



Sacheverell Way, Groby - Outline Surface Water and Foul Water Drainage Strategy

Version 2

Prepared for
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This report describes work commissioned by Bloor Homes, by an instruction dated April 2026. Charlotte Lickman of JBA Consulting carried out this work.

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The methodology adopted and the sources of information used by JBA in providing its services are outlined in this Report. The work described in this Report was undertaken between November 2024 and March 2025, with subsequent updates made between April and July 2026, and is based on the conditions encountered and the information available during the said period. The scope of this Report and the services are accordingly factually limited by these circumstances.

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1 Introduction

1.1 Terms of Reference

JBA was commissioned by Bloor Homes, represented by Sally Smith, to prepare an Outline Surface and Foul Water Drainage Strategy (OSWFDS) to support an outline planning application for the development of an existing agricultural site to the south of Groby, into a housing development comprising ~180 dwellings with associated roads and pavement infrastructure.

1.2 Site Description

The site is approximately 10.56 ha in size, and the associated proposed Net Development Area (NDA) is approximately 5.20ha. The site is situated adjacent to Sacheverell Way and is currently agricultural land.

Aerial imagery shows that the site is bound by a residential development to the north. The south and west boundaries comprise agricultural land, and the eastern boundary is boundary by the A46. Figure 1-1 shows the site location and a summary of the site details has been included in Table 1-1.

Table 1-1 Site Description

Site Details	Kineton Road
Site Area (hectares)	10.56
Existing Land Use	Greenfield - Agricultural
Proposal	Residential - 180 Dwellings
OS NGR (site entrance)	SK 52641 06312
Country/County	England / Leicester
Local Planning Authority	Leicester City Council
Lead Local Flood Authority	Leicestershire County Council
Sewerage Undertaker	Severn Trent Water

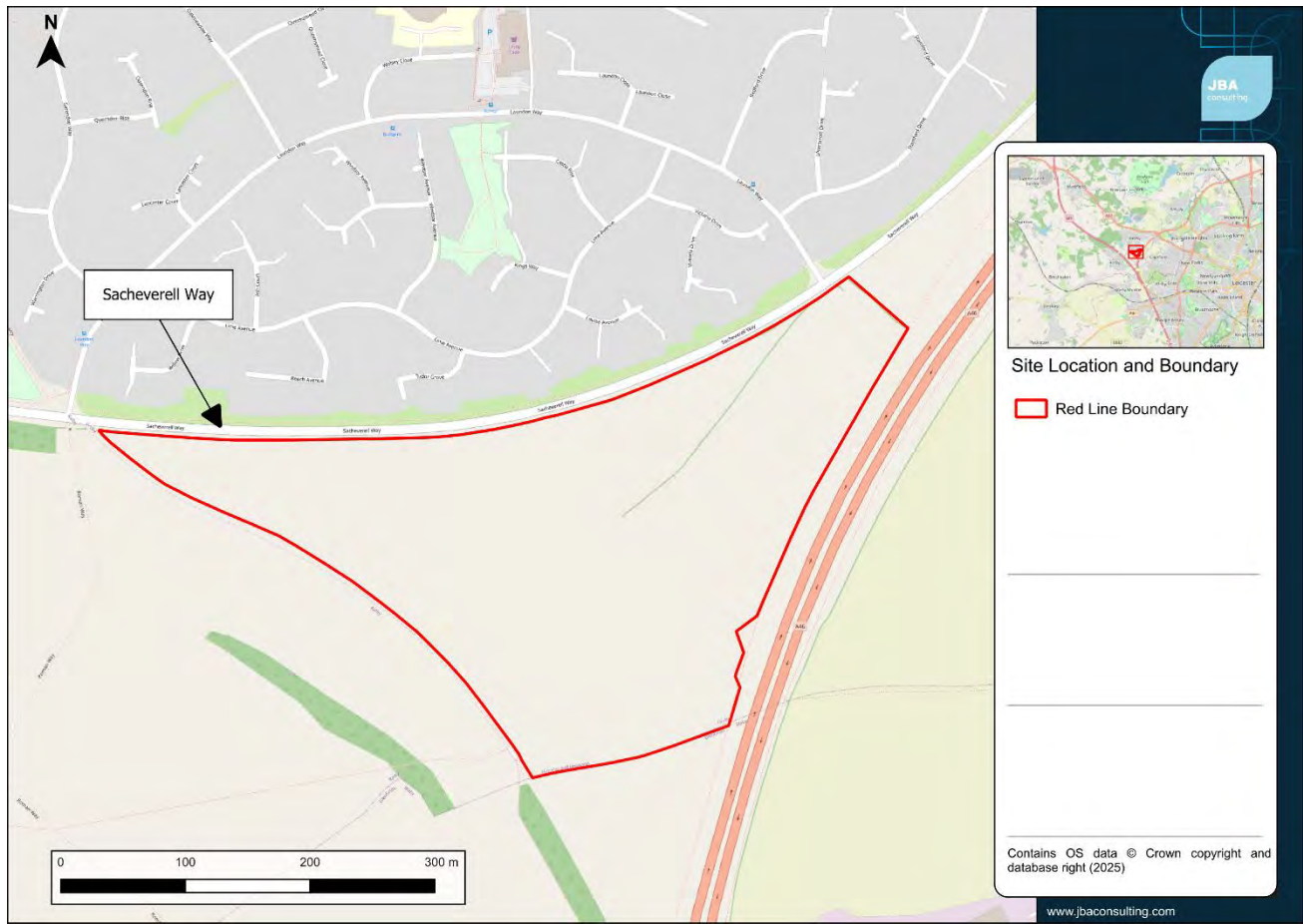


Figure 1-1 Site Location and Boundary

1.3 Development Proposals

The development proposals are for residential purposes comprising ~180 dwellings, and associated infrastructure such as access roads, parking, and pathways. Public Open Space has space has been allocated within the site boundary, including space in the south of the site which is intended for a surface water attenuation basin.

The illustrative masterplan is attached in Appendix A.

2 Existing Site Conditions

2.1 Site Topography

A topographic survey of the site was provided by the Client in October 2024 and is contained in Appendix B (U24-11663).

The topographic survey indicates the site generally slopes in a southerly direction. Along Sacheverell Way, existing ground levels within the site boundary reach a maximum value of approximately 91.2mAOD, with lowest levels reaching approximately 73.9mAOD. a representation of the site's topography is shown below in Figure 2-1.

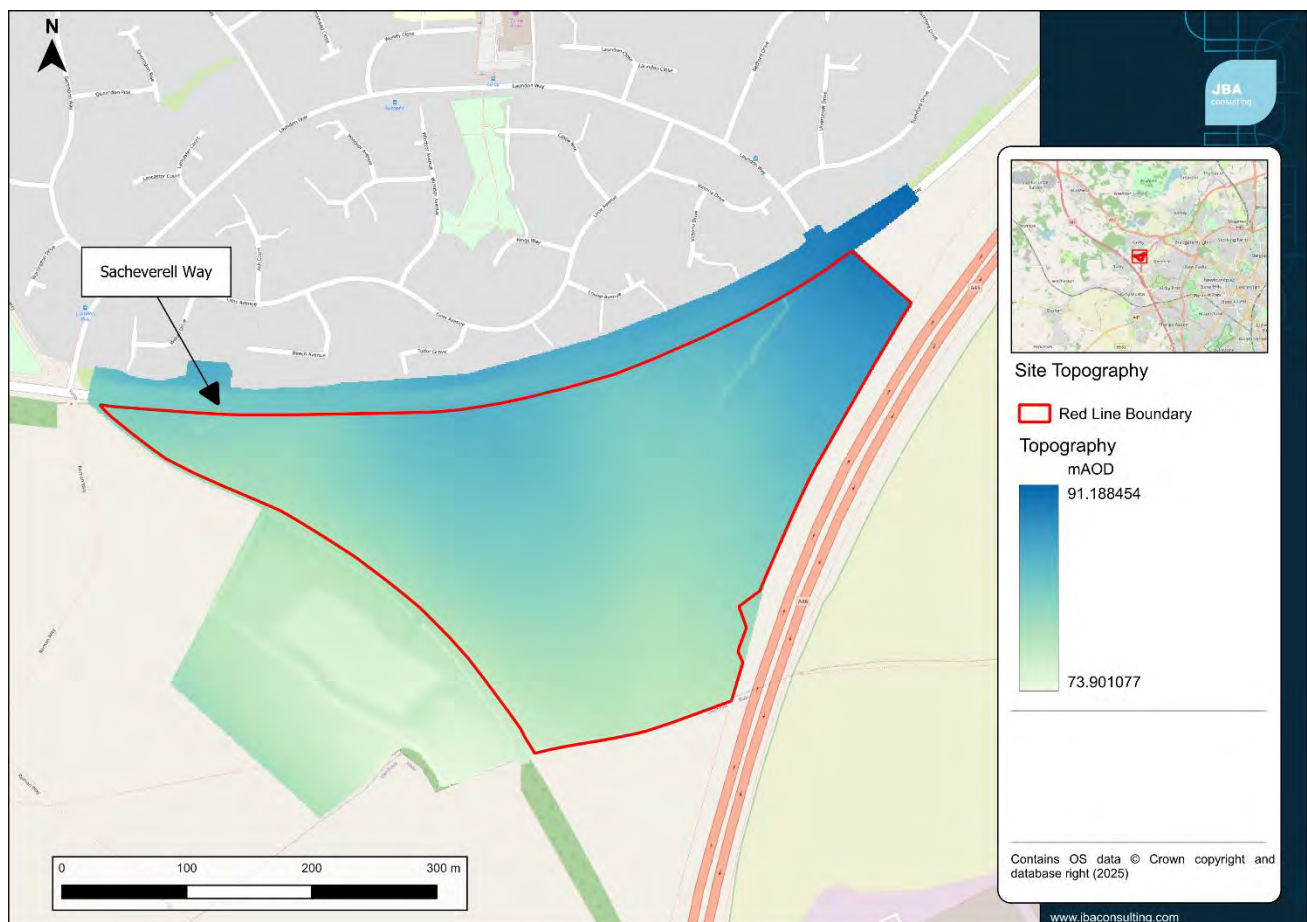


Figure 2-1 Site Topography

2.2 Existing Drainage Infrastructure and Watercourses

Due to the site's greenfield nature, it is assumed to drain through a combination of natural infiltration and overland flow pathways. Given the natural topography of the site, it is envisaged that surface water typically drains towards the south and west of the site. Within the site boundary there is an unnamed ordinary watercourse that flows south westerly from the north eastern corner. It currently exits as an open drainage ditch for approximately 200m, before being culverted towards the ordinary watercourses along the western boundary. There is a small network of ordinary watercourses adjacent within close proximity

to the site boundary, which flow in a general southerly direction before joining the Rothley Brook, an EA Main River, approximately 425m to the south of the site.

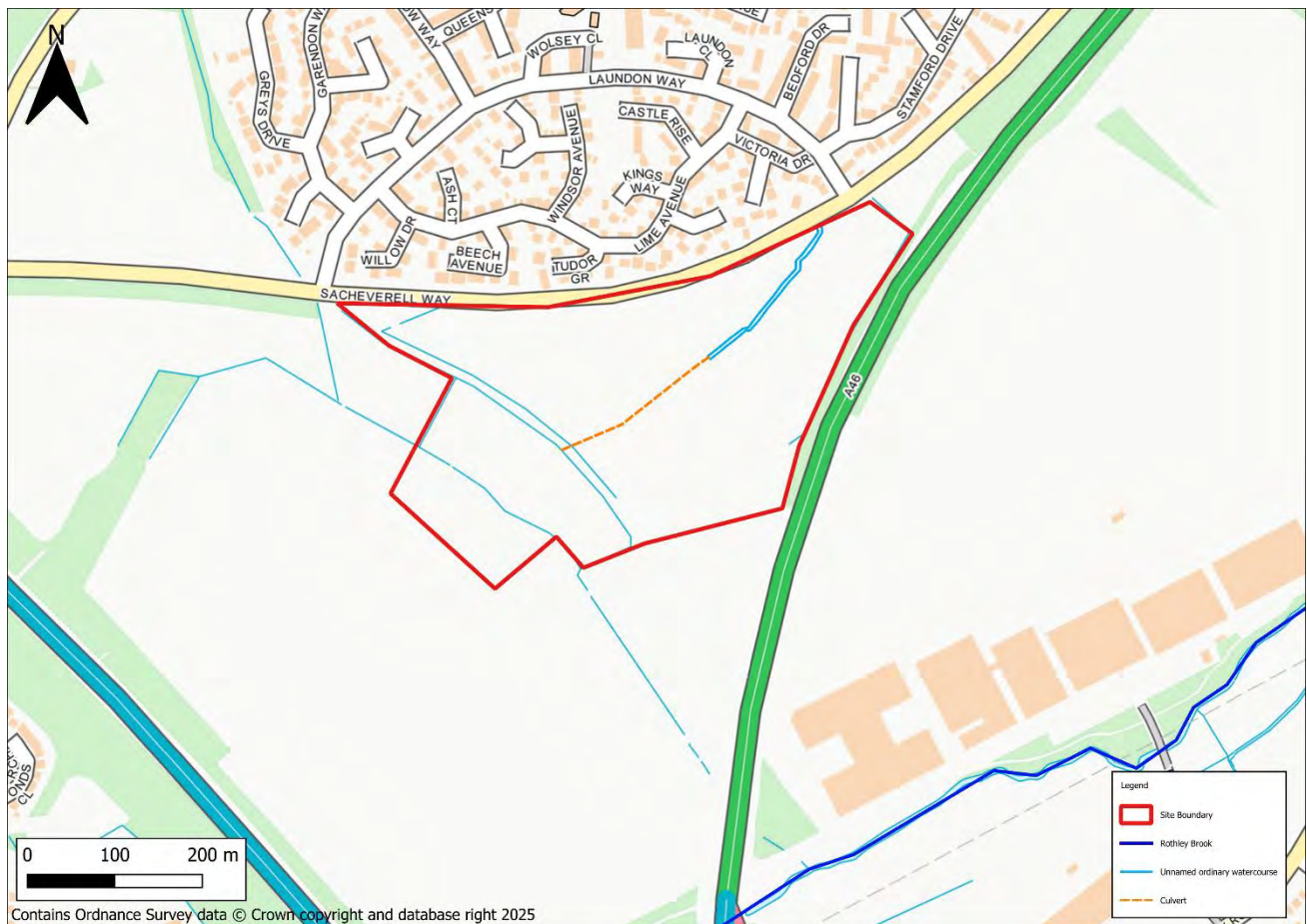


Figure 2-2 Watercourses

Details of the existing drainage network were provided by Severn Trent Water (STW) and the Sewer Records Map information is shown in Appendix C. The nearest foul sewers are located west of the site and run southwards.

2.3 Geology and Hydrogeology

The British Geological Surveys (BGS) Geology of Britain Map Viewer¹ indicates that the site is underlain by bedrock geology comprising mudstone, siltstone, and sandstone. Superficial deposits are present within the site boundary, and they comprise mostly Till. This is shown in Figure 2-3 and Figure 2-4.

