Pall Mall, Liverpool

Flood Risk Assessment and Drainage Strategy

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Client Name: Kier Property Developments Limited and CTP Limited

Site Address: Pall Mall, Liverpool, L2 2QP

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1.0 Introduction

1.1 Project Background

1.1.1 Curtins were appointed by Kier Property Developments Limited and CTP Limited to provide a Flood Risk Assessment (FRA) and Drainage Strategy for a new development at Pall Mall, Liverpool, L2 2QP.

1.1.2 The report provides information on the nature of flood risk at the site and follows government guidance regarding development and flood risk.

1.1.3 The report is based on currently available information and preliminary discussions.

1.1.4 Proposals contained or forming part of this report represent the design intent and may be subject to alteration or adjustment in completing the detailed design for this project. Where such adjustments are undertaken as part of the detailed design and are deemed a material deviation from the intent contained in this document, prior approval shall be obtained from the relevant authority in advance of commencing such works.

1.1.5 Where the proposed works to which this report refers are undertaken more than twelve months following the issue of this report, Curtins shall reserve the right to re-validate the findings and conclusions by undertaking appropriate further investigations at no cost to Curtins.

1.2 Scope of Assessment

1.2.1 The assessment is to be undertaken in accordance with the standing advice and requirements of the Environment Agency (EA) for Flood Risk Assessments as outlined in the Communities and Local Governments Planning Policy Guidance to the National Planning Policy Framework (NPPF).

1.2.2 The assessment will:

- Investigate all potential risks of flooding to the site,
- Consider the impact the development may have elsewhere with regards to flooding,
- Consider design proposals to mitigate any potential risk of flooding determined to be present; and
- Consider foul & surface water drainage proposals for the proposed development.

1.2.3 The total site area is approximately 1.7 hectares and following scrutiny of the Environment Agency flood maps it has been identified that the whole site lies within Flood Zone 1. As the site is over 1 ha a Flood Risk Assessment is required to support a planning application.

1.2.4 In April 2015, the Government made changes to the National Planning Policy Framework which made Sustainable Urban Drainage Systems (SuDS) a material consideration in the determination of planning applications for ‘major’ developments.

1.2.5 A Drainage Strategy will therefore be required as part of the Planning Application for the development, as the site is considered to be a 'major' development by the Town and Country Planning Order 2015.

1.2.6 This Flood Risk Assessment and Drainage Strategy reviews the following information:

- Environment Agency flood maps for rivers and sea flooding.
- UK Government Flood Warning Information Service maps for surface water flooding and reservoir flooding.
- Liverpool City Council Strategic Flood Risk Assessment (SFRA) Final Report, Dated January 2008.
- Preliminary Flood Risk Assessment for Liverpool City Council, dated June 2011.
- Site Investigation at Pall Mall, Liverpool. Prepared by CCG ref: CCG-C-17-9400, dated September 2017.
- United Utilities Public Sewer Records Extract, *ref: 1369441*, dated 16.04.2018.
- Topographical Survey by Survey and Engineering Projects, *ref: S16777-T* dated July 2018.
- CCTV Survey: SEP, April 2017
- Liverpool Surface Water Management, Advice for Planning document, May 2018

1.3 Proposed Development

1.3.1 The development will include the construction of 4 buildings used as hotel and office space.

1.3.2 The Proposed Site Layout is enclosed in *Appendix A.*

1.3.3 Building A will be issued for a full planning application, while Building B, C and D will be issued for outline planning.

1.3.4 Proposed Building A Floor Plans have also been included within *Appendix A*.

2.0 Existing Site Details

2.1 History and Current Use

2.1.1 The site is located to the North West of the old Exchange Station building, Tithebarn Street, Vauxhall, Liverpool, L2 2QP and fronts onto Pall Mall and Bixteth Street.

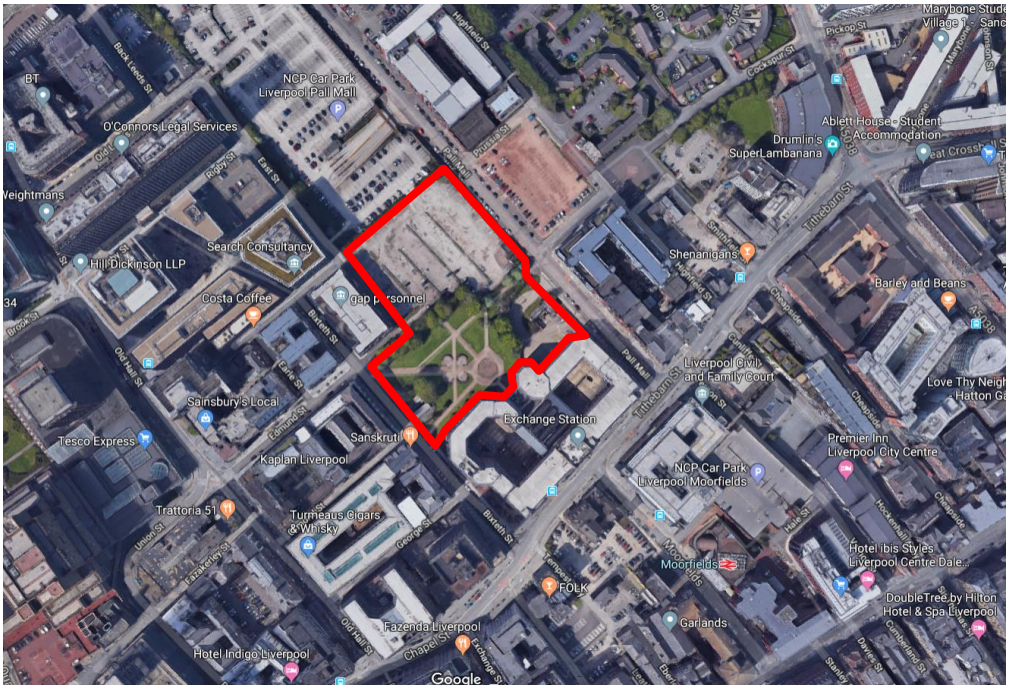
2.1.2 It has been recorded in the site investigation report by CCG that the site is above the historical railway station called Exchange Station. The station consisted of 11 platforms and additional railway substructures. The station was taken out of use around the year 1973; this was to make way for the construction of a new line which is in use today. The new line consists of two tunnels which pass directly beneath the site. The site investigation report highlights that these two tunnels are approximately 15m bgl (to the tunnel crown). The position of these tunnels within the site are indicative and are subject to survey.

2.1.3 The area proposed for development is currently split into three areas. The Southern area of the site is occupied by a small landscaped space with seated areas and footpaths. The Northern area of the site consists of an open hardstanding space which appears to have been used as a carpark. The Eastern corner of the site consists of an existing below ground carpark (which provides access to the Exchange Station building) and small outbuilding.

2.1.4 The site is bound by a large carpark to the North, Pall Mall road to the East, the Exchange Station building to the South and office buildings and Bixteth Street to the West.

2.1.5 Figure 1 illustrates the sites location.

Figure 1: Aerial Photograph (© Google 2019)



2.2 Existing Watercourses and Other Waterbodies

2.2.1 The closest watercourse is Princes Dock which is located approximately 390m to the West of the site.

2.2.2 The River Mersey Estuary is located beyond the Princes Dock and is located approximately 512m to the West of the site.

2.2.3 According to the OS maps there are no other watercourses/waterbodies within close proximity to the site.

2.3 Existing Drainage

2.3.1 The public sewer records have been obtained for the development site and are enclosed in *Appendix B*.

2.3.2 The following sewers are identified on the public sewer records:

- There is a 550mm X 900mm combined sewer which runs from the centre of the existing landscaped area and runs North towards Edmund Street before bending West to then flow down Edmund Street towards Bixteth Street.
- A 225mm combined sewer runs along Bixteth Street from North West to South East before baring South West down Ormond Street. The records show that there is a short combined sewer run within the Southern corner of the site which connects to this sewer.

- There is a 300mm combined sewer on Pall Mall road which flows North West. The records highlight that a 300mm combined private sewer runs from the site (in the North corner of the site) and connects to the 300mm combined sewer on Pall Mall road.
- There is a combined sewer running from the North Western corner of the site which connects to a combined sewer on St Paul's Square road, the size of this pipe is unknown based on available information.

2.3.3 A CCTV Survey was carried out in April 2017 (see *Appendix D*), the following was identified:

- The site has an existing private surface water network within the landscaped area (Southern area of the site). A 100mm surface water runs from the West to the South East and has multiple gully connections. The sewer connects to a manhole which flow to a 300mm surface water sewer which is shown on the survey to flow Northwards. Another 100mm surface water sewer flowing from the North East also connects to this manhole.
- There are two other surface water networks on the site; both within the Eastern corner of the site.
- One network has three 100mm connections which connect to a manhole within the below ground carpark; this then discharges off the site to the South via a 150mm connection.
- The other network shows two 100mm gully connections to a manhole located on the Eastern boundary of the site. This then discharges off the site via a 150mm connection onto Pall Mall road.

2.3.4 It is assumed that historic/deep drainage features will exist beneath the site for the railway; however, as the tunnels are approximately 15m bgl these drainage features are not considered relevant to the proposed works.

2.4 Topography

2.4.1 A topographical survey has been carried out on the proposed area of the site which is to be developed, and is enclosed in *Appendix C*.

2.4.2 Generally, the site falls from the North West to the South East.

2.4.3 The sites lowest point is 15.01m AOD which is located within the below ground car park (within the Eastern corner of the site).

2.4.4 The lowest point on the site excluding the below ground car park is within the Southern corner of the site at 18.06m AOD.

2.4.5 The highest point of the site is 21.18m AOD which is located within the North Western corner of the site.

2.4.6 According to the topographical survey the Eastern area of the site (excluding the below ground carpark) sits approximately 1.5-2m above Pall Mall road.

2.4.7 The Southern area of the site slopes gradually down towards the level of Bixteth Street.

2.5 Geology

2.5.1 The BGS maps identify that the superficial deposits under the site are Till, Devensian – Sandy, Gravelly, Cobbly, Clay. The bedrock is identified as Chester Formation – Sandstone and Pebble.

2.5.2 The site investigation report by CCG highlights that given the history of the site it is likely that significant accumulations of made ground would be present on site.

2.5.3 The site is not shown on the government maps to be located within a Groundwater Source Protection Zone.

3.0 Development and Flood Risk

3.1 National Planning Policy Framework (NPPF) and Planning Practice Guidance

3.1.1 In February 2019, the Department of Communities and Local Government published the National Planning Policy Framework document (NPPF) and the Planning Practice Guidance was published in March 2014 which provides guidance on how flood risk should be assessed during the planning and development process.

Table 1: (Extract from Planning Practice Guidance) Flood Zone Classifications

These Flood Zones refer to the probability of river and sea flooding, ignoring the presence of defences. They are shown on the Environment Agency's Flood Map for Planning (Rivers and Sea), available on the Environment Agency's web site, as indicated in the table below.

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than 1 in 1,000 annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map – all land outside Zones 2 and 3)
Zone 2 Medium Probability	Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or Land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding. (Land shown in light blue on the Flood Map)
Zone 3a High Probability	Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding. (Land shown in dark blue on the Flood Map)
Zone 3b The Functional Floodplain	**This zone comprises land where water has to flow or be stored in times of flood.** Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map)

Table 2: (Extract from Planning Practice Guidance) Flood Risk Vulnerability Classification

Essential Infrastructure • Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk. • Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood. • Wind turbines.
Highly Vulnerable • Police and ambulance stations; fire stations and command centres; telecommunications installations required to be operational during flooding. • Emergency dispersal points. • Basement dwellings. • Caravans, mobile homes and park homes intended for permanent residential use. • Installations requiring hazardous substances consent. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as 'Essential Infrastructure').
More Vulnerable • Hospitals • Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels. • Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels. • Non–residential uses for health services, nurseries and educational establishments. • Landfill* and sites used for waste management facilities for hazardous waste. • Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.

Less Vulnerable • Police, ambulance and fire stations which are **not** required to be operational during flooding. • Buildings used for shops; financial, professional and other services; restaurants, cafes and hot food takeaways; offices; general industry, storage and distribution; non-residential institutions not included in the 'More Vulnerable' class; and assembly and leisure. • Land and buildings used for agriculture and forestry. • Waste treatment (except landfill* and hazardous waste facilities). • Minerals working and processing (except for sand and gravel working). • Water treatment works which do not need to remain operational during times of flood. • Sewage treatment works, if adequate measures to control pollution and manage sewage during flooding events are in place.
Water-Compatible Development • Flood control infrastructure. • Water transmission infrastructure and pumping stations. • Sewage transmission infrastructure and pumping stations. • Sand and gravel working. • Docks, marinas and wharves. • Navigation facilities. • Ministry of Defence defence installations. • Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location. • Water-based recreation (excluding sleeping accommodation). • Lifeguard and coastguard stations. • Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms. • Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.

Table 3: (Extract from Planning Practice Guidance) Flood Risk Vulnerability and Flood Zone Compatibility

Flood Zones	**Flood Risk Vulnerability Classification**				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	✗	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	✗	✗	✗	✓*

Key:

✓ Development is appropriate

✗ Development should not be permitted.

Notes to table 3:

- This table does not show the application of the Sequential Test which should be applied first to guide development to Flood Zone 1, then Zone 2, and then Zone 3; nor does it reflect the need to avoid flood risk from sources other than rivers and the sea;
- The Sequential and Exception Tests do not need to be applied to minor developments and changes of use, except for a change of use to a caravan, camping or chalet site, or to a mobile home or park home site;
- Some developments may contain different elements of vulnerability and the highest vulnerability category should be used, unless the development is considered in its component parts.

† In Flood Zone 3a essential infrastructure should be designed and constructed to remain operational and safe in times of flood.

* In Flood Zone 3b (functional floodplain) essential infrastructure that has to be there and has passed the Exception Test, and water-compatible uses, should be designed and constructed to:

- remain operational and safe for users in times of flood;
- result in no net loss of floodplain storage;
- not impede water flows and not increase flood risk elsewhere.

3.2 Site Specific NPPF Flood Risk Categorisation

3.2.1 To assess the NPPF flood risk classification for the site, the first step was to inspect the UK Government web based 'Flood Map for Planning' which is used to inform planning of a site's Flood Zone(s) and the probability of flooding from rivers or seas (not taking into account the presence of flood defences or climate change). However, the web based 'Long Term Flood Risk Assessment for Locations in England' should also be used to identify the long-term flood risks from rivers and seas, surface water and reservoirs.

3.2.2 The Flood Map for Planning report is enclosed in *Appendix E,* and it can be seen that the site is classified as being within Flood Zone 1.

3.2.3 Further site-specific review of the flood risk to the site is provided in section 4.

3.3 Site Specific Flood Zone Compatibility

3.3.1 The proposal for the development site is likely to fall within the following categories:

- Buildings used as a hotel
- Buildings used for offices

3.3.2 Buildings used for residential dwellings are classed as 'More Vulnerable' and buildings used for offices are classed as 'Less Vulnerable' in the Flood Risk Vulnerability Classification (Table 2).

3.3.3 The whole site is located within Flood Zone 1 for which a 'More Vulnerable' and 'Less Vulnerable' development is deemed to be appropriate.

3.4 Sequential Test

3.4.1 The area of the site which will be redeveloped is categorised as a 'More Vulnerable' development (shown in table 2) and is within Flood Zone 1. In conclusion Table 3 shows that the sequential test has been passed.

4.0 Hydrological Assessment

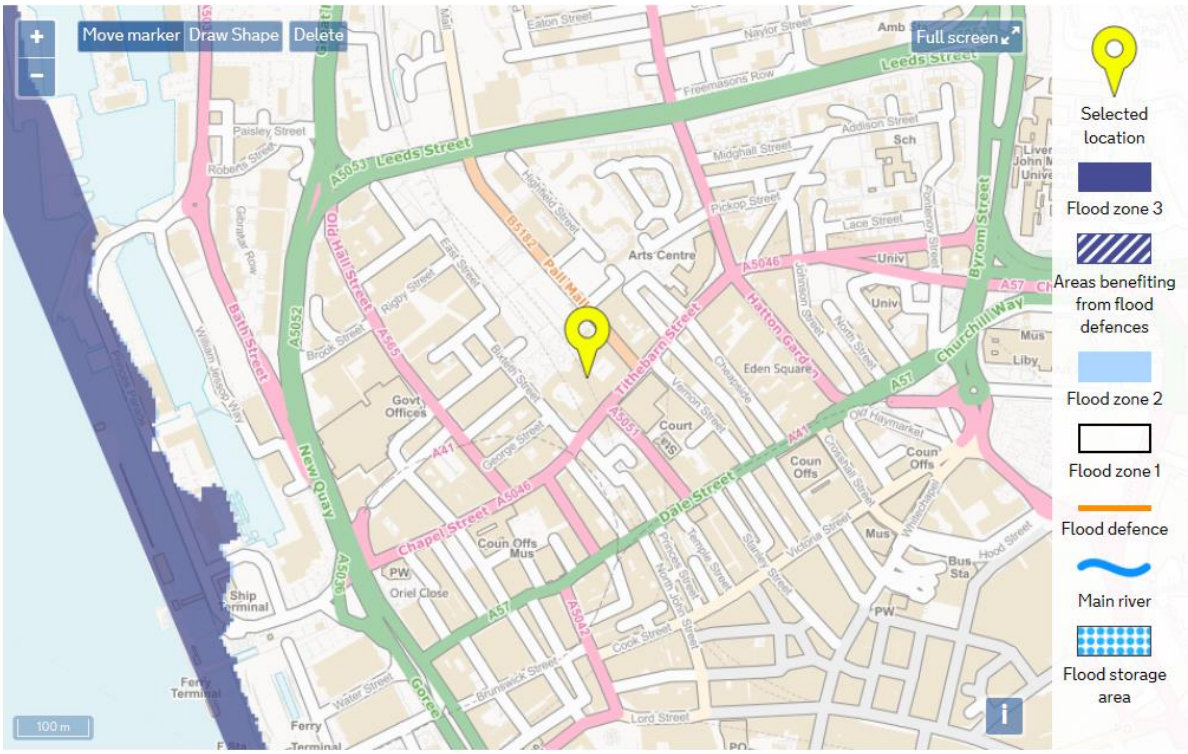
4.1 Sources of Flood Risk

4.1.1 This study assesses the risk from different types of flooding to the development and the risk of flooding from the development, taking into consideration climate change, as well as how flood risks should be managed. The approach to assessing flood risk at the development site was informed by the requirements of NPPF in conjunction with the client and Environment Agency requirements.

