



Drainage Strategy

Birchall Way, Hulme, Manchester, M15 6DU

Presented to: Electricity North West

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Executive Summary

Project Understanding	<p>Lucion Delta-Simons ("Lucion") has been requested by Electricity North West Limited (the "Client") to prepare a Drainage Strategy (DS) for the proposed development at Birchall Way, Hulme, Manchester (the "Site") to support a planning application for the construction of a primary substation including access road, parking area, switch building (with WC), 2no transformer units and a 2.4m high perimeter fence.</p> <p>A DS with appropriate consideration for Sustainable Drainage Systems (SuDS) in line with CIRIA SuDS (C753) guidance has been produced to ensure that surface water flood risk is not exacerbated off-Site as a result of the proposed development. The DS will be designed in accordance with relevant local and national policy, such as the NPPG.</p>
Drainage Strategy Summary	<p>The Site's paved areas will utilise a permeable construction to allow rainfall to infiltrate into the underlying ground as per the existing situation. Surface water runoff from the switch building roof area will be discharged into the on-Site United Utilities combined sewer. A discharge rate of 5 l/s has been agreed to by United Utilities.</p> <p>Foul drainage from the Site will be discharged to the same combined sewer.</p>
<p>This is intended as a summary only. Further detail and limitations of the assessment is provided within the main body of the Report.</p>	

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1.0 Introduction

1.1 Appointment

- 1.1.1 Lucion Delta-Simons ("Lucion") has been requested by Electricity North West Limited (the "Client") to prepare a Drainage Strategy (DS) for the proposed development at Birchall Way, Hulme, Manchester (the "Site") to support a planning application for the construction of a primary substation including access road, parking area, switch building (with WC), 2no transformer units and a 2.4 m high perimeter fence.

1.2 Project Understanding

- 1.2.1 A DS with appropriate consideration for Sustainable Drainage Systems (SuDS) in line with CIRIA SuDS (C753) guidance is required to ensure that surface water flood risk is not exacerbated off-site as a result of the proposed development. The DS will be designed in accordance with relevant local and national policy, such as the NPPG.
- 1.2.2 Manchester City Council as Lead Local Flood Authority (LLFA) is a statutory consultee for planning applications in relation to surface water drainage, requiring that all planning applications are accompanied by a Sustainable Drainage Strategy. The aim of the Sustainable Drainage Strategy is to identify water management measures, including Sustainable Drainage Systems (SuDS), to provide surface water runoff reduction and treatment.

1.3 Scope of Works

- 1.3.1 The scope of works has been as follows for this Drainage Strategy:
- Review existing conditions including sewer plans, British Geological Survey information and topographical information;
 - Review LLFA drainage policies;
 - Submit developer enquiry to sewerage undertaker;
 - Analyse existing and proposed impermeable areas;
 - Calculate existing runoff rates (excluding existing drainage system modelling);
 - Assess method of surface water runoff disposal (soakaway / watercourse / sewer);
 - Establish surface water discharge rate;
 - Estimate required attenuation volume using Microdrainage software;
 - Advise on suitable forms of SUDS;
 - Advise on drainage system maintenance measures;
 - Advise on surface water treatment methods;
 - Establish method of foul water drainage;
 - Prepare concept drainage sketch (where development plan is available as dwg. format); and
 - Prepare Drainage Strategy report.
- 1.3.2 This report takes into account the following national and local policies:
- National Planning Policy Framework (NPPF) (2023)¹;

¹ <https://www.gov.uk/government/publications/national-planning-policy-framework--2>



- National Planning Practice Guidance (NPPG) (2014)²;
- CIRIA Guidance: The SuDS Manual (C753) (2017)³; and
- Manchester City Council Local Development and Planning Policies. Including EN14 Flood Risk and EN17 Water Quality from the Core Strategy.

1.4 Sources of Information

1.4.1 The following sources of information have been reviewed and assessed for the purpose of this FRA:

- British Geological Society (BGS) Interactive Map⁴; and
- MAGIC Interactive Map⁵.
- Manchester City, Salfords City and Trafford Councils Level 2 Hybrid SFRA user guide. (2010 MST SFRA User Guide);
- Manchester City, Salfords City and Trafford Councils Level 2 Hybrid SFRA. (2011 MST SFRA); and
- Sewerage Sector Guidance Appendix C (Design and Construction Guidance).

1.5 Project Limitations

1.5.1 The wider Lucion limitations are contained within Appendix A.

² <http://planningguidance.planningportal.gov.uk/blog/guidance/flood-risk-and-coastal-change/>

³ https://www.ciria.org/Resources/Free_publications/SuDS_manual_C753.aspx

⁴ <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>

⁵ <http://www.magic.gov.uk/>



2.0 Site Description

2.1.1 The aim of this section of the report is to outline key environmental information associated with the baseline environment.

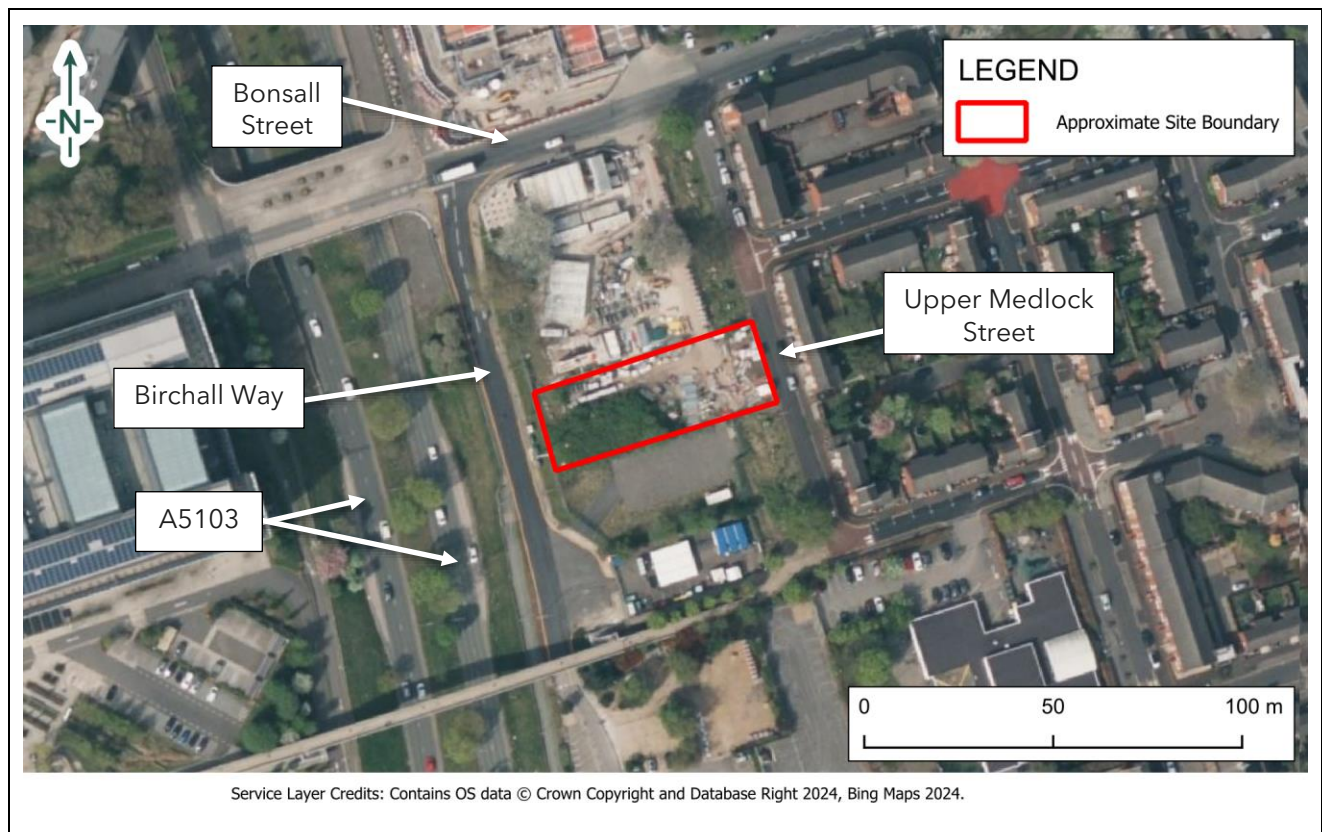


Figure 1: Site Location Plan

Co-ordinates	Centred approximately at E: 383900, N: 396710.	Area	0.138 ha
Site Location	The Site is located to the south of Manchester City Centre. It forms part of an area of land enclosed by Birchall Way, Bonsall Street, and Upper Medlock Street. It is 780 m south of Manchester Oxford Road train station and 370 m south of the A57M.		
Existing Site Conditions	<p>Online mapping (including Google Maps and Google Streetview imagery, accessed July 2024) shows that the Site is currently undeveloped. It currently appears overgrown brownfield land. Historical mapping shows that it was previously terraced houses. In Figure 1 above (imagery from approximately 2021) part of the Site is shown to be a storage area, likely for a nearby construction Site. Currently the Site is unused, overgrown and it is assumed to be undrained. The Site is accessed from Birchall Way.</p> <ul style="list-style-type: none"> To the north, the Site is bordered by an unused area of fenced off land that currently appears to be unused. Beyond this is Bonsall Street; To the east, the Site is bordered by Upper Medlock Street, beyond which is a residential area; 		

	<ul style="list-style-type: none"> To the south is an area currently used as parking for vans, beyond which are more carparking areas for Manchester Metropolitan University; and To the west of the Site is Birchall Way, beyond which is the A5013 (Princess Road). <p>As part of the ground investigation, (see Appendix B) material believed to be asbestos was encountered beneath the Site. A survey should be undertaken to confirm if asbestos is present on-Site prior to undertaking any groundwork or excavations on-Site.</p>
Topography	<p>A topographical survey has been provided by Electricity North West. The survey shows that the Site is relatively flat, with the exception of what appears to be an earth bund in the south of the Site. Levels fall from 36.87 m Above Ordinance Datum (AOD) atop the bund in the south of the Site to 34.50 m AOD in the north-west of the Site. The topographical survey is included in Appendix C.</p>
Hydrology	<p>The nearest watercourse is the River Medlock which is located approximately 700 m north of the Site. The River Medlock flows west until it joins the Bridgewater canal. The River Medlock is a Main River, and thus falls under the jurisdiction of the EA.</p>
Geology	<p>Reference to the British Geological Survey (BGS) online mapping (1:50,000 scale) indicates that the Site is underlain by superficial Glaciofluvial Sheet Deposits, generally comprising sand and gravel. The superficial deposits are identified as being underlain by Chester Formation consisting of sandstone.</p> <p>The geological mapping is available at a scale of 1:50,000 and as such may not be accurate on a Site-specific basis.</p> <p>The ground investigation in Appendix B shows the Site to be underlain by up to 2.5 m of Made Ground (including suspected asbestos), followed by up to 1.4 m of sandy clay, below which is sandy gravel to the base of the trial pits, the deepest of which was 3.5 m deep. In addition to this, concrete slabs were encountered in 2 of the trial pits. These may reduce the Site's permeability, and potentially increasing surface water runoff from the Site.</p> <p>The closest historical BGS borehole record (BGS Ref: SJ89NW21) is located 40 m west of the Site (NGR 383836, 396668). The record includes 3 boreholes with similar geology at slightly varying depths. Considering all 3 records, it can be assumed that the Site is underlain by made ground, beneath which are layers of gravel and clay to a depth of 10 to 12 m bgl, beneath which is sandstone bedrock.</p>
Hydrogeology	<p>The ground investigation in Appendix B includes 2 infiltration tests. One of which failed due to slow infiltration, and the other recorded a rate of 2.26E-05 m/s. The testing was not repeated as per BRE 365 guidance.</p> <p>Ground water was not encountered in the closest historical BGS borehole record (BGS Ref: SJ89NW21) located 40 m west of the Site (NGR 383836, 396668).</p> <p>According to the EA's Aquifer Designation data, obtained from MAGIC Map's online mapping accessed in July 2024, the Glaciofluvial Sheet superficial deposits are classified as a Secondary A Aquifer. Secondary A Aquifers are 'permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers'.</p>

	<p>The underlying Chester Formation bedrock deposit is described as a Principal aquifer. Principal Aquifers are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale.</p> <p>The EA's 'Source Protection Zones' data, obtained from MAGIC Map's online mapping, indicates that the Site is located within a Zone 3 Total Catchment Groundwater Source Protection Zone.</p>
Local Drainage	<p>Public sewer records from United Utilities have been provided by the Client and are included in Appendix D. The United Utilities sewer records show that there is a 300 mm combined sewer which crosses the Site and flows north, and there is a 900 mm combined sewer along Birchall Road.</p> <p>It may be necessary to provide easements and gain permission to build over or near the on-Site combined sewer. Correspondence with United Utilities should be established as early as possible to avoid delays.</p>
Proposed Site conditions	<p>The proposed development is for a primary substation including access road, parking area, switch building (with WC), 2no transformer units and a 2.4 m high perimeter fence. A proposed development plan is included in Appendix E.</p> <p>The proposed development will introduce impermeable area in the form of the switch building. This will have an area of 95 m² or 7% of the total Site area (1,384 m²). The remaining permeable areas will occupy 1,289 m² or 93% of the total Site area. The Site access road will be constructed from permeable Tarmac ULTIPOROUS. This has been measured from a .dwg version of the Site layout.</p>

3.0 Relevant Planning Policy and Guidance

3.1 Introduction

- 3.1.1 The aim of this section of the report is to discuss the main aspects of the local and national planning policies that are relevant to any proposed development on the Site and relevant guidance and legislation.

