

Former Merseyside Dogs Home

East Halewood

Drainage Strategy

June 2024

Project Information	
Project:	Former Merseyside Dogs Home, East Halewood
Report Title:	Drainage Strategy
Client:	BBE Developments Ltd
Instruction:	The instruction to undertake this Drainage Strategy was received from Mr Nabeil Nasr of BBE Developments Ltd
File Ref:	14506-Drainage Strategy-03

Approval Record	
Author:	Ryan Moore BSc (Hons)
Checker:	Aled Williams BSc (Hons) MCIWEM C.WEM
Approver:	Mike Wellington BEng (Hons) MSc CEng CEnv FICE FCIWEM C.WEM IMaPS MAPM

Document History		
Revision	Date	Comment
01	12/05/2023	First issue
02	23/05/2024	Second issue – Report updated to reflect revised development plan.
03	17/06/2024	Third issue - Report updated to reflect revised development plan

The copyright in this document (including its electronic form) shall remain vested in Waterco Limited (Waterco) but the Client shall have a licence to copy and use the document for the purpose for which it was provided. Waterco shall not be liable for the use by any person of the document for any purpose other than that for which the same was provided by Waterco. This document shall not be reproduced in whole or in part or relied upon by third parties for any use whatsoever without the express written authority of Waterco.

This report will remain valid for a period of twelve months (from the date of last issue) after which the source data should be reviewed in order to reassess the findings and conclusions on the basis of latest available information.

Contents

Introduction	1
Existing Conditions	1
Development Proposals	3
Planning Policy	3
Consultation	4
Surface Water Management	6
Maintenance.....	8
Foul Drainage.....	9
Conclusions.....	10
Recommendations.....	10

Appendices

Appendix A	Location Plan & Aerial Image
Appendix B	Topographical Information
Appendix C	BGS Borehole Record & Location Plan
Appendix D	UU Sewer Plan and Correspondence
Appendix E	Proposed Development Plan
Appendix F	ReFH2 Greenfield Runoff Estimate
Appendix G	MicroDrainage Attenuation Storage Estimate
Appendix H	Concept Drainage Sketch
Appendix I	Maintenance Schedule
Appendix J	Concept Designer's Risk Assessment

Tables

Table 1 – Pollution Hazard Indices	8
Table 2 – SuDS Mitigation Indices	8

Introduction

Waterco has been commissioned to undertake a Drainage Strategy in relation to a residential development at the Former Merseyside Dogs Home, Greensbridge Lane, Halewood, L35 1QH.

Knowsley Council as a Lead Local Flood Authority (LLFA) is a statutory consultee for major 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.

Existing Conditions

The site covers an area of approximately 1.26ha and is located at National Grid Reference (NGR): 345615, 386610. A location plan and an aerial image are included in Appendix A.

Online mapping (including Google Maps / Google Streetview imagery, accessed June 2024) shows that the site comprises a residential property and a former dogs home with associated outbuildings, access, parking and landscaped areas.

The site is bordered by Cartbridge Lane to the north, Greensbridge Lane with agricultural land beyond to the east, and Netherley Brook to the south-west. Access to the site is provided from Greensbridge Lane.

Local Topography

A topographical survey has been undertaken by Ian Strachan Ltd in January 2022. The topographical survey shows that the site slopes from 9.13 metres Above Ordnance Datum (m AOD) in the north-east to 7.67m AOD in the south-west.

Topographic levels to m AOD have also been derived from a 1m resolution Environment Agency (EA) composite 'Light Detecting and Ranging' (LiDAR) Digital Terrain Model (DTM). The LiDAR levels generally reflect those shown on the topographical survey.

Topographical information is included as Appendix B.

Ground Conditions

The British Geological Survey (BGS) online mapping (1:50,000 scale), the majority of the site is underlain by superficial deposits of Alluvium generally comprising clay, silt, sand and gravel. The north-eastern extent of the site is underlain by Devensian Till, comprising of Diamicton. The superficial deposits are identified as being underlain by the Wilmslow Sandstone Formation.

The geological mapping is available at a scale of 1:50,000 and as such may not be accurate on a site-specific basis.

The closest historical BGS borehole record (BGS reference: SJ48NE18) is located 20m east of the site and is

included in Appendix C together with a borehole location plan. The borehole record identifies:

- Topsoil from ground level to 0.15 metres below ground level (m.bgl);
- Sand and gravel from 0.15m.bgl to 1.01m.bgl;
- Brown clay and stone from 1.01m.bgl to 30.48m.bgl;
- Sand and gravel from 30.48m.bgl to 32.31m.bgl;
- Red sandstone from 32.21m.bgl to 152.40m.bgl.

Groundwater was observed at 22.40m.bgl.

According to the EA's Aquifer Designation data, obtained from MAGIC's online mapping [accessed June 2024], the Alluvium is 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*'.

The Devensian Till located in the north-eastern extent of the site is classified as a Secondary Undifferentiated Aquifer. Secondary Undifferentiated Aquifers are assigned in '*cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated both minor and non-aquifer in different locations due to the variable characteristics of the rock type*'.

The underlying Wilmslow Sandstone Formation 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*'.

The EA's 'Source Protection Zones' data, obtained from MAGIC's online mapping [accessed June 2024], indicates that the southern extent of the site is located within a Zone 1 Inner Groundwater Source Protection Zone. This zone is defined by a travel time of 50-days or less from any point within the zone at, or below, the water table. Additionally, the zone has a minimum 50-metre radius. The northern extent of the site is identified within a Zone 2 Outer Groundwater Protection Zone. This zone is defined by the 400-day travel time from a point below the water table. Additionally, this zone has a minimum radius of 250 or 500 metres, depending on the size of the abstraction.

The Cranfield University 'Soilscapes' map [accessed June 2024] indicates that the site is underlain by '*slowly permeable, seasonally wet, loamy and clayey soils*'.

Local Drainage

Public sewer records have been obtained from United Utilities (UU) and are included in Appendix D. The UU sewer records show that there is a public foul rising main immediately east of the site.

The public sewer records also show a network of public foul and surface water sewers within the residential area west of the site and beyond Netherley Brook.

No details are currently available on the existing site drainage. It is assumed that foul flows discharge to a private treatment plant or septic tank.

Development Proposals

The proposed development is for the erection of 29no. residential properties with associated driveways, access roads and gardens. A proposed development plan is included in Appendix E.

The proposed development will include hardstanding areas in the form of buildings, access roads and parking. Hardstanding will comprise 4,700m² or 37% of the total site area. The remaining permeable, soft landscaped areas will occupy 7,900m² or 63% of the total site area. Measurements have been taken from a PDF copy of the 'Masterplan Layout' (Drawing No. 2.010) and are approximate only.

As part of the flood mitigation proposals for the proposed development, it is proposed to set site levels at a minimum of 8.74m AOD. Further details are provided in the Waterco Flood Risk Assessment (document reference 14506-FRA-04).

Planning Policy

The Knowsley Council Local Plan Core Strategy (adopted January 2016) contains the following policies relating to drainage:

'Policy CS24 – Managing Flood Risk

4) New development shall include flood mitigation measures, where necessary, to manage flood risk associated with or caused by the development. These measures shall be derived from the Strategic Flood Risk Assessment (SFRA), relevant FRA(s) or a local strategy for flood risk management, and:

- a) Be designed to contribute to the biodiversity of the borough unless it can be demonstrated that this would not be technically feasible;*
- b) Incorporate a Sustainable Drainage System;*
- c) Be fully described in the planning application; and*
- d) Be funded by the developer, including long term maintenance.*

5) The drainage of new development shall be designed to reduce surface water run-off rates to those associated with a green-field site by treating it at its source. The chosen method of implementation should take account of site size, ground contamination or conditions, and potential damage to adjacent buildings or

sites.

10.24 – Sustainable Drainage Systems

Sustainable Drainage Systems ('SuDS') are now the expected way to manage surface water and can be used on any site. These features include green roofs, soft landscaping, permeable surfaces and/or water storage ponds. Policy CS24 will complement Part H of the Building Regulations 2010 and national legislation by requiring the use of SuDS on all sites. Further guidance on the Council's requirements concerning the use of SuDS will be set out in the 'Design Quality in New Development' or other SPD as appropriate.'

Consultation

A pre-development enquiry was submitted to United Utilities in March 2023. In their response (Appendix D), United Utilities have stated that:

'Foul Water'

Foul flow from this site will be allowed to drain into the public foul water system. Our preferred point of discharge would be to the 150mm diameter public foul water sewer within Bridgefield road located to the west of your proposed development at an unrestricted rate. If you are able to identify an alternative, more suitable point of discharge, we request that you contact us at your earliest convenience so that we can assess suitability.

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

Surface Water

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

Waterbody

If an evidence based assessment has been carried out and confirms that infiltration is not feasible, we recommend that you contact the Lead Local Flood Authority and/or Environment Agency to discuss a point of discharge to the waterbody located west of the proposed site. We would encourage you to identify and engage with any third party landowner and riparian owner to agree access and discharge rights to the water body if this is not in your ownership.

Existing Wastewater Assets Crossing the Site

We have reviewed our records and can confirm that there does not appear to be any charted public sewers located within the boundary of proposed development. However, due to the accuracy of the records and the public sewer transfer legislation in 2011, not all public sewers are shown on our records so we would ask that

you proceed with caution and carry out your own site investigation works. If any uncharted sewers are identified while carrying out your works we would ask that you contact United Utilities at the earliest opportunity so that we can offer guidance and update our records.

Groundwater Protection

The site overlies the sandstone rock, in a Groundwater Source Protection Zone (SPZ) 1 and 2. This forms an aquifer, abstracted at depth by United Utilities for public drinking water supply at the nearby Greensbridge boreholes. The applicant should follow best practice on their use and storage of fuels, oils and chemicals to remove the risk of causing pollution during construction.

Development in SPZ1

United Utilities consider this development, taking place within SPZ1, as the most sensitive location from a groundwater protection viewpoint. Notwithstanding our strong preference for development to not take place in locations within SPZ1, if the proposed development in this location is accepted through the planning process, we draw your attention to the advice of the Environment Agency on the development in such locations 'The Environment Agency's approach to groundwater protection'.

In the event that development within SPZ1 is submitted for planning, the application must fully consider the potential pollutant risks during construction, as addressed in the Construction Environmental Management Plan (CEMP). United Utilities request to be consulted on the future development, and would expect to receive the CEMP, including Pollution Risk Assessments and Method Statements, detailing the following:

- i. Protection of surface and groundwater resources;*
- ii. Best practise on the use and storage of fuels, oils and chemicals, to remove the risk of causing pollution during construction;*
- iii. Traffic management on neighbouring highways and the parking of vehicles of site operatives and visitors;*
- iv. Loading and unloading of plant and materials used in constructing the development;*
- v. Wheel washing facilities; and*
- vi. A scheme for recycling/disposing of waste resulting from demolition and construction works.*

SuDS

Together with the Environment Agency, United Utilities supports the principles of sustainable drainage systems (SuDS) for new discharges. Where infiltration SuDS are to be used for surface run-off from roads, car parking and public or amenity areas, they should have a suitable series of treatment steps to prevent the pollution of groundwater.

Wastewater Drainage

United Utilities support the proposal for a connection into the foul sewer network. United Utilities would not support an outfall of foul sewage to ground, from any private wastewater treatment plant given the close

proximity to the abstraction well.

We would recommend the applicant follow 'The Environment Agency's approach to groundwater protection' includes the following position statements on developments within SPZ1:

G8 – Sewerage Pipework

"The Environment Agency will require the use of the highest specification pipework and designs for schemes involving new sewerage systems in SPZ1 to minimise leakage." UU recommend this includes secondary containment of the pipework, such as include clay lining sewer trenches.'

Surface Water Management

The site currently comprises a residential property and a former dog's home with associated outbuildings, access, parking and landscaped areas.

The proposed development will include 4,700m² of hardstanding in the form of buildings, access roads and parking.

In order to comply with local and national drainage guidance, including the 'non-statutory technical standards for sustainable drainage system' (March 2015), surface water runoff from the site should be restricted to the greenfield runoff rate.

Greenfield runoff rates have been estimated using the Revitalised Flood Hydrograph Model (ReFH2) method with rainfall data obtained from the FEH (Flood Estimation Handbook) web service. A summary of the greenfield runoff rates for a range of events is provided as Appendix F. The existing 1 in 1 year greenfield runoff rate for the 1.26ha development site is 6 l/s.

Attenuation Storage

In order to achieve a discharge rate of 6 l/s, attenuation storage will be required. An attenuation storage estimate is included in Appendix G. An estimated storage volume of 306m³ will be required to accommodate the 1 in 100 year plus 45% Climate Change (CC) event. The storage estimate is based on storage within a tank or pond structure, an impermeable drainage area of 4,700m², a design head of 1m and hydro-brake flow control.

The attenuation volume is provided for indicative purposes only and should be verified at the detailed design stage.

Discharge Method

Paragraph 056 of the NPPG: Flood Risk and Coastal Change sets out the following hierarchy of drainage options: into the ground (infiltration); to a surface water body; to a surface water sewer, highway drain or another drainage system; to a combined sewer.

Infiltration

The first consideration for the disposal of surface water is infiltration (soakaways and permeable surfaces). As described above, the majority of the site is underlain by superficial deposits of Alluvium generally comprising clay, silt, sand and gravel. The north-eastern extent of the site is underlain by Devensian Till, comprising Diamicton. The superficial deposits are identified as being underlain by the Wilmslow Sandstone Formation.

It is noted that site levels will be raised by up to 1m to form a minimum development platform set at 8.74m AOD and that the superficial deposits are generally impermeable in nature.

Based on the location of the site within Groundwater Source Protection Zone 1 and the impermeable nature of the underlying superficial deposits, infiltration techniques are not considered to be viable.

Watercourse

The nearest watercourse is Netherley Brook which is located immediately west of the site. Discharge to Netherley Brook, at a limited discharge rate of 6 l/s, appears to be feasible.

Based on a minimum proposed site level of 8.74m AOD, discharge by gravity to Netherley Brook (situated at approximately 6m AOD) is achievable.

Sustainable Drainage Systems

Attenuation storage should be provided in the form of sustainable drainage systems. As shown on the site layout, provision has been made for an attenuation storage pond within the landscaped area in the southern extent of the site.

The 'Masterplan Layout' (Drawing No. 2.010) provided by the Client indicates that the proposed pond has a surface area of 368m². Based on 1 in 3 side slopes and a pond depth of 1.2m, resulting in a base (invert) area of 164m², the 368m² pond could provide up to 319m³ of attenuation storage, sufficient to accommodate the 1 in 100 year plus 45% CC event. All runoff will drain via the attenuation pond prior to discharge to Netherley Brook.

The attenuation pond will be appropriately lined to prevent discharge to the underlying aquifer and groundwater source protection zone.

Concept Surface Water Drainage Scheme

Surface water runoff will be discharged to Netherley Brook located immediately west of the site at a limited greenfield discharge rate of 6 l/s. Surface water runoff up to the 1 in 100 year plus 45% climate change allowance event will be attenuated on site. A total attenuation volume of 306m³ will be required to achieve the discharge rate and will be provided in the form of an attenuation pond located within the landscaped area in the southern extent of the site.