4.2 Fluvial Flooding (Rivers and Streams)

4.2.1 Flooding to the site from rivers and seas is indicated below in Figure 2, taken from the UK Government's Long-Term Flood Risk Information.

Figure 2: Flood Map for Planning – Flood Risk from Rivers or Sea (© Crown Copyright)



4.2.2 It can be seen that the whole site is within a Flood Zone 1 and therefore at a 'very low' risk of fluvial flooding (see Figure 3).

Figure 3: Long Term Flood Risk Assessment (Detailed Information) – Flood Risk from Rivers or Sea (© Crown Copyright)

Flood risk from rivers or the sea

Very low risk means that each year this area has a chance of flooding of less than 0.1%. This takes into account the effect of any flood defences in the area. These defences reduce but do not completely stop the chance of flooding as they can be overtopped, or fail.

4.2.3 The site is not shown to be in an area which benefits from flood defences.

4.2.4 Overall, the area which is being developed is within Flood Zone 1 and therefore at a 'very low risk' of fluvial flooding.

4.3 Tidal Flooding (Coastal or Estuarine)

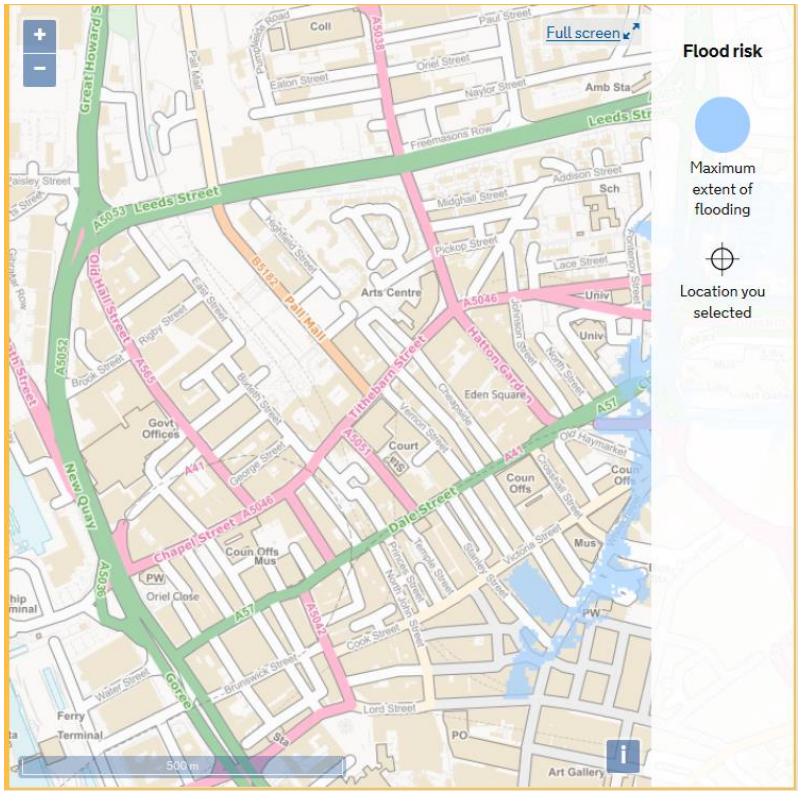
4.3.1 There is currently no flood risk identified on the Environment Agency flood maps for the site and it is therefore regarded to be at low risk from tidal flooding.

4.4 Reservoir Flooding

4.4.1 Reservoir flooding is extremely unlikely to happen and there has been no loss of life in the UK from reservoir flooding since 1925. The Environment Agency is the enforcement authority and ensures that reservoirs are inspected regularly and essential safety work is carried out.

4.4.2 The Long-Term Flood Risk Assessment (Flood Risk from Reservoirs) map shows the largest area that might be flooded if a reservoir were to fail and release the water it holds (see Figure 4).

Figure 4: Long Term Flood Risk Assessment Map – Flood Risk from Reservoirs (© Crown Copyright)



4.4.3 According to Figure 4 the site is not located within the extent of a reservoir flood risk.

4.4.4 The government state that if a reservoir flood event were to occur '*even in the worst case scenario many areas shown as possibly being at risk of reservoir flooding would be expected to receive no more than a few centimetres of flood water' (www.gov.uk/government/news/reservoir-flood-maps-published).*

4.4.5 Based on the above, it can be concluded that the site is at a low risk of reservoir flooding.

4.5 Canal Flooding

4.5.1 The site is not located within close proximity to a canal.

4.5.2 The closest controlled waterbody is the Princes Dock which is located approximately 390m to the West of the site.

4.5.3 The canals are identified in the SFRA as not generally posing a direct flood risk as they are a controlled water body. Therefore, the residual risk of canal flooding is usually associated with lower probability events such as overtopping and/or the breaching of embankments.

4.5.4 Given the above information, it is considered that there is low risk of canal flooding to the site.

4.6 Groundwater Flooding

4.6.1 According to the Liverpool City Council SFRA there is an increasing risk of groundwater flooding within Liverpool due to the rising water table. According to the SFRA this is due to the decreased need for local industries that use to extract it.

4.6.2 Ground works were carried out as part of the site investigation survey. The results showed localised perched water levels between 1.5-2m bgl and a superficial groundwater level of approximately 4m bgl in localised areas (along the Western boundary of the site). The majority of the borehole data is shown as dry and that no water strikes were recorded.

4.6.3 Generally, floor levels will be at or above existing ground levels however, some of the proposed buildings have basements. Where there are basements further monitoring of the groundwater table should be carried out to understand the groundwater level at the exact location.

4.6.4 Based on the current information it is overall assumed that the site is at a low risk of groundwater flooding. However, as a precaution, mitigation measures are proposed in section 5.

4.7 Public Sewers or Highway Drainage Flooding (Infrastructure Failure)

4.7.1 The UU records and CCTV survey shows that there are existing public sewers surrounding the site.

4.7.2 According to the Liverpool City Council SFRA the site has no history of sewer flooding.

4.7.3 Providing United Utilities maintain their drainage assets within and in the vicinity of the site, the risk of flooding to the proposed development site from public sewers or highway drainage is considered as low.

4.8 Surface Water Flooding to the site

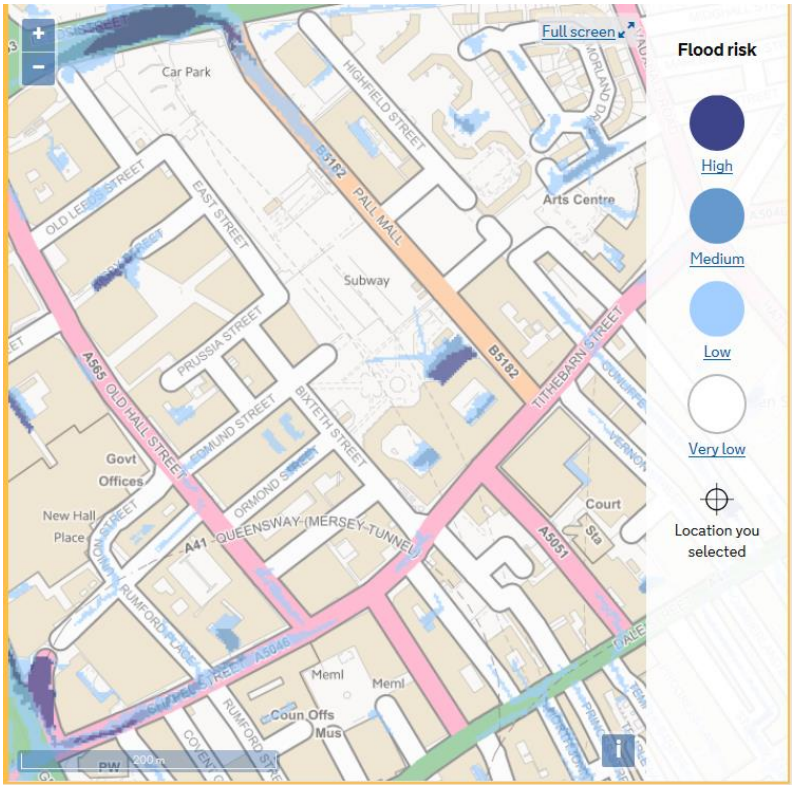
4.8.1 Surface water flooding can be caused when rainwater during extreme rainfall events does not drain away through the normal drainage system or soak into the ground with flooding occurring, principally from manholes and gullies. Surcharging sewers can result in overland flows which if originating at a higher elevation than a development site can potentially pose a flood risk.

4.8.2 From the UK Government's Flood Risk from Surface Water (extent of flooding) map;

- Where a site is located in a dark blue shaded zone, this indicates that the site is at high risk of flooding, where flooding occurs as a result of rainfall with a greater than 1 in 30 (3.3%) chance in any given year.

- Where a site is located in a mid-blue shaded zone, this indicates that the site is at medium risk of flooding, where flooding occurs as a result of rainfall of between 1 in 100 (1%) and 1 in 30 (3.3%) chance in any given year.
- Where a site is located in a light blue shaded zone, this indicates that the site is at low risk of flooding, where flooding occurs as a result of rainfall of between 1 in 1000 (0.1%) and 1 in 100 (1%) chance in any given year.
- Where a site is located in a clear (unshaded) area; this indicates that the site is at very low risk of flooding, where flooding occurs as a result of rainfall with less than 1 in 1000 (0.1%) chance in any given year.

Figure 5: Long Term Flood Risk Assessment Map – Flood Risk from Surface Water (© Crown Copyright)



4.8.3 The extent of flooding to the site from surface water is indicated in Figure 5, and this indicates that the majority of the site is identified as being at a 'very low' risk of flooding from surface water. However, there is a region of 'high risk' which is situated in the Eastern corner of the site. This area is lower than the remainder of the site by approximately 3-4m. The building which is to be positioned within this area of the site is likely to have a raised finished floor level above the existing which will reduce the risk of surface water entering the building.

4.8.4 Considering the above information, the risk of surface water flooding to the site is generally considered very low, with a localised region considered to be at low risk. As such, mitigation measures are proposed in Section 5 in order to account for the low risk of surface water flooding to the site and to ensure that the 'very low' risk can be maintained, particularly to the buildings.

4.9 Surface Water Flooding from the site

4.9.1 Developers are responsible for ensuring that new development does not increase the flood risk elsewhere. Where new development is proposed, the proposed surface water drainage network shall be designed to not flood for the critical 1 in 30-year storm event and flood water generated up to the critical 1 in 100-year plus climate change storm event shall be constrained within areas on site so as not to cause damage to buildings, essential services or adjoining developments and services.

4.9.2 The development has the potential to increase flood risk where additional run-off from proposed roads, paved areas and building roofs are discharged freely into the downstream drainage network. It is therefore encouraged to propose permeable areas, landscaping areas and incorporate sustainable drainage features utilising infiltration or attenuation where possible.

4.9.3 An assessment of the proposed surface flows is carried out within the drainage strategy within section 6 of this report.

4.10 Historical Flooding

4.10.1 Consultations have been issued to United Utilities and Liverpool City Council regarding records of historic flooding on the site. At the time this report was written no response regarding previous records of flooding on the site were received from either United Utilities or Liverpool City Council.

4.11 Summary of Flood Risk

4.11.1 From the evidence collated and subsequent negotiations the main types of flooding that may apply to the proposed development site are as follows:

- Groundwater flooding (potential)
- Surface water flooding to the site
- Surface water flooding from the site

5.0 Mitigation

5.1 Groundwater Flood Mitigation

5.1.1 Groundwater flooding tends to be more persistent than other sources of flooding, typically lasting for weeks or months rather than hours or days. Groundwater flooding does not generally pose a significant risk to life due to the slow rate at which the water level rises; however, it can cause significant risk to property.

5.1.2 According to the Liverpool City Council SFRA there is an increasing risk of groundwater flooding within Liverpool due to the rising water table. According to the SFRA this is due to the decreased need for local industries that use to extract it.

5.1.3 Ground works were carried out as part of the site investigation survey. The results showed localised perched water levels between 1.5-2m bgl and a superficial groundwater level of approximately 4m bgl in localised areas (along the Western boundary of the site). The majority of the borehole data is shown as dry and that no water strikes were recorded.

5.1.4 Generally, floor levels will be at or above existing ground levels however, some of the proposed buildings have basements. Where there are basements it is recommended that further ground water monitoring is undertaken once the site remedial groundworks are complete to understand the groundwater level at the exact location.

5.1.5 External ground levels across the site should fall away from the proposed buildings and ensure that the creation of low points is avoided (other than those used intentionally for drainage features) in order that in the unlikely event of groundwater flooding, the flood water is safely routed away from the buildings on site.

5.1.6 Providing the above mitigation measures were imposed, the risk from groundwater flooding would therefore be considered low post development.

5.2 Surface Water Flooding to the site Mitigation

5.2.1 The UK Government Long Term Flood Risk Assessment surface water flood maps indicate that the majority of the site is at very low risk of surface water flooding. However, there is an area which is at a high ‘risk’ of surface water flooding. This area is located where the existing lower ground car park is situated. The proposed layout shows that one of the proposed building overlaps into this area which is at a high risk of surface water flooding. To mitigate against potential surface water flooding this building is likely to have a finished floor level which is above the existing. This will reduce the likelihood of the buildings ground floor flooding.

5.2.2 Measures outlined in this section are recommended in order to ensure that the risk of surface water flooding to the post-development site shall not be increased.

5.2.3 It is assumed that the surface water drainage outside of the site boundary will be subject to the relevant landowner's regular drainage maintenance schedule.

5.2.4 Again, it is recommended that external ground levels across the site should fall away from the proposed buildings and ensure that the creation of low points are avoided and that the flood water is safely routed away from the buildings on site.

5.2.5 Providing the above measures are implemented the flooding risk to the development site from surface water is therefore considered low post development.

5.2.6 A detailed assessment of the proposed surface flows is carried out within the drainage strategy within section 6 of this report.

5.3 Surface Water Flooding from the site Mitigation

5.3.1 Any new development site drainage should be designed in accordance with current best practice to provide adequate capacity not to flood for the critical 1 in 30-year storm event and flood water generated from up to the critical 1 in 100-year plus climate change storm event shall be constrained within the areas on site so not to cause damage to buildings, essential services or adjoining developments & services.

5.3.2 In February 2016, the Environment Agency released updated climate change allowances for peak rainfall intensities which should be applied to new developments. Table 4 demonstrates the climate change allowances with central and upper end allowances being considered.

5.3.3 Based on the nature of the development, a lifespan in excess of 60 years is anticipated. Therefore, the potential climate change allowance for 2070-2115 ranges between 20% for the central allowance and 40% for the upper end allowance. As such, an allowance of 20% for climate change on peak rainfall intensity will be included in calculations, however the 40% allowance will also be considered.

Table 4: (Extract Environment Agency Guidance) Peak Rainfall Intensity Allowance in small and urban catchments

Applies across all of England	Total potential change anticipated for the '2020s' (2015 to 2039)	Total potential change anticipated for the '2050s' (2040 to 2069)	Total potential change anticipated for the '2080s' (2070 to 2115)
Upper end	10%	20%	40%
Central	5%	10%	20%

5.3.4 Section 6 reviews the surface water discharge options, and it is proposed that the surface water will drain into the existing 300mm combined sewer which runs from the South corner of the site and connects to the public combined sewer on Bixteth, this is subject to United Utilities and LLFA approval.

5.3.5 To minimise localised flooding within the site, the drainage design should ensure that gullies, drainage channels and drains are all suitably sized to accommodate peak storm flows. Also, all in let features should have suitably sized sumps to catch silts and should be subject to a documented routine maintenance and cleansing regime.

