Flood Risk Assessment & Drainage Strategy at

Apollo Public House
Miles Platting
Manchester, M40 8BB

Client: Jigsaw Homes

Reference: 33585-SUT-ZZ-00-RP-C-0001

Date: February 2025

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Flood Risk Assessment & Drainage Strategy

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Flood Risk Assessment

1 Introduction

1.1 As part of the planning requirements for the development at Farnborough Road, Miles Platting it is necessary to prepare a site-specific flood risk assessment to ensure the flood risk is appropriately considered to protect people and the property from flooding.

1.2 The development boundary, Figure 1, is 0.21 hectares and situated within Flood Zone 1 as defined by the Environment Agency.

1.3 The National Planning Policy Framework (NPPF) Paragraph 168 seeks to promote development in areas at low risk of flooding and to reduce the flood risk resulting from development. This assessment will demonstrate that all sources of flooding have been considered and that development of the site is appropriate.

1.4 The existing site is brownfield, consisting in the former Apollo public house and the public highway Thornden Road.

1.5 The proposed site is to be developed with a block of 31 flats (21no. 1 bedroom and 10no. 2 bedrooms) along with associated roadways and parking areas. The proposed site plan is provided in Appendix A for reference.

1.6 The development site is located along Farnborough Road and Thornden Road. The location data for the site is:

Post Code:	**M40 8BB**		
Grid Reference:	SJ 85807 99612		
Coordinates:	X: 385807	Y: 399612	
Latitude:	53°29'35"N	**Longitude:**	002°12'55"W
What3Words:	easy.moods.spring		

Table 1 – Location details



Figure 1: Site Boundary

1.7 Flood risk information for planning has been obtained from the Environment Agency (EA) website and is provided in Appendix C. The EA data confirms the site falls within Flood Zone 1.

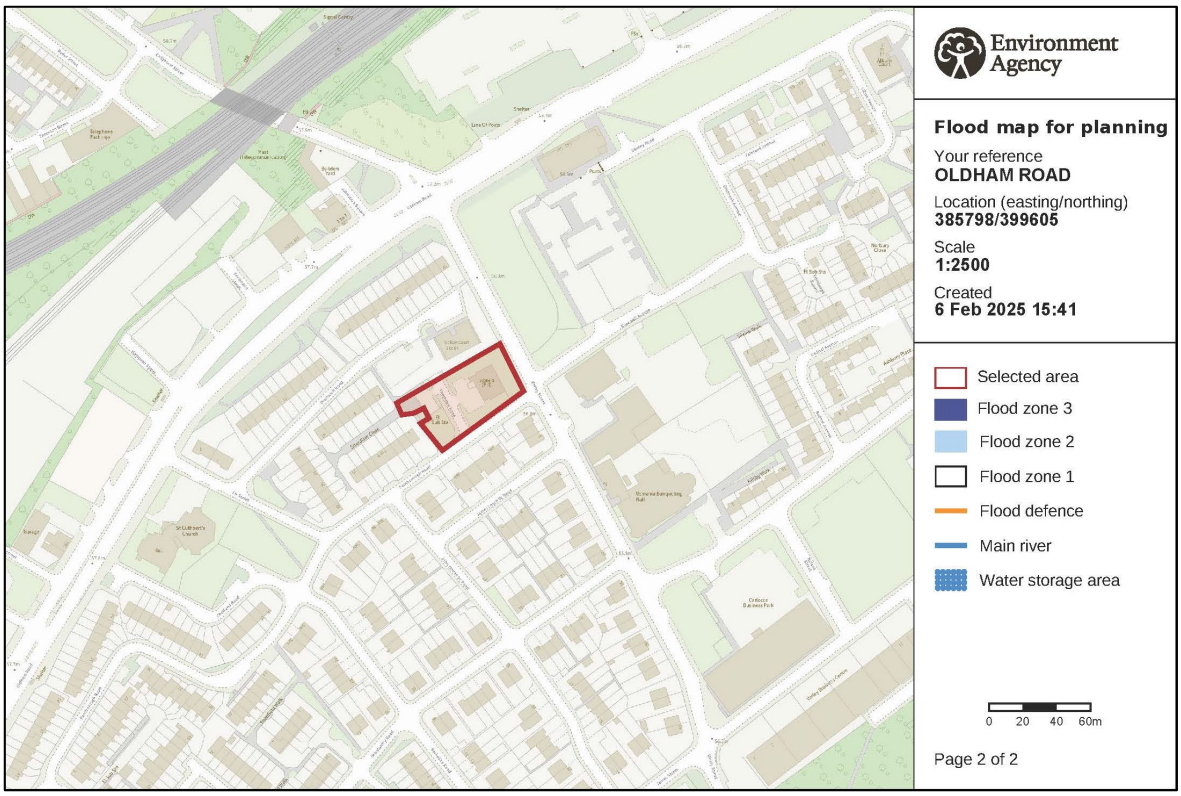


Figure 2: Environment Agency Flood Map for Planning

2 Planning Context

2.1. The National Planning Policy Framework expects local planning authorities to protect people and property from flooding. In fulfilling their duty local planning authorities are to ensure the following steps are assessed prior to granting planning permission:

2.1.1 Assess flood risk

2.1.1.1 The Local Planning Authority (LPA) must undertake a Strategic Flood Risk Assessment to inform the local plan and identify development sites that are in areas of low flood risk.

2.1.1.2 Sites greater than 1 hectare or in areas of flood risk must have a Site-Specific Flood Risk Assessment prepared.

2.1.2 Avoid flood risk

2.1.2.1 The LPA should apply the sequential test to, as far as practicable, locate development sites in area at the least risk of flooding, and if required carry out the exception test.

2.1.3 Manage and mitigate flood risk

2.1.3.1 Where alternative sites are not available the LPA should ensure that development is flood resilient and resistant, safe for the users over the development's lifetime and will not increase overall flood risk.

2.1.3.2 LPAs and developers should manage flood risk through the inclusion of sustainable drainage techniques.

2.2. There is no general statutory duty on the Government to protect land or property against flooding. However, the Government recognises the need for action to be taken to safeguard the wider social and economic wellbeing of the country.

2.3. Landowners have the primary responsibility for safeguarding their land and others property against natural hazards such as flooding. Individual property owners and users are also responsible for managing the drainage of their land in such a way as to prevent, as far as is reasonably practicable, adverse impacts on neighbouring land.

2.4. Those proposing development are responsible for:

2.4.1 Demonstrating that it is consistent with the NPPF.

2.4.2 Providing an assessment of:

2.4.2.1 Whether any proposed development is likely to be affected by flooding from any source.

2.4.2.2 Whether it will increase flood risk elsewhere.

2.4.2.3 The measures to deal with these effects and risks.

- Satisfying the local planning authority that any flood risk to the development or additional risk arising from the proposal will be successfully managed with the minimum environmental effect.
- Designs which reduce flood risk to the development and elsewhere, by incorporating sustainable drainage systems and where necessary flood resilience measures.
- Identifying opportunities to reduce flood risk, enhance biodiversity and amenity and seek collective solutions to managing flood risk.

3 Catchment/Site Description

3.1 The topography of the site generally slopes from north to south. The maximum elevation is 56.22mAOD, the minimum elevation is 54.77mAOD. The topographic survey is included within the appendix A for reference.

3.2 A review of the United Utilities sewer records, shows a 750mm culverted watercourse running through the north west corner of the site. An extract is provide in Figure 3.

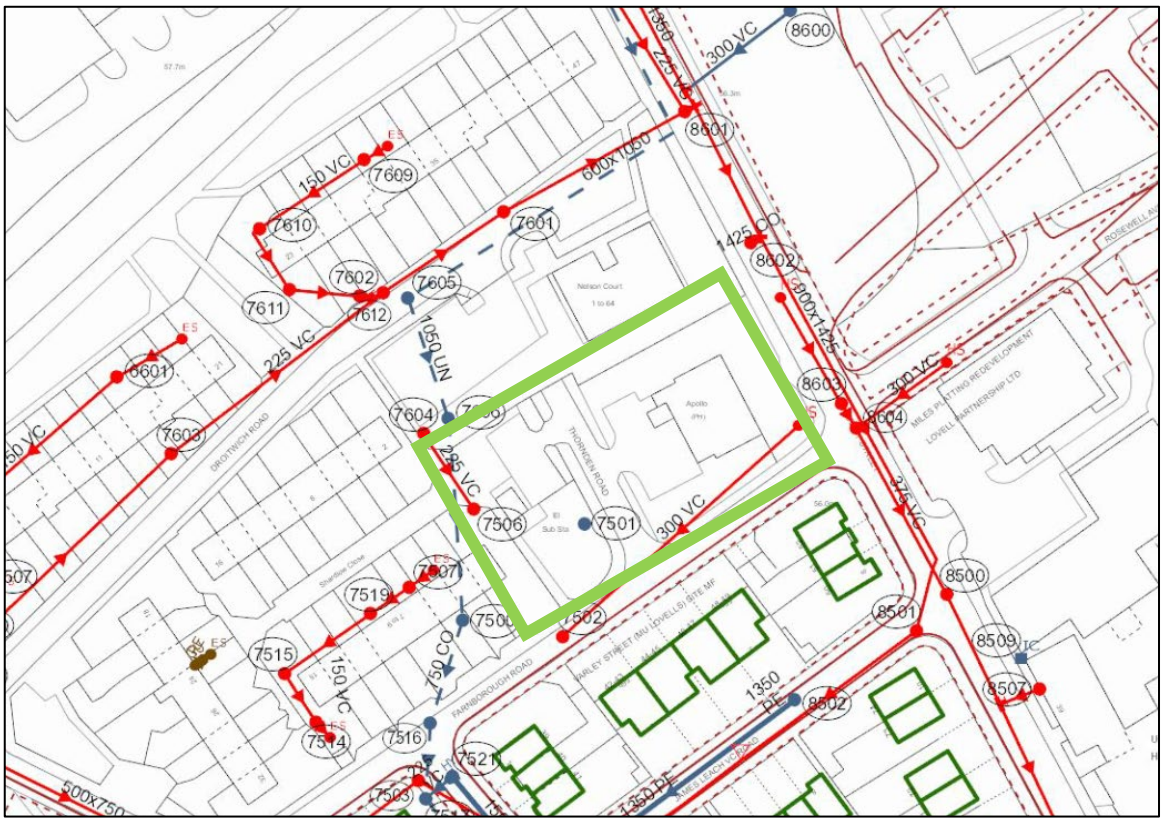


Figure 3: United Utilities sewer records.

The grid reference finder confirms that the nearest open waterbody is the Rochdale Canal, approximately 0.34km south east from the development site, an extract of the Map is in Figure 4.

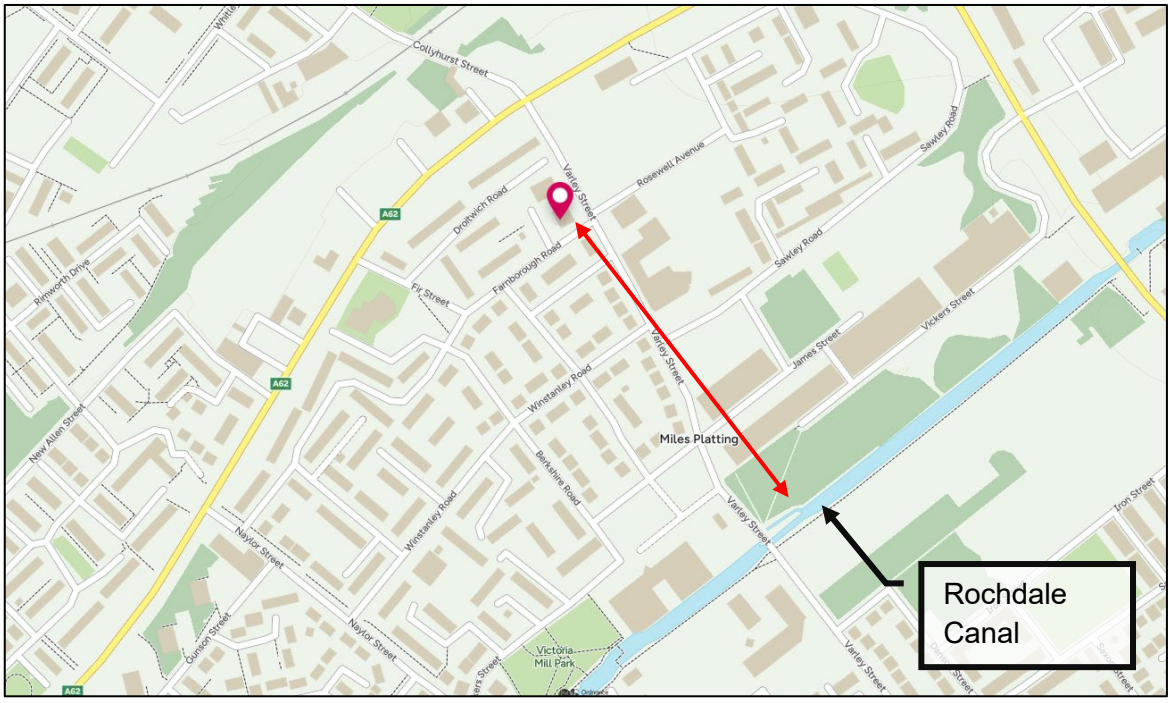


Figure 4: Existing Canal. (Source: Google Maps)

3.3 The British Geological Survey (BGS) Geology of Britain viewer defines the bedrock geology as Pennine Upper Coal Measures Formation - Mudstone, siltstone and sandstone. Superficial deposits are noted as Till, Devensian - Diamicton.

3.4 The National Soils Resources Institute, through the Soilscapes web viewer, identify the soil type as Soilscape 17, Slowly permeable seasonally wet acid loamy and clayey soils.

3.5 Flood Risk Assessment

3.5.1 The National Planning Policy Framework (NPPF) seeks to promote development in areas at low risk of flooding and to reduce the flood risk resulting from development. The purpose of this site-specific flood risk assessment is to demonstrate that the site can be considered to fall within an area of low annual probability and assess the risk to the site from all sources of flooding.

3.5.2 The planning flood maps from the Environment Agency confirm that the site is in Flood Zone 1 due the low risk posed by sea or river or surface water flooding.

3.5.3 According to the NPPF Annex 3 : Flood risk vulnerability classification building residential use is classed as 'more vulnerable'.

3.5.4 A review of Table 3 of the NPPF Technical guide indicates that an exception test is not required for areas classed as more vulnerable that falls within Flood Zone 1.

Flood risk vulnerability classification (see table 2)		Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Flood 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.

Figure 5: Table 3 from the NPPF Technical Guide illustrating site classification.

3.6 Sources of Flooding

3.6.1 Flooding is a natural hazard and can happen at any time in a wide variety of locations. There are several forms of flooding, which present a range of different risks. The speed of inundation and the duration of different forms of flooding vary greatly. With climate change, the frequency, patterns, and severity of flooding are forecast to change and become more damaging.

