Carley Daines and Partners Limited
Consulting Civil and Structural Engineers

FLOOD RISK ASSESSMENT AND DRAINAGE STRATEGY REPORT

PROPOSED DEVELOPMENT

DOWNLEY DRIVE

MANCHESTER, M4 7JY

For

GREAT PLACES HOUSING ASSOCIATION

20.B.12490 REPORT REVISIONS	
- – OCTOBER '20	Original report.
A – OCTOBER '20	Number of units revised from 36 to 69. Foul flow calculations updated to suit.
B – APRIL '21	Findings have discovered that both Infiltration and discharge into the Rochdale Canal will not be possible – report updated to reflect this. Issue for Planning.
C – AUGUST '23	Site plan updated to show amendments to apartment unit, following discovery of existing combined sewer under former footprint.
D – AUGUST '23	Cover note added to clarify history of scheme, as requested by Deloitte.

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0.0 FOREWORD – SCHEME BACKGROUND

0.1 This report is revision D of the flood risk assessment for the proposed development. The original report, and revisions A and B were in relation to a previous site layout, which is now superseded and amended. This report at revision D refers to the *latest* proposed site layout, which has incurred design changes due to the discoveries detailed below in 0.2, a foreword of the changes by the planning consultant. All content and findings within this report refer to the latest scheme design, as featured in appendix C.

0.2 *The proposed scheme is a design development of the approved apartment block in planning application number 130390/FO/2021. Due to the location of an unchartered United Utilities (UU) manhole, a redesign has been required to provide free access to it. Through discussions with UU, it was established that no oversailing or cantilevers would be accepted over the manhole and free space to the sky would be required. As such, approximately 87sqm of the proposed building's footprint has been removed to the south-west corner. Due to the loss of four 2B4P apartments on the upper floors, an additional floor providing a further 11 apartments is proposed. This results in a net gain of 7 apartments, totalling 52 overall. The design principles and architectural language will remain largely the same, with the main changes being the overall height and articulation of the south south-west corner*

The Proposed Development will deliver seventy-five Affordable Homes, comprising of twenty-three houses and fifty-two apartments within a four-storey building, alongside associated landscaping, boundary treatment, car parking, and cycle parking. The scheme has been split into three zones. Zone a will deliver 12 no. three bed, three-storey terraced houses. Zone B will comprise a further 8 no. three bed, three storey terraced houses, in addition to 3 no. two bed, two-storey terraced houses. Finally, Zone C will provide 27 no. one bed apartments and 25 no. two bed apartments (All Use Class C3).

EXECUTIVE SUMMARY	
Site Parameters	Site Area – 6,900m^2 Present Impermeable Area - existing hardstanding (nominal) – 250m^2 Post Development Impermeable Area (est 40%) – 2,900m^2 INCREASE in Impermeable Area – 2,650m^2 NGR – 385350 (E) ; 398700 (N) Nearest Post Code – M4 7JY.
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.
Existing Public Drainage	There are multiple combined public sewers crossing the site, protected by easements. The line of the sewers will require an easement and cannot conflict with the proposed development layout , otherwise a diversion is likely to be required. The site layout for the planning status has been fixed so that no construction is required within the legal easements, thus no sewer diversions are required to be carried out.
Surface Water Drainage	The response from United Utilities suggests that infiltration should be used for the discharge of surface water from the site, though ground conditions prove unfavourable for infiltration due to contamination found in the Phase 2 site investigation. Discharge into a watercourse is the next order on the SuDS hierarchy, however the Canals and Rivers Trust rejected an application to discharge surface water into the Rochdale Canal due to capacity issues. Therefore discharge may be made into the existing sewerage system, with discharge limited to greenfield run-off rates, to be agreed between UU and the LLFA at detailed design stage.
Foul Drainage	United Utilities indicate that connection to the combined sewer would be permitted at an uncontrolled rate at a convenient position.
Sustainable Urban Drainage System (SuDS) Features	SuDS have been considered at the initial assessment stage, however due to the presence on contaminated ground any conventional SuDS features which discharge via infiltration would not be suitable. Any small gestures could be considered, proving amendments are made to prevent water from draining into contaminated land such as using impermeable membranes and perforated land drains. Any such ideas are to be considered at a detailed design stage and would be included as a gesture of good willing to provide some ecological benefits, as minimal as they may be.

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1.0 INTRODUCTION

1.1 Carley Daines and Partners Limited have been commissioned by Great Places Housing Association 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 and as since updated.

2.0 EXISTING SITE DETAILS

2.1 The site is located off Downley Drive in the suburb of New Islington, Manchester City Centre. See location plan in Appendix A. It is trapezoidal in shape, following existing roads and the (Rochdale) canal line, tapering to the east. The overall site has an approximate area of 6,900m^2 (0.69ha). It is located at NGR 385350 (E) ; 398700 (N) and the nearest post code is M4 7JY. The mean site elevation is approximately 51m AOD. The site can be accessed from Downley Drive (which will be extended to connect Woodward and St Vincent Streets), Kingham Drive, and proposed houses will be accessed directly via Woodward Place, to which they will be front facing. The site is connected to the Mancunian Way City Ring Road, A665 dual carriageway to the west by 0.6 km of the adjacent road. The site is less than 1km east of Manchester City Centre.

2.2 The existing site is currently unoccupied, however has been occupied in the past by warehousing and industrial units, therefore is classified as brownfield. Historical maps show work units on the site until 1968, whilst the 1988 map shows the site clear, which it is believed to have been since, with the exception of being used as a construction plant and material storage for an adjacent site circa 2016, as seen on Google maps. The existing roads Woodward Place and St Vincent Street form the sites southern and western boundaries respectively, whilst the Rochdale Canal and associated towpath forms the northern boundary. The existing Downley Drive and Kingham Drive about the sites eastern boundary. The site is presently secured with a perimeter fence and the surface is unmanaged grass and small trees and bushes.

2.3 There are no rivers or major streams in the immediate vicinity of the site. The nearest surface water feature is the Rochdale Canal immediately north of the site, however the Canals and Rivers Trust no longer accept surface water discharge into this section of the canal, as they have deemed it full to capacity.

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 and foul water and there are 3 existing sewers crossing the site. The 3 sewers cross the site from north to south all heading towards Woodward Place, with one coming from the north and one from the west both traversing through the centre of the site, with the third running down the sites southern boundary. The sewers vary in size from 525mm diameter, to a 1000 x 1320 brick egg shaped sewer. These sewers have been surveyed and accurately located on site, and the proposed development has been designed so that no proposed buildings are to be built over any existing sewers or their easements, and so no diversions would be required, due to the critical asset status of these sewers.

2.6 The Lead Local Flood Authority (LLFA) is Manchester City Council.

2.7 There has been a site-specific intrusive Phase 2 ground investigation, which concluded the ground conditions on site would not be favourable for infiltration, due to a level of contamination, and the presence of cohesive clay.

3.0 PROPOSED DEVELOPMENT

3.1 Planning status drawings have been made available to us prepared by Buttress Architects. The proposed development consists of 75 no new residential units in a mix of houses (23) and apartments (52) together with drainage and parking infrastructure. Vehicle access to the new development will be via the existing Woodward Place, St Vincent Street and Kingham Drive, and an extended Downley Drive. 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 use[3]. • Installations requiring hazardous substances consent[4]. Where there is a demonstratable 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 waste[6]. • Sites used for holiday or short-let caravans and camping, *subject to a specific warning and evacuation plan.*
Less Vulnerable • Police, ambulance and fire stations which are *not* required to be operational during flooding. • Buildings used for shops, financial, professional and other services, restaurants 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 *not* need to remain operational during times of flood. • Sewage treatment works (if adequate measures to control pollution and manage sewage during flooding events are in place.)

[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.govluk/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:

a. 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.

b. 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.

c. 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 and 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:

a. The application of the Sequential Test which guides development to Flood Zone 1 first, then Zone 2, and then Zone 3;

b. Flood risk assessment requirements; or

c. 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 and 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 free flowing watercourses on or near to the site, see 5.7 for the adjacent canal. 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 50m AOD and at least 55km 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 ST sewer map shows sewers in the area to be of substantial size and it is understood that there is no record of sewer flooding in the area. It can therefore be concluded that the risk of sewer flooding is VERY LOW.

5.7 **Flooding from Reservoirs, Canals and Artificial Sources**

The Rochdale canal is directly to the north of the site. There is no historical record of the canal flooding and putting the site at flood risk, and the site lies in a flood zone 1. Hence the risk is assessed as LOW to MEDIUM.

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 decrease in impermeable area on site, due to the proposed development. 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	80.6	153.4	200.1	280.1

With an existing drained impermeable area on site of 250m^2, the run-off rates from existing rainfall events is presently as follows:

	YR 2	YR 30	YR 100
Peak Run-Off Litres/sec	5.60	10.65	13.90

Future run-off, post-development, with an impermeable area on site of 2,900m^2, 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	64.95	123.6	161.18	225.65

The post development increase in impermeable area gives a corresponding increase in surface water run-off of approximately 1160%. However, NPPG requires that surface water discharge run-off rates are restricted as close as possible to equivalent greenfield run-off rates, as infiltration is not possible, attention should be paid to the discharge rates evaluation below.

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 4.08 l/s, the 1in 30yr return as 7.96 l/s and the 1 in 100yr as 9.74 l/s. Q_{BAR} is calculated as 4.68 l/s and this has been utilised as the governing run-off rate for this report. However, Q_{BAR} has been raised from 4.68 l/s to 5 l/s as this is the generally accepted default minimum value. This can be implemented using a flow control device in the final manhole before discharge.

7.4 Discharge Method

Paragraph 080 of the NPPG: Flood Risk and 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 the phase 2 site investigation was undertaken to explore the ground types and any contamination to ensure if infiltration would be appropriate. The report found that the ground conditions were not suitable for infiltration due to ground contamination, therefore contingencies for other methods of surface water disposal should be considered.

7.6 Watercourse

The nearest watercourse would be the Rochdale canal to the north. Contact was made to the Canals and Rivers Trust in March 2021 about the possibility of a controlled discharge of surface water from the new development into the site. CRT rejected this proposal as this section of the Rochdale canal is now deemed full to capacity, thus the CRT no longer let new developments discharge into it.

7.7 Sewer

The next consideration is discharge to a sewer – a surface water sewer first followed finally by a combined sewer. There are no dedicated surface water sewers in the area to connect to, therefore the combined sewer crossing would be the last resort option. In United Utilities consultation response (appendix H), no suggestion or possibility was raised to discharging into the combined sewer system, however as both infiltration testing and liaisons regarding discharge to the canal both proved unsuccessful, then a further approach to United Utilities should be made with evidence to discuss discharging into the combined public sewer system.

7.8 Attenuation Storage

As soakaways are not 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 80m^3 and 175m^3. The 1:30yr volume would be in underground pipes / tanks and 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 planning drawings. 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 drives and parking areas that would have been considered for permeable paving. However, as the ground conditions have proved infiltration would not be possible due to contamination, permeable paving would actually contribute to further contaminating the ground, and if used must be lined with an Impermeable membrane, with an attached perforated land drain connection to the surface water system. This idea would be cost ineffective and would offer little to no benefit in regards to sustainable drainage, as discharge would still be via the surface water system, therefore permeable paving would not be a preferred option.

