



Miller Homes

Northenden, Manchester

Flood Risk Assessment

882187-R1(02)-FRA



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RSK

RSK GENERAL NOTES

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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.

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1 INTRODUCTION

1.1 Context

RSK Land and Development Engineering Ltd (RSK) was commissioned to carry out a Flood Risk Assessment (FRA) for Miller Homes (the 'client'). The assessment is in support of the outline planning submission for the residential development at Northenden, Manchester (the '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 8533-2011 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), the 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 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 majority of the site is located within Flood Zone 1; and,
- The site area is 7.35Ha therefore surface water drainage must be considered, and sustainable drainage systems (SuDS) incorporated, where possible.

¹ Communities and Local Government, 'National Planning Policy Framework', February 2019.

² Communities and Local Government, 'Planning Practice Guidance - Flood Risk and Coastal Change, ID 7', March 2014. <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 8533-2011 Assessing and managing flood risk in development Code of practice', October 2011.

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.

1.2 Scope of work

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

The scope of work relating to a 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/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

Site Address: Northenden Campus,
Sale Road,
Northenden,
Manchester,
M23 0DD (Nearest)

Site National Grid Reference: 382146 E, 390315 N.

The site is located to the north-east of Sale Road and is currently occupied by Northenden college campus. The total site area is approximately 7.35Ha. The site can be accessed from Moss Hey Drive to the west of the site.

Table 2.1, below, provides a description of the immediate surroundings of the site. **Figure 2.1** shows a Site Location Map.

Table 2.1: Site setting

Direction	Characteristic
North	Residential properties off Holleyhey Drive are located to the north.
East	Residential properties off Fairmead Road are to the east and north-east, with a section of woodland to the south-east.
South	A residential home and a place of worship are to the south, along with a footpath and small section of greenspace.
West	Residential properties off Millom Avenue and Sale Road are to the west.

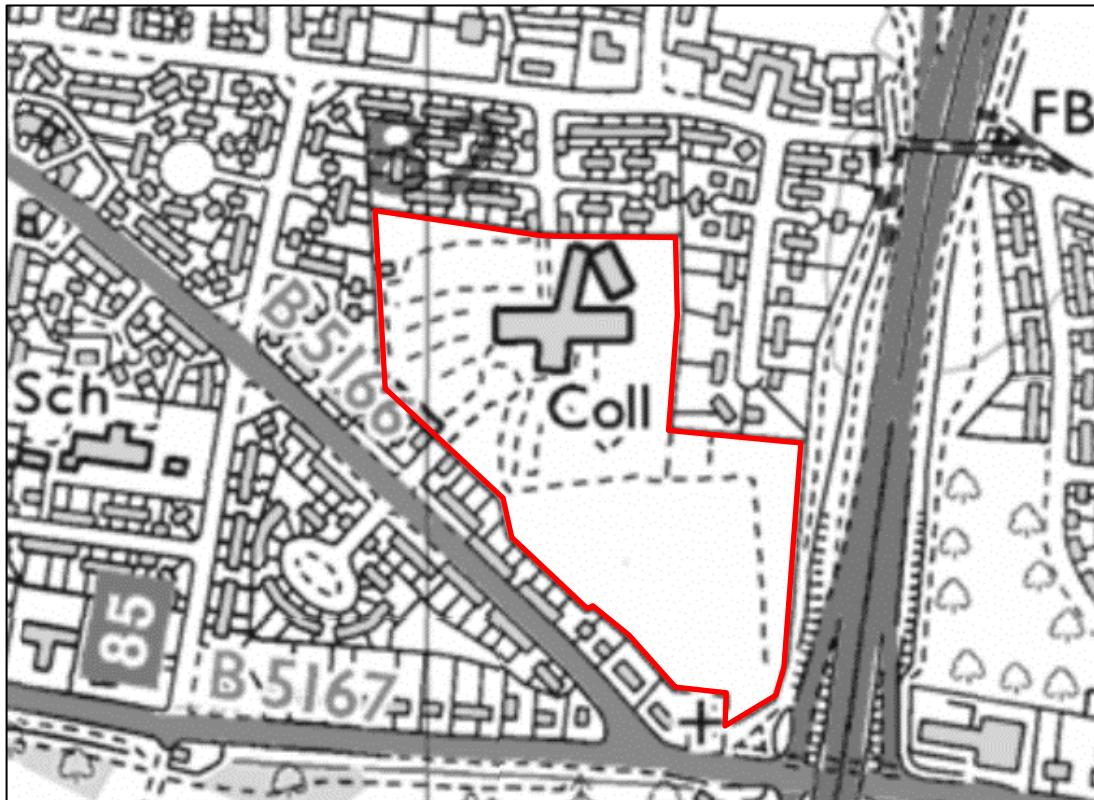


Figure 2.1: Site location map

2.1.2 Land use and topography

A topographic survey has been undertaken for the site (**Appendix B**). The general trend of fall is towards the localised low points within each half of the site.

The southern half of the site, which contains the playing field and tarmac court, shows a central low point of 32.10mAOD (above ordnance datum) to which the land in this half falls towards. The highest point within the southern half is to the south being 33.15mAOD

The northern half of the site, which contains the buildings and carpark, has the highest point on-site, being 34.22mAOD within the woodland to the north. Land within this half of the site falls towards the roundabout located to the centre of the site, of which the lowest on-site point is found being 31.79mAOD.

Table 2.2: Existing site land uses

Land use	Area (Ha)	Percentage (%)
Impermeable	3.00	41
Permeable	4.35	59
Total	7.35	100

As a result of the site being 41% impermeable it is considered as Brownfield.

2.1.3 Hydrology

The closest Environment Agency designated 'Main River' is the River Mersey, located approximately 0.75km north-east of the site.

Baguley Brook is located approximately 0.76km south-west of the site.

There are no watercourses located on-site.

2.1.4 Geology

2.1.4.1 Desk Study

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. Superficial Deposits formed up to 2 million years ago in the Quaternary Period. Local environment previously dominated by ice age conditions (UGF).
- Bedrock Geology: Tarporley Siltstone Formation - Siltstone, Mudstone and Sandstone. Sedimentary Bedrock formed approximately 242 to 250 million years ago in the Triassic Period. Local environment previously dominated by lakes.

A Phase II Site Investigation was undertaken for the site in May 2020 by e3p (report ref: 13-969-R1-1). During the investigation, natural topsoil was found within the exploratory holes to the south and some areas to the north-east, to a maximum depth of 0.7mbgl (below ground level). Made Ground was encountered to maximum depths of 2.10mbgl, mainly within the northern section of the site, with an isolated area to the south associated with the basketball court. Within the report it was stated that Made Ground underlying the current buildings on site is anticipated to be at a depth > 1.60mbg. Drift deposits were encountered between depths of 0.20mbgl and 5.45mbgl. these deposits generally comprised of sand over clay.

Groundwater was encountered between 1.50m bgl and 3.00m bgl as seepages and saturated strata.

2.1.5 Hydrogeology

Hydrogeological classification information was obtained from the online 'Magic Map' service. The underlying bedrock for the site is designated as a Secondary B Aquifer. The superficial aquifers underlying the site are designated as Secondary A aquifers.

The mapping shows the site to not be located within a Groundwater Source Protection Zone.

2.2 Infiltration

Soakaway testing was conducted by e3p on 18th May 2020 as part of the Phase II Site Investigation⁷. The report concluded the following infiltration rates, shown in Table 2.3. Part of the northern section of the site was inaccessible at the time of the testing, as such further infiltration testing for this area is required.

⁷ Phase II Geoenviromental Site Assessment Northenden College, Reference:13-969-R1-1, e3p, July 2020

Table 2.3: Summary of infiltration testing programme

Trial Pit	Soakaway Depth (m bgl)	Results (m/s)
SA0101	1.50	Test 1 = 2.36×10^{-2}
		Test 2 = 1.53×10^{-4}
		Test 3 = 5.25×10^{-5}
SA0102	1.50	Test 1 = 4.41×10^{-5}
		Test 2 = 7.86×10^{-6}
		Test 3 = 1.65×10^{-5}
SA0103	1.50	Test 1 = 3.65×10^{-5}
		Test 2 = 2.34×10^{-5}
		Test 3 = 2.01×10^{-5}
SA0104	1.50	Test 1 = N/A
		Test 2 = N/A
		Test 3 = N/A
SA0105	1.90	Test 1 = 9.33×10^{-5}
		Test 2 = 4.96×10^{-5}
		Test 3 = 2.33×10^{-5}
SA0106	1.80	Test 1 = 7.13×10^{-5}
		Test 2 = 7.63×10^{-5}
		Test 3 = 3.11×10^{-5}

2.3 Development proposals

The proposed development is for a residential end use. The current proposed development framework shows that the total site area (7.35Ha) will be developed. This development will contain approximately 224 residential dwellings (a mix of 2, 3 and 4 bed units), landscaping, access and associated infrastructure.

A site plan showing the proposed land use can be found within **Appendix C**.

3 LEGISLATION, POLICY AND GUIDANCE

3.1 National policy

Table 3.1: National legislation and policy context

Legislation	Key provisions
National Planning Policy Framework (2019)	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.
Planning Practice Guidance (2014)	The NPPF is supported by an online Planning Practice Guidance, which provide additional guidance on flood risk.
Flood and Water Management Act 2010 ⁸	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 ⁹	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) ¹⁰	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. 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’.

⁸ Flood and Water Management Act, 2010

⁹ Water Resources Act, 1991

¹⁰ EU Water Framework Directive, 2000

3.2 Area guidance

Table 3.2: Area Guidance

Study	Overview of key provisions and policies
PFRA: Manchester City Council Preliminary Flood Risk Assessment¹¹ May 2011	Preliminary Flood Risk Assessments are produced by Lead Local Flood Authorities (LLFAs) in England and Wales. A Preliminary Flood Risk Assessment (PFRA) is the first part of the planning cycle for flood risk management as set out in the Flood Risk Regulations (2009), which implement the requirements of the European (EU) Floods Directive (2007). The EU Floods Directive aims to provide a consistent approach to managing flooding across Europe. The PFRA is organised by the River Basin District (in this case the North West River Basin District) and produced by the LLFA (in this case Manchester City Council). The PFRA considers local sources of flooding that the LLFA is responsible for: surface runoff, groundwater and ordinary watercourses. Information is gathered from existing sources on past floods and flood models to identify Flood Risk Areas. The PFRA recorded two historic records of flooding within Northenden; in 1965 when a sewer burst causing surface water flooding to properties in Northenden and Didsbury, and in 1872 from the Medlock, Mersey, Irk, Bridgewater Canal causing extensive flooding to properties in lower lying areas along: Mersey (Northenden, Didsbury).
CFMP: Upper Mersey Catchment Flood Management Plan¹² December 2009	Catchment Flood Management Plans (CFMP) give an overview of the flood risk from inland sources across each river catchment and recommend ways of managing those risks now and over the next 50-100 years. The Environment Agency is responsible for producing CFMPs. The site falls within the 'Upper Sinderland' sub-catchment and the policy applicable to this site is Policy Option 5 which states 'areas of moderate to high flood risk where we can generally take further action to reduce flood risk.' It is noted that future flood risk management works need to incorporate measures to provide green infrastructure along the watercourses, with measures such as flood resilience, flood proofing, flood warning and promoting self-help also being investigated. Proposed actions to implement the preferred policy include: • Carry out a Flood Risk Strategy for Baguley, Fairywell, Timperley and Sinderland Brooks to consider a range of options for reducing flood risk in Wythenshawe, Sale and Altrincham. • Identify the maintenance/capital works associated with flood risk management assets that will be required over the future 100 year horizon. • Increase awareness of existing Flood Warning Areas in Sale.

¹¹ Manchester City Council Preliminary Flood Risk Assessment, Environment Agency, May 2011

¹² Upper Mersey Catchment Flood Management Plan, JBA Consulting, December 2009

Study	Overview of key provisions and policies
SFRA: Manchester City Council Level 1 Strategic Flood Risk Assessment¹³ March 2010	The principle aim of the SFRA was to map all forms of flood risk in order to provide an evidence base to locate new development. It also aims to provide appropriate policies for the management of flood risk, and identify the level of detail required for site-specific FRAs. The SFRA contains information and maps detailing flood sources and risks. The report recorded flooding from the Mersey in Didsbury and Northenden in 1998 and Mersey Flood damage to properties in Northenden and Didsbury in 1890. In Manchester, sewer and drainage problems have been identified during rainfall events, with issues in Northenden, Didsbury, Fallowfield and in the city centre.
SFRA: Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA Strategic Flood Risk Assessment¹⁴ March 2011	The principal aim of the Level 2 SFRA is to provide a more detailed understanding of flood risk across Manchester, Salford and Trafford from all sources. The report indicates that the site is outside of the area considered susceptible to groundwater flooding.

3.3 Site-specific consultation

As part of this assessment, the following authorities have been contacted to obtain relevant data/guidance and establish key site constraints:

Table 3.3: Key site-specific consultations

Consultee	Date issued	Enquiry	Appendix
Lead Local Flood Authority (LLFA) – Manchester City Council	February 2021	A pre-development enquiry was submitted to obtain further flood information and policy guidance, a response had not been received at the time of writing the report.	-

¹³ Manchester City Council, Level 1 Strategic Flood Risk Assessment, JBA Consulting, March 2010

¹⁴ Manchester City, Salford City and Trafford Councils, Level 2 Hybrid Strategic Flood Risk Assessment, JBA Consulting, March 2011

Consultee	Date issued	Enquiry	Appendix
Environment Agency	February 2021	A pre-application enquiry was submitted to obtain further flood information and policy guidance. They confirmed there to be no records of flooding within the site.	Appendix D

Key findings are referred to in the relevant part of Section 4 and full details are contained in the relevant appendices.