3.2 Local policy

- 3.2.1 The Manchester City Council Core Strategy contains the following policies relating to drainage:

Policy EN 14 Flood Risk

- In line with the risk-based sequential approach contained within PPS25, development should be directed away from sites at the greatest risk of flooding, and towards sites with little or no risk of flooding; this should take account of all sources of flooding identified in the Manchester-Salford-Trafford Strategic Flood Risk assessment (SFRA);
- In addition to the requirements for site-specific Flood Risk Assessments (FRAs) set out in PPS25, an appropriate FRA will also be required for all development proposals, including changes of use, on sites greater than 0.5ha within Critical Drainage Areas (CDAs) and Canal Hazard Zones identified in the SFRA;
- All new development should minimise surface water run-off, including through Sustainable Drainage Systems (SUDS) and the appropriate use of Green Infrastructure. Developers should have regard to the surface water run-off rates in the SFRA User Guide. In CDAs, evidence to justify the surface water run-off approach / rates will be required; and
- The City of Manchester contains many sections of rivers which are culverted or 'hidden'; where these are indicated in the SFRA beneath the proposed development site, further investigation will be required and the development proposal should take this into account; where feasible and appropriate development should seek to open up culverted/hidden rivers to reduce the associated flood risk and danger of collapse, taking advantage of opportunities to enhance biodiversity and Green Infrastructure.

Policy EN 17 Water Quality

With reference to the Manchester-Salford-Trafford SFRA and other relevant documents:

- Development should avoid any adverse impact on water quality, including during the construction phase, and wherever possible should seek to enhance water quality, both chemical and ecological;
- Development should minimise surface water run-off from development and associated roads, and maximise the use of appropriate sustainable drainage systems, to minimise groundwater contamination, and to avoid pollutants reaching watercourses;
- Development close to a watercourse should also ensure that waste or litter cannot enter the watercourse from the site; and
- Development should, where feasible and appropriate, seek to open up any culverted or hidden watercourse beneath the site to improve the ecological status of that watercourse.

3.3 Consultation

- 3.3.1 A pre-development enquiry request was submitted to United Utilities in July 2024. A response is awaited.
- 3.3.2 A planning application for the development was made to Manchester City Council. The application number is 140484/FO/2024, and the application was approved with conditions on the 24th of October.
- 3.3.3 The comment relating to drainage is as follows:

4) Prior to the commencement of development, details of a sustainable surface water drainage scheme and a foul water drainage scheme shall be submitted to and approved in writing by the Local Planning Authority. The drainage schemes must include:

- (i) An investigation of the hierarchy of drainage options in the National Planning Practice Guidance (or any subsequent amendment thereof). This investigation shall include evidence of an assessment of ground conditions and the potential for infiltration of surface water in accordance with BRE365;*
 - (ii) A restricted rate of discharge of surface water agreed with the local planning authority (if it is agreed that infiltration is discounted by the investigations);*
 - (iii) Levels of the proposed drainage systems including proposed ground and finished floor levels in AOD;*
 - (iv) Incorporate mitigation measures to manage the risk of sewer surcharge where applicable;*
- and*

(v) Foul and surface water shall drain on separate systems.

The approved schemes shall also be in accordance with the Non-Statutory Technical Standards for Sustainable Drainage Systems (March 2015) or any subsequent replacement national standards.

Prior to occupation of the proposed development, the drainage schemes shall be completed in accordance with the approved details and retained thereafter for the lifetime of the development.

Reason - To promote sustainable development, secure proper drainage and to manage the risk of flooding and pollution, in light of national policies within the NPPF and NPPG and Policies EN08 and EN14 in the Manchester Core Strategy.

- 3.3.4 In response to these comments:

- i) An investigation into the drainage hierarchy has been completed in section 4 of this report, and infiltration testing results have been included in Appendix B.
- ii) A discharge rate of 5l/s is proposed as per correspondence with United Utilities.
- iii) An Indicative FFL is included on the Drainage Concept Sketch in Appendix I. Due to the small scale of the Site, further consideration of levels is not considered necessary for the drainage strategy.
- iv) Sewers will be designed and constructed in accordance with appropriate regulations. Furthermore due to the nature and scale of the development, foul and surface water discharge volumes will be minimal, thus reducing the possibility of sewer surcharge.
- v) Foul and surface water drainage systems will connect separately into the on-site combined sewer.

- 3.3.5 A pre-planning enquiry has been sent to United Utilities to ascertain if it would be acceptable to discharge from the Site into their sewer. A response was received on the 21st of November and is included in Appendix K.

4.0 Drainage Strategy

4.1 Introduction

- 4.1.1 The Site is situated in the Conurbation Core Critical Drainage Area (CDA), as shown in Map SS 4.5 of the 2011 MST SFRA. The 2010 MST SFRA User Guide states that brownfield development in CDAs should be restricted to as close to greenfield rates for events up to and including the 1 in 100 year event considering climate change. Where this is not possible, a minimum of 50% betterment should be provided over brownfield rates. The guidance states that SuDS should be implemented where possible. There should also be no flooding in a 30 year event, and no property flooding in a 100 year event.
- 4.1.2 The Site currently comprises undeveloped brownfield land which is not formally drained. The proposed development will introduce 95 m² of impermeable area in the form of the switch building.
- 4.1.3 The increase in hardstanding area will result in an increase in surface water runoff rates and volumes.
- 4.1.4 The DEFRA Hydrology Data Explorer states that the Climate Change (CC) allowances in the 2070s epoch for peak rainfall in the Irwell Management Catchment are 30% (central) and 45% (upper end). The development is considered essential infrastructure.

4.2 Drainage Hierarchy

- 4.2.1 The recommended surface water drainage hierarchy (Paragraph 056 of the NPPG: Flood Risk and Coastal Change) is to utilise soakaway systems or infiltration as the preferred option, followed by discharging to an appropriate watercourse. If this is not feasible, the final option is to discharge to an existing public sewer.

Surface Water Discharge to Soakaway

- 4.2.2 The first consideration for the disposal of surface water is infiltration (soakaways and permeable surfaces). As described above, the Site is underlain by superficial Glaciofluvial Sheet deposits which are underlain by Chester Formation. Infiltration tests have been carried out by Earth Environmental and Geotechnical Ltd in July 2024. Of the four pits excavated, only two were suitable for testing due to concrete slabs encountered. Of the two tests undertaken, one of the infiltration tests produced a rate suitable for infiltration drainage, and the other did not. The report in Appendix B also states that infiltration testing could not be completed in parts of the Site, and that the test result with poor infiltration may have been because of pit collapse.
- 4.2.3 Due to the dimensions and layout of the Site, it is not possible to situate cellular soakaways with the required 5 m offset from structures, roads, or the Site boundary. Infiltration via permeable paving may be possible, but further investigations into the suspected asbestos underlying the Site should be undertaken. Remediation of underlying ground will be necessary to ensure that buried materials such as concrete slabs encountered in the ground investigation do not reduce the effectiveness of permeable pavement.
- 4.2.4 It can be concluded that permeable pavement may be suitable for use on the Site, while conventional soakaways will not be suitable.

Surface Water Discharge to Watercourse

- 4.2.5 Where soakaways are not suitable a connection to watercourse is the next consideration.
- 4.2.6 The Site is separated from the River Medlock by third party, urbanised land. Therefore, discharge to a watercourse is not feasible.

Surface Water Discharge to Sewer

- 4.2.7 Where disposal of surface water to a watercourse is not possible, a connection to the public sewer system is the final consideration. There is a 300 mm public combined sewer located on-Site. A connection to this sewer appears to be a feasible option. The invert level of the sewer is unknown, however as the Site is relatively small and flat, it is assumed that a gravity connection will be feasible.

4.3 Surface Water Discharge

- 4.3.1 Greenfield runoff rates for the development's proposed impermeable area have been calculated using the ICP SuDS method. The Q1 rate is shown to be 0 l/s, while all other return periods including the Q100 runoff rate are 0.1 l/s. These rates are too low to be practically used as a discharge rate from the Site. The rates are included in Appendix F.
- 4.3.2 Because the Site was historically developed, brownfield runoff rates have also been calculated using the modified rational method assuming the entire Site is impermeable brownfield. The Q1 runoff rate was found to be 8.1 l/s and the Q100 rate was found to be 23.1 l/s. The rates are included in Appendix G.
- 4.3.3 As the total area drained into the sewer is only 95 m², a discharge rate of 5l/s has been agreed with United Utilities (Appendix K).

4.4 Sustainable Drainage Systems

- 4.4.1 The following SuDS options have been considered:

Soakaways

- 4.4.2 The As described above, the use of soakaways is not considered to be feasible.

Swales, Detention Basins and Ponds

- 4.4.3 Due to the size of the Site, sufficient space is not available to utilise a pond or basin as an above ground attenuation feature.

Rainwater Harvesting

- 4.4.4 The attenuation benefits provided through the use of rainwater harvesting are considered to be limited and would only be realised when the tanks were not full. Given the nature of the Site, harvested water is unlikely to be used. Therefore Harvesting has not been considered further.

Green Roofs

- 4.4.5 Green roofs are not identified on development plans. Given the nature of the proposed development, the significant additional cost involved in installing and maintaining green roofs and the additional works required to allow for the additional loading on the building, green roofs are not considered a practical option. The benefits achieved through installing a green roof would be disproportionate to the significant ongoing maintenance and construction costs involved.

Porous/Permeable Paving

- 4.4.6 Infiltration via permeable paving is assumed to be possible, but further investigations into the suspected asbestos underlying the Site should be undertaken. Remediation of underlying ground will be necessary to ensure that buried materials such as concrete slabs encountered in the ground investigation do not reduce the effectiveness of permeable pavement.

Underground Attenuation Tanks

- 4.4.7 Storage could be provided within underground attenuation tanks or within oversized pipes.

4.5 Preferred Drainage Scheme

- 4.5.1 The Sites access roads will be constructed from permeable Tarmac ULTIPOROUS. The switch building roof area will be drained and discharged into the on-Site united utilities combined sewer at a discharge rate of 5 l/s for all events up to and including the 1 in 100 year + 45% Climate Change event. This can be achieved by using a small attenuation tank providing 1.7 m³ of storage, and a 49 mm diameter orifice plate.
- 4.5.2 The remainder of the Site will remain permeable with a layer of 100 mm limestone chippings. Oil discriminator pumps will be used to protect the banded transformers.
- 4.5.3 MicroDrainage calculations for permeable pavement and cellular storage are included in Appendix H. A drainage concept sketch is included in Appendix I.

4.6 Event Exceedance

- 4.6.1 The Site has been designed to accommodate the 1 in 100 year plus 45% CC event. Storm events in excess of the 1 in 100 year plus 45% CC event should be permitted to produce temporary shallow depth flooding within the access road and landscaped areas. Finished floor levels will be set at a minimum of 300 mm above surrounding ground levels ensuring exceedance flooding will not affect the buildings.

4.7 Surface Water Treatment

Surface water quality has been assessed in accordance with the simple index approach in CIRIA C753 publication 'The SuDS Manual' (2015). To satisfy the simple index approach, a site's mitigation indices must be equal to or greater than its pollution hazard indices. Roofs and low traffic roads are classified as having a 'low' pollution hazard level. Table 1 below shows the pollution hazard indices.

Table 1: Pollution Hazard Indices

Land Use	Pollution Hazard Level	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Low Traffic Roads	Low	0.5	0.4	0.4

Table extract taken from the CIRIA C753 publication 'The SuDS Manual' – Table 26.2

- 4.7.1 Runoff from the small roof area only has a very low pollution hazard. Furthermore, it will be discharged into a combined sewer. As a result, additional mitigation will not be required for the roof area. Table 2 below demonstrates that permeable pavement provides sufficient treatment for low traffic roads.

