

Paul Waite Associates

Consulting Civil, Structural & Geo-Environmental Engineers

Flood Risk Assessment & Drainage Strategy

Middleton Sheet Metal

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Prepared For:

Middleton Sheet Metal

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EXECUTIVE SUMMARY

Paul Waite Associates have been commissioned to undertake a Flood Risk Assessment in accordance with National Planning Policy Framework to support a planning application for the creation of a new premises to the north of Middleton Sheet Metals existing site at Hanson Close Middleton.

The development site covers an area of 1.07 Hectares and is shown to be located within Flood Zone 1 with a small portion of site located in flood zone 2 and 3. of the Environment Agency Flood Map.

The site has been reviewed in relation to all potential sources of flooding and is considered at low risk from, pluvial, ground water, tidal, and artificial sources.

The risk fluvial flooding is only present in the southern portion of the site which is topographically lower than the rest and neighbours the River Irk. No development has been proposed in this area and will remain as existing.

The findings of this report have concluded that the proposed development will not increase flood risk on or off site from all sources and provide a betterment to the existing surface water (pluvial) flooding that occurs off site to the south by removing the development from the contributing area using positive drainage to the existing water course.

FOREWORD

This report has been prepared for the sole use and reliance of Middleton Sheet Metal (the client) named above and cannot be relied upon by any other parties without the express written authorisation of Paul Waite Associates Ltd. Any unauthorized third party relies on this report at their own risk and the authors owe them no duty of care.

The report should be read in its entirety, including all associated drawings and appendices. Paul Waite Associates Ltd cannot be held responsible for any misinterpretations arising from the use of extracts that are taken out of context.

The findings and opinions conveyed in this report (including review of any third-party reports) are based on information obtained from the sources listed, which Paul Waite Associates Ltd understands are reliable. All reasonable skill, care and diligence has been applied in examining the information obtained. However, Paul Waite Associates Ltd accepts no responsibility for inaccuracies in the data supplied or for opinions based on any such inaccurate data.

Paul Waite Associates Ltd reserves the right to amend their conclusions and recommendations in the light of further information that may become available.

This flood risk assessment report is prepared in accordance with the requirements generally set out in the 'Technical Guidance to the National Planning Policy Framework', published in 2019 and following the standard section format and order of the GOV.UK – Flood risk and coastal change site specific flood risk assessment checklist.

PWA CREDENTIALS

This Flood Risk Assessment has been carried out by Paul Waite Associates Ltd who have over 30 years' experience of civil engineering and flood risk assessment preparation. This Flood Risk Assessment has been carried out following the general requirements of the Nation Planning Policy Framework (2019), considering recently updated national climate change considerations.

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1. FLOOD RISK ASSESSMENT (FRA) APPROACH

The requirements for flood risk assessments are generally as set out in the 'Technical Guidance to the National Planning Policy Framework', published in July 2021; and in more detail from the Government website 'Planning Applications: assessing flood risk' available from

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

The following body of text has been taken from Chapter 14 of the NPPF: Planning and flood risk.

159. Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.

160. Strategic policies should be informed by a strategic flood risk assessment, and should manage flood risk from all sources. They should consider cumulative impacts in, or affecting, local areas susceptible to flooding, and take account of advice from the Environment Agency and other relevant flood risk management authorities, such as lead local flood authorities and internal drainage boards. This methodology has been adopted to evaluate flood risk at the development site.

161. All plans should apply a sequential, risk-based approach to the location of development – taking into account all sources of flood risk and the current and future impacts of climate change – so as to avoid, where possible, flood risk to people and property. They should do this, and manage any residual risk, by:

- a) applying the sequential test and then, if necessary, the exception test as set out below;*
- b) safeguarding land from development that is required, or likely to be required, for current or future flood management;*
- c) using opportunities provided by new development and improvements in green and other infrastructure to reduce the causes and impacts of flooding, (making as much use as possible of natural flood management techniques as part of an integrated approach to flood risk management); and*
- d) where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to relocate development, including housing, to more sustainable locations.*

162. The aim of the sequential test is to steer new development to areas with the lowest risk of flooding from any source. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding. The strategic flood risk assessment will provide the basis for applying this test. The sequential approach should be used in areas known to be at risk now or in the future from any form of flooding.

163. If it is not possible for development to be located in areas with a lower risk of flooding (taking into account wider sustainable development objectives), the exception test may have to be applied. The need for the exception test will depend on the potential vulnerability of the site and of the development proposed, in line with the Flood Risk Vulnerability Classification set out in Annex 3.

164. The application of the exception test should be informed by a strategic or sitespecific flood risk assessment, depending on whether it is being applied during plan production or at the application stage. To pass the exception test it should be demonstrated that:

- a) the development would provide wider sustainability benefits to the community that outweigh the flood risk; and*
- b) the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.*

165. Both elements of the exception test should be satisfied for development to be allocated or permitted.

166. Where planning applications come forward on sites allocated in the development plan through the sequential test, applicants need not apply the sequential test again. However, the exception test may need to be reapplied if relevant aspects of the proposal had not been considered when the test was applied at the plan- 48 making stage, or if more recent information about existing or potential flood risk should be taken into account.

167. When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment⁵⁵. Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that:

- a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;*
- b) the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;*
- c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;*
- d) any residual risk can be safely managed; and e) safe access and escape routes are included where appropriate, as part of an agreed emergency plan.*

168. Applications for some minor development and changes of use⁵⁶ should not be subject to the sequential or exception tests but should still meet the requirements for site-specific flood risk assessments set out in footnote 55.

169. Major developments should incorporate sustainable drainage systems unless there is clear evidence that this would be inappropriate. The systems used should:

- a) take account of advice from the lead local flood authority;*
- b) have appropriate proposed minimum operational standards;*
- c) have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development; and*
- d) where possible, provide multifunctional benefits.*

This methodology has been adopted to evaluate flood risk at the development site.

2. INTRODUCTION

Paul Waite Associates have been appointed by Middleton Sheet Metal to undertake a drainage strategy report for the proposed industrial development of a 1.07ha site. Proposals comprise of 3 industrial units, and landscaping on a brownfield site. The site is located Northwest of the existing Middleton Sheet Metal Warehouse.

3. DEVELOPMENT SITE AND LOCATION

3.1. SITE LOCATION

Site Co-ordinates
OS X (Eastings): 387557
OS Y (Northings): 406086
National Grid Reference: SD875060/SD755706086
Nearest Post Code: M24 2HD



Figure 1: Site Location Plan

Source: Plan View from a Paul Waite Associates Drawing via Bing Maps

*Site location for indicative purposes only. Refer to architects plans for exact site position and boundary extents (see [Appendix A](#)). The site is located adjacent to existing industrial development to the north with the River Irk running along the south.

3.2. FORMER/CURRENT LAND USE

A study of historical Ordnance Survey (OS) maps has been undertaken to identify potentially significant geo-environmental constraints on or near the site. Salient points relating to the history of the site and surrounding area are summarised in Table 2.

Table 1: Site History Summary

Summary		
The site comprises agricultural fields from the earliest map of 1848. By 1891 the site is developed with Spring Vale Works (dyeing and finishing) that cuts into the slope of the northern boundary. The western third of the site appears to be a pit that is occupied by filter beds by 1907. By 1938 the mill has gone. By 1990 the site is identified as a depot with three small buildings and a sub-station. The cut slopes are no longer present, and the site has presumably been filled. By 2014 no buildings are shown on site.		
Date	Site	Surrounding Land
1848	Undeveloped field on the north bank of the River Irk.	Springvale Print Works is present on the opposite bank of the River Irk immediately south of the site. Surrounding land is mostly undeveloped.
1891-1893	There has been substantial development with Spring Vale Works (dyeing and finishing) occupying the eastern half of the site and covering the River Irk. Upstream of the site the River Irk is also diverted through a mill race that flows through the site. The northern boundary of the site is cut into the slope and the western third of the site is occupied by a pit. A slope is indicated alongside the River Irk suggesting land has been raised by cut and fill activities.	There has been substantial growth of Middleton. Spring Vale Works has changed from a print works to dyeing and finishing and expanded significantly. There are a series of reservoirs east of the site including a large reservoir immediately northeast of the site. Townley Mill (cotton) is present west of the site. An old shaft is present approximately 300 m northeast.
1907-1909	Some minor changes to the building footprint including the appearance of two chimneys. The most significant change is the appearance of filter beds in the pit at the western end of the site.	The most significant change is the appearance of the large Cromer Mill (cotton) 100 m to the northeast. The old shaft is no longer present.
1932	No significant change.	No significant change.
1938	The filter beds remain in the west, otherwise the site has been cleared of most structures.	The most significant change is that Spring Vale Works (dyeing and finishing) is no longer present.

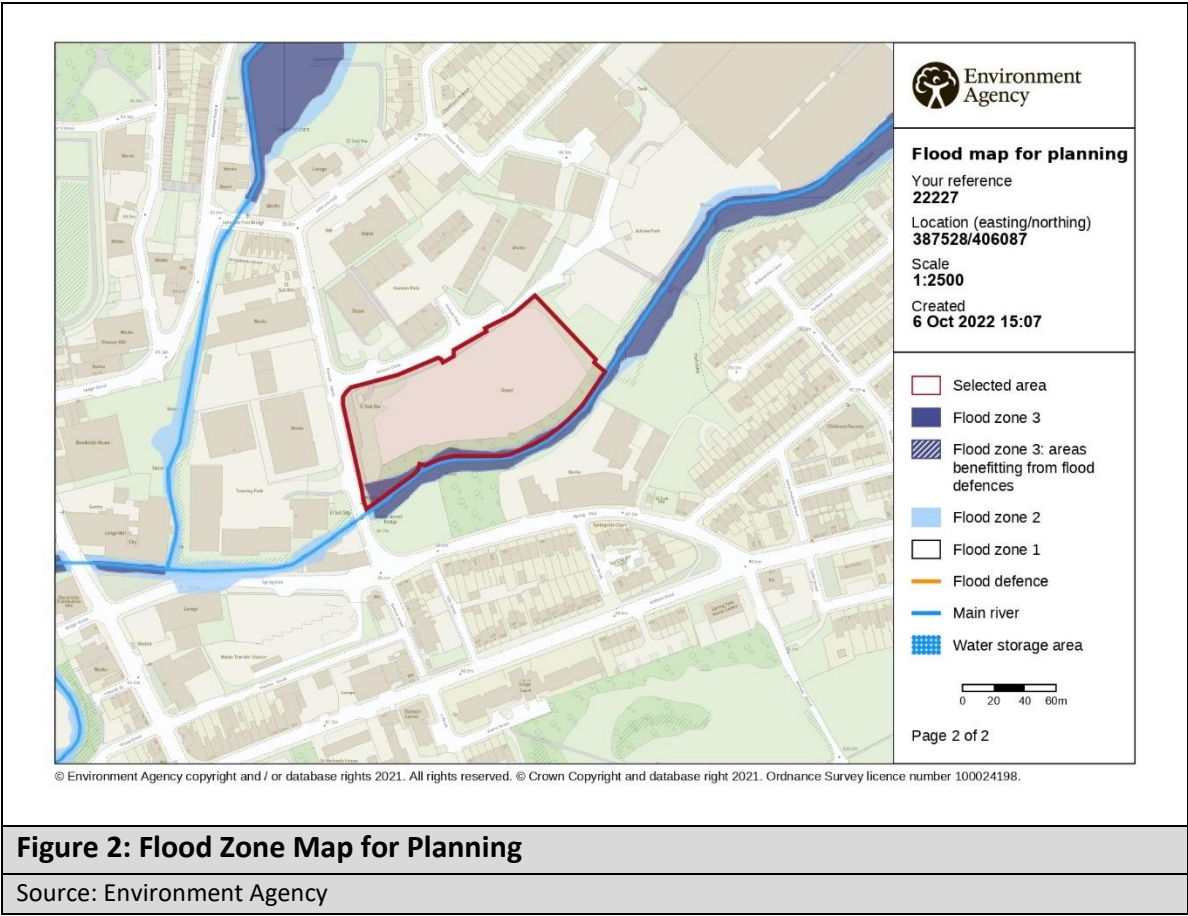
1954-1956	One of the filter beds is no longer present. A small rectangular building in the middle of the site is identified as a ruin.	A series of small buildings to the south of the site are identified as Spring Vale Sheet Metal Works. The River Irk channel is no longer covered.
1965-1970	The filter beds, small ruin and mill race are no longer present.	Land immediately north of the site is identified as a sports ground. Former reservoirs to the east of the site are identified as a refuse tip.
1975	No significant change.	No significant change.
1980-1982	No significant change.	Cromer Mill is identified as Cromer Industrial Estate and the building footprint has changed.
1990-1992	The site is identified as a depot with three small buildings and a sub-station. The cut slopes are no longer present, and the site has presumably been filled.	The reservoir to the northeast and the refuse tip to the east are no longer present. The sports ground to the north is developed with a series of small units, a depot, and a works.
2002	No significant change.	No significant change.
2014	No significant change.	No significant change.