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 February 2016 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 Flooding from rivers (fluvial flood risk)

4.2.1 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>.

The latest Environment Agency published flood zone map (**Figure 4.1**), taking into account the presence of flood defences, shows the site to be located in Flood Zone 1 (representing between a greater than a 1 in 1,000 annual probability of river flooding).

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>

The latest 'Risk of Flooding from Rivers and Sea' flood map (**Figure 4.2**), which shows the Environment Agency's assessment of the likelihood of flooding from rivers and the sea at any location and is based on the presence and effect of all flood defences,

predicted flood levels, and ground levels, indicates that the site is considered to be at **'very low'** risk of flooding.

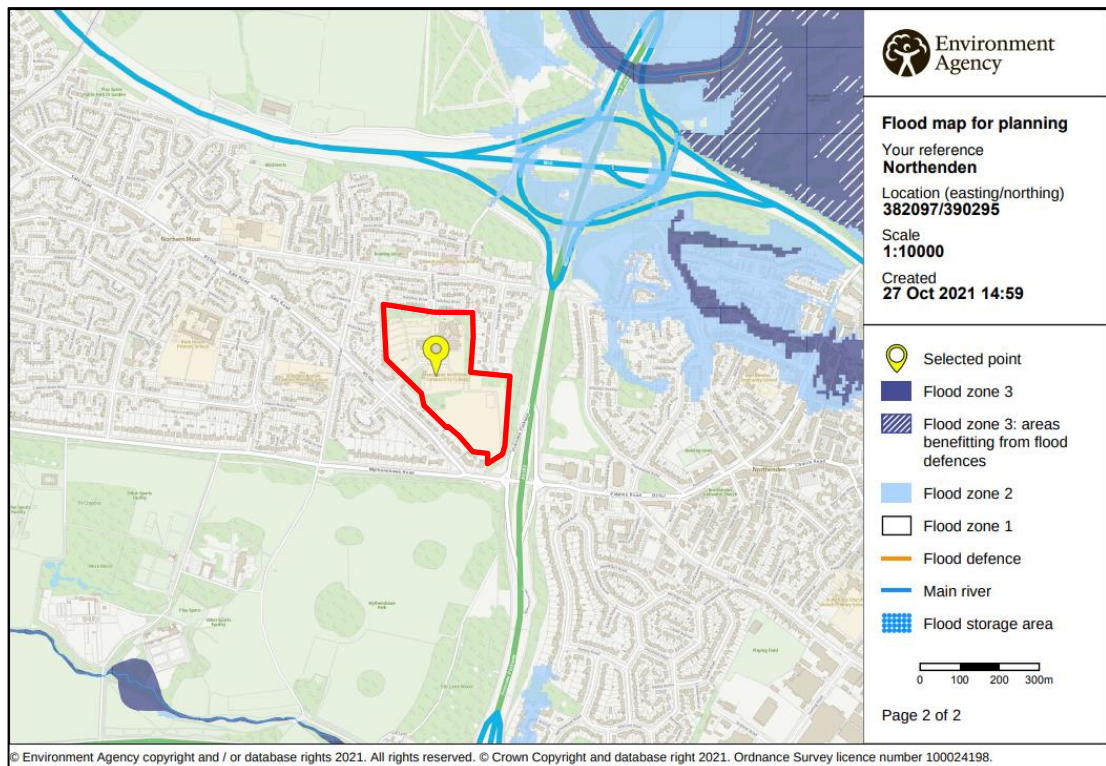


Figure 4.1: Environment Agency 'Flood map for planning' (accessed October 2021)

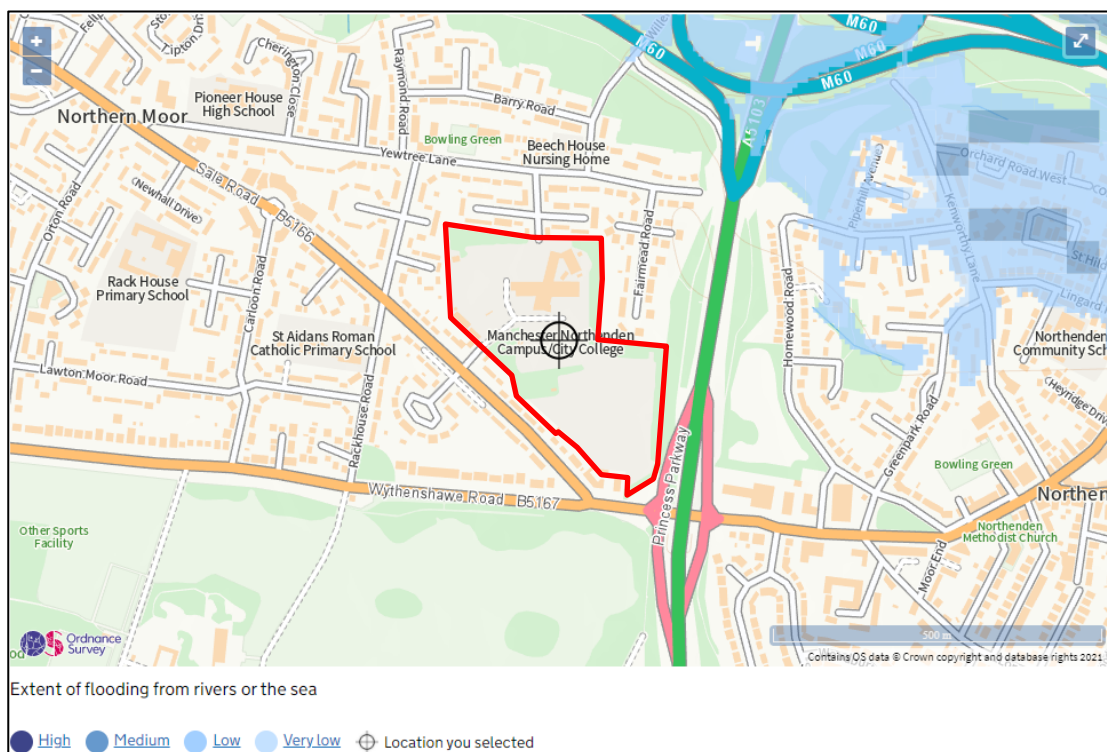


Figure 4.2: Environment Agency 'Flood risk from rivers or the sea' map (accessed October 2021)

The Level 1 SFRA contained two historic records of flooding from the Mersey in Didsbury and Northenden in 1890 and in 1998. The site was not specifically mentioned within these records.

Fluvial levels have been supplied by the Environment Agency within the vicinity of the site (**Appendix D**) based on the Upper Mersey fluvial model analysis undertaken in 2017.

The site is not at risk from any modelled flood events, with the lowest on-site level being 31.79mAOD and the defended 1 in 1000 year plus 30% climate change level being 29.95mAOD for node 2.

4.2.2 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.

4.3 Flooding from the sea (tidal flood risk)

The site is not considered to be at risk from tidal flooding due to its inland location and elevated position indicating a '**very low**' risk of flooding.

4.3.1 Climate change

Climate change is not considered to result in an increased risk of tidal flooding to the site.

4.4 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 map (**Figure 4.3**) shows the site contains isolated areas at risk from pluvial flooding. There are two areas at low-high risk within the carpark to the north-west of the site, an area of high risk directly south of the building and an area of low-high risk within the playing field. The remainder of the isolated areas on-site at risk from surface water flooding are of low risk.

The risk of surface water flooding to the development is considered to be **low-high**.

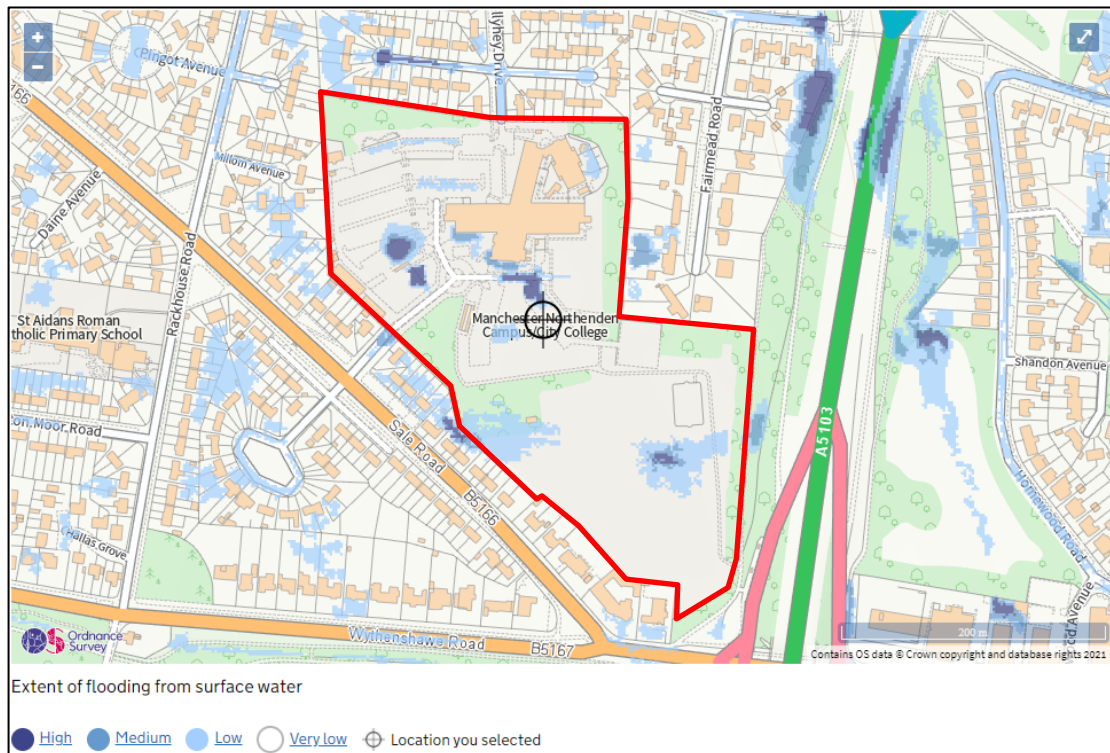


Figure 4.3: Environment Agency ‘Flood risk from surface water’ map (accessed October 2021)

4.4.1 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 has recently been updated by the EA in February 2016.

4.5 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.

Within the Phase II site investigation work, groundwater was encountered between 1.50m bgl and 3.00m bgl as seepages and saturated strata.

The Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA indicates that the site is outside of the area considered susceptible to groundwater flooding. There are no historic records of groundwater flooding in the area.

From the above and due to the sporadic nature of groundwater flooding, the design of the development and the possibility of groundwater emergence at the site, it is possible that groundwater flooding could affect the development.

The resultant groundwater flood risk is considered to be **low-medium**.

4.5.1 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.

4.6 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 Adoption¹⁵. 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.

When exceeded, the surcharged pipe work could lead to flooding from backed up manholes and gully connections. This could lead to immediate flooding within highways surrounding the site. As described above, surface water would most likely follow the topography of the site and flow away from the site towards the field boundary drainage ditches.

Sewer details have been referenced from utility plans obtained for the site (**Appendix E**) and sewer records obtained from United Utilities (**Appendix F**).

The utility plans show there to be no recorded sewers within the southern half of the site, with all on-site sewer systems within the northern half. The plans indicate the following network of sewers on-site:

- Surface Water:
 - There is a 400mm surface water sewer that starts from the south of the existing building, following its perimeter, first heading east. Numerous surface water sewers extending from the building join this 400mm surface water perimeter sewer.
 - A second 400mm surface water sewer located to the west of the building, again follows the building's perimeter in a first easterly direction, with two 100mm surface water sewers extending from the building joining this perimeter sewer.

¹⁵ WRC, 'Sewers for Adoption' 7th Edition, August 2012

- Both of these 400mm surface water sewers convey flow to a manhole located to the north of the site, of which a 300mm surface water sewer flows out of, the onward route of which is unknown.
 - Beneath the carpark, two separate 150mm surface water sewers convey flow south-west to a manhole located to the west of the site. From this manhole, flow is conveyed off-site in a 225mm combined sewer along Moss Hey Drive.
 - A 150mm surface water sewer extends from a manhole located beneath the tarmac to the north of the site, conveying flow north-west into a second manhole, the onwards route of which is unknown.
 - A 100mm surface water sewer to the north-west of the site conveys flow south-east from a manhole, the onwards route of which is unknown.
- Foul:
 - A 150mm foul sewer starts from the south of the existing building, following its perimeter, first heading east. Numerous foul sewers extending from the building join this 150mm foul perimeter sewer.
 - A second 150mm foul sewer located to the south-west of the building, again follows the building's perimeter in a first westerly direction, with numerous foul sewers extending from the building joining this perimeter sewer.
 - Both of these 150mm foul sewers convey flow to a manhole located to the north of the site, of which a 225mm foul sewer flows out of, conveying flow off-site to the north.
 - A 100mm foul sewer located to the west of the site conveys flow south-east, where it is then conveyed within a 225mm foul sewer. This sewer then conveys flow south-west to join the manhole located to the west of the site. From this manhole, flow is conveyed off-site in a 225mm combined sewer along Moss Hey Drive.

