



Flood Risk Assessment & Drainage Strategy

9 Manor House Gardens, Bury, BL9 9FY

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FLOOD RISK ASSESSMENT

INTRODUCTION

1.1 Development Site and Proposals

- 1.1.1 The site at 9 Manor House Gardens, Bury, BL9 9FY is to be developed with a single ground floor extension attached to the east of the existing house which will contain an indoor swimming pool with an associated sauna and plant room. A porch is also proposed to the front of the existing house.
- 1.1.2 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. This report will consider the flood risk to the site from all sources.
- 1.1.3 The site limits, as shown in Figure 1.1 below, represent an enclosed area of 931m² (0.09 ha).

Figure 1.1: Site Boundary as shown in red; 9 Manor House Gardens. (Google Earth Pro, 2026).



- 1.1.4 Proposed architectural drawings have been included in Appendix A: Architectural Drawings for reference.
- 1.1.5 The location data for the site is summarised in Table 1.1 below.

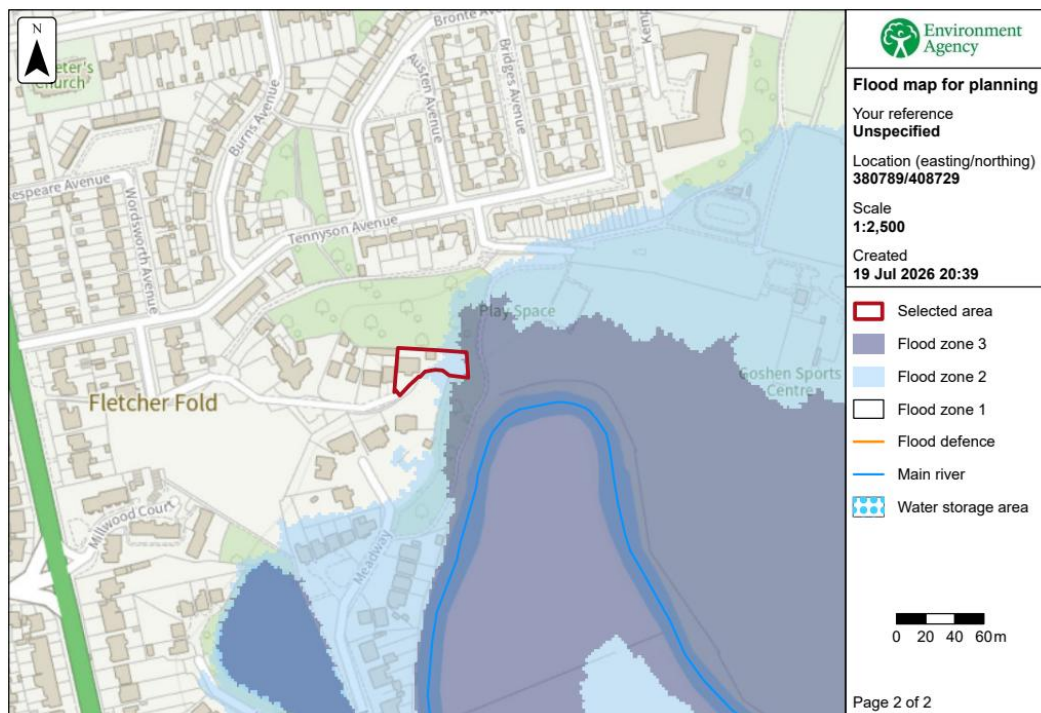
Table 1.1: Location data for development site at 9 Manor House Gardens, Bury.

Postcode	Grid Ref.	Easting	Northing	Latitude	Longitude	Area
BL9 9FY	SD807087	380787	408738	53.574883	-2.2916172	931m ²

1.2 Flood Risk for Development

- 1.2.1 This report will identify and assess the risk associated with all forms of flooding to the development. Where necessary, it will demonstrate how these flood risks will be managed so that the development remains safe throughout its lifetime, taking climate change into account.
- 1.2.2 In investigating the flood risk relating to the site, the Environment Agency flood risk mapping has been reviewed and has confirmed that the site lies within Flood Zones 1, 2 and 3: least, medium and high risk (see Figure 1.2 below, as well as Appendix B: Flood Map for Planning).

Figure 1.2: Environment Agency flood map for planning, showing the site's development area (outlined in red) to be in Flood Zone 1 (least risk) (Environment Agency, 2026).



- 1.2.3 The development area within the site itself lies within Flood Zones 1 and 2, therefore the development area is considered at low risk of flooding from rivers and the sea.

PLANNING CONTEXT

1.3 Flood Risk Responsibilities

- 1.3.1 Under statutory planning legislation, the various stakeholders involved in a development's planning permission process have specific responsibilities and duties imposed on them with

regard to flood avoidance. These stakeholders include Local Planning Authorities, developers, and landowners.

1.4 Local Planning Authorities

1.4.1 The National Planning Policy Framework (NPPF), a document published by the UK Government and periodically updated, outlines the duties imposed on Local Planning Authorities, including those provisions specific to protecting people and properties from flooding. To this end, authorities are required to undertake the following processes prior to granting planning permission:

1. Assess flood risk:

- The Local Planning Authority (LPA) must undertake a broad Strategic Flood Risk Assessment to inform the planning framework for the wider area and identify development sites that are in areas of low flood risk.
- For development sites greater than one hectare in area, or in areas of flood risk, a site-specific flood risk assessment must be prepared prior to approval being granted.

2. Avoid flood risk:

- The LPA should apply the Sequential Test, as far as practicable, to locate alternative development sites in areas at the least risk of flooding, and carry out the Exception Test if required (see Section 3: Flood Risk Assessment Methodology).

3. Manage and mitigate flood risk:

- Where alternative sites of a lower flood risk are not available, the LPA should ensure that the development is flood resilient and resistant, safe for the users over the development's lifetime, and will not increase overall flood risk, pursuant to the 'no detriment' principle for developments.
- LPAs and developers should manage flood risk through the inclusion of sustainable drainage system (SuDS) techniques.

1.5 Developers

1.5.1 Those proposing development are responsible for:

- Demonstrating that it is consistent with the NPPF.
- Providing an assessment of:
 - Whether any proposed development is likely to be affected by flooding from any source.
 - Whether it will increase flood risk elsewhere.
 - The measures proposed 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 minimum detrimental impact to the environment.
- Producing designs that 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.

1.6 Landowners

- 1.6.1 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.

FLOOD RISK ASSESSMENT METHODOLOGY

1.7 Flood Zone Classification

- 1.7.1 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.
- 1.7.2 The Environment Agency's (EA) strategic flood risk maps provide information on whether a development area is situated in Flood Zone 1 (least risk), 2 (medium risk), or 3 (highest risk) (see Table 3.1 below), as well as indicating the level of risk of flooding from both surface water (i.e. water resulting from rainfall) and from water bodies.
- 1.7.3 For groundwater flooding, detailed data is not made available by EA; however, this data is available directly from Bury Council's website as part of the Council's Strategic Flood Risk Assessment.
- 1.7.4 As demonstrated in Section 1.2, the development area within the site lies within Flood Zones 1 and 2.

Table 1.3: Official definitions of the different Flood Zones (Ministry of Housing, Communities & Local Government; & Department for Levelling Up, Housing & Communities, 2022).

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than 0.1% annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map for Planning – all land outside Zones 2, 3a and 3b)
Zone 2 Medium Probability	Land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding. (Land shown in light blue on the Flood Map)
Zone 3a High Probability	Land having a 1% or greater annual probability of river flooding; or Land having a 0.5% or greater annual probability of sea. (Land shown in dark blue on the Flood Map)
Zone 3b The Functional Floodplain	This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise: • land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or • land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding).

2. The Sequential Test

- 2.1.1 The Sequential Test, mandated by the NPPF, is a planning tool designed to direct new development towards areas with the lowest flood risk. The aim of this process is to steer new developments to areas at the lowest probability of flooding (Zone 1).
- 2.1.2 It requires demonstrating that no reasonably available alternative sites exist in lower flood probability zones before development can be considered in higher risk areas. This systematic approach aims to avoid placing new buildings in harm's way, thereby reducing future flood impacts.
- 2.1.3 The Environment Agency's flood zones is the initial point to start for applying the sequential test. The zones are referring to the flooding from the sea and rivers only.
- 2.1.4 The majority of the proposed development site area is already located within Flood Zone 1 except for the east corner of the proposed swimming pool building which is within Flood Zone 2.
- 2.1.5 The proposed development is not a typical dwelling as it will not be occupied overnight and is not classed as a permanent residence with it only containing a swimming pool and sauna.
- 2.1.6 Due to this if flooding occurs the FFL is raised above the river flood level in turn allowing the development and occupants to remain safe from river and sea flooding.
- 2.1.7 The NPPF also requires developments avoid, as far as possible, development areas of current and future medium and high-risk flooding, including surface water flooding.
- 2.1.8 No surface water flooding is shown within the site boundary during the 30- or 100-year storms. Minor flooding is shown around the site for the 1000-year storm however this is generally above the design level and no flooding is shown within the developed area of the site. The EA flood maps are shown in Appendix B.

2.1.9 The existing surface water runoff rate within the developed area has also been reduced by 40% further reducing the risk of onsite surface water flooding

2.1.10 Following this the site passes the sequential test.

2.1.11 The NPPF Annex 3 : Flood risk vulnerability classification is used to determine if development is appropriate and if an exception test is required. For the proposed development the site falls within the 'More vulnerable' classification as it is attached to a dwelling however does not itself include any areas to sleep and is solely a swimming pool and sauna.

2.1.12 Following this the guide indicates that the exception test is not required.

Table 2.1: Table 3 NPPF Technical Guide for site classification

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.						

2.2 Sources of Flooding

2.2.1 Flooding is a natural hazard and can happen at any time in a wide variety of locations. There are several types 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.

2.2.2 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.

2.3 Flooding from the River and the Sea

2.3.1 The development site area is identified on the Environment Agency's flood mapping (see Figure 1.2 above) as lying within a Flood Zone 2 which signifies a medium probability of flooding from rivers or the sea (less than a 1% to 0.1% expected annual probability for river flooding and a 0.5% to 0.1% for sea flooding in any given year).

2.3.2 The product 4 data for the site shows during the defended event the closest node (5) has a top flood level of 69.49mAOD. The proposed development is to have a FFL similar to that of the existing house which is around 69.80mAOD. Due to this the proposed FFL is approximately

300mm above the 1000-year storm event flood level. Due to this the development and occupiers remain safe from flooding.

2.3.3 The proposed development also only contains a swimming pool and sauna, therefore cannot be classed as a permanent residence due to no ability for anyone to live within it. With the occupier being unable to use the development as a dwelling overnight there is no risk to the occupier from river and sea flooding.

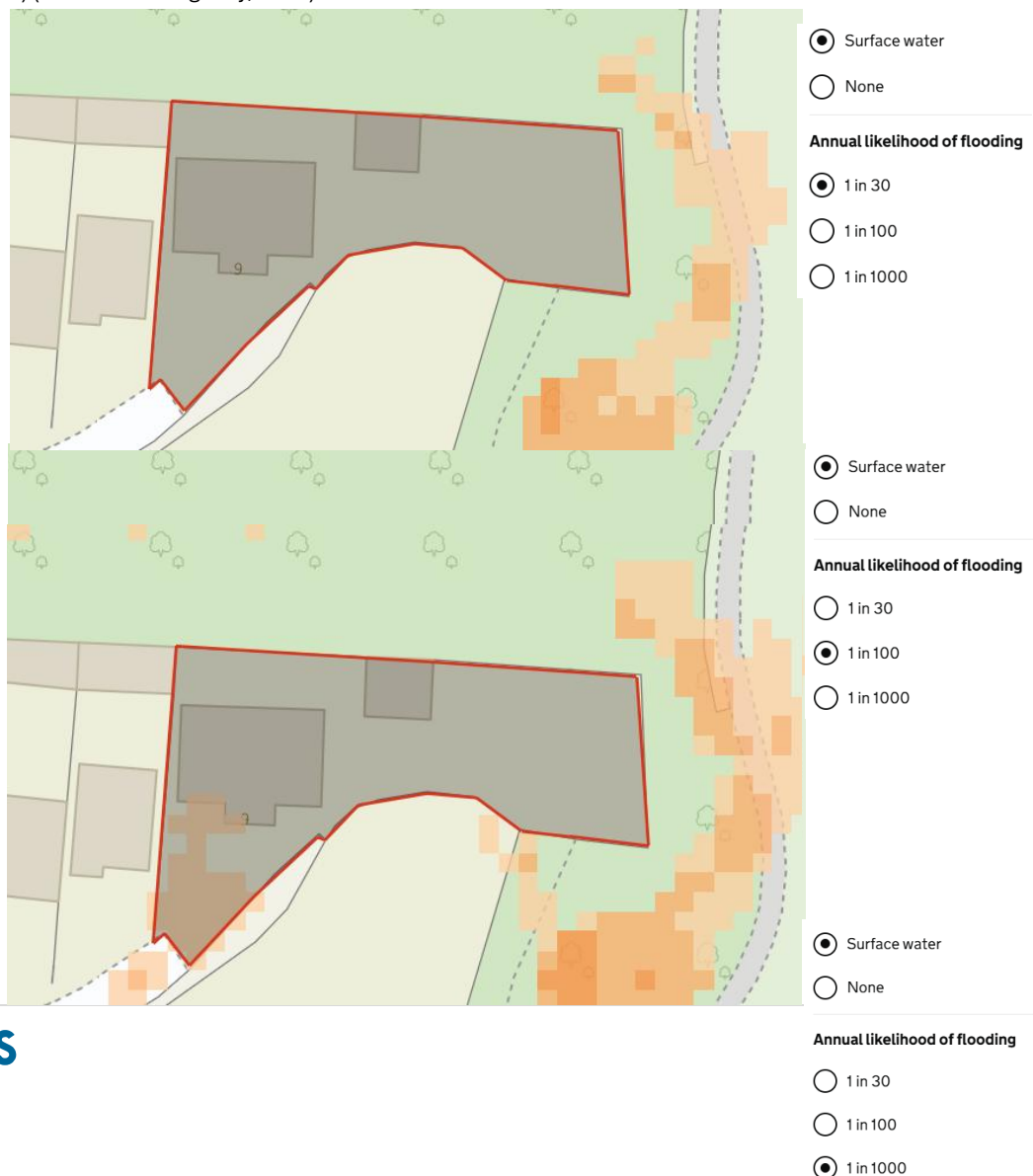
2.3.4 Appropriate floor levels are to be set for the proposed extension to alleviate any risk of flooding.

2.4 Flooding from Surface Water

2.4.1 The Environment Agency Risk of Flooding from Surface Water map indicates the site is at a very low risk of surface water (i.e. pluvial/stormwater) flooding, meaning that each year, the site has a chance of flooding of less than 1 in 1,000 (<0.1% annual risk).

2.4.2 No surface water flooding is shown for the 30 and 100 year events. Minor flooding is shown within the site boundary however this is above the design level and does not affect the development area within the site.

2.4.3 Figure 2.2: Screenshots of the Environment Agency's flood map for planning, configured to display the flood risk due to surface water for a 1 in 30, 1 in 100, and 1 in 1,000 year flood events, showing the site at 9 Manor House Gardens (outlined in red) (Environment Agency, 2026).

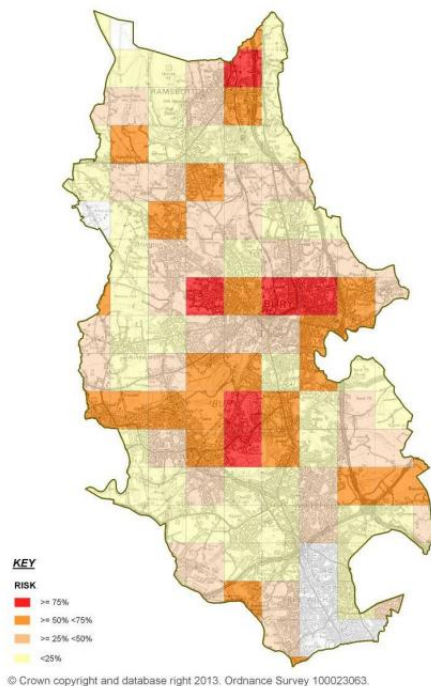


2.5 Flooding from Groundwater

- 2.5.1 Groundwater flooding tends to occur after much longer periods of sustained high rainfall, typically in low-lying areas with a shallow water table, where major aquifers are present or in localised floodplain sands and gravels. The main causes include natural groundwater rising due to tidal influence or rapid recharge from wet periods, groundwater rebound from ceased abstraction, and the presence of confined aquifers and springs.
- 2.5.2 After a review of the Bury Local Flood Risk Plan a groundwater risk map shows that the site lies within an area at 50%-75% risk of groundwater flooding. Map is shown below in figure 2.3.
- 2.5.3 Appropriate FFL's are to be considered to mitigate against any potential flooding.

Figure 2.3 Groundwater flooding map (Bury Local Flood Risk Plan 2018)

Figure 5 – Ground Water Flooding



2.6 Flooding From Sewers

- 2.6.1 Flooding from the sewer network can occur when excessive flows cause the system to surcharge, leading to water escaping to the surface, typically through manholes or road gullies. The proposed development is not expected to increase the risk of sewer flooding, as surface water runoff — a key contributor to sewer surcharging — will be managed in line with the requirements of the NPPF and the Local Lead Flood Authority (LLFA).
- 2.6.2 The site has an existing United Utilities sewer crossing from north to south at the east of the site. A 3m easement each side from the centre has been requested for any proposed development.