3.3. FLOODING MECHANISMS

Development sites are classified into 4 different flood zone categories as per **Table 2** below:

Table 2: Flood Zone Definition

FLOOD ZONE	DEFINITION
Zone 1 Low Probability	Land having a less than 1 in 1,000 annual probabilities 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 Functional Floodplain	Land where water must 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.). This is defined as land which would flood with an annual probability of 1 in 20 (5% AEP) or greater in any one year or is designed to flood in an extreme flood (0.1% AEP). (Not separately distinguished from Zone 3a on the Flood Map)



Assessing the information shown in [Figure 2](#) above, the development site is situated entirely in **Flood Zone 1**. It can be understood the area typically has 0.1% chance of flooding per year. This flood risk assessment will be undertaken on the bases that the site is situated in flood zone 1

4. DEVELOPMENT PROPOSALS

The proposed development will comprise of 2 new industrial units and 1 new production facility across an approximately 1.07 ha site. The development, shown in **Figure 3**, will be entirely comprised of 3 new industrial properties, 54 car parking spaces and a 20m turning circle. Refer to **Appendix C** for full proposed site layout General arrangements Revision D.

According to government guidance, (shown in annex 3 of the government guidance: <https://www.gov.uk/guidance/national-planning-policy-framework/annex-3-flood-risk-vulnerability-classification>) the development is classified as 'less vulnerable'. The expected lifetime of the proposed development is 60 years.



5. CLIMATE CHANGE

The impacts of climate change will be considered within each of the report sections on site specific flood risk assessment.

This will take into consideration current national climate change guidance published by the Government in February 2016 and last updated November 2022.

4.1 – Peak River flow climate change.

Peak river flow allowances show the anticipated changes to peak flow by management catchment. Management catchments are sub-catchments of river basin districts.

The below allowances for the River Irwell District are detailed below in **Table 3**

Table 3: Peak river flow allowances by river basin district (Irwell)

Allowance Category	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	24%	43%	75%
Higher	15%	26%	46%
Central	12%	19%	35%

A 60-year design life for the development has been assumed for the purposes of this report.

Table 4 below details the classification of climate change that should be allowed for when assessing the site depending on the flood zone in which the site is situated and the vulnerability of the development proposals.

In line with the below, the site flood risk is identified as being in flood zone 1 and being 'less vulnerable'. It is therefore not required to assess the impacts on climate change for peak river flows on the development.

Table 4: Flood Risk Vulnerability and Flood Zone 'Climate Change Allowances'

Flood Risk Vulnerability Classification		Essential Infrastructure	Water compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone	Zone 1	N/A	N/A	N/A	N/A	N/A
	Zone 2	Higher central allowance	Central allowance	Central allowance	Central allowance	Central allowance
	Zone 3a	Higher central allowance	Central allowance	Development not permitted	Central allowance	Central allowance
	Zone 3b*	Higher central allowance	Central allowance	Development not permitted	Development not permitted	Development not permitted

4.2 – Peak Rainfall climate change.

Current Government Guidance states:

'Allowances are included for two future timeframes, labelled 2050s and 2070s. Use 2050s for development with a lifetime up to 2060 and use 2070s for development with a lifetime between 2061 and 2125.'

Table 5 and 6 below show the Climate Change Allowances for 2050's and 2070's.

For development with a lifetime between 2061 and 2100 use the central allowance for the 2070s epoch (2061 to 2125)

Table 5: 3.3% annual exceedance rainfall event (Irwell)

Allowance Category	Central Allowance	Upper end Allowance
Total Potential Change anticipated for the '2050s'	25%	35%
Total Potential Change anticipated for the '2070s'	30%	40%

Table 6: 1% annual exceedance rainfall event (Irwell)

Allowance Category	Central Allowance	Upper end Allowance
Total Potential Change anticipated for the '2050s'	25%	40%
Total Potential Change anticipated for the '2070s'	30%	45%

Tables 5 and 6 are to be applied to pluvial flooding and drainage strategy in sections 5.1.2 and 9.

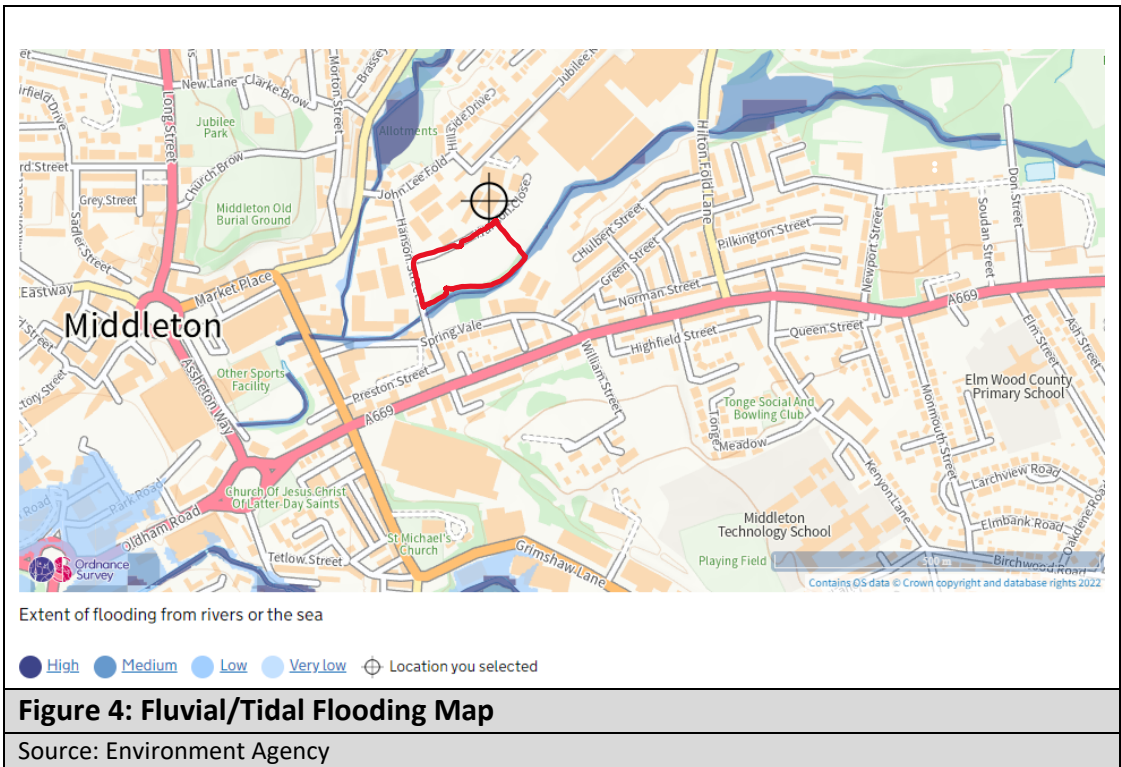
6. SITE SPECIFIC FLOOD RISK

6.1.1. FLUVIAL & TIDAL FLOODING

Fluvial flooding occurs when watercourse such as rivers, stream, and becks flood because of high or intense rainfall flowing into them.

The development site is in flood zone 1. From the topography survey (see appendix 2) the development site is approximately 6m above the river Irk. There is a steep banking and wall down from the development site towards the river Irk. (See figure 5).

The extract below (see figure 4), taken from the Environment Agency Flood Map, shows no flooding within the development area. Meaning the site is classed as flood zone 1 with a change of flooding less than 0.1% (1 in 1000 year chance)