A Concept Drainage Sketch is included as Appendix H.

The proposed surface water drainage scheme will ensure no increase in runoff over the lifetime of the

development.

Exceedance Event

Storage will be provided for 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 should set at a minimum of 150mm above surrounding ground levels ensuring exceedance flooding will not affect the buildings.

Surface Water Treatment

In accordance with the CIRIA C753 publication 'The SuDS Manual' (2015), residential roofs have a 'very low' pollution hazard level, with low traffic roads classified as having a 'low' pollution hazard level. Table 1 shows the pollution hazard indices for each land use.

Table 1 – Pollution Hazard Indices

Land Use	Pollution Hazard Level	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Residential Roofs	Very Low	0.2	0.2	0.05
Low Traffic Roads	Low	0.5	0.4	0.4

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

* Indices values range from 0-1.

Runoff from roofs and roads will be directed to an attenuation pond prior to discharge to Netherley Brook. Table 2 demonstrates that a pond provides sufficient treatment.

Table 2 – SuDS Mitigation Indices

Type of SuDS	Mitigation Indices		
	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Pond	0.7	0.7	0.5

Table extract taken from the CIRIA C753 publication 'The SuDS Manual' – Table 26.3

Maintenance

The proposed drainage system will be offered to United Utilities for adoption. United Utilities will then be responsible for maintenance. Should United Utilities not adopt an element of the drainage system, for example the attenuation pond, then maintenance will be arranged through appointment of a management company.

A maintenance schedules for an attenuation pond is included in Appendix I.

Foul Drainage

The nearest public gravity sewers are located west of the site and beyond Netherley Brook. To achieve a connection to the public sewer system approximately 310m of new foul rising main would need to be laid in Greensbridge Lane.

Correspondence from United Utilities (Appendix D) states that:

'Foul Water

Foul flow from this site will be allowed to drain into the public foul water system. Our preferred point of discharge would be the 150mm diameter public foul water sewer within Bridgefield road located to the west of your proposed development at an unrestricted rate. If you are able to identify an alternative, more suitable point of discharge, we request that you contact us at your earliest convenience so that we can assess suitability. In accordance with our infrastructure plans we may ask you to change your point of connection. Therefore please contact us when you are ready to formalise your drainage proposals, we would suggest before you submit for Full Planning.'

Subject to agreement with the EA, a private treatment plant will be utilised due to the costs associated with making a connection to the public sewer. The treatment plant will be located a minimum of 10m from Netherley Brook and 8m from the nearest dwelling.

An environmental permit will be required for discharge from the private treatment plant to Netherley Brook.

Conclusions

The proposed development is for the erection of 29no. residential properties with associated driveways, access roads and gardens.

The proposed development will include impermeable drainage area in the form of buildings, access roads and parking.

All methods of surface water discharge have been assessed. Infiltration techniques are not considered feasible due to the location of the site within Groundwater Source Protection Zone 1 and the impermeable nature of the underlying superficial deposits. Discharge of surface water to Netherley Brook, located immediately west of the site, at a limited greenfield runoff rate of 6 l/s appears to be the most practical option.

Attenuation storage will be required on site in order to restrict surface water discharge to 6 l/s. Attenuation will be provided in the form of an attenuation pond within the landscaped area in the southern extent of the site.

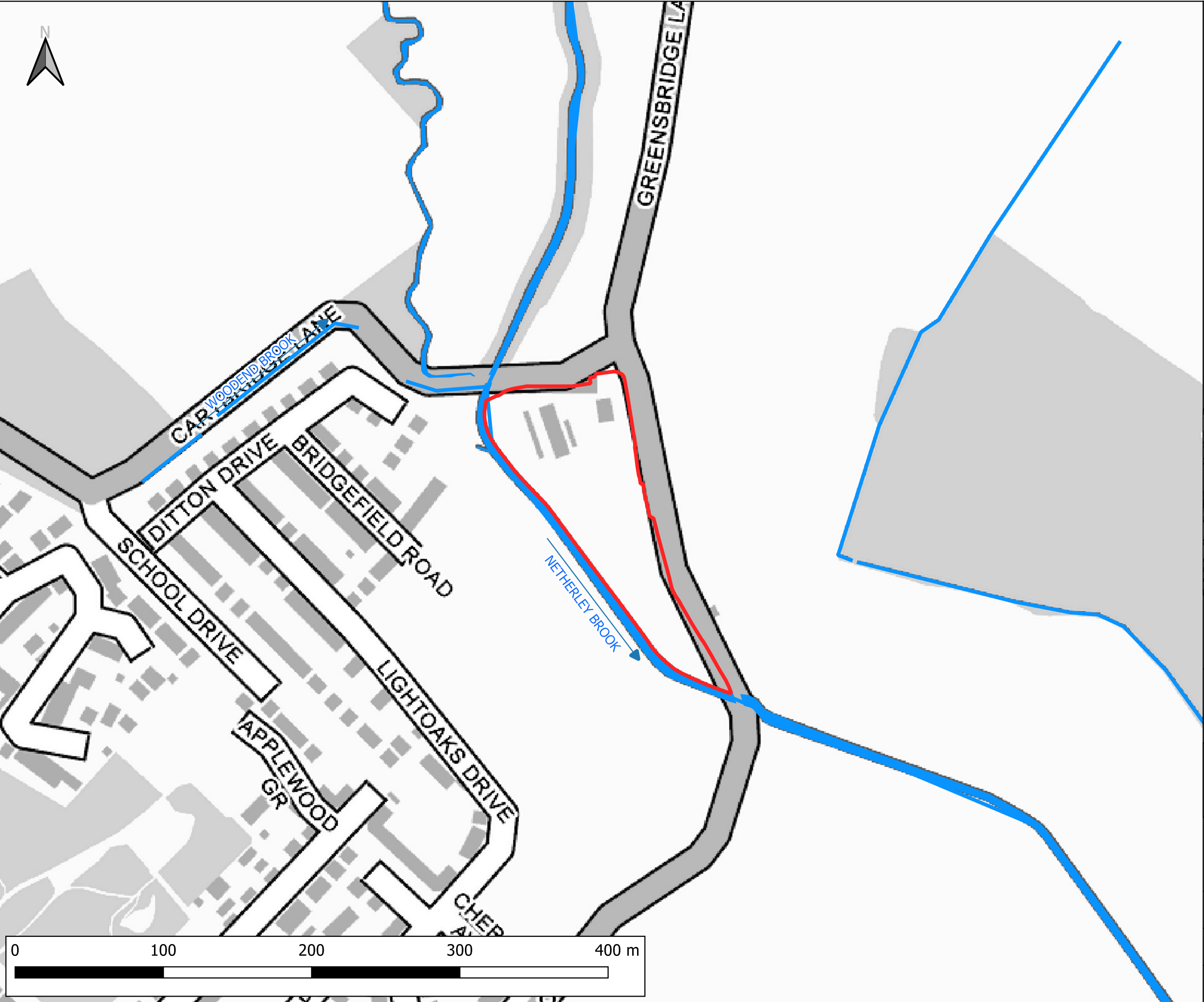
Subject to agreement with the EA, a private treatment plant will be utilised to provide treatment to development foul flows.

A Concept Designer's Risk Assessment (cDRA) has been prepared to inform future designers of any identified hazards associated with the scheme. The cDRA has been included in Appendix J.

Recommendations

1. Submit this Drainage Strategy to the Planning Authority in support of the Planning Application.
2. Verify the attenuation volumes and pond sizes included in this report when undertaking detailed drainage design.

Appendix A Location Plan & Aerial Image



Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Watercourses
- Waterbodies

CLIENT:

BBE Developments Ltd

www.waterco.co.uk

SCHEME:

Former Merseyside Dogs Home,
East Halewood

PLOT TITLE:

Location Plan

PLOT STATUS:		DATE:	
FINAL		23-05-2024	

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
RM	AW	MW	1:2500

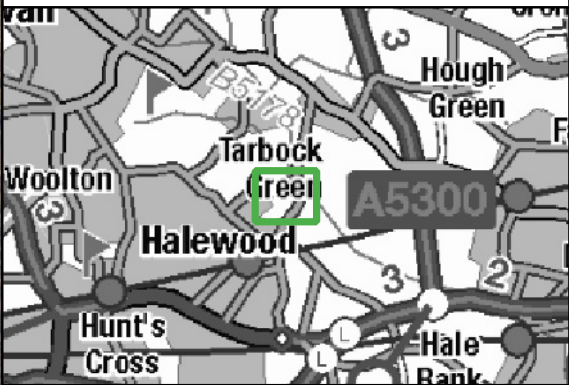
PLOT NAME:	REVISION:
14506_Location_Plan	-



Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

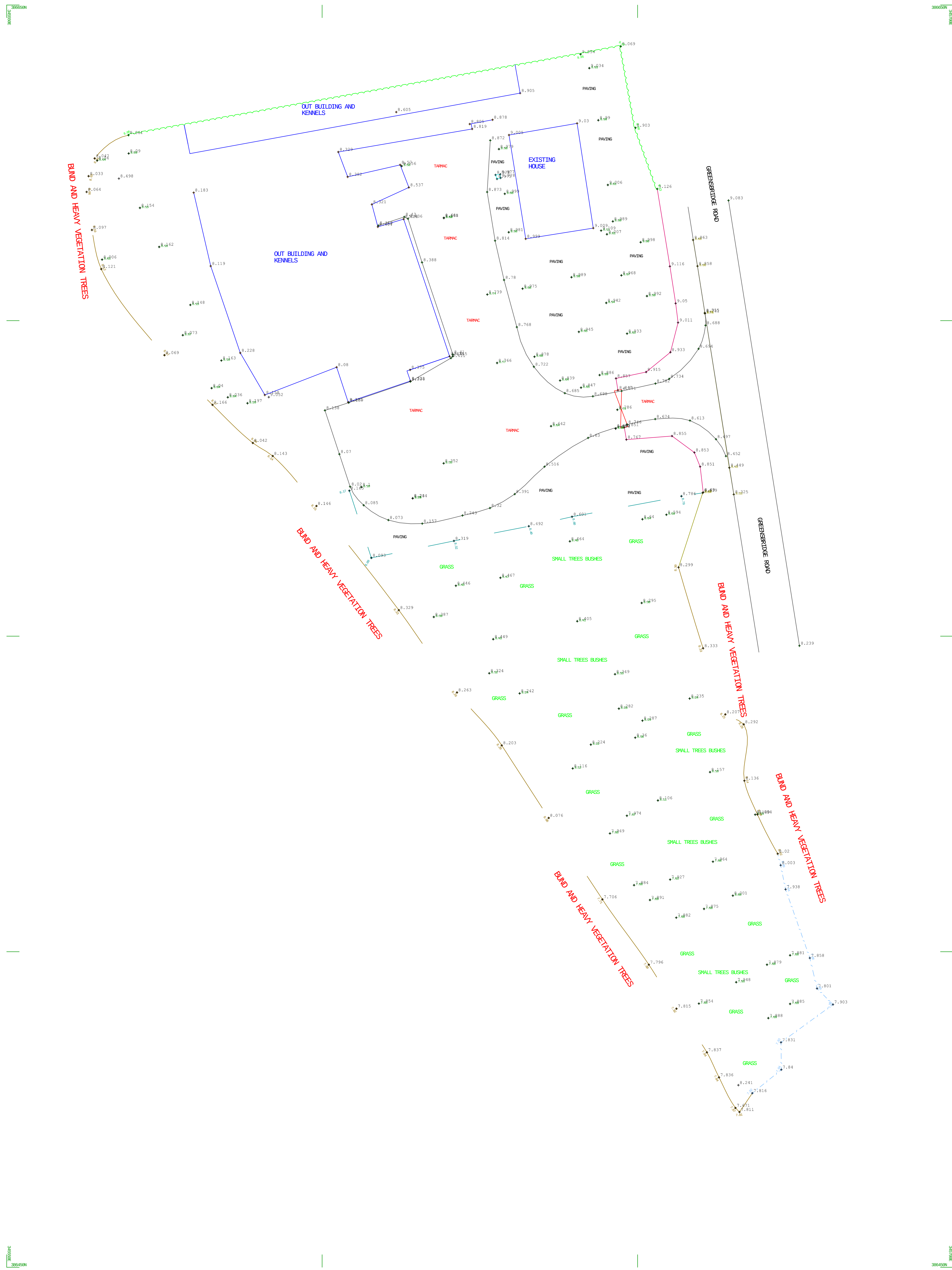
LEGEND

Site Boundary



CLIENT:			
BBE Developments Ltd			
 www.waterco.co.uk			
SCHEME:			
Former Merseyside Dogs Home, East Halewood			
PLOT TITLE:			
Aerial Plan			
PLOT STATUS:		DATE:	
FINAL		23-05-2024	
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
RM	AW	MW	1:2500
PLOT NAME:			REVISION:
14506_Aerial_Plan			-