3.6.2 The limits of flood risk areas cannot be defined precisely because floods with similar probability can arise from different combinations of weather, sources, rainfall patterns, local topography, and patterns of development.

3.6.3 Every flood will have different consequences on people, property and the environment and depends on the land use.

3.7 Flooding from the River and the Sea

3.7.1 Flooding from rivers or the sea is classed as a very low/no risk for the development site as seen in Figure 5 as it is not situated near a sea or river.

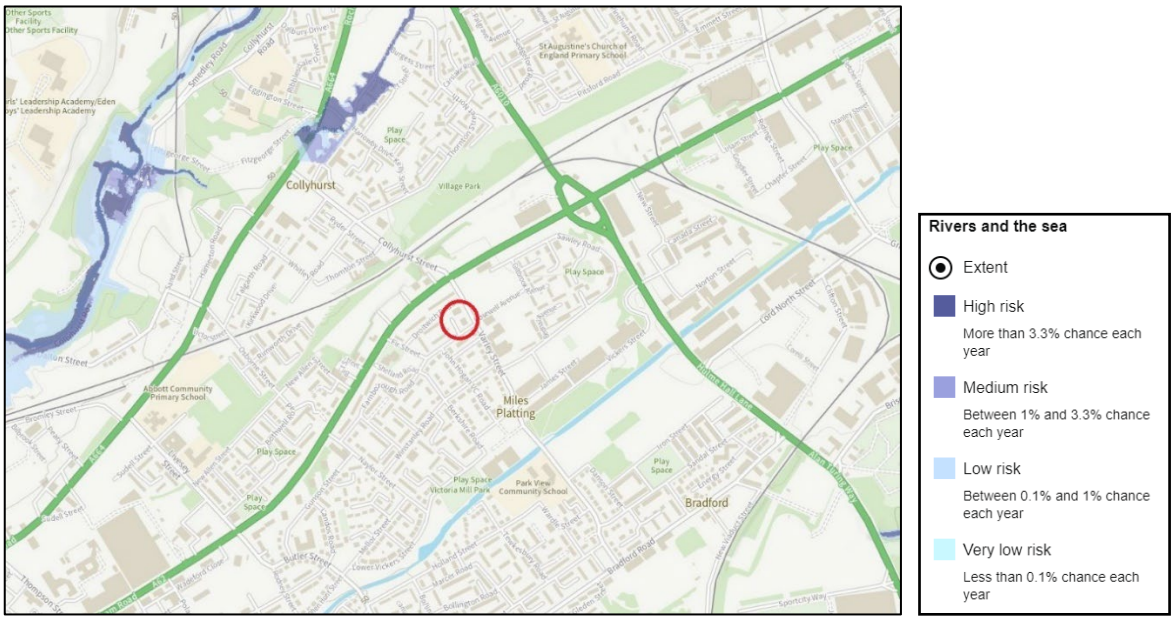


Figure 6: Environment Agency Flood Map - Extents of Flooding from Rivers or the Sea

3.8 Flooding from Surface Water

3.8.1 Flooding from surface water may occur in times of intense rainfall at a local site level as any drainage system may not be able to disperse the rainfall quickly enough. Surface flooding occurs when both the natural interception capacity of the ground is exceeded and the capacity of inlets to the drainage system are exceeded.

3.8.2 The Environment Agency provides surface water flood maps for the high (greater than 3.3% AEP), medium (1% AEP) and low (0.1% AEP) risk scenarios. All the surface water flood maps from the Environment Agency website are provided in Appendix C for reference, although the low-risk scenario is generally considered above the design return period.

3.8.3 The Environment Agency cautions that due to the limitations within the model (single drainage rate, national level modelling, LiDAR data etc.) the surface water flood maps do not provide a definitive risk of surface water flooding at the plot level. The following assessment reflects the current scenario and provides an indication of the potential surface water flood risk in the absence of drainage network designed to facilitate the proposed development through the management of surface water.

3.8.4 The extent of surface water flooding, Figure 7, indicates that there is a low risk of surface water flooding occurring within the site boundary. The surface water flood risk is shown occurring to a small section to the south of the site. The flooding only occurs for the 0.1 – 1%% AEP event.

3.8.5 The surface water flooding for the 0.1 - 1% AEP event is noted being less than 300mm on the Environment Agency Low Risk Surface Water Flood Map, Appendix C.

3.8.6 The surface water flooding within the site extents is limited to Thornden Road and the low areas of the site. Proposed development won't cause any issues post development.

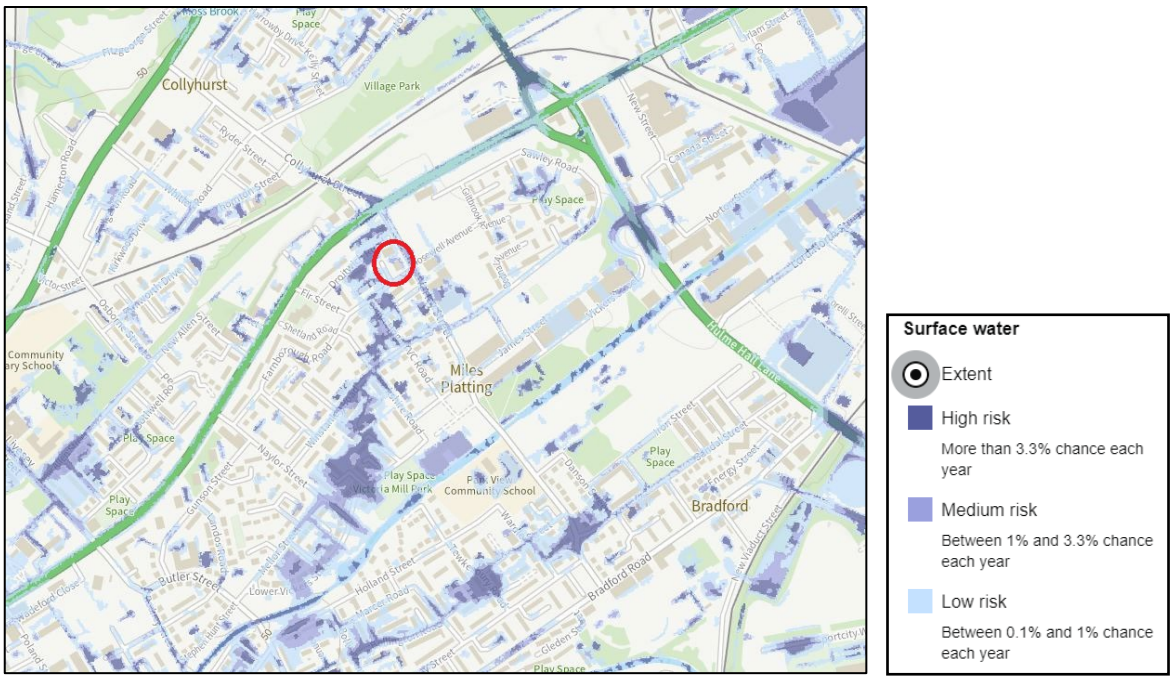


Figure 7: Environment Agency Extent of Surface Water Flooding Map

3.8.7 The risk of surface water flooding to the development can be mitigated by ensuring the surface water management network safely manages rainfall events to the required standard. Also, a careful consideration of finished floor levels is made during the design of proposed site levels.

3.8.8 Following implementation of the mitigation measures the risk of surface water flooding to the site can be considered to be low.

3.9 Flooding from Sewers

3.9.1 Flooding from the sewers occurs when surcharging during periods of excess flow breaks ground, typically at manholes or road gullies. The proposed development is not likely to increase the risk posed by sewer flooding as the surface water runoff, a primary cause of sewer surcharging, from the site is to be managed in accordance with the requirements of the NPPF and LLFA.

3.9.2 The development area is a brownfield site, with positive drainage within the site boundary. As this existing network won't be reused in its entirety, the site will be considered greenfield for the purpose of discharge rate.

3.9.3 There are existing combined sewers along Farnborough Road to the south of the site and in Varley Street to the east. There is a culverted watercourse running near the north west corner of the site.

There are also existing drains within the site that will be abandoned due to the proposed development. Refer to Appendix A for the existing drainage plan for reference.

3.9.4 Drainage for the proposed development will be designed to current best practice for the foul sewers using Approved Document H. Where new surface water drainage for the site is proposed it shall be designed to cater for the 100-year plus climate change event in accordance with current guidance and will incorporate long-term storage and SuDS as appropriate.

3.9.5 There are no sewers within the site boundary, so no alterations will be made. Proposed drainage within the site will be designed to the current requirements of the LLFA the site can be considered at low risk of sewer flooding.

3.10 Flooding from Infrastructure

3.10.1 Flooding from infrastructure occurs when canals, dams or other manmade structures capacity is exceeded, or fail. The Environment Agency Flood Map for Planning confirms the site is not within a flood risk area for a reservoir and the site is not located near canals.

3.10.2 There is no risk of flooding associated with infrastructure failure.

3.11 Flooding from Groundwater

3.11.1 The Manchester city council Strategic flood risk assessment maps (GW2.1) show that there is no risk of groundwater flooding within the specific site location.

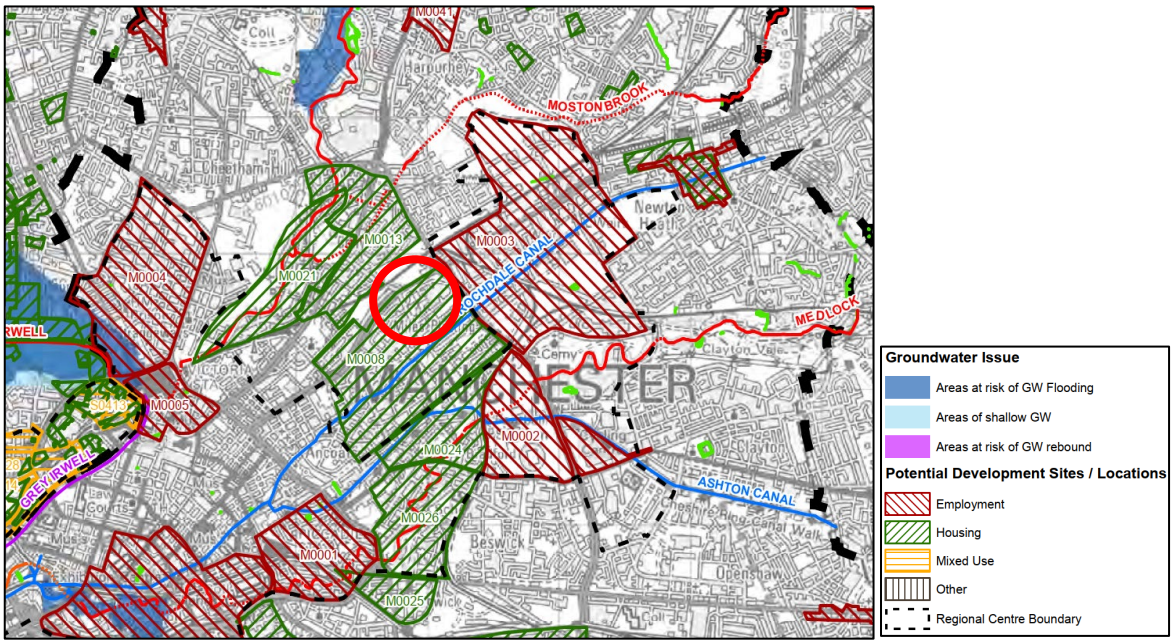


Figure 8: Extract from MST SFRA Groundwater Flooding GW2.1

3.11.2 This indicates that the site falls within a low likelyhood area for groundwater flooding.

3.11.3 The site has sufficient topographic relief for groundwater emergence not to cause a significant risk.

3.11.4 Appropriate finished floor level (FFL) are to be considered to mitigate against any potential flooding.

3.11.5 There are no other sources of flooding that affect the site. Overall flood risk to the proposed development can be considered low.

4 Climate Change

4.1 Paragraph 158 of the National Planning Policy Framework (NPPF) requires that plans should take a proactive approach to mitigating and adapting to climate change.

4.2 Paragraph 167 of the NPPF requires all plans to adopt a sequential risk-based approach taking into account all sources of flood risk and future impacts of climate change.

4.3 To appropriately mitigate the increased flood risk caused by climate change the Government has published guidance (https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances) related to the appropriate climate change allowances.

3.3% Annual Exceedance Rainfall Event		
Epoch	**Central Allowance**	**Upper End Allowance**
2050s	25%	35%
2070s	30%	40%
1% Annual Exceedance Rainfall Event		
Epoch	Central Allowance	Upper End Allowance
2050s	25%	40%
2070s	30%	45%

Table 1: Climate Change Allowances.

4.4 For development with a lifetime between 2061 and 2125 the 2070s epoch data should be used.

4.5 To mitigate the impact of climate change on the development the upper end allowances should be considered for both the 1% and 3.3% annual exceedance probability events and the development should be design for the 1% annual exceedance probability event so that there is:

4.5.1 No increased flooding elsewhere.

4.5.2 And the development is safe from surface water flooding.

4.6 Where new surface water drainage is proposed an allowance for climate change shall be included to mitigate the risk.

5 Emergency Access/Escape

5.1 With flood risk to the site considered low and the area being within a flood zone 1 for sea and rivers, there is no requirement for an emergency access or escape routes.

6 Flood Risk Summary and Conclusion

6.1 From the above assessment of flood risk, it has been established that the development site is entirely within Flood Zone 1 for river and sea flooding.

6.2 Surface water flood risk can be mitigated through careful consideration of finished floor levels and implementation of a SuDS drainage scheme that helps to manage runoff from the development.

6.3 The surface water drainage network will be designed taking climate change into consideration and to help ensure the development is safe for its lifetime.

6.4 The development will not increase the risk of flooding off site.

Surface Water Drainage Strategy

7 Policy Context

7.1 The LLFA expect the surface water management strategy to comply with:

7.2 Paragraph 80 of the Planning Practice Guidance (PPG);

7.3 Paragraph 175 of the National Planning Policy Framework; and

7.4 Standards 2, 4, 7, 8 and 9 of the Non-Statutory Technical Standards for Sustainable Drainage (March 2015).

7.5 Paragraph 56 of the Planning Practice Guide requires that surface water from development be discharged in line discharge hierarchy:

7.5.1 Infiltrate into the ground close to source.

7.5.2 Discharge runoff to a surface water body.

7.5.3 Discharge runoff to a surface water sewer, highway drain or other surface water drainage system.

7.5.4 Discharge to a combined sewer.

7.6 The implementation of the hierarchy will be discussed in greater detail in Section 11.

7.7 Paragraph 175 of the National Planning Policy requires major developments to incorporate sustainable drainage systems unless there is clear evidence that their inclusion would be inappropriate. Sustainable drainage systems should:

7.7.1 Take account of advice from the LLFA.

7.7.2 Have appropriate proposed minimum operational standards.

7.7.3 Have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development; and

7.7.4 Where possible, provide multifunctional benefits.

7.8 Standards 2, 3, 4, 7, 8 and 9 of the Non-Statutory Technical Standards for Sustainable Drainage System (2015) are:

7.8.1 S2 requires, for greenfield developments, the peak runoff rate from the development to any highway drain, sewer, or surface water body for the 1 in 1-year rainfall event and the 1 in 100-year rainfall event should never exceed the peak greenfield runoff rate for the same event.