Rain Gardens

Rain gardens could be considered at a detailed design stage with discussions between the landscape architect, the client and the drainage engineer. However, similar to above, to avoid further contaminating the ground, any proposed SuDS features such as rain gardens should be fully lined with Impermeable membranes, connected to the surface water system via a perforated land drain. Despite still discharging into the sewer system, the potential benefits offered by such a system would include additional storage by way on the sub base layers of the rain garden; cleansing of the top water via the granular filtration material; and ultimately slowing the time of entry into the sewer.

As infiltration into the ground directly would not be possible due to contamination, thus any permeable SuDS feature would need to be lined with an impermeable membrane and routed into the sewer system anyway, the implementation of any such feature would not be enforced the the LLFA/ planning committee and would remain the choice of the client and design team as to what if any solution can provide additional SuDS benefits (albeit minimal) whilst proving cost effective to the developer. Any SuDS features that are implemented should be seen as a bonus and a positive step in terms of ecological and environmental consideration, and a compromising gesture given the discharge of surface water into potentially a combined sewerage system.

Appendix J features a completed sustainable drainage pro forma, provided by United Utilities and completed by drainage consultants Carley Daines and Partners Limited which explores the sustainable drainage requirements, which contributed to the assessments made in this report.

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 75 units on the site, the design foul flow will be 4,000 x 75 ÷ 24 ÷ 3,600 = 3.47 l/s.

8.2 There is a 525mm diameter/ 410 x 620 combined sewer and a second 675mm/ 1000 x 1320mm combined sewer crossing the site that would require an easement incorporated into the site layout or a diversion. United Utilities will allow a connection to either combined sewer for foul water at an unrestricted rate, at any convenient point. Reference should be made to the Consultation Response in Section 11.

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.

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 7 October 2020 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. There are 3 combined sewers crossing the site though these appears to conflict with the proposed development layout and is protected by an easement. These would therefore most likely require diversion though due to the routes of the sewers.

2) In order to comply with the drainage hierarchy outlined in Building Regulations H3 and National Planning Practice Guidance (NPPG), surface water should be drained via infiltration systems / soakaways wherever possible. If this is not possible then confirming professional evidence will be required. UU also state that if infiltration is not possible due to unsuitable ground conditions, then a connection to the nearest waterbody (Rochdale Canal) would be the next option, subject also to approvals from the Canals and River Trust, the EA, and the LLFA.

11.2 From the above consultation response, Carley Daines as the civil engineer for the scheme recommend that the contractor appointed, should undertake early infiltration / soakaway tests as per BRE Digest 365 in order to provide clarification. Clarity should also be sought on the routes of the combined sewers on site, through a drainage survey to ensure the apparatus shown on the sewer maps is correct and relevent.

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.

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 not withstanding 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 75 new dwellings with highways, parking and drainage infrastructure on a greenfield site.

13.2 The site is located in FZ1 on the EA Flood Map – an area considered to have the lowest probability of fluvial flooding. Flooding from other sources has been assessed as LOW.

13.3 The proposed development will limit proposed hardstanding on site through the introduction of residential gardens and peripheral soft landscaping as rain gardens (where possible). To comply with current NPPG recommendations, as infiltration is not feasible, any SuDS feature such as the above if considered would need to feature an impermeable membrane and a perforated land drain connecting to the surface water system.

13.4 As the ground conditions are 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 Positioning of attenuation (where required) will be considered at detailed design stage though storage within the new access road would appear most appropriate.

13.6 Other SuDS systems and methods which would discharge water directly into the ground have been considered but are believed to be unsuitable or inappropriate for this development due to the presence of contamination.

13.7 The site plan has been designed around the existing public sewer easements, thus avoiding any requirement for a S185 diversion.

SIGNED (electronically)

A Mulligan

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CARLEY DAINES AND PARTNERS LIMITED

A P P E N D I X A

LOCATION AND SITE PLAN

APPENDIX A.1 – SITE LOCATION PLAN – DOWNLEY DRIVE, MANCHESTER.

Site

Grid Reference

SJ 85357 98725

Grid Reference (6 figure)

SJ853987

X (Easting) , Y (Northing)

385357 , 398725

Latitude , Longitude (decimal)

53.485036 , -2.2221377

Latitude , Longitude (degs, mins, secs)

53°29′06″N , 002°13′20″W

What3Words :

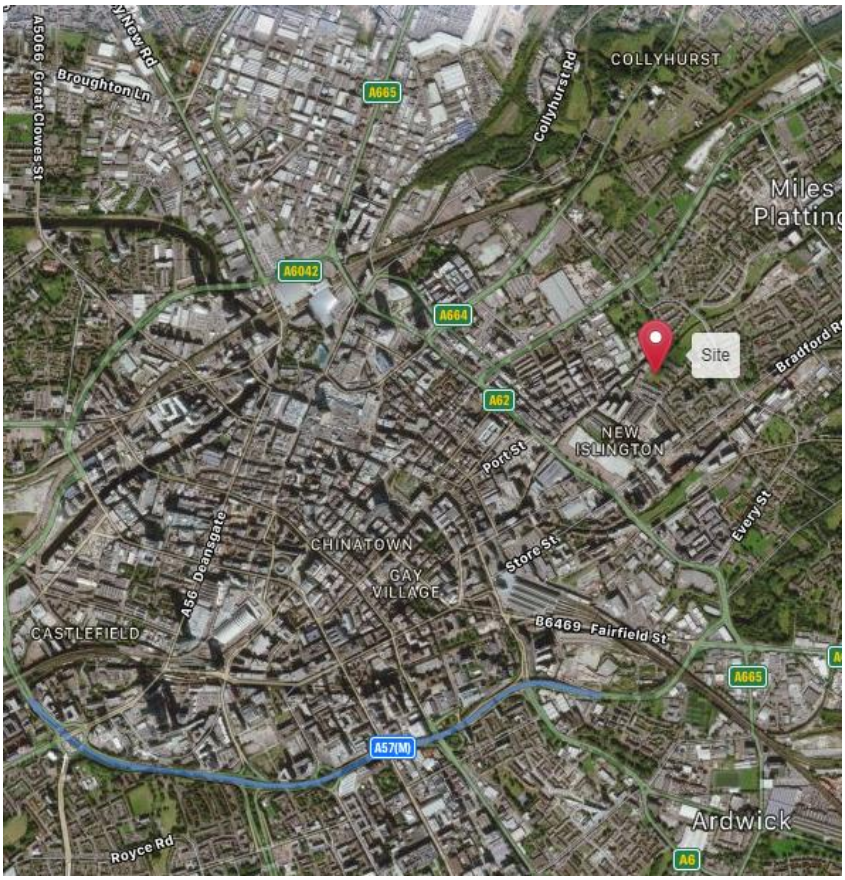
mixer.closed.await

Address (near) :

Woodward Place, Collyhurst, Manchester, Greater Manchester. North West England.

Postcode (nearest) :

M4 7JY



A P P E N D I X B

UNITED UTILITIES SEWER RECORDS

CHECKED

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

Samantha Burton

The Hub
500 Park Avenue,, Aztec West, Almondsbury
Bristol,
BS32 4RZ

FAO:

Your Ref: 75484
Our Ref: UUPS-ORD-98083
Date: 24/04/2019

Dear Sirs

Location: Land at Downley Drive Manchester

I acknowledge with thanks your request dated 24/04/2019 for information on the location of our services.

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

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

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

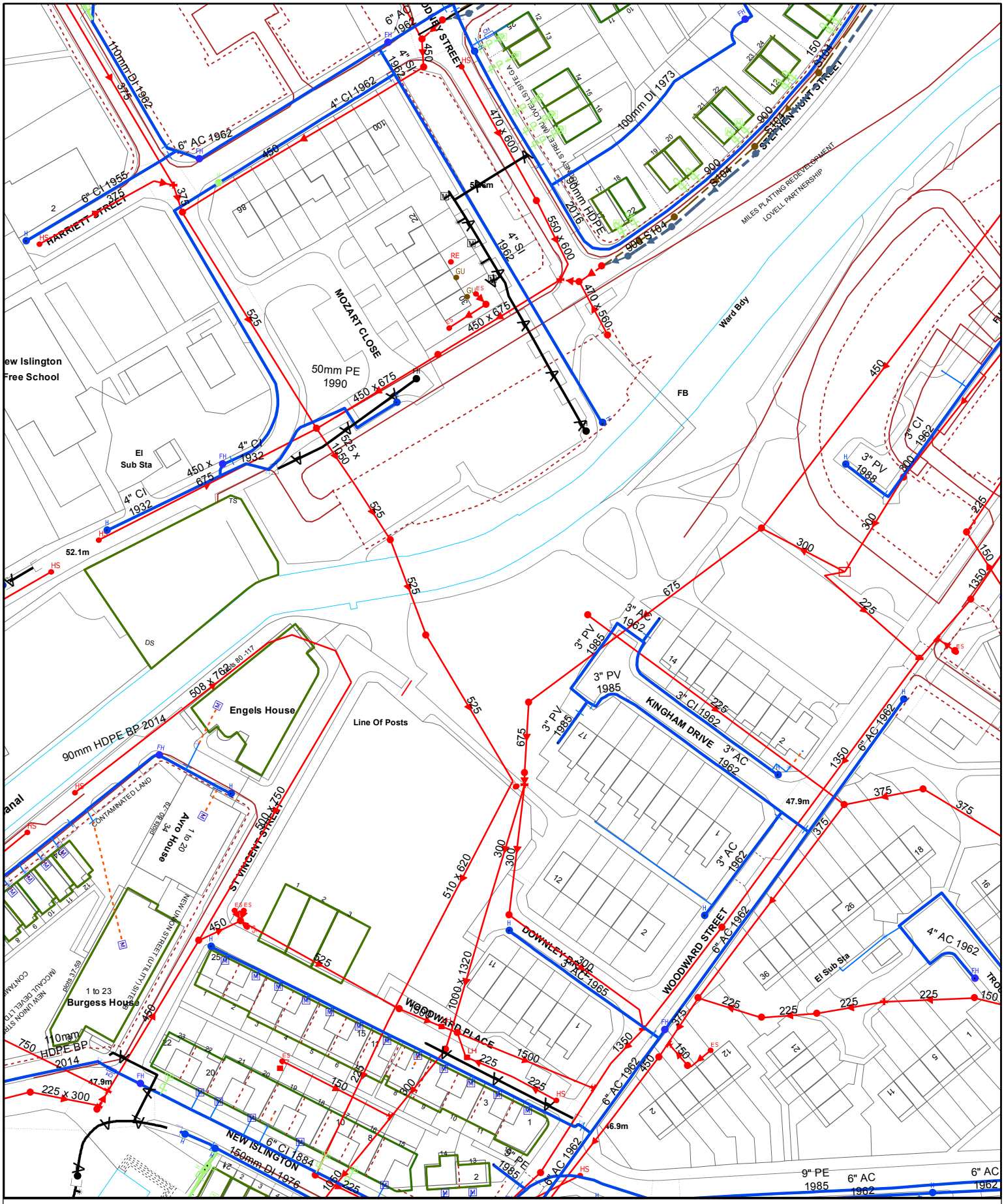
I trust the above meets with your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter please contact us .

Yours Faithfully,

Karen McCormack
Property Searches Manager

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



Date: 24/04/2019

Extract from maps of public sewers and water mains

Printed By:
Property Searches

Land at Downley Drive Manchester

United Utilities
helping life flow smoothly

The position of this 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. Private service pipes may be shown where a known record is available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown. Crown copyright and database rights [2016] Ordnance Survey 100022432.

United Utilities Water Limited 2014 The plan is based on the Ordnance Survey Map with the sanction of Controller of H.M.Stationery Office. Crown and Utilities copyrights are reserved. Unauthorised reproduction will infringe these copyrights.

