

FLOOD RISK ASSESSMENT AND DRAINAGE STRATEGY REPORT

PROPOSED DEVELOPMENT

CHAIN ROAD, BLACKLEY,

MANCHESTER, M9 0RD

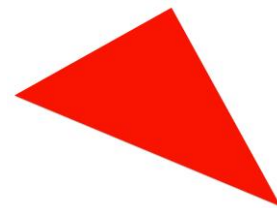
For

GREAT PLACES HOUSING GROUP

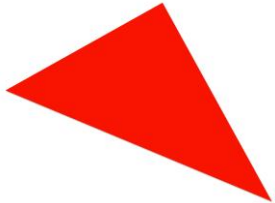


JULY 2021
21-B-12851.100

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EXECUTIVE SUMMARY	
Site Parameters	Site Area – 3,450m² Present Impermeable Area - existing hardstanding (est 5%) – 500m² Post Development Impermeable Area (est 70%) – 1,400m² INCREASE in Impermeable Area – 900m² NGR – 386000 (E) ; 404140 (N) Nearest Post Code – M9 ORD
Flooding	This report has considered flooding from a variety of sources in accordance with NPPF guidelines, and it is believed that the site is not at risk of flooding, nor does the proposed development create a risk of flooding elsewhere.
Surface Water Drainage	There are no surface water sewers close to the site. The response from United Utilities suggests that infiltration should be used for the discharge of surface water from the site, though ground conditions appear to be unfavourable for infiltration. Testing in accordance with BRE Digest 365 will be required to verify if infiltration is possible. United Utilities indicated that should a detailed assessment be undertaken into either of the possibilities above, and both prove not possible with evidence, then a surface water connection to the existing 375mm diameter combined sewer in Chain Road would be considered, at a pass forward flow to be agreed by the LLFA, not to exceed 5L/s.
Foul Drainage	There is a 375mm diameter public combined sewer in Chain Road, North of the site and a 300mm diameter public combined sewer in Victoria Road. United Utilities indicate that connection to the combined sewer for foul discharge would be permitted at an uncontrolled rate. Their preferred point of discharge is into the 375mm sewer in Chain Road, however indicate should another point of discharge be more suitable to discuss this with them.



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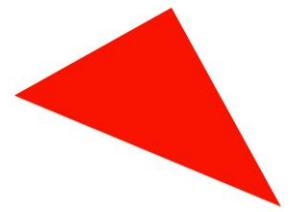
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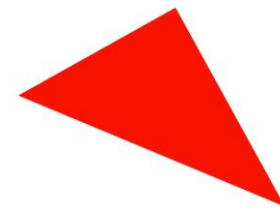


1.0 INTRODUCTION

- 1.1 Carley Daines and Partners Limited have been commissioned by Great Places Housing Group to undertake a Flood Risk Assessment (FRA) and Drainage Strategy for this site in accordance with the requirements of National Planning Policy Guidelines (NPPG), published in 2016 & as since updated.

2.0 EXISTING SITE DETAILS

- 2.1 The site is located off Chain Road in the North Manchester suburb of Blackley. See location plan in Appendix A. It is triangular in shape, with an approximate area of 3,450m² (0.35ha). It is located at NGR 386000 (E) ; 404140 (N) and the nearest post code is M9 0RD. The mean site elevation is approximately 98m AOD. The site can be accessed from Chain Road & is connected to the M60 Manchester Orbital motorway immediately to the north. The site is approximately 10km North of Manchester City Centre.
- 2.2 The existing site is currently greenfield and appears to have been unoccupied for the past 20 years. The existing Chain Road forms the northern boundary of the site, which is presently unsecured & the surface is currently entirely soft landscaping consisting of unmanaged grass & small trees & bushes. The southern boundary of the site borders the back of footway Victoria Road. There is a hardstanding footpath cutting through the site, connecting the footpaths of the two aforementioned roads.
- 2.3 There are no rivers or major streams in the immediate vicinity of the site. The nearest surface water feature is the Boardman Brook located approximately 600m North of the site, connecting into the River Irk 1km North of the site.
- 2.4 There are no existing dedicated public surface water sewers in the area.
- 2.5 Existing sewers are indicated on the UU Sewer Records Plan in Appendix B. Sewers are all combined surface & foul water and there is an existing 375mm diameter sewer in Chain Road, which runs North to South, connecting beyond the South West corner of the site into a 450mm diameter sewer, into which a 300mm diameter sewer also connects from Victoria Road.
- 2.6 The Lead Local Flood Authority (LLFA) is Manchester City Council.
- 2.7 There has been no site-specific intrusive ground investigation to date, though a Phase 1 Preliminary Risk Assessment has been undertaken. This indicates that some Made Ground is likely to be present on site given previous nearby developments. Natural deposits are indicated as Glacial Till (clay) overlying rocks of the Pennine Upper Coal Measures and sandstone bedrock.



3.0 PROPOSED DEVELOPMENT

- 3.1 Preliminary plans have been made available to us prepared by Bowker Sadler Architects. The proposed development consists of 12 no new residential dwellings and a two storey apartment building together with drainage and parking infrastructure. Vehicle access to the new development will be via the existing Chain Road via a new private road leading to private driveways and a private car park. 6 plots directly facing Chain Road will access their driveways directly from the road. See the proposed site layout in Appendix C.
- 3.2 Any residential development of this type is classified in Table 2 of the NPPG below, as within the "More Vulnerable" category in consideration of flood risk and is in Flood Zone 1 (FZ1) – an area with low risk of flooding (see appendix D).

Table 2: Flood Risk Vulnerability Classification

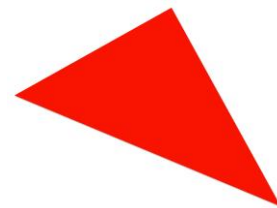
Essential Infrastructure - Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk. - Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood. - Wind turbines
Highly Vulnerable - Police stations, ambulance stations and fire stations and command centres and telecommunications installations required to be operational during flooding. - Emergency dispersal points. - Basement dwellings. - Caravans, mobile homes and park homes intended for permanent residential use³. - Installations requiring hazardous substances consent⁴. Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as "essential infrastructure"⁵.
More Vulnerable - Hospitals - Residential institutions such as residential care homes, children's homes, social services homes, prison and hostels. - Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels. - Non-residential uses for health services, nurseries and educational establishments. - Landfill and sites used for waste management facilities for hazardous waste⁶. - Sites used for holiday or short-let caravans and camping, <i>subject to a specific warning and evacuation plan</i>.
Less Vulnerable - Police, ambulance and fire stations which are <i>not</i> required to be operational during flooding. - Buildings used for shops, financial, professional and other services, restaurants and cafes, hot food takeaways, offices, general industry, storage and distribution, non-residential institutions not included in "more vulnerable" and assembly and leisure. - Land and buildings used for agriculture and forestry. - Waste treatment (except landfill and hazardous waste facilities). - Minerals working and processing (except for sand and gravel working). - Water treatment works which do <i>not</i> need to remain operational during times of flood. - Sewage treatment works (if adequate measures to control pollution and manage sewage during flooding events are in place.)

³ For any proposal involving a change of use of land to a caravan, camping or chalet site, or to a mobile home site or park home site, the Sequential and Exception Tests should be applied.

⁴ See Circular 04/00: *Planning controls for hazardous substances* (paragraph 18) at: www.communities.gov.uk/publications/planningandbuilding/circular/planningcontrols

⁵ In considering any development proposal for such an installation, local planning authorities should have regard to planning policy on pollution in the National Planning Policy Framework.

⁶ For definition, see *Planning for Sustainable Waste Management: Companion Guide to Planning Policy Statement 10* at www.communities.gov.uk/publications/planningandbuilding/planningsustainable
See footnote 3.



Water-compatible development

- Flood control infrastructure.
- Water transmission infrastructure and pumping stations.
- Sand and gravel working.
- Docks, marinas and wharves.
- Navigation facilities.
- Ministry of Defence installations.
- Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location.
- Water-based recreation (excluding sleeping accommodation).
- Lifeguard and coastguard stations.
- Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms.

Essential ancillary sleeping or residential accommodation for staff required by uses in this category *subject to a specific warning and evacuation plan.*

Notes to Table 2:

- This classification is based partly on Department for Environment, Food and Rural Affairs and Environment Agency research on *Flood Risks to People (FD2321/TR2)* and also on the need of some uses to keep functioning during flooding.
- Buildings that combine a mixture of uses should be placed in to the higher of the relevant classes of flood risk sensitivity. Developments that allow uses to be distributed over the site may fall within several classes of flood risk sensitivity.
- The impact of a flood on the particularly uses identified within this flood risk vulnerability classification will vary within each vulnerability class. Therefore, the flood risk management infrastructure and other risk mitigation measures needed to ensure the development is safe may differ between uses within a particular vulnerability classification.