- 2.6.3 The proposed surface water drainage will limit the existing flows offering a 40% betterment therefore decreasing the flood risk to the sewer from the existing condition. The network is to be designed to include the 100-year plus climate change event. This will require on-site storage by utilising SuDS where appropriate.
- 2.6.4 The proposed network will connect to an onsite private drainage network therefore the existing connection will be maintained and existing flows will be reduced.

2.7 Flooding From Infrastructure

- 2.7.1 Flooding associated with infrastructure can occur when canals, dams, or other man-made structures exceed their capacity or fail. The Environment Agency Flood Map for Planning confirms that the site is not located within a reservoir flood risk area, and there are no canals in the vicinity of the site.
- 2.7.2 There is no risk of flooding associated with infrastructure failure.
- 2.7.3 There are no other sources of flooding that can affect the site. Flood risk from the site can be considered low.

CLIMATE CHANGE

3. Planning Policy and Climate Change Adaptation

- 3.1.1 Paragraph 162 of the National Planning Policy Framework (NPPF) requires that plans should take a proactive approach to mitigating and adapting to climate change (Ministry of Housing, Communities & Local Government, 2024). Similarly, Paragraph 172 requires all plans to adopt a sequential risk-based approach, accounting for all sources of flood risk and future impacts of climate change (Ministry of Housing, Communities & Local Government, 2024).
- 3.1.2 In light of this, the Environment Agency (EA), through the online Flood Map for Planning, makes available data showing the effect of worsening climate change on the annual exceedance probabilities of river and sea flood events for various return periods as seen in Appendix B.
- 3.1.3 To appropriately mitigate the risk caused by increasing climate change the government has an interactive guidance map to help confirm appropriate climate change allowances.
- 3.1.4 For developments with a lifetime between 2061 and 2125 the 2070s epoch data is to be used.
- 3.1.5 To account for the potential impacts of climate change, the upper end allowances should be applied to both the 1% and 3.3% annual exceedance probability (AEP) events. The development should be designed to accommodate the 1% AEP event, ensuring that:
- 3.1.6 There is no increase in flood risk elsewhere; and
- 3.1.7 The development remains safe from surface water flooding.
- 3.1.8 When surface water drainage is proposed an allowance for climate change is to be included to mitigate risk.

Figure 4.1.8. Climate Change Allowances (Irwell Management Catchment)

Irwell Management Catchment peak rainfall 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%

EMERGENCY ACCESS AND ESCAPE

4. Emergency Plan

- 4.1.1 The Environment Agency administers its flood warning service within critical areas that are considered prone to flooding.
- 4.1.2 The site at 9 Manor House Gardens does not fall within the critical flood-risk area or Flood Zone 3 which require Environment Agency's flood warning service therefore, there is no requirement for an emergency escape route.

FLOOD RISK SUMMARY AND CONCLUSION

5. Conclusion

- 5.1.1 The sites development area has been assessed and is confirmed to be located within Flood Zones 1 and 2. This means it has a medium probability of flooding from rivers and the sea – specifically, an annual exceedance probability between 1% and 0.1%.
- 5.1.2 The development is a proposed swimming pool and sauna with no place living space within the proposed building. A porch is also proposed at the front of the existing house.
- 5.1.3 The flood risk shows the site is only at risk from river and sea flooding. It has been demonstrated that the proposed extension FFL is to be set above the flood level and the building can not be used as a living space due to it only containing a swimming pool and sauna.
- 5.1.4 All other potential sources of flood risk, including surface water and groundwater, have also been thoroughly assessed. These are consistently considered to pose a low risk to the proposed development.

- 5.1.5 Appropriate finished floor levels are to be considered to mitigate any river or surface water flooding from the development and the implementation of SuDS drainage features to help manage runoff.
- 5.1.6 The surface water network is to be designed taking climate change into consideration helping to ensure the development is safe for its lifetime.
- 5.1.7 Due to its consistently low risk of flooding, the site does not fall within an area where the Environment Agency's public flood risk warning service is made available.
- 5.1.8 The proposed development does not increase the risk of flooding off site.

DRAINAGE STRATEGY

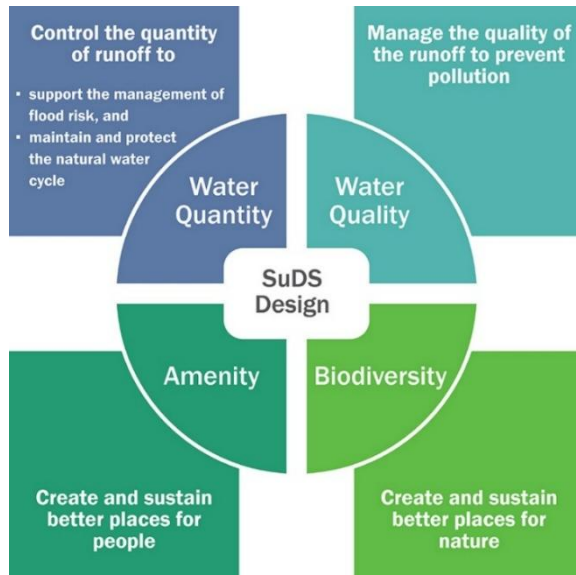
PLANNING CONTEXT

6. Planning Context

- 6.1.1 For new developments, the Bury Local Flood Risk Management Strategy (2018) requires a drainage strategy to comply with the National Planning Policy Framework (NPPF) and Planning Practice Guidance (PPG), particularly regarding the use of Sustainable Drainage Systems (SuDS) (Bury Local Plan, Flood Risk 2018). This is outlined in NPPF paragraph 182 (Ministry of Housing, Communities and Local Government, 2025a).
- 6.1.2 As a statutory consultee, the Lead Local Flood Authority (LLFA) must be consulted on all major development proposals, and they offer a pre-application service to provide advice; the LLFA aims to provide a substantive response to planning applications within 21 calendar days of validation (Bury Council).
- 6.1.3 The following requirements are specified in the 2025 National Standards for Sustainable Drainage Systems (SuDS), which ensure drainage strategies for new developments are both effective and compliant with national policy (Defra, 2025):
- For greenfield sites, the greenfield runoff rate proposed within a development's drainage strategy is limited to the corresponding greenfield runoff rates for both a 1-year and a 100-year rainfall event (Defra, 2025).
 - Previously developed (brownfield) sites should generally have a runoff rate as close as is reasonably practicable to the greenfield rate, but never more than the rate before redevelopment (Defra, 2025).
 - Flooding on-site must be prevented during a 1 in 30-year rainfall event, except for areas designed to hold or convey water (Defra, 2025).
 - Buildings and essential utility plants must be protected from flooding during a 1 in 100-year rainfall event (Defra, 2025).
 - The design must include managed exceedance routes to handle water flows from rainfall events that exceed the 1 in 100-year event, to minimise risk to people and property (Defra, 2025).
- 6.1.4 To ensure the long-term resilience of the system, drainage designs must also account for future changes. This includes a 10% allowance for urban creep (development dependant) and specific climate change allowances for the Irwell management area, such as a 45% increase for the 100-year rainfall event (Bury Council, 2018).
- 6.1.5 Developers are encouraged to design SuDS that provide additional multifunctional benefits, namely water quantity, water quality, amenity, and biodiversity. These are referred to as the four pillars of SuDS design (see Figure 2.1 below) and are referenced in the NPPF, paragraph

165, and the PPG's section on 'Flood risk and coastal change' (Ministry of Housing, Communities and Local Government, 2025a) (Ministry of Housing, Communities and Local Government, 2025b).

Figure 2.1: The four pillars of SuDS design (HR Wallingford, 2015).



EXISTING DRAINAGE

7. Existing Site

7.1.1 The plan shown in Figure 7.1 shows the United Utilities records of sewer infrastructure within the locality of the development site.

Figure 7.1 United Utilities Records



- 7.1.2 The plan indicates the existence of a combined sewer running north to south to the east of the site.
- 7.1.3 A 3m easement from the centre of the sewer is required to ensure the sewer remains unaffected.
- 7.1.4 A private sewer network is also located within the site which connects to the existing combined sewer network.
- 7.1.5 There is no other existing drainage infrastructure within the site.
- 7.1.6 The development site is considered to have a brownfield land classification.
- 7.1.7 The existing site contributing areas proposed for redevelopment have been modelled and an existing brownfield run off rate of 6.1l/s. Calculations can be found within Appendix C.

PROPOSED SITE LAYOUT

8. Proposed Site

- 8.1.1 The proposed site layout is influenced by the existing house and infrastructure surrounding the development site.
- 8.1.2 Proposed site levels should reflect the existing site levels falling gently towards east.
- 8.1.3 An appropriate FFL is to be set for the proposed development to mitigate against any flooding indicated on the EA flood maps.
- 8.1.4 The proposed site layout is shown in Appendix A.

PROPOSED SURFACE WATER DRAINAGE

9. SuDS Requirement

- 9.1.1 Any new drainage for a development must be designed in accordance with the non-statutory technical standards for SuDS, as mandated by the National Planning Policy Framework and Planning Practice Guidance.
- 9.1.2 The aim of this is to ensure that new developments manage surface water effectively, thereby reducing flood risk, improving water quality, and supporting biodiversity.

9.2 Surface Water Disposal Hierarchy

- 9.2.1 The disposal of surface water for a new development follows a strict hierarchy of preference, as outlined in national planning and drainage policy. The preferred order of priority is:
 - 1. Collected for non-potable use
 - 2. Infiltrated to ground
 - 3. Discharged to an above ground surface water body
 - 4. Discharged to a surface water sewer, or another piped surface water drainage system

5. Discharged to a combined sewer

9.3 Use on Site

- 9.3.1 In accordance with the SuDS discharge hierarchy, using surface water generated on site is the first preferred option.
- 9.3.2 Given the nature and the development, this option would not be sufficient to manage the surface water due to the limited areas within the development to reuse the water collected. This method would also only provide a minor reduction in the overall runoff and wouldn't be used as a single discharge entity.

9.4 Infiltration

- 9.4.1 The next priority in the SuDS hierarchy is to discharge surface water via infiltration into the subsoil.
- 9.4.2 A review of the UK Soilscales data, which identifies the soil type within the site as Soilscale 17, indicates that the site's soil is predominantly clay (see Appendix D: Soilscales Data) (LandIS, 2026).
- 9.4.3 While the ground conditions are provisionally considered non-viable for soakaway deployment due to low permeability and distance from existing watercourses, a site permeability test has been conducted within a recent development to the south and groundwater was detected at 1.9m depth. This confirms that infiltration is not a viable discharge method.

9.5 Discharge to a Water Course

- 9.5.1 Given that infiltration is not a practical solution, the proposed drainage strategy should follow the next step in the hierarchy: controlled discharge to a watercourse.
- 9.5.2 The nearest watercourse to the development is the River Roch to the east.
- 9.5.3 There is 3rd party land between the development site and watercourse so due to these limitations discharge to watercourse is not a viable option.

9.6 Discharge to a Surface Water Sewer

- 9.6.1 The next step in the hierarchy is to discharge into a public surface water sewer.
- 9.6.2 There are no surface water sewers within or surrounding the proposed site, therefore this option has been ruled out.

9.7 Combined Sewer

- 9.7.1 Discharge to a combined sewer is the last option within the hierarchy. There is existing on site drainage already connects to the existing sewer within the site and this discharge point is to be maintain and a 40% betterment is to be offered on the existing rate of the sites developed area as requested by the LLFA.

9.8 Surface Water Design Strategy

- 9.8.1 The drainage strategy has been designed to meet the requirements of the Lancashire Local Flood Risk Management Strategy. The initial design philosophy follows the Sustainable Drainage Systems (SuDS) surface water disposal hierarchy to ensure effective runoff management.
- 9.8.2 As all hierarchy options prior to combined sewer are regarded as not viable, controlled discharge to a combined sewer is the preferred option.
- 9.8.3 The strategy proposes to restrict the proposed developed areas discharge to 60% of its existing rate. This is to achieve the 40% betterment required within the LLFA planning notes. The existing brownfield rate was calculated as 6.1l/s. The proposed discharge rate is therefore 3.7l/s as to achieve the betterment required. Permeable surface and subsoil storage is to be used to attenuate the surface water runoff. The attenuation volume required is 20m³ (see Appendix A: Drainage Strategy Drawing), this is provided in the drainage strategy using permeable paving and a flow restriction.
- 9.8.4 The system will use orifices flow control devices to restrict the flow rate to the required maximum value before it is discharged via the existing on site connection. (see Appendix D: Proposed Surface Water Calculations)
- 9.8.5 The preliminary drainage network is designed to prevent flooding during a 1 in 100-year storm event with a 45% climate change allowance applied.
- 9.8.6 Outline proposals are shown within the Drainage Strategy drawing located in Appendix A: Drainage Strategy Drawing.

URBAN CREEP

10. Urban Creep

- 10.1.1 Urban creep is not applied to this kind of development as there is no permeable area that could be considered for expansion across the proposed development due to the easement of the existing sewer.

WATER QUALITY

11. Water Quality

- 11.1.1 The EA expects developers to follow the pollution prevention hierarchy and to incorporate water-quality treatment measures into the surface water drainage design. For new housing developments, this is typically evidenced using the Simple Index Approach (SIA), as set out in The SuDS Manual (CIRIA C753) (CIRIA, 2015).
- 11.1.2 This method assigns pollution hazard indices (PHI) to different surface types (e.g. roofs, access roads, driveways) and requires the proposed Sustainable Drainage Systems (SuDS) features to

achieve mitigation indices (MI) equal to or greater than the PHI for total suspended solids (TSS), metals, and hydrocarbons.

11.1.3 For this development, the principal surface types will include:

- Roof areas (low pollution hazard)
- Low-traffic access roads and private drives (low to medium pollution hazard)

11.1.4 The use of permeable storage allows for the hydrocarbons to settle therefore allowing for water treatment prior to discharge.

MAINTENANCE STRATEGY

12. Maintenance considerations

12.1.1 Sustainable Drainage Systems (SuDS) require proper maintenance, including inspections to identify performance issues, monitor drainage system operation, and manage the landscape. Therefore, an Operation and Maintenance Manual will need to be provided to those responsible for drainage as part of the documentation under the Construction (Design and Management) regulations 2015. Maintenance requirements for this development are outlined below.

12.1.2 All necessary maintenance will be undertaken, appointed, and/or managed by the developer.

12.1.3 The drainage network and integrated SuDS have been designed for minimal maintenance. The approach is practical and includes regular care, occasional tasks, and remedial work.

12.1.4 Regular day-to-day care involves litter collection, grass cutting, and checking inlets and outlets.

12.1.5 Occasional tasks include removing accumulated silt from system components.

12.1.6 Remedial work involves repairing damage as and when it occurs.

12.1.7 The surface water network has been designed to accommodate the 1 in 100-year storm rainfall event plus an allowance for climate change particular to the requirements of the development.

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

12.1.9 Pumping should only be used to facilitate drainage for those parts of the site where it is not reasonably practicable to drain water by gravity.

12.1.10 Suds to be maintained in line with the CIRIA C753.

CONCLUSION

13. Summary

13.1.1 The report presents a comprehensive drainage strategy for the proposed development at 9 Manor House Gardens.

- 13.1.2 It ensures compliance with national and local planning policies, including the National Planning Policy Framework and the Bury Local Flood Risk Management Strategy.
- 13.1.3 The strategy's main solution is a controlled discharge via the existing on site connection to the combined sewer, chosen because the site's subsoil is low-permeability clay with high groundwater.
- 13.1.4 This will be achieved using permeable paving and flow control devices to limit runoff and achieve the 40% betterment required by the LLFA.
- 13.1.5 To ensure that the preliminary drainage network can prevent flooding during a 1 in 100-year rainfall event, an additional 45% climate change allowance has been included.
- 13.1.6 Maintenance consideration have been outlined.
- 13.1.7 This preliminary strategy provides a sustainable, compliant, and flood-resilient solution.

REFERENCES

Environment Agency (2026) *Flood Map for Planning*.

