

ENVIRONMENT

Richborough, Richard Hugh Jackson,
Carole Mary Hames, Michael Worrall,
Christopher James Michael Worrall,
Nicholas Worrall and Jack Worrall
Land South of Kings Newton Lane
Melbourne
Flood Risk Assessment

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Birmingham
Livery Place, 35 Livery Street, Colmore Business District, Birmingham, B3 2PB
T: 0121 233 3322

Leeds
Whitehall Waterfront, 2 Riverside Way, Leeds
LS1 4EH
T: 0113 233 8000

London
11 Borough High Street
London, SE1 9SE
T: 0207 407 3879

Manchester
11 Portland Street, Manchester, M1 3HU
0161 233 4260

Nottingham
Waterfront House, Station Street, Nottingham NG2 3DQ
T: 0115 924 1100

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Author:	Alex Eaton BSc (Hons)
Checked:	Claire Gardner BSc (Hons) MSc MCIWEM C.WEM ACMI fCMgr
Approved:	Lucy Reeves BSc (Hons) MCIWEM

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EXECUTIVE SUMMARY

This Flood Risk Assessment (FRA) has been prepared in accordance with the requirements set out in the National Planning Policy Framework (NPPF) and the associated Planning Practice Guidance. It has been produced on behalf of Richborough, Richard Hugh Jackson, Carole Mary Hames, Michael Worrall, Christopher James Michael Worrall, Nicholas Worrall and Jack Worrall in respect of a planning application for a proposed residential development located at Land South of Kings Newton Lane, Melbourne (approximate grid reference: SK 38270 26072).

This report demonstrates that the proposed development is not at significant flood risk, subject to the recommended flood mitigation strategies being implemented.

The Environment Agency (EA) Flood Map for Planning shows the site is located entirely within Flood Zone 1 (land at low risk of flooding from rivers and the sea). The nearest Flood Zones are located approximately 990m east of the site, associated with the Ramsley Brook, a tributary of the River Trent.

There are a number of ordinary watercourses and drainage ditches in close proximity to the site. EA Risk of Flooding from Surface Water mapping has been used as a proxy as it can provide an indication of the potential floodplain associated with ditches and watercourses. The mapping shows the surrounding ditches and watercourses pose an overall very low risk of flooding to the site.

The site has been assessed against other sources of flood risk including canals, surface water, groundwater, reservoirs and large waterbodies, and sewers. The overall risk posed by these sources is considered low.

Finished floor levels should be raised a minimum of 150mm above surrounding ground levels to help mitigate any residual flood risk. The development will increase the area of impermeable surfaces, increasing the rate of runoff from the site prior to mitigation. Therefore, it is proposed to incorporate surface water attenuation as part of the development proposals. Foul water from the development is expected to be drained separately to surface water.

In compliance with the requirements of the NPPF, and subject to the mitigation measures proposed, the development could proceed without being subject to significant flood risk. Moreover, the development will not increase flood risk to the wider catchment area subject to suitable management of surface water runoff discharging from the site.

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1. INTRODUCTION

- 1.1 This Flood Risk Assessment (FRA) has been prepared in accordance with the requirements set out in the National Planning Policy Framework (NPPF) and the associated Planning Practice Guidance. The FRA has been produced on behalf of Richborough, Richard Hugh Jackson, Carole Mary Hames, Michael Worrall, Christopher James Michael Worrall, Nicholas Worrall and Jack Worrall in respect of a planning application for a proposed residential development located at Land South of Kings Newton Lane, Melbourne.
- 1.2 This FRA is intended to support an outline planning application, the level of detail included is commensurate and subject to the nature of the proposals at the planning stage. Summary information is included as **Table 1.1**.

Table 1.1: Site Summary

Site Name	Land South of Kings Newton Lane
Location	Melbourne
NGR (approx.)	SK 38270 26072
Application Site Area (ha)	6.14 (approx.)
Development Type	Residential
Flood Zone Classification	Flood Zone 1
NPPF Vulnerability	More Vulnerable
Anticipated Development Lifetime	100+ years
Environment Agency Office	East Midlands
Lead Local Flood Authority	Derbyshire County Council
Local Planning Authority	South Derbyshire District Council

Sources of Data

- i. Topographical Survey by BWB Consulting in November 2024 (reference: KNL-BWB-00-01-M2-G-0001)
- ii. Environment Agency (EA) 1m 2022 Light Detection and Ranging (LiDAR) Data
- iii. EA Consultation and model Information
- iv. Derbyshire County Council Consultation
- v. South Derbyshire District Council Level 1 Strategic Flood Risk Assessment

- vi. Derbyshire County Council Preliminary Flood Risk Assessment
- vii. Derbyshire County Council Preliminary Flood Risk Assessment Addendum
- viii. Derbyshire County Council Local Flood Risk Management Strategy
- ix. Humber River Basin District Flood Risk Management Plan
- x. South Derbyshire Local Plan Part 1 and 2
- xi. Site visit undertaken by BWB Consulting in December 2024
- xii. Severn Trent Water Sewer Records
- xiii. British Geological Survey (BGS) Drift & Geology Maps

Existing Site

- 1.3 The site is located off Kings Newton Lane, approximately 8.5km northwest of Melbourne town centre. The site comprises greenfield, agricultural land and is bound to the north by Kings Newton Lane, to the east by residential development, to the south by Derby Road, and to the west by agricultural land. The site's location is illustrated within **Figure 1.1**.



Figure 1.1: Site Location

- 1.4 A topographical survey has been undertaken and included as **Appendix 1**. The survey shows the site to generally fall in a northerly direction, from a high point of approximately 70.5 metres Above Ordnance Datum (m AOD) in the south, to a low point of approximately 66.0m AOD to the north.

- 1.5 The topographical survey indicates two drainage ditches to be present along the northern and eastern site boundaries, as shown in **Figure 1.2**. The ditches are relatively shallow, with depths of approximately 0.6m.

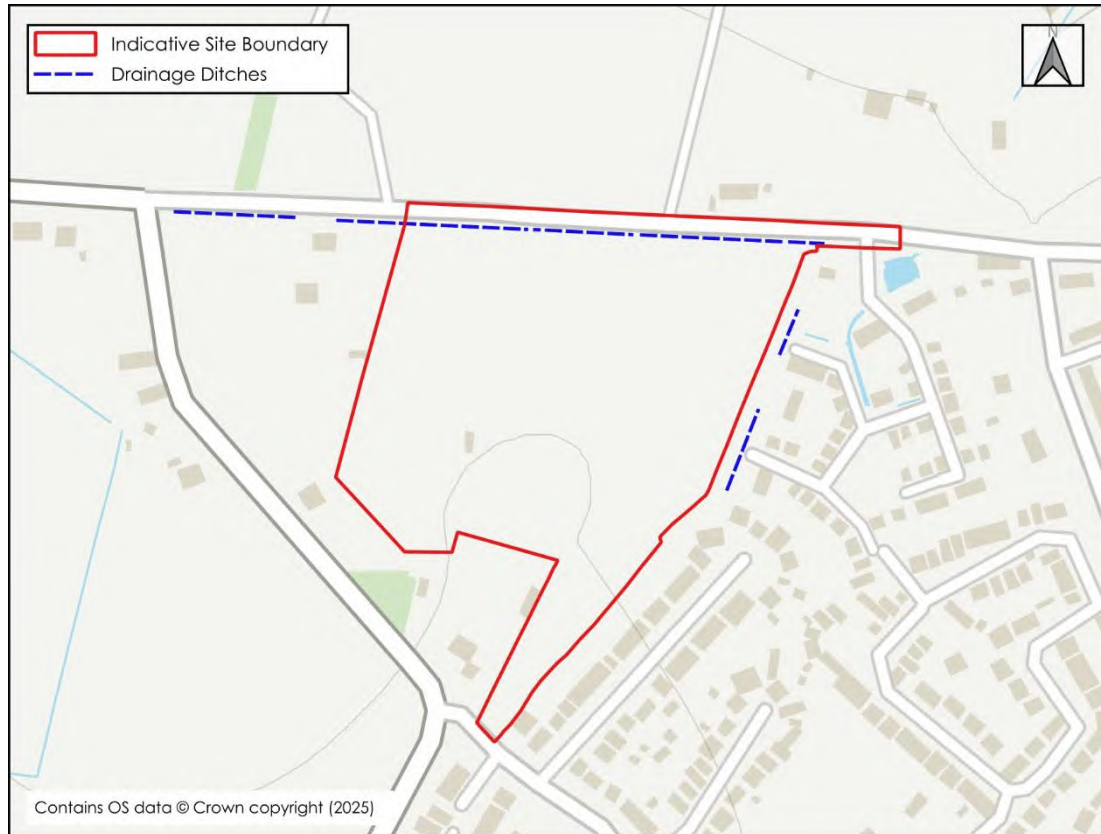


Figure 1.2: Drainage Ditches (taken from Topographical Survey)

- 1.6 A site visit was undertaken by BWB Consulting in December 2024 and key findings are summarised below:
- The drainage ditches were observed to have water present along the entire channel.
 - The ditches connect in the northeast corner of the site and ultimately flow in an easterly direction away from the site. Onward connectivity to the east is to be confirmed.
 - The northern drainage ditch flows through a series of culverts, the dimensions of which are to be confirmed.
- 1.7 The condition of the ditches on site are shown within **Figure 1.3** and **Figure 1.4**.



Figure 1.3: Drainage Ditch along Northern Boundary (December 2024)



Figure 1.4: Drainage Ditch along Eastern Boundary (December 2024)

Proposed Development

- 1.8 The proposals are to support an outline planning application (with all matters reserved except for access) for the erection of up to 135 dwellings with associated infrastructure. Site access is proposed via Kings Newton Lane to the north.
- 1.9 The proposed development layout is included as **Appendix 2**.

2. FLOOD RISK PLANNING POLICY & GUIDANCE

National Planning Policy Framework

- 2.1 The NPPF¹ sets out the Government's national policies on different aspects of land use planning in England in relation to flood risk. Planning Practice Guidance is also available online².
- 2.2 The Planning Practice Guidance sets out the vulnerability to flooding of different land uses. It encourages development to be located in areas of lower flood risk where possible and stresses the importance of preventing increases in flood risk off site to the wider catchment area.
- 2.3 The Planning Practice Guidance also states that alternative sources of flooding, other than fluvial (river flooding), should be considered when preparing an FRA.
- 2.4 The Planning Practice Guidance includes a series of tables that define Flood Zones (Table 1), the flood risk vulnerability classification of development land uses (Table 2) and 'compatibility' of development within the defined Flood Zones (Table 3). Table 2 and Table 3 are recreated within **Appendix 3** of this report for reference.
- 2.5 This FRA is written in accordance with the NPPF and the Planning Practice Guidance.

Flood Map for Planning

- 2.6 With particular reference to planning and development, the Flood Map for Planning identifies Flood Zones in accordance with Table 1 of the Planning Practice Guidance. Further details on the Flood Zone classifications are outlined in **Table 2.1**.

Table 2.1: Flood Zone Classifications

Flood Zone	Description
Flood Zone 1 (Low Probability)	Land having less than a 1 in 1000 annual probability of river or sea flooding (<0.1% Annual Exceedance Probability). All land outside of Flood Zone 2 and 3.
Flood Zone 2 (Medium Probability)	Land having between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% - 0.1% AEP); or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% - 0.1% AEP).
Flood Zone 3a (High Probability)	Land having a 1 in 100 or greater annual probability of river flooding (>1% AEP); or land having a 1 in 200 or greater annual probability of flooding from the sea (>0.5% AEP). This is represented by "Flood Zone 3" on the Flood Map for Planning.
Flood Zone 3b (The Functional Floodplain)	Flood Zone 3b (The Functional Floodplain) is defined as land where water must flow or be stored in times of flood. This is not identified or separately distinguished from Zone 3a on the Flood Map for Planning.

¹ Revised National Planning Policy Framework, Ministry of Housing, Communities & Local Government, amended December 2024

² Planning Practice Guidance: <https://www.gov.uk/government/collections/planning-practice-guidance>, amended February 2024

2.7 The site is located entirely within Flood Zone 1, as shown in **Figure 2.1**.

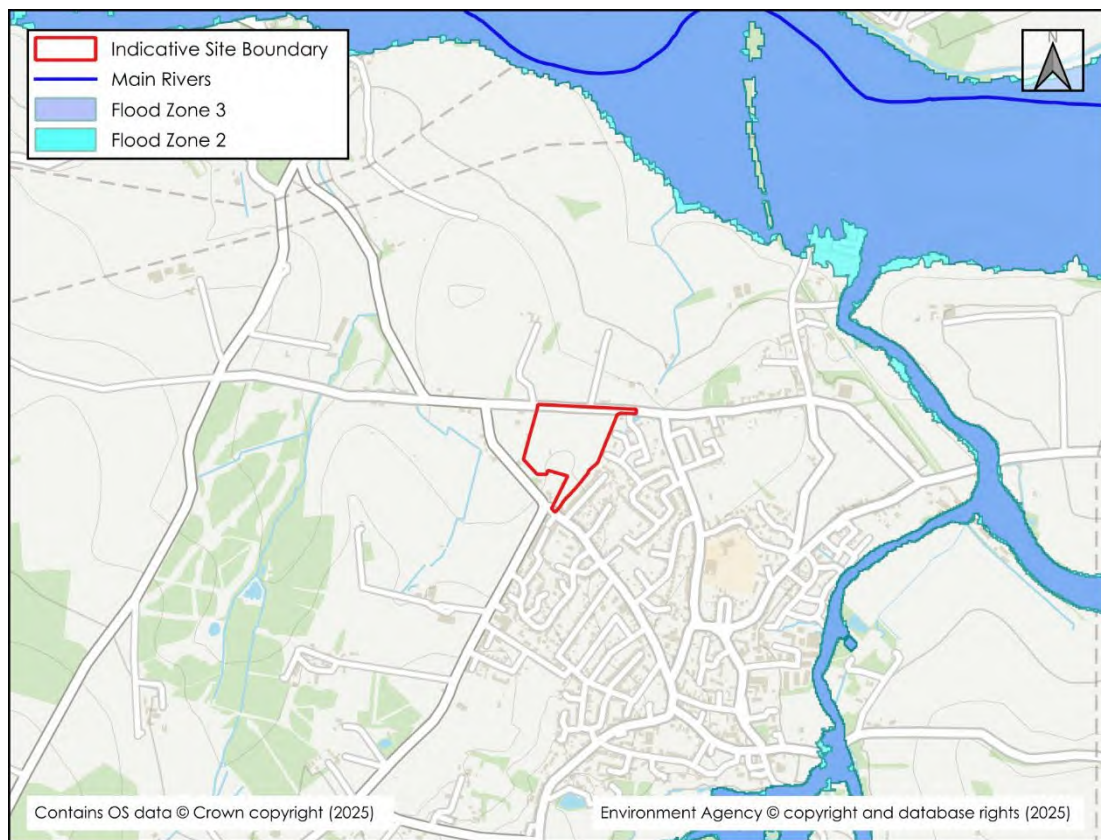


Figure 2.1: Flood Map for Planning

The Design Flood

- 2.8 The Planning Practice Guidance identifies that new developments should be designed to provide adequate flood risk management, mitigation, and resilience against the 'design flood' for their lifetime.
- 2.9 This is a flood event of a given annual flood probability, which is generally taken as fluvial (river) and surface water (pluvial) flooding likely to occur with a 1% annual probability (a 1 in 100 chance each year), or tidal flooding with a 0.5% annual probability (1 in 200 chance each year), against which the suitability of a proposed development is assessed and mitigation measures, if any, are designed.

Climate Change

Predicted future changes in peak river flows caused by climate change are provided by the EA³, with a range of projections applied to regionalised 'River Basin Districts', which are further subdivided into Management Catchments.

³ Environment Agency, Flood risk assessments: climate change allowances: <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>. Last Accessed February 2025.

- 2.10 The site falls within the Lower Trent and Erewash Management Catchment of the Humber River Basin District. **Table 2.2** identifies the relevant peak river flow climate change allowances from this Management Catchment.

Table 2.2: Peak River Flow Climate Change Allowances for the Lower Trent and Erewash Management Catchment within the Humber River Basin District

Allowance Category	Total potential change anticipated for the '2020s' (2015 to 2039)	Total potential change anticipated for the '2050s' (2040 to 2069)	Total potential change anticipated for the '2080s' (2070 to 2125)
Upper End	29%	38%	62%
Higher Central	18%	23%	39%
Central	13%	17%	29%

- 2.11 When determining the appropriate allowance for use in a FRA the Flood Zone classification, flood risk vulnerability and the anticipated lifespan of the development should be considered. **Table 2.3** provides a matrix summarising the EA's guidance on determining the appropriate allowance(s).

Table 2.3: Application of Appropriate Peak River Flow Climate Change Allowances

Flood Zone	Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
1	Use the central allowance where a location may fall within Flood Zone 2 or 3 in the future.				
2	Use the higher central allowance	Use the central allowance			
3a	Use the higher central allowance	Development should not be permitted	Use the central allowance		
3b	Use the higher central allowance	Development should not be permitted			Use the central allowance
If development is considered appropriate by the local authority when not in accordance with Flood Zone vulnerability categories, then it would be appropriate to use the higher central allowance.					

- 2.12 The site is located entirely within Flood Zone 1, the proposed development is classified as 'More Vulnerable', and it has an anticipated lifespan of at least 100 years.
- 2.13 The nearest Flood Zones are located approximately 940m east of the site, associated with the Ramsley Brook, a tributary of the River Trent. A review of EA LiDAR data shows the site is raised above the Flood Zones by approximately 27m at the site's lowest point.

- 2.14 Hydraulic modelling information has been provided by the EA for the Derbyshire River Trent (2012) and the River Derwent OCOR, Binnies (2023) models (**Appendix 4**). The modelled fluvial flood extents show the site is located outside of all modelled scenarios.
- 2.15 Based on the available data, the site is not expected to be located within an area of Flood Zone 2 or 3 in the future and, therefore, fluvial climate change allowances have not been considered further within this report.

Strategic Flood Risk Assessment

- 2.16 A Strategic Flood Risk Assessment (SFRA) is a study carried out by one or more local planning authorities to assess the risk to an area from flooding from all sources, now and in the future.
- 2.17 The South Derbyshire District Council Level 1 SFRA⁴ has been reviewed in the production of this FRA. The SFRA provides information specific to the site location in the form of fluvial, surface water and groundwater flood risk mapping, as well as records of historical flooding. It also includes flood risk policy and guidance for the area. Information from the Level 1 SFRA will be referenced within **Section 3** where applicable.

Preliminary Flood Risk Assessment

- 2.18 A Preliminary Flood Risk Assessment (PFRA) is an assessment of floods that have taken place in the past and floods that could take place in the future. It generally considers flooding from surface water runoff, groundwater and ordinary watercourses, and is prepared by the Lead Local Flood Authorities (LLFAs).
- 2.19 The Derbyshire County Council PFRA⁵ considers flooding from surface water runoff, groundwater, ordinary watercourses and canals. It also references the historical river flooding which occurred in the county in 2000, 2002 and 2007. However, no historical instances of flooding at the site are documented. Information from the PFRA will be referenced within **Section 3** where applicable.
- 2.20 The Derbyshire County Council PFRA Addendum⁶ has been reviewed in the production of this FRA. The Addendum provides an update to the 2011 PFRA; however, upon review, no applicable information in relation to flood risk at the site was identified.

Local Flood Risk Management Strategy

- 2.21 A Local Flood Risk Management Strategy (LFRMS) is prepared by an LLFA to help understand and manage flood risk at a local level.
- 2.22 The LFRMS aims to ensure that the knowledge of local flood risk issues is communicated effectively so that they can be better managed. The LFRMS also aims to promote sustainable development and environmental protection.

⁴South Derbyshire District Council Level 1 Strategic Flood Risk Assessment (Scott Wilson, November 2008)

⁵Derbyshire County Council Preliminary Flood Risk Assessment (Derbyshire County Council, May 2011)

⁶Derbyshire County Council Preliminary Flood Risk Assessment (Derbyshire County Council, December 2017)

- 2.23 The Derbyshire County Council LFRMS⁷ has been reviewed and no applicable information in relation to flood risk at the site was identified.

River Basin Flood Risk Management Plan

- 2.24 Flood Risk Management Plans (FRMPs) explain the risk of flooding from rivers, the sea, surface water, groundwater and reservoirs. FRMPs set out how risk management authorities will work with communities to manage flood and coastal risk. Risk management authorities include the Environment Agency, Natural Resources Wales, local councils, internal drainage boards, Highways England and LLFAs.
- 2.25 The first FRMPs were published in March 2016 and subsequently updated in December 2022. They describe actions to manage flood risk across England between 2021 to 2027.
- 2.26 The site is located within the Humber River Basin District, and the Humber River Basin District FRMP⁸ has been reviewed; however, no relevant site scale objectives have been identified.

Surface Water Management Plan

- 2.27 Surface Water Management Plans (SWMPs) are non-statutory plans which preceded the introduction of the Flood and Water Management Act 2010. They can provide an important evidence base of local flood risk issues which can include surface water drains, groundwater and small watercourses.
- 2.28 Following a search of the Derbyshire County Council website, a SWMP is not available.

