

FLOOD RISK ASSESSMENT & DRAINAGE IMPACT STRATEGY

Proposed development of site at:
Hammonds Way, Hinckley, LE10 3EJ

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1 Introduction

1.1 Background

This report has been prepared on the instruction of Hinckley Investment LLP to accompany a planning application for the proposed re-purpose of land to aid development on Hammonds Way, Hinckley, LE10 3EJ, approximately 2 kilometres southwest of Hinckley town centre, north of Hammonds Way and east of Nutts Lane. This report discusses potential flood risk, existing surface water drainage and goes on to describe the proposed layout and proposals for managing surface water runoff from the site.

1.2 Site Location

The site is located on a parcel of land bounded by Hammonds Way to the south, Nutts Lane to the west and north, and a mature industrial development to the east, with postcode LE10 3EJ. The Ordnance Survey National Grid Reference (OSNGR) for the approximate centre of the site is SP 41062 92687. The site is an irregular hexagon with an approximate area of 2.0 hectares. It is currently greenfield, except for a small western area directly adjacent to Nutts Lane which is paved and used for goods vehicle parking along with some temporary modular accommodation. Historic maps suggest land use approximately 60 years ago as a Sports Field.

The wider landscape consists of light industrial to the north, east and south-east, with residential to the west / north-west and greenfield farmland further to the south. The Ashby de la Zouch Canal passes around the site to the east, with the closest point being approximately 140m away.

1.2.1 Topography

There is very little change in level across the site, apart from berms along the north and south of the site which appear to be in the region of 1.7-1.8m high. The ground level across the site varies between 90.2m at the west of the site to 90.7m AOD at the east side.

1.2.2 Watercourses

The closest surface water features to the site are the Ashby de la Zouch Canal approximately 140m to the east, and Sketchley Brook which is less than 20m away to the south, located directly across Hammonds Way.

1.2.3 Drainage

According to Severn Trent Asset mapping, the site is served by an adopted foul drain running along the western side and discharging in to Nutts Lane. Manholes are noted on the topographical survey to the paved area on the east however the private system in this area is unknown, but assumed to collect into the Severn Trent asset. It is thought that the remainder of the site does not have any drainage serving it due to the greenfield nature of the site.

There are no known Severn Trent surface water assets in the vicinity of the site, although an outfall towards the nearby brook has been proven by CCTV survey.

1.3 Proposed Development

The proposed development is a 98,000sqft industrial space with 12.5% of office space at 1st/2nd floor, complete with parking for cars and lorries, and all associated infrastructure. A copy of the site plan by BHP Design is included at Appendix A

1.4 Ground Conditions

An intrusive geo-environmental investigation has been undertaken with an accompanying report issued in April 2025. The report was undertaken by Crossfield Consulting and is titled 'Graftongate Investments Limited Hammonds Way, Hinckley Site Investigation Report', with reference CCL03854.CW06. An extract from the report is included below detailing the ground strata identified during the investigation:

5.3 Strata Encountered

Made Ground

Made Ground has been identified within the western yard area, currently used by the utilities company, to depths of between 0.5 m and 1.4 m. A concrete surfacing layer overlying coarse grained subbase is present to depths of between 0.3 m and 0.4 m. Beneath the surfacing layer, the Made Ground typically consists of soft consistency sandy slightly gravelly clay with rare brick fragments.

Trial pits, TP5 & TP9, were excavated into the approximately 1.8 m high bunds present on the northern edge of the site. The bund materials also typically comprise soft consistency sandy slightly gravelly clay with some brick and concrete fragments. Made Ground is also present to depths of up to 1.2 m beneath the bunds. These materials comprise soft to firm through to firm consistency sandy slightly gravelly clay with brick fragments.

Made Ground has not been identified elsewhere on site.

Topsoil

Outside of the western yard and bund areas, the site is covered with a layer of topsoil to depths of between 0.3 m and 0.4 m. Generally, the topsoil consists of black slightly clayey slightly gravelly fine to medium sand, or a very sandy slightly gravelly clay with rootlets.

Alluvium

Beneath the Made Ground and topsoil across the site, strata considered to be Alluvium have been encountered. Typically, these strata consist of soft through to firm consistency slightly sandy, slightly gravelly clay with local bands of medium dense sands and gravels and have been proven to depths of between 1.2 m and to in excess of 4.0 m.

The Alluvium is generally thicker in the northern part of the site, but has also been identified locally at greater thicknesses in other areas of the site.

Hand vane testing has indicated undrained shear strengths in the range of 20 kN/m² to 70 kN/m² within the fine-grained Alluvium, with the low strength materials (undrained shear strength of 40 kN/m² or less) typically encountered in the top 1.5 m.

Glacial Deposits

Beneath the Alluvium across the site, strata considered to be Glacial Deposits have been encountered. Typically, these strata consist of a firm, becoming stiff consistency with depth, slightly sandy clay to the maximum depth of this investigation of 15.0 m.

Hand vane testing has indicated undrained shear strengths typically in the range of 60 kN/m² to 100 kN/m² within the upper 2 m of the fine-grained Glacial Deposits.

Standard Penetration Tests (SPTs) undertaken within the Glacial Clay recorded 'N' values typically in the range of 10 to 30, with 'N' values typically increasing with depth.

5.4 Groundwater

Perched water was identified locally within trial pits at the base of the Alluvium and within coarse-grained bands.

Groundwater was not observed during the drilling of the 15 m deep boreholes. Subsequent monitoring of the standpipes installed within the boreholes has identified standing water at depths of 0.81 m, 7.28 m and 9.5 m.

1.5 Report Structure

Following this introductory section:

- **Section 2** describes the planning policy context within which the proposals will be assessed;
- **Section 3** discusses the potential sources of flooding for the site;
- **Section 4** summarises a surface water management strategy for the site, considering any existing site drainage, the proposed point of discharge and the appropriateness of Sustainable Drainage Systems (SuDS);
- **Section 5** deals with any requirement for foul water drainage;
- **Section 6** offers a summary and conclusions

2 Relevant Policy and Guidance

2.1 National Planning Policy

With regard to flood risk the National Planning Policy Framework (NPPF) requires that:

"Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere."

The NPPF sets out that the Sequential Test should be applied to steer development to the areas of lowest probability of flooding and states that development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower probability of flooding.

To establish the appropriateness of development at a specific site the NPPF refers to the Flood Zones, which are shown on the Environment Agency Flood Map, and establishes the range of uses which are appropriate, or compatible, land uses for each Flood Zone.

The Flood Zones can be summarised as follows:

- **Zone 1:** Low Probability. This zone comprises land assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any one year. (<0.1%)
- **Zone 2:** Medium Probability. This zone comprises land assessed as having between 1 in 100 and 1 in 1000 annual probability of river flooding (1%-0.1%) or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% - 0.1%) in any year.
- **Zone 3a:** High Probability. This zone comprises land assessed as having 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.
- **Zone 3b:** Functional Flood Plain. This zone comprises land where water must flow or stored in times of flood. Strategic Flood Risk Assessments should identify this zone.

According to the NPPF, if following the application of the Sequential Test it is not possible, consistent with wider sustainability objectives, for the development to be in zones of lower probability of flooding, the Exception Test can be applied.

As part of this process, it is necessary to consider the type and nature of the development. The Planning Practice Guidance: Flood Risk and Coastal Change defines the type and nature of different development classifications in the context of their flood risk vulnerability. This has been summarised in Table 2.1 below.

Table 2.1: Flood Risk Vulnerability and flood zone compatibility

Flood Risk Vulnerability	Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Zone 1	✓	✓	Exception Test Required	✓	✓
Zone 2	Exception Test Required	✓	Exception Test Required	✓	✓
Zone 3a	Exception Test Required	✓	×	Exception Test Required	✓
Zone 3b	Exception Test Required	✓	×	×	×

✓ Development is appropriate × Development should not be permitted.

2.2 Local Policy

Local Flood Risk Management strategy for Leicestershire states that “It is anticipated that new development will be sustainable and where appropriate contribute to the creation of infrastructure and communities that are safe for their intended lifetime. Sustainable Drainage systems (SuDs) must be implemented for new development and should satisfy strategic requirements. Mitigation measures must be implemented to address future flood risk conditions so that development is safe and does not adversely affect others for the intended lifetime. As a result any new development must incorporate appropriate SuDs”

The policy relating to Sustainable drainage systems (SuDs). States that “All development proposals must incorporate suitable surface water drainage systems appropriate to the nature of the site. Post-development run off rates should aim to achieve greenfield equivalents. Development proposals will need to demonstrate:

- i. The discharge location has sufficient capacity to receive the post development flows.
- ii. The proposed surface water drainage system has been designed to prevent flooding of internal property and neighbouring for all rainfall events up to the 1% annual exceedance probability event including the appropriate allowance for climate change.
- iii. Sufficient treatment stages have been incorporated to adequately remove pollutants and protect the local water environment, following the principles of the latest national guidance.
- iv. Provisions for safe conveyance and storage of flood waters should the capacity of the proposed drainage system become exceeded.
- v. Adequate arrangements for the management and maintenance of the proposed drainage system for its lifetime have been provided.
- vi. Compliance with national guidance, and that regard has been given to Bedford Borough Council’s SuDS Supplementary Planning Document, and industry best practice.