7.8.2 S3 requires for sites that were previously developed the peak runoff rate from the development to any drain, sewer or surface water body for the 1 in 1 year rainfall event and the 1 in 100 year rainfall event must be as close as reasonably practicable to the greenfield runoff rate from the development for the same rainfall event, but should never exceed the rate of discharge from the development prior to redevelopment for that event.

7.8.3 S4 requires, where reasonably practicable, for greenfield development, the runoff volume from the development to any highway drain, sewer, or surface water body in the 1 in 100-year, 6-hour rainfall event should never exceed the greenfield runoff volume for the same event.

7.8.4 S7 requires the drainage system be designed so that, unless an area is designated to hold and/or convey water as part of the design, flooding does not occur on any part of the site for a 1 in 30-year rainfall event.

7.8.5 S8 requires the drainage system to be designed so that, unless an area is designated to hold and/or convey water as part of the design, flooding does not occur during a 1 in 100-year rainfall event in any part of: a building (including a basement); or in any utility plant susceptible to water (e.g. pumping station or electricity substation) within the development.

7.8.6 S9 requires the design of the site must ensure that, so far as is reasonably practicable, flows resulting from rainfall exceeding a 1 in 100-year rainfall event are managed in exceedance routes that minimise the risks to people and property.

7.9 The requirements of the local and national policy will be addressed by the proposed site layout and proposed drainage system, discussed in detail in Sections 9 and 11.

8 Existing Drainage

8.1 Compliance with policy begins with a review of the existing site and its drainage characteristics.

8.2 As discussed within the flood risk assessment, the development site is considered to have a greenfield land classification as it falls within an area with no existing building and no existing drainage serving the area.

8.3 The nearest watercourse to the development is the surface water culvert at the north west corner of the site. Also, the Rochdale Canal is approximately 0.34km south of the development site.

8.4 The site topography directs runoff to the south.

8.5 The standard S3 of the Non-Statutory Technical Standards for Sustainable Drainage requires that surface water runoff from development sites be as close as reasonably practicable to greenfield rates.

9 Proposed Site Layout

9.1 The proposed layout consists of a block of flats unit and associated parking and access roads.

9.2 Proposed site levels have been developed to reflect the proposed use while maintaining the north to south topographic relief of the existing site.

9.3 The proposed site is predominantly impervious, use will be made of permeable surfacing where possible to help manage surface water runoff.

9.4 To mitigate residual flood risk proposed FFLs will be 150mm above existing ground levels except where provision is made for level access.

10 Urban Creep

10.1 Urban creep is not applied to apartments or flats developments.

11 Proposed Surface Water Drainage

11.1 Planning policy requires that the proposed network manage surface water runoff in line with the discharge hierarchy noted in Section 7.

11.2 The first level of the hierarchy requires that infiltration solutions be considered for the management of surface water runoff.

11.2.1 Infiltration systems can take the form of soakaways, detention ponds, permeable pavements, bio-retention areas etc.

11.2.2 The Soilscapes viewer identified the general area as Soilscape 17, Slowly permeable seasonally wet acid loamy and clayey soils.

11.2.3 Soakaway testing to BRE365 will be required to confirm the viability of infiltration as means of managing surface water. However, based on the Soilscape classification and superficial geology, we assumed that infiltration would not be feasible. Hence, the drainage strategy will illustrate a type C permeable paving (no infiltration) piped network out-falling to a culverted watercourse.

11.3 The second tier of the hierarchy requires surface water to be discharged to a surface water body.

11.3.1 As previously mentioned in point 3.2, the United Utilities (UU) sewer records and the CCTV survey, confirm that there is a 750mm culverted watercourse in the north east corner of the site. Surface water from the site is proposed to this culverted watercourse.

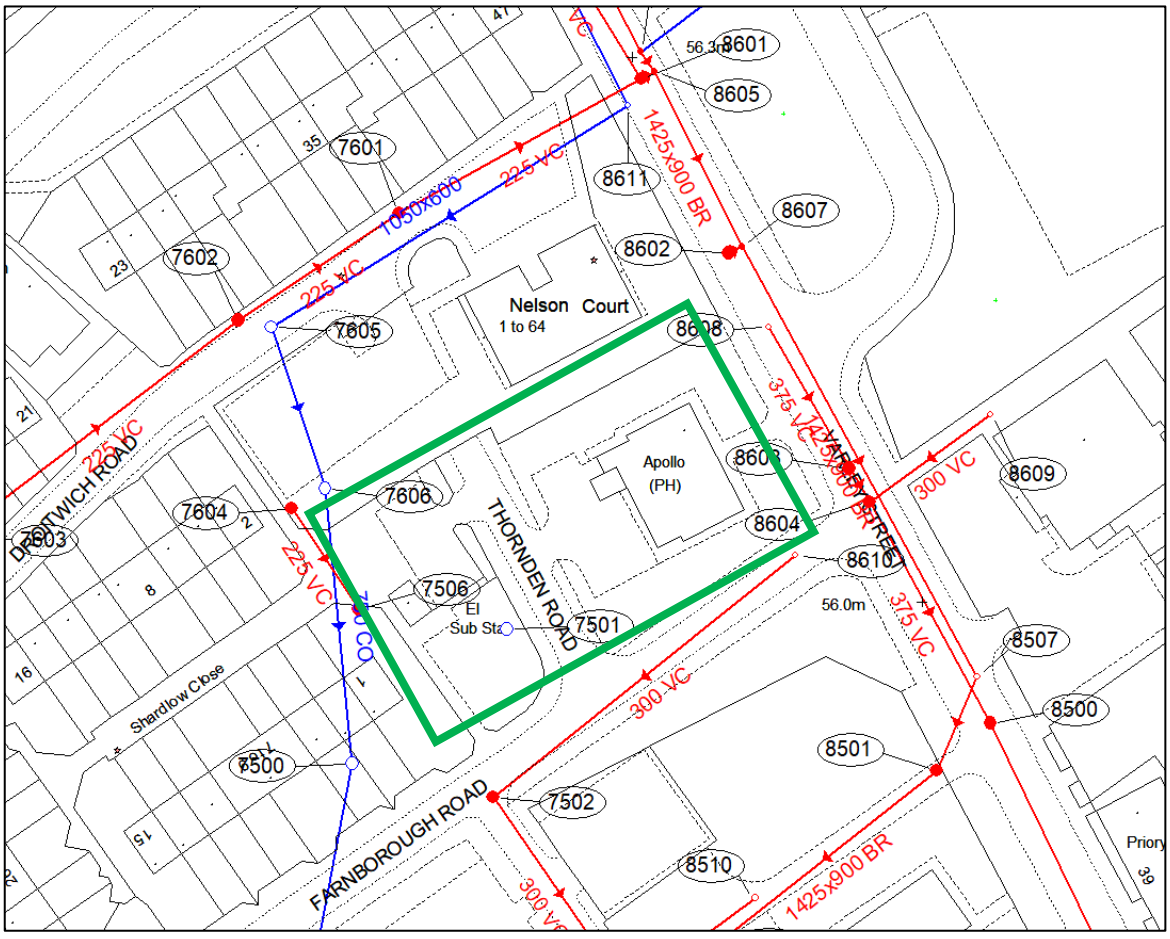


Figure 9: United Utilities sewer records.

11.4 The third tier of the hierarchy requires surface water to runoff to a surface water sewer, highway drain or other surface water drainage system. UU sewer records and CCTV survey confirm that there are no surface water sewers in the vicinity of the site.

11.5 The fourth tier requires surface water to be discharged to a combined sewer network.

11.5.1 UU sewer records and CCTV survey confirm that there are combined water sewers in Farnborough Road and Varley Street. A connection into the existing combined sewer in Varley Street is possible, reusing the existing outfall connection where possible.

11.6 For the purpose of this drainage strategy, a connection to the culverted watercourse will be considered, this option would be replaced or supplemented with an infiltration-based solution should BRE365 testing confirm infiltration as a viable means of surface water management.

11.7 Details of the proposed drainage strategy are presented on the proposed drainage plans in Appendix A.

11.8 As mentioned before, the site will be considered greenfield to established the discharge rate. The greenfield (Q_{Bar}) runoff rate for the site was calculated as being 1.38l/s. The HR Wallingford calculations are provided in the Appendix B.

11.9 The greenfield runoff rates based on the HR Wallingford data are considered too low to provide a suitable drainage network to manage the proposed discharge rate. On this basis, it is proposed that discharge from development will be managed in accordance with advice provided by the Defra / Environment Agency's report "Rainfall runoff management for developments" (Report SC030219) which states that a practicable minimum limit on the discharge rate from a flow attenuation device is often a compromise between attenuating to a satisfactorily low flow rate while keeping the risk of blockage to an acceptable level. This limit is set at 5 l/s, using an appropriate vortex or other flow control device.

11.10 Therefore, it is considered reasonable to manage and discharge surface water runoff from the site at a rate of 5.0 l/s. LLFA needs to confirm this.

11.11 The proposed drainage networks require flow controls and attenuation, to achieve the required discharge rates and manage surface water to mitigate the flood risk stemming from the development, prior to discharge.

11.12 Attenuation is provided in the form of permeable paving within the road and parking spaces, prior to controlled discharge to the existing culverted water course.

11.13 The calculations for the proposed drainage strategy network are provided in the Appendix E, for reference, these confirm the attenuation volume and discharge rate. The calculations confirm the resultant surface water runoff can be managed to satisfy the limiting discharge rate.

11.14 The simulation results confirm that the proposed surface water network satisfies the required design standards for all events up to and including the 100-year plus 45% climate change event.

11.15 Within the proposed surface water drainage strategy there is a bit of flooding shown at the permeable paving. These exceedance flows stay within the kerbline so are acceptable for a 100-year plus 45% climate event.

11.16 The proposed surface water drainage network can be considered to fulfil the policy requirements as far as practicable.

12 Water Quality

12.1 Water quality guidance is set out in Chapter 26 of the SuDS Manual (CIRIA C753). For the anticipated hazards the simple index approach is suitable.

12.2 Pollution hazard indices for the simple index approach are provided in Table 26.2 of the SuDS Manual. The development site primarily consists of roofs, roads and parking areas. The pollution hazard from these land use classifications can be considered medium.

12.3 Suspended solids from the surface runoff from the roads will be managed through the use of permeable paving and also as a method to filter and improve surface water quality from the car parking areas. Permeable paving helps to remove hydrocarbons and solids to improve the overall water quality during its storage time within the paving.

13 Proposed Foul Water Network

13.1 The proposed foul water network will be designed in accordance with the requirement of Approved Document H.

13.2 The anticipated peak foul flow from the units based on an average of 0.05 l/s per unit 31 units) is 1.55 l/s (based on SfA6). The final foul flows will need to be confirmed.

14 Maintenance and Management

14.1 The proposed drainage network will be managed by a facilities management company appointed by the landowner.

The piped network, permeable paving and flow control will be maintained in accordance with the requirements noted in CIRIA C753 The SuDS Manual.

15 Surface Water Management summary and Conclusion

15.1 The proposed drainage network manages surface water runoff up to the 100-year plus 45% climate event.

15.2 Long-term storage is provided within permeable paving and the runoff rates are controlled to comply with standards S2 and S3 of the Non-Statutory Technical Standards for Sustainable Drainage Systems, as far as practicable, through the inclusion of flow controls in accordance with CIRIA C753.

15.3 The surface water discharge rate is controlled in line with the requirements of the Statutory Undertaker and the LLFA, discharge consent will be required prior to construction.

15.4 The proposed drainage network includes SuDS as far as practicable given the layout of the site and constraints set by the existing infrastructure.

15.5 Through the implementation of the proposed drainage strategy the site does not increase flooding within or downstream of the catchment including an allowance for climate change.

15.6 The proposed drainage network is considered to satisfy the requirement of local and national planning policy.

16 Appendix A – Drawings

Topographical Survey

Proposed Layout

Existing Catchment Plan

Proposed Catchment Plan

Flood Flow Route Plan

Drainage Strategy

United Utilities Sewer Records

Utilities Survey

Existing Drainage Layout

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File Name:LS5628-T-3D_8.dwg

North Arrow

NOTES:
Survey plotted on a plane Local Grid, Orientated to National Grid.
All levels relate to OS (Newlyn) Datum, Established using Network RTK.

LEGEND:

AV	AIR VALVE	CR88.88	CROWN LEVEL
BH	BOREHOLE	DH88.88	DOOR HEAD
BIN	BIN	EL88.88	EAVES LEVEL
BOL	BOLLARD	FFL88.88	FINISHED FLOOR LEVEL
BM	BENCH MARK	HB88.88	HARD BED
BS	BUS STOP	HL88.88	HEAD LEVEL
BT	BT INSPECTION COVER	IL88.88	INVERT LEVEL
CB	CATCH PIT/BOX	PL88.88	PARAPET LEVEL
CCTV	CCTV CAMERA POST	RL88.88	RIDGE LEVEL
COL	COLUMN	SB8.88	SILL LEVEL
COM	TELECOMS INSPECTION COVER	SBB8.88	SOFT BED
CTV	CABLE TV COVER	SPB8.88	SPRINGING POINT
DP	DRAIN PIPE	WL88.88	WATER LEVEL
DR	DRAIN		
DW	DOORWAY	B/W	BARBED WIRE
EIC	ELECTRIC INSPECTION COVER	C/B	CLOSED BOARD
ELB	ELECTRIC BOX	C/L	CHAIN LINK
EP	ELECTRICITY POLE	C/P	CONCRETE PANEL
ES	ELECTRIC	H/G	HANDRAIL
EVC	ELECTRIC VEHICLE CHARGING	P/G	PALISADE
FH	FIRE HYDRANT	P/R	POST & RAIL
G	GULLEY	P/W	POST & WIRE
GLT	GROUND LIGHT	W/M	WIRE MESH
GST	GAS STOP TAP	BW	BRICK WALL
GSV	GAS STOP VALVE	CW	CONCRETE WALL
GTY	GANTRY	SW	STONE WALL
IC	INSPECTION COVER	D.C	DRAINAGE CHANNEL
KO	KERB OUTLET		BUILDING
LP	LAMP POST		CANOPY
MH	MANHOLE		DRAINAGE CHANGE
MKR	MARKER POST		KERB
MW	MONITORING WELL		WALL
NP	NAME PLATE		FENCE
PB	POST BOX		BOTTOM OF BANK
PIPE	PIPE		TOP OF BANK
PT	POST		OVERHEAD TELECOMS
RE	RIDDING EYE		OVER HEAD ELECTRIC
RISER	SERVICE RISER		PIPE CENTRE LINE
RS	ROAD SIGN		
RWP	RAIN WATER PIPE		BORE HOLE
SAT	SATELLITE		EXTENT OF TRACE
STN	STREET SIGN		GATE
STUMP	TREE STUMP		SURVEY STATION
SVP	SOIL VENT PIPE		BENCHMARK
TB	TRAFFIC BOLLARD		
TC	TRAFFIC LIGHT CONTROL		
TIE	TIE WIRE		
TL	TRAFFIC LIGHT		
TM	TICKET MACHINE		
TP	TELEGRAPH POLE		
VP	VENT PIPE		
WO	WATER OUTLET		
WV	WATER VALVE		
WST	WATER STOP TAP		
WSV	WATER STOP VALVE		

SURVEY STATIONS

Name	Easting	Northing	Height
LS1	385759.613	399551.429	53.815
LS2	385794.250	399508.955	54.874
LS3	385836.148	399468.953	56.118
LS11	385803.309	399594.309	55.571
LS12	385754.250	399614.955	55.874
TW1	385825.235	399626.009	55.668
TW2	385787.640	399574.355	54.653

SHEET LAYOUT

Scale Bar (m): 0 2 4 6 8 10

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SEE THE COMPLETE PICTURE

REV	DATE	DESCRIPTION
A	12/24	Heras fence and kerb line added.
B	02/25	Gas stop tap and fence line added.