Section 19 Flood Investigation Reports

- 2.29 Under their duties of the Flood and Water Management Act 2010, LLFAs have a responsibility to publish reports of investigations of flood incidents. A Section 19 Flood Investigation report is a public statement of the circumstances of a historical flood event and what parties have a role in managing the risks. The investigation does not always give an in-depth analysis of the flood risk or mechanisms, but it can provide a valuable record of past events.
- 2.30 Derbyshire County Council have Section 19 reports available for request on their website. However, following a review of the locations, there are no Section 19 reports available for the site or surrounding area.

Local Plan

- 2.31 The South Derbyshire Local Plan Part 1⁹ and 2¹⁰ have been reviewed in the production of this FRA. Part 1 of the Local Plan details the policies under which development will be

⁷ Derbyshire County Council Local Flood Risk Management Strategy (Derbyshire County Council, June 2023)

⁸ Humber River Basin District Flood Risk Management Plan 2021 to 2027 (Environment Agency, December 2022)

⁹ South Derbyshire Local Plan Part 1 (South Derbyshire Council, adopted June 2016)

¹⁰ South Derbyshire Local Plan Part 2 (South Derbyshire Council, adopted November 2017)

determined within the District up to 2028. Part 2 of the Local Plan sets the spatial strategy for the District by identifying development sites.

2.32 The site is not allocated within Part 2 of the Local Plan.

2.33 Key policies from Part 1 of the Local Plan are outlined below:

Policy SD2: Flood Risk

2.34 *"Development in areas that are identified as being at risk of flooding will be expected to:*

- i. Be resilient to flooding through design and layout;*
- ii. Incorporate appropriate mitigation measures, such as on-site flood defence works and/or a contribution towards or a commitment to undertake and/or maintain off-site measures;*
- iii. Not increase flood risk to other properties or surrounding areas; and*
- iv. Not affect the integrity or continuity of existing flood defences."*

2.35 Suitable surface water management will be required through the incorporation of Sustainable Drainage Systems (SuDS).

Policy SD3: Sustainable Water Supply, Drainage and Sewerage Infrastructure

2.36 *"Surface water from new development will be expected to be managed using SuDS; discharge to watercourse; or connection to surface water mains sewer. Only where these options are not technically feasible and in consultation with Water Companies, will surface water discharges to a combined sewer be permitted."*

2.37 South Derbyshire District Council are currently consulting on its Draft Local Plan Part 1 Review which will set sets out a strategy for development up to 2039.

3. POTENTIAL SOURCES OF FLOOD RISK

- 3.1 Flooding can occur from a variety of sources, or combination of sources, which may be natural or artificial. **Table 3.1** below identifies the potential sources of flood risk to the site in its current condition, and the impacts which the development could have in the wider catchment, prior to mitigation. These are discussed in greater detail in the forthcoming section. The mitigation measures proposed to address flood risk issues and ensure the development is appropriate for its location are discussed within **Section 4**.

Table 3.1: Pre-Mitigation Sources of Flood Risk

Flood Source	Potential Risk				Description
	High	Medium	Low	None	
Fluvial			X		The site is located in Flood Zone 1 and is considered to be at a low risk of flooding from surrounding ditches and ordinary watercourses.
Canals				X	The Trent and Mersey Canal is located approximately 1.5km northeast of the site. The site is raised above the canal by approximately 31m; therefore, the site is not considered to be at risk of flooding from the canal.
Groundwater			X		The site is shown to fall within an area predicted to be at a low susceptibility to groundwater flooding.
Reservoirs and waterbodies				X	The site is shown to fall outside of the area at risk of inundation in the event of reservoir failure. There are no surrounding large waterbodies.
Pluvial runoff			X		The site is at a low risk of surface water flooding.
Sewers			X		In the event of exceedance of nearby assets, flows will follow local topography and be directed away from the site.
Effect of Development on Wider Catchment			X		Development will not result in impedance of surface water.
		X			The development will increase the area of impermeable surfaces leading to a potential increase in runoff.

Fluvial Flood Risk

- 3.2 Flooding from watercourses occurs when flows exceed the capacity of the channel, or where a restrictive structure is encountered, which leads to water overtopping the banks into the floodplain. This process can be exacerbated when debris is mobilised by high flows and accumulates at structures.

Historical Flooding

- 3.3 The EA Historical Flood Map, and correspondence with the EA (**Appendix 4**), shows there are no previously recorded flood outlines which have impacted the site. The nearest recorded flood outline is located approximately 790m east of the site associated with channel capacity exceedance of the River Trent in March 1947 when no raised defences were present.
- 3.4 There are no previous fluvial flood events which have impacted the site or surrounding area reported within the South Derbyshire District Council Level 1 SFRA or Derbyshire County Council PFRA.
- 3.5 Correspondence with Derbyshire County Council, included as **Appendix 5**, states that the Council are aware of two records of historical flooding within 100m of the site boundary. These are reported to have occurred on Derby Road to the south of the site in 2019 & 2024; however, no further information is provided.

Flood Map for Planning and Hydraulic Models

- 3.6 The Flood Map for Planning shows the site is located entirely within Flood Zone 1. The nearest Flood Zones are located approximately 940m east of the site associated with the Ramsley Brook, a tributary of the River Trent. EA LiDAR data shows the site is raised above the nearest Flood Zones by approximately 27m at the site's lowest point.
- 3.7 Hydraulic modelling information has been provided by the EA for the Derbyshire River Trent (2012) and the River Derwent OCOR, Binnies (2023) models (**Appendix 4**). The model outputs show the site is located outside of all modelled scenarios.

Risk of Flooding from Rivers and Seas

- 3.8 The EA have been working with local authorities to develop a new National Flood Risk Assessment (NaFRA2). From January 2025, new data, which shows the probability of flooding from rivers, the sea and surface water has been made available.
- 3.9 The Risk of Flooding from Rivers and Sea (RoFRS) mapping shows the chance of flooding from rivers and the sea to areas of land, taking into account the presence and condition of flood defences. The mapping shows the probability of flooding based on the Central climate change allowances for the '2050s' epoch, which is the most precautionary data projection currently published by the EA. An extract of mapping is included as **Figure 3.1**.

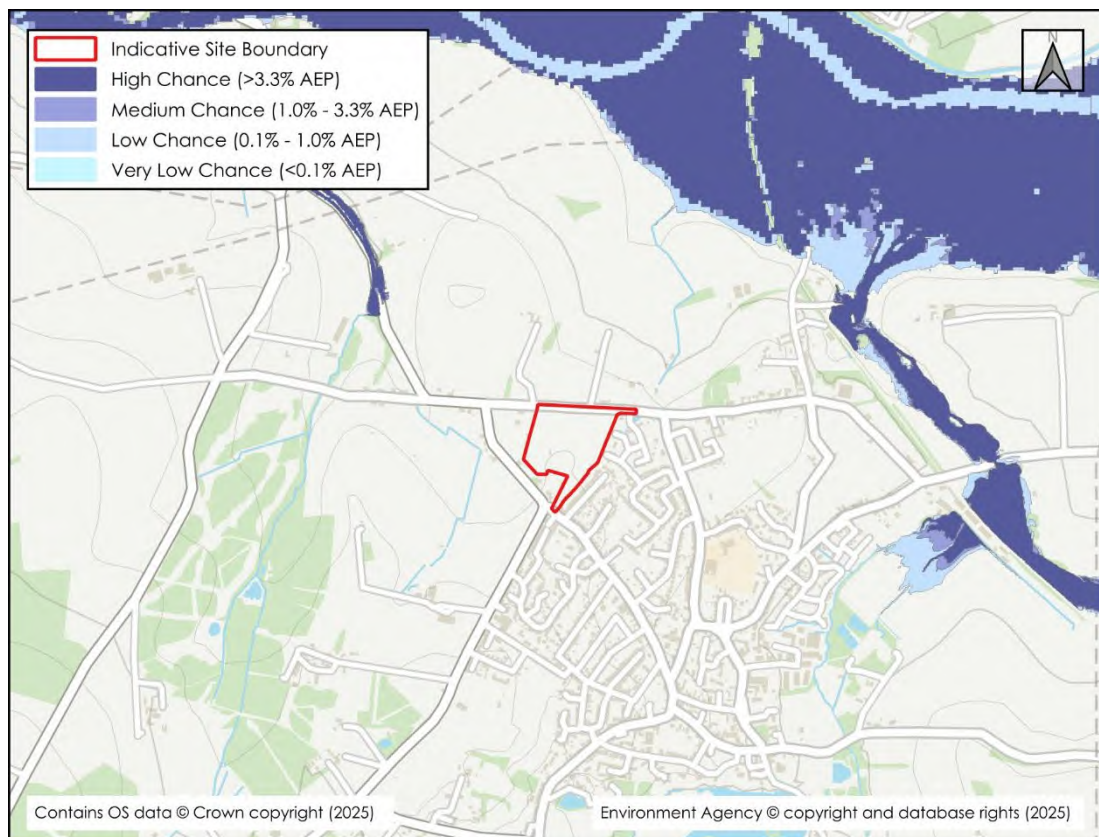


Figure 3.1: Risk of Flooding from Rivers and Sea Yearly Chance of Flooding Between 2036 and 2069)

- 3.10 The RoFRS mapping shows the site to be removed from the fluvial flood extents for all probabilities.
- 3.11 Overall, the site is considered to be at a low risk of flooding from Main Rivers.

Ordinary Watercourses and Drainage Ditches

- 3.12 OS mapping shows two ordinary watercourses in close proximity to the site, located to the northeast and southwest respectively. Drainage ditches also border the northern and eastern boundaries, as shown within **Figure 1.2**.
- 3.13 The EA Risk of Surface Water Flooding (RoFSW) mapping dataset can be used as a proxy to provide an indication of the potential floodplain associated with the ditches and watercourses omitted from the Flood Map for Planning and RoFRS datasets. An extract of mapping is included as **Figure 3.2**.

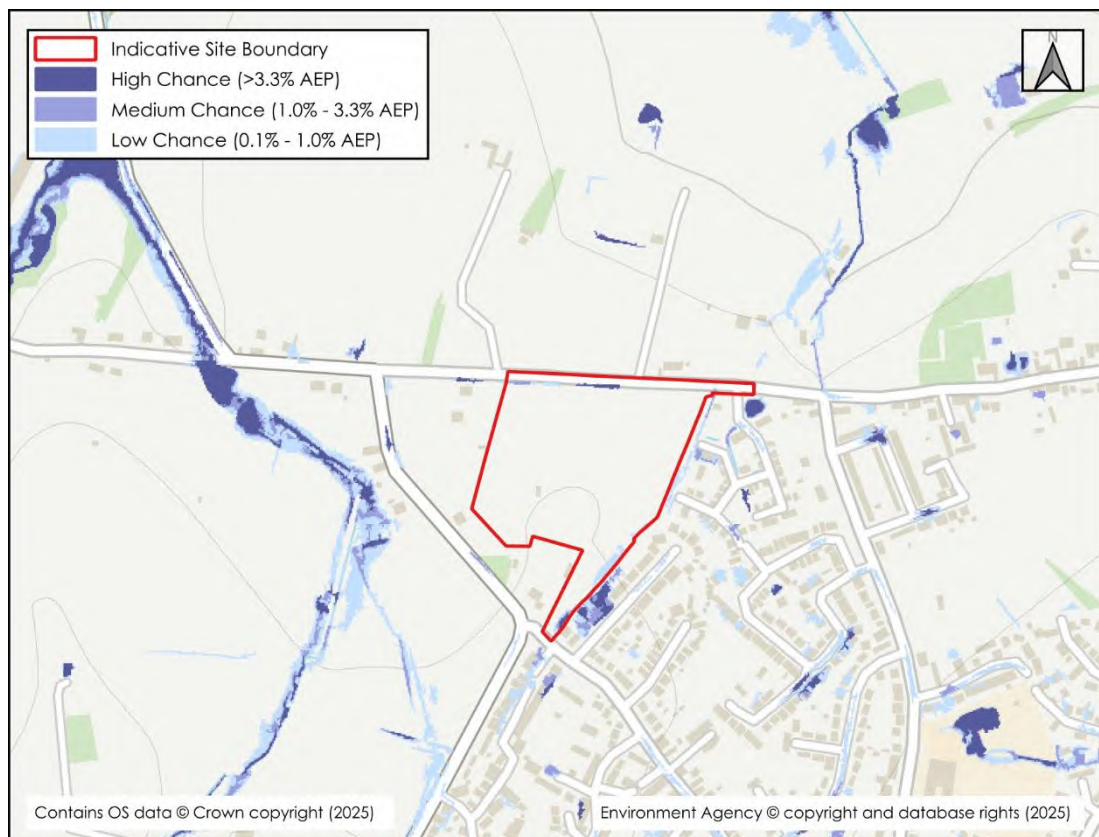


Figure 3.2: Risk of Flooding from Surface Water Mapping (Yearly Chance of Flooding Between 2040 and 2060)

- 3.14 The mapping shows the surrounding ditches and watercourses pose an overall very low probability of flooding to the site, with low to high probability flows shown to be largely contained to the respective channels.
- 3.15 In the unlikely event of exceedance of the drainage ditches to the north and east of the site, flows are expected to be conveyed away from the site in a north-easterly direction following the general topography.
- 3.16 Overall, the site is considered to be at a low risk of flooding attributed to ordinary watercourses and drainage ditches.

Pluvial Flood Risk

- 3.17 Pluvial flooding can occur during prolonged or intense storm events when the infiltration potential of soils, or the capacity of drainage infrastructure is overwhelmed leading to the accumulation of surface water and the generation of overland flow routes.
- 3.18 RoFSW mapping has been collated and published by the EA, this shows the potential flooding which could occur when rainwater does not drain away through the normal drainage systems or soak into the ground but lies on or flows over the ground instead. An extract from the mapping is included as **Figure 3.2**.

- 3.19 The mapping shows the site is at a very low probability of surface water flooding. There is a minor area of low to medium probability ponding present to the south of the site associated with existing topographical low points.
- 3.20 There are no previous pluvial flood events reported within the South Derbyshire District Council Level 1 SFRA or Derbyshire County Council PFRA which have impacted the site or surrounding area.
- 3.21 The site access route via Kings Newton Lane is shown to be at a low probability of surface water flooding.
- 3.22 Overall, the site is considered to be at a low risk of surface water flooding. Appropriate mitigation measures to address any residual risk are outlined within **Section 4**.

Groundwater Flood Risk

- 3.23 Groundwater flooding occurs when the water table rises above ground elevations, or it rises to depths containing basement level development. It is most likely to happen in low lying areas underlain by permeable geology. This is most common on regional scale chalk aquifers, but there may also be a risk on sandstone and limestone aquifers or on thick deposits of sands and gravels underlain by less permeable strata such as that in a river valley.
- 3.24 BGS mapping shows the site is underlain by bands of Chatsworth Grit (Sandstone) and Morgridge Formation (Mudstone, Siltstone and Sandstone). There are no superficial deposits mapped by BGS within the site.
- 3.25 The EA class the bedrock geologies as Secondary A Aquifers which comprise permeable layers that can support local water supplies and may form an important source of base flow to rivers.
- 3.26 There are no historical records of groundwater flooding which have impacted the site reported within the South Derbyshire District Council Level 1 SFRA or Derbyshire County Council PFRA.
- 3.27 BGS Groundwater Flooding data, included as **Figure 3.3**, shows the majority of the site is situated within an area which is not considered to be prone to groundwater flooding, with marginal areas considered to have 'Potential for Groundwater Flooding to Occur at Surface'. This corresponds to areas of Chatsworth Grit (Sandstone). It is noted that this susceptibility data should not be used on its own to make planning decisions at any scale and, in particular, should not be used to inform planning decisions at the site scale.

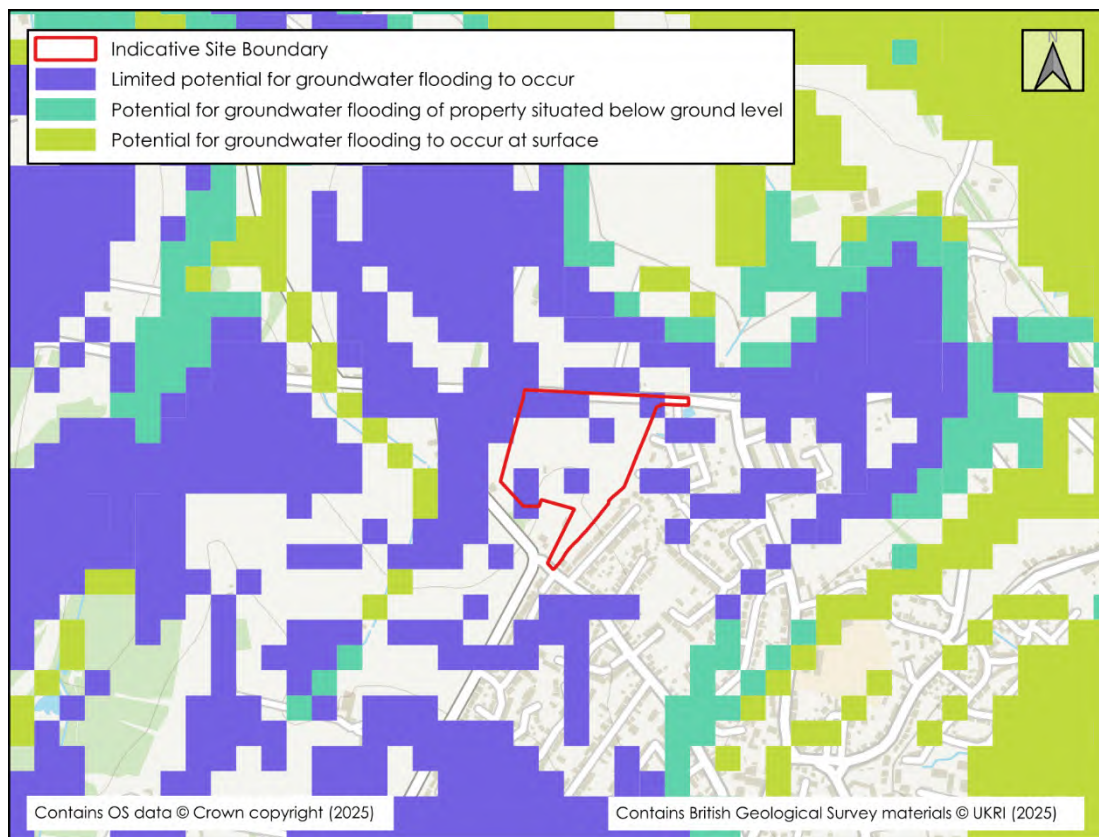


Figure 3.3: BGS Groundwater Flooding

- 3.28 Based on the available data, the site is considered to be at a low risk of flooding from groundwater.

Flood Risk from Sewers

- 3.29 Sewer flooding can occur when the capacity of the infrastructure is exceeded by excessive flows, or as a result of a reduction in capacity due to collapse or blockage, or if the downstream system becomes surcharged. This can lead to the sewers flooding onto the surrounding ground via manholes and gullies, which can generate overland flows.
- 3.30 The local sewerage undertaker is Severn Trent Water, a copy of their asset plans are included as **Appendix 6**.
- 3.31 The records show a 450mm diameter public surface water sewer to flow in a northerly direction through the southeastern portion of the site and along the eastern site boundary. A Section 104 (S104) foul sewer network is present to the east of the site, serving the existing residential development.
- 3.32 Depth to invert levels of the surface water sewer which passes through the site range from 2.34m to 4.30m between manhole references 2803 and 4101. Depth to invert levels of the S104 foul sewer network are not available.

- 3.33 The S104 sewer network is expected to only serve the residential development and, as such, flows are expected to be low.
- 3.34 In the event of exceedance of the surrounding assets, flows are expected to flow away from the site in a northeasterly following the general topography.
- 3.35 The South Derbyshire District Council Level 1 SFRA reports one previously recorded sewer flood event which impacted Station Road in Melbourne; however, this is significantly removed from the site location.
- 3.36 Overall, the site is considered to be at a low risk of flooding from to sewers.

Effect of Development on Wider Catchment

Displacement of Floodplain

- 3.37 No floodplain will be displaced as a result of the proposed development as the site is located entirely within Flood Zone 1 and flows are indicated to largely remain in bank of the ditches and ordinary watercourses.

Impedance of Flood Flows

- 3.38 The site is at a very low risk of surface water flooding and, as such, the development will not impede existing surface water flow routes.

Development Land Use/Drainage Considerations

- 3.39 The proposed development will result in an increase in impermeable surfaces. This could potentially increase surface water runoff if appropriate mitigation measures are not put in place. These mitigation measures are discussed in **Section 4**.

4. FLOOD RISK MITIGATION

- 4.1 **Section 3** has identified the sources of flooding which could potentially pose a risk to the site and the proposed development. This section of the FRA sets out the mitigation measures which are to be incorporated within the proposed development to address and reduce the risk of flooding to within acceptable levels.

