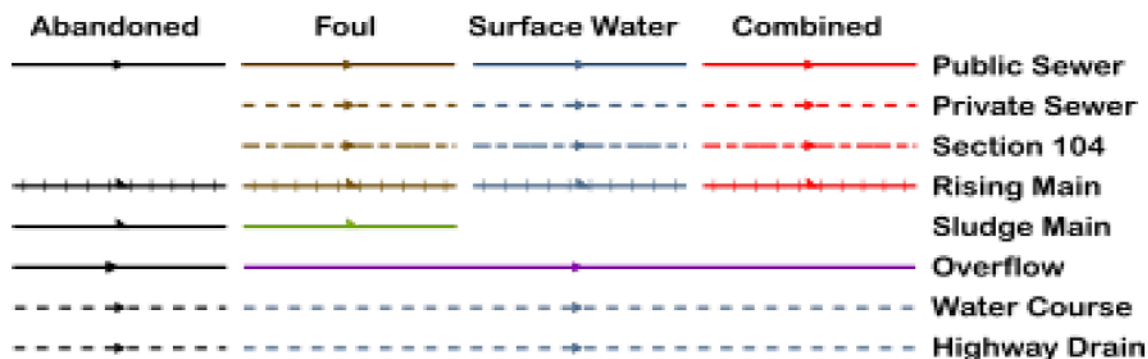
TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

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 effect.
- 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.

Wastewater Symbolology



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

Manhole	Side Entry Manhole
Head of System	Outfall
Extent of Survey	Screen Chamber
Rodding Eye	Inspection Chamber
Inlet	Bifurcation Chamber
Discharge Point	Lamp Hole
Vortex	T Junction / Saddle
Penstock	Catchpit
Washout Chamber	Valve Chamber
Valve	Vent Column
Air Valve	Vortex Chamber
Non Return Valve	Penstock Chamber
Soakaway	Network Storage Tank
Gully	Sewer Overflow
Cascade	Ww Treatment Works
Flow Meter	Ww Pumping Station
Hatch Box	Septic Tank
Oil Interceptor	Control Kiosk
Summit	
Drop Shaft	Change of Characteristic
Orifice Plate	



Water for the North West

SEWER RECORDS

Address or Site Reference

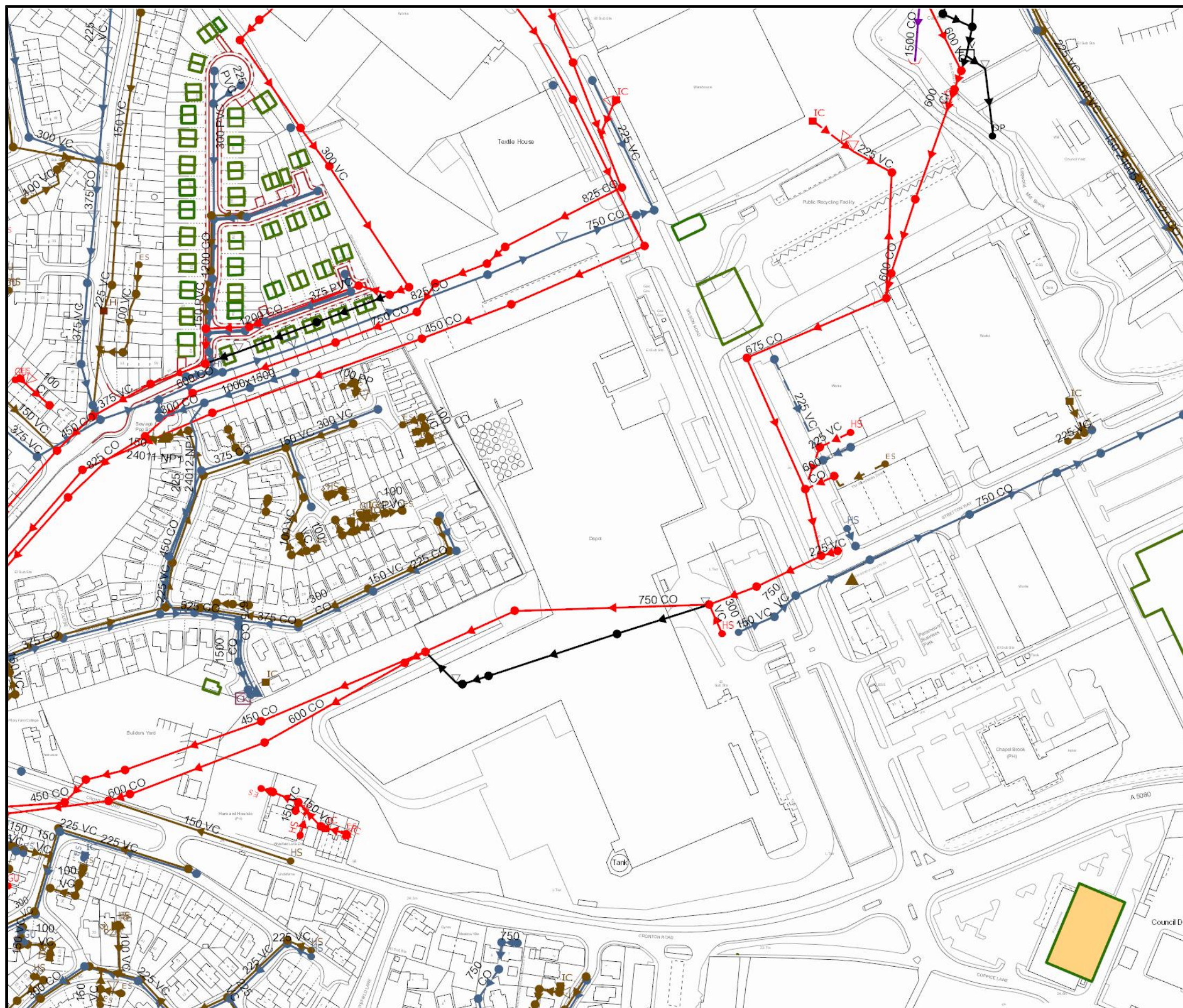
Sovereign Distillery Sovereign
Distillery Wilson Road,
Huyton,
L36 6AD

Scale: 1:2500
Date: 15/06/2021

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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APPENDIX C – EXISTING DRAINAGE NETWORKS