- vii. Opportunities to improve water quality, amenity and biodiversity benefits have been realised.

Priority should be given to the following order of discharge locations:

- 1) To ground via infiltration techniques;
- 2) To an above ground water body;
- 3) To a surface water sewer.

Leicestershire Level 1 Strategic Flood Risk Assessment was published in October 2017. The document assesses the risk of flooding from all sources, now and in the future, taking into account of the impacts of climate change, and assesses the impact that land use changes and development

In relation to the Local Plan, the SFRA will be used to:

- “Determine the variations in risk from all sources of flooding;
- Inform the sustainability appraisal of the Local Plan, so that flood risk is fully taken into account when considering allocation options and in the preparation of plan policies including policies for flood risk management to ensure that flood risk is not increased;
- Apply the Sequential Test and, where necessary, the Exception Test when determining land use allocations;
- Identify the requirements for site-specific flood risk assessments in particular locations, including those at risk from sources other than river and sea flooding;
- Determine the acceptability of flood risk in relation to emergency planning capability;
- Consider opportunities to reduce flood risk to existing communities and developments through better management of surface water, provision for conveyance and provision of storage for flood water”.
- The Level 1 SFRA provides guidance to developers in regard to how flood risk should be considered within planning applications for new and re-developed sites and the expectations of the Council in terms of development control.
- The SFRA notes that developers should be encouraged to demonstrate that their proposal will deliver a positive reduction in flood risk to the Borough, whether that be by reducing the frequency or severity of flooding (for example, through the introduction of SUDS), or by reducing the impact that flooding may have on the community.

3 Potential Sources of Flooding

3.1 Fluvial and Tidal Flooding

The Environment Agency flood map in Figure 3.1 below shows that the site is generally located within flood zone 1. The flood map is repeated in full in Appendix B. This means that the site is at very low risk of river and sea flooding. Based on this flood zone allocation, a Flood Risk Assessment is not strictly required for planning purposes. This document is therefore primarily concerned with the management of surface water within the proposed development site.

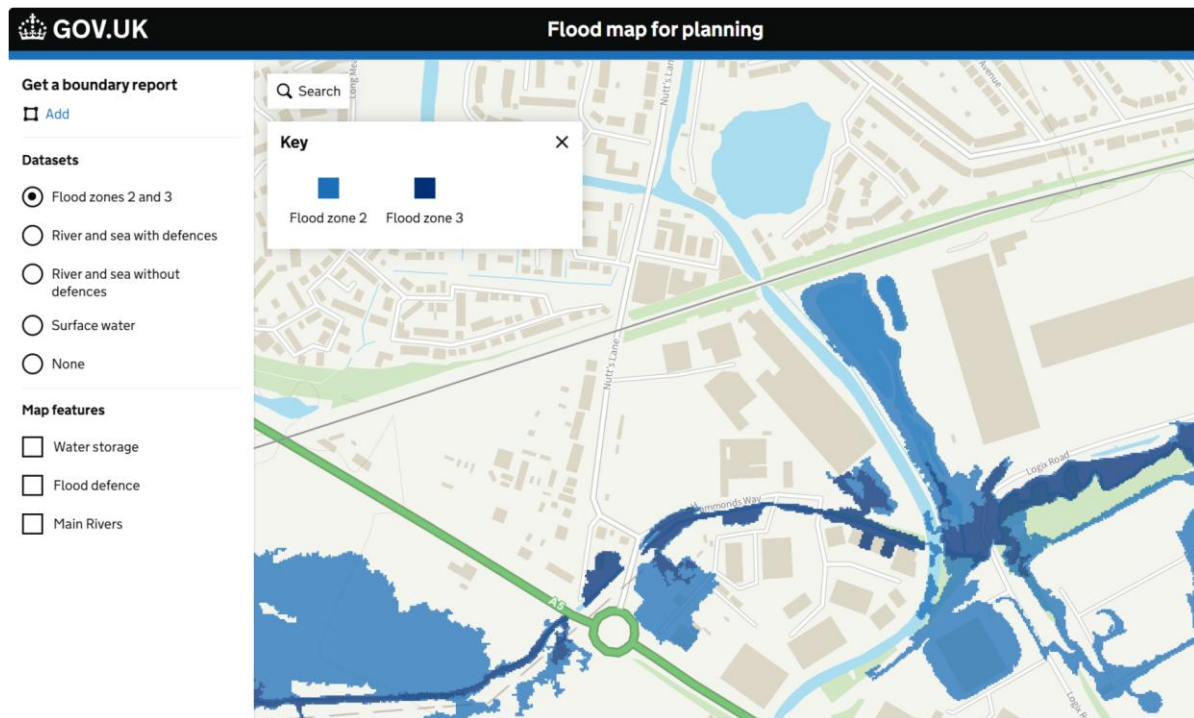


Figure 3.1 Flood Map for Planning (Courtesy of gov.uk)

The proposed building is to be used as warehouse, which has a flood risk vulnerability classification of 'less vulnerable'. Using Table 2.1 above, this usage is compatible with the flood zone within the site for all areas, with no exception test required.

The risk to the proposed development from fluvial flooding is therefore considered to be very low.

3.2 Flooding from Land (Overland flow & Surface Water Flooding)

The Environment Agency's surface water flood risk map is shown in figure 3.2. This shows some areas of 'low risk' flooding within the site, which is flooding with a maximum depth of below 300mm and some areas of 'medium risk' which is flooding with a maximum depth of 600mm. These areas are isolated around the west and north of the site and will be dealt with by the provision of a new site surface water drainage network, designed and constructed to modern standards. There is a small area of 'high risk' of flooding from surface water (i.e. greater than 600mm) to the west, that just encroaches the development site.



Figure 3.2 Surface Water Flooding Extent Map (Courtesy of gov.uk)

Overall, the risk to the development from overland surface water flooding is considered to be low.

3.3 Ground Water Flooding

Mapping from the British Geological Survey shows the site to be underlain by the superficial deposits with bedrock geology indicated to be from the Mercia Mudstone group. The maps are reproduced in Figures 3.3 and 3.4 below.

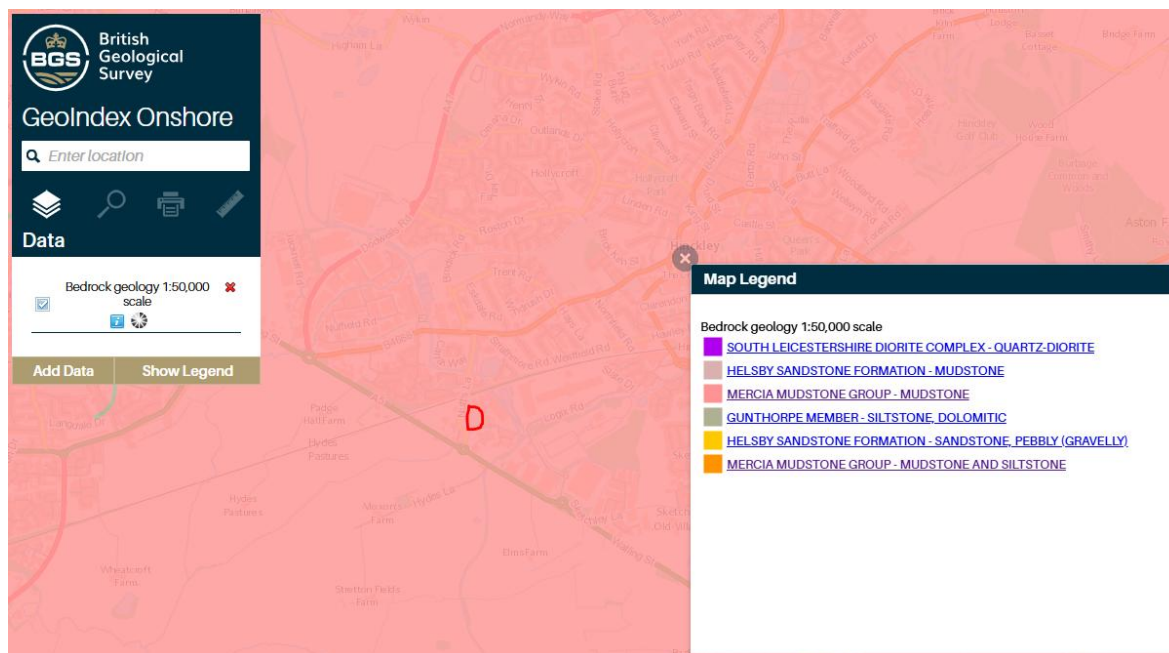


Figure 3.3 Geology - Bedrock (Courtesy of British Geological Survey)