Cleanwater Symbology

Pipework

Live	Proposed	
		Distribution Main - Pressurised Main
		LDTM Treated Water Distribution - Pressurised main
		LDTM Treated Water Distribution - Gravity main
		Trunk Main - Pressurised main
		Raw Water Aqueduct - Pressurised Main
		Raw Water Aqueduct - Gravity Main
		LDTM Raw Water Distribution - Pressurised main
		LDTM Raw Water Distribution - Gravity main
		Private Pipe
		Comms Pipe
		Concessionary Service

Abandoned

LDTM Treated Water Distribution
Trunk Main
Raw Water Aqueduct
LDTM Raw Water Distribution
Distribution main
Private Pipe
Comms Pipe
Concessionary Service

Property Types

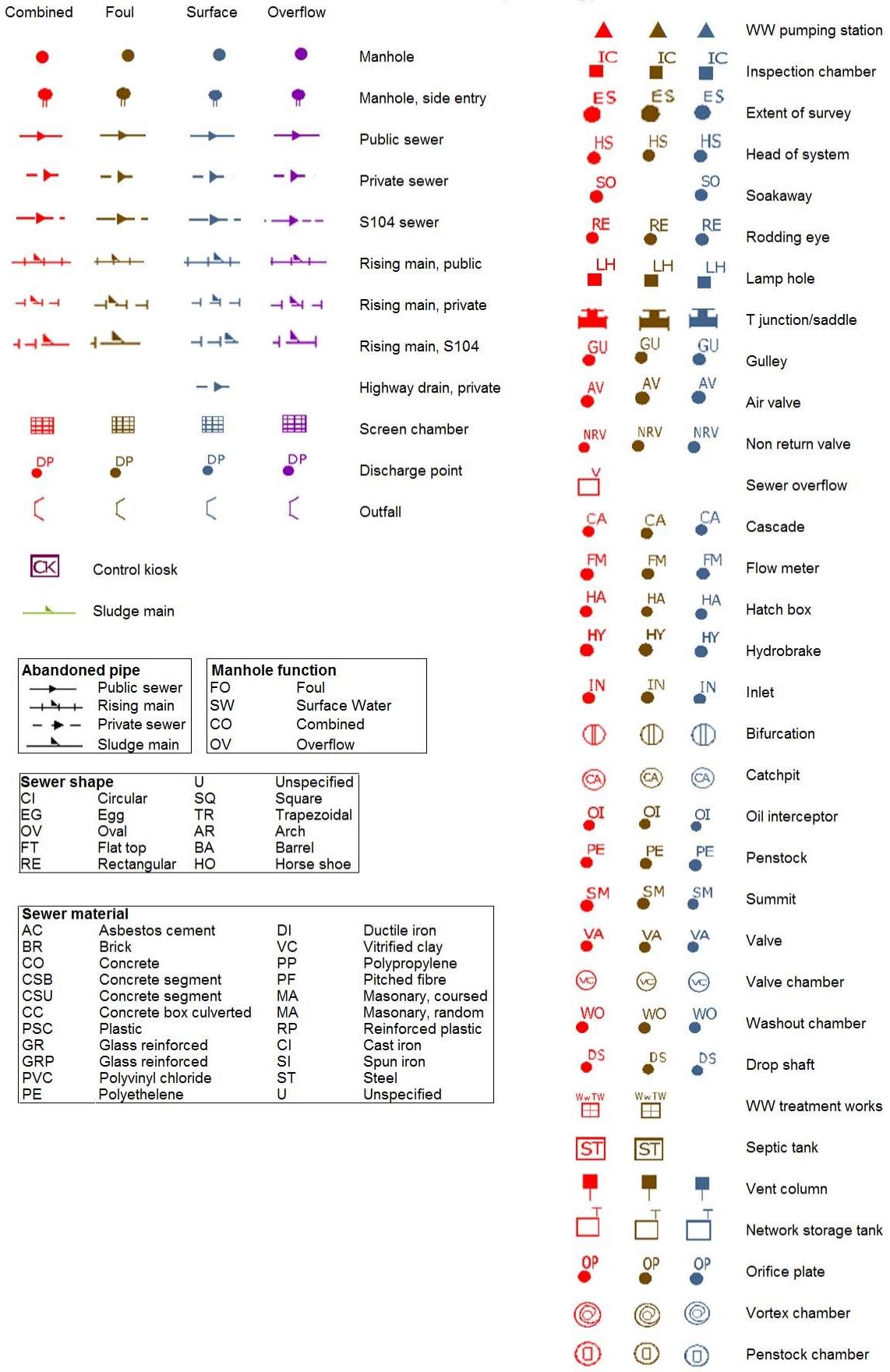
Live	Proposed	
		Condition Report
		Pumping Station
		Water Treatment Works
VH	VH	Valve House
		Water Tower
SR	SR	Service Reservoir
		Supply Reservoir
PB	PB	Pipe Bridges

Nodes

Live	Proposed	
		End Cap
		CC Valve open
		CC Valve closed
		AC Valve open
		AC Valve closed
		Air Valve
		Sluice Valve
		Non Return Valve
		Pressure Management Valve
		Change of Characterisitcs
		Anode
		Chlorination Point
		De Chlorination Point
		Bore Hole
Inlet	Inlet	Inlet Point
		Bulk Supply Point
FH	FH	Fire Hydrant
H	H	Hydrant
		Pump
		Site Termination
		Service Start
		Service End
CM	CM	Commercial Meter
M	M	Domestic Meter
SP	SP	Strainer Point
AP	AP	Access Point
HB	HB	Hatch Box
IP	IP	IP Point
SPT	SPT	Sampling Station
LB	LB	Logger Box
		Stop Tap

Matertial Types		Lining Types	
AC	Asbestos Cement	CL	Cement Lining
CI	Cast Iron	TB	Tar or Bitumen
CU	Copper	ERL	Epoxy Resin
CO	Concrete		
DI	Ductile Iron	**Insertion Types**	
GI	Galvanised Iron		
GR	Grey Iron	DD	Die Drawn
OT	Others	DR	Directional Drilling
PB	Lead	MO	Moling
PV	uPVC	PI	Pipeline
SI	Spun Iron	SL	Slip Lined
ST	Steel		
UN	Unknown		
PE	Ployethelene		

Wastewater Symbology



Abandoned pipe	
	Public sewer
	Rising main
	Private sewer
	Sludge main

Manhole function	
FO	Foul
SW	Surface Water
CO	Combined
OV	Overflow

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

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

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.

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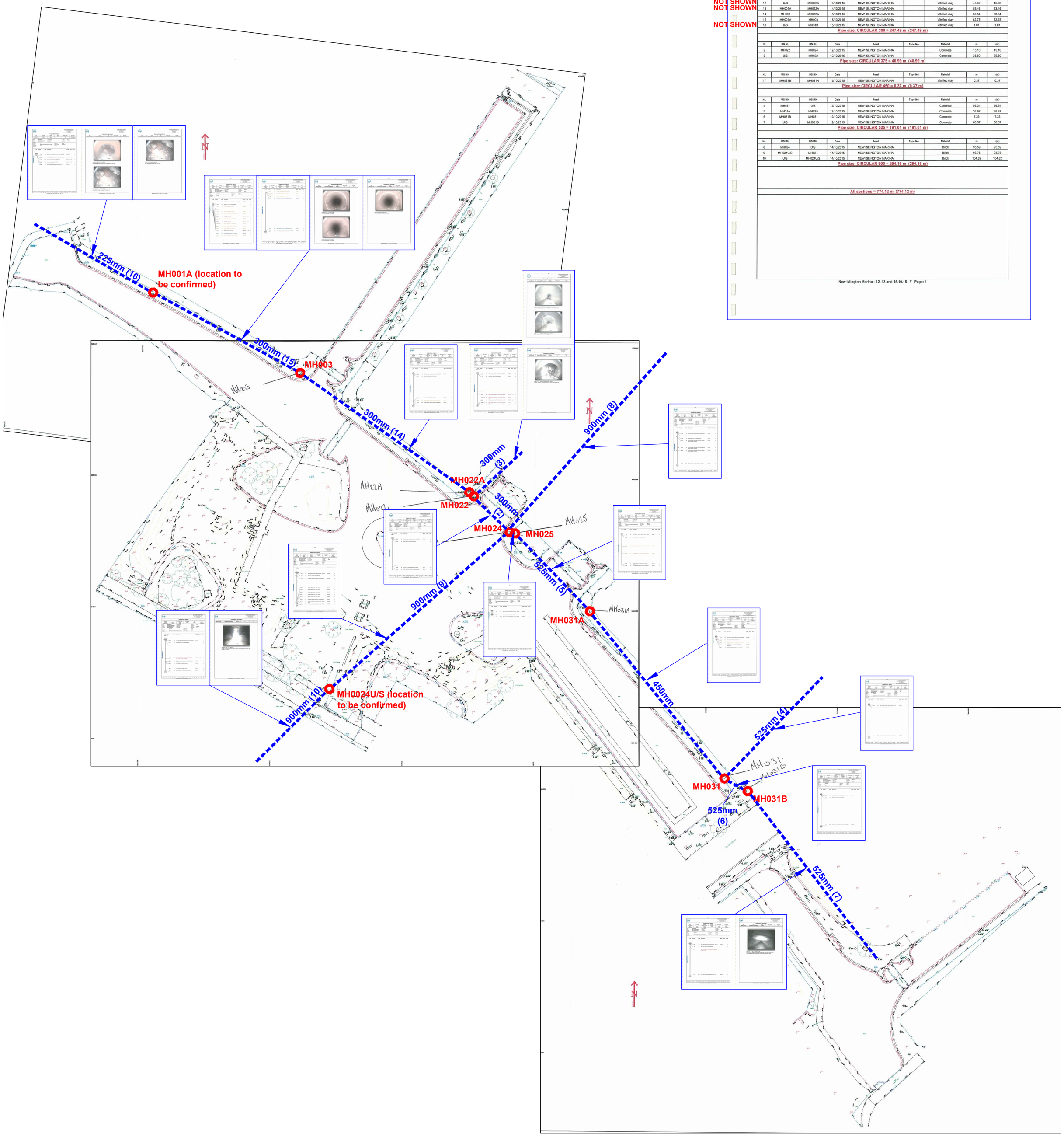
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP



Place :

CLEARWAY DRAINAGE SYSTEMS LTD
UNIT 7 FIRSDALE INDUSTRIAL ESTATE
HANGREAVES STREET
Tel: 01942606761
Fax: 01942606420
Email: jennifer.rigby@clearwaydrainageuk.com

∑∅ / Main sections

Project name :	Project number :	Contact :	Date :
New Islington Marina - 12, 13 and 15.			19/10/2015

Nr.	US MH	DS MH	Date	Road	Tape No.	Material	m	(m)
16	U/S	MH001A	15/10/2015	NEW ISLINGTON MARINA		Vitrified clay	0.10	0.10
Pipe size: CIRCULAR 225 = 0.1 m (0.1 m)								