The sewer records obtained from United Utilities indicate the following network of sewers surrounding the site:

- Combined:
 - A network of 225mm combined sewers are located beneath Hollyhey Drive to the north of the site, conveying flow north, to join a 300mm combined sewer beneath Yewtree Lane.
 - A 225mm combined sewer is located beneath Moss Hey Drive to the west of the site, conveying flow south-east to join the 300mm combined sewer beneath Sale Road, of which conveys flow north-west. Two 100mm combined sewers convey flow into the 225mm combined sewer, of which are both heads of the run and are located beneath properties off Moss Hey Drive.
 - A 225mm combined sewer runs beneath Miller Avenue, to the north-west of the site, and conveys flow west towards the 525mm combined sewer beneath Rackhouse Road.
 - A 1850mm combined sewer runs beneath Princess Parkway to the east of the site, conveying flow north.

Within the SFRA, it stated that in Manchester, sewer and drainage problems have been identified during rainfall events, with issues in Northenden, Didsbury, Fallowfield and in

the city centre. Within the PFRA, it noted that in 1965 a sewer burst causing surface water flooding to properties in Northenden and Didsbury. The site was not specifically mentioned within these records, as the flood extents were not specified.

Due to the presence of sewers on-site there is a potential flood risk to the site should a sewer fail, or capacity be exceeded. Should this occur flow would follow the local topography and flow towards the low points on-site, as such, the existing sewer flood risk is considered **medium**.

Development has the potential to cause an increase in impermeable area, an associated increase in surface water runoff rates and volumes, and a consequent potential increase in downstream flood risk due to overloading of sewers, watercourses, culverts and other drainage infrastructure.

To ensure that sewer and surface water flooding is not exacerbated; surface water must be considered within the design of the site. This ensures that any additional surface water and overland flows are managed correctly, to minimise flood risk to the site and the surrounding area. The proposed surface water network on the site should be designed to ensure exceedance of the network has been considered.

4.6.1 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 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.

4.7 Other sources of flooding

4.7.1 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 4.4**) 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. According to the Environment Agency Reservoir flood maps the site is not at risk of flooding from reservoirs.

Reservoir flooding is also extremely unlikely. 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.

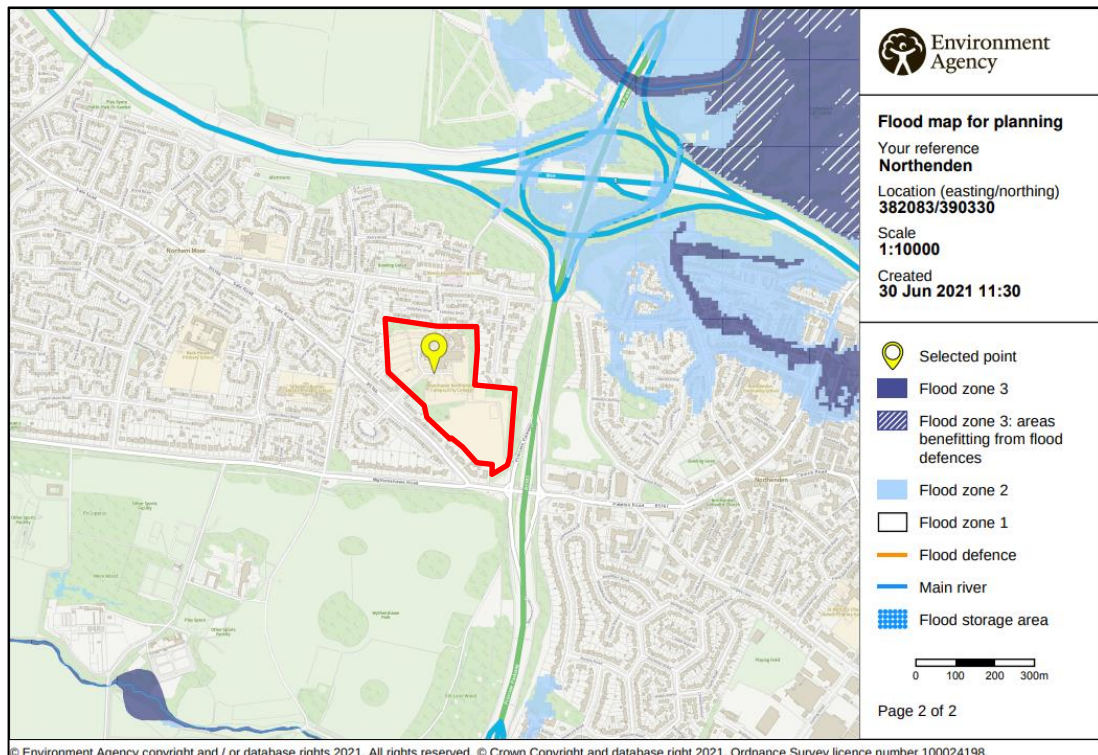


Figure 4.4: Environment Agency 'Flood risk from reservoirs' map (accessed October 2021)

The resultant flood risk is considered to be **very low**.

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.

4.7.2 Canals

There are no Canal & Rivers Trust owned canals by the within the vicinity of the site.

The PFRA noted that in 1872 the Medlock, Mersey, Irk, Bridgewater Canal caused extensive flooding to properties in lower lying areas along: Mersey (Northenden, Didsbury).

As a result, the risk to the site from this source is considered **very low**.

4.7.3 Blockages of artificial drainage systems

There is a possibility that flooding may result due to culverts and/or 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.

There is a network of sewers on-site. If these are well maintained and kept clear then they should not pose a risk, as such, the risk of flooding from artificial drainage systems is considered to be **very low**.

Climate change is unlikely to affect the flooding risk to the site from such blockages.

5 FLOOD MITIGATION MEASURES

5.1 Overview

The site lies wholly within Flood Zone 1. To facilitate the development of the site a surface water drainage network has been designed.

5.2 Overland flood flow

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 stored on site and discharged into an existing watercourse. Surface flows may be generated due to drainage capacity exceedance, which can be conveyed into the SuDS features via surface flows along the new roads.

5.3 Finished floor levels

As the developable area will not 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.

5.4 Easements

There are no Main Rivers within close enough proximity to the site that require an easement.

5.5 Safe access/egress

The developable area lies outside of the 1 in 1000 year flood extent, therefore safe access and egress will be available up to this storm event.

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 3 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 PPG, 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, with the exception test required for the development within Flood Zone 3. As the site is located wholly within Flood Zone 1, the sequential test is deemed to have been passed.

6.3 Sequential Test

The Sequential Test is required to assess flood risk and the PPG 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). The site therefore passes the sequential test and thus the exception test will not be required.

7 SURFACE WATER DRAINAGE STRATEGY

From the underlying cohesive geology recorded in the borehole records (i.e. sand over clay) and infiltration test results, infiltration is considered a viable option as part of the drainage strategy for the southern half of the site. As such, plot soakaways have been designed for the majority of the plots in this portion of the site. Land raising is required for the plots which are proposed to comprise house soakaways, in order to avoid the shallower ground water levels. For those plots which cannot be raised, surface water sewers have been designed. Surface water sewers have also been designed for the road network. These surface water sewers convey flow to the proposed surface water pump located on-site to the north.

For the north of the site, infiltration could not be undertaken due to the site being in use at the time of the testing. For this portion of the site, surface water sewers are proposed to drain this section, conveying flow to the northern surface water pump. This surface water pump is proposed to pump water to the 2250mm combined sewer on Yew Tree Lane to the north of the site, at a rate of 45l/s, which has been confirmed with United Utilities (confirmation is found in **Appendix G**). There is a possibility for the use of additional soakaways, once further infiltration testing of the northern section of the site is undertaken.

Discharging surface water directly to a local watercourse is not considered feasible, as the closest watercourse to the site is approximately 0.75km north-east of the site.

The current drainage proposals will be subject to change, as further infiltration testing is undertaken and the development plans progress.

The drainage strategy can be found within **Appendix H**.

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

NPPF sets out a Sequential Test, which states that preference should be given to development located within Flood Zone 1. This flood risk assessment demonstrates that the requirements of the Sequential Test have been met, with the developable area of the site located within Flood Zone 1 and 'More Vulnerable' classification of the development.

This flood risk assessment has considered multiple sources of flooding and concluded the following:

Table 8.1: Flood risk summary

Source	Level of risk	Mitigation
Fluvial	Very Low	Developable area is shown to be wholly within Flood Zone 1.
Tidal	Very Low	The site is inland and elevated.
Surface water	Low-High	There are numerous isolated sections surface water flooding of low-high risk, which should be considered during detailed design.
Groundwater	Low-Medium	The Level 2 SFRA showed the site is outside of the area considered susceptible to groundwater flooding. However, available on-site testing recorded groundwater to be encountered between 1.50m bgl and 3.00m bgl.
Sewers	Medium	Utility plans indicated there are is a surface water and foul water systems on-site. These generally convey flow west away from the site, however if sewer failure or exceedance was to occur, water would remain within the low points on-site. Sewer and drainage problems have been identified in Northenden during rainfall events.
Artificial sources	Very Low	There is no known risk from artificial sources.

The proposals will follow best practice regarding site drainage to ensure that any surface water runoff from the development is managed, ensuring flood risk is not increased elsewhere. The proposed development will increase the impermeable area on-site resulting in an increase in surface water runoff if unmanaged. Initial desk-based studies

have shown that infiltration-based SuDS are suitable on the site, whilst combined sewers to the north and to the west of the site provide feasible connections.

The site is not at risk from any modelled flood events, with the lowest on-site level being 31.79mAOD and the defended 1 in 1000 year plus 30% climate change level being 29.95mAOD.

Further infiltration testing is recommended to the areas in the north which were inaccessible at the time of infiltration testing.

As safe pedestrian and vehicular access, to and from the development, will be achievable under all conditions, a formal evacuation plan is not required.

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

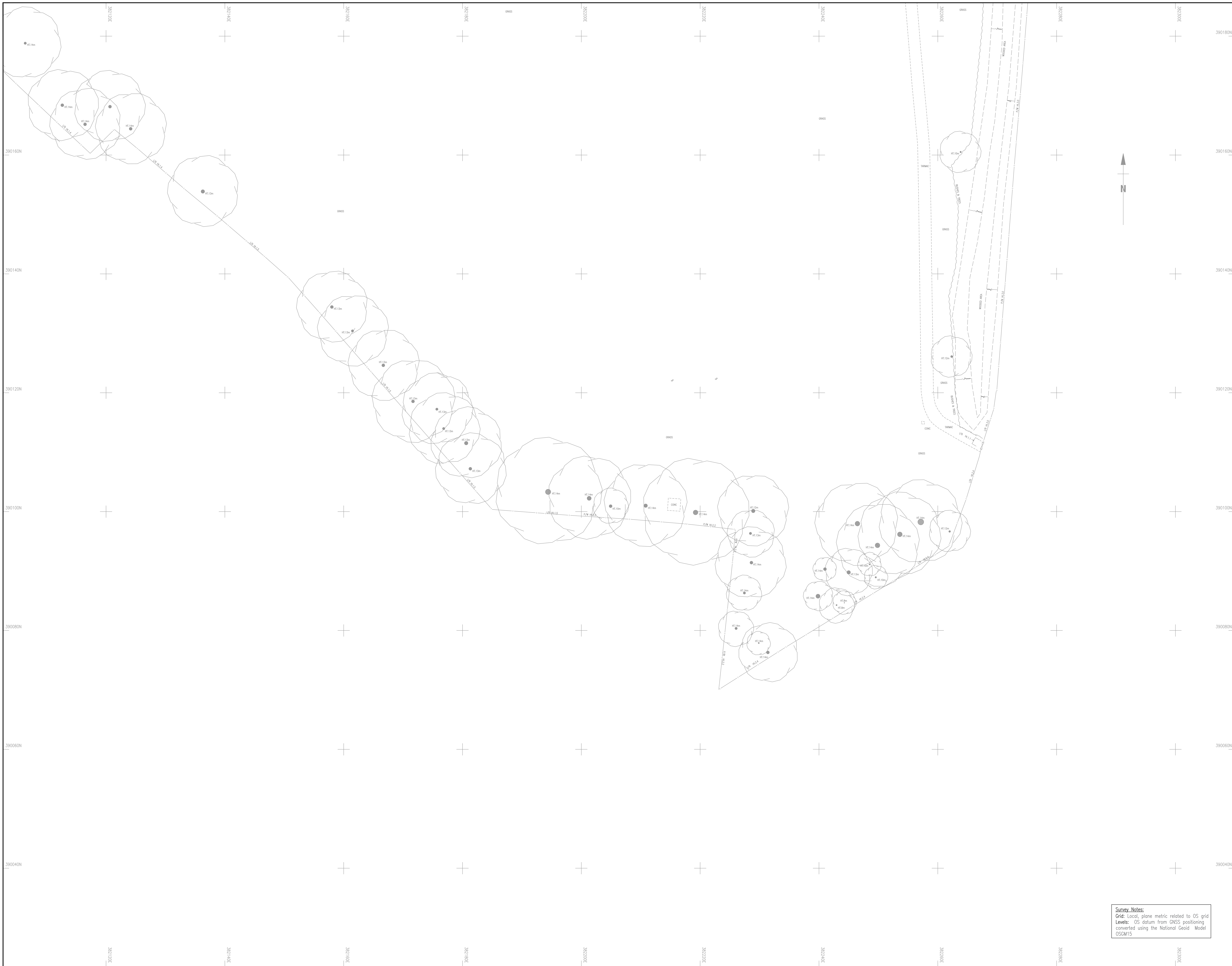
1. This report and the drainage design carried out in connection with the report (together the "Services") were compiled and carried out by RSK LDE Ltd (RSK) for Miller Homes (the "client") in accordance with the terms of a contract between RSK and the "client". The Services were performed by RSK with 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

