



Anwyl Homes Ltd

Land off Wilbraham Road, Chorlton, Manchester

Flood Risk Assessment and Drainage Strategy

680483-R1(03)-FRA

November 2022

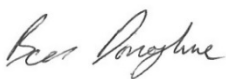


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RSK GENERAL NOTES

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Author	<u>B Donoghue</u>	Technical Reviewer	<u>K Jackson</u>
Signature		Signature	
Date:	<u>October 2022</u>	Date:	<u>October 2022</u>

Project Manager C Whittingham

Signature 

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK LDE Ltd.

Anwyl Homes Ltd
 Land off Wilbraham Road, Chorlton
 Flood Risk Assessment
 680483-R1(03)-FRA

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1 INTRODUCTION

1.1 Context

This Flood Risk Assessment has been prepared on behalf of Anwyl Homes ('the Applicant') in support of a full planning application at land off Wilbraham Road, Chorlton, Manchester ('the site').

The description of development is as follows:

"Full planning application proposing the erection of a residential development (Use Class C3), with associated infrastructure, including landscaping, drainage and car parking, access, ecological mitigation, demolition of a garage to the rear of 354 Wilbraham Road and other works."

The site is owned by The Greater Manchester Trust for Recreation (working name "The Greater Manchester Youth Federation (GMYF)") and previously known as Boys' and Girls' clubs of Greater Manchester). GMYF, is a registered charity, whose origin dates to the mid 1800's.

GMYF has been operating in an extremely challenging environment owing to a long period of sustained funding cuts and the impacts of the Covid-19 pandemic. Following a strategic review, the charity is disposing of redundant land that it owns, including the application site, with the aim of reinvesting in several critical areas of the charity, such as safeguarding, governance and a new team of youth workers, to ensure that the 125 year old charity is able to support its affiliated clubs, volunteers and young people across Greater Manchester.

GMYF has selected Anwyl Homes as the preferred developer for the application site.

The assessment has been prepared in accordance with the National Planning Policy Framework (NPPF)¹ and its accompanying Planning Practice Guidance², the Interim Code of Practice for Sustainable Drainage³, BS 8533-2017 Assessing and Managing Flood Risk in Development Code of Practice⁴, BS 8582:2013 Code of practice for surface water management for development sites⁵ and the Non-statutory technical standards for sustainable drainage systems⁶, with site-specific advice from the Environment Agency (EA), the Lead Local Flood Authority (LLFA), the Local Planning Authority (LPA), architect and the client.

The NPPF sets out the criteria for development and flood risk by stating that inappropriate development in areas at risk of flooding should be avoided by directing development

¹ Communities and Local Government, 'National Planning Policy Framework', July 2021.

² Communities and Local Government, 'Planning Practice Guidance - Flood Risk and Coastal Change, ID 7', August 2022. <http://planningguidance.planningportal.gov.uk/blog/guidance/flood-risk-and-coastal-change/>

³ DEFRA, 'Interim Code of Practice for Sustainable Drainage Systems' National SUDS Working Group, July 2004.

⁴ BSI, 'BS 8533-2017 Assessing and managing flood risk in development Code of practice', October 2017.

⁵ BSI, 'BS 8582:2013 Code of practice for surface water management for development sites', November 2013.

⁶ DEFRA, 'Sustainable Drainage Systems - Non-statutory technical standards for sustainable drainage systems', March 2015.

away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere.

The key definitions within the PPG are:

- “Flood risk” is a combination of the probability and the potential consequences of flooding from all sources – including from rivers and the sea, directly from rainfall on the ground surface and rising groundwater, overwhelmed sewers, and drainage systems, and from reservoirs, canals and lakes and other artificial sources; and
- “Areas at risk of flooding” means areas at risk from all sources of flooding. For fluvial (river) and sea flooding, this is principally land within Flood Zones 2 and 3. It can also include an area within Flood Zone 1 which the EA has notified the local planning authority as having critical drainage problems.

For this site, the key aspects that require the assessment are:

- The EA’s indicative flood zone map shows that the proposed residential development is located within Flood Zone 1.

1.2 Scope of work

A key element of project development is to prepare an FRA to establish the flood risk associated with the proposed development and to propose a suitable mitigation strategy to reduce the risk to a more acceptable level.

The scope of work relating to an FRA is based on the guidance provided in Section 14 of the NPPF and its accompanying Planning Practice Guidance.

A site-specific FRA must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall. The scope of this assessment therefore comprises the following elements:

- To review architect plans, planning information and other studies to determine existing site conditions;
- To obtain information on the hydrology and hydrological regime in and around the site;
- To obtain the views of the EA and LLFA including scope, location, and impacts;
- To determine the extent of new flooding provision and the influence on the site;
- To assess the impact on the site from climate change effects and anticipated increases in rainfall over a 100 year period for residential uses;
- To review site surface water drainage based on the proposed layout and, if necessary, to determine the extent of infrastructure required; and
- To prepare a report including calculations and summaries of the source information and elements reviewed.

Reliance has been placed on factual and anecdotal data obtained from the sources identified. RSK cannot be held responsible for the scope of work, or any omissions, misrepresentation, errors, or inaccuracies with the supplied information. New information, revised practices or changes in legislation may necessitate the re-interpretation of the report, in whole or in part.

The comments given in this report and opinions expressed are subject to RSK Group Service Constraints provided in **Appendix A**.

2 SITE DESCRIPTION

2.1 Existing site

2.1.1 Location

The application site extends to approximately 2.22 hectares (ha) and comprises an irregular shaped parcel of land within the administrative boundary of Manchester City Council (Grid Reference – **E** 382643 / **N** 394254). The application site comprises two distinct parcels of land, as described below.

The part of the site identified for the proposed housing development comprises a roughly rectangular shaped parcel of land, which extends to 2 ha. 354 Wilbraham Road and its associated garage are the only existing buildings/structures within the site boundary. Access to the site is obtained from Wilbraham Road. The housing site is privately owned by GMYF and is secured on all boundaries by fencing and gates aside from 354 Wilbraham Road which is an occupied dwelling.

The part of the site identified for ecological enhancement comprises 0.22ha. The ecological enhancement area is owned by the St Margaret's Centre.

Figure 2.1 shows a Site Location Map.

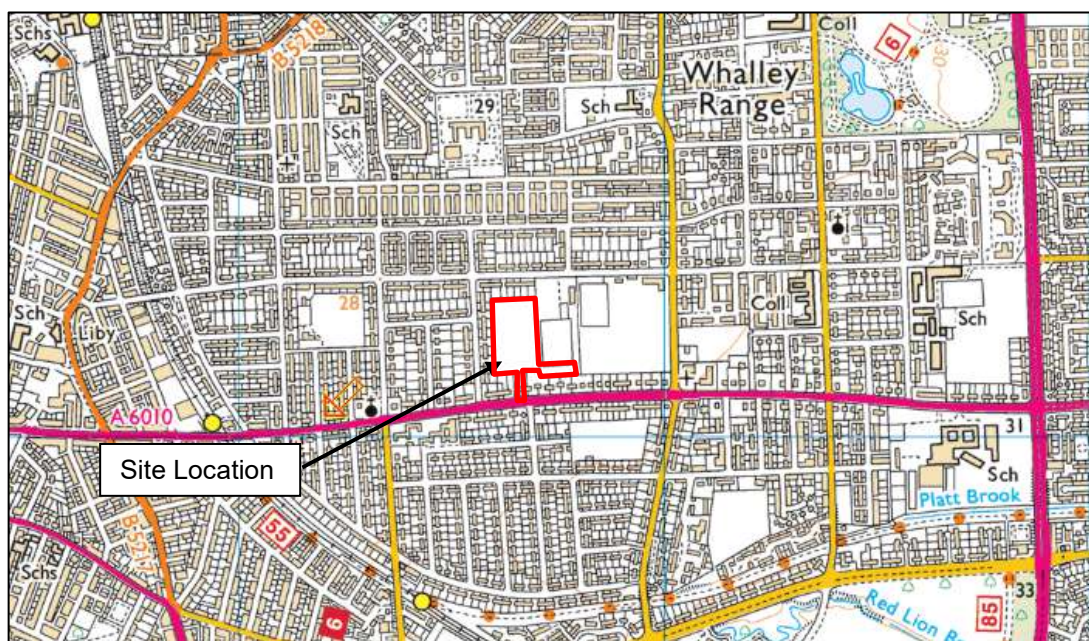


Figure 2.1: Site location map

2.1.2 Land use and topography

The site levels have been assessed using the topographic survey undertaken by JLP Surveying in March 2022 (included in **Appendix B**).

The lowest point on-site is found along the northern edge of the site down to 28.3mAOD in the centre (although it slopes upward to 28.5 – 28.6mAOD to the west and east). The majority of the site is approximately 28.6-29.0mAOD in elevation and varies slightly from west to east. The main southern boundary is at 29.5mAOD. The entrance roadway

continues to slope uphill to the south, to a level of 29.7mAOD at the junction of Wilbraham Road.

The existing site layout (summarised in **Table 2.2** below) shows the site is 100% permeable and considered as undeveloped greenfield, since it is a sports ground and playing field and has no historic building or hardstanding areas.

Table 2.2: Existing site land uses

Land use	Area (ha)	Percentage (%)
Impermeable	0	0
Permeable	2.22	100
Total	2.22	100

2.1.3 Existing Drainage

The existing drainage on site and in the immediate surroundings has been assessed using the topographic survey (**Appendix B**) and United Utilities (UU) public sewer records (**Appendix C**).

A summary of the drainage details are as follows:

- An abandoned 250mm VC combined sewer crosses the southern half of the site.
- The 250mm VC combined sewer is still live beyond the site boundary in number 354 Wilbraham Road. This sewer joins a 525mm VC combined sewer in Morville Road to the west.
- The sewer continued as a 750mm x 1050mm conduit beyond the merge point.

2.1.4 Hydrology

The closest EA designated Main River to the site is the Chorlton Brook approximately 850m to the south. This eventually outfalls into the River Mersey 2.5km to the west.

According to the Manchester SFRA and the website <https://hidden-manchester.org.uk/>, the upper section of a lost watercourse called Longford Brook runs along the length of Brantingham Road to the north of the site.

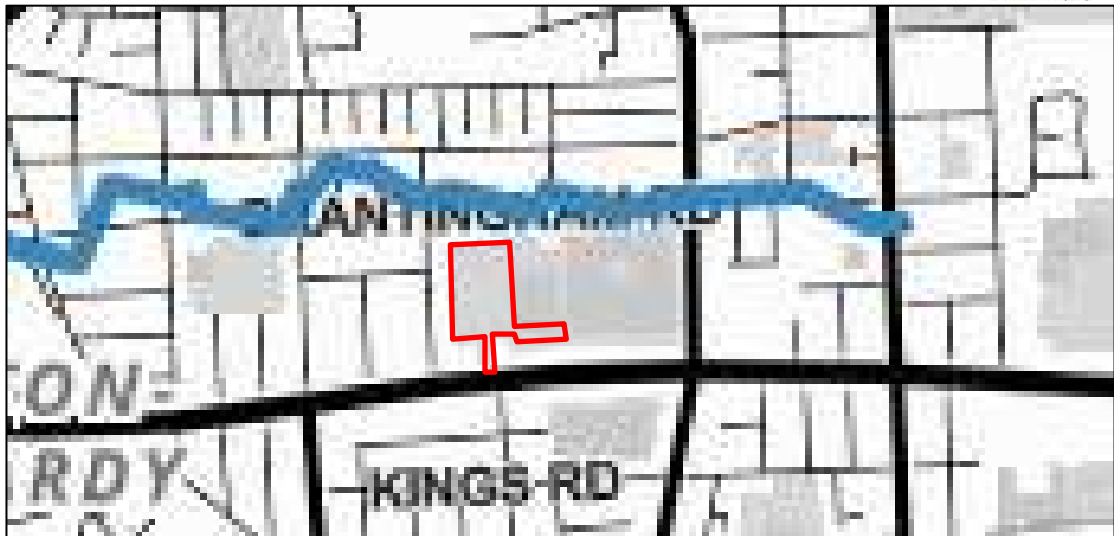


Figure 2.2: Longford Brook Hidden Watercourse
 (extracted from <https://hidden-manchester.org.uk/waterways/longford-brook.html>)

2.1.5 Geology

According to British Geological Surveying mapping, the underlying geology on the site can be described as the following:

- Superficial Geology: Glaciofluvial Sheet Deposits, Devensian – Sand and Gravel.
- Bedrock Geology: Wilmslow Sandstone Formation – Sandstone.

BGS Borehole data records were searched for nearby trial/borehole logs that may give relevant information regarding the on-site geology. There is a single BGS borehole in the centre of the site off the access road (Ref. SJ89SW573). The geological column consists of an overlying metre of topsoil, 0.2m of brown sand, 1.3m of grey silty sand, before striking brown boulder clay which continues for at least another 4.5 metres. No groundwater was encountered in these boreholes although the boulder clay has at least 22% moisture content.

A ground investigation was undertaken by e3p in May 2022 (Report Reference 15-811-R2-3 November 2022)⁷ see description included in **Appendix D**. The topsoil sections range from 0 to 1.60m bgl consisting of reworked topsoil, a dark brown clayey sand, and deeper sections mixed with cobbles or brick, glass, and sandstone. Beneath the topsoil drift deposits were encountered ranging from 0.20 – 5.45mbgl. comprised of light brownish-grey sands eventually transitioning to firm clays. Solid Bedrock was not encountered during the ground investigation, but other sources confirm it to be in excess of 25m bgl.

Soakage Tests were carried out in a number of trial pits across the site and the infiltration rates in Table 3.1 were calculated. The overall conclusion was all drift deposits had very poor soakage and infiltration rates could not be calculated. Groundwater strikes occurred across the site at depths between 0.80 and 2.30 mbgl.

⁷ eP3 Ground Investigation Report “Phase II Geo-environmental Site Assessment - Land off Wilbraham Road, Chorlton, Manchester” (Reference:15-811-R2-3), November 2022

Table 2.1: Trial pit reference and average infiltration rate

Trial pit	Depth	Material	Infiltration Rate (m/s)
SA101	2.0	Silty Clay	N/A
SA102	1.5	Silty Clay	N/A
SA103	2.4	Silty Clay	N/A

2.1.6 Hydrogeology

Hydrogeological classification information was obtained from the online 'Magic Map' service⁸. The sites underlying Sandstone bedrock is classified as a Moderate to High risk Principal Aquifer. The superficial Glaciofluvial Deposits member is a Moderate Risk Secondary A aquifer, which are permeable layers that can support local water supplies and may form an important source of base flow to rivers.

Mapping shows that the site is not located in any Groundwater Protection Zones. The closest groundwater abstraction point is 1.60km north of the site.

Groundwater was encountered between 0.80m bgl and 2.00m bgl during the site investigation. Subsequent monitoring visits indicate the depth to water within boreholes between 1.13m bgl and 3.92m bgl.

The results of the BRE365 Soakaway Tests indicate the clay soils to have a poor drainage potential which would limit the use of soakaways within the proposed development.

2.2 Development proposals

The proposals for the construction of the residential development area is shown in **Appendix E**.

The proposals comprise the erection of a residential development (Use Class C3), with associated infrastructure, including landscaping, drainage and car parking, access, ecological mitigation, demolition of a garage to the rear of 354 Wilbraham Road and other works. The proposals are for 65 dwellings.

⁸ Magic Map Service - <https://magic.defra.gov.uk/magicmap.aspx>

3 LEGISLATION, POLICY, AND GUIDANCE

3.1 National policy

Table 3.1: National legislation and policy context

Legislation	Key provisions
National Planning Policy Framework (2021)	The aims of planning policy on development and flood risk are to ensure that flood risk is taken into account at all stages in the planning process to avoid inappropriate development in areas at risk of flooding, and to direct development away from areas at highest risk. Where new development is, exceptionally, necessary in such areas, policy aims to make it safe without increasing flood risk elsewhere and where possible, reducing flood risk overall. Applications for some minor developments (defined as non-residential extensions with a footprint less than 250m²) should not be subject to the sequential or exception tests but should still meet the requirements for site-specific flood risk assessments.
Planning Practice Guidance (2022)	The NPPF is supported by an online Planning Practice Guidance, which provide additional guidance on flood risk.
Flood and Water Management Act 2010 ⁹	The Flood and Water Management Act (FWMA) aims to implement the findings of the 2007 Pitt Review and co-ordinate control of drainage and flood issues. There are a number of increased responsibilities within the Act that affect adoption of SuDS features and the role of the EA to expand on the mapping data they provide. The implementation of SuDS features has many beneficial impacts on the treatment of surface water during remediation works.
Water Resources Act 1991 ¹⁰	Section 24 – The EA is empowered under this Act to maintain and improve the quality of ‘controlled’ waters Section 85 – It is an offence to cause or knowingly permit pollution of controlled waters Section 88 – Discharge consents are required for discharges to controlled waters
Water Framework Directive (2000) ¹¹	The Water Framework Directive (WFD) requires all inland and coastal waters to reach ‘good’ chemical and biological status by 2015. Flood risk management is unlikely to have a significant impact on chemical water quality except where maintenance works disturb sediment (such as de-silting) or where pollutants are mobilised from contaminated land by floodwaters.

⁹ Flood and Water Management Act, 2010

¹⁰ Water Resources Act, 1991

¹¹ EU Water Framework Directive, 2000

Legislation	Key provisions
	The main impact of the WFD on flood risk management, both now and in the future, relates to the ecological quality of water bodies. Channel works, such as straightening and deepening, or flood risk management schemes that modify geomorphological processes can change river morphology. The WFD aims to protect conservation sites identified by the EC Habitats Directive and Birds Directive that have water-related features, by designating them as 'protected sites'.

3.2 Local policy

Table 3.2: Local policy legislation and policy context

Study	Overview of key provisions and policies
Manchester Core Strategy 2012 to 2027 ¹² Adopted 11th July 2012	Policy EN 14 - Flood Risk In line with the risk-based sequential approach contained within PPS25, development should be directed away from sites at the greatest risk of flooding, and towards sites with little or no risk of flooding; this should take account of all sources of flooding identified in the Manchester-Salford-Trafford Strategic Flood Risk Assessment (SFRA). In addition to the requirements for site-specific Flood Risk Assessments (FRAs) set out in PPS25, an appropriate FRA will also be required for all development proposals, including changes of use, on sites greater than 0.5ha within Critical Drainage Areas (CDAs) and Canal Hazard Zones identified in the SFRA. All new development should minimise surface water run-off, including through Sustainable Drainage Systems (SUDS) and the appropriate use of Green Infrastructure. Developers should have regard to the surface water run-off rates in the SFRA User Guide. In CDAs, evidence to justify the surface water run-off approach / rates will be required. The City of Manchester contains many sections of rivers which are culverted or 'hidden'; where these are indicated in the SFRA beneath the proposed development site, further investigation will be required and the development proposal should take this into account; where feasible and appropriate development should seek to open up culverted/hidden rivers to reduce the associated flood risk and danger of collapse, taking advantage of opportunities to enhance biodiversity and Green Infrastructure. Policy EN 8 Adaptation to Climate Change All new development will be expected to be adaptable to climate change in terms of the design, layout, siting and function of both buildings and associated external spaces. In achieving developments which are adaptable to climate change developers

¹² Manchester Core Strategy 2012 to 2027, July 2012 - https://www.manchester.gov.uk/downloads/download/5672/core_strategy

Study	Overview of key provisions and policies
	should have regard to the following, although this is not an exhaustive list: • Minimisation of flood risk by appropriate siting, drainage, and treatment of surface areas to ensure rainwater permeability. • Reduction in urban heat island effect through the use of Green Infrastructure such as green roofs, green walls, increased tree cover and waterways. • The need to control overheating of buildings through passive design. • The opportunity to provide linked and diverse green space to enhance natural habitats which will assist species adaptation. Developers will be permitted to use green infrastructure elements such as green roofs, green walls, street trees and waterways to contribute to compliance with CO2 mitigation under Policy EN6, subject to sufficient evidence to quantify their contribution to compliance.
Manchester Core Strategy 2012 to 2027 ¹³ Adopted 11th July 2012	Policy EC 9 South Manchester South Manchester is not expected to make a significant contribution to employment provision within the City. New development is expected to mainly comprise office development, although proposals for high technology industry and research will also be supported. Employment and economic development provision will be within: 1. Existing employment locations, such as • Business Parks, such as, Towers, Didsbury Point, Christie Fields and Parkway; • Christies Hospital; • Along Princess Parkway; 2. District Centres of Chorlton, Didsbury, Fallowfield, Levenshulme and Withington. These will be suitable for mixed use development providing local needs and services. Development proposals and planning applications should have regard to: • Ensuring efficient use of existing employment space; • Improving public transport, walking and cycling connectivity between residential neighbourhoods and employment locations such as the City Centre, district centres, Trafford Park and Manchester Airport, particularly orbital connectivity.

¹³ Manchester Core Strategy 2012 to 2027, July 2012 - https://www.manchester.gov.uk/downloads/download/5672/core_strategy

3.3 Area guidance

Table 3.3: Area Guidance

Study	Overview of key provisions and policies
Manchester, Salford, and Trafford - Strategic Flood Risk Assessment Level 1¹⁴ March 2010	Flood risk in Manchester, Salford and Trafford is complicated and arises from many potential sources. It is, rightly, a constraint to development and great care is needed over the type and form of new development in flood risk areas. There is an intricate and well connected network of rivers, streams, sewers and canals within Greater Manchester. Flooding does not respect political boundaries and actions to manage flood risk and water from new development need to be carefully considered so that they do not increase risk downstream. Manchester City, Salford City and Trafford Councils and the Environment Agency should work together on flooding problems, particularly where actions could exacerbate flooding in downstream communities. Flood Risk in Manchester The main source of flood risk in Manchester is from the Grey Irwell, the Rivers Irk, Medlock and Mersey and Corn Brook. There was flooding from the Mersey in Didsbury and Northenden in 1998 and on the River Medlock in the centre of Manchester in 1991 and 2002. Surface water flooding is also significant and there is residual risk from the Ashton, Rochdale and Bridgewater Canals and several reservoirs.
Manchester, Salford, and Trafford - Strategic Flood Risk Assessment Level 2¹⁵ March 2011	Manchester The River Irk, River Medlock, Corn Brook, and surface water (including the risk of sewers and culverted “lost” or “hidden” watercourses surcharging) pose the highest risk of more frequent flooding. Surface water drainage from new developments is critical in reducing the risk of localised flooding. The SFRA has identified the Conurbation Core, Manchester, and Trafford South, Levenshulme and Fallowfield and Didsbury Critical Drainage Areas within the Manchester District. There is a significant residual risk of flooding from defences overtopping or breaching on the Lower Irwell at Lower Broughton (originating in Salford district) and in extreme flood events from the Grey Irwell. The interactions between different sources of risk is complex, especially between the River Medlock and the Bridgewater Canal. Elsewhere canals are a secondary source of flooding, with the highest potential risk likely to be from a breach on the Ashton Canal.