Appendix B Topographical Information

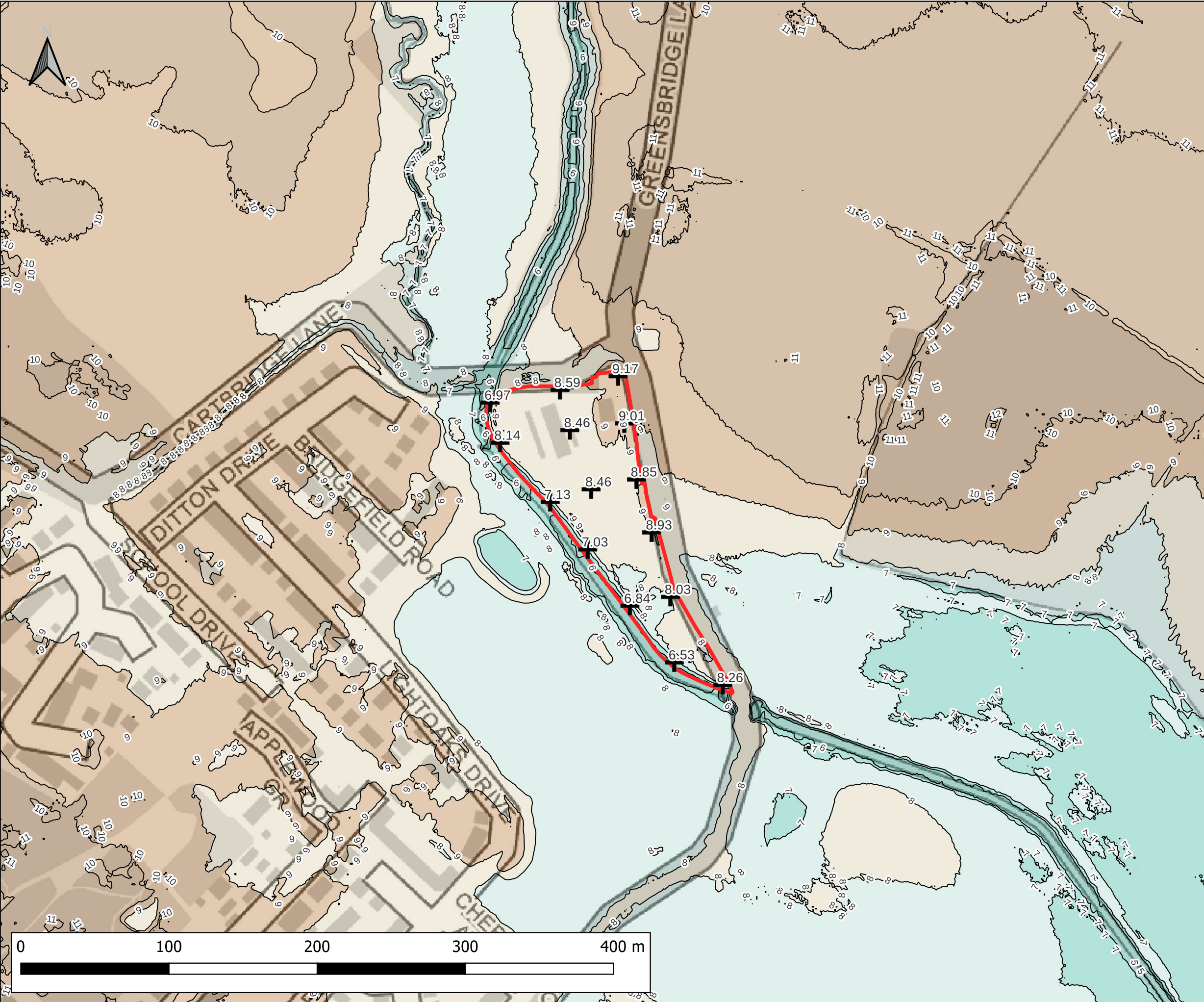


IAN STRACHAN LTD

GREENSBRIDGE LANE
TOPOGRAPHICAL SURVEY

Tel: 07946569971
Email strachan57@btinternet.com

Date: 27th January 2022



Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

Site Boundary

+ Site Levels (m AOD)

Ground Elevations (m AOD)

	<= 6
	6 - 7
	7 - 8
	8 - 9
	9 - 10
	> 10

CLIENT:

BBE Developments Ltd

waterco

www.waterco.co.uk

SCHEME:

Former Merseyside Dogs Home,
East Halewood

PLOT TITLE:

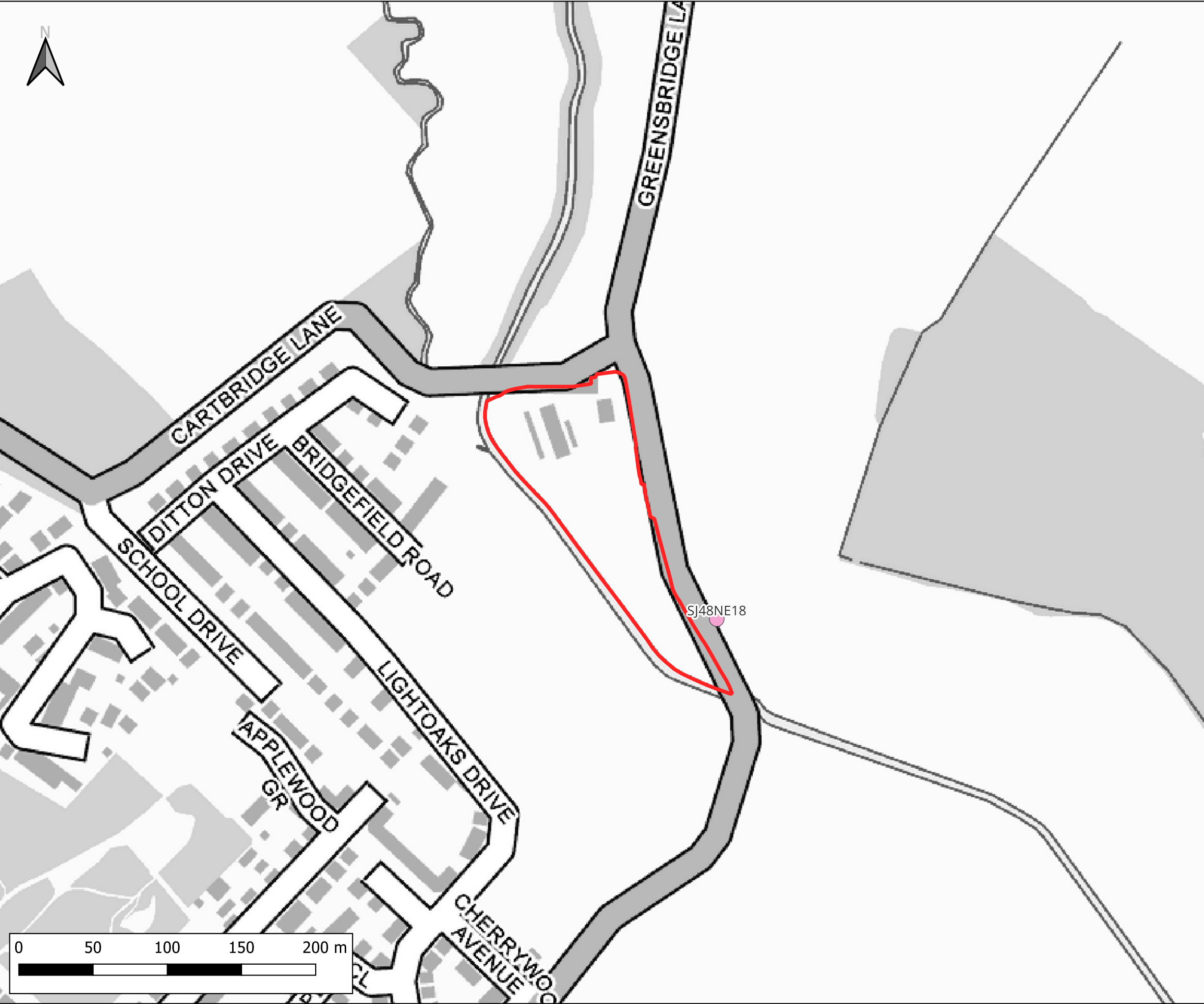
LiDAR Plan
1m Resolution
Data from Environment Agency

PLOT STATUS:		DATE:	
FINAL		20-05-2024	

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
RM	AW	MW	1:2500

PLOT NAME:	REVISION:
14506_LiDAR_Plan	-

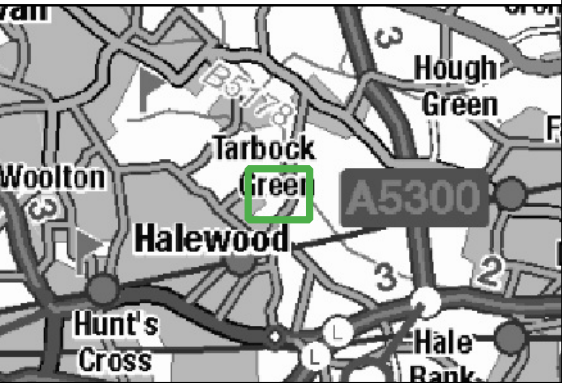
Appendix C BGS Borehole Record & Location Plan



Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- BGS Historical Borehole Record



CLIENT:			
BBE Developments Ltd			
 www.waterco.co.uk			
SCHEME:			
Former Merseyside Dogs Home, East Halewood			
PLOT TITLE:			
Historical BGS Borehole Location Plan Data from British Geological Survey (BGS)			
PLOT STATUS:			DATE:
FINAL			20-05-2024
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
RM	AW	MW	1:2500
PLOT NAME:			REVISION:
14506_BGS_Borehole_Location_Plan			-

RECORD OF WELL At <u>Greenbridge Lane Pumping Station (W2)</u> Town or Village..... County <u>Lancashire</u> Six-inch sheet..... <u>11/NE</u> Six-inch National Grid sheet..... For <u>Widnes Corporation</u> State whether owner, tenant, builder, contractor, consultant, etc.:— Address (if different from above) <u>Carlisle St. Widnes.</u> Level of ground surface above sea level (O.D.).....ft. If well top is not at ground level, state how far above; below;.....ft. SHAFT.....ft.; diameter.....ft.; HEADINGS (please attach details—dimensions and directions) BORE <u>5.00</u> ft.; diameter of bore: at top <u>24</u> in.; at bottom <u>18</u> in. Full details of permanent lining tubes (position, length, diameter, plain, slotted etc.)..... <u>See attached sheet.</u> Water struck at depths of.....ft. below well top. Rest level of water <u>73.5</u> ft. ^{above} well top. Suction at.....ft. Yield on..... hours' test days' pumping at..... galls. per..... with depression to.....ft. below well top. Recovery to rest level in..... mins.* hours Capacity of pump..... g.p.h. Date of measurements..... DESCRIPTION OF PERMANENT PUMPING EQUIPMENT: Make and/or type..... Motive power..... Capacity..... galls. per hour Suction at.....ft. below well top. Amount pumped..... galls. per day. Estimated consumption..... galls. per week. Well made by <u>J. Smith & Son (Cm) Ltd</u> Date of sinking <u>Nov '65</u> Information from.....		For Survey use only Licence No. <u>N.12033</u> <u>97/69B</u> <u>SJ 48 NE/18</u> <u>NGR 4572 8650</u>
EXACT SITE OF WELL DELETE WHICHEVER IS INAPPLICABLE TEST CONDITIONS NORMAL CONDITIONS	ADDITIONAL NOTES ANALYSIS (please attach copy if available)	For Survey use only Date Received <u>S.1.67</u> Section 6 Pumping test Observ. well Recorder E.R. log Site marked on 1" map ☐ <u>1/2</u> 6" map ☒ <u>7</u> (7) (use symbol) Record forwarded to <u>N. West Dist</u> date <u>2</u> <u>7</u> GEOLOGICAL SURVEY, WATER DIVISION, SOUTH KENTON, MIDDLESEX

[illegible]

Appendix D UU Sewer Plan and Correspondence

Waterco

**Waterco
Eden Court,,
Ruthin, Denbighshire
LL15 1NJ**

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: 14506-Former Merseyside Dogs Home
Our Ref: UUPS-ORD-465778
Date: 21/02/2023**

Dear Sirs

Location: Former Merseyside Dogs Home Former Dogs Home Greensbridge Lane, Halewood, L35 1QH

I acknowledge with thanks your request dated 21/02/2023 for information on the location of our services.

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

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

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

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

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

Yours Faithfully,



Karen McCormack
Property Searches Manager

TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

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

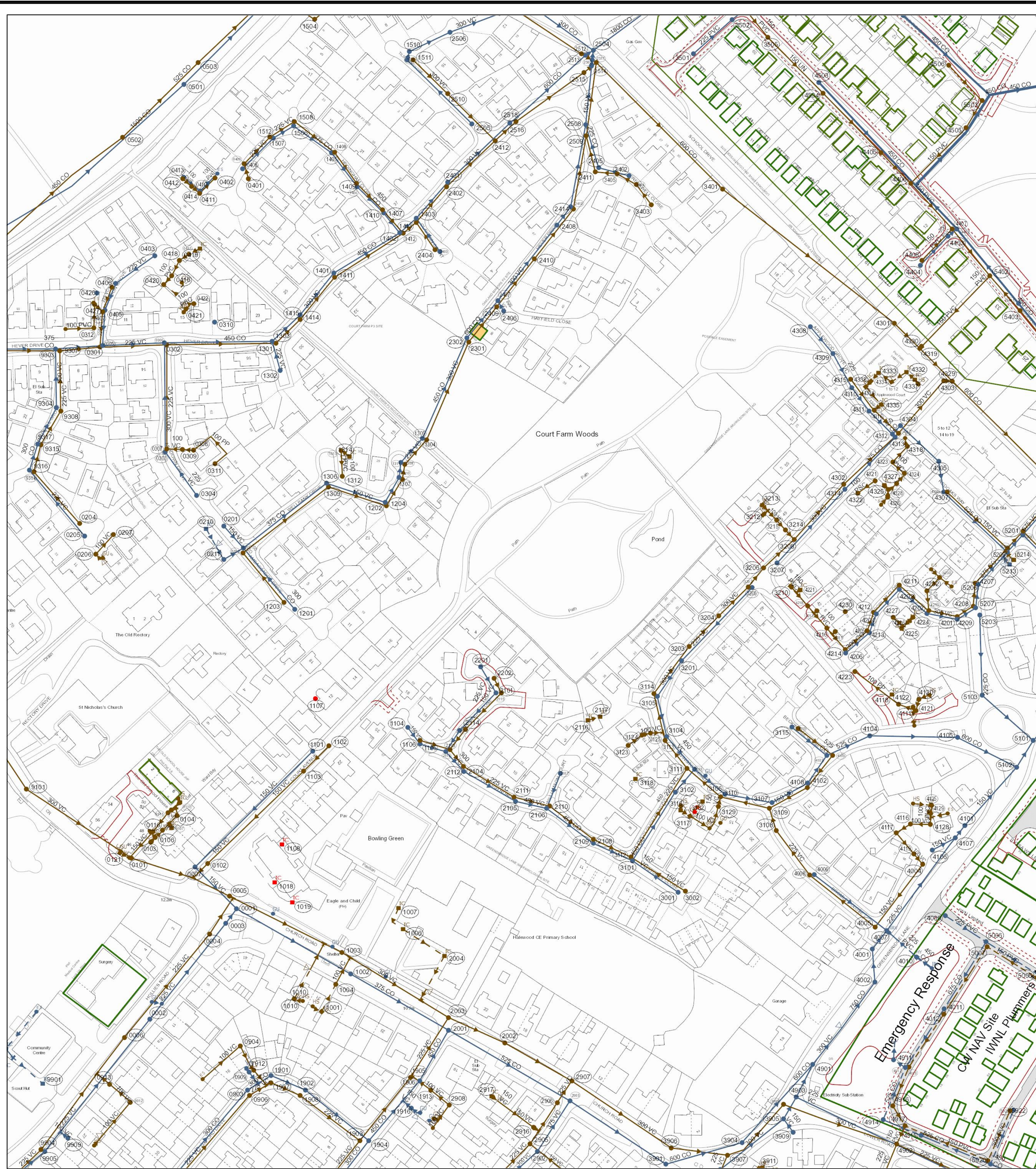
TERMS AND CONDITIONS:

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



Refno	Code	Owner	Func	Invert	Size	Size	Y	Shape	Matl	Length	Grad		Refno	Code	Owner	Func	Invert	Size	Size	Y	Shape	Matl	Length	Grad
4305	8.39	SW			6.55	525			VC	17.29477			4306	8.39	SW			6.55	525			VC	17.29477	
4207	8.41	FO			5.87	150			VC	26.10082	1 in 104		4208	8.41	FO			5.87	150			VC	26.10082	1 in 104
5207	8.37	SW			6.97	375			VC	26.10082	1 in 104		5208	8.37	SW			6.97	375			VC	12.97731	1 in 68
5301		FO			0	600			CO	12.97731	1 in 68		5302	8.45	SW			6.91	225			CO	37.72385	1 in 53
5103	8.45	SW			6.91	225			CO	37.72385	1 in 53		5102		SW			6.00				VC	17.30846	
5209	8.18	FO			5.78	150			VC	12.86703	1 in 1287		5208	8.18	FO			5.78	150			VC	12.86703	1 in 1287
5403	8.82	FO			5.87	150			PVC	25.33006	1 in 121		5403	8.82	FO			5.87	150			PVC	25.33006	1 in 121
4011	10.03	SW			5.87	150			PVC	38.85946	1 in 648		4011	10.03	SW			5.87	150			PVC	38.85946	1 in 648
4011	10.03	SW			7.36	875			CO	38.85946	1 in 648		4011	10.03	SW			7.36	875			CO	38.85946	1 in 648
4011	9.82	FO			8.45	150			VC	43.44249	1 in 65		4011	9.82	FO			8.45	150			VC	43.44249	1 in 65
4011	9.82	FO			8.45	150			VC	43.44249	1 in 65		4011	9.82	FO			8.45	150			VC	43.44249	1 in 65
5921	10.12	FO			7.61	150			PVC	49.56698	1 in 115		5921	10.12	FO			7.61	150			PVC	49.56698	1 in 115
5921	10.12	FO			7.61	150			PVC	49.56698	1 in 115		5921	10.12	FO			7.61	150			PVC	49.56698	1 in 115
5208	8.42	SW			6.78	375			VC	24.05676	1 in 73		5208	8.42	SW			6.78	375			VC	24.05676	1 in 73
4329		FO			300				VC	4.627959			4329		FO			300				VC	4.627959	
6901	9.89	FO			7.92	150			PVC	33.14046	1 in 123		6901	9.89	FO			7.92	150			PVC	33.14046	1 in 123
5208	8.19	FO			5.51	150			VC	31.28467			5208	8.19	FO			5.51	150			VC	31.28467	
4202	8.36	SW			7.08	300			VC	17.04658	1 in 142		4202	8.36	SW			7.08	300			VC	17.04658	1 in 142
4202	8.36	SW			7.08	300			VC	17.04658	1 in 142		4202	8.36	SW			7.08	300			VC	17.04658	1 in 142
4125		FO			100				PVC	10.51074			4125		FO			100				PVC	10.51074	
4107	9.41	SW			0	150			VC	8.659195			4107	9.41	SW			0	150			VC	8.659195	
5923	10.29	SW			8.54	300			PVC	32.65275	1 in 42		5923	10.29	SW			8.54	300			PVC	32.65275	1 in 42
5923	10.29	SW			8.54	300			PVC	32.65275	1 in 42		5923	10.29	SW			8.54	300			PVC	32.65275	1 in 42
5923	10.29	SW			8.54	300			PVC	32.65275	1 in 42		5923	10.29	SW			8.54	300			PVC	32.65275	1 in 42
5101	8.7	SW			6.2	225			CO	76.49722	1 in 1912		5101	8.7	SW			6.2	225			CO	76.49722	1 in 1912
5101	8.7	SW			6.2	225			CO	76.49722	1 in 1912		5101	8.7	SW			6.2	225			CO	76.49722	1 in 1912
6907	9.71	FO			7.65	150			PVC	10.9883	1 in 1010		6907	9.71	FO			7.65	150			PVC	10.9883	1 in 1010
5906	9.78	SW			6.28	225			VC	14.69599	1 in 68		5906	9.78	SW			6.28	225			VC	14.69599	1 in 68
5212		FO			0	600			VC	12.13296			5212		FO			0	600			VC	12.13296	
4128		FO			100				VC	11.01853			4128		FO			100				VC	11.01853	
4128		FO			100				VC	11.01853			4128		FO			100				VC	11.01853	
4407	8.85	FO			5.87	150			PVC	33.273	1 in 158		4407	8.85	FO			5.87	150			PVC	33.273	1 in 158
4407	8.85	FO			5.87	150			PVC	33.273	1 in 158		4407	8.85	FO			5.87	150			PVC	33.273	1 in 158
4407	8.85	FO			5.87	150			PVC	33.273	1 in 158		4407	8.85	FO			5.87	150			PVC	33.273	1 in 158
4209	8.23	FO			6.08	150			CO	10.60791	1 in 88		4209	8.23	FO			6.08	150			CO	10.60791	1 in 88
4209	8.23	FO			6.08	150			CO	10.60791	1 in 88		4209	8.23	FO			6.08	150			CO	10.60791	1 in 88
6914	9.88	SW			7.77	525			CO	69.57226	1 in 233		6914	9.88	SW			7.77	525			CO	69.57226	1 in 233
4907	9.85	SW			6.5	225			CO	63.57994	1 in 51		4907	9.85	SW			6.5	225			CO	63.57994	1 in 51
5205	8.17	SW			6.19	525			CO	12.89543			5205	8.17	SW			6.19	525			CO	12.89543	
5205	8.17	SW			6.19	525			CO	12.89543			5205	8.17	SW			6.19	525			CO	12.89543	
6904	9.81	SW			7.95	450			CO	10.05881	1 in 101		6904	9.81	SW			7.95	450			CO	10.05881	1 in 101
4209	8.39	SW			6.55	525			CO	48.21632	1 in 482		4209	8.39	SW			6.55	525			CO	48.21632	1 in 482
4209	8.39	SW			6.55	525			CO	48.21632	1 in 482		4209	8.39	SW			6.55	525			CO	48.21632	1 in 482
6912	9.97	FO			7.18	150			PVC	7.929633	1 in 113		6912	9.97	FO			7.18	150			PVC	7.929633	1 in 113
4104	9.4	SW			6.04	600			CO	48.37837			4104	9.4	SW			6.04	600			CO	48.37837	
4330		FO			5.66	150			PVC	1.469977	1 in 155		4330		FO			5.66	150			PVC	1.469977	1 in 155
4330		FO			5.66	150			PVC	1.469977	1 in 155		4330		FO			5.66	150			PVC	1.469977	1 in 155
4301	8.26	FO			6.23	600			VC	19.79502	1 in 220		4301	8.26	FO			6.23	600			VC	19.79502	1 in 220
4408	8.93	FO			6.05	150			PVC	23.99664	1 in 133		4408	8.93	FO			6.05	150			PVC	23.99664	1 in 133
4408	8.93	FO			6.05	150			PVC	23.99664	1 in 133		4408	8.93	FO			6.05	150			PVC	23.99664	1 in 133
4408	8.93	FO			6.05	150			PVC	23.99664	1 in 133		4408	8.93	FO			6.05	150			PVC	23.99664	1 in 133
4408	8.93	FO			6.05	150			PVC	23.99664	1 in 133		4408	8.93	FO			6.05	150			PVC	23.99664	1 in 133
5002	9.8	SW			8.28	225			PVC	18.01515	1 in 23		5002	9.8	SW			8.28	225			PVC	18.01515	1 in 23
4010	9.3	SW			0				UN	0.313498			4010	9.3	SW			0				UN	0.313498	
7301		FO			0	825			CO	66.21163			7301		FO			0	825			CO	66.21163	
6902	9.81	SW			8.17	300			VC	35.02018	1 in 159		6902	9.81	SW			8.17	300			VC	35.02018	1 in 159
4404	8.95	SW			7.08	300			PVC	22.09956	1 in 316		4404	8.95	SW			7.08	300			PVC	22.09956	1 in 316
4404	8.95	SW			7.08	300			PVC	22.09956	1 in 316		4404	8.95	SW			7.08	300			PVC	22.09956	1 in 316
5302	8.42	FO			0	600			CO	4.52448			5302	8.42	FO			0	600			CO	4.52448	
5917	10.24	FO			6.63	150			PVC	27.3436			5917	10.24	FO			6.63	150			PVC	27.3436	
4317		FO			100				VC	39.34227			4317		FO			100				VC	39.34227	
5920	10.07	SW			7.77	525			CO	41.45343	1 in 518		5920	10.07	SW			7.77	525			CO	41.45343	1 in 518
5920	10.07	SW			7.77	525			VC	26.54382	1 in 38		5920	10.07	SW			7.77	525			VC	26.54382	1 in 38
5303	8.41	SW			7.05	675			PVC	19.91286			5303	8.41	SW			7.05	675			PVC	19.91286	
4232		FO			150				PVC	19.91286			4232		FO			150				PVC	19.91286	
4012	10.05	FO			7.77	150			PVC	34.84875	1 in 120		4012	10.05	FO			7.77	150			PVC	34.84875	1 in 120
4012	10.05	FO			7.77	150			PVC	34.84875	1 in 120		4012	10.05	FO			7.77	150			PVC	34.84875	1 in 120
5004	9.97	SW			7.47	875			CO	36.06509	1 in 721		5004	9.97	SW			7.47	875			CO	36.06509	1 in 721
5001	9.84	SW			7.51	875			VC	24.50154	1 in 141		5001	9.84	SW			7.51	875			VC	24.50154	1 in 141
6908	9.83	FO			7.55	150			PVC	45.14102	1 in 21		6908	9.83	FO			7.55	150			PVC	45.14102	1 in

LEGEND					
Abandoned	Foul	Surface Water	Combined		
Public Sewer	Private Sewer	Rising Main	Sludge Main		
Section 104	Overflow	Water Course	Highway Drain		
All point assets follow the standard colour convention: red - combined blue - surface water brown - foul purple - overflow					
● Manhole ⚙ Head of System 📏 Extent of Survey 🔍 Rodding Eye 🚰 Inlet 🚰 Discharge Point 🚰 Vortex 🚰 Penstock 🚰 Washout Chamber 🚰 Valve 🚰 Air Valve 🚰 Non Return Valve 🚰 Soakaway 🚰 Gully 🚰 Cascade 🚰 Flow Meter 🚰 Hatch Box 🚰 Oil Interceptor 🚰 Summit 🚰 Drop Shaft 🚰 Orifice Plate	⚙ Side Entry Manhole 🚰 Outfall 🚰 Screen Chamber 🔍 Inspection Chamber 🔍 Bifurcation Chamber 🚰 Lamp Hole 🚰 T Junction / Saddle 🚰 Catchpit 🚰 Valve Chamber 🚰 Vent Column 🚰 Vortex Chamber 🚰 Penstock Chamber 🚰 Network Storage Tank 🚰 Sewer Overflow 🚰 Ww Treatment Works 🚰 Ww Pumping Station 🚰 Septic Tank 🚰 Control Kiosk ⚙ Change of Characteristic				
MANHOLE FUNCTION					
FO	Foul				
SW	Surface Water				
CO	Combined				
OV	Overflow				
SEWER SHAPE					
CI	Circular	TR	Trapezoidal		
EG	Egg	AR	Arch		
OV	Oval	BA	Barrel		
FT	Flat Top	HO	Horse/Shoe		
RE	Rectangular	UN	Unspecified		
SQ	Square				
SEWER MATERIAL					
AC	Asbestos Cement				
BR	Brick				
PE	Polyethylene				
RP	Reinforced Plastic Matrix				
CO	Concrete				
CSB	Concrete Segment Bolted				
CSU	Concrete Segment Unbolted				
CC	Concrete Box Culverted				
PSC	Plastic / Steel Composite				
GRC	Glass Reinforced Plastic				
DI	Ductile Iron				
PVC	Polyvinyl Chloride				
CI	Cast Iron				
SI	Spun Iron				
ST	Steel				
VC	Vitrified Clay				
PP	Polypropylene				
PF	Pitch Fibre				
MAC	Masonry, Coursed				
MAR	Masonry, Random				
U	Unspecified				
Address or Site Reference:					
Former Merseyside Dogs Home Former Dogs Home Greensbridge Lane, Halewood, L35 1QH					
OS sheet	SJ4586SE				
Number:					
Scale: 1:1250	Date:	21/02/2023			
Nodes:	175				
Sheet:	1 of 4				
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.

Crown copyright and database rights 2017 Ordnance Survey 100022432. Unauthorised reproduction will infringe these copyrights.

Abandoned

Foul

Surface Water

Combined

Public Sewer

Private Sewer

Rising Main

Sludge Main

Overflow

Water Course

Highway Drain

All point assets follow the standard colour convention:

red - combined

blue - surface water

brown - foul

purple - overflow

Manhole

Head of Survey

Extent of System

Rodding Eye

Inlet

Discharge Point

Vortex

Penstock

Washout Chamber

Air Valve

Non Return Valve

Soakaway

Gully

Cascade

Flow Meter

Hatch Box

Oil Interceptor

Summit

Drop Shaft

Orifice Plate

Side Entry Manhole

Outfall

Screen Chamber

Inspection Chamber

Bifurcation Chamber

Lamp Hole

T Junction / Saddle

Catchpit

Valve Chamber

Vent Column

Vortex Chamber

Penstock Chamber

Non Return Valve

Network Storage Tank

Sewer Overflow

Ww Treatment Works

Ww Pumping Station

Septic Tank

Control Kiosk

Change of Characteristic

MANHOLE FUNCTION

FO Foul

SW Surface Water

CO Combined

OV Overflow

SEWER SHAPE

CI Circular

EG Egg

OV Oval

FT Flat

RE Rectangular

SQ Square

TR Trapezoidal

AR Arch

BA Barrel

HO HorseShoe

UN Unspecified

SEWER MATERIAL

AC Asbestos Cement

BR Brick

PE Polyethylene

RP Reinforced Plastic Matrix

CO Concrete

CSB Concrete Segment Bolted

CSU Concrete Segment Unbolted

CC Concrete Box Culverted

PSC Plastic / Steel Composite

GRG Glass Reinforced Plastic

DI Ductile Iron

PVC Polyvinyl Chloride

CI Cast Iron

SI Spun Iron

ST Steel

VC Vitrifed Clay

PP Polypropylene

PF Pitch Fibre

MAC Masonry, Coursed

MAR Masonry, Random

UN Unspecified

Address or Site Reference:

Former Merseyside Dogs Home Former Dogs Home

Greensbridge Lane,

Halewood,

L35 1QH

OS sheet SJ4586SW

Number:

Scale: 1:1250

Date: 21/02/2023

Nodes: 401

Sheet: 2 of 4

Printed by: Property Searches

SEWER RECORDS

United Utilities

Water for the North West

Abandoned Foul Surface Water Combined

Public Sewer

Private Sewer

Section 104

Rising Main

Sludge Main

Overflow

Water Course

Highway Drain

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	▽ Change of Characteristic
Drop Shaft	
Orifice Plate	

FO	Foul
SW	Surface Water
CO	Combined
OV	Overflow

CI	Circular	TR	Trapezoidal
EG	Egg	AR	Arch
OV	Oval	BA	Barrel
FT	Flat Top	HO	HorseShoe
RE	Rectangular	UN	Unspecified
SQ	Square		

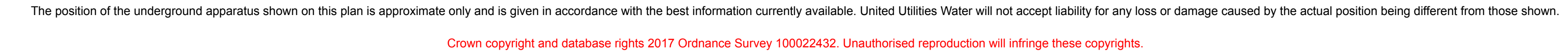
AC	Asbestos Cement
BR	Brick
PE	Polyethylene
RP	Reinforced Plastic Matrix
CO	Concrete
CSB	Concrete Segment Bolted
CSU	Concrete Segment Unbolted
CC	Concrete Box Culverted
PSC	Plastic / Steel Composite
GRC	Glass Reinforced Plastic
DI	Ductile Iron
PVC	Polyvinyl Chloride
CI	Cast Iron
SI	Spun Iron
ST	Steel
VC	Vitrified Clay
PP	Polypropylene
PF	Pitch Fibre
MAC	Masonry, Coursed
MAR	Masonry, Random
U	Unspecified

Former Merseyside Dogs Home Former Dogs Home
Greensbridge Lane,
Halewood,
L35 1QH

Printed by: Property Searches



United Utilities
Water for the North West



The diagram illustrates the sewer network layout with the following components and connections:

- Abandoned:** Represented by a solid black line with a single arrow pointing right.
- Foul:** Represented by a solid yellow line with multiple arrows pointing right.
- Surface Water:** Represented by a solid blue line with multiple arrows pointing right.
- Combined:** Represented by a solid red line with multiple arrows pointing right.
- Public Sewer:** Represented by a dashed red line with multiple arrows pointing right.
- Private Sewer:** Represented by a dashed yellow line with multiple arrows pointing right.
- Section 104:** Represented by a dashed blue line with multiple arrows pointing right.
- Rising Main:** Represented by a dashed black line with multiple arrows pointing right.
- Sludge Main:** Represented by a dashed green line with multiple arrows pointing right.
- Overflow:** Represented by a solid purple line with a single arrow pointing right.
- Water Course:** Represented by a dashed blue line with multiple arrows pointing right.
- Highway Drain:** Represented by a dashed blue line with multiple arrows pointing right.