[illegible]

[illegible]



APPENDIX C

LATEST DEVELOPMENT PLAN

Accommodation schedule Moss Hey Drive, Northenden						
FREE SALE						
Housetype	Description	Sqft	Number	Total Sq ft	% of Mix	Total
The Turing	3 Bed Semi	937	29	27173	16.2	29.1
The Parkhurst	3 Bed Semi	942	11	10362	6.1	
The Dalton	3 Bed Semi	1044	12	12528	6.7	
The Winston	3 Bed Semi	1,042	24	25008	13.4	32.4
The Burnett	3 Bed Semi	1,166	27	31482	15.1	
The Burgess	3 Bed Semi	1,272	7	8904	3.9	
The McKellen	4 Bed Semi/ Mews	1,148	12	13752	6.7	15.1
The Joule	4 Bed Semi/ Mews	1,158	15	17370	8.4	
The Winterson	4 Bed Detached	1,190	22	26180	12.3	23.5
The Lowry	4 Bed Detached	1,269	20	25380	11.2	
Sub total			179	198139	100.0	100.0
AFFORDABLE						
Housetype	Description	Sqft	Number	Total Sq ft	% of Mix	Total
The Gaskell	2 Bed Semi	754	23	17572	10.3	20.1
The Turing	3 Bed Semi	937	22	20614	9.8	
Sub total			45	38186	20.1	
Grand Total			224	236325		

I	Cycle storage and bins located near gates, front boundary treatments corrected for clarity	NB	21.10.21	
H	Cycle store positions added, rear access granted to plot 80	TS	13.10.21	
G	Parking corrected to plots 16-20 to introduce some landscaping	NB	12.10.21	
F	General footpaths to layout to reduce up front parking, highway comments so the private street lanes indicated footways and increase interface distances with neighbouring properties around plots 54-55 and 95. Plots 175-189 back position corrected for parking	NB	04.10.21	
E	Parking to plots 187, 205 and adjusted. Plots 175-189 back position corrected for parking	NB	13.09.21	
D	Gen and electric mains shown to west boundary and easements	BMS	18.06.21	
C	Emergency access increased to 3.7m. Cycle store added	BMS	14.06.21	
B	Rear boundaries amended to 1.8m close boarded fence following recommendations in the crime report undertaken by design	TS	02.06.21	
A	Plot 26-30 amended to show pump station, rear access to boundary and path lines following boundary treatment plan	NB	01.06.21	
	Rev	Description	Drawn	Date
	A	Mix adjustment to reduce the new tree corridor along highway route to FOS	NB	01.06.21

millerhomes
Miller Homes Limited - North West Region
103 Dalton Avenue
Birchwood Park
Warrington
WA3 6YF
Telephone 0870 336 4700
Fax 01925 228570
www.millerhomes.co.uk

Project Title
Former Manchester College
Moss Hey Drive
Northenden

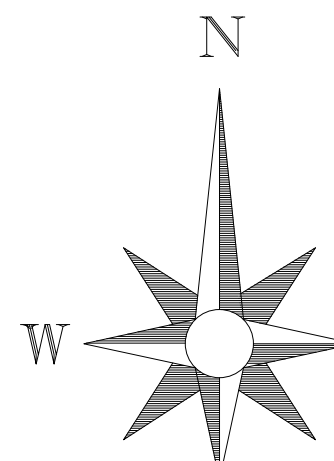
Drawing Title
Proposed Overall Site Layout

Scale	Drawn By	Checked By	Authorised By
1:500	STEN		
Date	28.05.21	Date	
Job No.	2131 / SL / 01	Revision	I

Original Sheet Size A3 Do Not Scale From This Drawing

DRAWING LEGEND: -

- Denotes Development Boundary
- Boundary fences - please refer to boundary treatment plan for additional details
- Boundary walls - please refer to boundary treatment plan for additional details
- Boundary railings - please refer to boundary treatment plan for additional details
- Denotes 1.5m Garden Gates
- Denotes CAT A tree and RPA to be retained
- Denotes CAT B tree and RPA to be retained
- Denotes CAT B tree and RPA to be retained
- Denotes Speed hump
- Denotes ramp and raised table
- Denotes secure cycle store-secure by design compliant



Scaled @ 1:500



APPENDIX D

ENVIRONMENT AGENCY CORRESPONDENCE

Emma Walker

Subject: FW: GMMC205263AB Response attached from the Environment Agency
Attachments: Location Plan.docx; CCA - Area External Guidance v5.pdf; GMMC205263AB_table.pdf; GMMC205263AB_DFM.PDF

From: GMMC Info Requests <InfoRequests.GMMC@environment-agency.gov.uk>
Sent: 19 March 2021 09:45
To: Emma Walker <EWalker@rsk.co.uk>
Subject: GMMC205263AB Response attached from the Environment Agency

Dear Emma,

Thank you for your enquiry which was received on 11/2/21. Please accept my apologies for the delay.

We respond to requests under the Freedom of Information Act 2000 and Environmental Information Regulations 2004.

I enclose the data requested.

We have no records of flooding affecting the site. However, this does not mean flooding has not occurred in the past or that it will not flood in future. We recommend that you also contact United Utilities and Manchester District Council who may hold additional information (the former especially in relation to sewer flooding).

There are no flood defences within the vicinity of the site.

There are no 2D data covering the site.

For further information on your property's flood risk, visit:

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

Flood Map for Planning: <https://flood-map-for-planning.service.gov.uk/>

For additional flood risk information, advice and support in your area, please visit: <https://thefloodhub.co.uk/>

The National Flood Forum also offers advice on obtaining insurance, particularly for those properties deemed at high risk. This is helped by the government-backed scheme 'Flood Re' which enables those at risk to shop around for affordable insurance. They also offer advice on property resilience, flood prevention and mitigation measures which we hope you will find useful. For this information please visit: <http://www.nationalfloodforum.org.uk/>

There are no culverts within or near the site. The nearest watercourse is over 700m from the site.

The Groundwater team do not hold records on groundwater flooding; groundwater flooding is the responsibility of the Lead Local Flood Authority

For further information please see below

Local authorities search

<https://www.gov.uk/find-your-local-council>

Local authorities – new roles and responsibilities

<http://www.defra.gov.uk/environment/flooding/legislation/la-roles/>

Please refer to the [Open Government Licence](#) which explains the permitted use of this information.

Please get in touch if you have any further queries or contact us within two months if you'd like us to review the information we have sent.

Kind regards,

Anne Ball
Customer and Engagement Officer
Greater Manchester, Merseyside and Cheshire
External: 020 302 51232
Mobile: 07769285094
Email: Inforequests.gmmc@environment-agency.gov.uk



From: Emma Walker [<mailto:EWalker@rsk.co.uk>]
Sent: 11 February 2021 11:10
To: Enquiries, Unit <enquiries@environment-agency.gov.uk>
Subject: Re: 210215/ND01 Flood Information Request - Northenden 882187

Dear Sir/Madam,

Please could I order information on flooding and drainage for the following site in order to inform a Flood Risk Assessment:

Northenden Campus,
Sale Road,
Northenden,
Manchester
M23 0DD

Grid reference – 382146 E, 390315 N

I would like all the flooding information you have including the following, if available:

- Confirmation of the site's Flood Zone designation, alternatively could you provide the flood flows and levels for a range of return periods including the 1 in 2, 10, 30, 100, 100+CC, 200, 1000,
- Information on the recently published climate change guidance for this area and how this may impact on the data available for the area,
- Information on surface water flood risk including flow pathways and depths,
- Information on historic flooding,
- Information on flood defences in the area, if any,
- Any data on existing surface water discharges to the surrounding watercourses,
- Any data on groundwater flooding,
- Any information on reservoir flooding; and,
- Any information on culverted watercourses or private sewers which you know of which do not show up on the public sewer records.

Finally, please could you provide any recommendation on how the surface water is to be managed; for example, restrictions in discharge rates the requirements for SuDS, possible discharge locations and attenuation requirements?

We have a relatively quick turn around on this project and would therefore appreciate a quick response.

If you have any queries please don't hesitate to contact me.

Kind regards,

Emma Walker

Graduate Hydrologist BSc (Hons)

RSK

Land & Development Engineering
14, Beecham Court, Pemberton Business Park, Wigan, UK, WN3 6PR

Switchboard: +44 (0) 1942 493255

Fax: +44 (0) 1942 493171

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

RSK Land & Development Engineering Ltd is registered in England at Spring Lodge, 172 Chester Road, Helsby, Cheshire, WA6 0AR, UK

Registered number: 4723837

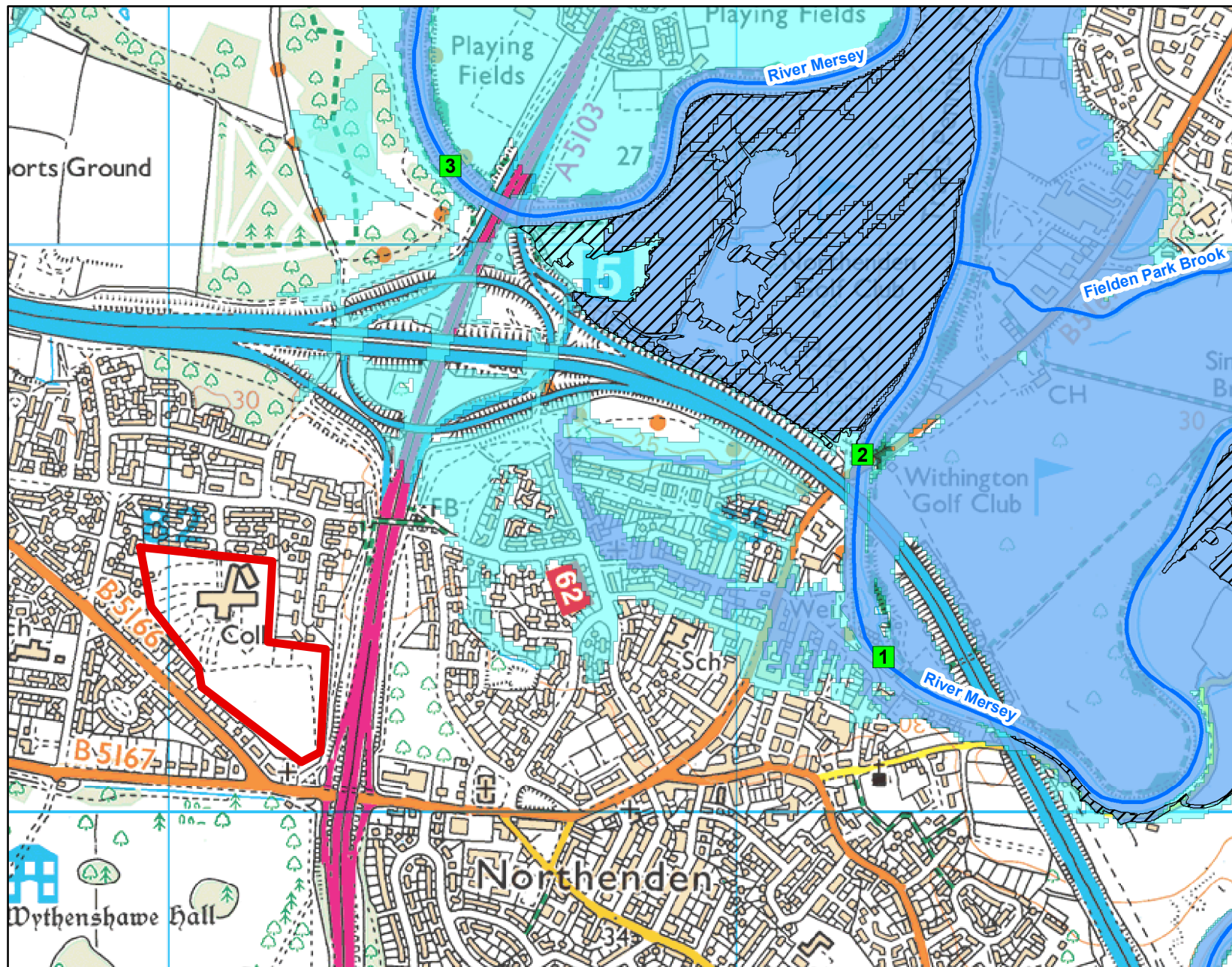
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Detailed Flood Map centred on Sale Road, Northenden, M23 0DD. Created on 18/03/2021 [GMMC205263AB]



1:10,001



Legend

-  Site Location
-  Model Measurements
-  Main River
-  Areas Benefiting
-  Flood Zone 3
-  Flood Zone 2