Table 2: SuDS Mitigation Indices

Type of SuDS	Mitigation Indices		
	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Permeable Pavement	0.7	0.6	0.7

4.8 Maintenance

- 4.8.1 Maintenance of drainage features such as permeable pavement will be the responsibility of the Site owner. Maintenance can be arranged through appointment of a Site management company.
- 4.8.2 Maintenance schedules for permeable pavement and an attenuation tank are included in Appendix J.
- 4.8.3 A 3 m easement either side of the United Utilities public sewer that crosses the Site should be provided.

4.9 Foul Water Discharge

- 4.9.1 Foul flows should be discharged to the 300 mm on-Site public combined sewer. This has been agreed to by United Utilities (Appendix K).

5.0 Conclusions and Recommendations

5.1 Conclusions

- 5.1.1 The proposed development is for construction of a primary substation including access road, parking area, switch building (with WC), 2no transformer units and a 2.4 m high perimeter fence.
- 5.1.2 The proposed development will introduce impermeable area in the form of the switch building roof. The development's access road will be permeable. This will result in an increase in surface water runoff.
- 5.1.3 All methods of surface water discharge have been assessed. Permeable pavement will be utilised for the development. Where soakaways are not possible, discharge of surface water to the on-Site 300 mm combined public sewer at a restricted rate appears to be the most practical option.
- 5.1.4 Surface water flows from the roof will be limited to 5 l/s. This will be achieved by using a 1.7 m³ attenuation tank and an orifice flow control.
- 5.1.5 Surface water treatment will be provided by the permeable pavement.
- 5.1.6 Foul flows can discharge to the on-Site 300 mm combined sewer. A gravity connection can be achieved.
- 5.1.7 A pre-planning enquiry has been sent to United Utilities confirming the acceptability of the above connections.

5.2 Recommendations

Drainage Strategy

- Remediation of underlying ground will be necessary to ensure that buried materials such as concrete slabs encountered in the ground investigation do not reduce the effectiveness of permeable pavement.
- Survey the public combined sewer to determine invert levels for connection.

Other

- A 3 m clearance either side of the United Utilities combined public sewer crossing Site should be provided.

Appendix A - Limitations

Limitations

The recommendations contained in this Report represent Lucion's professional opinions, based upon the information listed in the Report, exercising the duty of care required of an experienced Environmental Consultant. Lucion does not warrant or guarantee that the Site is free of hazardous or potentially hazardous materials or conditions.

Lucion obtained, reviewed and evaluated information in preparing this Report from the Client and others. Lucion's conclusions, opinions and recommendations has been determined using this information. Lucion does not warrant the accuracy of the information provided to it and will not be responsible for any opinions which Lucion has expressed, or conclusions which it has reached in reliance upon information which is subsequently proven to be inaccurate.

This Report was prepared by Lucion for the sole and exclusive use of the Client and for the specific purpose for which Lucion was instructed. Nothing contained in this Report shall be construed to give any rights or benefits to anyone other than the Client and Lucion, and all duties and responsibilities undertaken are for the sole and exclusive benefit of the Client and not for the benefit of any other party. In particular, Lucion does not intend, without its written consent, for this Report to be disseminated to anyone other than the Client or to be used or relied upon by anyone other than the Client. Use of the Report by any other person is unauthorised and such use is at the sole risk of the user. Anyone using or relying upon this Report, other than the Client, agrees by virtue of its use to indemnify and hold harmless Lucion from and against all claims, losses and damages (of whatsoever nature and howsoever or whensoever arising), arising out of or resulting from the performance of the work by the Consultant.

Appendix B – Ground Investigation



OUR REF: A6092/24
YOUR REF:

18th July 2024

John Barnes
Electricity North West
Frederick Road
Salford
M6 6QH

By Email (john.barnes@enwl.co.uk)

Dear John,

ENWL Hulme Primary
Soil Infiltration Testing

Background

A site investigation has been commissioned by Electricity Northwest Ltd to conduct soil infiltration tests at the new proposed site of ENWL Hulme Primary Substation, to assess the potential for soakaways for surface water drainage from the new switch room.

The site is currently a vacant plot of disused land, generally surfaced by mixed granular made ground. Approximately 50% of the site is overgrown and considered inaccessible, with young and developed trees and shrubs present in the southwest corner of the site.

Reference

Earth Environmental and Geotechnical Ltd were commissioned by the client, in accordance with proposal A6092/24 dated 29th May 2024, to undertake a Geo-Environmental Investigation of the site with the objective of assessing ground conditions for soakaway design.

Proposed Development

It is understood that the client intends to construct a new primary substation comprising two transformers and a new switch room. New access will be created from Poynton Street to the east of the site and Birchall Way to the west.

Fieldwork

Over the duration of one day (4th July 2024), four locations (TP1 - TP4 inclusive) were excavated by means of a tracked hydraulic excavator. All of these pits were designated for soakaway testing however, infiltration testing was only conducted in two of these pits due to the encountered ground conditions.

**CONSULTING
ENGINEERS**

Geotechnical
Environmental
Ecology
Geology
Drainage
Mining

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Tel: 01642 438125

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Swallowfield
Reading
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Tel: 01183 734000

Earth Environmental &
Geotechnical Ltd
Registered Office:
Mentor House, Ainsworth Street,
Blackburn, Lancashire, BB1 6AY

Due to the slow infiltration rate of the pits, only one fill with water was carried out at each location. This was carried out by filling the excavation rapidly with water from a tractor pulled water bowser. A plan of the testing is provided as Figure 1 below.

The infiltration rate of TP3 could not be calculated due to the slow rate at which the water drained away. The detailed testing results for both tests are presented in Appendix B with a summary in Table 1.

Figure 1: Test Location Plan



Ground Conditions

The exploratory holes generally encountered variable made ground to a maximum depth of 2.50m bgl. A concrete slab was encountered at the base of both TP1 and TP2 at 2.00m and 0.80m bgl respectively, preventing further investigation in these areas. It was noted that large fragments of potentially asbestos bearing cement roof tiles were identified within the made ground of TP2.

In TP3, superficial deposits of sandy GRAVEL were observed below the made ground between 2.50m and 3.50mbgl. Sandy CLAY was observed below the made ground in TP4 between 1.10m and 2.70m, which was then underlain by the same sandy GRAVEL to a maximum depth of 3.10m bgl.

It was noted that TP1, TP2 and TP3 were generally unstable, with TP3 collapsing slightly throughout the drainage test, which may lead to inaccurate results.

Detailed logs of the trial pits excavated can be found in Appendix A.

Table 1: Ground Conditions Encountered

Exploratory Hole	Depth to Stratum (m)		
	MADE GROUND	CLAY	GRAVEL
TP1	GL - 2.00	-	-
TP2	GL - 0.80	-	-
TP3	GL - 2.50	-	2.50 - 3.50+
TP4	GL - 1.10	1.10 - 2.70	2.70 - 3.10+

Soakaway Testing

Both of the soakaway pits were excavated down to the natural strata which was, in general, comprised sandy GRAVEL in TP3 and sandy CLAY underlain by sandy GRAVEL in TP4. Table 2 below summarises the results of the soakaway tests.

Full soakaway details can be found in Appendix B.

Table 2: Soakaway Infiltration Rates

Location	Test No.	Test Depth (m bgl)	Test Duration (mins)	Fall in Water Level (m bgl)	Soil Infiltration Rate (m/s)
TP3	1	2.62 - 2.98	240	0.36	Too Slow to Calculate
TP4	1	1.40 - 2.81	240	1.41	2.26E-05

Conclusions

The infiltration testing revealed the superficial deposits underlying the made ground onsite to be suitable for the installation of soakaways in the area of TP4.

Whilst the infiltration rate within TP3 was too slow to calculate, it is anticipated that this may be partially due to the collapse of the pit throughout the testing due to its granular nature. Further testing may reveal that soakaways may be viable in this location however, at this stage we cannot recommend that this area is suitable.

As approximately 50% of the site is overgrown and inaccessible, other untested areas of the site may also be suitable for the installation of soakaways. If further infiltration testing is required, it is recommended that the site be cleared of vegetation prior to the investigation.

As part of any further investigation, chemical testing of the soils and potential ACM fragments is recommended prior to the construction phase.



Please do not hesitate to contact me should there be any queries.

Yours Sincerely,

Daniel Shanks
Principal GeoEnvironmental Consultant
For and on behalf of Earth Environmental & Geotechnical Ltd

Enclosed: Appendix A - Trial Pit Logs
Appendix B - Soakaway Test Results



APPENDIX A

SOAKAWAY PIT LOGS

APPENDIX B

SOAKAWAY TESTING RESULTS



Tel / Fax: 0161 2824518
Web: www.earthenvironmental.co.uk
Email: adam@earthenvironmental.co.uk

SOAKAWAY TEST

(To: BRE 365 1991)

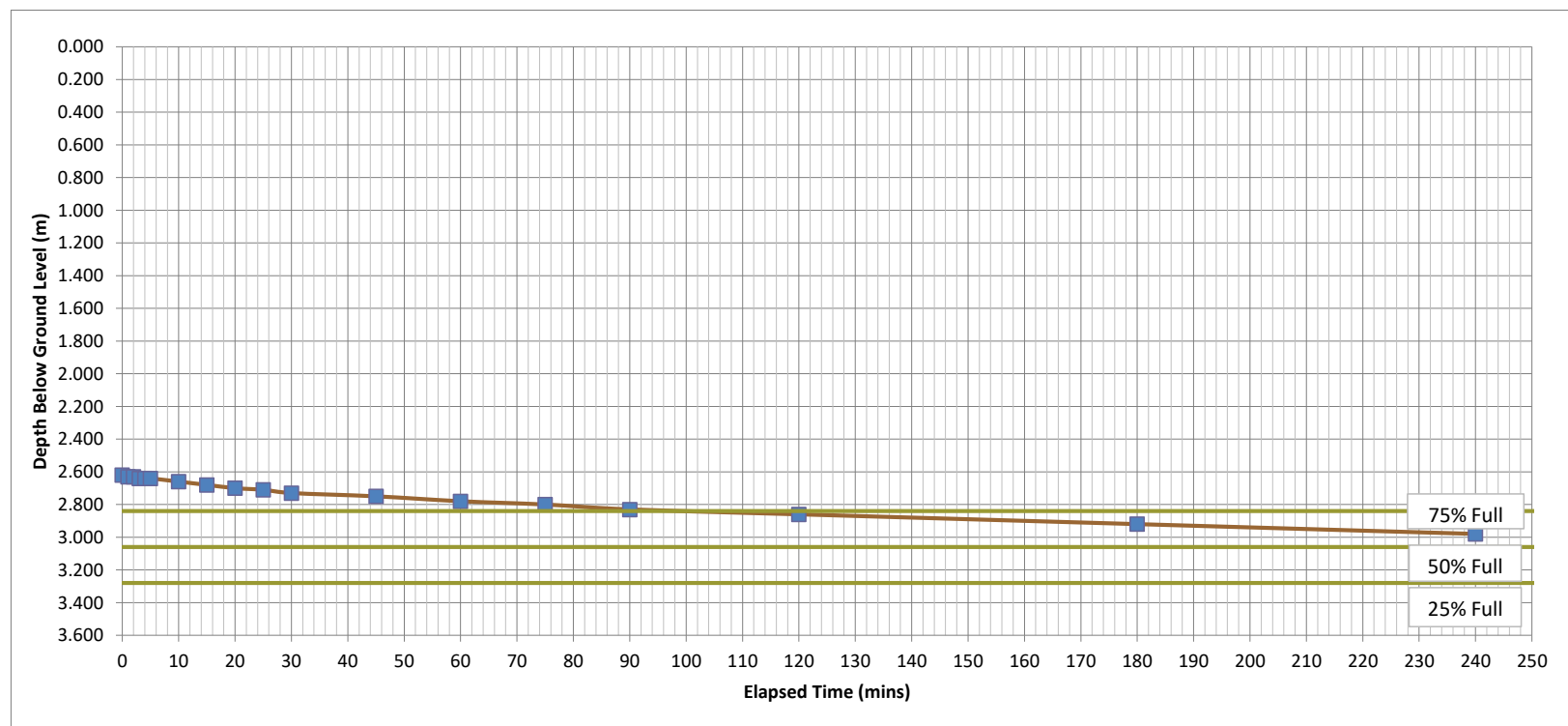
Job No: A6092
Site: Hulme Primary
Client: Electricity North West