¹⁴ Manchester City, Salford City and Trafford Councils Level 1 Hybrid SFRA, JBA Consulting, March 2010, https://www.manchester.gov.uk/download/downloads/id/26462/final_mst_level_1_sfra_mar_2010.pdf

¹⁵ Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA, JBA Consulting, March 2011, https://www.manchester.gov.uk/download/downloads/id/26463/final_mst_level_2_sfra_mar_2011.pdf

Study	Overview of key provisions and policies
Irwell Catchment Flood Management Plan ¹⁶	The CFMP identifies flood risk management policies to assist all key decision makers in the catchment. In the Irwell catchment, the main source of risk is flooding from rivers. Localised floods due to overloaded urban drainage/sewer systems, surface water and blocked culverts also occur. The site lies within Sub-Area 1 (Manchester City Centre to Irlam). Flood maps indicate there are approximately 1,200 properties potentially at risk from river flooding in a 1% APE, although this does not currently indicate risk from the canal. There are also potential flood risk issues with increased development and surface water flooding. In the future, by 2100, we estimate 1,800 properties may be at risk in a 1% event. Policy Option 4: Areas of low, moderate or high flood risk where we are already managing the flood risk effectively but where we may need to take further actions to keep pace with climate change. Should flooding occur in the future, potential damages would be high due to the value of surrounding development. Therefore, a policy to take further action to prevent flood risk increasing in the future is justified.

¹⁶ Irwell Catchment Flood Management Plan - Summary Report, December 2009, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/293764/Irwell_Catchment_Flood_Management_Plan.pdf

4 SOURCES OF FLOOD RISK

4.1 Criteria

In accordance with the NPPF¹ and advice from the EA, a prediction of the flood sources and levels is required along with the effects of climate change from the present for the design life of the development (in this case assumed to be 100 years).

Changes to climate change guidance in October 2021 indicate that increased allowances in peak river flow and rainfall intensity should now be incorporated within any assessment. The appropriate allowance for peak river flow is based on the site's location in the country, the lifetime of development, the relevant flood zone and the vulnerability of the proposed end use.

The flood risk elements that need to be considered for any site are defined in BS 8533 as the "Forms of Flooding" and are listed as:

- Flooding from rivers (fluvial flood risk);
- Flooding from the sea (tidal flood risk);
- Flooding from the land;
- Flooding from groundwater;
- Flooding from sewers (sewer and drain exceedance, pumping station failure etc); and
- Flooding from reservoirs, canals, and other artificial structures.

The following section reviews each of these in respect of the subject site.

4.2 Definitions of Risk

Table 4.1: Flood Map for Planning Risk Zoning

Flood Zone	Description
Flood Zone 1	Land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding (<0.1%)
Flood Zone 2	Flood Zone 2 - land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1% – 0.1%), or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.5% – 0.1%) in any year
Flood Zone 3	Land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.
Flood Zone 3b	Land having the potential to flood for storm events up to the 1 in 20 year return period (>5% annual probability of flooding occurring). It is classified as 'functional floodplain'

Table 4.2: Flood Risk from Rivers or the Sea and Flood Risk from Surface Water

Flood Risk	Description
High	High risk means that each year this area has a chance of flooding of greater than 3.3%. This takes into account the effect of any flood defences in the area. These defences reduce but do not completely stop the chance of flooding as they can be overtopped or fail.
Medium	Medium risk means that each year this area has a chance of flooding of between 1% and 3.3%. This takes into account the effect of any flood defences in the area. These defences reduce but do not completely stop the chance of flooding as they can be overtopped or fail.
Low	Low risk means that each year this area has a chance of flooding of between 0.1% and 1%. This takes into account the effect of any flood defences in the area. These defences reduce but do not completely stop the chance of flooding as they can be overtopped or fail.
Very Low	Means that each year this area has a chance of flooding of less than 0.1%. This takes into account the effect of any flood defences in the area. These defences reduce but do not completely stop the chance of flooding as they can be overtopped or fail.

Table 4.3: Flood Risk category matrix from Reservoirs, Groundwater, sewers and other artificial sources

Threat Probability	Low Impact	Medium Impact	High Impact
High	Medium	Medium	High
Medium	Low	Medium	Medium
Low	Low	Low	Medium
Negligible	Very Low		

4.3 Flooding from rivers (fluvial flood risk)

4.3.1 Main River

The EA Flood Zone mapping study for England and Wales is available on their website at: <https://flood-map-for-planning.service.gov.uk>.

In December 2013, the EA released an additional form of mapping 'Risk of Flooding from Rivers and Sea', which is available at:

<https://flood-warning-information.service.gov.uk/long-term-flood-risk>

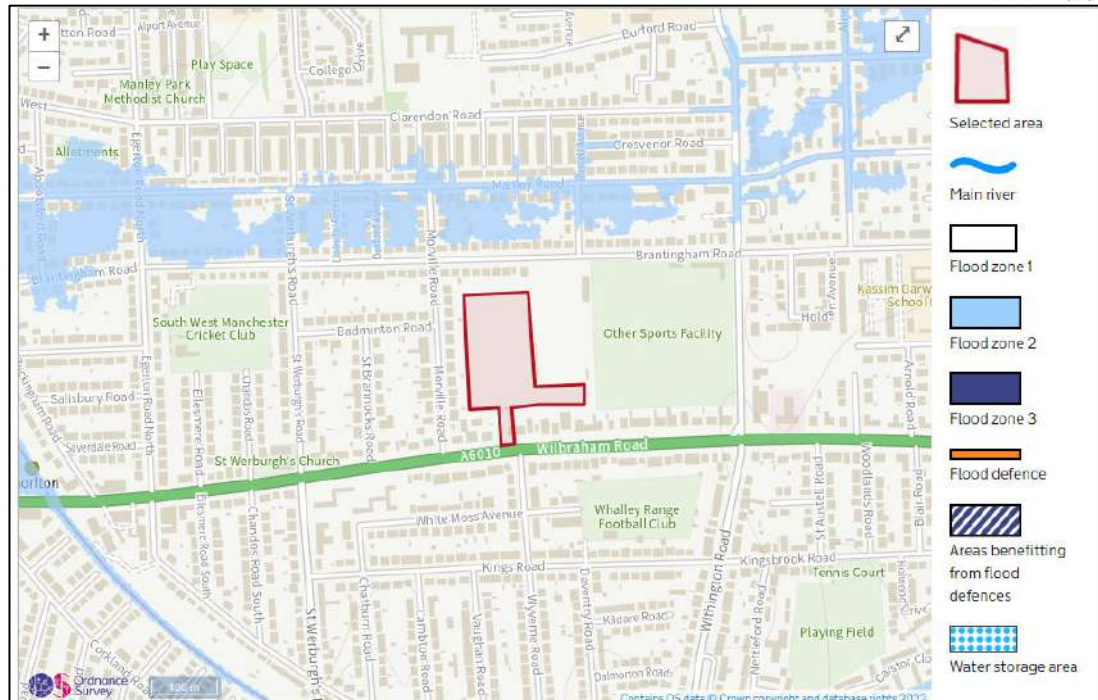


Figure 4.1: Environment Agency 'Flood map for planning' (accessed November 2022)

The site is shown to be in Flood Zone 1 on the Environment Agency Flood Map for Planning (**Figure 4.1**). This is classed as being at less than 0.1% chance of flooding in any year, also known as having a 1 in 1000 year chance. Some land and roads to the north of Brantingham Road lie within Flood Zone 2 (between 1 in 100 and 1 in 1000 year chance of flooding from rivers in any year) but the extents do not reach the site.

The risk of flooding from this source is therefore considered **very low**.

4.3.2 Climate change

Fluvial flooding is likely to increase as a result of climate change. A greater intensity and frequency of precipitation is likely to raise river levels and increase the likelihood of a river overtopping its banks. Climate change guidance for river modelling was updated by the EA in October 2021.

No model re-runs have been undertaken as part of this site-specific FRA, and the supplied EA data therefore represents the best available and up-to-date data when considering the flood risk to the site. The impact upon the site should be negligible given its location within Flood Zone 1.

4.4 Flooding from the sea (tidal flood risk)

The overall risk of tidal flooding is considered **very low**; given the site's distance from any tidally active main rivers.

4.5 Flooding from the land (overland pluvial flood risk)

If intense rain is unable to soak into the ground or be carried through manmade drainage systems, for a variety of reasons, it can run off over the surface causing localised floods before reaching a river or other watercourse.

Generally, where there is impermeable surfacing or where the ground infiltration capacity is exceeded, surface water runoff can occur. Excess surface water flows from the site are believed to drain naturally to the local water features, either by overland flow or through infiltration.

The EA's surface water flood mapping (**Figures 4.2 – 4.4**) shows the sites southern half is at very low risk from pluvial flooding. The sites northern half however is at Low-Medium risk of surface water flooding since it is lower lying than the surrounding land. Flood depths within this area are modelled as between 300 - 900mm although this is a generalisation, and it is expected that the depths will mostly be around 300mm. The courses of all the surrounding roads around the site are also at varying risk of pluvial flooding ranging from Low to Medium since they act as flow paths.

The risk of surface water flooding to the development is considered to be **Very low - Medium** due the calculated return period of the flooding (0.1-1% annual expected probability), however should the site flood the potential depth of flooding will be limited to around 300mm. It should be noted that the establishment of a suitable drainage system on the site as part of the development will further manage this risk but capturing and managing the runoff from the catchment contributing to the area shown to be at risk.

4.5.1 Climate change

Surface water flooding is likely to increase as a result of climate change in a similar ratio to fluvial flooding. Increased intensity and frequency of precipitation is likely to lead to reduced infiltration and increased overland flow. Climate change guidance for rainfall intensity was updated by the EA in July 2022. Any increases in rainfall due to climate change have been considered in the surface water drainage strategy for the site.

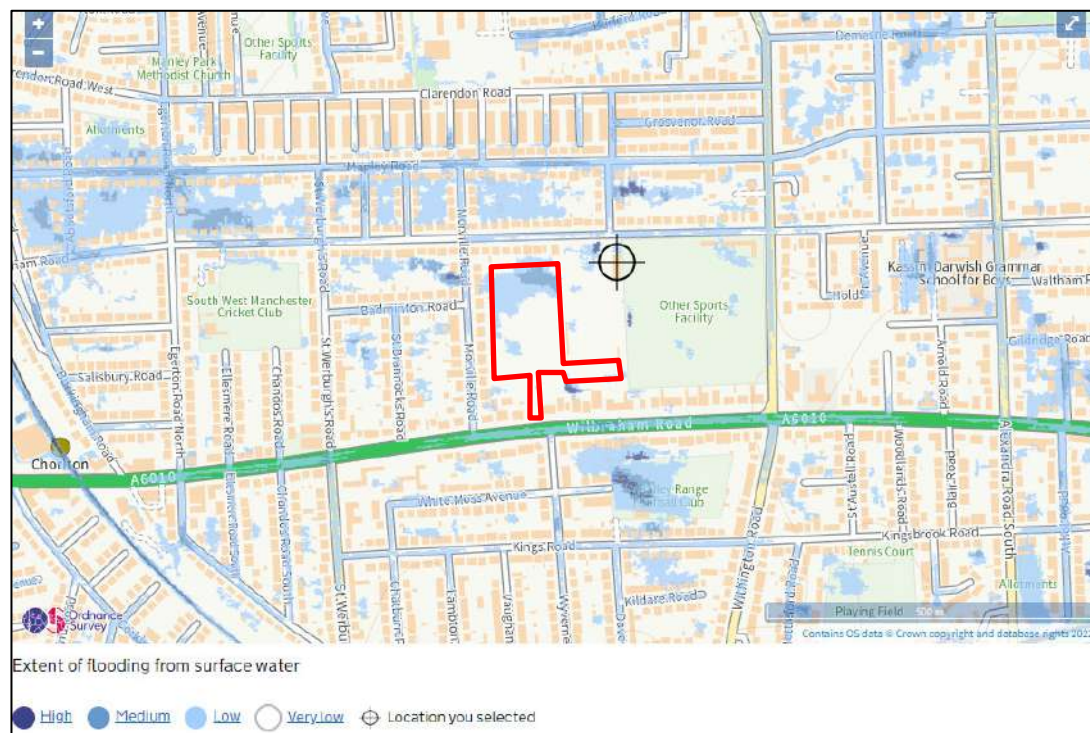


Figure 4.2: Environment Agency 'Flood risk from surface water' map (accessed November 2022)

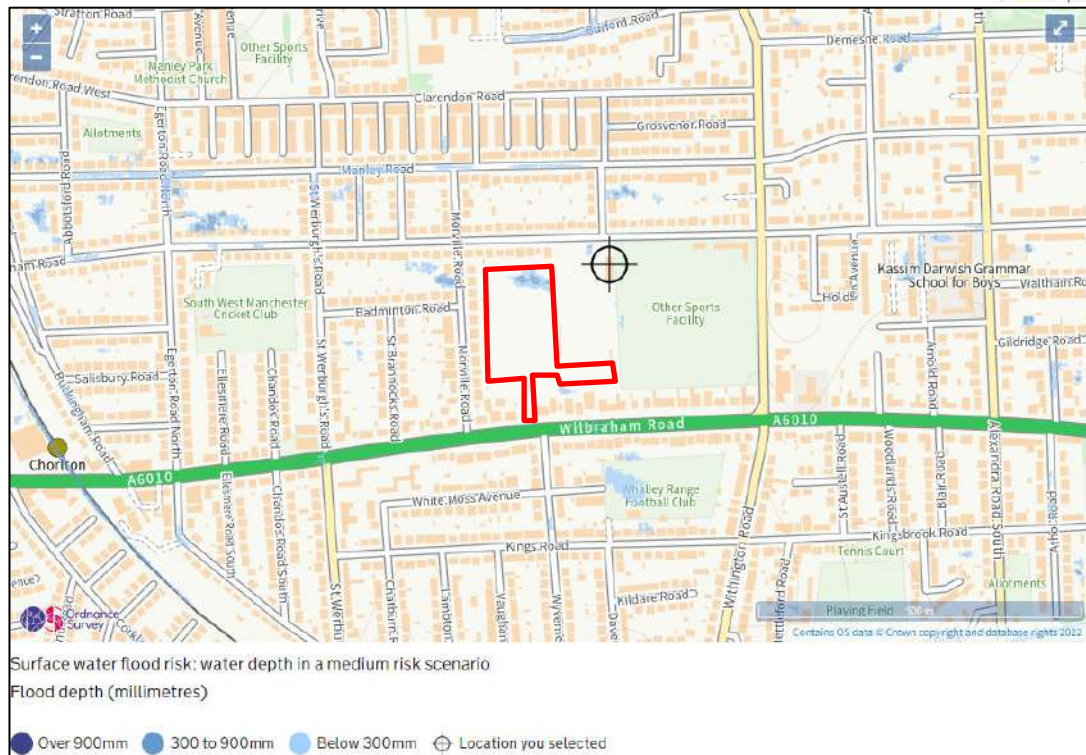


Figure 4.3: Environment Agency ‘Surface water flood risk: water depth in a medium risk scenario’ map (accessed November 2022)

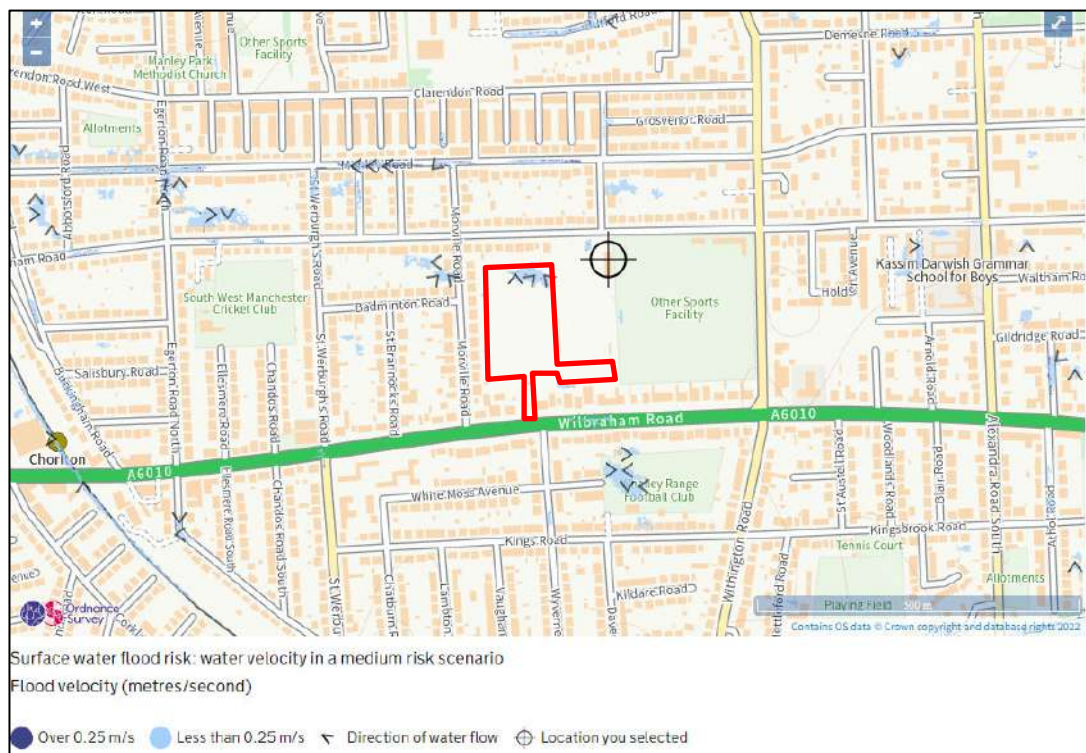


Figure 4.4: Environment Agency ‘Surface water flood risk: water velocity in a medium risk scenario’ map (accessed November 2022)

4.6 Flooding from groundwater

Groundwater flooding tends to occur after much longer periods of sustained high rainfall. Higher rainfall means more water will infiltrate into the ground and cause the water table to rise above normal levels. Groundwater tends to flow from areas where the ground level is high, to areas where the ground level is low. In low-lying areas, the water table is usually at shallower depths anyway, but during very wet periods, with all the additional groundwater flowing towards these areas, the water table can rise up to the surface causing groundwater flooding.

In the Manchester SFRA, groundwater flooding is identified as not posing a significant risk to life due to the slow rate at which the water level rises, although it can cause significant damage. High groundwater levels also have the potential to infiltrate the sewer system causing local surcharging and prolonging other flooding. There are no known reports of groundwater flooding in the Manchester city itself. Location details and mapping in the SFRA Appendices (see **Figure 4.5**) shows the site lies between an area at risk of groundwater flooding to the east, and an area of groundwater rebound to the west.

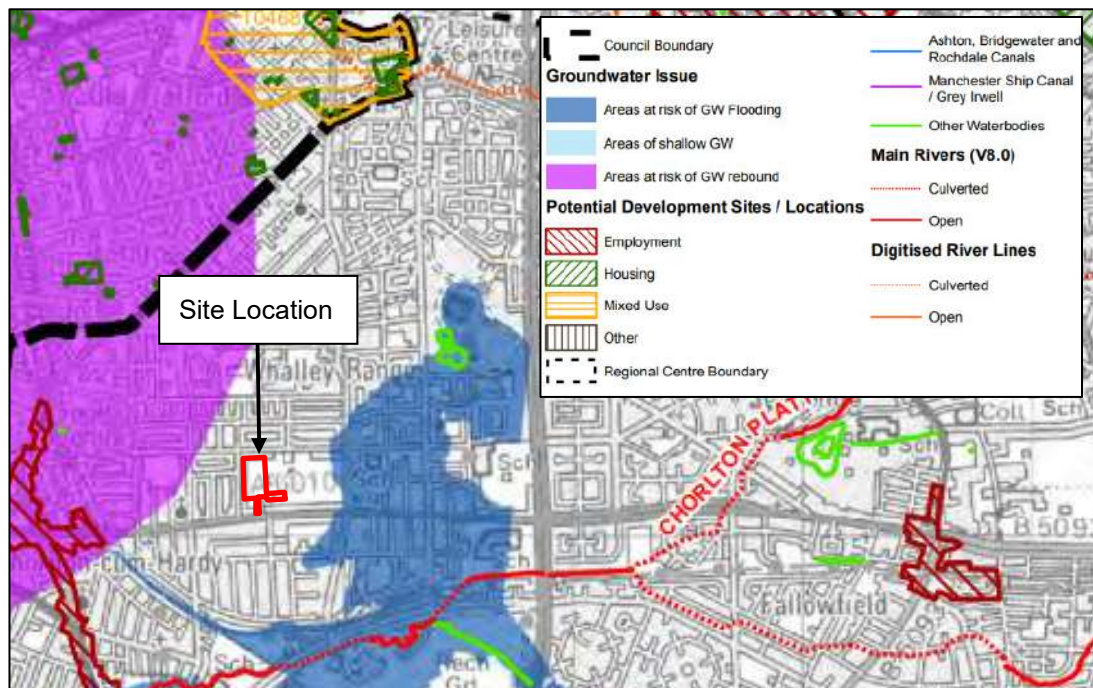


Figure 4.5: Groundwater Flood Risk (extract from Manchester SFRA)

However, an onsite ground investigation conducted in May 2022¹⁷ (included in **Appendix D**) encountered Groundwater between 0.80m bgl and 2.00m bgl and subsequent monitoring visits indicate the depth to water within boreholes between 1.13m bgl and 3.92m bgl. This implies that areas of rebound, and risk have shifted since the SFRA was published.