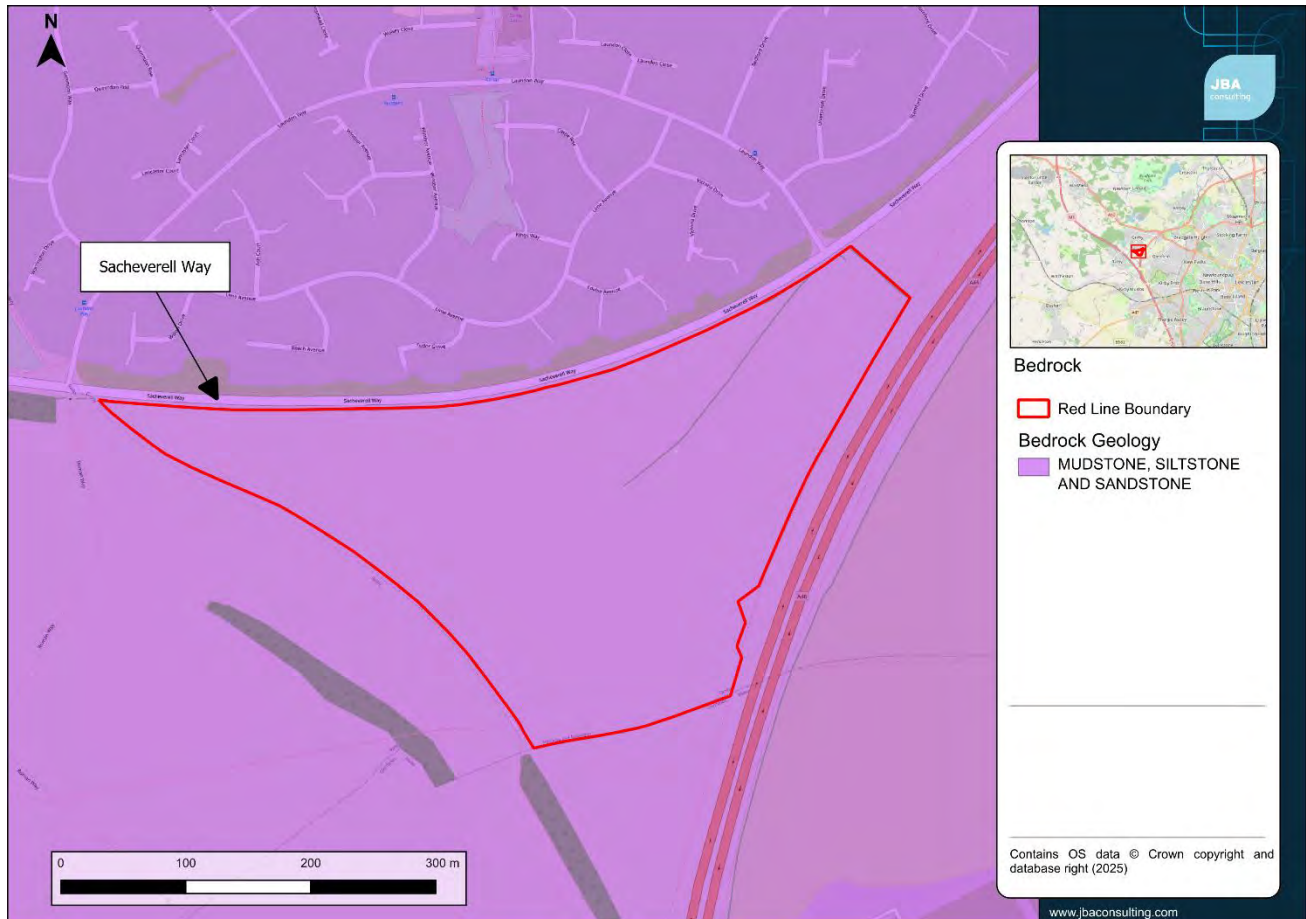


Figure 2-3 Bedrock Strata

¹ <https://mapapps2.bgs.ac.uk/geoindex/home.html> BGS GeoIndex Onshore

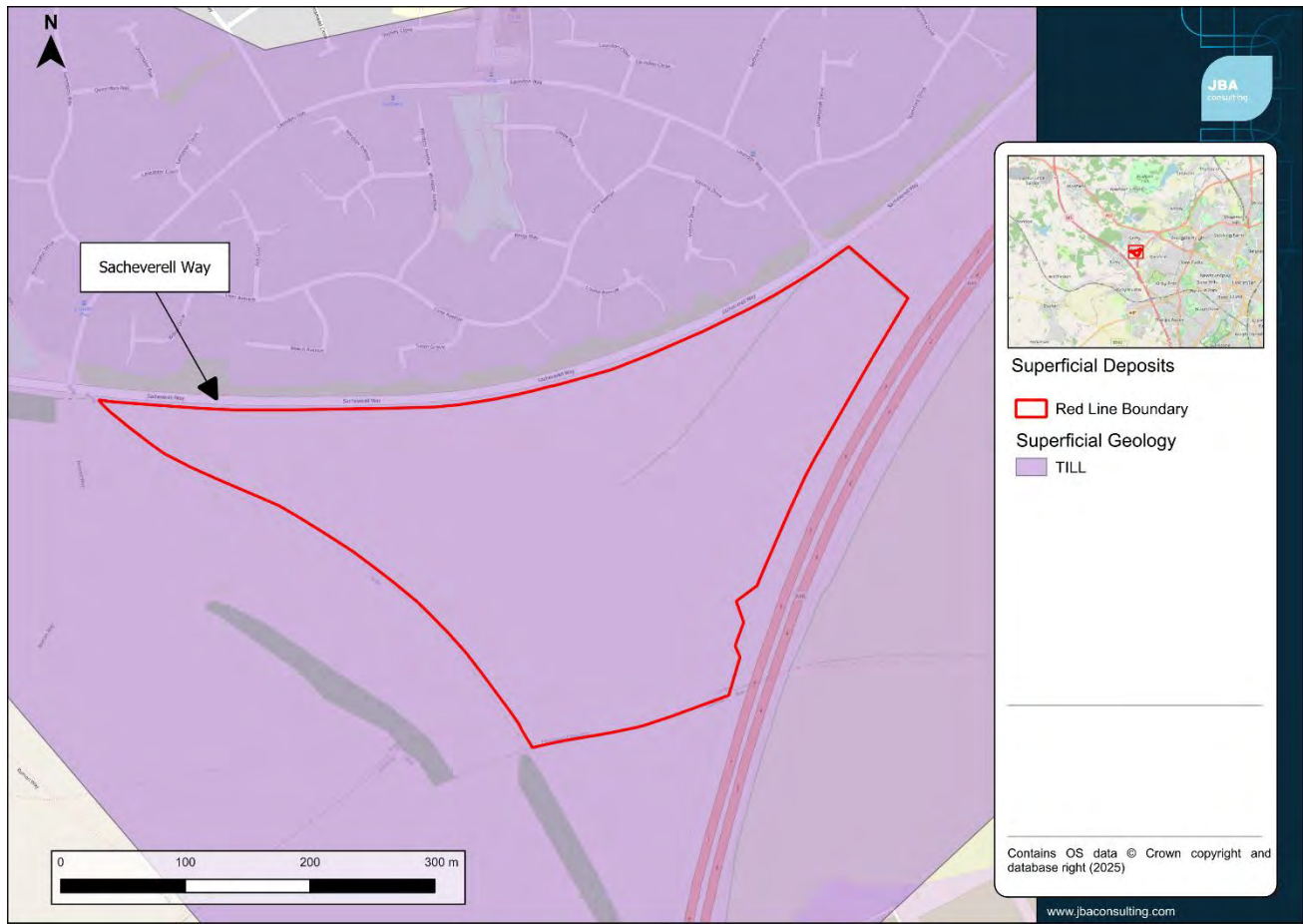


Figure 2-4. Superficial Deposits

Soakaway testing was completed by GeoDyne Geotechnical & Environmental Consultants in June 2026 which confirms that the site is underlain by Edwalton Member.

Five soakaway test pits were excavated on site, at the location of the proposed attenuation pond, in the south of the site. the calculated soil infiltration rates are summarised in Table 2-1 below. The full soakaway testing report is contained in Appendix D.

Table 2-1 Summary of soil infiltration rates

Soakaway Reference	Soil Infiltration Rate (m/s)
SA01	8.87×10^{-6}
SA02	2.49×10^{-5}
SA03	1.42×10^{-5}
SA04	1.85×10^{-5}
SA05	2.39×10^{-5}

For the purpose of this drainage strategy, the slowest infiltration rate obtained during the testing has been used (8.87×10^{-6} m/s)

2.4 Flood Risk

JBA produced a Flood Risk Assessment (FRA) for the Site which concluded:

- The Environment Agency Flood Map for Planning indicates that the site boundary lies within Flood Zone 1.
- The site is at low or very low risk of flooding from fluvial sources, groundwater, from sewers, or as a result of a reservoir failure.

The JBA FRA should be referred to for further details on flood risk (BIM Reference: NXG-JBA-XX-XX-RP-HM-0001).

2.4.1 Surface Water Flood Risk

Surface water flooding arises following periods of intense rainfall, or rain falling on saturated ground that is unable to soak into the ground or where drainage systems are insufficient or unable to manage surface water runoff. This surface water runoff forms overland flow which follows the topography of the land, often pooling in topographic low spots. Surface water flooding and subsequent overland flow can also originate from surcharging or blocked sewers and drains.

Overland flow can pose a risk to both the development site and land surrounding the development site. Overland flow can originate within the development site itself or from adjoining land at a higher elevation, from which flow migrates onto the development area. The layout of the proposed development needs to reflect, and where necessary, mitigate against these risks.

The Environment Agency's Risk of Flooding from Surface Water mapping (Figure 2-5) indicates that the site has areas within the High (3.3% AEP), Medium (1% AEP) and low (0.1% AEP) surface water flood events, associated with the ordinary watercourses that cross the site. However, this mapping dataset is informed by a generalised mapping approach and does not accurately account for the geometry of the ditches, culverts and structures locally to the site. Therefore, a detailed hydraulic model has been development to define the baseline flood risk to the site and provide results suitable for a site-specific assessment of flood risk.

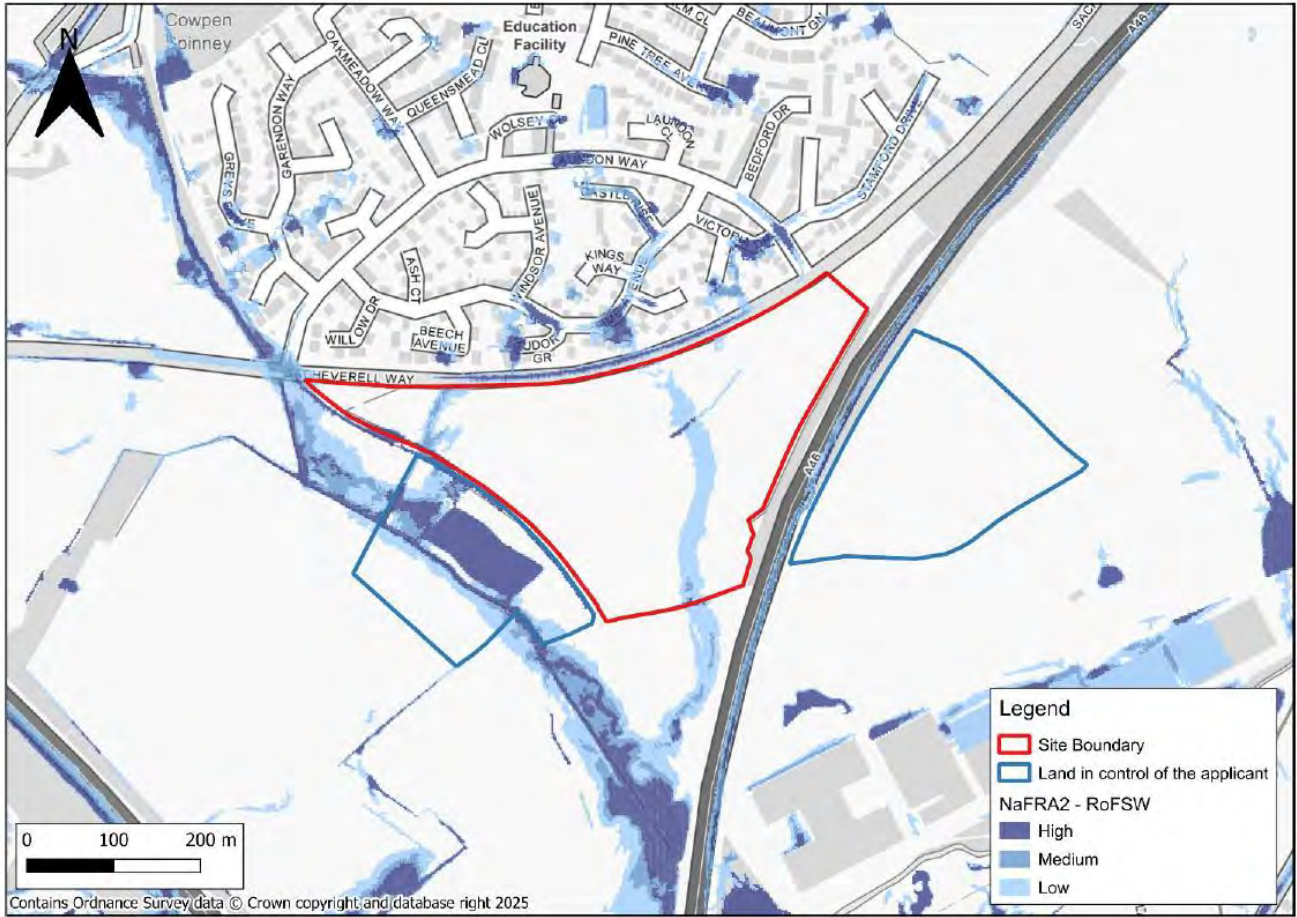


Figure 2-5 Environment Agency NaFRA2 RoFSW Mapping

3 Surface Water Management Approach

3.1 Sustainable Drainage Systems

Sustainable Drainage Systems (SuDS) aim to mimic the natural processes of Greenfield drainage by allowing water to infiltrate and follow natural flow routes ensuring that runoff rates and volumes during storm events are not increased above the Greenfield values whilst providing water treatment benefits. SuDS also aim to provide biodiversity and amenity benefits within Blue Green corridors.

Non statutory guidance for the National standards for SuDS was published in England on the 19th June 2025 and subsequently updated 30th July 2025. Within the guidance there are 2 types of standards:

- Standard 1, which is the hierarchy standard for the surface water runoff destination.
- Standards 2-7, which are fixed standards which state the minimum design criteria that all surface water drainage systems should satisfy including how they should be built, maintained, and operated.

The guidance states that a surface water drainage system that delivers multiple benefits will include a range of features and each of these should contribute to the delivery of several if not all, of the standards.

All SuDS strategies should be submitted to the Lead Local Flood Authority for comment. In this case Leicestershire County Council, to ensure that surface water on the development site can be managed effectively.

This OSFWDS summarises the preferred approach for managing surface water runoff from the site, thereby reducing the likelihood that post-development conditions will increase flood risk in the surrounding areas. The strategy is supported by preliminary calculations of pre-development and post-development runoff rates and storage volumes, which have informed the selection and sizing of the proposed SuDS.

3.2 Design Guidance

The following guidance documents have been used to outline the requirements for the drainage strategy:

- CIRIA 753, "The SuDS Manual", November 2015.
- Guidance for National standards for sustainable drainage systems (Defra June 2025, updated 20 July 2025)
- Leicestershire County Council Checklist²
- Sewerage Sector Guidance³

² Leicestershire County Council Interim LLFA Checklist Guidance

³ <https://www.water.org.uk/wp-content/uploads/2021/07/SSG-App-C-Des-Con-Guide.pdf>
Design and Construction Guidance for foul and surface water sewers offered for adoption

4 Standard 1 - Runoff destination

4.1 Discharge hierarchy

Standard 1 of the National standards for SuDS state that runoff from a development shall be discharged to the following destinations to the maximum extent practicable, in accordance with the below hierarchy.

- Priority 1: collected for non-potable use
- Priority 2: infiltrated to ground
- Priority 3: discharged to an above ground surface water body
- Priority 4: discharged to a surface water sewer, or another piped surface water drainage system
- Priority 5: discharged to a combined sewer

Priority 1 is the highest and Priority 5 is the lowest.