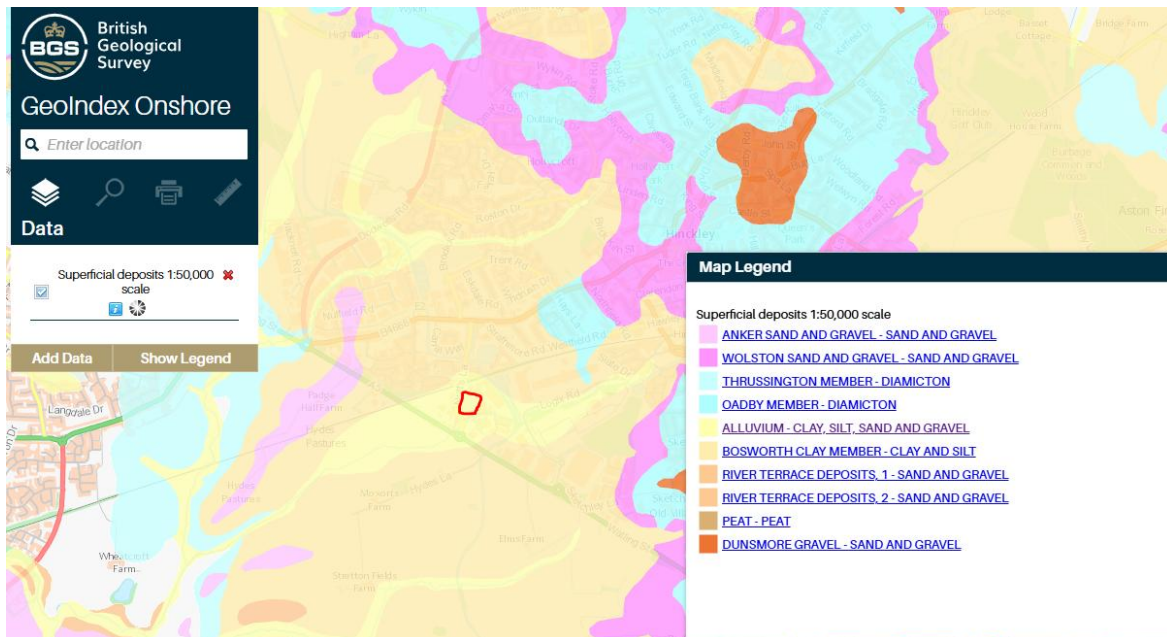


Figure 3.4 Geology – Superficial Deposits (Courtesy of British Geological Survey)

Groundwater vulnerability maps have been reviewed to determine the aquifer designations and vulnerability of groundwater to pollution.

Bedrock at the site has an aquifer designation of 'Secondary B'. The bedrock aquifer designation map is provided in Figure 3.5. Secondary B aquifers are mainly lower permeability layers that may store and yield limited amounts of groundwater through characteristics such as fissures or eroded layers.

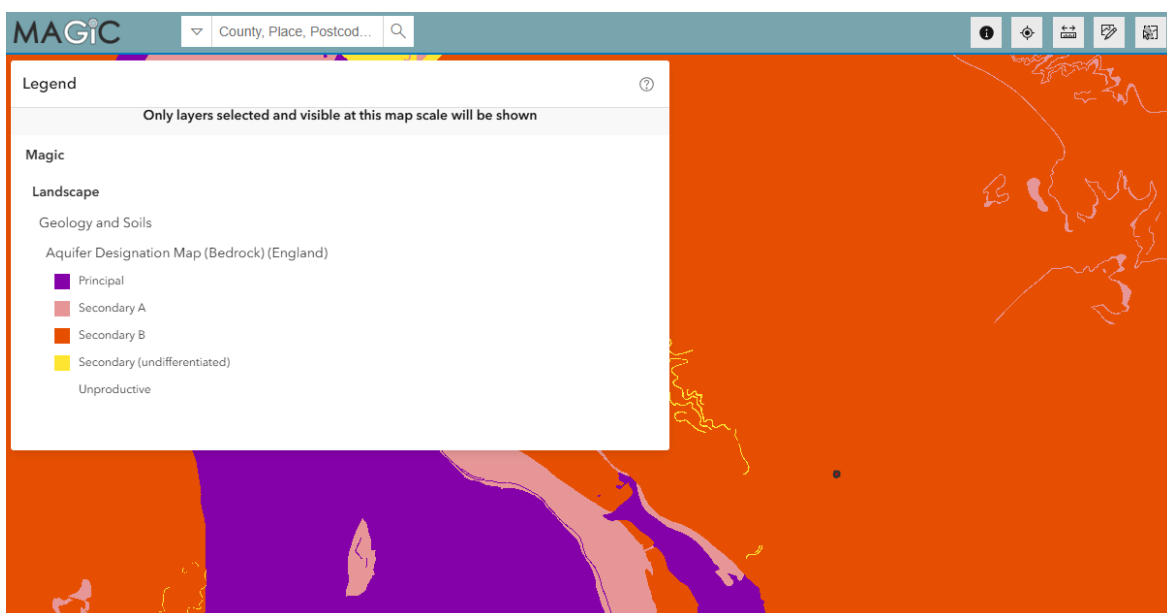


Figure 3.5 Aquifer Map - Bedrock (Courtesy of MAGICmap by Defra)

The superficial geology directly underneath the site has an aquifer designation of Secondary A. Secondary A aquifers comprise permeable layers that can support local water supplies, and may form an important source of base flow to rivers.

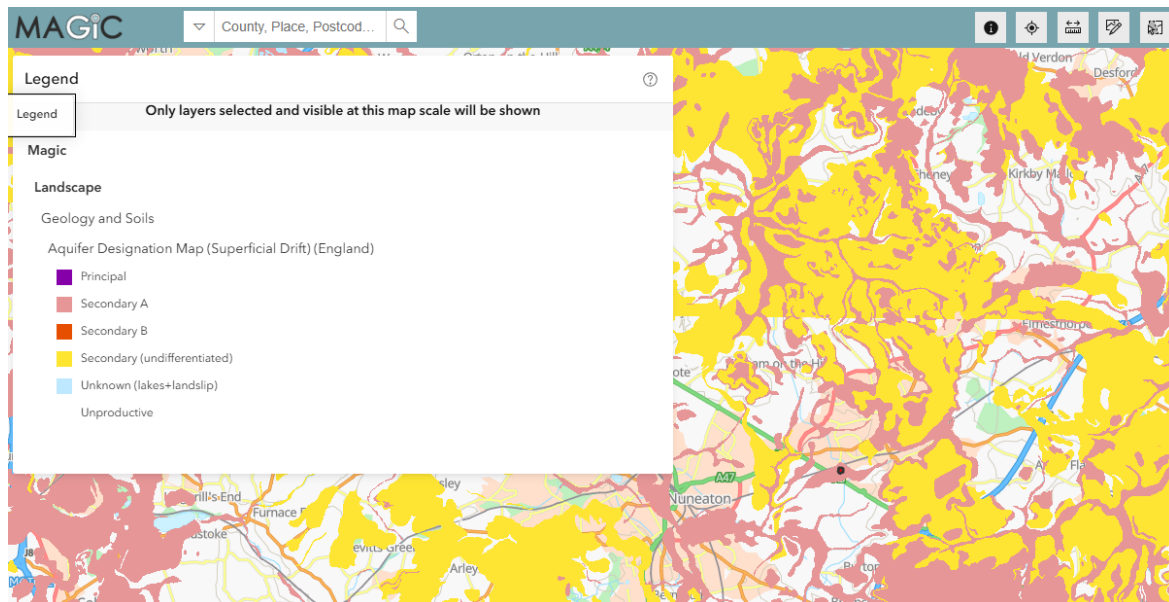


Figure 3.6 Aquifer Map – Superficial Deposits (Courtesy of MAGICmap by Defra)

The entire site is located within an area categorised as 'medium' vulnerability which has a medium protection from pollution to the aquifers beneath, as demonstrated in the map within Figure 3.7 below.