Location Reference:
Date
Geology in test section
Depth to Base of Hole
Effective Depth
Hole width
Hole length
Depth to water at start of test below ground level
Depth to water at end of test below ground level
Effective storage depth to 75% full
(Depth below GL)
Effective storage depth to 50% full
(Depth below GL)
Effective storage depth to 25% full
(Depth below GL)
Height to 50% depth
Effective Storage Volume Vp75-25
Time tp25 at which water is 75% of effective depth (minutes)
Time tp25 at which water is 25% of effective depth (minutes)
Time for water level to fall between Vp75 -25
Time for water level to fall between Vp75 -25
Internal surface area of hole up to 50% depth including base
Soil Infiltration Rate, f

TP3 Test 1	
07/06/2024	
SAND	
3.50	m
0.88	m
1.00	m
3.20	m
2.62	m
2.98	m
0.66	m
2.84	m
0.44	m
3.06	m
0.22	m
3.28	m
0.440	m3
1.41	m3
Infiltration rate too slow to calculate.	mins
	mins
	mins
	secs
	m2
	m/s

Assumes pit is not filled

Time Elapsed (mins)	Depth of Water below GL (m)
0	2.620
1	2.630
2	2.630
3	2.640
4	2.640
5	2.640
10	2.660
15	2.680
20	2.700
25	2.710
30	2.730
45	2.750
60	2.780
75	2.800
90	2.830
120	2.860
180	2.920
240	2.980





SOAKAWAY TEST

(To: BRE 365 1991)

Tel / Fax: 0161 2824518
Web: www.earthenvironmental.co.uk
Email: adam@earthenvironmental.co.uk

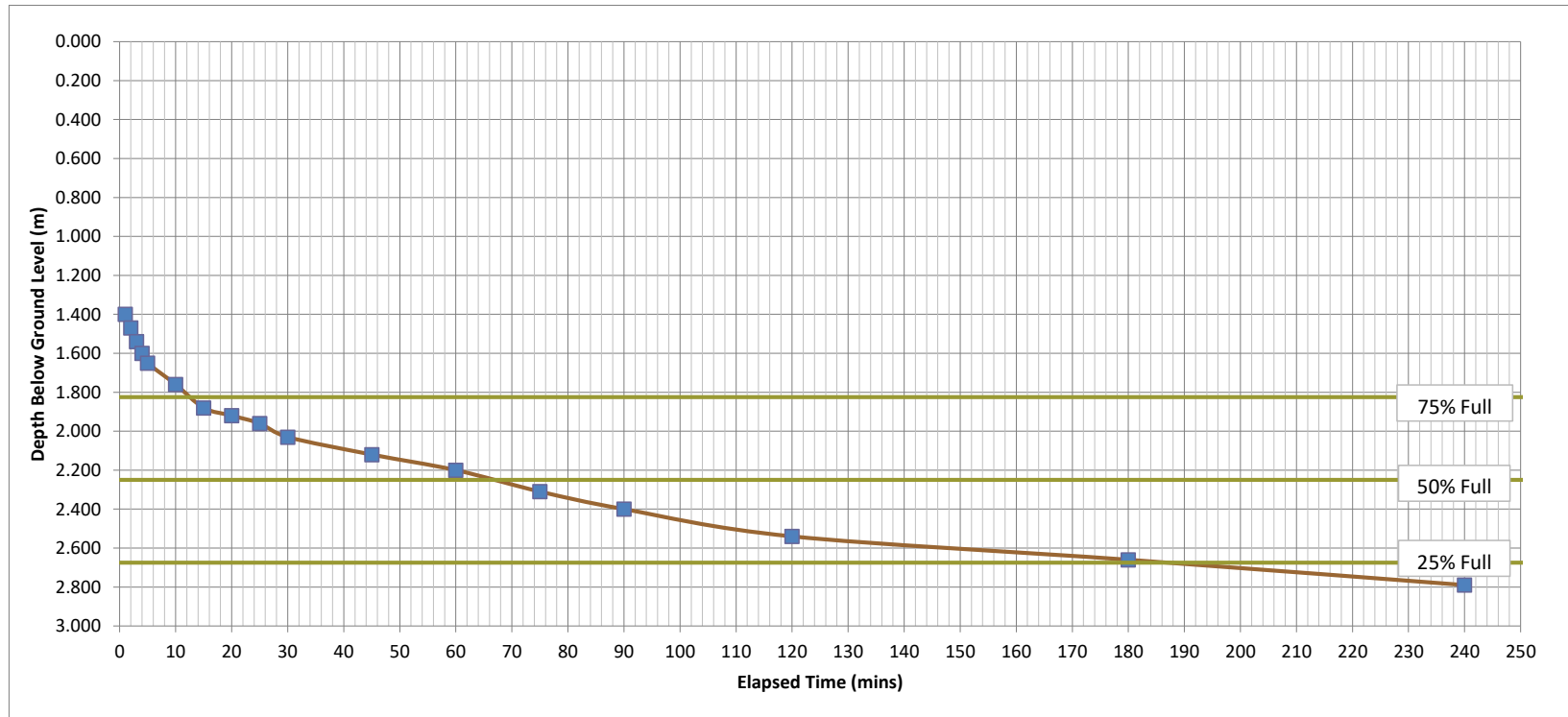
Job No: A6092
Site: Hulme Primary
Client: Electricity North West

Location Reference:
Date
Geology in test section
Depth to Base of Hole
Effective Depth
Hole width
Hole length
Depth to water at start of test below ground level
Depth to water at end of test below ground level
Effective storage depth to 75% full
(Depth below GL)
Effective storage depth to 50% full
(Depth below GL)
Effective storage depth to 25% full
(Depth below GL)
Height to 50% depth
Effective Storage Volume Vp75-25
Time tp25 at which water is 75% of effective depth (minutes)
Time tp25 at which water is 25% of effective depth (minutes)
Time for water level to fall between Vp75 -25
Time for water level to fall between Vp75 -25
Internal surface area of hole up to 50% depth including base
Soil Infiltration Rate, f

TP4 Test 1	
07/06/2024	
SAND	
3.10	m
1.70	m
0.90	m
2.40	m
1.40	m
2.81	m
1.28	m
1.83	m
0.85	m
2.25	m
0.43	m
2.68	m
0.850	m3
1.84	m3
12.00	mins
186.0	mins
174	mins
10440	secs
7.77	m2
2.26E-05	m/s

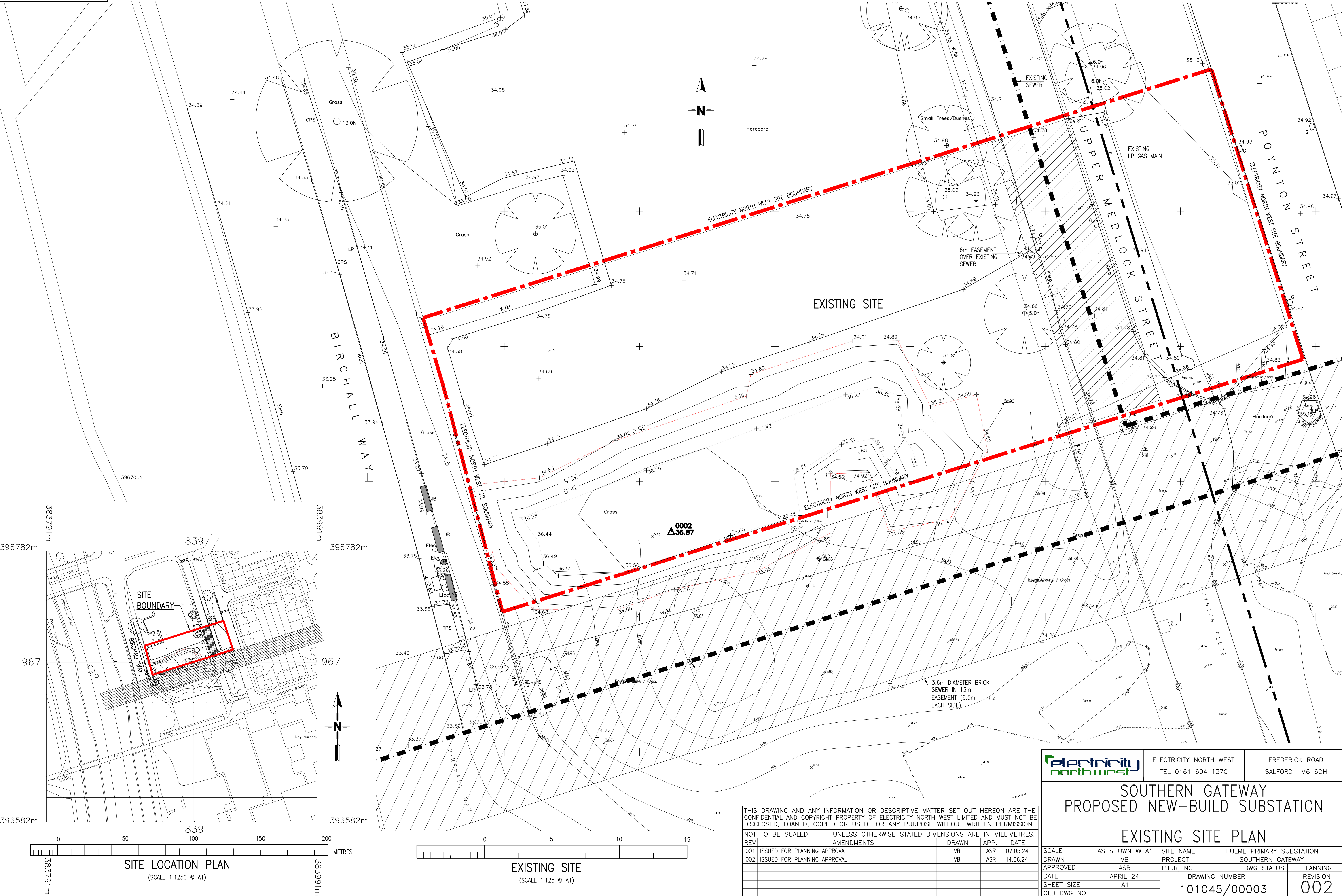
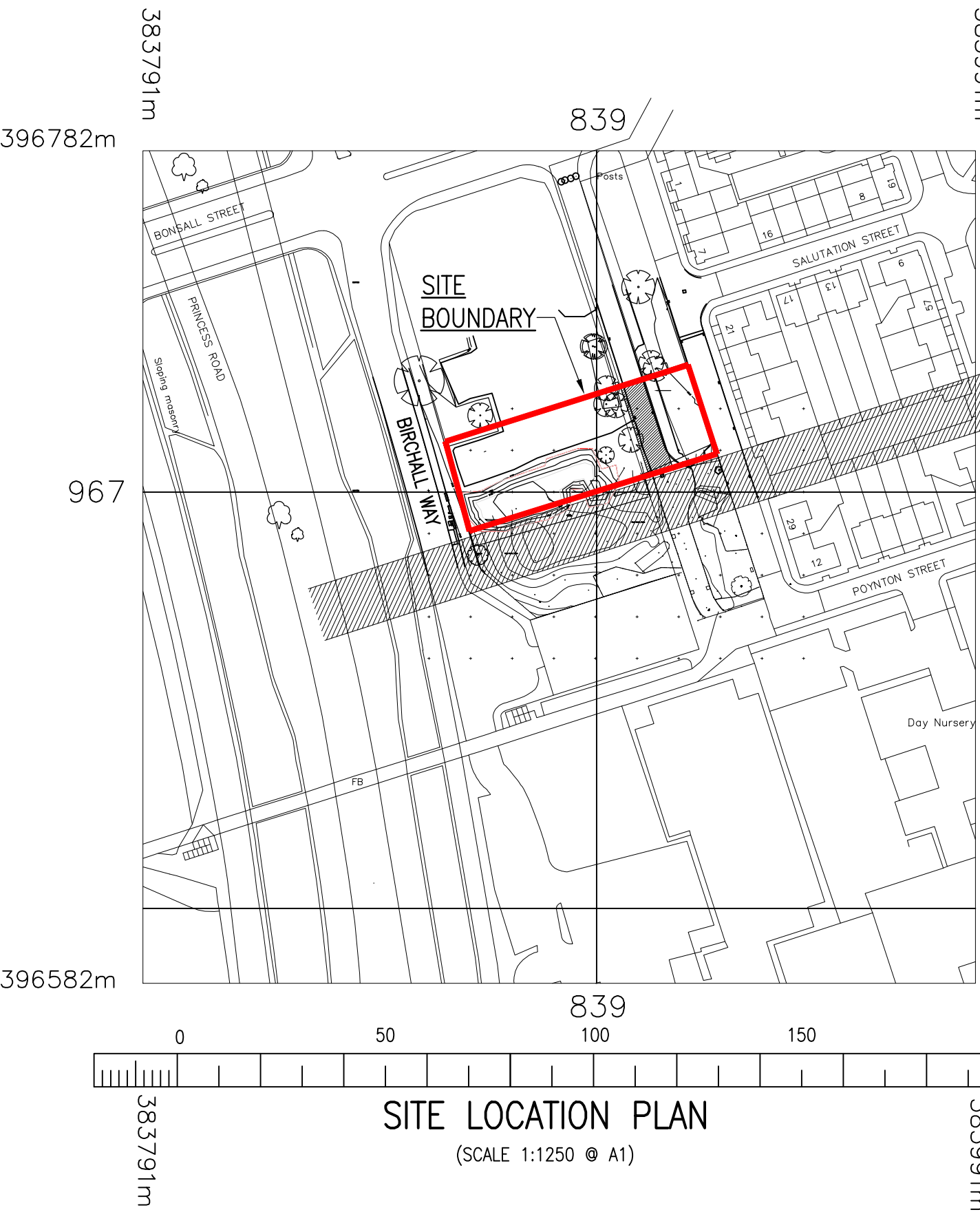
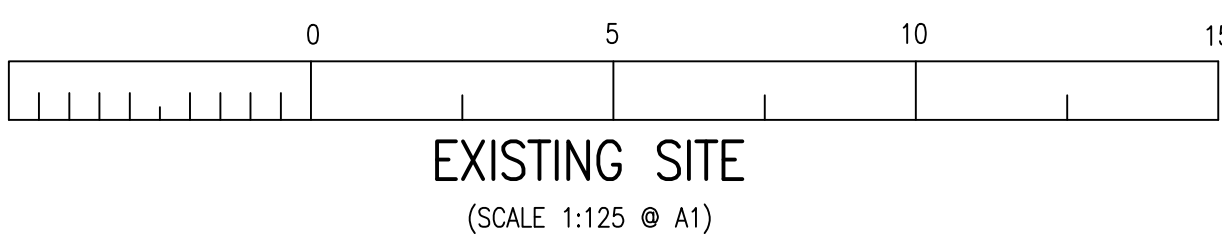
Assumes pit is not filled