4.1.1 Collected for non-potable use

The potential for surface water reuse within the proposed residential development is likely to be limited due to low demand and would not provide a viable means for the disposal of all surface water from the site.

4.1.2 Infiltration to ground.

The National standards for SuDS guidance, states that an adequate infiltration rate should be a minimum of $\times 10^{-6}$ m/s. Site specific infiltration testing has been undertaken, as outlined above in Section 2.4. This indicates that from the number of testing pits, the slowest infiltration rate at the site is 8.87×10^{-6} m/s.

Given the lower rate of infiltration at the site, it is proposed for the first 5mm of surface water landing on the site to be intercepted and slowly infiltrated to ground. However, the predominant discharge method is proposed to be into a surface water body and described in the following section.

4.1.3 Discharge to an above ground surface water body

Surface water could be discharged to a drainage ditch along the southern boundary, which eventually drains to the Rothley Brook as discussed in Section 2.2. This involves discharging post-development surface water to the brook at rates restricted to the calculated greenfield runoff rates.

4.1.4 Discharge to Surface Water Sewer or another piped surface water drainage system

A development enquiry was submitted to Severn Trent Water (STW) to obtain records of existing sewers in the vicinity of the site. The response from STW is included in Appendix C and shows that there is no existing Surface Water (SW) infrastructure in proximity to the

site. Therefore, the option of discharging post-development surface water into the existing surface water public sewerage system has been ruled out.

5 Standard 2 - Management of everyday rainfall (interception)

5.1 Interception of rainfall

When rainfall takes place on greenfield sites there is, for the majority of rainfall events, no runoff due to evapotranspiration or groundwater recharge. Therefore, interception mechanisms are based on runoff volume reduction using evapotranspiration and infiltration processes. Standard 2 of the National standards for SuDS in England guidance lists the interception drainage components and their assumed compliance. A detention basin, capable of intercepting the first 5mm of rainfall is proposed on this site which is deemed compliant as an interception mechanism, as outlined below in Table 5-1.

Table 5-1 Interception mechanisms with assumed compliance

SuDS Component	Requirement
Detention Basins	Areas of the development drained to detention basins with a flat unlined base where infiltration rates are greater than 1×10^{-6} m/s shall be assumed to comply where the drained impermeable surface area is up to 25 times the base area of the basin.

Table 5-2 demonstrates how the proposed drainage strategy meets the requirements of interception across the site. 100% of the impermeable area shall be intercepted by SuDS assets.

Table 5-2 Interception Compliance

Asset	Area draining to asset	Base area of asset	Interception ratio	Permitted area of compliance
Detention Basin	34320 m ²	2720 m ²	25:1	68000 m ²

6 Standard 3 - Management of extreme rainfall and flooding

6.1 Runoff Rates

Table 24.1 of the Ciria SuDS Manual indicates that the FEH methods (FEH Statistical and ReFH) should be the preferred methods for calculating peak runoff rates. This is supported by Environment Agency research by Faulkner et al which concluded that FEH methods are applicable across a range of catchment sizes and that they should be used in place of outdated methods such as IH124 and ADAS345 where possible.

The UK SuDS Tool has been used to calculate Greenfield Runoff Rates for the total site area (10.56 ha) using the FEH Statistical Method, as seen in Appendix C.

FEH characteristics have been downloaded for the site from the FEH Web service. The calculated Greenfield Runoff Rates are shown in Table 6-1.

Table 6-1 Greenfield Runoff Parameters

Parameter	Value
Site Area	10.56 ha
SAAR	721
BFIHOST	0.344
Hydrological Region	4

The estimated runoff rates are shown in Table 6-2. The greenfield calculation sheet is included in Appendix E.

Table 6-2 Estimated Existing Runoff Rates

Parameter	Existing Discharge Rate [l/s]
Q _{BAR}	54.6
1-year	45.3
2-year	48.6
30-year	109.2
100-year	140.4

The LLFA have requested that the limited discharge rate from the site is calculated as Q_{BAR}, minus 20%. As such, it is proposed to discharge the post-development runoff to the watercourse during all events up to and including the 100-year+CC event at a rate of **43.68l/s**.

6.2 Discharge limits and attenuation requirements

InfoDrainage software has been used to generate a storage volume estimate for the proposed development for the 1 in 100 year plus climate change event. The Soar Management Catchment peak rainfall allowances have a 40% uplift in rainfall due to climate change for a 1% annual exceedance rainfall event, which have been applied to the calculations. An uplift of 10% was applied to the impermeable area to account for urban creep associated with future individual car park space, driveways etc. Catchment descriptors were obtained from the Flood Estimation Handbook service.

The characteristics of the local underlying geology have infiltration potential. However, observed infiltration rates are low, and therefore infiltration-based features alone are unlikely to be feasible and have not been considered further for this site. The National standards for SuDS guidance states that runoff for the 1% AEP 6-hour rainfall event should be discharged at the greenfield runoff rate, or 3 l/s/ha, whichever is greater. This method has been applied for sizing of the storage volume required.

The developable area has been considered as the NDA, and all impermeable areas within this. Given the early stages of the masterplan, it has been assumed that 60% of the NDA will be impermeable. The NDA was stated by the client as 5.20ha.

Table 6-3 Attenuation sizing parameters

Variable	Value
Site area	5.20 ha
Impermeable area	3.072 ha
Climate change allowance	40%
Urban creep	10%
BFI Host	0.344
SAAR	721
Volume control approach	QBAR - 43.68 l/s.

The estimated attenuation requirement for the site is 2660m³. Appendix F contains the results summary from InfoDrainage.

6.3 Proposed Drainage Strategy

The proposed drainage system will comprise conveyance pipework within the built area, a swale along the western boundary to provide surface water conveyance, and a detention basin in the south of the site. It should be noted that the extent of the detention basin is dictated by the existing surface water flood risk, topography, river bottom levels, flood risk zones and client masterplan.

The SuDS basin will have dedicated maintenance access routes and has been sized to have sufficient storage for the 6-hour 1 in 100-year plus climate change rainfall event. During the design storm event, the maximum water depth within the SuDS basin will not exceed 1.32m, with an additional 300mm freeboard included within the basin design. The

basin will be configured to allow the first 5mm of runoff to infiltrate slowly to ground, supporting water quality and interception objectives. The outlet for the basin shall be set to an appropriate level to allow for this interception mechanisms to be achieved. The remaining runoff will be attenuated and released to the ordinary watercourse adjacent to the southern boundary at a controlled discharge rate of 43.68 l/s.

The proposed drainage layout is shown in Appendix G.

6.4 Design for Exceedance

Extreme events exceeding the design event or internal drainage blockages / failures could occur and result in overland flows across the site. The duration of flooding, maximum depths, velocity, and route of flood flows should be established and managed. The impact of exceedance flows onto adjacent land should also be considered.

The SuDS features have been sized to sufficiently accommodate all surface water runoff during the modelled 1 in 100-year plus 40% climate change event.

Despite this, final site levels and landscaping should be considered such that any exceedance surface water flows, caused as a result of blockage or extreme rainfall events, are directed away from buildings and towards the formal drainage systems or less vulnerable areas, such as roads and open spaces, as not increase flood risk elsewhere.

7 Standard 4 - Water Quality

To mitigate adverse impacts on the water quality in the receiving water environment, the CIRIA C753 SuDS manual recommends the following steps to determine the required water quality management for discharges to surface water and groundwater:

- Plan land use to prevent runoff and associated pollutants for most rainfall events up to 5mm in depth.
- Identify the pollution hazard level associated with the given type of development.
- Select risk assessment approach based on receiving water environment and the pollution hazard level.
- Carry out the risk assessment for each outfall taking into account the pollution hazard level, the status of the receiving water environment and effectiveness of the proposed SuDS techniques.

Table 4.3 of the SuDS manual advocates the use of the 'simple index approach' to determine an appropriate level of pollution mitigation for sites. This splits pollution into three contaminant types (Total Suspended Solids, Metals, Hydrocarbons) and assigns a 'pollution hazard index' to each type. SuDS features are then assigned a 'SuDS mitigation index' and sufficient treatment is determined to have been provided if the 'SuDS mitigation index' is equal to or greater than the 'pollution hazard index' for each pollutant type. When more than one SuDS component is required, a multiplication factor of 0.5 is applied to mitigation indices for secondary and tertiary components to account for reduced performance.

Residential roofs are deemed to have a 'very low' pollution hazard level, whilst individual property driveways and low traffic roads are classed as 'low' pollution hazard level. The 'pollution hazard indices' for these categories are given below in Table 7-1.

Table 7-1 Pollution hazard indices

Pollution hazard level	Total Suspended Solids	Metals	Hydrocarbons
Very Low	0.2	0.2	0.05
Low	0.3	0.2	0.05

Table 26.3 of the SuDS Manual provides the indicative SuDS mitigation indices for discharge to surface water. It is proposed for the site to include a detention basin, which will provide sufficient treatment for the site.

SuDS Component	Total Suspended Solids	Metals	Hydrocarbons
Basin	0.5	0.5	0.6

8 Standard 5 and 6 - Amenity and Biodiversity

The design of the surface water management system should maximise amenity benefits across the site. SuDS components can enhance the provision of high quality, attractive public space which can help to provide health and wellbeing benefits, improve the liveability of local communities, and improve the climate resilience of new developments. The surface water drainage system should seek to enhance existing habitats by utilising local planting and should be sustained by ensuring that an effective management regime is implemented.

A vegetated SuDS basin is proposed within the site, which will be planted with native plants and grasses that are appropriate to the location, providing amenity and biodiversity benefits. The basin is designed to be dry under 'normal' conditions and created to fill during and after storm events to store the runoff and slow discharge into a watercourse. They typically slow discharge by utilising a HydroBrake. Figure 8-1 shows a typical detention basin.

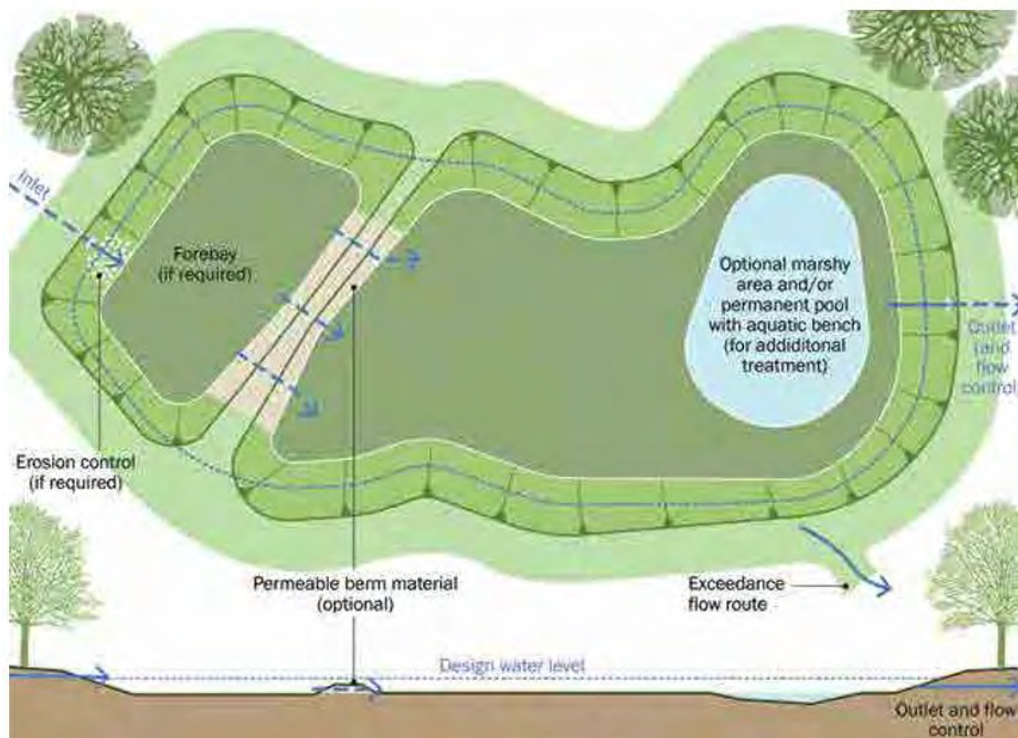


Figure 8-1 Basin Diagram (C753 SuDS Manual)

The detention basin in the south of the development is dictated by the existing surface water flood risk, topography, and client masterplan and aims to provide runoff storage and flow control to the drainage ditch. Table 8-1 summarises the geometry of the designed attenuation basin within the development, and further information can be found in Appendix G.

Table 8-1 Basin Geometry

Detention Basin	Minimum Crest Level (mAOD)	Bed Level (mAOD)	Side Slope	Storage Volume (m ³)
	77.38	76.08	1 in 3	3006

9 Foul Drainage

9.1 Foul Water Discharge and Peak Flow Rate

To estimate the post-development peak foul water (FW) flow rate for the site, ~180 dwellings have been assumed in line with the Client's guidance. According to the Sewerage Sector Guidance Version 2.2, June 2022, Chapter B3.1.1 (SSG), where the exact number of appliances in the proposed dwellings is unavailable, the peak flow rate can be calculated using the following equation:

$$\begin{aligned}
 \text{Peak Flow Rate} &= N \times 4000\text{l} / \text{dwelling} / \text{day} \\
 &= 180 \text{ dwellings} \times 4000\text{l} / \text{dwelling} / \text{day} \\
 &= 180 \text{ dwellings} \times 0.05 \text{ l} / \text{dwelling} / \text{s} \\
 &= 9.0 \text{ l/s}
 \end{aligned}$$

N - number of dwellings

According to STW's response, a gravity foul water discharge to the existing sewers would be preferable. STW have identified a foul sewer located towards the south of the development site with the nearest manhole as SK52065201. Initial calculations show that a gravity system will be required to connect to this manhole given the sites existing topography. The foul water connection crosses below the existing drainage ditches and has a minimum 0.42m clearance as shown in Figure 9-1. The proposed discharge point is detailed on the OSFWDS Layout drawing included in Appendix G.

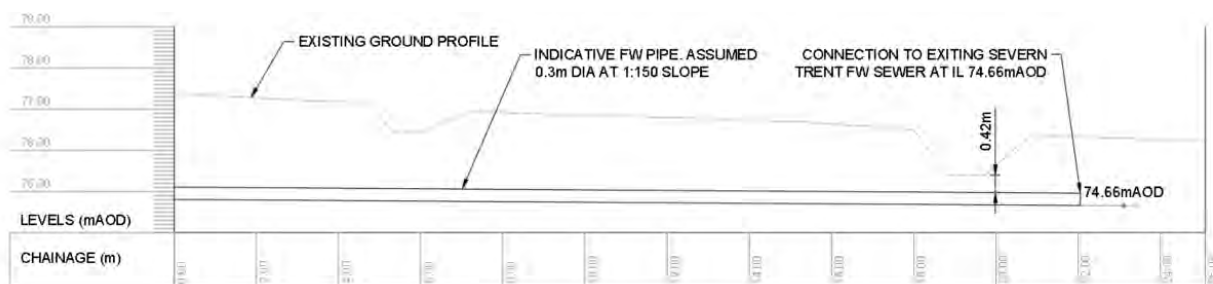


Figure 9-1 Assumed future FW drainage crossing with existing ditches section.

10 Standard 7 - Design of drainage for construction, operation, maintenance, decommissioning and structural integrity

10.1 Construction (Design and Management) Regulations Compliance

The surface water and foul drainage systems should be designed so that it minimises health and safety risks to the site occupants. Under the construction (Design and Management) Regulations (CDM 2015) it is the Designer's duty to:

- Eliminate foreseeable health and safety risks to anyone affected by the project
- Take steps to reduce or control any risks that cannot be eliminated
- Communicate, cooperate and coordinate with the client, other designers and contractors involved in the project so that designs are compatible, and health and safety risks accounted for during the project and beyond.