5.3.6 Flood water exceedance routes should be identified, both on and off site.

5.3.7 For any sustainable drainage systems employed in the development, an appropriate management and maintenance plan for the sustainable drainage system for the lifetime of the development should be submitted which should include:

- Any arrangements for adoption by an appropriate public body or statutory undertaker, management and maintenance by a Residents' Management Company
- Arrangements concerning appropriate funding mechanisms for its on-going maintenance of all elements of the sustainable drainage system (i.e. inspections, regular maintenance)
- Means of access for maintenance and easements where applicable

5.3.8 Assuming that the proposed drainage system is designed to provide adequate capacity, and that the private and adopted sewers will be maintained by their adopted authority, it can be assumed risk of flood from blockage or overloading is minimal.

5.3.9 The final design of the drainage networks shall be in accordance with the legislation set by the Environment Agency, Liverpool City Council and United Utilities.

6.0 Drainage Strategy

6.1 Existing Drainage

6.1.1 The public sewer records have been obtained for the development site and are enclosed in *Appendix B*.

6.1.2 The following sewers are identified on the public sewer records:

- There is a 550mm X 900mm combined sewer which runs from the centre of the existing green area and runs North towards Edmund Street before baring West to then flow down Edmund Street towards Bixteth Street.
- A 225mm combined sewer runs along Bixteth Street from North West to South East before baring South West down Ormond Street. The records show that there is a short combined sewer run (within the Southern corner of the site) which connects to this sewer.
- There is a 300mm combined sewer on Pall Mall road which flows North West. The records highlight that a 300mm combined runs from the site (in the North corner of the site) and connects to the 300mm combined sewer on Pall Mall road.
- There is a combined sewer running from the North Western corner of the site which connects to a combined sewer on St Paul's Square road.

6.1.3 A CCTV Survey was carried out in April 2017, the following was identified:

- The site has an existing surface water network within the green space (Southern area of the site). A 100mm surface water runs from the West to the South East and has multiple gully connections. The sewer connects to a manhole which flow to a 300mm surface water sewer which is shown on the survey to flow Northwards. Another 100mm surface water sewer flowing from the North East also connects to this manhole.
- There are 2 other surface water networks on the site; both within the Eastern corner of the site.
- One network has 3 100mm connections which connect to a manhole within the below ground carpark; this then discharges off the site to the South via a 150mm connection.
- The other network shows 2 100mm gully connections to a manhole located on the Eastern boundary of the site. This then discharges off the site via a 150mm connection onto Pall Mall road.

6.1.4 *Appendix A* shows that Building A appears to be above part of the existing 550mm X 900mm combined sewer, this will require a Section 116 agreement with United Utilities.

6.1.5 It is assumed that historic/deep drainage features will exist beneath the site for the railway; however, as the tunnels are approximately 15m bgl these drainage features are not considered relevant to the proposed works.

6.1.6 The site is considered part brownfield part greenfield. Therefore, both brown and greenfield rates have been calculated for the different areas of the site. However, the flows rates are only an indication and will be subject to confirmation of the existing drainage system and final outfall location. This will likely have an impact on attenuation requirements.

6.1.7 At this stage, and in lieu of any existing drainage information, to determine the likely proposed outfall discharge rates, the existing likely flows being discharged have been calculated using MicroDrainage design software.

6.1.8 The brownfield rates have been calculated again using MicroDrainage; based on a 2 pipe network system for the 2 year critical storm event. The results gave a discharge rate of 35.2 l/s

6.1.9 The greenfield rates have been calculated using MircoDrainage and are based on QBAR - ICP SUDS. The total of these calculations is 5.5 l/s.

6.2 Proposed Foul Water Drainage

6.2.1 A separate foul and surface water system is proposed.

6.2.2 As there is existing drainage within the site boundary, the proposed drainage needs to be co-ordinated with any existing drainage that can be utilised. It is recommended that existing outfalls from the site are reused, subject to the drains having sufficient capacity, where possible to mimic existing flow routing and minimise construction of new outfalls within public highways. The Proposed Drainage Strategy Layout is therefore indicative and should be reassessed following receipt of a full site drainage survey.

6.2.3 Correspondence has been received from UU who have confirmed that they will allow a free discharge for the sites foul water to drain into the nearby 550 x 900 combined public sewer.

6.2.4 A foul water discharge rate has been calculated only for building A (see *Appendix A*) using the sewers for adoption method. The figure calculated was 6.9l/s for building A. This figure is liable to change if the internal layout plan changes for building A.

6.2.5 The foul water discharge rates for buildings B,C and D are currently unknown.

6.2.6 Where sewers are offered for adoption by United Utilities, they will be subject to a Section 104 Agreement with United Utilities. Where sewers remain private, connection to the public sewer network will be subject to a Section 106 Agreement with United Utilities.

6.2.7 The proposed drainage strategy and foul flow rate calculations are enclosed in *Appendix F*, and this will be updated with further detail as part of the detailed drainage strategy update.

6.3 Proposed Surface Water Drainage

6.3.1 Any new development site drainage should be designed in accordance with current best practice to provide adequate capacity not to flood for the critical 1 in 30-year storm event and flood water generated for up to the critical 1 in 100-year plus climate change storm event shall be constrained within the areas on site so not to cause damage to buildings, essential services or adjoining developments and services.

6.3.2 In following the standard hierarchy of drainage solutions, consideration should firstly be given to the discharge of surface water runoff by sustainable methods such as infiltration.

Infiltration

6.3.3 The BGS Geology Report identifies that the superficial deposits under the site are composed of Till, Devensian – Sandy, Gravelly, Cobbly, Clay. The bedrock is identified as Chester Formation – Sandstone and Pebble.

6.3.4 As there are existing buildings and car parking on the site, it is likely that Made Ground will be present.

6.3.5 The CCG site investigation report highlights that the majority of the site is underlain by made ground. Made ground presents a risk of groundwater contamination if surface water is to drain via infiltration.

6.3.6 The site is not located within a Groundwater Source Protection Zone.

6.3.7 The underlying tunnels also pose a major restriction to draining the sites surface water via infiltration.

6.3.8 The information available suggests that there are several potential constraints with infiltration. Therefore, infiltration is assumed to be unviable.

Watercourse

6.3.9 The closest watercourse/waterbody is the Princes Dock. Draining to this would not be feasible as it is a considerable distance from the site and would involve crossing third party land.

Surface Water Sewer

6.3.10 There are no existing public surface water sewers on or surrounding the site. Therefore, the connection to a surface water sewer is not a viable option.

Combined Water sewer

6.3.11 There are various existing combined public sewers within, and in the vicinity of the site. It is therefore assumed that discharge to the public combined sewer network will be a viable option, with existing connections being utilised where possible.

6.3.12 Table 5 summarises the options for surface water disposal.

Table 5: Surface Water Disposal

Surface Water Disposal	Potential	Description
Infiltration	✗	Considered potentially unviable at this stage, due to issues with potential contamination and impermeable ground.
Watercourse	✗	The nearest watercourse is the princes dock. However to drain the site to this would require crossing third party land.
Surface Water Public Sewer	✗	There are no dedicated surface water public sewers in the vicinity of the site. Therefore, this is assumed to be unsuitable.
Combined Public Sewer	✓	It is assumed that discharge to the combined public sewer system will be a viable solution and existing outfalls are to be utilised where suitable.

6.3.13 It is therefore considered at this stage that connection to the combined public sewer system at various locations is the most viable option.

6.3.14 Allowable flow rates will be subject to the available capacity in the existing public sewer network and should be agreed with United Utilities and the Lead Local Flood Authority.

6.3.15 An initial enquiry has been submitted to Liverpool City Council as the LLFA, who have advised that discharge rates for the site should not exceed the existing 2 year event minus 30%.

6.3.16 The site is considered part brownfield part greenfield. Therefore, both brown and greenfield rates have been calculated for the different areas of the site. However, the flows rates are only an indication and will be subject to confirmation of the existing drainage system and final outfall location. This will likely have an impact on attenuation requirements.

6.3.17 At this stage, and in lieu of any existing drainage information, to determine the likely proposed outfall discharge rates, the existing likely flows being discharged have been calculated using MicroDrainage design software.

6.3.18 The brownfield rates have been calculated again using MicroDrainage; based on a 2 pipe network system for the 2 year critical storm event. The results gave a discharge rate of 35.2 l/s

6.3.19 The greenfield rates have been calculated using MircoDrainage and are based on QBAR - ICP SUDS. The total of these calculations is 5.5 l/s.

6.3.20 Following receipt of United Utilities calculations of existing brownfield flows from the site (29.19l/s), they have confirmed that an acceptable discharge rate for the development of 21l/s, this includes a 30% reduction on existing flows. Adding this to the existing greenfield flows (5.5l/s), gives a total flow of 26.5 l/s.

6.3.21 It is proposed that the site will have two points of discharge for surface water. An allowance will be made for the main site drainage and an allowance for the future highway drainage under separate S38 application (see attached proposed catchments drawing in *Appendix F*).

6.3.22 The highway drainage is assumed to be covered under a future section 38 agreement and highways. The highway area which is proposed for adoption is proposed to drain at a maximum of 2.3l/s while the rest of the site is proposed to drain at 26.2l/s. See drainage layout for details (*Appendix F*).

6.3.23 This discharge rate of 26.2l/s has been confirmed by both the LLFA and UU.

6.3.24 The proposed drainage strategy is enclosed in *Appendix F.*

6.3.25 It is recommended that sustainable methods of attenuation are implemented where possible. However, as the use of infiltration devices is considered unviable, attenuation will be provided by a cellular attenuation structure. This will be developed as part of the Detailed Drainage Strategy.

6.3.26 The estimated volumes of attenuation required for the site (excluding proposed highway area) for the 1 in 100 year event plus 30% climate change is 496m³, based on an impermeable site area of approximately 1.01ha and assuming a minimum discharge rate of 24.2 l/s.

6.3.27 The estimated volumes of attenuation required for the area of highways to be adopted for the 1 in 100 year event plus 30% climate change is 43m³, based on an impermeable site area of approximately 0.09ha and assuming a minimum discharge rate of 2.3 l/s.

6.3.28 The attenuation volume has been calculated with the assumption that the ground is not suitable for infiltration.

6.3.29 Other additional methods of sustainability could be provided by use of rainwater harvesting tanks, rainwater butts or green roofs for the Building elements. If works to the car park are to be undertaken, there is the potential for the introduction of permeable surfacing to provide attenuation.

6.3.30 There is potential to use a bio retention tree pit system on this site. These SuDS features act as a contamination removal system and better the water quality discharged from the site.

6.3.31 The proposals for pollution protection should be agreed with the LLFA.

6.3.32 An existing substation is shown within the North West corner of the site. It is proposed that the existing substation drainage will tie in as part of the new drainage strategy (see Appendix F).

6.3.33 Where sewers are offered for adoption by United Utilities, they will be subject to a Section 104 Agreement with United Utilities.

6.3.34 Where sewers remain private, connection to the public sewer network will be subject to a Section 106 Agreement with United Utilities.

6.3.35 The proposed drainage strategy is enclosed in *Appendix F*, and this will be updated with further detail as part of the detailed drainage strategy update.

6.3.36 The final design of the drainage networks shall be in accordance with the legislation set by the Environment Agency, Liverpool City Council and United Utilities.

6.4 Maintenance

6.4.1 A suitable maintenance strategy should be adopted to ensure the drainage network is cleaned regularly and the routine maintenance and cleansing regime should be documented.

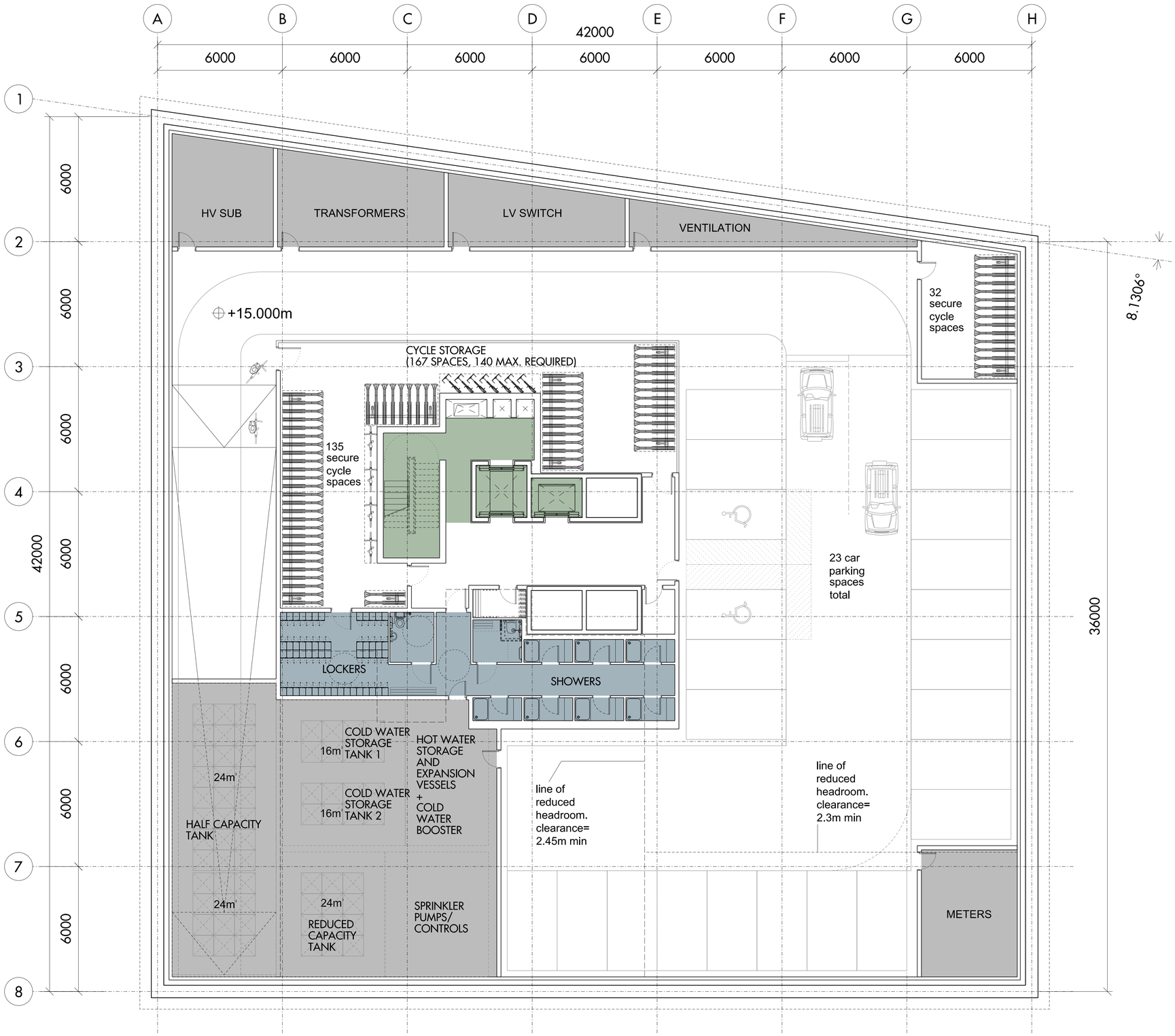
6.4.2 It is recommended that the drainage system is inspected as a minimum twice a year, with the system also being inspected after any major storm event. Significant sediment deposition is likely in areas used for storage, so a post clean-up operation may be required including the removal of litter, vegetation, sewerage debris and larger objects.