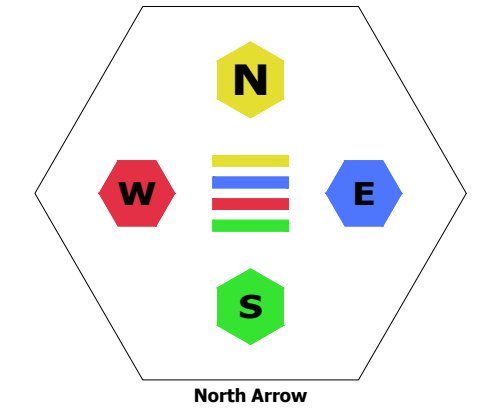
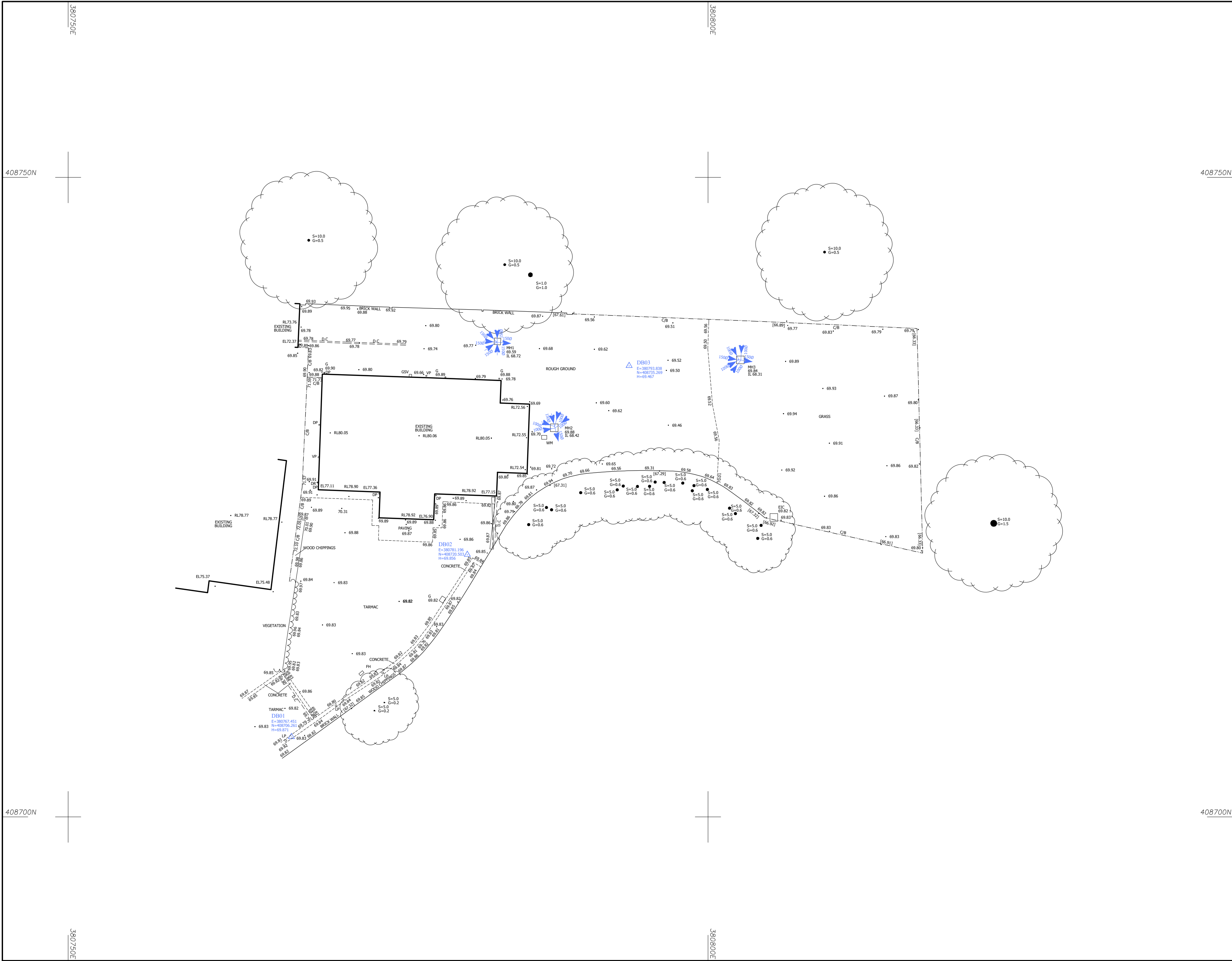
Google Earth Pro (2026)

Local Flood Risk Management Strategy Bury Council Local Risk Plan 2018

Ministry of Housing, Communities & Local Government (2024) *National Planning Policy Framework*.

Ministry of Housing, Communities & Local Government; & Department for Levelling Up, Housing & Communities (2022) *Flood risk and coastal change*.

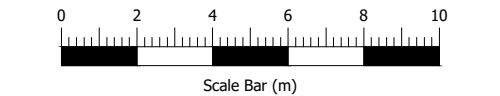
APPENDIX A: DRAWINGS



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
BB	BELISHA BEACON
BH	BORNEHOLE
BN	BIN
BOL	BOLLARD
BM	BENCH MARK
BS	BUS STOP
BT	BT INSPECTION COVER
CB	CONTROL BOX
CCTV	CCTV CAMERA POST
COL	COLUMN
COM	TELECOMS INSPECTION COVER
CTV	CABLE TV COVER
DP	DRAIN PIPE
DR	DRAIN
DW	DOORWAY
EIC	ELECTRIC INSPECTION COVER
ELB	ELECTRIC BOX
EP	ELECTRICITY POLE
ER	EARTH ROD
EVC	ELECTRIC VEHICLE CHARGING
FH	FIRE HYDRANT
G	GULLY
GLT	GROUND LIGHT
GST	GAS STOP TAP
GSV	GAS STOP VALVE
GTY	GANTRY
IC	INSPECTION COVER
KO	KERB OUTLET
LP	LAMP POST
MH	MANHOLE
MHR	MARKER POST
MW	MONITORING WELL
NP	NAME PLATE
PB	POST BOX
PIPE	PIPE
PT	POST
RE	RODDING EYE
RISER	SERVICE RISER
RS	ROAD SIGN
RWP	RAIN WATER PIPE
SAP	SAPLING
SIGN	STREET SIGN
SP	SIGN POST
STUMP	TREE STUMP
SVP	SOIL VENT PIPE
TB	TRAFFIC BOLLARD
TC	TRAFFIC LIGHT CONTROL
TIE	TIE WIRE
TL	TRAFFIC LIGHT
TM	TICKET MACHINE
TP	TELEGRAPH POLE
VP	VENT PIPE
VO	WASH OUT VALVE
WM	WATER METER
WST	WATER STOP TAP
WSV	WATER STOP VALVE
CR88.88	CROWN LEVEL
DH88.88	DOOR HEAD
EL88.88	EAVES LEVEL
FF188.88	FINISHED FLOOR LEVEL
HB88.88	HARD BED
HL88.88	HEAD LEVEL
IL88.88	INVERT LEVEL
L88.88	LINTEL LEVEL
RL88.88	RIDGE LEVEL
S88.88	SILL LEVEL
SB88.88	SOFT BED
SOP88.88	SOFFIT LEVEL
SP88.88	SPRINGING POINT
Top88.88	TOP OF PIPE
WL88.88	WATER LEVEL
B/W	BARBED WIRE
C/B	CLOSED BOARD
C/L	CHAIN LINK
C/P	CONCRETE PANEL
I/R	IRON RAIL
PAL	PALISADE
P/R	POST & RAIL
P/W	POST & WIRE
W/M	WIRE MESH
BW	BRICK WALL
CW	CONCRETE WALL
SW	STONE WALL
D.C.	DRAINAGE CHANNEL
---	BUILDING
---	CANOPY
---	SURFACE CHANGE
---	KERB
---	WALL
---	FENCE
---	BOTTOM OF BANK
---	TOP OF BANK
---	OVERHEAD TELECOMS
---	OVER HEAD ELECTRIC
---	PIPE CENTRE LINE
○	BORE HOLE
△	END OF TRACE
△	GATE
△	SURVEY STATION
△	BENCHMARK
○	S=0.0 CANOPY SPREAD
○	G=0.0 CIRCUMFERENCE
○	MG MULTI GIRTH

SURVEY STATIONS			
Name	Easting	Northing	Height
DB01	380767.451	408706.261	69.871
DB02	380761.196	408720.503	69.856
DB03	380793.838	408735.269	69.467

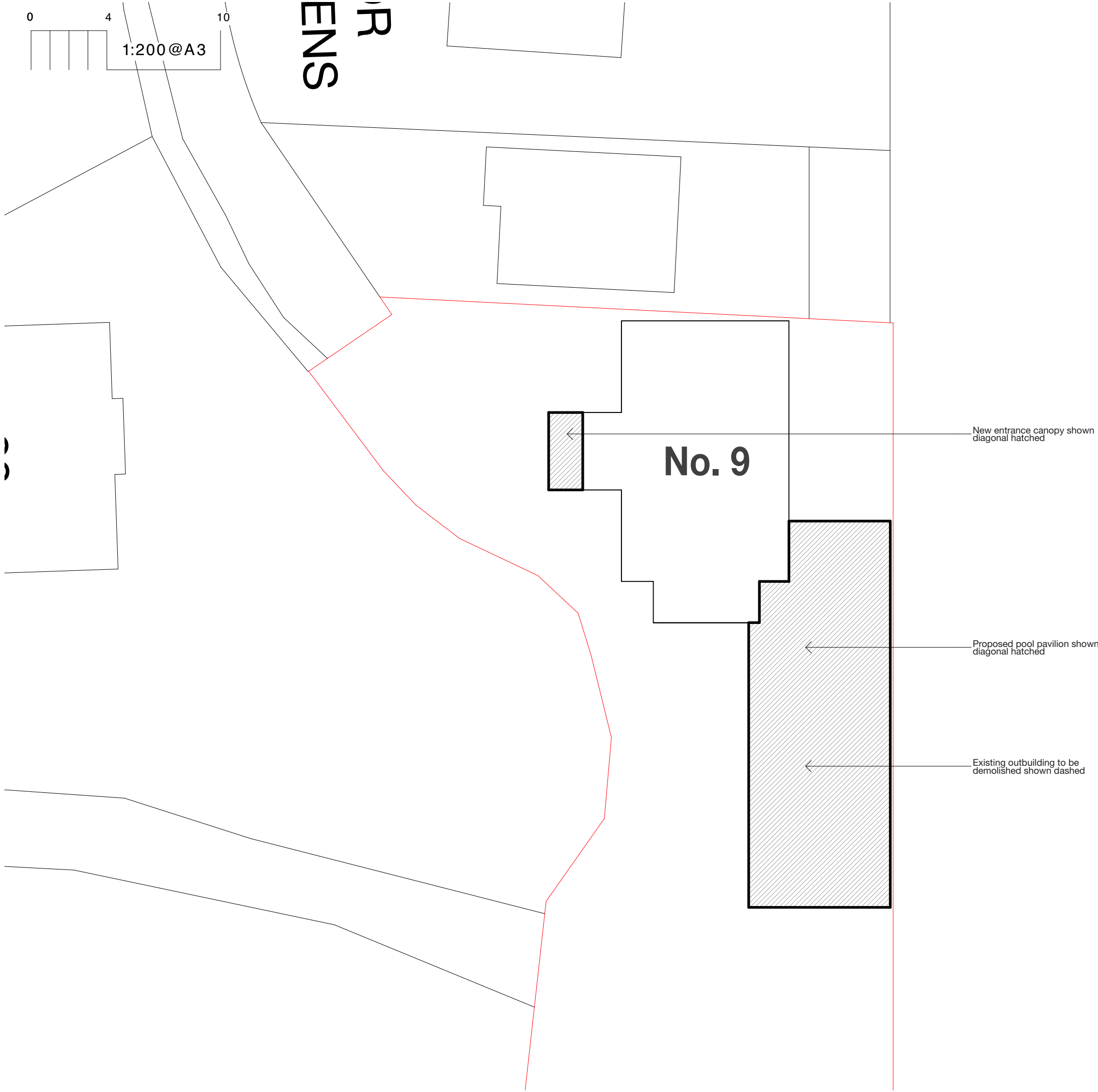


REV	DATE	DESCRIPTION
A	21/7/26	Levels adjusted

CLIENT
Courous

PROJECT TITLE
**Topographical Survey of Land at:
9 Manor House Gardens
Bury
BBL9 9RT**

Drawing Ref.		Rev
L56784-T		A
Surveyed D.Borysiak	Drawn J.Macgregor	Checked B.Bradley
Scale 1:200	Date Jul 26	Size A2 No. 01



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All dimensions are to be verified on site and any discrepancies reported before commencement of any work.

Issue/ Rev	Description	Date
#	Initial Issue	05.06.26

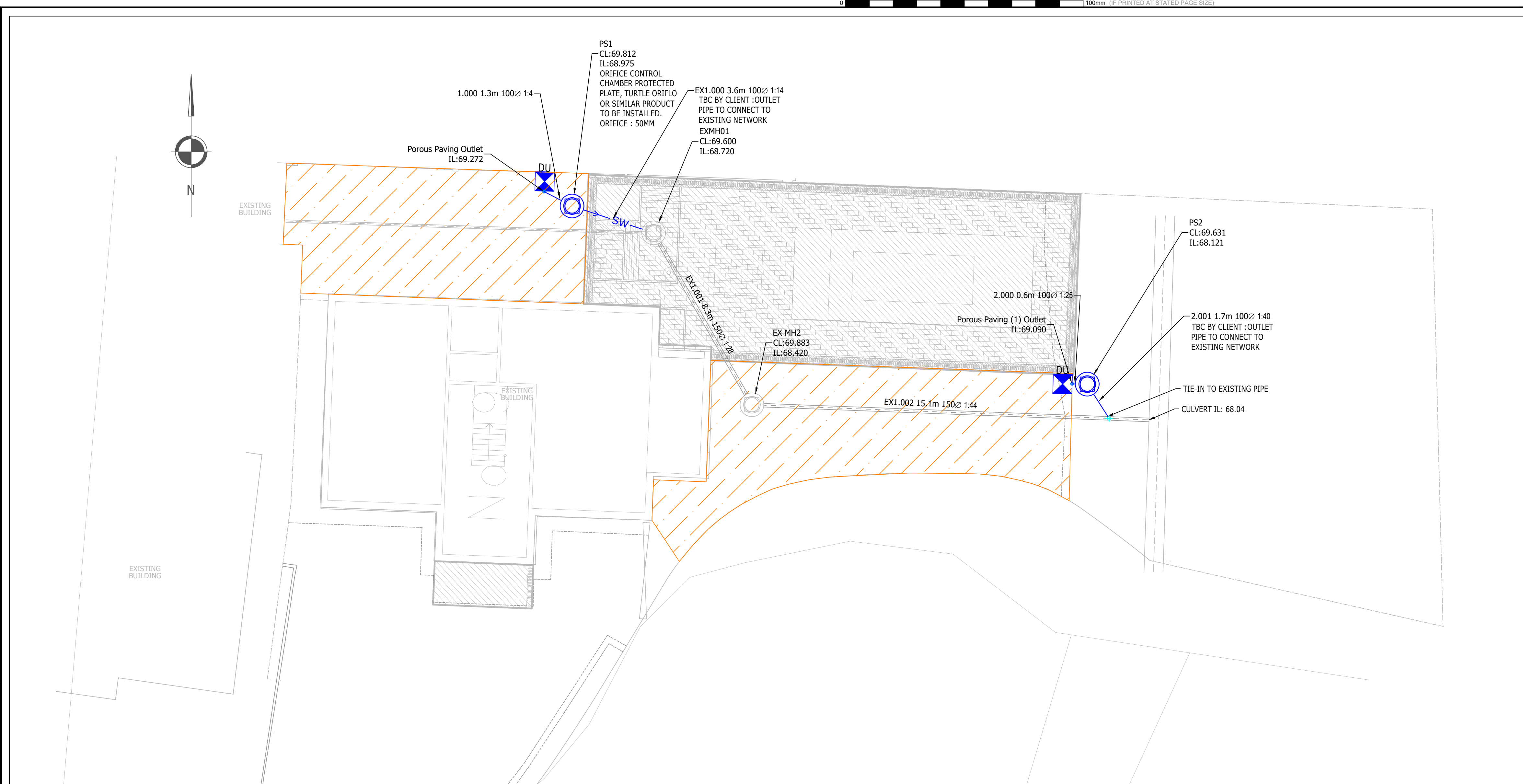
FOR PLANNING/
BUILDING CONTROL
APPROVAL



flocc

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Manchester M19 3NP.
+44 161 307 1766
info@floccstudio.co.uk

Client
Denis Gillespie
Project Description
9 Manor Gardens, Bury
Project Number
MAN009
Drawing Title
Site Plan - Proposed
Drawing Number
WD2.2
Scale
1:200 @ A3



- NOTES**
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 - ALL WORKS TO BE CARRIED OUT IN STRICT ACCORDANCE WITH THE ENGINEER'S SPECIFICATIONS, RELEVANT BRITISH STANDARDS, STATUTORY HEALTH AND SAFETY/C.D.M. REGULATIONS, RELEVANT CODES OF PRACTICE AND THE CURRENT EDITION OF THE BUILDING REGULATIONS
 - THIS IS A PROVISIONAL PRELIMINARY DESIGN AS ASSUMPTIONS MADE MUST BE CONFIRMED (I.E. LEVELS, AREAS SUPPORTED).
 - DETAILS SHOWN ARE SUBJECT TO CONFIRMATION OF LAYOUTS, ABOVE GROUND DRAINAGE, CONFIRMATION OF EXISTING DRAINAGE INFRASTRUCTURE DETAILS AND AGREEMENTS FROM ALL REGULATORY BODIES.
 - WORKS ARE SUBJECT TO CHANGE AT DETAILED DESIGN STAGE AND ON DESIGN DEVELOPMENT BY THE WIDER TEAM.
 - ALL STORM EVENT DURATIONS WERE MODELED TO DETERMINE THE FINAL STORAGE REQUIREMENT FOR THE DEVELOPMENT.
 - NO BUILDING SHOULD BE CONSTRUCTED WITHIN 3M OF THE CENTRELINE OF THE PUBLIC SEWER WITHOUT THE APPROVAL OF UNITED UTILITIES PLC.
 - EXISTING DRAINAGE ROUTE HAS BEEN ASSUMED BASED ON TOPO SURVEY AND RECEIVED EXISTING DRAINAGE LAYOUT. NO CCTV SURVEY UNDER TAKEN.