Map Reference	Model Node Reference	Existing	Nothing	Data	Undertended															Defended																
					20 % AEP (1 in 5 year)	10 % AEP (1 in 10 year)	5 % AEP (1 in 20 year)	4 % AEP (1 in 25 year)	3.33 % AEP (1 in 30 year)	2 % AEP (1 in 50 year)	1.33 % AEP (1 in 75 year)	1 % AEP (1 in 100 year)	1 % AEP (1 in 100 year) + 30% Increase Flow	1 % AEP (1 in 100 year) + 35% Increase Flow	0.5 % AEP (1 in 200 year)	0.1 % AEP (1 in 1000 year)	0.1 % AEP (1 in 1000 year) + 30% Increase Flow	20 % AEP (1 in 5 year)	10 % AEP (1 in 10 year)	5 % AEP (1 in 20 year)	4 % AEP (1 in 25 year)	3.33 % AEP (1 in 30 year)	2 % AEP (1 in 50 year)	1.33 % AEP (1 in 75 year)	1 % AEP (1 in 100 year)	1 % AEP (1 in 100 year) + 30% Increase Flow	1 % AEP (1 in 100 year) + 35% Increase Flow	1 % AEP (1 in 100 year) + 10% Increase Flow	0.5 % AEP (1 in 200 year)	0.1 % AEP (1 in 1000 year)	0.1 % AEP (1 in 1000 year) + 30% Increase Flow					
1	ea011_0243_MERS04_0003	383257	390274	Modelled Water Level (m aodN)	27.87	28.04	28.20	28.26	28.31	28.43	28.53	28.61	29.17	29.25	29.55	28.82	29.63	30.05	28.69	28.83	29.13	29.18	29.22	29.28	29.32	29.46	29.87	29.92	30.14	29.58	30.18	30.39				
				Modelled Flow (cumecs)	221.28	254.13	274.31	279.04	289.09	291.22	296.29	299.35	310.70	312.02	398.12	306.22	300.82	306.59	232.40	247.38	279.58	286.79	290.00	297.12	300.24	302.24	309.80	310.89	316.79	306.94	319.54	328.32				
2	ea011_0243_MERS03_345961	383226	390629	Modelled Water Level (m aodN)	27.02	27.05	27.24	27.32	27.29	27.59	27.76	27.89	28.71	28.82	29.26	28.21	29.35	29.83	28.33	28.46	28.76	28.80	28.84	28.90	28.98	29.13	29.57	29.63	29.81	29.23	29.84	29.95				
				Modelled Flow (cumecs)	220.03	253.54	273.88	278.63	289.54	290.86	295.86	299.09	314.51	316.06	390.07	306.32	302.94	309.64	233.49	247.32	279.59	285.58	289.68	297.11	300.42	302.44	311.77	313.47	318.25	306.92	321.20	329.48				
3	ea011_0243_MERS03_060961	382495	391139	Modelled Water Level (m aodN)	25.88	26.18	26.41	26.48	26.54	26.70	26.82	26.91	27.56	27.68	28.44	27.15	28.62	29.43	26.26	26.38	26.69	26.75	26.78	26.85	26.91	27.01	27.62	27.81	28.76	27.08	28.94	29.95				
				Modelled Flow (cumecs)	238.62	278.07	313.37	325.80	335.98	365.38	389.37	407.93	535.18	547.82	969.41	405.05	570.48	573.43	295.53	271.64	386.99	313.76	318.17	326.70	337.27	354.04	475.68	515.30	560.42	366.23	563.53	573.84				

Model data taken from Upper mersey 2017

AEP - Annual Exceedance Probability

m aodN - metres above ordnance datum Newlyn

cumecs - cubic metres per second

Notes:

*Climate Change Scenario - 30%, 35% and 70% increases in flow calculated for the 2080's (2070 - 2115). Please see <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances> for more information regarding the new climate change guidance. The location of the site and the type (vulnerability) of development determine the climate change allowances to consider in any flood risk assessment.

Flood risk assessments: Climate change allowances

Application of the allowances and local considerations

Greater Manchester, Merseyside & Cheshire

1) The climate change allowances

The [National Planning Practice Guidance](#) refers planners, developers and advisors to the Environment Agency guidance on considering climate change in Flood Risk Assessments (FRAs). This guidance was updated in February 2016 and is available on [Gov.uk](#) and should be read in conjunction with this document. The guidance can be used for planning applications, local plans, neighbourhood plans and other projects. It provides climate change allowances for peak river flow, peak rainfall, sea level rise, wind speed and wave height. The guidance provides a range of allowances to assess fluvial flooding, rather than a single national allowance. It advises on what allowances to use for assessment based on vulnerability classification, flood zone and development lifetime.

2) Assessment of climate change impacts on fluvial flooding

Table A below indicates the level of technical assessment of climate change impacts on fluvial flooding appropriate for new developments depending on their scale and location. This should be used as **a guide only**. Ultimately, the agreed approach should be based on expert local knowledge of flood risk conditions, local sensitivities and other influences. **For these reasons we recommend that applicants and / or their consultants should contact the Environment Agency at the pre-planning application stage to confirm the assessment approach, on a case by case basis.** **Table A** defines three possible approaches to account for flood risk impacts due to climate change, in new development proposals:

- **Basic:** Developer can add an allowance to the 'design flood' (i.e. 1% annual probability) peak levels to account for potential climate change impacts. The allowance should be derived and agreed locally by Environment Agency teams.
- **Intermediate:** Developer can use existing modelled flood and flow data to construct a stage-discharge rating curve, which can be used to interpolate a flood level based on the required peak flow allowance to apply to the 'design flood' flow.
- **Detailed:** Perform detailed hydraulic modelling, through either re-running Environment Agency hydraulic models (if available) or construction of a new model by the developer.

Table A – Indicative guide to assessment approach

<u>VULNERABILITY CLASSIFICATION</u>	<u>FLOOD ZONE</u>	<u>DEVELOPMENT TYPE</u>		
		<u>MINOR</u>	<u>SMALL-MAJOR</u>	<u>LARGE-MAJOR</u>
ESSENTIAL INFRASTRUCTURE	Zone 2	Detailed		
	Zone 3a	Detailed		
	Zone 3b	Detailed		
HIGHLY VULNERABLE	Zone 2	Intermediate/ Basic	Intermediate/ Basic	Detailed
	Zone 3a	Not appropriate development		
	Zone 3b	Not appropriate development		
MORE VULNERABLE	Zone 2	Basic	Basic	Intermediate/ Basic
	Zone 3a	Basic	Detailed	Detailed
	Zone 3b	Not appropriate development		
LESS VULNERABLE	Zone 2	Basic	Basic	Intermediate/ Basic
	Zone 3a	Basic	Basic	Detailed
	Zone 3b	Not appropriate development		
WATER COMPATIBLE	Zone 2	None		
	Zone 3a	Intermediate/ Basic		
	Zone 3b	Detailed		

NOTES:

- Minor: 1-9 dwellings/ less than 0.5 ha | Office / light industrial under 1ha | General industrial under 1 ha | Retail under 1 ha | Gypsy/traveller site between 0 and 9 pitches
- Small-Major: 10 to 30 dwellings | Office / light industrial 1ha to 5ha | General industrial 1ha to 5ha | Retail over 1ha to 5ha | Gypsy/traveller site over 10 to 30 pitches
- Large-Major: 30+ dwellings | Office / light industrial 5ha+ | General industrial 5ha+ | Retail 5ha+ | Gypsy/traveller site over 30+ pitches | any other development that creates a non residential building or development over 1000 sq m.

The assessment approach should be agreed with the Environment Agency as part of pre-planning application discussions to avoid abortive work.

3) Specific local considerations

Where the Environment Agency and the applicant and / or their consultant has agreed that a 'basic' level of assessment is appropriate the figures in Table B below can be used as a precautionary allowance for potential climate change impacts on peak 'design' (i.e. 1% annual probability) fluvial flood level rather than undertaking detailed modelling.

Table B – Local precautionary allowances for potential climate change impacts

Watercourse	Central	Higher Central	Upper
All	0.15m	0.24m	0.48m

Use of these allowances will only be accepted after discussion with the Environment Agency.

4) Fluvial food risk mitigation

Read the guidance on [Gov.uk](https://www.gov.uk) to find out which allowances to use to **assess** the impact of climate change on flood risk.

For planning consultations where we are a statutory consultee and our [Flood risk standing advice](#) **does not** apply we use the following benchmarks to inform flood risk **mitigation** for different vulnerability classifications. **These are a guide only. We strongly recommend you contact us at the pre-planning application stage to confirm this on a case by case basis. Please note you may be charged for this advice.** For planning consultations where we are not a statutory consultee or our [Flood risk Standing advice](#) applies we recommend local planning authorities and developers use these benchmarks but we do not expect to be consulted.

- For development classed as '[Essential Infrastructure](#)' our benchmark for flood risk mitigation is for it to be designed to the '**upper end**' climate change allowance for the epoch that most closely represents the lifetime of the development, including decommissioning.
- For [highly vulnerable](#) in flood zone 2, the '**higher central**' climate change allowance is our minimum benchmark for flood risk mitigation. In sensitive locations it may be necessary to use the **upper end** allowance.
- For [more vulnerable developments](#) in flood zone 2, the '**central**' climate change allowance is our minimum benchmark for flood risk mitigation, and in flood zone 3 the '**higher central**' climate change allowance is our minimum benchmark for flood risk

mitigation. In sensitive locations it may be necessary to use the **higher central** (in flood zone 2) and the **upper end** allowance (in flood zone 3).

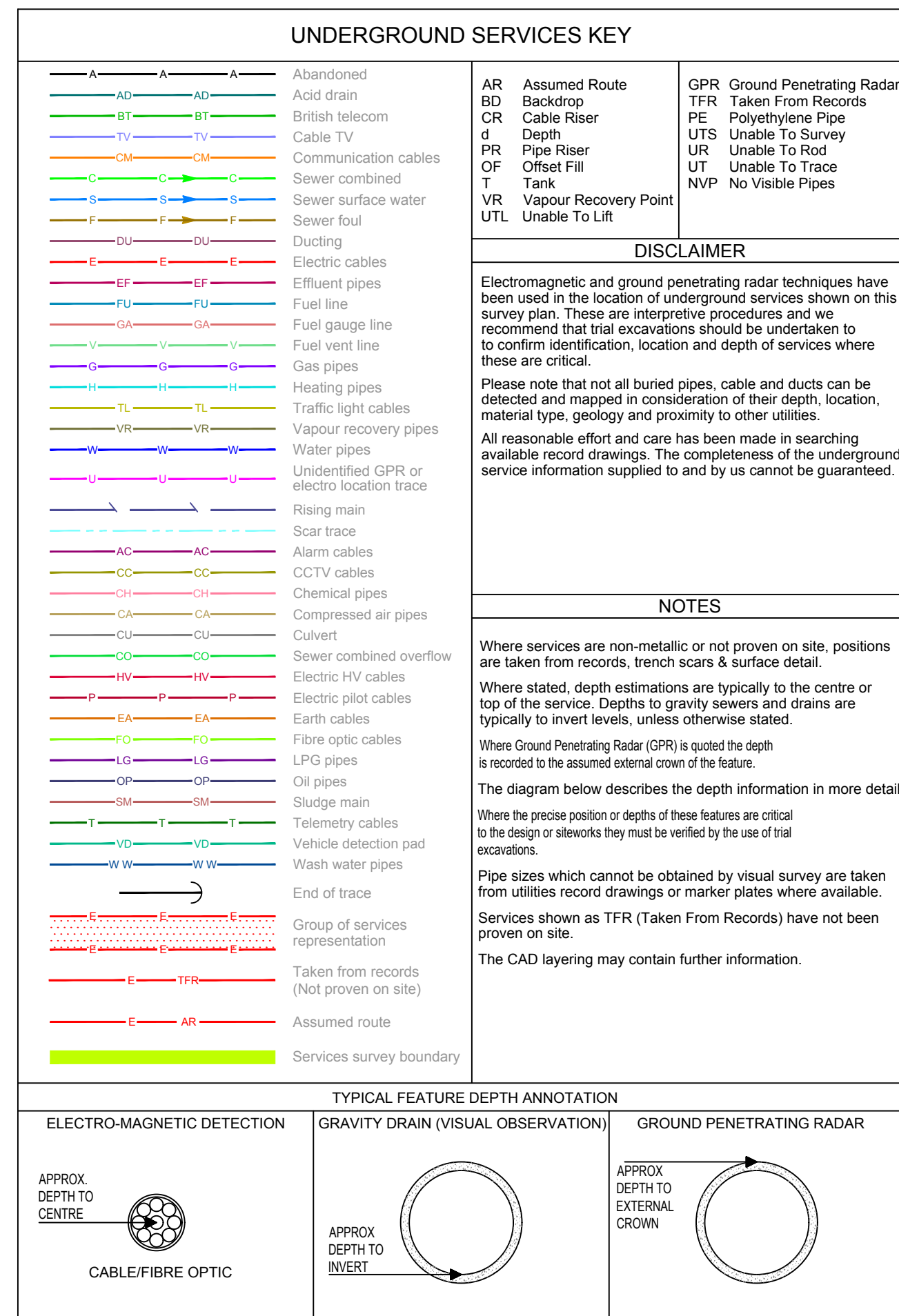
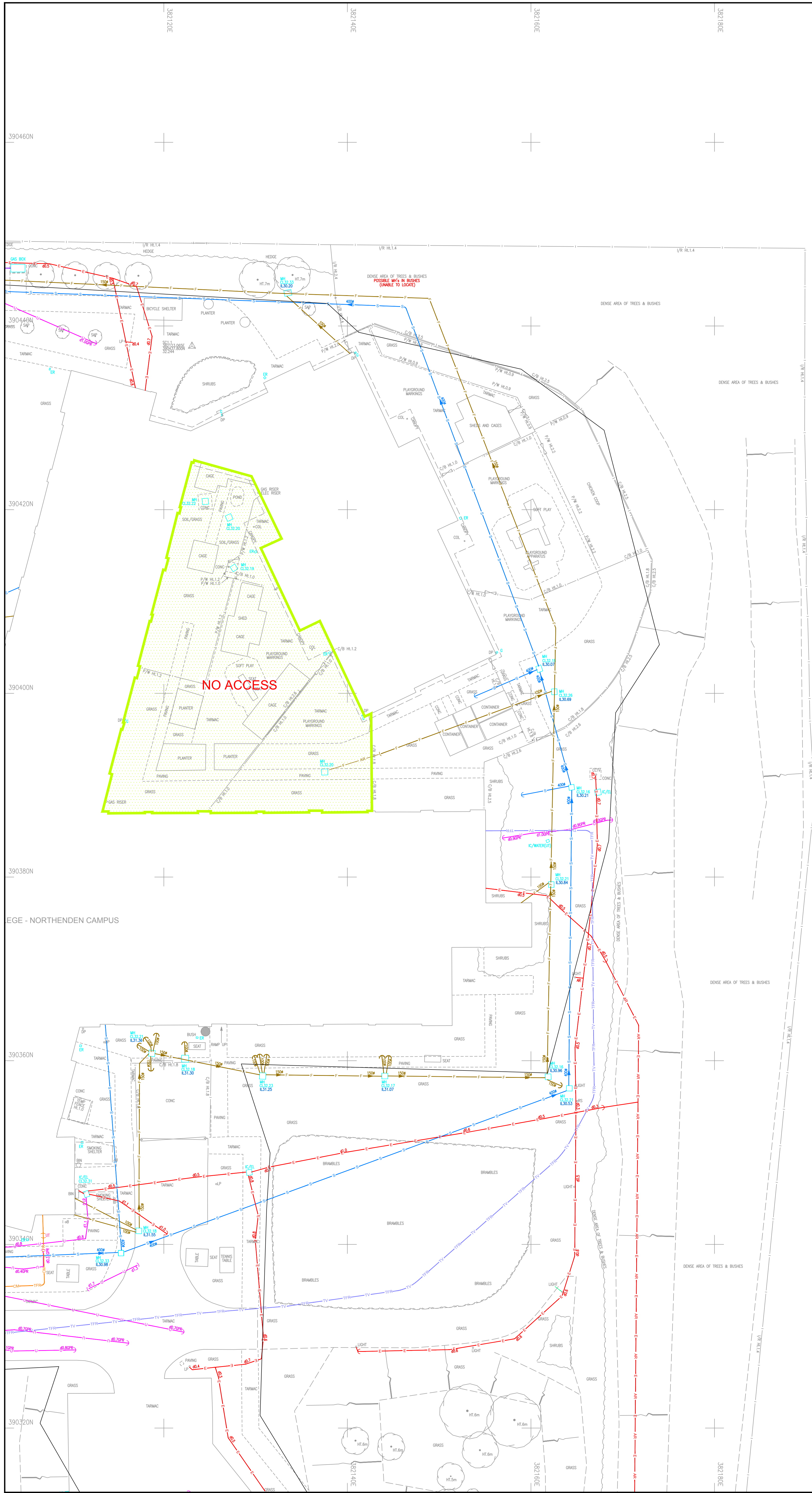
- For [water compatible](#) or [less vulnerable](#) development (e.g. commercial), the 'central' climate change allowance for the epoch that most closely represents the lifetime of the development is our minimum benchmark for flood risk mitigation. In sensitive locations it may be necessary to use the **higher central** (particularly in flood zone 3) to inform built in resilience.