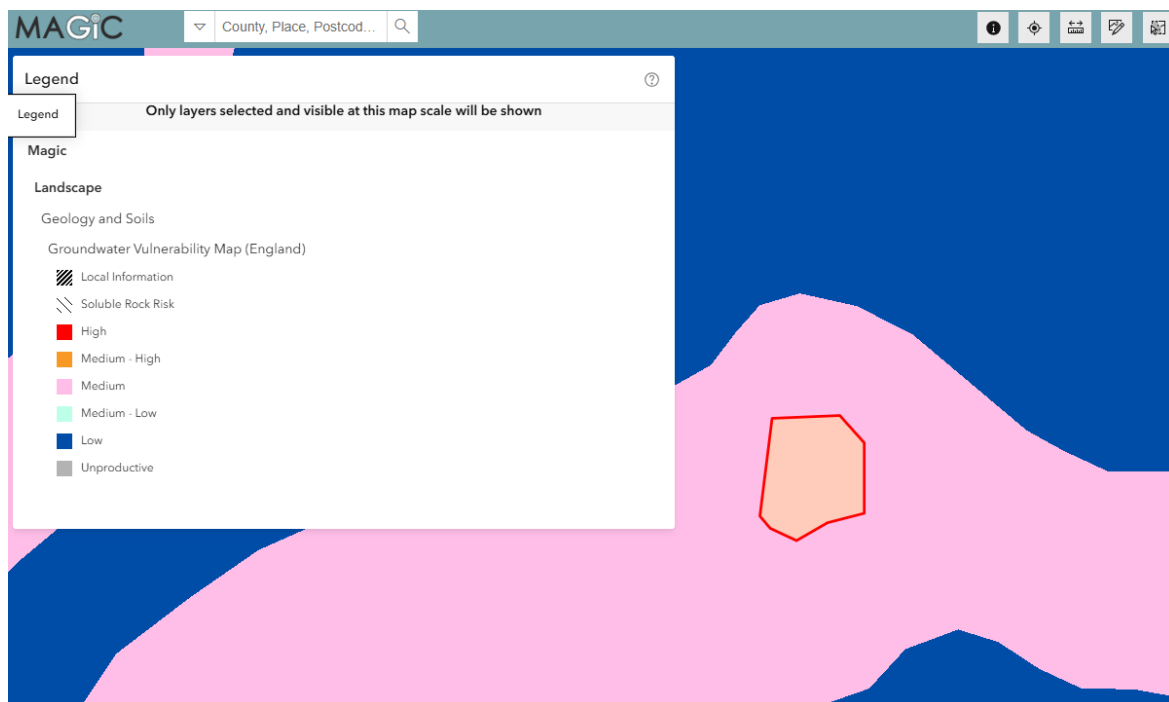


Figure 3.7 Groundwater Vulnerability Map (Courtesy of MAGICmap by Defra)

A predicted result of climate change is wetter winters, that may lead to increased groundwater levels and as such potentially increasing the risk of groundwater flooding. A previously referred to site investigation carried out on the site in April 2025 shows no groundwater recording during drilling of boreholes to 15m, however perched water was identified in standpipes at depths of 0.81m, 7.28m and 9.5m below ground level.

The risk to the development from rising groundwater levels is currently considered to be low.

3.4 Flooding from Man-made Drainage Systems

Local drainage can result in substantial damage and distress to residents and business owners if not managed carefully. Flooding from artificial drainage systems may occur at the site from blocking or overloading of pipes or sewers or failure of pumping systems. Sewers and surface water drains are often very old and generally designed to a lower standard, such as a 1 in 10 year standard. As a result, the flood risk associated with sewer flooding is generally higher in long-established urban areas than from other sources, although the consequences are usually limited in extent.

Surface water flows off site will be restricted post-development. In addition, any new foul water sewerage and surface water systems for the development will be designed to meet modern standards. Downstream connection points will be checked for condition and suitability. This should ensure that the systems have sufficient capacity to prevent overloading under the normal range of operating conditions. A maintenance plan for the site drainage will be in place to ensure that the system remains operational.

The annual flood risk from new artificial drainage systems should therefore be low.

3.5 Flooding from Reservoirs, Canals and other Artificial Sources

Non-natural or artificial sources of flooding can include reservoirs, canals and lakes where water is retained above natural ground level, operational and redundant industrial processes including mining, quarrying and sand and gravel extraction, as they may increase floodwater depths and velocities in adjacent areas. The potential effects of flood risk management infrastructure and other structures also need to be considered. Reservoir or canal flooding may occur as a result of the facility being overwhelmed and/or as a result of dam or bank failure.

The Environment Agency's flood risk from reservoirs map shows that the site is not at risk from flooding from reservoirs, canals or other artificial sources.

Flood risk from reservoirs, canals and other artificial sources is considered to be very low.

3.6 Flood Risk Summary

As can be seen from the various searches and the maps above, the proposed site is generally located within Flood Zone 1 for the majority. The proposed development has been assessed as appropriate for its location, and the overall risk to the development from fluvial flooding is assessed to be low.

There is no significant risk from overland surface water flooding or groundwater flooding. Flood risk from man-made drainage systems and other artificial sources such as canals or reservoirs is also considered to be low.

The management of surface water to prevent flooding to both the development site and immediate surrounding area due to surface water drainage will be discussed in section 4.

4 Potential Sources of flooding

4.1 Existing Surface Water Drainage

The existing site is predominantly overgrown with foliage and appears to be undeveloped greenfield. There is a small area to the west containing hardstanding. Currently there are only foul drainage points in the hardstanding area as shown on the Severn Trent asset plan. The hardstanding either drains to the foul drain, or directly into the soft landscaping/ditch. It is unknown whether there are any water treatment provisions (e.g. petrol interceptors) currently on site.

Severn Trent sewer records are included in Appendix H and show foul water adopted sewers are present within the surrounding roads. As noted earlier, Sketchley Brook is situated across the road from the adjacent Hammonds Way.

4.2 Proposed Site Drainage

4.2.1 Sustainable Drainage Systems (SuDS)

Section 1.1 of the SuDS Manual (CIRIA C753) states the following:

- "Sustainable drainage systems (SuDS) can deliver multiple benefits. Surface water is a valuable resource, and this should be reflected in the way it is managed and used in the built environment. It can add to and enhance biodiversity, beauty, tranquillity and the natural aesthetic of buildings, places and landscapes and it can help make them more resilient to the changing climate.
- The philosophy of sustainable drainage systems is about maximising the benefits and minimising the negative impacts of surface water run-off from developed areas.
- The SuDS approach involves slowing down and reducing the quantity of surface water runoff from a developed area to manage downstream flood risk and reducing the risk of that runoff causing pollution. This is achieved by harvesting, infiltrating, slowing, storing, conveying and treating runoff on site and, where possible, on the surface rather than underground. Water then becomes a much more visible and tangible part of the built environment, which can be enjoyed by everyone."
- The SuDS Manual describes the four pillars of SuDS design as Water Quality, Water Quantity, Amenity and Biodiversity as illustrated in Figure 5.1 below which is a representation of The SuDS Manual Figure 2.1

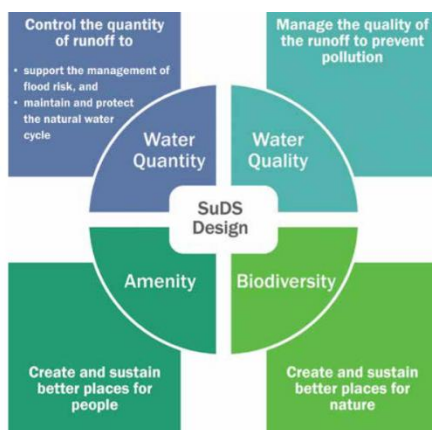


Figure 4.1: Extract Representation of Figure 2.1 of The SuDS Manual

The drainage system and ground levels will be designed such that:

- Flooding does not occur during a 1 in 100-year storm event (including allowance for up to 40% increase to allow for the anticipated impacts of climate change) in any part of a building or in any utility plant susceptible to water within the development.
- Flows resulting from rainfall in any event exceeding the 1 in 100-year rainfall event are managed in exceedance routes to minimise as far as practicable the risk of flooding to people and property both on and off site.
- Flows from pavements will flow directly onto the soft landscaping where possible.
- The management of surface water on site will ensure that there is no increased risk of flooding on and offsite as a result of the development.
- The SuDS design for the development site should ensure that the quality of any receiving water body is not adversely affected and preferably enhanced in accordance with CIRIA SuDS Manual, Chapter 4.

4.2.2 Proposed Discharge Route

NPPF Planning Practice Guidance Paragraph 080 states that:

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

1. *into the ground (infiltration);*
2. *to a surface water body;*
3. *to a surface water sewer, highway drain, or another drainage system;*
4. *to a combined sewer.”*

The use of soakaway or infiltration systems:

The site investigation report undertaken by Crossfield Consulting in 2025 shows the underlying strata being alluvium and Glacial deposits. It is therefore considered that soakaway and infiltration techniques would not be appropriate for this site. This will be confirmed by further site investigation in due course.

Discharge to a watercourse

As previously identified, the open watercourse Sketchley Brook is in close proximity of the site, situated on the other side of Hammonds Way to the south of the site. Through site investigation of the existing drainage via CCTV, an existing connection in the south-west corner of the site has been proven to run southwards along Nutts Lane and outfall directly in to Sketchley Brook. A copy of the drainage CCTV report is located in appendix 'I'.

Therefore, following the hierarchy, it is proposed that the surface water for the site will discharge into Sketchley Brook, subject to agreement with the relevant authority.

4.2.3 Proposed Discharge Quality

For treatment purposes, the drainage will be divided into two networks; one serving hardstanding areas (car park), and one serving roof runoff.