3.3

Table 3 of the NPPG states that “more vulnerable” development is considered appropriate within FZ1. Therefore, the development passes the flood risk Sequential Test & the Exception Test does not need to be applied.

Table 3: Flood Risk Vulnerability and Flood Zone "Compatibility"

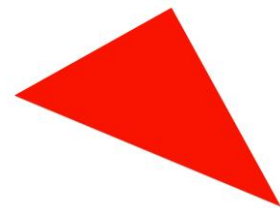
Flood risk vulnerability classification (see Table 2)		Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Zone (see table 1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test required	✓	✓
	Zone 3a	Exception Test required	✓	✗	Exception Test required	✓
	Zone 3b functional floodplain	Exception Test required	✓	✗	✗	✗

Key: ✓ Development is appropriate
 ✗ Development should not be permitted.

Notes to Table 3:

This table does not show:

- The application of the Sequential Test which guides development to Flood Zone 1 first, then Zone 2, and then Zone 3;
- Flood risk assessment requirements; or
- the policy aims for each flood zone.



4.0 EFFECTS OF CLIMATE CHANGE

- 4.1 Reference is made to the Environment Agency document: Flood Risk Assessments: Climate Change Allowances dated February 2016 & updated in March 2020.

Table 2: Peak rainfall intensity allowance in small and urban catchments (use 1961 to 1990 baseline)

Applies across all England	Total potential change anticipated for 2015 - 2039	Total potential change anticipated for 2040 - 2069	Total potential change anticipated for 2070 - 2115
Upper end	10%	20%	40%
Central	5%	10%	20%

The site is unaffected by changes in sea levels.

5.0 PROBABILITY OF FLOODING

- 5.1 It is a requirement of the NPPG that flooding from all possible sources should be assessed. Accordingly, consideration must be given to the possibility of flooding from the following sources:

- rivers and watercourses
- sewers
- sea
- overland flows
- ground water
- reservoirs, canals and artificial sources

Consideration must also be given to the possibility of transferring flooding to other locations off site. In consideration of the above possible flood sources, the assessed risks are as follows:

5.2 Flooding from Rivers/Watercourses

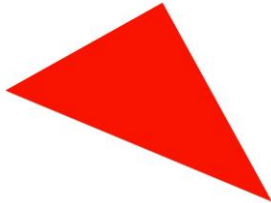
There are no rivers or major watercourses on or near to the site. There is no recorded historic flooding within 1km of the site. Accordingly, the risk of flooding from the river and or local watercourses can be assessed as VERY LOW.

5.3 Flooding from the Sea

The site is at an elevation of 98m AOD & at least 40km from the nearest coastline. The risk of flooding from the sea is therefore assessed as ZERO.

5.4 Flooding from Land

There are no obvious overland paths of flood water, nor is there any known history of flooding in the area. Flooding from land is therefore assessed as NEGLIGIBLE.



5.5 Flooding from Ground Water

The possibility of flooding from groundwater has been considered. As the proposed development is to be fully constructed above natural existing ground level, and no cellars / basements are to be incorporated into the buildings, mitigating measures in the form of specialist tanking and waterproofing are not considered to be necessary. This risk is assessed as VERY LOW.

5.6 Flooding from Sewers

Flooding from sewers can occur when a sewer is overwhelmed by heavy rainfall, becomes blocked, is damaged or of inadequate capacity. Flooding is most likely to occur to combined sewers. The UU sewer map shows sewers in the area to be of substantial size and it was not reported by UU that there is any record of sewer flooding in the area when they were contacted about the development. It can therefore be concluded that the risk of sewer flooding is VERY LOW.

5.7 Flooding from Reservoirs, Canals and Artificial Sources

There are no reservoirs, canals or artificial sources of water on or near to the site. There is no recorded historic flooding within 1km of the site. Accordingly, the risk of flooding from the river and or local watercourses can be assessed as VERY LOW.

5.8 Flooding Elsewhere

This flood risk assessment also requires consideration to be given to the possibility of flooding being caused elsewhere. A properly designed and maintained site drainage system will meet the requirements of the sewerage provider, in that the pipelines will not flood at the critical 30-year rainfall event. Furthermore, NPPG guidelines require that all exceedance flows either infiltrate into the ground or are safely contained on site within underground or above ground safe storage areas such that there will be no risk of flooding of vulnerable or critical areas on site or other nearby areas. There will be a substantial increase in impermeable area on site, due to the proposed development. However, it is proposed to mitigate any potential flooding by appropriate infiltration if possible. The risk, therefore, of transferring flooding elsewhere is VERY LOW.

6.0 MITIGATION MEASURES

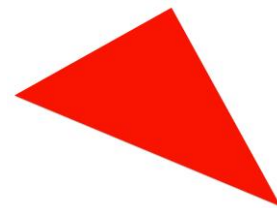
In view of the site being located in FZ1 and the very low risk of causing flooding elsewhere off site (see above) there are no further major mitigating measures proposed, though placing finished floor levels a minimum of 150mm above surrounding ground levels would be prudent.

7.0 SURFACE WATER DRAINAGE STRATEGY

7.1 It is the Environment Agency, United Utilities, Building Regulations and the Lead Local Flood Authority policy for all surface water systems for development sites to be designed using Sustainable Drainage Systems (SuDs) wherever possible.

7.2 Rainfall intensities, see profiles in Appendix E, are as indicated in the table below.

	YR 2	YR 30	YR 100	YR 100 + 40%
Rainfall Intensity mm/hr	64.6	158.9	207.4	290.4



With an existing drained impermeable area on site of 500m², the run-off rates from existing rainfall events is presently as follows:

	YR 2	YR 30	YR 100
Peak Run-Off Litres/sec	11.7	21.9	28.6

Future run-off, post-development, with an impermeable area on site of 1,400m², peak run-off rates are predicted to be as follows:

	YR 2	YR 30	YR 100	YR 100 + 40% CC
Peak Run-Off Litres/sec	35.1	65.7	85.8	120.12

The post development impermeable area gives a proposed in surface water run-off of approximately 450%. However, NPPG requires that surface water discharge should be via infiltration wherever possible and that run-off rates are restricted as close as possible to equivalent greenfield run-off rates.

7.3 Discharge Rates

Greenfield run-off rates are included in Appendix F. These have been calculated using the H R Wallingford greenfield run-off rates calculator, based on the IH124 Approach. The greenfield rate for the 1 in 1yr return is calculated as 2.2 l/s, the 1in 30yr return as 4.3 l/s & the 1 in 100yr as 5.27 l/s. Q_{BAR} is calculated as 2.53 l/s & this has been utilised as the governing run-off rate for this report. However, Q_{BAR} has been raised from 2.53 l/s to 5 l/s as this is the generally accepted default minimum value.

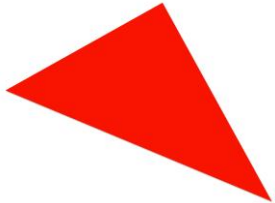
7.4 Discharge Method

Paragraph 080 of the NPPG: Flood Risk & Coastal Change sets out the following hierarchy of drainage options:

- Into the ground (infiltration)
- To a surface water body
- To a surface water sewer, highway drain or other drainage system
- To a combined sewer

7.5 Soakaways

The first consideration for the disposal of surface water is via soakaways. However, BGS mapping indicates Drift geology to be Glacial Till (clay), overlying rocks of the Upper Pennine Coal Measures. To date intrusive investigations have not been carried out though in view of this initial evidence it is probable that infiltration will not be possible so contingencies for other methods of surface water disposal should be considered. A Phase 2 site investigation should be carried out with suitable laboratory testing, leading to potential infiltration testing in accordance with BRE 365 to prove the grounds ability to drain via infiltration.



7.6 **Watercourse**

The nearest available surface water watercourse or feature to the site is the Boardman Brook 600m North of the site. This is a considerable distance, and it would be unreasonable and impractical to assume that this would be a suitable point of discharge for the surface water from the site, let alone that the site and watercourse are separate by a major motorway (M60), therefore it is considered that surface water discharge into a watercourse is NOT suitable from this site.

7.7 **Sewer**

The next consideration is discharge to a sewer. There are no dedicated surface water sewers in the area. There is, however, a combined sewer directly to the north of the site in Chain Road. Connection into this sewer with an acceptable discharge rate will need to be agreed through discussion with UU and the LLFA should all other options discussed above prove not suitable, providing sufficient evidence. UU indicated in their pre development consultation response that in this scenario the flow rate should be agreed by the LLFA, but should not exceed 5L/s. It is from experience that flow control devices below 5L/s are generally considered not suitable due to the small orifice sizes, which may increase the risks of blockages which could ultimately cause flooding. It is suggested further consultation be undertaken with UU to discuss this at detailed design stage, should this be necessary, providing them with evidence that infiltration is not viable for the site.