Due to the levels specified in the ground investigation report and the sporadic nature of groundwater flooding, the design of the development and the possibility of groundwater

¹⁷ eP3 Ground Investigation Report "Phase II Geoenvironmental Site Assessment - Land off Wilbraham Road, Chorlton, Manchester" (Reference:15-811-R2-3), November 2022

emergence at the site then the resultant groundwater flood risk is considered to be **low to moderate**.

4.6.1 Climate change

Climate change could increase the risk of groundwater flooding as a result of increased precipitation filtering into the groundwater body. If winter rainfall becomes more frequent and heavier, groundwater levels may increase. Higher winter recharge may however be balanced by lower recharge during the predicted hotter and drier summers.

This is less likely to cause a significant change to flood risk than from other sources, since groundwater flow is not as confined. It is probable that any locally perched aquifers may be more affected, but these are likely to be isolated. The change in flood risk is likely to be low.

4.7 Flooding from sewers

Flooding from artificial drainage systems occurs when flow entering a system, such as an urban storm water drainage system, exceeds its conveyance capacity, the system becomes blocked, or it cannot discharge due to a high water level in the receiving watercourse. A sewer flood is often caused by surface water drains discharging into the combined sewer systems; sewer capacity is exceeded in large rainfall events causing the backing up of floodwaters within properties or discharging through manholes.

Most adopted surface water drainage networks are designed to the criteria set out in Sewers for Adoption¹⁸. One of the design parameters is that sewer systems be designed such that no flooding of any part of the site occurs in a 1 in 30 year rainfall event. By definition a 1 in 100 year event would exceed the capacity of the surrounding sewer network as well as any proposed drainage.

Sewer details have been outlined in **Section 2.1.3** and have been obtained from the United Utilities sewer records (**Appendix C**). An abandoned 250mm VC combined sewer crosses the southern half of the site from the north-east. However, this sewer is still operating beyond the site's southern boundary. This sewer eventually joins a 525mm combined sewer in Morville Road to the south-west. When exceeded, the surcharged pipe work could lead to flooding from backed up manholes and gully connections. This could lead to immediate flooding within either the highways surrounding the site, or from the existing 250mm sewer and manhole on the site's southern boundary.

The Manchester SFRA states that recurring flooding incidents have occurred in Stretford along the course of the Longford Brook. A "lost" section of this watercourse runs along Brantingham Road north of the site, although no flooding incidents are reported in the vicinity of the site itself.

Due to the density of the sewer system network immediately outside of the site, with no favourable topography to prevent flooding should a manhole beside or outside the site surcharge, then the flood risk from sewer flooding is considered **medium**.

4.7.1 Climate change

The impact of climate change is likely to be negative regarding flooding from sewers. Increased rainfall and more frequent flooding put existing sewer and drainage systems

¹⁸ WRC, 'Sewers for Adoption' 8th Edition, April 2020

under additional pressure resulting in the potential for more frequent surcharging and potential flooding. This would increase the frequency of local sewer flooding but would not be significant in terms of the proposed development.

4.8 Other sources of flooding

4.8.1 Reservoirs

Flood events can occur from a sudden release of large volumes of water from reservoirs, canals and artificial structures. The Environment Agency reservoir flood map (reproduced as **Figure 4.6**) shows the largest area that might be flooded if a reservoir were to fail and release the water it holds. Since this is a prediction of a worst-case scenario, it is unlikely that any actual flood would be this large. There has been no loss of life in the UK from reservoir flooding since 1925. Since then, reservoir safety legislation has been introduced to ensure reservoirs are maintained.

According to the Environment Agency Reservoir flood maps the site is at risk of flooding from multiple reservoirs including Gorton Upper and Lower Reservoirs, and Audenshaw Reservoirs Numbers 1 to 3. This extent includes the majority of this region of Manchester. It should be noted that this even occurs when river levels are normal.

However, reservoirs can be managed over time, controlling inflow/outflow of water and therefore there is the capacity to control the effects of climate change. Increased rainfall has the potential to increase base flow, but this should be minimal. It is unlikely that there will be a substantial change to the risk of flooding for this site. The resultant residual flood risk is considered to be **low**.

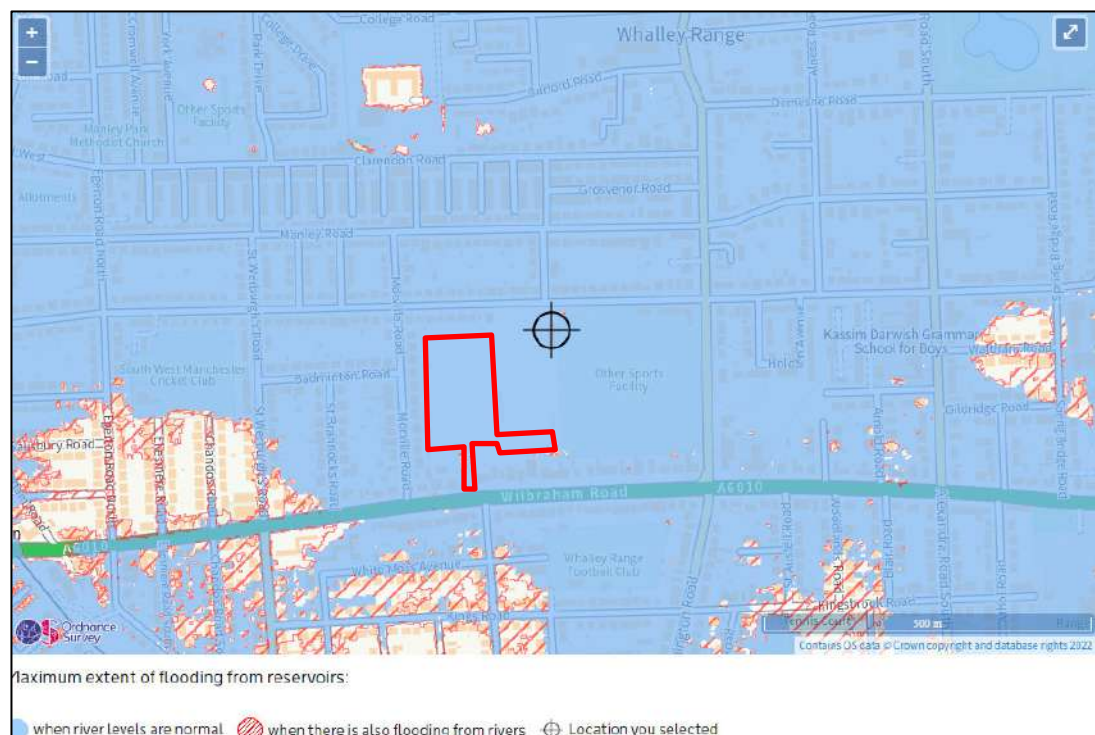


Figure 4.6: Environment Agency 'Flood risk from reservoirs' map (November 2022)

4.8.2 Canals

There are no canals within close proximity of the site; therefore, the risk to the site from this source is considered very low.

4.8.3 Blockages of artificial drainage systems

There is a possibility that flooding may result due to sewers being blocked by debris or structural failure. This can cause water to backup and result in localised flooding, as well as placing areas with lower ground levels at risk.

Blocked highway gullies may also lead to localised flooding of areas on all of the surrounding roads where surface runoff would be unable to drain away. While this does not reach into the site itself, it may be an impact on the sites entrance roadway.

The risk of flooding from artificial drainage systems on site is considered to be **low** assuming adequate upkeep and maintenance of the surrounding sewer, high drainage, and drainage network.

Climate change is unlikely to affect the flooding risk to the site.

5 FLOOD MITIGATION MEASURES

5.1 Overland flood flow

No overland flow routes have been identified from outside the site's boundaries. However, runoff from within the site's boundaries can gather towards a low point within the northern half of the site.

No further overland flow control measures are proposed as all surface water runoff up to the 1 in 100 year climate change storm will be managed on site and discharged to the surrounding sewer network.

5.2 Finished floor levels

As this site is unlikely to be affected by fluvial flooding there is no need to incorporate any freeboard levels into the finished floor levels of the design. Low lying areas that could lead to ponding of surface flows will be avoided by careful design of finished levels.

However, in order to allow the underground surface water sewer system to drain via gravity the land levels of the north end of the site requires lifting. The proposed ground levels, finished floor levels, and all sewer specifications are included in the proposed drainage strategy.

In the north edge of the site the finished floor levels are at least 1m above the existing ground levels.

5.3 Flood compensation

The site is located in Flood Zone 1 and therefore floodplain compensatory measures are not necessary.

5.4 Safe access/egress

As the site lies outside of the 1 in 1000 year fluvial / tidal flood extent, safe access and egress will be available even during the most extreme flooding scenarios.

5.5 Basements

The proposed development does not include any basement proposals. Therefore, aside from shallow foundations works, the proposals will have no material impact on the risk of groundwater flooding both to and from the development.

6 PLANNING CONTEXT

6.1 Application of planning policy

Section 14 of the NPPF includes measures specifically dealing with development planning and flood risk using a sequential characterisation of risk based on planning zones and the EA Flood Map. The main study requirement is to identify the flood zones and vulnerability classification relevant to the proposed development, based on an assessment of current and future conditions.

6.2 Land use vulnerability

Planning Practice Guidance (PPG) includes a list of appropriate land uses in each flood zone dependent on vulnerability to flooding. In applying the Sequential Test, reference is made to **Table 6.1** below, reproduced from Table 2 of PPG.

Table 6.1: Flood risk vulnerability and flood zone 'compatibility'

Flood Risk Vulnerability Classification		Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone	Zone 1	Appropriate	Appropriate	Appropriate	Appropriate	Appropriate
	Zone 2	Appropriate	Appropriate	Exception Test Required	Appropriate	Appropriate
	Zone 3a	Exception Test Required	Appropriate	Should not be permitted	Exception Test Required	Appropriate
	Zone 3b functional floodplain	Exception Test Required	Appropriate	Should not be permitted	Should not be permitted	Should not be permitted

With reference to Table 2 of the Planning Practice Guidance, the proposed development, based on its residential use, is classed as 'More Vulnerable'. This classification of development is appropriate for areas within Flood Zone 1 and therefore appropriate for the subject site.

6.3 Sequential Test

The Sequential Test is required to assess flood risk and the Planning Practice Guidance recommends that the test be applied at all stages of the planning process to direct new development to areas with the lowest probability of flooding (Flood Zone 1). Therefore, the proposed development passes the Sequential Test and does not require the Exception Test to be satisfied.

Therefore, the proposed development passes the Sequential Test and therefore the Exception Test does not need to be performed.

7 PROPOSED DRAINAGE STRATEGY

7.1 Scope

This section discusses the potential quantitative effects of the development on both the risk of surface water flooding on-site and elsewhere within the catchment, as well as the type of potential SuDS features that could be incorporated as part of the masterplan.

In accordance with the Defra Non-Statutory Technical Standards, the surface water drainage strategy should seek to implement a SuDS hierarchy that aspires to achieve reductions in surface water runoff rates to greenfield rates. Where a reduction to the greenfield rate is not practicable, the proposed surface water drainage strategy should provide at least 50% betterment over existing conditions. In this case due to the site being already greenfield, the current outfall rates are to be retained.

In addition, Building Regulations Part H¹⁹ requires that the first choice of surface water disposal should be to discharge to an adequate soakaway or infiltration system, where practicable. If this is not reasonably practicable then discharge should be to a watercourse, the least favourable option being to a sewer (surface water before combined). Infiltration techniques should therefore be applied wherever they are appropriate.

7.2 Pre-development situation

The existing site area is 2.22ha and 100% permeable. The pro-rata loH 124²⁰ method has been used to estimate the Greenfield surface water runoff for the site, using the HR Wallingford Greenfield runoff rate estimation tool.

Greenfield calculations are contained in **Appendix F**.

Table 7.1: IOH 124 surface water runoff (greenfield)

Return period	Peak flow (l/s)
QBar	13.45
1 in 1 year	11.70
1 in 30 year	22.87
1 in 100 year	27.96

¹⁹ HM Government (2010 with 2013 amendments), 'The Building Regulations 2010: Approved Document H - Drainage and Waste Disposal (2002 Edition incorporating 2010 amendments)'

²⁰ Institute of Hydrology (IoH), 'Flood Estimation for small catchments - Report 124', 1994.

7.3 Off-site discharge options and limits

7.3.1 Infiltration

Infiltration should be considered as the primary option to discharge surface water from the developed site. The effectiveness of infiltration is completely dependent on the physical conditions at the site. In this case potential obstacles include:

- Local variations in permeability preventing infiltration – It is understood from the BGS geological mapping that the site is underlain by Winslow Sandstone bedrock which has some infiltration potential. The overlying superficial deposits Sand and Gravel deposits may also be viable for infiltration;
- Shallow groundwater table - For infiltration drainage devices, Building Regulation approved document H states that these “should not be built in ground where the water table reaches the bottom of the device at any time of the year”; and,
- Source Protection Zones - The site is not located within a major Groundwater Source Protection Zones.

Ground investigation works on site (see e3p Ground Investigation report)²¹ have found that the sites geology is unsuitable for infiltration and no rates could be calculated in any other the three trial pits on-site even after repeated surveys. It also found groundwater to be present between 0.8 – 2.3mbgl. Therefore, it is concluded that infiltration is not viable for this site and alternative outfall methods are required.

7.3.2 Discharge to watercourse

The existing Longford Brook lies in close proximity to the site; however, it is not considered feasible to connect to this system because it is classified as a “lost watercourse” and the details of its current condition and integrity is unknown. In addition, it would require an outfall crossing existing houses and third party lands.

There are no other watercourses in sufficient proximity to the site to be viable for connection, so this outfall method is considered non-viable.

7.3.3 Discharge to surface water sewer

Discharging surface water to the existing United Utilities (UU) sewer network is considered the most feasible outfall option for the site.

Given the existing infrastructure on site (presumably serving the previous site use as well as possibly surrounding areas), it is considered likely that proposed surface water will be discharged to the 600 x 900 brick combined sewer under Wilbraham Road to the south of the site.

In addition, a pre-development enquiry has been issued by UU (included in **Appendix G**) to establish the restrictions on capacity in this area and also the appropriate connection points that could be utilised as part of the development.

The following summarises the main conclusions:

- UU have reviewed records and can confirm that there does not appear to be any charted public sewers located within the boundary of proposed development.

²¹ eP3 Ground Investigation Report “Phase II Geoenvironmental Site Assessment - Land off Wilbraham Road, Chorlton, Manchester” (Reference:15-811-R2-3), November 2022

- In accordance with the hierarchy of drainage options, both discharge to ground via infiltration and discharge to a waterbody should be discounted prior to consideration of discharging surface water to the public sewer system.
- UU will consider a connection to the 600mm x 900mm public combined sewer within Wilbraham Road located South of the proposed site at a pass forward flow to be agreed by the Lead Local Flood Authority.
- UU request that any agreed rate does not exceed 11.7l/s.
- UU have no obligation to accept highway drainage into our public sewer network.
- Consideration should be given to SuDS components that deliver source control are incorporated within the design of the scheme to reduce the volume and frequency of discharges of these flows to the public sewer.
- Be aware that it will be necessary to apply for a formal sewer connection. This is so that UU can assess the method of construction, Health & Safety requirements and to ultimately inspect the connection when it is made.

7.3.4 Strategy Calculations

To determine whether the proposed SuDS provide sufficient attenuation storage, the Network Design tool has been used allowing an indicative network to be modelled based upon attenuation feature dimensions, rainfall values and permitted discharge rates, in line with CIRIA guidance. These volumes can be later revised at detail design stage by the introduction of specific flow control methods.

Calculations have been run using the Q_{Bar} Greenfield runoff rate as a discharge rate in accordance with LLFA and UU requirements, restricting offsite flows to 11.7l/s. The proposed impermeable area has been determined to be 1.136ha. No allowance is included in the calculations for infiltration as a worse-case scenario.

Calculations show this system can attenuate surface water runoff without flooding during a 1 in 100 year event inclusive of 40% climate change. Further details on the storage structure and sizing, with attenuation calculations can be found in **Appendix H**.

7.4 Post-development situation

The proposed development is approximately 100% permeable and is considered undeveloped. It therefore remains necessary to manage surface water on-site in order to limit the discharge of surface water off-site, to provide sufficient on-site attenuation and to provide improvements to water quality through appropriate source treatment.

It is intended that surface water runoff from the proposed residential development will outfall from the site via the existing combined sewer to the south as agreed with UU.

The proposed strategy will utilise attenuation in the form of a series of oversized storage pipes (1200mm diameter) running under most of the site's road network providing approximately 366m³ of storage. This is supported by a offline 14m³ geo-cellular crate.

The design rainfall event for this assessment has been taken as the 1 in 100-year event (+40% climate change) with the intention of retaining surface water runoff generated from the site within the proposed on site network.

The proposed strategy drawing, and the new sewer routings and connections are shown in **Appendix I**.

7.4.1 Maintenance

Maintenance of any drainage network is essential to ensure optimal performance of the drainage elements. As such maintenance requirements of the drainage system will include, but not be limited to the inspection and cleaning of the new infrastructure to ensure that capacity and/or infiltration rates are maintained.

The drainage systems are likely to remain in private ownership and therefore the site operator will be responsible for the maintenance of the drainage features on site.

7.5 Foul drainage provision

The entire local sewer network consists of a network of combined sewers. The UU Pre-dev enquiry specifies that the site will be allowed to drain into the existing public combined system.

The design incorporates a gravity connection to the existing 600mm x 900mm combined sewer in Wilbraham Road. It is proposed to outfall the foul drainage to the same connection point as the proposed surface water connection, but the two systems are distinct and do not combine before.

The preliminary drainage scheme for the site is shown on **Appendix I**.

8 CONCLUSIONS AND RECOMMENDATIONS

This FRA complies with the NPPF and Planning Practice Guidance and demonstrates that flood risk from all sources has been considered in the proposed development. It is also consistent with the Local Planning Authority requirements with regard to flood risk.

The proposed development site lies in an area designated by the EA as Flood Zone 1 and is outlined to have a chance of flooding of less than 1 in 1,000 (<0.1%) in any year.

The NPPF sets out a Sequential Test, which states that preference should be given to development located within Flood Zone 1 and at the lowest risk of flooding from all sources. This FRA demonstrates that the requirements of the Sequential Test have been met. The proposed development is classified as 'less vulnerable' and therefore considered appropriate within Flood Zone 1 without application of the Exception Test.

This FRA has considered multiple sources of flooding and concluded the following:

Table 8.1: Flood Risk Summary

Source	Level of risk	Summary
Fluvial	Very Low – FZ1	No further mitigation required due to the sites position in Flood Zone 1
Tidal	Very Low	None required due to distance to tidally influenced watercourses
Surface water	Very low - Medium	The development will incorporate a surface water drainage strategy to accommodate surface water generated on site. Surface water will be attenuated on site and discharged directly to the ground via infiltration features/to the nearby watercourse/ to the nearby sewer. Systems utilised to control surface water flows include oversized storage pipes and geo-cellular storage, designed to store the volume of water associated with a 1 in 100 year rainfall event (including an allowance for climate change), providing a betterment over the existing scenario. Where possible, thresholds / floor levels should be raised to prevent ingress of surface water. Any risk from overland flow paths can be mitigated by minor grading of land levels.
Groundwater	Low to Medium	Ground investigation confirmed both the presence of groundwater between 0.8 – 2.0m bgl and that the sites infiltration capacity is very poor. Mitigation as above/where applicable including ongoing maintenance of the on-site systems. Raised building FFLs and local land-re-profiling can mitigate against groundwater flood risk as well as flood risk from surface water.

Source	Level of risk	Summary
Sewers	Medium	Mitigation as above/where applicable including ongoing maintenance of the on-site systems.
Reservoir	Low	Site lies within breach zone, but risk is considered low due to low risk of reservoir flooding.
Artificial sources	Low	Mitigation as above/where applicable

Overall, taking into account the above points, the development of the site should not be precluded on flood risk grounds.