Nr.	US MH	DS MH	Date	Road	Tape No.	Material	m	(m)
1	MH024	MH025	12/10/2015	NEW ISLINGTON MARINA		Concrete	0.23	0.23
11	U/S	MH022A	14/10/2015	NEW ISLINGTON MARINA		Vitrified clay	33.88	33.88
12	U/S	MH022A	14/10/2015	NEW ISLINGTON MARINA		Vitrified clay	45.62	45.62
13	MH001A	MH022A	14/10/2015	NEW ISLINGTON MARINA		Vitrified clay	53.46	53.46
14	MH003	MH022A	15/10/2015	NEW ISLINGTON MARINA		Vitrified clay	50.54	50.54
15	MH001A	MH003	15/10/2015	NEW ISLINGTON MARINA		Vitrified clay	62.75	62.75
18	U/S	MH31B	15/10/2015	NEW ISLINGTON MARINA		Vitrified clay	1.01	1.01
Pipe size: CIRCULAR 300 = 247.49 m (247.49 m)								

Nr.	US MH	DS MH	Date	Road	Tape No.	Material	m	(m)
2	MH022	MH024	12/10/2015	NEW ISLINGTON MARINA		Concrete	15.10	15.10
3	U/S	MH022	12/10/2015	NEW ISLINGTON MARINA		Concrete	25.89	25.89
Pipe size: CIRCULAR 375 = 40.99 m (40.99 m)								

Nr.	US MH	DS MH	Date	Road	Tape No.	Material	m	(m)
17	MH031B	MH031A	15/10/2015	NEW ISLINGTON MARINA		Vitrified clay	0.37	0.37
Pipe size: CIRCULAR 450 = 0.37 m (0.37 m)								

Nr.	US MH	DS MH	Date	Road	Tape No.	Material	m	(m)
4	MH031	D/S	12/10/2015	NEW ISLINGTON MARINA		Concrete	56.34	56.34
5	MH31A	MH025	12/10/2015	NEW ISLINGTON MARINA		Concrete	38.97	38.97
6	MH031B	MH031	12/10/2015	NEW ISLINGTON MARINA		Concrete	7.33	7.33
7	U/S	MH031B	12/10/2015	NEW ISLINGTON MARINA		Concrete	88.37	88.37
Pipe size: CIRCULAR 525 = 191.01 m (191.01 m)								

Nr.	US MH	DS MH	Date	Road	Tape No.	Material	m	(m)
8	MH024	D/S	14/10/2015	NEW ISLINGTON MARINA		Brick	95.59	95.59
9	MH024U/S	MH024	14/10/2015	NEW ISLINGTON MARINA		Brick	93.75	93.75
10	U/S	MH024U/S	14/10/2015	NEW ISLINGTON MARINA		Brick	104.82	104.82
Pipe size: CIRCULAR 900 = 294.16 m (294.16 m)								

All sections = 774.12 m (774.12 m)

NOT SHOWN
NOT SHOWN
NOT SHOWN
NOT SHOWN

A P P E N D I X C

PROPOSED SITE PLAN

Note:
Do not scale from this drawing.
Dimensions are to be checked on site.
If in doubt please ask.

Rev	Date	Intls	Details
01	13.07.23	PB	First Issue

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greatplaces HOUSING GROUP

Buttress

41 Bengal St
Manchester
M4 6AF

Clockwise, Yorkshire House
Greek Street, Leeds
LS1 5SH

T 0161 236 3303 0113 539 7965
E contact@buttress.net
W www.buttress.net

Project Title Downley Drive
Client Great Places
Location Ancoats - Manchester

Drawing ref Site Plan

Date 19/07/2023 17:20:52 **Scale** 1 : 500
Checker BT **Size** A3
Job No: 8801 **Status** S0 Initial Status

Project	Origin	Volume	Level	Type	Role	Number	Rev
8801	BUT	XX	XX	DR	A	04510	01

A P P E N D I X D

SITE SPECIFIC FLOOD DATA

Flood map for planning

Your reference	Location (easting/northing)	Created
12490	**385389/398766**	**21 Oct 2020 16:48**

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

This means:

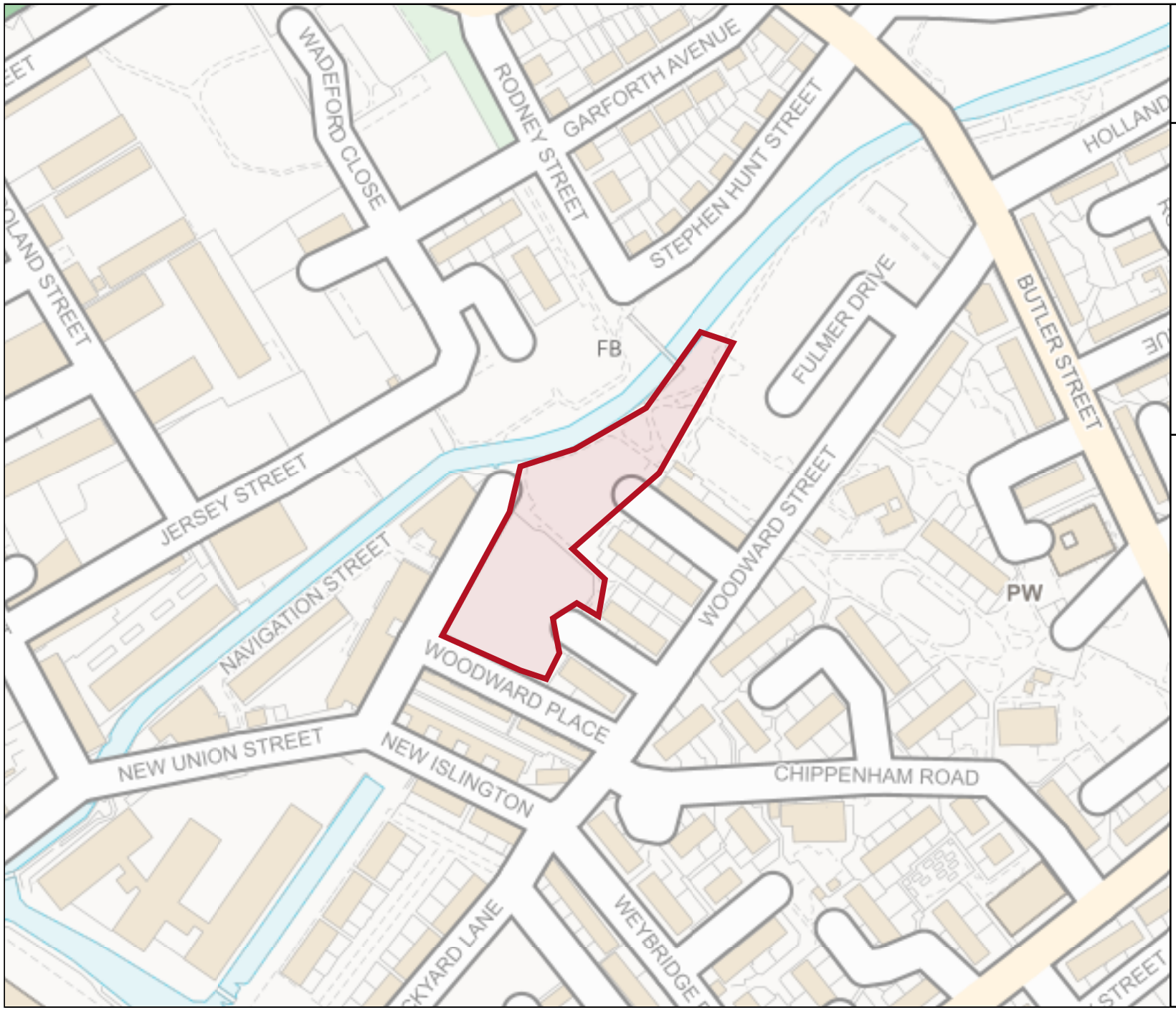
- you don't need to do a flood risk assessment if your development is smaller than 1 hectare and not affected by other sources of flooding
- you may need to do a flood risk assessment if your development is larger than 1 hectare or affected by other sources of flooding or in an area with critical drainage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

The Open Government Licence sets out the terms and conditions for using government data.
https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/



Environment Agency

Flood map for planning

Your reference
12490

Location (easting/northing)
385389/398766

Scale
1:2500

Created
21 Oct 2020 16:48

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

0 20 40 60m

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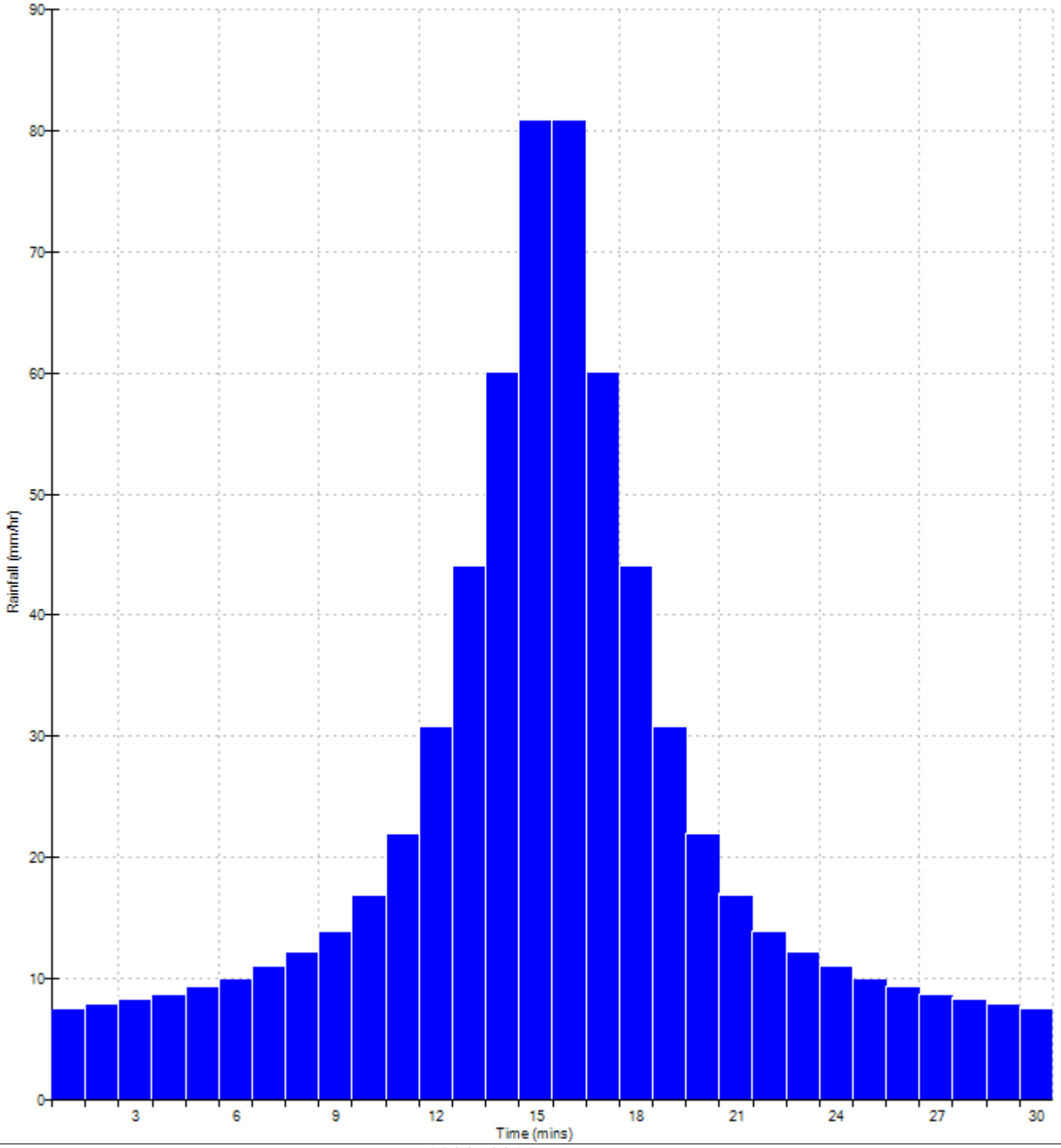
A P P E N D I X E