7.8 **Attenuation Storage**

As soakaways are unlikely to be feasible, attenuation storage will be required. Attenuation storage estimates are included in Appendix G. In line with current best practice, storage volumes have been assessed for the 1:30yr return (the design criteria as per Sewers for Adoption) and for the exceedance event of 1:100yr + 40% cc allowance. The respective volumes are a maximum of 88m³ and 191m³. The 1:30yr volume would be in underground pipes / tanks & the exceedance (the difference between the two volumes) could either be underground or above ground if safe storage areas are available. This would be considered at detailed design stage. Furthermore, the attenuation volumes are indicative only and should be verified at detailed design stage.

7.9 **Sustainable Drainage Systems**

Other options considered are as follows:

Swales, detention basins and ponds

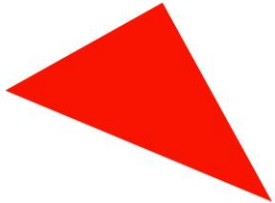
These are not considered to be suitable as this is a small dense inner urban site with no significant area of public open space.

Rainwater Harvesting

The attenuation benefits of rainwater harvesting have been shown to be minimal and can only be realised when the tanks are not full. Also, rwh has been shown to be unsuitable when connecting to combined sewer systems due to risks of backing up and contaminating with sewage.

Green Roofs

Green roofs are not identified on preliminary plans. Given the nature of budgeted cost social housing, the significant additional costs involved in installing and maintaining green roofing, plus the additional dead load are not considered to be a practical option. Any benefits would be disproportionate to the likely significant construction and ongoing maintenance costs involved.



Porous / Permeable Paving

The site includes an access road plus drives and parking areas that may be suitable for permeable paving. Surface water storage could be provided within sub-base material and this could be considered at detailed design stage, though impermeable underlying ground may be unsuitable to receive infiltration.

8.0 FOUL WATER DRAINAGE STRATEGY

- 8.1 There are existing public sewers in the area owned and maintained by United Utilities. Guidance contained within Sewers for Adoption Edition 7 states that design foul flows should be 4,000 litres per dwelling per 24-hour period. With 20 units on the site, the design foul flow will be $4,000 \times 20 \div 24 = 3,600 = 0.93 \text{ l/s}$.
- 8.2 There is a 375mm diameter combined sewer in York Street to the north of the site. United Utilities will allow a connection to this sewer for foul water at an unrestricted rate at any point convenient. There are no existing manholes to the sewer in which would align with the site layout, therefore it may be required to construct a new manhole on the public sewer, signing up to a S106 application to work on the public sewer. Reference should be made to the Consultation Response in Section 11 and appendix H, also appendix B which shows the existing sewer map.

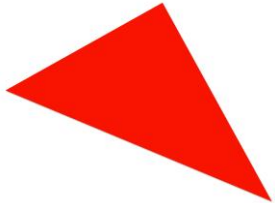
9.0 FLOOD RISK MANAGEMENT MEASURES

- 9.1 In the event of extreme emergency, the local authority and other emergency services have contingency plans for dealing with consequences of flooding.
- 9.2 Setting finished floor levels of the buildings at least 150mm above surrounding external ground, and shedding surface water away from the buildings, will avoid the risk of damage to buildings and contents from overland flood flows around the site.
- 9.3 The design of surface water drainage should ensure that there are no uncontrolled off-site overland flood flows created by the proposed development. Where possible, site surfaces should be modelled so that flood flows generated on site from events beyond the stipulated drainage design criteria will flow to, and be contained on site within landscaped or paved areas such that there is no increased risk of flooding to buildings and other vulnerable areas. Such flood flows should not be allowed to flow from the site onto adjoining / adjacent property or highways.
- 9.4 Home owners and landlords will be responsible for the maintenance of private drainage systems on site to ensure satisfactory performance. United Utilities will be responsible for the maintenance of any public sewers on the site.
- 9.5 Any flood flows onto the site from adjoining property will either be retained on site safely or be encouraged to pass across the site such that there is no increased risk of flooding to buildings and other vulnerable areas.

10.0 OFF-SITE IMPACTS

- 10.1 Proposed on-site drainage will be designed and constructed in accordance with Part H of The Building Regulations, Sewers for Adoption, and any additional requirements of United Utilities, the

LLFA, and the Environment Agency, as appropriate.

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- 10.2 All on-site roofs and pavings are to drain into the design surface water drainage system, thereby ensuring there will be no off-site flood flows generated by the development.
 - 10.3 The risk of flood flows entering and leaving the site will remain after development. The risk will be reduced as far as possible because the drainage designs will be such that there will be no flooding during all rainfall events up to and including the critical 30 year storm, and no overland flows from the critical 100 year storm.
 - 10.4 By implementation of the flood procedures and by careful design of the flood protection measures as described above, all residual flood-related risks will be minimised as far as possible after the development has been completed.

11.0 UNITED UTILITIES CONSULTATION RESPONSE

- 11.1 United Utilities response dated 12 July 2021 is attached in Appendix H. In summary it states the following:-

1) Foul water will be allowed to drain into the public combined sewer network at an unrestricted rate, and at any convenient point. Our preferred point of discharge would be to the 375mm diameter public combined sewer within Chain Road located to the north of your proposed development.

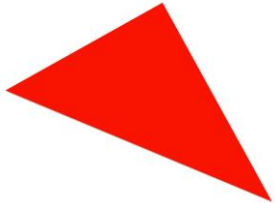
2) Surface water runoff generated from this development should discharge to the ground via infiltration system where feasible. A detailed evidence based feasibility assessment must be carried out in line with Chapter 25 of the CIRIA SuDS Manual 2015 to determine whether infiltration is a suitable method of surface water disposal.

3) In accordance with the hierarchy of drainage options within the National Planning Practice Guidance, both discharge to ground via infiltration and discharge to a waterbody should be discounted prior to consideration of discharging surface water to the public sewer system. Evidence should be provided to demonstrate how these have been discounted, as outlined in the North West SuDS pro-forma. Once evidence is provided as outlined above, United Utilities will consider a connection to the 375mm diameter public combined sewer located North of the proposed site at a pass forward flow to be agreed by the Lead Local Flood Authority. United Utilities request that any agreed rate does not exceed 5 l/s.

- 11.2 From the above consultation response, Carley Daines as the civil engineer for the scheme or any other consultant / contractor appointed, should undertake early infiltration / soakaway tests as per BRE Digest 365 in order to provide clarification. A ground intrusive Phase 2 site investigation complete with laboratory testing should be undertaken to confirm the sites suitability to accept surface water discharge by infiltration.

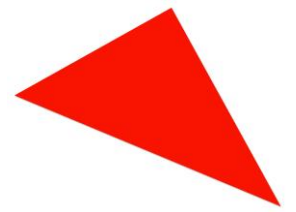
12.0 RESIDUAL RISKS

- 12.1 This Flood Risk Assessment, prepared in accordance with NPPG and EA Guidelines, demonstrates that the risk of on-site flooding from all sources resulting from the proposed development can generally be regarded as being zero to negligible.
- 12.2 Careful design of the future drainage system, together with the introduction of a significant proportion of soft landscaping, suggests that any risks of flooding are likely to be minimised.

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- 12.3 Furthermore, it is believed that the risk of transferring flooding elsewhere is negligible and on-site attenuation will reduce this to a level no greater than that which currently exists.
 - 12.4 Adoption of the new surface water system by UU should ensure satisfactory functioning and maintenance.
 - 12.5 Accordingly, and notwithstanding any other planning issues, it is not considered that the proposed development has any adverse effects on the current site, or the surrounding area in respect of flooding. Providing the advice contained within the Flood Risk Assessment is implemented, there are no adverse residual risks to either the development or the surrounding area.

13.0 CONCLUSIONS

- 13.1 The proposed re-development of the site involves the construction of 12 new residential dwellings and a two storey apartment block with associated highways, parking and drainage infrastructure.
- 13.2 The site is located in FZ1 on the EA Flood Map – an area considered to have the lowest probability of fluvial flooding.
- 13.3 The proposed development will increase existing hardstanding on site, however this will be limited through the introduction of residential gardens and peripheral soft landscaping. To comply with current NPPG recommendations, an assessment will need to be made of the site's ability to accept ground infiltration of surface water.
- 13.4 In the anticipated likelihood that ground conditions will be unsuitable for infiltration, the discharge rate will be further reduced to greenfield run-off rates and attenuation provided on site to accommodate all storm events up to and including the 1 in 100yr + 40% cc event.
- 13.5 In the anticipated likelihood that ground conditions will be unsuitable for infiltration, contact should be made to both the LLFA and UU with evidence, requesting permission to discharge into the public sewer system at a controlled rate.
- 13.6 Positioning of attenuation will be considered at detailed design stage.
- 13.7 Other SuDS systems and methods have been considered but are believed to be unsuitable or inappropriate for this development.