The following hazards associated with construction, operation and maintenance of the proposed drainage system have been identified during the preliminary site assessment in Table 10-1. It should be noted that the potential hazards have been identified through a desk study of currently available information and this list should not be considered as exhaustive. A detailed site survey should be undertaken prior to any construction / installation activities commencing to confirm the presence of potential unidentified hazards on and in the immediate vicinity of the site. These should be continually reviewed throughout the design process with further consideration given to the potential risks at the detailed design stage through a Designer's Risk Assessment.

Table 10-1 Preliminary Site Assessment

Activity	Hazard / Risk	Eliminate Hazard / Risk	Control Measures
Construction/Design Stage			
Construction of drainage system	Flooding whilst under construction	Hazard cannot be fully eliminated.	Set up early weather and flood warnings.
Construction of drainage system / Excavations	Underground services - water main pipes system and any potential services within the site boundary	Further information, including utility detection survey, will be needed in order to fully check for clashes at the detailed design stage.	Detailed utility survey to be carried out prior to construction commencing to confirm the location and details of the existing services and check for any unidentified services.

Activity	Hazard / Risk	Eliminate Hazard / Risk	Control Measures
Construction of drainage system / Excavations	Hazard - Ground and groundwater conditions Risks: Collapse of drainage systems due to soil stability issues; Potential residual contaminants; Pollution to surface water.	Proposed SuDS to be lined. Despite this, ground investigations should be undertaken to check soil stability and groundwater conditions.	Long term groundwater monitoring and testing of geotechnical properties of soils to confirm design parameters.
Plant / Material Delivery	Hazard -Vehicular access to the site; Risk - Collisions and injury/ damage to people/vehicles.	Hazard cannot be eliminated by design. Hazard not specific to drainage construction but applicable to the wider site construction.	Site managed to minimise risks. Traffic management to be prepared prior to construction activities commencing. Public to be notified of construction activities to take place.
Excavations/ Connection to existing public foul water sewer	Hazards - working at height, live sewer discharges; Risk - fall into excavation, injury, ill health, asphyxiation	Hazard cannot be eliminated by design. The proposed drainage system is to be designed to achieve the required hydraulic conditions whilst minimising depth of excavation.	Trench supports as required. Minimise man entry to confined spaces.
Construction activities	Environmental: Pollution to soil and the local water environment	Early identification of any TPOs and other environmental / ecological factors which may impact	Surveys undertaken. Site managed to minimise risks.

Activity	Hazard / Risk	Eliminate Hazard / Risk	Control Measures
		upon design and construction.	
UXO	Hazard; Unexploded Ordinance within the site boundary, Risk; Unexploded Ordinance Striking	Hazard cannot be eliminated by design. Mitigate risk through relevant investigations	Undertake a Zetica Pre-Desk-Study-Assessment. Contractor to manage site to minimise risks.
Maintenance Stage			
Working in live sewers	Hazards: Biohazard Working near water Risks: Drowning Asphyxiation Ill/health/ death	Hazard cannot be eliminated by design.	Over-pumping/bung at upstream manhole may be required to manage the existing flow in the system. Work to be undertaken in dry weather conditions.
Clearance of drainage system	Hazards - oil/fuel, sediment, working at height Risks - pollution, falls into sewers/ ill health	Hazard cannot be eliminated by design. Non-man entry inspection chambers should be used, where possible, to eliminate confined space entry.	Any sediment / debris removed from the drainage system should be considered as contaminated and disposed of to a licenced waste management facility.
Decommissioning Stage			
Removal of the drainage system.	Hazards and risks: largely as per the construction stage, except that the removal of the drainage system will increase a risk of flooding / pollution to the site and the local area.	It is recommended to reinstate the site to greenfield condition or install replacement SuDS based drainage in line with the current guidance.	Reinstate the site to greenfield condition or install replacement SuDS based drainage in line with the current guidance.

It is currently envisaged that the construction runoff will be disposed of to the watercourse. The construction runoff can contain significant silt load and therefore has the potential to deteriorate water quality in the natural water environment. It will therefore need to be collected and managed on-site in settlement tanks / lagoons prior to discharge downstream. Silt curtains may also need to be used around the development boundary to prevent contaminated runoff draining into the river, watercourse and third party land.

The construction site layout should be planned to fully consider issues such as the location of stockpiles, fuel stores, storage areas, waste disposal, refuelling points and wash down areas before mobilisation. These should be located in areas the least likely to affect receiving water bodies (including groundwater).

The details of the runoff management during the construction stage will be included in a site-specific Construction Management Plan, which will be prepared by an appointed contractor for the works.

10.2 Operation and Maintenance

The surface water drainage system should be designed to reduce the need for maintenance, where possible. To facilitate any maintenance which is required, consideration should be given to the provision of appropriate access for staff, plant, and equipment.

It is envisaged that the surface and foul water drainage system will be adopted in future.

A maintenance plan will be prepared to inform detailed design to ensure the drainage system remains operational and effective for the lifetime of the development. The maintenance items in Table 10-2 are recommended.

Table 10-2 Basin Maintenance Requirements

Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Remove litter and debris	Monthly
	Amenity grass cutting at 35- 50mm	As required
	Grass cutting to access routes, overflows and basin where required at 75-100mm not to exceed 150mm	As required
	Meadow grass, where appropriate, cut at 50mm	Annually
	Manage other vegetation and remove nuisance plants	Monthly at start, then as required
	Inspect and clear inlets, outlets, control structures and overflows	Monthly
	Inspect banksides, structures, pipework etc for evidence of physical damage	Monthly
	Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies.	Monthly for the first year then annually or as required
	Tidy all dead growth before start of growing season	Annually
Occasional Tasks	Remove leaf accumulation	As required
	Reseed areas of poor vegetation growth	As required
	Cut back overhanging branches to allow dense vegetation growth	As required
	Remove sediments from inlets, outlets and main basin	Every 5 years, or as required (likely to be minimal requirements where effective upstream source control is provided)
Remedial Work	Inspect and repair damage to inlets, outlets and overflows	As required

Maintenance Schedule	Required Action	Frequency
	Repair erosion or other damage by reseeded or re-turfing	As required
	Realignment of rip-rap	As required
	Relevel uneven surfaces and reinstate design levels	As required

In addition, the maintaining party of the drainage system should adhere to all the relevant manufacturers' recommendations in relation to operation and maintenance of the specific drainage elements.

Notes:

- Jetting of pipes should only be carried out after removal of larger debris, as jetting alone may dislodge the debris further downstream leading to an increased flood risk elsewhere.
- The removed waste material (both solids and liquids) from the drainage conveyance/ storage system should be treated as contaminated and disposed of at a licenced waste management facility. It should not be re-used within the development or outside its boundary to minimise the risk of pollution to the environment.
- In line with CIRIA RP992 The SuDS Manual Update: Paper RP992/23 most spillages on development sites do not pose a serious risk to the environment if they enter the drainage in a slow and controlled manner. Therefore, small spillages of oil and other known organic substances should be removed, where possible using soak mats with residual spillage allowed to bio-remediate in the drainage system. In the event of a serious spillage, either by volume or of unknown or toxic compounds, it should be isolated with soil, turf or fabric and outlet pipes blocked from chamber(s) downstream of the spillage with bung(s).

10.3 Consents

Land drainage consents for temporary and permanent works (i.e. construction of an outfall to the watercourse and any works within 6m from the top of bank) may be required from the Council prior to works commencing.

Appropriate agreements with the relevant landowners should be sought if any works associated with the development are to take place outside the development site boundary, in third party land.

A Masterplan



LEGEND

- Site Boundary
- Land in Control of Applicant
- Residential
- Access Street
- Local / Shared Street / Mews
- Edge Lane / Private Drive
- Public Open Space
- Pedestrian / Cycle Link
- Footpath Link
- Public Footpath (route on the ground)
- Public Footpath (mapped route)
- Permissive Route
- Attenuation Basin
- Swale Corridor
- Existing Ditch / Drain
- Existing Tree / Hedgerow / Vegetation
- Indicative Proposed Tree Planting
- Productive Landscape
- Play Area (LEAP/LAP)
- Play Area (LAP)
- Provision for Young People



B Topographic Survey



LEGEND -

Buildings	Overhead Cable	IC	Inspection chamber	Bo	Boiler
Wall	Concrete edge	PIW	Pipe invert	BS	Illuminated bollard
Kerb line	Tarmac edge	Gy	Gully	Bin	Rubbish bin
Line marking	Grass verge	Bg	Back gully	Vp	Vent pipe
Drop kerb	Canopy/Overhang	Dp	Down pipe	Grl	Ground light
Centre line	Verge	Lbox	Pipe above ground	Lbox	Letter box
Top of bank	Bottom of bank	MH	Manhole	Simp	Tree Stump
Station and Name		WL	Water level	Sty	Site
R	Ridge Level	FI	Flood light	IFL	Internal floor level
E	Eaves Level	Lp	Lamp post	THL	Threshold level
F	Flat Roof Level	Sp	Telephone post	Sp	Sign post
G	Gate	Ep	Electricity post	TH	Threshold
IR	Iron Railings	Ti	Traffic light	BH	Borehole
WM	Wire Mesh	Bus	Bus stop	ELC	Electric
PR	Post & Rail	SV	Stop valve	BT	British Telecom
PW	Post & Wire	SI	Stop tap	CTBX	Control box
CL	Chain Link	Er	Earth rod	TT	Tactile
WP	Wooden Panels	Wm	Water meter	BP	Brick paved
CB	Close Boarded	Gas	Gas valve	CPS	Concrete paving slabs
SP	Steel Palisade	Av	Air valve	CVR	Cover
		IOU	Unidentified inspection	R/wall	Retaining wall
		Wo	Wash out	TWL	Top of Wall Level
		Re	Rodding eye	TCL	Tree canopy level
		BB	Beltsha beacon	G	Girth
		CTV	Cable tv	MG	Multi grth
		Mur	Marker post	IC	Inspection chamber
		Gmr	Gas marker post	CL	Cover level
		So	Soft	IL	Invert level
		Fh	Fire hydrant	UTL	Unable to lift

Station Information:			
Station	Easting	Northing	Height
C1	452831.001	306538.519	89.546
C2	452725.937	306491.237	85.835
C3	452607.743	306436.487	84.787
C4	452458.287	306427.535	83.790
C5	452331.286	306428.479	82.909
C6	452235.678	306423.566	82.095
C7	452500.364	306253.990	78.969
C8	452551.513	306195.515	77.426
C9	452572.943	306165.358	76.760

Rev	Date	Description	Drawn
-----	------	-------------	-------

PROJECT
Bloor Homes
Sacheverell Way
Groby

TITLE
Topographical Survey
2d

SCALE 1mts@a1	DATE 19.07.20	DRAWN GY	CHECKED BY RH
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Level datum
G.P.S OSGB36/15

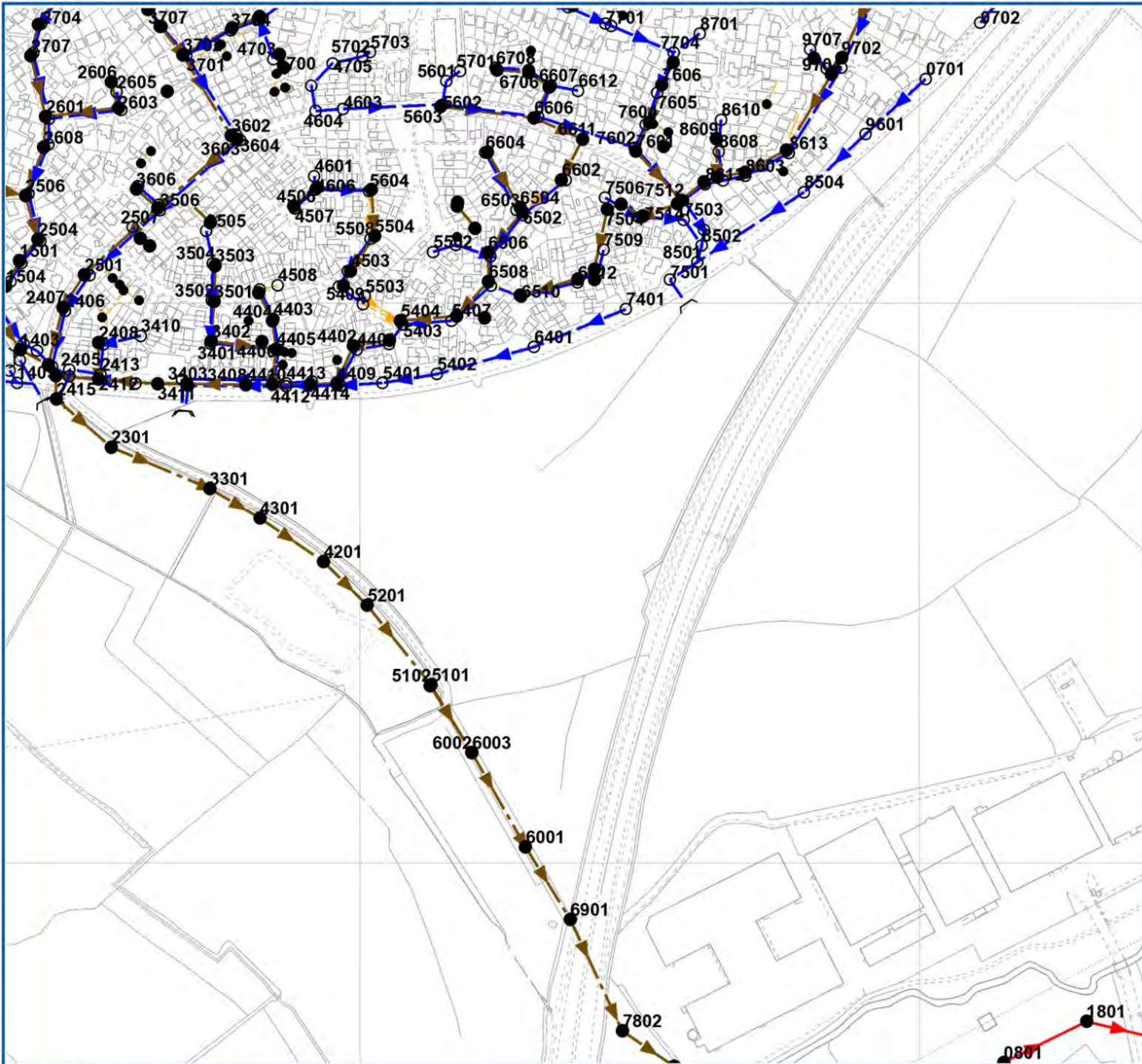
Job number

Drawing No.
GROBY 001

Rev.
0

Notes:
This plan has been surveyed to the scale shown.
Caution should be exercised when enlargements are made.
All critical dimensions should be confirmed on site prior to the commencement of any works.
All dimensions have been measured or estimated from ground level.
Tree species shown should be treated with caution and expert identification is advised.
Pipe sizes are estimated from a surface inspection only.
Due to Health and Safety requirements.
Every effort is made to identify all visible above ground features, however it should be borne in mind that there may be items obscured at the time of the survey.
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C Severn Trent Water Maps