APPENDIX A

RSK GROUP SERVICE CONSTRAINTS

1. This report and the drainage design carried out in connection with the report (together the "Services") were compiled and carried out by RSK LDE Ltd (RSK) for Anwyl Homes (the "client") in accordance with the terms of a contract between RSK and the "client". The Services were performed by RSK with the skill and care ordinarily exercised by a reasonable civil engineer at the time the Services were performed. Further, and in particular, the Services were performed by RSK taking into account the limits of the scope of works required by the client, the time scale involved and the resources, including financial and manpower resources, agreed between RSK and the client.
2. Other than that expressly contained in paragraph 1 above, RSK provides no other representation or warranty whether express or implied, in relation to the Services.
3. Unless otherwise agreed in writing, the Services were performed by RSK exclusively for the purposes of the client. RSK is not aware of any interest of or reliance by any party other than the client in or on the Services. Unless expressly provided in writing, RSK does not authorise, consent or condone any party other than the client relying upon the Services. Should this report or any part of this report, or otherwise details of the Services or any part of the Services be made known to any such party, and such party relies thereon that party does so wholly at its own and sole risk and RSK disclaims any liability to such parties. Any such party would be well advised to seek independent advice from a competent environmental consultant and/or lawyer.
4. It is RSK's understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was a significant factor in determining the scope and level of the Services. Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of or reliance upon the report in those circumstances by the client without RSK's review and advice shall be at the client's sole and own risk. Should RSK be requested to review the report after the date of this report, RSK shall be entitled to additional payment at the then existing rates, or such other terms as agreed between RSK and the client.
5. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of RSK. In the absence of such written advice of RSK, reliance on the report in the future shall be at the client's own and sole risk. Should RSK be requested to review the report in the future, RSK shall be entitled to additional payment at the then existing rate, or such other terms as may be agreed between RSK and the client.
6. The observations and conclusions described in this report are based solely upon the Services, which were provided pursuant to the agreement between the client and RSK. RSK has not performed any observations, investigations, studies or testing not specifically set out or required by the contract between the client and RSK. RSK is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the Services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, RSK did not seek to evaluate the presence on or off the site of asbestos, electromagnetic fields, lead paint, heavy metals, radon gas or other radioactive or hazardous materials.
7. The Services are based upon RSK's observations of existing physical conditions at the site gained from a walk-over survey of the site together with RSK's interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The Services are also based on information and/or analysis provided by independent testing and information services or laboratories upon which RSK was reasonably entitled to rely. The Services clearly are limited by the accuracy of the information, including documentation, reviewed by RSK and the observations possible at the time of the walk-over survey. Further RSK was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the Services. RSK is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to RSK and including the doing of any independent investigation of the information provided to RSK save as otherwise provided in the terms of the contract between the client and RSK.
8. The phase II or intrusive environmental site investigation aspects of the Services is a limited sampling of the site at pre-determined borehole and soil vapour locations based on the operational configuration of the site. The conclusions given in this report are based on information gathered at the specific test locations and can only be extrapolated to an undefined limited area around those locations. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters [as stipulated in the contract between the client and RSK] [based on an understanding of the available operational and historical information,] and it should not be inferred that other chemical species are not present.
9. Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan, but is (are) used to present the general relative locations of features on, and surrounding, the site. Features (boreholes, trial pits etc) annotated on site plans are not drawn to scale but are centred over the appropriate location. Such features should not be used for setting out and should be considered indicative only.

APPENDIX B

TOPOGRAPHIC SURVEY



Topographical Survey Legend

Bm	Litter bin	TL	Tie line
SH	Shore hole	TP	Telegraph pole
Bo	Bollard	TPS	Traffic paving slabs
BS	Bus stop	TS	Traffic signal light
BT	British Telecom ic	TV	Television cover
CPS	Concrete paving slabs	VP	Vent pipe
DR	Drain	WM	Water meter
Elec	Electrical ic	WO	Wash Out
EP	Elec. pole	UTL	Unable to lift
ER	Earth rod	F	Fence annotation
FH	Fire Hydrant	B/W	Barbed wire
FP	Flagpole	C/B	Closed boarded
FT	Floodlight	C/L	Corrugated iron
G	Gully	C/L	Chain link
GP	Gate post	C/P	Concrete panel
GV	Gas valve	H/R	Hand rail
IC	Inspection cover	I/R	Iron railings
JB	Junction box	O/B	Open boarded
KO	Kerb outlet	P/C	Post & chain
LB	Litter box	P/R	Post & rail
LP	Lamp post	P/W	Post & wire
Mx	Utility marker	W/M	Wire mesh
MP	Mile post		Level prefix descriptions
MW	Monitoring Well	AL	Arch level
NP	Name plate	BL	Bed level
P	Post	CL	Cover level
PM	Parking meter	EH	Eaves level
RE	Rodding eye	FL	Floor level
RS	Road sign	IL	Invert level
rwp	Rain water pipe	PL	Parapet level
SP	Sign post	RH	Rooftop level
ST	Stop sign	SL	Soft level
SB	Service Box	Spr	Arch springing level
SV	Stop valve	Top	Top of pipe/culvert
TGB	Telephone call box	WH	Wall height
TH	Thru hole	WL	Water level

BENCH MARK INFORMATION

All levels relate to O.S (Newlyn) Datum, Established using network RTK. Survey plotted on a plane local grid, orientated to National Grid.

NOTES

ONLY MANHOLES AND SERVICES VISIBLE AT TIME OF SURVEY SHOWN

DRAINAGE INFORMATION MUST BE CHECKED AND VERIFIED WITH LOCAL AUTHORITY RECORDS PRIOR TO WORK COMMENCING

Levels defining edge of carriageway are observed at channel (bottom of kerb). Unless otherwise stated.

TREE SPREADS ARE SYMBOLIC ONLY AND ARE REPRESENTATIVE OF THE THE AVERAGE SPREAD. THE DRIP LINE LAYER DENOTES THE TREES EXTREMITY

SURVEY STATIONS			
stn1	382649.027	394217.140	28.914
stn2	382651.295	394150.228	29.583
stn2a	382651.674	394113.890	29.571
stn3	382653.890	394073.901	29.630
stn3a	382686.215	394070.343	29.652
stn3b	382700.053	394079.005	29.645
stn4	382567.844	394077.567	29.439

REVISIONS			
REV.	DESCRIPTION	SURVEYED/DRAWN	DATE

JLP Surveying

JLP Surveying Consultants Ltd,
Suite 45 Rodney House,
King Street,
Wigan
WN1 1BT
Tel - 01942 243313
Fax - 01942 492330
Mobile - 07710 428498
EMAIL:- peterhouston@jlp-surveys.com

PROJECT
Dalton Fields
Chorlton
M21 0UX

DRAWING TITLE
Topographical Land Survey

SCALE	SHEET SIZE	No. of SHEETS	DATE	REVISION
1 : 500	A1	1	21.03.2022	
DRAWING NUMBER				
S22-205				

APPENDIX C

UNITED UTILITIES CORRESPONDENCE

Commercial drainage and water enquiry

Responses to a drainage and water enquiry for commercial premises or development sites.

Client:

Client ref: SF30831134000

Searchflow

42
Kingshill Avenue,
West Malling, Kent
ME19 4AJ

Order number: UUPS-ORD-348707

Received date: 30/11/2021

Response date: 02/12/2021

FAO:

The following records were searched in compiling this report:

The map of public sewers
The map of waterworks
Water and sewerage billing records
Adoption of public sewers records
Building over public sewer records
Adoption of public water mains records
Water supply clarification

Property address: Harry Dalton Fields - Wilbraham Road, MANCHESTER, M21 0UX

Please Note - We must make you aware that due to the introduction of the open market with effect from 1st April 2017 for commercial customers, Property Searches will no longer be able to resolve issues regarding some discrepancies within the report. Due to the change in the structure of the market the retailer is now responsible for taking ownership of certain issues, particularly relating to billing/tariff charges as well as, but not limited to change of usage of a property.

Enquiries and Responses

The records were searched by Donna Camblin for United Utilities who does not have, nor is likely to have, any personal or business relationship with any person involved in the sale of the property.

This search report was prepared by Donna Camblin for United Utilities who does not have, nor is likely to have, any personal or business relationship with any person involved in the sale of the property.

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

What is included:

1. Summary of findings and key
2. Detailed findings of the CON29DW
3. Guidance for interpretation
4. Terms and conditions
5. Complaints policy

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

To help understand the implications of the drainage and water enquiries report a summary guide to the content of the full report is provided below.

✓ This response represents the typical situation for a property.

⚠ The attention of the purchaser is drawn to this response. The purchaser may wish to make further investigations into this situation.

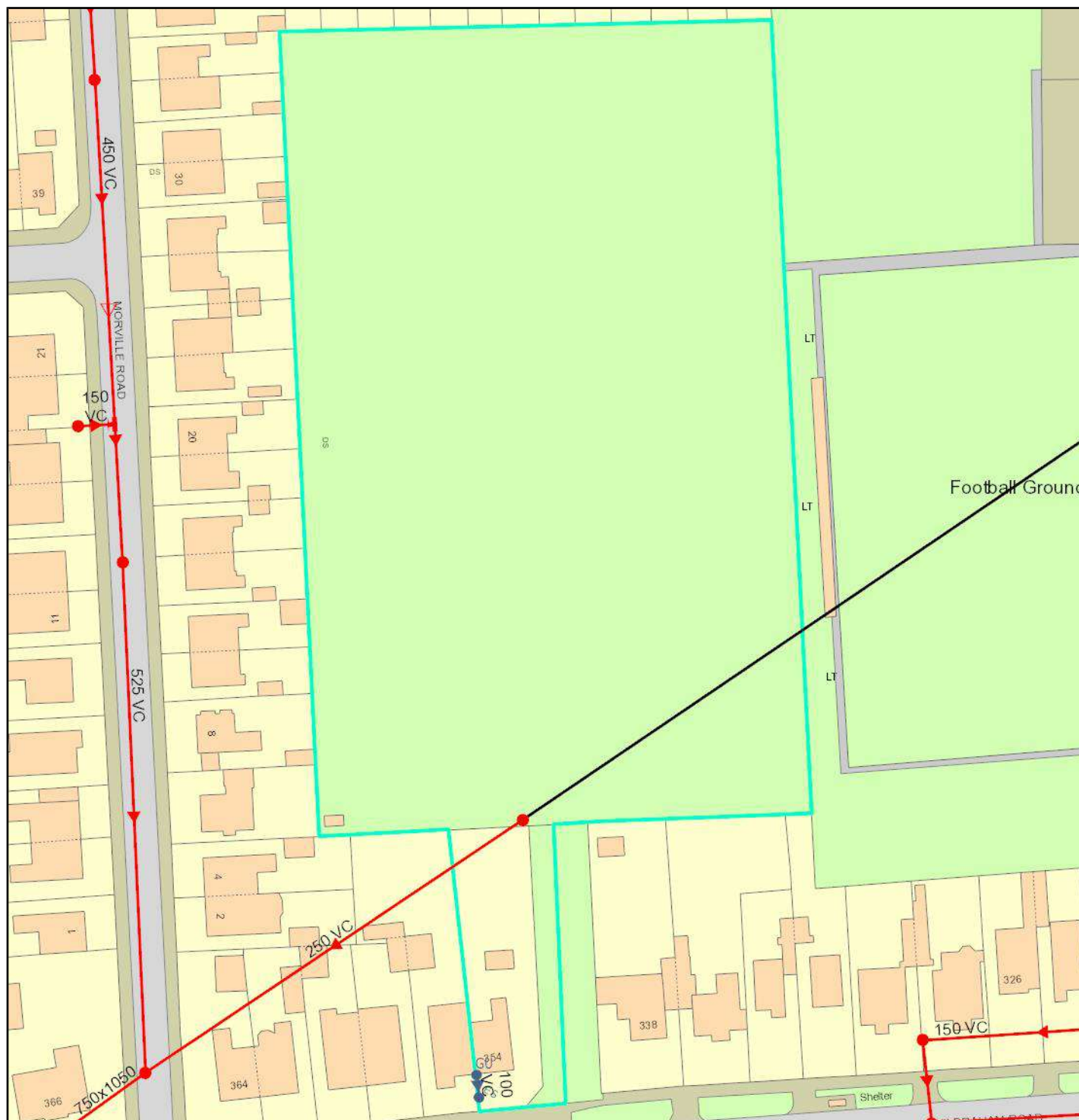
✗ This response represents an uncommon situation for a property and the purchaser should carefully consider its implications.

Question	Report Schedule	Answer	
1.1	Where relevant, please include a copy of an extract from the public sewer map.	Yes & in vicinity	✓
1.2	Where relevant, please include a copy of an extract from the map of waterworks.	Yes & in vicinity	✓
2.1	Does foul water from the property drain to a public sewer?	Plot of land	⚠
2.2	Does surface water from the property drain to a public sewer?	Plot of land	⚠
2.3	Is a surface water drainage charge payable?	No	✗
2.4	Does the public sewer map indicate any public sewer, disposal main or lateral drain within the boundaries of the property?	Public	✗
2.4.1	Does the public sewer map indicate any pumping station or any other ancillary apparatus within the boundaries of the property?	None	✓
2.5	Does the public sewer map indicate any public sewer within 30.48 metres (100 feet) of any buildings within the property?	None	⚠
2.5.1	Does the public sewer map indicate any public pumping station or any other ancillary apparatus within 50 metres of any buildings within the property?	None	✓
2.6	Are any foul sewers or lateral drains serving or which are proposed to serve the property the subject of an existing adoption agreement or an application for such an agreement?	No	✓
2.6.1	Are any surface water pipes or lateral drains serving, or which are proposed to serve the property, the subject of an existing adoption agreement or an application for such an agreement?	No	✓
2.7	Has a sewerage undertaker approved or been consulted about any plans to erect a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain?	None	✓
2.8	Is the building which is or forms part of the property at risk of internal flooding due to overloaded public sewers?	No	✓
2.9	Please state the distance from the property to the nearest boundary of the nearest sewage treatment works.	Yes	✓
3.1	Is the property connected to mains water supply?	Plot of Land	⚠
3.2	Are there any water mains, resource mains or discharge pipes within the boundaries of the property	No	✓

Question	Report Schedule	Answer	
3.3	Is any water main or service pipe serving or which is proposed to serve the property the subject of an existing adoption agreement or an application for such an agreement?	No	✓
3.4	Is the building at risk of receiving low water pressure or flow?	No	✓
3.5	What is the clarification of the water supply for the property?	Very Soft	✓
3.6	Is there a meter installed at the property?	No	✓
3.7	Please include details of the location of any water meter serving the property.	No meter	✓
4.1.1	Who is responsible for providing the sewerage services for the property?	United Utilities	✓
4.1.2	Who is responsible for providing the water services for the property?	United Utilities	✓
4.2	Who bills the property for sewerage services?	Retailer sewer	✓
4.3	Who bills the property for water services?	Retailer water	✓
5.1	Is there Consent, on this property, to discharge Trade Effluent under S118 of the Water Industry Act (1991) into the public sewerage system?	No	✓
6.1	Is there a wayleave/easement agreement giving the Water and/or Sewerage Undertaker the right to lay or maintain assets or right of access to pass through private land in order to reach the Company's assets?	No	✓

SEWER RECORD

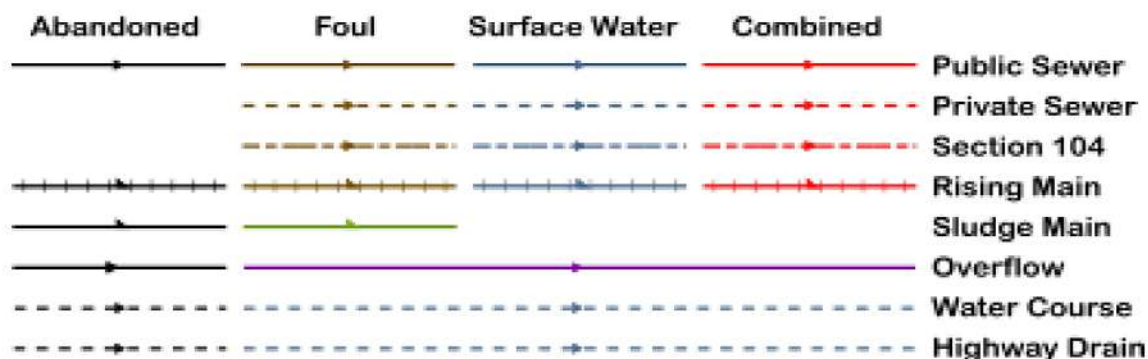
Harry Dalton Fields - Wilbraham Road, MANCHESTER, M21 0UX



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

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Wastewater Symbolology



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

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

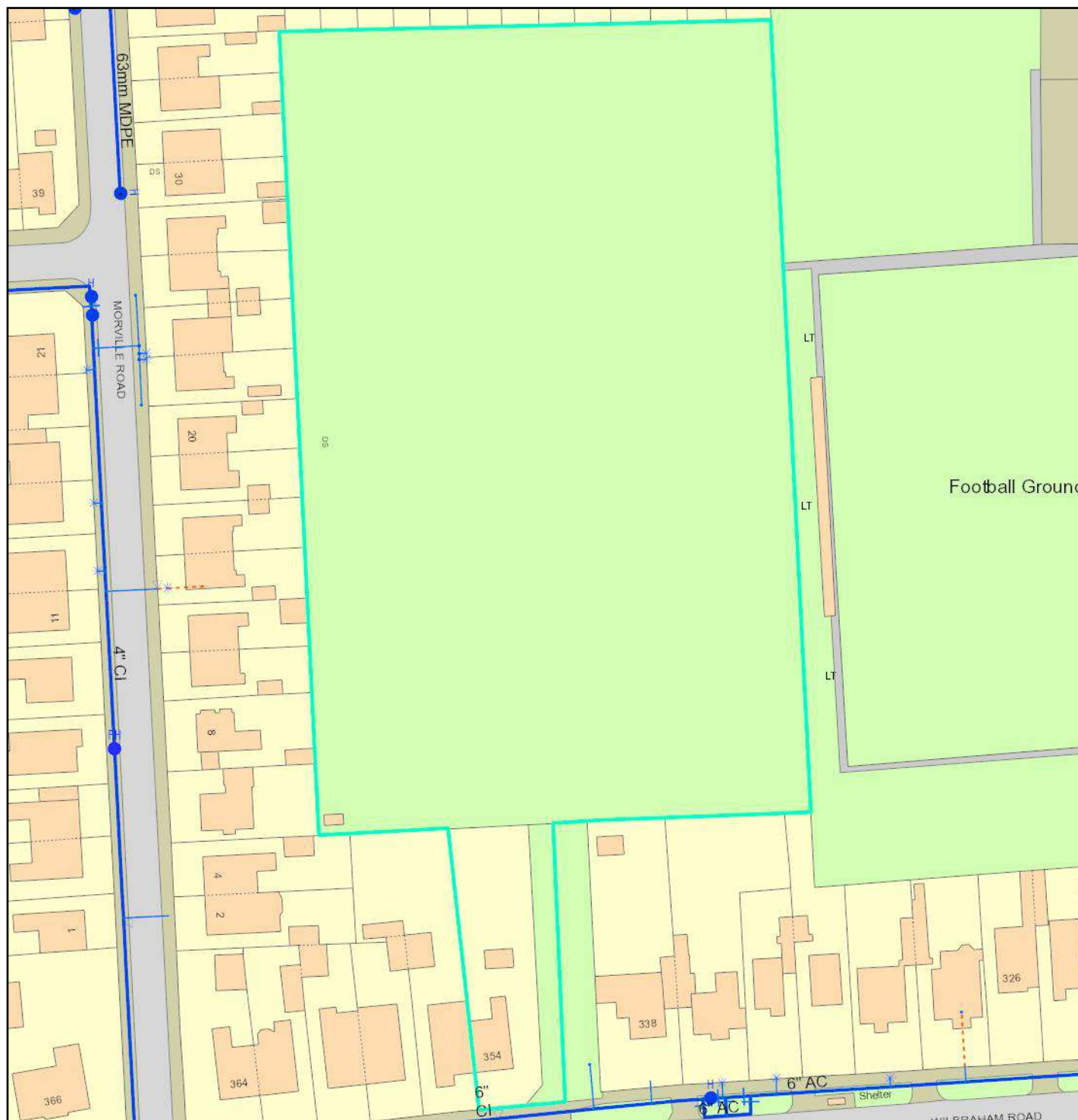
Clean Water Symbolology

Proposed	Abandoned	Live	
			Distribution Main
			Trunk Main
			Comms Pipe
			Private Pipe
			Concessionary Service
			Raw Water
			LDTM Raw Water
			LDTM Treated Water
			Air Valve
			AC Valve, open
			AC Valve, closed
			CC Valve, open
			CC Valve, closed
			Non Return Valve
			Pressure Management Valve
			OMS Valve
			Stop Tap
			Flow Meter
			Domestic Meter
			Commercial Meter
			Pump
			Hydrant
			Fire Hydrant
			Anode
			Chlorination Point
			De-chlorination Point
			Strainer Point
			Access Point
			Hatch Box
			IP Point
			Sampling Station
			Logger Box
			Bore Hole
			Inlet Point
			Bulk Supply Point
			End Cap
			Site Termination
			Change of Characteristic
			Condition Report
			<u>Property Types</u>
			Water Tower
			Valve House
			Booster Pumping Station
			Intake Pumping Station
			Water Treatment Works
			Supply Reservoir
			Service Reservoir
			Impounding Reservoir
			Pipe Bridge

Symbology for proposed assets is the same as above, but shown in **green**
Symbology for abandoned assets is the same as above, but shown in **black**

WATER RECORD

Harry Dalton Fields - Wilbraham Road, MANCHESTER, M21 0UX



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

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Question 1.1 **Where relevant, please include a copy of an extract from the public sewer map.**

Answer **A copy of an extract of the public sewer map within the vicinity of the property is included.**

Guidance

1. The Water Industry Act 1991 defines Public Sewers as those which (United Utilities) have responsibility for. Other assets and rivers, water courses, ponds, culverts or highway drains may be shown for information purposes only.
2. Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer.
3. The Sewerage Undertaker has a statutory right of access to carry out work on its assets, subject to notice. This may result in employees of the Sewerage Undertaker or its contractors needing to enter the property to carry out work.

Question 1.2 **Where relevant, please include a copy of an extract from the map of waterworks.**

Answer **A copy of an extract of the map of waterworks is included, showing water mains, resource mains or discharge pipes in the vicinity of the property.**

Guidance

The "water mains" in this context are those which are vested in and maintainable by the Water Undertaker under statute.

Assets other than public water mains may be shown on the plan, for information only. Water Undertakers are not responsible for private supply pipes connecting the property to the public water main and do not hold details of these. These may pass through land outside of the control of the seller, or may be shared with adjacent properties. The buyer may wish to investigate whether separate rights or easements are needed for their inspection, repair or renewal.

If an extract of the public water main record is enclosed, it will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

The presence of a public water main running within the boundary of the property may restrict further development within it. Water Undertakers have a statutory right of access to carry out work on their assets, subject to notice. This may result in employees of the Water Undertaker or its contractors needing to enter the property to carry out work.

Question 2.1 **Does foul water from the property drain to a public sewer?**

Answer **This enquiry appears to relate to a plot of land or a recently built property. It is recommended that drainage proposals are checked with the developer.**

Guidance

Sewerage Undertakers are not responsible for any private drains or sewers that connect the property to the public sewerage system, and do not hold details of these.