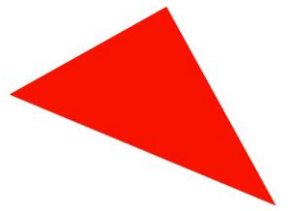
14.0 RECOMMENDATIONS

- 14.1 Submit this Flood Risk Assessment and Drainage Strategy to the Planning Authority in support of the Planning Application.
- 14.2 In due course, assess the site ground conditions for suitability to receive infiltration of surface water run-off. This should form part of an intrusive site investigation assessing wider geo-technical and environmental conditions and BRE 365 infiltration testing.
- 14.3 Ensure that floor levels are 150mm above surrounding ground levels
- 14.4 If attenuation is to be provided, check the attenuation volumes included in this report when undertaking the detailed drainage design.
- 14.5 Offer the new drainage systems to UU for adoption under a Section 104 Agreement, where possible.

SIGNED (electronically)

A Mulligan

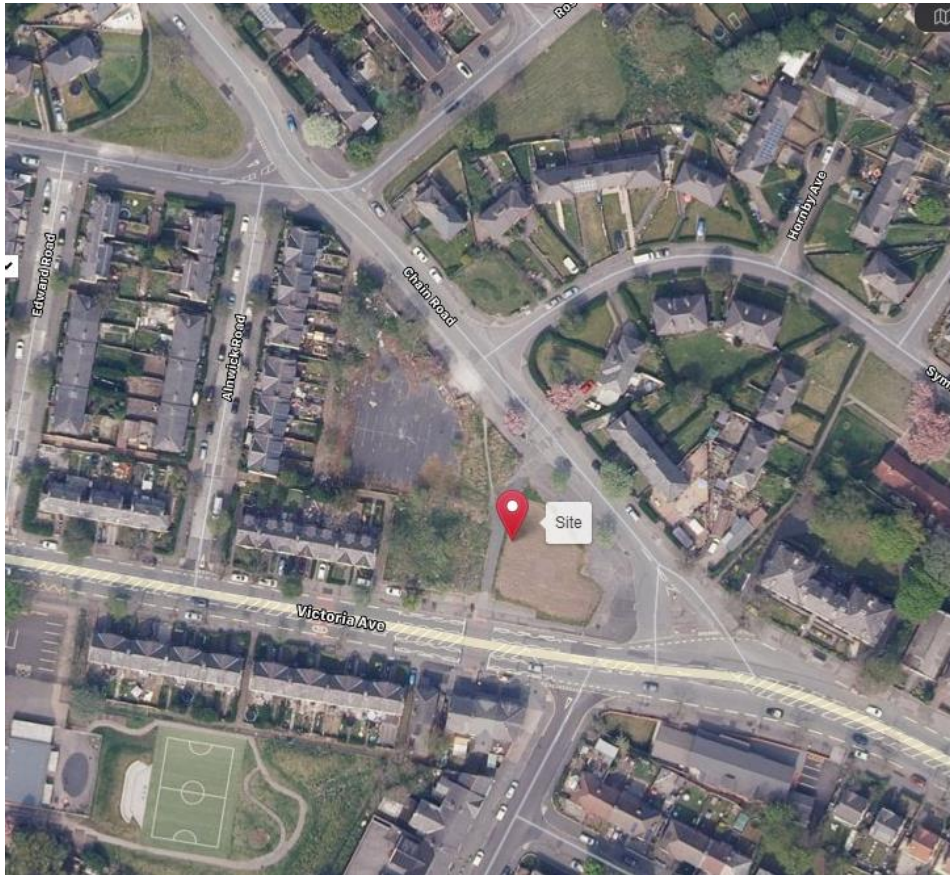
**A Mulligan BEng
CARLEY DAINES AND PARTNERS LTD**



APPENDIX A

LOCATION AND SITE PLAN

APPENDIX A.1 – SITE LOCATION PLAN – CHAIN ROAD, MANCHESTER.



Site

Grid Reference

SD 85997 04145

Grid Reference (6 figure)

SD859041

X (Easting) , Y (Northing)

385997 , 404145

Latitude , Longitude (decimal)

53.533772 , -2.2127393

Latitude , Longitude (degs, mins, secs)

53°32'02"N , 002°12'46"W

What3Words :

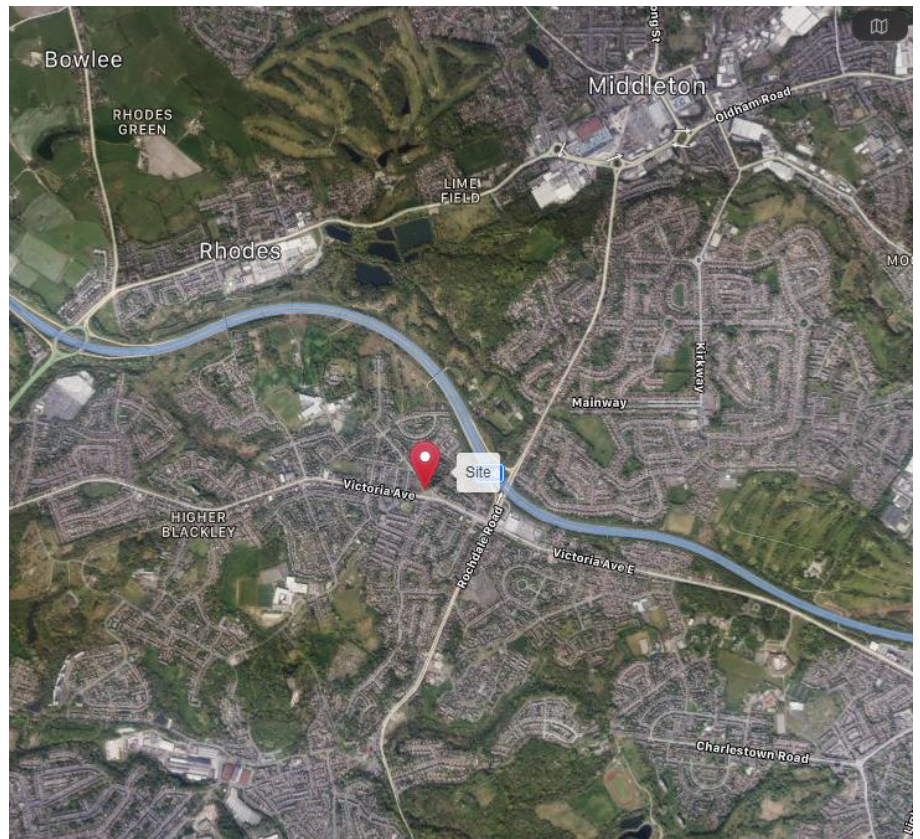
sheets.weds.paused

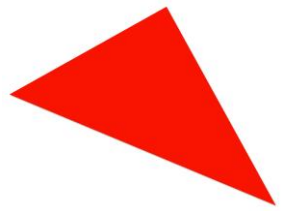
Address (near) :

**Magimark, Victoria Avenue, Boothroyden,
Manchester. Greater Manchester. North**

Postcode (nearest) :

M9 0FN





APPENDIX B

UNITED UTILITIES SEWER RECORDS



Water for the North West

Cornerstone Projects Ltd

**91
Market Street, HOYLAKE
Wirral, Merseyside
CH47 5AA**

FAO:

How to contact us:

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

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

**Your Ref: 21F262
Our Ref: UUPS-ORD-306911
Date: 19/07/2021**

Dear Sirs

Location: 21F262

I acknowledge with thanks your request dated 13/07/2021 for information on the location of our services.

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

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

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

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

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

Yours Faithfully,

A handwritten signature in black ink, appearing to read 'Karen McCormack', written over a light blue horizontal line.