There may be circumstances where local evidence supports the use of other data or allowances. Where you think this is the case we may want to check this data and how you propose to use it.

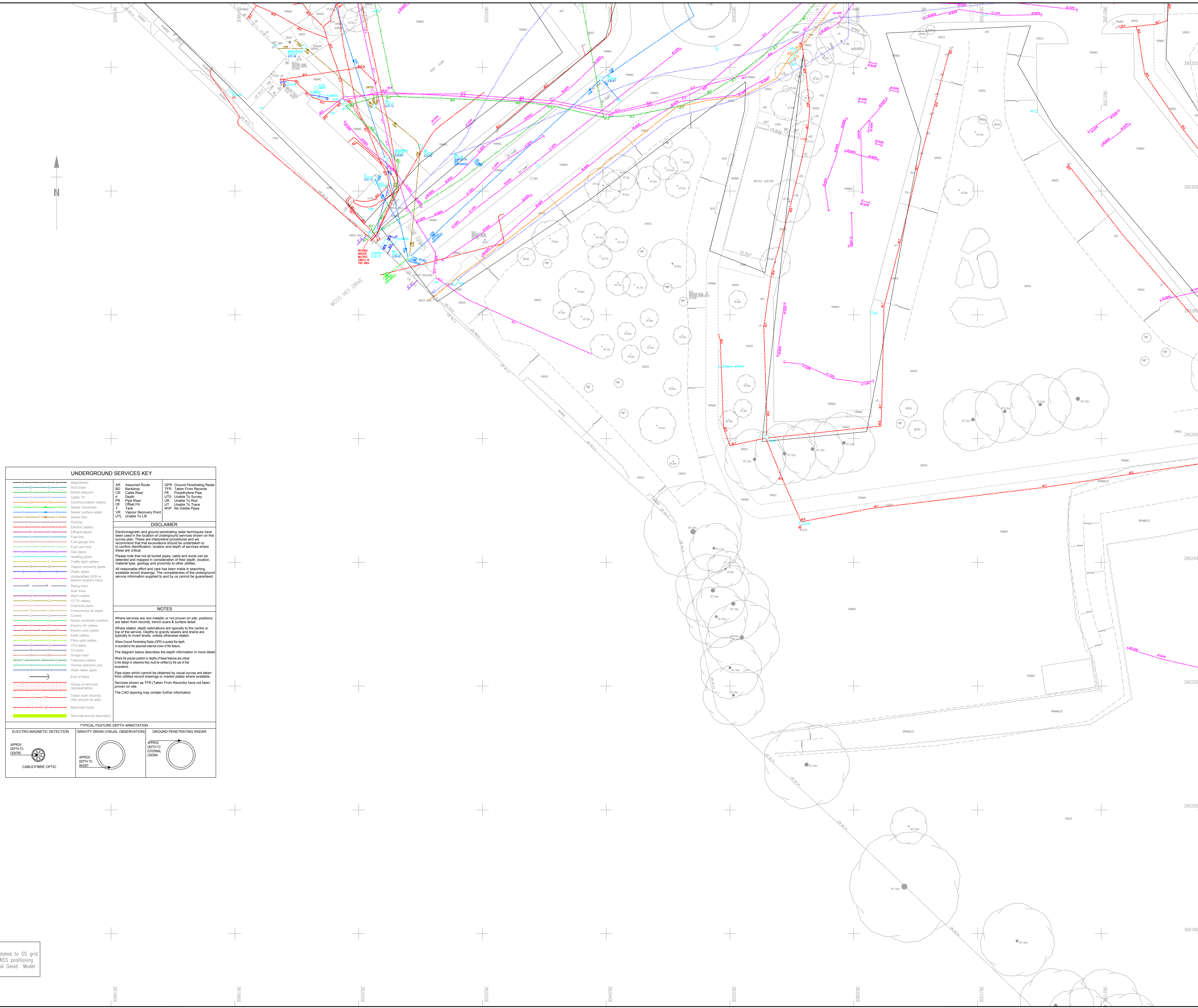
END.

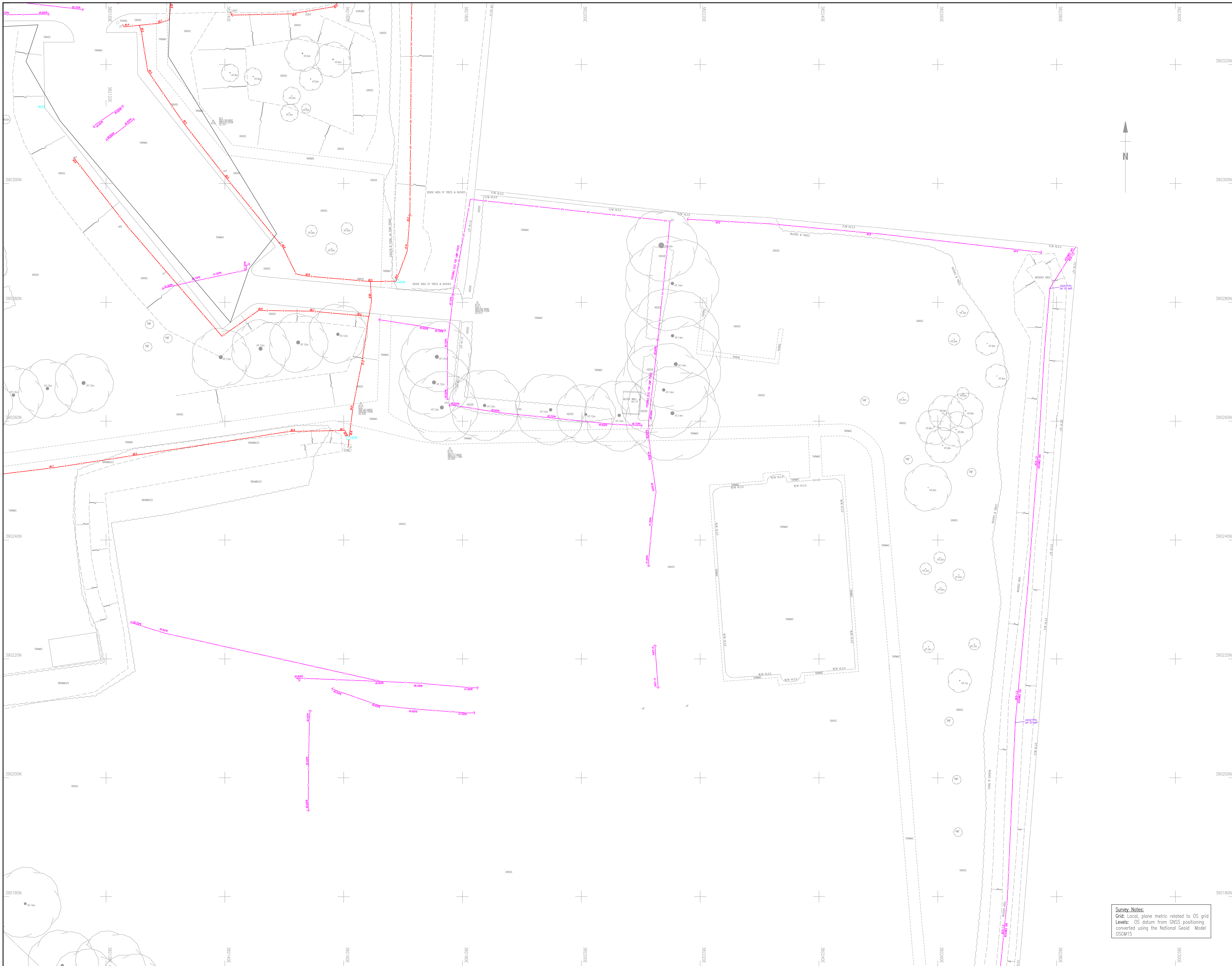


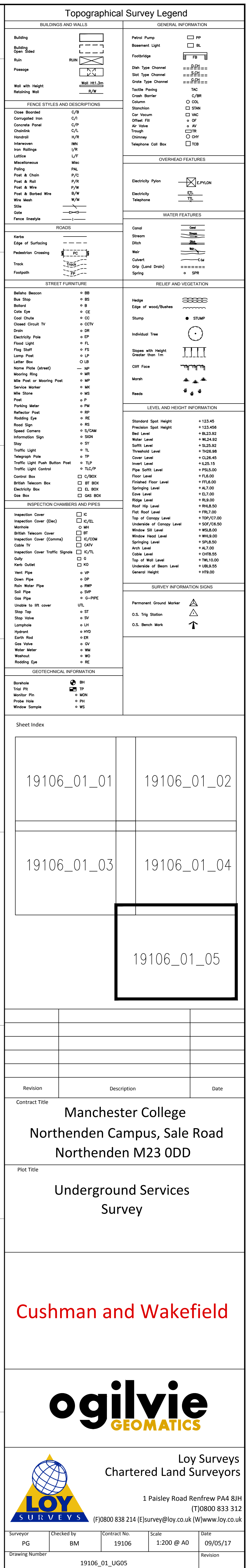
APPENDIX E UTILITY PLANS

[illegible]

Survey Notes:
Grid: Local, plane metric related to OS grid
Levels: OS datum from GNSS positioning
converted using the National Geoid Model
OSGM15

[illegible]

[illegible]



		Loy Surveys Chartered Land Surveyors	
1 Paisley Road Renfrew PA4 8JH (T)0800 833 311		(F)0800 838 214 E survey@loy.co.uk W www.loy.co.uk	
Surveyor PG	Checked by BM	Contract No. 19106	Scale 1:200 @ A0
Drawing Number 19106_01_UG05			Date 09/05/17
			Revision



APPENDIX F

SEWER RECORDS

RSK LDE

**14 Beecham Court
Smithy Brook Road,
Wigan,
WN3 6PR**

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: 882187
Our Ref: UUPS-ORD-184203
Date: 18/08/2020**

Dear Sirs

Location: 84 WYTHENSHAW ROAD, MANCHESTER, M23 0DJ

I acknowledge with thanks your request dated 10/08/2020 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)".

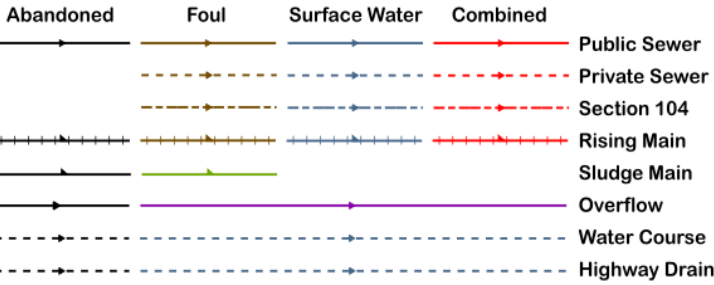
TERMS AND CONDITIONS:

- 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.