Sequential Arrangement

- 4.2 The site is considered to be at a low risk of flooding from all sources. The site has been sequentially arranged so that all built development is located outside of all areas shown to be at risk of surface water flooding, as shown in **Figure 4.1**.

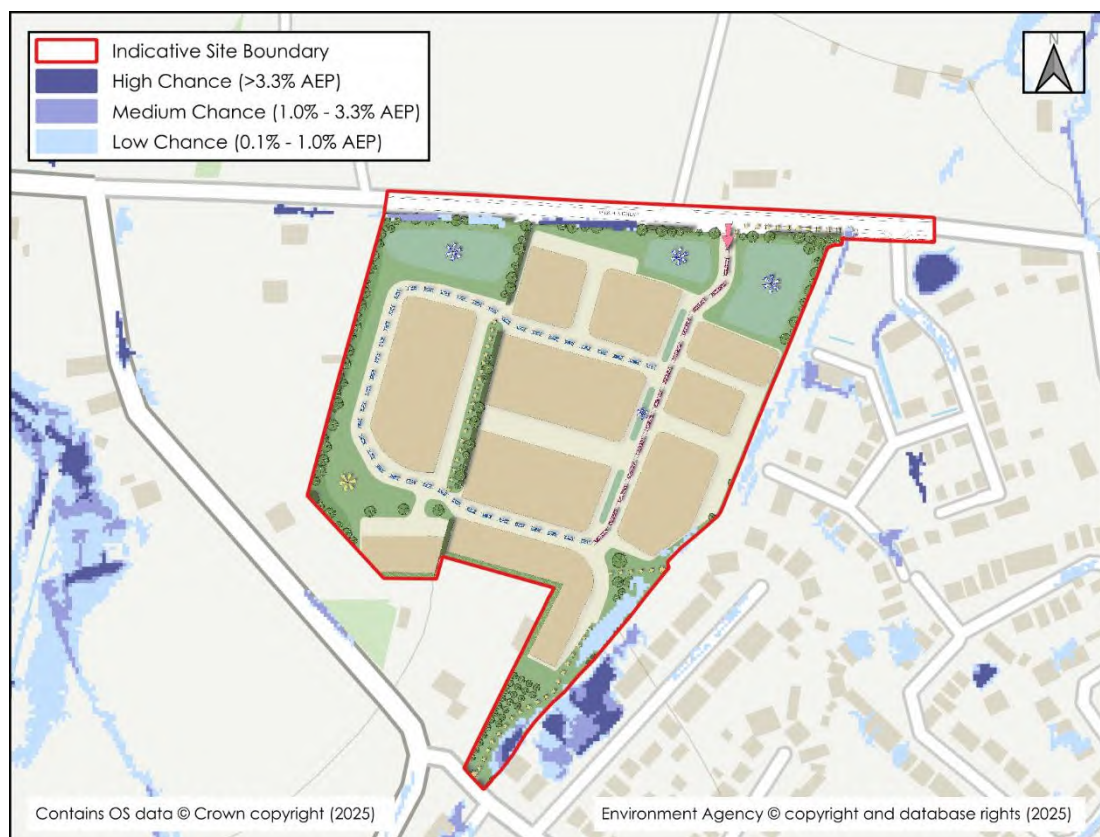


Figure 4.1: Proposed Development Sequential Arrangement

- 4.3 Paragraph 175 of the NPPF states:

“The sequential test should be used in areas known to be at risk now or in the future from any form of flooding, except in situations where a site-specific flood risk assessment demonstrates that no built development within the site boundary, including access or escape routes, land raising or other potentially vulnerable elements, would be located on an area that would be at risk of flooding from any source, now and in the future (having regard to potential changes in flood risk)”.

- 4.4 The FRA demonstrates that no built development, access routes, or vulnerable elements will be located in an area considered to be at risk of flooding from any source now and

in the future. Therefore, the site is considered to be sequentially arranged, in line with the NPPF, and a sequential test is not considered to be required.

Development Levels

- 4.5 It is recommended that finished floor levels of the proposed development are raised a minimum of 150mm above surrounding ground levels to help mitigate any residual flood risk.
- 4.6 Ground levels should be profiled to encourage pluvial runoff and overland flows away from the built development and towards the nearest drainage point.

Safe Access and Egress

- 4.7 The access route via Kings Newton Lane is shown to be at a low risk of flooding from all sources; therefore, safe access and egress can be achieved.

Surface Water and Foul Water Drainage

- 4.8 To mitigate the development's impact on the current runoff regime it is proposed to incorporate surface water attenuation and storage as part of the development proposals.
- 4.9 In brief, the development will continue to discharge surface water to the local watercourse at the equivalent greenfield QBAR rate. Attenuated surface water storage will be provided in the form of SuDS detention basins with capacity for the 1 in 100-year storm with an allowance for climate change.
- 4.10 The development should be designed with exceedance in mind, with the road network used to convey excess overland flows towards the attenuation points.
- 4.11 It is proposed to drain foul water from the development separately to surface water.
- 4.12 Further information on the drainage approach is provided within the accompanying Sustainable Drainage Statement (reference: 244784-BWB-ZZ-XX-T-W-0002_SDS).

5. CONCLUSIONS AND RECOMMENDATIONS

- 5.1 This FRA has been prepared in accordance with requirements set out in the NPPF and the associated Planning Practice Guidance. The FRA has been produced on behalf of Richborough, Richard Hugh Jackson, Carole Mary Hames, Michael Worrall, Christopher James Michael Worrall, Nicholas Worrall and Jack Worrall in respect of a planning application for a proposed residential development located at Land South of Kings Newton Lane, Melbourne.
- 5.2 This FRA is intended to support an outline planning application, the level of detail included is commensurate and subject to the nature of the proposals at the planning stage.
- 5.3 This report demonstrates that the proposed development is not at significant flood risk, subject to the recommended flood mitigation strategies being implemented. The identified risks and mitigation measures are summarised within **Table 5.1**:

Table 5.1: Summary of Flood Risk Assessment

Flood Source	Risk & Proposed Mitigation Measures
Fluvial	The site is located entirely in Flood Zone 1. RoFSW mapping demonstrates that the surrounding ditches and ordinary watercourses do not pose significant risk to the site.
Other Sources	The site has been assessed against other sources of flood risk including canals, surface water, groundwater, reservoirs and large waterbodies, and sewers. The overall risk posed by these sources is considered low.
Impact of the Development	Finished floor levels should be raised a minimum of 150mm above surrounding ground levels to help mitigate any residual flood risk. The development will increase the area of impermeable surfaces, potentially increasing the rate of surface water runoff from the site prior to mitigation. Therefore, it is proposed to incorporate surface water attenuation as part of the development proposals. Foul water from the development will be disposed of separately to surface water.
This summary should be read in conjunction with BWB's full report. It reflects an assessment of the Site based on information received by BWB at the time of production.	

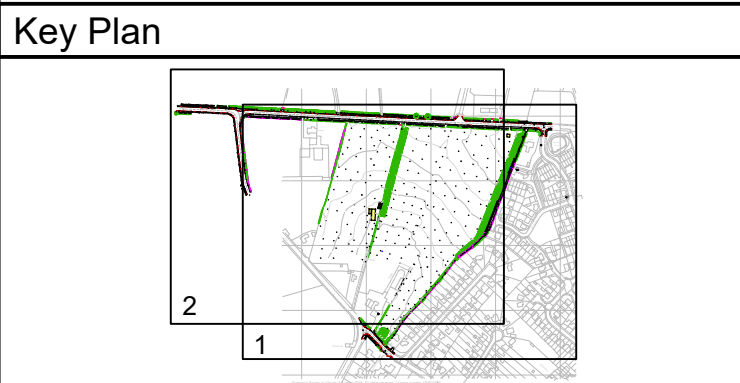
- 5.4 In compliance with the requirements of the NPPF, and subject to the mitigation measures proposed, the development could proceed without being subject to significant flood risk. Moreover, the development will not increase flood risk to the wider catchment area subject to suitable management of surface water runoff discharging from the site.

APPENDICES

Appendix 1: Topographical Survey



- Notes**
1. Do not scale this drawing. All dimensions must be checked/verified on site. If in doubt ask.
 2. This drawing is to be read in conjunction with all relevant architects, engineers and specialist drawings and specifications.
 3. All dimensions in metres unless noted otherwise. All levels in metres unless noted otherwise.
 4. Any discrepancies noted on site are to be reported to the engineer immediately.
 5. No scale factor has been applied to this survey, therefore the OS coordinates are to be treated as arbitrary. Please refer to survey station information below for on site control establishment.
 6. All coordinates and height data relate to OSGB36(15). Control stations are coordinated by means of GPS receiving real time corrections via OS smartnet.
 7. All manhole data is collected from ground level therefore discrepancies may occur. More accurate data is only achievable via confined space entry.
 8. OS license number: 100022432



- Legend**
- OS Buildings
 - Surveyed Buildings
 - Building
 - Wall
 - Kerb Channel Line
 - Edge of Kerb
 - Top of Surface
 - Top of Bank
 - Bottom of Bank
 - Canopy / Overhang
 - Line Marking
 - Centre Line
 - Watercourse
 - Centre Line
 - Barrier
 - Fence
 - Gate
 - Overhead Powerline
 - Overhead Utilities
 - Contour Lines
 - Inspection Chamber
 - Flow direction and pipe diameter
 - Station and Name
 - Monitoring Borehole
 - Tree / Bush / Slipping
 - Area of Vegetation/ Extent of Tree Canopy
 - Hedge
 - Body of Water
 - Body of Water from OS
 - Spot Level
 - Assumed Surface
 - Water Drainage Line
 - Surface Water Drainage Line
- AP Anchor Point
BO Back Gully
BT British Telecom
C Crest
CMP Cable Marker
CCTV Security Camera
CCTV Cable TV
DK Drainage
OK Channel
DP Down Pipe
Elec Electric
EP Electricity Post
ER Earth Rod
FH Fire Hydrant
FL Floodlight
- FBW Fence Barbed Wire
FCS Fence Chain Board
FCL Fence Chain Link
FEL Fence Electric
FMP Fence Metal Panel
FOS Fence Open Board
FPW Fence Post & Wire
FSP Fence Steel Palisade
FWM Fence Wire Mesh
FFL Finished Floor Level
FP Flagpole
Gas Gas
GV Gas Valve
H Height
IC Inspection Chamber
IL Invert Level
IR Lamp Post
LFP Lamp Post
MH Manhole
MV Service Marker
PS Post Box
RE Rodding Eye
SP Sign Post
SV Stop Valve
TCB Telephone
Cat Box
THL Threshold Level
TL Traffic Light
TP Telegraph Post
TS Traffic Sign
UTS Unable to Survey
WL Water Level
WM Water Meter
WO Wash Out

Station Coordinates			
Station Name	Eastings (m)	Northings (m)	Height (m)
BWB 01	438198.236	325874.637	71.213
BWB 02	438238.380	325827.020	71.788
BWB 03	438484.870	326180.661	63.870
BWB 04	438470.361	326155.287	65.004
BWB 05	438254.282	326198.624	67.776

Rev	Date	Details of issue / revision	IR	OS
01	29.11.24	First issue		

Issues & Revisions

BWB
A CAF GROUP COMPANY

Client: **RICHBOROUGH ESTATES LIMITED**

Project Title: **LAND OFF KINGS NEWTON LANE MELBOURNE**

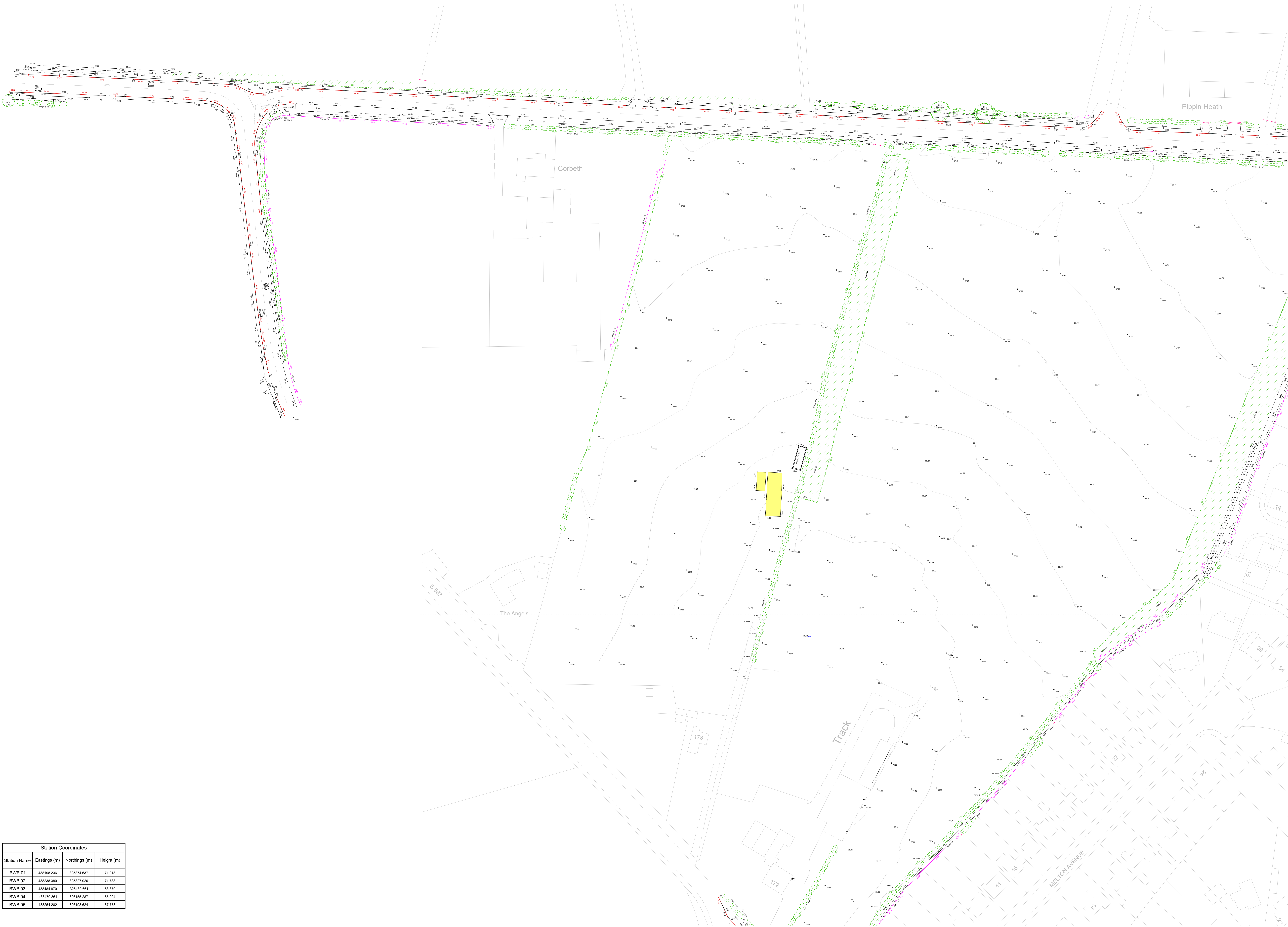
Drawing Title: **EXISTING SITE LAYOUT**

Drawn: J.Riley
Reviewed: D.Smith
BWB Ref: 244784
Date: 29.11.24
Scale: A3
1:500

Drawing Status: **INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number
KNL-BWB-00-01-DR-G-0001

Status: **S2**
Rev: **P1**

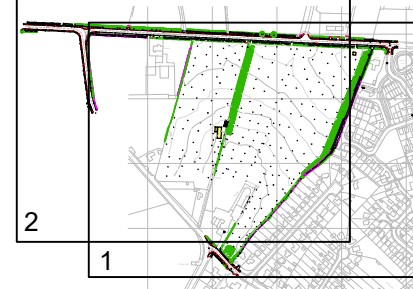


Station Coordinates			
Station Name	Eastings (m)	Northings (m)	Height (m)
BWB 01	436198.236	325874.637	71.213
BWB 02	436238.380	325827.920	71.788
BWB 03	436484.870	326180.661	63.870
BWB 04	438470.361	326155.287	65.004
BWB 05	436254.282	326198.624	67.778



- Notes**
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 7. All manhole data is collected from ground level therefore discrepancies may occur. More accurate data is only achievable via confined space entry.
 8. OS license number: 100022432

Key Plan



Legend

- OS Buildings**
- Surveyed Buildings
 - Building
 - Wall
 - Kerb Channel Line
 - Edge of Surface
 - Top of Bank
 - Bottom of Bank
 - Canopy / Overhang
 - Line Marking
 - Centre Line
 - Watercourse
 - Centre Line
 - Barrier
 - Fence
 - Gate
 - Overhead Powerline
 - Overhead Utilities
- Contour Lines**
- Contour Lines
 - Flow direction and pipe diameter
 - Station and Name
 - Monitoring Borehole
 - Tree / Bush / Slipping
 - Area of Vegetation / Extent of Tree Canopy
 - Hedge
 - Body of Water
 - Body of Water from OS
 - Spot Level
 - Assumed Surface
 - Water Drainage Line
 - Surface Water Drainage Line
- AP** Anchor Point **FBW** Fence Barbed Wire **LB** Litter Bin
BO Back Gully **FCS** Fence Closed Board **LP** Lamp Post
BO Bollard **FCL** Fence Chain Link **MH** Manhole
BS Bus Stop **FEL** Fence Electric **MS** Service Marker
BT British Telecom **FMP** Fence Metal Panel **PS** Post Box
C Crest **FMR** Fence Metal Railing **PT** Post
CL Cover Level **FOS** Fence Open Board **RE** Road Eye
CMP Cable Marker **FPW** Fence Post & Wire **SP** Sign Post
Post **FSP** Fence Steel Palisade **ST** Stop Tap
CCTV/Security Camera **FWM** Fence Wire Mesh **SV** Stop Valve
CTV Cable TV **FVL** Finished Floor Level **TGB** Telephone
OC Drainage **FP** Flagpole **TL** Threshold Level
Channel **Gas** **Gas** **TL** Traffic Light
DK Drop Kerb **GV** Gas Valve **TS** Telegraph Post
DP Down Pipe **GY** Gully **TS** Traffic Sign
Ele Electric **HS** Height **UTS** Unable to Survey
EP Electricity Post **IC** Inspection Chamber **WL** Water Level
ER Earth Road **IL** Internal Floor Level **WM** Water Meter
FL Floodlight **IL** Invert Level (as a reduced level) **WO** Wash Out

Rev	Date	Details of issue / revision	IR	OS
01	29.11.24	First issue		

Issues & Revisions

BWB **BWB CONSULTING**

■ Birmingham | 0121 233 3322
■ Leeds | 0113 233 8000
■ London | 020 7407 3879
■ Manchester | 0161 233 4260
■ Nottingham | 0115 924 1100
www.bwbconsulting.com

Client

RICHBOROUGH ESTATES LIMITED

Project Title

LAND OFF KINGS NEWTON LANE MELBOURNE

Drawing Title

EXISTING SITE LAYOUT

Drawn:	J.Riley	Reviewed:	D.Smith
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BWB Ref:	244784	Date:	29.11.24	Scale:	1:500
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Drawing Status

INFORMATION

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
KNL-BWB-00-02-DR-G-0001	S2	P1

Appendix 2: Proposed Development Layout



Key



Application Site Boundary

Development Cells

Extent of development area

Existing residential area

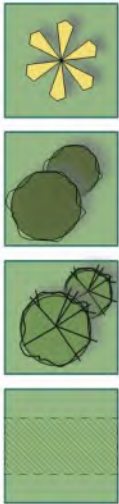


Proposed Site Access

Primary Street

Secondary Street

SuDS Features



Children's Play Area (LEAP)

Anticipated retained landscape

Indicative proposed landscape

Proposed boundary planting



Public Right of Way

Proposed pedestrian link



Richborough
nineteen47
CHARTERED TOWN PLANNERS
& URBAN DESIGNERS

Project
Kings Newton Lane, Melbourne

Drawing Title
Framework Plan

Project Code	Drawing Nr	Rev	Drawing Scale
n1236	100	A	1:1,000 @ A2

Appendix 3: NPPF Flood Risk Vulnerability and Flood Zone Compatibility

Flood Risk Vulnerability Classifications (recreated from the NPPF Planning Practice Guidance)

Vulnerability Classification	Description
Essential infrastructure	• Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk. • Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including infrastructure for electricity supply including generation, storage and distribution systems; including electricity generating power stations, grid and primary substations storage; and water treatment works that need to remain operational in times of flood. • Wind turbines. • Solar farms.
Highly Vulnerable	• Police and ambulance stations; fire stations and command centres; telecommunications installations required to be operational during flooding. • Emergency dispersal points. • Basement dwellings. • Caravans, mobile homes and park homes intended for permanent residential use. • Installations requiring hazardous substances consent. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as 'Essential Infrastructure'.)
More Vulnerable	• Hospitals • Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels. • Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels. • Non-residential uses for health services, nurseries and educational establishments. • Landfill* and sites used for waste management facilities for hazardous waste. • Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.
Less Vulnerable	• Police, ambulance and fire stations which are not required to be operational during flooding. • Buildings used for shops; financial, professional and other services; restaurants, cafes and hot food takeaways; offices; general industry, storage and distribution; non-residential institutions not included in the 'more vulnerable' class; and assembly and leisure. • Land and buildings used for agriculture and forestry. • Waste treatment (except landfill* and hazardous waste facilities). • Minerals working and processing (except for sand and gravel working). • Water treatment works which do not need to remain operational during times of flood. • Sewage treatment works, if adequate measures to control pollution and manage sewage during flooding events are in place. • Car parks.
Water-Compatible Development	• Flood control infrastructure. • Water transmission infrastructure and pumping stations. • Sewage transmission infrastructure and pumping stations. • Sand and gravel working. • Docks, marinas and wharves. • Navigation facilities. • Ministry of Defence installations. • Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location. • Water-based recreation (excluding sleeping accommodation). • Lifeguard and coastguard stations. • Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms. • Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.