KEY

PROPOSED SURFACE WATER DRAINAGE

EXISTING SURFACE WATER DRAINAGE

PERMEABLE PAVING

DUFFER BOX (TO BE SIZED AS PER MANUFACTURER GUIDANCE)

B	EXISTING PIPE LAYOUT CHANGE	UR	UR	MB	MM	28/07/26
A	ISSUE	UR	UR	MB	MM	22/07/26
REV	DETAILS	DRAWN	DESIGN	CHECKED	APPROVED	DATE

SCALE :	1:100	DRAWING STATUS	
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SUITABILITY :	S2	FOR INFORMATION	

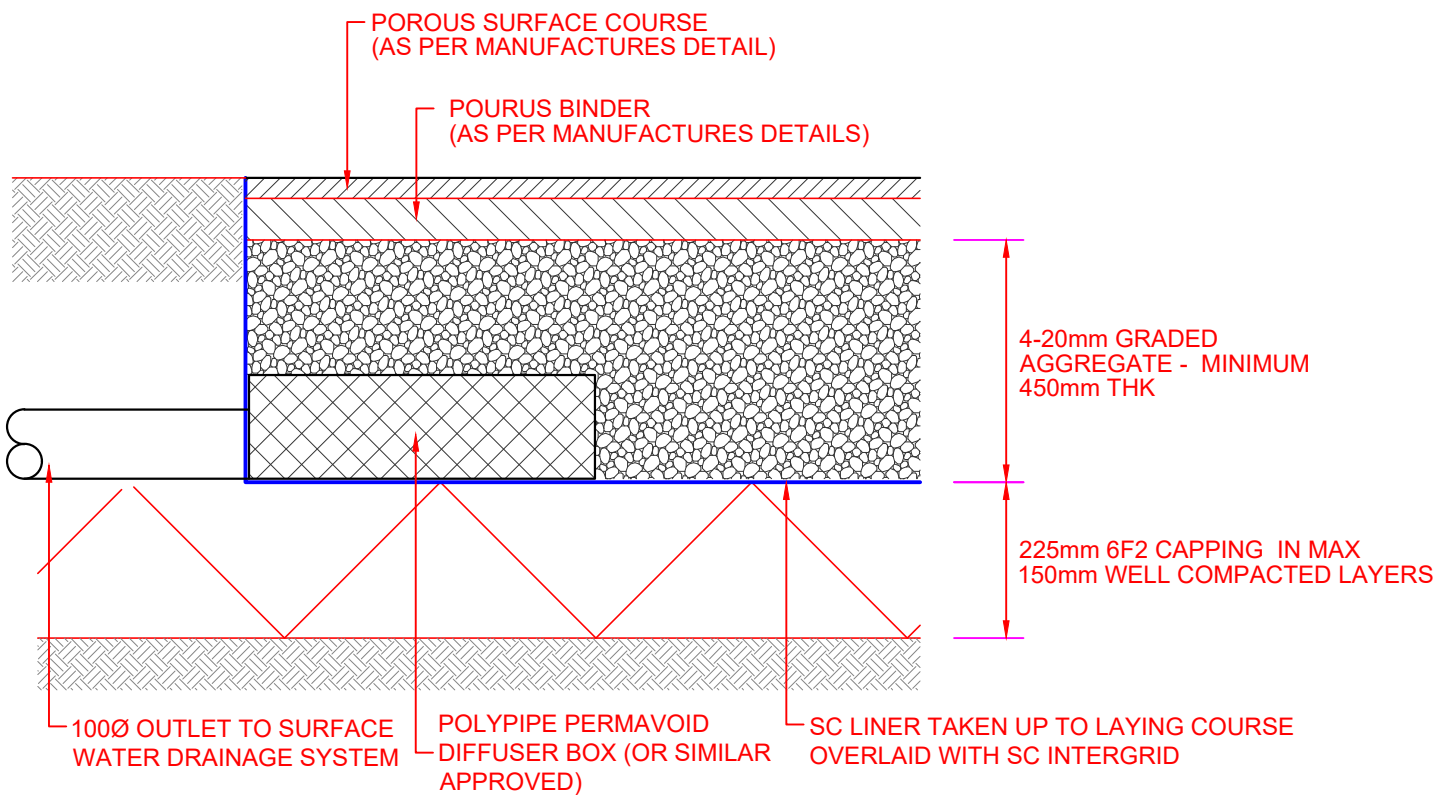
CLIENT	Fineturret Ltd
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AGENT	
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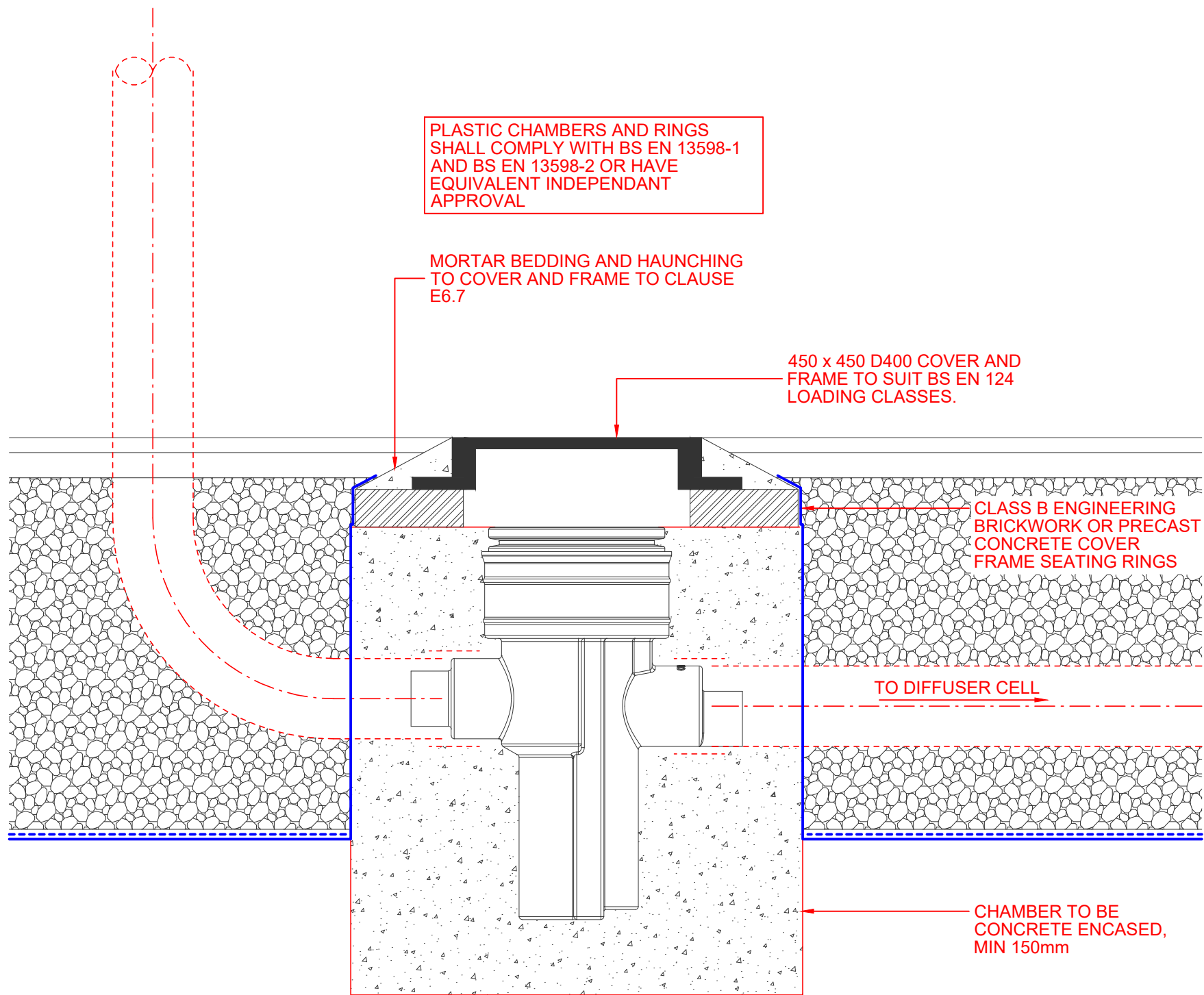
PROJECT NAME	9 MANOR GARDENS
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DRAWING TITLE	PROPOSED SURFACE WATER DRAINAGE STRATEGY
---------------	--

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	1990006	COUR	HDC	
	9 MANOR GARDENS	DR	CD	0501
	LOCATION	TYPE	ROLE	NUMBER
				PB



PRIVATE PERMEABLE DETAIL
SCALE 1:10



SECTION THROUGH TURTLE ENVIRO SB300B CHAMBER (RWP SHOWN ON ARCHITECTS PLANS)
(RAINWATER PIPES CONNECTED TO DIFFUSER)
NOT TO SCALE



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5. WORKS ARE SUBJECT TO CHANGE AT DETAILED DESIGN STAGE AND ON DESIGN DEVELOPMENT BY THE WIDER TEAM.
6. ALL STORM EVENT DURATIONS WERE MODELED TO DETERMINE THE FINAL STORAGE REQUIREMENT FOR THE DEVELOPMENT.

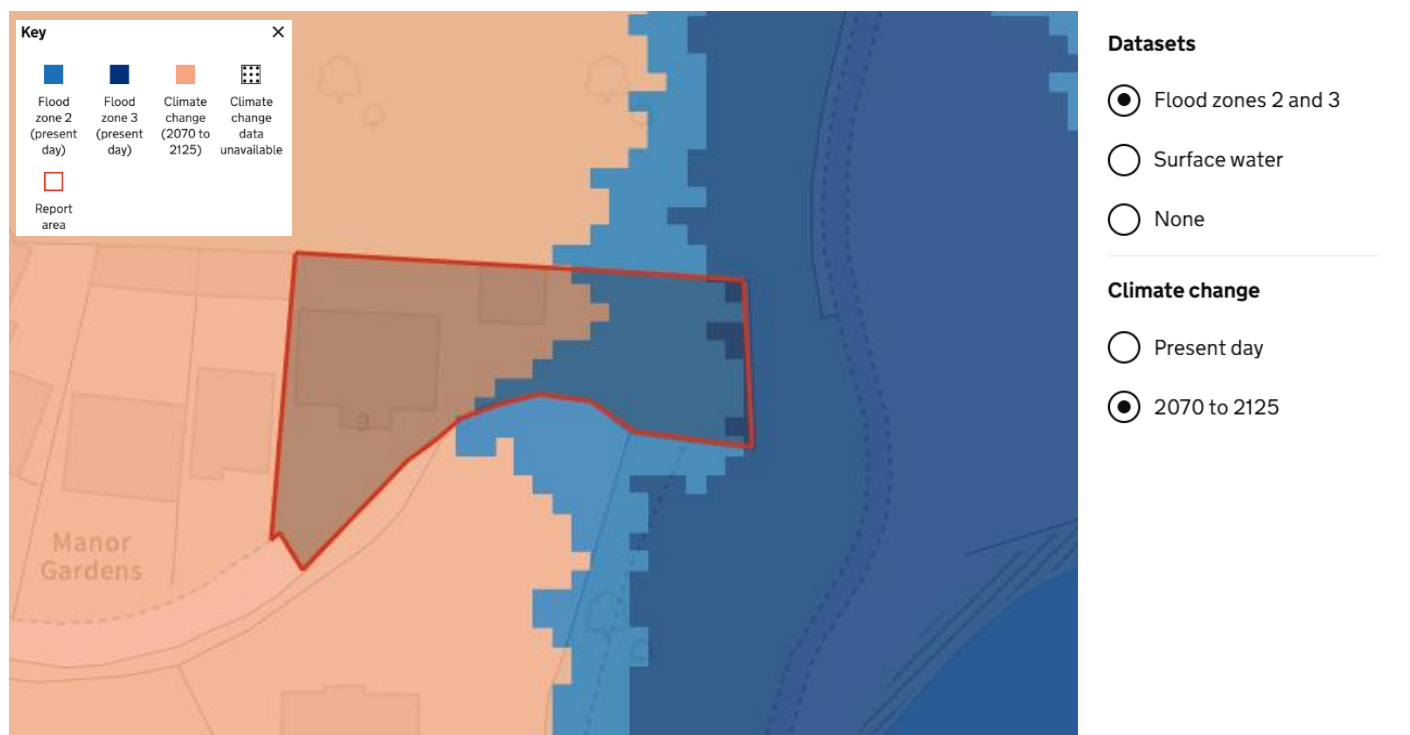
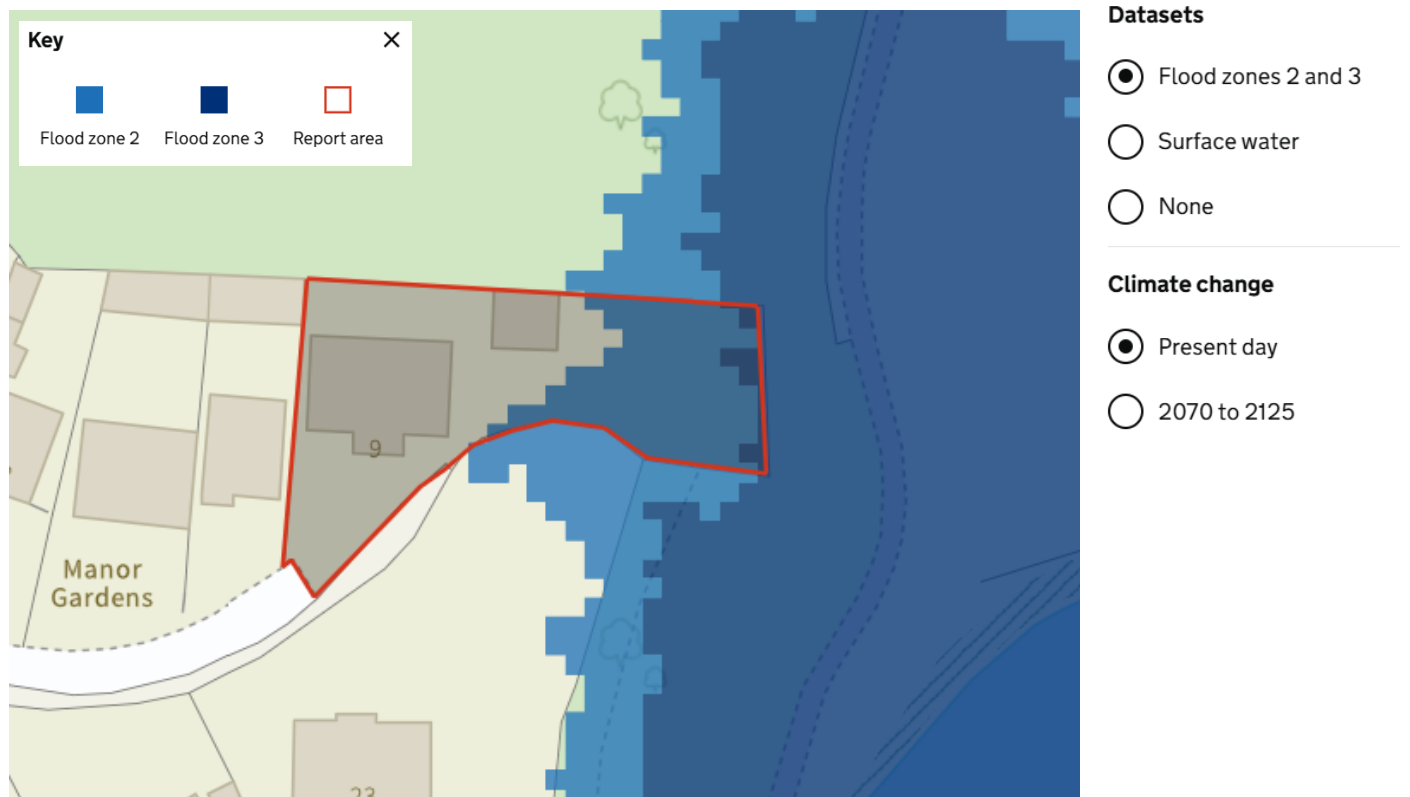
CATCHMENT KEY