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



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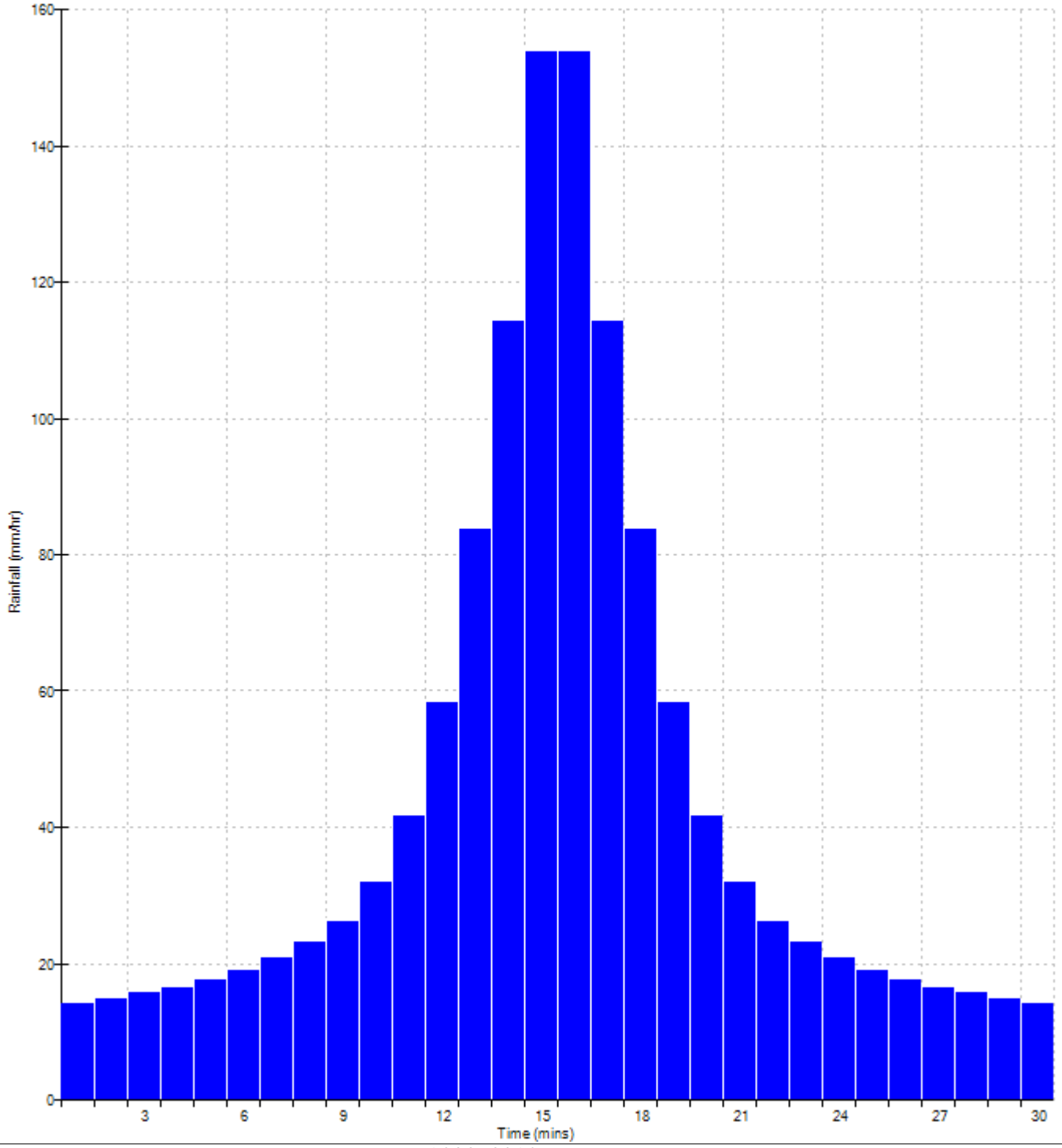
Rainfall profile

Storm duration (mins) 30

FSR Data	
Region	England and Wales
M5-60 (mm)	18.000
Ratio R	0.360
Peak Intensity (mm/hr)	153.752
Ave. Intensity (mm/hr)	43.507
Return Period (years)	30.0



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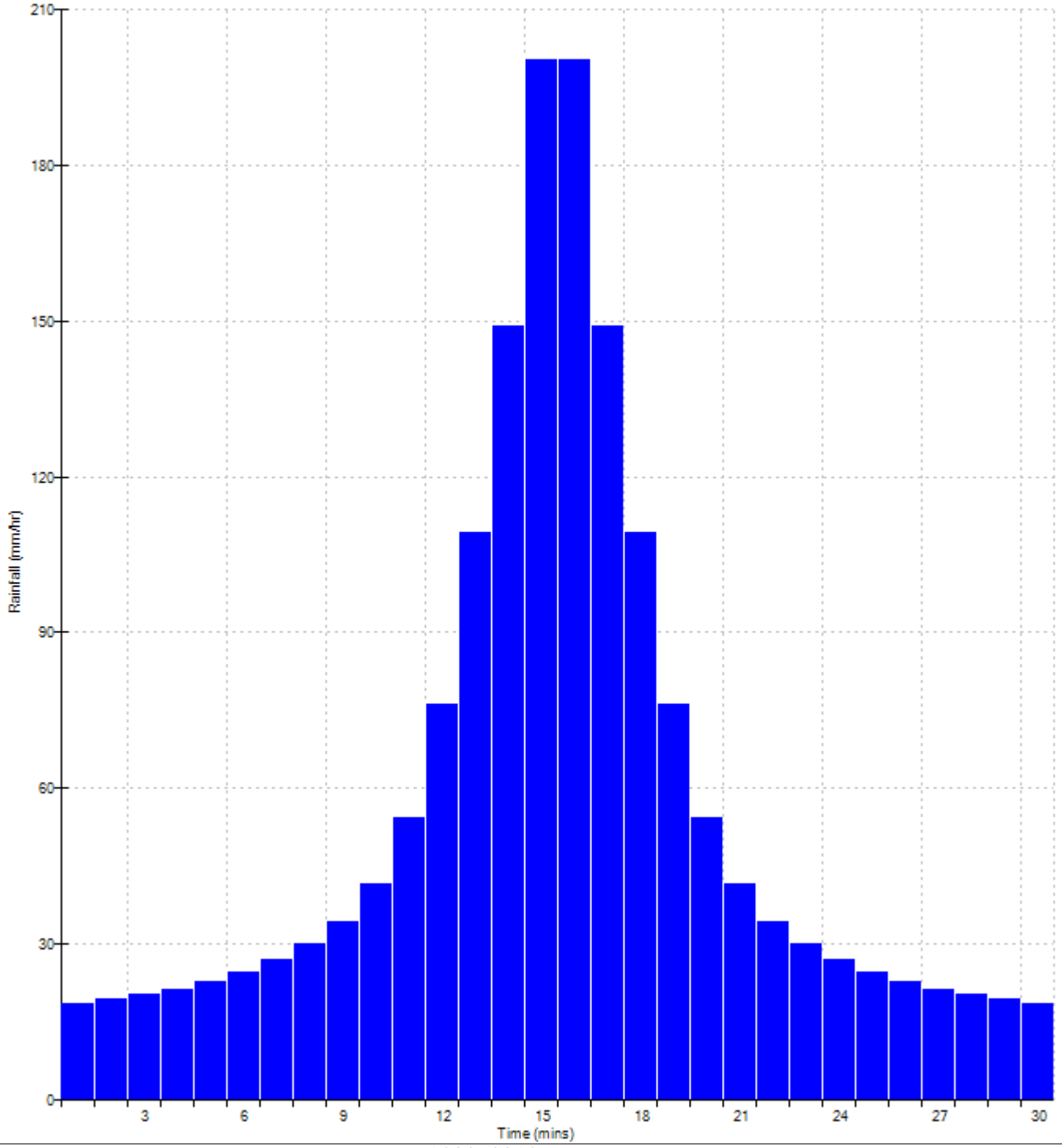
Rainfall profile

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



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A P P E N D I X F

GREENFIELD RUNOFF ESTIMATION

Greenfield runoff rate estimation for sites

www.uksuds.com | Greenfield runoff tool

Calculated by:	Andrew Mulligan
Site name:	12490 Downley Drive
Site location:	Ancoats, 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:	53.48531° N
Longitude:	2.22193° W
Reference:	3977867384
Date:	Oct 22 2020 13:26

Runoff estimation approach IH124

Site characteristics

Total site area (ha): .725

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):	898	898
Hydrological region:	10	10
Growth curve factor 1 year:	0.87	0.87
Growth curve factor 30 years:	1.7	1.7
Growth curve factor 100 years:	2.08	2.08
Growth curve factor 200 years:	2.37	2.37

Notes

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

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

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

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

(3) Is SPR/SPRHOST ≤ 0.3?

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

Greenfield runoff rates

	Default	Edited
Q_{BAR} (l/s):	4.68	4.68
1 in 1 year (l/s):	4.08	4.08
1 in 30 years (l/s):	7.96	7.96
1 in 100 year (l/s):	9.74	9.74
1 in 200 years (l/s):	11.1	11.1

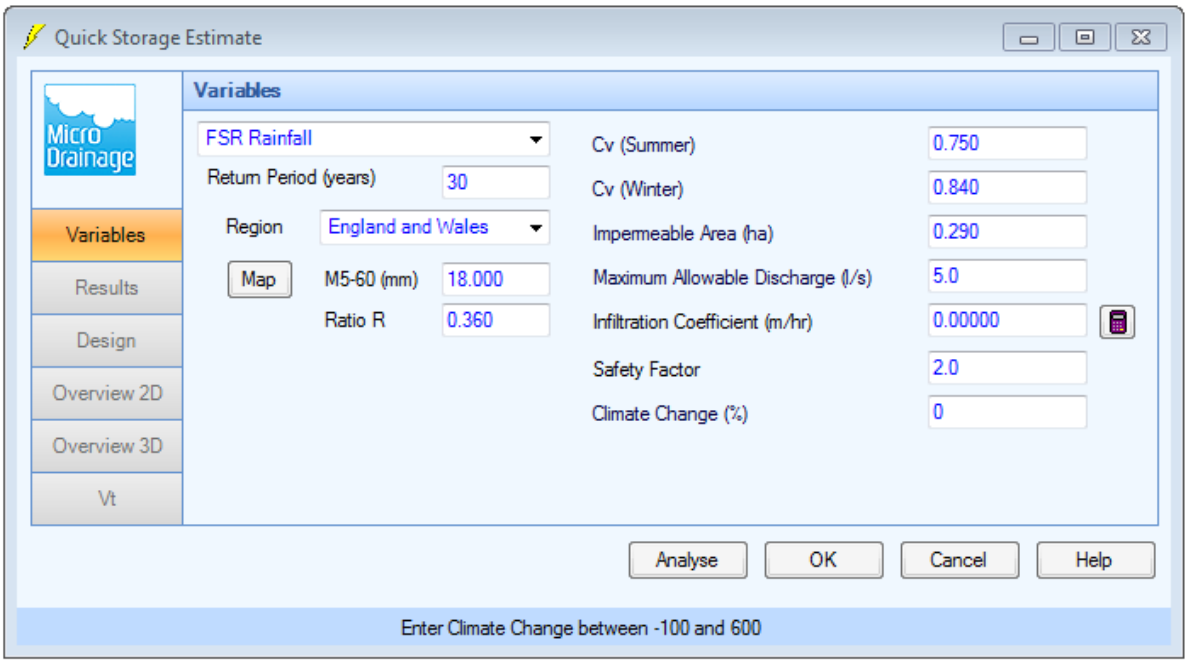
This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement , which can both be found at www.uksuds.com/terms-and-conditions.htm. The outputs from this 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.