Time Elapsed (mins)	Depth of Water below GL (m)
1	1.400
2	1.470
3	1.540
4	1.600
5	1.650
10	1.760
15	1.880
20	1.920
25	1.960
30	2.030
45	2.120
60	2.200
75	2.310
90	2.400
120	2.540
180	2.660
240	2.790



Appendix C – Topographical Survey

DO NOT SCALE



EXISTING SITE
(SCALE 1:125 @ A1)

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NOT TO BE SCALED. UNLESS OTHERWISE STATED DIMENSIONS ARE IN MILLIMETRES.				
REV.	AMENDMENTS	DRAWN	APP.	DATE
001	ISSUED FOR PLANNING APPROVAL	VB	ASR	07.05.24
002	ISSUED FOR PLANNING APPROVAL	VB	ASR	14.06.24

		ELECTRICITY NORTH WEST TEL 0161 604 1370		FREDERICK ROAD SALFORD M6 6QH	
SOUTHERN GATEWAY PROPOSED NEW-BUILD SUBSTATION					
EXISTING SITE PLAN					
SCALE	AS SHOWN @ A1	SITE NAME	HULME PRIMARY SUBSTATION		
DRAWN	VB	PROJECT	SOUTHERN GATEWAY		
APPROVED	ASR	P.F.R. NO.	DWG STATUS	PLANNING	
DATE	APRIL 24	DRAWING NUMBER		REVISION	
SHEET SIZE	A1	101045/00003		002	
OLD DWG NO					

Appendix D - United Utilities Asset Plan



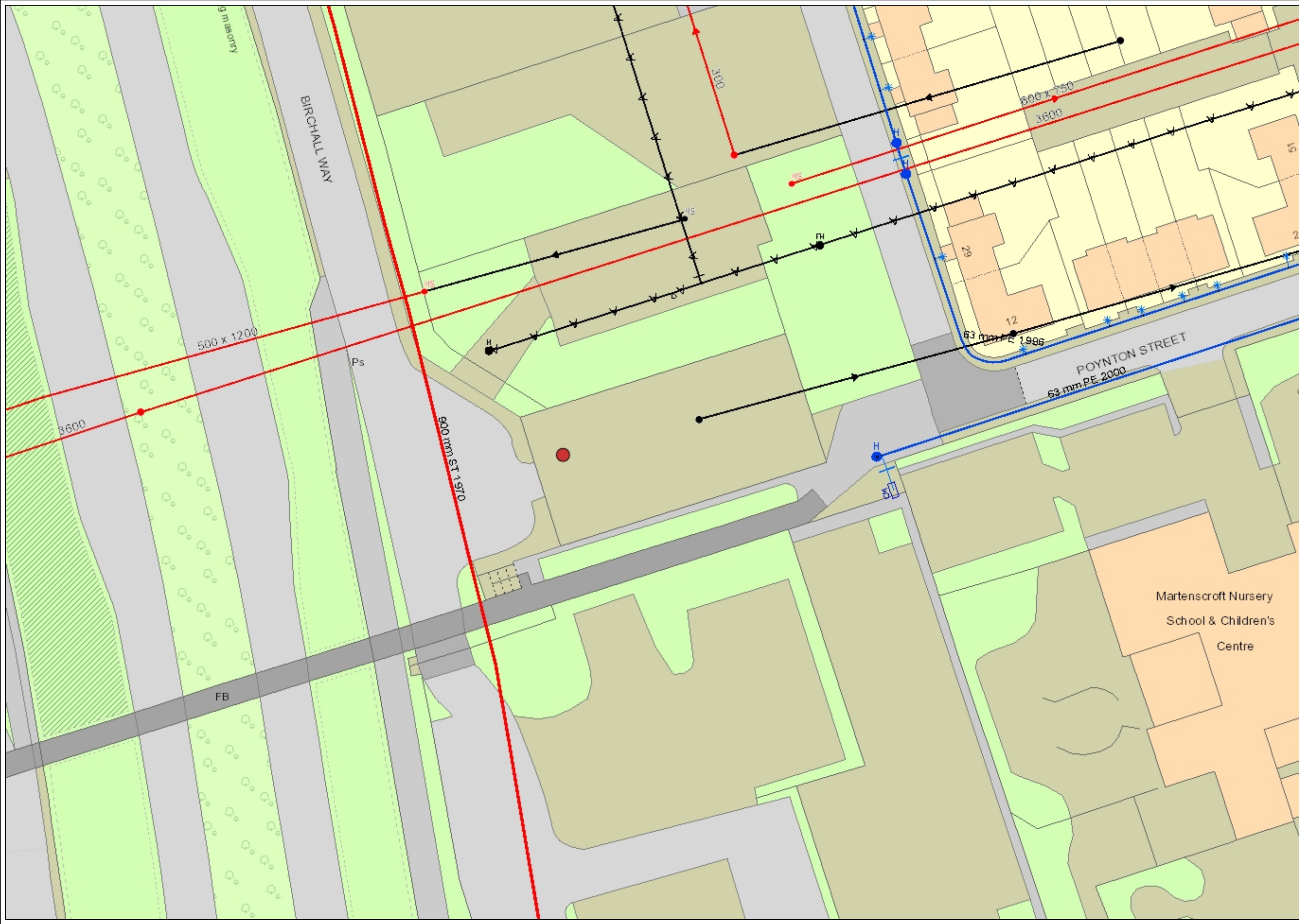
United Utilities SafeDig Website

Wastewater Symbolology

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	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	



United Utilities Maps for SafeDig

Date :	04/07/2023 13:53:00
Centre X:	383902
Centre Y:	396662
Scale :	500
UserName:	E4W7LT3

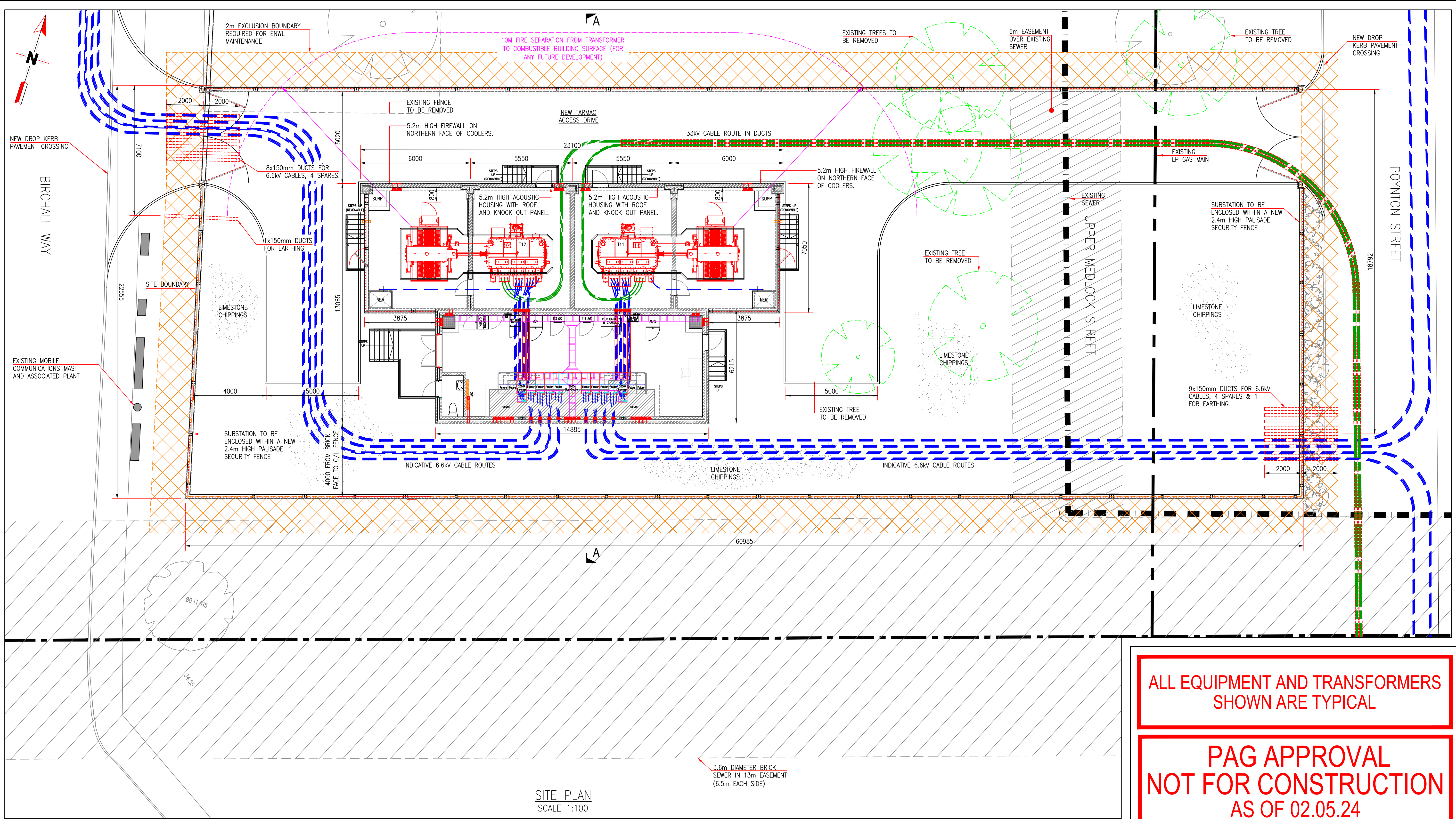
Extract from maps of United Utilities' Underground Assets

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. The actual positions may be different from those shown on the plan and private service pipes may be shown by a blue broken line. United Utilities Water will not accept liability for any damage caused by the actual position being different from those shown.

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Appendix E - Proposed Site Layout



SITE PLAN
SCALE 1:100

NOTES FOR EARTHING

IT IS OUR ASSUMPTION AT THIS STAGE THAT THE SITE WILL HAVE LIMITED CONNECTION TO THE HISTORIC CABLE NETWORK, THEREFORE THIS SITE WILL NEED BARE EARTHING CONDUCTOR TO BE INSTALLED OF MINIMUM 70mm² CROSS SECTIONAL AREA (Cu.) AT A LENGTH OF APPROXIMATELY 500m AWAY FROM THE SUBSTATION FOLLOWING VARIOUS CABLE ROUTES FROM THE SUBSTATION. THESE SHALL BE CONNECTED TO THE SUBSTATION EARTH GRID TO ENSURE ADEQUATE EARTHING FOR THE SUBSTATION.