Flood Zone Compatibility (recreated from the NPPF Planning Practice Guidance)

Flood Zone	Vulnerability Classification				
	Essential infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
Flood Zone 1 (Low Probability)	Development is appropriate	Development is appropriate	Development is appropriate	Development is appropriate	Development is appropriate
Flood Zone 2 (Medium Probability)	Development is appropriate	To be deemed appropriate an exception test is required to demonstrate: - The development will be safe for its life time without increasing flood risk elsewhere, and where possible reduce overall flood risk - the sustainability benefits of the development to the community outweigh the flood risk.	Development is appropriate	Development is appropriate	Development is appropriate
Flood Zone 3a (High Probability)	To be deemed appropriate an exception test is required to demonstrate: The development will be safe for its life time without increasing flood risk elsewhere, and where possible reduce overall flood risk the sustainability benefits of the development to the community outweigh the flood risk. Additionally, essential infrastructure should be designed and constructed to remain operational and safe in times of flood.	Development should not be permitted	To be deemed appropriate an exception test is required to demonstrate: - The development will be safe for its life time without increasing flood risk elsewhere, and where possible reduce overall flood risk - the sustainability benefits of the development to the community outweigh the flood risk.	Development is appropriate	Development is appropriate

Flood Zone	Vulnerability Classification				
	Essential infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
Flood Zone 3b (The Functional Floodplain)	To be deemed appropriate an exception test is required to demonstrate: • The development will be safe for its life time without increasing flood risk elsewhere, and where possible reduce overall flood risk • the sustainability benefits of the development to the community outweigh the flood risk. Additionally, development should be designed and constructed to: • remain operational and safe for users in times of flood; • result in no net loss of floodplain storage; • not impede water flows and not increase flood risk elsewhere.	Development should not be permitted	Development should not be permitted	Development should not be permitted	Development is appropriate if designed and constructed to: • remain operational and safe for users in times of flood; • result in no net loss of floodplain storage; • not impede water flows and not increase flood risk elsewhere.

Appendix 4: Environment Agency Product 4 Data

Flood Map for Planning: The Flood Map for Planning is now classed as Open Data. As such it can be downloaded free of charge under an open data licence from the following addresses:

- <https://data.gov.uk/publisher/environment-agency>
- <https://flood-map-for-planning.service.gov.uk/>

This location is within Flood Zone 3.

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.
- ignore the presence of defences,
- do not take into account potential impacts of climate change.
- The Flood Map for Planning on Gov.uk was last updated in November 2023. The next update will be published in Spring 2025 as part of our new National Flood Risk Assessment, NaFRA2.
- Our new National Flood Risk Assessment will improve the quality and consistency of our national flood risk products due to better methods and input data. This means there will be some changes to flood risk information in many areas when the new data is published.

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)
Zone2: 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% (1 in 100) 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: Functional Floodplain	• 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). • Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. • (Not separately distinguished from Zone 3a on the Flood Map)

Probability	Percentage chance of flooding each year
1 in 2 year	50%
1 in 5 year	20%
1 in 20 year	5%
1 in 50 year	2%
1 in 100 year	1%
1 in 1000 year	0.1%
Surface Water Flooding	
1 in 30	High Risk
1 in 100	Medium Risk
1 in 1000	Low Risk

Updated Climate Change Guidance: On 19th February 2016, the [Flood risk assessments: climate change allowances](#) was published on www.gov.uk website. It has replaced previous guidance [Climate Change Allowances for Planners](#). The climate change guidance can be found at: <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>

The climate change allowances for this location are:

-  **29% (central)**
-  **39% (higher central),**
-  **63% (upper)**

Defence Information Flood defence data is routinely updated and freely available at: [AIMS Spatial Flood Defences \(inc. standardised attributes\) - data.gov.uk](#) and [AIMS Asset Bundle - data.gov.uk](#).

There are no Environment Agency maintained raised defences in this area.

Historic Information: We have records of historic fluvial flooding at this location in 1947 and 2007. Please note that we may or may not hold the original records in question. We do not make any claim as to the reliability of recorded flood extents or that all flood events in the area have been recorded. Please also be aware that flood defences may have been built after these historic flood events. Note - This information relates to the area the above-named property is in and is not specific to the property itself - it **does not** provide an indicator of flood risk **at individual property level**.

Surface Water & Drainage: The Environment Agency (empowered under the Water Resources Act 1991) concentrates on the major elements of the drainage system, managing flood risk arising from designated "main rivers" and the sea. The Flood & Water Management Act (2010) has given Lead Local Flood Authorities (LLFAs) responsibility for the management of local flood risk, which includes surface runoff, groundwater, and flooding from ordinary watercourses (smaller rivers and streams). The LLFA for this area is **Derbyshire County Council**, and we recommend that you contact them with concerns about any flooding issues for this area.

Further information and maps for surface water, ordinary watercourses, and reservoir flooding can be found here: <https://www.gov.uk/check-long-term-flood-risk> ; [Reservoir flood maps: when and how to use them - GOV.UK \(www.gov.uk\)](#)

Open Data Information: Many datasets are now classed as Open Data and as such can be downloaded free of charge under an open data licence from the following address: <https://data.gov.uk/publisher/environment-agency>

Permitting Information: Under the Environmental Permitting (England and Wales) Regulations 2016, any permanent or temporary works in, over or under a designated main river will require an Environmental Permit for Flood Risk Activities from the Environment Agency. Any permanent or temporary works within 8 metres of the top of bank of a designated main river, or landward toe of a flood defence may require an Environmental Permit for Flood Risk Activities from the Environment Agency. In addition, any permanent or temporary works within the floodplain of a designated main river may also require an Environmental Permit for Flood Risk Activities. To find out whether your activity requires a permit or falls under a relevant exclusion, exemption or standard rule please follow this link: <https://www.gov.uk/guidance/flood-risk-activities-environmental-permits>. The Environment Agency require access to the watercourse and free movement up to 8m from the river bank/ defence for maintenance purposes.

Please note that a permit is separate to and in addition to any planning permission granted.

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 surface water, ground water and reservoirs. 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 Assessment Advisory: All guidance on how to complete a full site specific Flood Risk Assessment (FRA) can be found here: [Flood risk and coastal change - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/flood-risk-and-coastal-change). Furthermore, information on how to use modelling for FRA's can be found here: [Using modelling for flood risk assessments - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/using-modelling-for-flood-risk-assessments). In addition, professional assistance can be provided by our planning officers, by contacting planning.trentside@environment-agency.gov.uk.

Flood risk assessment data

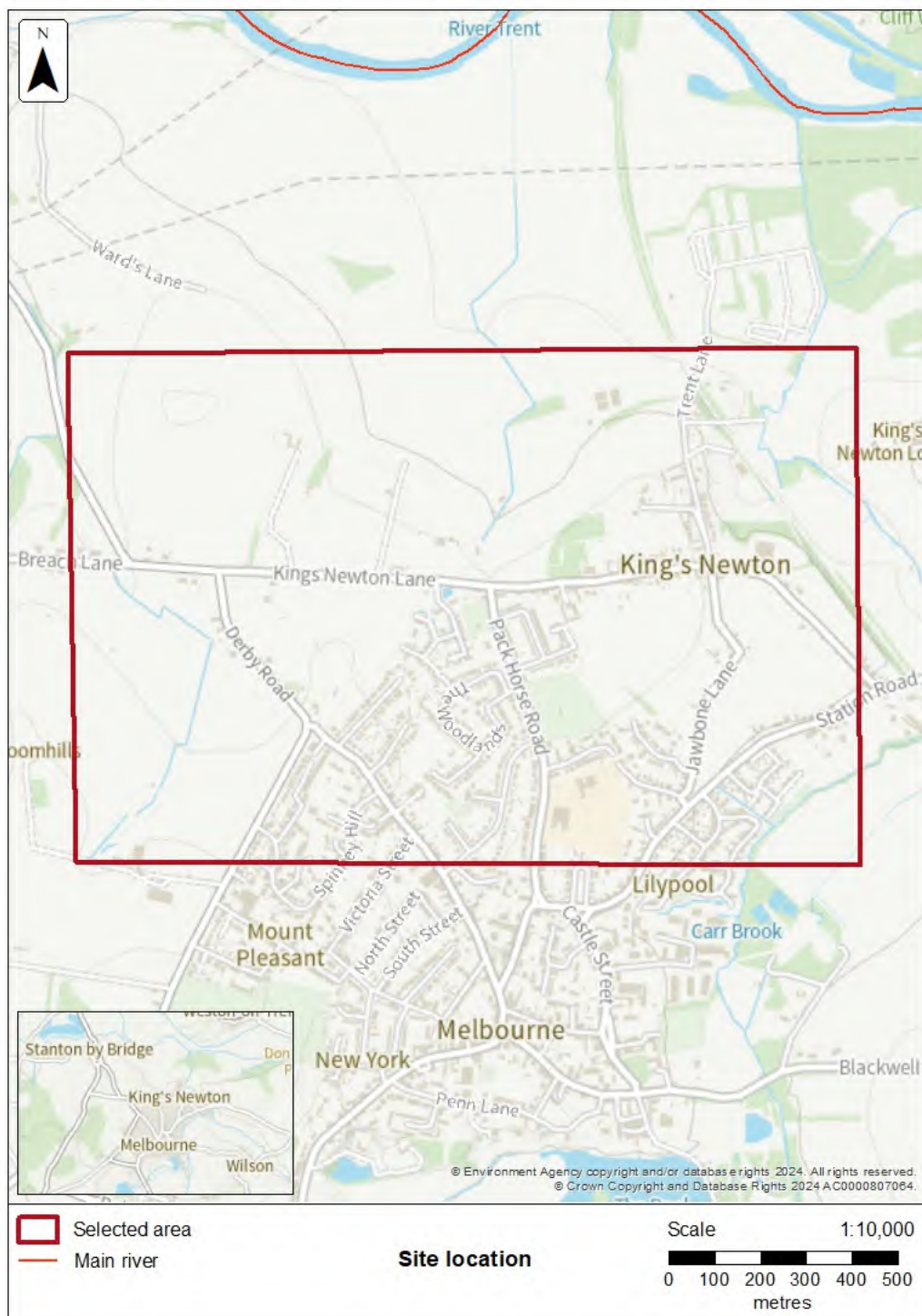
Location of site: 438535 / 326126 (shown as easting and northing coordinates)

Document created on: 24 December 2024

This information was previously known as a product 4.

Customer reference number: W66VX3GT9UG9

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 surface water and 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
- modelled data
- climate change modelled data
- information about strategic flood risk assessments
- information about this data
- information about flood risk activity permits
- help and advice

Information that's unavailable

This document **does not** contain:

- flood defences and attributes

We aren't able to display flood defence locations and attributes as there are no formal flood defences in the area of interest.

Surface water and other sources of flooding

Use the [long term flood risk service](#) to find out about the risk of flooding from:

- surface water
- ordinary watercourses
- reservoirs

Or you can contact your Lead Local Flood Authority for further information.

Your Lead Local Flood Authority is Derbyshire County.

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

About the models used

Model name: Derbyshire River Trent, Environment Agency, 2021

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

Date: 1 January 2021

Model name: River Derwent OCOR, Binnies, 2023

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

Date: 1 March 2023

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

The flood zones are not currently being updated. The last update was in November 2023. Some of the flood zones may have changed, however all source data is included in the models below.



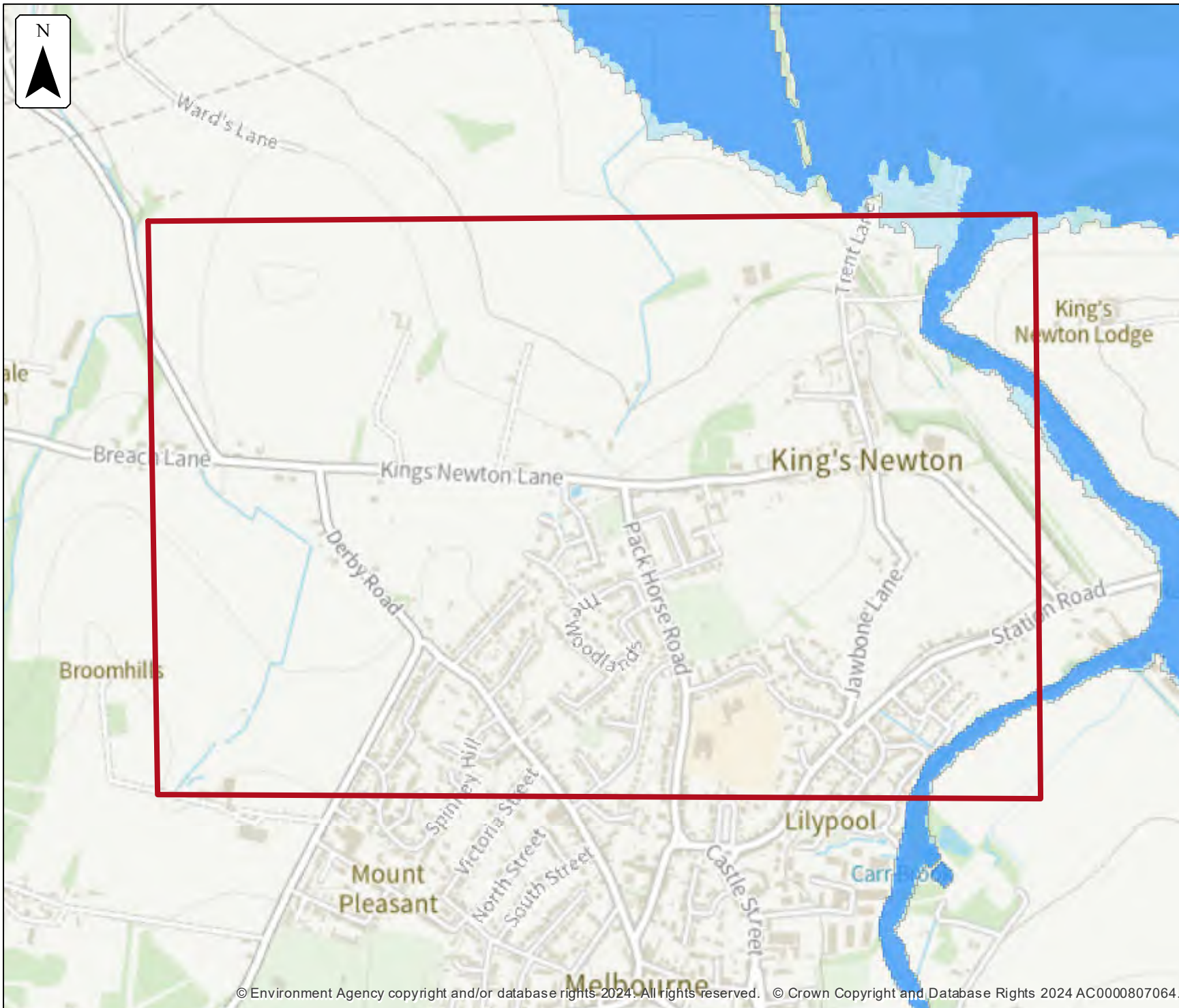
Flood map for planning

Location (easting/northing)
438535/326126

Scale
1:10,000

Created
24 Dec 2024

-  Selected area
-  Flood zone 3
-  Flood zone 2



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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

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 Derbyshire County 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)
438535/326126

Scale
1:10,000

Created
24 Dec 2024

 Selected area

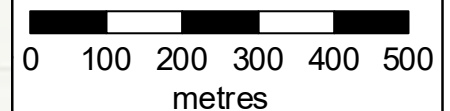
 Main river

Date of flood event

 November, 2000

 December, 1981

 March, 1947



Data on past flood events

Start date	End date	Source of flood	Cause of flood	Affects location
8 November 2000	8 November 2000	main river	channel capacity exceeded (no raised defences)	Yes
30 December 1981	2 January 1982	main river	channel capacity exceeded (no raised defences)	No
March 1947	March 1947	main river	channel capacity exceeded (no raised defences)	Yes

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
- 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



Defended modelled fluvial extent

Location (easting/northing)
438535/326126

Scale Created
1:10,000 24 Dec 2024

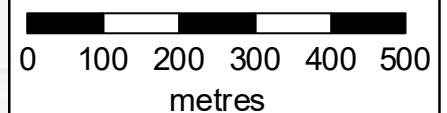
Model name
**River Derwent OCOR,
Binnies, 2023**

 Selected area

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



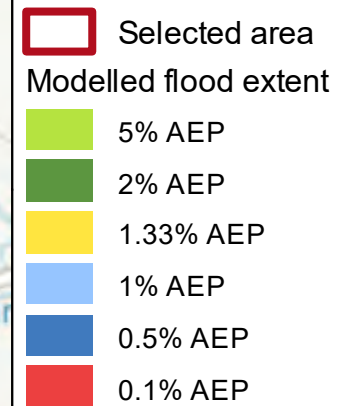


Defended modelled fluvial extent

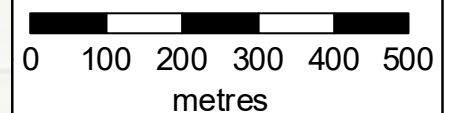
Location (easting/northing)
438535/326126

Scale Created
1:10,000 24 Dec 2024

Model name
**Derbyshire River
Trent, Environment**



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





Defences removed modelled fluvial extent

Location (easting/northing)
438535/326126

Scale Created
1:10,000 24 Dec 2024

Model name
**River Derwent OCOR,
Binnies, 2023**

-  Selected area
- Modelled flood extent
-  1% AEP
-  0.1% AEP

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





Defences removed modelled fluvial extent

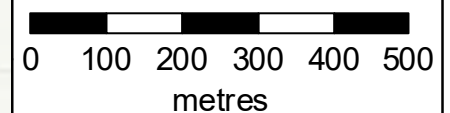
Location (easting/northing)
438535/326126

Scale Created
1:10,000 24 Dec 2024

Model name
**Derbyshire River
Trent, Environment**

-  Selected area
- Modelled flood extent
-  1% 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)
438535/326126

Scale Created
1:10,000 24 Dec 2024

Model name
**River Derwent OCOR,
Binnies, 2023**

-  Selected area
-  Main river
- Modelled flood extent
-  1.0% AEP (+29%)
 -  1.0% AEP (+39%)
 -  1.0% AEP (+63%)

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





Defended climate change modelled fluvial extent

Location (easting/northing)
438535/326126

Scale Created
1:10,000 24 Dec 2024

Model name
**Derbyshire River
Trent, Environment**

-  Selected area
-  Main river
- Modelled flood extent
 -  1.0% AEP (+20%)
 -  1.0% AEP (+30%)
 -  1.0% AEP (+50%)

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





Defended modelled fluvial extent and height

Location (easting/northing)
438535/326126

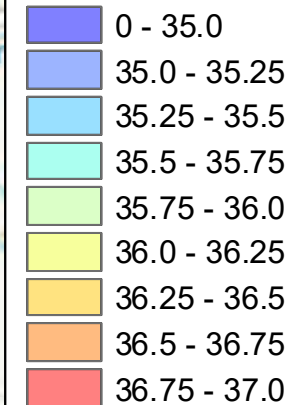
Scale Created
1:10,000 24 Dec 2024

Model name
**River Derwent OCOR,
Binnies, 2023**

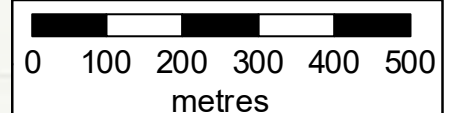
 Selected area

 Main river

Modelled 2D grid
Water level in mAOD



This map shows the
0.1% AEP height data



Sample point data

Defended

Label	Easting	Northing	50% AEP	20% AEP	10% AEP	5% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
1	437724	325619	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
2	438041	325619	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
3	438358	325619	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
4	438675	325619	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
5	438992	325619	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
6	439309	325619	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
7	437724	325936	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
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9	438358	325936	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
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11	438992	325936	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
12	439309	325936	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
13	437724	326253	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
14	438041	326253	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
15	438358	326253	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
16	438675	326253	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData

Label	Easting	Northing	50% AEP	20% AEP	10% AEP	5% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
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18	439309	326253	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
19	437724	326570	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
20	438041	326570	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
21	438358	326570	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
22	438675	326570	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
23	438992	326570	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
24	439309	326570	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
Max value in selected area:			Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine

Data in this table comes from the River Derwent OCOR, Binnies, 2023 model.