Hardstanding is defined as 'ground surfaced with a hard material for parking vehicles on'. All hardstanding areas are to go through an interceptor, which will remove all silts and oil based

contaminants. A bypass separator will be specified to serve the hardstanding area. The interceptor specified will be suitable for the required drained area, as summarised in the table below:

	Actual catchment area	Allowable drained area for product reference
NSBE015	6,632m ²	8,335m ²

The proposed bypass separator is designed to treat the full flow from rainfall up to 6.5mm/hr, which equates to 99% of all rainfall events. In more extreme events, the first flush from the surface is typically the most contaminated. The runoff enters the unit where any solids present sink to the bottom and are retained in the first chamber. Oil and water are then passed through to the second chamber where they are partially separated. As rain water builds and the surface water entering the separator exceeds the design flow, further runoff is diverted to bypass the second chamber and exit the separator.

If the roof drainage were to be directed through the interceptor, a large proportion of the initial surface water runoff passing through the interceptor would be from the roof. This would have the effect of 'diluting' the most contaminated surface water runoff from hardstanding areas, potentially allowing silt and oil contaminants to bypass treatment. The bypass separator should therefore serve hardstanding areas only.

Using the Simplified Index Approach within Section 26 of The SUDS Manual (C753), commercial yard and delivery areas, non-residential car parking with frequent change, are considered to have a 'Medium' Pollution Hazard Level (Table 26.2). The following table shows the required pollution hazard indices for this situation, along with the indices provided by a bypass separator, and confirms that the separator provides appropriate mitigation:

	Total suspended solids (TSS)	Metals	Hydro-carbons
	Required Indices for Land Use		
'Medium' Pollution Hazard Level (Commercial yard and delivery areas, non-residential car parking with frequent change (eg hospital, retail)).	0.7	0.6	0.7

	Provided mitigation indices		
Class 1 bypass separator	0.8	0.6	0.9

Using Table 26.2 of C753, the roof runoff has a Pollution Hazard Level of 'Low'.

Hydrocarbon pollution will be minimal as the rainwater pipes will directly connect into the underground network. Due to the possibility of silt build-up on the roof during dry weather, catchpits are proposed at the base of all rainwater pipes. This will prevent silt from the roof entering and building up within the attenuation tank and the further downstream network.

This situation is assessed using the Simplified Index Approach below, which confirms that sufficient mitigation is proposed:

	Total suspended solids (TSS)	Metals	Hydro-carbons
	Required Indices for Land Use		
'Low' Pollution Hazard Level (Other roofs (typically commercial/industrial roofs))	0.3	0.2	0.05
	Provided mitigation indices		
Catchpits	0.4	0.2	0.2

Each drained area has been considered separately in respect of its Pollution Hazard Level and required SUDs Mitigation Indices, and the proposed treatment methods have been proven to be appropriate for each area, in accordance with section 26 of CIRA C753 The SUDs Manual. All appropriate measures have been incorporated to reduce the risk of silt and oil from the site surface water network entering the existing downstream sewer network.

4.3 Proposed Surface Water Strategy

The drainage system and ground levels will be designed such that:

- Flooding does not occur during a 1 in 100-year storm event (including allowance for up to 40% increase to allow for the anticipated impacts of climate change) in any part of a building or in any utility plant susceptible to water within the development.
- Flows resulting from rainfall in any event exceeding the 1 in 100-year rainfall event are managed in exceedance routes to minimise as far as practicable the risk of flooding to people and property both on and off site.
- Flows from pavements will flow onto the soft landscaping where possible.
- The management of surface water on site will ensure that there is no increased risk of flooding on and offsite as a result of the development.
- The SuDS design for the development site should ensure that the quality of any receiving water body is not adversely affected and preferably enhanced in accordance with CIRIA SuDS Manual, Chapter 4.

Greenfield run-off rates have been calculated as 8.2 l/sec for the entire site. See calculation included within Appendix E.

The site, as it currently exists, comprises the following areas:

Hardstanding	2,555m ²
Roof (not incl. temporary)	0m ²
Landscaping	16,143m ²
TOTAL	18,698m²

The landscaping zone has no positive connection to the below ground drainage network.

The proposed site comprises the following areas:

Hardstanding	6,632m ²
Roof	7,906m ²
Landscaping	4,160m ²
TOTAL	18,698m²

The landscaping zone will have no positive connection to the below ground drainage network.

It is proposed to limit the off-site flow to 8.2 l/s (i.e. greenfield run off rates).

On-site storage will be provided to contain flows up to a storm with a return period of 1 in 100 years, with an allowance of an additional 40% for climate change. The preliminary storage volumes calculations are included within Appendix E. The resulting storage volume is 1100m³ will be accommodated on site primarily by a below ground attenuation tank (to accommodate the 1 in 30 yr + 40% cc allowance) and also allowing parts of the external hard paving to temporarily surcharge during extreme rainfall events.

A sketch showing the proposed drainage scheme is included within Appendix F:

The new on-site drainage network will be designed to 'Sewer Sector Guidance Appendix C', with no pipes surcharging for a storm with a 1 in 2 year return period, and no surcharging of the drainage system as a whole for a storm with a 1 in 30 year return period + 40% cc.

The drainage infrastructure will therefore be designed with provision for exceedance and allowance for climate change. It is considered that the limitation on discharge with associated storm water storage will ensure that there will not be any increased flood risk to people or property in the downstream catchment.

A surface water drainage maintenance plan is included within Appendix G.

5 Foul Water Drainage

The STW sewer records indicate an established existing site foul network is shown to the west of the site. Refer to Appendices H.

It is proposed to connect into this adopted sewer network.

The anticipated peak discharge rate of foul water for the new development is anticipated to be 2.6 l/sec, based on the discharge units method calculation below. This is subject to agreement with Severn Trent Water.

	DU	No.	Total (DU x No.)
WC	1.6	15	16
Washbasin	0.3	15	4.5
Kitchen sink	0.6	2	1.2
Urinal	0.3	14	4.2
Cleaners Sink	0.6	1	0.6
			ΣDU = 26.5

$$Q = k \times \sqrt{DU} \quad (k = 0.5 \text{ for intermittent use})$$

$$Q = 0.5 \times \sqrt{26.5}$$

$$Q = 2.6 \text{ l/sec}$$

6 Conclusion

The NPPF Technical Guide classifies the flood risk vulnerability of these buildings as a less vulnerable use and Table 3 of the Technical Guide indicates that such development is compatible with the Flood Zones identified on site in the location of the proposed buildings.

All forms of flood risk to the site have been assessed and it has been determined that there is a low risk of flooding to the proposed development.

The development proposals are in accordance with both National and Local Policy and Guidance relating to Flood Risk and Surface Water Management.

External ground levels will be designed to direct any surface water flow away from building thresholds.

The SuDS strategy will be developed as part of the detailed design to meet the following criteria:

- Unless an area is designed to hold and/or convey water, flooding will not occur on any part of the site for a 1 in 30-year rainfall event.
- Flooding does not occur during a 1 in 100-year storm event (including an allowance for a 40% increase in rainfall intensity due to climate change) in any part of a building or in any utility plant susceptible to water (e.g. pumping station or electricity substation) within the development.
- In order to achieve the above, sufficient storm water storage will be provided to manage the storm water discharging from site, using an underground storage tank.
- Flows resulting from rainfall in any event exceeding the 1 in 100-year rainfall event are managed in exceedance routes to minimise as far as practicable the risk of flooding to people and property both on and off site.
- The SuDS design for the development site should ensure that the quality of any receiving water body is not adversely affected and preferably enhanced in accordance with CIRIA SuDS Manual C753, Chapter 4.

The surface water drainage solution hierarchy has been followed to establish a proposed discharge route for surface water runoff into the open watercourse Sketchley Brook to the south of the site. This is subject to agreement with the relevant local authority. Surface water will be stored on site using an underground attenuation tank and low level areas of hard paving as storage. The attenuation will be designed to accommodate storms with a return period of up to 100 years, with an additional allowance of 40% for climate change. The proposed total flow rate off-site is 8.2 l/sec. A sketch showing principles for routing and storing surface water runoff is included in Appendix F.

Surface water runoff treatment measures will be provided in the form of catchpits (serving roof runoff) and bypass separators (serving runoff from car park/loading area hardstanding's).

Foul water will be connected directly into the adopted Severn Trent foul sewer to the west of the site. The proposed total peak flow rate off site is 2.6 l/sec. This is subject to agreement with Severn Trent.

Appendix A



NOTES:

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The Contractor is to check and verify all building and site dimensions, levels and sewer invert levels at connection points before work starts. The Contractor is to comply in all respects with current Building Legislation, British Standard Specifications, Building Regulations, Construction (Design & Management) Regulations, Party Wall Act, etc. whether or not specifically stated on this drawing. This drawing must be read with and checked against any structural, geotechnical or other specialist documentation provided.