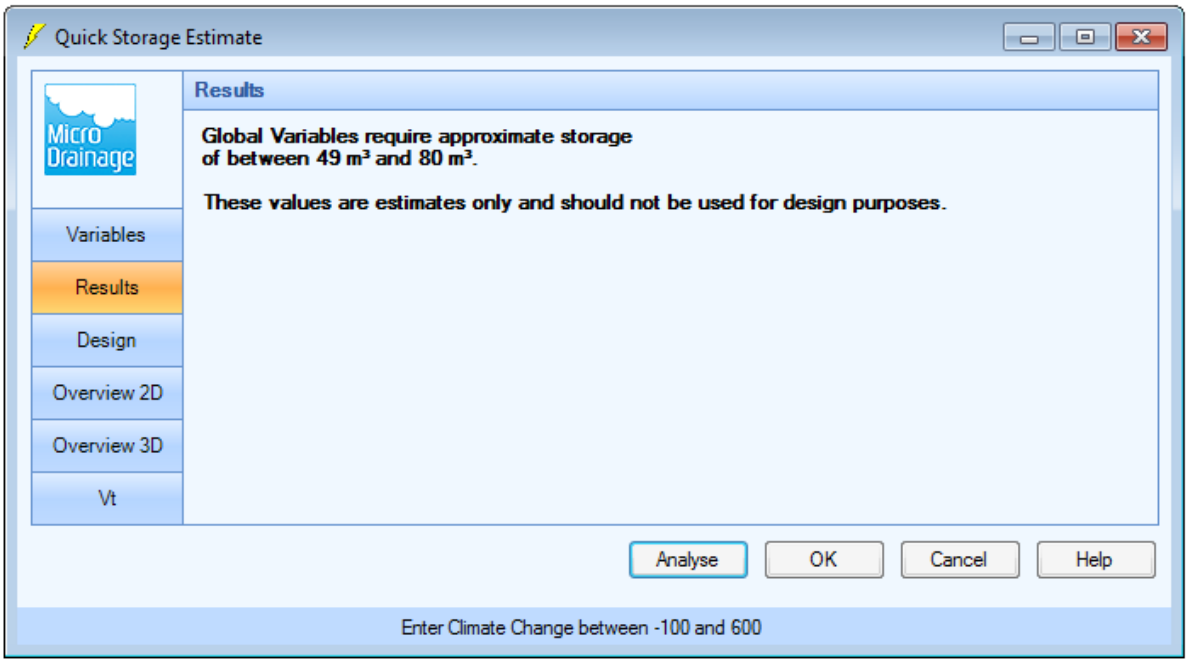
A P P E N D I X G

PRELIMINARY STORAGE ESTIMATE

12490 – DOWNLEY DRIVE – PRELIMINARY STORAGE ESTIMATE.

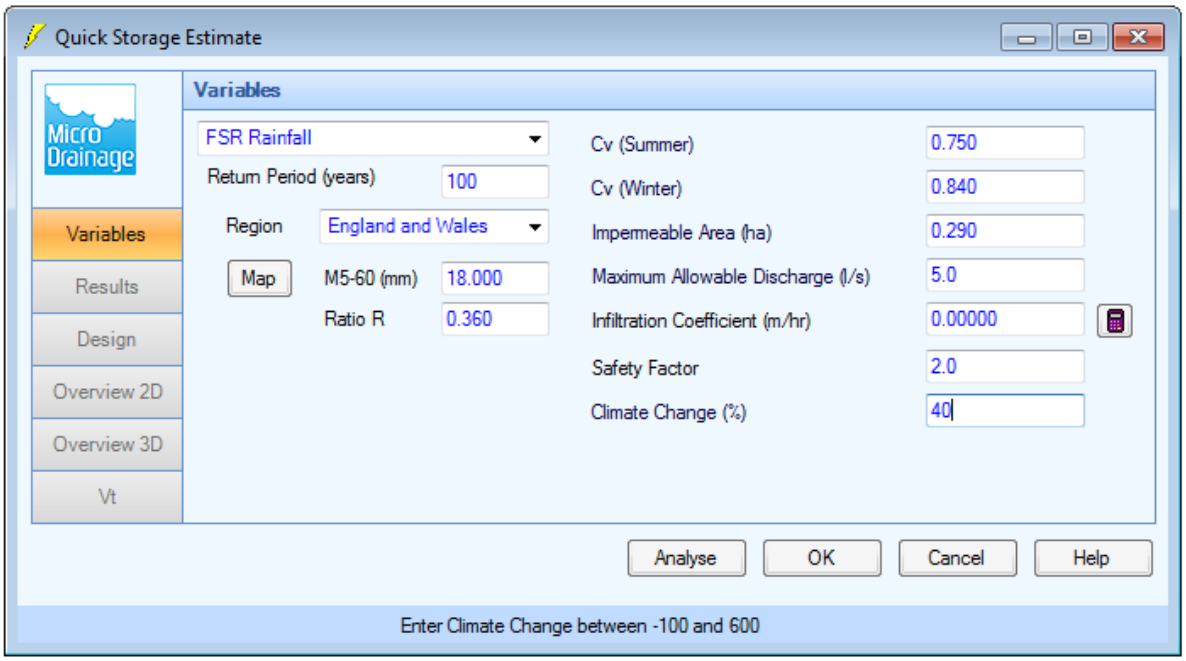
1 IN 30 YEAR STORM – UP TO 80M³ REQUIRED.

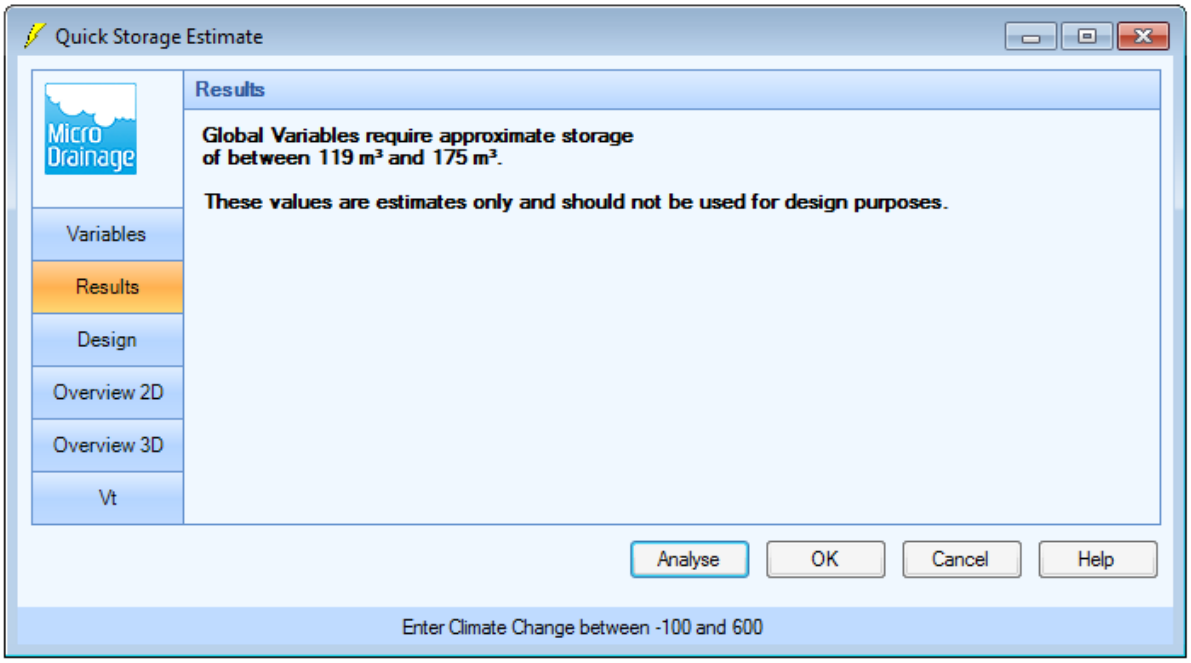




12490 – DOWNLEY DRIVE – PRELIMINARY STORAGE ESTIMATE.

1 IN 100 YEAR STORM (+40% CLIMATE CHANGE) – UP TO 175M^3 REQUIRED.





A P P E N D I X H

UNITED UTILITIES CONSULTATION RESPONSE

David Middleton

From: Andrew Mulligan
Sent: 22 October 2020 15:01
To: David Middleton
Subject: Request for a Pre-Development Enquiry 12490 - Downley Drive, Manchester 4200033978

From: Dodd, Matthew
Sent: 07 October 2020 18:07
To: Andrew Mulligan <Andrew.Mulligan@carleydaines.co.uk>
Cc: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>
Subject: RE: Request for a Pre-Development Enquiry 12490 - Downley Drive, Manchester 4200033978

Good Afternoon Andrew,

Pre Development Enquiry for: Downley Drive, Manchester UU Reference Number : 4200033978

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 combined sewer system that crosses the site at an unrestricted rate

Surface Water

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

Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable.
This is outlined as follows, in order of priority:

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

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

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

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

Infiltration

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

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

Particular attention must be paid to Ground Water Source Protection Zones to ensure that the risk of pollution to these valuable resources is not compromised. Details can be obtained from the government website: https://www.gov.uk/guidance/groundwater-source-protection-zones-spzs#find-groundwater-spzs

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

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

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

Waterbody

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

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

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.

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 Wastewater Assets Crossing the Site

According to our public sewer records there are public sewers located within your site boundary. We will require unrestricted access to the sewer for maintenance purposes, we would ask that you maintain a minimum clearance of 6m which is measured 3m from the centre line of the pipe unless there happens to be a formal easement agreement in place, in which case the specified easement width would apply. If you cannot achieve this then you may wish to consider diverting and or abandoning the public sewer.

Please refer to the link below to obtain full details of the processes involved with sewer diversions:

https://www.unitedutilities.com/builders-developers/larger-developments/wastewater/sewer-diversions/

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,

Matthew Dodd
Developer Engineer
Developer Services & Metering
Customer Services
T: 07468 758244
unitedutilities.com

If you have received a great service today why not tell us?
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We now have a live chat facility available to you Mon to Friday 8 -5pm. You just click on the orange live chat box on our webpage and one of our advisors will be ready to chat to you and help you with your enquiry https://www.unitedutilities.com/builders-developers/ or you can email us at developerserviceswater@uuplc.co.uk

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From: Andrew Mulligan [mailto:Andrew.Mulligan@carleydaines.co.uk]
Sent: 29 September 2020 09:48
To: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>
Cc: Heaton, Daniel <Daniel.Heaton1@uuplc.co.uk>
Subject: Request for a Pre-Development Enquiry 12490 - Downley Drive, Manchester

Dear United Utilities,

Carley Daines and Partners have been asked to produce a drainage strategy and flood risk assessment for a site in Ancoats, Manchester called Downley Drive.

In order to establish points of connection for both FW and SW, and the discharge rates for SW, as well as establishing whether we can subsequently submit a S104 agreement, we would like to lodge a pre-development enquiry to get an engineers view on this site.