Reho	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
5001	33.42	CO	31.15	225			VC	66.27216	1 in 76
4601	33.41	CO	29.75	450			VC	97.27372	1 in 221
4804							VC	11.77889	
3901	33.41	CO	31.58	225			VC	33.30165	1 in 119
3901	33.41	CO	31.58	225			VC	33.30165	1 in 119
5501	33.28	CO	30.43	375			VC	88.60023	1 in 141
4903	33.33	CO	30.04	300			VC	34.4093	1 in 287
0001	32.36	CO	30.54	225			VC	50.24938	1 in 167
0001	32.36	CO	30.64	225			VC	50.24938	1 in 167
0001	32.36	CO	30.64	225			VC	50.24938	1 in 167
1001	32.88	CO	31.07	225			VC	107.3778	1 in 250
1001	32.88	CO	31.07	225			VC	107.3778	1 in 250
5509		CO		150			VC	6.638919	
2601		CO	0	1850			BR	162.1974	
3001	34.72	CO	32.29	225			VC	65.45992	1 in 84
5601	33.1	CO	31.85	225			VC	63.95311	1 in 246
2900	34.46	CO	28.21	1850			BR	49.64877	
2900	34.46	CO	28.21	1850			BR	49.64877	
4602		CO		150			VC	17.12212	
2003		CO	0	1850			BR	204.3771	
2003		CO	0	1850			BR	204.3771	
4501		CO		150			VC	11.80964	
3401	37.68	CO	34.1	225			VC	84.58132	1 in 154
4003	33.53	CO	31.47	225			VC	60.20797	1 in 99
4003	33.53	CO	31.47	225			VC	60.20797	1 in 99
5707		CO		100			VC	11.15233	
5803	33.1	CO	31.11	100			VC	64.7811	1 in 625
4803	33.05	CO	30.82	225			VC	81.19759	1 in 123
5003	33.65	CO	30.22	300			VC	63.95311	1 in 355
5003	33.65	CO	30.22	300			VC	63.95311	1 in 355
4606		CO		150			VC	11.69526	
4002	33.4	CO	30.25	300			VC	37.01351	1 in 3701
4002	33.4	CO	30.25	300			VC	37.01351	1 in 3701
4605		CO		100			VC	14.17249	
4902	33.58	CO	29.9	300			VC	38.91015	1 in 144
4902	33.58	CO	29.9	300			VC	38.91015	1 in 144
4001	33.52	CO	30.39	300			VC	33.54102	1 in 280
4001	33.52	CO	30.39	300			VC	33.54102	1 in 280
4701	32.93	CO	28.31	450			VC	109.8818	1 in 207
4901	33.48	CO	29.63	300			VC	37.12142	1 in 148
3003	33.45	CO	30.79	300			VC	80.50466	1 in 212
3003	33.45	CO	30.79	300			VC	80.50466	1 in 212
5603		CO		150			VC	19.55963	
4802	32.91	CO	29	300			VC	13.60147	1 in 76
4904		CO		150			VC	9.468677	
4801	32.88	CO	28.39	525			VC	20.39698	
5701	33.41	CO	31.49	225			VC	84.02127	1 in 145
3802	33.46	CO	29.36	300			VC	52.39275	1 in 146
4402	35.89	CO	32.77	375			VC	165.916	1 in 71
5602		CO		150			VC	12.14864	
5816		CO		150			VC	25.56979	

LEGEND



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

- Manhole

Head of System

Extent of Survey

Rodding Eye

Inlet

Discharge Point

Vortex

Penstock

Washout Chamber

Valve

Air Valve

Non Return Valve

Soakaway

Gully

Cascade

Flow Meter

Hatch Box

Oil Interceptor

Summit

Drop Shaft

Orifice Plate
- Side Entry Manhole

Outfall

Screen Chamber

Inspection Chamber

Bifurcation Chamber

Lamp Hole

T Junction / Saddle

Catchpit

Valve Chamber

Vent Column

Vortex Chamber

Penstock Chamber

Network Storage Tank

Sewer Overflow

Ww Treatment Works

Ww Pumping Station

Septic Tank

Control Kiosk

Change of Characteristic

MANHOLE FUNCTION

- FO Foul
- SW Surface Water
- CO Combined
- OV Overflow

SEWER SHAPE

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

SEWER MATERIAL

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

Address or Site Reference:

84 WYTHENSHAW ROAD,
MANCHESTER,
M23 0DJ

OS sheet SJ8289NW
Number:
Scale: 1:1250 Date: 18/08/2020
Nodes: 51
Sheet: 1 of 5

Printed by: Property Searches

SEWER
RECORDS



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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Reho	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
0102	32.1	CO	28.52	225			BR	24.30005	1 in 171
4205	32.54	CO	28.84	1500			BR	24.30005	
0401	32.1	CO	28.79	225			VC	57.05058	1 in 98
0401	32.1	CO	28.79	225			VC	57.05058	1 in 98
5001	33.42	CO	31.15	225			VC	66.27216	1 in 76
2405	600	CO		150			VC	11.21199	
2405	650	CO		150			VC	11.21199	
0402	31.93	CO	28.71	225			VC	88.68484	1 in 97
0402	31.93	CO	28.71	225			VC	88.68484	1 in 97
0402	31.93	CO	28.71	225			VC	88.68484	1 in 97
0507	32.2	CO	28.2	300			VC	88.68484	1 in 97
0507	32.2	CO	28.2	300			VC	88.68484	1 in 97
3901	33.41	CO	31.58	225			VC	33.30165	1 in 119
3901	33.41	CO	31.58	225			VC	33.30165	1 in 119
4903	33.33	CO	30.04	300			VC	34.4093	1 in 287
0001	32.36	CO	30.64	225			VC	50.24938	1 in 167
0001	32.36	CO	30.64	225			VC	50.24938	1 in 167
2401	32.34	CO	30.1	225			VC	40.31129	1 in 84
2401	32.34	CO	30.1	225			VC	40.31129	1 in 84
1001	32.88	CO	31.07	225			VC	107.3778	1 in 250
1001	32.88	CO	31.07	225			VC	107.3778	1 in 250
0506	32.16	CO	28.53	2250			BR	15	
0506	32.16	CO	28.53	2250			BR	15	
0506	32.16	CO	28.53	2250			BR	15	
0506	32.16	CO	28.53	2250			BR	15	
4202	31.9	CO	28.22	225			VC	12.52996	
2900	34.46	CO	28.21	1850			BR	49.64877	
2900	34.46	CO	28.21	1850			BR	49.64877	
4401	29.66	CO		300			VC	33.52611	
4401	29.66	CO		300			VC	33.52611	
4401	29.66	CO		300			VC	33.52611	
5104		CO		150			VC	9.875884	
0208		CO		150			VC	14.47385	
2404		CO		150			VC	6.939923	
2404		CO		150			VC	6.939923	
2003		CO		1850			BR	204.3771	
2003		CO		1850			BR	204.3771	
1503		CO		2250			BR	89.73851	
1503		CO		2250			BR	89.73851	
1601	32.33	CO	29.91	225			VC	81.7435	1 in 178
5103		CO		150			VC	11.30844	
2403	31.42	CO	28.11	225			VC	32.24903	1 in 70
2403	31.42	CO	28.11	225			VC	32.24903	1 in 70
1401	32.08	CO	30.25	225			VC	66.1211	1 in 331
1401	32.08	CO	30.25	225			VC	66.1211	1 in 331
4203	32.23	CO	27.81	300			VC	18	
4208		CO		1500			BR	132.0863	
4003	33.53	CO	31.47	225			VC	60.20797	1 in 99
4003	33.53	CO	31.47	225			VC	60.20797	1 in 99
4101	32.58	CO	30.3	225			VC	49.0498	1 in 21
2501	31.31	CO	27.05	450			VC	6	
2501	31.31	CO	27.05	450			VC	6	
4301	30.08	CO	27.62	225			VC	89.20202	
4303	30.55	CO	28.91	225			VC	74.02734	1 in 118
4201	31.69	CO	28.25	225			VC	19.0283	
0103		CO		150			VC	14.3606	1 in 276
4402	29.42	CO	28.84	300			VC	77.39925	1 in 276
4402	29.42	CO	28.84	300			VC	77.39925	1 in 276
2402	31.87	CO	28.43	450			VC	58.54913	1 in 43
2402	31.87	CO	28.43	450			VC	58.54913	1 in 43
5003	33.65	CO	30.22	300			VC	63.95311	1 in 355
5003	33.65	CO	30.22	300			VC	63.95311	1 in 355
4002	33.4	CO	30.25	300			VC	37.01351	1 in 3701
4002	33.4	CO	30.25	300			VC	37.01351	1 in 3701
1502	31.97	CO	27.68	300			VC	80.80842	1 in 168
1502	31.97	CO	27.68	300			VC	80.80842	1 in 168
4303	30.55	CO	27.96	225			VC	42.42641	1 in 133
2415		CO		150			VC	8.858622	
2415		CO		150			VC	8.858622	
4902	33.58	CO	29.9	300			VC	38.91015	1 in 144
4902	33.58	CO	29.9	300			VC	38.91015	1 in 144
4001	33.52	CO	30.39	300			VC	33.54102	1 in 280
4001	33.52	CO	30.39	300			VC	33.54102	1 in 280
2301	32.35	CO	28.59	450			VC	91.7878	1 in 656
3003	33.45	CO	30.79	300			VC	80.50466	1 in 212
3003	33.45	CO	30.79	300			VC	80.50466	1 in 212
2302		CO		375			VC	35.35534	
0117		CO		150			VC	10.94423	
0117		CO		150			VC	10.94423	
1101	32.92	CO	30.45	150			VC	10.94423	1 in 92
0403		CO		225			VC	82.73451	
0403		CO		225			VC	37.01351	
0505		CO		2250			BR	154.7883	
0505		CO		2250			BR	154.7883	
0505		CO		2250			BR	154.7883	
0505		CO		2250			BR	154.7883	
1501	32.35	CO	27.77	225			VC	11.04536	
1501	32.35	CO	27.77	225			VC	11.04536	
0508		CO		300			VC	81.3941	
0508		CO		300			VC	81.3941	
0508		CO		300			VC	81.3941	
0508		CO		300			VC	81.3941	
9502		CO		2250			BR	103.9643	
5101	33.18	CO	30.96	225			VC	92.60087	1 in 145
0101		CO		150			VC	12.9808	
3501	30.62	CO		2650			BR	83.98025	
3501	30.62	CO		2650			BR	83.98025	
0201	32.1	CO	28.43	225			VC	3.605551	1 in 13
0201	32.1	CO	28.43	225			VC	3.605551	1 in 13
8201	32.41	CO	28.95	225			VC	23.34524	1 in 594
8201	32.41	CO	28.95	225			VC	23.34524	1 in 594
9203	32.51	CO	28.98	225			VC	16.7882	1 in 181
0204		CO		100			VC	8.676955	
0204		CO		100			VC	8.676955	
0202	32.2	CO	28.14	225			VC	9.675805	1 in 171
0202	32.2	CO	28.14	225			VC	9.675805	1 in 171
2201		CO		2050			BR	200.8447	
9202	32.7	CO	28.83	300			VC	79.20859	1 in 2640
9202	32.7	CO	28.83	300			VC	79.20859	1 in 2640
2502		CO		2250			BR	104.8572	
2502		CO		2250			BR	104.8572	

LEGEND

Abandoned

Foul

Surface Water

Combined

Public Sewer

Private Sewer

Section 104

Rising Main

Sludge Main

Overflow

Water Course

Highway Drain

All point assets follow the standard colour convention:

red

blue

brown - foul

purple - overflow

Manhole

Head of System

Extent of Survey

Rodding Eye

Inlet

Discharge Point

Vortex

Penstock

Washout Chamber

Valve

Air Valve

Non Return Valve

Soakaway

Gully

Cascade

Flow Meter

Hatch Box

Oil Interceptor

Summit

Drop Shaft

Orifice Plate

Side Entry Manhole

Outfall

Screen Chamber

Inspection Chamber

Bifurcation Chamber

Lamp Hole

T Junction / Saddle

Catchpit

Valve Chamber

Vent Column

Sewer Chamber

Penstock Chamber

Sewer Overflow

Network Storage Tank

Ww Treatment Works

Septic Tank

Control Kiosk

Change of Characteristic

MANHOLE FUNCTION

FO Foul

SW Surface Water

CO Combined

OV Overflow

SEWER SHAPE

CI Circular

EG Egg

OV Oval

FT Flat Top

RE Rectangular

SQ Square

TR Trapezoidal

AR Arch

BA Barrel

HO HorseShoe

UN Unspecified

SEWER MATERIAL

AC Asbestos Cement

BR Brick

PE Polyethylene

RP Reinforced Plastic Matrix

CO Concrete

CSB Concrete Segment Bolted

CSU Concrete Segment Unbolted

CC Concrete Box Culverted

PSC Plastic / Steel Composite

GRC Glass Reinforced Plastic

DI Ductile Iron

PVC Polyvinyl Chloride

CI Cast Iron

SI Spun Iron

ST Steel

VC Vitrified Clay

PP Polypropylene

PF Pitch Fibre

MAC Masonry, Coursed

MAR Masonry, Random

U Unspecified

Address or Site Reference:

84 WYTHENSHAW ROAD,
MANCHESTER,
M23 0DJ

OS sheet SJ8290SW
Number:
Scale: 1:1250 Date: 18/08/2020
Nodes: 113
Sheet: 2 of 5