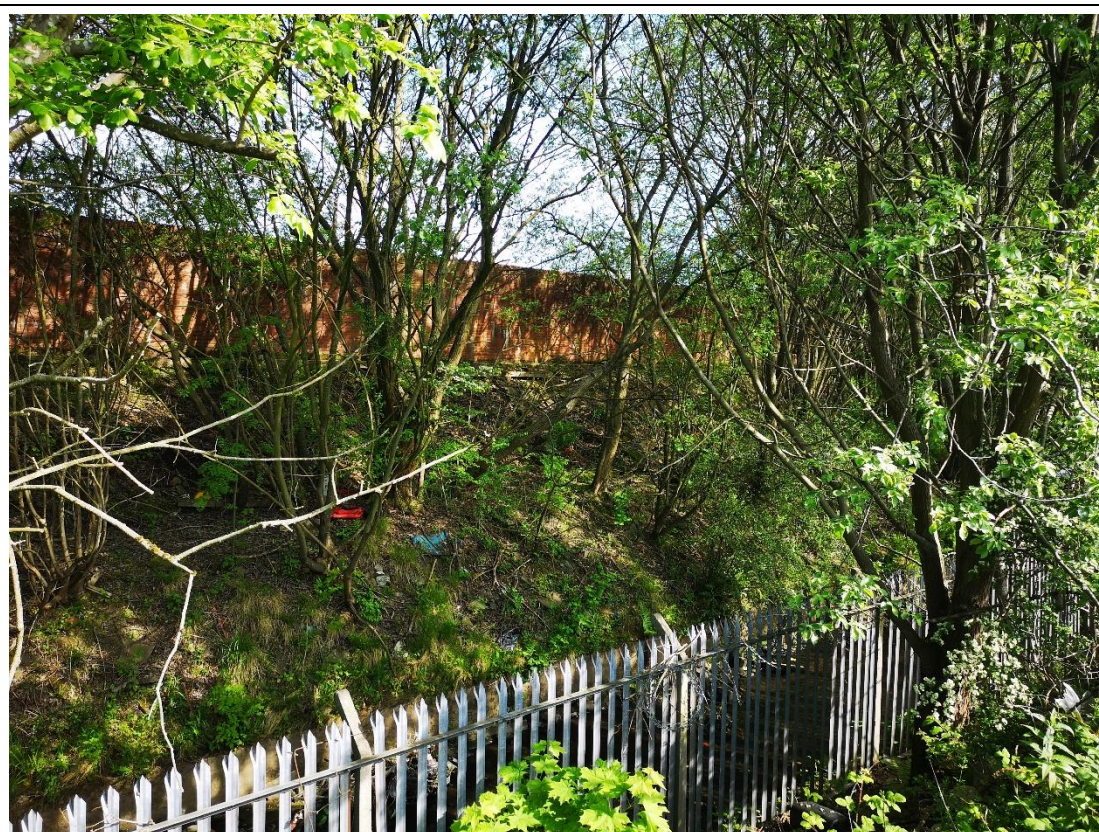


Figure 5: River Irk and view on Proposed Site Southern Boundary

Source: PWA Photo

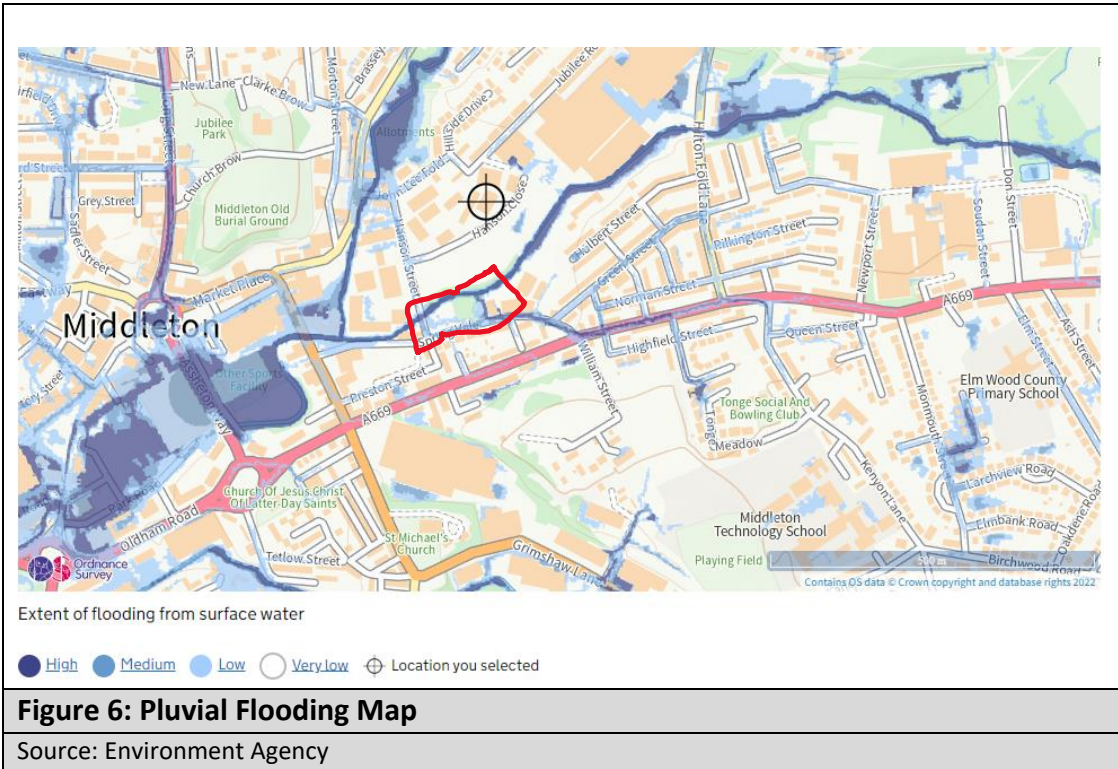
The development site is not considered to be at risk of flooding from the sea.

Given the above, the developable area within the site is at **very low** risk of fluvial flooding

6.1.2. PLUVIAL FLOODING

Pluvial flooding occurs when extreme rainfall events saturate drainage systems and excess surface water cannot be accommodated within existing drainage systems, leading to surcharging and flooding. This could also include the surcharge of watercourses and sewer systems because of blockages. Although it is usually the result of high rainfall intensities, pluvial flooding can occur from lower rainfall intensities and/or melting snow when ground is previously saturated or frozen.

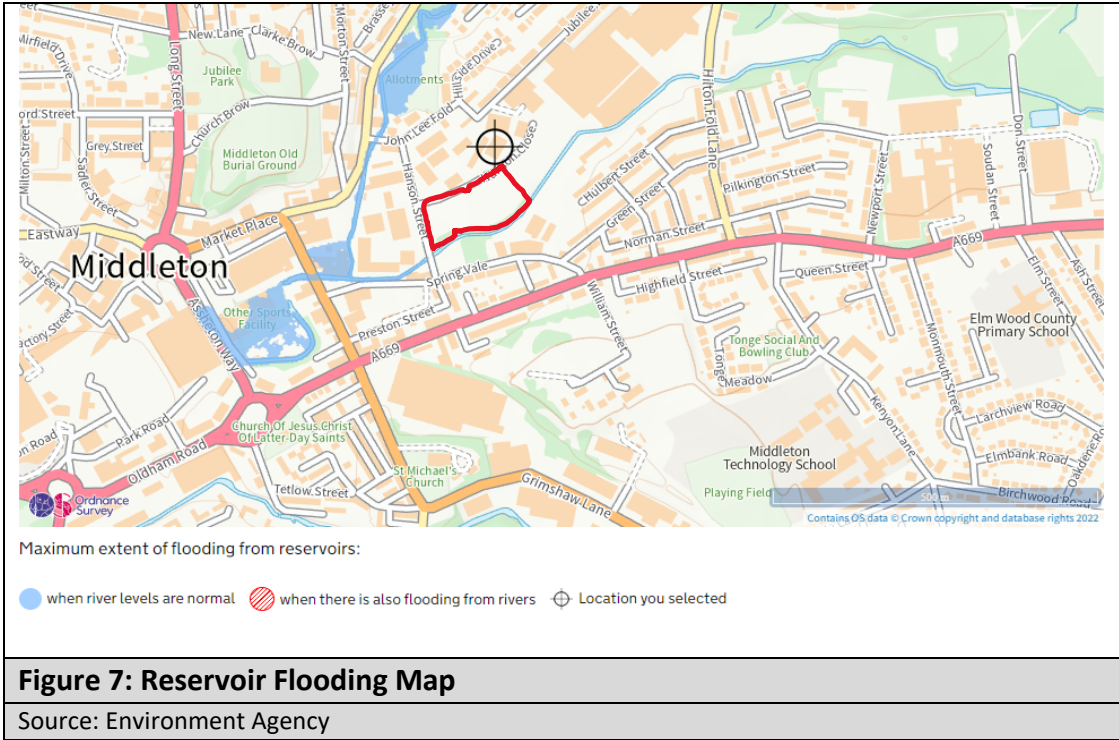
The Environment Agency, working with Lead Local Flood Authorities (LLFA's) have produced a series of updated Flood Maps for Surface Water (UFMFSW). These updated flood maps are based upon the latest modelling techniques and flood data, superseding previous nationally produced surface water mapping products.



Based on the above pluvial flood map, as presented above within **Figure 11**, the site is at **very low** risk from pluvial sources.

6.1.3. RESERVOIR FLOODING

The Environment Agency Flood Risk Maps for Planning have been reviewed to determine the risk of flooding from artificial sources such as reservoirs, canals, and flood defences, these maps will show any areas of potential risk of flooding due to failure of such structures.



Based on the above reservoir flood map, as presented above within **Figure 11**, the site is at **very low** risk from reservoir sources.

6.1.4. GROUNDWATER FLOODING

Groundwater flooding often occurs over prolonged rainfall events, where ground becomes saturated within the underlying strata, causing the water table to rise above ground level. With continuous rainfall, this will prevent infiltration and proper drainage of pluvial water into the soil, disallowing it from draining appropriately and causing it to pool on the surface, creating flooding.

Figure 4 illustrates little to no pluvial flooding on site. The topographical survey also shows site levels are much higher than the River Irk. Therefore, ground water is not anticipated to be an issue. Refer to **Appendix B** for Topographical Survey.

Based on the above, the site is at **low** risk from groundwater flooding.

6.1.5. EXISING SEWER CAPACITY FLOOD RISK

As previously discussed in section 3, the proposed development site is located south of existing industrial units. From the information gained from united utilities, neighbouring properties are shown to poses extensive drainage infrastructure See [Appendix D](#) for United Utilities Sewer records.

Following desk top study, no history of sewer capacity flooding or surcharging can be found.

Based on the above the flood risk is **low**.

6.2. PRE-DEVELOPMENT FLOOD RISK SUMMARY

Following the review of available flood information, the following can therefore be summarised in terms of flood risk:

Primary River Flood Risk	VERY LOW
Surface Water Flood Risk	VERY LOW
Existing Drainage Flood Risk	LOW
New Drainage Flood Risk	VERY LOW
Groundwater Flood Risk	LOW
Reservoir & Artificial Waterbody Flood Risk	VERY LOW
Risk from Climate Change	VERY LOW
Residual (Lifecycle) Primary River Flood Risk	VERY LOW

7. FLOOD MANAGEMENT

Taking into consideration the mechanisms discussed above in section 5, the flood risk on most of the development site is considered very low, therefore the flood prevention measures put in place will be relatively simple.

7.1. General Flood Mitigation Practice

General good practice is to be adopted where possible, directing any potential flood exceedance flows away from proposed buildings and introducing 150mm threshold steps into any units where achievable.

In line with current drainage guidance, the drainage system should be designed to accommodate the 1:100-year storm event + 30% climate change with 10% Urban Creep allowed. Hard standing areas rainfall run off should fall towards gullies or channel drains and flows direct to the surface water system to leave site at a restricted rate.

8. EXCEPTION TEST

In Line with the Flood risk vulnerability classification guidance the proposed development is classified as less vulnerable due to it entirely comprising of industrial buildings. The proposed development area is also shown to be entirely within Flood Zone 1.

Table 7: Flood Risk Vulnerability and Flood Zone ‘Compatibility’

Flood Risk Vulnerability Classification		Essential Infrastructure	Water compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test required	✓	✓
	Zone 3a	Exception Test required	✓	X	Exception Test required	✓
	Zone 3b*	Exception Test required*	✓	X	X	X

✓ Development is appropriate.

X Development should not be permitted.

In accordance with the vulnerability table above the type of development proposed is appropriate for development.

9. RESIDUAL RISK

A flood risk assessment should consider the residual risk to a proposed development for its intended lifecycle.

The intended use and lifecycle have been considered throughout the assessment of various flood risk sources and it is considered that climate change will not impact on flood risk to the site over its intended lifecycle. Therefore, the residual risk is considered low.

Due to no moderate – high risks being outlined in the post development scenario, there is no residual risk in correspondence with this site.

10.DRAINAGE STRATEGY

10.1. Drainage Strategy Development Classification

To determine the proposed drainage strategy standards that are to be used for a development, an assessment of the development classification should be employed. Proposed developments fall into one of two categories, Previously Developed / Brownfield or, Greenfield. The descriptions of these are defined as in the North-West Suds Pro-Forma below:

Previously Developed / Brownfield

If you are proposing to use an existing drainage system for surface water management on your development site, your drainage system can be designed to 'previously developed' standards. For sites covered by buildings or impermeable hard surfaces this may require a reduction to existing rates to be applied to satisfy local planning policies.

For the avoidance of doubt, 'use of an existing drainage system' means utilising the entirety of the existing drainage system on site and does not refer to simply the point of discharge.

- **Example:** If you are proposing to demolish an existing building and replace it with a new building but will use the existing means of surface water removal in entirety, this would be classified as 'previously developed.'

Greenfield

If you are proposing to install a new drainage system for surface water management on your development site then your drainage system must be designed to 'greenfield' standards, even if the land has been previously developed. It may be worth checking your Local Planning Authority's Local Plan for a local policy position.

- **Example 1:** If you are proposing to construct buildings on land which has been previously developed (i.e., brownfield) but are installing a new surface water drainage system connecting to the existing outfall, this would be classified as 'greenfield.'
- **Example 2:** If you are proposing to construct buildings on unbuilt 'green' land and will be installing a new surface water drainage system connecting to a new or existing outfall, this would be classified as 'greenfield.'

10.2. SURFACE WATER

In accordance with National Planning Policy Framework (NPPF), Building Regulations Approved Document H and the North-West Suds Pro-Forma, options for disposal of surface water from new developments should follow the hierarchy below:

1. Discharge to ground via infiltration
2. Discharge to watercourse
3. Discharge to surface water sewer
4. Discharge to a combined sewer

Sustainable Drainage Systems (SuDS) should also be used wherever possible to mimic as far as practicable the natural run off regime, improve water quality, reduce run-off volume, and attenuate peak flows. These should be designed in accordance with the current guidance, CIRIA C753 'The SuDS Manual'

10.2.1. INFILTRATION

A phase 1 investigation has been carried out by PWA Geo-environmental report No. 19060-PWAG-00-ZZ-RP-G-1000-P01, the report summarises that the site is overlain made ground, over silty sand with some gravel. It also states that an existing desk study identified that the site has a long history of industrial development including pits, filter beds and use as a builder's merchants and was used for dyeing and finishing. Due to the historical site usage, we would expect a significant depth of made ground, therefore it is anticipated that soakaways are not viable.