CLIENT
Sutcliffe

PROJECT TITLE
Topographical Survey of Land at:
Apollo Pub
Miles Platting
M40 8DR

Drawing Ref. LS5628-T			Rev B
Surveyed A.Love	Drawn J.Macgregor	Checked B.Brady	
Scale 1:200	Date Nov 24	Size A1	No. 01

Apollo Pub, Miles Platting
DK–Architects



VARI

HARD WORKS

Patio Space / Property footpath:
Tobermore Beaufort Natural 400 x 400 x 40mm

PERMEABLE TEGULA PAVING TO SHARED SURFACE AND PARKING BAYS BY TOBERMORE (equal or approved)
Colour: Tegula Trio Cedar

80mm charcoal blocks to delineate carparking spaces.
Driveways suitable for vehicular loadings – all laid to engineer's detail and specification.
Tarmacadam road surface

200mm strip along building footprint:
Tobermore Beaufort Charcoal 400 x 400 x 40mm

Drawing Title: Proposed Site Plan
Date: 18.02.2025
Drawing no: 1349–1001.4
Scale: NTS @ A1
Drawn: NS

revision:
revision notes:

DK–Architects
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GENERAL NOTES

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4. ALL WORKS TO BE CARRIED OUT IN STRICT ACCORDANCE WITH THE ENGINEER'S SPECIFICATIONS, RELEVANT BRITISH STANDARDS AND WHERE APPLICABLE LOCAL AUTHORITIES REQUIREMENTS.

KEY

- SITE BOUNDARY (2028 m²)
- PERMEABLE AREA: 1223 m² (0.12ha)
- IMPERMEABLE AREA: 768m² (0.06ha)

THORNDEN ROAD

VARLEY ROAD

ROSEWELL AVE

FARNBOROUGH ROAD

SCALE BAR 1:250

0 5 10 15 20 25

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Drawing Status

PRELIMINARY DRAWING

Client

JIGSAW HOMES

Project

OLDHAM ROAD
MILES PLATTING

Drawing Title

EXISTING CATCHMENT PLAN

Rev	Description	Date	By	Chkd
P01	PRELIMINARY ISSUE	26.11.24	JW	AD

Date	Drawn By	Checked By
NOV '24	JW	AD

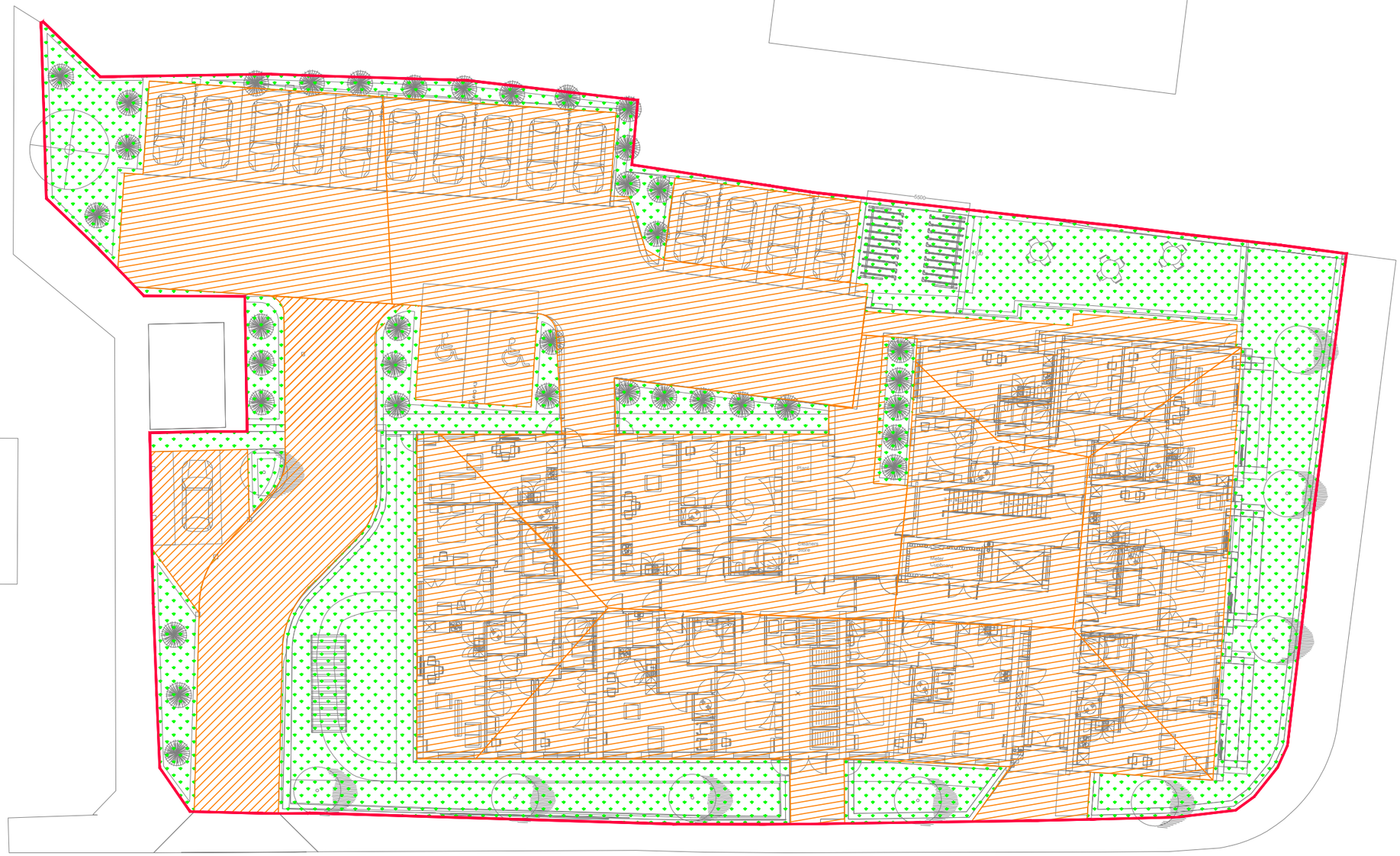
Scale at A3	Project Number
1:250	33494

Sheet Number

33494-SUT-ZZ-XX-DR-C-6100

Revision

P01



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KEY

- SITE BOUNDARY (2190 m²)
- PERMEABLE AREA: 656 m² (0.06ha)
- IMPERMEABLE AREA: 1534m² (0.15ha)

SCALE BAR 1:250

0 5 10 15 20 25

Rev	Description	Date	By	Chkd
P03	SITE LAYOUT UPDATED (1001.4 - 20.05.25)	20.05.25	JG	AD
P02	SITE LAYOUT UPDATED	07.03.25	JG	AD
P01	PRELIMINARY ISSUE	10.02.25	JW	AD

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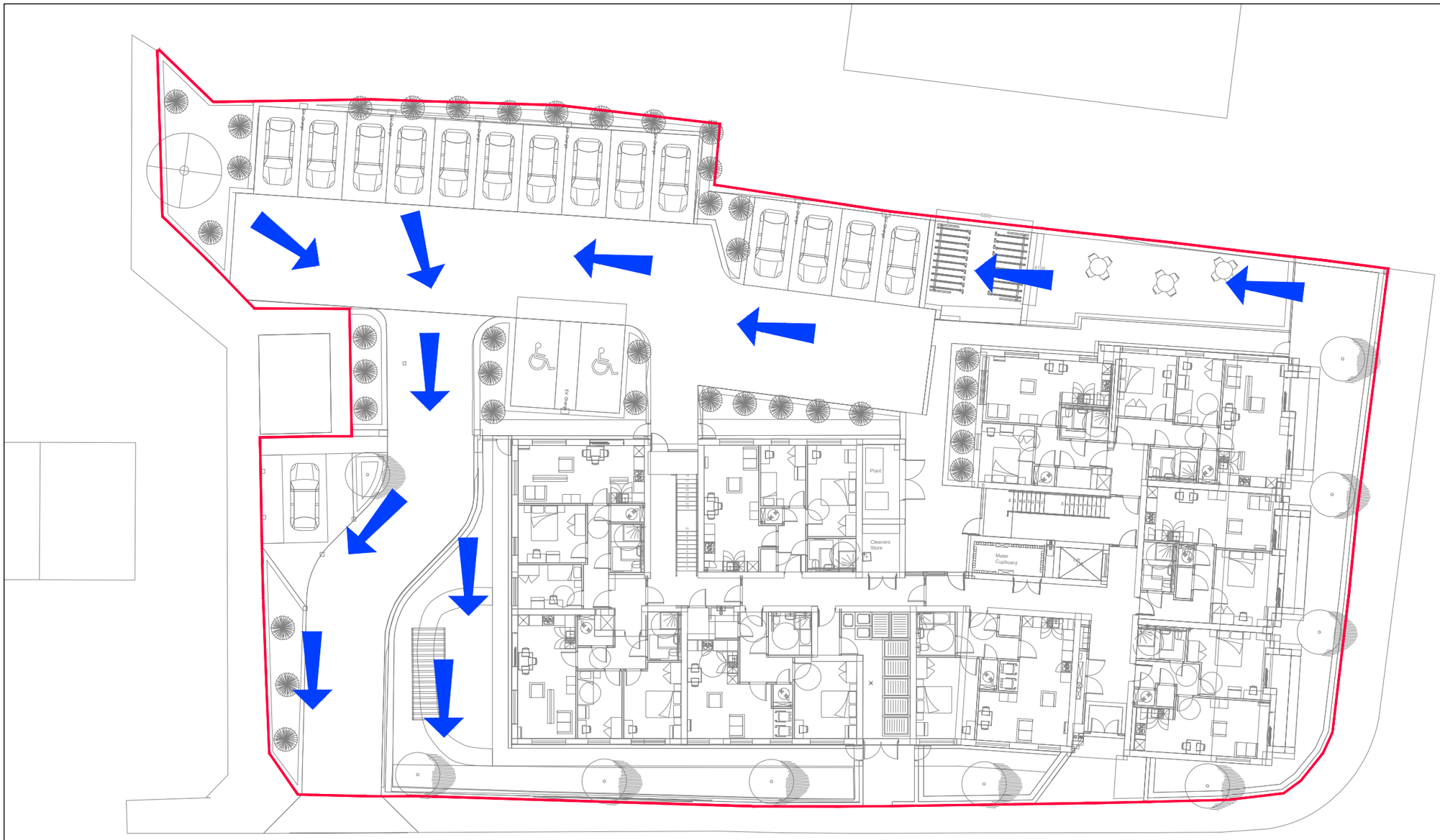
Drawing Status
PRELIMINARY DRAWING

Client
JIGSAW HOMES

Project
OLDHAM ROAD
MILES PLATTING

Drawing Title
PROPOSED CATCHMENT PLAN

Date: FEB '25
Drawn By: JG
Checked By: AD
Scale at A3: 1:250
Project Number: 33494
Sheet Number: 33494-SUT-ZZ-XX-DR-C-6101
Revision: P03



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KEY

SITE BOUNDARY

FLOOD FLOW ROUTE

SCALE BAR 1:250

0 5 10 15 20 25

Rev	Description	Date	By	Chkd
P03	SITE LAYOUT UPDATED (1001.4 - 20.05.25)	20.05.25	JG	AD
P02	SITE LAYOUT UPDATED (1001.4)	10.03.25	JG	AD
P01	PRELIMINARY ISSUE	10.02.25	JW	AD

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Drawing Status
PRELIMINARY DRAWING

Client
JIGSAW HOMES

Project
OLDHAM ROAD
MILES PLATTING

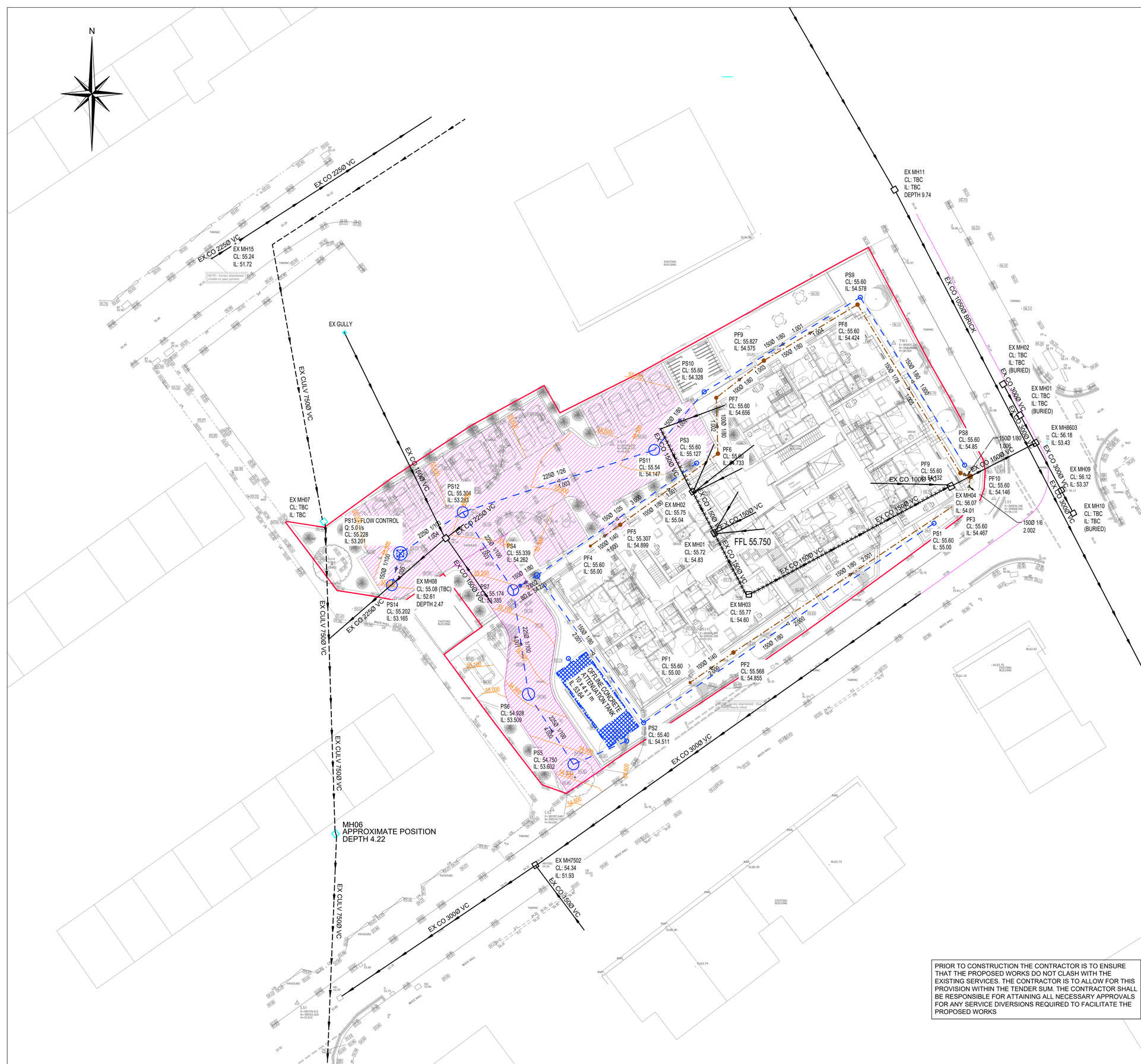
Drawing Title
FLOOD FLOW ROUTE PLAN

Date	Drawn By	Checked By
FEB '25	JG	AD

Scale at A3	Project Number
1:250	33494

Sheet Number
33494-SUT-ZZ-XX-DR-C-6102

Revision
P03



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ALL DIMENSIONS ARE IN METRES UNLESS STATED OTHERWISE.