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

FO	Foul
SW	Surface Water
CO	Combined
OV	Overflow

CI	Circular	TR	Trapezoidal
EG	Egg	AR	Arch
OV	Oval	BA	Barrel
FT	Flat Top	HO	HorseShoe
RE	Rectangular	UN	Unspecified
SQ	Square		

AC	Asbestos Cement
BR	Brick
PE	Polyethylene
RP	Reinforced Plastic Matrix
CO	Concrete
CSB	Concrete Segment Bolted
CSU	Concrete Segment Unbolted
CC	Concrete Box Culverted
PSC	Plastic / Steel Composite
GRC	Glass Reinforced Plastic
DI	Ductile Iron
PVC	Polyvinyl Chloride
CI	Cast Iron
SI	Spun Iron
ST	Steel
VC	Vitrified Clay
PP	Polypropylene
PF	Pitch Fibre
MAC	Masonry, Coursed
MAR	Masonry, Random
U	Unspecified

Former Merseyside Dogs Home Former Dogs Home
Greensbridge Lane,
Halewood,
L35 1QH

OS sheet SJ4586NE
 Number:
 Scale: 1:1250 Date: 21/02/2023
 Nodes: 41
 Sheet: 3 of 4
 Printed by: Property Searches

**SEWER
RECORDS**

 **United
Utilities**
Water for the North West



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.

Crown copyright and database rights 2017 Ordnance Survey 100022432. Unauthorised reproduction will infringe these copyrights.

Reho	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
0414	SW	100		13.81593	100		PVC	13.81593	
0414	SW	100		13.81593	100		PVC	13.81593	
2502	8.81	FO		600			CO	79.70044	
2502	8.81	FO		600			CO	88.65111	
1512	9.85	SW	8.46	225			CO	13.05798	1 in 109
1512	9.85	SW	8.46	225			VC	13.05798	1 in 109
0403	11.3	SW	10.09	225			VC	26.31986	1 in 132
0403	11.3	SW	10.09	225			VC	26.31986	1 in 132
3501	9.34	SW	7.59	225			PVC	28.47356	1 in 82
3501	9.34	SW	7.59	225			PVC	28.47356	1 in 82
2511	9.04	FO		600			VC	16.2009	
3403	8.45	FO		150			VC	13.90009	1 in 126
4407	8.85	FO	5.87	150			PVC	33.273	1 in 158
4407	8.85	FO	5.87	150			PVC	33.273	1 in 158
4407	8.85	FO	5.87	150			PVC	33.273	1 in 158
4504	8.85	FO	5.58	150			PVC	40.75966	1 in 153
4504	8.85	FO	5.58	150			PVC	40.75966	1 in 153
1401	9.7	SW	7.79	450			CO	42.59443	1 in 304
1407	9.71	SW	7.4	150			CO	14.09338	1 in 145
1407	9.71	SW	7.4	150			CO	14.09338	1 in 145
4505	8.63	FO	6.42	150			PVC	43.30878	1 in 144
4505	8.63	FO	6.42	150			PVC	43.30878	1 in 144
4505	8.63	FO	6.42	150			PVC	43.30878	1 in 144
2413	8.9	SW	6.18	600			CO	46.01915	1 in 480
2413	8.9	SW	6.18	600			CO	46.01915	1 in 480
2409	9.76	FO	6.47	300			VC	33.67855	1 in 421
4601	9.33	FO		150			PVC	23.82612	1 in 149
0412	FO	100		6.359388	100		PVC	6.359388	
0412	FO	100		6.359388	100		PVC	6.359388	
3401	FO	600		0	600		CO	120.4137	
3401	FO	600		0	600		CO	120.4137	
3504	9.3	FO	7.02	150			PVC	21.91181	1 in 137
2411	FO	6.52	8.51	150			VC	20.62039	1 in 53
2411	FO	6.52	8.51	150			VC	20.62039	1 in 53
2504	8.76	SW	5.85	1800			CO	194.118	1 in 9708
2504	8.76	SW	5.85	1800			CO	194.118	1 in 9708
2509	8.37	FO	6.38	150			VC	40.82446	1 in 215
2509	8.37	FO	6.38	150			VC	40.82446	1 in 215
1410	9.7	FO	7.09	225			VC	17.16218	1 in 75
1410	9.7	FO	7.09	225			VC	17.16218	1 in 75
4608	9.16	FO	7.44	150			VC	62.02014	1 in 148
4601	8.44	SW	6.34	1000			CO	5.894893	1 in 61
0408	10.18	SW	8.85	225			VC	23.95979	1 in 61
0408	10.18	SW	8.85	225			VC	23.95979	1 in 61
2402	9.74	FO	6.8	300			VC	36.93039	1 in 264
2402	9.74	FO	6.8	300			VC	36.93039	1 in 264
2516	9.05	SW	7.04	600			VC	56.11401	1 in 73
2516	9.05	SW	7.04	600			VC	56.11401	1 in 73
2512	8.75	SW	5.81	600			VC	5.065143	1 in 72
2512	8.75	SW	5.81	600			VC	5.065143	1 in 72
3404	FO	6.88	8.8	150			VC	12.19171	1 in 55
3404	FO	6.88	8.8	150			VC	12.19171	1 in 55
2407	9.73	SW	6.33	600			CO	53.07987	1 in 442
2405	8.48	FO	6.93	225			VC	24.77801	1 in 29
2405	8.48	FO	6.93	225			VC	24.77801	1 in 29
1403	9.7	SW	7.64	450			VC	26.24912	1 in 109
1403	9.7	SW	7.64	450			VC	26.24912	1 in 109
1509	8.94	SW	7.25	300			VC	4.847567	1 in 61
1509	8.94	SW	7.25	300			VC	4.847567	1 in 61
2514	SW	600		0	600		CO	3.437634	
2514	SW	600		0	600		CO	3.437634	
2510	FO	6.88	8.81	300			VC	36.8909	1 in 168
2510	FO	6.88	8.81	300			VC	36.8909	1 in 168
1507	9.88	FO	8.05	225			VC	16.05553	1 in 85
1507	9.88	FO	8.05	225			VC	16.05553	1 in 85
1506	9.73	SW	8.34	375			CO	25.59224	1 in 151
1506	9.73	SW	8.34	375			CO	25.59224	1 in 151
2507	8.8	SW	6.3	300			VC	46.50984	1 in 133
2506	8.55	SW	6.87	300			VC	29.10112	1 in 364
2506	8.55	SW	6.87	300			VC	29.10112	1 in 364
2408	9.15	SW	6.21	600			VC	12.62401	1 in 421
2408	9.15	SW	6.21	600			VC	12.62401	1 in 421
3405	FO	6.86	8.38	150			VC	12.07574	1 in 86
3405	FO	6.86	8.38	150			VC	12.07574	1 in 86
5503	8.62	FO	6.54	150			PVC	17.37533	1 in 145
5503	8.62	FO	6.54	150			PVC	17.37533	1 in 145
5503	8.62	FO	6.54	150			PVC	17.37533	1 in 145
2801	10.35	SW	6.63	1000			PVC	159.1623	1 in 1768
3502	9.4	SW	7.28	300			PVC	38.45967	1 in 110
3502	9.4	SW	7.28	300			PVC	38.45967	1 in 110
1510	8.96	SW	7.17	300			VC	24.84742	1 in 83
1510	8.96	SW	7.17	300			VC	24.84742	1 in 83
1801	10.62	SW	6.77	1000			CO	155.1533	1 in 1193
2801	SW	0	1801	1800			CO	41.95046	1 in 94
1409	9.45	SW	7.31	225			VC	20.5927	1 in 84
1409	9.45	SW	7.31	225			VC	20.5927	1 in 84
4405	8.97	FO	6.28	150			PVC	23.82893	1 in 148
4405	8.97	FO	6.28	150			PVC	23.82893	1 in 148
1505	FO	0	1505	300			VC	41.83357	1 in 301
1411	9.74	FO	7.01	300			VC	45.14447	1 in 301
3503	SW	6.95	8.9	450			CO	32.66185	1 in 363
2508	8.42	SW	600	0	600		CO	32.64004	
2508	8.42	SW	600	0	600		CO	32.64004	
0901	FO	0	0	300			VC	92.93652	1 in 86
2518	FO	6.61	9.01	300			VC	46.3372	1 in 86
2518	FO	6.61	9.01	300			VC	46.3372	1 in 86
4003	SW	6.86	9.15	450			VC	55.3274	1 in 207
1508	9.74	FO	7.86	225			VC	27.94856	1 in 93
1508	9.74	FO	7.86	225			VC	27.94856	1 in 93
2403	SW	7.82	9.67	225			VC	31.09114	1 in 126
2403	SW	7.82	9.67	225			VC	31.09114	1 in 126
4406	8.76	FO	6.12	150			PVC	22.5541	1 in 126
4406	8.76	FO	6.12	150			PVC	22.5541	1 in 126
3505	FO	6.86	9.08	150			UN	34.00388	1 in 136
3505	FO	6.86	9.08	150			UN	34.00388	1 in 136
0701	FO	0	0	300			VC	27.66352	1 in 102
0701	FO	0	0	300			VC	27.66352	1 in 102
0401	FO	150		8.524455	150		VC	43.4053	1 in 155
0401	FO	150		8.524455	150		VC	43.4053	1 in 155
4506	8.5	FO	6.76	150			PVC	8.524455	1 in 121
4506	8.5	FO	6.76	150			PVC	8.524455	1 in 121
4506	8.5	FO	6.76	150			PVC	8.524455	1 in 121
0410	FO	100		8.872449	100		PVC	8.872449	
1504	FO	0	1504	600			CO	52.16752	
1504	FO	0	1504	600			CO	52.16752	
4501	8.78	SW	6.72	450			CO	64.82064	1 in 381
2401	SW	7.53	9.71	600			CO	47.42729	1 in 97
2401	SW	7.53	9.71	600			CO	47.42729	1 in 97
4605	SW	7.18	9.09	300			CO	39.70502	1 in 394
4605	SW	7.18	9.09	300			CO	39.70502	1 in 394
2505	SW	7.41	9.08	300			VC	50.26246	1 in 314
2505	SW	7.41	9.08	300			VC	50.26246	1 in 314
0503	FO	0	0	600			VC	56.6163	1 in 84
0503	FO	0	0	600			VC	56.6163	1 in 84
1408	SW	7.56	9.53	225			VC	20.93041	1 in 84
1408	SW	7.56	9.53	225			VC	20.93041	1 in 84
3402	SW	7.11	9.53	225			VC	17.42721	1 in 97
3402	SW	7.11	9.53	225			VC	17.42721	1 in 97
1601	SW	0	1601	1800			CO	44.60202	1 in 97
1503	SW	0	1503	1500			CO	36.96148	1 in 310
2412	SW	6.66	9.26	300			VC	15.49569	1 in 310
2412	SW	6.66	9.26	300			VC	15.49569	1 in 310
0001	SW	0	0	1000			CO	115.3937	1 in 78
4404	SW	7.08	8.95	300			PVC	22.09956	1 in 316
4404	SW	7.08	8.95	300			PVC	22.09956	1 in 316
0502	FO	0	0	600			VC	58.71186	1 in 316
0502	FO	0	0	600			VC	58.71186	1 in 316
0501	SW	7.38	10.35	1500			VC	73.61889	1 in 317
0501	SW	7.38	10.35	1500			VC	73.61889	1 in 317
2414	FO	6.26	8.93	300			VC	41.21493	1 in 317
2414	FO	6.26	8.93	300			VC	41.21493	1 in 317
4403	8.88	SW	7.01	300			PVC	6.455684	1 in 34
4403	8.88	SW	7.01	300			PVC	6.455684	1 in 34
4403	8.88	SW	7.01	300					

Adam McCulloch

From: seweradoptions@uuplc.co.uk <seweradoptions@uuplc.co.uk>
Sent: Tuesday, March 14, 2023 11:40 AM
To: Adam McCulloch <adam.mcculloch@waterco.co.uk>
Subject: RE: 03662784 Former Dogs Home Greensbridge Lane Halewood L35 1QH

Hi Adam

Further to my previous email, please see below comments from our Geotechnical department:

Groundwater Protection

ADVISORY - The site overlies the sandstone rock, in a Groundwater Source Protection Zone (SPZ) 1 and 2. This forms an aquifer, abstracted at depth by United Utilities for public drinking water supply at the nearby Greensbridge boreholes. The applicant should follow best practice on their use and storage of fuels, oils and chemicals to remove the risk of causing pollution during construction.

Development in SPZ1

United Utilities consider this development, taking place within SPZ1, as the most sensitive location from a groundwater protection viewpoint. Notwithstanding our strong preference for development to not take place in locations within SPZ1, if the proposed development in this location is accepted through the planning process, we draw your attention to the advice of the Environment Agency on development in such locations 'The Environment Agency's approach to groundwater protection'. The document is available at:

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

In the event that development within SPZ 1 is submitted for planning, the application must fully consider the potential pollutant risks during construction, as addressed in the Construction Environmental Management Plan (CEMP). United Utilities request to be consulted on the future development, and would expect to receive the CEMP, including Pollution Risk Assessments and Method Statements, detailing the following:

- i. Protection of surface and groundwater resources;
- ii. Best practise on the use and storage of fuels, oils and chemicals, to remove the risk of causing pollution during construction;
- iii. Traffic management on neighbouring highways and the parking of vehicles of site operatives and visitors;
- iv. loading and unloading of plant and materials;
- v. storage of plant and materials used in constructing the development;
- vi. wheel washing facilities; and
- vii. a scheme for recycling/disposing of waste resulting from demolition and construction works.