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Defended

Label	Easting	Northing	50% AEP	20% AEP	10% AEP	5% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Height	Height	Height	Height	Height	Height	Height	Height	Height	Height
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2	438041	325619	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
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16	438675	326253	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
17	438992	326253	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
18	439309	326253	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData

Label	Easting	Northing	50% AEP	20% AEP	10% AEP	5% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Height	Height	Height	Height	Height	Height	Height	Height	Height	Height
19	437724	326570	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
20	438041	326570	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
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23	438992	326570	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
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Defended modelled fluvial extent and height

Location (easting/northing)
438535/326126

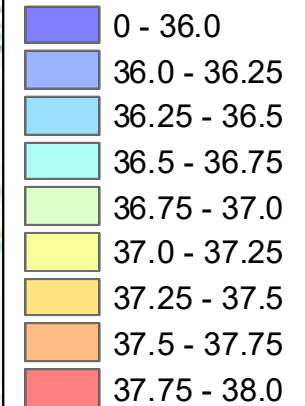
Scale Created
1:10,000 24 Dec 2024

Model name
**Derbyshire River
Trent, Environment**

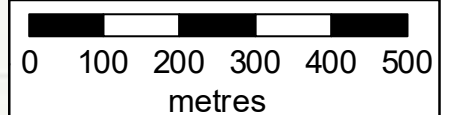
 Selected area

 Main river

Modelled 2D grid
Water level in mAOD



This map shows the
0.1% AEP height data



Sample point data

Defended

Label	Easting	Northing	20% AEP	10% AEP	5% AEP	4% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
1	437724	325619	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
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15	438358	326253	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
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Label	Easting	Northing	20% AEP	10% AEP	5% AEP	4% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
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24	439309	326570	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
Max value in selected area:			Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	0.92

Data in this table comes from the Derbyshire River Trent, Environment Agency, 2021 model.

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Defended

Label	Easting	Northing	20% AEP	10% AEP	5% AEP	4% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
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17	438992	326253	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
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Label	Easting	Northing	20% AEP	10% AEP	5% AEP	4% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Height	Height	Height	Height	Height	Height	Height	Height	Height	Height
19	437724	326570	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
20	438041	326570	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
21	438358	326570	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
22	438675	326570	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
23	438992	326570	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
24	439309	326570	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
Max value in selected area:			Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	37.47

Data in this table comes from the Derbyshire River Trent, Environment Agency, 2021 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.

If no height or depth data is available for a scenario, no table will be shown.

'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)
438535/326126

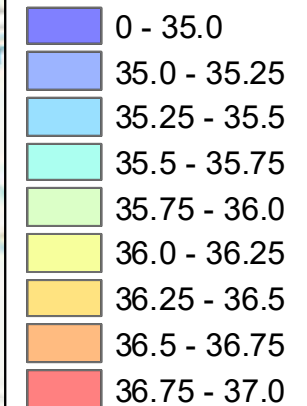
Scale Created
1:10,000 24 Dec 2024

Model name
**River Derwent OCOR,
Binnies, 2023**

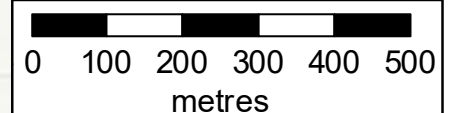
 Selected area

 Main river

Modelled 2D grid
Water level in mAOD



This map shows the
0.1% AEP height data



Sample point data

Defences removed

Label	Easting	Northing	1% AEP	0.1% AEP	1% AEP	0.1% AEP
			Depth	Depth	Height	Height
1	437724	325619	NoData	NoData	NoData	NoData
2	438041	325619	NoData	NoData	NoData	NoData
3	438358	325619	NoData	NoData	NoData	NoData
4	438675	325619	NoData	NoData	NoData	NoData
5	438992	325619	NoData	NoData	NoData	NoData
6	439309	325619	NoData	NoData	NoData	NoData
7	437724	325936	NoData	NoData	NoData	NoData
8	438041	325936	NoData	NoData	NoData	NoData
9	438358	325936	NoData	NoData	NoData	NoData
10	438675	325936	NoData	NoData	NoData	NoData
11	438992	325936	NoData	NoData	NoData	NoData
12	439309	325936	NoData	NoData	NoData	NoData
13	437724	326253	NoData	NoData	NoData	NoData
14	438041	326253	NoData	NoData	NoData	NoData
15	438358	326253	NoData	NoData	NoData	NoData
16	438675	326253	NoData	NoData	NoData	NoData

Label	Easting	Northing	1% AEP	0.1% AEP	1% AEP	0.1% AEP
			Depth	Depth	Height	Height
17	438992	326253	NoData	NoData	NoData	NoData
18	439309	326253	NoData	NoData	NoData	NoData
19	437724	326570	NoData	NoData	NoData	NoData
20	438041	326570	NoData	NoData	NoData	NoData
21	438358	326570	NoData	NoData	NoData	NoData
22	438675	326570	NoData	NoData	NoData	NoData
23	438992	326570	NoData	NoData	NoData	NoData
24	439309	326570	NoData	NoData	NoData	NoData
Max value in selected area:			Could not determine	Could not determine	Could not determine	Could not determine

Data in this table comes from the River Derwent OCOR, Binnies, 2023 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.

If no height or depth data is available for a scenario, no table will be shown.

'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)
438535/326126

Scale Created
1:10,000 24 Dec 2024

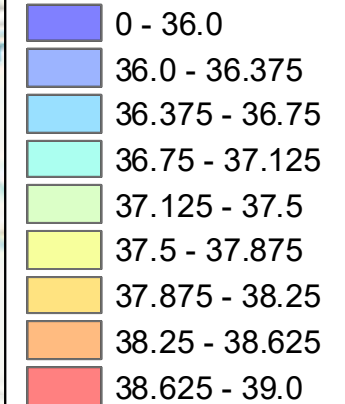
Model name
**Derbyshire River
Trent, Environment**

 Selected area

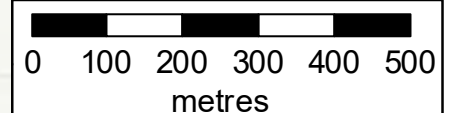
 Main river

Modelled 2D grid

Water level in mAOD



This map shows the
0.1% AEP height data



Sample point data

Defences removed

Label	Easting	Northing	1% AEP	0.1% AEP	1% AEP	0.1% AEP
			Depth	Depth	Height	Height
1	437724	325619	NoData	NoData	NoData	NoData
2	438041	325619	NoData	NoData	NoData	NoData
3	438358	325619	NoData	NoData	NoData	NoData
4	438675	325619	NoData	NoData	NoData	NoData
5	438992	325619	NoData	NoData	NoData	NoData
6	439309	325619	NoData	NoData	NoData	NoData
7	437724	325936	NoData	NoData	NoData	NoData
8	438041	325936	NoData	NoData	NoData	NoData
9	438358	325936	NoData	NoData	NoData	NoData
10	438675	325936	NoData	NoData	NoData	NoData
11	438992	325936	NoData	NoData	NoData	NoData
12	439309	325936	NoData	NoData	NoData	NoData
13	437724	326253	NoData	NoData	NoData	NoData
14	438041	326253	NoData	NoData	NoData	NoData
15	438358	326253	NoData	NoData	NoData	NoData
16	438675	326253	NoData	NoData	NoData	NoData

Label	Easting	Northing	1% AEP	0.1% AEP	1% AEP	0.1% AEP
			Depth	Depth	Height	Height
17	438992	326253	NoData	NoData	NoData	NoData
18	439309	326253	NoData	NoData	NoData	NoData
19	437724	326570	NoData	NoData	NoData	NoData
20	438041	326570	NoData	NoData	NoData	NoData
21	438358	326570	NoData	NoData	NoData	NoData
22	438675	326570	NoData	NoData	NoData	NoData
23	438992	326570	NoData	NoData	NoData	NoData
24	439309	326570	NoData	NoData	NoData	NoData
Max value in selected area:			Could not determine	0.91	Could not determine	37.47

Data in this table comes from the Derbyshire River Trent, Environment Agency, 2021 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.

If no height or depth data is available for a scenario, no table will be shown.

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

Floodplain Heights Map



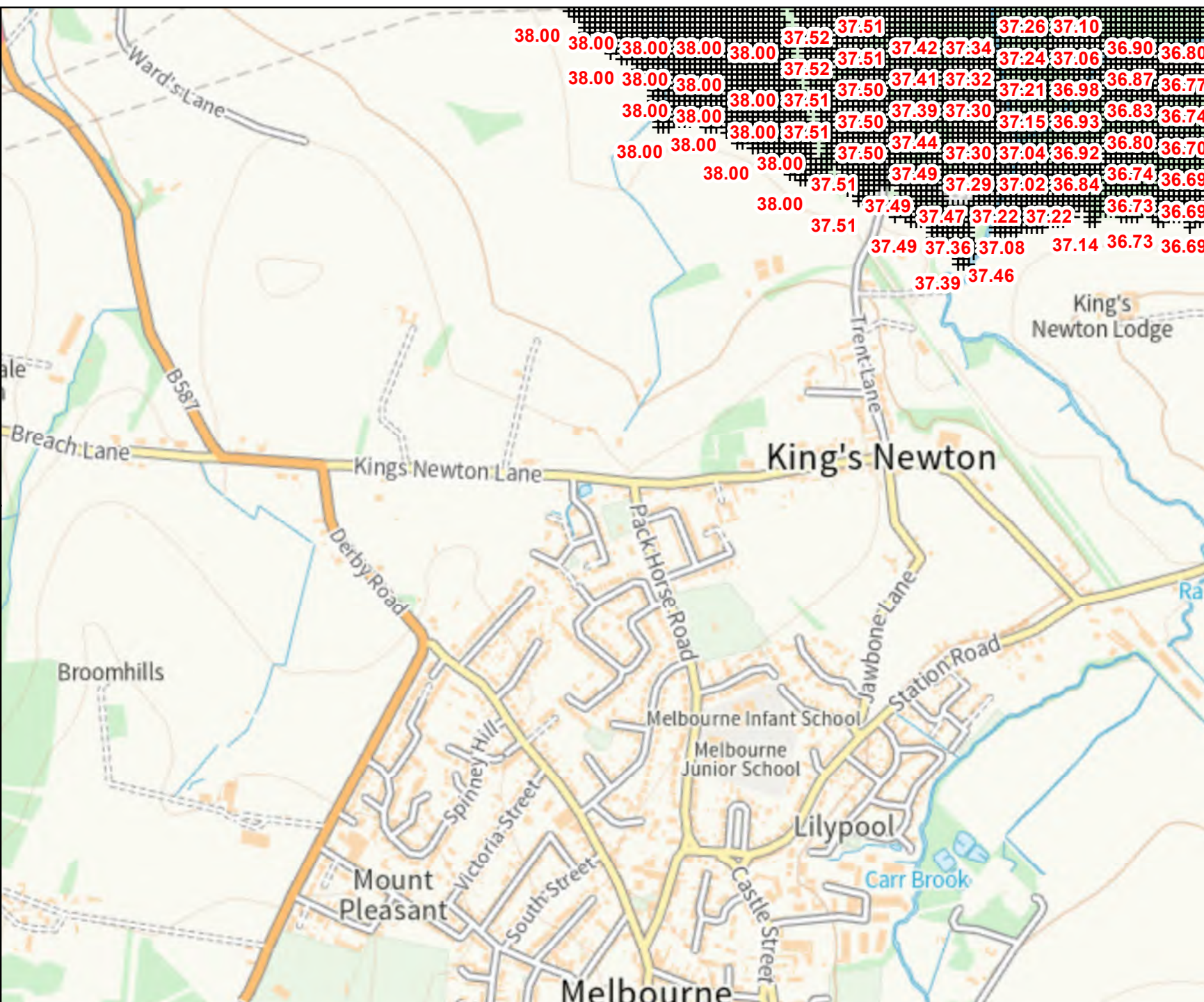
Scale 1:10,000

Date created: 06 January 2025

Legend

+ 1 in 100yr +50%CC Height (mAOD)

38.00 38.00 38.00 38.00 38.00 37.52 37.51 37.42 37.34 37.26 37.10 36.90 36.80
 38.00 38.00 38.00 38.00 37.52 37.51 37.41 37.32 37.24 37.06 36.87 36.77
 38.00 38.00 38.00 37.51 37.50 37.39 37.30 37.15 36.93 36.83 36.74
 38.00 38.00 38.00 37.51 37.50 37.44 37.30 37.04 36.92 36.80 36.70
 38.00 38.00 37.51 37.49 37.29 37.02 36.84 36.74 36.69
 38.00 37.51 37.49 37.47 37.22 37.22 36.73 36.69
 37.49 37.36 37.08 37.14 36.73 36.69
 37.39 37.46



SOURCE:
 Derbyshire Trent,
 EA, 2021

Floodplain Heights Map

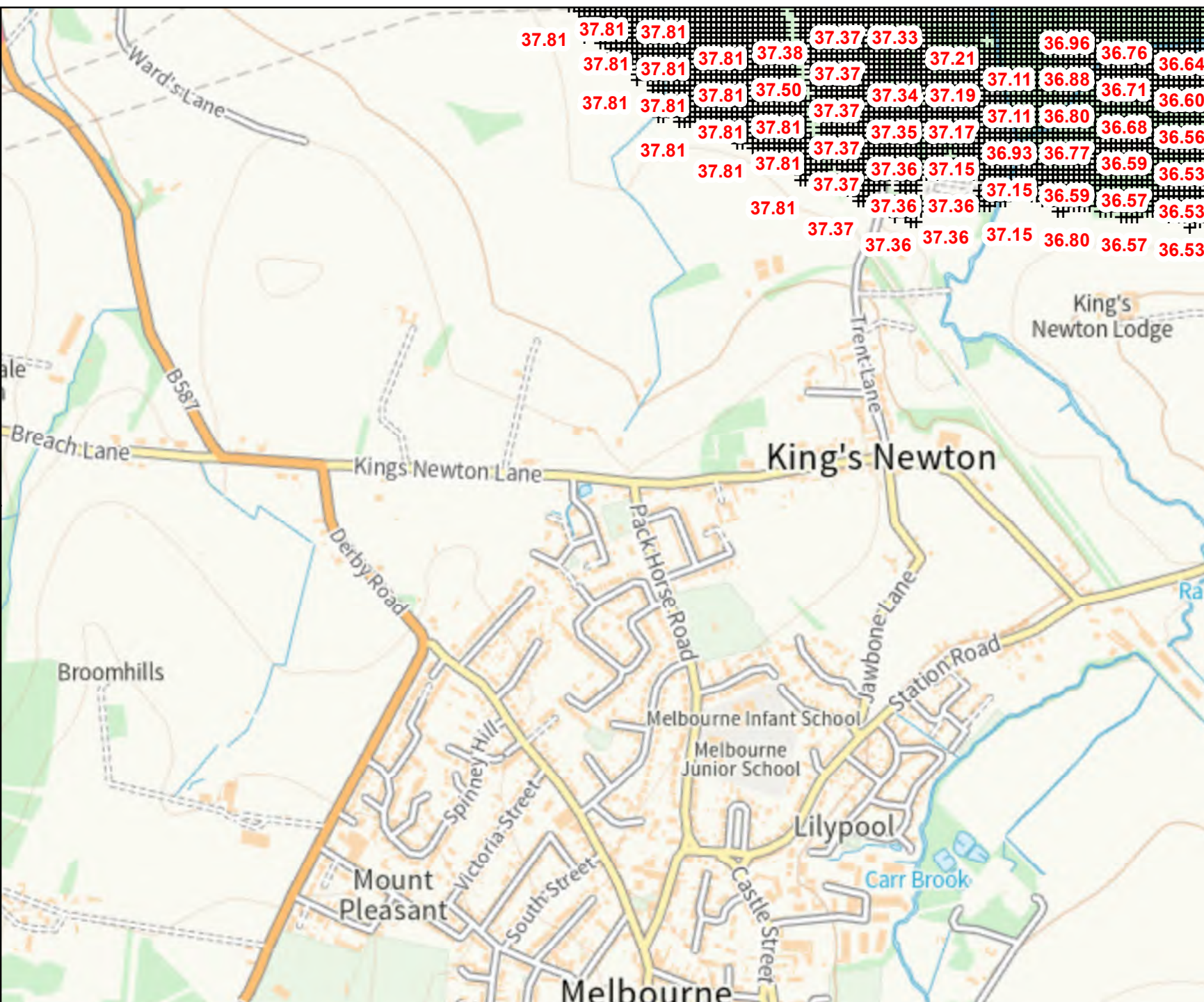


Scale 1:10,000
Date created: 06 January 2025

Legend

+ 1 in 100yr +30%CC Height (mAOD)

37.81 37.81 37.81 37.81 37.38 37.37 37.33 37.21 36.96 36.76 36.64
 37.81 37.81 37.81 37.50 37.37 37.34 37.19 37.11 36.88 36.71 36.60
 37.81 37.81 37.81 37.37 37.35 37.17 37.11 36.80 36.68 36.56
 37.81 37.81 37.37 37.36 37.15 36.93 36.77 36.59 36.53
 37.81 37.37 37.36 37.36 37.15 36.80 36.57 36.53
 37.36 37.36 37.15 36.80 36.57 36.53



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 surface water, ground water and reservoirs

Your Lead Local Flood Authority is Derbyshire County.

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 East Midlands Environment Agency team at dm.enquiries@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 5: Derbyshire County Council Correspondence

Environment Information Request - Response Form

DCC REFERENCE:	2 EIR/6832		
DCC CONTACT:	Jo Crawshaw-Moore		
CONTACT NAME:	?		
CONTACT COMPANY:	?		
CONTACT TEL NUMBER:	?		
ADDRESS OF SITE:	Kings Newton Lane, Melbourne, DE73 8DD (SK 38278 26089)		
DATE RECEIVED:	27/12/2024	DATE DUE:	13/01/2025

FLOOD RISK COMMENTS:

SURFACE WATER INFORMATION:

The Environment Agency's Updated Flood Map for Surface Water gives an indication of the scale and distribution of surface water flood risk and raises awareness of annual surface water flood risk with a greater than 3.3% probability and with a probability between 1% and 3.3%.

The site is not at risk from surface water flooding (as indicated on the EA's Updated Flood Map for Surface Water).

Note; Any alteration to the impermeable area for this development, may exacerbate the surface water flood risk, and should be managed appropriately.

Major developments should incorporate sustainable drainage systems unless there is clear evidence that this would be inappropriate (as per National Planning Policy Framework 169), and also apply the hierarchy of drainage options to ensure that surface water is directed to the most appropriate outfall.

The Lead Local Flood Authority (LLFA) requires that site surface water drainage is designed in line with DEFRA's Non-statutory technical standards for sustainable drainage systems (March 2015), including restricting developed discharge of surface water to greenfield runoff rates, making suitable allowances for climate change (in line with the latest guidance from DEFRA) and urban creep (allowance of 10%),

Note; The Greenfield runoff rate which is to be used for assessing the requirements for limiting discharge flow rates and attenuation storage for a site should be calculated for the whole development area (paved and pervious surfaces - houses, gardens, roads, and other open space) that is within the area served by the drainage network whatever size of the site and type of drainage system. Significant green areas such as recreation parks, general public open space etc., which are not served by the drainage system and do not play a part in the runoff management for the site, and which can be assumed to have a runoff response which is similar to that prior to the development taking place, can be excluded from the greenfield analysis.

Details of how and by whom, the on-site surface water drainage systems will be maintained and managed after completion and for the lifetime of the development to ensure the features remain functional, will also be required prior to commencement of the works.

The LLFA also strongly encourages that the developer should take into account designing drainage systems for exceedance working with the natural topography of the site, utilising natural mini sub-catchments.

HISTORICAL FLOODING INFORMATION:

According to LLFA held datasets, there are currently 2 records of historical flooding within 100m of the site boundary. They concern flooding on Derby Road to the south of the site in 2019 & 2024.

Note; As part of the Drainage Strategy or Flood Risk Assessment for the site, the applicant should always investigate all possible sources of information on past flooding, as the LLFA cannot guarantee that every record of previous historic flooding is accounted for.

FLUVIAL INFORMATION (Ordinary watercourse and Main River where applicable)

An unnamed ordinary watercourse flows to the north approximately 150m to the west of the site. An unnamed ordinary watercourse rises approximately 160m to the north-east of the site and flows to the north. A short section of ordinary watercourse lies approximately 40m to the east of the site within the adjacent residential area, including a short spur coming from the direction of the eastern site boundary; this watercourse flows to the north and appears to terminate in a balancing pond approximately 40m east of the north-eastern corner of the site; this balancing pond appears to be connected via public sewers to the watercourse to the north-east mentioned above.

The LLFA does not generally undertake or hold any data relating to modelling on specific ordinary watercourses. The applicant is advised to contact the Environment Agency who hold modelling data for Main Rivers and some ordinary watercourses.