Reference	Cover Level	Invert Level Upstream	Invert Level Downstream	Purpose	Material	Pipe Shape	Max Size	Min Size	Gradient	Year Laid
SK52065408	85.48	83.13	82.76	F	VC	C	<UNK>	<UNK>	135.81	31/12/1899 00:00:00
SK52064703	94.9599	93.19	92.98	S	VC	C	225	<UNK>	176.19	31/12/1899 00:00:00
SK52068503	88.91	86.63	86.51	S	CO	C	675	<UNK>	108.67	31/12/1899 00:00:00
SK53051801	69.19	66.26	66.06	C	CO	C	<UNK>	<UNK>	366.5	31/12/1899 00:00:00
SK52062403	82.3399	80.53	79.45	F	VC	C	225	<UNK>	10.02	31/12/1899 00:00:00
SK52068611	89.7399	86.87	86.69	F	VC	C	225	<UNK>	146.67	31/12/1899 00:00:00
SK52066509	85.9199	83.81	83.55	F	VC	C	<UNK>	<UNK>	117.15	31/12/1899 00:00:00
SK52064605	93.5	90.84	90.25	S	CO	C	300	<UNK>	39.58	31/12/1899 00:00:00
SK52064404	85.85	83.96	82.37	F	VC	C	<UNK>	<UNK>	15.84	31/12/1899 00:00:00
SK52057801	<UNK>	<UNK>	60.58	F	VC	C	<UNK>	<UNK>	<UNK>	05/01/2017 00:00:00
SK52061407	80.4199	78.6	<UNK>	S	CO	C	975	<UNK>	0	31/12/1899 00:00:00
SK52064507	90.1299	88.66	88.27	S	VC	C	150	<UNK>	65.38	31/12/1899 00:00:00
SK52064506	90.1399	88.39	88.04	F	VC	C	150	<UNK>	77.2	31/12/1899 00:00:00
SK52062409	85.5299	83.82	81.56	S	VC	C	225	<UNK>	11.98	31/12/1899 00:00:00
SK52063404	82.93	80.95	79.17	S	CO	C	600	<UNK>	8.72	31/12/1899 00:00:00
SK52063406	83.9599	80.77	79.11	S	CO	C	600	<UNK>	12.66	31/12/1899 00:00:00
SK52067703	92.75	90.82	90.13	F	VC	C	225	<UNK>	32.41	31/12/1899 00:00:00
SK52063708	96.8899	95.17	93.67	S	VC	C	225	<UNK>	12.95	31/12/1899 00:00:00
SK52063401	84.9599	83.08	82.63	S	CO	C	300	<UNK>	136.2	31/12/1899 00:00:00
SK52067501	87.62	86.04	84.62	S	CO	C	675	<UNK>	13.68	31/12/1899 00:00:00
SK53060701	93.5299	92.05	90.92	S	CO	C	225	<UNK>	64.53	31/12/1899 00:00:00
SK52066511	87.25	84.76	83.85	F	VC	C	225	<UNK>	59.18	31/12/1899 00:00:00
SK52062411	82.8399	81.19	80.97	S	CO	C	450	<UNK>	90.23	31/12/1899 00:00:00
SK52064600	<UNK>	<UNK>	<UNK>	F	VC	C	<UNK>	<UNK>	<UNK>	21/07/2024 00:00:00
SK52062410	82.5599	81.28	81.22	S	CO	C	450	<UNK>	223.67	31/12/1899 00:00:00
SK52064501	86.0299	84.05	83.83	S	CO	C	300	<UNK>	120	31/12/1899 00:00:00
SK52065501	87.01	85.04	84.31	S	VC	C	225	<UNK>	44.62	31/12/1899 00:00:00
SK52066507	85.87	83.9	83.62	S	CO	C	375	<UNK>	166.96	31/12/1899 00:00:00
SK52066605	91.1699	88.14	87.69	S	CO	C	525	<UNK>	200.98	31/12/1899 00:00:00

LEGEND

	Operational Site		Combined Bifurcation Manhole		Combined Unsurveyed Pipe		Combined Vacuum Sewer		Foul Lateral Drain		Lamphole
	Waste Water Pump		Surface Water Bifurcation Manhole		Foul Unsurveyed Pipe		S104 Surface Water Vacuum Sewer		S104 Surface Water Lateral Drain		Sewerage Air Valve
	Transfered Asset		Dual Manhole		Transfered Surface Water Sewer		S104 Combined Vacuum Sewer		S104 Combined Lateral Drain		Sewerage Chemical Injection Point
	S24		Foul Single Manhole		Transfered Combined Sewer		S104 Foul Vacuum Sewer		S104 Foul Lateral Drain		Sewerage Hatch Box
	S104		Combined Single Manhole		Transfered Foul Sewer		Private Surface Water Vacuum Sewer		Private Surface Water Lateral Drain		Sewerage Pressure Washout
	S102		Surface Water Single Manhole		Disposal Pipe		Private Combined Vacuum Sewer		Private Combined Lateral Drain		Vent Column
	Null Private		Twin Manhole		Overflow Pipe		Private Foul Vacuum Sewer		Private Foul Lateral Drain		Waste Water Outfall
	Null		Foul Adopted Manhole		Culverted Water Course		Surface Water Siphon		Transfered Surface Water Lateral Dia		Control Valve
	None		Combined Adopted Manhole		Waste Internal Site Pipe		Combined Siphon		Transfered Combined Lateral Drain		Hydrobrake
	Highway Drain		Surface Adopted Manhole		Sewer Service Connection		Foul Siphon		Transfered Foul Lateral Drain		Penstock
	Adopted Sewer		Transfered Manhole		Gravity Sewer Others		Private Surface Water Siphon		Private Combined Siphon		Sewerage Isolation Valve
	Storage		Unsurveyed Manhole		Pressure Sewer Pipe		Private Foul Siphon		S104 Surface Water Siphon		Sewerage Non Return Valve
	DS		Gravity Sewer Pipe		Surface Water Pressure Sewer		S104 Surface Water Siphon		S104 Combined Siphon		Manhole Annotation
	Off-Line Waste Water Storage		Foul Gravity Sewer		Combined Pressure Sewer		S104 Surface Water Siphon		S104 Foul Siphon		Print500mLine
	On-Line Waste Water Storage		Combined Gravity Sewer		Foul Pressure Sewer		S104 Combined Siphon		S104 Foul Siphon		
	Wet Well		Surface Water Gravity Sewer		S104 Surface Water Pressure Sewer		S104 Foul Siphon		S104 Combined Siphon		
	Waste Water Process Structure		S104 Surface Water Gravity Sewer		S104 Combined Pressure Sewer		Surface Water Unsurveyed Pipe		Foul Unsurveyed Pipe		
	Sewage Treatment Point		S104 Foul Gravity Sewer		Private Surface Water Pressure Sewer		S104 Combined Gravity Sewer		Foul Unsurveyed Pipe		
	Sewage Treatment Structure		Private Surface Water Gravity Sewer		Private Combined Pressure Sewer		S104 Foul Gravity Sewer		Disposal Pipe		
	Sludge Treatment Point		Private Combined Gravity Sewer		Surface Water Vacuum Sewer		Surface Water Lateral Drain		Service Pipe		
	Sludge Treatment Structure		Surface Water Unsurveyed Pipe		Foul Vacuum Sewer		Combined Lateral Drain				
	Manhole										

MATERIALS

-	- NONE
AC	- ASBESTOS CEME
BR	- BRICK
CC	- CONCRETE BOX CULVERT
CI	- CAST IRON
CO	- CONCRETE
CSB	- CONCRETE SEGMENTS (BOLTED)
CSU	- CONCRETE SEGMENTS (UNBOLTED)
DI	- DUCTILE IRON
GRP	- GLASS REINFORCED PLASTIC
MAC	- MASONRY IN REGULAR COURSES
MAR	- MASONRY RANDOMLY COURSED
PE	- POLYETHYLENE
PF	- PITCH
PP	- POLYPROPYLENE
PSC	- PLASTIC STEEL COMPOSITE
PVC	- POLYVINYL CHLORIDE
RPM	- REINFORCED PLASTIC MATRIX
SI	- SPUN (GREY) IRON
ST	- STEEL
U	- UNKNOWN
VC	- VITRIFIED CLAY
XXX	- OTHER

CATEGORIES

W	- WEIR
C	- CASCADE
DB	- DAMBOARD
SE	- SIDE ENTRY
FV	- FLAP VALVE
BD	- BACK DROP
S	- SIPHON
D	- HIGHWAY DRAIN
S104	- SECTION 104

SHAPE

C	- CIRCULAR
E	- EGG SHAPED
O	- OTHER
R	- RECTANGLE
S	- SQUARE
T	- TRAPEZOIDAL
U	- UNKNOWN

PURPOSE

C	- COMBINED
E	- FINAL EFFLUENT
F	- FOUL
L	- SLUDGE
S	- SURFACE WATER



Severn Trent Water Limited
Asset Data Management
PO Box 5344
Coventry
CV3 9FT
Telephone: 0345 601 6616

SEWER RECORD (Tabular)

O/S Map Scale: 1:5,000

This map is centred upon:

Date of Issue: 10-10-24

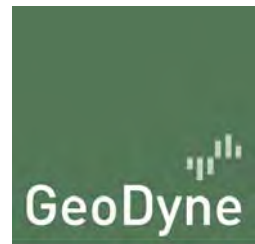
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Y: 306292.51

Disclaimer Statement

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- On 1 October 2011 most private sewers and private lateral drains in Severn Trent Water's sewerage area, which were connected to a public sewer as at 1 July 2011, transferred to the ownership of Severn Trent Water and became public sewers and public lateral drains. A further transfer takes place on 1 October 2012. Private pumping stations, which form part of these sewers or lateral drains, will transfer to ownership of Severn Trent Water on or before 1 October 2016. Severn Trent Water does not possess complete records of these assets. These assets may not be displayed on the map.
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D Soakaway Testing



Geotechnical &
Environmental
Consultants

Our ref: D44049/PK/A

22nd June 2026

Bloor Homes Ltd.
1 Wheatfield Way
Hinckley
Leicestershire
LE10 1YG

For the attention of Dan Southall

Dear Dan

Re: Soakaway Testing – Land South of Sacheverell Way, Groby

Following the recent completion of the in-situ soakaway testing at the above site, we are now pleased to report the findings as follows.

THE SITE

The site comprises an irregularly shaped parcel of land situated to the immediate south of Sacheverell Way and covers an area of approximately 10.55 hectares. At the time of our works (June 2026), the site comprised a fallow overgrown agricultural field.

PROJECT UNDERSTANDING

We understand that it is proposed to develop the main body of the site with residential dwellings. The proposed development also includes an attenuation pond and areas of public open space. We have been requested by the Client to undertake a programme of in-situ soakaway testing at the site in designated locations targeted to the area of the proposed attenuation pond in the southern portion of the site.

GEOLOGICAL SETTING

Various superficial drift deposits are shown on geological maps to underlie the majority of the site. The bedrock principally comprises strata of the Edwalton Member.

EXPLORATORY WORKS

Prior to the commencement of our intrusive works, a sub-contracted sub-surface utility scan was undertaken to attempt to avoid buried services during the intrusive works. Based on the results of the services scan and taking account of the requirement to avoid buried services, the soakaway pits were sited in locations as close as possible to those requested by the Client.

Five soakaway test pits (designated SA01 to SA05) were excavated at the site on 17th and 18th June, including in the designated locations in the area of the proposed attenuation pond.

Registered Number:
4286419 England & Wales
Registered Office:
Clarendon House, Clarendon Park
Clumber Avenue, Nottingham NG5 1AH



GeoDyne Limited
9 Brunel Parkway, Pride Park
Derby, DE24 8HR
Tel: 01332 290798
Email: info@geodyne.co.uk

The soakaway test pits were advanced to depths of between 0.60m and 0.90m below existing ground level (begl) given the assumed shallow depth of the proposed attenuation pond.

The approximate locations of the soakaway test pits are shown on the plan included in Appendix I of this report (Figure No. D44049/S1).

RESULTS OF IN-SITU SOAKAWAY TESTING

Once excavated, each pit was trimmed with the aim of making the sides as vertical as reasonably practicable and any loose soil removed from the bottom of the pit. Soakaway testing was carried out in open pits, with one test carried out in each pit, as appropriate.

The soil infiltration rate calculation sheets are presented in Appendix II of this report and are summarised in Table 1 below. A summary of the soil infiltration rates are also included on the drawing presented in Appendix III of this report (Figure No. D44049/S2).

TABLE 1 – SUMMARY OF SOIL INFILTRATION RATES				
Soakaway Reference	Test No.	Date of Test	Duration of Test (mins)	Soil Infiltration Rate (m/s)
SA01	1	17.06.2026	196	8.87×10^{-6}
SA02	1	17.06.2026	136	2.49×10^{-5}
SA03	1	17.06.2026	255	1.42×10^{-5}
SA04	1	18.06.2026	117	1.85×10^{-5}
SA05	1	18.06.2026	58	2.39×10^{-5}

COMMENTS

The comments made in this report are limited to those that can be made based on the findings of the soakaway testing works undertaken. GeoDyne Limited has prepared this report for the sole use and reliance of the Client, Bloor Homes Ltd., in accordance with our Standard Conditions and Limitations (included in Appendix IV). This report may not be used or relied upon by any unauthorised third party without the explicit written agreement of GeoDyne Limited.

We trust that the foregoing comments are in accordance with your requirements, however, should you have any questions or queries, please do not hesitate to contact us.

Yours sincerely

For and on the behalf of GeoDyne Limited



Paul Kershaw
Director

Encs.

Cc **Nicola Evans – Bloor Homes**
 Geoff Hibbert – Bloor Homes

APPENDIX I

**Soakaway Pit Location Plan
(Figure No. D44049/S1)**

GROBY



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- Drawing based on Masterplan by Define, Drawing No. DE_393_SW01 Rev. 1 Dated: 29/07/2025. Used, edited and reproduced with permission of the Client.

Approximate Site Boundary

Overhead cables and 5m buffer zone

SACHEVERELL WAY

Underground water main routes as indicated by Topographical Survey

Route of underground drain as indicated by Topographical Survey

Location of manhole

SA05
SA04
SA01
SA03
SA02

A46

KEY

SA - Soakaway Pit (5No.)