6.4.3 A management company may be required for maintenance of attenuation facilities.

Appendix A

Proposed Site Layout

Proposed Building A Floor Plans



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PALL MALL EXCHANGE, LIVERPOOL

BLOCK A OFFICE BASEMENT PLAN

16161_06_A_099

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P4
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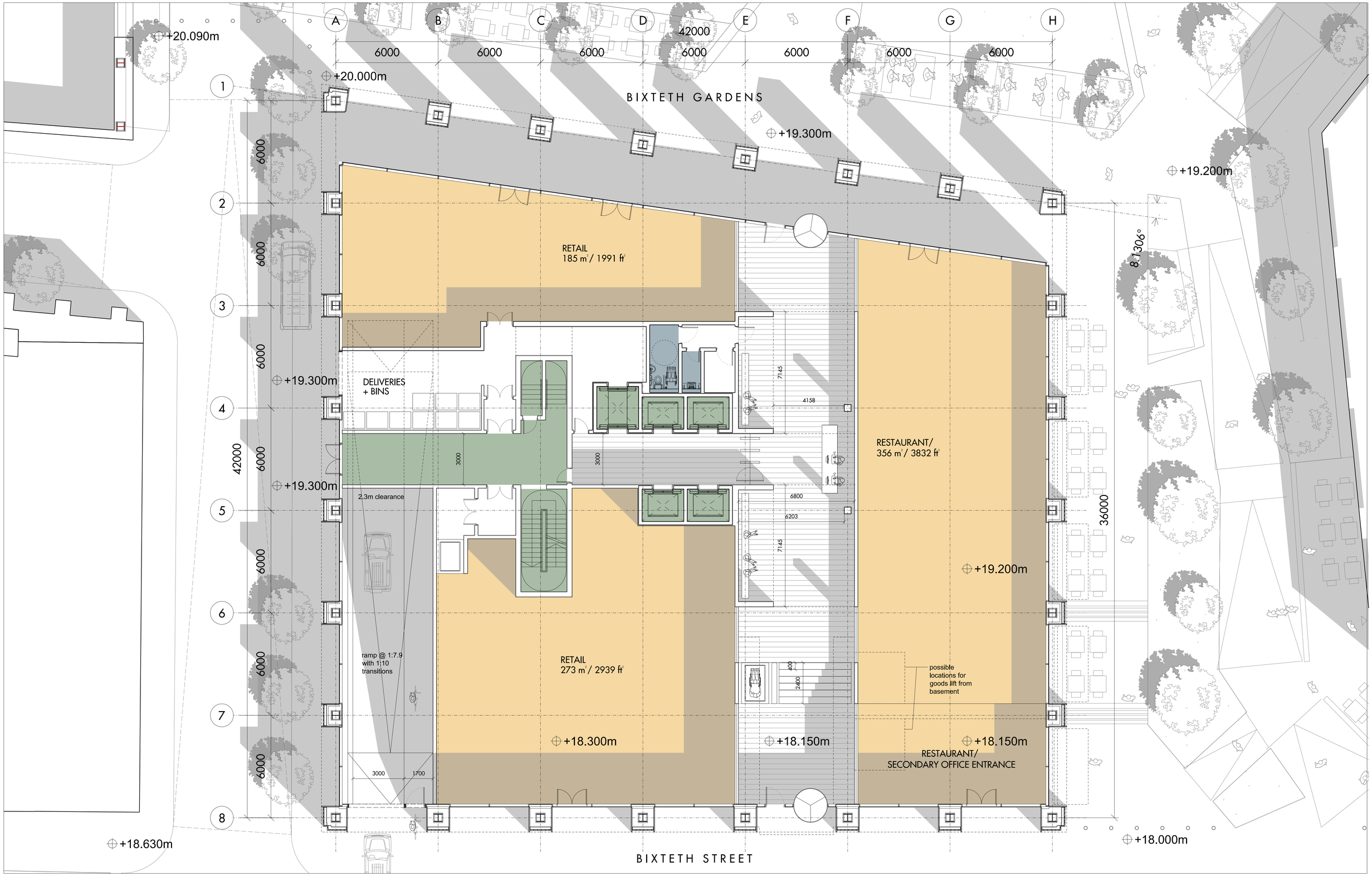

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BLOCK A OFFICE GROUND FLOOR PLAN 16161_06_A_100

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P5
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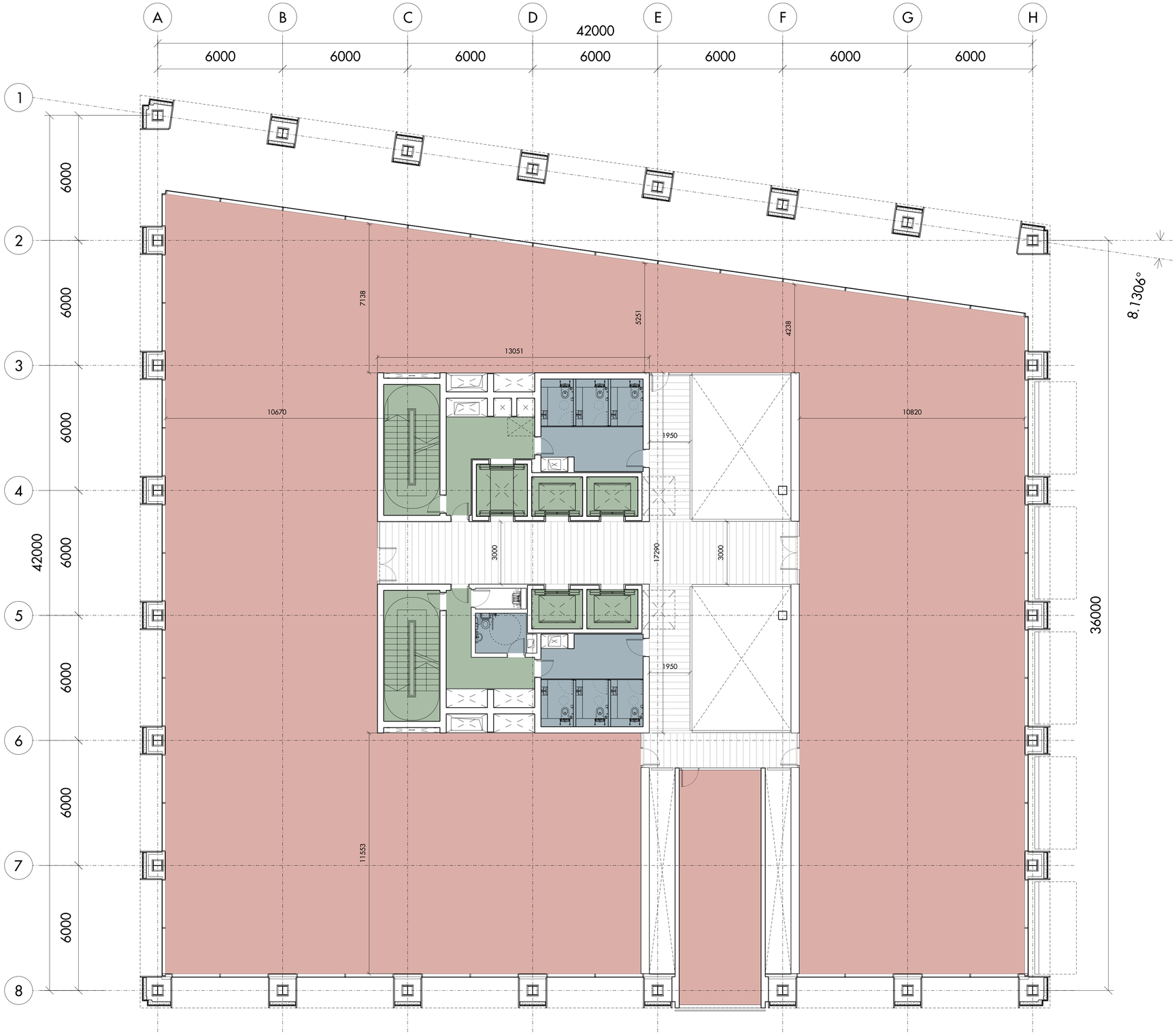

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BLOCK A OFFICE MEZZANINE FLOOR PLAN 16161_SK_A_101

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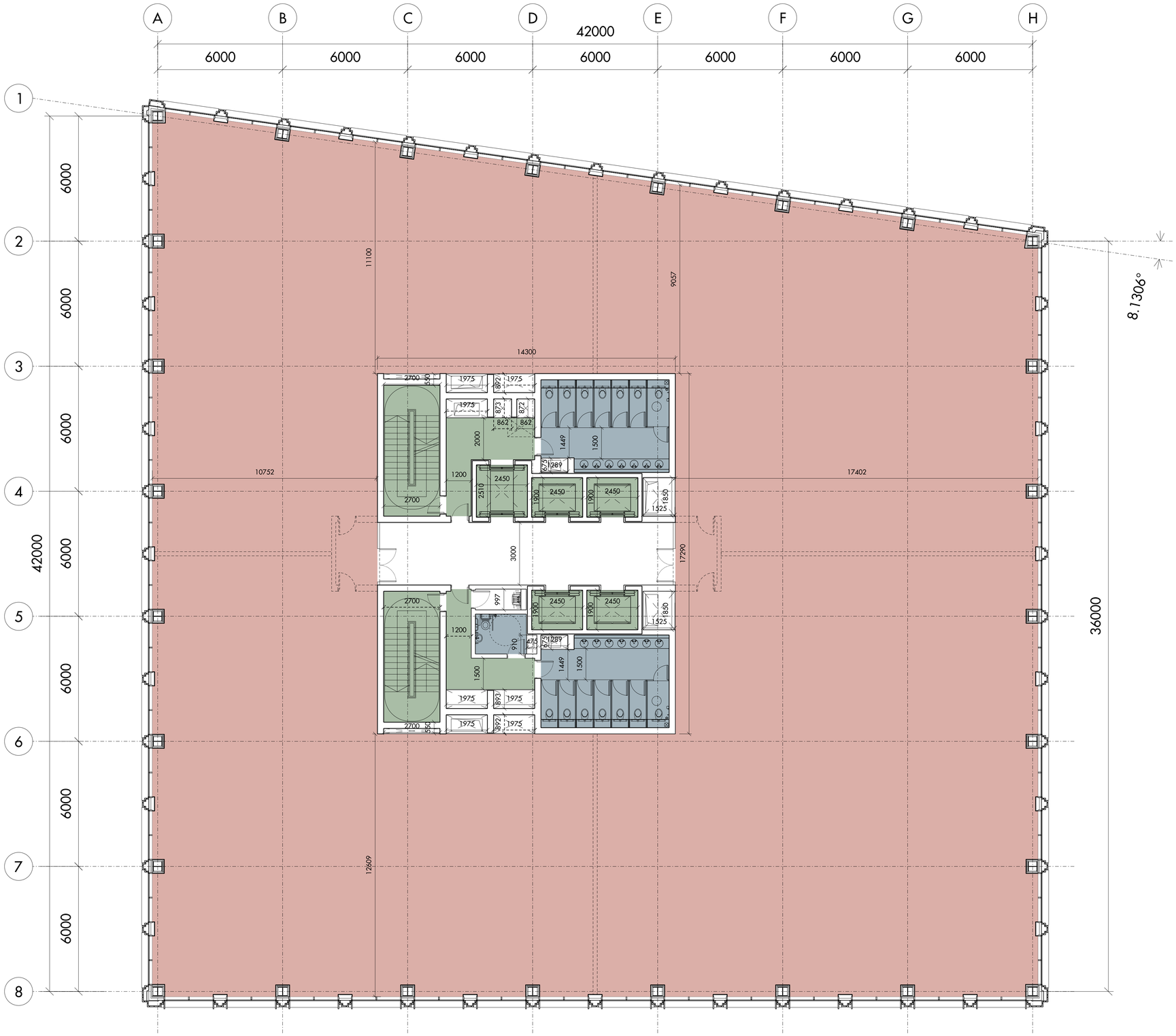

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BLOCK A OFFICE
TYPICAL FLOOR PLAN
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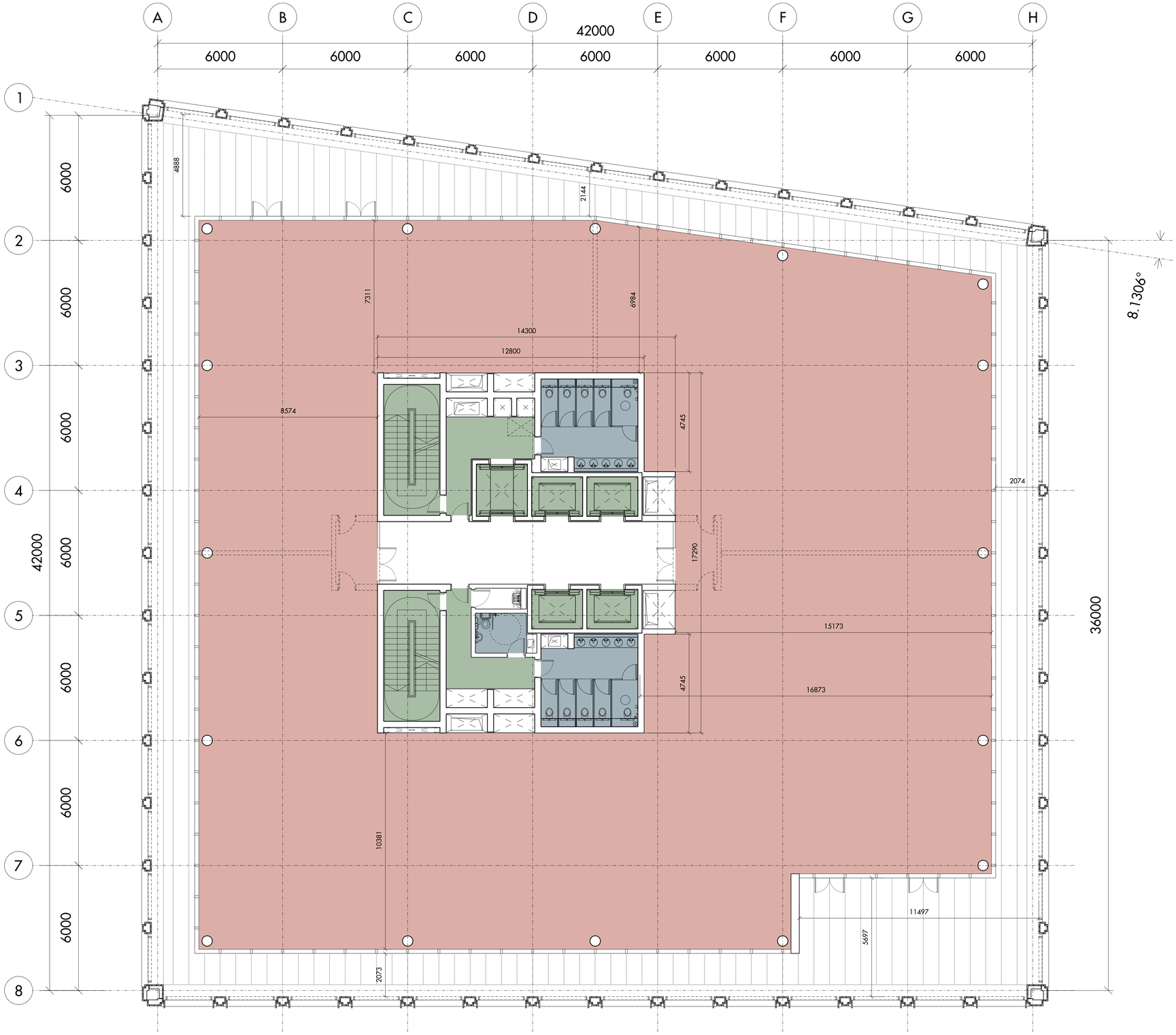

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PALL MALL EXCHANGE, LIVERPOOL

BLOCK A OFFICE PAVILION FLOOR PLAN

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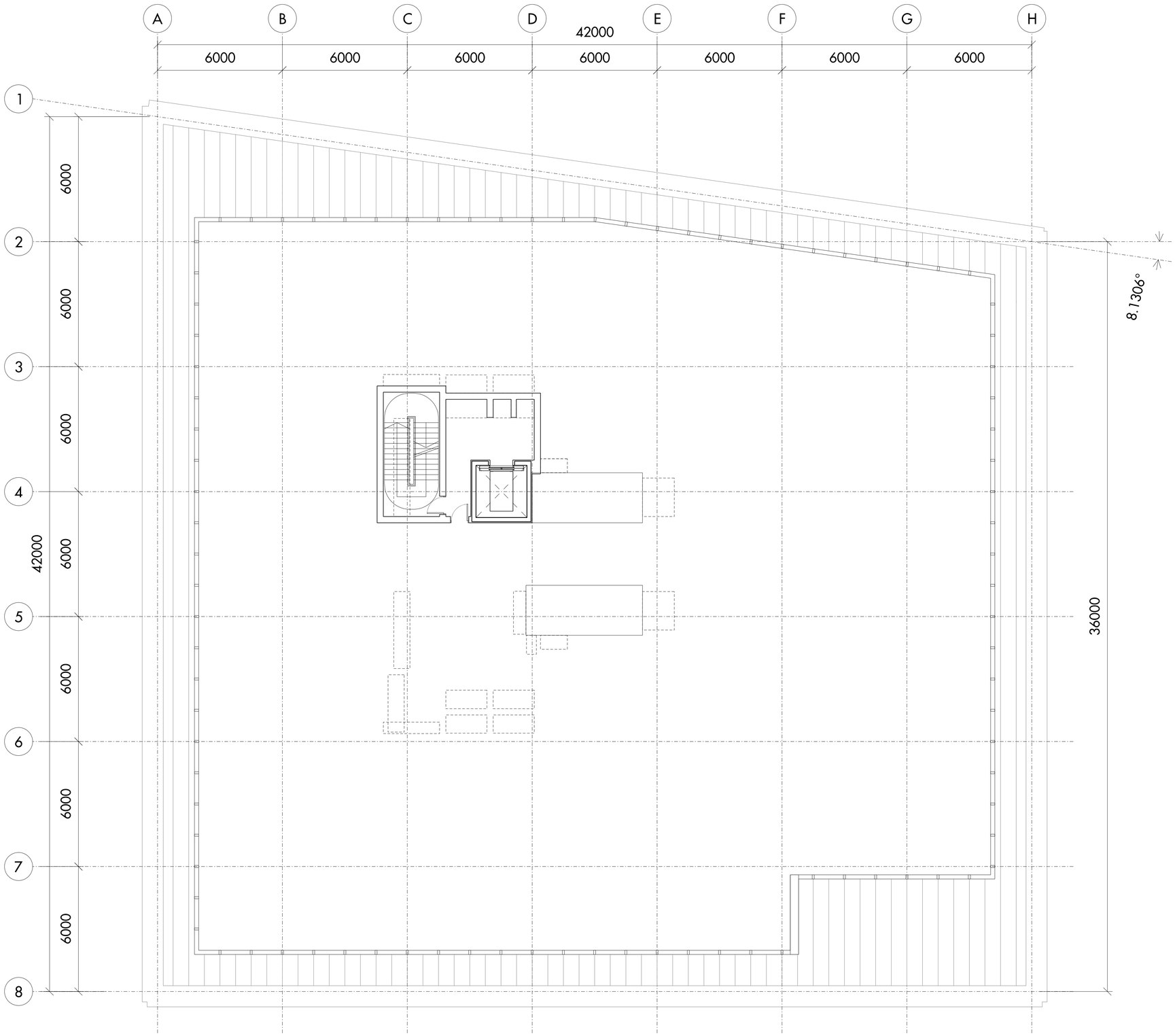