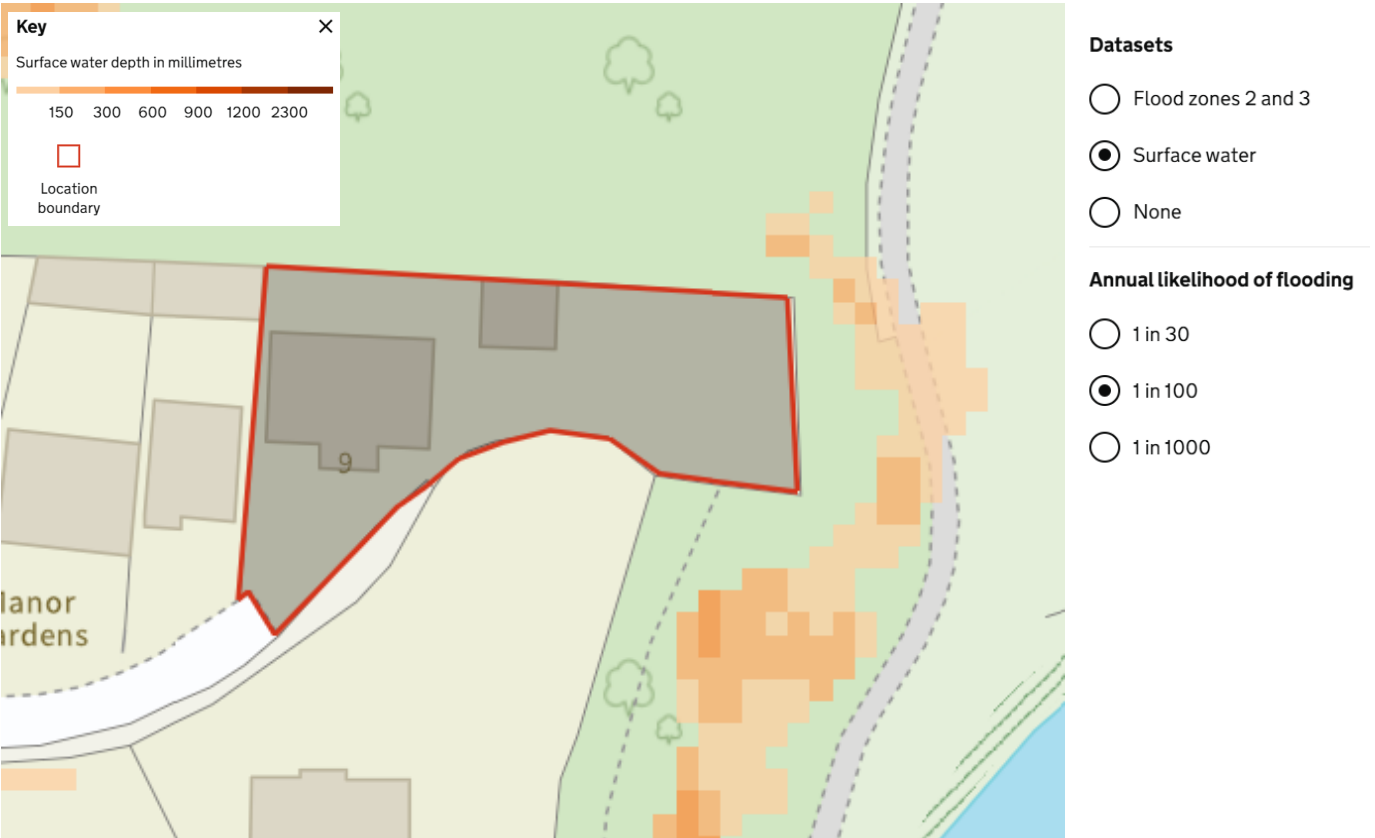
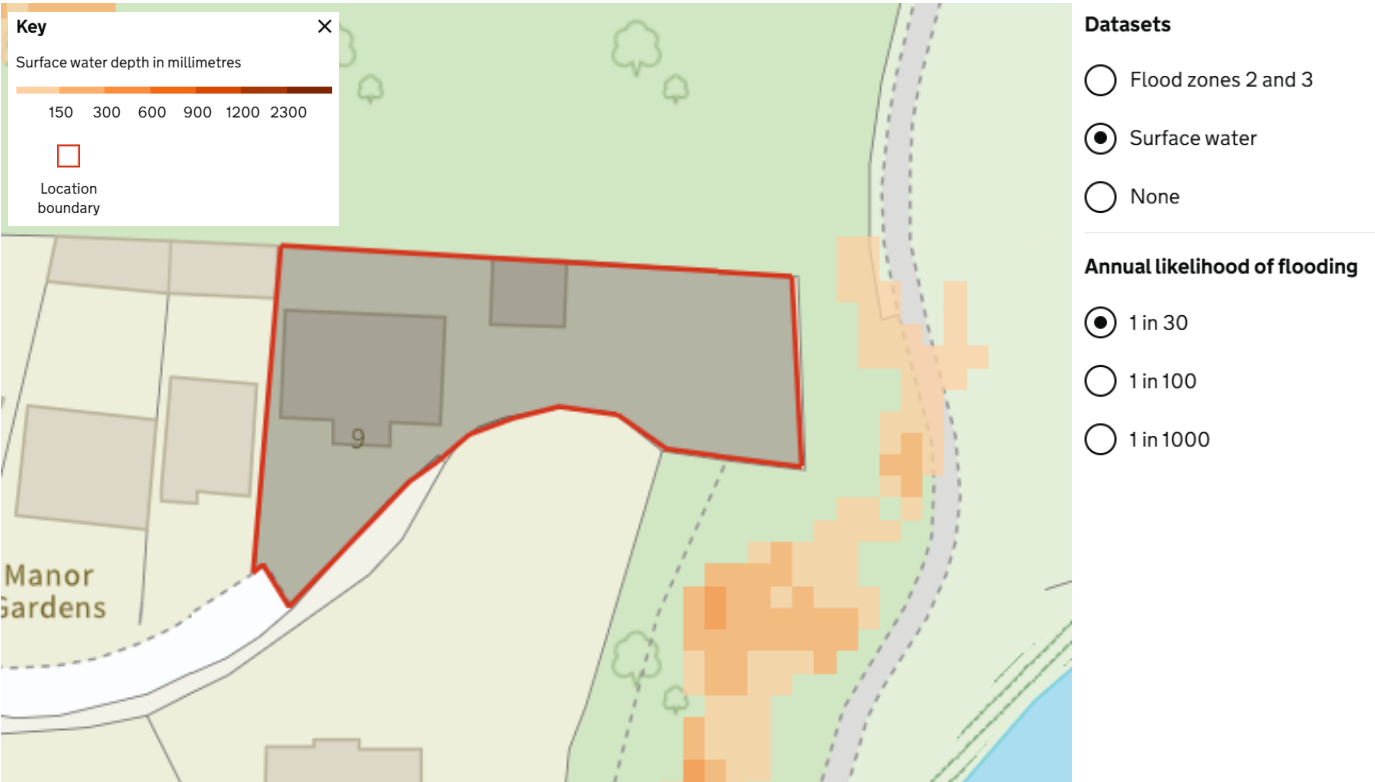
TOTAL IMPERVIOUS AREAS - 310m²

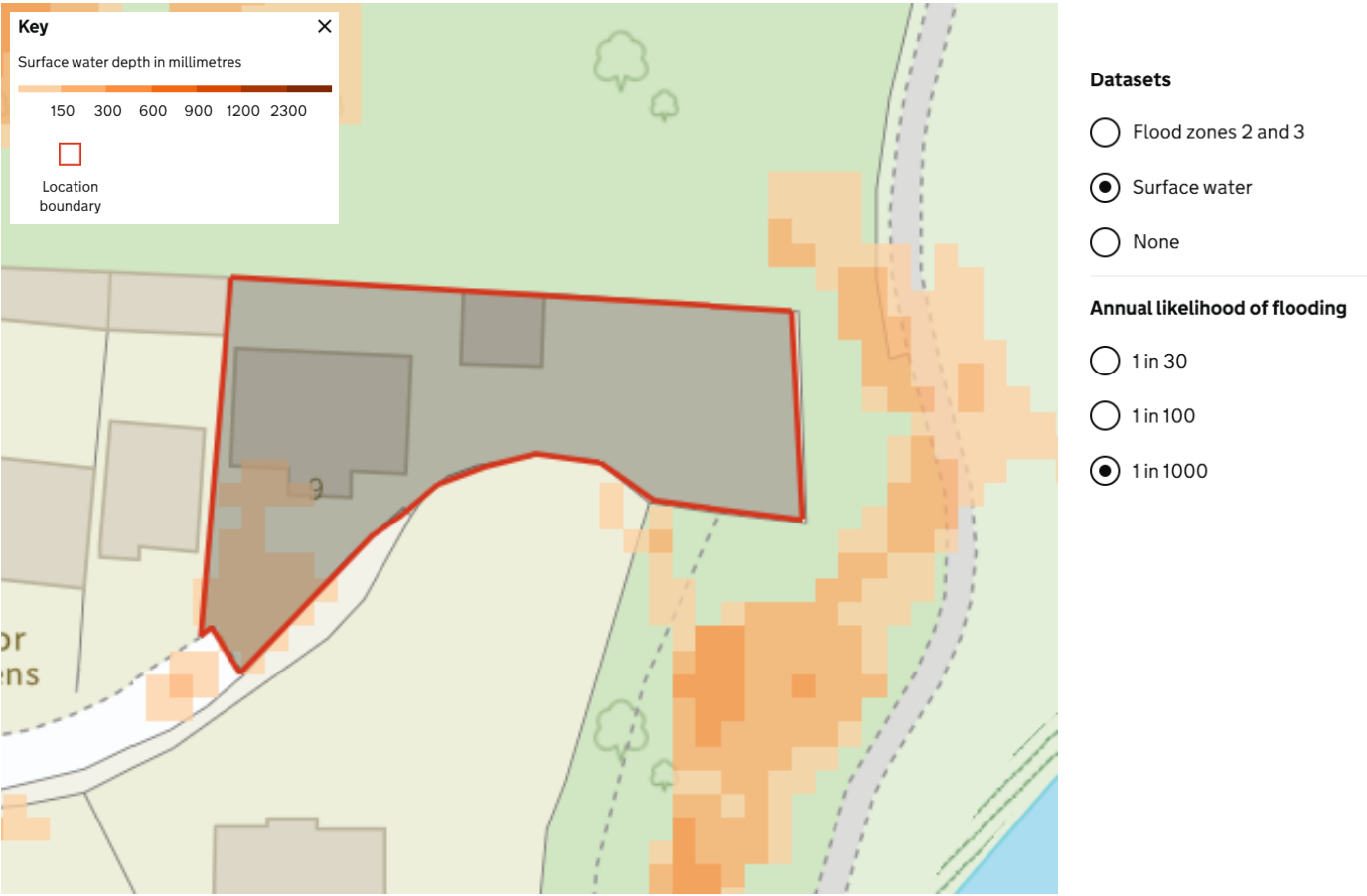


A		ISSUE		UR		UR		MB		MM		22/07/26		
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CLIENT														
Fineturret Ltd														
AGENT														
Courous														
PROJECT NAME														
9 MANOR GARDENS														
DRAWING TITLE														
PROPOSED SURFACE WATER DRAINAGE STRATEGY, CATCHMENTS AREA														
DRAWING NUMBER														
PROJECT					ORIGINATOR					VOLUME				
1990006				-	COUR				-	HDG				
9 MANOR GARDENS				-	DR		-	CD		-	0502			
LOCATION					TYPE			ROLE			NUMBER			
										INTERNAL PROJECT REFERENCE				
										-				
										REVISION				
										PA				

APPENDIX B: ENVIROMENTAL AGENCY DATA







Flood risk assessment data



Location of site: 380789 / 408729 (shown as easting and northing coordinates)

Document created on: 9 July 2026

This information was previously known as a product 4.

Customer reference number: NW3P1VGE67M4

Map showing the location that flood risk assessment data has been requested for.



How to use this information

You can use this information as part of a flood risk assessment for a planning application. To do this, you should include it in the appendix of your flood risk assessment.

We recommend that you work with a flood risk consultant to get your flood risk assessment.

Included in this document

In this document you'll find:

- how to find information about other sources of flooding
- information on the models used
- definitions for the terminology used throughout
- flood map for planning (rivers and the sea)
- past floods
- flood defence locations and attributes
- information to help you assess if there is a reduced flood risk from rivers and the sea because of defences
- modelled data
- modelled climate change data
- information about strategic flood risk assessments
- information about this data
- information about flood risk activity permits
- help and advice

Other sources of flooding

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

- [reservoir flood risk](#)
- groundwater flood risk - you could use the [British Geological Survey groundwater flooding data](#), [groundwater: current status and flood risk](#) and the guide on [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

Your lead local flood authority is Bury District.

For information about sewer flooding, contact the relevant water company for the area.

About the models used

Model name: Lower Roch 2017

Scenario(s): Defended fluvial, defences removed fluvial, defended climate change fluvial, defences removed climate change fluvial

Date: 23 March 2018

These models contain the most relevant data for your area of interest.

Terminology used

Annual exceedance probability (AEP)

This refers to the probability of a flood event occurring in any year. The probability is expressed as a percentage. For example, a large flood which is calculated to have a 1% chance of occurring in any one year, is described as 1% AEP.

Metres above ordnance datum (mAOD)

All flood levels are given in metres above ordnance datum which is defined as the mean sea level at Newlyn, Cornwall.

Flood map for planning (rivers and the sea)

Your selected location is in flood zone 3.

Flood zone 3 shows the area at risk of flooding for an undefended flood event with a:

- 0.5% or greater probability of occurring in any year for flooding from the sea
- 1% or greater probability of occurring in any year for fluvial (river) flooding

Flood zone 2 shows the area at risk of flooding for an undefended flood event with:

- between a 0.1% and 0.5% probability of occurring in any year for flooding from the sea
- between a 0.1% and 1% probability of occurring in any year for fluvial (river) flooding

It's important to remember that the flood zones on this map:

- refer to the land at risk of flooding and do not refer to individual properties
- refer to the probability of river and sea flooding, ignoring the presence of defences
- do not take into account potential impacts of climate change



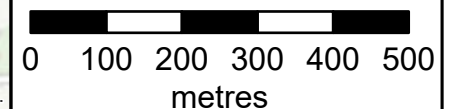
Flood map for planning

Location (easting/northing)
380789/408729

Scale
1:10,000

Created
9 Jul 2026

-  Selected area
-  Main river
-  Flood defence
-  Flood Zone 3
-  Flood Zone 2



Past floods

Past flood events included in this document

The recorded flood outlines included in this document are for areas of land local to your site location that have been flooded by any of these sources:

- ephemeral water
- main rivers
- ordinary watercourses
- the sea
- unknown

Data limitations

The outlines do not include flooding from:

- drainage where rainfall has led to surface water ponding or overland runoff
- artificial, water-bearing sewer, water supply and wastewater treatment pipelines

Changes to flood defences

The defences (also known as assets) that were in place may also have changed. For example, assets may have been built more recently than the last recorded flood outline.

What the recorded flood outlines dataset is

The recorded flood outlines are a geographical information system (GIS) data layer that show our verified records of areas that have flooded in the past from:

- rivers
- the sea
- groundwater
- surface water

[Download the complete recorded flood outlines dataset](#), which includes data quality flags for outlines recorded after April 2020. This indicates the confidence we have in an outline.

Get flood information from other organisations

Contact Bury District Lead Local Flood Authority (LLFA) and your drainage board to get information about past flooding caused by surface water or drainage systems.



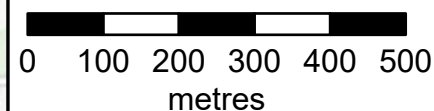
Past floods

Location (easting/northing)
380789/408729

Scale
1:10,000

Created
9 Jul 2026

-  Selected area
-  Main river
- Date of flood event
 -  February, 2020
 -  December, 2015
 -  June, 2012
 -  January, 2008
 -  June, 2002
 -  January, 1995
 -  December, 1991



Data on past flood events

Start date	End date	Source of flood	Cause of flood	Affects location
9 February 2020	9 February 2020	main river	channel capacity exceeded (no raised defences)	No
26 December 2015	26 December 2015	main river	channel capacity exceeded (no raised defences)	No
22 June 2012	22 June 2012	main river	channel capacity exceeded (no raised defences)	No
21 January 2008	22 January 2008	main river	unknown	No
14 June 2002	15 June 2002	ordinary watercourse	channel capacity exceeded (no raised defences)	No
28 January 1995	29 January 1995	unknown	other	No
21 December 1991	22 December 1991	unknown	other	No

Flood defences and attributes

The flood defences map shows the location of the flood defences present.

The flood defences data table shows the type of defences, their condition and the standard of protection. It shows the height above sea level of the top of the flood defence (crest level). The height is in mAOD which is the metres above the mean sea level at Newlyn, Cornwall.

It's important to remember that flood defence data may not be updated on a regular basis. The information here is based on the best available data.

Use this information:

- to help you assess if there is a reduced flood risk for this location because of defences
- with any information in the modelled data section to find out the impact of defences on flood risk



Flood defences

Location (easting/northing)
380789/408729

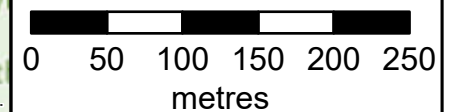
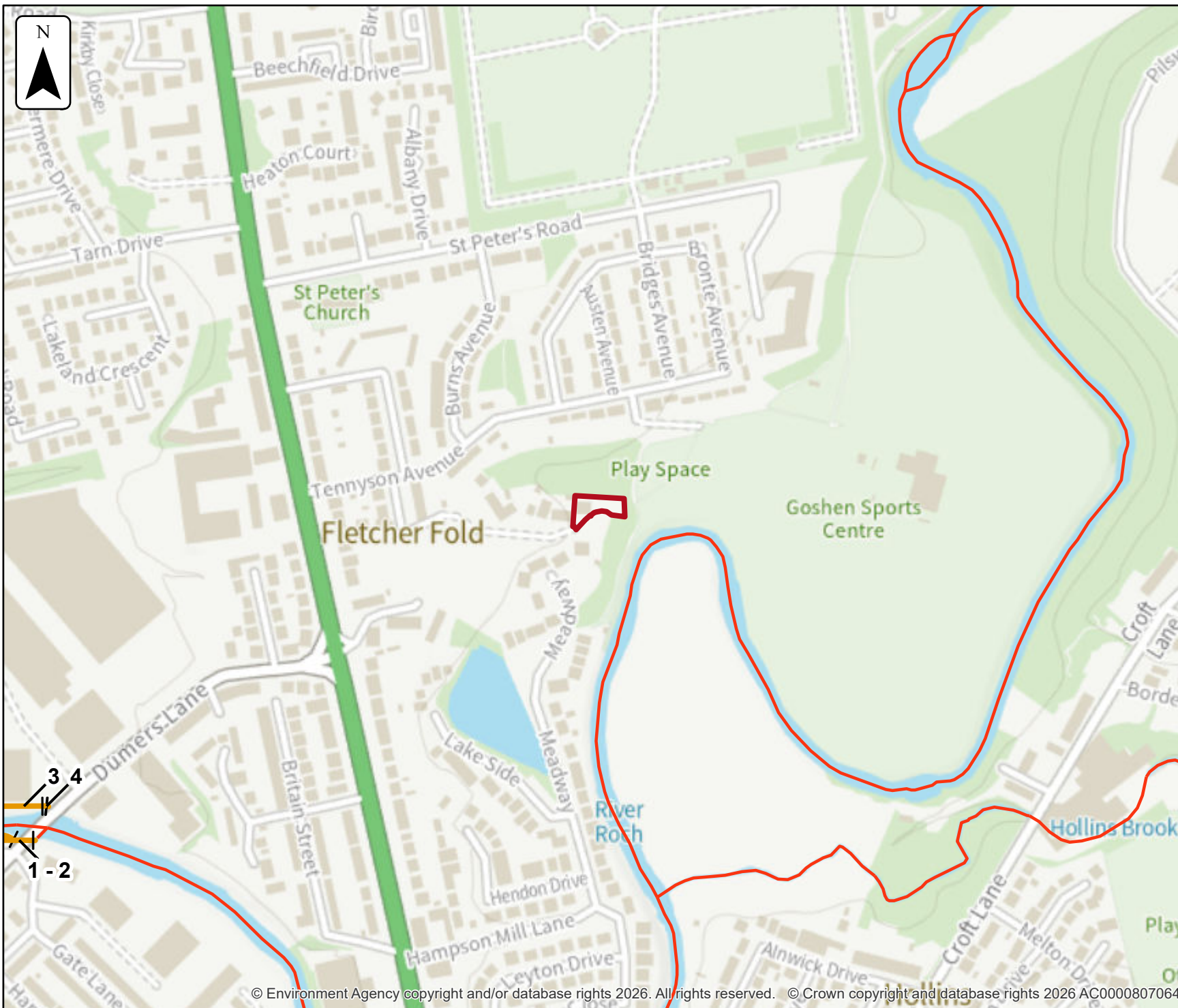
Scale

1:5,000

Created

9 Jul 2026

-  Selected area
-  Main river
-  Flood defence



Flood defences data

Label	Asset ID	Asset Type	Standard of protection (years)	Current condition	Downstream actual crest level (mAOD)	Upstream actual crest level (mAOD)	Effective crest level (mAOD)
1	758806	Wall	100	Very good	70.04	70.04	70.04
2	775911	Flood Gate		Fair			
3	760554	Wall	100	Very good	70.15	70.15	70.15
4	760553	Wall	100	Very good			

Any blank cells show where a particular value has not been recorded for an asset.