Due to the historic mining and mineral extraction operations in Derbyshire, networks of old stone soughs and adits may exist beneath the ground surface in parts of the County (particularly North East Derbyshire District, High Peak Borough, Derbyshire Dales District and the Peak District National Park area). The applicant is therefore advised to investigate the potential for hidden watercourses existing on the land prior to any works being undertaken.

BRITISH GEOLOGICAL SURVEY DATA:

An analysis of the British Geological Survey (BGS) data is summarised below:

- The subsurface is probably suitable for infiltration SuDs although the design may be influenced by the ground conditions.
- Groundwater is likely to be more than 5 m below the ground surface throughout the year.
- The bedrock permeability is spatially variable, but likely to permit moderate infiltration.
- The groundwater may be vulnerable to contamination. Infiltrating water should be free of contaminants.

- Groundwater is designated within source protection zone III, indicating potential sensitivity to contamination.
- Water is likely to percolate through the unsaturated zone to the groundwater through fractures, a process which has little potential for contaminant removal and breakdown.
- Ground instability problems are probably present due to slope instability problems. Increased infiltration may result in ground instability.

The information supplied above should only be used as a guide, and site specific ground investigations should be undertaken to inform any subsequent Flood Risk Assessments/Drainage Strategies.

OTHER RELEVANT INFORMATION AND COMMENTS:

The County Council does not adopt any SuDS schemes at present (although may consider ones which are served by highway drainage only). As such, it should be confirmed prior to commencement of works who will be responsible for SuDS maintenance/management once the development is completed.

Any works in or nearby an ordinary watercourse may require consent under the Land Drainage Act (1991) from the County Council For further advice, or to make an application please contact Flood.Team@derbyshire.gov.uk.

No part of the proposed development shall be constructed within 5-8m of an ordinary watercourse and a minimum 3 m for a culverted watercourse (increases with size of culvert). It should be noted that DCC have an anti-culverting policy.

The LLFA is currently formulating Local Guidance for planning applications for major development with surface water implications. In the interim period, and as this information may be used to inform an application for major development to which the LLFA is a statutory consultee, it should be noted the minimum details required on all major planning applications are as follows:

- *Site plan and impermeable area*
- *Topographic survey of the site*
- *Appropriate evidence to support how the site will drain (photographs / maps / a confirmation letter from a water company)*
- *Basic calculations of the greenfield/brownfield runoff and discharge rates*
- *A quick storage estimate to show the required storage volume of surface water on site and an indication of the likely location*
- *Calculations should include allowances for the current Environment Agency guidance for climate change and urban creep.*
- *Basic ground investigation (desktop survey as a minimum)*
- *Major developments should incorporate sustainable drainage systems unless there is clear evidence that this would be inappropriate (as per National Planning Policy Framework 175). A range of sustainable drainage techniques must be considered prior to or in conjunction with the planning layout.*
- *How the sustainable drainage systems integrate with the open space and green infrastructure should be described and what multifunctional benefits they provide should be stated, as per paragraph 59 of planning practice guidance (Aug 2022).*

These details are required at the early planning stage to demonstrate that the proposed site is able to drain and that due consideration has been given to the space required on site for surface water storage.

FLOOD RISK ASSESSMENTS IN THE AREA:

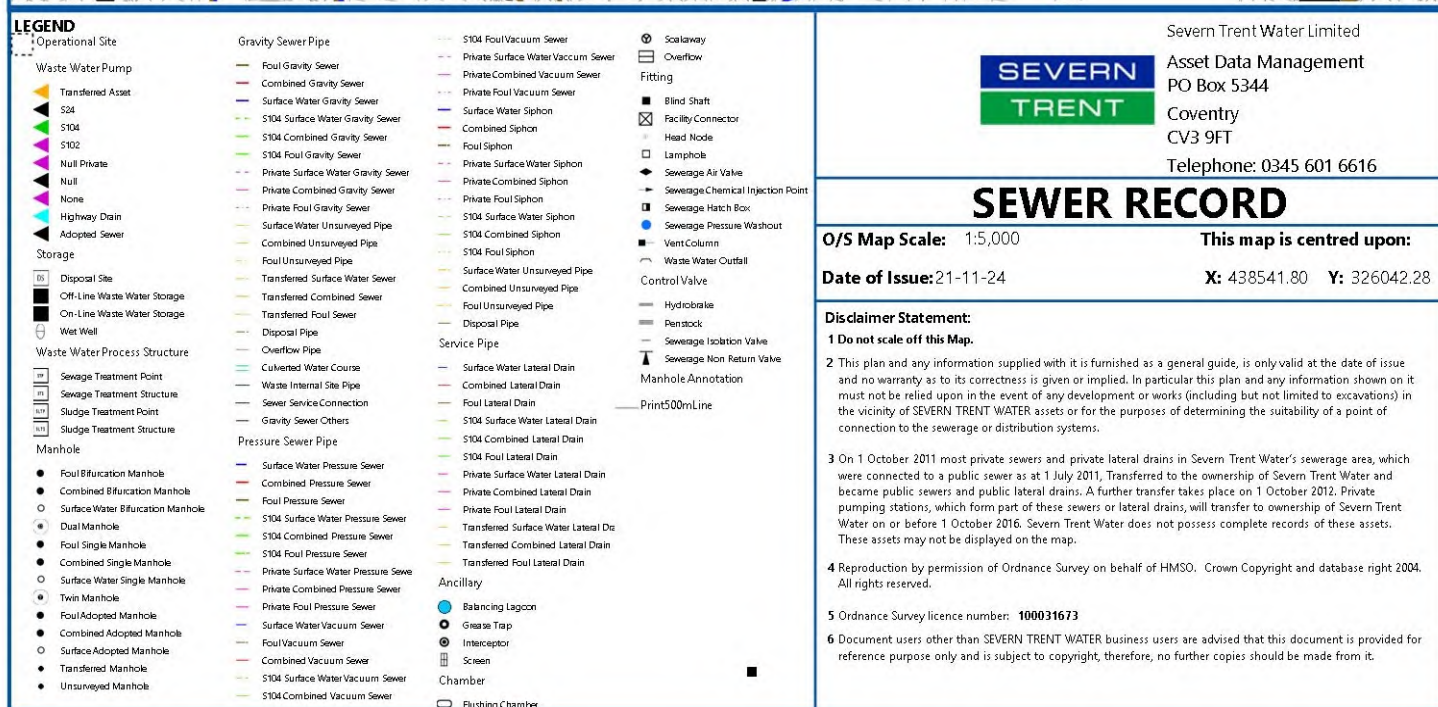
The LLFA has records of 2 flood risk assessments in the area. They are associated with planning applications 9/2015/0218 & 9/2016/0170 and are available on the South Derbyshire District Council website.

The LLFA holds a suite of information that can inform site development across Derbyshire. The information within this document has been interpreted and provided by an officer from the Council's Flood Risk Management team.

- Historical data has been collated from a range of sources and is anecdotal. The provision of this data is suggested to act as a guide only.
- Fluvial data has been provided by the Environment Agency however the applicant is advised to contact them directly for further information should the site lie within the floodplain of a Main River.
- The LLFA have modelled surface water flooding for the whole of Derbyshire. The model output gives an indication of the broad areas likely to be at risk of surface water flooding and is intended to act as a guide only and cannot be used to identify specific properties at risk.
- Further information regarding the Water Framework Directive, ecology and biodiversity should be obtained from the Environment Agency and Natural England.

COMPLETED BY:	Jo Crawshaw-Moore	DATE:	09/01/2025
CHECKED BY:	Alex Back	JOB TITLE:	Project Engineer
SIGNATURE:		DATE:	10/01/2025

Appendix 6: Severn Trent Water Sewer Records



Sewer Node

Sewer Pipe Data

Reference	Cover Level	Invert Level Upstream	Invert Level Downstream	Purpose	Material	Pipe Shape	Max Size	Min Size	Gradient	Year Laid
SK38256501	55.97	54.15	52.35	F	VC	C	225	<UNK>	21.78	31/12/1899 00:00:00
SK38259707	<UNK>	<UNK>	<UNK>	S	CO	C	450	<UNK>	<UNK>	04/06/2018 00:00:00
SK38257408	<UNK>	<UNK>	<UNK>	F	U	U	<UNK>	<UNK>	<UNK>	30/12/2020 00:00:00
SK38255405	62.86	<UNK>	<UNK>	F	U	C	<UNK>	<UNK>	<UNK>	07/10/2019 00:00:00
SK38255907	66.62	62.84	62.06	S	CO	C	525	<UNK>	255.85	31/12/1899 00:00:00
SK38258804	59.4099	57.34	56.99	S	VC	C	225	0	113.2	31/12/1899 00:00:00
SK38265106	61.8199	59.58	58.67	S	CO	C	600	<UNK>	30.77	31/12/1899 00:00:00
SK38264103	65.21	61.3	61.23	S	CO	C	<UNK>	<UNK>	156.342	30/11/2018 00:00:00
SK38265024	<UNK>	<UNK>	<UNK>	S	U	U	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
SK38254406	66.29	65.8	65.45	F	VC	C	100	<UNK>	21.77	31/12/1899 00:00:00
SK38255903	<UNK>	<UNK>	64.8	F	<UNK>	<UNK>	<UNK>	<UNK>	0	31/12/1899 00:00:00
SK38255505	60.84	59.51	58.36	F	VC	C	150	<UNK>	25.89	31/12/1899 00:00:00
SK38257601	59.7	57.67	55.97	F	VC	C	225	<UNK>	52.91	31/12/1899 00:00:00
SK38259611	<UNK>	<UNK>	<UNK>	S	VC	C	<UNK>	<UNK>	<UNK>	10/02/2020 00:00:00
SK38254404	66.0699	64.69	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK38258408	51.6199	51.24	50.87	F	VC	C	100	<UNK>	16.22	31/12/1899 00:00:00
SK38253305	72.55	72.1	71.88	F	VC	C	100	<UNK>	14.36	31/12/1899 00:00:00
SK38253405	69.08	68.45	68.44	F	VC	C	100	<UNK>	200	31/12/1899 00:00:00
SK38266105	64.0999	62.52	60.81	S	VC	C	225	<UNK>	28.85	31/12/1899 00:00:00
SK38265105	62.515	60.56	59.76	S	CO	C	525	<UNK>	41.43	31/12/1899 00:00:00
SK38257703	<UNK>	<UNK>	<UNK>	F	U	C	100	<UNK>	<UNK>	12/09/2016 00:00:00
SK38264049	<UNK>	<UNK>	<UNK>	S	U	U	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
SK38252801	71.65	69.7	68.83	F	VC	C	225	<UNK>	52.57	31/12/1899 00:00:00
SK38256502	56.83	54.84	54.22	F	VC	C	225	<UNK>	54.84	31/12/1899 00:00:00
SK38254903	68.73	67.34	66.63	F	VC	C	225	<UNK>	60.17	31/12/1899 00:00:00
SK38258700	<UNK>	<UNK>	<UNK>	F	U	C	100	<UNK>	<UNK>	12/09/2016 00:00:00
SK38259800	<UNK>	<UNK>	<UNK>	F	VC	C	150	<UNK>	<UNK>	04/06/2018 00:00:00
SK38267103	64.1699	62.62	61.82	F	VC	C	225	<UNK>	53.04	31/12/1899 00:00:00
SK38256902	66.55	65.11	64.93	F	VC	C	150	<UNK>	94.61	31/12/1899 00:00:00
SK38258702	55.9199	54.26	51.84	S	VC	C	<UNK>	<UNK>	20	31/12/1899 00:00:00
SK38255301	61.0699	60.56	<UNK>	F	VC	C	100	<UNK>	0	31/12/1899 00:00:00
SK39250710	<UNK>	<UNK>	<UNK>	F	VC	C	225	<UNK>	<UNK>	04/06/2018 00:00:00
SK38254415	66.4499	65.69	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK38255502	61.7999	60.3	<UNK>	S	VC	C	225	<UNK>	0	31/12/1899 00:00:00
SK38252409	74.9199	74.27	<UNK>	F	VC	C	100	<UNK>	0	31/12/1899 00:00:00
SK38255303	61.81	61.29	60.43	F	VC	C	100	<UNK>	7.07	31/12/1899 00:00:00
SK38255407	61.4399	59.28	58.98	F	VC	C	300	<UNK>	28.67	16/10/2008 00:00:00
SK38254506	66.01	65.63	65.12	F	VC	C	150	<UNK>	5.55	31/12/1899 00:00:00
SK38265201	56.6699	53.12	<UNK>	S	CO	C	900	<UNK>	0	31/12/1899 00:00:00
SK38257604	<UNK>	<UNK>	<UNK>	F	U	C	100	<UNK>	<UNK>	12/09/2016 00:00:00
SK38254508	62.6399	60.045	58.94	F	VC	C	300	<UNK>	82.41	31/12/1899 00:00:00

Sewer Node

Sewer Pipe Data

Reference	Cover Level	Invert Level Upstream	Invert Level Downstream	Purpose	Material	Pipe Shape	Max Size	Min Size	Gradient	Year Laid
SK38254508	62.6399	60.045	59.787	F	VC	C	375	<UNK>	32.69	16/10/2008 00:00:00
SK38264146	<UNK>	<UNK>	<UNK>	S	U	U	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
SK38257402	51.9199	49.11	48.51	C	CO	C	675	<UNK>	182.805	31/12/1899 00:00:00
SK39250304	46.2099	43.86	42.45	C	CO	C	900	<UNK>	17.74	31/12/1899 00:00:00
SK39260305	<UNK>	<UNK>	<UNK>	F	U	C	100	<UNK>	<UNK>	14/03/2017 00:00:00
SK38254505	66.51	<UNK>	65.7	F	<UNK>	<UNK>	<UNK>	<UNK>	0	31/12/1899 00:00:00
SK38254421	<UNK>	64.414	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK38257608	<UNK>	<UNK>	<UNK>	S	U	C	100	<UNK>	<UNK>	12/09/2016 00:00:00
SK38259307	49.11	47.36	46.8	C	CO	C	750	<UNK>	15.36	31/12/1899 00:00:00
SK38268101	63.4099	62.4	<UNK>	F	VC	C	225	<UNK>	0	31/12/1899 00:00:00
SK38268101	63.4099	62.4	62.21	F	VC	C	150	<UNK>	48.53	31/12/1899 00:00:00
SK39250713	<UNK>	<UNK>	<UNK>	S	U	U	<UNK>	<UNK>	<UNK>	04/06/2018 00:00:00
SK38255904	67.3199	66.17	65.57	F	VC	C	150	<UNK>	85	31/12/1899 00:00:00
SK38252505	74.98	73.54	73.45	F	VC	C	225	<UNK>	59.89	31/12/1899 00:00:00
SK38265002	65.4	63.44	59.67	F	VC	C	225	<UNK>	16.34	31/12/1899 00:00:00
SK38259805	<UNK>	<UNK>	<UNK>	S	VC	C	225	<UNK>	<UNK>	04/06/2018 00:00:00
SK39250505	<UNK>	<UNK>	<UNK>	F	U	<UNK>	150	<UNK>	0	10/11/2009 00:00:00
SK39260501	49.36	47.66	44.9	F	VC	C	150	<UNK>	19.58	31/12/1899 00:00:00
SK38252503	73.8499	72.59	71.58	S	VC	C	225	<UNK>	25.05	31/12/1899 00:00:00
SK38253406	67.33	66.85	66.36	F	VC	C	100	<UNK>	19.24	31/12/1899 00:00:00
SK38250402	87.7699	87.36	<UNK>	F	VC	C	100	<UNK>	0	31/12/1899 00:00:00
SK38252506	74.91	73.43	73.09	S	CO	C	300	<UNK>	125.06	31/12/1899 00:00:00
SK38256507	<UNK>	58.29	55.12	F	VC	C	150	<UNK>	21.35	29/12/2015 00:00:00
SK38259808	<UNK>	<UNK>	<UNK>	S	VC	C	225	<UNK>	<UNK>	04/06/2018 00:00:00
SK38254704	<UNK>	<UNK>	64.86	S	<UNK>	<UNK>	<UNK>	<UNK>	0	31/12/1899 00:00:00
SK38251403	81.66	80.21	78.96	F	VC	C	150	<UNK>	20.02	31/12/1899 00:00:00
SK38256505	55.8199	54.06	52.43	S	CO	C	300	<UNK>	22.58	31/12/1899 00:00:00
SK38258701	55.84	54.55	52.41	F	VC	C	150	<UNK>	21.6	31/12/1899 00:00:00
SK38259604	52.4199	49.94	49.92	F	VC	C	225	<UNK>	390.5	31/12/1899 00:00:00
SK38268102	63.9199	<UNK>	<UNK>	F	<UNK>	<UNK>	<UNK>	<UNK>	0	31/12/1899 00:00:00
SK38253901	69.8499	68.29	67.81	F	VC	C	225	<UNK>	142.96	31/12/1899 00:00:00
SK39250500	<UNK>	<UNK>	<UNK>	S	<UNK>	<UNK>	450	<UNK>	0	10/11/2009 00:00:00
SK38266202	58.77	58.23	58.2	F	VC	C	225	<UNK>	390.67	31/12/1899 00:00:00
SK38251504	78.9599	77.31	75.58	S	VC	C	150	<UNK>	13.29	31/12/1899 00:00:00
SK38266109	63.2299	61.79	61.32	F	VC	C	225	<UNK>	79.19	31/12/1899 00:00:00
SK38254601	65.48	62.76	60.045	F	VC	C	300	<UNK>	38.98	31/12/1899 00:00:00
SK38264046	<UNK>	<UNK>	<UNK>	F	U	U	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
SK38259504	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	06/10/2016 00:00:00
SK38253801	71	68.46	67.92	F	VC	C	150	<UNK>	122.13	31/12/1899 00:00:00
SK38258603	<UNK>	<UNK>	<UNK>	F	U	C	100	<UNK>	<UNK>	12/09/2016 00:00:00
SK38259404	<UNK>	<UNK>	<UNK>	F	U	C	150	<UNK>	<UNK>	03/10/2016 00:00:00
SK38251507	79.8199	76.52	74.55	F	VC	C	150	<UNK>	21.54	31/12/1899 00:00:00

Sewer Node

Sewer Pipe Data

Reference	Cover Level	Invert Level Upstream	Invert Level Downstream	Purpose	Material	Pipe Shape	Max Size	Min Size	Gradient	Year Laid
SK38258411	51.68	50.72	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK38252502	73	71.53	70.51	S	VC	C	225	<UNK>	60.81	31/12/1899 00:00:00
SK38263001	68.22	66.74	65.19	S	CO	C	450	<UNK>	58.23	31/12/1899 00:00:00
SK38264106	64.195	62.54	60.029	S	CO	C	<UNK>	<UNK>	5.663	31/12/1899 00:00:00
SK38264052	<UNK>	<UNK>	<UNK>	S	U	U	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
SK38252403	78	76.66	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK38254507	<UNK>	64.74	64.584	F	VC	C	100	<UNK>	30.75	31/12/1899 00:00:00
SK38259401	<UNK>	<UNK>	48.43	F	CI	C	225	<UNK>	0	31/12/1899 00:00:00
SK39260602	43.74	41.46	41.38	F	VC	C	225	<UNK>	123.75	31/12/1899 00:00:00
SK38266005	65.4	63.44	62.06	S	VC	C	225	<UNK>	32.86	31/12/1899 00:00:00
SK38256702	63.1599	61.66	60.92	S	VC	C	150	<UNK>	89.08	31/12/1899 00:00:00
SK38254417	67.15	66.94	66.5	F	VC	C	100	<UNK>	8.2	31/12/1899 00:00:00
SK38255409	<UNK>	<UNK>	<UNK>	F	VC	C	150	<UNK>	<UNK>	20/11/2015 00:00:00
SK38266003	65.4899	63.54	62.81	S	VC	C	225	<UNK>	88.52	31/12/1899 00:00:00
SK38251606	74.51	72.19	71.78	S	CO	C	375	<UNK>	54.8	31/12/1899 00:00:00
SK38258410	51.6699	51.02	50.74	F	VC	C	100	<UNK>	14.71	31/12/1899 00:00:00
SK38250401	86.32	85.43	84.23	F	VC	C	225	<UNK>	88.49	31/12/1899 00:00:00
SK38254419	63.68	62.86	62.77	F	VC	C	150	<UNK>	40.11	31/12/1899 00:00:00
SK38255503	59.56	57.96	55.4	S	CO	C	300	<UNK>	34.87	31/12/1899 00:00:00
SK38258801	59.43	57.85	57.42	F	VC	C	150	<UNK>	92.14	31/12/1899 00:00:00
SK38259602	51.3699	49.68	49.48	F	VC	C	225	<UNK>	207.3	31/12/1899 00:00:00
SK38266108	61.6199	60.2	59.37	F	VC	C	225	<UNK>	24.12	31/12/1899 00:00:00
SK38255701	65.3399	64.1	63.8	F	VC	C	150	<UNK>	117.93	31/12/1899 00:00:00
SK38253605	68.2799	66.61	66.59	F	VC	C	225	<UNK>	531.5	31/12/1899 00:00:00
SK38256401	55.33	53.26	<UNK>	C	VC	C	375	<UNK>	0	31/12/1899 00:00:00
SK38265100	65.63	61.58	61.405	S	CO	C	<UNK>	<UNK>	150.846	30/11/2018 00:00:00
SK38253703	70.3899	67.69	67.53	F	VC	C	225	<UNK>	163	31/12/1899 00:00:00
SK38259503	51.2999	50.66	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK38251510	78.19	75.01	73.1	S	VC	C	225	<UNK>	15.77	31/12/1899 00:00:00
SK39260503	45.4599	44.86	42.43	F	VC	C	150	<UNK>	22.38	31/12/1899 00:00:00
SK38257501	0	0	0	F	VC	C	100	0	0	31/12/1899 00:00:00
SK38252504	75.05	73.45	72.81	F	VC	C	225	<UNK>	58.56	31/12/1899 00:00:00
SK38264144	<UNK>	<UNK>	<UNK>	F	U	U	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
SK38259701	53.6199	52.34	50.71	F	VC	C	150	<UNK>	31.88	31/12/1899 00:00:00
SK38259705	<UNK>	<UNK>	<UNK>	F	VC	C	150	<UNK>	<UNK>	04/06/2018 00:00:00
SK38251501	81.36	79.4	76.55	F	VC	C	150	<UNK>	15.81	31/12/1899 00:00:00
SK39250700	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	12/01/2016 00:00:00
SK38252606	76.1299	72.82	72.58	S	CO	C	375	<UNK>	192.08	31/12/1899 00:00:00
SK38251608	73.8	71.77	71.46	S	CO	C	375	<UNK>	88.03	31/12/1899 00:00:00
SK38252803	70.47	68.72	68.13	S	CO	C	450	<UNK>	139.76	31/12/1899 00:00:00
SK38266101	64.44	62.57	62.15	F	VC	C	150	<UNK>	71.62	31/12/1899 00:00:00
SK38254402	68.22	67.5	67.43	F	VC	C	100	<UNK>	63.86	31/12/1899 00:00:00