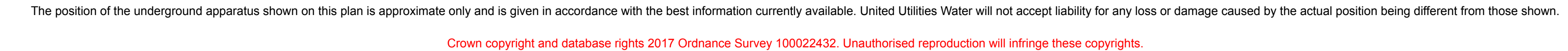
Printed by: Property Searches

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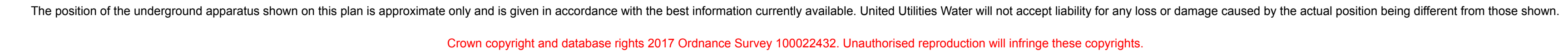
The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

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Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad	Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
7606	CO	28.38	2250	BR	2	155887	VC	3.50077	150	5407	CO	31.64	28.02	225	VC	5.570564	150	5407	
8401	31.85	CO	27.73	525	VC	61.47429	1in 236	5407	CO	31.64	28.02	225	VC	5.570564	150	5407			
8401	31.85	CO	27.73	525	VC	61.47429	1in 236	5407	CO	31.64	28.02	225	VC	5.570564	150	5407			
7602	CO	0	150	VC	13.14602	1in 188	5413	CO	31.64	28.02	225	VC	5.570564	150	5413				
8505	CO	0	150	VC	24.27493	1in 97	8505	CO	31.64	28.02	225	VC	5.570564	150	8505				
0402	31.93	CO	28.71	225	VC	88.68484	1in 97	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
0402	31.93	CO	28.71	225	VC	88.68484	1in 97	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
0402	31.93	CO	28.71	225	VC	88.68484	1in 97	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
7615	31.93	CO	28.71	100	VC	10.91097	1in 97	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
5803	30.81	CO	28.92	225	VC	41.26381	1in 153	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
8802	31.01	CO	28.39	225	VC	54.51921	1in 188	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
8807	31.34	SW	28.85	225	VC	59	1in 128	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
8802	27.87	SW	28.07	525	VC	60.06389	1in 218	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
7602	31.16	SW	28.07	375	VC	43.88066	1in 218	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
9714	CO	0	100	VC	9.588161	1in 100	8505	CO	31.64	28.02	225	VC	5.570564	150	8505				
7610	CO	0	100	VC	6.927491	1in 100	8505	CO	31.64	28.02	225	VC	5.570564	150	8505				
7604	32.04	CO	30.31	150	VC	12.10553	1in 25	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
8706	30.81	SW	27.71	375	VC	19	1in 236	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
8508	CO	0	225	VC	24.35552	1in 97	8505	CO	31.64	28.02	225	VC	5.570564	150	8505				
8508	CO	0	225	VC	24.35552	1in 97	8505	CO	31.64	28.02	225	VC	5.570564	150	8505				
9501	32.04	CO	27.45	525	VC	7.554975	1in 148	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
7601	31.38	CO	28.96	225	VC	35.4983	1in 148	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
9604	CO	0	150	VC	8.463631	1in 150	8505	CO	31.64	28.02	225	VC	5.570564	150	8505				
9506	32.16	CO	28.53	2250	BR	15	1in 150	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
0506	32.16	CO	28.53	2250	BR	15	1in 150	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
0506	32.16	CO	28.53	2250	BR	15	1in 150	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
0506	32.16	CO	28.53	2250	BR	15	1in 150	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
7405	32.09	CO	30.53	225	VC	18.02776	1in 75	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
7405	32.09	CO	30.53	225	VC	18.02776	1in 75	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
4603	31.62	CO	28.09	300	VC	51.49797	1in 115	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
8505	31.65	CO	28.19	225	VC	72.78049	1in 55	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
8505	31.65	CO	28.19	225	VC	72.78049	1in 55	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
9802	CO	0	300	VC	61.12909	1in 55	8505	CO	31.64	28.02	225	VC	5.570564	150	8505				
7611	CO	0	100	VC	4.705795	1in 100	8505	CO	31.64	28.02	225	VC	5.570564	150	8505				
7623	CO	0	100	VC	6.99447	1in 100	8505	CO	31.64	28.02	225	VC	5.570564	150	8505				
5502	31.58	CO	28.54	300	VC	66.03786	1in 194	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
7509	CO	0	225	VC	52.61669	1in 225	8505	CO	31.64	28.02	225	VC	5.570564	150	8505				
9601	31.56	CO	28.66	300	VC	89.25173	1in 270	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
9601	31.56	CO	28.66	300	VC	89.25173	1in 270	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
8502	32.01	CO	27.53	300	VC	7.232166	1in 106	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
8403	31.93	CO	28.78	225	VC	18.02776	1in 106	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
8403	31.93	CO	28.78	225	VC	18.02776	1in 106	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
7408	CO	0	150	VC	6.37302	1in 150	8505	CO	31.64	28.02	225	VC	5.570564	150	8505				
7620	SW	0	100	VC	0.5203634	1in 100	8505	CO	31.64	28.02	225	VC	5.570564	150	8505				
7609	CO	0	150	VC	6.455912	1in 150	8505	CO	31.64	28.02	225	VC	5.570564	150	8505				
7402	32.11	CO	28.77	225	VC	53.85165	1in 51	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
6702	31.35	CO	30.17	225	VC	53.85165	1in 51	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
8603	31.82	CO	28.47	225	VC	114.2523	1in 208	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
4602	31.59	CO	28.47	2250	BR	72.67237	1in 2250	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
6602	31.83	CO	28.47	225	VC	15.05786	1in 123	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
4501	31.29	CO	28.94	225	VC	41.88078	1in 123	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
4501	31.29	CO	28.94	225	VC	41.88078	1in 123	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
8615	CO	0	150	VC	20.65144	1in 150	8505	CO	31.64	28.02	225	VC	5.570564	150	8505				
4705	30.82	CO	28.42	225	VC	41.34377	1in 98	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
8705	30.78	CO	28.21	225	VC	48.50773	1in 211	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
8401	31.93	CO	30.21	225	VC	29.52965	1in 72	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
8401	31.93	CO	30.21	225	VC	29.52965	1in 72	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
7605	31.8	CO	28.32	225	VC	5	1in 225	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
6701	31.16	CO	28.82	225	VC	72.42237	1in 87	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
8405	31.83	CO	28.89	375	VC	45.89117	1in 242	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
8405	31.83	CO	28.89	375	VC	45.89117	1in 242	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
8702	29.93	CO	27.4	225	VC	11.39998	1in 242	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
0505	CO	0	26.74	2250	BR	154.7883	1in 182	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
0505	CO	0	26.74	2250	BR	154.7883	1in 182	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
0505	CO	0	26.74	2250	BR	154.7883	1in 182	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
0505	CO	0	26.74	2250	BR	154.7883	1in 182	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
9502	31.32	CO	28.14	225	VC	18.24829	1in 116	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
7607	CO	0	2250	BR	55.10885	1in 2250	8505	CO	31.64	28.02	225	VC	5.570564	150	8505				
8705	31.99	CO	28.46	225	VC	24.38831	1in 116	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
9502	CO	0	2250	BR	95.32076	1in 2250	8505	CO	31.64	28.02	225	VC	5.570564	150	8505				
8802	28.59	SW	28.56	900	CO	51.23745	1in 900	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
8403	CO	0	150	VC	11.61423	1in 150	8505	CO	31.64	28.02	225	VC	5.570564	150	8505				
8403	CO	0	150	VC	11.61423	1in 150	8505	CO	31.64	28.02	225	VC	5.570564	150	8505				
4611	CO	0	100	VC	5.358846	1in 100	8505	CO	31.64	28.02	225	VC	5.570564	150	8505				
8405	CO	0	150	VC	4.732329	1in 150	8505	CO	31.64	28.02	225	VC	5.570564	150	8505				
8405	CO	0	150	VC	4.732329	1in 150	8505	CO	31.64	28.02	225	VC	5.570564	150	8505				
8504	31.91	CO	28.71	2250	BR	47.26919	1in 213	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
7702	31.78	CO	28.93	300	VC	11.0045	1in 300	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
8702	31.88	CO	28.77	225	VC	47.29994	1in 101	8505	CO	31.64	28.02	225	VC	5.570564	150	8505			
8503	32.09	CO	28.75	225	VC	107.7178	1in 207	8505	CO	31.64	28.02	225							



United Utilities
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APPENDIX G

UNITED UTILITIES CORRESPONDENCE

Emma Walker

Subject: FW: Pre Development Enquiry for : Moss Hey Drive M23 0DH UU reference
Number : 4200039614

From: Perry, Graham <Graham.Perry@uuplc.co.uk>

Sent: 10 June 2021 11:33

To: Mark Rayner <MRayner@rsk.co.uk>

Subject: FW: Pre Development Enquiry for : Moss Hey Drive M23 0DH UU reference Number : 4200039614

Hello Mark

Further to our discussions an alternative to the Princess Parkway connection would be to the 2250mm combined sewer on Yew Tree Lane which flows into the Princess Parkway system. You would be allowed to drain at 45 l/s into this sewer

Thanks

Graham Perry



Graham Perry
Development Engineer
Developer Services
M: 07557 577548
T: 01925 679405
unitedutilities.com

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From: Perry, Graham

Sent: 09 June 2021 17:44

To: MRayner@rsk.co.uk

Cc: Wastewater Developer Services (WastewaterDeveloperServices@uuplc.co.uk)

[<WastewaterDeveloperServices@uuplc.co.uk>](mailto:WastewaterDeveloperServices@uuplc.co.uk)

Subject: FW: Pre Development Enquiry for : Moss Hey Drive M23 ODH UU reference Number : 4200039614

Hello Mark

I assume you are referring to surface water disposal and yes there is a dedicated 225mm sw sewer on Lindwall Close that would be suitable however I could only offer a maximum discharge rate of 20 l/s if the modelling team confirm that this is viable because we do not have any modelling data for the surface water sewer available on the general model.

You would also have to discuss this approach with the LLFA and seek their approval

Have you carried out any investigations into the viability of making a connection at this point ?

Thanks

Graham Perry



Graham Perry
Development Engineer
Developer Services
M: 07557 577548
T: 01925 679405
unitedutilities.com

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From: Wastewater Developer Services

Sent: 27 May 2021 13:17

To: Perry, Graham <Graham.Perry@uuplc.co.uk>

Subject: Pre Development Enquiry for : Moss Hey Drive M23 0DH UU reference Number : 4200039614

Hi Graham,

Please see repeat below.

This has been saved to sharepoint:

<https://uusp/asset/DSDD/Development%20Documents/Forms/AllItems.aspx?RootFolder=%2Fasset%2FDSDD%2FDevelopment%20Documents%2FManchester%2FPre%20Enquiry%2F2021%2F4200039614%20Moss%20Hey%20Drive%20M23%200DH&View=%7B012D10BC%2D8A6E%2D465F%2D9704%2D60731F4571F6%7D&InitialTabId=Ribbon%2ERead&VisibilityContext=WSSTabPersistence>



Louise Dack
Customer Advisor Advanced
Developer Services & Metering
Customer Services
T: 01925 233063 (33063 internal)
unitedutilities.com

Did you know we now have a live chat facility available to you Mon to Friday 8 -5pm. You just click on the orange live chat box on our webpage and one of our advisors will be ready to chat to you and help you with your enquiry

<https://www.unitedutilities.com/builders-developers/> or you can email us at WastewaterDeveloperServices@uuplc.co.uk

From: Mark Rayner [<mailto:MRayner@rsk.co.uk>]

Sent: 27 May 2021 11:33

To: Perry, Graham <Graham.Perry@uuplc.co.uk>

Cc: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>; Nichola Burns <Nichola.Burns@miller.co.uk>; David Brackley <David.Brackley@miller.co.uk>

Subject: FW: Pre Development Enquiry for : Moss Hey Drive M23 0DH UU reference Number : 4200039614

EXTERNAL EMAIL This email originated outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Morning Graham,

Further to your email below, please see below from our client – please can you advise

There seems to be a closer POC in Lindwall close which should be able to cope with limited discharge, it's also better for UU as they won't have a assets within Princess Parkway

Regards

Mark

From: Perry, Graham <Graham.Perry@uuplc.co.uk>

Sent: 17 May 2021 21:19

To: Ellis Phythian <EPhythian@rsk.co.uk>

Cc: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>

Subject: Pre Development Enquiry for : Moss Hey Drive M23 ODH UU reference Number : 4200039614

Pre Development Enquiry for: Moss Hey Drive M23 ODH UU reference Number : 4200039614

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 225mm diameter public combined sewer within Moss Hey Drive located to the south west of your proposed development at an unrestricted rate.

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

(Delete if appropriate) 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.

We have reviewed the Ground Investigation Report that confirms that infiltration is a viable option therefore we would fully expect the site to drain via infiltration with incorporated adoptable SuDS features in line with CIRIA guidance

Waterbody

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

Evidence would suggest that there may be an uncharted culverted watercourse running through Wythenshawe Park. We would encourage you to investigate this further

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

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 2650mm x4000mm diameter public combined sewer within Princess Parkway located east 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 45l/s.

Please be aware that modelling data suggests that the 255mm combined sewer on Holly Hey Drive is susceptible to flooding so would not be capable of draining part of the site that your investigations have suggested. Therefore if you are reliant on the single 225mm combined sewer outfall on Moss Hey Drive we would expect flows to be restricted to a maximum pass forward flow of 22.5 l/s. You may also have to consider draining all highway drainage by other means if the capacity of the receiving sewer is compromised. I am looking to have the scheme modelled to understand the impact from the site to the sewers in the vicinity of the site.

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

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 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/larger-developments/wastewater/sewer-connections/>

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,

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APPENDIX H

PROPOSED DRAINAGE STRATEGY