ALL WORKS TO BE CARRIED OUT IN STRICT ACCORDANCE WITH THE ENGINEER'S SPECIFICATIONS, RELEVANT BRITISH STANDARDS AND WHERE APPLICABLE LOCAL AUTHORITIES REQUIREMENTS.

EXISTING SERVICES.

CONTRACTOR TO SATISFY THEMSELVES THAT EXISTING AND PROPOSED SERVICES DO NOT CLASH WITH PROPOSED DRAINAGE

THE CONTRACTOR PRIOR TO START OF WORKS IS TO ENSURE THAT PROPOSED DRAINAGE LEVELS DO NOT INTERFERE WITH SERVICES. ALL DISCREPANCIES SHALL BE REPORTED TO ENGINEER IMMEDIATELY.

THE CONTRACTOR SHALL CHECK ALL EXISTING COVER / INVERT LEVELS AND PIPE / SEWER SIZES ON SITE PRIOR TO START OF WORKS TO ENSURE PROPOSED DRAINAGE CAN BE CONSTRUCTED AS INDICATED ON THE DRAWING. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER IMMEDIATELY.

REDUNDANT DRAINAGE

DRAINS OR SEWERS LESS THAN 1.5m DEEP WHICH ARE IN OPEN GROUND SHOULD AS FAR AS IS PRACTICABLE BE REMOVED. OTHER PIPES SHOULD BE SEALED AT BOTH ENDS AND AT ANY POINT OF CONNECTION, AND GROUT FILLED TO ENSURE THAT RATS CANNOT GAIN ACCESS.

LARGER PIPES (225mm AND ABOVE) SHOULD BE GROUT FILLED TO PREVENT SUBSIDENCE OR DAMAGE TO BUILDINGS OR SERVICES IN THE EVENT OF COLLAPSE.

DRAINAGE KEY

- SITE BOUNDARY
- SURFACE WATER DRAIN / MH
- FOUL WATER DRAIN / PPIC
- EXISTING COMBINED SEWER / MH
- EXISTING CULVERTED WATERCOURSE
- xxxxxxxxxx DRAINS TO BE ABANDONED
- 00.00 EXISTING LEVEL
- PERMEABLE PAVING
- OFFLINE CONCRETE ATTENUATION TANK

PRIOR TO CONSTRUCTION THE CONTRACTOR IS TO ENSURE THAT THE PROPOSED WORKS DO NOT CLASH WITH THE EXISTING SERVICES. THE CONTRACTOR IS TO ALLOW FOR THIS PROVISION WITHIN THE TENDER SUM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ATTAINING ALL NECESSARY APPROVALS FOR ANY SERVICE DIVERSIONS REQUIRED TO FACILITATE THE PROPOSED WORKS

DESIGN CONTINGENCY

FOR COST PURPOSES THE CONTRACTOR IS TO INCLUDE THE FOLLOWING CONTINGENCY (% OF PRIMARY CIVILS DESIGN COST) AT THE RELEVANT PROJECT STATUS INDICATED ON THE DRAWING.

S2 - CONCEPT DESIGN - 25%
S3 - SPATIAL COORDINATION - 15%
S4 - TECHNICAL DESIGN - 10%
A5 - PRODUCTION INFORMATION - 5%

SCALE BAR 1:200

0 1 2 3 4 5 10 15 20

Rev	Description	Date	By	Chkd
P03	SITE LAYOUT UPDATED (1001.4 - 20.05.25)	20.05.25	JG	AD
P02	SITE LAYOUT UPDATED (1001.4)	07.03.25	JG	AD
P01	PRELIMINARY ISSUE	05.02.25	JG	AD

Drawing Status: S2 - CONCEPT DESIGN

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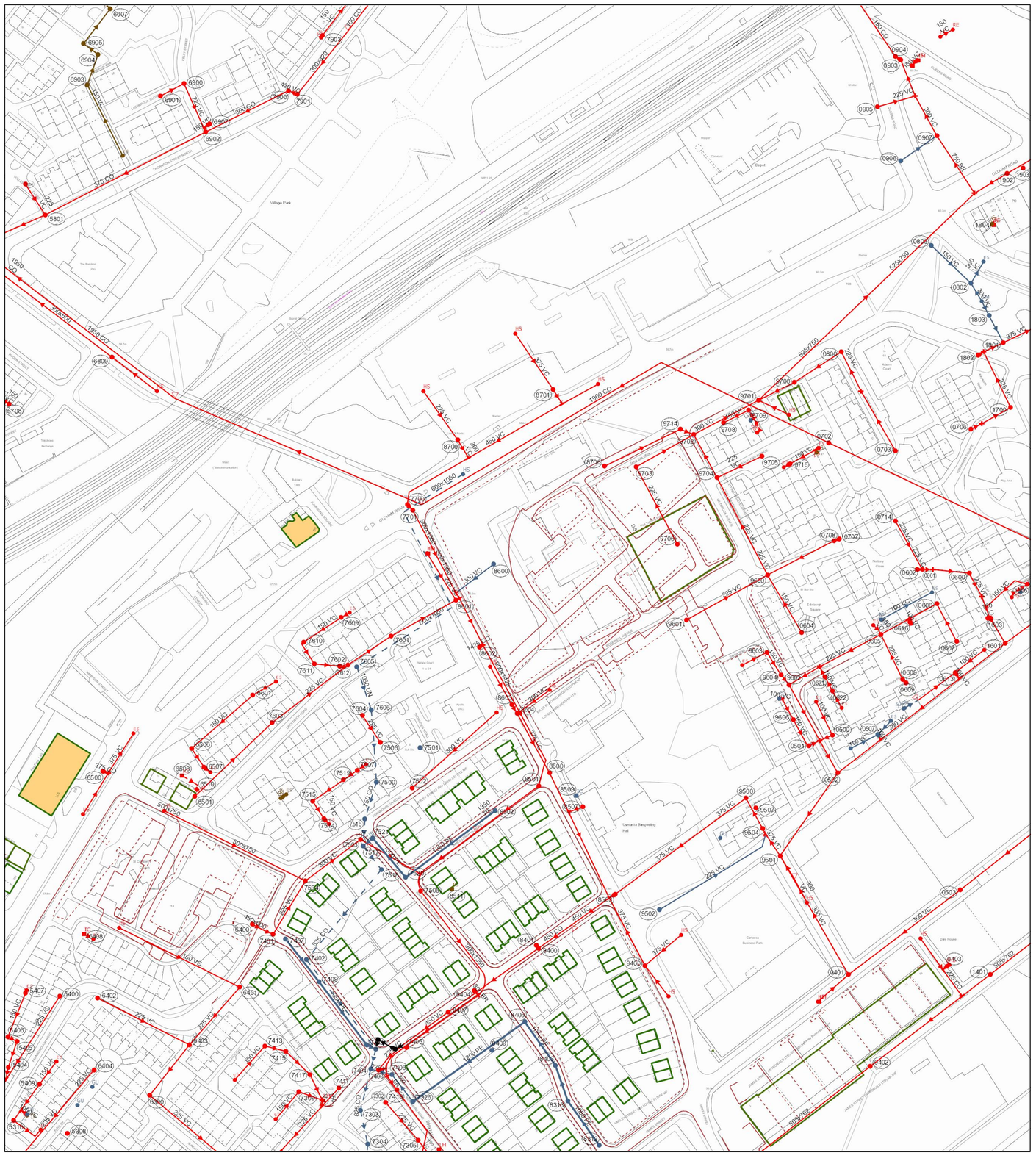
Project: OLDHAM ROAD
MILES PLATTING
FORMER APOLLO PUBLIC HOUSE

Drawing Title: DRAINAGE STRATEGY

Date	Drawn By	Checked By
FEB. 25	JG	AD

Scale at A1	Project Number	Status	Revision
1:200	33585	S2	P03

Sheet Number: 33585-SUT-ZZ-XX-DR-C-6020


Village Park
OLDHAM ROAD
GUILDHALL STREET
TOWNTON STREET NORTH
Car Park
Depot
Shelter
Pay Area
Atlantic Court
Edinburgh Square
Norbury Close
Danesbrook Court
Danesbrook Drive
Danesbrook Close
Danesbrook Gardens
Danesbrook Avenue
Danesbrook Crescent
Danesbrook Grove
Danesbrook Road
Danesbrook Lane
Danesbrook Mews
Danesbrook Terrace
Danesbrook Walk
Danesbrook Way
Danesbrook Park
Danesbrook Place
Danesbrook Square
Danesbrook Street
Danesbrook Court



UTILITY CONFIDENCE LEVELS (From High to Low)

- **(A)** Horizontal and vertical position verified visually. (Accuracy: Horizontal (±250mm) Vertical(±50mm) — GF (A) · GC (A) · GV (A))
- **(B1P)** Horizontal and vertical position detected by multiple methods with post processing of GPR data. (Estimated Accuracy: ±150mm OR ±15% of detected depth) — SW (B1P) · SW (B1P) · SW (B1P)
- **(B1)** Horizontal and vertical position detected by multiple methods. (Estimated Accuracy: ±150mm OR ±15% of detected depth) — FW (B1) · FW (B1) · FW (B1)
- **(B2P)** Horizontal and vertical position detected via post-processed GPR. (Estimated Accuracy: ±250mm OR ±40% of detected depth) — LE (B2P) · LE (B2P) · LE (B2P)
- **(B2)** Horizontal and vertical position detected by a single method. (Estimated Accuracy: ±250mm OR ±40% of detected depth) — GF (A) · GC (A) · GV (A)
- **(B3P)** Horizontal position detected via post-processed GPR. (Estimated Accuracy: ±500mm in the Horizontal - Depth is undefined) — SW(B3P) · SW (B3P) · SW (B3P)
- **(B3)** Horizontal position detected by a single method. (Estimated Accuracy: ±500mm in the Horizontal - Depth is undefined) — FW (B3) · FW (B3) · FW (B3)
- **(B4)** Assumed route. Position not detected. (Accuracy Undefined) — LE (B4) · UE (B4) · LE (B4)
- **(C)** Route transcribed from utility asset plans and correlated to visual indicators and surface features. (Accuracy Undefined) — GF (C) · GC (C) · GV (C)
- **(D)** Route transcribed from utility asset plans. (Accuracy Undefined) — SW (D) · SW (D) · SW (D)

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File Name:LS5712-U.dwg

North Arrow

NOTES:

Survey plotted on a plane Local Grid, Orientated to National Grid.
All levels relate to OS (Newlyn) Datum, Established using Network RTK.

LEGEND:

AV	AIR VALVE	MkR	MARKER POST
BH	BOREHOLE	MW	MONITORING WELL
BIN	BIN	NP	NAME PLATE
BOL	BOLLARD	PB	POST BOX
BM	BENCH MARK	PIPE	PIPE
BS	BUS STOP	PT	POST
BT	BT INSPECTION COVER	RE	RODDING EYE
CB	CATCH PIT/GULLY	RISER	TELEGRAPH RISER
CCTV	CCTV CAMERA POST	RS	ROAD SIGN
COL	COLUMN	RWP	RAIN WATER PIPE
COM	TELECOMS INSPECTION COVER	SAP	SAPLING
CTV	CABLE TV COVER	SIGN	STREET SIGN
DP	DRAIN PIPE	STUMP	TREE STUMP
DR	DRAIN	SVP	SOIL VENT PIPE
DW	DOORWAY	TB	TRAFFIC BOLLARD
EIC	ELECTRIC INSPECTION COVER	TC	TRAFFIC LIGHT CONTROL
ELB	ELECTRIC BOX	TIE	TIE WIRE
EP	ELECTRICITY POLE	TL	TRAFFIC LIGHT
ER	ELECTRIC	TM	TELEGRAPH POLE
EVC	ELECTRIC VEHICLE CHARGING	TP	TELEGRAPH POLE
FH	FIRE HYDRANT	VP	VENT PIPE
G	GULLEY	WO	WASH OUT VALVE
GLT	GROUND LIGHT	WM	WATER METER
GST	GAS STOP TAP	WST	WATER STOP TAP
GSV	GAS STOP VALVE	WSV	WATER STOP VALVE
GTY	GANTRY		BORE HOLE
IC	INSPECTION COVER		EOT/NFH
KO	KERB OUTLET		GATE
LP	LAMP POST		SURVEY STATION
MH	MANHOLE		BENCHMARK

EOT	END OF TRACE	NFH	NO FURTHER HITS
SIL	SIGNAL LOST	UTL	UNABLE TO LIFT
UTS	UNABLE TO SURVEY	OSA	OUTSIDE SURVEY AREA

BT CABLE	BT (A)	BU (A)
CABLE DUCT	DU (A)	DU (A)
CABLE TV	CA (A)	CA (A)
CCTV CABLE	CC (A)	CC (A)
ELECTRIC	EL (A)	EL (A)
FIBRE-OPTICS	FO (A)	FO (A)
GAS MAIN	GM (A)	GM (A)
GPR TRACE	GPR	GPR
FUEL LINE	FU (A)	FU (A)
HEATING	HT (A)	HT (A)
POLL WATER	FW (A)	FW (A)
SURFACE WATER	SW (A)	SW (A)
COMBINED SEWER	CW (A)	CW (A)
TELECOMS CABLE	TC (A)	TC (A)
TELEMETRY	TE (A)	TE (A)
TRAFFIC SIGNAL	TS (A)	TS (A)
UNIDENTIFIED TRACE	UL (A)	UL (A)
UNIDENTIFIED CABLE	UC (A)	UC (A)
UNIDENTIFIED PIPE	UP (A)	UP (A)

UTILITIES DISCLAIMER:

Layer Surveys utilises skilled staff and advanced electromagnetic and radar technologies for locating subsurface utilities. However, the performance of non-invasive survey equipment can be affected by uncontrollable factors. As such, Layer Surveys cannot guarantee the detection of all utilities on site. Clients should consult regional records and conduct trial excavations where necessary.