Sewer Node

Sewer Pipe Data

Reference	Cover Level	Invert Level Upstream	Invert Level Downstream	Purpose	Material	Pipe Shape	Max Size	Min Size	Gradient	Year Laid
SK38265022	<UNK>	<UNK>	<UNK>	S	U	U	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
SK38259806	<UNK>	<UNK>	<UNK>	S	VC	C	225	<UNK>	<UNK>	04/06/2018 00:00:00
SK38259809	<UNK>	<UNK>	<UNK>	S	VC	C	225	<UNK>	<UNK>	04/06/2018 00:00:00
SK38251604	76.6399	73.09	72.23	S	CO	C	300	<UNK>	83.95	31/12/1899 00:00:00
SK38254422	62.9749	60.465	59.28	F	VC	C	450	<UNK>	40.25	16/10/2008 00:00:00
SK38256803	64.2799	62.43	62.43	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK38256405	56.415	53.195	52.685	C	CO	C	<UNK>	<UNK>	40.594	08/04/2024 00:00:00
SK38258407	51.6199	50.48	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK38254418	63.74	62.75	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK38258803	59.2	56.97	54.32	S	VC	C	<UNK>	<UNK>	26.48	31/12/1899 00:00:00
SK38265109	61.2299	59.25	55.01	S	VC	C	225	<UNK>	20.03	31/12/1899 00:00:00
SK38252901	69.9199	68.09	67.6	S	CO	C	450	<UNK>	162.04	31/12/1899 00:00:00
SK38254405	65.7699	65.42	<UNK>	F	VC	C	100	<UNK>	0	31/12/1899 00:00:00
SK38254604	66.22	65.62	<UNK>	F	VC	C	100	<UNK>	0	31/12/1899 00:00:00
SK38258601	<UNK>	<UNK>	<UNK>	F	U	C	100	<UNK>	<UNK>	12/09/2016 00:00:00
SK38266006	65.79	64.24	64.07	S	VC	C	150	<UNK>	143.24	31/12/1899 00:00:00
SK38269201	61.11	59.71	56.09	F	VC	C	225	<UNK>	22.03	31/12/1899 00:00:00
SK38252601	72.8899	70.99	70.17	F	VC	C	225	<UNK>	65.23	31/12/1899 00:00:00
SK38253403	68.9	68.47	68.44	F	VC	C	100	<UNK>	149	31/12/1899 00:00:00
SK38256504	57.95	55.93	54.85	F	VC	C	225	<UNK>	44.53	31/12/1899 00:00:00
SK38253408	68.5299	68.04	67.96	F	VC	C	100	<UNK>	55.88	31/12/1899 00:00:00
SK38252402	78.01	77.27	76.99	F	VC	C	100	<UNK>	14.71	31/12/1899 00:00:00
SK38256601	61.8199	60.29	<UNK>	S	VC	C	225	<UNK>	0	31/12/1899 00:00:00
SK38258505	51.2999	<UNK>	50.23	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK39250705	52.263	50.624	50.604	F	CO	C	900	<UNK>	597.5	31/12/1899 00:00:00
SK38257403	52.7999	50.33	49.15	C	VC	C	450	<UNK>	46.81	31/12/1899 00:00:00
SK38258402	51.5299	48.43	47.58	C	CO	C	750	<UNK>	44.05	31/12/1899 00:00:00
SK38267001	65.7099	63.74	63.15	F	VC	C	150	<UNK>	101.71	31/12/1899 00:00:00
SK38257701	60.24	58.19	57.74	F	VC	C	225	<UNK>	172.56	31/12/1899 00:00:00
SK39250704	50.79	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	12/01/2016 00:00:00
SK38250405	86.44	85.9	85.7	F	VC	C	100	<UNK>	39.05	31/12/1899 00:00:00
SK38251509	78.12	74.39	72.94	F	VC	C	150	<UNK>	21.48	31/12/1899 00:00:00
SK38253905	69.3199	67.59	66.75	S	CO	C	450	<UNK>	72.48	31/12/1899 00:00:00
SK38257605	<UNK>	<UNK>	<UNK>	F	U	C	100	<UNK>	<UNK>	12/09/2016 00:00:00
SK38267104	64.54	62.72	62.65	F	VC	C	225	<UNK>	271.86	31/12/1899 00:00:00
SK38264050	<UNK>	<UNK>	<UNK>	S	U	U	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
SK38255702	65.3099	64.23	64.13	S	CO	C	450	<UNK>	312.4	31/12/1899 00:00:00
SK38250403	86.65	85.49	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK38266107	62.33	60.75	59.47	S	VC	C	225	<UNK>	16.7	31/12/1899 00:00:00
SK38259708	<UNK>	<UNK>	<UNK>	S	CO	C	600	<UNK>	<UNK>	04/06/2018 00:00:00
SK39250711	<UNK>	<UNK>	50.39	F	VC	C	225	<UNK>	<UNK>	04/06/2018 00:00:00
SK38258403	51.4099	50.09	49.7	F	CI	C	225	<UNK>	114.82	31/12/1899 00:00:00

Sewer Node

Sewer Pipe Data

Reference	Cover Level	Invert Level Upstream	Invert Level Downstream	Purpose	Material	Pipe Shape	Max Size	Min Size	Gradient	Year Laid
SK38254902	68.0299	66.55	65.9	S	VC	C	150	<UNK>	87.14	31/12/1899 00:00:00
SK38253604	67.87	66.2	63.71	F	VC	C	225	<UNK>	25.61	31/12/1899 00:00:00
SK38251609	73.83	71.6	71.26	F	VC	C	225	<UNK>	90.79	31/12/1899 00:00:00
SK38264104	65.09	61.23	60.99	S	CO	C	<UNK>	<UNK>	101.979	30/11/2018 00:00:00
SK38264101	65.22	63.15	60.92	S	CO	C	450	<UNK>	13.696	31/12/1899 00:00:00
SK38265000	66.85	62.29	62.165	S	CO	C	<UNK>	<UNK>	160.847	30/11/2018 00:00:00
SK38256500	<UNK>	58.29	55.12	F	VC	C	150	<UNK>	27.596	29/12/2015 00:00:00
SK38255501	62.2	61.05	60.31	S	VC	C	150	<UNK>	64.03	31/12/1899 00:00:00
SK38265120	<UNK>	<UNK>	<UNK>	S	U	U	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
SK38253503	70.98	70.51	<UNK>	F	VC	C	100	<UNK>	0	31/12/1899 00:00:00
SK38256701	62.31	60.87	60.3	S	VC	C	225	<UNK>	114.93	31/12/1899 00:00:00
SK38266201	59.3699	58.2	57.3	F	VC	C	225	<UNK>	120	31/12/1899 00:00:00
SK38253410	72.4599	71.95	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK38256506	56.97	55.3	54.18	S	CO	C	300	<UNK>	33.08	31/12/1899 00:00:00
SK38258409	51.6699	50.22	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK38265202	56.54	54.9	<UNK>	S	VC	C	225	<UNK>	0	31/12/1899 00:00:00
SK38252509	75.94	72.79	72.56	F	VC	C	225	<UNK>	128.48	31/12/1899 00:00:00
SK38258405	51.7099	50.99	<UNK>	F	VC	C	100	<UNK>	0	31/12/1899 00:00:00
SK38267105	63.63	62.56	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK38259803	<UNK>	<UNK>	<UNK>	F	VC	C	150	<UNK>	<UNK>	04/06/2018 00:00:00
SK38254409	64.23	63.58	<UNK>	F	VC	C	100	<UNK>	0	31/12/1899 00:00:00
SK38250302	87.3899	86.97	86.73	F	VC	C	100	<UNK>	15.04	31/12/1899 00:00:00
SK38257600	<UNK>	<UNK>	<UNK>	F	U	C	100	<UNK>	<UNK>	12/09/2016 00:00:00
SK38253701	70.54	68.33	66.26	S	CO	C	300	<UNK>	24.83	31/12/1899 00:00:00
SK38254605	65.48	65.02	<UNK>	F	VC	C	100	<UNK>	0	31/12/1899 00:00:00
SK38266102	64.0599	62.14	61.01	F	VC	C	150	<UNK>	37.21	31/12/1899 00:00:00
SK38253609	66.12	65.6	<UNK>	F	VC	C	100	<UNK>	0	31/12/1899 00:00:00
SK38265102	61.65	59.32	58.21	F	VC	C	225	<UNK>	90.54	31/12/1899 00:00:00
SK38259600	<UNK>	<UNK>	<UNK>	F	U	C	100	<UNK>	<UNK>	12/09/2016 00:00:00
SK38253402	70.6299	70.19	69.96	F	VC	C	100	<UNK>	21.74	31/12/1899 00:00:00
SK38250408	87.7399	87.44	87.39	F	VC	C	100	<UNK>	140	31/12/1899 00:00:00
SK39260303	56.3499	55.13	54.91	F	VC	C	225	<UNK>	297.55	31/12/1899 00:00:00
SK38250501	78.86	77.4	77.15	S	VC	C	150	<UNK>	140.24	31/12/1899 00:00:00
SK38252604	75.6399	72.49	72.22	S	CO	C	375	<UNK>	137.07	31/12/1899 00:00:00
SK38251308	87.5899	86.97	86.35	F	VC	C	150	<UNK>	21.03	31/12/1899 00:00:00
SK38256805	65.04	63.16	62.91	F	VC	C	150	<UNK>	92.36	31/12/1899 00:00:00
SK38254408	65.8499	64.99	64.94	F	VC	C	100	<UNK>	84.8	31/12/1899 00:00:00
SK38264102	66.94	65.17	63.18	S	CO	C	450	<UNK>	46.01	31/12/1899 00:00:00
SK38255905	67.29	65.89	65.29	S	VC	C	150	<UNK>	79.82	31/12/1899 00:00:00
SK38259605	52.13	49.89	49.76	F	VC	C	225	<UNK>	192.31	31/12/1899 00:00:00
SK38252510	75.8399	73.06	72.83	S	CO	C	375	<UNK>	128.48	31/12/1899 00:00:00
SK38255803	67.22	65.94	64.28	S	VC	C	150	<UNK>	46.59	31/12/1899 00:00:00

Sewer Node

Sewer Pipe Data

Reference	Cover Level	Invert Level Upstream	Invert Level Downstream	Purpose	Material	Pipe Shape	Max Size	Min Size	Gradient	Year Laid
SK38256400	<UNK>	<UNK>	<UNK>	F	VC	C	150	<UNK>	<UNK>	20/11/2015 00:00:00
SK38264051	<UNK>	<UNK>	<UNK>	S	U	U	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
SK38252511	73.6999	73.37	72.24	F	VC	C	100	<UNK>	21.6	31/12/1899 00:00:00
SK38254302	65.41	63.78	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK38255506	61.7569	59.697	59.629	F	CO	C	1050	<UNK>	625	16/10/2008 00:00:00
SK38264147	<UNK>	<UNK>	<UNK>	S	U	U	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
SK39250714	<UNK>	<UNK>	51.978	S	U	U	<UNK>	<UNK>	<UNK>	04/06/2018 00:00:00
SK38255304	61.4099	60.33	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK38257407	52.8559	51.716	50.983	S	PVC	C	300	<UNK>	45.52	31/12/1899 00:00:00
SK38264105	64.26	60.99	60.75	S	CO	C	<UNK>	<UNK>	59.15	30/11/2018 00:00:00
SK38265001	66.96	62.165	61.79	S	CO	C	<UNK>	<UNK>	156.752	30/11/2018 00:00:00
SK38255704	66.05	64.8	64.15	F	VC	C	150	<UNK>	87.06	31/12/1899 00:00:00
SK38254504	65.0899	64.74	64.584	F	VC	C	100	0	11.13	31/12/1899 00:00:00
SK39250712	51.6	50.39	50.29	F	VC	C	225	<UNK>	290	31/12/1899 00:00:00
SK38250404	86.44	85.67	85.5	F	VC	C	150	<UNK>	54.24	31/12/1899 00:00:00
SK38252808	70.33	68.69	68.31	S	VC	C	225	<UNK>	180.74	31/12/1899 00:00:00
SK38254502	66.01	64.97	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK38257700	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	12/09/2016 00:00:00
SK38253409	72.0199	71.36	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK38252603	74.0999	72.08	70.5	S	VC	C	225	<UNK>	17.04	31/12/1899 00:00:00
SK39250703	51.09	50.28	49.94	F	VC	C	225	<UNK>	220.44	31/12/1899 00:00:00
SK38253902	69.2399	67.77	67.34	F	VC	C	225	<UNK>	142.53	31/12/1899 00:00:00
SK38252806	71.54	70.02	69.79	F	CO	C	225	<UNK>	151.43	31/12/1899 00:00:00
SK38252805	71.8399	70.47	70.18	S	CO	C	375	<UNK>	110.03	31/12/1899 00:00:00
SK38256404	56.7099	56.02	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK38253607	72.5299	70.06	67.77	F	VC	C	225	<UNK>	22.41	31/12/1899 00:00:00
SK38251402	80.51	78.48	75.73	S	VC	C	150	<UNK>	16.15	31/12/1899 00:00:00
SK38253304	72.51	71.72	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK38258501	51.18	<UNK>	<UNK>	F	CI	U	225	<UNK>	0	31/12/1899 00:00:00
SK39260306	<UNK>	<UNK>	<UNK>	C	U	C	100	<UNK>	<UNK>	14/03/2017 00:00:00
SK38259804	<UNK>	<UNK>	<UNK>	F	VC	C	150	<UNK>	<UNK>	04/06/2018 00:00:00
SK38254407	65.55	64.65	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK38252701	73.5999	71.41	71.03	S	VC	C	225	<UNK>	69.53	31/12/1899 00:00:00
SK38252804	71.8199	70.26	70.03	F	CO	C	225	<UNK>	163.43	31/12/1899 00:00:00
SK38252807	71.69	69.08	68.74	S	CO	C	375	<UNK>	53.68	31/12/1899 00:00:00
SK38265101	61.7299	59.62	59.4	F	VC	C	225	<UNK>	72.86	31/12/1899 00:00:00
SK38264142	<UNK>	<UNK>	<UNK>	F	U	U	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
SK38254501	<UNK>	<UNK>	62.04	F	<UNK>	C	450	<UNK>	<UNK>	31/12/1899 00:00:00
SK38257609	<UNK>	<UNK>	<UNK>	S	U	C	100	<UNK>	<UNK>	12/09/2016 00:00:00
SK38264048	<UNK>	<UNK>	<UNK>	F	U	U	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
SK38259303	47.0099	44.89	44.3	C	CO	C	900	<UNK>	19.83	31/12/1899 00:00:00
SK38268301	59.0499	56.93	56.42	F	VC	C	225	<UNK>	176.49	31/12/1899 00:00:00

Sewer Node

Sewer Pipe Data

Reference	Cover Level	Invert Level Upstream	Invert Level Downstream	Purpose	Material	Pipe Shape	Max Size	Min Size	Gradient	Year Laid
SK38255601	<UNK>	<UNK>	57.98	S	<UNK>	<UNK>	<UNK>	<UNK>	0	31/12/1899 00:00:00
SK38252401	77.8	76.96	76.7	F	VC	C	150	<UNK>	41.62	31/12/1899 00:00:00
SK38266001	66.3	64.45	63.51	F	VC	C	225	<UNK>	86.81	31/12/1899 00:00:00
SK38259703	53.6899	51.78	49.91	S	VC	C	225	0	26.12	31/12/1899 00:00:00
SK38259601	<UNK>	<UNK>	<UNK>	F	U	C	100	<UNK>	<UNK>	12/09/2016 00:00:00
SK38255411	<UNK>	<UNK>	<UNK>	F	U	C	100	<UNK>	<UNK>	12/08/2016 00:00:00
SK38258302	51.56	49.26	49.15	C	CO	C	375	<UNK>	466	31/12/1899 00:00:00
SK38267003	65.5699	64.17	64.06	S	VC	C	150	<UNK>	158.73	31/12/1899 00:00:00
SK38251309	87.4199	87.07	86.73	F	VC	C	100	<UNK>	17.15	31/12/1899 00:00:00
SK38253501	70.97	68.19	62.88	F	VC	C	300	<UNK>	28.74	31/12/1899 00:00:00
SK38265107	61.59	58.53	53.54	S	CO	C	600	<UNK>	11.65	31/12/1899 00:00:00
SK38255909	66.66	65.28	65.18	S	VC	C	225	<UNK>	128.1	31/12/1899 00:00:00
SK38253705	71.8499	67.91	67.72	F	VC	C	225	<UNK>	216.74	31/12/1899 00:00:00
SK38257606	<UNK>	<UNK>	<UNK>	F	U	C	100	<UNK>	<UNK>	12/09/2016 00:00:00
SK38258802	59.18	57.4	54.63	F	VC	C	150	<UNK>	25.34	31/12/1899 00:00:00
SK38251605	74.51	71.87	71.61	F	VC	C	225	<UNK>	86	31/12/1899 00:00:00
SK38259801	<UNK>	<UNK>	<UNK>	F	VC	C	150	<UNK>	<UNK>	04/06/2018 00:00:00
SK38256403	57.3499	56.6	56.1	F	VC	C	150	<UNK>	26.68	31/12/1899 00:00:00
SK38254414	64.9899	64.7	64.634	F	PVC	C	100	<UNK>	83.86	31/12/1899 00:00:00
SK38255804	67.1999	65.61	63.8	F	VC	C	150	<UNK>	43.15	31/12/1899 00:00:00
SK38254403	67.5999	67.13	<UNK>	F	VC	C	100	<UNK>	0	31/12/1899 00:00:00
SK38254411	65.01	64.73	64.63	F	VC	C	100	<UNK>	70.7	31/12/1899 00:00:00
SK38269301	61.97	56.41	56.24	F	VC	C	225	<UNK>	283.35	31/12/1899 00:00:00
SK38265119	<UNK>	<UNK>	<UNK>	F	U	U	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
SK39250708	<UNK>	<UNK>	<UNK>	F	VC	C	225	<UNK>	<UNK>	04/06/2018 00:00:00
SK38256806	65.0899	63.75	63.51	S	CO	C	450	<UNK>	236.75	31/12/1899 00:00:00
SK38251703	73.2399	71.25	70.43	F	VC	C	225	<UNK>	82.96	31/12/1899 00:00:00
SK38256406	55.524	53.52	53.228	C	CO	C	<UNK>	<UNK>	<UNK>	08/04/2024 00:00:00
SK38255401	61.0699	60.07	59.91	F	VC	C	150	<UNK>	90.13	31/12/1899 00:00:00
SK38257704	59.6399	57.98	57.35	S	VC	C	225	0	91.08	31/12/1899 00:00:00
SK38267301	58.9199	57.26	56.96	F	VC	C	225	<UNK>	275.6	31/12/1899 00:00:00
SK38264100	65.39	61.405	61.3	S	CO	C	<UNK>	<UNK>	162.752	30/11/2018 00:00:00
SK38259807	<UNK>	<UNK>	<UNK>	S	VC	C	225	<UNK>	<UNK>	04/06/2018 00:00:00
SK38251607	75.66	72.17	71.88	F	VC	C	225	<UNK>	117.14	31/12/1899 00:00:00
SK38253401	70.41	69.94	<UNK>	F	VC	C	100	<UNK>	0	31/12/1899 00:00:00
SK38255703	66.1399	64.46	64.25	S	CO	C	375	<UNK>	297	31/12/1899 00:00:00
SK38258401	51.84	49.69	49.13	F	VC	C	225	<UNK>	90.66	31/12/1899 00:00:00
SK38252602	72.8399	70.42	69.45	S	CO	C	300	<UNK>	55.91	31/12/1899 00:00:00
SK38256802	64.0699	62.19	59.98	F	VC	C	225	<UNK>	25.36	31/12/1899 00:00:00
SK38255504	59.43	58.29	55.12	F	VC	C	150	<UNK>	29.799	29/12/2015 00:00:00
SK38258602	<UNK>	<UNK>	<UNK>	F	U	C	100	<UNK>	<UNK>	12/09/2016 00:00:00
SK38255408	61.3199	59.73	58.94	F	VC	C	300	0	118.91	31/12/1899 00:00:00