NB: All locations shown are approximate

Project No.	D44049
Client	Bloor Homes Ltd.
Project	Land South of Sacheverell Way, Groby
Title	Soakaway Pit Location Plan
Drawn By	DL
Checked By	PK
Approved By	PK
Scale	NTS
Date Drawn	22/06/2026
Revision	
Figure No.	D44049/S1



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APPENDIX II

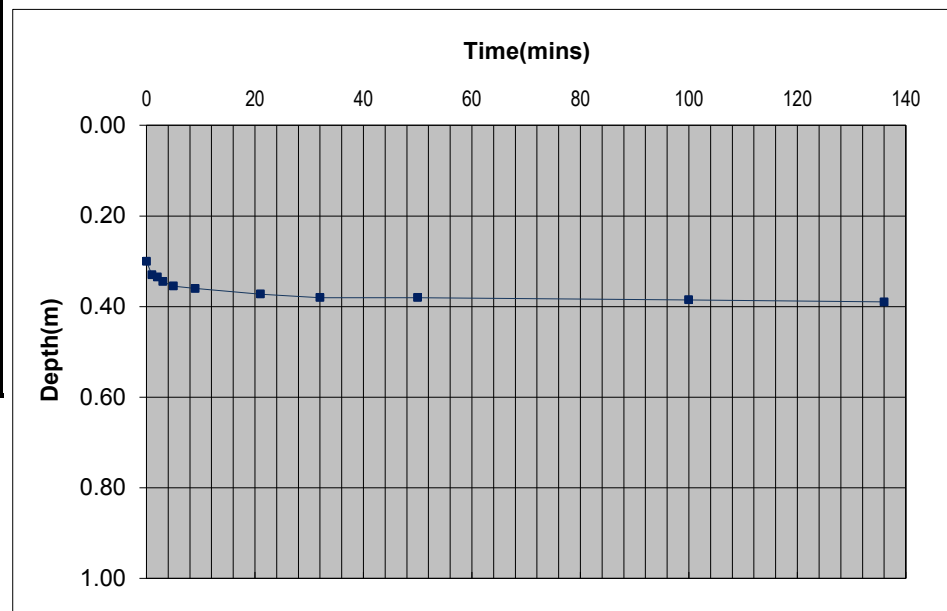
Soil Infiltration Rate Calculations

Infiltration Rate, F = 8.87E-06 m/s

[illegible]

Trial pit dimensions		
Width(m)	Length(m)	Depth(m)
0.60	1.40	0.60

Enter Assumed Void Ratio (fraction of 1, where 1 equates to open pit. 0.3 to stone fill and 0 equates to no voids)	1
--	---



Time at 75% effective depth(mins)	=	1.0
Time at 25% effective depth(mins)	=	19

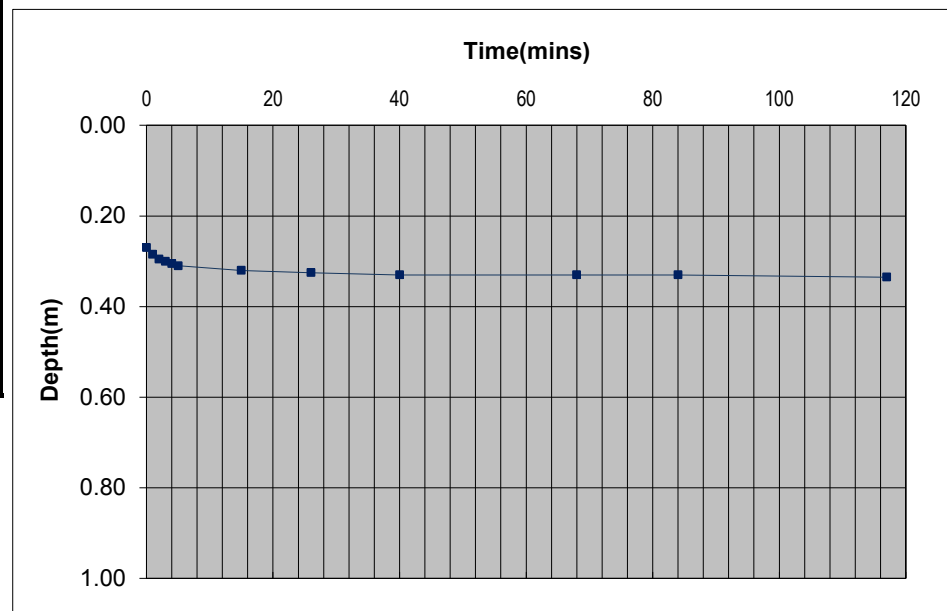
Infiltration Rate, $F = 2.49E-05$ m/s

Infiltration Rate, $F = 1.42E-05$ m/s

[illegible]

Trial pit dimensions		
Width(m)	Length(m)	Depth(m)
0.60	1.30	0.75

Enter Assumed Void Ratio (fraction of 1, where 1 equates to open pit. 0.3 to stone fill and 0 equates to no voids)



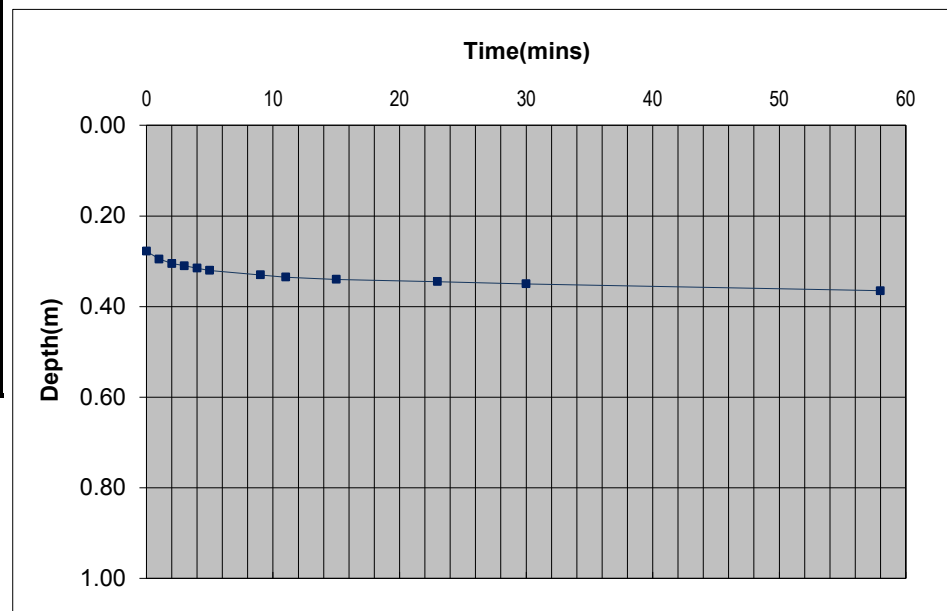
Time at 75% effective depth(mins)	=	1.5
Time at 25% effective depth(mins)	=	15

Infiltration Rate, $F = 1.85E-05$ m/s

[illegible]

Trial pit dimensions		
Width(m)	Length(m)	Depth(m)
0.60	3.00	0.90

Enter Assumed Void Ratio (fraction of 1, where 1 equates to open pit. 0.3 to stone fill and 0 equates to no voids)	1
--	---



Time at 75% effective depth(mins)	=	1.5
Time at 25% effective depth(mins)	=	15

Infiltration Rate, $F = 2.39E-05$ m/s

APPENDIX III

**Plan Showing Infiltration Rate Test Results
(Figure No. D44049/S2)**

GROBY



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- Drawing based on Masterplan by Define, Drawing No. DE_393_SW01 Rev. 1 Dated: 29/07/2025. Used, edited and reproduced with permission of the Client.

Approximate Site Boundary

SACHEVERELL WAY

SA04 = 1.85×10^{-5} m/s

SA05 = 2.39×10^{-5} m/s

SA02 = 2.49×10^{-5} m/s

SA01 = 8.87×10^{-6} m/s

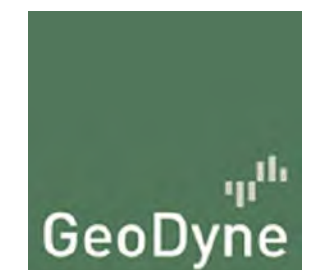
SA03 = 1.42×10^{-5} m/s

KEY

 SA - Soakaway Pit (5No.)

NB: All locations shown are approximate

Project No.	D44049
Client	Bloor Homes Ltd.
Project	Land South of Sacheverell Way, Groby
Title	Plan Showing Infiltration Rate Test Results
Drawn By	DL
Checked By	PK
Approved By	PK
Scale	NTS
Date Drawn	22/06/2026
Revision	
Figure No.	D44049/S2



Nottingham 0115 962 0001
Derby 01332 290 798

info@geodyne.co.uk
www.geodyne.co.uk

APPENDIX IV
Conditions & Limitations

Conditions & Limitations

Phase I Desk Studies

1. Works undertaken to provide the basis of the Phase I Desk Study report comprise a review of information available from a number of sources/parties (potentially also including the Client) together with a walk over of the site (where applicable and included within the quotation). The opinions given in the Phase I Desk Study are based on the information available from third parties/sources that has been obtained within the available timeframe. GeoDyne Limited assumes all third party information to be true and correct and therefore cannot accept liability for the accuracy of such information supplied.
2. Should additional information become available that may affect the comments and opinions made within the Phase I Desk Study, GeoDyne Limited reserves the right to review such information and make modifications to comments/opinions as appropriate.
3. It should be borne in mind that a Phase I Desk Study collates available information to generate a conceptual model of the site. The actual geotechnical and environmental considerations can only be fully quantified by intrusive investigation works to confirm the accuracy of the conceptual site model.

Phase II Intrusive Investigations

1. Our quotation assumes that access to the site will be arranged by others at no cost to ourselves.
2. We have assumed that free access is available throughout to the entire site and that works can be undertaken during a single mobilisation. Where restricted access is encountered, or where additional unscheduled mobilisations are required, additional costs may be incurred to the client.
3. We have assumed that all available information relating to buried services will be supplied by the Client at no cost to ourselves. No responsibility will be accepted for damage to underground services that have not been brought to our prior attention by the Client.
4. All excavations/boreholes will be backfilled with compacted arisings upon completion, with any excess arisings left proud of ground levels. Excess arisings will not be removed from the site unless specifically requested by the Client. Where we are requested to remove excess arisings, all associated costs will be passed to the Client.
5. We will attempt to leave the site in a clean and tidy state, however, it must be understood that some disturbance of the site is unavoidable during intrusive works.
6. Exploratory holes are positioned approximately on site by GeoDyne Limited. Should the client require precise locations of all exploratory points, additional fees will be incurred. It must be borne in mind that backfilled trial pits can create 'soft spots', therefore, should the Client wish to designate 'no dig' zones, for example under the footprint of proposed structures, these must be brought to our attention prior to commencement of works.
7. Groundwater observations relate to conditions encountered at the time of investigation. It must be understood that groundwater levels may vary as a result of recent climatic conditions or seasonal variation.
8. Trial pits and boreholes examine only a small proportion of the total site area. No liability can be accepted for conditions not revealed in exploratory holes, particularly between positions. All extrapolations of available data are given in good faith.

Payment

1. Payment terms are strictly 28 days from the invoice date. GeoDyne reserve the right to charge interest on any late payments.
2. Prior to commencement of works, we require receipt of formal written instruction from the party accepting full financial responsibility for the work. In the absence of such an instruction, we would expect the instructing Consulting Engineers/Architects to accept full financial responsibility for the works.
3. Receipt of instruction to commence work shall be taken as acceptance and compliance of the foregoing conditions.
4. GeoDyne reserve the right to charge for abortive costs for any site works cancelled by the client within 5 working days before mobilisation to site.

Liability

1. GeoDyne Limited offer £5,000,000.00 Professional Indemnity Insurance (in aggregate over the year). This shall be the limit of our liability for works undertaken. No individual liability shall be implied to, or accepted by, any employee for works undertaken for and on the behalf of GeoDyne Limited.
2. Subject to a prior agreement of terms and fees, reliance on our report may be assigned on one occasion only, except in the case of collateral warranty or duty of care given to a financier or funding party (not a purchaser or tenant) where further assignments may be permissible. No other assignment shall be permitted or valid. The length of any reliance/collateral warranty cannot be extended beyond the terms of the original agreement.



E Greenfield Runoff Rates

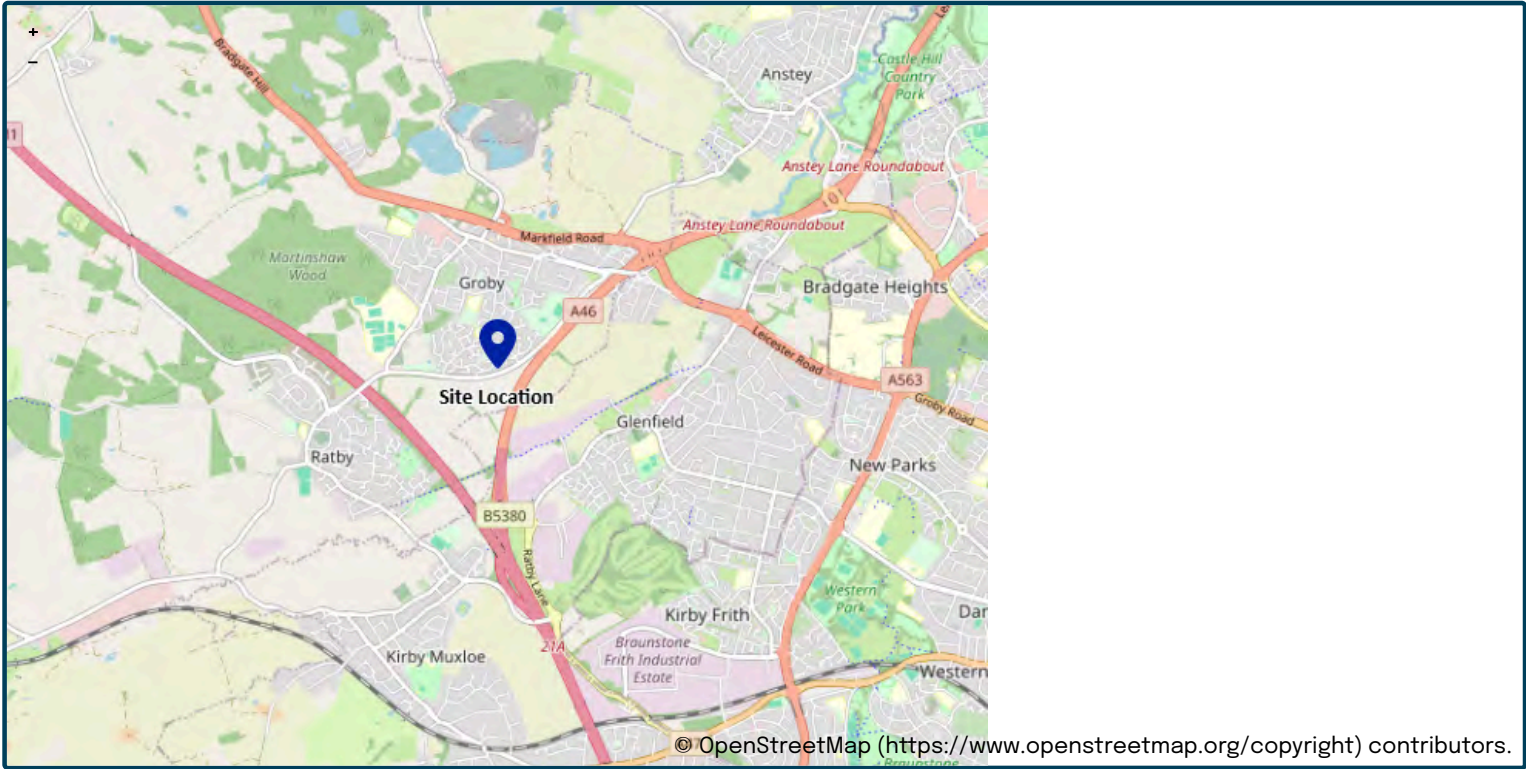
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). 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	09/07/2026
Calculated by	Charlotte Lickman
Reference	Groby
Model version	2.2.3

Location

Site name	Sacheverell Way, Groby
Site location	



Site easting (British National Grid)	452652
Site northing (British National Grid)	306326

Site details

Total site area (ha)	10.56
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Greenfield runoff

Method

Method	FEH statistical (2025)
--------	------------------------

FEH statistical (2025)

	<u>My value</u>	<u>Map value</u>
SAAR9120 (mm)	721	mm
BFIHOST19scaled	0.344	
QMed-QBar conversion	1.124	1.124
QMed (l/s)	48.6	l/s
QBar (FEH statistical 2025) (l/s)	54.6	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	FEH statistical (2025)
Flow rate 1 year (l/s)	45.3
Flow rate 2 year (l/s)	48.6
Flow rate 10 years (l/s)	81.4
Flow rate 30 years (l/s)	109.2
Flow rate 100 years (l/s)	140.4
Flow rate 200 years (l/s)	166.0

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 (2.2.3) 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.