In areas with clustered services, individual lines may not be distinguishable due to signal interference and will be represented as a single annotated line, with depths shown for the shallowest utility detected. Tracing non-conductive materials and narrow/obstructed drainage may be limited.

Depth readings of underground services/features are generally accurate to +/- 10% but cannot be guaranteed. Depths typically indicate the top of the service unless otherwise stated, with gravity sewers/drains showing invert depths.

Some above-ground features may be obscured at the time of the survey, and GPR operation can be hindered in areas with dense vegetation, debris, or uneven terrain.

Existing records provided should be considered indicative only. Excavation near located services must be carried out with due diligence (Ref. HSG47).

TYPICAL FEATURE DEPTH ANNOTATION

ELECTROMAGNETIC DETECTION (EM)	DRAINAGE CAMERA INSPECTION	GROUND PENETRATING RADAR
APPROX. DEPTH TO CABLE/PIPE CABLE/PIPE OPTIC	APPROX. DEPTH TO INVERT	APPROX. SURFACE DEPTH

DUCT FORMATION:

1W:	1 WAY SINGLE DUCT
2W:	2 WAY FLAT
2W:1/2	2 WAY: 1 WIDE, 2 DEEP
4W:2/2	4 WAY: 2 WIDE, 2 DEEP
6W:3/2	6 WAY: 3 WIDE, 2 DEEP
12W:4/3	12 WAY: 4 WIDE, 3 DEEP

NB: TO BE ADAPTED TO FOR EACH CHAMBER

SHEET LAYOUT

0 2 4 6 8 10
Scale Bar (m)

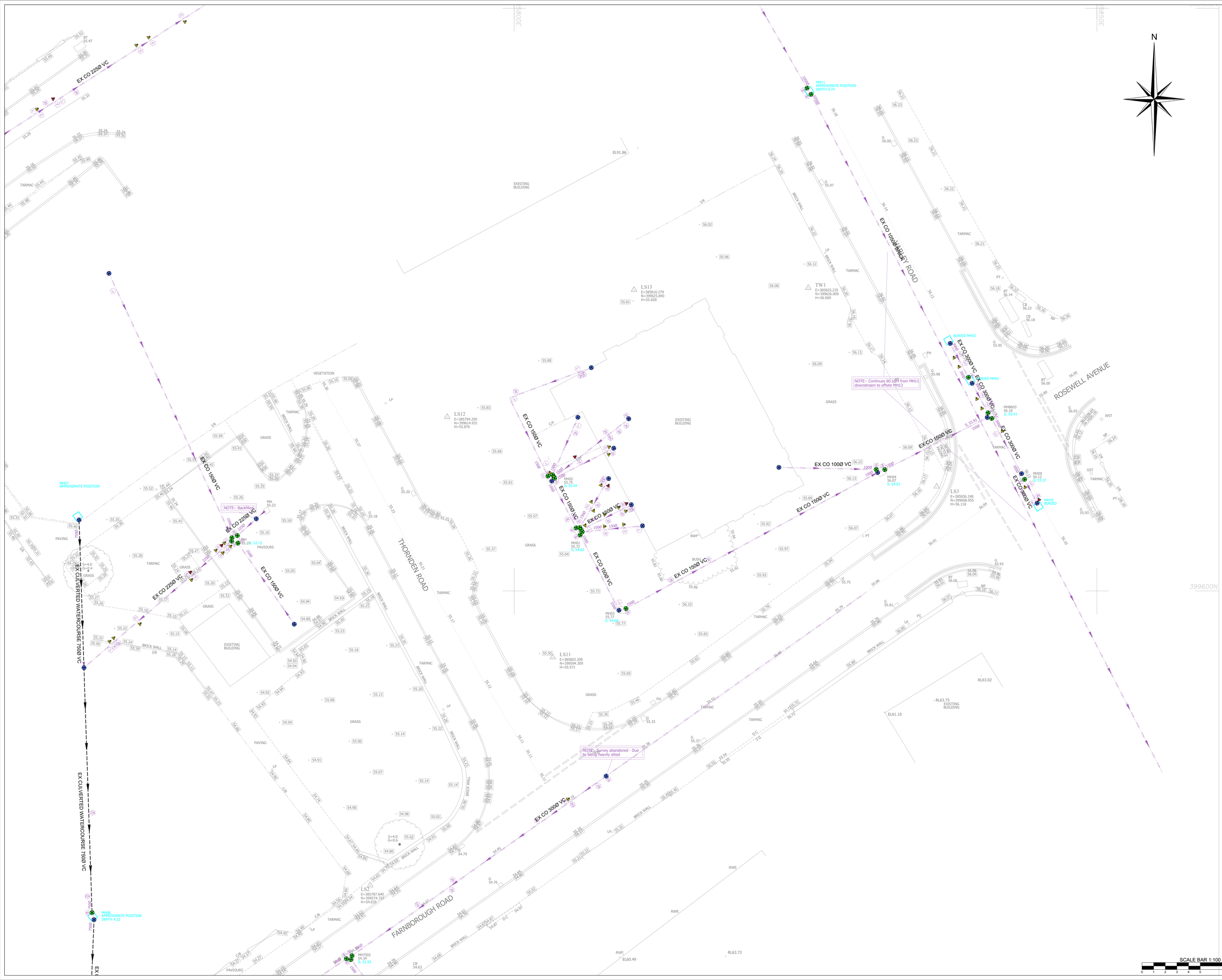
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SEE THE COMPLETE PICTURE

REV	DATE	DESCRIPTION

CLIENT
Sutcliffe

PROJECT TITLE
Utility Survey of Land at:
Apollo Pub
Miles Platting
M40 8DR

Drawing Ref. LS5712-U			Rev #
Surveyed A.Love	Drawn B.Brady	Checked A.Love	
Scale 1:200	Date Dec 24	Size A1	No. 01



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EXISTING SEWER SURVEY KEY

FOR ALL NOTES AND DEFECTS REFER TO THE SEWER SURVEY CARRIED OUT BY:

LAYER SURVEYS
JOB REF LS5628

EXISTING DRAINAGE KEY

- EX - CULVERTED WATERCOURSE
- EX - COMBINED SEWER
- EXTG FOUL WATER SEWER

ALLOW FOR ALL RETAINED EXISTING DRAINS TO BE CLEANED AND INSPECTED POST CONSTRUCTION.

Rev	Description	Date	By	Chkd
P01	PRELIMINARY ISSUE	25.11.24	JW	AD

Drawing Status
PRELIMINARY DRAWING

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Client
JIGSAW HOMES

Project
OLDHAM ROAD
MILES PLATTING
FORMER APOLLO PUBLIC HOUSE

Drawing Title
EXISTING DRAINAGE LAYOUT

Date	Drawn By	Checked By
NOV 2024	JW	AD

Scale at A0	Project Number
1:100	33585

Sheet Number	Revision
33585-SUT-ZZ-XX-DR-C-6000	P01

17 Appendix B – Greenfield runoff calculations

Greenfield runoff rate estimation for sites

www.uksuds.com | Greenfield runoff tool

Calculated by:	JAVIER GONZALEZ
Site name:	Oldham Road
Site location:	Miles Platting

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:	53.49316° N
Longitude:	2.21554° W
Reference:	647521388
Date:	Feb 05 2025 15:32

Runoff estimation approach

IH124

Site characteristics

Total site area (ha):	0.21

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):	909	909
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):	1.38	1.38
1 in 1 year (l/s):	1.2	1.2
1 in 30 years (l/s):	2.34	2.34
1 in 100 year (l/s):	2.86	2.86
1 in 200 years (l/s):	3.26	3.26

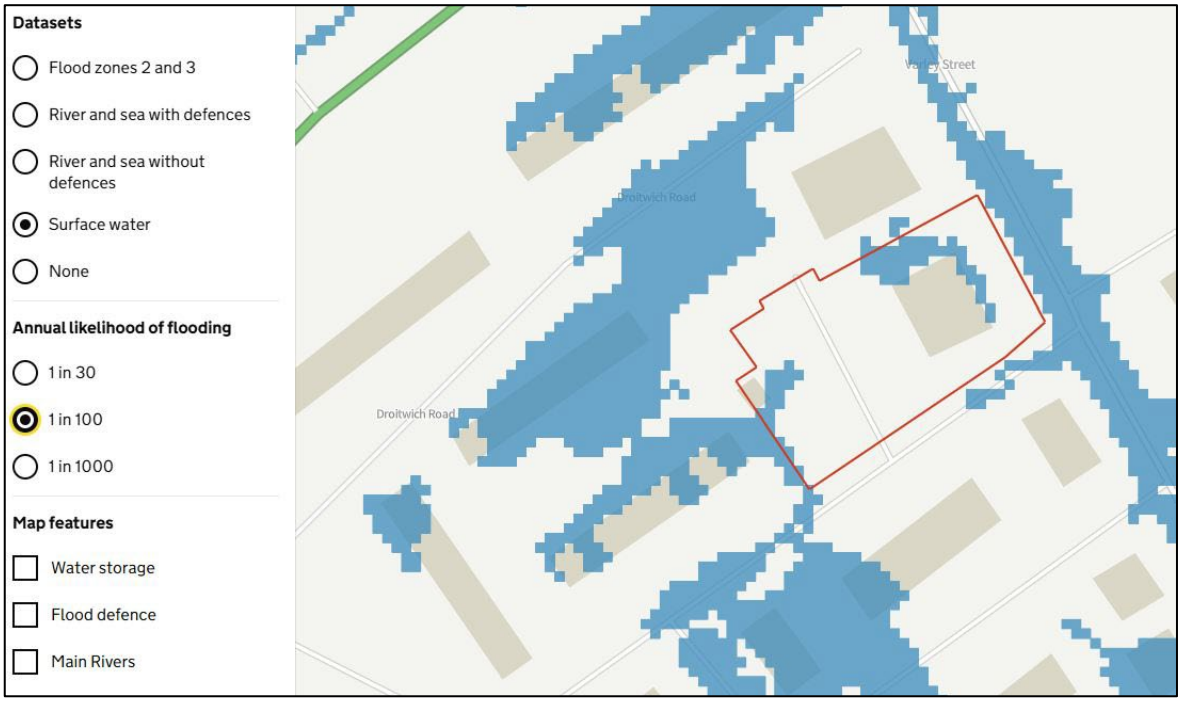
This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement , which can both be found at www.uksuds.com/terms-and-conditions.htm. The outputs from this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

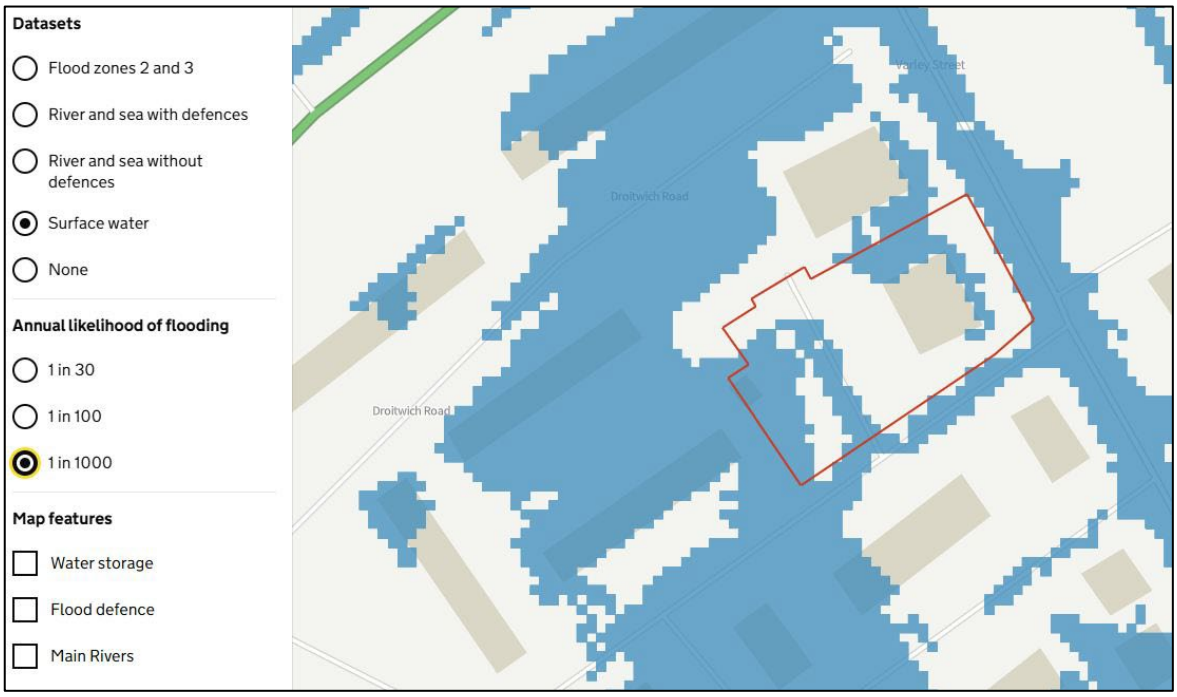
18 Appendix C – Environmental Agency Data

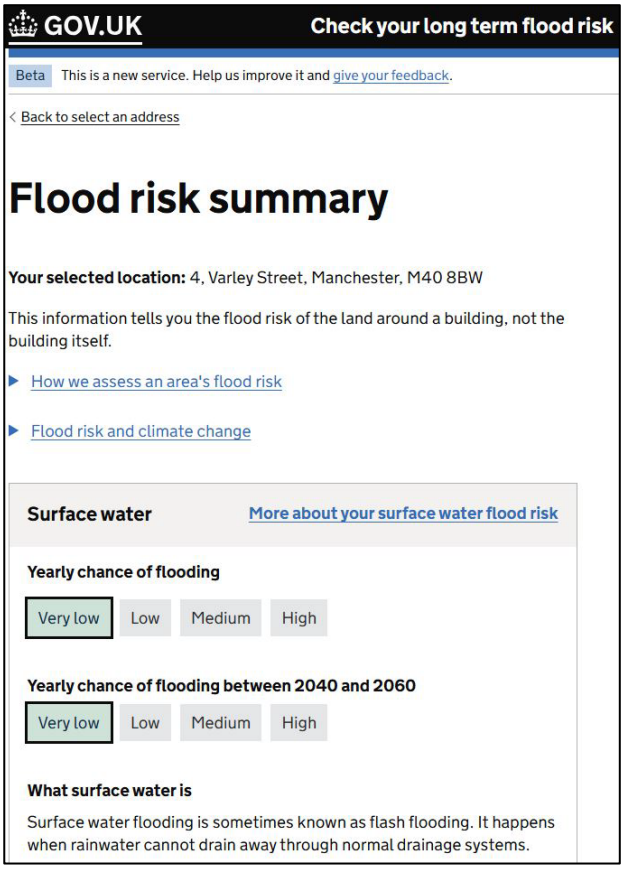
EA Flood maps






Datasets
Flood zones 2 and 3
River and sea with defences
River and sea without defences
Surface water
None
Annual likelihood of flooding
1 in 30
1 in 100
1 in 1000
Map features
Water storage
Flood defence
Main Rivers
Droitwich Road
Droitwich Road


Datasets
Flood zones 2 and 3
River and sea with defences
River and sea without defences
Surface water
None
Annual likelihood of flooding
1 in 30
1 in 100
1 in 1000
Map features
Water storage
Flood defence
Main Rivers
Droitwich Road
Droitwich Road



GOV.UK Check your long term flood risk

Beta This is a new service. Help us improve it and give your feedback.