Modelled data

This section provides details of different scenarios we have modelled and includes the following (where available):

- outline maps showing the area at risk from flooding in different modelled scenarios
- modelled node point map(s) showing the points used to get the data to model the scenarios and table(s) providing details of the flood risk for different return periods
- map(s) showing the approximate water levels for the return period with the largest flood extent for a scenario and table(s) of sample points providing details of the flood risk for different return periods

Climate change

The climate change data included in the models may not include the latest [flood risk assessment climate change allowances](#). Where the new allowances are not available you will need to consider this data and factor in the new allowances to demonstrate the development will be safe from flooding.

The Environment Agency will incorporate the new allowances into future modelling studies. For now, it's your responsibility to demonstrate that new developments will be safe in flood risk terms for their lifetime.

Modelled scenarios

The following scenarios are included:

- Defended modelled fluvial: risk of flooding from rivers where there are flood defences
- Defences removed modelled fluvial: risk of flooding from rivers where flood defences have been removed
- Defended climate change modelled fluvial: risk of flooding from rivers where there are flood defences, including estimated impact of climate change
- Defences removed climate change modelled fluvial: risk of flooding from rivers where flood defences have been removed, including estimated impact of climate change

No data available

We do not have any height or depth data at this location for the following models:

Model name: Radcliffe and Redvales 2016

Scenario(s): Defences removed modelled fluvial, Defended modelled fluvial



Defences removed climate change modelled fluvial extent

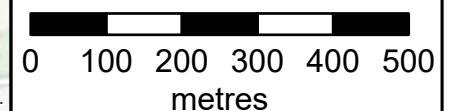
Location (easting/northing)
380789/408729

Scale Created
1:10,000 9 Jul 2026

Model name
Lower Roch 2017

-  Selected area
-  Main river
- Modelled flood extent
 -  1% AEP (+30%)
 -  1% AEP (+35%)
 -  1% AEP (+70%)
 -  0.1% AEP (+30%)

Flood extents may not be
visible where they overlap
other return periods





Defences removed modelled fluvial extent

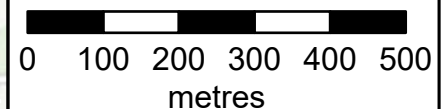
Location (easting/northing)
380789/408729

Scale Created
1:10,000 9 Jul 2026

Model name
Lower Roch 2017

-  Selected area
-  Main river
- Modelled flood extent
 -  5% AEP
 -  2% AEP
 -  1.33% AEP
 -  1% AEP
 -  0.5% AEP
 -  0.1% AEP

Flood extents may not be
visible where they overlap
other return periods





Defended climate change modelled fluvial extent

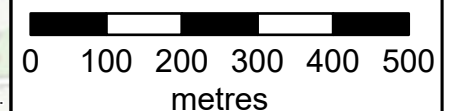
Location (easting/northing)
380789/408729

Scale Created
1:10,000 9 Jul 2026

Model name
Lower Roch 2017

-  Selected area
-  Main river
- Modelled flood extent
 -  1% AEP (+30%)
 -  1% AEP (+35%)
 -  1% AEP (+70%)
 -  0.1% AEP (+30%)

Flood extents may not be
visible where they overlap
other return periods





Defended modelled fluvial extent

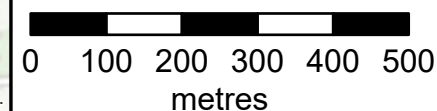
Location (easting/northing)
380789/408729

Scale Created
1:10,000 9 Jul 2026

Model name
Lower Roch 2017

-  Selected area
-  Main river
- Modelled flood extent
 -  5% AEP
 -  2% AEP
 -  1.33% AEP
 -  1% AEP
 -  0.5% AEP
 -  0.1% AEP

Flood extents may not be
visible where they overlap
other return periods





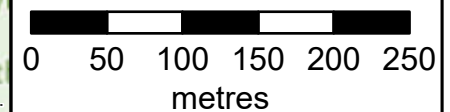
Defended modelled fluvial node locations

Location (easting/northing)
380789/408729

Scale Created
1:5,000 9 Jul 2026

Model name
Lower Roch 2017

-  Selected area
-  Modelled location
-  Main river



Modelled node locations data

Defended

Label	Modelled location ID	Easting	Northing	50% AEP	20% AEP	10% AEP	5% AEP	4% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
				Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level
1	1592048	380790	408516	65.83	66.22	66.49	66.76	66.87	66.95	67.20	67.43	67.63	68.20	69.47
2	1592221	380808	408430	65.66	66.07	66.36	66.63	66.74	66.82	67.06	67.29	67.50	68.16	69.47
3	1592063	380816	408618	66.04	66.44	66.71	66.96	67.05	67.13	67.35	67.55	67.73	68.23	69.48
4	1592056	380851	408345	65.55	65.96	66.25	66.53	66.65	66.72	66.97	67.19	67.39	67.98	69.32
5	1592161	380853	408694	66.20	66.60	66.87	67.12	67.20	67.27	67.47	67.65	67.80	68.25	69.48
6	1592287	380874	408695	66.27	66.66	66.92	67.15	67.24	67.30	67.49	67.67	67.81	68.25	69.48
7	1592226	380906	408679	66.32	66.70	66.95	67.18	67.26	67.32	67.51	67.67	67.82	68.25	69.48
8	1592081	380931	408602	66.46	66.82	67.06	67.28	67.36	67.42	67.59	67.73	67.85	68.25	69.48
9	1592218	380987	408505	66.64	66.98	67.20	67.39	67.45	67.50	67.64	67.75	67.86	68.23	69.47
10	1592242	381066	408456	66.82	67.17	67.39	67.60	67.66	67.70	67.83	67.92	67.99	68.26	69.47

Data in this table comes from the Lower Roch 2017 model.

Level values are shown in mAOD, and flow values are shown in cubic metres per second.

Any blank cells show where a particular scenario has not been modelled for this location.

Defended

Label	Modelled location ID	Easting	Northing	50% AEP	20% AEP	10% AEP	5% AEP	4% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
				Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow
1	1592048	380790	408516	57.77	73.66	85.34	95.72	98.0	99.86	103.82	105.34	106.30	105.49	102.46
2	1592221	380808	408430	57.77	73.65	85.33	97.66	101.61	105.48	115.97	122.42	124.68	123.97	119.87
3	1592063	380816	408618	57.78	73.67	85.35	95.74	98.04	99.75	102.88	104.04	104.97	104.05	101.07
4	1592056	380851	408345	57.76	73.63	85.31	97.59	101.49	105.36	116.32	125.18	132.66	151.31	176.92
5	1592161	380853	408694	57.78	73.68	85.37	95.77	98.11	99.82	103.24	104.56	105.64	104.98	102.0
6	1592287	380874	408695	57.79	73.69	85.38	95.78	98.14	99.78	102.93	104.14	105.26	104.67	101.76
7	1592226	380906	408679	57.79	73.70	85.39	95.78	98.09	99.71	102.60	103.85	104.99	104.57	101.71
8	1592081	380931	408602	57.80	73.72	84.73	92.95	94.35	95.28	96.42	97.10	97.56	97.61	95.31
9	1592218	380987	408505	57.80	73.73	85.34	95.43	97.87	99.51	102.66	104.53	106.0	106.54	105.29
10	1592242	381066	408456	57.81	73.67	82.92	87.67	88.72	89.56	91.01	92.31	93.61	98.69	107.69

Data in this table comes from the Lower Roch 2017 model.

Level values are shown in mAOD, and flow values are shown in cubic metres per second.

Any blank cells show where a particular scenario has not been modelled for this location.



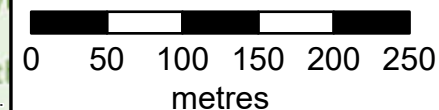
Defences removed modelled fluvial node locations

Location (easting/northing)
380789/408729

Scale Created
1:5,000 9 Jul 2026

Model name
Lower Roch 2017

-  Selected area
-  Modelled location
-  Main river



Modelled node locations data

Defences removed

Label	Modelled location ID	Easting	Northing	50% AEP	20% AEP	10% AEP	5% AEP	4% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
				Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level
1	1592048	380790	408516	65.83	66.22	66.49	66.76	66.87	66.95	67.20	67.43	67.60	68.20	69.49
2	1592221	380808	408430	65.66	66.07	66.36	66.63	66.74	66.82	67.06	67.29	67.47	68.16	69.48
3	1592063	380816	408618	66.04	66.44	66.71	66.96	67.05	67.13	67.35	67.55	67.70	68.23	69.49
4	1592056	380851	408345	65.55	65.96	66.25	66.53	66.65	66.72	66.97	67.19	67.36	67.98	69.33
5	1592161	380853	408694	66.20	66.60	66.87	67.12	67.20	67.27	67.47	67.65	67.78	68.25	69.49
6	1592287	380874	408695	66.27	66.66	66.92	67.15	67.24	67.30	67.49	67.67	67.79	68.25	69.49
7	1592226	380906	408679	66.32	66.70	66.95	67.18	67.26	67.32	67.51	67.67	67.80	68.25	69.49
8	1592081	380931	408602	66.46	66.82	67.06	67.28	67.36	67.42	67.59	67.73	67.83	68.25	69.49
9	1592218	380987	408505	66.64	66.98	67.20	67.39	67.45	67.50	67.64	67.75	67.84	68.23	69.48
10	1592242	381066	408456	66.82	67.17	67.39	67.60	67.66	67.70	67.83	67.92	67.98	68.26	69.49

Data in this table comes from the Lower Roch 2017 model.

Level values are shown in mAOD, and flow values are shown in cubic metres per second.

Any blank cells show where a particular scenario has not been modelled for this location.

Defences removed

Label	Modelled location ID	Easting	Northing	50% AEP	20% AEP	10% AEP	5% AEP	4% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
				Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow
1	1592048	380790	408516	57.77	73.66	85.34	95.72	98.0	99.86	103.82	105.33	106.18	105.49	102.45
2	1592221	380808	408430	57.77	73.65	85.33	97.66	101.61	105.48	115.97	122.42	124.40	123.96	119.87
3	1592063	380816	408618	57.78	73.67	85.35	95.74	98.04	99.75	102.88	104.03	104.90	104.05	101.07
4	1592056	380851	408345	57.76	73.63	85.31	97.59	101.49	105.36	116.32	125.18	131.43	151.31	177.39
5	1592161	380853	408694	57.78	73.68	85.37	95.77	98.11	99.82	103.24	104.56	105.57	104.98	102.0
6	1592287	380874	408695	57.79	73.69	85.38	95.78	98.14	99.78	102.93	104.14	105.19	104.67	101.75
7	1592226	380906	408679	57.79	73.70	85.39	95.78	98.09	99.71	102.60	103.85	104.91	104.57	101.71
8	1592081	380931	408602	57.80	73.72	84.73	92.95	94.34	95.28	96.42	97.10	97.53	97.61	95.31
9	1592218	380987	408505	57.80	73.73	85.34	95.43	97.87	99.51	102.66	104.53	105.92	106.54	105.29
10	1592242	381066	408456	57.81	73.67	82.92	87.67	88.72	89.56	91.01	92.31	93.53	98.70	107.63

Data in this table comes from the Lower Roch 2017 model.

Level values are shown in mAOD, and flow values are shown in cubic metres per second.

Any blank cells show where a particular scenario has not been modelled for this location.



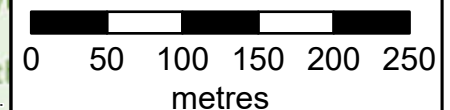
Defended climate change modelled fluvial node locations

Location (easting/northing)
380789/408729

Scale Created
1:5,000 9 Jul 2026

Model name
Lower Roch 2017

-  Selected area
-  Modelled location
-  Main river



Modelled node locations data

Defended climate change

Label	Modelled location ID	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
				Level	Level	Level	Level
1	1592048	380790	408516	68.59	68.78	69.75	70.25
2	1592221	380808	408430	68.57	68.77	69.74	70.25
3	1592063	380816	408618	68.61	68.79	69.75	70.26
4	1592056	380851	408345	68.37	68.56	69.59	70.15
5	1592161	380853	408694	68.61	68.80	69.76	70.26
6	1592287	380874	408695	68.61	68.80	69.76	70.26
7	1592226	380906	408679	68.61	68.80	69.76	70.26
8	1592081	380931	408602	68.61	68.80	69.76	70.26
9	1592218	380987	408505	68.59	68.78	69.75	70.24
10	1592242	381066	408456	68.61	68.79	69.75	70.26

Data in this table comes from the Lower Roch 2017 model.

Level values are shown in mAOD, and flow values are shown in cubic metres per second.

Any blank cells show where a particular scenario has not been modelled for this location.

Defended climate change

Label	Modelled location ID	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
				Flow	Flow	Flow	Flow
1	1592048	380790	408516	104.54	104.50	105.19	105.41
2	1592221	380808	408430	124.60	124.53	124.97	125.37
3	1592063	380816	408618	102.59	102.61	103.34	103.42
4	1592056	380851	408345	170.39	176.31	199.68	203.13
5	1592161	380853	408694	102.27	102.28	103.11	103.23
6	1592287	380874	408695	101.59	101.63	102.53	102.50
7	1592226	380906	408679	100.85	100.89	101.87	101.86
8	1592081	380931	408602	93.86	94.0	94.73	94.62
9	1592218	380987	408505	99.37	99.38	100.44	100.80
10	1592242	381066	408456	101.84	102.08	95.97	92.77

Data in this table comes from the Lower Roch 2017 model.

Level values are shown in mAOD, and flow values are shown in cubic metres per second.

Any blank cells show where a particular scenario has not been modelled for this location.



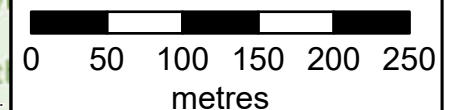
Defences removed climate change modelled fluvial node locations

Location (easting/northing)
380789/408729

Scale Created
1:5,000 9 Jul 2026

Model name
Lower Roch 2017

-  Selected area
-  Modelled location
-  Main river



Modelled node locations data

Defences removed climate change

Label	Modelled location ID	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
				Level	Level	Level	Level
1	1592048	380790	408516	68.59	68.81	69.77	70.28
2	1592221	380808	408430	68.57	68.80	69.77	70.28
3	1592063	380816	408618	68.61	68.82	69.78	70.28
4	1592056	380851	408345	68.37	68.59	69.62	70.17
5	1592161	380853	408694	68.61	68.83	69.78	70.29
6	1592287	380874	408695	68.61	68.83	69.78	70.29
7	1592226	380906	408679	68.61	68.83	69.78	70.29
8	1592081	380931	408602	68.61	68.83	69.78	70.29
9	1592218	380987	408505	68.59	68.81	69.77	70.26
10	1592242	381066	408456	68.61	68.82	69.77	70.28

Data in this table comes from the Lower Roch 2017 model.

Level values are shown in mAOD, and flow values are shown in cubic metres per second.

Any blank cells show where a particular scenario has not been modelled for this location.

Defences removed climate change

Label	Modelled location ID	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
				Flow	Flow	Flow	Flow
1	1592048	380790	408516	104.53	104.40	105.20	105.41
2	1592221	380808	408430	124.59	124.41	124.98	125.40
3	1592063	380816	408618	102.59	102.55	103.34	103.45
4	1592056	380851	408345	170.48	177.44	199.51	202.86
5	1592161	380853	408694	102.26	102.21	103.11	103.24
6	1592287	380874	408695	101.58	101.56	102.53	102.51
7	1592226	380906	408679	100.84	100.82	101.88	101.86
8	1592081	380931	408602	93.86	93.99	94.74	94.63
9	1592218	380987	408505	99.36	99.30	100.44	100.81
10	1592242	381066	408456	101.84	102.22	95.94	92.84

Data in this table comes from the Lower Roch 2017 model.

Level values are shown in mAOD, and flow values are shown in cubic metres per second.

Any blank cells show where a particular scenario has not been modelled for this location.