EARTHING DESIGN STUDY WILL BE REQUIRED FOR CONFIRMATION OF ROUTES, LENGTHS AND CONDUCTOR SIZE.

NOTES & CDM NOTES

- FOR EXISTING CABLE RECORD DETAILS PLEASE REFER TO GEOFIELD. NOTING THAT CABLE RECORDS WITHIN SUBSTATIONS MAY BE INDICATIVE ONLY.
- MANAGEMENT OF EXISTING CABLES TO BE AGREED WITH CONSTRUCTION ENGINEER AND PROJECT MANAGER.

LEGEND

	2m MAINTENANCE BOUNDARY
	ENTRANCE AND ROADWAY FOR DELIVERY
	INDICATIVE ROUTE OF 6.6KV CABLING
	INDICATIVE ROUTE OF 33KV CABLING

EQUIPMENT AND SWITCHROOM HEIGHTS

WINDERS TRANSFORMER TANK HEIGHT	3.218m
WINDERS TRANSFORMER COOLER HEIGHT	4.845m
TRANSFORMER ACOUSTIC HOUSING HEIGHT, APPROX.	5.2m
TRANSFORMER FIRE WALL HEIGHT, APPROX.	5.2m
MINIMUM SWITCHROOM INTERNAL HEIGHT	3.2m



1:100
SCALE FOR REDUCED PRINTS

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REV	AMENDMENTS	DRAWN	APP.	DATE
001	FIRST ISSUE	M.FLANNIGAN	S.K.	02.05.24

ALL EQUIPMENT AND TRANSFORMERS
SHOWN ARE TYPICAL

PAG APPROVAL
NOT FOR CONSTRUCTION
AS OF 02.05.24

electricity
northwest

ELECTRICITY NORTH WEST
FREDERICK ROAD
SALFORD M6 6QH

HULME PRIMARY
ELECTRICAL SITE LAYOUT

SCALE	1:100	SITE NAME	HULME PRIMARY
DRAWN	M.FLANNIGAN	PROJECT	STRATEGIC REINFORCEMENT
APPROVED	S.KALISKI	P.F.R. NO.	100145 DWG STATUS
DATE	02/05/2024	DRAWING NUMBER	100145-00009
SHEET SIZE	A1	REVISION	001
OLD DWG NO			

Appendix F - Greenfield Runoff Rates

Delta-Simons		Page 1
Suite 4A Portland Street Manchester, M1 3BE	Hulme - Electricity North West ICP SuDS Greenfield Runoff Rates	
Date 05/11/2024 File CELLULAR ATTENUATION.SRCX	Designed by TLB Checked by PA	
Innovyze		
Source Control 2020.1.3		
<div>ICP SUDS Mean Annual Flood</div> <div>Input</div> <div><div>Return Period (years)</div><div>100</div><div>Soil</div><div>0.450</div></div> <div><div>Area (ha)</div><div>0.010</div><div>Urban</div><div>0.000</div></div> <div><div>SAAR (mm)</div><div>860</div><div>Region Number</div><div>Region 10</div></div> <div>Results 1/s</div> <div><div>QBAR Rural</div><div>0.1</div></div> <div><div>QBAR Urban</div><div>0.1</div></div> <div><div>Q100 years</div><div>0.1</div></div> <div><div>Q1 year</div><div>0.0</div></div> <div><div>Q30 years</div><div>0.1</div></div> <div><div>Q100 years</div><div>0.1</div></div>		
©1982-2020 Innovyze		

Appendix G - Modified Rational Method Calculations

Modified Rational Method Calculations

1. Obtain the rainfall values for each return period for a 6 hour storm from FEH website after purchasing the point data
2. Input the rainfall values into the below equation to get the brownfield runoff rate for each return period

$$2.78 \times \text{existing hs (Ha)} \times \text{rainfall} = \text{brownfield runoff rate (l/s)}$$

	2.78	Existing hardstanding (ha)	Rainfall output (mm)	BF rate (l/s)
1 in 1	2.78	0.138	21.14	8.1
1 in 2	2.78	0.138	23.73	9.1
1 in 10	2.78	0.138	37.93	14.6
1 in 30	2.78	0.138	47.79	18.3
1 in 100	2.78	0.138	60.29	23.1
1 in 1000	2.78	0.138	91.96	35.3

Appendix H - Permeable Pavement Calculations

Delta-Simons

Page 1

Suite 4A
Portland Street
Manchester, M1 3BE

Hulme - Electricity North West
1 in 100 years + 45% CC
Cellular Storage

Date 02/12/2024
File CELLULAR ATTENUATION.SRCX

Designed by TLB
Checked by AP

Innovyze

Source Control 2020.1.3

Micro
Drainage

Summary of Results for 100 year Return Period (+45%)

Half Drain Time : 5 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	33.291	0.991	0.0	4.9	4.9	1.7	O K
30 min Summer	33.276	0.976	0.0	4.9	4.9	1.7	O K
60 min Summer	33.080	0.780	0.0	4.4	4.4	1.3	O K
120 min Summer	32.778	0.478	0.0	3.4	3.4	0.8	O K
180 min Summer	32.623	0.323	0.0	2.7	2.7	0.6	O K
240 min Summer	32.536	0.236	0.0	2.3	2.3	0.4	O K
360 min Summer	32.447	0.147	0.0	1.8	1.8	0.3	O K
480 min Summer	32.405	0.105	0.0	1.4	1.4	0.2	O K
600 min Summer	32.382	0.082	0.0	1.2	1.2	0.1	O K
720 min Summer	32.369	0.069	0.0	1.0	1.0	0.1	O K
960 min Summer	32.359	0.059	0.0	0.8	0.8	0.1	O K
1440 min Summer	32.348	0.048	0.0	0.6	0.6	0.1	O K
2160 min Summer	32.339	0.039	0.0	0.4	0.4	0.1	O K
2880 min Summer	32.334	0.034	0.0	0.4	0.4	0.1	O K
4320 min Summer	32.328	0.028	0.0	0.3	0.3	0.0	O K
5760 min Summer	32.325	0.025	0.0	0.2	0.2	0.0	O K
7200 min Summer	32.324	0.024	0.0	0.2	0.2	0.0	O K
8640 min Summer	32.322	0.022	0.0	0.2	0.2	0.0	O K
10080 min Summer	32.321	0.021	0.0	0.1	0.1	0.0	O K
15 min Winter	33.235	0.935	0.0	4.8	4.8	1.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	155.842	0.0	3.9	12
30 min Summer	103.533	0.0	5.2	20
60 min Summer	65.686	0.0	6.6	36
120 min Summer	39.160	0.0	7.8	66
180 min Summer	28.678	0.0	8.6	96
240 min Summer	22.915	0.0	9.2	126
360 min Summer	16.635	0.0	10.0	186
480 min Summer	13.234	0.0	10.6	246
600 min Summer	11.076	0.0	11.1	306
720 min Summer	9.574	0.0	11.5	364
960 min Summer	7.605	0.0	12.2	480
1440 min Summer	5.494	0.0	13.2	712
2160 min Summer	3.975	0.0	14.3	1084
2880 min Summer	3.167	0.0	15.2	1432
4320 min Summer	2.312	0.0	16.6	2200
5760 min Summer	1.859	0.0	17.8	2920
7200 min Summer	1.579	0.0	19.0	3608
8640 min Summer	1.386	0.0	20.0	4344
10080 min Summer	1.244	0.0	20.9	4952
15 min Winter	155.842	0.0	3.9	12

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Delta-Simons

Suite 4A
Portland Street
Manchester, M1 3BE

Date 02/12/2024
File CELLULAR ATTENUATION.SRCX

Innovyze

Hulme - Electricity North West
1 in 100 years + 45% CC
Cellular Storage

Designed by TLB
Checked by AP

Source Control 2020.1.3

Page 2



Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	33.147	0.847	0.0	4.5	4.5	1.4	O K
60 min Winter	32.880	0.580	0.0	3.7	3.7	1.0	O K
120 min Winter	32.591	0.291	0.0	2.6	2.6	0.5	O K
180 min Winter	32.478	0.178	0.0	2.0	2.0	0.3	O K
240 min Winter	32.425	0.125	0.0	1.6	1.6	0.2	O K
360 min Winter	32.379	0.079	0.0	1.2	1.2	0.1	O K
480 min Winter	32.363	0.063	0.0	0.9	0.9	0.1	O K
600 min Winter	32.356	0.056	0.0	0.8	0.8	0.1	O K
720 min Winter	32.351	0.051	0.0	0.7	0.7	0.1	O K
960 min Winter	32.344	0.044	0.0	0.5	0.5	0.1	O K
1440 min Winter	32.336	0.036	0.0	0.4	0.4	0.1	O K
2160 min Winter	32.329	0.029	0.0	0.3	0.3	0.0	O K
2880 min Winter	32.326	0.026	0.0	0.2	0.2	0.0	O K
4320 min Winter	32.323	0.023	0.0	0.2	0.2	0.0	O K
5760 min Winter	32.320	0.020	0.0	0.1	0.1	0.0	O K
7200 min Winter	32.319	0.019	0.0	0.1	0.1	0.0	O K
8640 min Winter	32.317	0.017	0.0	0.1	0.1	0.0	O K
10080 min Winter	32.316	0.016	0.0	0.1	0.1	0.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
30 min Winter	103.533	0.0	5.2	21
60 min Winter	65.686	0.0	6.6	36
120 min Winter	39.160	0.0	7.8	66
180 min Winter	28.678	0.0	8.6	96
240 min Winter	22.915	0.0	9.2	126
360 min Winter	16.635	0.0	10.0	184
480 min Winter	13.234	0.0	10.6	246
600 min Winter	11.076	0.0	11.1	304
720 min Winter	9.574	0.0	11.5	362
960 min Winter	7.605	0.0	12.2	490
1440 min Winter	5.494	0.0	13.2	722
2160 min Winter	3.975	0.0	14.3	1084
2880 min Winter	3.167	0.0	15.2	1468
4320 min Winter	2.312	0.0	16.6	2168
5760 min Winter	1.859	0.0	17.8	2920
7200 min Winter	1.579	0.0	19.0	3632
8640 min Winter	1.386	0.0	20.0	4320
10080 min Winter	1.244	0.0	20.9	5232