As part of the proposed intrusive site investigations, soakaway testing in accordance with BRE 365: Soakaway Design, should be carried out across the site. The viability of soakaways should then be revisited to ascertain whether this is a suitable option for surface water disposal

10.2.2. WATERCOURSE

The next option is to Watercourse. The nearest named watercourse to the site is River Irk which borders the site to the South.

There is an existing surface water sewer system that outfalls to the adjacent watercourse (River Irk) that runs through the western edge of the site, this is seen to be the desired outfall location.

The mean annual greenfield peak flow (Q_{bar}) for the current state of the site can be found in table 8 below. Along with the storm events for the 1 in 1, 1 in 30, 1 in 100.

10.2.3. SURFACE WATER PROPOSALS

Due to a proposed discharge to the existing sewer. A restricted rate of 8.15l/s has been proposed subject to the approval of the LLFA

Table 8: Proposed Greenfield Discharge Rate (Q_p & Q_{MAX})

Peak existing flow rate Q_p	Run Off Rates
1 in 1 year	7.09 l/s
1 in 30 year	13.86 l/s
1 in 100 year	16.96 l/s
Q_{bar} (approximately 1 in 2.3 year)	8.15 l/s

To restrict flows to 8.15l/s, a flow control manhole and cellular attenuation is to be used. The site is currently undeveloped so a new outfall to the existing sewer will be constructed to an existing manhole.

Refer to Appendix E for drainage strategy drawing.

Table 9: Required Storage Attenuation

Scenario	Approximate Attenuation
1 in 30 year	204.000
1 in 30 year + climate change	336.000
1 in 100 year	300.000
1 in 100 year + climate change	486.000

Surface water drainage systems must be designed to contain flows within the system with no flooding for up to and including the 1:30-year storm and either contain flows or have no exceedance from site in a 1:100-year storm with an appropriate allowance for a 40% climate change.

Our proposals include a cellular attenuation tank to supply enough volume to accommodate the 1 In 100 year + climate change condition (**See Table 10**)

Table 10: Proposed Storage Attenuation

Storage Structure	Approximate Attenuation
27x15x1.2 cellular storage tank	486.000
Total	486.000

* Attenuation requirements based upon quick storage estimate and are subject to detailed design

Refer to **Table 11** below for SuDS components description and benefits to the delivery of the design in line with The SuDS Manual, Chapter 7, Table 7.1.

Table 11: SuDS Component Delivery of Design Criteria

Component Type	Description	Collection mechanism	Design Criteria					
			Water Quality			Water Quality	Amenity	Biodiversity
			Peak runoff rate	Runoff volumes				
				Small events	Large events			
Attenuation Storage Structures	Large, below-ground voided spaces used to temporarily store runoff before infiltration, controlled release, or use.	P	X					
Proprietary Treatment Systems	Subsurface structures designed to provide treatment of runoff	P				X		

Key: P = Point L = Lateral S = Surface

X = Likely valuable contribution to delivery of design criterion

O = Some potential contribution to delivery of design criterion, if specifically included in the design

10.3. FOUL WATER

A review of United Utilities Sewer Records has been undertaken as part of the site analysis (See Appendix D). It has been identified that an existing 225mm public combined sewer is present within the northern portion of the site. This sewer flows in a south-westerly direction into Hanson Street where it then turns to the north and runs north on Hanson Street.

Foul water from the site is to be connected by gravity through a separate foul system it will probably only be the attenuation and proprietary treatment systems.

11.MANAGEMENT AND MAINTENANCE

Table 12: Maintenance Activities

<u>PRIVATE DRAINAGE SYSTEM</u>	
Regular Maintenance	Frequency
To be maintained by the End user/Maintenance company. Visually inspect gutters to ensure they are kept clear of leaves, debris etc. Lift covers of drainage to inspect chambers for debris and build-up of silts.	Annually. No triggers other than maintenance to be taken on regular schedule.
Occasional Tasks	Frequency
Remove leaves and debris from gutters. Remove debris from inspection chambers to ensure outlets are kept clear of debris to ensure adequate drainage.	As required. Indicator of problem/trigger for maintenance when surcharging or flooding of drains occurs or gutters and chambers full of debris and leaves etc.
Remedial Work	Frequency
Should drains be heavily blocked or damaged contact drainage maintenance company for unblocking / repair works.	As required. Indicator of problem/trigger for maintenance when drainage not functioning and unblocking pipes and chambers etc not effective.
<u>SURFACE WATER ATTENUATION TANK</u>	
Regular Maintenance	Frequency
Inspect and check for build-up of silt and debris in catchpit manhole before tank. Inspect for any damage to tank or problems by checking area of surfacing above tank.	4 – 6 Times Annually.
Occasional Tasks	Frequency
CCTV to check tank and any silt build up and jet/clear tank as per manufacturer's instructions from access points if required.	As required.
Remedial Work	Frequency

Reinstate or repair tank	As required
<u>VORTEX FLOW CONTROL UNIT</u>	
Regular Maintenance	Frequency
Lift cover of flow control chamber and visually inspect flow control for debris.	Bi-annually
Occasional Tasks	Frequency
Remove debris from flow control chamber and flow control unit.	Annually or as required
Remedial Work	Frequency
Should flow control unit be heavily blocked or damaged jet out/repair/replace flow control unit.	As required
<u>3.4 Channel Drains</u>	
Regular Maintenance	Frequency
Lift covers of channels and visually inspect for the buildup of silt and debris.	Bi-annually
Occasional Tasks	Frequency
Remove debris from channels.	Annually or as required
Remedial Work	Frequency
Should the channels be heavily blocked or damaged jet out/repair/replace them.	As required
<u>OIL SEPARATOR</u>	
Maintenance to be conducted in line with manufacturers guidance.	In line with Manufactures specifications.

12.POST-DEVELOPMENT FLOOD RISK SUMMARY

Following the review of available flood information and the flood mitigation measures proposed, the following can therefore be summarised in terms of flood risk:

Primary River Flood Risk	VERY LOW
Surface Water Flood Risk	VERY LOW
Existing Drainage Flood Risk	LOW
New Drainage Flood Risk	VERY LOW
Groundwater Flood Risk	LOW
Reservoir & Artificial Waterbody Flood Risk	VERY LOW
Risk from Climate Change	VERY LOW
Residual (Lifecycle) Primary River Flood Risk	VERY LOW

13.SUMMARY/CONCLUSION

The proposed site has been reviewed in relation to all potential sources of flooding, it is at very low risk from fluvial, pluvial, and artificial sources and to be at low risk from ground water flooding.

There are no records of historic flooding, following results of desktop study and correspondence exchanged with the Environment Agency.

All other sources of flood risk have been evaluated and deemed to pose a low risk.

Due to the site being situated within flood zone 1 and deemed very low risk to flooding no minimum finished floor level restriction is to be applied.

All proposed surface water systems should be designed to accommodate the worst case 1 in 30-year storm event without flooding, the worst case 1 in 100 year plus 30% climate change storm event should be retained on site.

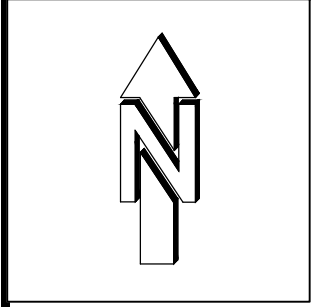
Suds techniques should be provided, where possible, to treat the surface water run-off from the site at source, prior to any discharge off site.

The proposed drainage strategy will utilise flow control devices and attenuation structures to manage the peak rate of surface water runoff from the development, restricting this to a Greenfield rate. Along with a reduced discharge rate an allowance will be made for climate change within the capacity of any surface water attenuation/storage structure. Surface water run off introduced by the development will be prohibited from leaving the site by introducing falls to direct run off into drainage channels, gullies, or swales. Therefore, the development will not cause any increased flood risk downstream of the site or to surrounding areas.

In summary, with the mitigation measures proposed, it is considered that the development will have no adverse effect on flood risk to both the site itself and surrounding properties.

APPENDIX A

SITE LOCATION PLAN



NOTES:

1. COPYRIGHT IN THIS DOCUMENT BELONGS TO PAUL WAITE ASSOCIATES LIMITED & ALL RIGHTS IN IT ARE RESERVED BY THE OWNER.
2. NO PART OF THIS DRAWING MAY BE COPIED, TRANSCRIED, OR MADE AVAILABLE TO USERS OTHER THAN THE ORIGINAL RECIPIENT, INCLUDING ELECTRONICALLY, WITHOUT PRIOR PERMISSION FROM PAUL WAITE ASSOCIATES LIMITED.
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6. ONLY PAPER/CAD COPIES OF DRAWINGS SHOULD BE REFERRED TO FOR CONSTRUCTION USE. THE USE OF AUTOCAD DRAWINGS/OVERLAYS IS UNDERTAKEN ENTIRELY AT THE DEVELOPERS RISK AND ALL DIMENSIONS AND SETTING OUT MUST BE CHECKED IN CONJUNCTION WITH THE ARCHITECT AND ENGINEERS CONSTRUCTION DRAWINGS. ALL DRAWINGS SHOULD BE CONFIRMED AS LATEST ISSUE ON THE DOCUMENT ISSUE SHEET PRIOR TO COMMENCEMENT OF WORKS AND SHOULD BE USED ONLY FOR THEIR DEFINED DRAWING STATUS, ANY DISCREPANCIES BETWEEN THE ARCHITECT AND ENGINEERS DRAWINGS ARE TO BE IMMEDIATELY NOTIFIED TO ALL PARTIES.

KEY:

 SITE BOUNDARY

Ref	Date	Remarks	Drawn	CHK'd
PO1	09.11.22	FIRST ISSUE	AC	LS

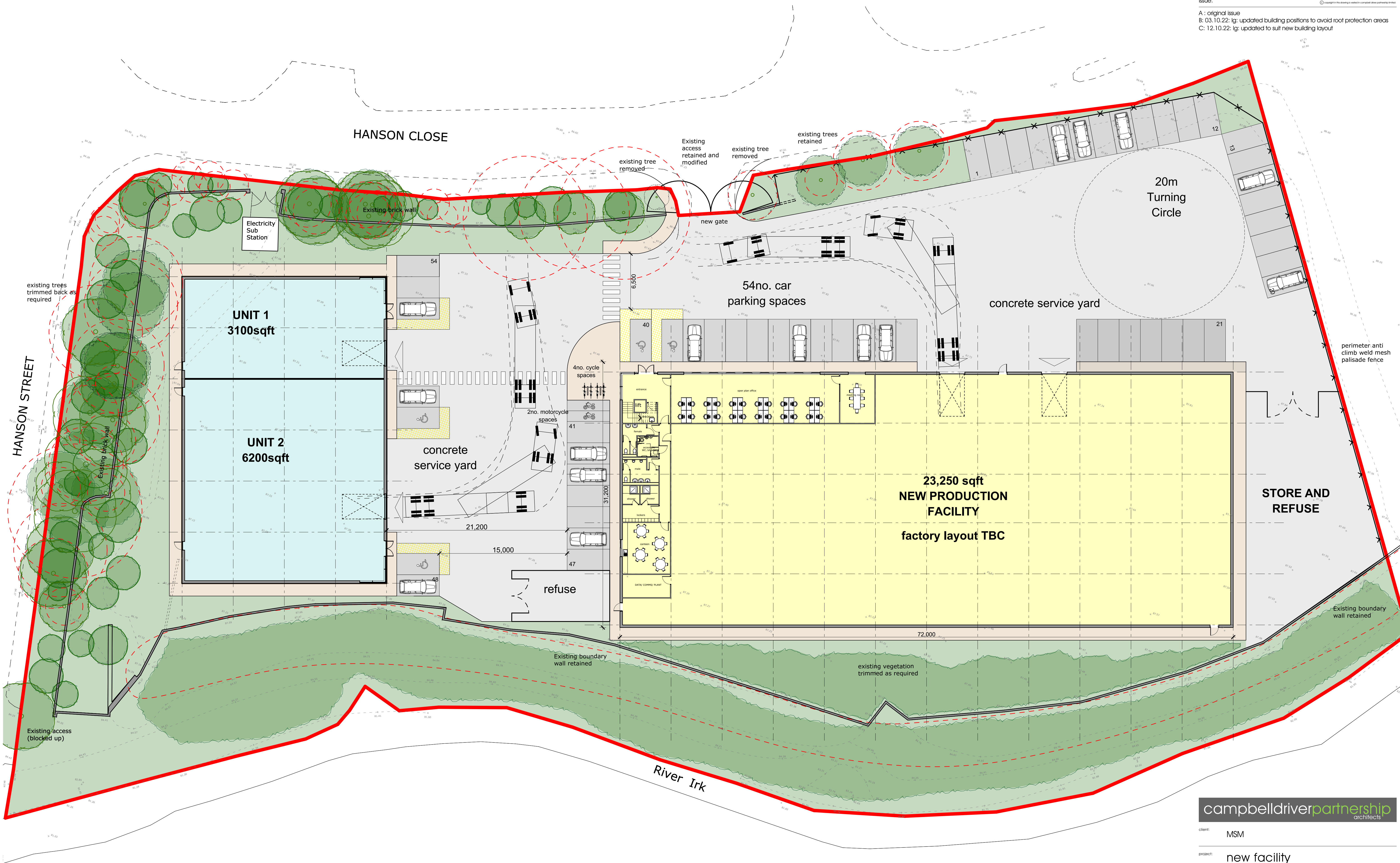
							
Consulting Civil, Structural & Geo-Environmental Engineers Summit House, Riparian Way, The Crossings, Crosshills, Keighley, B020 7BW T - 01535 653350 E-Mail: info@pwa.co.uk www.pwa.co.uk							
Client							
MSM AEROSPACE FABRICATORS							
Project							
MIDDLETON SHEET METAL							
Title							
SITE LOCATION PLAN							
Size	Scale	Designed	Checked	Date			
A1	1:250	AC	LS	NOV 22			
Drawing Status							
PRELIMINARY							
Job Number	Originator	Zone	Level	Type	Role	Drawing No.	Rev
22227	- PWA	- 00	- XX	- DR	- C -	1003	P01

APPENDIX B

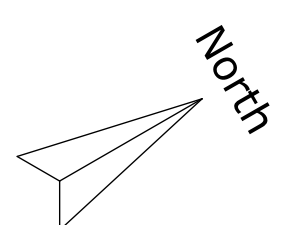
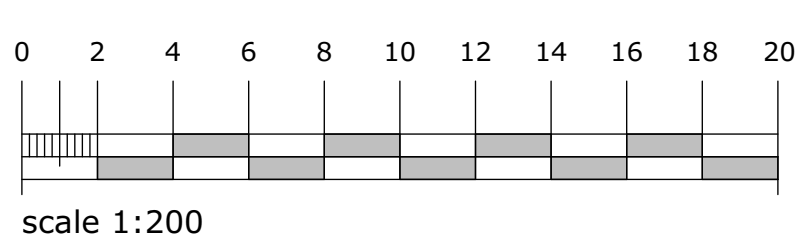
TOPOGRAPHICAL SURVEY

APPENDIX C

SITE LAYOUT



proposed site layout 1:200



APPENDIX D

UNITED UTILITY SEWER RECORDS

Commercial drainage and water enquiry

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

Client:

Client ref: 19060

Paul Waite Associates Ltd

Summit House
Riparian Way, Cross Hills
Cross Hills, West Yorkshire
BD20 7BW

Order number: UUPS-ORD-110933

Received date: 03/07/2019

Response date: 04/07/2019

FAO:

The following records were searched in compiling this report:

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

Property address: A T L TRANSFORMERS LTD HANSON CLOSE, MIDDLETON, MANCHESTER, M24 2HD

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

Enquiries and Responses

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

How to contact us:

United Utilities Water Limited
Property Searches
Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

What is included:

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

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

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

✓ This response represents the typical situation for a property.

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

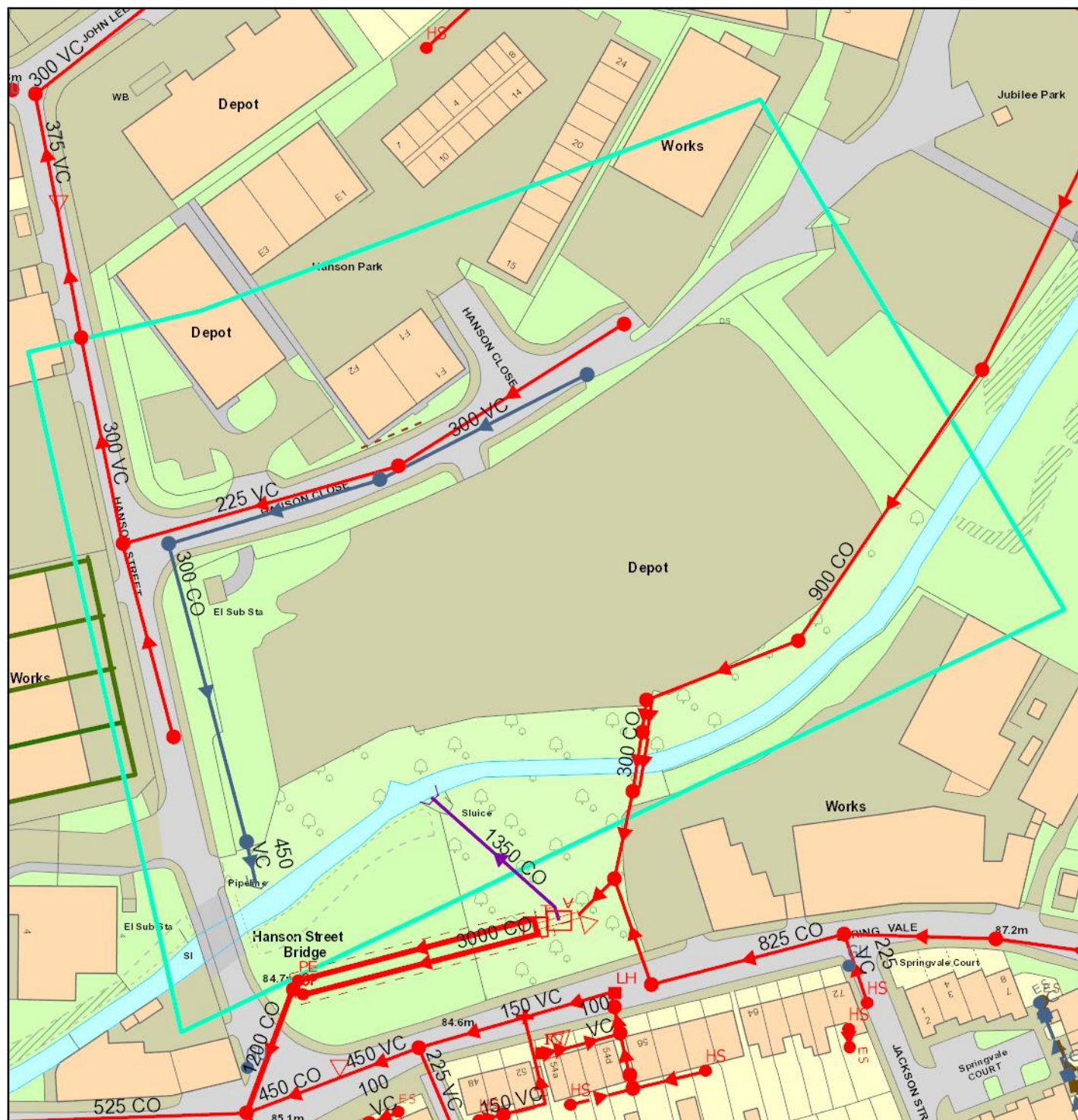
✗ This response represents an uncommon situation for a property and the purchaser should carefully consider its implications.

Question	Report Schedule	Answer	
1	Where relevant, please include a copy of an extract from the public sewer map.	Yes & location	✓
2	Where relevant, please include a copy of an extract from the map of waterworks.	Yes & location	✓
3	Does foul water from the property drain to a public sewer?	Connected	✓
4	Does surface water from the property drain to a public sewer?	Connected	✓
5	Is a surface water drainage charge payable?	Yes	✓
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?	Public	✓
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	Are any foul sewers or lateral drains serving or which are proposed to serve the property the subject of an existing adoption agreement or an application for such an agreement?	Not applicable (established)	✓
8	Are any surface water pipes or lateral drains serving, or which are proposed to serve the property, the subject of an existing adoption agreement or an application for such an agreement?	Not applicable	✓
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 building which is or forms part of the property at risk of internal 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?	Connected	✓
13	Are there any water mains, resource mains or discharge pipes within the boundaries of the property?	Yes	✗

Question	Report Schedule	Answer	
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 property 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.	External	✓
19	Who is responsible for providing the sewerage services for the property?	United Utilities	✓
19.2	Who is responsible for providing the water services for the property?	United Utilities	✓
20	Who bills the property for sewerage services?	Retailer Sewer	✓
21	Who bills the property for water services?	Retailer Water	✓
22	Has a customer been granted a trade effluent consent at this property?	No	✓
23	Is there an easement affecting the property?	No	✓

SEWER RECORD

A T L TRANSFORMERS LTD HANSON CLOSE, MIDDLETON, MANCHESTER, M24 2HD



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

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Wastewater Symbolology

Abandoned	Foul	Surface Water	Combined	
				Public Sewer
				Private Sewer
				Section 104
				Rising Main
				Sludge Main
				Overflow
				Water Course
				Highway Drain

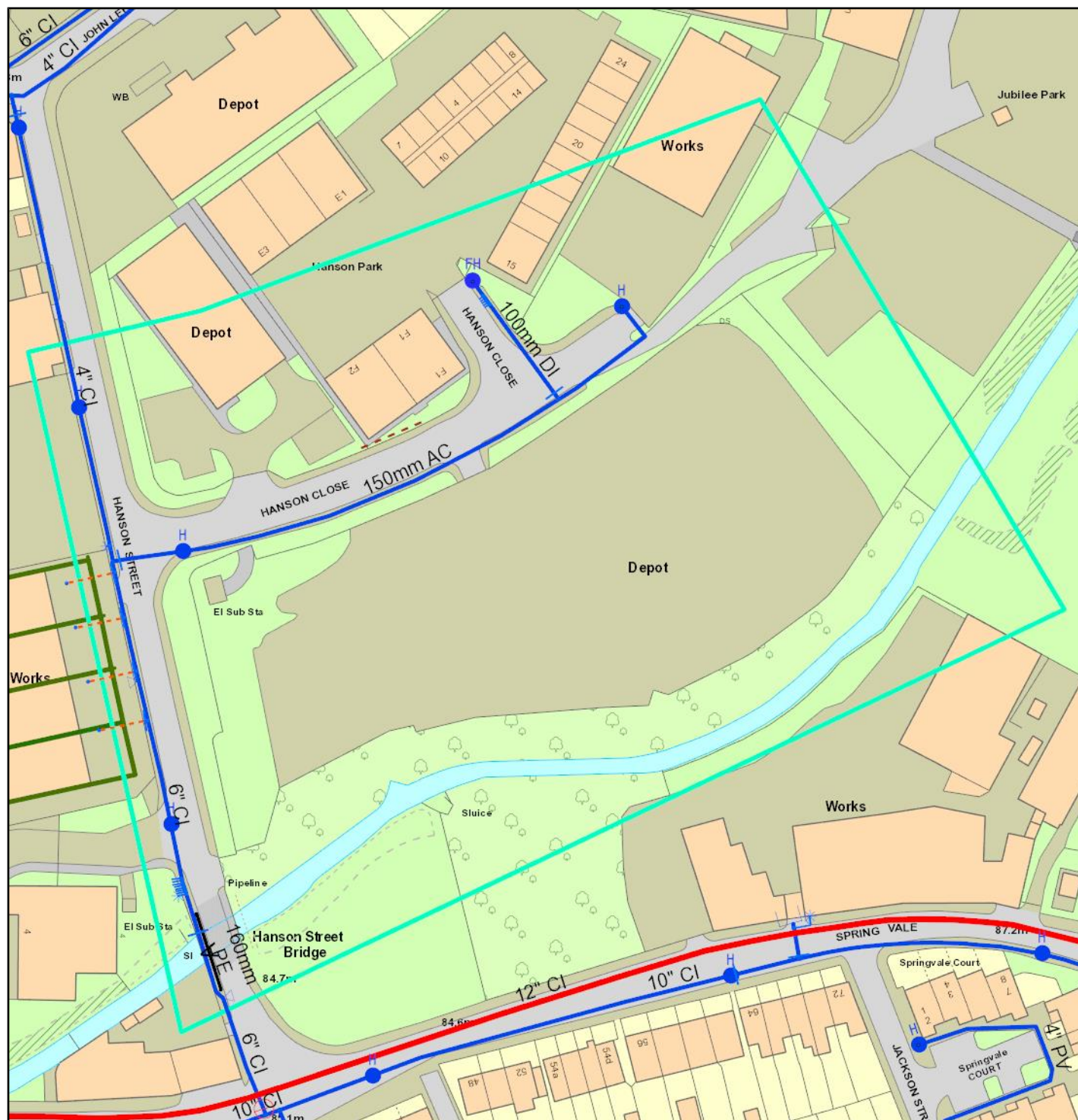
All point assets follow the standard colour convention: **red** – combined **brown** - foul
blue – surface water **purple** - overflow