I attach for your attention a completed pre-development enquiry form, along with a site location and site layout plan.

I would appreciate any feedback possible so that we can complete our drainage strategy in line with UU standards, before proceeding into a S104 or S106 agreement.

Thanks,

Andrew.

Regards

Andrew Mulligan
Civil Engineer BEng (Hons)

www.carleydaines.co.uk
Consulting Engineers
Tel 0161 799 2720

Carley Daines & Partners is a trading name of Carley Daines and Partners Limited a company registered in England and Wales
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A P P E N D I X J

NORTH WEST SuDS PRO-FORMA
COMPLETED BY CARLEY DAINES – ACCURATE AT THE DATE OF LAST REVISION

NORTH WEST SuDS PRO-FORMA

This pro-forma is a requirement for any planning application for major development[1].

It supports applicants in summarising and confirming how surface water from a development will be managed sustainably under current and future conditions.

Your sustainable drainage system should be designed in accordance with **CIRIA The SuDS Manual C753** and any necessary adoption standards.

HOW TO COMPLETE

Blue Box	Instruction/ Question
Orange Box	Evidence Required
White Box	To be completed by Developer / Consultant

1. Complete ALL white boxes
2. Submit this pro-forma to the Local Planning Authority, along with:
- Sustainable Drainage Strategy
- Site Specific Flood Risk Assessment (if required)
- Minimum supporting evidence, as indicated in orange boxes of this pro-forma.

GUIDANCE TO SUPPORT YOU

The pro-forma should be completed in conjunction with 'Completing your SuDS Pro Forma Guide.'

The pro-forma can be completed using freely available tools such as **Tools for Sustainable Drainage Systems** or approved industry standard surface water management design software.

[1] *as defined in Section 2 of **Statutory Instrument 2015 No. 595** or on sites of 0.5 hectares in Critical Drainage Areas.*

SECTION 1. APPLICATION & DEVELOPMENT DETAILS

Planning Application Reference *(if available)*	
State type of planning application *i.e. Pre-application, Outline, Full, Hybrid, Reserved Matters** **Information only required if drainage is to be considered as part of reserved matters application*	
Developer(s) Name:	Great Places
Consultant(s) Name:	Carley Daines and Partners Ltd
Development Address *(including postcode)*	Downley Drive, Ancoats, Manchester. M4 7JY
Development Grid Reference *(Eastings/Northings)*	E: 385357 ; N: 398725
Total Development Site Area (Ha)	0.725
Drained Area (Ha)* of Development	0.30
Please indicate the flood zone that your development is in. Tick all that apply. *Based on the Environment Agency Flood Map for Planning and the relevant Local Authority Strategic Flood Risk Assessment (to identify Flood Zones 3a/3b).*	Flood Zone 1 ☒ Flood Zone 2 ☐ Flood Zone 3a ☐ Flood Zone 3b ☐
What is the surface water risk of the site? Tick all that apply. *Based on the Environment Agency Surface Water Flood Map.*	High ☐ Medium ☐ Low ☒
Have you submitted a Site Specific Flood Risk Assessment (FRA)? *See separate guidance notes for clarification on when a FRA is required*	Yes ☒ No ☐
Have you submitted a Sustainable Drainage Strategy?	Yes ☒ No ☐
Does your drainage proposal provide multi-functional benefits via SuDS?	Yes ☒ No ☐
Expected Lifetime of Development *(years)* *Refer to Planning Practice Guidance "Flood Risk and Coastal Change" Paragraph 026*	70

Development Type:		**State Proposed Number of Units**
Greenfield Site • *Site is wholly undeveloped, and a new drainage system will be installed*	☒	68
Previously Developed/ Brownfield Site • *Site is already developed, and the entirety of the existing surface water drainage system will be used to serve the new development (evidence must be provided to prove existing surface water drainage system is reusable);* ***OR*** • *Where records of the previously developed system are not available so that the hydraulic characteristics of the system cannot be determined or where the drainage system is not in reasonable working order i.e. broken, blocked or no longer operational for other reasons, then one of the approaches outlined in Section 24.5 of The SuDS Manual (C753) should be adopted.*	☐	
Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 1.		

SECTION 2: IMPERMEABLE AREA AND EXISTING DRAINAGE

	Existing (E)	Proposed (P)	Change (P – E)
State Impermeable Area (Ha)			
Evidence Required: Plans showing development layout of site with existing and proposed impermeable areas.			☐

Are there existing sewers, watercourses, water bodies, highway drains, soakaways or filter drains on the site?	Yes ☐ No ☒ Don't Know ☐
Evidence Required: Plan(s) showing existing layout to include all: • Watercourses, open and culverted • Water bodies – ponds, swales etc. • Sewers, including manholes • Highway drains, include manholes, gullies etc. • Infiltration features - soakaways, filter drains etc.	☐

Drainage Design *Outline planning applications should be able to demonstrate that a suitable drainage system is achievable.* *All other type of planning application should provide full details or reference to previous planning application where drainage details have been submitted or approved.*	
Select which design approach you are taking to manage water quantity *(refer to Section 3.3 SuDS Manual)* **Approach 1 – Volume control / Long Term Storage (Technical Standards S2/3, S4/5)** • *The attenuated runoff volume for the 1 in 100 year 6 hour event (plus climate change allowance) is limited to the greenfield runoff volume for the 1 in 100 year 6 hour event, with any additional runoff volume utilising long term storage and either infiltrated or released at 2 l/s/ha* • *The discharge rate for the critical duration 1 in 1 year event is restricted to the 1 in 1 year greenfield runoff rate* • *The discharge rate for the critical duration 1 in 100 year event (plus climate change allowance) is restricted to the 1 in 100 year greenfield runoff rate* **Approach 2 – Qbar (Technical Standards S6)** • *Justification has been provided that the provision of volume control/long term storage is not appropriate and an attenuation only approach is proposed. All events up to the critical duration 1 in 100 year event (plus climate change allowance) are limited to Qbar (1 in 2 year greenfield rate) or 2 l/s/ha, whichever is greater.*	☐ ☒
Evidence Required: Plans showing: • Existing flow routes and flood risks • Modified flow routes • Contributing and impermeable areas • Current (if any) and proposed 'source control' and 'management train' locations of sustainable drainage components (C753 Chapter 7) • Details of drainage ownership • Details of exceedance routes (Technical Standards S9) • Topographic survey • Locations and number of existing and proposed discharge points *Note consideration should be given to manage surface water from both impermeable and permeable surfaces (including gardens and verges) likely to enter the drainage system.*	☐

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 2.	

SECTION 3: PEAK RUNOFF RATES – TECHNICAL STANDARDS S2, S3 AND S6 (UNLESS S1 APPLIES)

Rainfall Event	**Existing Rate (l/s)**	**Greenfield Rate (l/s)**	**Proposed Rate (l/s)** *Previously developed sites - In line with S3 should be equivalent to Greenfield runoff rates – discuss with LLFA if this is not achievable pre-application*
Qbar *(Approach 2)*		4.68	5
1 in 1 Year Event *(Approach 1)*		5.60	5
1 in 30 Year Event		10.65	5
1 in 100 Year Event* *(Approach 1)*		13.90	5
** Total discharge at the 1 in 100 year rate should be restricted to the greenfield runoff volume for the 1 in 100 Year 6 hour event with additional volumes (long-term storage volume) released at a rate no greater than 2 l/s/ha where infiltration is not possible. The climate change allowance should only be applied to the proposed rate and not the existing or greenfield rate.*			

Evidence Required: Methodology used to calculate peak runoff rate clearly stated and justified.	☒
Impermeable areas plan, supported by topographical survey confirming positive drainage.	☐
Hydraulic calculations and details of software used.	☒

State the hydraulic method used in your calculations *(Refer to Table 24.1 of The SuDS Manual)*	QBar

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 3.	

SECTION 4: DISCHARGE VOLUME – TECHNICAL STANDARDS S4, S5 AND S6 (UNLESS S1 APPLIES)

Rainfall Event	Existing Volume (m^3)	Greenfield Volume (m^3)	Proposed Volume (m^3)
1 in 100 Year 6 Hour Event *(Approach 1)*			175
Does the below statement apply to your development proposal? Long term storage is not achievable on this site and, in accordance with S6 of the Non Statutory Technical Standards for SuDS, the surface water discharge rates for events up to and including the 1 in 100 year critical event are limited to Qbar (Approach 2)			Yes ☐ No ☒
Evidence Required: Approach to managing the quantity of surface water leaving the site clearly stated and justified			☐
Methodology used to calculate discharge volume clearly stated and justified.			☐
Hydraulic calculations and details of software used.			☐

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 4.	

SECTION 5: STORAGE – TECHNICAL STANDARDS S7 AND S8

State climate change allowance used (%)	40
State housing density (houses per ha)	
State urban creep allowance used (%)	
Evidence Required: State / used in approved industry standard surface water management design software.	☐

State storage volume required (m^3) *(excluding non-void spaces)* *Must include an allowance for climate change and urban creep*	80m3 (1:30) ; 175m3 (1:100)
Have you incorporated interception into your design? *(Refer to Chapter 24 of The SuDS Manual C753)* *Where possible, infiltration or other techniques are to be used to try and achieve zero discharge to receiving waters for rainfall depths up to 5mm.*	Yes ☒ No ☐
Evidence Required: Drainage plans showing location of attenuation and all flow control devices and supporting calculations.	☐

Summarise how storage will be provided for 1 in 30 year event on site. *Storage must be designed to ensure that at no flooding occurs onsite in a 1 in 30 year event except in designed areas **and** no flooding occurs offsite in a 1 in 100 year (plus climate change allowance) event.*	Storage to be provided within piped system for up to and including 1 in 30 year storm
Summarise how storage will be provided for 1 in 100 year (plus climate change) event on site. *Where storage above the 1 in 30 year rainfall event is provided in designated areas designed to accommodate excess surface water volumes, plans showing storage locations and surface water depths and supported by calculations used in approved industry standard surface water management design software. It is important to run a range of duration events to ensure the worst case condition is found for each drainage element on the site*	Storms above 1 in 30 year and up to and including 1 in 100 plus 40% climate change to be stored in overflow storage such as cellular crates below ground, for example.
Evidence Required: Plans showing size and location of storage and supporting calculations. Where there is controlled flooding, extents and depths must be indicated.	☒

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 5.	Appendix G of FRA

SECTION 6: WATER QUALITY PROTECTION

Contaminated surface water run-off can have negative impacts on the quality of receiving water bodies. The potential level of contamination will influence final the design of an appropriate treatment train as part of your sustainable drainage system.