Karen McCormack
Property Searches Manager

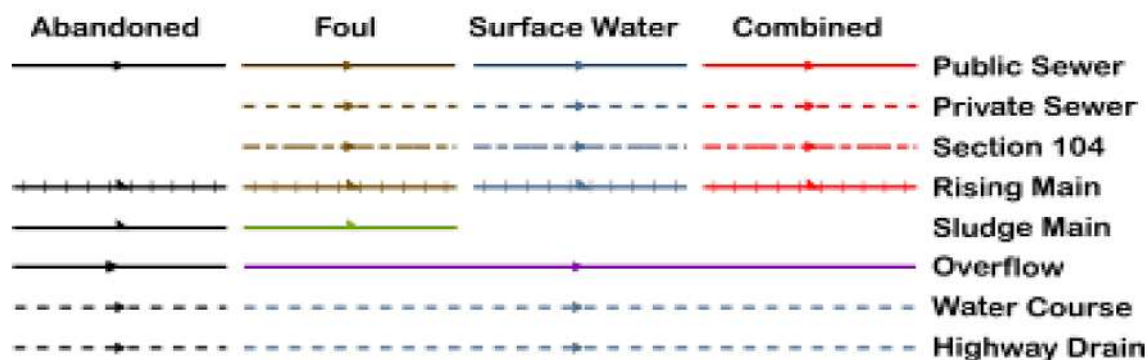
TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

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

TERMS AND CONDITIONS:

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

Wastewater Symbolology



All point assets follow the standard colour convention:

red – combined	brown - foul
blue – surface water	purple - overflow

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



Scale: 1:1250
Date: 19/07/2021

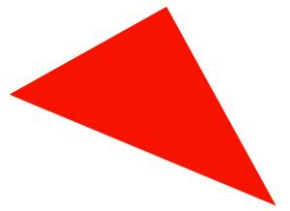
SEWER RECORDS



Address or Site Reference: 21F262
Printed by: Property Searches

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

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APPENDIX C

PROPOSED SITE PLAN

© BOWKER SADLER PARTNERSHIP LIMITED

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BOWKER SADLER PARTNERSHIP LIMITED ASSERTS ITS RIGHTS TO BE IDENTIFIED AS THE AUTHOR OF THIS DESIGN

■ DRAWING NOT TO BE SCALED.

■ REPORT ERRORS & OMISSIONS TO ARCHITECT.

■ CHECK ALL DIMENSIONS ON SITE

■ DRAWING TO BE READ IN CONJUNCTION WITH THE HEALTH AND SAFETY PLAN AND ALL RELEVANT RISK ASSESSMENTS

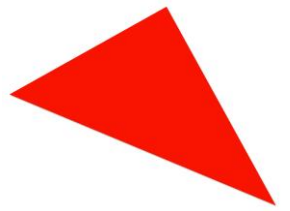


REV.	DATE	DRN.	CHKD.	
PROJECT				
CHAIN ROAD				
CLIENT				
DRAWING				
SITE LAYOUT				
SCALE	SHEET SIZE	DRAWN	CHECKED	DATE
	@			

BOWKER SADLER ARCHITECTURE

A: Hatherlow House, Hatherlow, Romiley, Stockport SK6 3DY
T: 0161 406 7333
E: bsp@bowker-sadler.co.uk
W: www.bowker-sadler.co.uk

JOB No	DRAWING No	REVISION
STATUS		
STATUS2		



APPENDIX D

SITE SPECIFIC FLOOD DATA

Flood map for planning

Your reference
12851 ChainRd

Location (easting/northing)
385988/404171

Created
23 Jul 2021 19:31

Your selected location is in flood zone 1, an area with a low probability of flooding.

This means:

- you don't need to do a flood risk assessment if your development is smaller than 1 hectare and not affected by other sources of flooding
- you may need to do a flood risk assessment if your development is larger than 1 hectare or affected by other sources of flooding or in an area with critical drainage problems

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2021 OS 100024198. <https://flood-map-for-planning.service.gov.uk/os-terms>

Flood map for planning

Your reference
12851 ChainRd

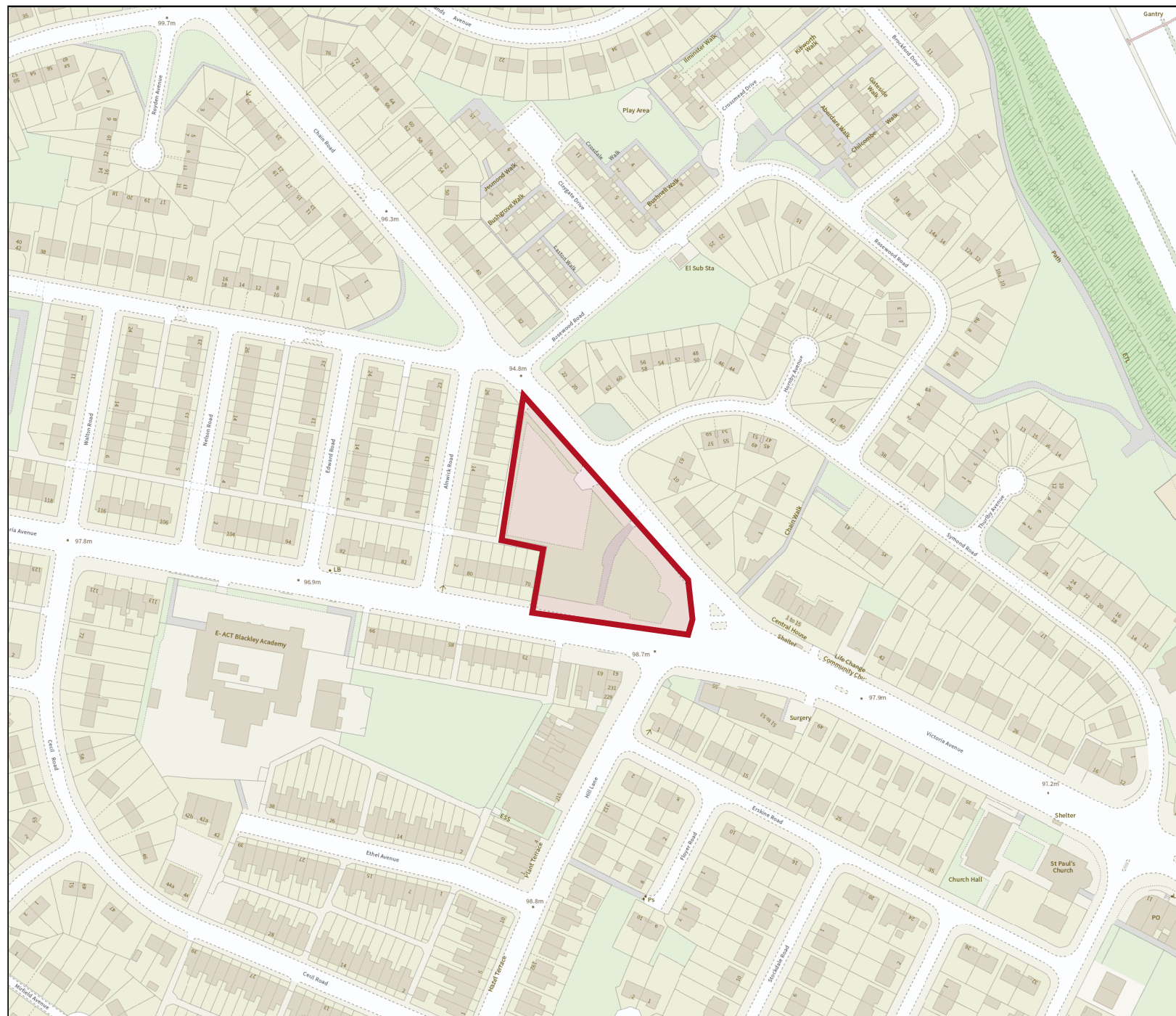
Location (easting/northing)
385988/404171

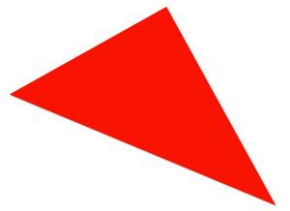
Scale
1:2500

Created
23 Jul 2021 19:31

-  Selected area
-  Flood zone 3
-  Flood zone 3: areas benefiting from flood defences
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Flood storage area