The property owner will normally have sole responsibility for private drains serving the property and may have shared responsibility, with other users, if the property is served by a private sewer which also serves other properties. These may pass through land outside of the control of the seller and the buyer may wish to investigate whether separate rights or easements are needed for their inspection, repair or renewal.

If foul water does not drain to the public sewerage system the property may have private facilities in the form of a cesspit, septic tank or other type of treatment plant.

If an extract from the public sewer map is enclosed, this will show known public sewers in the vicinity of the property and it should be possible to estimate the likely length and route of any private drains and/or sewers connecting the property to the public sewerage system.

Question 2.2**Does surface water from the property drain to a public sewer?****Answer**

This enquiry appears to relate to a plot of land or a recently built property. It is recommended that drainage proposals are checked with the developer. If the property was constructed after the 6th April 2015 the surface water drainage may be served by a sustainable drainage system.

Guidance

Sewerage Undertakers are not responsible for any private drains or sewers that connect the property to the public sewerage system and do not hold details of these.

The property owner will normally have sole responsibility for private drains serving the property and may have shared responsibility with other users, if the property is served by a private sewer which also serves other properties. These may pass through land outside of the control of the seller and the buyer may wish to investigate whether separate rights or easements are needed for their inspection, repair or renewal.

In some cases, Sewerage Undertakers' records do not distinguish between foul and surface water connections to the public sewerage system. If on inspection the buyer finds that the property is not connected for surface water drainage, the property may be eligible for a rebate of the surface water drainage charge. Details can be obtained from the Sewerage Undertaker.

If surface water does not drain to the public sewerage system the property may have private facilities in the form of a soakaway or private connection to a watercourse. If an extract from the public sewer map is enclosed, this will show known public sewers in the vicinity of the property and it should be possible to estimate the likely length and route of any private drains and/or sewers connecting the property to the public sewerage system.

Question 2.3**Is a surface water drainage charge payable?****Answer**

Records indicate that a surface water drainage charge is not applicable for the property.

Guidance

Since 1st April 2017 commercial customers can choose their retailer for clean, waste or both services. For more information on any applicable surface water charges you will need to contact the current owner of the property to find out who the current retailer is. Details of the retailer for a property can be found on the current occupiers bill. For a list of all potential retailers of water and waste water services for the property please visit www.open-water.org.uk.

Please note if the property was constructed after 6th April 2015 the Surface Water drainage may be served by a Sustainable Drainage System. Further information may be available from the Developer.

Question 2.4**Does the public sewer map indicate any public sewer, disposal main or lateral drain within the boundaries of the property?****Answer**

The public sewer map included indicates that there are public sewers, disposal mains or lateral drains within the boundary of the property. However from the 1st October 2011 there may be additional public sewers, disposal mains or lateral drains which are not recorded on the public sewer map which may further prevent or restrict development of the property. If you are considering any future development at this property which may require build over consent, please complete the enquiry form by accessing the following link <http://www.unitedutilities.com/planning-wastewater-guidance.aspx>.

Guidance

The approximate boundary of the property has been determined by reference to the Ordnance Survey record. A property of this type will normally be served by a shared sewer passing through the boundaries of several properties. It is therefore likely that a public sewer or lateral drain is present within the property boundary.

Please note that from 1st October 2011 the majority of private sewers and lateral drains connected to the public network as of 1st July 2011 transferred into public ownership and therefore it is possible there may be additional public assets which may not be shown on the public sewer plan.

The presence of public assets running within the boundary of the property may restrict further development. If there are any plans to develop the property further enquiries should be made to United Utilities Build Over department.

United Utilities Water has a legal right of access to carry out work on its assets, subject to notice. This may result in employees of the Company or its contractors needing to enter the property to carry out work.

Question 2.4.1 Does the public sewer map indicate any pumping station or any other ancillary apparatus within the boundaries of the property?

Answer The public sewer map included indicates that there is no public pumping station or other ancillary apparatus within the boundaries of the property. However, from the 1st October 2016 private pumping stations which serve more than one property will be transferred into public ownership but may not be recorded on the public sewer map until that time

Guidance From 1 October 2016 United Utilities will be responsible for private pumping stations (though we may take ownership of some stations before this date) that either:

- * serve a single property, and are outside the property boundary or

- * serves two or more properties

Only private pumping stations installed before 1st July 2011 will be transferred into our ownership. United Utilities will be responsible for all associated costs, maintenance, repairs and any necessary upgrade work.

Where the property is part of a very recent or ongoing development and the sewers/pumping station are not the subject of an adoption application, buyers should consult with the developer to ascertain the extent of private drains, sewers and pumping stations for which they will hold maintenance and renewal liabilities.

Question 2.5 Does the public sewer map indicate any public sewer within 30.48 metres (100 feet) of any buildings within the property?

Answer The public sewer map included indicates that there are no public sewers within 30.48 metres (100 feet) of a building within the boundary of the property. However from the 1st October 2011 private sewers will be transferred into public ownership and may not be recorded on the public sewer map and it is our professional opinion that there will be a public sewer within 30.48 (100 feet) of a building within the boundary of the property.

Guidance From 1st October 2011 there may be additional lateral drains and/or public sewers which are not recorded on the public sewer map but are also within 30.48 metres (100 feet) of a building within the property.

The presence of a public sewer within 30.48 metres (100 feet) of the building(s) within the property can result in the Local Authority requiring a property to be connected to the public sewer.

The measure is estimated from the Ordnance Survey record, between the building(s) within the boundary of the property and the nearest public sewer.

Sewers indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended that these details are checked with the developer, if any.

Assets other than public sewers may be shown on the copy extract for information only.

Question 2.5.1 Does the public sewer map indicate any public pumping station or any other ancillary apparatus within 50 metres of any buildings within the property?

Answer The public sewer map included indicates that there is no public pumping station or other ancillary apparatus within 50 metres of any buildings within the property. However, from 1st October 2016 private pumping stations which serve more than one property will be transferred into public ownership but may not be recorded on the public sewer map until that time.

Guidance	From 1 October 2016 United Utilities will be responsible for private pumping stations (though we may take ownership of some stations before this date) that either: * serve a single property, and are outside the property boundary or * serves two or more properties. Only private pumping stations installed before 1st July 2011 will be transferred into our ownership. United Utilities will be responsible for all associated costs, maintenance, repairs and any necessary upgrade work. If you think there might be a private pumping station on your land or near your business property, please let us know by completing this questionnaire with as much information as possible, please visit our website http://www.unitedutilities.com/ppstransfer.aspx. Where the property is part of a very recent or ongoing development and the sewers/pumping station are not the subject of an adoption application, buyers should consult with the developer to ascertain the extent of private drains, sewers and pumping stations for which they will hold maintenance and renewal liabilities.
Question 2.6	Are any foul sewers or lateral drains serving or which are proposed to serve the property the subject of an existing adoption agreement or an application for such an agreement?
Answer	Records confirm that foul sewers and/or lateral drains serving the development, of which the property forms part are not the subject of an existing adoption agreement or an application for such an agreement.
Guidance	This enquiry is of interest to purchasers of new property who will want to know whether or not the property will be linked to a public sewer. Where the property is part of a very recent or ongoing development and the sewers are not the subject of an adoption application, buyers should consult with the developer to ascertain the extent of private drains and sewers for which they will hold maintenance and renewal liabilities. Final adoption is subject to the developer complying with the terms of the adoption agreement under Section 104 of the Water Industry Act 1991.
Question 2.6.1	Are any surface water pipes or lateral drains serving, or which are proposed to serve the property, the subject of an existing adoption agreement or an application for such an agreement?
Answer	Records confirm that the surface water sewer(s) and/or surface water lateral drain(s) are not the subject of an adoption agreement and it is recommended that responsibility for maintenance of these is checked with the developer as this may be due to a Sustainable Drainage Scheme (SUDS)
Guidance	This enquiry is of interest to purchasers of new property who will want to know whether or not the property will be linked to a public sewer. Where the property is part of a very recent or ongoing development and the sewers are not the subject of an adoption application, buyers should consult with the developer to ascertain the extent of private drains and sewers for which they will hold maintenance and renewal liabilities. Final adoption is subject to the developer complying with the terms of the adoption agreement under Section 104 of the Water Industry Act 1991.
Question 2.7	Has a sewerage undertaker approved or been consulted about any plans to erect a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain?
Answer	There are no records in relation to any approval or consultation about plans to erect a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain. However, the sewerage

undertaker might not be aware of a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain.

Guidance

From the 1st October 2011 private sewers, disposal mains and lateral drains were transferred into public ownership and the sewerage undertaker may not have granted approval or been consulted about any plans to erect a building or extension on the property over or in the vicinity of these assets.

Prior to 2003 United Utilities Water Limited had sewerage agency agreements with the local authorities therefore details of any agreements/consents or rejections may not have been forwarded on to our offices before this date.

Buildings or extensions erected over a sewer in contravention of building controls may have to be removed or altered.

Question 2.8

Is the building which is or forms part of the property at risk of internal flooding due to overloaded public sewers?

Answer

The building is not recorded as being at risk of internal flooding due to overloaded public sewers. From the 1st October 2011 private sewers, disposal mains and lateral drains were transferred into public ownership it is therefore possible that a property may be at risk of internal flooding due to an overloaded public sewer which the sewerage undertaker is not aware of. For further information it is recommended that enquiries are made of the vendor.

Guidance

1. A sewer is "overloaded" when the flow from a storm is unable to pass through it due to a permanent problem (e.g. flat gradient, small diameter). Flooding as a result of temporary problems such as blockages, siltation, collapses and equipment or operational failures are excluded.

2. "Internal flooding" from public sewers is defined as flooding, which enters a building or passes below a suspended floor. For reporting purposes, buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.

3. These are defined as properties that have suffered or are likely to suffer internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system more frequently than the relevant reference period (either once or twice in ten years) as determined by the Sewerage Undertaker's reporting procedure.

4. Flooding as a result of storm events proven to be exceptional and beyond the reference period of one in ten years are not included.

5. Properties may be at risk of flooding but not included where flooding incidents have not been reported to the Sewerage Undertaker.

6. Public sewers are defined as those for which the Sewerage Undertaker holds statutory responsibility under the Water Industry Act 1991.

7. It should be noted that flooding can occur from private sewers and drains which are not the responsibility of the Sewerage Undertaker.

8. This report excludes flooding from private sewers and drains and the Sewerage Undertaker makes no comment upon this matter. For reporting purposes buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.

Question 2.9

Please state the distance from the property to the nearest boundary of the nearest sewage treatment works.

Answer

An exception occurred parsing your content as XML: Name cannot begin with the '1' character, hexadecimal value 0x31. Line 2, position 8.

Guidance

The nearest sewage treatment works will not always be the sewage treatment works serving the catchment within which the property is situated i.e. the property may not necessarily drain to this works.

The Sewerage Undertaker's records were inspected to determine the nearest sewage treatment works.

It should be noted therefore that there may be a private sewage treatment works closer than the one detailed above that has not been identified. As a responsible utility operator, United Utilities Water Limited seeks to manage the impact of odour from operational sewage works on the surrounding area.

This is done in accordance with the "Code of Practice on Odour Nuisance from Sewage Treatment Works" issued via the Department of Environment, Food and Rural Affairs (DEFRA).

This Code recognises that odour from sewage treatment works can have a detrimental impact on the quality of the local environment for those living close to works.

However DEFRA also recognises that sewage treatment works provide important services to communities and are essential for maintaining standards in water quality and protecting aquatic based environments. For more information visit www.unitedutilities.com.

Question 3.1 Is the property connected to mains water supply?

Answer **This enquiry relates to a plot of land or a recently built property. It is recommended that the water supply proposals are checked with the developer.**

Guidance If the property is supplied by private water mains please note that details of private supplies are not kept by the Water Undertaker. The situation should be checked with the current owner of the property.

Question 3.2 Are there any water mains, resource mains or discharge pipes within the boundaries of the property

Answer **The map of waterworks does not indicate any water mains, resource mains or discharge pipes within the boundaries of the property.**

Guidance The boundary of the property has been determined by reference to the Ordnance Survey record.

The presence of a public water main within the boundary of the property may restrict further development within it. Water Undertakers have a statutory right of access to carry out work on their assets, subject to notice.

This may result in employees of the Water Undertaker or its contractors needing to enter the property to carry out work.

Question 3.3 Is any water main or service pipe serving or which is proposed to serve the property the subject of an existing adoption agreement or an application for such an agreement?

Answer **Records confirm that water mains or service pipes serving the property are not the subject of an existing adoption agreement or an application for such an agreement.**

Guidance This enquiry is of interest to purchasers of new premises who will want to know whether or not the property will be linked to the mains water supply.

Question 3.4 Is the building at risk of receiving low water pressure or flow?

Answer **Records confirm that the building is not recorded by the water undertaker as being at risk of receiving low water pressure or flow.**

Guidance The boundary of the property has been determined by reference to the Ordnance Survey record. "Low water pressure" means water pressure below the regulatory reference level which is the minimum pressure when demand on the system is not abnormal. Water undertakers report properties receiving pressure below the reference level, provided that allowable exclusions do not apply (i.e. events which can cause pressure to temporarily fall below the reference level). Reference level: The reference level of service is a flow of 9l/min at a pressure of 10m head on the customer's side of the main stop tap (mst). The reference level applies to a single property. The reference level of

service must be applied on the customer's side of a meter or any other company fittings that are on the customer's side of the main stop tap. Where a common service pipe serves more than one property, the flow assumed in the reference level must be appropriately increased to take account of the total number of properties served. Surrogate for the reference level: Because of the difficulty in measuring pressure and flow at the mst, companies may measure against a surrogate reference level. Companies should use a surrogate of 15m head in the adjacent distribution main unless a different level can be shown to be suitable. In some circumstances companies may need to use a surrogate pressure greater than 15m to ensure that the reference level is supplied at the customer's side of the mst (for example in areas with small diameter or shared communication pipes).

There are a number of circumstances under which properties identified as receiving low pressure should be excluded from the reported figure. The aim of these exclusions is to exclude properties which receive a low pressure as a result of a one-off event and which, under normal circumstances (including normal peaks in demand), will not receive pressure or flow below the reference level. Companies must maintain verifiable, auditable records of all the exclusions that they apply in order to confirm the accuracy and validity of their information. Allowable exclusions includes Abnormal demand, Planned maintenance, One off incidents, Low pressure incidents of short duration and common supply.

Abnormal demand:

This exclusion is intended to cover abnormal peaks in demand and not the daily, weekly or monthly peaks in demand, which are normally expected. Water undertakers exclude figures from properties which are affected by low pressure only on those days with the highest peak demands. During the yearly report water undertakers may exclude, for each property, up to five days of low pressure caused by peak demand.

Planned maintenance:

Water undertakers will not report low pressures caused by planned maintenance. It is not intended that water undertakers identify the number of properties affected in each instance. However, water undertakers must maintain sufficiently accurate records to verify that low-pressure incidents that are excluded because of planned maintenance, are actually caused by maintenance.

One-off incidents:

This exclusion covers a number of causes of low pressure; mains bursts; failures of company equipment (such as pressure reducing valves or booster pumps); fire fighting and action by a third party. However, if problems of this type affect a property frequently, they cannot be classed as one-off events and further investigation will be required before they can be excluded.

Low pressure incidents of short duration:

Properties affected by low pressures that only occur for a short period, and for which there is evidence that incidents of a longer duration would not occur during the course of the year, may be excluded.

A company must maintain a minimum pressure in the communication pipe of seven metres static head (0.7 bar). If pressure falls below this on two occasions, each occasion lasting more than one hour, within a 28-day period, the company must automatically make a GSS payment to the customer. There are exceptions to the requirement to make a GSS payment if the pressure standard is not met. These are: a payment has already been made to the same customer in respect of the same financial year; it is impractical for the company to have identified the particular customer as being affected, and the customer has not made a claim within three months of the date of the latter occasion; industrial action by the company's employees makes it not feasible to maintain the pressure standard; the act or default of a person other than the company's representative make it not feasible to maintain the pressure standard; or the pressure falls below the minimum standard due to necessary works taking place or due to a drought.

It should be noted that low water pressure can occur from private water mains, private supply pipes (the pipework from the external stop cock to the property) or internal plumbing which are not the responsibility of the Water Undertaker. This report excludes low water pressure from private water mains, supply pipes and internal plumbing and the Water Undertaker makes no comment upon this matter. For reporting purposes buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.

Question 3.5**What is the clarification of the water supply for the property?****Answer**

An exception occurred parsing your content as XML: Name cannot begin with the '1' character, hexadecimal value 0x31. Line 2, position 75.

Guidance

The hardness of water is due to the presence of calcium and magnesium minerals that are naturally present in the water. The usual signs of a hard water supply are scaling inside kettles, poor lathering of soaps and scum.

What is water hardness?

Hard water is formed when water passes through or over limestone or chalk areas and calcium and magnesium ions dissolve into the water. The hardness is made up of two parts: temporary (carbonate) and permanent (non-carbonate) hardness. When water is boiled, calcium carbonate scale can form, which can deposit on things like kettle elements. The scale will not stick to kettles that have a plastic polypropylene lining but will float on the surface. The permanent hardness that comprises calcium and magnesium sulphate does not go on to form scale when heated or boiled.

How is water hardness measured?

Hardness is usually expressed in terms of the equivalent quantity of calcium carbonate (CaCO₃) in milligrams per litre or parts per million. You may also see hardness expressed as degrees of hardness in Clark (English) degrees, French or German degrees. Interconversion between the different measurements can be made by using the appropriate conversion factors below. There are no standard levels as to what constitutes a hard or a soft water. Table 1 gives an indication of the equivalents of calcium and calcium carbonate and the relative degree of hardness.

Water quality standards

There are no regulatory standards for water hardness in drinking water.

Water hardness in the North West

The majority of raw water in the United Utilities region comes from upland surface water reservoirs. The water in the reservoirs has little chance of passing through rocks and to dissolve the minerals that make water hard. Therefore, the majority of water in this region is soft or very soft. We supply water from a number of boreholes in the south of the region that are reasonably hard, but these tend to be blended with softer sources to meet demand. No water supply in the North West is artificially softened.

Can hard water be softened?

Yes, water can be softened artificially by the installation of a water softener or the use of 'jug type' filters. Medical experts recommend that a non-softened supply is maintained for drinking purposes because softened water may contain high levels of sodium. Softeners should be fitted after the drinking water tap and comply with the requirements of the Water Supply (Water Fittings) Regulations 1999. They should be maintained in accordance with manufacturers' instructions.

If you're interested in finding out more about the quality of your drinking water, please visit www.unitedutilities.com/waterquality and enter your postcode.

The Drinking Water Inspectorate is responsible for ensuring the quality of public water supplies. Visit their website at: www.dwi.defra.gov.uk.

Question 3.6**Is there a meter installed at the property?****Answer**

Records indicate that the property is not served by a water meter

Guidance

Not applicable

Question 3.7**Please include details of the location of any water meter serving the property.**

Answer	Records indicate that the property is not served by a water meter.
Guidance	Where the property is not served by a meter the current occupier can contact the retailer directly to advise on the current charging method, details of the retailer can also be found on the current occupiers bill.
Question 4.1.1	Who is responsible for providing the sewerage services for the property?
Answer	United Utilities Water Limited, Haweswater House, Lingley Mere Business Park, Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP
Guidance	Not applicable
Question 4.1.2	Who is responsible for providing the water services for the property?
Answer	United Utilities Water Limited, Haweswater House, Lingley Mere Business Park, Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP
Guidance	Not Applicable
Question 4.2	Who bills the property for sewerage services?
Answer	Since 1st April 2017 commercial customers can choose their retailer. If you wish to know who currently bills the property for sewerage services you will need to contact the owner of the property to find out who the retailer is.
Guidance	For a list of all potential retailers of wastewater services for the property please visit www.open-water.org.uk
Question 4.3	Who bills the property for water services?
Answer	Since 1st April 2017 commercial customers can choose their retailer. If you wish to know who currently bills the property for water services you will need to contact the owner of the property to find out who the retailer is.
Guidance	For a list of all potential retailers of water services for the property please visit www.open-water.org.uk
Question 5.1	Is there Consent, on this property, to discharge Trade Effluent under S118 of the Water Industry Act (1991) into the public sewerage system?
Answer	There is no record of a Trade Effluent consent at this property. Applications for Trade Effluent consents should be submitted via your retailer for info please visit https://www.unitedutilities.com/services/wholesale-services/trade-effluent/
Guidance	The owner/occupiers of Trade Premises do not have the right to discharge Trade Effluent to the public wastewater network. Any Trade Effluent Discharge Consent will be issued under Section 118 of the Water Industry Act 1991 and will be subject to conditions set by the Sewerage Undertaker. Generally these conditions are to ensure: a) The Health and Safety of staff working within the wastewater network and at wastewater treatment plants. b) The apparatus of the wastewater network is not damaged. c) The flow of the contents of the wastewater network is not restricted.

- d) Equipment, plant, and processes at treatment works are not disrupted or damaged.
- e) Treatment of sewage sludge is not impeded and sludges are disposed of in an environmentally friendly manner.
- f) Final effluent discharge from wastewater treatment plants has no impact on the environment or prevents the receiving waters from complying with EU Directives.
- g) Potential damage to the environment via storm water overflows is minimised.

Disputes between an occupier of a Trade Premise and the Sewerage Undertaker can be referred to the Director General of Water Services (OFWAT).

Protecting Public Sewers - Discharges Section 111 of the Water Industry Act 1991, places prohibition on the discharge of the following into a public sewer, drain or a sewer that communicates with a public sewer.

i) Any matter likely to injure the sewer or drain, to interfere with the free flow of its contents or to affect prejudicially the treatment or disposal of its contents.

ii) Any chemical refuse or waste steam or any liquid of temperature higher than 43.3 degrees Celsius (110 degrees Fahrenheit).

iii) Any petroleum spirit or carbide of calcium. On summary conviction offences under this Section carry a fine not exceeding the statutory maximum or a term of imprisonment not exceeding two years, or both.