Is the proposal site known to be or potentially contaminated?	Yes ☒ No☐
• *If the site is contaminated, it should be demonstrated that the sustainable drainage system will not increase the risk of pollution to controlled waters though the mobilisation of contaminants and/or creation of new pollution pathways.*	

Confirm the *Pollution Hazard Level* of the proposed development - Tick ALL that apply *Refer to Pollution Hazard Indices for different Land Use Classifications in Table 26.2 of The SuDS Manual C753 for further guidance.*		
Pollution Hazard Level *Tick ALL that apply*		**Surface water run-off from the proposed development will drain from:**
VERY LOW	☐	• Residential roofs
LOW	☒	• Other roofs (typically commercial/industrial roofs) • Individual property driveways, residential car parks, low traffic roads (e.g. cul de sacs, home-zones and general access roads) • Non-residential car parking with infrequent change (e.g. schools, offices) i.e. < 300 traffic movements/day
MEDIUM	☐	• Commercial yard and delivery areas • Non-residential car parking with frequent change (e.g. hospitals, retail) • All roads except low traffic roads and trunk roads/motorways[2]
HIGH	☐	• Sites with heavy pollution (e.g. haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites) • Sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, stored, used or manufactured • Industrial sites • Trunk roads and motorways[1]

If the development's Pollution Hazard Level is 'Very Low' or 'Low', has the sustainable drainage design been risk assessed and appropriate mitigation measures included?	Yes ☒ No☐
• *If the proposed development has a very low or low polluting potential, you should design your sustainable drainage system to include an appropriate treatment train in accordance with The SuDS Manual (C753).*	

If the development's Pollution Hazard Level is 'Medium' or 'High', is the application supported by a detailed water quality risk assessment?	Yes ☐ No☒
• *If the proposed development has a high polluting potential, a detailed risk assessment will be required to identify an appropriate SuDS treatment train and ensure compliance with Paragraph 170 of the National Planning Policy Framework.* • *If the proposed development has a medium polluting potential, a detailed risk assessment may be required depending on the nature, scale and location of the development.*	

Has pre-application advice on water quality been obtained from the Environment Agency?	Yes ☐ No☒
If YES, provide details:	

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 6.	

[2] Motorways and trunk roads should follow the guidance and risk assessment process set out in Highways Agency (2009).

SECTION 7: DETAILS OF YOUR SUSTAINABLE DRAINAGE SYSTEM

a) Function of your Sustainable Drainage System

Do your proposals store rainwater for later use (as a resource)?	Yes ☐ No ☒
Evidence Required: Please provide a brief sentence in the adjacent white box to describe how this function has been achieved.	

Do your proposals promote source control to manage rainfall close to where it falls? (e.g. promoting natural losses through soakage, infiltration and evapotranspiration)	Yes ☒ No ☐
Evidence Required: Please provide a brief sentence in the adjacent white box to describe how this function has been achieved.	Rain gardens to be explored where possible, with perforated land drains.

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 7a.	

b) Hierarchy of Drainage Options – Planning Practice Guidance

The proposed method of discharge are set out within order of priority. Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable.

Proposed method of surface water discharge		**Is this proposed?**	
Hierarchy Level 1: Into the ground (via infiltration)		Yes ☐ No ☒	
If YES - Evidence Required		**If NO – Evidence Required** **Tick ALL that apply**	
☐	**A.** Completed Infiltration Checklist from The SuDS Manual (C753) Appendix B *An editable version of this form is available on SusDrain website.*	☒	A. Site investigation to demonstrate that the ground is not free draining. Test results to be provided in accordance with: • The methodology within BRE 365 (2016), ***OR*** • Falling head permeability tests BS EN ISO 22282-2: 2012
☐	**B.** British Geological Survey (BGS) Infiltration SuDS Map	☐	B. NOTE: where an applicant is unable to access a site to undertake testing, e.g. where unable to access a site for an outline application, they can submit a *SuDS GeoReport or similar.*
☐	**C.** Infiltration testing to BRE 365 (2016) or falling head permeability tests to BS EN ISO 2228-2: 2012 ***(optional for outline)***	☐	C. Evidence to confirm that infiltration to ground would result in a risk of deterioration to ground water quality.
☐	'Plan B' sustainable drainage plan and statement of approach with an alternative discharge method, in case infiltration proposals are proven not feasible upon further site specific ground investigation e.g. to consider seasonal variations to groundwater.	☒	D. Geotechnical advice from a competent person* which determines that infiltration of water to ground would pose an unacceptable risk of geohazards to the site and/or local area. **Note: Competent person may include a Chartered Engineer, Chartered Geologists, Registered Ground Engineering Professionals (RoGEP).*

Proposed method of surface water discharge	Is this proposed?
Hierarchy Level 2: To a surface water body *(select type)* ***NOTE:*** *Consent from LLFA or Permit from Environment Agency may be required – refer to guidance*	Yes ☐ No ☒ N/A ☐ ☐ Main river ☒ Canal ☐ Ordinary watercourse ☐ Other water body

If YES - Evidence Required		If NO – Evidence Required **Tick ALL that apply**	
☐	Surface water body / watercourse survey and report	☒ ☒	Plan showing nearby watercourses and waterbodies **AND** Statement providing justification in your Sustainable Drainage Strategy ***Note:*** *Where third party land is cited as a barrier, you should provide visibility of discussions held to date with the riparian landowner of the waterbody.*

Proposed method of surface water discharge	Is this proposed?
Hierarchy Level 3: To a surface water sewer or highway drain *(select type)*	Yes ☐ No ☐ N/A ☒ ☐ Surface water sewer ☐ Highway drain

If YES - Evidence Required		If NO – Evidence Required **Tick ALL that apply**	
☐	Written correspondence from Water and Sewerage Company/ Highway Authority regarding proposed connection.	☒ ☒	Plan showing nearby sewers and highway drains **AND** Statement providing justification in your Sustainable Drainage Strategy

Proposed method of surface water discharge	Is this proposed?
Hierarchy Level 4: To combined sewer	Yes ☒ No ☐ N/A ☐

If YES - Evidence Required		If NO – Evidence Required
☐	Written correspondence from Water and Sewerage Company	N/A

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 7b.	

c) Proposed SuDS Component Types

	Tick ALL that apply				
Within property boundary	☒ Rainwater harvesting	☐ Green/ blue roofs	☐ Pervious pavements *[**Type:** A ☐ B ☐ C ☐]*	☐ Soakaway	☐ Bio retention systems

	Tick ALL that apply				
Within development site boundary *(not property)*	☐ Infiltration system *[**Type:** ☐ Surface level ☐ Below ground]*		☐ Filter strips	☐ Filter drains	☐ Swales
	☐ Bio retention system	☐ Detention basins	☐ Ponds and wetlands	☒ Attenuation tanks/ Oversized pipes	☐ Other (state below)
	If 'Other' please state: The use of other SuDS features may be considered, if proved cost effective, however would need to be lined with an impermeable membrane and connected to the SW drainage system via a perforated land drain due to contaminated and unsuitable for infiltration ground conditions. These will be considered at a later stage.				

Off site *(not within the boundary of the proposed development)*	***Please state:***

I confirm that the above selected components have been designed in accordance with The SuDS Manual (C753).	I confirm ☒
I confirm that the management of flows resulting from rainfall in excess of a 1 in 100 year plus climate change rainfall event, and their exceedance route(s), has been fully considered in order to minimise the risks to people, property (new and existing) and infrastructure.	I confirm ☒

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 7c.	

SECTION 8: OPERATION AND MAINTENANCE – TECHNICAL STANDARD S12 AND NATIONAL PLANNING POLICY FRAMEWORK

The applicant is responsible to ensure that ALL components selected in Section 7 can be maintained for the design life of the development. This information is required so the Local Planning Authority can ensure the maintenance and management of the sustainable drainage system. The Local Planning Authority will discuss how this will be secured (e.g. via planning condition or planning obligation).

	Information Provided?
Management Plan	Yes ☒ No ☐
Evidence Required: **Plan/ drawing provided to show the position of the different SuDS components with:** • Key included to identify any of the adopting bodies that you will be offering your sustainable drainage components for adoption *(relates to maintenance and management arrangements below).* • Plan/ drawing to identify any areas where certain activities are prohibited, detailing reasons why. **Action plan for accidental pollutant spillages.**	☐ ☐

	Information Provided?
Maintenance Schedule	Yes ☒ No ☐
Evidence Required: A copy of the maintenance schedule including: 1. **Proactive and preventative maintenance** Detailing regular, occasional and remedial maintenance activities including recommendations for inspection and monitoring. This should include recommended frequencies, advice on plant/ machinery required and an explanation of the objectives for the maintenance proposed and potential implications of not meeting them. 2. **Reactive and corrective maintenance** (e.g. product repair and replacement). Including advice on excavations, or similar works, in locations that could affect the SuDS components/ adjacent structures.	☐

	Information Provided?
Maintenance and Management Arrangements	Yes ☒ No ☐
Evidence Required: Evidence of formal agreement with the party responsible for undertaking maintenance. Please select any of the adopting bodies that you will be offering your sustainable drainage components for adoption. Tick all that apply. ☒ **Water and Sewerage Company** *Section 104 agreement (Water Industry Act 1991)* ☒ **Highway Authority** *Section 278/38 agreement (Highways Act 1980)* ☐ **Local Authority Public Open Space** *[Refer to Local Authority Policy]* Please select the arrangement(s) for all non-adopted sustainable drainage components. Tick all that apply. ☒ **Management Company** ☐ **Property Owner** *(for SuDS components within property boundary only)* ☐ **Other** (please state) [ ]	☐

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 8.	

DECLARATION AND SUBMISSION

This pro-forma has been completed using evidence from information which has been submitted with the planning application.

The information submitted in the Sustainable Drainage Strategy and site-specific Flood Risk Assessment (FRA), where submitted, is proportionate to the site conditions, flood risks and magnitude of development and I agree that this information can be used as evidence to this sustainable drainage approach.

Submitter Details			
Completed by	A.Mulligan Carley Daines and Partners Limited.	**Email Address**	Andrew.mulligan@carleydaines.co.uk
		Telephone Number(s)	0161 799 2720
Signed off by	D.Middleton	**Accreditation(s) and/or Qualification(s) of Signatory**	Civil Engineer BEng (Hons)
Date *(dd/mm/yyyy)*	13/04/21	**Company**	Carley Daines and Partners Limited

Client Details			
Name	Great Places Housing Group	**Company**	

A P P E N D I X K

CORRESPONDENCE WITH CANALS AND RIVERS TRUST

Andrew Mulligan

From: Deborah McCormick <Deborah.McCormick@canalrivertrust.org.uk>
Sent: 22 April 2021 16:29
To: Andrew Mulligan; Gareth Taylor
Cc: David Middleton
Subject: RE: Request to Discharge Surface Water Run Off Into Rochdale Canal - Downley Drive, Ancoats, Manchester.

Dear Andrew,

Thank you for your enquiry in relation to the site at Ancoats and I apologise for the delay in responding to you.

To confirm, we cannot provide pre application advice in relation to Surface Water Discharge as each application has to be assessed individually on a case by case basis via our Code of Practice.

I can however confirm that the canal at the location of your development is currently at capacity and at this point in time we are struggling to accept any new applications for surface water given the flood risk and lack of available outputs. In order to overcome this issue, we have commissioned a flood study and modelling survey for a section of the Rochdale and Ashton Canal, the results of which will be presented to us in late Spring.
This survey will hopefully provide us with some mitigation options to reduce flood risk in this area along with the ability to accept a number of future SWD applications, It is likely going forward that any SWD applications on the Rochdale and Ashton Canals will be asked to make a contribution towards any mitigation works required and we would welcome any support from developers / third parties going forward.

Notwithstanding the above, given your timescales for this development are unlikely to succeed our mitigation objectives, I can confirm that at this point in time, we are currently unable to accept new surface water applications at this location.

If you need anything further, please let me know.

Kind regards
Deborah

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River Tr
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From: Andrew Mulligan <Andrew.Mulligan@carleydaines.co.uk>
Sent: 22 April 2021 11:22
To: Gareth Taylor <Gareth.Taylor@canalrivertrust.org.uk>; Deborah McCormick <Deborah.McCormick@canalrivertrust.org.uk>
Cc: David Middleton <david.middleton@carleydaines.co.uk>
Subject: RE: Request to Discharge Surface Water Run Off Into Rochdale Canal - Downley Drive, Ancoats, Manchester.