F InfoDrainage Summary

2024s1879 Groby SW & FW Drainage Strategy: Attenuation Sizing	Date: 28/03/2025			
	Designed by: A Jennings	Checked by:	Approved By:	
Report Details: Type: Inflows Storm Phase: Phase	JBA Consulting:			
	Unit 2.1			
	Quantum Court Edinburgh			



Catchment Area

Type : Catchment Area

Area (ha)	3.072
-----------	-------

Preliminary Sizing

Volumetric Runoff Coefficient	1.000
Percentage Impervious (%)	100
Time of Concentration (mins)	5

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

2024s1879 Groby SW & FW Drainage Strategy: Attenuation Sizing	Date: 28/03/2025			
	Designed by: A Jennings	Checked by:	Approved By:	
Report Details: Type: Stormwater Controls Storm Phase: Phase	JBA Consulting: Unit 2.1 Quantum Court Edinburgh			



Pond

Type : Pond

Dimensions

Exceedance Level (m)	77.380
Depth (m)	1.300
Base Level (m)	76.080
Freeboard (mm)	300
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:X)	3.00
Total Volume (m³)	3006.744

Depth (m)	Area (m²)	Volume (m³)
0.000	2720.00	0.000
1.300	3488.81	4025.376

Inlets

Inlet

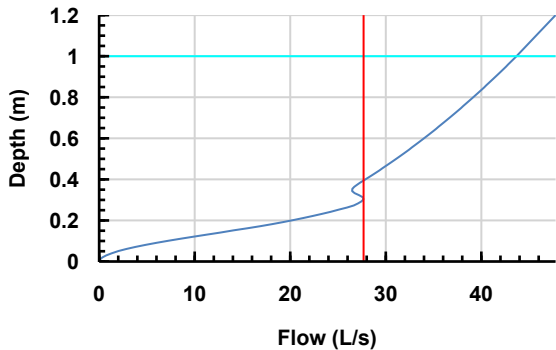
Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	(None)
Outlet Type	Hydro-Brake®
Invert Level (m)	76.080
Design Depth (m)	1.000
Design Flow (L/s)	43.68
Objective	Linear Discharge Profile
Application	Surface Water Only
Sump Available	☐

Unit Reference	CCU-0210-4368-1000-4368
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2024s1879 Groby SW & FW Drainage Strategy: Attenuation Sizing	Date: 28/03/2025		
	Designed by: A Jennings	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	JBA Consulting: Unit 2.1 Quantum Court Edinburgh		



Advanced	
Perimeter	Circular
Length (m)	147.884
Friction Scheme	Manning's n
n	0.035

2024s1879 Groby SW & FW Drainage Strategy: Attenuation Sizing	Date: 28/03/2025			
	Designed by:	Checked by:	Approved By:	
	A Jennings			
Report Details:			JBA Consulting:	
Type: Inflow Summary Storm Phase: Phase	Unit 2.1 Quantum Court Edinburgh			

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Catchment Area	Pond		Time of Concentration	3.072	100	10	110	3.379
TOTAL		0.0		3.072				3.379

2024s1879 Groby SW & FW Drainage Strategy: Attenuation Sizing	Date: 28/03/2025			
	Designed by: A Jennings	Checked by:	Approved By:	
Report Details: Type: Outfall Details Storm Phase: Phase	JBA Consulting: Unit 2.1 Quantum Court Edinburgh			

Outfalls

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

2024s1879 Groby SW & FW Drainage Strategy: Attenuation Sizing	Date: 28/03/2025		
	Designed by: A Jennings	Checked by:	Approved By:
Report Title: Rainfall Analysis Criteria	JBA Consulting: Unit 2.1 Quantum Court Edinburgh		



Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	10
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall

FEH	Type: FEH
Site Location	GB 452500 306150 SK 52500 06150
Rainfall Version	1999
C (1km)	-0.026
D1 (1km)	0.354
D2 (1km)	0.354
D3 (1km)	0.243
E (1km)	0.309
F (1km)	2.361
Summer	☒
Winter	☒

Return Period

Return Period (years)	Increase Rainfall (%)
100.0	40.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440
960	1920
1440	2880
2160	4320
2880	5760
4320	8640
5760	11520
7200	14400
8640	17280
10080	20160

2024s1879 Groby SW & FW Drainage Strategy: Attenuation Sizing		Date: 28/03/2025			
		Designed by: A Jennings	Checked by:		Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		JBA Consulting: Unit 2.1 Quantum Court Edinburgh			



FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Pond	FEH: 100 years: +40 %: 720 mins: Summer	76.974	76.974	0.894	0.894	337.6	2660.309	0.000	0.000	41.4	2612.338	11.522	OK

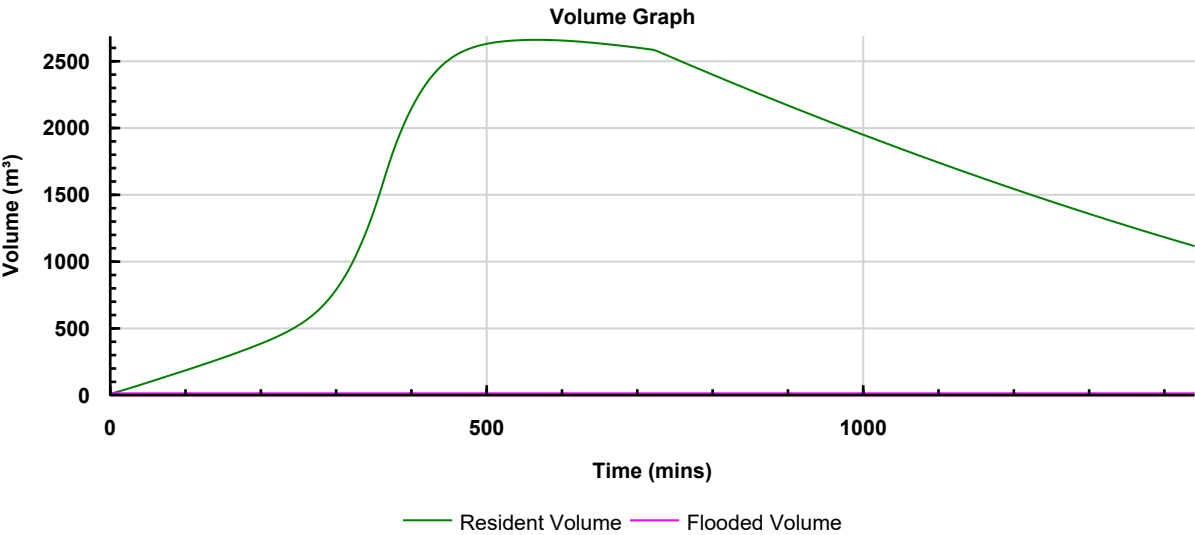
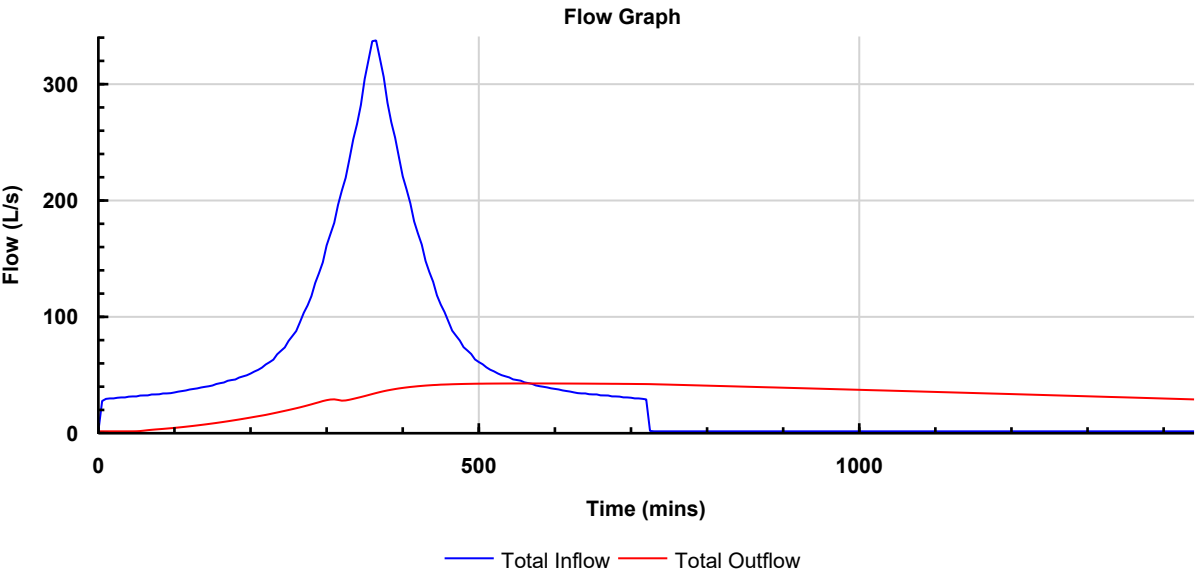
2024s1879 Groby SW & FW Drainage Strategy: Attenuation Sizing	Date: 28/03/2025			
	Designed by:	Checked by:	Approved By:	
	A Jennings			
Report Details: Type: Stormwater Control Results Storm Phase: Phase	JBA Consulting: Unit 2.1 Quantum Court Edinburgh			



Pond
Critical by Return Period: FEH: 100 years: Increase Rainfall (%): +40: 720 mins: Summer

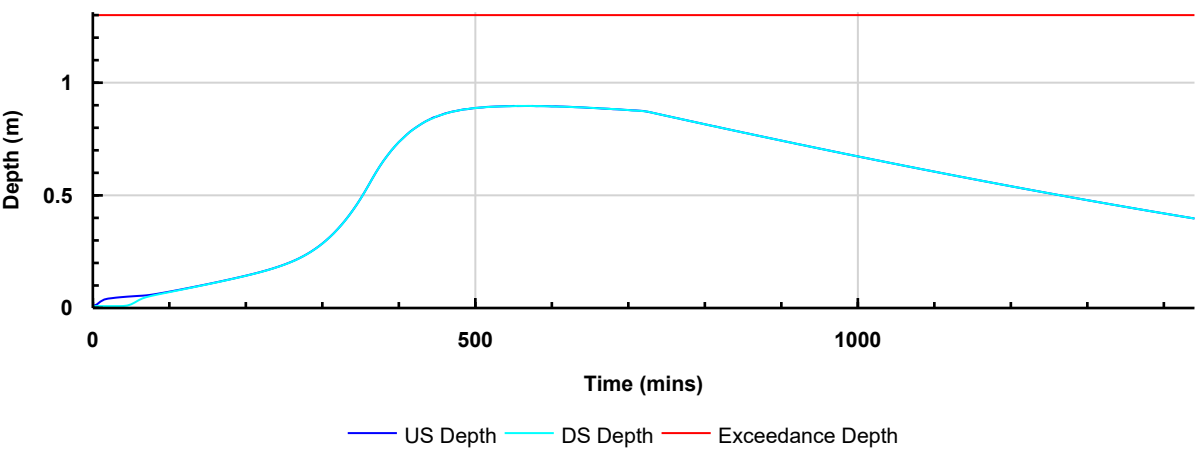
Type : Pond

Graphs



2024s1879 Groby SW & FW Drainage Strategy: Attenuation Sizing	Date: 28/03/2025			
	Designed by:	Checked by:	Approved By:	
	A Jennings			
Report Details: Type: Stormwater Control Results Storm Phase: Phase			JBA Consulting: Unit 2.1 Quantum Court Edinburgh	

Depth Graph



2024s1879 Groby SW & FW Drainage Strategy: Attenuation Sizing	Date: 28/03/2025		
	Designed by: A Jennings	Checked by:	Approved By:
Report Details: Type: Stormwater Control Results Storm Phase: Phase	JBA Consulting: Unit 2.1 Quantum Court Edinburgh		



Tables

Time (mins)	Total Inflow (L/s)	US Depth (m)	DS Depth (m)	Resident Volume(m³)	Flooded Volume (m³)	Total Outflow (L/s)
0	0.0	0.000	0.000	0.000	0.000	0.0
5	26.2	0.007	0.000	3.381	0.000	0.0
10	28.0	0.020	0.000	11.661	0.000	0.0
15	28.4	0.030	0.000	20.118	0.000	0.0
20	28.4	0.034	0.000	28.644	0.000	0.0
25	29.0	0.036	0.000	37.242	0.000	0.0
30	29.3	0.038	0.000	45.976	0.000	0.0
35	29.3	0.039	0.000	54.760	0.000	0.0
40	29.9	0.041	0.000	63.627	0.000	0.0
45	30.1	0.042	0.003	72.635	0.000	0.0
50	30.1	0.043	0.008	81.664	0.000	0.1
55	30.9	0.045	0.017	90.762	0.000	0.3
60	31.0	0.046	0.027	99.930	0.000	0.6
65	31.0	0.047	0.035	108.999	0.000	1.0
70	31.8	0.048	0.040	118.064	0.000	1.3
75	31.9	0.050	0.045	127.185	0.000	1.6
80	32.0	0.053	0.048	136.246	0.000	1.8
85	32.7	0.055	0.052	145.349	0.000	2.1
90	32.7	0.058	0.056	154.498	0.000	2.4
95	33.0	0.061	0.059	163.590	0.000	2.7
100	33.6	0.065	0.063	172.713	0.000	3.0
105	34.3	0.068	0.066	181.939	0.000	3.3
110	34.8	0.071	0.069	191.253	0.000	3.6
115	35.3	0.074	0.073	200.617	0.000	4.0
120	36.1	0.078	0.076	210.066	0.000	4.4
125	36.6	0.081	0.080	219.610	0.000	4.7
130	37.1	0.084	0.083	229.185	0.000	5.1
135	37.9	0.088	0.087	238.822	0.000	5.5
140	38.4	0.091	0.090	248.544	0.000	5.9
145	38.9	0.095	0.094	258.300	0.000	6.4
150	39.6	0.098	0.097	268.097	0.000	6.8
155	40.9	0.102	0.101	278.043	0.000	7.2
160	41.6	0.105	0.105	288.165	0.000	7.7
165	42.2	0.109	0.108	298.341	0.000	8.2
170	43.6	0.113	0.112	308.663	0.000	8.7
175	44.3	0.116	0.116	319.174	0.000	9.2
180	44.8	0.120	0.120	329.695	0.000	9.7
185	46.4	0.124	0.124	340.358	0.000	10.2
190	47.4	0.128	0.127	351.282	0.000	10.8
195	48.4	0.132	0.131	362.331	0.000	11.3
200	49.9	0.136	0.135	373.569	0.000	11.9
205	51.6	0.140	0.140	385.118	0.000	12.5
210	53.1	0.144	0.144	396.982	0.000	13.0
215	55.0	0.149	0.148	409.177	0.000	13.6
220	57.7	0.153	0.153	421.886	0.000	14.2
225	59.7	0.158	0.158	435.128	0.000	14.9
230	61.9	0.163	0.162	448.779	0.000	15.6
235	66.5	0.168	0.168	463.196	0.000	16.3
240	69.5	0.173	0.173	478.594	0.000	17.0
245	72.4	0.179	0.179	494.653	0.000	17.7
250	78.1	0.185	0.185	511.722	0.000	18.4
255	82.3	0.192	0.191	530.102	0.000	19.2
260	86.6	0.199	0.198	549.516	0.000	19.9
265	94.3	0.206	0.206	570.429	0.000	20.7

2024s1879 Groby SW & FW Drainage Strategy: Attenuation Sizing	Date: 28/03/2025		
	Designed by: A Jennings	Checked by:	Approved By:
Report Details: Type: Stormwater Control Results Storm Phase: Phase	JBA Consulting: Unit 2.1 Quantum Court Edinburgh		