< Back to select an address

Flood risk summary

Your selected location: 4, Varley Street, Manchester, M40 8BW

This information tells you the flood risk of the land around a building, not the building itself.

▶ How we assess an area's flood risk

▶ Flood risk and climate change

Surface water More about your surface water flood risk

Yearly chance of flooding

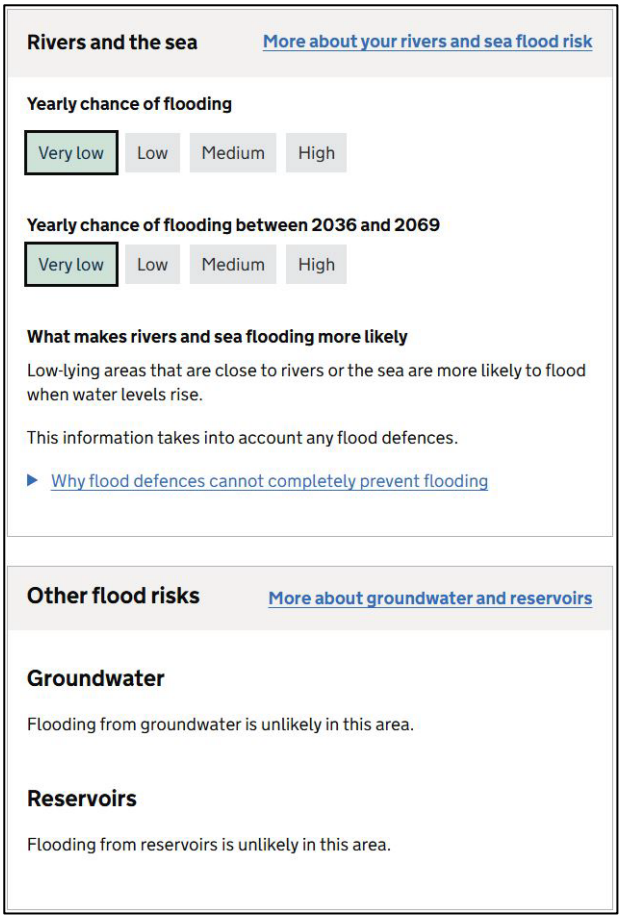
Very low | Low | Medium | High

Yearly chance of flooding between 2040 and 2060

Very low | Low | Medium | High

What surface water is

Surface water flooding is sometimes known as flash flooding. It happens when rainwater cannot drain away through normal drainage systems.



Rivers and the sea More about your rivers and sea flood risk

Yearly chance of flooding

Very low | Low | Medium | High

Yearly chance of flooding between 2036 and 2069

Very low | Low | Medium | High

What makes rivers and sea flooding more likely

Low-lying areas that are close to rivers or the sea are more likely to flood when water levels rise.

This information takes into account any flood defences.

▶ Why flood defences cannot completely prevent flooding

Other flood risks More about groundwater and reservoirs

Groundwater

Flooding from groundwater is unlikely in this area.

Reservoirs

Flooding from reservoirs is unlikely in this area.

19 Appendix D – Correspondence

From:	seweradoptions@uuplc.co.uk
To:	James Whelby
Subject:	UU REF 06698383 - Wastewater PDE - Former Apollo Public House
Date:	02 December 2024 11:07:11

Good Morning James,

Thank you for your WW PDE application, please see our reply below:

UU REF 06698383 - WW PDE – Former Apollo Public House, Oldham

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 6723 723 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 a point most convenient to yourself to any of the combined public sewers within close proximity to the site

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.

A culverted watercourse cuts through the site and we would anticipate that surface water flows will drain to this asset

Sewers:

Existing sewers run through the site and we will not permit building over them, all easements for the sewers must be met

Regards

Anthony

Anthony Laithwaite
Ww Engineer
Developer Services & Metering
Customer Services

T: 01925 429090
unitedutilities.com

---------- Original Message ----------
From: James Whelby [james.whelby@sutcliffe.co.uk]
Sent: 29/11/2024 10:19
To: seweradoptions@uuplc.co.uk
Subject: Automatic reply: 06698383 - Wastewater PDE - Former Apollo Public House

Hi,

I am away on annual leave unti Monday 12th of June. I will pick up any messages then. If urgent please contact our office and one of our senior team will be able to help.

Kind Regards

James

The information contained in this e-mail is intended only

From: Get flood risk information for planning
To: andy.day@sutcliffe.co.uk
Subject: Confirmation of order for flood risk data. Your reference number HDWEXEWXPHAV
Date: 28 March 2025 09:39:39

You don't often get email from get.flood.risk.information.for.planning@notifications.service.gov.uk. Learn why this is important

GOV.UK

Dear Andy Day,

Thank you for ordering flood risk data.

Location data requested for: 385789.43,399609.62 easting and northing coordinates.

Your reference number is: HDWEXEWXPHAV.

Your location is in flood zone 1, so it is unlikely we will have any data for it.

We will email you if no data is available.

Otherwise, you should receive your data within 20 working days.

You should not submit another request for data for the same location after you have placed an order. We will not action a request for the same location if the email address is the same. If you request the same data twice, it will not speed up your order. If you have any questions about your order, please use the contact details below.

Contact us

Do not reply to this email. This inbox is not checked regularly.

If you have any questions about your order, or no longer need the data, contact the Greater Manchester Merseyside and Cheshire Environment Agency team at inforequests.gmmc@environment-agency.gov.uk. Make sure you include your reference number.

From: Get flood risk information for planning
To: andy.day@sutcliffe.co.uk
Subject: Ordered flood risk data not available. Your reference number HDWEXEWXPHAV
Date: 28 March 2025 09:39:59

You don't often get email from get.flood.risk.information.for.planning@notifications.service.gov.uk. Learn why this is important

GOV.UK

Dear Andy Day,

Thank you for ordering flood risk data.

Location data requested for: 385789.43,399609.62 easting and northing coordinates.

We do not have any flood risk data for this location.

However, flooding may have happened here in the past, as our records are not comprehensive.

Why do we not have data for this location?

We do not hold any detailed flood modelling data for your site, as it is not within 150 metres of an area at risk of flooding from rivers or the sea.

We do not hold records of historical flood events from rivers or the sea affecting the area local to this site.

Help with flood risk assessments

If you have requested this information to help inform a development proposal, you can find out more about the use of Environment Agency information for flood risk assessments on GOV.UK:

- flood risk assessments for planning applications: https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications

- pre-planning application enquiry form: https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion

Surface water and other sources of flooding

View surface water flood maps online at: https://www.gov.uk/check-long-term-flood-risk

When using the surface water map on the check your long term flood risk service the following considerations apply:

- surface water extents are suitable for use in planning
- surface water climate change scenarios may help to inform risk assessments, but the available data fall short of what is required to assess planned development
- surface water depth information should not be used for planning purposes

To find out about other factors that might affect the flood risk of this location, you should also check:

Reservoir flood risk: https://www.gov.uk/check-long-term-flood-risk

Groundwater flood risk:

- the British Geological Survey groundwater flooding data: https://www.bgs.ac.uk/datasets/groundwater-flooding/
- groundwater: current status and flood risk: https://www.gov.uk/government/collections/groundwater-current-status-and-flood-risk
- the guide on mining and groundwater constraints for development: https://www.gov.uk/guidance/mining-and-groundwater-constraints-for-development
- further information may be available from the lead local flood authority (LLFA)

Your local planning authority's strategic flood risk assessment

(SFRA), which includes future flood risk.

View information on climate change allowances: https://www.gov.uk/government/publications/peak-river-flow-climate-change-allowances-by-management-catchment

This information is provided subject to the Open Government Licence: https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/

We respond to requests for recorded information that we hold under the Freedom of Information Act 2000 (FOIA) and the associated Environmental Information Regulations 2004 (EIR). If you need information for insurance purposes, you should send an insurance related request by email to enquiries@environment-agency.gov.uk

Data available online

Many of our flood datasets are available online.

You can view and download flood risk maps on flooding from surface water, reservoirs, and rivers and the sea (accounting for existing defences) from our website at: https://www.gov.uk/check-long-term-flood-risk

Flood map for planning:

- flood zone 2: https://data.gov.uk/dataset/cf494c44-05cd-4060-a029-35937970c9c6/flood-map-for-planning-rivers-and-sea-flood-zone-2
- flood zone 3: https://data.gov.uk/dataset/bed63fc1-dd26-4685-b143-2941088923b3/flood-map-for-planning-rivers-and-sea-flood-zone-3
- water storage areas: https://data.gov.uk/dataset/cae4e24c-0342-48aa-8a93-d727ce582b3c/flood-map-for-planning-rivers-and-sea-flood-storage-areas
- flood defences: https://data.gov.uk/dataset/76828b72-3c9c-

4700-83c7-d7c36047d322/flood-map-for-planning-rivers-and-sea-spatial-flood-defences-without-standardised-attributes

- areas benefiting from defences: https://data.gov.uk/dataset/eaa328e7-2eea-4cbf-bd6b-c66121981ba1/flood-map-for-planning-rivers-and-sea-areas-benefiting-from-defences

Other online data:

- historic flood map: https://data.gov.uk/dataset/76292bec-7d8b-43e8-9c98-02734fd89c81/historic-flood-map
- assets and defences: https://environment.data.gov.uk/asset-management/index.html
- current flood warnings: https://check-for-flooding.service.gov.uk/
- open data: https://data.gov.uk/

Contact us

Do not reply to this email. This inbox is not checked regularly.

If you have any questions about your request, contact the Greater Manchester Merseyside and Cheshire area team at inforequests.gmmc@environment-agency.gov.uk. Make sure you include your reference number.

Regards,

Flood map for planning service
Environment Agency
https://flood-map-for-planning-service.gov.uk/

20 Appendix E – InfoDrainage Calculations

Project:	Date:		
OLDHAM ROAD MILES PLATTING SW Calcs	21/03/2025		
	Designed by:	Checked by:	Approved By:
	JG		
Report Details: Type: Junctions Storm Phase: Surface Network 1	18-20 HARRINGTON STREET: L2 9QA LIVERPOOL		

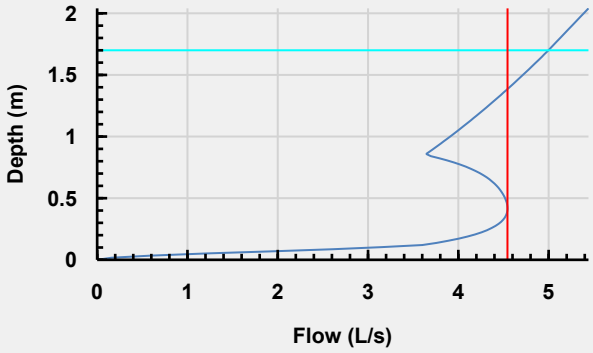
Name	Junction Type	Easting (m)	Northing (m)	Cover Level (m)	Depth (m)	Invert Level (m)	Chamber Shape	Diameter (m)
PS5	Manhole	385788.459	399578.795	54.977	1.375	53.602	Circular	1.200
PS11	Manhole	385798.883	399614.256	55.726	1.579	54.147	Circular	1.200
PS3	Manhole	385803.551	399612.808	55.777	0.650	55.127	Circular	0.450
PS10	Manhole	385804.386	399620.648	55.600	1.273	54.328	Circular	0.450
PS9	Manhole	385821.554	399631.039	55.600	1.022	54.578	Circular	0.450
PS8	Manhole	385833.028	399612.590	55.600	0.750	54.850	Circular	0.450
PS14	Manhole	385770.023	399599.383	55.150	1.985	53.165	Circular	1.200
PS13	Manhole	385770.954	399602.881	55.188	1.987	53.201	Circular	1.500
PS12	Manhole	385777.822	399607.421	55.323	2.040	53.283	Circular	1.200
PS7	Manhole	385783.370	399598.852	55.252	1.867	53.386	Circular	1.200
PS4	Manhole	385785.986	399600.454	55.339	1.078	54.262	Circular	0.600
PS2	Manhole	385797.440	399584.073	55.150	0.639	54.512	Circular	0.450
PS1	Manhole	385829.651	399606.198	55.600	0.600	55.000	Circular	0.450
PS6	Manhole	385783.252	399586.458	54.895	1.386	53.509	Circular	1.350

Name	Lock
PS5	None
PS11	None
PS3	None
PS10	None
PS9	None
PS8	None
PS14	None
PS13	None
PS12	None
PS7	None
PS4	None
PS2	None
PS1	None
PS6	None

Project:	Date:		
OLDHAM ROAD MILES PLATTING SW Calcs	21/03/2025		
	Designed by:	Checked by:	Approved By:
	JG		
Report Details: Type: Junctions Storm Phase: Surface Network 1	18-20 HARRINGTON STREET: L2 9QA LIVERPOOL		

Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
PS5	Outlet	PS5-S6	Free Discharge
PS11	Outlet	PS11-PS12	Free Discharge
PS3	Outlet	PS3-PS4 (1)	Free Discharge
PS10	Outlet	PS10-PS11	Free Discharge
PS9	Outlet	PS9-PS10	Free Discharge
PS8	Outlet	PS8-PS9	Free Discharge
PS13	Outlet	PS13-S14	Hydro-Brake®
	Invert Level (m)	53.201	
	Design Depth (m)	1.700	
	Design Flow (L/s)	5.0	
	Objective	Minimise Upstream Storage Requirements	
	Application	Surface Water Only	
	Sump Available	☑	
	Unit Reference	SHE-0095-5000-1700-5000	
PS12	Outlet	PS12-PS13	Free Discharge
PS7	Outlet	PS7-PS12	Free Discharge
PS4	Outlet	PS4-PS7	Free Discharge
PS2	Outlet	PS2-PS4	Free Discharge
PS1	Outlet	PS1-PS2	Free Discharge
PS6	Outlet	PS6-PS7	Free Discharge





Porous Paving

Type : Porous Paving

Dimensions

Exceedance Level (m)	54.700
Depth (m)	0.300
Base Level (m)	54.400
Paving Layer Depth (mm)	130
Membrane Percolation (m/hr)	360.0
Porosity (%)	30
Length (m)	12.239
Long. Slope (1:X)	48.00
Width (m)	4.139
Total Volume (m³)	2.584