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BLOCK A OFFICE PLANT LEVEL PLAN 16161_SK_A_108

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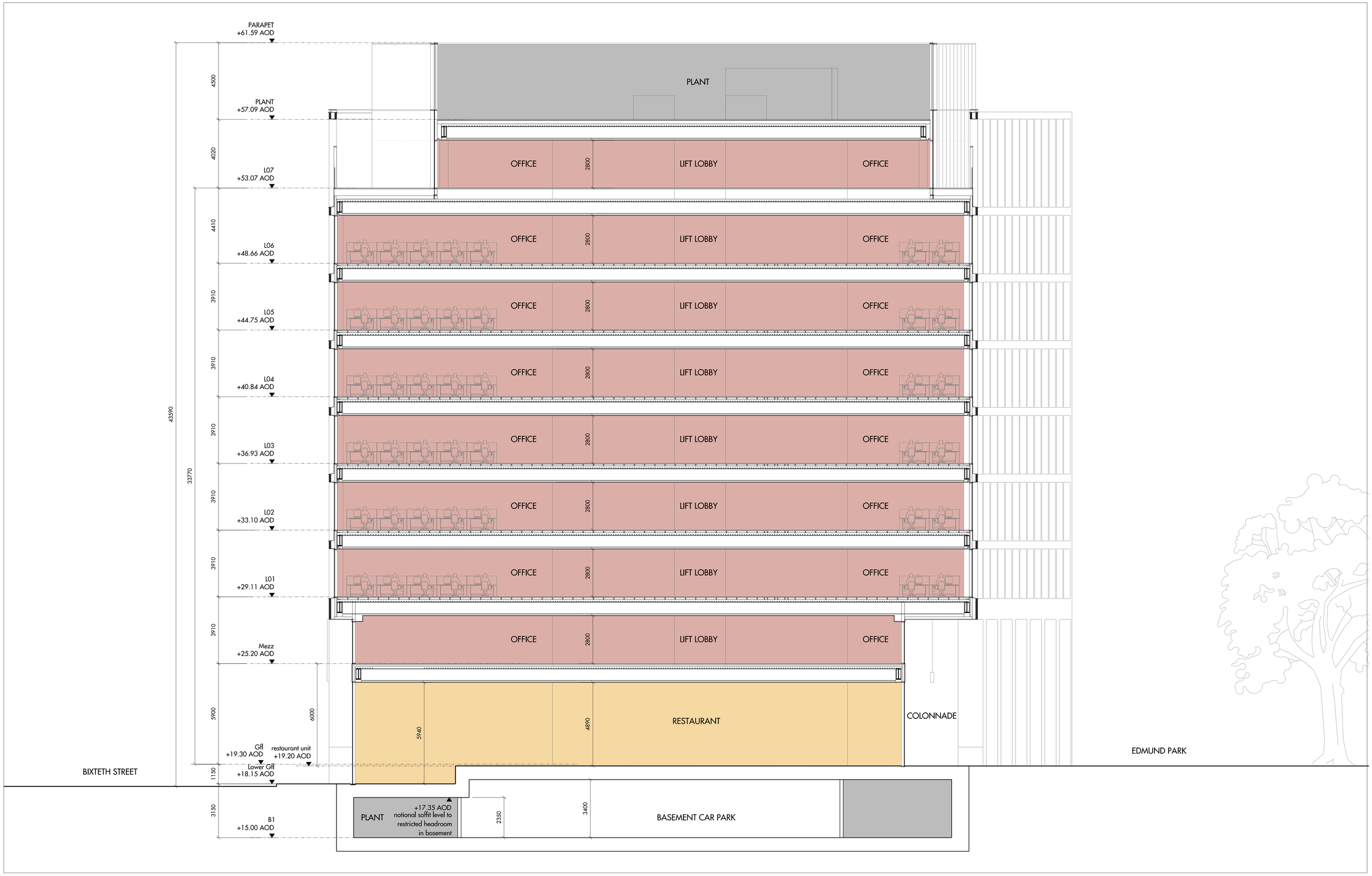

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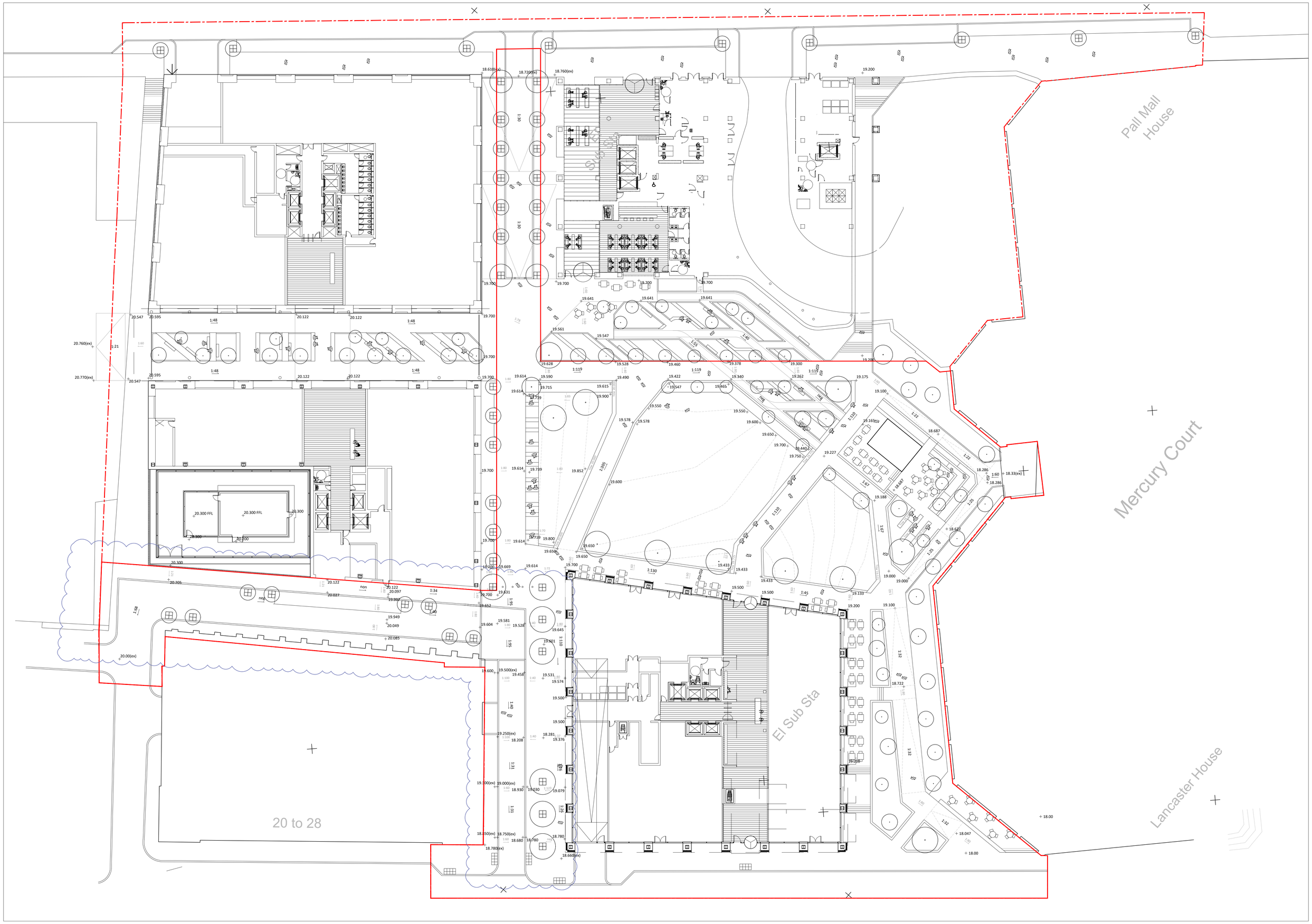
Pall Mall House
Mercury Court
Lancaster House
El Sub Sta
20 to 28
20.300 FFL
20.300 FFL

Appendix B

United Utilities Public Sewer Records *ref: 1369441*

Commercial Drainage and Water Enquiry

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

This document was ordered by: -

TM Property Services Ltd/ Search Choice Processing

1200 Delta Business Park
Swindon
Wiltshire
SN5 7XZ

Client Ref: 17848599

FAO:

This document was produced by: -

United Utilities Water Limited
Property Searches
Lower Ground Floor Haweswater House
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Great Sankey
Warrington
WA5 3LP

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The information in this document refers to: -

Property: LAND AT PALL MALL LIVERPOOL

For any queries relating to this report please e-mail, write or phone our Customer Liaison Team at the above address quoting United Utilities' Reference Number: 1369441

1. Section one: Introduction

The following records were searched in compiling this report:-

* The map of the public sewers
* The map of the waterworks
* Water and Sewerage connection records
* Adoption of public sewer records
* Building over public sewers records
* The properties subject to internal foul flooding
* Adoption of public water mains records
* The properties subject to poor water pressure and
* Water supply clarification.

All these are held by United Utilities Water Limited, Haweswater House, Lingley Mere Business Park, Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP.

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

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

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park, Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP.

Interpretation of Drainage and Water Enquiry

Appendix 1 of this report contains definitions of terms and expressions used in the report.

Enquiries and Responses

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

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

Appendix 2 of this report contains the terms and conditions of sale

Appendix 3 of this report contains our formal complaints procedures

Commercial drainage and water search complaint procedure

In the event of any queries relating to this report please e-mail, write or phone our Customer Liaison Team at the address above quoting United Utilities reference. We will endeavour to resolve any telephone contact or complaint at the time of the call

Whilst we always try to resolve all complaints straightaway, if this is not possible and you are not happy with the course of action taken by us, you can ask us to escalate the issues internally or take your complaint to an independent third party.

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

If we fail to give you a written substantive response within 5 working days Property Searches will compensate our client the original fee paid for a Property Searches Commercial Drainage and Water enquiry, regardless of the outcome of your complaint.

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

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

- Refund your search fee
- Provide you with a revised search
- Take the necessary action within our power to put things right
- Keep you informed of any action required

If we cannot resolve your complaint or have failed to comply with the complaints procedure you can:
- Let us know and we can escalate your complaint
- Refer the issue to an independent body of your choice.

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DRAINAGE AND WATER ENQUIRY

To help understand the implications of the Drainage and Water Enquiries Report a summary guide to the content of the full report is provided below.

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

✓ *This response represents the typical situation for a property.*

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

Question	Report Schedule	Answer
1	Where relevant, please include a copy of an extract from the public sewer map.	Yes & in vicinity ✓
2	Where relevant, please include a copy of an extract from the map of waterworks.	Yes & in vicinity ✓
3	Does foul water from the property drain to a public sewer?	Plot of Land ⚑
4	Does surface water from the property drain to a public sewer?	Plot of Land ⚑
5	Is a surface water drainage charge payable?	No ⚑
6	Does the public sewer map indicate any public sewer, disposal main or lateral drain within the boundaries of the property?	Public ⚑
6.1	Does the public sewer map indicate any pumping station or any other ancillary apparatus within the boundaries of the property?	None ✓
7	Does the public sewer map indicate any public sewer within 30.48 metres (100 feet) of any buildings within the property?	None ⚑
7.1	Does the public sewer map indicate any public pumping station or any other ancillary apparatus within 50 metres of any buildings within the property?	None ✓
8.1	Are any sewers or lateral drains serving or which are proposed to serve the property the subject of an existing adoption agreement or an application for such an agreement?	No ✓
8.2	Are any sewers or lateral drains serving, or which are proposed to serve the property, the subject of an existing adoption agreement or an application for such an agreement?	No ✓
9	Has a sewerage undertaker approved or been consulted about any plans to erect a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain?	None ✓
10	Is the property, or part of the property, at risk of internal foul flooding due to overloaded public sewers?	No ✓
11	Please state the distance from the property to the nearest boundary of the nearest sewage treatment works.	Yes ✓
12	Is the property connected to mains water supply?	Plot of Land ⚑
13	Are there any water mains, resource mains or discharge pipes within the boundaries of the property?	No ✓
14	Is any water main or service pipe serving or which is proposed to serve the property the subject of an existing adoption agreement or an application for such an agreement?	No ✓
15	Is the building at risk of receiving low water pressure or flow?	No ✓
16	What is the clarification of the water supply for the property?	Very Soft ✓
18	Please include details of the location of any water meter serving the property.	No Meter ✓
19	Who is responsible for providing the sewerage services for the property?	United Utilities ✓
19	Who is responsible for providing the water services for the property?	United Utilities ✓
20	Who bills the property for sewerage services?	Not Billed ⚑
21	Who bills the property for water services?	Not Billed ⚑
AQ1	Has a customer been granted a trade effluent consent at this property?	No ✓
AQ2	Is there an easement affecting the property?	No ✓

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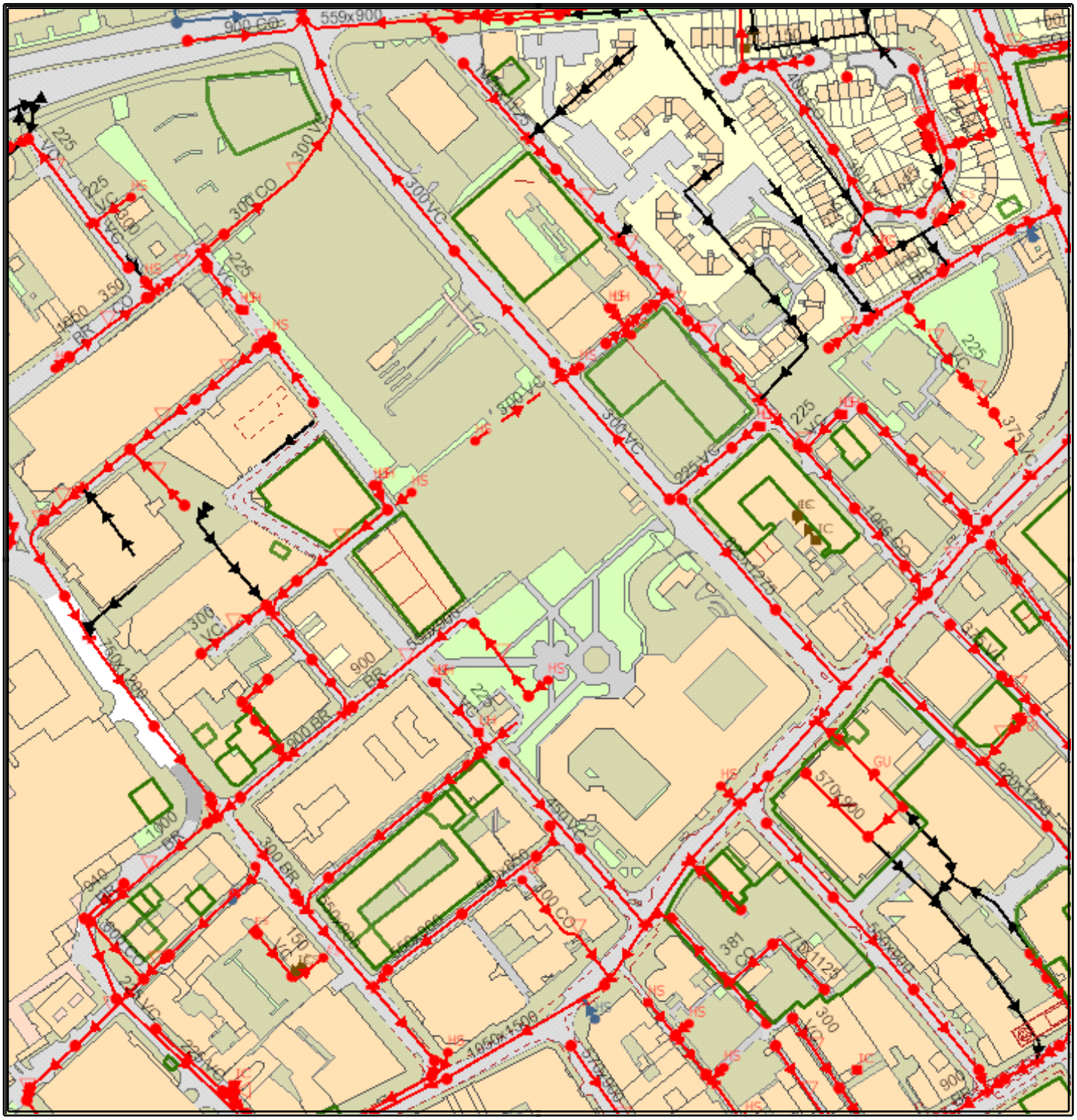
DRAINAGE AND WATER ENQUIRY

SEWER RECORD LAND AT PALL MALL LIVERPOOL



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

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Waste Water Symbology

Combined	Foul	Surface	Overflow	
				Manhole
				Manhole, side entry
				Public sewer
				Private sewer
				S104 sewer
				Rising main, public
				Rising main, private
				Rising main, S104
				Highway drain, private
				Screen chamber
DP	DP	DP	DP	Discharge point
				Outfall