This drawing is not intended to show details of foundations, ground conditions or ground contaminants. Each area of ground relied upon to support any structure depicted (including drainage) must be investigated by the Contractor. A suitable method of foundation should be provided allowing for existing ground conditions. Any suspect or fluid ground contaminates on or within the ground, should be further investigated by a suitable expert. Any earthwork constructions shown indicate typical slopes for guidance only & should be further investigated by a suitable expert.

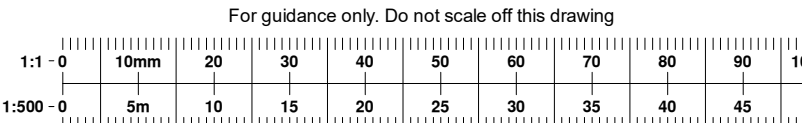
Where existing trees are to be retained they should be subject to a full Arboricultural inspection for safety. All trees are to be planted so as to ensure they are a minimum of 5 metres from buildings and 3 metres from drainage and services. A suitable method of foundation is to be provided to accommodate the proposed tree planting.

Sketch proposals are for illustrative purposes only & as such are subject to detailed site investigation including ground conditions / contaminants, drainage, design & planning / density negotiations. Sketch proposals may be based upon enlargements of OS sheets & visual estimations of existing site features, accuracy will therefore need to be verified by survey. Sketch proposals have not been considered in respect of CDM Regulations.

SCHEDULE OF MATERIALS

- MACADAM SURFACING (CAR PARKING SPACES)
- THERMOPLASTIC PAINT LINING ETC.
- COLOUR - BLACK/GREY SELF COLOUR
WHITE LINING TO DEMARCAT BAYS
- CONCRETE SURFACING
- COLOUR - LIGHT GREY SELF COLOUR
- MACADAM SURFACING (ROADWAY)
- THERMOPLASTIC PAINT LINING ETC.
- COLOUR - BLACK/GREY SELF COLOUR
- CONCRETE BLOCK PAVING
- MARSHALLS KEYBLOK PAVING
- COLOUR - ????
- CONCRETE BLOCK PAVING
- MARSHALLS KEYBLOK PAVING
- COLOUR - ????
- CONCRETE PAVING
- COLOUR - NATURAL
- STRUCTURED LANDSCAPING
- SCHEME TO BE APPROVED BY LOCAL AUTHORITY
- PRIOR TO IMPLEMENTATION
- PROPRIETARY FABRICATED STEEL CYCLE SHELTER
- SURFACE COATED IN PROPRIETARY FINISH
- SIZE 5000 (L) X 2140MM (W) X 2150 (H)
- CAPACITY - 10X12 CYCLES PER SHELTER
- COLOUR - ANTHRACITE GREY
- 2.4M HIGH PALADIN FENCE
- SURFACE COATED IN PROPRIETARY FINISH
- COLOUR - BLACK
- FABRICATED STEEL PEDESTRIAN/VEHICULAR GATES/CONTROL BARRIER
- FULL SPECIFICATION PPC FINISH
- COLOUR - BLACK
- 2.4M TIMBER FENCE,
WITH MAINTENANCE ACCESS GATES
- 1.5M TIMBER HIT & MISS FENCE,

PL02	RJF	14-10-2025	Site Material Key and existing tree locations added.
PL01	RJF	06-10-2025	Planning Drawing Issue.
Rev:	By:	Date:	Description:



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RIBA

CLIENT: **GRAFTONGATE**

PROJECT: PROPOSED DEVELOPMENT
HAMMONDS WAY
LE10 3EJ
HINCKLEY

TITLE: Proposed Site Plan (B8 Parking)

Drawing Status: **PRELIM PLANNING DRG**

Job No : 24-078 **Drg No :** PL-3011

Scale @ A1: 1 : 500 **Date :** Nov 2024 **Rev No:** PL02

Drawn By: RJF **Checked By :** DB **Orig:** A1

Appendix B

Get a boundary report

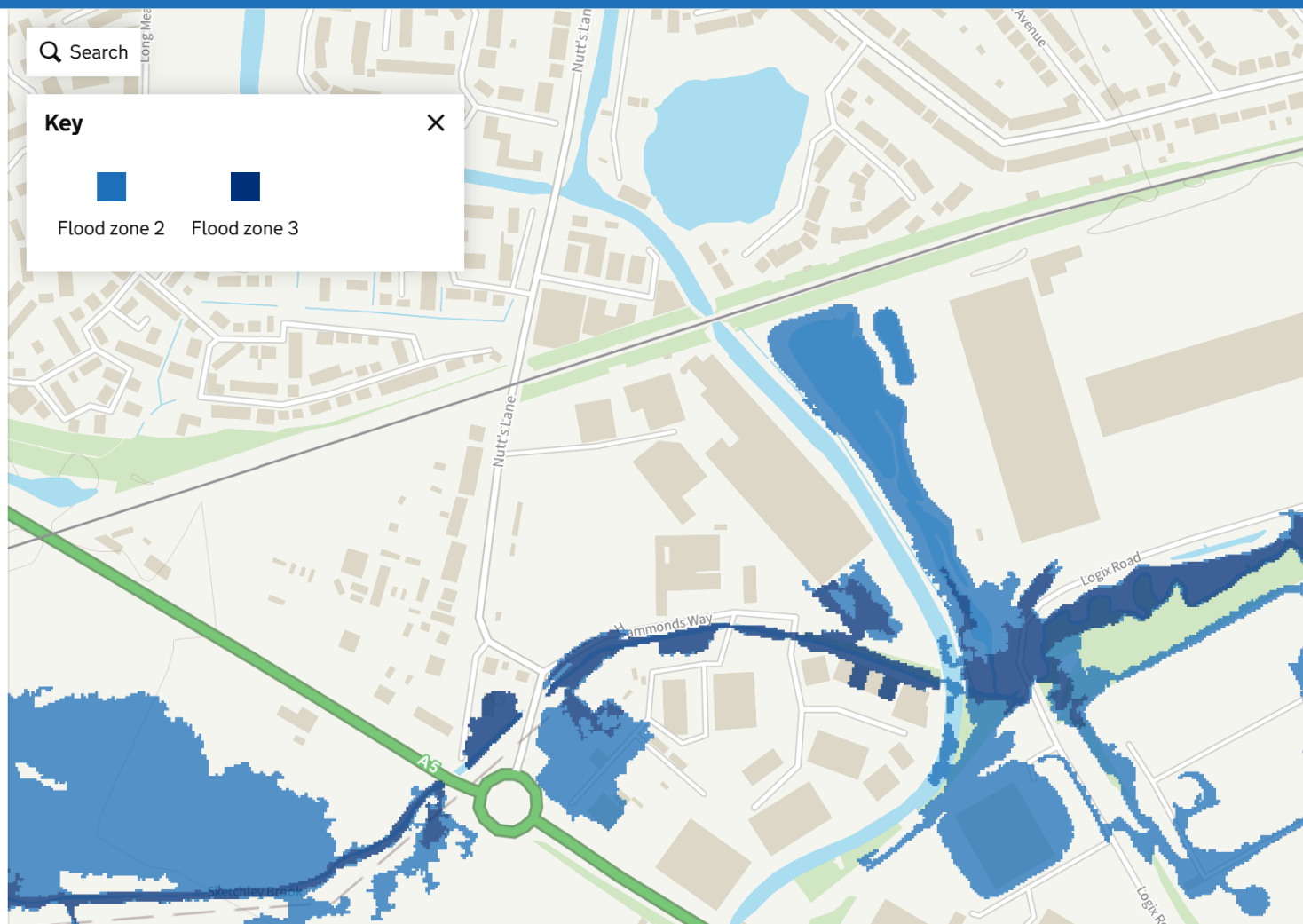
 [Add](#)

Datasets

- ☒ Flood zones 2 and 3
- ☐ River and sea with defences
- ☐ River and sea without defences
- ☐ Surface water
- ☐ None

Map features

- ☐ Water storage
- ☐ Flood defence
- ☐ Main Rivers



Appendix C



NOTES:

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The Contractor is to check and verify all building and site dimensions, levels and sewer invert levels at connection points before work starts. The Contractor is to comply in all respects with current Building Legislation, British Standard Specifications, Building Regulations, Construction (Design & Management) Regulations, Party Wall Act, etc. whether or not specifically stated on this drawing. This drawing must be read with and checked against any structural, geotechnical or other specialist documentation provided.