Please note any existing consent is dependant on the business being carried out at the property and will not transfer automatically upon change of ownership.

Question 6.1

Is there a wayleave/easement agreement giving the Water and/or Sewerage Undertaker the right to lay or maintain assets or right of access to pass through private land in order to reach the Company's assets?

Answer

There is no record of a formal easement affecting this property.

Guidance

Not Applicable

Appendix 1- General interpretation

1. (1) In this Schedule-

"the 1991 Act" means the Water Industry Act 1991(a);

"the 2000 Regulations" means the Water Supply (Water Quality) Regulations 2000(b);

"the 2001 Regulations" means the Water Supply (Water Quality) Regulations 2001(c);

"adoption agreement" means an agreement made or to be made under Section 51A(1) or 104(1) of the 1991 Act (d);

"bond" means a surety granted by a developer who is a party to an adoption agreement;

"bond waiver" means an agreement with a developer for the provision of a form of financial security as a substitute for a bond;

"calendar year" means the twelve months ending with 31st December;

"discharge pipe" means a pipe from which discharges are made or are to be made under Section 165(1) of the 1991 Act;

"disposal main" means (subject to Section 219(2) of the 1991 Act) any outfall pipe or other pipe which-

- (a) is a pipe for the conveyance of effluent to or from any sewage disposal works, whether of a sewerage undertaker or of any other person; and
- (b) is not a public sewer;

"drain" means (subject to Section 219(2) of the 1991 Act) a drain used for the drainage of one building or any buildings or yards appurtenant to buildings within the same curtilage;

"effluent" means any liquid, including particles of matter and other substances in suspension in the liquid;

"financial year" means the twelve months ending with 31st March;

"lateral drain" means-

- (a) that part of a drain which runs from the curtilage of a building (or buildings or yards within the same curtilage) to the sewer with which the drain communicates or is to communicate; or
- (b) (if different and the context so requires) the part of a drain identified in a declaration of vesting made under Section 102 of the 1991 Act or in an agreement made under Section 104 of that Act (e);

"licensed water supplier" means a company which is the holder for the time being of a water supply licence under Section 17A(1) of the 1991 Act(f);

"maintenance period" means the period so specified in an adoption agreement as a period of time-

- (a) from the date of issue of a certificate by a Sewerage Undertaker to the effect that a developer has built (or substantially built) a private sewer or lateral drain to that undertaker's satisfaction; and
- (b) until the date that private sewer or lateral drain is vested in the Sewerage Undertaker;

"map of waterworks" means the map made available under Section 198(3) of the 1991 Act (g) in relation to the information specified in subsection (1A);

"private sewer" means a pipe or pipes which drain foul or surface water, or both, from premises, and are not vested in a Sewerage Undertaker;

"public sewer" means, subject to Section 106(1A) of the 1991 Act(h), a sewer for the time being vested in a Sewerage Undertaker in its capacity as such, whether vested in that undertaker-

- (a) by virtue of a scheme under Schedule 2 to the Water Act 1989(i);
- (b) by virtue of a scheme under Schedule 2 to the 1991 Act (j);
- (c) under Section 179 of the 1991 Act (k); or
- (d) otherwise;

"public sewer map" means the map made available under Section 199(5) of the 1991 Act (l);

"resource main" means (subject to Section 219(2) of the 1991 Act) any pipe, not being a trunk main, which is or is to be used for the purpose of-

- (a) conveying water from one source of supply to another, from a source of supply to a regulating reservoir or from a regulating reservoir to a source of supply; or
- (b) giving or taking a supply of water in bulk;

"sewerage services" includes the collection and disposal of foul and surface water and any other services which are required to be provided by a Sewerage Undertaker for the purpose of carrying out its functions;

"Sewerage Undertaker" means the company appointed to be the Sewerage Undertaker under Section 6(1) of the 1991 Act for the area in which the property is or will be situated;

"surface water" includes water from roofs and other impermeable surfaces within the curtilage of the property;

"water main" means (subject to Section 219(2) of the 1991 Act) any pipe, not being a pipe for the time being vested in a person other than the water Undertaker, which is used or to be used by a Water Undertaker or licensed water supplier for the purpose of making a general supply of water available to customers or potential customers of the undertaker or supplier, as distinct from for the purpose of providing a supply to particular customers;

"water meter" means any apparatus for measuring or showing the volume of water supplied to, or of effluent discharged from any premises;

"water supplier" means the company supplying water in the water supply zone, whether a water undertaker or licensed water supplier;

"water supply zone" means the names and areas designated by a Water Undertaker within its area of supply that are to be its water supply zones for that year; and

"Water Undertaker" means the company appointed to be the Water Undertaker under Section 6(1) of the 1991 Act for the area in which the property is or will be situated.

(2) In this Schedule, references to a pipe, including references to a main, a drain or a sewer, shall include references to a tunnel or conduit which serves or is to serve as the pipe in question and to any accessories for the pipe.

(a) 1991 c. 56.

(b) S.I. 2000/3184. These Regulations apply in relation to England.

(c) S.I. 2001/3911. These Regulations apply in relation to Wales.

(d) Section 51A was inserted by Section 92(2) of the Water Act 2003 (c. 37). Section 104(1) was amended by Section 96(4) of that Act.

(e) Various amendments have been made to Sections 102 and 104 by Section 96 of the Water Act 2003.

(f) Inserted by Section 56 of and Schedule 4 to the Water Act 2003.

(g) Subsection (1A) was inserted by Section 92(5) of the Water Act 2003.

(h) Section 106(1A) was inserted by Section 99 of the Water Act 2003.

(i) 1989 c. 15.

(j) To which there are various amendments made by Section 101(1) of and Schedule 8 to the Water Act 2003.

(k) To which there are various amendments made by Section 101(1) of and Schedule 8 to the Water Act 2003.

(l) Section 199 was amended by Section 97(1) and (8) of the Water Act 2003.

Appendix 2 - DRAINAGE AND WATER ENQUIRY (COMMERCIAL) AGREEMENT

The Customer, the Client and the Purchaser are asked to note this Agreement which govern the basis on which this drainage and water report is supplied

Definitions

'Company' means United Utilities Water Limited who produce the Report; its registered office being at Haweswater House, Lingley Mere Business Park, Lingley Green Avenue, Great Sankey, Warrington WA5 3LP, company number 2366678.

'Order' means any request completed by the Customer requesting the Report.

'Report' means the drainage and water report prepared by the Company in respect of the Property.

'Property' means the address or location supplied by the Customer in the Order.

'Customer' means the person, company, firm or other legal body placing the Order, either on their own behalf as Client, or, as an agent for a Client.

'Client' means the person, company or body who is the intended recipient of the Report with an actual or potential interest in the Property.

'Purchaser' means the actual or potential purchaser of the Property including their mortgage lender.

Agreement

1.1 The Company agrees to supply the Report to the Customer and the Client subject to this Agreement. The scope and limitations of the Report are described in clause 2 of this Agreement.

Where the Customer is acting as an agent for the Client then the Customer shall be responsible for bringing this Agreement to the attention of the Client and the Purchaser.

1.2 The Customer, the Client and the Purchaser agree that the placing of an Order for a Report and the subsequent provision of a copy of the Report to the Client and/ or the Purchaser indicates their acceptance of this Agreement.

The Report

Whilst the Company will use reasonable care and skill in producing the Report, it is provided to the Customer, the Client and the Purchaser on the basis that they acknowledge and agree to the following:

2.1 The information contained in the Report can change on a regular basis so the Company cannot be responsible to the Customer, the Client and the Purchaser for any change in the information contained in the Report after the date on which the Report was produced and sent to the Client.

2.2 The Report does not give details about the actual state or condition of the Property nor should it be used or taken to indicate or exclude actual suitability or unsuitability of the Property for any particular purpose, or relied upon for determining saleability or value, or used as a substitute for any physical investigation or inspection. Further advice and information from appropriate experts and professionals should always be obtained.

2.3 The information contained in the Report is based upon the accuracy, completeness and legibility of the address and/or plans supplied by the Customer or Client or Purchaser.

2.4 The Report provides information as to the location and connection status of existing services and other information in relation to drainage and water enquiries and should not be relied on for any other purpose. The Report may contain opinions or general advice to the Customer, the Client and the Purchaser. The Company cannot ensure that any such opinion or general advice is accurate, complete or valid and therefore accepts no liability in relation thereto.

2.5 The position and depth of apparatus shown on any maps attached to the Report are approximate and are furnished as a general guide only, and no warranty as to its correctness is given or implied. The exact positions and depths should be obtained by excavation trial holes and the maps must not be relied on in the event of excavation or other works made in the vicinity of the Company's apparatus.

Liability

3.1 The Company shall not be liable to the Client or the Purchaser for any failure defect or non-performance of its obligations arising from any failure to provide or delay in providing the Report to the extent that such failure or delay is due to an event or circumstance beyond the reasonable

control of the Company including but not limited to any delay, failure of or defect in any machine, processing system or transmission link or any failure or default of a supplier or sub-contractor of the Company or any provider of any third party Information except to the extent that such failure or delay is caused by the negligence of the Company.

3.2 Where a Report is requested for an address falling within a geographical area where two different companies separately provide Water and Sewerage Services, then it shall be deemed that liability for the information given by either company will remain with that company in respect of the accuracy of the information supplied.

A company supplying information which has been provided to it by another company for the purposes outlined in this agreement will therefore not be liable in any way for the accuracy of that information and will supply that information as an agent for the company from which the information was obtained.

3.3 The Report is produced for use in relation to individual commercial property transactions where the property is used solely for carrying on a trade or business, the property is intended to be developed for commercial gain or the property is not a single residential, domestic property. The Company's entire liability (except to the extent provided by clause 3.5) in respect of all causes of action arising by reason of or in connection with the Report (whether for breach of contract, negligence or any other tort, under statute or statutory duty or otherwise at all) shall be limited to £2,000,000

In any event, the Company shall not have any liability in contract, negligence or any other tort or for breach of statutory duty or otherwise in respect of any loss of profit, loss of revenue, loss of opportunity or anticipated savings, or any indirect or consequential loss or damage that may be suffered by the Customer, the Client or the Purchaser howsoever arising. The plans attached to the report are provided pursuant to the Company's statutory duty to make such plans available for inspection (notwithstanding the provisions of this clause) and attention is drawn to the notice on the plan(s) attached to the report which applies to the plan and its contents.

3.4 Where the Customer sells this Report to a Client or Purchaser under its own name or as a reseller of the Company (other than in the case of a bona fide legal adviser recharging the cost of the Report as a disbursement) the Company shall not in any circumstances (whether for breach of contract, negligence or any other tort, under statute or statutory duty, restitution or otherwise at all) be liable to the Customer for any loss (whether direct, indirect or consequential loss (all three of which terms include without limitation, pure economic loss, loss of profit, loss of business, depletion of goodwill and like loss)) or damage whatsoever caused in respect of the Report or any use of the Report or reliance placed upon it and the Customer shall indemnify and keep indemnified the Company in respect of any claim by the Client or the Purchaser that the Company may incur or suffer.

3.5 Nothing in this Agreement shall exclude the Company's liability for death or personal injury arising from its negligence or for fraud.

Copyright and Confidentiality

4.1 The Customer, the Client and the Purchaser acknowledge that the Report is confidential and is intended for the personal use of the Client and the Purchaser. The copyright and any other intellectual property rights in the Report shall remain the property of the

Company. No intellectual or other property rights are transferred or licensed to the Customer, the Client or the Purchaser except to the extent expressly provided herein.

4.2 The Customer or the Client or the Purchaser is entitled to make copies of the Report but may only copy Ordnance Survey mapping or data contained in or attached to the Report if they have an appropriate licence from the originating source of that mapping or data.

4.3 The Customer, The Client and the Purchaser agree (in respect of both the original and any copies made) to respect and not to alter any part of the Report including but not limited to the trademark, copyright notice or other property marking which appears on the Report.

4.4 The maps contained in the Report are protected by Crown Copyright and must not be used for any purpose outside the context of the Report.

4.5 The enquiries in the Report are protected by copyright by the Law Society of 113 Chancery Lane, London WC2A 1PL and must not be used for any purpose outside the context of the Report.

4.6 The Customer, the Client and the Purchaser agree to indemnify the Company against any losses, costs, claims and damage suffered by the Company as a result of any breach by either of them of the provisions of clauses 4.1 to 4.4 inclusive.

Payment

5.1 Unless otherwise stated all prices are inclusive of VAT. The Customer shall pay the price of the Report specified by the Company, without any set off, deduction or counterclaim.

5.2 Payment must be received in advance unless an account has been set up with the Company. In these cases, payment terms will be as agreed with the Company, but in any event any invoice must be paid within 30 days.

5.3 The Company reserves the right to increase fees on reasonable prior written notice at any time.

Data Protection

6.1 We will process any personal data you provide to us in accordance with applicable data protection laws and our Data Protection and Privacy Notice (<https://www.unitedutilities.com/privacy/>). In addition we will use your personal data to manage and administer the provision of the Report under this Agreement and to develop and improve the business and services we provide to our customers. We may also disclose it to other companies in the United Utilities group (being United Utilities Water Limited, its holding companies (and their subsidiary companies) and its subsidiary companies) and their sub-contractors in connection with those purposes, but it will not be processed for other purposes or disclosed to other third parties without your express permission or without lawful purpose under data protection law.

General

7.1 If any provision of this Agreement is or becomes invalid or unenforceable, it will be taken to be removed from the rest of this Agreement to the extent that it is invalid or unenforceable. No other provision of this Agreement shall be affected.

7.2 This Agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts.

7.3 Nothing in this Agreement and conditions shall in any way restrict the Customer's the Client's or the Purchaser's statutory or any other rights of access to the information contained in the Report.

7.4 This Agreement and conditions may be enforced by the Customer, the Client and the Purchaser.

7.5 Before you agree to this Agreement, please note it is your responsibility to ensure your client/customer is aware of them and that any objections are raised accordingly.

Property Searches complaints procedure

In the event of any queries relating to this Report please e-mail, write or phone our customer team quoting the United Utilities reference detailed on the Report, We will endeavor to resolve any telephone contact or complaint at the time of the call.

Whilst we always try to resolve all complaints straight away, if this is not possible and you are not happy with the course of action taken by us you can ask us to escalate the issues internally via the complaints process detailed below.

We will listen to your complaint and do our best to deal with it immediately.

If we fail to give you a written substantive response within 5 working days the Company will compensate the Customer or the Client (as applicable) the amount of the original fee paid to the Company for the Report, regardless of the outcome of your complaint.

If it is a complex issue requiring more time, we will still get back to you within 5 working days and notify you of progress and update you with the new timescales.

If we consider your complaint to be justified or we have made any errors that substantially change the outcome of the search we will:

- Refund your Report fee
- Provide you with a revised Report (if requested)
- Take the necessary action within our power to put things right which may (where appropriate) include, at our complete discretion, financial compensation or the relocation/removal/installation of our affected water or sewerage assets.
- Keep you informed of any action required

If your complaint has gone through our full internal complaints procedure and you are not satisfied with the response or you believe that we have failed to comply with our internal complaints procedure you may be able to refer your complaint for consideration under The Property Ombudsman Scheme (TPOs). You can obtain further information by visiting www.tpos.co.uk or email admin@tpos.co.uk

Berit Rose

**Anwyl House
St Davids Park, Close Dewi Sant
Ewloe, Flintshire
CH5 3DT**

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: HDF
Our Ref: UUPS-ORD-365604
Date: 10/02/2022**

Dear Sirs

Location: HDF

I acknowledge with thanks your request dated 08/02/2022 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

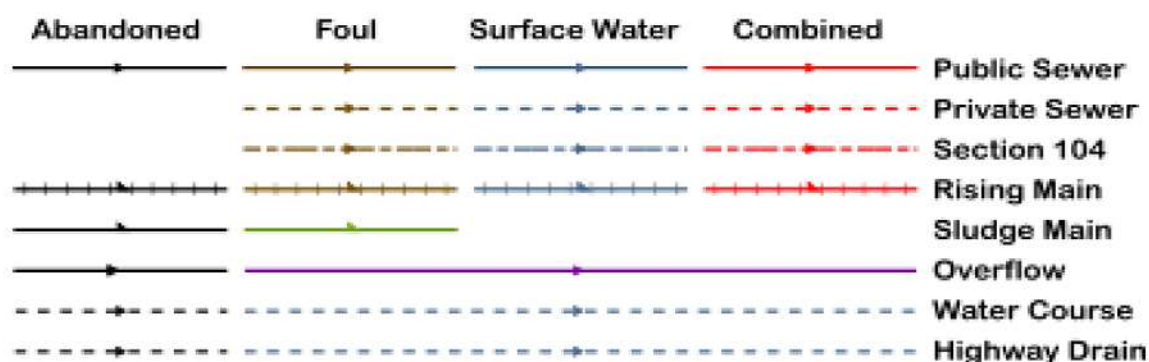
TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

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.

Wastewater Symbolology



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

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

SEWER RECORDS

Address or Site Reference

HDF,

Scale: 1:2500
Date: 10/02/2022

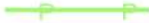
Printed by: Property Searches

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

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Ordnance Survey 100022432. Unauthorised
reproduction will infringe these copyrights.



Clean Water Symbolology

Proposed	Abandoned	Live	
			Distribution Main
			Trunk Main
			Comms Pipe
			Private Pipe
			Concessionary Service
			Raw Water
			LDTM Raw Water
			LDTM Treated Water
			Air Valve
			AC Valve, open
			AC Valve, closed
			CC Valve, open
			CC Valve, closed
			Non Return Valve
			Pressure Management Valve
			OMS Valve
			Stop Tap
			Flow Meter
			Domestic Meter
			Commercial Meter
			Pump
			Hydrant
			Fire Hydrant
			Anode
			Chlorination Point
			De-chlorination Point
			Strainer Point
			Access Point
			Hatch Box
			IP Point
			Sampling Station
			Logger Box
			Bore Hole
			Inlet Point
			Bulk Supply Point
			End Cap
			Site Termination
			Change of Characteristic
			Condition Report
			<u>Property Types</u>
			Water Tower
			Valve House
			Booster Pumping Station
			Intake Pumping Station
			Water Treatment Works
			Supply Reservoir
			Service Reservoir
			Impounding Reservoir
			Pipe Bridge

Symbology for proposed assets is the same as above, but shown in **green**
Symbology for abandoned assets is the same as above, but shown in **black**



WATER MAIN RECORDS

Address or Site Reference

HDF,

Scale: 1:2500
Date: 10/02/2022

Printed by: Property Searches

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

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APPENDIX D

GROUND INVESTIGATION SUMMARY

Ben Donoghue

From: Rebecca Hodnett <rhodnett@e3p.co.uk>
Sent: 03 November 2022 12:10
To: Ben Donoghue
Cc: Georgina Blackburn; Colin Whittingham
Subject: RE: Wilbraham Road - FRA comments

Hi Ben,

Hope you are well?

I have copied some extracts from our report to your queries below.

- Confirmation of the geology description – superficial and bedrock geology
BGS mapping has shown the site to be underlain by drift deposits comprising Glaciofluvial Sheet Deposits (SAND and GRAVEL) which are in-turn underlain by bedrock comprising the Wilmslow Sandstone Group (SANDSTONE).
From our investigations on site the following ground conditions were identified:

Ground Conditions	MADE GROUND – 0.00 m bgl to 1.60 m bgl
	Reworked topsoil comprising a dark brown clayey sand was recorded across the site to depths between 0.20 m bgl to 0.40 m bgl with gravel of brick, mudstone, glass and sandstone.
	Deeper Made Ground was encountered within localised areas (typically within proximity to the historic ponds and field boundaries) which comprised a dark brown gravelly sand with gravel and cobbles of brick, glass, sandstone, and ceramic and was encountered to a maximum depth of 1.60 m bgl but was typically encountered at less than 1.00 m bgl.
	A slight hydrocarbon/hydrogen sulphide odour was recorded within two locations (TP110 and TP111) which have been sampled and included for chemical analysis.
	DRIFT – 0.20 m bgl to 5.45 m bgl
	Drift deposits were encountered within all exploratory hole locations to depths of between 0.30 m bgl to 5.45 m bgl and typically comprised a light

brownish-grey fine to medium SAND to circa 1.00 – 2.00 m bgl underlain by a firm to stiff brown silty CLAY.

Soft clay was encountered within several locations between 1.00 – 3.00 m bgl. These soft clays are typically identified within proximity to the historic pond in the northeast and centre of the site and comprised some organic materials and plant debris.

SOLID

The solid bedrock geology was not encountered.

Available BGS boreholes within the same geology circa 1.0km from the site indicate the presence of glacial till to depths in excess of 25.00 m bgl with no confirmation of depth to bedrock.

- Confirmation of hydrogeology conditions (if different from those described on MagicMap) and the presence of any groundwater or soil moisture.

The site is underlain by a secondary A superficial aquifer and a principal bedrock aquifer.

The closest groundwater abstraction point is 1.60km north of the site.

Groundwater was encountered between 0.80 m bgl and 2.00 m bgl during the site investigation. Subsequent monitoring visits indicate the depth to water within boreholes between 1.13 m bgl and 3.92 m bgl.

- Description of Infiltration capacity (or confirmation that it cannot)

The results of the BRE365 Soakaway Tests indicate the clay soils to have a poor drainage potential which would limit the use of soakaways within the proposed development.

We are still working through the comments and finalising our reports; its unlikely that the above will change but if anything is altered, I will let you know. Hopefully the above is satisfactory however if you need anything else please just let me know.