Advanced

Conductivity (m/hr)	50.0



Porous Paving (1)

Type : Porous Paving

Dimensions

Exceedance Level (m)	55.000
Depth (m)	0.300
Base Level (m)	54.700
Paving Layer Depth (mm)	130
Membrane Percolation (m/hr)	360.0
Porosity (%)	30
Length (m)	14.846
Long. Slope (1:X)	48.00
Width (m)	3.894
Total Volume (m³)	2.948

Advanced

Conductivity (m/hr)	50.0



Porous Paving (2)

Type : Porous Paving

Dimensions

Exceedance Level (m)	55.200
Depth (m)	0.300
Base Level (m)	54.900
Paving Layer Depth (mm)	130
Membrane Percolation (m/hr)	360.0
Porosity (%)	30
Length (m)	9.263
Long. Slope (1:X)	48.00
Width (m)	3.786
Total Volume (m³)	1.789

Advanced

Conductivity (m/hr)	50.0



Porous Paving (3)

Type : Porous Paving

Dimensions

Exceedance Level (m)	55.760
Depth (m)	0.300
Base Level (m)	55.460
Paving Layer Depth (mm)	130
Membrane Percolation (m/hr)	360.0
Porosity (%)	30
Length (m)	30.109
Long. Slope (1:X)	103.00
Width (m)	10.554
Total Volume (m³)	16.207

Advanced

Conductivity (m/hr)	50.0



Porous Paving (4)

Type : Porous Paving

Dimensions

Exceedance Level (m)	55.450
Depth (m)	0.300
Base Level (m)	55.150
Paving Layer Depth (mm)	130
Membrane Percolation (m/hr)	360.0
Porosity (%)	30
Length (m)	18.001
Long. Slope (1:X)	103.00
Width (m)	8.246
Total Volume (m³)	7.570

Advanced

Conductivity (m/hr)	50.0

Project:	Date:		
OLDHAM ROAD MILES PLATTING SW Calcs	21/03/2025		
	Designed by: JG	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Surface Network 1	18-20 HARRINGTON STREET: L2 9QA LIVERPOOL		



Cellular Storage

Type : Cellular Storage

Dimensions

Exceedance Level (m)	55.400
Depth (m)	1.000
Base Level (m)	53.640
Number of Crates Long	10
Number of Crates Wide	4
Number of Crates High	5
Porosity (%)	95
Crate Length (m)	1
Crate Width (m)	1
Crate Height (m)	0.2
Total Volume (m³)	38.760

Project:	Date:		
OLDHAM ROAD MILES PLATTING SW Calcs	21/03/2025		
	Designed by:	Checked by:	Approved By:
	JG		
Report Details: Type: Connections Storm Phase: Surface Network 1	18-20 HARRINGTON STREET: L2 9QA LIVERPOOL		

Name	Length (m)	Connection Type	Slope (1:X)	Manning's n	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)	Upstream Invert Level (m)
PS10-PS11	8.434	Pipe	46.751		0.6	150	55.600	54.328
PS8-PS9	21.726	Pipe	79.994		0.6	150	55.600	54.850
PS9-PS10	20.068	Pipe	79.985		0.6	150	55.600	54.578
PS13-S14	3.619	Pipe	99.978		0.6	150	55.188	53.201
PS4-PS7	3.068	Pipe	3.501		0.6	150	55.339	54.262
PS7-PS12	10.209	Pipe	99.986		0.6	225	55.252	53.386
PS12-PS13	8.234	Pipe	100.043		0.6	225	55.323	53.283
PS6-PS7	12.395	Pipe	100.039		0.6	225	54.895	53.509
PS1-PS2	39.078	Pipe	79.996		0.6	150	55.600	55.000
PS5-S6	9.264	Pipe	100.043		0.6	225	54.977	53.602
PS2-PS4	19.988	Pipe	80.016		0.6	150	55.150	54.512
PS3-PS4 (1)	21.474	Pipe	24.811		0.6	150	55.777	55.127
PS11-PS12	22.142	Pipe	25.636		0.6	225	55.726	54.147
Pipe	2.843	Pipe	2.166		0.6	150	56.052	55.460
Pipe (1)	3.165	Pipe	1.624		0.6	150	55.625	55.150
Pipe (2)	2.286	Pipe	1.509		0.6	150	55.393	54.900
Pipe (3)	2.303	Pipe	1.934		0.6	150	55.309	54.700
Pipe (4)	1.933	Pipe	2.422		0.6	150	54.955	54.400
Pipe (5)	6.549	Pipe	172.348		0.6	225	55.400	53.640

Name	Downstream Cover Level (m)	Downstream Invert Level (m)	Part Family	Lock	Flow Restriction (L/s)	Culvert Type	Culvert Entrance
PS10-PS11	55.726	54.147		None		(None)	(None)
PS8-PS9	55.600	54.578		None		(None)	(None)
PS9-PS10	55.600	54.328		None		(None)	(None)
PS13-S14	55.150	53.165		None	5.4	(None)	(None)
PS4-PS7	55.252	53.386		None		(None)	(None)
PS7-PS12	55.323	53.283		None		(None)	(None)
PS12-PS13	55.188	53.201		None		(None)	(None)
PS6-PS7	55.252	53.386		None		(None)	(None)
PS1-PS2	55.150	54.512		None		(None)	(None)
PS5-S6	54.895	53.509		None		(None)	(None)
PS2-PS4	55.339	54.262		None		(None)	(None)
PS3-PS4 (1)	55.339	54.262		None		(None)	(None)
PS11-PS12	55.323	53.283		None		(None)	(None)
Pipe	55.726	54.147		None		(None)	(None)
Pipe (1)	55.188	53.201		None		(None)	(None)
Pipe (2)	55.252	53.386		None		(None)	(None)
Pipe (3)	54.895	53.509		None		(None)	(None)
Pipe (4)	54.977	53.602		None		(None)	(None)
Pipe (5)	54.977	53.602		None		(None)	(None)

Project:	Date:		
OLDHAM ROAD MILES PLATTING SW Calcs	21/03/2025		
	Designed by:	Checked by:	Approved By:
	JG		
Report Details: Type: Inflow Summary Storm Phase: Surface Network 1	18-20 HARRINGTON STREET: L2 9QA LIVERPOOL		

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
20.37m - 4.001	PS6		Time of Concentration	0.002	100	0	100	0.002
32.96m - 2.003	Porous Paving (2)		Time of Concentration	0.003	100	0	100	0.003
50.04m - 1.003	Porous Paving (3)		Time of Concentration	0.005	100	0	100	0.005
63.67m - 4.001	Porous Paving (1)		Time of Concentration	0.006	100	0	100	0.006
71.41m - 4.000	Porous Paving		Time of Concentration	0.007	100	0	100	0.007
91.70m - 1.002	PS10		Time of Concentration	0.009	100	0	100	0.009
102.04m - 1.002	PS10		Time of Concentration	0.010	100	0	100	0.010
107.36m - 2.001	PS2		Time of Concentration	0.011	100	0	100	0.011
127.40m - 1.000	PS8		Time of Concentration	0.013	100	0	100	0.013
149.47m - 1.004	Porous Paving (4)		Time of Concentration	0.015	100	0	100	0.015
197.48m - 3.000	PS3		Time of Concentration	0.020	100	0	100	0.020
267.47m - 1.003	Porous Paving (3)		Time of Concentration	0.027	100	0	100	0.027
271.66m - 2.000	PS1		Time of Concentration	0.027	100	0	100	0.027
TOTAL		**0.0**		**0.155**				**0.155**

Project:	Date:		
OLDHAM ROAD MILES PLATTING SW Calcs	21/03/2025		
	Designed by:	Checked by:	Approved By:
	JG		
Report Details: Type: Network Design Criteria Storm Phase: Surface Network 1	18-20 HARRINGTON STREET: L2 9QA LIVERPOOL		

Flow Options

Peak Flow Calculation	(UK) Modified Rational Method
Min. Time of Entry (mins)	5
Max. Travel Time (mins)	30

Pipe Options

Lock Slope Options	None
Design Options	Minimise Excavation
Design Level	Level Soffits
Min. Cover Depth (m)	1.200
Min. Slope (1:X)	500.00
Max. Slope (1:X)	40.00
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	☐
Reduce Channel Depths	☐

Manhole Options

Apply Offset	☐

Project:	Date:		
OLDHAM ROAD MILES PLATTING SW Calcs	21/03/2025 Designed by: JG	Checked by:	Approved By:
Report Details: Type: Outfall Details Storm Phase: Surface Network 1	18-20 HARRINGTON STREET: L2 9QA LIVERPOOL		

Outfalls

Outfall	Outfall Type	Gated	Fixed Surcharged Level (m)	Level Curve
PS14	Free Discharge			

Project:	Date:		
OLDHAM ROAD MILES PLATTING SW Calcs	21/03/2025		
	Designed by: JG	Checked by:	Approved By:
Report Details: Type: Rainfall Analysis Criteria	18-20 HARRINGTON STREET: L2 9QA LIVERPOOL		

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Use Catchment Values
Junction Flood Risk Margin (mm)	0
Perform No Discharge Analysis	☐

Project:	Date:		
OLDHAM ROAD MILES PLATTING SW Calcs	21/03/2025		
	Designed by: JG	Checked by:	Approved By:
Report Details: Type: Inflows Summary Storm Phase: Surface Network 1	18-20 HARRINGTON STREET: L2 9QA LIVERPOOL		

FSR: 100 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
71.41m - 4.000	FSR: 100 years: +45 %: 15 mins: Summer	0.01	5.0	2.187
271.66m - 2.000	FSR: 100 years: +45 %: 15 mins: Summer	0.03	19.2	8.317
91.70m - 1.002	FSR: 100 years: +45 %: 15 mins: Summer	0.01	6.5	2.807
107.36m - 2.001	FSR: 100 years: +45 %: 15 mins: Summer	0.01	7.6	3.284
267.47m - 1.003	FSR: 100 years: +45 %: 15 mins: Summer	0.03	18.9	8.191
149.47m - 1.004	FSR: 100 years: +45 %: 15 mins: Summer	0.01	10.5	4.580
127.40m - 1.000	FSR: 100 years: +45 %: 15 mins: Summer	0.01	9.0	3.902
197.48m - 3.000	FSR: 100 years: +45 %: 15 mins: Summer	0.02	13.9	6.047
102.04m - 1.002	FSR: 100 years: +45 %: 15 mins: Summer	0.01	7.2	3.122
63.67m - 4.001	FSR: 100 years: +45 %: 15 mins: Summer	0.01	4.5	1.950
32.96m - 2.003	FSR: 100 years: +45 %: 15 mins: Summer	0.00	2.3	1.011
20.37m - 4.001	FSR: 100 years: +45 %: 15 mins: Summer	0.00	1.4	0.624
50.04m - 1.003	FSR: 100 years: +45 %: 15 mins: Summer	0.01	3.5	1.536

Project:	Date:		
OLDHAM ROAD MILES PLATTING SW Calcs	21/03/2025		
	Designed by: JG	Checked by:	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Surface Network 1	18-20 HARRINGTON STREET: L2 9QA LIVERPOOL		

FSR: 100 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
PS5	FSR: 100 years: +45 %: 120 mins: Winter	54.977	53.602	54.570	0.968	18.3	1.095	0.000	3.2	57.150	Surcharged
PS11	FSR: 100 years: +45 %: 120 mins: Winter	55.726	54.147	54.571	0.424	8.6	0.479	0.000	8.6	29.220	Surcharged
PS3	FSR: 100 years: +45 %: 15 mins: Summer	55.777	55.127	55.192	0.065	13.9	0.010	0.000	13.7	6.036	OK
PS10	FSR: 100 years: +45 %: 120 mins: Winter	55.600	54.328	54.571	0.243	7.1	0.039	0.000	7.2	20.957	Surcharged
PS9	FSR: 100 years: +45 %: 15 mins: Summer	55.600	54.578	54.646	0.068	8.8	0.011	0.000	8.5	3.890	OK
PS8	FSR: 100 years: +45 %: 15 mins: Summer	55.600	54.850	54.923	0.073	9.0	0.012	0.000	8.8	3.900	OK
PS14	FSR: 100 years: +45 %: 240 mins: Winter	55.150	53.165	53.216	0.051	4.5	0.000	0.000	4.5	103.484	OK
PS13	FSR: 100 years: +45 %: 120 mins: Winter	55.188	53.201	54.569	1.368	5.6	2.418	0.000	4.5	56.692	Surcharged
PS12	FSR: 100 years: +45 %: 120 mins: Winter	55.323	53.283	54.570	1.287	8.6	1.456	0.000	5.0	59.081	Surcharged
PS7	FSR: 100 years: +45 %: 120 mins: Winter	55.252	53.386	54.570	1.184	18.0	1.339	0.000	3.6	66.309	Surcharged
PS4	FSR: 100 years: +45 %: 120 mins: Winter	55.339	54.262	54.570	0.309	12.9	0.087	0.000	12.8	37.630	Surcharged
PS2	FSR: 100 years: +45 %: 15 mins: Summer	55.150	54.512	54.762	0.251	25.0	0.040	0.000	22.8	11.532	Surcharged
PS1	FSR: 100 years: +45 %: 15 mins: Summer	55.600	55.000	55.126	0.126	19.2	0.020	0.000	17.4	8.283	OK
PS6	FSR: 100 years: +45 %: 120 mins: Winter	54.895	53.509	54.571	1.061	18.4	1.518	0.000	3.3	58.331	Surcharged

Project:	Date:		
OLDHAM ROAD MILES PLATTING SW Calcs	21/03/2025		
	Designed by: JG	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Surface Network 1	18-20 HARRINGTON STREET: L2 9QA LIVERPOOL		

FSR: 100 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Porous Paving	FSR: 100 years: +45 %: 120 mins: Winter	54.958	54.731	0.303	0.331	1.6	3.134	0.550	0.000	2.7	3.854	-21.317	Flood
Porous Paving (1)	FSR: 100 years: +45 %: 240 mins: Summer	55.311	54.707	0.302	0.007	1.3	2.161	0.155	0.000	0.7	3.792	26.701	Flood
Porous Paving (2)	FSR: 100 years: +45 %: 360 mins: Summer	55.394	54.904	0.301	0.004	0.5	0.937	0.025	0.000	0.3	2.567	47.619	Flood
Porous Paving (3)	FSR: 100 years: +45 %: 360 mins: Summer	56.055	55.473	0.303	0.013	4.9	14.681	1.456	0.000	2.6	16.537	9.413	Flood
Porous Paving (4)	FSR: 100 years: +45 %: 240 mins: Summer	55.627	55.159	0.303	0.009	3.0	5.662	0.487	0.000	1.2	7.680	25.204	Flood
Cellular Storage	FSR: 100 years: +45 %: 120 mins: Winter	54.570	54.570	0.930	0.930	17.8	35.347	0.000	0.000	2.9	18.629	8.806	OK