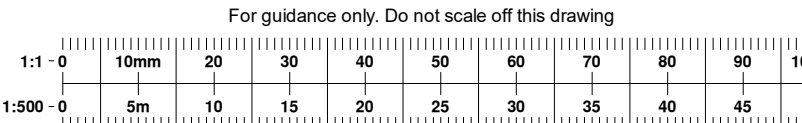
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- Key:-**
- Future U/G Electric
 - Existing LV Underground Cables
 - Existing HV (11KV) Underground Cables
 - Existing HV (33KV) Underground Cables

02	RJF	15-07-2025	Under ground services survey added.
Rev:	By:	Date:	Description:



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CLIENT: **GRAFTONGATE**

PROJECT: PROPOSED DEVELOPMENT
HAMMONDS WAY
LE10 3EJ
HINCKLEY

TITLE: Site Constraints Plan

Drawing Status: **PRELIMINARY DRG**

Job No : 24-078	Drng No : PL-3002
------------------------	--------------------------

Scale @ A1: 1 : 500	Date : Nov 2024	Rev No: 02
----------------------------	------------------------	-------------------

Drawn By: RJF	Checked By : DB	Orig: A1
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Appendix D

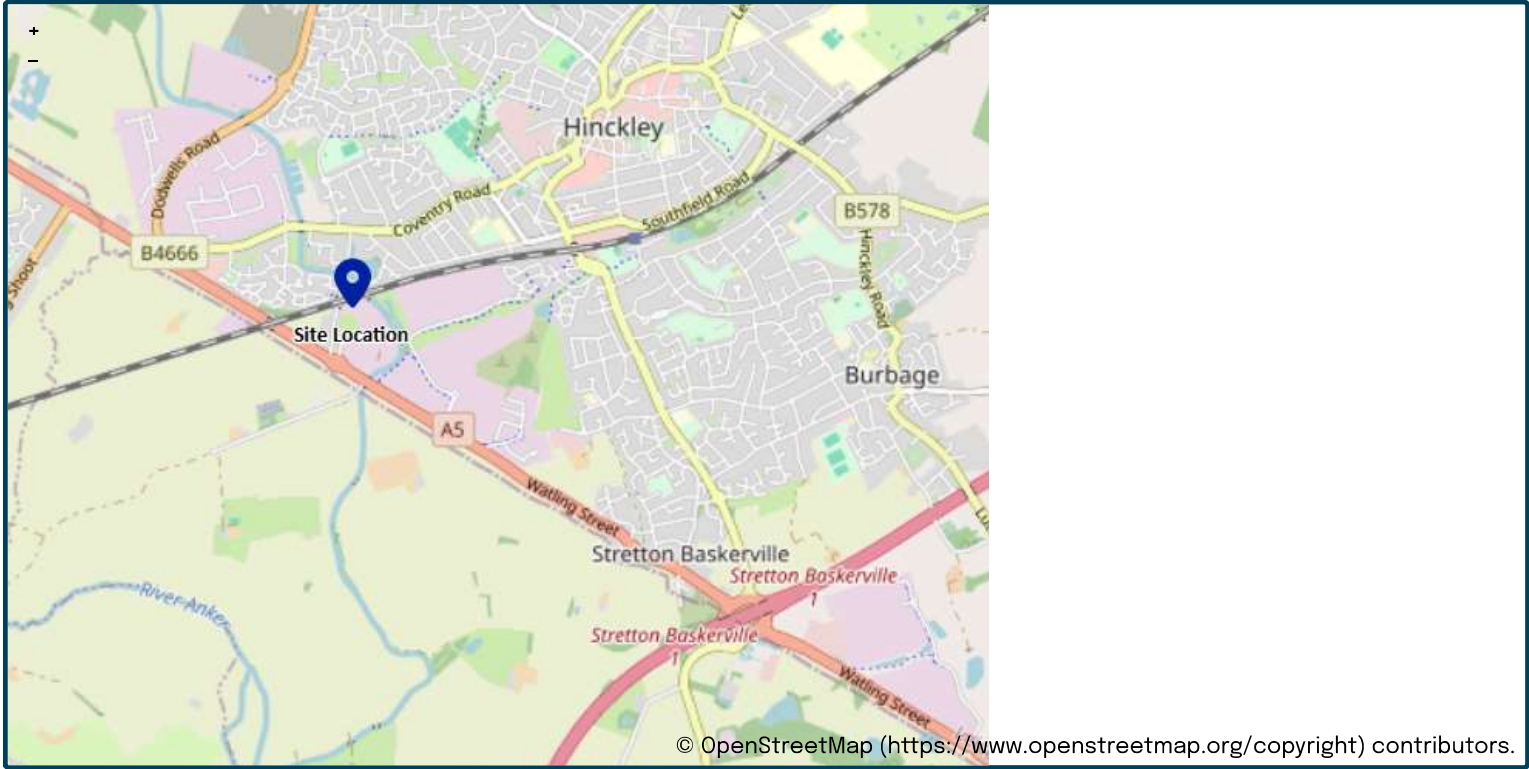
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015).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

Project details

Date	17/10/2025
Calculated by	Daniel Oliver
Reference	25109
Model version	2.2.1

Location

Site name	Graftongate
Site location	Hinckley



Site easting (British National Grid)	441096
Site northing (British National Grid)	292667

Site details

Total site area (ha)	1.8698	ha
----------------------	-------------------------------------	----

Greenfield runoff

Method

Method	IH124		
	<u>My value</u>		<u>Map value</u>
SAAR (mm)	643	mm	643
How should SPR be derived?	WRAP soil type		
WRAP soil type	4		4
SPR	0.47		
QBar (IH124) (l/s)	8.2	l/s	

Growth curve factors

	<u>My value</u>		<u>Map value</u>
Hydrological region	4		4
1 year growth factor	0.83		
2 year growth factor	0.89		
10 year growth factor	1.49		
30 year growth factor	2		
100 year growth factor	2.57		
200 year growth factor	3.04		

Results

Method	IH124	
Flow rate 1 year (l/s)	6.8	l/s
Flow rate 2 year (l/s)	7.3	l/s
Flow rate 10 years (l/s)	12.2	l/s
Flow rate 30 years (l/s)	16.3	l/s
Flow rate 100 years (l/s)	21.0	l/s
Flow rate 200 years (l/s)	24.8	l/s

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent ‘zero’ figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.2.1) developed by HR Wallingford and available at uksuds.com (<https://www.uksuds.com/>). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at uksuds.com/terms-conditions (<https://www.uksuds.com/terms-conditions>). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