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Delta-Simons		Page 3
Suite 4A Portland Street Manchester, M1 3BE	Hulme - Electricity North West 1 in 100 years + 45% CC Cellular Storage	
Date 02/12/2024 File CELLULAR ATTENUATION.SRCX	Designed by TLB Checked by AP	
Innovyze Source Control 2020.1.3		
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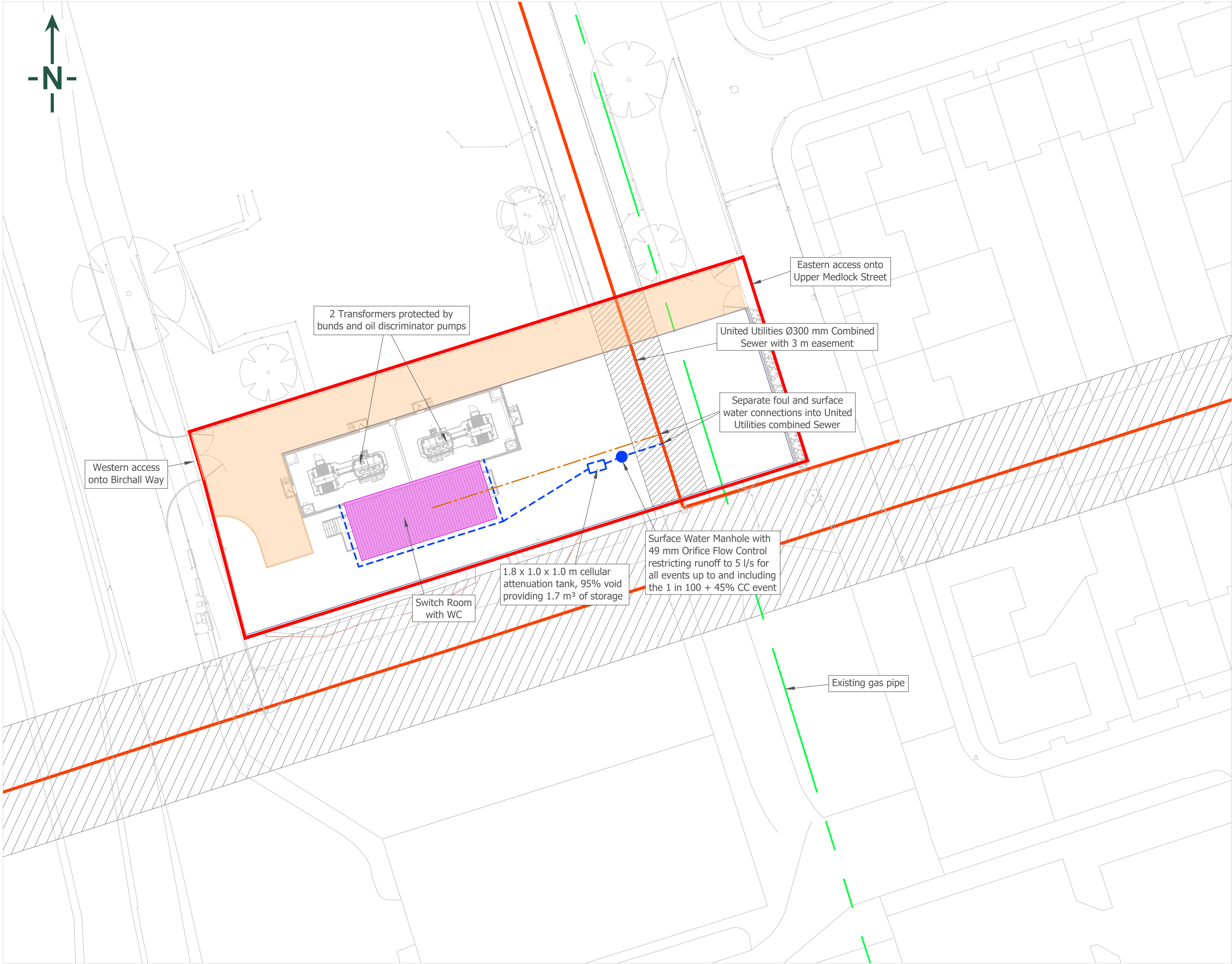
Delta-Simons		Page 4																		
Suite 4A Portland Street Manchester, M1 3BE	Hulme - Electricity North West 1 in 100 years + 45% CC Cellular Storage																			
Date 02/12/2024 File CELLULAR ATTENUATION.SRCX	Designed by TLB Checked by AP																			
Innovyze Source Control 2020.1.3																				
<div>Model Details</div> <div>Storage is Online Cover Level (m) 34.300</div> <div>Cellular Storage Structure</div> <div>Invert Level (m) 32.300 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000</div> <table><thead><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr></thead><tbody><tr><td>0.000</td><td>1.8</td><td>0.0</td><td>1.001</td><td>0.0</td><td>0.0</td></tr><tr><td>1.000</td><td>1.8</td><td>0.0</td><td></td><td></td><td></td></tr></tbody></table> <div>Orifice Outflow Control</div> <div>Diameter (m) 0.049 Discharge Coefficient 0.600 Invert Level (m) 32.300</div>			Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	1.8	0.0	1.001	0.0	0.0	1.000	1.8	0.0			
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)															
0.000	1.8	0.0	1.001	0.0	0.0															
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<p><u>Summary of Results for 100 year Return Period (+45%)</u></p> <p>Half Drain Time : 32 minutes.</p> <table><thead><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr></thead><tbody><tr><td>15 min Summer</td><td>34.842</td><td>0.092</td><td>4.2</td><td>10.2</td><td>O K</td></tr><tr><td>30 min Summer</td><td>34.865</td><td>0.115</td><td>4.2</td><td>12.8</td><td>O K</td></tr><tr><td>60 min Summer</td><td>34.878</td><td>0.128</td><td>4.2</td><td>14.3</td><td>O K</td></tr><tr><td>120 min Summer</td><td>34.871</td><td>0.121</td><td>4.2</td><td>13.4</td><td>O K</td></tr><tr><td>180 min Summer</td><td>34.857</td><td>0.107</td><td>4.2</td><td>11.8</td><td>O K</td></tr><tr><td>240 min Summer</td><td>34.842</td><td>0.092</td><td>4.2</td><td>10.2</td><td>O K</td></tr><tr><td>360 min Summer</td><td>34.818</td><td>0.068</td><td>4.2</td><td>7.5</td><td>O K</td></tr><tr><td>480 min Summer</td><td>34.802</td><td>0.052</td><td>4.2</td><td>5.8</td><td>O K</td></tr><tr><td>600 min Summer</td><td>34.795</td><td>0.045</td><td>3.8</td><td>5.0</td><td>O K</td></tr><tr><td>720 min Summer</td><td>34.790</td><td>0.040</td><td>3.4</td><td>4.5</td><td>O K</td></tr><tr><td>960 min Summer</td><td>34.783</td><td>0.033</td><td>2.8</td><td>3.7</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>34.775</td><td>0.025</td><td>2.1</td><td>2.8</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>34.769</td><td>0.019</td><td>1.6</td><td>2.1</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>34.765</td><td>0.015</td><td>1.3</td><td>1.7</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>34.761</td><td>0.011</td><td>0.9</td><td>1.2</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>34.759</td><td>0.009</td><td>0.7</td><td>1.0</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>34.758</td><td>0.008</td><td>0.6</td><td>0.8</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>34.757</td><td>0.007</td><td>0.6</td><td>0.7</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>34.756</td><td>0.006</td><td>0.5</td><td>0.7</td><td>O K</td></tr><tr><td>15 min Winter</td><td>34.842</td><td>0.092</td><td>4.2</td><td>10.2</td><td>O K</td></tr></tbody></table> <table><thead><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr></thead><tbody><tr><td>15 min Summer</td><td>155.842</td><td>0.0</td><td>16</td></tr><tr><td>30 min Summer</td><td>103.533</td><td>0.0</td><td>28</td></tr><tr><td>60 min Summer</td><td>65.686</td><td>0.0</td><td>44</td></tr><tr><td>120 min Summer</td><td>39.160</td><td>0.0</td><td>80</td></tr><tr><td>180 min Summer</td><td>28.678</td><td>0.0</td><td>112</td></tr><tr><td>240 min Summer</td><td>22.915</td><td>0.0</td><td>144</td></tr><tr><td>360 min Summer</td><td>16.635</td><td>0.0</td><td>202</td></tr><tr><td>480 min Summer</td><td>13.234</td><td>0.0</td><td>258</td></tr><tr><td>600 min Summer</td><td>11.076</td><td>0.0</td><td>316</td></tr><tr><td>720 min Summer</td><td>9.574</td><td>0.0</td><td>376</td></tr><tr><td>960 min Summer</td><td>7.605</td><td>0.0</td><td>498</td></tr><tr><td>1440 min Summer</td><td>5.494</td><td>0.0</td><td>736</td></tr><tr><td>2160 min Summer</td><td>3.975</td><td>0.0</td><td>1100</td></tr><tr><td>2880 min Summer</td><td>3.167</td><td>0.0</td><td>1468</td></tr><tr><td>4320 min Summer</td><td>2.312</td><td>0.0</td><td>2196</td></tr><tr><td>5760 min Summer</td><td>1.859</td><td>0.0</td><td>2936</td></tr><tr><td>7200 min Summer</td><td>1.579</td><td>0.0</td><td>3592</td></tr><tr><td>8640 min Summer</td><td>1.386</td><td>0.0</td><td>4400</td></tr><tr><td>10080 min Summer</td><td>1.244</td><td>0.0</td><td>5104</td></tr><tr><td>15 min Winter</td><td>155.842</td><td>0.0</td><td>16</td></tr></tbody></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	34.842	0.092	4.2	10.2	O K	30 min Summer	34.865	0.115	4.2	12.8	O K	60 min Summer	34.878	0.128	4.2	14.3	O K	120 min Summer	34.871	0.121	4.2	13.4	O K	180 min Summer	34.857	0.107	4.2	11.8	O K	240 min Summer	34.842	0.092	4.2	10.2	O K	360 min Summer	34.818	0.068	4.2	7.5	O K	480 min Summer	34.802	0.052	4.2	5.8	O K	600 min Summer	34.795	0.045	3.8	5.0	O K	720 min Summer	34.790	0.040	3.4	4.5	O K	960 min Summer	34.783	0.033	2.8	3.7	O K	1440 min Summer	34.775	0.025	2.1	2.8	O K	2160 min Summer	34.769	0.019	1.6	2.1	O K	2880 min Summer	34.765	0.015	1.3	1.7	O K	4320 min Summer	34.761	0.011	0.9	1.2	O K	5760 min Summer	34.759	0.009	0.7	1.0	O K	7200 min Summer	34.758	0.008	0.6	0.8	O K	8640 min Summer	34.757	0.007	0.6	0.7	O K	10080 min Summer	34.756	0.006	0.5	0.7	O K	15 min Winter	34.842	0.092	4.2	10.2	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	155.842	0.0	16	30 min Summer	103.533	0.0	28	60 min Summer	65.686	0.0	44	120 min Summer	39.160	0.0	80	180 min Summer	28.678	0.0	112	240 min Summer	22.915	0.0	144	360 min Summer	16.635	0.0	202	480 min Summer	13.234	0.0	258	600 min Summer	11.076	0.0	316	720 min Summer	9.574	0.0	376	960 min Summer	7.605	0.0	498	1440 min Summer	5.494	0.0	736	2160 min Summer	3.975	0.0	1100	2880 min Summer	3.167	0.0	1468	4320 min Summer	2.312	0.0	2196	5760 min Summer	1.859	0.0	2936	7200 min Summer	1.579	0.0	3592	8640 min Summer	1.386	0.0	4400	10080 min Summer	1.244	0.0	5104	15 min Winter	155.842	0.0	16
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status																																																																																																																																																																																																																		
15 min Summer	34.842	0.092	4.2	10.2	O K																																																																																																																																																																																																																		
30 min Summer	34.865	0.115	4.2	12.8	O K																																																																																																																																																																																																																		
60 min Summer	34.878	0.128	4.2	14.3	O K																																																																																																																																																																																																																		
120 min Summer	34.871	0.121	4.2	13.4	O K																																																																																																																																																																																																																		
180 min Summer	34.857	0.107	4.2	11.8	O K																																																																																																																																																																																																																		
240 min Summer	34.842	0.092	4.2	10.2	O K																																																																																																																																																																																																																		
360 min Summer	34.818	0.068	4.2	7.5	O K																																																																																																																																																																																																																		
480 min Summer	34.802	0.052	4.2	5.8	O K																																																																																																																																																																																																																		
600 min Summer	34.795	0.045	3.8	5.0	O K																																																																																																																																																																																																																		
720 min Summer	34.790	0.040	3.4	4.5	O K																																																																																																																																																																																																																		
960 min Summer	34.783	0.033	2.8	3.7	O K																																																																																																																																																																																																																		
1440 min Summer	34.775	0.025	2.1	2.8	O K																																																																																																																																																																																																																		
2160 min Summer	34.769	0.019	1.6	2.1	O K																																																																																																																																																																																																																		
2880 min Summer	34.765	0.015	1.3	1.7	O K																																																																																																																																																																																																																		
4320 min Summer	34.761	0.011	0.9	1.2	O K																																																																																																																																																																																																																		
5760 min Summer	34.759	0.009	0.7	1.0	O K																																																																																																																																																																																																																		
7200 min Summer	34.758	0.008	0.6	0.8	O K																																																																																																																																																																																																																		
8640 min Summer	34.757	0.007	0.6	0.7	O K																																																																																																																																																																																																																		
10080 min Summer	34.756	0.006	0.5	0.7	O K																																																																																																																																																																																																																		
15 min Winter	34.842	0.092	4.2	10.2	O K																																																																																																																																																																																																																		
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)																																																																																																																																																																																																																				
15 min Summer	155.842	0.0	16																																																																																																																																																																																																																				
30 min Summer	103.533	0.0	28																																																																																																																																																																																																																				
60 min Summer	65.686	0.0	44																																																																																																																																																																																																																				
120 min Summer	39.160	0.0	80																																																																																																																																																																																																																				
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480 min Summer	13.234	0.0	258																																																																																																																																																																																																																				
600 min Summer	11.076	0.0	316																																																																																																																																																																																																																				
720 min Summer	9.574	0.0	376																																																																																																																																																																																																																				
960 min Summer	7.605	0.0	498																																																																																																																																																																																																																				
1440 min Summer	5.494	0.0	736																																																																																																																																																																																																																				
2160 min Summer	3.975	0.0	1100																																																																																																																																																																																																																				
2880 min Summer	3.167	0.0	1468																																																																																																																																																																																																																				
4320 min Summer	2.312	0.0	2196																																																																																																																																																																																																																				
5760 min Summer	1.859	0.0	2936																																																																																																																																																																																																																				
7200 min Summer	1.579	0.0	3592																																																																																																																																																																																																																				
8640 min Summer	1.386	0.0	4400																																																																																																																																																																																																																				
10080 min Summer	1.244	0.0	5104																																																																																																																																																																																																																				
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Delta-Simons				Page 2	
Suite 4A Portland Street Manchester, M1 3BE		Hulme - Electricity North West 1 in 100 years + 45% CC Permeable Pavement			
Date 05/11/2024 File PERMEABLE PAVEMENT.SRCX		Designed by TLB Checked by PA			
Innovyze		Source Control 2020.1.3			
<u>Summary of Results for 100 year Return Period (+45%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	34.865	0.115	4.2	12.7	O K
60 min Winter	34.875	0.125	4.2	13.9	O K
120 min Winter	34.859	0.109	4.2	12.2	O K
180 min Winter	34.838	0.088	4.2	9.7	O K
240 min Winter	34.818	0.068	4.2	7.6	O K
360 min Winter	34.797	0.047	3.9	5.2	O K
480 min Winter	34.788	0.038	3.2	4.3	O K
600 min Winter	34.783	0.033	2.7	3.6	O K
720 min Winter	34.779	0.029	2.4	3.2	O K
960 min Winter	34.773	0.023	1.9	2.6	O K
1440 min Winter	34.767	0.017	1.4	1.8	O K
2160 min Winter	34.762	0.012	1.0	1.3	O K
2880 min Winter	34.760	0.010	0.8	1.1	O K
4320 min Winter	34.757	0.007	0.6	0.8	O K
5760 min Winter	34.756	0.006	0.5	0.6	O K
7200 min Winter	34.755	0.005	0.4	0.5	O K
8640 min Winter	34.754	0.004	0.4	0.5	O K
10080 min Winter	34.754	0.004	0.3	0.4	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	103.533	0.0	29		
60 min Winter	65.686	0.0	48		
120 min Winter	39.160	0.0	84		
180 min Winter	28.678	0.0	118		
240 min Winter	22.915	0.0	148		
360 min Winter	16.635	0.0	200		
480 min Winter	13.234	0.0	260		
600 min Winter	11.076	0.0	320		
720 min Winter	9.574	0.0	378		
960 min Winter	7.605	0.0	498		
1440 min Winter	5.494	0.0	738		
2160 min Winter	3.975	0.0	1076		
2880 min Winter	3.167	0.0	1464		
4320 min Winter	2.312	0.0	2152		
5760 min Winter	1.859	0.0	2848		
7200 min Winter	1.579	0.0	3712		
8640 min Winter	1.386	0.0	4320		
10080 min Winter	1.244	0.0	5032		
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Delta-Simons		Page 4																								
Suite 4A Portland Street Manchester, M1 3BE	Hulme - Electricity North West 1 in 100 years + 45% CC Permeable Pavement																									
Date 05/11/2024 File PERMEABLE PAVEMENT.SRCX	Designed by TLB Checked by PA																									
Innovyze																										
Source Control 2020.1.3																										
<div>Model Details</div> <div>Storage is Online Cover Level (m) 35.000</div> <div>Porous Car Park Structure</div> <table><tr><td>Infiltration Coefficient Base (m/hr)</td><td>0.08136</td><td>Width (m)</td><td>10.0</td></tr><tr><td>Membrane Percolation (mm/hr)</td><td>1000</td><td>Length (m)</td><td>37.0</td></tr><tr><td>Max Percolation (l/s)</td><td>102.8</td><td>Slope (1:X)</td><td>0.0</td></tr><tr><td>Safety Factor</td><td>2.0</td><td>Depression Storage (mm)</td><td>5</td></tr><tr><td>Porosity</td><td>0.30</td><td>Evaporation (mm/day)</td><td>3</td></tr><tr><td>Invert Level (m)</td><td>34.750</td><td>Membrane Depth (m)</td><td>100</td></tr></table>			Infiltration Coefficient Base (m/hr)	0.08136	Width (m)	10.0	Membrane Percolation (mm/hr)	1000	Length (m)	37.0	Max Percolation (l/s)	102.8	Slope (1:X)	0.0	Safety Factor	2.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	34.750	Membrane Depth (m)	100
Infiltration Coefficient Base (m/hr)	0.08136	Width (m)	10.0																							
Membrane Percolation (mm/hr)	1000	Length (m)	37.0																							
Max Percolation (l/s)	102.8	Slope (1:X)	0.0																							
Safety Factor	2.0	Depression Storage (mm)	5																							
Porosity	0.30	Evaporation (mm/day)	3																							
Invert Level (m)	34.750	Membrane Depth (m)	100																							
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Appendix I - Drainage Concept Sketch