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

Clean Water Symbolology

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

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



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

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Question 1	Where relevant, please include a copy of an extract from the public sewer map.
Answer	A copy of an extract from the public sewer map is included in which the location of the property is identified.
Guidance	1. The Water Industry Act 1991 defines Public Sewers as those which (United Utilities) have responsibility for. Other assets and rivers, water courses, ponds, culverts or highway drains may be shown for information purposes only. 2. Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer. 3. The Sewerage Undertaker has a statutory right of access to carry out work on its assets, subject to notice. This may result in employees of the Sewerage Undertaker or its contractors needing to enter the property to carry out work.
Question 2	Where relevant, please include a copy of an extract from the map of waterworks.
Answer	A copy of an extract from the map of waterworks is included in which the location of the property is identified.
Guidance	The "water mains" in this context are those which are vested in and maintainable by the Water Undertaker under statute. Assets other than public water mains may be shown on the plan, for information only. Water Undertakers are not responsible for private supply pipes connecting the property to the public water main and do not hold details of these. These may pass through land outside of the control of the seller, or may be shared with adjacent properties. The buyer may wish to investigate whether separate rights or easements are needed for their inspection, repair or renewal. If an extract of the public water main record is enclosed, it will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network. The presence of a public water main running within the boundary of the property may restrict further development within it. Water Undertakers have a statutory right of access to carry out work on their assets, subject to notice. This may result in employees of the Water Undertaker or its contractors needing to enter the property to carry out work.
Question 3	Does foul water from the property drain to a public sewer?
Answer	Records indicate that foul water from the property drains to a public sewer.
Guidance	Sewerage Undertakers are not responsible for any private drains or sewers that connect the property to the public sewerage system, and do not hold details of these. The property owner will normally have sole responsibility for private drains serving the property and may have shared responsibility, with other users, if the property is served by a private sewer which also serves other properties. These may pass through land outside of the control of the seller and the buyer may wish to investigate whether separate rights or easements are needed for their inspection, repair or renewal. If foul water does not drain to the public sewerage system the property may have private facilities in the form of a cesspit, septic tank or other type of treatment plant. If an extract from the public sewer map is enclosed, this will show known public sewers in the vicinity of the property and it should be possible to estimate the likely length and route of any private drains and/or sewers connecting the property to the public sewerage system.
Question 4	Does surface water from the property drain to a public sewer?

Answer **Records indicate that surface water from the property does drain to a public sewer.**

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

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

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

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

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

Answer **Records indicate that a surface water drainage charge is applicable for the property.**

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

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

Question 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>.**

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

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

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

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

Question 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

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

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

* serves two or more properties

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

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

Question 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 public sewers within 30.48 metres (100 feet) of a building 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. "refer to Q2.4 sewer in boundary" for further details.

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

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

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

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

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

Question 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.

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

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

* serves two or more properties.

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

If you think there might be a private pumping station on your land or near your business property, please let us know by completing this questionnaire with as much information as possible, please visit our website <http://www.unitedutilities.com/ppstransfer.aspx>.

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

Question 8 **Are any foul sewers or lateral drains serving or which are proposed to serve the property the subject of an existing adoption agreement or an application for such an agreement?**

Answer **The property is part of an established development and is not subject to an adoption agreement**

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

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

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

Question 8 **Are any surface water pipes or lateral drains serving, or which are proposed to serve the property, the subject of an existing adoption agreement or an application for such an agreement?**

Answer **The property is part of an established development and is not subject to an adoption agreement.**

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

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

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

Question 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.**

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

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

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

Question 10

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

Answer

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

Guidance

1. A sewer is "overloaded" when the flow from a storm is unable to pass through it due to a permanent problem (e.g. flat gradient, small diameter). Flooding as a result of temporary problems such as blockages, siltation, collapses and equipment or operational failures are excluded.
2. "Internal flooding" from public sewers is defined as flooding, which enters a building or passes below a suspended floor. For reporting purposes, buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.
3. These are defined as properties that have suffered or are likely to suffer internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system more frequently than the relevant reference period (either once or twice in ten years) as determined by the Sewerage Undertaker's reporting procedure.
4. Flooding as a result of storm events proven to be exceptional and beyond the reference period of one in ten years are not included.
5. Properties may be at risk of flooding but not included where flooding incidents have not been reported to the Sewerage Undertaker.
6. Public sewers are defined as those for which the Sewerage Undertaker holds statutory responsibility under the Water Industry Act 1991.
7. It should be noted that flooding can occur from private sewers and drains which are not the responsibility of the Sewerage Undertaker.
8. This report excludes flooding from private sewers and drains and the Sewerage Undertaker makes no comment upon this matter. For reporting purposes buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.

Question 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 1.44 miles (2.31 km), South East of the property. The name of the Sewage treatment works is Oldham WwTW. The owner is United Utilities

Guidance

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

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

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

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

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

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

Question 12	Is the property connected to mains water supply?
Answer	Records indicate that the property is connected to mains water supply.
Guidance	If the property is supplied by private water mains please note that details of private supplies are not kept by the Water Undertaker. The situation should be checked with the current owner of the property.
Question 13	Are there any water mains, resource mains or discharge pipes within the boundaries of the property?
Answer	The map of waterworks indicates that there are water mains, resource mains or discharge pipes within the boundaries of the property.
Guidance	The boundary of the property has been determined by reference to the Ordnance Survey record. The presence of a public water main within the boundary of the property may restrict further development within it. Water Undertakers have a statutory right of access to carry out work on their assets, subject to notice. This may result in employees of the Water Undertaker or its contractors needing to enter the property to carry out work.
Question 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.
Guidance	This enquiry is of interest to purchasers of new premises who will want to know whether or not the property will be linked to the mains water supply.
Question 15	Is the property at risk of receiving low water pressure or flow?
Answer	Records confirm that the building is not recorded by the water undertaker as being at risk of receiving low water pressure or flow.
Guidance	The boundary of the property has been determined by reference to the Ordnance Survey record. "Low water pressure" means water pressure below the regulatory reference level which is the minimum pressure when demand on the system is not abnormal. Water undertakers report properties receiving pressure below the reference level, provided that allowable exclusions do not apply (i.e. events which can cause pressure to temporarily fall below the reference level). Reference level: The reference level of service is a flow of 9l/min at a pressure of 10m head on the customer's side of the main stop tap (mst). The reference level applies to a single property. The reference level of service must be applied on the customer's side of a meter or any other company fittings that are on the customer's side of the main stop tap. Where a common service pipe serves more than one property, the flow assumed in the reference level must be appropriately increased to take account of the total number of properties served. Surrogate for the reference level: Because of the difficulty in measuring pressure and flow at the mst, companies may measure against a surrogate reference level. Companies should use a surrogate of 15m head in the adjacent distribution main unless a different level can be shown to be suitable. In some circumstances companies may need to use a surrogate pressure greater than 15m to ensure that the reference level is supplied at the customer's side of the mst (for example in areas with small diameter or shared communication pipes). There are a number of circumstances under which properties identified as receiving low pressure should be excluded from the reported figure. The aim of these exclusions is to exclude properties which receive a low pressure as a result

of a one-off event and which, under normal circumstances (including normal peaks in demand), will not receive pressure or flow below the reference level. Companies must maintain verifiable, auditable records of all the exclusions that they apply in order to confirm the accuracy and validity of their information. Allowable exclusions includes Abnormal demand, Planned maintenance, One off incidents, Low pressure incidents of short duration and common supply.

Abnormal demand:

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

Planned maintenance:

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

One-off incidents:

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

Low pressure incidents of short duration:

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

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

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

Question 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 30mg/l calcium carbonate, which is defined as very soft by United Utilities

Guidance

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

What is water hardness?

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

How is water hardness measured?

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

Water quality standards

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

Water hardness in the North West

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

Can hard water be softened?

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

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

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

Question 18

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

Answer

Records indicate that the property is served by a water meter, which is located externally to the building within the property boundary. We have the location as to the right hand side of the entrance.

Guidance

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

Question 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

Guidance

Not Applicable

Question 19.2

Who is responsible for providing the water services for the property?

Answer **United Utilities Water Limited, Haweswater House, Lingley Mere Business Park, Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP**

Guidance Not Applicable

Question 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.**

Guidance 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.**

Guidance 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

Question 22 **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/>**

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

Generally these conditions are to ensure:

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

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

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

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

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

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

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

Question 23

Is there an easement affecting the property?

Answer

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

Guidance

Not Applicable.

Appendix 1- General interpretation

1. (1) In this Schedule-

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

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

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

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

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

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

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

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

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

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

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

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

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

"lateral drain" means-

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

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

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

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

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

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

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

- (a) by virtue of a scheme under Schedule 2 to the Water Act 1989(i);
- (b) by virtue of a scheme under Schedule 2 to the 1991 Act (j);

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

(d) otherwise;

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

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

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

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

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

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

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

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

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

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

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

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

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

Appendix 2 - DRAINAGE AND WATER ENQUIRY (COMMERCIAL) AGREEMENT

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

Definitions

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

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

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

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

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

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

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

Agreement

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

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

The Report

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

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

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

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

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

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

Liability

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

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

3.3 The Report is produced for use in relation to individual commercial property transactions where the property is used solely for carrying on a trade or business, the property is intended to be developed for commercial gain or the property is not a single residential, domestic property. The Company's entire liability (except to the extent provided by clause 3.5) in respect of all causes of action arising by reason of or in connection with the Report (whether for breach of contract, negligence or any other tort, under statute or statutory duty or otherwise at all) shall be limited to £500,000.

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

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

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

Copyright and Confidentiality

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

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

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

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

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

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

Payment

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

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

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

Data Protection

6.1 We will process any personal data you provide to us in accordance with applicable data protection laws and our Data Protection and Privacy Notice (<https://www.unitedutilities.com/privacy/>). In addition we will use your personal data to manage and administer the provision of the Report

under this Agreement and to develop and improve the business and services we provide to our customers. We may also disclose it to other companies in the United Utilities group (being United Utilities Water Limited, its holding companies (and their subsidiary companies) and its subsidiary companies) and their sub-contractors in connection with those purposes, but it will not be processed for other purposes or disclosed to other third parties without your express permission or without lawful purpose under data protection law.