0 20 40 60m





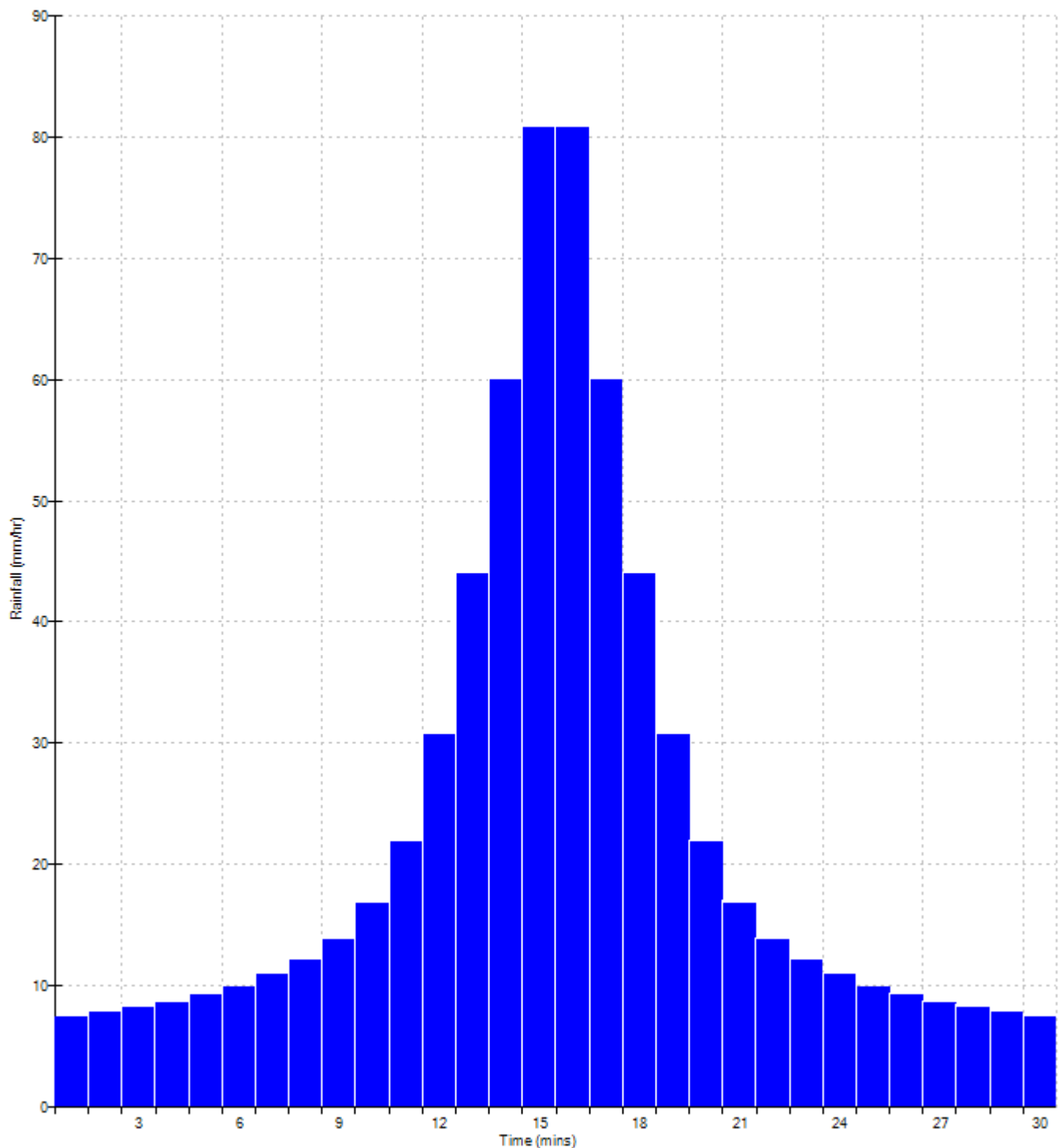
APPENDIX E

RAINFALL INTENSITIES

Rainfall profile

Storm duration (mins) 30

FSR Data
 Region England and Wales
 M5-60 (mm) 18.000
 Ratio R 0.360
 Peak Intensity (mm/hr) 80.767
 Ave. Intensity (mm/hr) 22.854
 Return Period (years) 2.0



Carley Daines and Partners Limited		Page 2
11 Bridgewater Road	12490	
Worsley	Downley Drive	
Manchester, M28 3JE	30 Year Rainfall	
Date 21/10/2020 16:57	Designed by andrew	
File	Checked by	
Innovyze	Network 2019.1	