Legend

- Site Boundary
- Surface Water Drain
- Foul Water Drain
- Public Combined Sewer
- Porous Pavement
- Impermeable Roof Area (95 m²)

Notes

Indicative drainage sketch only - all information to be confirmed at the detailed design stage.

Site Plan Provided by Client

Appendix J - Maintenance Schedules

Attenuation Storage Tank Maintenance Schedule

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
	For systems where rainfall infiltrates into the tank from above, check surface of filter for blockage by sediment, algae or other matter; remove and replace surface infiltration medium as necessary	Annually
	Remove sediment from pre-treatment structures and/ or internal forebays	Annually, or as required
Remedial actions	Repair/rehabilitate inlets, outlet, overflows and vents	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually
	Survey inside of tank for sediment build-up and remove if necessary	Every 5 years or as required

Ref. Table 21.3, CIRIA C753 'The SuDS Manual'

Permeable Paving Maintenance Schedule

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on Site-specific observations of clogging or manufacturer's recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment
Occasional maintenance	Stabilise and move contributing and adjacent areas	As required
	Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying	As required – once per year on less frequently used pavements
Remedial actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50mm of the level of the paving	As required
	Rehabilitation of surface and upper substructure by remedial sweeping	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Inspect for evidence of poor operation and / or weed growth – if required, take remedial action	Three-monthly, 48hr after large storms in first six months
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually

Ref. Table 20.15, CIRIA C753 'The SuDS Manual'



Appendix K - United Utilities Pre-Development Enquiry Response

From: seweradoptions@uuplc.co.uk
Sent: 21 November 2024 16:40
To: Toby Bass
Subject: RE: Wastewater Pre-Development Enquiry Submission - UU Ref: 06610493

Hi Toby,

Thank you for your email.

I will pass on the technical note comments and we can look to update – appreciated.

Sewer:

You could build a road / path over the sewer, however I would appreciate details and you must ensure suitable materials are used.

Surface Water Flows:

I appreciate your comments, however as the runoff will be discharging to a combined sewer the maximum permitted is 5 l/s for all events

Regards

Anthony



Anthony Laithwaite
Ww Engineer
Developer Services & Metering
Customer Services

T: 01925 429090
unitedutilities.com

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

From: seweradoptions@uuplc.co.uk [seweradoptions@uuplc.co.uk]
Sent: 21/11/2024 16:28
To: toby.bass@luciongroup.com
Subject: RE: Wastewater Pre-Development Enquiry Submission - UU Ref: 06610493

Hello Toby,

Thank you for your email.

I have referred to Anthony Laithwaite and he will aim to respond by the 3rd December.

Regards

Samantha
0345 026 8989 - Option 4

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

From: Toby Bass [toby.bass@luciongroup.com]

Sent: 19/11/2024 15:31

To: seweradoptions@uuplc.co.uk

Subject: RE: Wastewater Pre-Development Enquiry Submission - UU Ref: 06610493

Hi Anthony, I hope you are well.

Just to let you know, I think your reference to paragraph 80, (Reference ID: 7-080-20150323), of the National Planning Practice Guidance is out of date. I think you're looking for Paragraph: 056 Reference ID: 7-056-20220825 of the flood risk and coastal change NPPG.

When you say that you will not allow the onsite sewer to be built over, does that include a shallow construction access track made of granular material?

Please see attached drainage strategy. Given the scale of the development, (95m² to be drained to the UU sewer) we believe providing a flow control of 5l/s is superfluous. To put it in context the site would generate a peak of about 9 l/s in a 15min 100 yr event +45%CC with a 100mm pipe outlet. Peak flow rates are significantly less (often less than 5l/s in longer events).

Given the nature of the development (electricity sub-station) and its scale, we believe a unrestricted discharge may be appropriate.

If you have any comments or questions please let me know.

Kind regards

Toby Bass
Senior
Lucion Delta-Simons Ltd

e: tooby.bass@luciongroup.com

t: 0345 5040 303 | m: 07951 823 649

w: www.luciongroup.com



Lucion Delta-Simons Ltd is registered in England and Wales, company registration number: 04786034

Registered office address: 5 Abbots Park Preston Brook Runcorn WA7 3GH

From: seweradoptions@uuplc.co.uk <seweradoptions@uuplc.co.uk>

Sent: 12 November 2024 10:43

To: Toby Bass <tooby.bass@luciongroup.com>

Subject: RE: Wastewater Pre-Development Enquiry Submission - UU Ref: 06610493

Apologies Toby, this should be addressed to yourself and not Alona.

Regards

Anthony

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

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

Sent: 12/11/2024 10:40

To: tooby.bass@luciongroup.com

Subject: RE: Wastewater Pre-Development Enquiry Submission - UU Ref: 06610493

Good Afternoon Alona,

Thank you for your WW PDE application, please see our reply below:

UU REF 06610493 - WW PDE –Birchall Way, Manchester

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 combined sewer at a point that is convenient to yourselves

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.

Should the above be exhausted and a connection to the combined sewer is required we would have no objections to a maximum pass forward flow rate of 5 l/s to a point convenient to yourselves

Public Sewers:

A 300 / 375dia public sewer crosses the site and we will not permit this to be built over, there is also two large diameter sewers very close to the site boundary, all easements must be adhered to.

Regards

Anthony



Anthony Laithwaite
Ww Engineer
Developer Services & Metering
Customer Services

T: 01925 429090
unitedutilities.com

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

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

Sent: 11/11/2024 16:10

To: toby.bass@luciongroup.com

Subject: Wastewater Pre-Development Enquiry Submission - UU Ref: 06610493

Good Afternoon

PRE DEVELOPMENT APPLICATION AT BIRCHALL WAY : – UU Ref 06610493

Please accept this email as receipt of your application received on 11/11/24 for the above development. This has now been logged on our system and the job reference is 06610493 we would ask that you quote this reference in all future correspondence.

I have reviewed your application (and attachments) and can confirm this is suitable to be passed to Anthony Laithwaite for technical assessment. You will receive their response on or before 25/11/24.

Kind regards



Freya Littlemore
Customer Advisor Advanced
Developer Services & Metering
Customer Services
T: 0345 026 8989 option 4
unitedutilities.com

If you feel you have received a good service from myself, please can you take two minutes to fill in the survey below. This will be much appreciated



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

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

From: [donotreply@uu-web.co.uk]
Sent: 11/11/2024 14:52
To: seweradoptions@uuplc.co.uk; webmaster@uuplc.co.uk
Subject: Wastewater Pre-Development Enquiry Submission

Question	Answer
Section 1 - Your Details	
Developer/Consultant/Land owner/Other	Consultant
Name	Toby
Company Name	Lucion Delta Simons
Address	Lucion 4:10 Linley house Clockwise Manchester M1 4LF
Contact Number	07951 823649
Email Address	toby.bass@luciongroup.com
Section 2 - Development Details	
Do you intend to offer any of the sewers for adoption by United Utilities under S104?	No
Site Address	Land off Birchall Way, Hulme Manchester M15 6DU
Site Postcode	#Development postcode#
Site Name	Birchall Way
Grid Reference Number	383900, 396710
Development Type	Commercial
Approx. Number Units	0
Total Site Area (hectares)	0.138
Does this site have planning permission?	Yes
Planning Reference Number	140484/FO/2024
Council Area	Manchester City Council
Have you approached us about this site previously?	No
If yes, please provide reference number	
Is the development part of a larger site that will be developed in phases?	No
Location Plan	Hulme Plan.JPG
Section 3: Previous Land Use	
Please confirm what the land was previously used for:	Brownfield
Brownfield evidence of positive drainage to the public sewer	Appendix D - United Utilities Asset Plan Legend.pdf , Appendix D - United Utilities Asset Plan (1).pdf
Section 4 - Drainage Strategy	
Foul connection: How are you proposing to drain foul flows from the site?	Via a new connection to the public sewer
Via an existing connection to the public sewer?	No
Surface water connection: How are you proposing to drain your site, following the surface water	Combined sewer

Question

Answer

hierarchy, as outlined in National Planning Policy Guidance?

SuDS: Have SuDS features been considered in the surface water drainage strategy? Yes



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