SuDS

Together with the Environment Agency, United Utilities supports the principles of sustainable drainage systems (SuDS) for new discharges. Where infiltration SuDS are to be used for surface run-off from roads, car parking and public or amenity areas, they should have a suitable series of treatment steps to prevent the pollution of groundwater.

Discharge of clean roof water to ground

The discharge of clean roof water to ground is acceptable both within and outside SPZ1, provided that all roof water down-pipes are sealed against pollutants entering the system from surface run-off, effluent disposal or other forms of discharge.

The method of discharge must not create new pathways for pollutants to groundwater or mobilise contaminants already in the ground. No permit is required, if the above criteria can be met.

Please note that infiltration of surface water flows to ground, via methods such as soakaways, may not be suitable for use on this site, due to the presence of superficial clays impeding drainage.

Wastewater Drainage

United Utilities support the proposal for a connection into the foul sewer network. United Utilities would not support an outfall of foul sewage to ground, from any private wastewater treatment plant given the close proximity to the abstraction well.

We would recommend the applicant follow 'The Environment Agency's approach to groundwater protection' includes the following position statements on developments within SPZ1:

G8 - Sewerage pipework

"The Environment Agency will require the use of the highest specification pipework and designs for schemes involving new sewerage systems in SPZ1 to minimise leakage." UU recommend this includes secondary containment of the pipework, such as include clay lining sewer trenches.

G2 - Sewage effluent discharges inside SPZ1

"Inside SPZ1 all sewage effluent discharges to ground must have an environmental permit. All permit applications will be considered on the basis of risk assessment and the appropriateness of the discharge with respect to the local environmental setting. For new discharges you should contact the Environment Agency to discuss whether or not it is likely to grant a permit."

Kind regards



Nicola Pilkington
Developer Engineer
Developer Services & Metering
Customer Services
M: 07795851180
unitedutilities.com

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

Visit: unitedutilities.com/wow

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

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

Sent: 28/02/2023 10:58

To: adam.mcculloch@waterco.co.uk

Subject: RE: 03662784 Former Dogs Home Greensbridge Lane Halewood L35 1QH

Good morning Adam,

Pre Development Enquiry for: Former dogs home, Greenbridge Lane, Halewood UU Reference Number : 03662784

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

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

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

Foul Water

Foul flow from this site will be allowed to drain into the public foul water system.

Our preferred point of discharge would be to the 150mm diameter public foul water sewer within Bridgefield road located to the west of your proposed development at an unrestricted rate.

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

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

Surface Water

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

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

This is outlined as follows, in order of priority:

1. into the ground (infiltration);
2. to a surface waterbody;
3. to a surface water sewer or highway drain;
4. to a combined sewer.

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

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

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

Infiltration

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

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

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

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

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

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

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

Waterbody

If an evidence based assessment has been carried out and confirms that infiltration is not feasible, we recommend that you contact the Lead Local Flood Authority and/or Environment Agency to discuss a point of discharge to the waterbody located west of the proposed site.

We would encourage you to identify and engage with any third party landowner and riparian owner to agree access and discharge rights to the water body if this is not in your ownership.

Levels

For low-lying sites, (where the ground level of the site or the level of a basement is below the ground level at the point where the drainage connects to the public sewer), care should be taken to ensure that the property is not at increased risk of flooding. If these circumstances exist, we recommend that you contact us to discuss further. It could affect the detailed design of your site and result in the need to incorporate appropriate mitigating measures in your drainage scheme.

Land drainage / Overland flows / track drainage

United Utilities have no obligation, and furthermore we do not accept land drainage, overland flows or track drainage into the public sewerage network under any circumstances

Existing Wastewater Assets Crossing the Site

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

Existing Water Assets Crossing the Site

It is the developer responsibility to identify utilities on-site. Where clean water assets are shown on our records, we recommend that you contact our Water Pre-Development Team, via the following email address:

DeveloperServicesWater@uuplc.co.uk. Further information for this service can be found on our website via the link below:

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

Connection Application

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

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

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

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

Sewer Adoptions

You have indicated on your application form that you intend to put the sewers forward for adoption (including any SuDS components that can come within the meaning of a sewer).

United Utilities assess adoption applications based on the current Design & Construction Guidance and local practices which have now replaced 'Sewers For Adoption 6th Edition'.

We recommend that you submit a pre design assessment to the sewer adoption mailbox (SewerAdoptions@uuplc.co.uk) stating pre design assessment in the title

Please refer to links below to obtain further guidance:

<https://www.unitedutilities.com/builders-developers/larger-developments/wastewater/sewer-adoptions/>

Site drainage must be designed in accordance with Building Regulations, National Planning Policy, and local flood authority guidelines, we would recommend that you speak and make suitable agreements with the relevant statutory bodies.

If you intend to put forward your wastewater assets for adoption by United Utilities, the proposed detail design will be subject to a technical appraisal by an Adoption Engineer as we need to be sure that the proposals meets the requirements set out in the Design & Construction Guidance. The proposed design should give consideration to long term operability and give United Utilities a safe and cost effective proposal for the lifetime of the assets. In these cases, we strongly recommend that no construction commences until the detailed drainage design, submitted as part of the Section 104 application, has been assessed and accepted in writing by United Utilities. Any work carried out prior to the technical assessment being approved is done entirely at the developer's own risk and could be subject to change.

SuDS

If your development proposal incorporates any SuDS component(s) which interact with a sewer network you plan on offering for adoption to United Utilities; contact should be made with our technical team at your earliest convenience, please complete the 'Section 104 pre-application form : ' and include as much relevant detail as you can. These discussions can help prevent delays later in the development process.

[Section 104 Pre application form \(1b\)](#)

As per the sewerage sector guidance, all SuDS should be designed in accordance with the standards within the Design & construction guidance & the CIRIA SuDS manual (C753)

Codes For Adoption

The new Codes for Adoption are outlined on the Water UK Website. The link below takes you to their webpage:

<https://www.water.org.uk/technical-guidance/developers-services/codes-for-adoption/>

A free copy of the new Design & Construction Guidance can be downloaded via the link below:

<https://www.water.org.uk/sewerage-sector-guidance-approved-documents/>

Many thanks and kind regards,



Nicola Pilkington
Developer Engineer
Developer Services & Metering
Customer Services
M: 07795851180
unitedutilities.com

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

Visit: unitedutilities.com/wow

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

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

Sent: 23/02/2023 13:01

To: adam.mcculloch@waterco.co.uk

Subject: 03662784 Former Dogs Home Greensbridge Lane Halewood L35 1QH

Dear Adam

PRE DEVELOPMENT APPLICATION AT: – UU Ref03662784

Please accept this email as receipt of your application received on 23.2.2023 for the above development. This has now been logged on our system and the job reference is 03662784 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 Nicola Pilkington for technical assessment. You will receive their response within 8 working days.

Kind regards Jill



Jill Ellis
Customer Advisor Advanced
Developer Services & Metering
Customer Services
Direct Tel: 01925 233 064
Tel: 0345 072 6067
unitedutilities.com

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

Visit: unitedutilities.com/wow

Did you know we now have a live chat facility available to you Mon to Friday 8 -5pm. You just click on the orange live chat box on our webpage and one of our advisors will be ready to chat to you and help you with your enquiry <https://www.unitedutilities.com/builders-developers/> or you can email us at WastewaterDeveloperServices@uuplc.co.uk

--	--

The information contained in this e-mail is intended only for the individual to whom it is addressed. It may contain

legally privileged or confidential information or otherwise be exempt from disclosure. If you have received this Message in error or there are any problems, please notify the sender immediately and delete the message from your computer. You must not use, disclose, copy or alter this message for any unauthorised purpose. Neither United Utilities Group PLC nor any of its subsidiaries will be liable for any direct, special, indirect or consequential damages as a result of any virus being passed on, or arising from the alteration of the contents of this message by a third party.

United Utilities Group PLC, Haweswater House, Lingley Mere
Business Park, Lingley Green Avenue, Great Sankey,
Warrington, WA5 3LP
Registered in England and Wales. Registered No 6559020

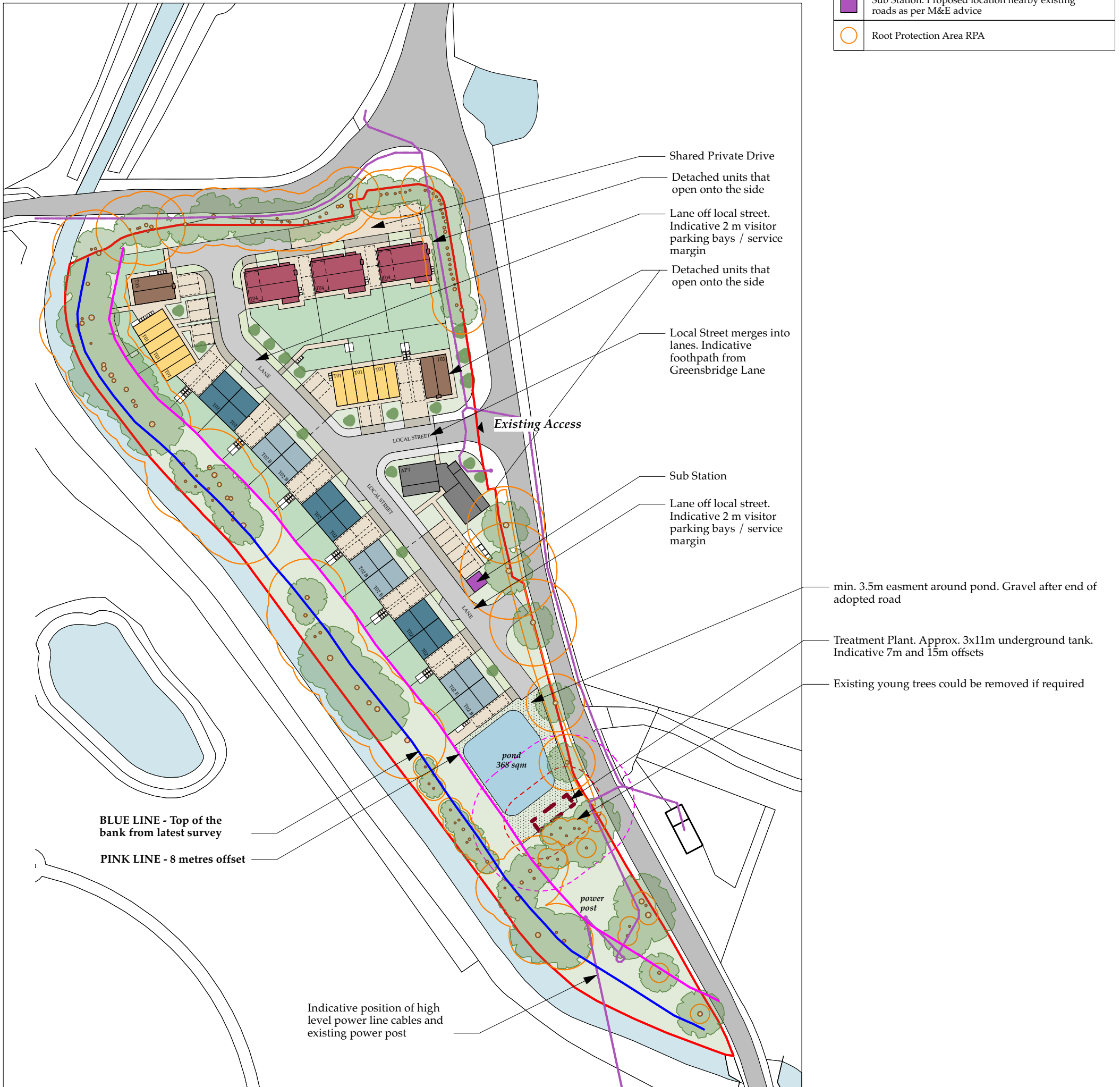
www.unitedutilities.com
www.unitedutilities.com/subsidiaries

Appendix E Proposed Development Plan

MASTERPLAN

RESIDENTIAL UNITS:						
Type	Description	Bedrooms	People	GIFA		NO.
T01	 Terrace	2	3	c. 70.2 sqm	c. 755 sq ft	6
T02 A	 Semi Detached	3	5	c. 93 sqm	c. 1001 sq ft	6
T02 B	 Semi Detached	3	5	c. 93 sqm	c. 1001 sq ft	6
T03	 Detached	3	6	c. 106 sqm	c. 1001 sq ft	2
T04	 Detached	5	8	c. 147 sqm	c. 1582 sq ft	3
APT	 Apartment	1	2	c. 53.2 sqm	c. 573 sq ft	6
TOTAL						29

Note: All areas stated do not include garages. Integral or otherwise



Rev.	Date	Drawn	Checked	Note
------	------	-------	---------	------



ARCHITECTURAL EMPORIUM Ltd
www.architectural-emporium.co.uk / mail@architectural-emporium.co.uk
87 Kempston St, Liverpool, L3 8HE / +44 (0)151 363 0000

JOB: Greensbridge Lane - 531

STATUS:	PLANNING
---------	----------

SCALE: 1:1000 @ ISO A3

FIRST ISSUE: 07/06/2024

DRAWING No: **2.010 -**

Masterplan Layout

Appendix F ReFH2 Greenfield Runoff Estimate

DOCUMENT VERIFICATION RECORD	
Project:	Former Merseyside Dogs Home, East Halewood
Client:	BBE Developments Ltd
Report Title:	Drainage Strategy
Date:	20/05/2024

DOCUMENT REVIEW & APPROVAL	
Author:	Ryan Moore BSc (Hons)
Checker:	Aled Williams BSc (Hons) MCIWEM C.WEM
Approver:	Mike Wellington BEng (Hons) MSc CEng CEnv FICE FCIWEM C.WEM IMaPS MAPM

Return Period (Years)	As-rural Peak Flow (l/s)
1	6.04
2	6.75
5	9.05
10	10.67
30	13.41
50	14.76
75	15.92
100	16.8
200	19.17
1000	27.62