CK Control kiosk

Sludge main

Abandoned pipe	
	Public sewer
	Rising main
	Private sewer
	Sludge main

Manhole function	
FO	Foul
SW	Surface Water
CO	Combined
OV	Overflow

Sewer shape			
CI	Circular	U	Unspecified
EG	Egg	SQ	Square
OV	Oval	TR	Trapezoidal
FT	Flat top	AR	Arch
RE	Rectangular	BA	Barrel
		HO	Horse shoe

Sewer material			
AC	Asbestos cement	DI	Ductile iron
BR	Brick	VC	Vitrified clay
CO	Concrete	PP	Polypropylene
CSB	Concrete segment	PF	Pitched fibre
CSU	Concrete segment	MA	Masonary, coursed
CC	Concrete box culverted	MA	Masonary, random
PSC	Plastic	RP	Reinforced plastic
GR	Glass reinforced	CI	Cast iron
GRP	Glass reinforced	SI	Spun iron
PVC	Polyvinyl chloride	ST	Steel
PE	Polyethelene	U	Unspecified

			WW pumping station
IC	IC	IC	Inspection chamber
ES	ES	ES	Extent of survey
HS	HS	HS	Head of system
SO		SO	Soakaway
RE	RE	RE	Rodding eye
LH	LH	LH	Lamp hole
			T junction/saddle
GU	GU	GU	Gulley
AV	AV	AV	Air valve
NRV	NRV	NRV	Non return valve
V			Sewer overflow
CA	CA	CA	Cascade
FM	FM	FM	Flow meter
HA	HA	HA	Hatch box
HY	HY	HY	Hydrobrake
IN	IN	IN	Inlet
			Bifurcation
CA	CA	CA	Catchpit
OI	OI	OI	Oil interceptor
PE	PE	PE	Penstock
SM	SM	SM	Summit
VA	VA	VA	Valve
VC	VC	VC	Valve chamber
WO	WO	WO	Washout chamber
DS	DS	DS	Drop shaft
WwTW	WwTW		WW treatment works
ST	ST		Septic tank
			Vent column
			Network storage tank
OP	OP	OP	Orifice plate
			Vortex chamber
			Penstock chamber

Clean Water Symbology

Proposed	Abandoned	Live	
			Distribution Main
			Trunk Main
			Comms Pipe
			Private Pipe
			Concessionary Service
			Raw Water
			LDTM Raw Water
			LDTM Treated Water

- Air Valve
- AC Valve, open
- AC Valve, closed
- CC Valve, open
- CC Valve, closed
- Non Return Valve
- Pressure Management Valve
- OMS Valve
- Stop Tap
- Flow Meter
- Domestic Meter
- Commercial Meter
- Pump
- Hydrant
- Fire Hydrant
- Anode
- Chlorination Point
- De-chlorination Point
- Strainer Point
- Access Point
- Hatch Box
- IP Point
- Sampling Station
- Logger Box

- Bore Hole
- Bulk Supply Point
- Inlet Point
- End Cap
- Site Termination
- Change of Characteristic

Property Types

- Water Tower
- Valve House
- Booster Pumping Station
- Intake Pumping Station
- Water Treatment Works
- Supply Reservoir
- Service Reservoir
- Impounding Reservoir
- Pipe Bridge
- Condition Report

Symbology for proposed assets is the same as above, but shown in green.

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

Matertial Types

AC	Asbestos Cement
CI	Cast Iron
CU	Copper
CO	Concrete
DI	Ductile Iron
GI	Galvanised Iron
GR	Grey Iron
OT	Others
PB	Lead
PV	uPVC
SI	Spun Iron
ST	Steel
UN	Unknown
PE	Ployethelene

Lining Types

CL	Cement Lining
TB	Tar or Bitumen
ERL	Epoxy Resin

Insertion Types

DD	Die Drawn
DR	Directional Drilling
MO	Moling
PI	Pipeline
SL	Slip Lined

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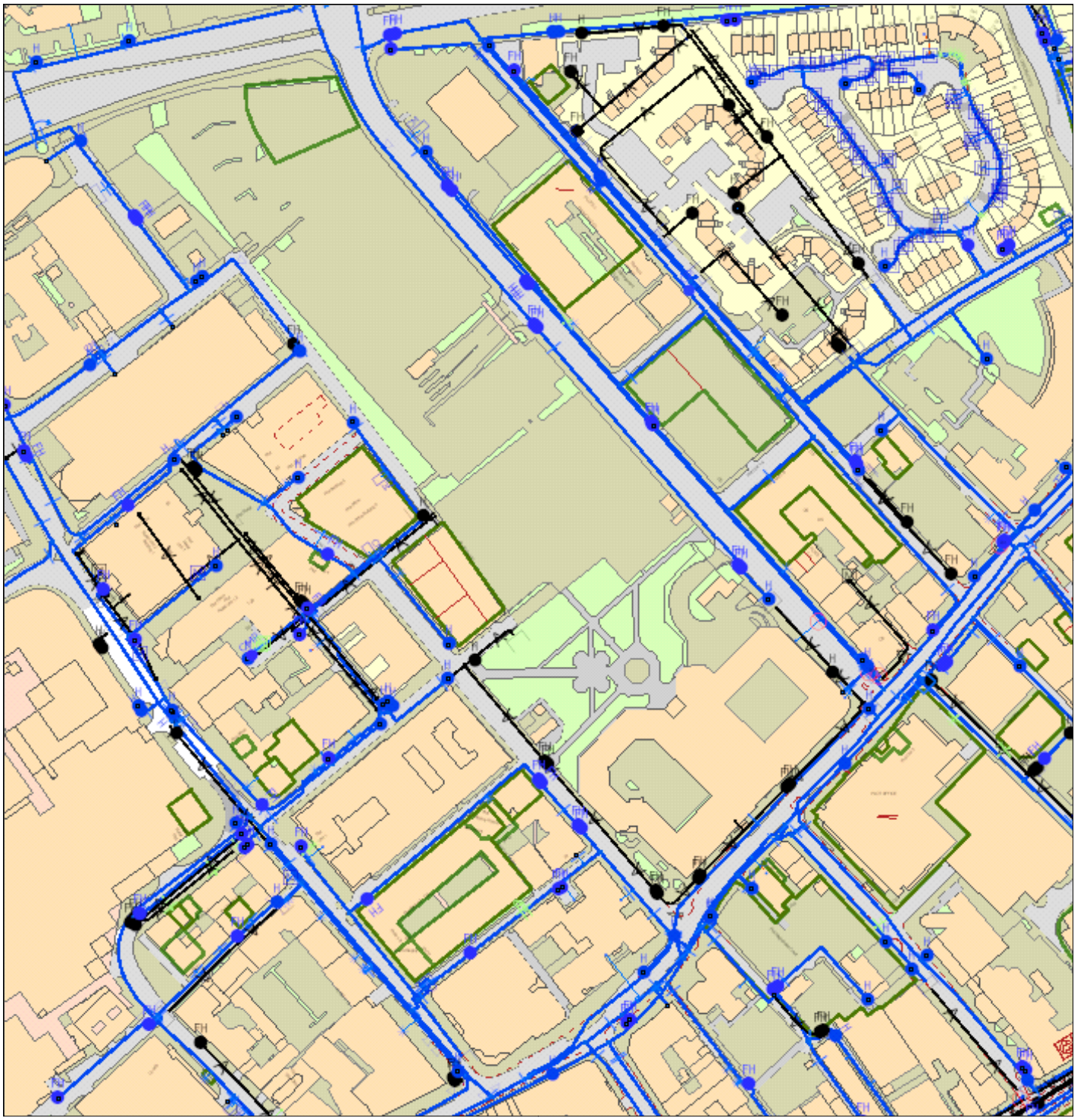
DRAINAGE AND WATER ENQUIRY

WATER RECORD LAND AT PALL MALL LIVERPOOL



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

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Question 1 **Where relevant, please include a copy of an extract from the public sewer map.**

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

Informative

1. The Water Industry Act 1991 defines Public Sewers as those which (United Utilities) have responsibility for. Other assets and rivers, water courses, ponds, culverts or highway drains may be shown for information purposes only.

2. Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer.

3. The Sewerage Undertaker has a statutory right of access to carry out work on its assets, subject to notice. This may result in employees of the Sewerage Undertaker or its contractors needing to enter the property to carry out work.

Question 2 **Where relevant, please include a copy of an extract from the map of waterworks.**

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

Informative

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

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

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

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

Question 3 **Does foul water from the property drain to a public sewer?**

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

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

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

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

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

Question 4 **Does surface water from the property drain to a public sewer?**

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

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

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

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

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

Question 5 **Is a surface water drainage charge payable?**

Answer **Records confirm that a surface water drainage charge is not payable for the property.**

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

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

Question 6 **Does the public sewer map indicate any public sewer, disposal main or lateral drain within the boundaries of the property?**

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

Informative The approximate boundary of the property has been determined by reference to the Ordnance Survey record or the map supplied.
The presence of a public sewer running within the boundary of the property may restrict further development.

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

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

Assets other than public sewers may be shown on the copy extract, for information only. Please note if the property was constructed after 1st July 2011 any sewers and/or lateral drains within the boundary of the property are the responsibility of the householder.

Question 6.1 **Does the public sewer map indicate any pumping station or any other ancillary apparatus within the boundaries of the property?**

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

Informative

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

- serve a single property, and are outside the property boundary or
- serves two or more properties

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

United Utilities has rights of access to maintain this asset on a regular basis.

Question 7 **Does the public sewer map indicate any public sewer within 30.48 metres (100 feet) of any buildings within the property?**

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

Informative

From 1st October 2011 there may be additional lateral drains and/or public sewers which are not recorded on the public sewer map but are also within 30.48 metres (100 feet) of a building within the property.
The presence of a public sewer within 30.48 metres (100 feet) of the building(s) within the property can result in the Local Authority requiring a property to be connected to the public sewer.
The measure is estimated from the Ordnance Survey record, between the building(s) within the boundary of the property and the nearest public sewer.
Sewers indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended that these details are checked with the developer, if any.
Assets other than public sewers may be shown on the copy extract for information only.
Where the property is part of a very recent or ongoing development and the sewers/pumping station are not the subject of an adoption application, buyers should consult with the developer to ascertain the extent of private drains, sewers and pumping stations for which they will hold maintenance and renewal liabilities.

Question 7.1 **Does the public sewer map indicate any public pumping station or any other ancillary apparatus within 50 metres of any buildings within the property?**

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

Informative

From 1 October 2016 United Utilities will be responsible for private pumping stations (though we may take ownership of some stations before this date) that either:
" serve a single property, and are outside the property boundary or
" serves two or more properties
Only private pumping stations installed before 1st July 2011 will be transferred into our ownership. United Utilities will be responsible for all associated costs, maintenance, repairs and any necessary upgrade work.

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

Question 8.1 **Are any sewers or lateral drains serving or which are proposed to serve the property the subject of an existing adoption agreement or an application for such an agreement?**

Answer **Records confirm that foul sewers and/or lateral drains serving the development, of which the property forms part are not the subject of an existing adoption agreement or an application for such an agreement.**

Informative

This enquiry is of interest to purchasers of new property who will want to know whether or not the property will be linked to a public sewer.

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

Final adoption is subject to the developer complying with the terms of the adoption agreement under Section 104 of the Water Industry Act 1991.

Question 8.2 **Are any sewers or lateral drains serving, or which are proposed to serve the property, the subject of an existing adoption agreement or an application for such an agreement?**

Answer **the surface water sewer(s) and/or surface water lateral drain(s) are not the subject of an adoption agreement and it is recommended that responsibility for maintenance of these is checked with the Developer as this may be due to a Sustainable Drainage**

Informative

This enquiry is of interest to purchasers of new property who will want to know whether or not the property will be linked to a public sewer.

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

Final adoption is subject to the developer complying with the terms of the adoption agreement under Section 104 of the Water Industry Act 1991.

Question 9 **Has a sewerage undertaker approved or been consulted about any plans to erect a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain?**

Answer **There are no records in relation to any approval or consultation about plans to erect a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain. However, the sewerage undertaker might not be aware of a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain.**

Informative

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

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

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

Question 10 **Is the property, or part of the property, at risk of internal foul flooding due to overloaded public sewers?**

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

Informative

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

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

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

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

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

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

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

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

Question 11 **Please state the distance from the property to the nearest boundary of the nearest sewage treatment works.**

Answer **The nearest Sewage Treatment Works is 1.13 miles (1.82 km), South West of the property. The name of the Sewage treatment works is Birkenhead Morpeth Dock WwTW.**

The owner is United Utilities

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

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

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

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

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

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

Question 12 **Is the property connected to mains water supply?**

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

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

Question 13 **Are there any water mains, resource mains or discharge pipes within the boundaries of the property?**

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

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

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

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

Question 14 **Is any water main or service pipe serving or which is proposed to serve the property the subject of an existing adoption agreement or an application for such an agreement?**

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

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

Question 15 **Is the building at risk of receiving low water pressure or flow?**

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

Informative The boundary of the property has been determined by reference to the Ordnance Survey record.
"Low water pressure" means water pressure below the regulatory reference level which is the minimum pressure when demand on the system is not abnormal.

Water Undertakers report properties receiving pressure below the reference level, provided that allowable exclusions do not apply (i.e. events which can cause pressure to temporarily fall below the reference level).

The reference level of service is a flow of 9 litres/minute at a pressure of 10 metres head on the customer's side of the main stop tap. The reference level of service must be applied on the customer's side of a meter or any other company fittings that are on the customer's side of the main stop tap. The reference level applies to a single property.

Allowable exclusions:
The Water Undertaker to include in the properties receiving pressure below the reference level, provided that allowable exclusions listed below do not apply.

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

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

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

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

It should be noted that low water pressure can occur from private water mains, private supply pipes (the pipework from the external stop cock to the property) or internal plumbing which are not the responsibility of the Water Undertaker. This report excludes low water pressure from private water mains, supply pipes and internal plumbing and the Water Undertaker makes no comment upon this matter.

Question 16 **What is the clarification of the water supply for the property?**

Answer **The water supplied to the property has an average water hardness of 56 mgl calcium carbonate which is defined as very soft by United Utilities.**

Informative

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

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

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

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

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

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

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

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

Table 1 Drinking water hardness

mg Ca/l	mg $CaCO_3$/l	Clark Degrees	French Degrees	German Degrees	Hardness
<30	<75	<5.3	<7.5	<4.2	Very soft
30-50	75 – 125	5.3 – 8.8	7.5 – 12.5	4.0 – 7.0	Soft
50-100	125 – 250	8.8 – 17.5	12.5 – 25.0	7.0 – 14.0	Mod. hard
100-150	250 – 375	17.5 – 26.3	25.0 – 37.5	14.0 – 21.0	Hard
>150	>375	>26.3	>37.5	>21.0	Very hard

Question 18 **Please include details of the location of any water meter serving the property.**

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

Informative Where the property is not served by a meter the current occupier can contact the retailer directly to advise on the current charging method, details of the retailer can also be found on the current occupiers bill.

Question 19 **Who is responsible for providing the sewerage services for the property?**

Answer **United Utilities Water Limited, Haweswater House, Lingley Mere Business Park, Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP is the sewerage undertaker for the area and United Utilities Water Limited, Haweswater House, Lingley Mere Business Park, Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP is the water undertaker for the area.**

Informative Not Applicable

Question 20 **Who bills the property for sewerage services?**

Answer **Since 1st April 2017 commercial customers can choose their retailer. If you wish to know who currently bills the property for sewerage services you will need to contact the current owner of the property to find out who the current retailer is.**

Informative Details of the retailer for a property can be found on the current occupiers bill. For a list of all potential retailers of waste water services for the property please visit www.open-water.org.uk

Question 21 **Who bills the property for water services?**

Answer **Since 1st April 2017 commercial customers can choose their retailer. If you wish to know who currently bills the property for water services you will need to contact the current owner of the property to find out who the current retailer is.**

Informative Details of the retailer for a property can be found on the current occupiers bill. For a list of all potential retailers of water services for the property please visit www.open-water.org.uk

Additional Questions

Additional Question 1

Has a customer been granted a trade effluent consent at this property?

Answer

There is no record of a Trade Effluent consent at this property. Applications for Trade Effluent consents should be submitted via your retailer for info please visit https://www.unitedutilities.com/services/wholesale-services/trade-effluent/

Informative

The owner/occupiers of Trade Premises do not have the right to discharge Trade Effluent to the public wastewater network. Any Trade Effluent Discharge Consent will be issued under Section 118 of the Water Industry Act 1991 and will be subject to conditions set by the Sewerage Undertaker.

Generally these conditions are to ensure:
a) The Health and Safety of staff working within the wastewater network and at wastewater treatment plants.

b) The apparatus of the wastewater network is not damaged.

c) The flow of the contents of the wastewater network is not restricted.

d) Equipment, plant, and processes at treatment works are not disrupted or damaged.

e) Treatment of sewage sludge is not impeded and sludges are disposed of in an environmentally friendly manner.

f) Final effluent discharge from wastewater treatment plants has no impact on the environment or prevents the receiving waters from complying with EU Directives.

g) Potential damage to the environment via storm water overflows is minimised.