General

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

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

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

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

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

Property Searches complaints procedure

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

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

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

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

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

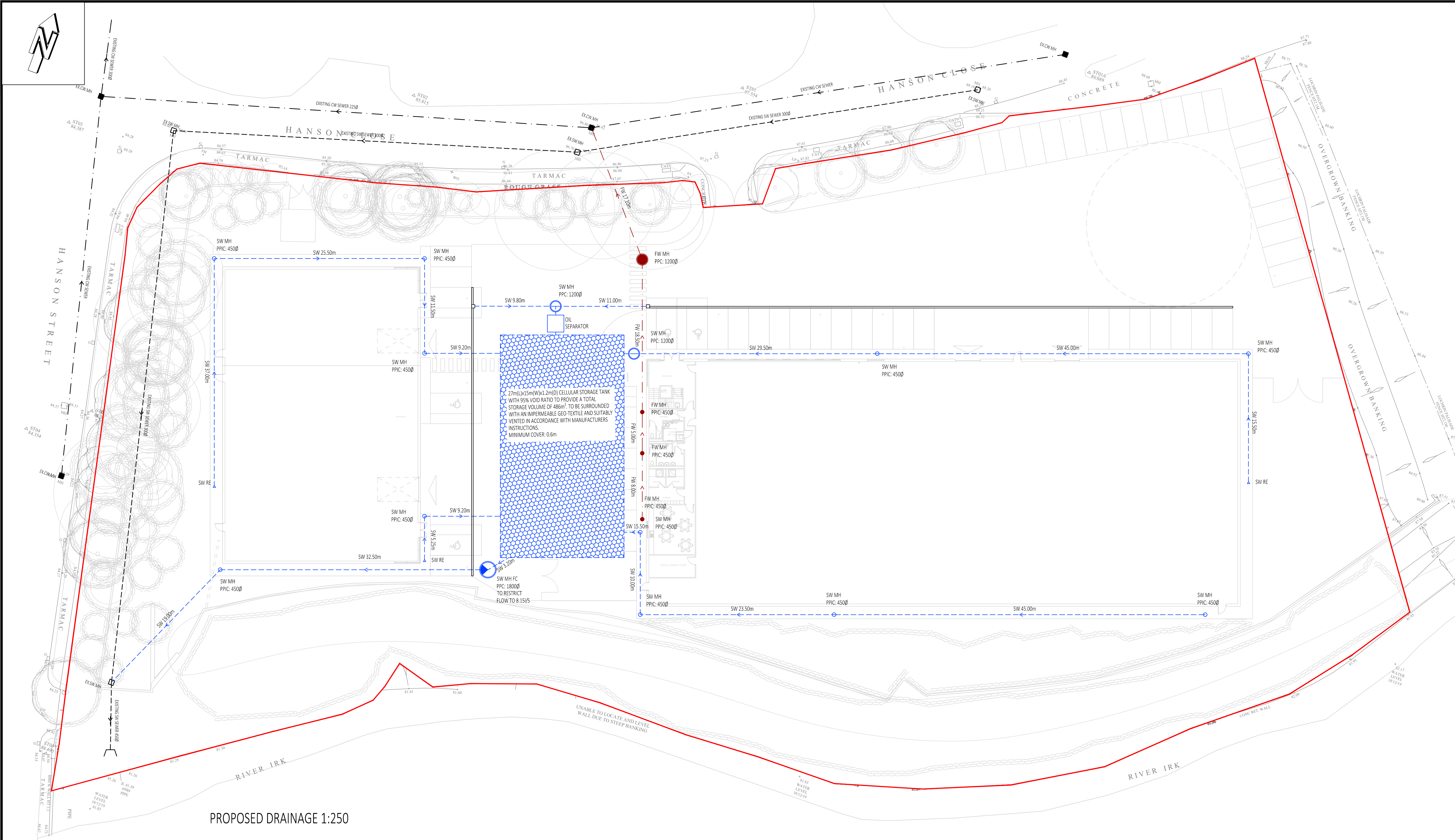
If we consider your complaint to be justified or we have made any errors that substantially change the outcome of the search we will:

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

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

APPENDIX E

PROPOSED DRAIANGE STRATERGY



PROPOSED DRAINAGE 1:250

SURFACE WATER PRINCIPLES

NPPG HIERARCHY OF SURFACE WATER DRAINAGE

THE NATIONAL PLANNING PRACTICE GUIDANCE SETS OUT THE HIERARCHY OF DRAINAGE TO PROMOTE THE USE OF SUSTAINABLE DRAINAGE SYSTEMS, BY ALIGNING MODERN DRAINAGE SYSTEMS WITH NATURAL WATER PROCESSES. THE AIM OF HIERARCHY OF DRAINAGE IS TO DRAIN SURFACE WATER RUN-OFF AS SUSTAINABLE, AS REASONABLY PRACTICABLE.

AS STATED IN THE NATIONAL PLANNING PRACTICE GUIDANCE, THE AIM SHOULD BE TO DISCHARGE SURFACE WATER RUN-OFF AS HIGH UP THE DRAINAGE HIERARCHY, AS REASONABLY PRACTICABLE:

- INTO THE GROUND (INFILTRATION).
- TO A SURFACE WATER BODY.
- TO A SURFACE WATER SEWER, HIGHWAY DRAIN, OR ANOTHER DRAINAGE SYSTEM.
- TO A COMBINED SEWER.

INFILTRATION

A PHASE 1 INVESTIGATION HAS BEEN CARRIED OUT BY PWA GEO-ENVIRONMENTAL REPORT NO. 19060-PWAG-00-ZZ-RP-G-1000-P01, THE REPORT SUMMARISES THAT THE SITE IS OVERLAIN MADE GROUND, OVER SILTY SAND WITH SOME GRAVEL. IT ALSO STATES THAT AN EXISTING DESK STUDY IDENTIFIED THAT THE SITE HAS A LONG HISTORY OF INDUSTRIAL DEVELOPMENT INCLUDING PITS, FILTER BEDS AND USE AS A BUILDER'S MERCHANTS AND WAS USED FOR DYEING AND FINISHING. DUE TO THE HISTORICAL SITE USAGE WE WOULD EXPECT A SIGNIFICANT DEPTH OF MADE GROUND, THEREFORE IT IS ANTICIPATED THAT SOAKAWAYS ARE NOT VIABLE.

AS PART OF THE PROPOSED INTRUSIVE SITE INVESTIGATIONS, SOAKAWAY TESTING IN ACCORDANCE WITH BRE 365: SOAKAWAY DESIGN, SHOULD BE CARRIED OUT ACROSS THE SITE. THE VIABILITY OF SOAKAWAYS SHOULD THEN BE REVISITED IN ORDER TO ASCERTAIN WHETHER THIS IS A SUITABLE OPTION FOR SURFACE WATER DISPOSAL

WATERCOURSE

IF INFILTRATION HAS BEEN DISCOUNTED AS A VIABLE SOLUTION, THE NEXT METHOD IN PRIORITY SHOULD BE TO DISCHARGE TO A WATERCOURSE OR SURFACE WATER BODY.

THERE IS A WATERCOURSE RUNNING ALONG THE APPLICATION SITE. AN EXISTING HEADWALL EXISTS ON SITE. A CONNECTION HAS BEEN PROPOSED TO THE MANHOLE APPROXIMATELY 8 METERS UPSTREAM. ULTIMATELY ALL SURFACE WATER WILL FLOW TO THE WATERCOURSE VIA AN EXISTING OUTFALL. SUBJECT TO THE APPROVAL OF THE LLFA.

SURFACE WATER DESIGN

RUN-OFF RATES

- * THE SITE HAS BEEN REGARDED AS GREEN FIELD THEREFOR APPROPRIATE CALCULATIONS HAVE BEEN UNDERTAKEN TO DETERMINE A GREENFIELD RUN OFF RATE OF 8.15l/s.*
- * REFER TO PWA CALCULATION 22227-PWA-00-XX-CA-C-1000 FOR RUN OFF RATE

PROPOSED DRAINAGE SYSTEM

TO RESTRICT PROPOSED FLOWS TO A RATE OF 8.15 l/s, THE PROPOSED DRAINAGE SYSTEM SHOULD SEEK TO IMPLEMENT SOURCE CONTROL SUDS METHODS WHERE POSSIBLE AND AN ATTENUATION SYSTEM TO STORE THE RESTRICTED FLOWS.

THE CIC SUDS GUIDANCE STATES THAT AN URBAN CREEP ALLOWANCE IS TO BE APPLIED TO ANY DEVELOPMENT WHERE THERE IS FUTURE POTENTIAL TO EXPAND IMPERMEABLE AREAS WITHIN THE DEVELOPMENT. THIS ALLOWANCE IS TO BE TAKEN AS A 10% INCREASE OF ALL IMPERMEABLE AREAS FOR DESIGN PURPOSES. *

A HYDROBREAK OPTIMUM FLOW CONTROL MANHOLE HAS BEEN PROPOSED TO ALLOW A DISCHARGE RATE OF 8.15l/s

BASED ON THE PROPOSED IMPERMEABLE AREAS WITH A 10% URBAN CREEP ALLOWANCE, THE REQUIRED ATTENUATION FOR A 1 IN 100-YEAR STORM EVENT + 40% CLIMATE CHANGE IS CALCULATED AT 486m³ AND ATTENUATION FOR A 1 IN 30-YEAR STORM EVENT + 40% CLIMATE CHANGE IS CALCULATED AT 336m³. **

- ** REFER TO PWA CALCULATIONS 22227-00-XX-CA-C-1001, 22227-00-XX-CA-C-1002 FOR ATTENUATION VOLUMES.

PRELIMINARY ATTENUATION DESIGNS ARE BELOW:

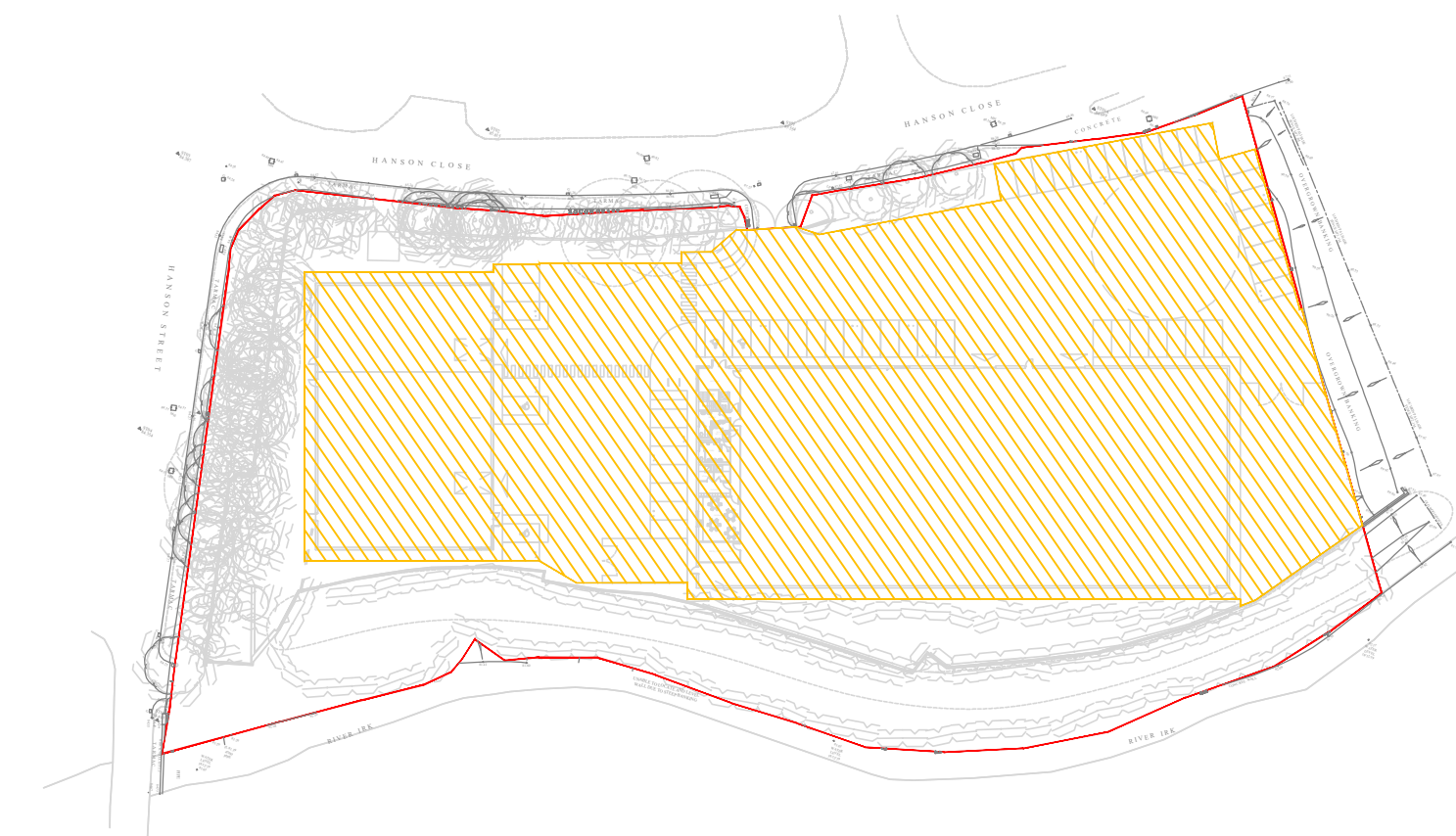
1 CELLULAR STORAGE TANKS PROVIDING A STORAGE CAPACITY OF 486m³.