Defended modelled fluvial extent and height

Location (easting/northing)
380789/408729

Scale Created
1:500 9 Jul 2026

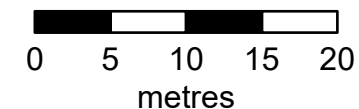
Model name
Lower Roch 2017

-  Selected area
-  Main river

Modelled 2D grid
Height in mAOD

-  69 - 69.125
-  69.125 - 69.25
-  69.25 - 69.375
-  69.375 - 69.5
-  69.5 - 69.625
-  69.625 - 69.75
-  69.75 - 69.875
-  69.875 - 70.0
-  70.0 - 70.125

This map shows the
0.1% AEP height data



Sample point data

Defended

Label	Easting	Northing	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Height	Height	Height	Height	Height
1	380761	408703	NoData	NoData	NoData	NoData	NoData
2	380771	408703	NoData	NoData	NoData	NoData	NoData
3	380761	408713	NoData	NoData	NoData	NoData	NoData
4	380771	408713	NoData	NoData	NoData	NoData	NoData
5	380781	408713	NoData	NoData	NoData	NoData	NoData
6	380801	408713	NoData	NoData	NoData	NoData	69.48
7	380811	408713	67.47	67.65	67.78	68.24	69.48
8	380821	408713	67.47	67.65	67.78	68.24	69.48
9	380761	408723	NoData	NoData	NoData	NoData	NoData
10	380771	408723	NoData	NoData	NoData	NoData	NoData
11	380781	408723	NoData	NoData	NoData	NoData	NoData
12	380791	408723	NoData	NoData	NoData	NoData	69.48

Label	Easting	Northing	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Height	Height	Height	Height	Height
13	380801	408723	NoData	NoData	NoData	NoData	69.48
14	380811	408723	NoData	NoData	NoData	NoData	69.48
15	380821	408723	67.47	67.65	67.78	68.25	69.48
16	380761	408733	NoData	NoData	NoData	NoData	NoData
17	380771	408733	NoData	NoData	NoData	NoData	NoData
18	380781	408733	NoData	NoData	NoData	NoData	NoData
19	380791	408733	NoData	NoData	NoData	NoData	NoData
20	380801	408733	NoData	NoData	NoData	NoData	69.48
21	380811	408733	NoData	NoData	NoData	NoData	69.48
22	380821	408733	67.47	67.65	67.78	68.25	69.48
23	380761	408743	NoData	NoData	NoData	NoData	NoData
24	380771	408743	NoData	NoData	NoData	NoData	NoData

Label	Easting	Northing	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Height	Height	Height	Height	Height
25	380781	408743	NoData	NoData	NoData	NoData	NoData
26	380791	408743	NoData	NoData	NoData	NoData	NoData
27	380801	408743	NoData	NoData	NoData	NoData	69.48
28	380811	408743	NoData	NoData	67.78	68.25	69.48
29	380821	408743	67.47	67.65	67.78	68.25	69.48
Max value in selected area:			67.47	67.65	67.78	68.25	69.48

Data in this table comes from the Lower Roch 2017 model. Height values are shown in mAOD, and depth values are shown in metres.

Any blank cells show where a particular scenario has not been modelled for this location.

Cells which contain text 'NoData' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.

'Max value in selected area' is the deepest depth or highest height at any location within your drawn boundary.

Defended

Label	Easting	Northing	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Depth	Depth	Depth	Depth	Depth
1	380761	408703	NoData	NoData	NoData	NoData	NoData
2	380771	408703	NoData	NoData	NoData	NoData	NoData
3	380761	408713	NoData	NoData	NoData	NoData	NoData
4	380771	408713	NoData	NoData	NoData	NoData	NoData
5	380781	408713	NoData	NoData	NoData	NoData	NoData
6	380801	408713	NoData	NoData	NoData	NoData	0.25
7	380811	408713	0.41	0.58	0.71	1.18	2.41
8	380821	408713	0.08	0.25	0.38	0.85	2.08
9	380761	408723	NoData	NoData	NoData	NoData	NoData
10	380771	408723	NoData	NoData	NoData	NoData	NoData
11	380781	408723	NoData	NoData	NoData	NoData	NoData
12	380791	408723	NoData	NoData	NoData	NoData	0.04

Label	Easting	Northing	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Depth	Depth	Depth	Depth	Depth
13	380801	408723	NoData	NoData	NoData	NoData	0.32
14	380811	408723	NoData	NoData	NoData	NoData	0.46
15	380821	408723	0.13	0.31	0.44	0.90	2.14
16	380761	408733	NoData	NoData	NoData	NoData	NoData
17	380771	408733	NoData	NoData	NoData	NoData	NoData
18	380781	408733	NoData	NoData	NoData	NoData	NoData
19	380791	408733	NoData	NoData	NoData	NoData	NoData
20	380801	408733	NoData	NoData	NoData	NoData	0.04
21	380811	408733	NoData	NoData	NoData	NoData	0.52
22	380821	408733	0.20	0.38	0.51	0.97	2.20
23	380761	408743	NoData	NoData	NoData	NoData	NoData
24	380771	408743	NoData	NoData	NoData	NoData	NoData

Label	Easting	Northing	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Depth	Depth	Depth	Depth	Depth
25	380781	408743	NoData	NoData	NoData	NoData	NoData
26	380791	408743	NoData	NoData	NoData	NoData	NoData
27	380801	408743	NoData	NoData	NoData	NoData	0.17
28	380811	408743	NoData	NoData	0.04	0.47	1.68
29	380821	408743	0.15	0.33	0.46	0.93	2.16
Max value in selected area:			0.16	0.34	0.47	0.94	2.17

Data in this table comes from the Lower Roch 2017 model. Height values are shown in mAOD, and depth values are shown in metres.

Any blank cells show where a particular scenario has not been modelled for this location.

Cells which contain text 'NoData' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.

'Max value in selected area' is the deepest depth or highest height at any location within your drawn boundary.



Defences removed modelled fluvial extent and height

Location (easting/northing)
380789/408729

Scale Created
1:500 9 Jul 2026

Model name
Lower Roch 2017

 Selected area

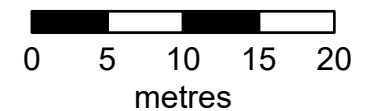
 Main river

Modelled 2D grid

Height in mAOD

-  69 - 69.125
-  69.125 - 69.25
-  69.25 - 69.375
-  69.375 - 69.5
-  69.5 - 69.625
-  69.625 - 69.75
-  69.75 - 69.875
-  69.875 - 70.0
-  70.0 - 70.125

This map shows the
0.1% AEP height data



Sample point data

Defences removed

Label	Easting	Northing	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Height	Height	Height	Height	Height
1	380761	408703	NoData	NoData	NoData	NoData	NoData
2	380771	408703	NoData	NoData	NoData	NoData	NoData
3	380761	408713	NoData	NoData	NoData	NoData	NoData
4	380771	408713	NoData	NoData	NoData	NoData	NoData
5	380781	408713	NoData	NoData	NoData	NoData	NoData
6	380801	408713	NoData	NoData	NoData	NoData	69.49
7	380811	408713	67.47	67.65	67.78	68.24	69.49
8	380821	408713	67.47	67.65	67.78	68.24	69.49
9	380761	408723	NoData	NoData	NoData	NoData	NoData
10	380771	408723	NoData	NoData	NoData	NoData	NoData
11	380781	408723	NoData	NoData	NoData	NoData	NoData
12	380791	408723	NoData	NoData	NoData	NoData	69.49

Label	Easting	Northing	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Height	Height	Height	Height	Height
13	380801	408723	NoData	NoData	NoData	NoData	69.49
14	380811	408723	NoData	NoData	NoData	NoData	69.49
15	380821	408723	67.47	67.65	67.78	68.25	69.49
16	380761	408733	NoData	NoData	NoData	NoData	NoData
17	380771	408733	NoData	NoData	NoData	NoData	NoData
18	380781	408733	NoData	NoData	NoData	NoData	NoData
19	380791	408733	NoData	NoData	NoData	NoData	NoData
20	380801	408733	NoData	NoData	NoData	NoData	69.49
21	380811	408733	NoData	NoData	NoData	NoData	69.49
22	380821	408733	67.47	67.65	67.78	68.25	69.49
23	380761	408743	NoData	NoData	NoData	NoData	NoData
24	380771	408743	NoData	NoData	NoData	NoData	NoData

Label	Easting	Northing	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Height	Height	Height	Height	Height
25	380781	408743	NoData	NoData	NoData	NoData	NoData
26	380791	408743	NoData	NoData	NoData	NoData	NoData
27	380801	408743	NoData	NoData	NoData	NoData	69.49
28	380811	408743	NoData	NoData	67.78	68.25	69.49
29	380821	408743	67.47	67.65	67.78	68.25	69.49
Max value in selected area:			67.47	67.65	67.78	68.25	69.49

Data in this table comes from the Lower Roch 2017 model. Height values are shown in mAOD, and depth values are shown in metres.

Any blank cells show where a particular scenario has not been modelled for this location.

Cells which contain text 'NoData' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.

'Max value in selected area' is the deepest depth or highest height at any location within your drawn boundary.

Defences removed

Label	Easting	Northing	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Depth	Depth	Depth	Depth	Depth
1	380761	408703	NoData	NoData	NoData	NoData	NoData
2	380771	408703	NoData	NoData	NoData	NoData	NoData
3	380761	408713	NoData	NoData	NoData	NoData	NoData
4	380771	408713	NoData	NoData	NoData	NoData	NoData
5	380781	408713	NoData	NoData	NoData	NoData	NoData
6	380801	408713	NoData	NoData	NoData	NoData	0.27
7	380811	408713	0.41	0.58	0.71	1.18	2.42
8	380821	408713	0.08	0.25	0.38	0.85	2.10
9	380761	408723	NoData	NoData	NoData	NoData	NoData
10	380771	408723	NoData	NoData	NoData	NoData	NoData
11	380781	408723	NoData	NoData	NoData	NoData	NoData
12	380791	408723	NoData	NoData	NoData	NoData	0.05

Label	Easting	Northing	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Depth	Depth	Depth	Depth	Depth
13	380801	408723	NoData	NoData	NoData	NoData	0.33
14	380811	408723	NoData	NoData	NoData	NoData	0.47
15	380821	408723	0.13	0.31	0.44	0.90	2.15
16	380761	408733	NoData	NoData	NoData	NoData	NoData
17	380771	408733	NoData	NoData	NoData	NoData	NoData
18	380781	408733	NoData	NoData	NoData	NoData	NoData
19	380791	408733	NoData	NoData	NoData	NoData	NoData
20	380801	408733	NoData	NoData	NoData	NoData	0.05
21	380811	408733	NoData	NoData	NoData	NoData	0.53
22	380821	408733	0.20	0.38	0.51	0.97	2.22
23	380761	408743	NoData	NoData	NoData	NoData	NoData
24	380771	408743	NoData	NoData	NoData	NoData	NoData

Label	Easting	Northing	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Depth	Depth	Depth	Depth	Depth
25	380781	408743	NoData	NoData	NoData	NoData	NoData
26	380791	408743	NoData	NoData	NoData	NoData	NoData
27	380801	408743	NoData	NoData	NoData	NoData	0.18
28	380811	408743	NoData	NoData	0.04	0.47	1.70
29	380821	408743	0.15	0.33	0.46	0.93	2.17
Max value in selected area:			0.16	0.34	0.47	0.94	2.18

Data in this table comes from the Lower Roch 2017 model. Height values are shown in mAOD, and depth values are shown in metres.

Any blank cells show where a particular scenario has not been modelled for this location.

Cells which contain text 'NoData' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.

'Max value in selected area' is the deepest depth or highest height at any location within your drawn boundary.



Defended climate change modelled fluvial extent and height

Location (easting/northing)
380789/408729

Scale Created
1:500 9 Jul 2026

Model name
Lower Roch 2017

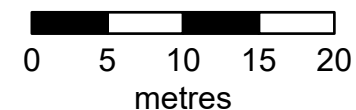
-  Selected area
-  Main river

Modelled 2D grid

Height in mAOD

-  70 - 70.125
-  70.125 - 70.25
-  70.25 - 70.375
-  70.375 - 70.5
-  70.5 - 70.625
-  70.625 - 70.75
-  70.75 - 70.875
-  70.875 - 71.0
-  71.0 - 71.125

This map shows the
0.1% AEP +30% height data



Sample point data

Defended climate change

Label	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
			Height	Height	Height	Height
1	380761	408703	NoData	NoData	NoData	70.26
2	380771	408703	NoData	NoData	NoData	70.26
3	380761	408713	NoData	NoData	NoData	70.26
4	380771	408713	NoData	NoData	69.76	70.26
5	380781	408713	NoData	NoData	NoData	70.26
6	380801	408713	NoData	NoData	69.76	70.26
7	380811	408713	68.61	68.79	69.76	70.26
8	380821	408713	68.61	68.79	69.76	70.26
9	380761	408723	NoData	NoData	NoData	70.26
10	380771	408723	NoData	NoData	NoData	70.26
11	380781	408723	NoData	NoData	69.76	70.26
12	380791	408723	NoData	NoData	69.76	70.26

Label	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
			Height	Height	Height	Height
13	380801	408723	NoData	NoData	69.76	70.26
14	380811	408723	NoData	NoData	69.76	70.26
15	380821	408723	68.61	68.80	69.76	70.26
16	380761	408733	NoData	NoData	NoData	70.26
17	380771	408733	NoData	NoData	NoData	70.26
18	380781	408733	NoData	NoData	NoData	70.26
19	380791	408733	NoData	NoData	NoData	70.26
20	380801	408733	NoData	NoData	69.76	70.26
21	380811	408733	NoData	NoData	69.76	70.26
22	380821	408733	68.61	68.80	69.76	70.26
23	380761	408743	NoData	NoData	NoData	70.26
24	380771	408743	NoData	NoData	NoData	70.26

Label	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
			Height	Height	Height	Height
25	380781	408743	NoData	NoData	NoData	NoData
26	380791	408743	NoData	NoData	NoData	70.26
27	380801	408743	NoData	NoData	69.76	70.26
28	380811	408743	68.61	68.80	69.76	70.26
29	380821	408743	68.61	68.80	69.76	70.26
Max value in selected area:			68.61	68.80	69.76	70.26

Data in this table comes from the Lower Roch 2017 model. Height values are shown in mAOD, and depth values are shown in metres.

Any blank cells show where a particular scenario has not been modelled for this location.

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'Max value in selected area' is the deepest depth or highest height at any location within your drawn boundary.

Defended climate change

Label	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
			Depth	Depth	Depth	Depth
1	380761	408703	NoData	NoData	NoData	0.47
2	380771	408703	NoData	NoData	NoData	0.23
3	380761	408713	NoData	NoData	NoData	0.48
4	380771	408713	NoData	NoData	0.07	0.58
5	380781	408713	NoData	NoData	NoData	0.47
6	380801	408713	NoData	NoData	0.53	1.03
7	380811	408713	1.55	1.73	2.69	3.19
8	380821	408713	1.22	1.40	2.36	2.87
9	380761	408723	NoData	NoData	NoData	0.41
10	380771	408723	NoData	NoData	NoData	0.53
11	380781	408723	NoData	NoData	0.22	0.73
12	380791	408723	NoData	NoData	0.32	0.82

Label	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
			Depth	Depth	Depth	Depth
13	380801	408723	NoData	NoData	0.60	1.10
14	380811	408723	NoData	NoData	0.73	1.24
15	380821	408723	1.27	1.46	2.42	2.92
16	380761	408733	NoData	NoData	NoData	0.30
17	380771	408733	NoData	NoData	NoData	0.26
18	380781	408733	NoData	NoData	NoData	0.37
19	380791	408733	NoData	NoData	NoData	0.47
20	380801	408733	NoData	NoData	0.32	0.82
21	380811	408733	NoData	NoData	0.80	1.30
22	380821	408733	1.34	1.52	2.48	2.99
23	380761	408743	NoData	NoData	NoData	0.19
24	380771	408743	NoData	NoData	NoData	0.05

Label	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
			Depth	Depth	Depth	Depth
25	380781	408743	NoData	NoData	NoData	NoData
26	380791	408743	NoData	NoData	NoData	0.12
27	380801	408743	NoData	NoData	0.45	0.95
28	380811	408743	0.82	1	1.96	2.47
29	380821	408743	1.29	1.47	2.44	2.94
Max value in selected area:			1.30	1.48	2.45	2.95

Data in this table comes from the Lower Roch 2017 model. Height values are shown in mAOD, and depth values are shown in metres.

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'Max value in selected area' is the deepest depth or highest height at any location within your drawn boundary.



Defences removed climate change modelled fluvial extent and height

Location (easting/northing)
380789/408729

Scale Created
1:500 9 Jul 2026

Model name
Lower Roch 2017

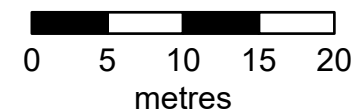
-  Selected area
-  Main river

Modelled 2D grid

Height in mAOD

-  70 - 70.125
-  70.125 - 70.25
-  70.25 - 70.375
-  70.375 - 70.5
-  70.5 - 70.625
-  70.625 - 70.75
-  70.75 - 70.875
-  70.875 - 71.0
-  71.0 - 71.125

This map shows the
0.1% AEP +30% height data



Sample point data

Defences removed climate change

Label	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
			Height	Height	Height	Height
1	380761	408703	NoData	NoData	69.78	70.29
2	380771	408703	NoData	NoData	NoData	70.29
3	380761	408713	NoData	NoData	NoData	70.29
4	380771	408713	NoData	NoData	69.78	70.29
5	380781	408713	NoData	NoData	NoData	70.29
6	380801	408713	NoData	NoData	69.78	70.29
7	380811	408713	68.61	68.80	69.78	70.29
8	380821	408713	68.61	68.80	69.78	70.29
9	380761	408723	NoData	NoData	NoData	70.29
10	380771	408723	NoData	NoData	69.78	70.29
11	380781	408723	NoData	NoData	69.78	70.29
12	380791	408723	NoData	NoData	69.78	70.29

Label	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
			Height	Height	Height	Height
13	380801	408723	NoData	NoData	69.78	70.29
14	380811	408723	NoData	NoData	69.78	70.29
15	380821	408723	68.61	68.80	69.78	70.29
16	380761	408733	NoData	NoData	NoData	70.29
17	380771	408733	NoData	NoData	NoData	70.29
18	380781	408733	NoData	NoData	NoData	70.29
19	380791	408733	NoData	NoData	NoData	70.29
20	380801	408733	NoData	NoData	69.78	70.29
21	380811	408733	NoData	NoData	69.78	70.29
22	380821	408733	68.61	68.80	69.78	70.29
23	380761	408743	NoData	NoData	NoData	70.29
24	380771	408743	NoData	NoData	NoData	70.29

Label	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
			Height	Height	Height	Height
25	380781	408743	NoData	NoData	NoData	NoData
26	380791	408743	NoData	NoData	NoData	70.29
27	380801	408743	NoData	NoData	69.78	70.29
28	380811	408743	68.61	68.80	69.78	70.29
29	380821	408743	68.61	68.80	69.78	70.29
Max value in selected area:			68.61	68.80	69.78	70.29

Data in this table comes from the Lower Roch 2017 model. Height values are shown in mAOD, and depth values are shown in metres.