Disputes between an occupier of a Trade Premise and the Sewerage Undertaker can be referred to the Director General of Water Services (OFWAT).
Protecting Public Sewers - Discharges Section 111 of the Water Industry Act 1991, places prohibition on the discharge of the following into a public sewer, drain or a sewer that communicates with a public sewer.

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

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

iii) Any petroleum spirit or carbide of calcium.
On summary conviction offences under this Section carry a fine not exceeding the statutory maximum or a term of imprisonment not exceeding two years, or both.
Please note any existing consent is dependant on the business being carried out at the property and will not transfer automatically upon change of ownership.

Additional Question 2

Is there an easement affecting the property?

Answer

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

Informative

Not Applicable.

Appendix 1 - General Interpretation

1. (1) In this Schedule-

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

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

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

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

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

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

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

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

"disposal main" means (subject to Section 219(2) of the 1991 Act) any outfall pipe or other pipe which-
(a) is a pipe for the conveyance of effluent to or from any sewage disposal works, whether of a sewerage undertaker or of any other person; and
(b) is not a public sewer;

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

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

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

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

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

"maintenance period" means the period so specified in an adoption agreement as a period of time-
(a) from the date of issue of a certificate by a Sewerage Undertaker to the effect that a developer has built (or substantially built) a private sewer or lateral drain to that undertaker's satisfaction; and
(b) until the date that private sewer or lateral drain is vested in the Sewerage Undertaker;

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

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

"public sewer" means, subject to Section 106(1A) of the 1991 Act(h), a sewer for the time being vested in a Sewerage Undertaker in its capacity as such, whether vested in that undertaker-
(a) by virtue of a scheme under Schedule 2 to the Water Act 1989(i);
(b) by virtue of a scheme under Schedule 2 to the 1991 Act (j);

(c) under Section 179 of the 1991 Act (k); or
(d) otherwise;

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

"resource main" means (subject to Section 219(2) of the 1991 Act) any pipe, not being a trunk main, which is or is to be used for the purpose of-
(a) conveying water from one source of supply to another, from a source of supply to a regulating reservoir or from a regulating reservoir to a source of supply; or
(b) giving or taking a supply of water in bulk;

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

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

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

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

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

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

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

(a) 1991 c. 56.
(b) S.I. 2000/3184. These Regulations apply in relation to England.
(c) S.I. 2001/3911. These Regulations apply in relation to Wales.
(d) Section 51A was inserted by Section 92(2) of the Water Act 2003 (c. 37). Section 104(1) was amended by Section 96(4) of that Act.
(e) Various amendments have been made to Sections 102 and 104 by Section 96 of the Water Act 2003.
(f) Inserted by Section 56 of and Schedule 4 to the Water Act 2003.
(g) Subsection (1A) was inserted by Section 92(5) of the Water Act 2003.
(h) Section 106(1A) was inserted by Section 99 of the Water Act 2003.
(i) 1989 c. 15.
(j) To which there are various amendments made by Section 101(1) of and Schedule 8 to the Water Act 2003.
(k) To which there are various amendments made by Section 101(1) of and Schedule 8 to the Water Act 2003.
(l) Section 199 was amended by Section 97(1) and (8) of the Water Act 2003.

United Utilities

COMMERCIALDW
DRAINAGE AND WATER ENQUIRY

Appendix 2 - DRAINAGE AND WATER ENQUIRY (COMMERCIAL) AGREEMENT

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

Definitions

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

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

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

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

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

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

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

Agreement

1.1 The Company agrees to supply the Report to the Customer and the Client subject to this Agreement. The scope and limitations of the Report are described in clause 2 of this Agreement.
Where the Customer is acting as an agent for the Client then the Customer shall be responsible for bringing this Agreement to the attention of the Client and the Purchaser.

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

The Report

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

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

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

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

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

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

Liability

3.1 The Company shall not be liable to the Client or the Purchaser for any failure defect or non-performance of its obligations arising from any failure to provide or delay in providing the Report to the extent that such failure or delay is due to an event or circumstance beyond the reasonable control of the Company including but not limited to any delay, failure of or defect in any machine, processing system or transmission link or any failure or default of a supplier or sub-contractor of the Company or any provider of any third party Information except to the extent that such failure or delay is caused by the negligence of the Company.

3.2 Where a Report is requested for an address falling within a geographical area where two different companies separately provide Water and Sewerage Services, then it shall be deemed that liability for the information given by either company will remain with that company in respect of the accuracy of the information supplied.
A company supplying information which has been provided to it by another company for the purposes outlined in this agreement will therefore not be liable in any way for the accuracy of that information and will supply that information as an agent for the company from which the information was obtained.

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

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

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

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

Copyright and Confidentiality

4.1 The Customer, the Client and the Purchaser acknowledge that the Report is confidential and is intended for the personal use of the Client and the Purchaser. The copyright and any other intellectual property rights in the Report shall remain the property of the
Company. No intellectual or other property rights are transferred or licensed to the Customer, the Client or the Purchaser except to the extent expressly provided herein.

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

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

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

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

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

Payment

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

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

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

Appendix 2 continued - DRAINAGE AND WATER ENQUIRY (COMMERCIAL) AGREEMENT

Data Protection

6.1 We will process any personal data you provide to us in accordance with the Data Protection Act 1998. Any personal information you provide to us may be used for the purposes for which the information is provided and to assist with our debt recovery processes. We may also disclose it to other companies in the United Utilities group (being United Utilities Group PLC and its subsidiary companies) and their sub-contractors in connection with those purposes, but it will not be processed for other purposes or disclosed to other third parties without your express permission. We may also utilise any information we collect so that we are able to correctly administer, develop and improve the business and services we provide to our customers.

General

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

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

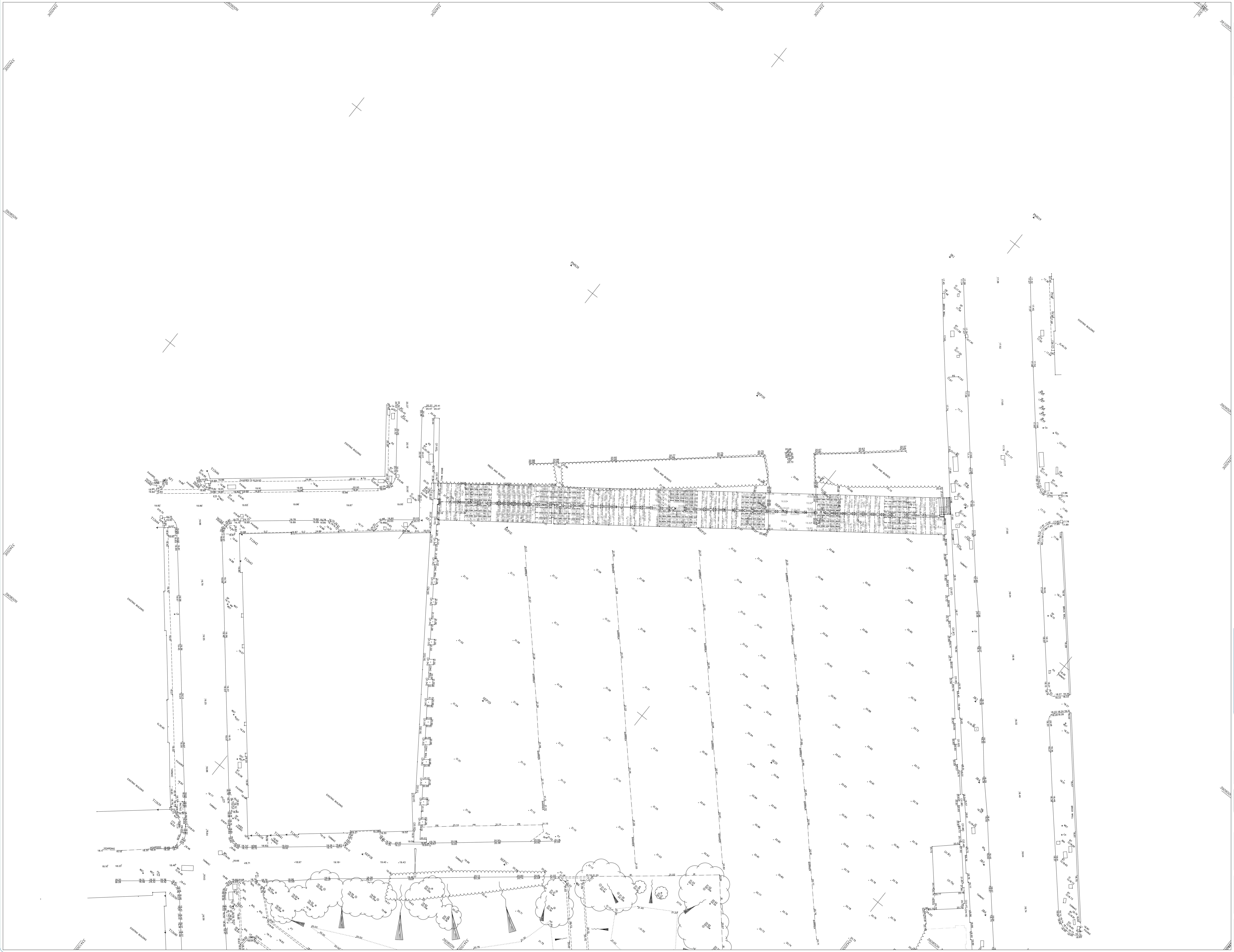
7.3 Nothing in this Agreement and conditions shall in any way restrict the Customer's the Client's or the Purchaser's statutory or any other rights of access to the information contained in the Report.

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

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

Appendix C

Topographical Survey



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PLAN GRID NORTH

File Name: S16777-T.dwg

LEGEND

AV	AIR VALVE	LBY	LIFEBUOY
BB	BELISHA BEACON	MH	MANHOLE
BOL	BOLLARD	MKR	MARKER
BH	BORE HOLE	MS	MILE STONE
BIN	BIN	MP	MOORING POINT
BM	BENCH MARK	MW	MONITORING WELL
BS	BUS STOP	NP	NAME PLATE
BT	BT INSPECTION COVER	OP	OUTFALL PIPE
CB	CONTROL BOX	PB	POST OFFICE BOX
CCTV	CCTV CAMERA POST	PN	PYLON
COL	COLUMN	PP	PETROL PUMP
COM	COMMUNICATIONS COVER	PT	POST
CTV	CABLE TV COVER	RE	RODDING EYE
DC	DRAINAGE CHANNEL	RL	RIDGE LEVEL
DP	DOWN PIPE	RS	ROAD SIGN
DR	DRAIN	RTW	RETAINING WALL
EIC	ELEC INSPECTION COVER	RWP	RAINWATER PIPE
EL	EAVES LEVEL	SAP	SAPLING
ELB	ELECTRIC BOX	SP	SIGN POST
ER	EARTH ROD	SOF	SOFFIT LEVEL
EP	ELECTRICITY POLE	SV	STOP VALVE
FFL	FINISHED FLOOR LEVEL	TB	TRAFFIC BOLLARD
FH	FIRE HYDRANT	TCB	TELEPHONE CALL BOX
FP	FLAG POLE	TIE	TIE WIRE
G	GULLY	TL	TRAFFIC LIGHT
GLT	GROUND LIGHT	TLB	TRAFFIC LIGHT BOX
GP	GATE POST	TM	TICKET MACHINE
GST	GAS TAP	TP	TELEGRAPH POLE
GSV	GAS VALVE	VP	VENT PIPE
IC	INSPECTION COVER	WM	WATER METER
IL	INVERT LEVEL	WO	WASH OUT
KO	KERB OUTLET	WST	WATER STOP TAP
LAD	LADDER	WSV	WATER STOP VALVE
LD	LAND DRAIN	G0.8ø	TREE GIRTH (Dia.)
LP	LAMP POST	MG	TREE MULTI–GIRTH

PAL	PALISADE	DRIP LINE
W/M	WIRE MESH	WATER COURSE
B/W	BARBED WIRE	KERB
C/P	CONC PANEL	FENCE
P/W	POST AND WIRE	SURFACE CHANGE
P/R	POST AND RAIL	WALL
I/R	IRON RAIL	TOP BANK
C/B	CLOSE BOARDED	BOTTOM BANK
CH/L	CHAIN LINK	BUILDING
(99.99)	TOP OF FEATURE	BUILDING CANOPY
	GATE	OVER HEAD ELECTRICAL
	STATION	OVER HEAD TELECOM
	BOREHOLE	
	BATTER	HEDGE

NOTES:
Additional to previous survey S14227-T.
All levels relate to O.S (Newlyn) Datum, Established using network RTK.
Survey plotted on a plane local grid, orientated to National Grid.

SURVEY STATIONS

Name	Easting	Northing	Height
AF1	334063.433	390831.484	19.832
AF2	334101.132	390852.801	20.165
AF3	334273.169	390814.299	18.873
JR2	334170.736	390910.473	17.849
SEP1	334116.300	390782.994	18.656
SEP4	334189.172	390822.905	20.289
SEP5	334221.977	390850.502	18.926

1
2
SHEET LAYOUT

0 2m 4m 8m 12m 16m
SCALE BAR

REV	DATE	DESCRIPTION

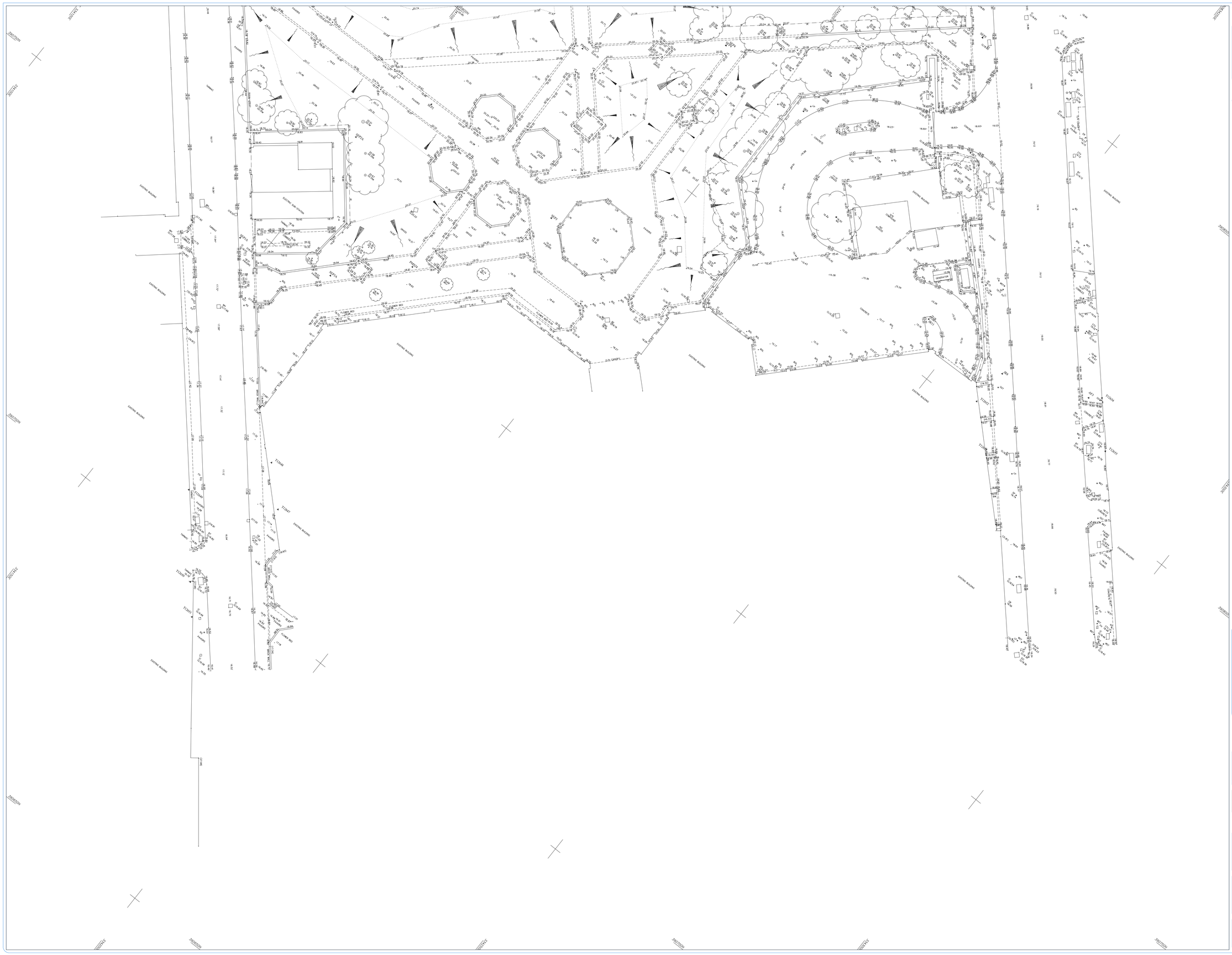
SURVEY & ENGINEERING PROJECTS

Client
Kier Property
Eighth Floor
81 Fountain Street
Manchester
M2 2EE

Project Title
Topographical Survey of Land at:
Bixteth Street
Liverpool
Sheet 1 of 2