FOUL WATER DESIGN

FOUL WATER STRATEGY

THE PROPOSED FOUL WATER FROM THE DEVELOPMENT WILL BE DRAINED VIA GRAVITY TO THE EXISTING COMBINE SEWER ASSET RUNNING ALONG HANSON CLOSE..

ALL PROPOSED DRAINAGE IS SUBJECT TO DETAILED DESIGN. DETAILED DESIGN TO BE IN LINE WITH LANCASTHIRE COUNCIL GUIDANCE



PROPOSED IMPERMEABLE AREA 1:1000

NOTES:

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KEY PLAN - 1:2500

KEY:

- EXISTING SURFACE WATER SEWER
- EXISTING SURFACE WATER MANHOLE
- - - EXISTING SURFACE WATER HEADWALL
- - - EXISTING COMBINED WATER SEWER
- EXISTING COMBINED WATER MANHOLE
- - - PROPOSED SURFACE WATER SEWER
- PROPOSED SURFACE WATER MANHOLE
- PROPOSED SURFACE WATER FLOW CONTROL MANHOLE
- PROPOSED SURFACE WATER INSPECTION CHAMBER
- PROPOSED SURFACE WATER STORAGE TANK
- PROPOSED CHANNEL DRAIN
- PROPOSED OIL SEPARATOR
- - - PROPOSED FOUL WATER SEWER
- PROPOSED FOUL WATER MANHOLE
- PROPOSED FOUL WATER INSPECTION CHAMBER
- SITE BOUNDARY

AREA	PROPOSED IMPERMEABLE AREA, m ² (ha)
SITE AREA	6796.824m ² (0.679ha)

* TOTALS FOR HECTARES (ha) AND METERS SQUARED (m²) DIFFER SLIGHTLY DUE TO ROUNDING AND ACCUMULATION OF INDIVIDUAL AREAS.

STORAGE REQUIREMENTS	
STORM EVENT	STORAGE VOLUME
1 IN 100 YEAR	300.00m ³
1 IN 100 YEAR + CC	486.00m ³

Proj	00.11.22	FIRST ISSUE	AC	LS
Rev	Date	Remarks	Drawn	CHK'D

Paul Waite Associates

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Client
MSM AEROSPACE FABRICATORS

Project
MIDDLETON SHEET METAL

Title
PROPOSED DRAINAGE STRATEGY

Size	Scale	Designed	Checked	Date
A1	AS SHOWN	AC	LS	NOV 22

Drawing Status
PRELIMINARY

Job Number	Originator	Zone	Level	Type	Role	Drawing No.	Rev
22227 - PWA - 00 - XX - DR - C - 1001							P01



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22227-PWA-00-XX-CA-C-1000

MIDDLETON SHEET METAL

Greenfield Run-off Analysis of Existing Site Area

REVISION. P01

DESIGNED. AC

CHECKED. LS

DATE. 01/11/22

The following analysis has been undertaken to establish the greenfield runoff rate for a development planned on land which is currently undeveloped. The analysis uses the IH124 method and site characteristic information to give a Q_{bar} rural (l/s) value which can be utilised alongside a growth curve factor for the calculation of estimated site discharge values for critical storm periods. This Q_{bar} value can be applied to proposed drainage designs and utilised as a value for which rates are to be restricted.

The IH124 Method can be expressed as:

$$Q_{bar} = Q_{BarRural} = 0.00108 \times (0.01 \times A)^{0.89} \times SAAR^{1.17} \times SPR^{2.17}, m^3/s$$

Where:

$Q_{barrural}$ is the mean annual flood flow from a rural catchment (approximately 2.3 year return period)

A is the area of the catchment in ha.

SAAR is the standard average annual rainfall for the period 1941 to 1970 in mm (SAAR 41-70). SAAR 61-90, which was analysed for FEH for rainfall from 1961 - 1990, is virtually the same and can also be used

SPR is Standard Percentage Runoff coefficient for the SOIL category.

A, The total site area contributing to the catchment	1.07	(ha)
SAAR	1034	(mm)
Hydrological Region	10	
Soil Type	4	
SPR	0.47	

Mean Annual Greenfield Peak Flow (Estimated site discharges)

This method of calculating the mean annual greenfield peak flow is based on flood estimation for small catchments, specifically, Report no.124 (Institute of Hydrology 1994)

$$Q_{bar} = 8.15 \text{ l/s}$$

Greenfield Runoff Rates

1 in 1 year	7.09	l/s
1 in 30 years	13.86	l/s
1 in 100 years	16.96	l/s
1 in 200 years	19.32	l/s



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22227-PWA-00-XX-CA-C-1001

MIDDLETON SHEET METAL

Drainage Attenuation Storage 1 in 100 Year Storm Event

REVISION P01

DESIGNED. AC

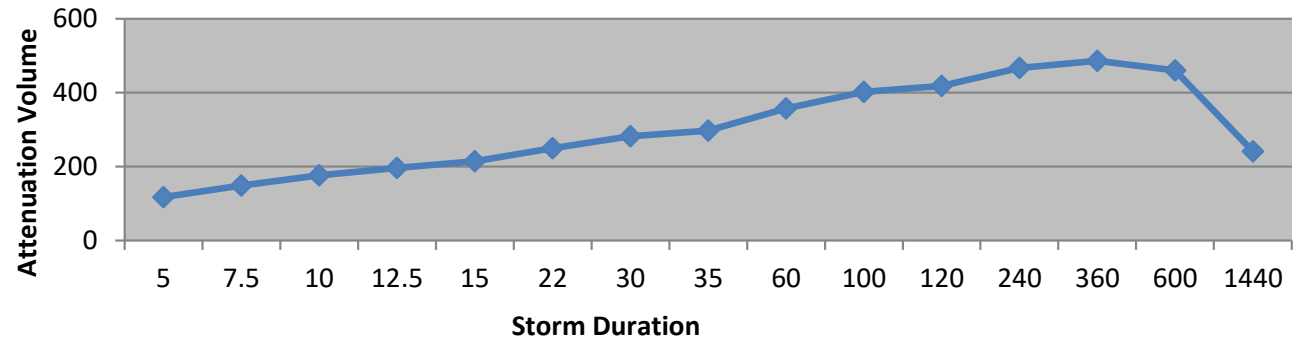
CHECKED. LS

DATE. 01/11/22

Input Data

M5-60 =	20	mm	Fig A.1
r =	0.3		Fig A.2
T =	100	yrs	
C =	2.78		
Max Allowable Flow =	8.15	l/s	
Contributing Area =	6796.8	m ²	
Flow/Ha =	11.99	l/s/Ha	
Percentage Increase =	40	%	

Output Data



Duration (Mins)	Z1	M5-D (M5-60)*Z1		Z2	I mm/h	Increased Rainfall	Qp l/s	Increased Flow	Storage m ³	Percentage Increased Storage m ³
5	0.34	6.9		1.83	151	212	286	400	83	118
7.5	0.43	8.5		1.88	128	180	242	339	105	149
10	0.50	10.0		1.91	114	160	216	303	125	177
12.5	0.55	11.0		1.93	102	143	193	270	139	197
15	0.60	12.0		1.94	93	130	176	246	151	214
22	0.69	13.9		1.97	75	105	141	197	175	250
30	0.78	15.6		2.00	62	87	118	165	197	282
35	0.83	16.5		2.00	57	79	107	150	208	298
60	1.00	20.0		2.03	41	57	77	107	247	357
100	1.18	23.5		2.02	28	40	54	75	273	402
120	1.25	24.9		2.01	25	35	47	66	282	418
240	1.56	31.3		1.96	15	21	29	41	300	467
360	1.81	36.2		1.92	12	16	22	31	297	486
600	2.12	42.3		1.87	8	11	15	21	245	461
1440	2.81	56.2		1.77	4	6	8	11	0	241



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22227-PWA-00-XX-CA-C-1002

REVISION P01

MIDDLETON SHEET METAL

DESIGNED. AC

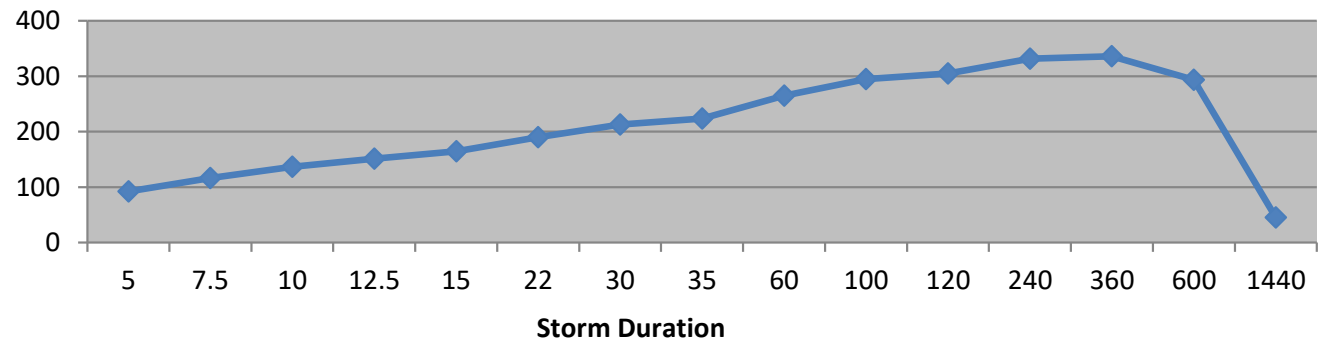
CHECKED. LS

Drainage Attenuation Storage 1 in 30 Year Storm Event.

DATE. 01/11/22

Input Data

M5-60 =	20	mm	Fig A.1
r =	0.3		Fig A.2
T =	30	yrs	
C =	2.78		
Max Allowable Flow =	8.15	l/s	
Contributing Area =	6796.8	m ²	
Flow/Ha =	11.99	l/s/Ha	
Percentage Increase =	40	%	



Output Data

Duration (Mins)	Z1	M5-D (M5-60)*Z1		Z2	I mm/h	Increased Rainfall	Qp l/s	Increased Flow	Storage m ³	Percentage Increased Storage m ³
5	0.34	6.9		1.45	120	167	226	316	65	92
7.5	0.43	8.5		1.47	101	141	190	266	82	116
10	0.50	10.0		1.49	89	125	169	236	96	137
12.5	0.55	11.0		1.50	79	111	150	210	106	151
15	0.60	12.0		1.50	72	101	136	191	115	164
22	0.69	13.9		1.52	57	80	109	152	133	190
30	0.78	15.6		1.53	48	67	90	126	148	213
35	0.83	16.5		1.53	43	61	82	115	155	224
60	1.00	20.0		1.54	31	43	58	82	181	265
100	1.18	23.5		1.54	22	30	41	57	197	295
120	1.25	24.9		1.53	19	27	36	51	201	305
240	1.56	31.3		1.51	12	17	22	31	204	332
360	1.81	36.2		1.48	9	13	17	24	190	336
600	2.12	42.3		1.46	6	9	12	16	126	293
1440	2.81	56.2		1.40	3	5	6	9	0	45

End of Report