Any blank cells show where a particular scenario has not been modelled for this location.

Cells which contain text 'NoData' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.

'Max value in selected area' is the deepest depth or highest height at any location within your drawn boundary.

Defences removed climate change

Label	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
			Depth	Depth	Depth	Depth
1	380761	408703	NoData	NoData	0.01	0.50
2	380771	408703	NoData	NoData	NoData	0.26
3	380761	408713	NoData	NoData	NoData	0.51
4	380771	408713	NoData	NoData	0.09	0.60
5	380781	408713	NoData	NoData	NoData	0.50
6	380801	408713	NoData	NoData	0.55	1.06
7	380811	408713	1.55	1.73	2.71	3.22
8	380821	408713	1.22	1.40	2.38	2.89
9	380761	408723	NoData	NoData	NoData	0.43
10	380771	408723	NoData	NoData	0.05	0.55
11	380781	408723	NoData	NoData	0.24	0.75
12	380791	408723	NoData	NoData	0.34	0.85

Label	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
			Depth	Depth	Depth	Depth
13	380801	408723	NoData	NoData	0.62	1.13
14	380811	408723	NoData	NoData	0.76	1.26
15	380821	408723	1.27	1.46	2.44	2.94
16	380761	408733	NoData	NoData	NoData	0.33
17	380771	408733	NoData	NoData	NoData	0.28
18	380781	408733	NoData	NoData	NoData	0.39
19	380791	408733	NoData	NoData	NoData	0.50
20	380801	408733	NoData	NoData	0.34	0.85
21	380811	408733	NoData	NoData	0.82	1.32
22	380821	408733	1.34	1.52	2.51	3.01
23	380761	408743	NoData	NoData	NoData	0.21
24	380771	408743	NoData	NoData	NoData	0.06

Label	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
			Depth	Depth	Depth	Depth
25	380781	408743	NoData	NoData	NoData	NoData
26	380791	408743	NoData	NoData	NoData	0.14
27	380801	408743	NoData	NoData	0.47	0.98
28	380811	408743	0.82	1.00	1.98	2.49
29	380821	408743	1.29	1.48	2.46	2.96
Max value in selected area:			1.30	1.49	2.47	2.97

Data in this table comes from the Lower Roch 2017 model. Height values are shown in mAOD, and depth values are shown in metres.

Any blank cells show where a particular scenario has not been modelled for this location.

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'Max value in selected area' is the deepest depth or highest height at any location within your drawn boundary.

Strategic flood risk assessments

We recommend that you check the relevant local authority's strategic flood risk assessment (SFRA) as part of your work to prepare a site specific flood risk assessment.

This should give you information about:

- the potential impacts of climate change in this catchment
- areas defined as functional floodplain
- flooding from other sources, such as canals, groundwater and reservoirs

Your lead local flood authority is Bury District.

About this data

This data has been generated by strategic scale flood models and is not intended for use at the individual property scale. If you're intending to use this data as part of a flood risk assessment, please include an appropriate modelling tolerance as part of your assessment. The Environment Agency regularly updates its modelling. We recommend that you check the data provided is the most recent, before submitting your flood risk assessment.

Flood risk activity permits

Under the Environmental Permitting (England and Wales) Regulations 2016 some developments may require an environmental permit for flood risk activities from the Environment Agency. This includes any permanent or temporary works that are in, over, under, or nearby a designated main river or flood defence structure.

[Find out more about flood risk activity permits](#)

Help and advice

Contact the Greater Manchester Merseyside and Cheshire Environment Agency team at inforequests.gmmc@environment-agency.gov.uk for:

- [more information about getting a product 5, 6, 7 or 8](#)
- general help and advice about the site you're requesting data for

APPENDIX C: BROWNFIELD CALCULATIONS

Project: 9 Manor House Gardens Bury		Date: 18/07/2026			
		Designed by: MB	Checked by:		Approved By:
Report Details: Type: Junctions Storm Phase: Phase		Company Address: Courous Suite 7a, The Globe Centre Accrington			

Name	Junction Type	Easting (m)	Northing (m)	Cover Level (m)	Depth (m)	Invert Level (m)	Chamber Shape	Diameter (m)
EX MH1	Manhole	380783.565	408737.164	69.600	0.880	68.720	Circular	0.600
EX MH2	Manhole	380787.986	408730.412	69.883	1.463	68.420	Circular	0.600
EX INLET	Simple Junction	380803.090	408730.001					

Name	Lock
EX MH1	None
EX MH2	None
EX INLET	

Project: 9 Manor House Gardens Bury		Date: 18/07/2026			
		Designed by: MB	Checked by:		Approved By:
Report Details: Type: Inflow Summary Storm Phase: Phase		Company Address: Courous Suite 7a, The Globe Centre Accrington			

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Catchment Area	EX MH1		Time of Concentration	0.009	100	0	100	0.009
Catchment Area (1)	EX INLET		Time of Concentration	0.013	100	0	100	0.013
Catchment Area (2)	EX MH2		Time of Concentration	0.008	100	0	100	0.008
Catchment Area (3)	EX MH2		Time of Concentration	0.001	100	0	100	0.001
TOTAL		0.0		0.031				0.031

Project: 9 Manor House Gardens Bury		Date: 18/07/2026			
		Designed by: MB	Checked by:		Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase		Company Address: Courous Suite 7a, The Globe Centre Accrington			



Critical Storm Per Item: Rank By: Max. Outflow

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
EX MH1	FSR: 2 years: +0 %: 15 mins: Summer	69.60 0	68.72 0	68.743	0.023	1.7	0.006	0.000	1.7	0.742	OK
EX MH2	FSR: 2 years: +0 %: 15 mins: Summer	69.88 3	68.42 0	68.459	0.039	3.5	0.011	0.000	3.4	1.526	OK
EX INLET	FSR: 2 years: +0 %: 15 mins: Summer		68.04 0	68.059	0.019	6.0			6.1	2.683	OK

APPENDIX D: PROPOSED SURFACE WATER CALCULATIONS

Project: 9 Manor House Gardens Bury		Date: 18/07/2026			
		Designed by: MB	Checked by:		Approved By:
Report Details: Type: Junctions Storm Phase: Phase		Company Address: Courous Suite 7a, The Globe Centre Accrington			

Name	Junction Type	Easting (m)	Northing (m)	Cover Level (m)	Depth (m)	Invert Level (m)	Chamber Shape	Diameter (m)
PS1	Manhole	380780.392	408738.501	69.812	0.837	68.975	Circular	0.600
EX MH2	Manhole	380787.992	408730.419	69.880	1.460	68.420	Circular	0.600
PS2	Manhole	380801.804	408730.820	69.631	1.510	68.121	Circular	0.600
Ex Inlet	Simple Junction	380803.409	408729.865					
EXMH01	Manhole	380783.550	408737.187	69.590	0.870	68.720	Circular	0.600
PS 2 Inlet	Simple Junction	380802.332	408729.904					

Name	Lock
PS1	None
EX MH2	None
PS2	None
Ex Inlet	
EXMH01	None
PS 2 Inlet	

Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
PS1	Outlet	EX1.000	Orifice
	Diameter (m)	0.050	
	Coefficient of Discharge	0.600	
	Invert Level (m)	68.975	
EX MH2	Outlet	EX1.002	Free Discharge
PS2	Outlet	Pipe	Free Discharge
EXMH01	Outlet	EX1.001	Free Discharge
PS 2 Inlet	Outlet	EX1.003	Free Discharge

Project: 9 Manor House Gardens Bury	Date: 18/07/2026		
	Designed by: MB	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	Company Address: Courous Suite 7a, The Globe Centre Accrington		



Porous Paving

Type : Porous Paving

Dimensions

Exceedance Level (m)	69.812
Depth (m)	0.540
Base Level (m)	69.272
Paving Layer Depth (mm)	90
Membrane Percolation (m/hr)	360.0
Porosity (%)	30
Length (m)	13.823
Long. Slope (1:X)	400.00
Width (m)	4.914
Total Volume (m³)	9.170

Advanced

Conductivity (m/hr)	50.0
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Porous Paving (1)

Type : Porous Paving

Dimensions

Exceedance Level (m)	69.630
Depth (m)	0.540
Base Level (m)	69.090
Paving Layer Depth (mm)	90
Membrane Percolation (m/hr)	360.0
Porosity (%)	30
Length (m)	18.747
Long. Slope (1:X)	200.00
Width (m)	4.327
Total Volume (m³)	10.951

Advanced

Conductivity (m/hr)	50.0
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Project: 9 Manor House Gardens Bury		Date: 18/07/2026			
		Designed by: MB	Checked by:		Approved By:
Report Details: Type: Inflow Summary Storm Phase: Phase		Company Address: Courous Suite 7a, The Globe Centre Accrington			

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Catchment Area	Porous Paving		Time of Concentration	0.007	100	0	100	0.007
Catchment Area (1)	Porous Paving		Time of Concentration	0.006	100	0	100	0.006
Catchment Area (2)	Porous Paving		Time of Concentration	0.001	100	0	100	0.001
Catchment Area (3)	Porous Paving (1)		Time of Concentration	0.004	100	0	100	0.004
Catchment Area (4)	Porous Paving (1)		Time of Concentration	0.004	100	0	100	0.004
Catchment Area (5)	Porous Paving (1)		Time of Concentration	0.008	100	0	100	0.008
Catchment Area (6)	Porous Paving (1)		Time of Concentration	0.001	100	0	100	0.001
TOTAL		0.0		0.031				0.031

Project: 9 Manor House Gardens Bury		Date: 18/07/2026			
Report Details: Type: Junctions Summary Storm Phase: Phase		Designed by: MB	Checked by:		Approved By:
		Company Address: Courous Suite 7a, The Globe Centre Accrington			



FSR: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Outflow

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
PS1	FSR: 2 years: +0 %: 30 mins: Summer	69.81 2	68.97 5	69.002	0.027	0.3	0.008	0.000	0.3	0.267	OK
EX MH2	FSR: 2 years: +0 %: 15 mins: Summer	69.88 0	68.42 0	68.431	0.011	0.3	0.003	0.000	0.3	0.178	OK
PS2	FSR: 2 years: +0 %: 15 mins: Summer	69.63 1	68.12 1	68.134	0.013	0.5	0.004	0.000	0.4	0.233	OK
Ex Inlet	FSR: 2 years: +0 %: 30 mins: Summer		68.04 0	68.056	0.016	0.7			0.7	0.581	OK
EXMH01	FSR: 2 years: +0 %: 15 mins: Summer	69.59 0	68.72 0	68.730	0.010	0.3	0.003	0.000	0.3	0.181	OK
PS 2 Inlet	FSR: 2 years: +0 %: 30 mins: Summer		68.06 7	68.084	0.017	0.7			0.7	0.581	OK

Project: 9 Manor House Gardens Bury		Date: 18/07/2026			
		Designed by: MB	Checked by:		Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase		Company Address: Courous Suite 7a, The Globe Centre Accrington			



FSR: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Outflow

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
PS1	FSR: 30 years: +0 %: 30 mins: Summer	69.81 2	68.97 5	69.017	0.042	0.6	0.012	0.000	0.6	0.528	OK
EX MH2	FSR: 30 years: +0 %: 30 mins: Summer	69.88 0	68.42 0	68.435	0.015	0.6	0.004	0.000	0.6	0.520	OK
PS2	FSR: 30 years: +0 %: 15 mins: Summer	69.63 1	68.12 1	68.140	0.019	0.9	0.005	0.000	0.9	0.447	OK
Ex Inlet	FSR: 30 years: +0 %: 30 mins: Summer		68.04 0	68.062	0.022	1.3			1.3	1.142	OK
EXMH01	FSR: 30 years: +0 %: 30 mins: Summer	69.59 0	68.72 0	68.734	0.014	0.6	0.004	0.000	0.6	0.523	OK
PS 2 Inlet	FSR: 30 years: +0 %: 30 mins: Summer		68.06 7	68.091	0.025	1.3			1.3	1.142	OK

Project: 9 Manor House Gardens Bury		Date: 18/07/2026			
		Designed by: MB	Checked by:		Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase		Company Address: Courous Suite 7a, The Globe Centre Accrington			



FSR: 100 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Outflow

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
PS1	FSR: 100 years: +0 %: 15 mins: Summer	69.81 2	68.97 5	69.026	0.051	1.0	0.015	0.000	0.8	0.478	OK
EX MH2	FSR: 100 years: +0 %: 30 mins: Summer	69.88 0	68.42 0	68.437	0.017	0.8	0.005	0.000	0.8	0.695	OK
PS2	FSR: 100 years: +0 %: 15 mins: Summer	69.63 1	68.12 1	68.144	0.023	1.2	0.006	0.000	1.2	0.580	OK
Ex Inlet	FSR: 100 years: +0 %: 15 mins: Summer		68.04 0	68.065	0.025	1.7			1.7	1.039	OK
EXMH01	FSR: 100 years: +0 %: 30 mins: Summer	69.59 0	68.72 0	68.736	0.016	0.8	0.004	0.000	0.8	0.699	OK
PS 2 Inlet	FSR: 100 years: +0 %: 15 mins: Summer		68.06 7	68.096	0.029	1.8			1.7	1.039	OK

Project: 9 Manor House Gardens Bury		Date: 18/07/2026			
		Designed by: MB	Checked by:		Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase		Company Address: Courous Suite 7a, The Globe Centre Accrington			



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

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
PS1	FSR: 100 years: +45 %: 240 mins: Summer	69.81 2	68.97 5	69.092	0.117	1.7	0.033	0.000	1.6	7.909	Surcharged
EX MH2	FSR: 100 years: +45 %: 360 mins: Summer	69.88 0	68.42 0	68.444	0.024	1.6	0.007	0.000	1.6	9.937	OK
PS2	FSR: 100 years: +45 %: 240 mins: Summer	69.63 1	68.12 1	68.156	0.035	2.5	0.010	0.000	2.5	9.299	OK
Ex Inlet	FSR: 100 years: +45 %: 240 mins: Summer		68.04 0	68.077	0.037	3.7			3.7	17.174	OK
EXMH01	FSR: 100 years: +45 %: 360 mins: Summer	69.59 0	68.72 0	68.742	0.022	1.6	0.006	0.000	1.6	9.943	OK
PS 2 Inlet	FSR: 100 years: +45 %: 240 mins: Summer		68.06 7	68.110	0.044	3.7			3.7	17.174	OK

Project: 9 Manor House Gardens Bury		Date: 18/07/2026			
		Designed by: MB	Checked by:		Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Company Address: Courous Suite 7a, The Globe Centre Accrington			



FSR: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flooded Volume

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. Residual Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Porous Paving	FSR: 2 years: +0 %: 15 mins: Summer	69.422	69.279	0.115	0.007	2.8	1.008	0.000	0.000	0.4	0.191	89.008	OK
Porous Paving (1)	FSR: 2 years: +0 %: 15 mins: Summer	69.308	69.096	0.124	0.006	3.5	1.265	0.000	0.000	0.5	0.237	88.447	OK

Project: 9 Manor House Gardens Bury		Date: 18/07/2026			
		Designed by: MB	Checked by:		Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Company Address: Courous Suite 7a, The Globe Centre Accrington			



FSR: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flooded Volume

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. Residual Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Porous Paving	FSR: 30 years: +0 %: 15 mins: Summer	69.524	69.283	0.217	0.011	5.2	1.906	0.000	0.000	0.8	0.373	79.220	OK
Porous Paving (1)	FSR: 30 years: +0 %: 480 mins: Summer	69.731	69.094	0.547	0.004	1.3	6.560	0.195	0.000	0.2	5.701	40.099	Flood

Project: 9 Manor House Gardens Bury		Date: 18/07/2026			
		Designed by: MB	Checked by:		Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Company Address: Courous Suite 7a, The Globe Centre Accrington			



FSR: 100 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flooded Volume

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. Residual 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: +0 %: 240 mins: Summer	69.857	69.280	0.550	0.008	2.1	5.655	0.231	0.000	0.4	4.481	38.335	Flood
Porous Paving (1)	FSR: 100 years: +0 %: 240 mins: Summer	69.738	69.095	0.554	0.005	2.6	7.414	0.390	0.000	0.4	4.824	32.303	Flood

Project: 9 Manor House Gardens Bury		Date: 18/07/2026			
		Designed by: MB	Checked by:		Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Company Address: Courous Suite 7a, The Globe Centre Accrington			



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

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. Residual 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 %: 360 mins: Summer	69.864	69.286	0.558	0.014	2.3	6.800	0.591	0.000	1.6	9.968	25.846	Flood
Porous Paving (1)	FSR: 100 years: +45 %: 240 mins: Summer	69.747	69.103	0.563	0.013	3.8	8.284	0.876	0.000	2.5	9.308	24.354	Flood