Surveyed	Drawn	Checked
A.Fellowes	J.Cherry	R.Critchley

Scale	Date	Drawing Ref.	No.	Size	Rev
1:200	July 18	S16777-T	01	A0	--



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PLAN GRID NORTH

File Name: S16777-T.dwg

LEGEND

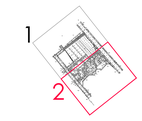
AB	AIR VALVE	LEP	LIFEBUOY
BB	BELGIAN BEACON	MH	MANHOLE
BOL	BOLLARD	MKR	MARKER
BS	BUS STOP POLE	MP	MILE POST
BM	BOM	MT	MOORING POINT
BW	BENCH MARK	MW	MONITORING WELL
BF	BT FOOT BOX	OP	OUTFALL PIPE
BT	BT INSPECTION COVER	OV	OUTFALL VALVE
CCTV	CCTV CAMERA POST	PB	PUSH BUTTON BOX
CP	CAMPER	PIL	PILLAR
COM	COMMUNICATIONS COVER	PP	PUSH PUMP
CTV	CABLE TV COVER	RE	RODDING EYE
DP	DOWN PIPE (SIGNAL)	RG	ROAD GULLY
DP	DOWN PIPE	RL	ROAD SIGN
DR	DRAIN	RTW	RETAINING WALL
DR	DRAIN INSPECTION COVER	SAP	SANITARY PIPE
EL	EAVES LEVEL	SMP	SAMPLING
ELB	ELECTRIC BOX	SP	SIGN POST
EP	ELECTRIC	SL	SOFFIT LEVEL
EP	ELECTRICITY POLE	SV	STOP VALVE
FFL	FINISHED FLOOR LEVEL	TB	TELEGRAPH BOLLARD
FH	FIRE HYDRANT	TCB	TELEPHONE CALL BOX
FP	FLAG POLE	TL	TELEPHONE
GI	GRATE	TL	TRAFFIC LIGHT
GLT	GROUND LIGHT	TLB	TRAFFIC LIGHT BOX
GP	GAS POST	TP	TELEGRAPH POLE
GV	GAS VALVE	TP	TELEPHONE POLE
GSV	GAS VALVE	VP	VENT PIPE
GT	GULLY INSPECTION COVER	WC	WATER COVER
IL	INVERT LEVEL	WO	WASH OUT
KO	KERB OUTLET	WT	WATER STOP TAP
LD	LAND DRAIN	WS	WATER SUPPLY PIPE
LD	LAND DRAIN	CD.BH	TREE DATA (DBH)
LP	LAMP POST	WG	TREE MULTI-DATA
BWL	BINDING WIRE		DAMP LINE
BLW	BARBED WIRE		ROOF OVERHANG/EAVE
BLW	BARBED WIRE		KERB
C/L	CENTRE LINE		EDGE
F/W	POST AND WIRE		SURFACE CHANGE
PCR	POST AND RAIL		NOSE
C/B	CLOSE BOARDED		BOTTOM BANK
C/B	CLOSE BOARDED		BOTTOM BANK
DRAIN	DRAIN LINE		BUILDING
DRAIN	DRAIN LINE		OVER HEAD CANOPY
GATE	GATE		OVER HEAD ELECTRICAL
STATION	STATION		OVER HEAD TELECOM
MANHOLE	MANHOLE		
BATTER	BATTER		HEDGE

NOTES:

Additional to previous survey S14227-1.
All levels relate to O.S (Newlyn) Datum, Established using network RTK.
Survey plotted on a plane local grid, orientated to National Grid.

SURVEY STATIONS

Name	Easting	Northing	Height
#1	334062.633	390821.484	18.822
#2	334101.132	390852.801	20.985
#3	334101.132	390852.801	20.985
#5	334170.728	390915.472	17.845
SEP1	334116.300	390782.884	18.636
SEP4	334188.191	390822.505	20.288
SEP5	334221.877	390850.502	18.828



SHEET LAYOUT

0 2m 4m 8m 12m 16m
SCALE BAR

REV	DATE	DESCRIPTION

SURVEY & ENGINEERING PROJECTS

Client
Kier Property
Eighth Floor
81 Fountain Street
Manchester
M2 2EE

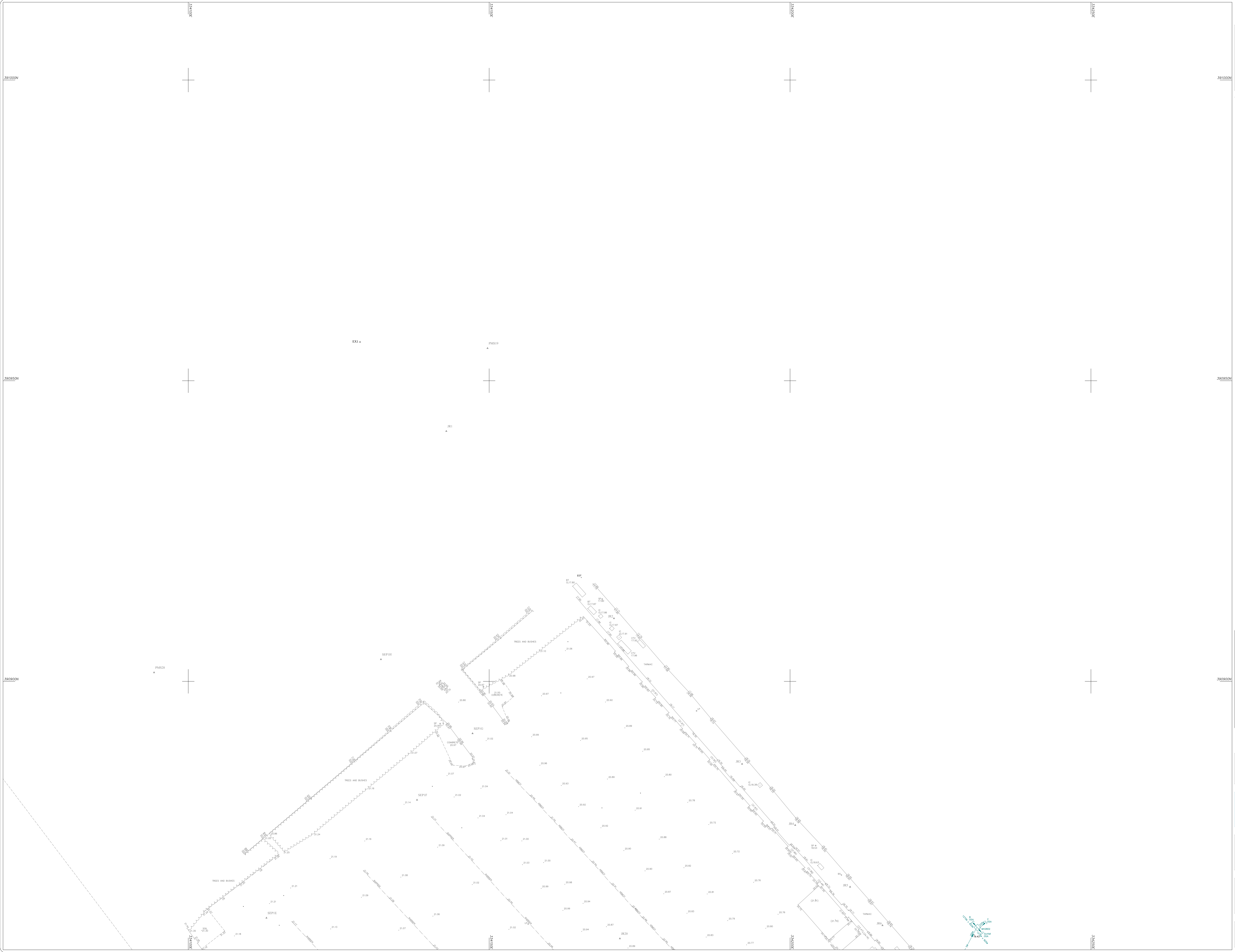
Project Title
Topographical Survey of Land at:
Bixteth Street
Liverpool
Sheet 2 of 2

Surveyed	Drawn	Checked
A.Fellowes	J.Cherry	R.Critchley

Scale	Date	Drawing Ref.	No.	Size	Rev
1:200	July 18	S16777-T	02	A0	--

Appendix D

CCTV Survey, SEP April 2017



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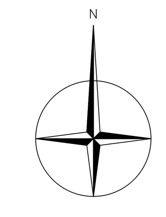
T. (01695) 729835 F. (01695) 725566 W. www.sepltd.com E. info@sepltd.com



PLAN GRID NORTH

File Name: S12959-CCTV.dwg

LEGEND

AV AIR VALVE
BT BT INSPECTION COVER
CB CONTROL BOX
CCTV CCTV CAMERA POST
COM COMMUNICATIONS COVER
CTV CABLE TV COVER
DC DRAINAGE CHANNEL
DP DOWN PIPE
DR DRAIN
EIC ELEC INSPECTION COVER
ELB ELECTRIC BOX
ER EARTH ROD
EP ELECTRICITY POLE
FFL FINISHED FLOOR LEVEL
FH FIRE HYDRANT
G GULLY
GLT GROUND LIGHT
GST GAS TAP
GSV GAS VALVE
IC INSPECTION COVER
IL INVERT LEVEL
KO KERB OUTLET
LP LAMP POST
MH MANHOLE
MKR MARKER
OP OUTFALL PIPE
PN PYLON
PP PETROL PUMP
RE RODDING EYE
RWP RAINWATER PIPE
SOF SOFFIT LEVEL
SV STOP VALVE
TCB TELEPHONE CALL BOX
TL TRAFFIC LIGHT
TLB TRAFFIC LIGHT BOX
TP TELEGRAPH POLE
WM WATER METER
WO WATER OUTLET
WST WATER STOP TAP
WSV WATER STOP VALVE

EOT END OF TRACE
OSA OUT OF SURVEY AREA
UTL UNABLE TO LIFT
UTS UNABLE TO SONDE
UTT UNABLE TO TRACE
S/L SIGNAL LOSS
BLK BLOCKED
NFH NO FURTHER GPR CONTACTS
BD BACKDROP PIPE
NVP NO VISIBLE PIPE
ToP TOP OF PIPE
EOT SYMBOL

BT	— BT-A —	— BT-A —
CABLE DUCT	— DU-A —	— DU-A —
CABLE TV	— CA-A —	— CA-A —
CCTV	— CC-A —	— CC-A —
TELECOMS	— TC-A —	— TC-A —
EARTH ROD STRIP	— ER-A —	— ER-A —
ELECTRIC	— EL-A —	— EL-A —
FIBRE-OPTICS	— FO-A —	— FO-A —
FUEL LINE	— FL-A —	— FL-A —
GPR DETECTION LINE	— GPR —	— GPR —
MAINS GAS	— GM-A —	— GM-A —
MAINS WATER	— WM-A —	— WM-A —
SEWER CW	— CW-A —	— CW-A —
SEWER FW	— FW-A —	— FW-A —
SEWER SW	— SW-A —	— SW-A —
TRAFFIC SIGNAL CABLE	— TS-A —	— TS-A —
UNIDENTIFIED TRACE	— UI-A —	— UI-A —
UNIDENTIFIED CABLE	— UC-A —	— UC-A —
UNIDENTIFIED PIPE	— UP-A —	— UP-A —
VEHICLE DETECTION CABLE	— VD-A —	— VD-A —
SURVEY BOUNDARY		

QUALITY LEVEL

A – Verification
B1 – Horizontal/Vertical location using multiple techniques
B2 – Horizontal/Vertical location using a single technique
B3 – Horizontal location using a single technique
B4 – Assumed route
C – Site Reconnaissance
D – Desktop utility records search

NOTES:

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

This Underground Utilities survey was conducted in compliance with the BSI PAS128:2014 standards.
Services linetypes display text indicating first an abbreviation of the services' function (eg. EL = Electric Cable) followed by the Quality Level to which that service was located (eg. B4 = Assumed route).
Lines annotated as GPR were located using only the Ground Penetrating Radar and should be considered as Quality Level B2.

Quality Level descriptions shown in the above legend are for reference purposes only and are not intended as detailed descriptions.
For full information on Quality Levels, please consult the BSI PAS128:2014 standards document.

DISCLAIMER:

At SEP we use skilled and experienced staff, modern up to date techniques and top of the range electromagnetic and radar technology to locate and trace sub-surface utilities. However the performance of the equipment employed in non-invasive surveys can be adversely affected by factors outside the control of SEP. Therefore SEP cannot guarantee that all utilities present on site have been located. It is the responsibility of the Client to consult regional authority records and undertake trial digs where appropriate.

Where similar services run in close proximity it may be impossible to separately trace individual services as the trace signal can experience interference. In such cases, services will be shown as a single, annotated line. The displayed depth will refer to the shallowest detected utility.

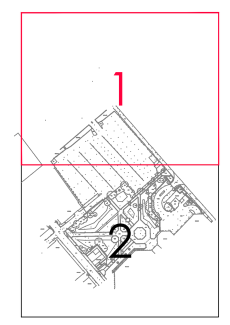
Successful tracing of non-conductive materials may be limited. Drainage gulleys are dye tested where possible to prove connectivity but it is not always possible to introduce the sonde due to narrow pipe sizes and/or accumulated silt.

Depth information of underground services/features are generally accurate to within +/- 10% (i.e. a pipe at 2m deep may be accurate to +/-200mm) but this cannot be guaranteed. Depths shown usually refer to the top of the service. Gravity sewer and drain depths are usually to invert (base of drainage channel) unless otherwise stated.

Some above ground features may have been obscured at time of survey. It is not always possible to operate the Ground Penetrating Radar in areas including, but not limited to, dense vegetation, rubble, debris and/or rough/uneven ground.

Existing record information that was made available to SEP by the Client or by the statutory utility provider should be regarded only as an indication and cannot be guaranteed.

Excavation in the vicinity of services shown should be carried out with due diligence (Ref. HSG47).



SHEET LAYOUT

0 2m 4m 8m 12m 16m
SCALE BAR

REV	DATE	DESCRIPTION

SURVEY & ENGINEERING PROJECTS

Client
Arup
6th Floor
3 Piccadilly Place
Manchester
M1 3BN

Project Title
Utility Survey of Land at:
Pall Mall
Liverpool
L3 9RY
Sheet 1 of 2

Surveyed	Drawn	Checked
S. Jones	C. Gaudie	B. Brady

Scale	Date	Drawing Ref.	No.	Size	Rev
1:200	Apr 17	S12959-CCTV	01	A0	--

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N

PLAN GRID NORTH

File Name: S12959-CCTV.dwg

LEGEND

AV	AIR VALVE	BT	CABLE DUCT
BT	BT INSPECTION COVER	CAT	CATV
CCTV	CCTV CAMERA POST	DATA	DATA
COM	COMMUNICATIONS COVER	TELECOM	TELECOM
CP	CATHODIC PROTECTION	TRAFFIC	TRAFFIC LED STRIP
DC	DRAINAGE CHANNEL		
DP	DOWN PIPE	FIBRE	FIBRE-OPTICS
DR	DRAIN	FUEL	FUEL LINE
DUCT	DUCT INSPECTION COVER	HTC	HEAT DETECTION LINE
ELB	ELECTRIC BOX	WATER	WATER
ER	EARTH ROD	MAINS WATER	MAINS WATER
EP	ELECTRICAL POLE	SEWER	SEWER
FFL	FINISHED FLOOR LEVEL	SEWER FR	SEWER FR
FH	FIRE HYDRANT	SEWER SR	SEWER SR
GAS	GAS VALVE	UNIDENTIFIED CABLE	UNIDENTIFIED CABLE
GLT	GROUND LIGHT	UNIDENTIFIED TRACE	UNIDENTIFIED TRACE
GST	GAS TAP	UNIDENTIFIED CABLE	UNIDENTIFIED CABLE
IC	INSPECTION COVER	VEHICLE DETECTION CABLE	VEHICLE DETECTION CABLE
IC	INSPECTION COVER	SURVEY BOUNDARY	SURVEY BOUNDARY
H.O.	KERB OUTLET		
LP	LIGHT POLE		
MK	MARKER		
MKR	MARKER		
PIPE	PIPE / PIPE		
PN	PYLON		
PP	PETROL PUMP		
RAIL	RAILWAY LINE		
RWP	RAINWATER PIPE		
SOFF	SOFFIT LEVEL		
TCB	TRAFFIC CABLE		
TCB	TELEPHONE CALL BOX		
TL	TRAFFIC LIGHT		
TLB	TRAFFIC LIGHT BOX		
TP	TELEGRAPH POLE		
WB	TELEGRAPH BOX		
WO	WATER OUTLET		
WSV	WATER STOP VALVE		
WSV	WATER STOP VALVE		
EOT	END OF TRACE		
OOA	OUT OF SURVEY AREA		
UTL	UNABLE TO LIFT		
UTL	UNABLE TO LIFT		
UTT	UNABLE TO TRACE		
UTT	UNABLE TO TRACE		
S.L.	SIGNAL LOSS		
NAT	NATURAL		
NFN	NO FURTHER NPR CONTACTS		
NVP	NO VISIBLE PIPE		
NVP	NO VISIBLE PIPE		
S.P.	SOFT SPOT		
S.P.	SOFT SPOT		

QUALITY LEVEL

A – Verification

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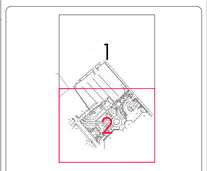

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0 2m 4m 8m 12m 16m

SCALE BAR

REV	DATE	DESCRIPTION

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