Rainfall profile

Storm duration (mins) 30

FSR Data

Region England and Wales

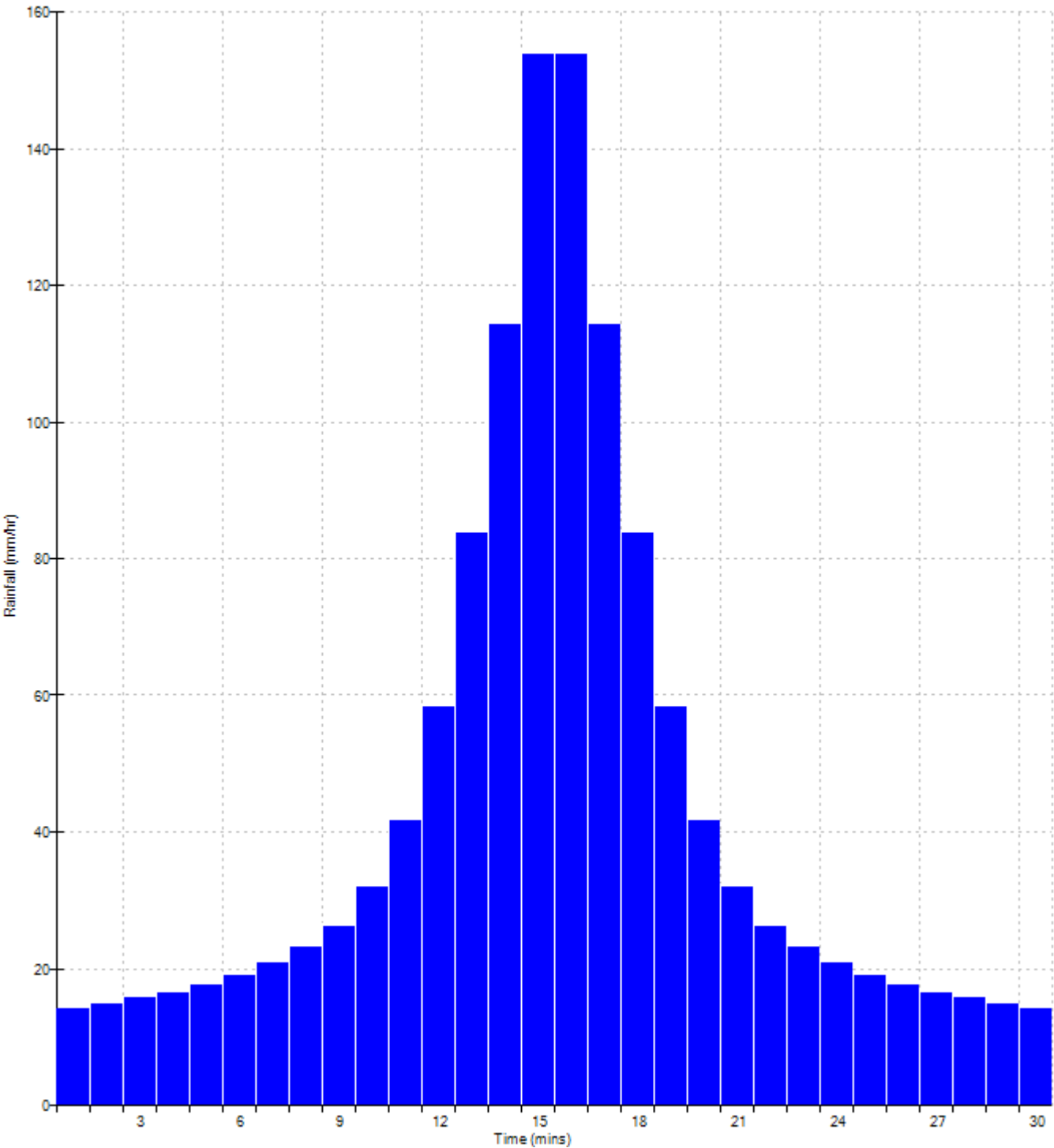
M5-60 (mm)18.000

Ratio R0.360

Peak Intensity (mm/hr)153.752

Ave. Intensity (mm/hr)43.507

Return Period (years)30.0

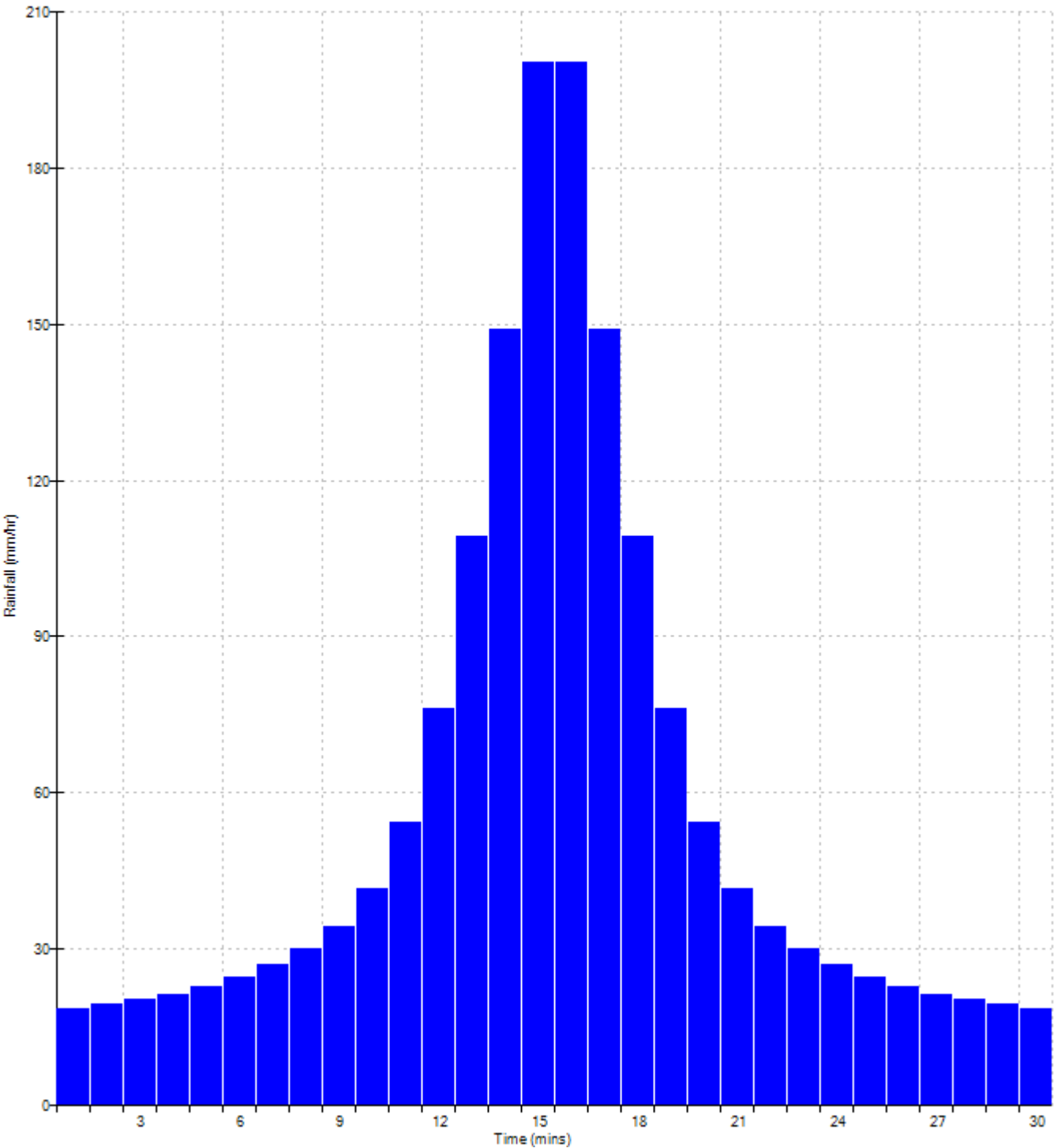


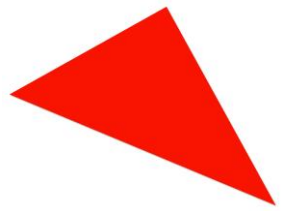
Carley Daines and Partners Limited		Page 3
11 Bridgewater Road	12490	
Worsley	Downley Drive	
Manchester, M28 3JE	100 Year Rainfall	
Date 21/10/2020 17:00	Designed by andrew	
File	Checked by	
Innovyze	Network 2019.1	

Rainfall profile

Storm duration (mins) 30

FSR Data	
Region England and Wales	
M5-60 (mm)	18.000
Ratio R	0.360
Peak Intensity (mm/hr)	200.462
Ave. Intensity (mm/hr)	56.724
Return Period (years)	100.0





APPENDIX F

GREENFIELD RUNOFF ESTIMATION

Calculated by:	Andrew Mulligan
Site name:	12851 Chain Road
Site location:	Blackley, Manchester

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

Site Details

Latitude:	53.53411° N
Longitude:	2.21355° W
Reference:	3159432225
Date:	Jul 23 2021 20:13

Runoff estimation approach

IH124

Site characteristics

Total site area (ha):	0.35
-----------------------	------

Methodology

Q _{BAR} estimation method:	Calculate from SPR and SAAR
SPR estimation method:	Calculate from SOIL type

Soil characteristics

	Default	Edited
SOIL type:	4	4
HOST class:	N/A	N/A
SPR/SPRHOST:	0.47	0.47

Hydrological characteristics

	Default	Edited
SAAR (mm):	989	989
Hydrological region:	10	10
Growth curve factor 1 year:	0.87	0.87
Growth curve factor 30 years:	1.7	1.7
Growth curve factor 100 years:	2.08	2.08
Growth curve factor 200 years:	2.37	2.37

Notes

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

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

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

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

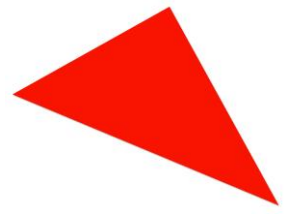
(3) Is $SPR/SPRHOST \leq 0.3$?

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

Greenfield runoff rates

	Default	Edited
Q _{BAR} (l/s):	2.53	2.53
1 in 1 year (l/s):	2.2	2.2
1 in 30 years (l/s):	4.3	4.3
1 in 100 years (l/s):	5.27	5.27
1 in 200 years (l/s):	6	6

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

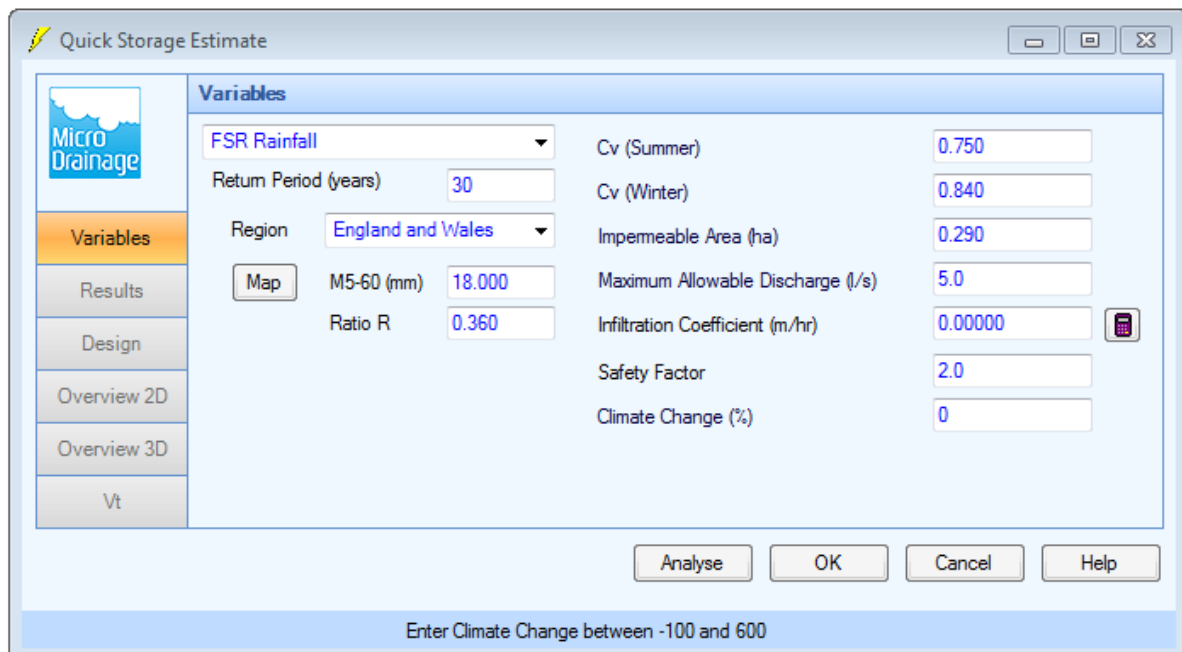


APPENDIX G

PRELIMINARY STORAGE ESTIMATE

12851 – CHAIN ROAD – PRELIMINARY STORAGE ESTIMATE.