*Runoff Rates printed from the ReFH Flood Modelling software package

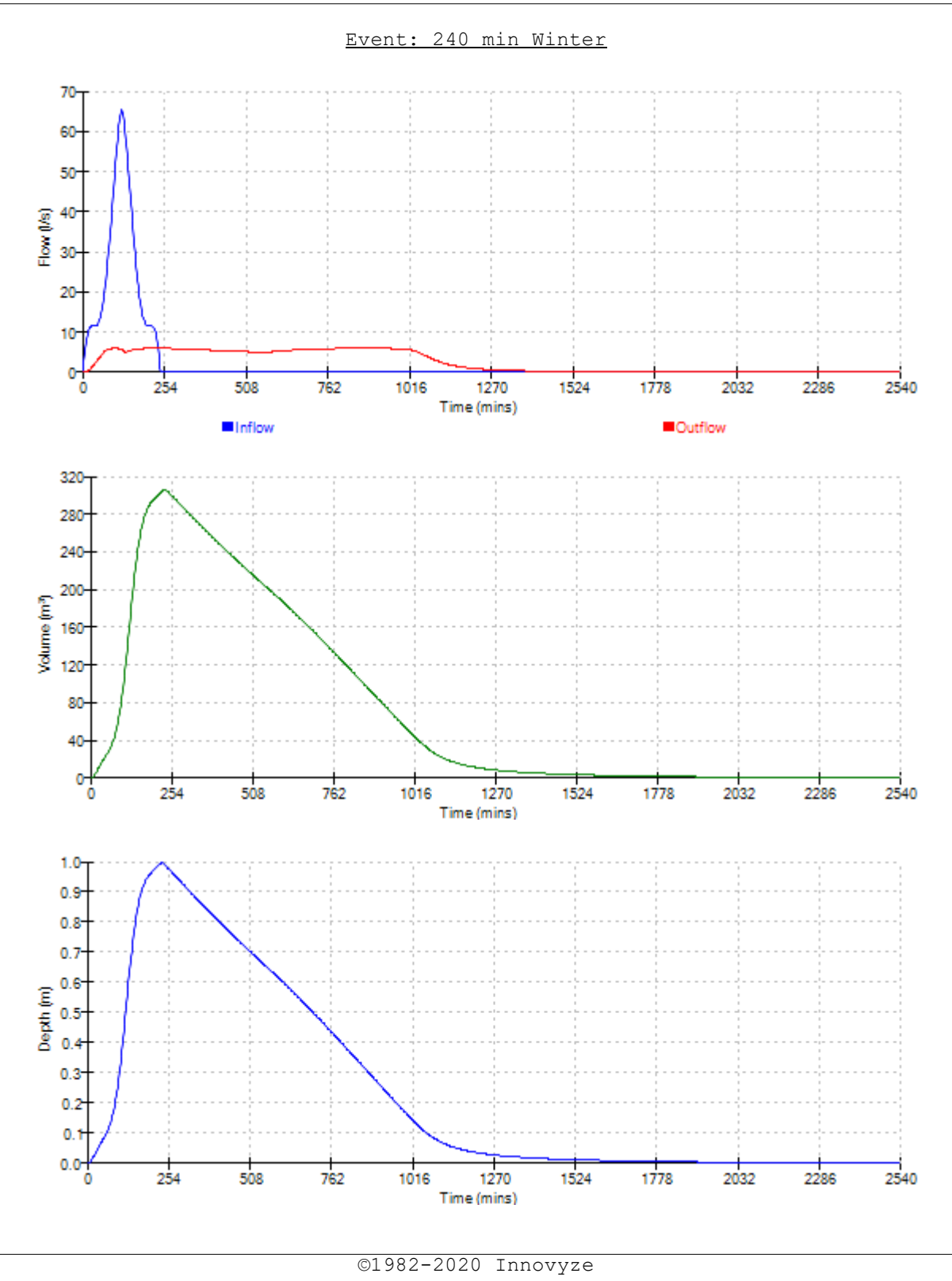
Appendix G MicroDrainage Attenuation Storage Estimate

Waterco Ltd				Page 1	
Eden Court		14506			
Lon Parcwr Business Park		Attenuation Storage Estimate			
Denbighshire LL15 1NJ		1 in 100 Year + 45% CC Event			
Date 20/05/2024		Designed by RM			
File 14506-Attenuation Stora...		Checked by AW			
XP Solutions		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 Control (l/s)	Max Volume (m³)	Status
15 min Summer	9.518	0.518	6.0	159.0	O K
30 min Summer	9.673	0.673	6.0	206.6	O K
60 min Summer	9.821	0.821	6.0	252.1	Flood Risk
120 min Summer	9.925	0.925	6.0	284.0	Flood Risk
180 min Summer	9.971	0.971	6.0	298.2	Flood Risk
240 min Summer	9.991	0.991	6.0	304.2	Flood Risk
360 min Summer	9.988	0.988	6.0	303.4	Flood Risk
480 min Summer	9.965	0.965	6.0	296.2	Flood Risk
600 min Summer	9.940	0.940	6.0	288.5	Flood Risk
720 min Summer	9.915	0.915	6.0	280.8	Flood Risk
960 min Summer	9.865	0.865	6.0	265.7	Flood Risk
1440 min Summer	9.776	0.776	6.0	238.1	Flood Risk
2160 min Summer	9.650	0.650	6.0	199.6	O K
2880 min Summer	9.523	0.523	6.0	160.6	O K
4320 min Summer	9.350	0.350	6.0	107.6	O K
5760 min Summer	9.245	0.245	5.9	75.1	O K
7200 min Summer	9.182	0.182	5.8	55.8	O K
8640 min Summer	9.145	0.145	5.5	44.5	O K
10080 min Summer	9.126	0.126	5.3	38.8	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
15 min Summer	138.620	0.0	162.1	16	
30 min Summer	91.120	0.0	212.9	31	
60 min Summer	57.015	0.0	267.8	62	
120 min Summer	33.720	0.0	316.8	122	
180 min Summer	24.721	0.0	348.4	180	
240 min Summer	19.785	0.0	371.8	240	
360 min Summer	14.379	0.0	405.3	360	
480 min Summer	11.410	0.0	428.8	414	
600 min Summer	9.519	0.0	447.2	476	
720 min Summer	8.202	0.0	462.4	540	
960 min Summer	6.480	0.0	486.9	672	
1440 min Summer	4.653	0.0	524.0	952	
2160 min Summer	3.354	0.0	567.3	1364	
2880 min Summer	2.671	0.0	602.3	1728	
4320 min Summer	1.958	0.0	662.3	2424	
5760 min Summer	1.584	0.0	714.4	3112	
7200 min Summer	1.351	0.0	762.1	3816	
8640 min Summer	1.193	0.0	807.0	4488	
10080 min Summer	1.077	0.0	850.2	5144	
©1982-2020 Innovyze					

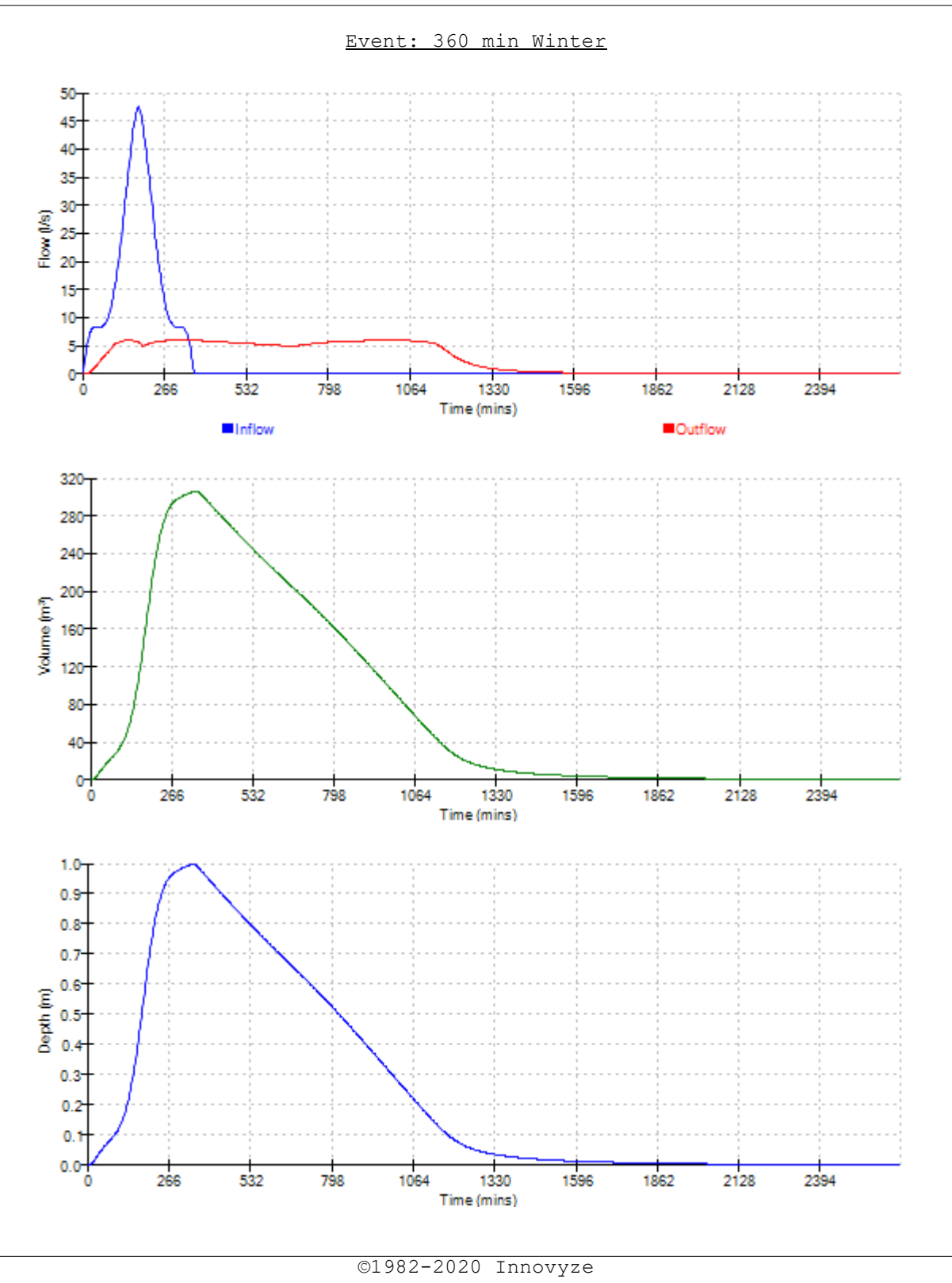
Waterco Ltd				Page 2	
Eden Court		14506			
Lon Parcwr Business Park		Attenuation Storage Estimate			
Denbighshire LL15 1NJ		1 in 100 Year + 45% CC Event			
Date 20/05/2024		Designed by RM			
File 14506-Attenuation Stora...		Checked by AW			
XP Solutions		Source Control 2020.1.3			
<u>Summary of Results for 100 year Return Period (+45%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Winter	9.518	0.518	6.0	158.9	O K
30 min Winter	9.673	0.673	6.0	206.5	O K
60 min Winter	9.821	0.821	6.0	252.0	Flood Risk
120 min Winter	9.927	0.927	6.0	284.5	Flood Risk
180 min Winter	9.974	0.974	6.0	299.1	Flood Risk
240 min Winter	9.995	0.995	6.0	305.6	Flood Risk
360 min Winter	9.997	0.997	6.0	306.0	Flood Risk
480 min Winter	9.971	0.971	6.0	298.1	Flood Risk
600 min Winter	9.938	0.938	6.0	288.0	Flood Risk
720 min Winter	9.908	0.908	6.0	278.8	Flood Risk
960 min Winter	9.845	0.845	6.0	259.4	Flood Risk
1440 min Winter	9.716	0.716	6.0	219.8	Flood Risk
2160 min Winter	9.506	0.506	6.0	155.2	O K
2880 min Winter	9.350	0.350	6.0	107.6	O K
4320 min Winter	9.177	0.177	5.7	54.4	O K
5760 min Winter	9.121	0.121	5.1	37.1	O K
7200 min Winter	9.103	0.103	4.4	31.7	O K
8640 min Winter	9.093	0.093	3.9	28.4	O K
10080 min Winter	9.086	0.086	3.6	26.2	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
15 min Winter	138.620	0.0	162.1	16	
30 min Winter	91.120	0.0	212.9	31	
60 min Winter	57.015	0.0	267.8	60	
120 min Winter	33.720	0.0	316.8	120	
180 min Winter	24.721	0.0	348.4	178	
240 min Winter	19.785	0.0	371.8	234	
360 min Winter	14.379	0.0	405.3	344	
480 min Winter	11.410	0.0	428.8	448	
600 min Winter	9.519	0.0	447.2	486	
720 min Winter	8.202	0.0	462.4	558	
960 min Winter	6.480	0.0	486.9	712	
1440 min Winter	4.653	0.0	524.1	1024	
2160 min Winter	3.354	0.0	567.3	1408	
2880 min Winter	2.671	0.0	602.3	1760	
4320 min Winter	1.958	0.0	662.3	2380	
5760 min Winter	1.584	0.0	714.4	3000	
7200 min Winter	1.351	0.0	762.1	3680	
8640 min Winter	1.193	0.0	807.0	4408	
10080 min Winter	1.077	0.0	850.2	5128	
©1982-2020 Innovyze					