Appendix E

M J M C				Page 1	
Southgate House Southgate Wakefield WF1 1TL					
Date 17/10/2025 12:36 File lin30 QSE.SRCX		Designed by danielo Checked by			
Micro Drainage		Source Control 2020.1.3			
<u>Summary of Results for 30 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	8.610	0.310	8.2	309.7	O K
30 min Summer	8.700	0.400	8.2	400.0	O K
60 min Summer	8.791	0.491	8.2	490.6	O K
120 min Summer	8.877	0.577	8.2	577.1	O K
180 min Summer	8.922	0.622	8.2	622.4	O K
240 min Summer	8.950	0.650	8.2	650.0	O K
360 min Summer	8.981	0.681	8.2	681.5	O K
480 min Summer	8.995	0.695	8.2	695.4	O K
600 min Summer	8.999	0.699	8.2	699.0	O K
720 min Summer	8.996	0.696	8.2	696.1	O K
960 min Summer	8.984	0.684	8.2	684.0	O K
1440 min Summer	8.953	0.653	8.2	652.6	O K
2160 min Summer	8.898	0.598	8.2	598.2	O K
2880 min Summer	8.845	0.545	8.2	544.8	O K
4320 min Summer	8.747	0.447	8.2	446.6	O K
5760 min Summer	8.663	0.363	8.2	363.2	O K
7200 min Summer	8.596	0.296	8.2	295.7	O K
8640 min Summer	8.544	0.244	8.1	243.9	O K
10080 min Summer	8.505	0.205	8.0	204.7	O K
15 min Winter	8.647	0.347	8.2	347.3	O K
30 min Winter	8.749	0.449	8.2	449.1	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
15 min Summer	106.449	0.0	292.6	19	
30 min Summer	69.298	0.0	383.1	34	
60 min Summer	43.136	0.0	499.0	64	
120 min Summer	26.061	0.0	603.8	122	
180 min Summer	19.202	0.0	667.5	182	
240 min Summer	15.393	0.0	713.4	242	
360 min Summer	11.248	0.0	781.3	362	
480 min Summer	8.999	0.0	832.5	482	
600 min Summer	7.565	0.0	873.5	600	
720 min Summer	6.562	0.0	907.8	718	
960 min Summer	5.240	0.0	962.6	826	
1440 min Summer	3.812	0.0	1036.6	1068	
2160 min Summer	2.770	0.0	1172.7	1448	
2880 min Summer	2.207	0.0	1245.1	1844	
4320 min Summer	1.601	0.0	1350.7	2632	
5760 min Summer	1.274	0.0	1444.2	3352	
7200 min Summer	1.067	0.0	1510.6	4040	
8640 min Summer	0.922	0.0	1565.6	4752	
10080 min Summer	0.816	0.0	1610.4	5440	
15 min Winter	106.449	0.0	328.8	19	
30 min Winter	69.298	0.0	429.1	33	
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M J M C				Page 2	
Southgate House Southgate Wakefield WF1 1TL					
Date 17/10/2025 12:36 File lin30 QSE.SRCX		Designed by danielo Checked by			
Micro Drainage		Source Control 2020.1.3			
<u>Summary of Results for 30 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
60 min Winter	8.851	0.551	8.2	551.5	O K
120 min Winter	8.951	0.651	8.2	651.1	O K
180 min Winter	9.004	0.704	8.2	704.4	O K
240 min Winter	9.037	0.737	8.2	736.7	O K
360 min Winter	9.074	0.774	8.2	773.8	O K
480 min Winter	9.092	0.792	8.2	791.9	O K
600 min Winter	9.099	0.799	8.2	799.1	O K
720 min Winter	9.099	0.799	8.2	799.3	O K
960 min Winter	9.087	0.787	8.2	787.2	O K
1440 min Winter	9.048	0.748	8.2	747.5	O K
2160 min Winter	8.978	0.678	8.2	678.4	O K
2880 min Winter	8.892	0.592	8.2	591.7	O K
4320 min Winter	8.738	0.438	8.2	437.7	O K
5760 min Winter	8.615	0.315	8.2	315.0	O K
7200 min Winter	8.528	0.228	8.1	227.9	O K
8640 min Winter	8.472	0.172	7.8	172.2	O K
10080 min Winter	8.444	0.144	7.3	144.2	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
60 min Winter	43.136	0.0	559.5	62	
120 min Winter	26.061	0.0	676.6	122	
180 min Winter	19.202	0.0	747.5	180	
240 min Winter	15.393	0.0	798.5	238	
360 min Winter	11.248	0.0	874.0	354	
480 min Winter	8.999	0.0	930.6	468	
600 min Winter	7.565	0.0	975.7	582	
720 min Winter	6.562	0.0	1013.0	692	
960 min Winter	5.240	0.0	1070.8	904	
1440 min Winter	3.812	0.0	1133.8	1136	
2160 min Winter	2.770	0.0	1313.5	1600	
2880 min Winter	2.207	0.0	1394.8	2020	
4320 min Winter	1.601	0.0	1514.2	2808	
5760 min Winter	1.274	0.0	1618.1	3520	
7200 min Winter	1.067	0.0	1692.5	4176	
8640 min Winter	0.922	0.0	1754.6	4752	
10080 min Winter	0.816	0.0	1805.8	5344	
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M J M C		Page 3																																	
Southgate House Southgate Wakefield WF1 1TL																																			
Date 17/10/2025 12:36 File lin30 QSE.SRCX	Designed by danielo Checked by																																		
Micro Drainage		Source Control 2020.1.3																																	
<u>Rainfall Details</u> <table> <tr> <td>Rainfall Model</td> <td>FSR</td> <td>Winter Storms</td> <td>Yes</td> </tr> <tr> <td>Return Period (years)</td> <td>30</td> <td>Cv (Summer)</td> <td>0.750</td> </tr> <tr> <td>Region</td> <td>England and Wales</td> <td>Cv (Winter)</td> <td>0.840</td> </tr> <tr> <td>M5-60 (mm)</td> <td>20.000</td> <td>Shortest Storm (mins)</td> <td>15</td> </tr> <tr> <td>Ratio R</td> <td>0.400</td> <td>Longest Storm (mins)</td> <td>10080</td> </tr> <tr> <td>Summer Storms</td> <td>Yes</td> <td>Climate Change %</td> <td>+40</td> </tr> </table> <u>Time Area Diagram</u> Total Area (ha) 1.579 <table> <thead> <tr> <th colspan="2">Time (mins)</th> <th>Area</th> </tr> <tr> <th>From:</th> <th>To:</th> <th>(ha)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>4</td> <td>1.579</td> </tr> </tbody> </table>			Rainfall Model	FSR	Winter Storms	Yes	Return Period (years)	30	Cv (Summer)	0.750	Region	England and Wales	Cv (Winter)	0.840	M5-60 (mm)	20.000	Shortest Storm (mins)	15	Ratio R	0.400	Longest Storm (mins)	10080	Summer Storms	Yes	Climate Change %	+40	Time (mins)		Area	From:	To:	(ha)	0	4	1.579
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Southgate House Southgate Wakefield WF1 1TL					
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Micro Drainage		Source Control 2020.1.3			
<u>Summary of Results for 100 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	8.588	0.288	8.2	403.7	O K
30 min Summer	8.676	0.376	8.2	526.9	O K
60 min Summer	8.765	0.465	8.2	651.6	O K
120 min Summer	8.851	0.551	8.2	771.1	O K
180 min Summer	8.895	0.595	8.2	833.6	O K
240 min Summer	8.923	0.623	8.2	871.6	O K
360 min Summer	8.956	0.656	8.2	918.1	O K
480 min Summer	8.974	0.674	8.2	944.2	O K
600 min Summer	8.984	0.684	8.2	957.2	O K
720 min Summer	8.987	0.687	8.2	961.7	O K
960 min Summer	8.982	0.682	8.2	955.0	O K
1440 min Summer	8.956	0.656	8.2	919.0	O K
2160 min Summer	8.914	0.614	8.2	858.9	O K
2880 min Summer	8.871	0.571	8.2	799.2	O K
4320 min Summer	8.790	0.490	8.2	685.8	O K
5760 min Summer	8.717	0.417	8.2	584.3	O K
7200 min Summer	8.654	0.354	8.2	495.8	O K
8640 min Summer	8.601	0.301	8.2	421.8	O K
10080 min Summer	8.558	0.258	8.1	360.9	O K
15 min Winter	8.623	0.323	8.2	452.5	O K
30 min Winter	8.722	0.422	8.2	591.1	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
15 min Summer	138.153	0.0	363.2	19	
30 min Summer	90.705	0.0	477.5	34	
60 min Summer	56.713	0.0	646.1	64	
120 min Summer	34.246	0.0	780.7	124	
180 min Summer	25.149	0.0	859.0	182	
240 min Summer	20.078	0.0	912.9	242	
360 min Summer	14.585	0.0	990.3	362	
480 min Summer	11.622	0.0	1046.3	482	
600 min Summer	9.738	0.0	1088.4	602	
720 min Summer	8.424	0.0	1120.6	720	
960 min Summer	6.697	0.0	1160.4	960	
1440 min Summer	4.839	0.0	1150.8	1194	
2160 min Summer	3.490	0.0	1468.1	1532	
2880 min Summer	2.766	0.0	1548.8	1928	
4320 min Summer	1.989	0.0	1661.6	2720	
5760 min Summer	1.573	0.0	1780.6	3464	
7200 min Summer	1.311	0.0	1852.5	4184	
8640 min Summer	1.129	0.0	1910.7	4928	
10080 min Summer	0.994	0.0	1955.7	5640	
15 min Winter	138.153	0.0	407.9	19	
30 min Winter	90.705	0.0	531.8	33	
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Micro Drainage		Source Control 2020.1.3			
<u>Summary of Results for 100 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
60 min Winter	8.822	0.522	8.2	731.5	O K
120 min Winter	8.920	0.620	8.2	868.0	O K
180 min Winter	8.972	0.672	8.2	941.0	O K
240 min Winter	9.004	0.704	8.2	985.8	O K
360 min Winter	9.043	0.743	8.2	1040.6	O K
480 min Winter	9.066	0.766	8.2	1071.9	O K
600 min Winter	9.078	0.778	8.2	1089.1	O K
720 min Winter	9.084	0.784	8.2	1097.2	O K
960 min Winter	9.083	0.783	8.2	1096.4	O K
1440 min Winter	9.057	0.757	8.2	1059.4	O K
2160 min Winter	9.005	0.705	8.2	986.8	O K
2880 min Winter	8.944	0.644	8.2	901.7	O K
4320 min Winter	8.817	0.517	8.2	723.8	O K
5760 min Winter	8.706	0.406	8.2	568.9	O K
7200 min Winter	8.615	0.315	8.2	440.8	O K
8640 min Winter	8.545	0.245	8.1	342.5	O K
10080 min Winter	8.494	0.194	7.9	271.2	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
60 min Winter	56.713	0.0	724.3	62	
120 min Winter	34.246	0.0	873.6	122	
180 min Winter	25.149	0.0	959.3	180	
240 min Winter	20.078	0.0	1017.4	240	
360 min Winter	14.585	0.0	1099.1	356	
480 min Winter	11.622	0.0	1155.0	472	
600 min Winter	9.738	0.0	1192.3	588	
720 min Winter	8.424	0.0	1213.9	700	
960 min Winter	6.697	0.0	1214.1	924	
1440 min Winter	4.839	0.0	1155.6	1342	
2160 min Winter	3.490	0.0	1643.0	1668	
2880 min Winter	2.766	0.0	1732.6	2132	
4320 min Winter	1.989	0.0	1857.7	2940	
5760 min Winter	1.573	0.0	1995.2	3696	
7200 min Winter	1.311	0.0	2076.1	4400	
8640 min Winter	1.129	0.0	2141.9	5096	
10080 min Winter	0.994	0.0	2194.0	5744	
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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.400	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 1.579

Time (mins)		Area
From:	To:	(ha)
0	4	1.579

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Appendix F