Many thanks

Becky

Rebecca Hodnett

Senior Geo-Environmental Consultant





Mobile: 07399 567 346

Office: 0161 707 9612

rhodnett@e3p.co.uk

www.e3p.co.uk

Manchester Office

Taylor Road, Urmston, M41 7JQ

From: Ben Donoghue <BDonoghue@rsk.co.uk>

Sent: 03 November 2022 11:36

To: Rebecca Hodnett <rhodnett@e3p.co.uk>

Cc: Georgina Blackburn <georgina.blackburn@asterplanning.com>; Colin Whittingham <CWhittingham@rsk.co.uk>

Subject: RE: Wilbraham Road - FRA comments

Becky

I am updating the FRA report for the Wilbraham Road site and I need a summary of details from the Ground Conditions report: -

- Confirmation of the geology description – superficial and bedrock geology
- Confirmation of hydrogeology conditions (if different from those described on MagicMap) and the presence of any groundwater or soil moisture.
- Description of Infiltration capacity (or confirmation that it cannot)

One other question that has been raised by the LLFA is any confirmation of an existing culverted watercourse (possibly the Longford Brook), some of the details suggest its north of the site. Has the ground investigation found any proof of its existence or presence within the sites boundaries?

If you want to confirm any of these points with me directly please give me a call.

Regards

Ben Donoghue MCIWEM
Flood Risk Consultant



www.rsklde.com

Abbey Park, Humber Road, Coventry, CV3 4AQ, UK

Switchboard: +44 (0)2476 505600

Mobile: +44 (0)7999 889320

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Company Number: 4723837

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Before printing think about your responsibility and commitment to the ENVIRONMENT!

From: Georgina Blackburn <georgina.blackburn@asteerplanning.com>
Sent: 03 November 2022 11:01
To: Ben Donoghue <BDonoghue@rsk.co.uk>
Cc: Colin Whittingham <CWhittingham@rsk.co.uk>; Rebecca Hodnett <rhodnett@e3p.co.uk>
Subject: RE: Wilbraham Road - FRA comments

Hi Ben,

I have copied in Becky who is producing the ground conditions reports.

Please can you let Becky know what specific information you require.

Best wishes,
Georgina

Georgina Blackburn
Planner

 +44 (0)7305393759

 georgina.blackburn@asteerplanning.com

 asteerplanning.com



Mynshull's House, 14 Cateaton Street, Manchester, M3 1SQ

[Asteer Planning LLP Legal Disclaimer](#)

From: Ben Donoghue <BDonoghue@rsk.co.uk>
Sent: 03 November 2022 10:44
To: Georgina Blackburn <georgina.blackburn@asteerplanning.com>
Cc: Colin Whittingham <CWhittingham@rsk.co.uk>
Subject: RE: Wilbraham Road - FRA comments

Georgina

I have updated the FRA with the various details the comments requested. However I do not believe the Ground Conditions report has been forwarded too us other than a small section in one email. We will need to add this as an appendix.

Can you forward this document too me as well?

Regards

Ben Donoghue MCIWEM
Flood Risk Consultant

From: Georgina Blackburn <georgina.blackburn@asteerplanning.com>

Sent: 03 November 2022 09:57

To: Ben Donoghue <BDonoghue@rsk.co.uk>

Cc: Colin Whittingham <CWhittingham@rsk.co.uk>

Subject: Wilbraham Road - FRA comments

Hi Ben,

Please attached comments on the FRA.

I will circulate the updated plans once available.

Best wishes,
Georgina

Georgina Blackburn
Planner

 +44 (0)7305393759

 georgina.blackburn@asteerplanning.com

 asteerplanning.com



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APPENDIX E

PROPOSED SITE LAYOUT



Proposed Colour Layout

Detailed Planning Application

Drawing Number : APD/AH158/PL01
Revision : F
Date : 13/10/2022
Scale/Sheet Size : 1:500/A1

URBAN
DESIGN
GROUP

ANWYL
thoughtful homes

1:500 0 5 10 15 25m

APPENDIX F

GREENFIELD RUNOFF RATES

Calculated by:	Colin Whittingham
Site name:	Harry Dalton
Site location:	Chorlton

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013), the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site Details

Latitude:	53.44437° N
Longitude:	2.26125° W
Reference:	3699382138
Date:	Mar 29 2022 09:03

Runoff estimation approach **IH124**

Site characteristics

Total site area (ha): 1.93

Methodology

Q_{BAR} estimation method: Calculate from SPR and SAAR

SPR estimation method: Calculate from SOIL type

Soil characteristics Default Edited

SOIL type: 4 4

HOST class: N/A N/A

SPR/SPRHOST: 0.47 0.47

Hydrological characteristics Default Edited

SAAR (mm): 850 850

Hydrological region: 10 10

Growth curve factor 1 year: 0.87 0.87

Growth curve factor 30 years: 1.7 1.7

Growth curve factor 100 years: 2.08 2.08

Growth curve factor 200 years: 2.37 2.37

Notes

(1) Is Q_{BAR} < 2.0 l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is SPR/SPRHOST ≤ 0.3?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates Default Edited

Q _{BAR} (l/s):	11.69	11.69
1 in 1 year (l/s):	10.17	10.17
1 in 30 years (l/s):	19.88	19.88
1 in 100 year (l/s):	24.32	24.32
1 in 200 years (l/s):	27.72	27.72

This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksubs.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at www.uksubs.com/terms-and-conditions.htm. The outputs from this tool are estimates of greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.

APPENDIX G

UNITED UTILITIES PRE-DEVELOPMENT ENQUIRY

From: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>
Sent: 07 April 2022 18:27
To: Dominic Spina <DSpina@rsk.co.uk>
Cc: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>; Mark Rayner <MRayner@rsk.co.uk>
Subject: PDE for: Harry Dalton Fields M21 OUX UU Ref: 4200048474

Good afternoon, Dominic,

Pre Development Enquiry for: Harry Dalton Fields M21 OUX UU Reference Number: 4200048474

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 3723223 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/combined sewer system.

Our preferred point of discharge would be to the 600mmx900mm public combined sewer within Wilbraham Road located to the South 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.

Please ensure all proposed manhole chambers cover levels and finished floor levels are higher than the receiving public sewer.

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

United Utilities acknowledge that the nearest watercourse is a significant distance off-site.

Highway Drainage

If an evidence based assessment has been carried out and confirms that infiltration is not feasible, we recommend that you investigate the possibility of draining surface water to the highway drain where this ultimately discharges to a watercourse, by contacting the relevant Highway Authority.

Public Sewer

In accordance with the hierarchy of drainage options within the National Planning Practice Guidance, both discharge to ground via infiltration and discharge to a waterbody should be discounted prior to consideration of discharging surface water to the public sewer system. Evidence should be provided to demonstrate how these have been discounted, as outlined in the North West SuDS pro-forma.

Once evidence is provided as outlined above, United Utilities will consider a connection to the 600mmx900mm public combined sewer within Wilbraham Road located South of the proposed site at a pass forward flow to be agreed by the Lead Local Flood Authority. United Utilities request that any agreed rate does not exceed 11.7l/s.

As a Water Company, we have no obligation to accept highway drainage into our public sewer network. However, should your proposals include runoff from highways, we would request that consideration is given to SuDS components that deliver source control are incorporated within the design of the scheme to reduce the volume and frequency of discharges of these flows to the public sewer.

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

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 meet 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/wp-content/uploads/2020/03/SSG-App-C-Des-Con-Guide-v-2-100320-C.pdf>

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.

Kind regards,



Mohammed Aljafarawi
Developer Engineer
Developer Services & Metering
Customer Services
Email: Mohammed.Aljafarawi@uuplc.co.uk
unitedutilities.com

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From: Dominic Spina [<mailto:DSpina@rsk.co.uk>]
Sent: 29 March 2022 09:25
To: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>
Cc: Mark Rayner <MRayner@rsk.co.uk>
Subject: Harry Dalton Fields, Chorlton

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Good Morning,

Please find attached a Wastewater Pre-Development Enquiry for Harry Dalton Fields, Chorlton with supporting documents attached.

Kind Regards,

Dominic Spina
CAD Technician

RSK

14 Beecham Court Pemberton Business Park Wigan WN3 6PR

Switchboard: +44 (0) 1942 493255

email: DSpina@rsk.co.uk

<http://www.rsk.co.uk>

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APPENDIX H

NETWORK CALCULATIONS

RSK LDE		Page 0
Spring Lodge 172 Chester Road Helsby Cheshire WA6 0AR		
Date 01/01/0001 File SN1.MDX		
Designed by APeet Checked by		
Micro Drainage		Network 2019.1

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for SN1.SWS

Pipe Sizes SN1 Manhole Sizes SN1

FSR Rainfall Model - England and Wales

Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	18.000	Add Flow / Climate Change (%)	0
Ratio R	0.361	Minimum Backdrop Height (m)	0.000
Maximum Rainfall (mm/hr)	250	Maximum Backdrop Height (m)	0.000
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	400

Designed with Level Soffits

Time Area Diagram for SN1.SWS

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.581	4-8	0.555

Total Area Contributing (ha) = 1.136

Total Pipe Volume (m³) = 418.486

Network Design Table for SN1.SWS

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	13.715	0.034	400.0	0.193	5.00	0.0	0.600	o	900	Pipe/Conduit	
S1.001	11.865	0.030	400.0	0.000	0.00	0.0	0.600	o	900	Pipe/Conduit	
S1.002	86.981	0.217	400.8	0.183	0.00	0.0	0.600	o	1200	Pipe/Conduit	
S1.003	32.526	0.081	400.0	0.187	0.00	0.0	0.600	o	1200	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	59.27	5.15	26.648	0.193	0.0	0.0	0.0	1.56	992.7	31.0
S1.001	58.68	5.27	26.614	0.193	0.0	0.0	0.0	1.56	992.7	31.0
S1.002	55.31	6.05	26.284	0.376	0.0	0.0	0.0	1.86	2106.4	56.3
S1.003	54.16	6.34	26.067	0.563	0.0	0.0	0.0	1.86	2108.6	82.6

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RSK LDE		Page 4
Spring Lodge 172 Chester Road Helsby Cheshire WA6 0AR		
Date 01/01/0001 File SN1.MDX	Designed by APeet Checked by	
Micro Drainage Network 2019.1		
<u>Simulation Criteria for SN1.SWS</u> Volumetric Runoff Coeff 0.750 Additional Flow - % of Total Flow 0.000 Areal Reduction Factor 1.000 MADD Factor * 10m³/ha Storage 2.000 Hot Start (mins) 0 Inlet Coefficient 0.800 Hot Start Level (mm) 0 Flow per Person per Day (l/per/day) 0.000 Manhole Headloss Coeff (Global) 0.500 Run Time (mins) 60 Foul Sewage per hectare (l/s) 0.000 Output Interval (mins) 1 Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0 Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0 <u>Synthetic Rainfall Details</u> Rainfall Model FSR Profile Type Summer Return Period (years) 2 Cv (Summer) 0.750 Region England and Wales Cv (Winter) 0.840 M5-60 (mm) 18.000 Storm Duration (mins) 30 Ratio R 0.361		
©1982-2019 Innovyze		

RSK LDE		Page 5
Spring Lodge 172 Chester Road Helsby Cheshire WA6 0AR		
Date 01/01/0001 File SN1.MDX		
Designed by APeet Checked by		
Micro Drainage		Network 2019.1

Online Controls for SN1.SWS

Hydro-Brake® Optimum Manhole: S13, DS/PN: S1.008, Volume (m³): 50.8

Unit Reference	MD-SHE-0130-1170-2900-1170
Design Head (m)	2.900
Design Flow (l/s)	11.7
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	130
Invert Level	25.787
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1500

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.900	11.7	Kick-Flo®	1.157	7.6
Flush-Flo™	0.563	9.6	Mean Flow over Head Range	-	9.2

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	4.7	1.200	7.7	3.000	11.9	7.000	17.8
0.200	8.1	1.400	8.3	3.500	12.8	7.500	18.4
0.300	9.0	1.600	8.8	4.000	13.6	8.000	19.0
0.400	9.4	1.800	9.3	4.500	14.4	8.500	19.5
0.500	9.6	2.000	9.8	5.000	15.1	9.000	20.1
0.600	9.6	2.200	10.3	5.500	15.8	9.500	20.6
0.800	9.4	2.400	10.7	6.000	16.5		
1.000	8.7	2.600	11.1	6.500	17.2		

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for SN1.SWS

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coefficient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Offline Controls	0	Number of Time/Area Diagrams	0
Number of Online Controls	1	Number of Storage Structures	1	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.361
Region England and Wales Cv (Summer)	0.750		
M5-60 (mm)	18.000	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia Status	OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.000	S1	15 Winter	30	+0%	100/120 Winter				26.856
S1.001	S2	240 Winter	30	+0%	100/120 Winter				26.837
S1.002	S3	240 Winter	30	+0%	100/120 Summer				26.837
S1.003	S4	240 Winter	30	+0%	100/60 Winter				26.837
S1.004	S5	240 Winter	30	+0%	100/60 Winter				26.837
S2.000	S6	240 Winter	30	+0%	100/120 Winter				26.837
S2.001	S7	240 Winter	30	+0%	100/120 Summer				26.837
S2.002	S8	240 Winter	30	+0%	100/60 Winter				26.837
S2.003	S9	240 Winter	30	+0%	100/60 Winter				26.837
S1.005	S10	240 Winter	30	+0%	100/60 Winter				26.836
S1.006	S11	240 Winter	30	+0%	100/60 Summer				26.834
S1.007	S12	240 Winter	30	+0%	100/60 Summer				26.832
S1.008	S13	240 Winter	30	+0%	2/15 Summer				26.828
S1.009	S14	1440 Winter	30	+0%					25.802

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Micro Drainage		
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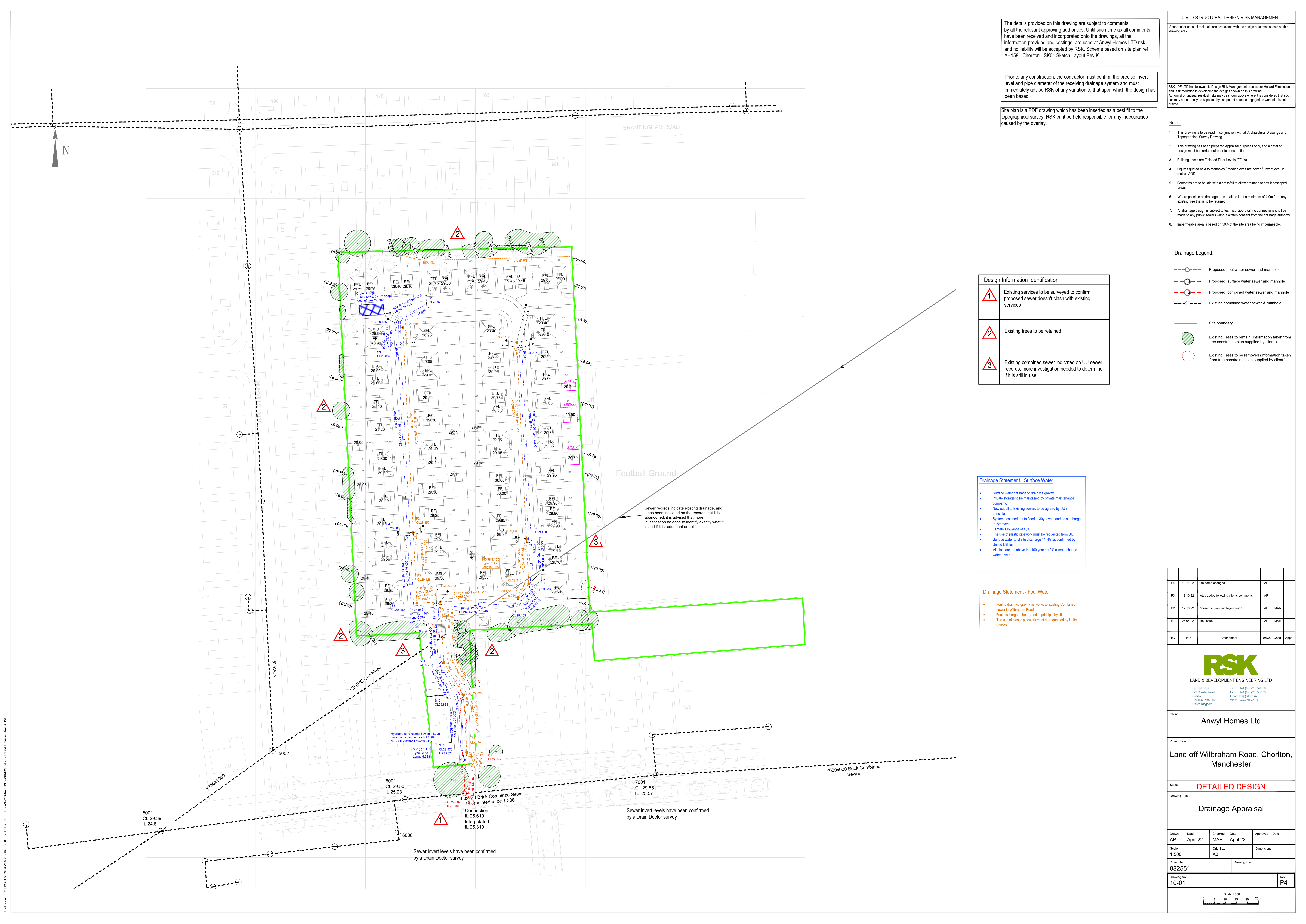
30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for SN1.SWS

PN	US/MH Name	Surcharged		Flooded		Pipe Flow (l/s)	Status	Level Exceeded
		Depth (m)	Volume (m ³)	Flow / Cap.	Overflow (l/s)			
S1.000	S1	-0.692	0.000	0.11		55.7	OK	
S1.001	S2	-0.676	0.000	0.02		11.7	OK	
S1.002	S3	-0.647	0.000	0.01		21.9	OK	
S1.003	S4	-0.430	0.000	0.01		19.6	OK	
S1.004	S5	-0.349	0.000	0.02		14.3	OK	
S2.000	S6	-0.710	0.000	0.01		19.7	OK	
S2.001	S7	-0.489	0.000	0.01		11.3	OK	
S2.002	S8	-0.438	0.000	0.01		11.5	OK	
S2.003	S9	-0.415	0.000	0.01		12.0	OK	
S1.005	S10	-0.322	0.000	0.01		19.6	OK	
S1.006	S11	-0.262	0.000	0.01		15.3	OK	
S1.007	S12	-0.215	0.000	0.01		14.1	OK	
S1.008	S13	0.741	0.000	0.16		9.6	SURCHARGED	
S1.009	S14	-0.234	0.000	0.11		9.6	OK	

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APPENDIX I

PROPOSED DRAINAGE STRATEGY



The details provided on this drawing are subject to comments by all the relevant approving authorities. Until such time as all comments have been received and incorporated onto the drawings, all the information provided and costings, are used at Anwyl Homes LTD risk and no liability will be accepted by RSK. Scheme based on site plan ref AH158 - Chorlton - SK01 Sketch Layout Rev K

Prior to any construction, the contractor must confirm the precise invert level and pipe diameter of the receiving drainage system and must immediately advise RSK of any variation to that upon which the design has been based.

Site plan is a PDF drawing which has been inserted as a best fit to the topographical survey, RSK cant be held responsible for any inaccuracies caused by the overlay.

CIVIL / STRUCTURAL DESIGN RISK MANAGEMENT	
Abnormal or unusual residual risks associated with the design outcomes shown on this drawing are:-	
RSK LDE LTD has followed its Design Risk Management process for Hazard Elimination and Risk reduction in developing the designs shown on this drawing. Abnormal or unusual residual risks may be shown above where it is considered that such risk may not normally be expected by competent persons engaged on work of this nature or type.	
Notes:	
1. This drawing is to be read in conjunction with all Architectural Drawings and Topographical Survey Drawing .	
2. This drawing has been prepared Appraisal purposes only, and a detailed design must be carried out prior to construction.	
3. Building levels are Finished Floor Levels (FFL's).	
4. Figures quoted next to manholes / rodding eyes are cover & invert level, in metres AOD.	
5. Footpaths are to be laid with a crossfall to allow drainage to soft landscaped areas.	
6. Where possible all drainage runs shall be kept a minimum of 4.0m from any existing tree that is to be retained.	
7. All drainage design is subject to technical approval, no connections shall be made to any public sewers without written consent from the drainage authority.	
8. Impermeable area is based on 50% of the site area being impermeable.	

Design Information Identification	
	Existing services to be surveyed to confirm proposed sewer doesn't clash with existing services
	Existing trees to be retained
	Existing combined sewer indicated on UU sewer records, more investigation needed to determine if it is still in use

Drainage Statement - Surface Water	
- Surface water drainage to drain via gravity - Private storage to be maintained by private maintenance company - New outfall to Existing sewers to be agreed by UU in principle - System designed not to flood in 30yr event and no surge in 2yr event - Climate allowance of 40% - The use of plastic pipework must be requested from UU - Surface water total site discharge 11.7m as confirmed by United Utilities - All plots are set above the 100 year + 40% climate change water levels	

Drainage Statement - Foul Water	
- Foul to drain via gravity networks to existing Combined Sewer in Wilbraham Road - Foul discharge to be agreed in principle by UU. - The use of plastic pipework must be requested by United Utilities	

Drainage Legend:	
	Proposed foul water sewer and manhole
	Proposed surface water sewer and manhole
	Proposed combined water sewer and manhole
	Existing combined water sewer & manhole
	Site boundary
	Existing Trees to remain (Information taken from tree constraints plan supplied by client.)
	Existing Trees to be removed (Information taken from tree constraints plan supplied by client.)

P4	15.11.22	Site name changed	AP		
P3	13.10.22	notes added following clients comments	AP		
P2	12.10.22	Revised to planning layout rev K	AP	MAR	
P1	25.04.22	First Issue	AP	MAR	
Rev.	Date	Amendment	Drawn	Chkd.	Appd.