Waterco Ltd		Page 4																																																																																																															
Eden Court	14506																																																																																																																
Lon Parcwr Business Park	Attenuation Storage Estimate																																																																																																																
Denbighshire LL15 1NJ	1 in 100 Year + 45% CC Event																																																																																																																
Date 20/05/2024	Designed by RM																																																																																																																
File 14506-Attenuation Stora...	Checked by AW																																																																																																																
XP Solutions	Source Control 2020.1.3																																																																																																																
Model Details Storage is Online Cover Level (m) 10.000 Tank or Pond Structure Invert Level (m) 9.000 <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th></tr><tr><td>0.000</td><td>307.0</td><td>1.000</td><td>307.0</td></tr></table> Hydro-Brake® Optimum Outflow Control <table><tr><td>Unit Reference</td><td>MD-SHE-0115-6000-1000-6000</td></tr><tr><td>Design Head (m)</td><td>1.000</td></tr><tr><td>Design Flow (l/s)</td><td>6.0</td></tr><tr><td>Flush-Flo™</td><td>Calculated</td></tr><tr><td>Objective</td><td>Minimise upstream storage</td></tr><tr><td>Application</td><td>Surface</td></tr><tr><td>Sump Available</td><td>Yes</td></tr><tr><td>Diameter (mm)</td><td>115</td></tr><tr><td>Invert Level (m)</td><td>8.995</td></tr><tr><td>Minimum Outlet Pipe Diameter (mm)</td><td>150</td></tr><tr><td>Suggested Manhole Diameter (mm)</td><td>1200</td></tr></table> <table><tr><th>Control Points</th><th>Head (m)</th><th>Flow (l/s)</th></tr><tr><td>Design Point (Calculated)</td><td>1.000</td><td>6.0</td></tr><tr><td>Flush-Flo™</td><td>0.298</td><td>6.0</td></tr><tr><td>Kick-Flo®</td><td>0.647</td><td>4.9</td></tr><tr><td>Mean Flow over Head Range</td><td>-</td><td>5.2</td></tr></table> The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated <table><tr><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th></tr><tr><td>0.100</td><td>4.0</td><td>1.600</td><td>7.5</td><td>5.000</td><td>12.8</td></tr><tr><td>0.200</td><td>5.8</td><td>1.800</td><td>7.9</td><td>5.500</td><td>13.4</td></tr><tr><td>0.300</td><td>6.0</td><td>2.000</td><td>8.3</td><td>6.000</td><td>14.0</td></tr><tr><td>0.400</td><td>5.9</td><td>2.200</td><td>8.7</td><td>6.500</td><td>14.5</td></tr><tr><td>0.500</td><td>5.7</td><td>2.400</td><td>9.0</td><td>7.000</td><td>15.0</td></tr><tr><td>0.600</td><td>5.3</td><td>2.600</td><td>9.4</td><td>7.500</td><td>15.5</td></tr><tr><td>0.800</td><td>5.4</td><td>3.000</td><td>10.0</td><td>8.000</td><td>16.0</td></tr><tr><td>1.000</td><td>6.0</td><td>3.500</td><td>10.8</td><td>8.500</td><td>16.5</td></tr><tr><td>1.200</td><td>6.5</td><td>4.000</td><td>11.5</td><td>9.000</td><td>17.0</td></tr><tr><td>1.400</td><td>7.0</td><td>4.500</td><td>12.2</td><td>9.500</td><td>17.4</td></tr></table>			Depth (m)	Area (m²)	Depth (m)	Area (m²)	0.000	307.0	1.000	307.0	Unit Reference	MD-SHE-0115-6000-1000-6000	Design Head (m)	1.000	Design Flow (l/s)	6.0	Flush-Flo™	Calculated	Objective	Minimise upstream storage	Application	Surface	Sump Available	Yes	Diameter (mm)	115	Invert Level (m)	8.995	Minimum Outlet Pipe Diameter (mm)	150	Suggested Manhole Diameter (mm)	1200	Control Points	Head (m)	Flow (l/s)	Design Point (Calculated)	1.000	6.0	Flush-Flo™	0.298	6.0	Kick-Flo®	0.647	4.9	Mean Flow over Head Range	-	5.2	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	0.100	4.0	1.600	7.5	5.000	12.8	0.200	5.8	1.800	7.9	5.500	13.4	0.300	6.0	2.000	8.3	6.000	14.0	0.400	5.9	2.200	8.7	6.500	14.5	0.500	5.7	2.400	9.0	7.000	15.0	0.600	5.3	2.600	9.4	7.500	15.5	0.800	5.4	3.000	10.0	8.000	16.0	1.000	6.0	3.500	10.8	8.500	16.5	1.200	6.5	4.000	11.5	9.000	17.0	1.400	7.0	4.500	12.2	9.500	17.4
Depth (m)	Area (m²)	Depth (m)	Area (m²)																																																																																																														
0.000	307.0	1.000	307.0																																																																																																														
Unit Reference	MD-SHE-0115-6000-1000-6000																																																																																																																
Design Head (m)	1.000																																																																																																																
Design Flow (l/s)	6.0																																																																																																																
Flush-Flo™	Calculated																																																																																																																
Objective	Minimise upstream storage																																																																																																																
Application	Surface																																																																																																																
Sump Available	Yes																																																																																																																
Diameter (mm)	115																																																																																																																
Invert Level (m)	8.995																																																																																																																
Minimum Outlet Pipe Diameter (mm)	150																																																																																																																
Suggested Manhole Diameter (mm)	1200																																																																																																																
Control Points	Head (m)	Flow (l/s)																																																																																																															
Design Point (Calculated)	1.000	6.0																																																																																																															
Flush-Flo™	0.298	6.0																																																																																																															
Kick-Flo®	0.647	4.9																																																																																																															
Mean Flow over Head Range	-	5.2																																																																																																															
Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)																																																																																																												
0.100	4.0	1.600	7.5	5.000	12.8																																																																																																												
0.200	5.8	1.800	7.9	5.500	13.4																																																																																																												
0.300	6.0	2.000	8.3	6.000	14.0																																																																																																												
0.400	5.9	2.200	8.7	6.500	14.5																																																																																																												
0.500	5.7	2.400	9.0	7.000	15.0																																																																																																												
0.600	5.3	2.600	9.4	7.500	15.5																																																																																																												
0.800	5.4	3.000	10.0	8.000	16.0																																																																																																												
1.000	6.0	3.500	10.8	8.500	16.5																																																																																																												
1.200	6.5	4.000	11.5	9.000	17.0																																																																																																												
1.400	7.0	4.500	12.2	9.500	17.4																																																																																																												
©1982-2020 Innovyze																																																																																																																	

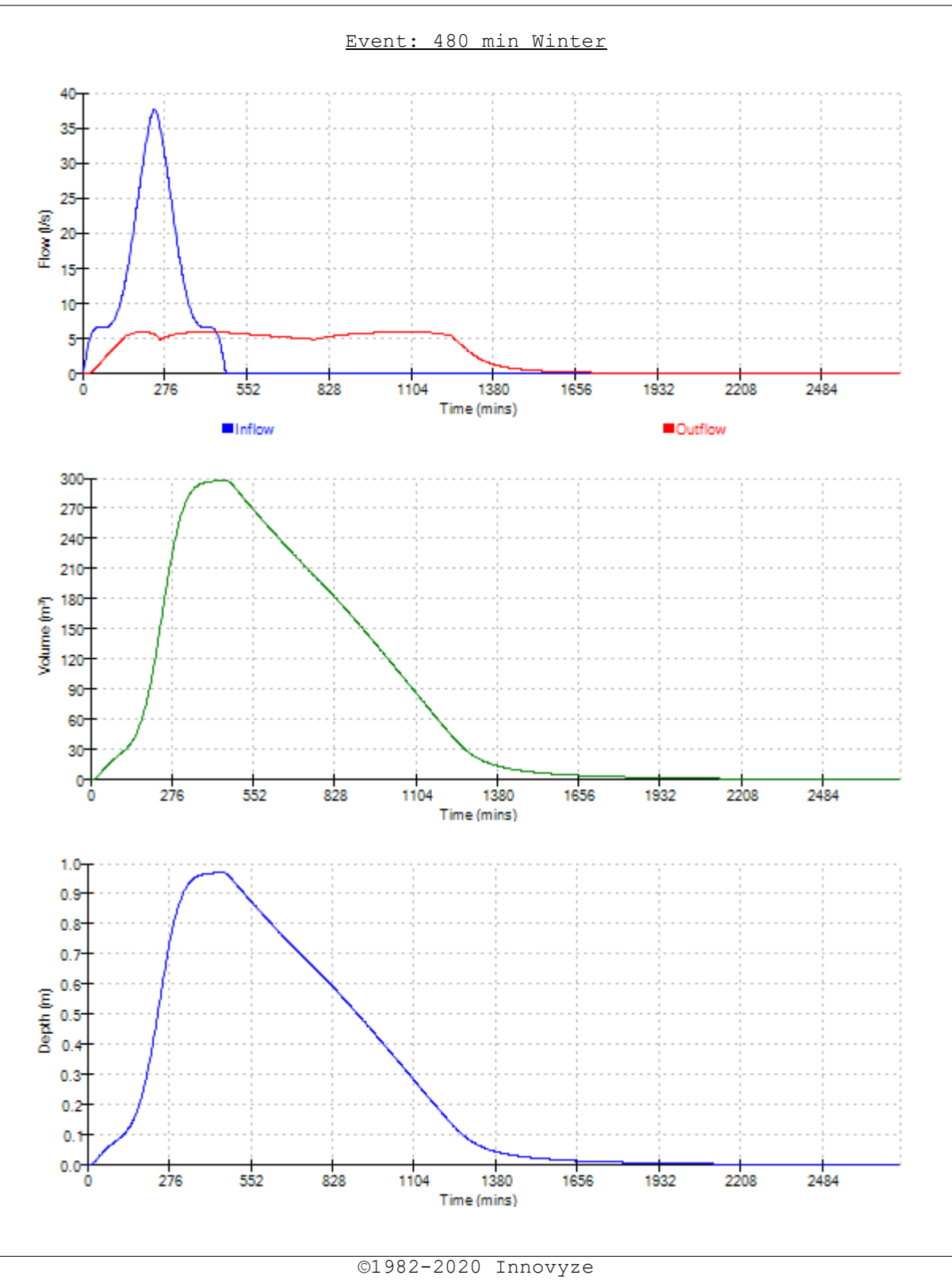
Waterco Ltd		Page 5
Eden Court Lon Parcwr Business Park Denbighshire LL15 1NJ	14506	
	Attenuation Storage Estimate 1 in 100 Year + 45% CC Event	
Date 20/05/2024	Designed by RM	
File 14506-Attenuation Stora...	Checked by AW	
XP Solutions	Source Control 2020.1.3	



Waterco Ltd		Page 6
Eden Court Lon Parcwr Business Park Denbighshire LL15 1NJ	14506	
	Attenuation Storage Estimate 1 in 100 Year + 45% CC Event	
Date 20/05/2024	Designed by RM	
File 14506-Attenuation Stora...	Checked by AW	
XP Solutions	Source Control 2020.1.3	



Waterco Ltd		Page 7
Eden Court	14506	
Lon Parcwr Business Park	Attenuation Storage Estimate	
Denbighshire LL15 1NJ	1 in 100 Year + 45% CC Event	
Date 20/05/2024	Designed by RM	
File 14506-Attenuation Stora...	Checked by AW	
XP Solutions	Source Control 2020.1.3	



Appendix H Concept Drainage Sketch



Notes:

1) This sketch has not been subject to formal checks or approvals. Its validity and use must therefore be limited to discussion and information purposes only.

2) Unless otherwise noted the risks associated with this proposal are not considered to be extra ordinary and within the remit of an experienced and competent contractor.

3) All dimensions in millimetres and all levels in metres above ordnance datum unless shown otherwise.

4) This drawing is an amendment of the 'Masterplan Layout' (Drawing No. 2.010) by Architectural Emporium Ltd. This drawing provides a concept only and is not intended for detailed design.

- LEGEND**
- Site Boundary
 - Proposed Pond
 - Proposed Surface Water Inspection Chamber
 - Proposed Flow Control Chamber
 - Proposed Surface Water Drain

CLIENT:			
BBE Developments Ltd			
 www.waterco.co.uk			
SCHEME:			
Former Merseyside Dogs Home, East Halewood			
PLOT TITLE:			
Concept Drainage Sketch			
PLOT STATUS:			DATE:
SKETCH			17-06-2024
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
RM	AW	MW	1:800
PLOT NAME:			REVISION:
14506_Concept_Drainage_Sketch			-

Appendix I Maintenance Schedule

Operation and Maintenance Requirements for Ponds and Wetlands

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Remove litter and debris	Monthly (or as required)
	Cut the grass – public areas	Monthly (during growing season), or as required
	Inspect marginal and bankside vegetation and remove nuisance plants (for first 3 years)	Monthly (at start, then as required)
	Inspect inlets, outlets, banksides, structures, pipework etc for evidence of blockage, and / or physical damage.	Monthly
	Inspect water body for signs of poor water quality	Monthly (May – October)
	Inspect silt accumulation rates in any forebay and in main body of the pond and establish appropriate removal frequencies; undertake contamination testing once some build-up has occurred, to inform management and disposal options.	Half yearly
	Check any mechanical devices e.g. penstocks	Half yearly
	Hand cut submerged and emergent aquatic plants (at minimum of 0.1m above pond base; include max 25% of pond surface)	Annually
	Remove 25% of bank vegetation from water's edge to a minimum of 1m above water level	Annually
	Remove sediment from any forebay	Every 1 – 5 years, or as required
	Remove sediment and planting from one quadrant of the main body of ponds without sediment forebays	Every 5 years, or as required
Occasional maintenance	Remove sediment from the main body of big ponds when pool volume is reduced by 20%	With effective pre-treatment, this will only be required rarely, e.g. 25-50 years
Remedial actions	Repair erosion or other damage	As required
	Replant where necessary	As required
	Aerate pond when signs of eutrophication are detected	As required
	Realign rip-rap or repair other damage	As required
	Repair/rehabilitate of Inlets, outlets and overflows	As required

Ref. Table 23.1 CIRIA C753 'The SuDS Manual'

The maintenance requirements detailed above are to be undertaken by the site owner.

Name :

Position :

Date :

Signed on behalf of the site owner :

Appendix J Concept Designer's Risk Assessment

Project: Former Merseyside Dogs Home, Halewood
Client: BBE Developments Ltd
Report Reference: 14506-Drainage Strategy-02

Project No: 14506

Prepared by:	Adam McCulloch	Date:	16/04/2023
Checked by:	Aled Williams BSc (Hons) MCIWEM C.WEM	Date:	27/04/2023
Reviewed by:	Mike Wellington BEng (Hons) MSc CEng CEnv FICE FCIWEM C.WEM IMaPS MAPM	Date:	01/05/2023

Requirement:

The Construction (Design and Management) Regulations 2015 (CDM 2015) place an obligation on the Designer to take all reasonable steps to provide, with the design, sufficient information about the design, construction or maintenance of the structure, to adequately assist the client, other designers and contractors to comply with their duties under CDM. The Designer has undertaken this assessment to identify any extra-ordinary risks, or those that would not be expected on this particular project by an experienced and competent Contractor. The aim is to avoid needless paperwork and bureaucracy and ensure the assessment is project specific, relevant and proportionate to the risk.

DRA Summary

Each of the following risk areas has been considered using the question below. Is a risk present which is considered to be **extra-ordinary or unexpected** in this instance?

If **YES** - A detailed risk assessment is required at design stage

If **UNKNOWN** - Insufficient information has been provided at concept design stage and the risks are unknown. Further consideration must be given at design stage(s)

If **NO** - No further action is required.

Hazard Ref.	Risk Areas	YES, UNKNOWN or NO	Comments
1	Ground Conditions	Unknown	To be confirmed at detailed design stage
2	Hazardous Environment	Unknown	To be confirmed at detailed design stage
3	Existing Working Environment	Unknown	The site was formerly a dogs home.
4	Existing Services	Yes	Overhead electricity cable crossing southern extent of site.
5	Proximity to Other Structure(s)	Unknown	To be confirmed at detailed design stage
6	Near Waterbody / flood risk	Yes	Netherley Brook located immediately west of the site.
7	Proximity to Other Activities	Unknown	To be confirmed at detailed design stage
8	Sequence of Construction	Unknown	To be confirmed at detailed design stage
9	Access	Unknown	Access provided from Greensbridge Lane
10	Interfaces	Unknown	To be confirmed at detailed design stage
11	Confined Space Working	Unknown	To be confirmed at detailed design stage
12	Maintenance Considerations	Unknown	To be confirmed at detailed design stage
13	Working at Height	Unknown	To be confirmed at detailed design stage
14	Steep Slopes	No	To be confirmed at detailed design stage
15	Demolition / Refurbishment / Repair	Yes	Demolition of existing dogs home and dwelling.
16	Welfare	Unknown	To be confirmed at detailed design stage
17	Occupational Health	Unknown	To be confirmed at detailed design stage
18	Environmental Issues	Yes	GPZ further consideration to be undertaken at detailed design stage
19	Other Significant Hazards not Identified Above	Unknown	To be confirmed at detailed design stage
20	Residual Risk to Future Users	Unknown	To be confirmed at detailed design stage