Sewer Node

Sewer Pipe Data

Reference	Cover Level	Invert Level Upstream	Invert Level Downstream	Purpose	Material	Pipe Shape	Max Size	Min Size	Gradient	Year Laid
SK38258406	51.79	51.21	50.99	F	VC	C	100	<UNK>	30.5	31/12/1899 00:00:00
SK38254308	65.22	64.39	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK38265108	63.5999	62.02	59.88	S	VC	C	225	<UNK>	14.96	31/12/1899 00:00:00
SK38264047	<UNK>	<UNK>	<UNK>	F	U	U	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
SK38266103	63.0999	60.97	59.78	F	VC	C	<UNK>	<UNK>	28.58	31/12/1899 00:00:00
SK38267002	65.6699	64.04	63.56	S	VC	C	225	<UNK>	104.85	31/12/1899 00:00:00
SK38257405	52.783	50.683	50.622	S	PVC	C	300	<UNK>	40.33	31/12/1899 00:00:00
SK38259408	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	17/11/2016 00:00:00
SK38267101	<UNK>	<UNK>	62.73	F	<UNK>	<UNK>	<UNK>	<UNK>	0	31/12/1899 00:00:00
SK38259405	<UNK>	<UNK>	<UNK>	F	U	C	150	<UNK>	<UNK>	03/10/2016 00:00:00
SK38259704	51.99	49.84	49.18	S	VC	<UNK>	0	0	57.06	31/12/1899 00:00:00
SK38259607	51.5699	49.8	49.734	F	CO	C	225	0	236.86	31/12/1899 00:00:00
SK38259607	51.5699	49.45	49.07	F	VC	C	225	<UNK>	227.37	31/12/1899 00:00:00
SK38255602	61.629	59.629	59.571	F	VC	C	300	<UNK>	186.21	16/10/2008 00:00:00
SK38259505	<UNK>	<UNK>	<UNK>	F	U	U	<UNK>	<UNK>	<UNK>	23/12/2019 00:00:00
SK38254420	68.1999	67.4	<UNK>	F	VC	C	100	<UNK>	0	31/12/1899 00:00:00
SK38251705	71.7399	70.42	70.29	F	CO	C	225	<UNK>	182.38	31/12/1899 00:00:00
SK38256402	55.1899	<UNK>	52.06	C	<UNK>	<UNK>	<UNK>	<UNK>	0	31/12/1899 00:00:00
SK38253413	76.12	75.01	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK38258412	0	49.11	48.51	C	CO	C	675	<UNK>	182.805	31/12/1899 00:00:00
SK38259302	48.1399	46.74	45.15	C	CO	C	750	<UNK>	11.95	31/12/1899 00:00:00
SK38269204	63.13	62.19	61.43	F	VC	C	225	<UNK>	54.2	31/12/1899 00:00:00
SK38256903	66.43	62.98	62.9	S	CO	C	450	<UNK>	407.13	31/12/1899 00:00:00
SK38252404	76.9	76.03	<UNK>	F	VC	C	100	<UNK>	0	31/12/1899 00:00:00
SK38254603	67.6399	67.31	65.66	F	VC	C	100	<UNK>	8.57	31/12/1899 00:00:00
SK38259802	<UNK>	<UNK>	<UNK>	F	VC	C	150	<UNK>	<UNK>	04/06/2018 00:00:00
SK38250406	86.44	85.93	85.69	F	VC	C	100	<UNK>	46.58	31/12/1899 00:00:00
SK38259301	49.31	47.58	47.45	C	CO	C	750	<UNK>	277.38	31/12/1899 00:00:00
SK38251401	80.58	78.92	76.5	F	VC	C	150	<UNK>	19.26	31/12/1899 00:00:00
SK38257603	<UNK>	<UNK>	<UNK>	F	U	C	100	<UNK>	<UNK>	12/09/2016 00:00:00
SK38254401	62.9599	60.55	58.91	F	VC	C	375	<UNK>	36.02	31/12/1899 00:00:00
SK38266106	62.77	61.29	60.23	F	VC	C	225	<UNK>	50.08	31/12/1899 00:00:00
SK38259501	51.0499	49.05	<UNK>	F	VC	C	225	<UNK>	0	31/12/1899 00:00:00
SK38254410	64.86	64.48	63.74	F	VC	C	100	<UNK>	6.04	31/12/1899 00:00:00
SK38258404	51.6599	51.1	51.05	F	VC	C	100	<UNK>	107.8	31/12/1899 00:00:00
SK38259709	<UNK>	<UNK>	<UNK>	S	CO	C	600	<UNK>	<UNK>	04/06/2018 00:00:00
SK38259709	<UNK>	<UNK>	<UNK>	S	U	U	<UNK>	<UNK>	<UNK>	04/06/2018 00:00:00
SK38252507	77.69	76.45	73.62	F	VC	C	150	<UNK>	16.89	31/12/1899 00:00:00
SK38266004	66.3899	64.86	63.48	S	VC	C	225	<UNK>	58.27	31/12/1899 00:00:00
SK38257607	<UNK>	<UNK>	<UNK>	S	U	C	100	<UNK>	<UNK>	12/09/2016 00:00:00
SK38255406	61.3899	60.95	<UNK>	F	VC	C	100	<UNK>	0	31/12/1899 00:00:00
SK38255403	61.31	58.9	58.52	F	CO	C	375	<UNK>	117.84	31/12/1899 00:00:00

Sewer Node

Sewer Pipe Data

Reference	Cover Level	Invert Level Upstream	Invert Level Downstream	Purpose	Material	Pipe Shape	Max Size	Min Size	Gradient	Year Laid
SK38269203	61.65	60.72	59.78	F	VC	C	225	<UNK>	20.32	31/12/1899 00:00:00
SK38256503	<UNK>	58.29	55.12	F	VC	C	150	<UNK>	21.35	29/12/2015 00:00:00
SK38259608	51.6199	50.305	50.22	F	VC	C	150	0	145.22	31/12/1899 00:00:00
SK38251706	71.86	70.61	70.48	S	CO	C	375	<UNK>	178.92	31/12/1899 00:00:00
SK38264145	<UNK>	<UNK>	<UNK>	S	U	U	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
SK38251506	77.7399	75.52	73.22	S	VC	C	150	<UNK>	18.46	31/12/1899 00:00:00
SK38253302	71.79	71.29	71.03	F	VC	C	100	<UNK>	13.88	31/12/1899 00:00:00
SK38251704	73.2399	71.42	70.6	S	CO	C	375	<UNK>	86.2	31/12/1899 00:00:00
SK38265021	<UNK>	<UNK>	<UNK>	F	U	U	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
SK38258303	51.7299	50.04	49.59	S	VC	C	300	<UNK>	17.36	31/12/1899 00:00:00
SK39250706	51.963	<UNK>	50.39	F	VC	C	225	<UNK>	<UNK>	31/12/1899 00:00:00
SK38266104	64.4	62.77	62.57	S	VC	C	225	<UNK>	149.15	31/12/1899 00:00:00
SK38254424	65	62.04	60.465	F	<UNK>	C	450	<UNK>	29.21	31/12/1899 00:00:00
SK38255400	<UNK>	<UNK>	<UNK>	F	VC	C	150	<UNK>	<UNK>	20/11/2015 00:00:00
SK38252802	70.2799	68.75	68.3	F	VC	C	225	<UNK>	170.76	31/12/1899 00:00:00
SK38255507	61.7309	59.571	59.554	F	VC	C	150	<UNK>	941.18	16/10/2008 00:00:00
SK38257702	<UNK>	<UNK>	<UNK>	F	U	C	100	<UNK>	<UNK>	12/09/2016 00:00:00
SK38257500	0	0	0	F	U	C	100	0	0	31/12/1899 00:00:00
SK38258504	51.65	51.2	50.66	F	VC	C	150	<UNK>	23.2	31/12/1899 00:00:00
SK38255410	<UNK>	<UNK>	<UNK>	F	VC	C	150	<UNK>	<UNK>	20/11/2015 00:00:00
SK38256901	65.65	63.22	62.99	S	CO	C	450	<UNK>	249	31/12/1899 00:00:00
SK38254602	66.0299	65.43	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK38253502	73.26	72.83	71.98	F	VC	C	100	<UNK>	15.82	31/12/1899 00:00:00
SK38251301	87.0699	84.23	<UNK>	F	VC	C	300	<UNK>	0	31/12/1899 00:00:00
SK39260307	<UNK>	<UNK>	<UNK>	F	U	U	100	<UNK>	<UNK>	14/03/2017 00:00:00
SK38255802	65.3199	64.12	63.76	S	CO	C	450	<UNK>	173.03	31/12/1899 00:00:00
SK38253608	72.4599	69.43	68.36	S	CO	C	300	<UNK>	37.07	31/12/1899 00:00:00
SK38256801	61.77	59.93	58.2	F	VC	C	225	<UNK>	45.02	31/12/1899 00:00:00
SK38259700	<UNK>	<UNK>	<UNK>	F	VC	C	150	<UNK>	<UNK>	04/06/2018 00:00:00
SK38251502	81.3399	79.94	77.05	S	VC	C	150	<UNK>	16.65	31/12/1899 00:00:00
SK39250715	53.753	51.978	<UNK>	S	VC	C	150	<UNK>	<UNK>	04/06/2018 00:00:00
SK38253411	72.7099	72.2	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SK38253601	69.48	66.8	66.25	F	VC	C	225	<UNK>	63.64	31/12/1899 00:00:00
SK38251505	77.6999	75.08	72.82	F	VC	C	150	<UNK>	16.96	31/12/1899 00:00:00
SK38264143	<UNK>	<UNK>	<UNK>	F	U	U	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
SK38255901	65.9499	64.34	63.16	F	VC	C	150	<UNK>	53.84	31/12/1899 00:00:00
SK38256804	64.73	62.9	62.49	F	VC	C	150	<UNK>	109.61	31/12/1899 00:00:00
SK38250407	86.58	86.11	85.95	F	VC	C	100	<UNK>	45.06	31/12/1899 00:00:00
SK38251404	81.61	79.81	78.5	S	VC	C	150	<UNK>	19.15	31/12/1899 00:00:00
SK38253602	69.48	67.74	66.21	S	VC	C	225	<UNK>	16.67	31/12/1899 00:00:00
SK38265110	62.6	61.029	60.75	S	CO	C	<UNK>	<UNK>	150.262	31/12/1899 00:00:00
SK38269302	61.18	56.29	56.03	F	PVC	C	150	<UNK>	173.12	31/12/1899 00:00:00

Sewer Node

Sewer Pipe Data

Reference	Cover Level	Invert Level Upstream	Invert Level Downstream	Purpose	Material	Pipe Shape	Max Size	Min Size	Gradient	Year Laid
SK38253610	66.2699	65.95	65.62	F	VC	C	100	<UNK>	15.45	31/12/1899 00:00:00
SK38259306	48.25	47.1	45.52	C	CO	C	300	<UNK>	4.61	31/12/1899 00:00:00
SK38259304	47.04	44.28	44.16	C	CO	C	900	<UNK>	176.75	31/12/1899 00:00:00
SK39260502	49.4199	48.08	47.69	F	VC	C	150	<UNK>	83.05	31/12/1899 00:00:00
SK38259603	52.2999	49.96	49.95	F	VC	C	225	<UNK>	583	31/12/1899 00:00:00
SK39250305	46.0299	44.01	43.91	F	CO	C	300	<UNK>	270.2	31/12/1899 00:00:00
SK38255801	65.4199	63.8	63.17	F	VC	C	150	<UNK>	98.87	31/12/1899 00:00:00
SK38254901	68	66.79	66.17	F	VC	C	150	<UNK>	86.95	31/12/1899 00:00:00
SK38259706	<UNK>	<UNK>	<UNK>	S	VC	C	300	<UNK>	<UNK>	04/06/2018 00:00:00
SK38253903	69.23	67.83	67.71	S	VC	C	225	<UNK>	458.67	31/12/1899 00:00:00
SK38265003	66.14	61.79	61.58	S	CO	C	<UNK>	<UNK>	149.486	30/11/2018 00:00:00
SK38254703	67.0999	64.84	64.47	S	CO	C	375	<UNK>	81.3	31/12/1899 00:00:00
SK38254801	69.8499	68.94	68.48	F	VC	C	150	<UNK>	146.57	31/12/1899 00:00:00
SK38259610	<UNK>	<UNK>	<UNK>	S	VC	C	<UNK>	<UNK>	<UNK>	10/02/2020 00:00:00
SK38252508	77.76	75.72	73.58	S	VC	C	150	<UNK>	23.47	31/12/1899 00:00:00
SK38257401	54.49	51.99	50.35	C	VC	C	450	<UNK>	18.51	31/12/1899 00:00:00
SK38254312	<UNK>	<UNK>	60.2	F	<UNK>	<UNK>	<UNK>	<UNK>	0	31/12/1899 00:00:00
SK38258600	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	<UNK>	12/09/2016 00:00:00
SK38253407	68.43	67.88	<UNK>	F	VC	C	100	<UNK>	0	31/12/1899 00:00:00
SK38255404	62.8899	61.25	<UNK>	F	VC	C	100	<UNK>	<UNK>	31/12/1899 00:00:00
SK38252501	73.01	72.08	71	F	VC	C	225	<UNK>	59.29	31/12/1899 00:00:00
SK38255902	65.91	63.5	63.24	S	CO	C	450	<UNK>	201.65	31/12/1899 00:00:00
SK38253606	68.04	66.18	<UNK>	S	CO	C	375	<UNK>	0	31/12/1899 00:00:00
SK38253412	71.6299	71.05	71.03	F	VC	C	100	<UNK>	212	31/12/1899 00:00:00
SK38255908	66.61	65.56	65.11	F	VC	C	150	<UNK>	114.4	31/12/1899 00:00:00
SK38255906	67.2699	66.03	65.95	S	VC	C	150	<UNK>	325.25	31/12/1899 00:00:00
SK38257404	52.7519	50.602	50.57	C	PVC	C	300	<UNK>	304	31/12/1899 00:00:00
SK38265023	<UNK>	<UNK>	<UNK>	S	U	U	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
SK38253702	69.1399	67.48	66.63	F	VC	C	225	<UNK>	21.88	31/12/1899 00:00:00
SK38269303	59.02	55.97	55.19	F	PVC	C	150	<UNK>	42.31	31/12/1899 00:00:00
SK38264045	<UNK>	<UNK>	<UNK>	F	U	U	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
SK38254309	65.2699	64.79	64.53	F	VC	C	100	<UNK>	13.88	31/12/1899 00:00:00
SK38267106	63.97	63.29	62.6	F	VC	C	100	<UNK>	21.1	31/12/1899 00:00:00
SK38251503	79.0299	76.91	75.11	F	VC	C	150	<UNK>	12.78	31/12/1899 00:00:00
SK38254904	67.8	66.6	<UNK>	F	VC	C	225	<UNK>	0	31/12/1899 00:00:00
SK38254509	62.367	59.787	59.697	F	CO	C	1050	<UNK>	500	16/10/2008 00:00:00
SK38259702	51.93	50.63	50.39	F	VC	C	150	<UNK>	135.67	31/12/1899 00:00:00
SK38258503	51.34	50.68	50.44	F	VC	C	100	<UNK>	65.88	31/12/1899 00:00:00
SK38264148	<UNK>	<UNK>	<UNK>	S	U	U	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
SK38252605	76.23	72.55	72.24	F	VC	C	225	<UNK>	148.94	31/12/1899 00:00:00
SK38251603	76.76	72.9	71.89	F	VC	C	150	<UNK>	70.1	31/12/1899 00:00:00
SK38258502	51.31	50.43	50.14	F	VC	C	150	<UNK>	83.9	31/12/1899 00:00:00

Sewer Node

Sewer Pipe Data

Reference	Cover Level	Invert Level Upstream	Invert Level Downstream	Purpose	Material	Pipe Shape	Max Size	Min Size	Gradient	Year Laid
SK38266002	65.44	63.12	62.62	F	VC	C	150	<UNK>	93.24	31/12/1899 00:00:00
SK38257406	52.9189	51.439	50.782	F	PVC	C	150	<UNK>	54.68	31/12/1899 00:00:00
SK38266007	66.72	64.79	64.58	F	VC	C	225	<UNK>	104.43	31/12/1899 00:00:00
SK38259400	<UNK>	<UNK>	<UNK>	F	CI	C	225	<UNK>	<UNK>	03/10/2016 00:00:00
SK38253904	69.8899	68.3	67.83	S	VC	C	225	<UNK>	161.04	31/12/1899 00:00:00
SK38251508	79.8099	77.01	75.07	S	VC	C	225	<UNK>	23.57	31/12/1899 00:00:00
SK38269202	62.45	61.41	60.74	F	VC	C	225	<UNK>	43.39	31/12/1899 00:00:00
SK38255402	60.9099	58.56	53.33	C	VC	C	375	<UNK>	20.98	31/12/1899 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	F	P	<UNK>	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	C	VC	<UNK>	<UNK>	<UNK>	<UNK>	13/11/2023 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	F	PF	<UNK>	<UNK>	<UNK>	<UNK>	11/12/2018 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	F	VC	<UNK>	<UNK>	<UNK>	<UNK>	19/12/2021 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	S	VC	<UNK>	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	F	VC	<UNK>	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	F	VC	<UNK>	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	F	VC	<UNK>	<UNK>	<UNK>	<UNK>	06/05/2024 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	S	VC	<UNK>	<UNK>	<UNK>	<UNK>	17/02/2023 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	S	VC	<UNK>	<UNK>	<UNK>	<UNK>	17/02/2023 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	F	VC	<UNK>	<UNK>	<UNK>	<UNK>	26/06/2023 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	F	VC	<UNK>	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	F	VC	<UNK>	<UNK>	<UNK>	<UNK>	04/11/2020 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	F	VC	<UNK>	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
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<UNK>	<UNK>	<UNK>	<UNK>	S	VC	<UNK>	<UNK>	<UNK>	<UNK>	17/02/2023 00:00:00
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<UNK>	<UNK>	<UNK>	<UNK>	F	VC	<UNK>	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	C	VC	<UNK>	<UNK>	<UNK>	<UNK>	04/04/2021 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	C	VC	<UNK>	<UNK>	<UNK>	<UNK>	04/04/2021 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	F	VC	<UNK>	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
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<UNK>	<UNK>	<UNK>	<UNK>	F	VC	<UNK>	<UNK>	<UNK>	<UNK>	04/11/2020 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	F	VC	<UNK>	<UNK>	<UNK>	<UNK>	19/07/2023 00:00:00
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<UNK>	<UNK>	<UNK>	<UNK>	F	VC	<UNK>	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	F	VC	<UNK>	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
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<UNK>	<UNK>	<UNK>	<UNK>	F	VC	<UNK>	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	F	VC	<UNK>	<UNK>	<UNK>	<UNK>	04/11/2020 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	F	U	<UNK>	<UNK>	<UNK>	<UNK>	09/03/2020 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	C	VC	<UNK>	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00

Sewer Node

Sewer Pipe Data

Reference	Cover Level	Invert Level Upstream	Invert Level Downstream	Purpose	Material	Pipe Shape	Max Size	Min Size	Gradient	Year Laid
<UNK>	<UNK>	<UNK>	<UNK>	F	VC	<UNK>	<UNK>	<UNK>	<UNK>	19/12/2021 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	F	VC	<UNK>	<UNK>	<UNK>	<UNK>	06/05/2024 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	F	U	<UNK>	<UNK>	<UNK>	<UNK>	27/07/2020 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	F	U	<UNK>	<UNK>	<UNK>	<UNK>	30/01/2020 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	F	U	<UNK>	<UNK>	<UNK>	<UNK>	27/07/2020 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	F	VC	<UNK>	<UNK>	<UNK>	<UNK>	06/05/2024 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	C	VC	<UNK>	<UNK>	<UNK>	<UNK>	26/11/2021 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	F	UPVC	<UNK>	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
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