LAND & DEVELOPMENT ENGINEERING LTD

Spring Lodge
172 Chester Road
Helsby
Cheshire, WA6 6AR
United Kingdom

Tel: +44 (0) 1829 728006
Fax: +44 (0) 1829 728033
Email: lde@rsk.co.uk
Web: www.rsk.co.uk

Client	Anwyl Homes Ltd
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Project Title	Land off Wilbraham Road, Chorlton, Manchester
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Status	DETAILED DESIGN
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Drawing Title	Drainage Appraisal
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Drawn	Date	Checked	Date	Approved	Date
AP	April 22	MAR	April 22		
Scale	Orig Size	Dimensions			
1:500	A0				
Project No. 882551		Drawing File			
Drawing No. 10-01					Rev. P4

Scale 1:500

0

5

10

15

20

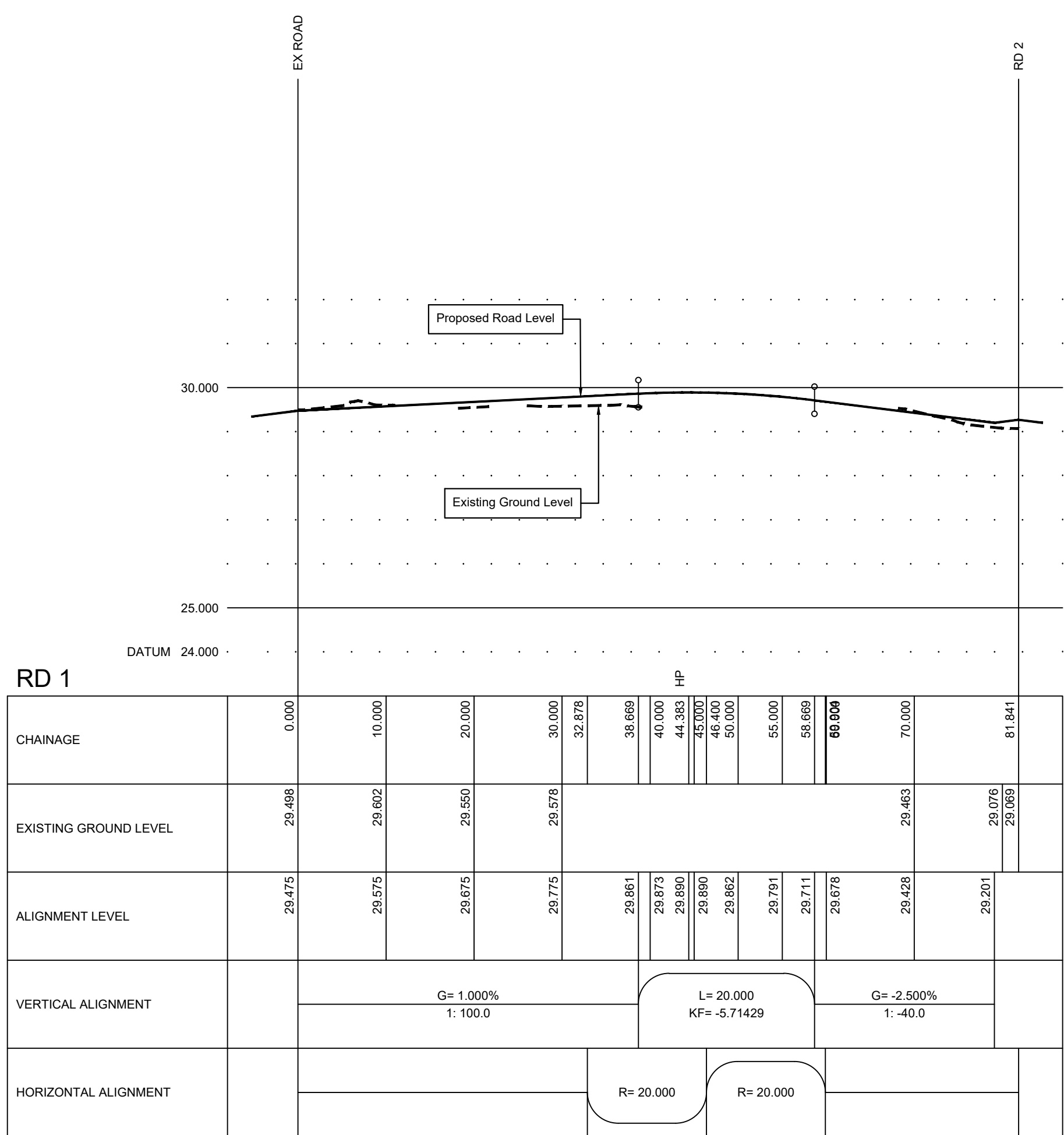
25m

Abnormal or unusual residual risks associated with the design outcomes shown on this drawing are:-

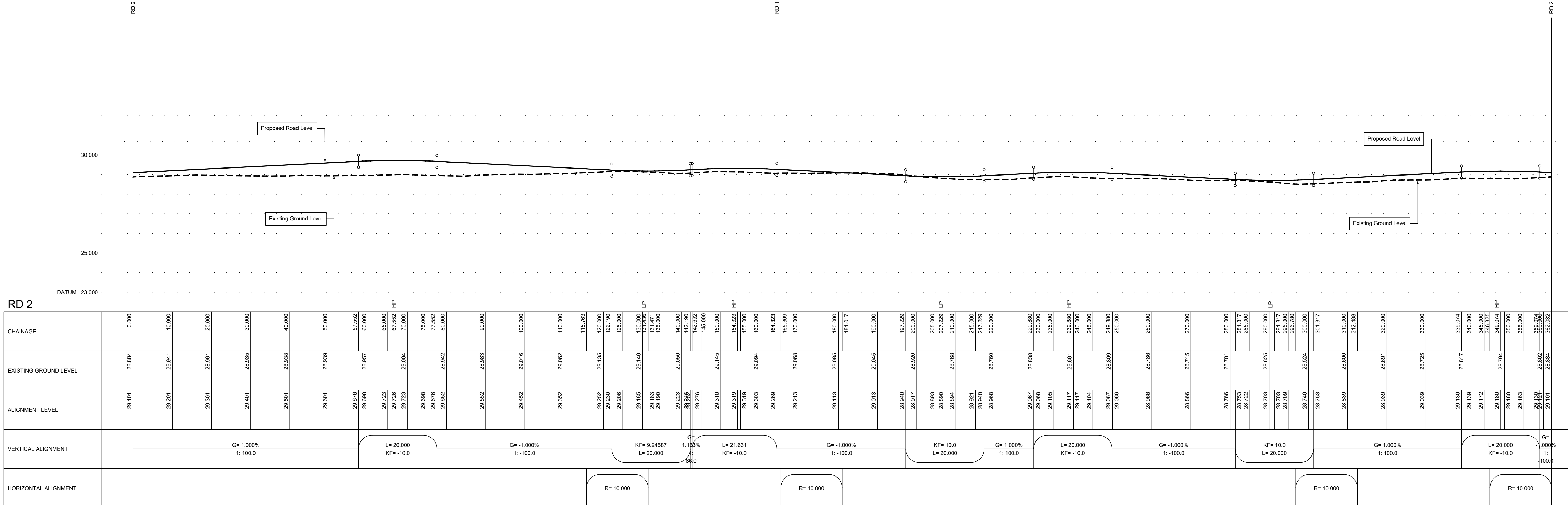
RSK LDE LTD has followed its Design Risk Management process for Hazard Elimination and Risk reduction in developing the designs shown on this drawing. Abnormal or unusual residual risks may be shown above where it is considered that such risk may not normally be expected by competent persons engaged on work of this nature or type.

Notes

- This drawing is to be read in conjunction with the standard details, the layouts, schedules and specifications for the development.



ROAD 1
Scale: 1:500 Horizontal
1:100 Vertical

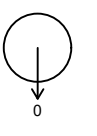
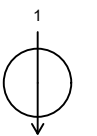
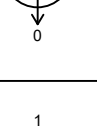
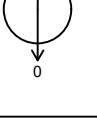
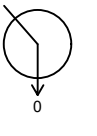
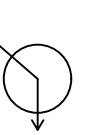
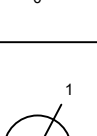
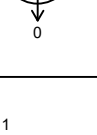


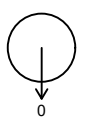
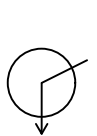
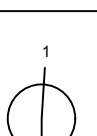
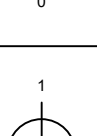
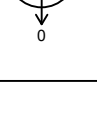
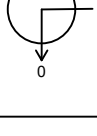
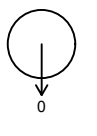
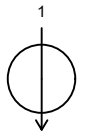
ROAD 2
Scale: 1:500 Horizontal
1:100 Vertical

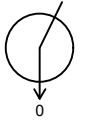
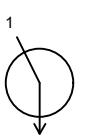
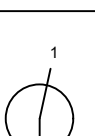
P3	18.11.22	Site name revised	AP		
P2	12.10.22	Revised to planning layout rev K	AP	MAR	
P1	25.04.22	First issue	AP	MAR	
Rev.	Date	Amendment	Drawn	Chkd.	Appd.

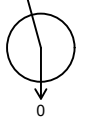
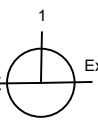


Client		Anwyl Homes LTD			
Project Title					
Land off Wilbraham Road, Chorlton Manchester					
Status		Appraisal			
Drawing Title					
Longitudinal Sections					
Drawn	Date	Checked	Date	Approved	Date
AP	APRIL 22	MAR	APRIL 22		
Scale	Orig Size		Dimensions		
H=1:500/V=1:100	A0		m		
Project No.	Drawing File				
882551					
Drawing No.	Rev.				
10-02	P3				
Scale 1:500 0 5 10 15 20 25m					

Manhole Number	Cover Level	Connections	Pipe			Manhole Size
			Code	Inverts	Diams	
F1	28.694		0	1.000	27.844	150
E. 382616.965	0.900					
N. 394291.202						
F2	28.859		1	1.000	27.021	150
E. 382621.732	1.688					
N. 394197.943						
F3	29.128		1	1.001	26.807	150
E. 382623.376	2.171					
N. 394165.798						
F4	29.158		0	2.000	27.750	150
E. 382668.817	1.258					
N. 394284.376						
F5	29.446		1	2.000	27.154	150
E. 382673.198	2.142					
N. 394195.096						
F6	29.248		1	2.001	27.017	150
E. 382674.309	2.081					
N. 394174.566						
F7	29.172		1	2.002	26.964	150
E. 382669.440	2.058					
N. 394168.314						
F8	29.243		1	2.003	26.727	150
E. 382633.967	2.368					
N. 394166.339						
F9	29.762		1	1.003	26.544	150
E. 382635.607	3.068					
N. 394138.839						
F10	29.822		1	1.004	26.428	150
E. 382644.307	3.244					
N. 394123.942						
F11	29.578		1	1.005	26.253	150
382646.114	3.175					
394097.812						

Manhole Number	Cover Level	Connections	Pipe			Manhole Size
			Code	Inverts	Diams	
S1	28.875		0	1.000	26.648	900
E. 382627.815	1.327					
N. 394301.177						
S2	28.725		1	1.000	26.614	900
E. 382615.480	1.211					
N. 394295.221						
S3	28.687		1	1.001	26.584	900
E. 382615.302	1.203					
N. 394283.358						
S4	28.880		1	1.002	26.067	1200
E. 382619.684	1.613					
N. 394196.487						
S5	29.059		1	1.003	25.986	1200
E. 382621.338	1.873					
N. 394164.003						
S6	29.193		0	2.000	26.347	1200
E. 382670.519	1.646					
N. 394281.937						
S7	29.450		1	2.000	26.126	1200
E. 382674.823	2.124					
N. 394193.549						
S8	29.233		1	2.001	26.075	1200
E. 382675.806	1.958					
N. 394173.181						
S9	29.163		1	2.002	26.051	1200
E. 382669.511	1.912					
N. 394166.290						
S10	29.254		1	2.003	25.958	1200
E. 382632.307	2.096					
N. 394164.467						

Manhole Number	Cover Level	Connections	Pipe			Manhole Size
			Code	Inverts	Diams	
S11	29.725		1	1.005	25.897	1200
E. 382643.526	2.628					
N. 394139.824						
S12	29.831		1	1.006	25.847	1200
E. 382643.031	2.784					
N. 394122.467						
Hydrobrake S13	29.570		1	1.007	25.787	1200
E. 382643.946	3.483					
N. 394098.492						

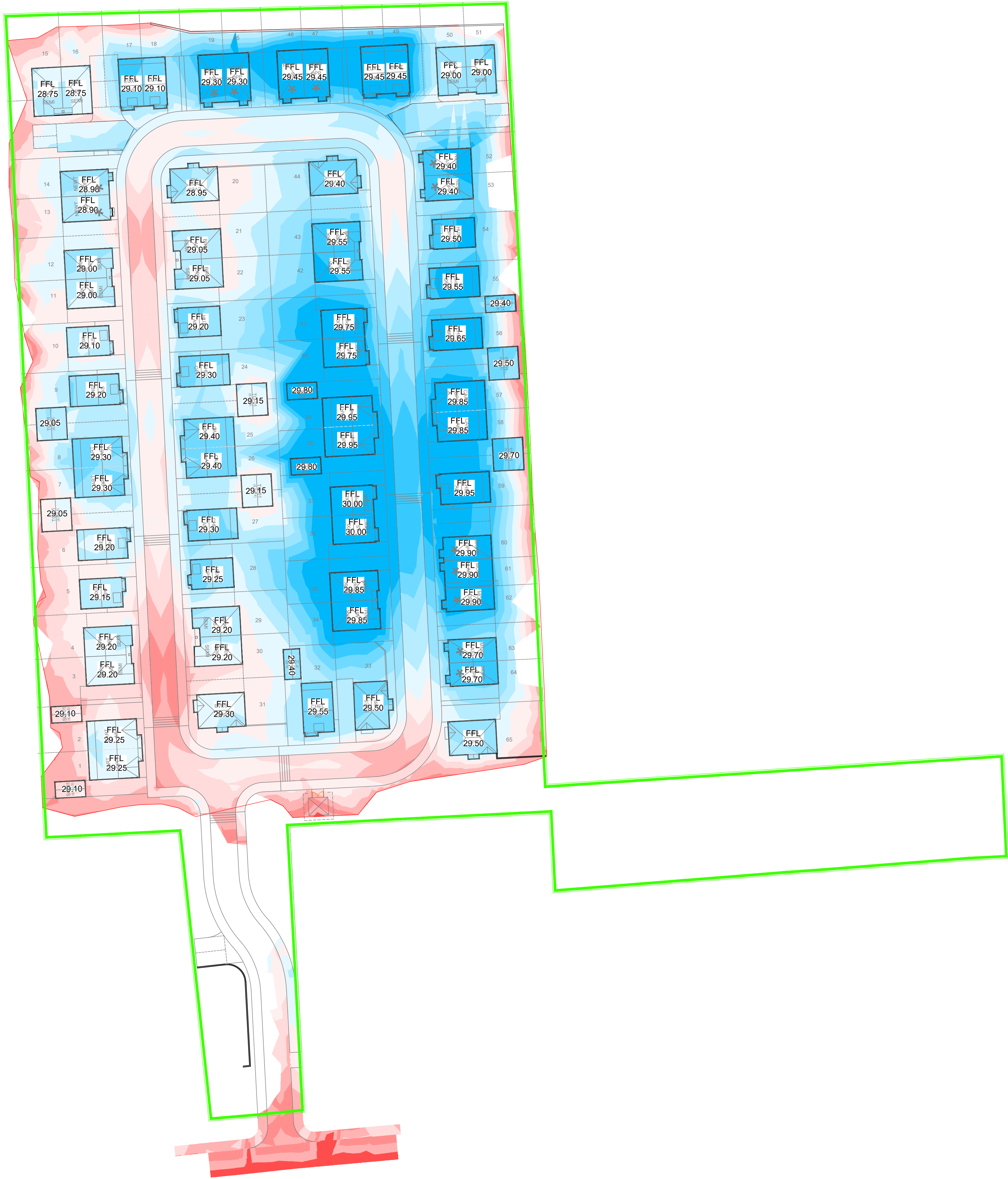
Manhole Number	Cover Level	Connections	Pipe			Manhole Size
			Code	Inverts	Diams	
C1	29.543		1	1.008	25.736	300
E. 382645.334	3.507					
N. 394093.079						
C2	29.602		1	1.009	25.610	300
E. 382645.090	3.692					
N. 394079.167						

CIVIL / STRUCTURAL DESIGN RISK MANAGEMENT
Abnormal or unusual residual risks associated with the design outcomes shown on this drawing are:-
RSK LDE LTD has followed its Design Risk Management process for Hazard Elimination and Risk reduction in developing the designs shown on this drawing. Abnormal or unusual residual risks may be shown above where it is considered that such risk may not normally be expected by competent persons engaged on work of this nature or type.

- Notes
- This drawing is to be read in conjunction with all relevant Architect's and Engineer's drawings.
 - All levels quoted are in metres A.O.D.
 - Concrete surround to chambers is shown indicatively for completeness. The Contractor shall satisfy himself that ground conditions at each manhole location are suitable such that the concrete surround is not required. RSK bears no responsibility for the Contractor's assessment of ground conditions.

ROCKER PIPES TO BE INSTALLED AT EACH ENTRY POINT INTO MANHOLE CHAMBER.
ROCKER PIPES TO BE IN ACCORDANCE WITH UNITED UTILITIES STANDARD DETAILS

P3	18.11.22	Site name revised		AP	
P2	12.10.22	Revised to planning layout rev K		AP	MAR
P1	25.04.22	First Issue		AP	MAR
Rev.	Date	Amendment	Drawn	Chkd.	Appd.
 LAND & DEVELOPMENT ENGINEERING LTD Spring Lodge 172 Chester Road Helsby Cheshire, WA6 0AR United Kingdom Tel: +44 (0) 1928 726006 Fax: +44 (0) 1928 725633 Email: lde@rsk.co.uk Web: www.rsk.co.uk					
Client Anwyl Homes LTD					
Project Title Land off Wilbraham Road, Chorlton, Manchester					
Status Appraisal					
Drawing Title PDS Manhole Schedule					
Drawn AP	Date APRIL 22	Checked MAR	Date APRIL 22	Approved	Date
Scale 1:20	Orig Size A1		Dimensions m		
Project No. 882551			Drawing File		
Drawing No. 10-03				Rev. P3	



CIVIL / STRUCTURAL DESIGN RISK MANAGEMENT

Abnormal or unusual residual risks associated with the design outcomes shown on this drawing are:-

RSK LDE LTD has followed its Design Risk Management process for Hazard Elimination and Risk reduction in developing the designs shown on this drawing.
Abnormal or unusual residual risks may be shown above where it is considered that such risk may not normally be expected by competent persons engaged on work of this nature or type.

- Note:**
- This Drawing is to be read in conjunction with all engineering and architectural drawings.
 - All volumes noted do not include a bulking factor.
 - Volumes given do not take into account the suitability of materials, to be re-used in any particular area. Consideration will need to be given to the engineering properties to ensure suitability.
 - Earthwork volumes are based on the assumptions listed below.
 - It has been assumed that all materials in the cut and fill exercise are not contaminated and can be re-used as required.
 - Volumes do not take into account pile mat construction or arisings from roads, foundations and drainage.

Models Used:
Existing model - EXISTING -300mm DGM
RSK Proposed Levels - PROPOSED FORMATION DGM

Build-ups Used:

- Plots - 450mm
- Roads - 550mm
- Gardens - 600mm
- Private Drives - 250mm

Volumes:

Total Cut=	742.90m³
Total Fill =	3771.00m³
Site Total=	3028.10m³ (FILL)

Arisings:

25m² per plot for foundations
5m³ per plot for plot drainage x 65 Plots = 2145m³
3m³ per plot for services
Main Drainage
Arisings estimated
350m³
Total Arisings = 2495m³

Estimated Site Total = 533.1m³ (FILL)

ISOPACHYTE BANDING LEVELS	
CUT Depth Bands	
Band 1	-0.00 - -0.10
Band 2	-0.10 - -0.20
Band 3	-0.20 - -0.30
Band 4	-0.30 - -0.40
Band 5	-0.40 - -0.50
Band 6	-0.50 - -1.00
Band 7	-1.00 - -2.00
Band 8	-2.00 - -5.00
Band 9	-5.00 - -10.00
Band 10	-10.00 -
FILL Depth Bands	
Band 1	0.00 - 0.10
Band 2	0.10 - 0.20
Band 3	0.20 - 0.30
Band 4	0.30 - 0.40
Band 5	0.40 - 0.50
Band 6	0.50 - 1.00
Band 7	1.00 - 2.00
Band 8	2.00 - 5.00
Band 9	5.00 - 10.00
Band 10	10.00 -

P3	18.11.22	Site name revised	AP		
P2	12.10.22	Revised to new layout Rev K	AP	MAR	
P1	25.04.22	First Issue	AP	MAR	
Rev.	Date	Amendment	Drawn	CHKD	Appd.

RSK

LAND & DEVELOPMENT ENGINEERING LTD

Spring Lodge
112 Chester Road
Helsby
Cheshire, W46 0AD
United Kingdom

Tel: +44 (0) 1928 726006
Fax: +44 (0) 1928 726033
Email: ldes@rsk.co.uk
Web: www.rsk.co.uk

Client

Anwyll Homes Ltd

Project Title

Land off Wilbraham Road, Chorlton,

Manchester

Status

Information

Drawing Title

CUT AND FILL

Drawn	Date	Checked	Date	Approved	Date
AP	Apr 22	MAR	Apr 22		

Scale	Orig Size	Dimensions
1:500	A0	m

Project No.	Drawing File
882551	

Drawing No.	Rev.
10-04	P3

Scale 1:500
0 5 10 15 20 25m

The details provided on this drawing are subject to comments by all the relevant approving authorities. Until such time as all comments have been received and incorporated onto the drawings, all the information provided and costings, are used at Anwyll Homes LTD risk and no liability will be accepted by RSK. Scheme based on site plan ref. AH158 - Chorlton - SK01 Sketch Layout Rev K