1 IN 30 YEAR STORM – UP TO 80M³ REQUIRED.

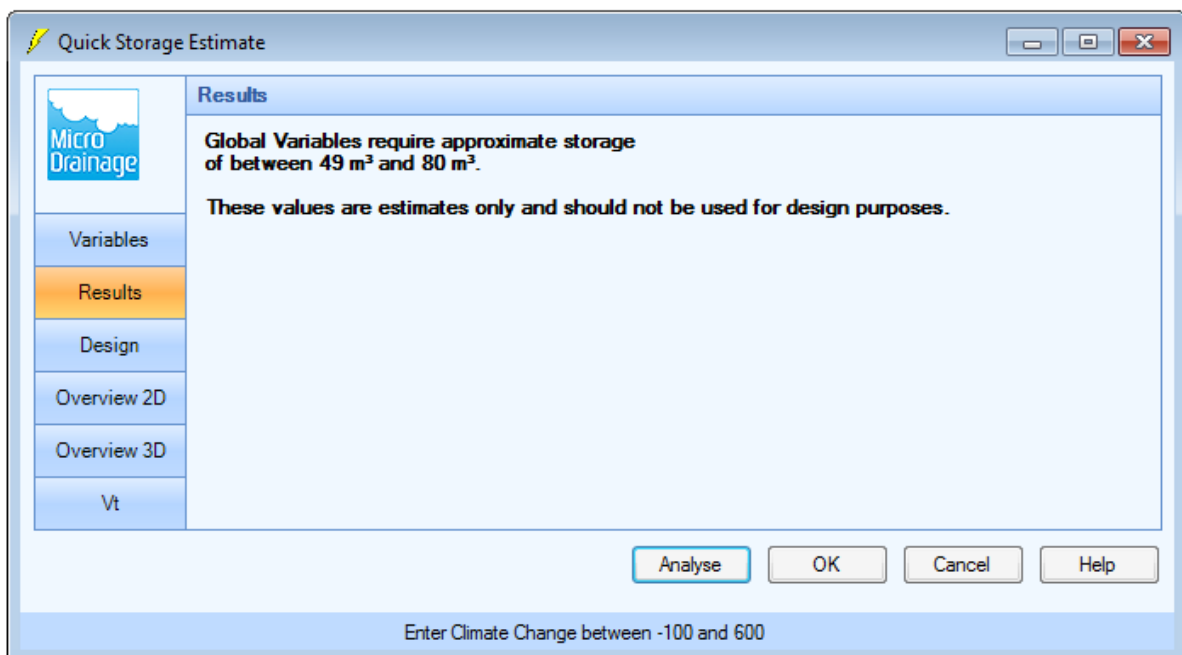


The screenshot shows the 'Variables' tab of the 'Quick Storage Estimate' software. The left sidebar contains a vertical menu with 'Variables' selected, and other options: 'Results', 'Design', 'Overview 2D', 'Overview 3D', and 'Vt'. The main area is titled 'Variables' and contains several input fields. On the left, there is a 'Map' button. The inputs include: 'FSR Rainfall' (dropdown), 'Return Period (years)' (30), 'Region' (England and Wales), 'M5-60 (mm)' (18.000), 'Ratio R' (0.360), 'Cv (Summer)' (0.750), 'Cv (Winter)' (0.840), 'Impemeable Area (ha)' (0.290), 'Maximum Allowable Discharge (l/s)' (5.0), 'Infiltration Coefficient (m/hr)' (0.00000), 'Safety Factor' (2.0), and 'Climate Change (%)' (0). At the bottom right of the input area is a small icon of a mobile phone. Below the input fields are four buttons: 'Analyse', 'OK', 'Cancel', and 'Help'. At the very bottom, a status bar reads 'Enter Climate Change between -100 and 600'.

Variable	Value
FSR Rainfall	[Dropdown]
Return Period (years)	30
Region	England and Wales
M5-60 (mm)	18.000
Ratio R	0.360
Cv (Summer)	0.750
Cv (Winter)	0.840
Impemeable Area (ha)	0.290
Maximum Allowable Discharge (l/s)	5.0
Infiltration Coefficient (m/hr)	0.00000
Safety Factor	2.0
Climate Change (%)	0

Buttons: Analyse, OK, Cancel, Help

Enter Climate Change between -100 and 600



The screenshot shows the 'Results' tab of the 'Quick Storage Estimate' software. The left sidebar is the same as the previous screen, but 'Results' is now selected. The main area is titled 'Results' and contains the following text: 'Global Variables require approximate storage of between 49 m³ and 80 m³.' and 'These values are estimates only and should not be used for design purposes.' Below this text are four buttons: 'Analyse', 'OK', 'Cancel', and 'Help'. At the very bottom, a status bar reads 'Enter Climate Change between -100 and 600'.

Global Variables require approximate storage of between 49 m³ and 80 m³.

These values are estimates only and should not be used for design purposes.

Buttons: Analyse, OK, Cancel, Help

Enter Climate Change between -100 and 600

12851 – CHAIN ROAD – PRELIMINARY STORAGE ESTIMATE.

1 IN 100 YEAR STORM (+40% CLIMATE CHANGE) – UP TO 175M³ REQUIRED.

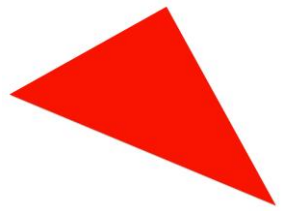
The screenshot shows the 'Quick Storage Estimate' window with the 'Variables' tab selected. The left sidebar contains buttons for 'Variables', 'Results', 'Design', 'Overview 2D', 'Overview 3D', and 'Vt'. The main area is divided into two columns of input fields. The first column includes a dropdown for 'FSR Rainfall', a text box for 'Return Period (years)' set to 100, a dropdown for 'Region' set to 'England and Wales', a 'Map' button, a text box for 'M5-60 (mm)' set to 18.000, and a text box for 'Ratio R' set to 0.360. The second column includes text boxes for 'Cv (Summer)' (0.750), 'Cv (Winter)' (0.840), 'Impervious Area (ha)' (0.290), 'Maximum Allowable Discharge (l/s)' (5.0), 'Infiltration Coefficient (m/hr)' (0.00000), 'Safety Factor' (2.0), and 'Climate Change (%)' (40). At the bottom are 'Analyse', 'OK', 'Cancel', and 'Help' buttons. A status bar at the very bottom reads 'Enter Climate Change between -100 and 600'.

Variable	Value
FSR Rainfall	[Dropdown]
Return Period (years)	100
Region	England and Wales
M5-60 (mm)	18.000
Ratio R	0.360
Cv (Summer)	0.750
Cv (Winter)	0.840
Impervious Area (ha)	0.290
Maximum Allowable Discharge (l/s)	5.0
Infiltration Coefficient (m/hr)	0.00000
Safety Factor	2.0
Climate Change (%)	40

The screenshot shows the 'Quick Storage Estimate' window with the 'Results' tab selected. The left sidebar is the same as the previous window. The main area displays the following text: 'Global Variables require approximate storage of between 119 m³ and 175 m³. These values are estimates only and should not be used for design purposes.' At the bottom are 'Analyse', 'OK', 'Cancel', and 'Help' buttons. A status bar at the very bottom reads 'Enter Climate Change between -100 and 600'.

Global Variables require approximate storage of between 119 m³ and 175 m³.

These values are estimates only and should not be used for design purposes.



APPENDIX H

UNITED UTILITIES CONSULTATION RESPONSE

Andrew Mulligan

From: Perry, Graham <Graham.Perry@uuplc.co.uk>
Sent: 12 July 2021 16:06
To: Andrew Mulligan
Cc: Wastewater Developer Services
Subject: Pre Development Enquiry for : Chain Road, Blackley, Manchester UU reference Number : 4200041279

Pre Development Enquiry for: Chain Road, Blackley, Manchester UU reference Number : 4200041279

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

If your investigations require access to our public sewer network, we ask that you contact our network engineers with a request for an access certificate via our main contact telephone number 0345 3723223 or refer to the link below:

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

Foul Water

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

Our preferred point of discharge would be to the 375mm diameter public combined sewer within Chain Road located to the east of your proposed development at an unrestricted rate.

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

Surface Water

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

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

This is outlined as follows, in order of priority:

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

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

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

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

Infiltration

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

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

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

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

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

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

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

Public Sewer

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

Once evidence is provided as outlined above, United Utilities will consider a connection to the 375mm diameter public combined sewer within Chain Rd located east of the proposed site at a pass forward flow to be agreed by the Lead Local Flood Authority. United Utilities request that any agreed rate does not exceed 5 l/s.

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

Levels

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

Land drainage / Overland flows / track drainage

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

Sewer Adoptions

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

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

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

Please refer to links below to obtain further guidance:

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

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

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

Codes For Adoption

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

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

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

<https://www.water.org.uk/wp-content/uploads/2020/03/SSG-App-C-Des-Con-Guide-v-2-100320-C.pdf>

Existing Water Assets Crossing the Site

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

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

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

Connection Application

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

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

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

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

Kind regards,

Graham Perry



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