Time (mins)	Total Inflow (L/s)	US Depth (m)	DS Depth (m)	Resident Volume(m³)	Flooded Volume (m³)	Total Outflow (L/s)
270	102.4	0.214	0.214	593.492	0.000	21.5
275	108.7	0.223	0.223	618.498	0.000	22.4
280	116.7	0.232	0.232	645.343	0.000	23.3
285	128.1	0.243	0.242	674.759	0.000	24.2
290	136.7	0.254	0.254	706.978	0.000	25.2
295	145.9	0.266	0.266	741.545	0.000	26.1
300	160.5	0.279	0.279	779.307	0.000	26.9
305	170.4	0.294	0.293	820.683	0.000	27.5
310	180.0	0.309	0.309	864.824	0.000	27.6
315	195.6	0.326	0.325	912.654	0.000	27.1
320	207.9	0.344	0.343	964.977	0.000	26.5
325	218.9	0.363	0.363	1020.920	0.000	26.7
330	235.2	0.383	0.383	1083.742	0.000	27.3
335	252.2	0.405	0.405	1148.550	0.000	28.0
340	265.5	0.429	0.429	1217.699	0.000	28.8
345	281.8	0.454	0.453	1290.998	0.000	29.6
350	304.2	0.480	0.480	1369.849	0.000	30.4
355	320.5	0.508	0.508	1454.341	0.000	31.3
360	336.9	0.538	0.537	1543.426	0.000	32.2
365	337.6	0.568	0.568	1634.906	0.000	33.1
370	322.0	0.597	0.597	1723.880	0.000	33.9
375	306.0	0.624	0.624	1807.798	0.000	34.7
380	283.6	0.649	0.649	1885.787	0.000	35.3
385	266.9	0.672	0.672	1956.389	0.000	35.9
390	253.6	0.694	0.694	2024.911	0.000	36.5
395	236.8	0.714	0.714	2086.742	0.000	37.0
400	220.3	0.733	0.733	2143.878	0.000	37.5
405	209.0	0.749	0.749	2197.272	0.000	37.9
410	197.0	0.765	0.765	2246.190	0.000	38.3
415	181.3	0.780	0.779	2291.102	0.000	38.6
420	170.9	0.792	0.792	2333.474	0.000	39.0
425	161.3	0.804	0.804	2371.640	0.000	39.2
430	147.2	0.815	0.815	2404.939	0.000	39.5
435	137.6	0.825	0.825	2436.328	0.000	39.7
440	129.1	0.834	0.834	2464.392	0.000	39.9
445	117.4	0.842	0.840	2489.472	0.000	40.1
450	109.5	0.847	0.849	2510.987	0.000	40.3
455	102.9	0.854	0.853	2531.289	0.000	40.4
460	95.0	0.860	0.859	2548.844	0.000	40.5
465	87.0	0.864	0.864	2564.114	0.000	40.7
470	82.6	0.869	0.869	2577.326	0.000	40.7
475	78.4	0.872	0.872	2589.502	0.000	40.8
480	72.7	0.876	0.876	2599.915	0.000	40.9
485	69.8	0.879	0.879	2609.092	0.000	41.0
490	66.8	0.880	0.880	2617.259	0.000	41.0
495	62.1	0.883	0.883	2624.276	0.000	41.1
500	59.8	0.885	0.885	2630.221	0.000	41.1
505	57.9	0.887	0.886	2635.455	0.000	41.2
510	55.3	0.888	0.888	2640.484	0.000	41.2
515	53.2	0.890	0.889	2644.045	0.000	41.2
520	51.8	0.891	0.890	2647.386	0.000	41.3
525	50.0	0.891	0.891	2650.381	0.000	41.3
530	48.5	0.892	0.892	2652.705	0.000	41.3
535	47.5	0.893	0.892	2654.731	0.000	41.3
540	46.6	0.893	0.893	2656.445	0.000	41.3
545	44.9	0.893	0.893	2657.780	0.000	41.3
550	44.3	0.894	0.893	2658.797	0.000	41.3

2024s1879 Groby SW & FW Drainage Strategy: Attenuation Sizing	Date: 28/03/2025		
	Designed by: A Jennings	Checked by:	Approved By:
Report Details: Type: Stormwater Control Results Storm Phase: Phase	JBA Consulting: Unit 2.1 Quantum Court Edinburgh		



Time (mins)	Total Inflow (L/s)	US Depth (m)	DS Depth (m)	Resident Volume(m³)	Flooded Volume (m³)	Total Outflow (L/s)
555	43.7	0.894	0.894	2659.586	0.000	41.4
560	42.3	0.894	0.894	2660.096	0.000	41.3
565	41.6	0.894	0.894	2660.309	0.000	41.3
570	41.0	0.894	0.894	2660.273	0.000	41.4
575	39.6	0.894	0.894	2659.959	0.000	41.3
580	39.0	0.893	0.894	2659.379	0.000	41.3
585	38.5	0.894	0.894	2658.596	0.000	41.3
590	37.9	0.894	0.893	2657.623	0.000	41.3
595	37.1	0.893	0.893	2656.503	0.000	41.3
600	36.6	0.892	0.893	2655.206	0.000	41.3
605	36.2	0.892	0.891	2653.702	0.000	41.3
610	35.3	0.892	0.891	2652.081	0.000	41.3
615	34.8	0.891	0.891	2650.228	0.000	41.3
620	34.3	0.891	0.890	2648.226	0.000	41.3
625	33.6	0.890	0.889	2646.060	0.000	41.2
630	33.0	0.889	0.889	2643.691	0.000	41.2
635	32.7	0.888	0.888	2641.062	0.000	41.2
640	32.7	0.888	0.888	2638.537	0.000	41.2
645	32.0	0.886	0.887	2636.020	0.000	41.2
650	31.9	0.885	0.886	2633.135	0.000	41.2
655	31.9	0.885	0.885	2630.469	0.000	41.1
660	31.1	0.884	0.884	2627.548	0.000	41.1
665	31.0	0.883	0.884	2624.571	0.000	41.1
670	30.9	0.882	0.882	2621.399	0.000	41.1
675	30.2	0.881	0.881	2618.365	0.000	41.0
680	30.1	0.880	0.881	2615.134	0.000	41.0
685	30.0	0.879	0.879	2611.851	0.000	41.0
690	29.3	0.878	0.878	2608.459	0.000	41.0
695	29.3	0.877	0.877	2604.911	0.000	41.0
700	29.0	0.876	0.876	2601.341	0.000	40.9
705	28.4	0.875	0.874	2597.676	0.000	40.9
710	28.4	0.874	0.873	2593.896	0.000	40.9
715	28.1	0.873	0.873	2590.265	0.000	40.8
720	27.6	0.872	0.871	2586.340	0.000	40.8
725	0.4	0.868	0.869	2578.477	0.000	40.8
730	0.0	0.865	0.865	2566.643	0.000	40.7
735	0.0	0.861	0.861	2554.364	0.000	40.6
740	0.0	0.857	0.857	2542.313	0.000	40.5
745	0.0	0.854	0.854	2530.014	0.000	40.4
750	0.0	0.850	0.850	2518.107	0.000	40.3
755	0.0	0.846	0.846	2505.800	0.000	40.2
760	0.0	0.842	0.842	2493.386	0.000	40.2
765	0.0	0.839	0.838	2481.846	0.000	40.1
770	0.0	0.835	0.835	2469.460	0.000	40.0
775	0.0	0.831	0.831	2457.844	0.000	39.9
780	0.0	0.827	0.827	2445.391	0.000	39.8
785	0.0	0.824	0.823	2434.033	0.000	39.7
790	0.0	0.820	0.820	2422.139	0.000	39.6
795	0.0	0.816	0.816	2410.175	0.000	39.5
800	0.0	0.812	0.812	2398.415	0.000	39.5
805	0.0	0.809	0.809	2386.185	0.000	39.4
810	0.0	0.805	0.805	2374.799	0.000	39.3
815	0.0	0.802	0.801	2362.504	0.000	39.2
820	0.0	0.798	0.798	2350.979	0.000	39.1
825	0.0	0.794	0.794	2339.001	0.000	39.0
830	0.0	0.790	0.790	2327.824	0.000	38.9
835	0.0	0.787	0.787	2315.990	0.000	38.8

2024s1879 Groby SW & FW Drainage Strategy: Attenuation Sizing	Date: 28/03/2025		
	Designed by: A Jennings	Checked by:	Approved By:
Report Details: Type: Stormwater Control Results Storm Phase: Phase	JBA Consulting: Unit 2.1 Quantum Court Edinburgh		



Time (mins)	Total Inflow (L/s)	US Depth (m)	DS Depth (m)	Resident Volume(m³)	Flooded Volume (m³)	Total Outflow (L/s)
840	0.0	0.783	0.783	2304.587	0.000	38.7
845	0.0	0.779	0.779	2292.758	0.000	38.6
850	0.0	0.775	0.775	2280.861	0.000	38.5
855	0.0	0.772	0.772	2269.335	0.000	38.5
860	0.0	0.768	0.768	2258.318	0.000	38.4
865	0.0	0.765	0.765	2246.339	0.000	38.3
870	0.0	0.761	0.761	2235.344	0.000	38.2
875	0.0	0.757	0.757	2223.441	0.000	38.1
880	0.0	0.754	0.754	2212.435	0.000	38.0
885	0.0	0.750	0.750	2200.965	0.000	37.9
890	0.0	0.747	0.746	2189.581	0.000	37.9
895	0.0	0.743	0.743	2177.824	0.000	37.8
900	0.0	0.739	0.740	2166.565	0.000	37.7
905	0.0	0.736	0.736	2155.631	0.000	37.6
910	0.0	0.732	0.732	2144.496	0.000	37.5
915	0.0	0.729	0.728	2133.077	0.000	37.4
920	0.0	0.725	0.725	2122.053	0.000	37.3
925	0.0	0.722	0.721	2110.690	0.000	37.2
930	0.0	0.718	0.718	2099.717	0.000	37.1
935	0.0	0.714	0.714	2088.542	0.000	37.0
940	0.0	0.711	0.711	2077.490	0.000	36.9
945	0.0	0.707	0.707	2065.992	0.000	36.9
950	0.0	0.704	0.704	2055.372	0.000	36.8
955	0.0	0.700	0.700	2043.816	0.000	36.7
960	0.0	0.697	0.697	2032.843	0.000	36.6
965	0.0	0.693	0.693	2022.403	0.000	36.5
970	0.0	0.690	0.690	2011.066	0.000	36.4
975	0.0	0.686	0.686	2000.506	0.000	36.3
980	0.0	0.683	0.683	1989.680	0.000	36.2
985	0.0	0.679	0.679	1978.324	0.000	36.1
990	0.0	0.676	0.676	1967.678	0.000	36.0
995	0.0	0.672	0.672	1956.749	0.000	35.9
1000	0.0	0.669	0.669	1945.995	0.000	35.8
1005	0.0	0.665	0.665	1935.699	0.000	35.8
1010	0.0	0.662	0.662	1924.985	0.000	35.7
1015	0.0	0.658	0.658	1914.299	0.000	35.6
1020	0.0	0.655	0.655	1903.194	0.000	35.5
1025	0.0	0.651	0.652	1893.008	0.000	35.4
1030	0.0	0.648	0.648	1882.392	0.000	35.3
1035	0.0	0.645	0.645	1871.818	0.000	35.2
1040	0.0	0.641	0.641	1861.263	0.000	35.1
1045	0.0	0.638	0.638	1850.736	0.000	35.0
1050	0.0	0.634	0.635	1839.739	0.000	35.0
1055	0.0	0.631	0.631	1829.764	0.000	34.9
1060	0.0	0.628	0.628	1819.319	0.000	34.8
1065	0.0	0.624	0.624	1808.902	0.000	34.7
1070	0.0	0.621	0.621	1798.513	0.000	34.6
1075	0.0	0.618	0.618	1788.050	0.000	34.5
1080	0.0	0.614	0.614	1777.820	0.000	34.4
1085	0.0	0.611	0.611	1767.516	0.000	34.3
1090	0.0	0.607	0.607	1757.240	0.000	34.2
1095	0.0	0.604	0.604	1746.992	0.000	34.1
1100	0.0	0.601	0.601	1736.645	0.000	34.0
1105	0.0	0.597	0.597	1726.580	0.000	33.9
1110	0.0	0.594	0.594	1716.394	0.000	33.8
1115	0.0	0.591	0.591	1706.280	0.000	33.7
1120	0.0	0.587	0.587	1696.172	0.000	33.6

2024s1879 Groby SW & FW Drainage Strategy: Attenuation Sizing	Date: 28/03/2025		
	Designed by: A Jennings	Checked by:	Approved By:
Report Details: Type: Stormwater Control Results Storm Phase: Phase	JBA Consulting: Unit 2.1 Quantum Court Edinburgh		



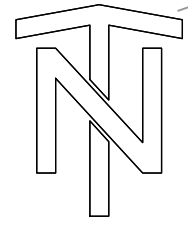
Time (mins)	Total Inflow (L/s)	US Depth (m)	DS Depth (m)	Resident Volume(m³)	Flooded Volume (m³)	Total Outflow (L/s)
1125	0.0	0.584	0.584	1686.092	0.000	33.6
1130	0.0	0.581	0.581	1676.039	0.000	33.5
1135	0.0	0.578	0.578	1666.013	0.000	33.4
1140	0.0	0.574	0.574	1656.016	0.000	33.3
1145	0.0	0.571	0.571	1646.047	0.000	33.2
1150	0.0	0.568	0.568	1636.106	0.000	33.1
1155	0.0	0.565	0.565	1626.193	0.000	33.0
1160	0.0	0.561	0.561	1616.309	0.000	32.9
1165	0.0	0.558	0.558	1606.453	0.000	32.8
1170	0.0	0.555	0.555	1596.626	0.000	32.7
1175	0.0	0.552	0.552	1586.825	0.000	32.6
1180	0.0	0.548	0.548	1577.050	0.000	32.5
1185	0.0	0.545	0.545	1567.302	0.000	32.4
1190	0.0	0.542	0.542	1557.581	0.000	32.4
1195	0.0	0.539	0.539	1547.887	0.000	32.3
1200	0.0	0.536	0.536	1538.222	0.000	32.2
1205	0.0	0.532	0.532	1528.584	0.000	32.1
1210	0.0	0.529	0.529	1518.975	0.000	32.0
1215	0.0	0.526	0.526	1509.395	0.000	31.9
1220	0.0	0.523	0.523	1499.843	0.000	31.8
1225	0.0	0.520	0.520	1490.320	0.000	31.7
1230	0.0	0.517	0.517	1480.825	0.000	31.6
1235	0.0	0.513	0.513	1471.358	0.000	31.5
1240	0.0	0.510	0.510	1461.921	0.000	31.4
1245	0.0	0.507	0.507	1452.512	0.000	31.3
1250	0.0	0.504	0.504	1443.133	0.000	31.2
1255	0.0	0.501	0.501	1433.782	0.000	31.1
1260	0.0	0.498	0.498	1424.461	0.000	31.0
1265	0.0	0.495	0.495	1415.168	0.000	30.9
1270	0.0	0.492	0.492	1405.904	0.000	30.8
1275	0.0	0.489	0.489	1396.669	0.000	30.7
1280	0.0	0.485	0.485	1387.462	0.000	30.6
1285	0.0	0.482	0.482	1378.284	0.000	30.5
1290	0.0	0.479	0.479	1369.134	0.000	30.4
1295	0.0	0.476	0.476	1360.013	0.000	30.4
1300	0.0	0.473	0.473	1350.920	0.000	30.3
1305	0.0	0.470	0.470	1341.856	0.000	30.2
1310	0.0	0.467	0.467	1332.822	0.000	30.1
1315	0.0	0.464	0.464	1323.816	0.000	30.0
1320	0.0	0.461	0.461	1314.839	0.000	29.9
1325	0.0	0.458	0.458	1305.891	0.000	29.8
1330	0.0	0.455	0.455	1296.972	0.000	29.7
1335	0.0	0.452	0.452	1288.081	0.000	29.6
1340	0.0	0.449	0.449	1279.216	0.000	29.5
1345	0.0	0.446	0.446	1270.379	0.000	29.4
1350	0.0	0.443	0.443	1261.568	0.000	29.3
1355	0.0	0.440	0.440	1252.786	0.000	29.2
1360	0.0	0.437	0.437	1244.033	0.000	29.1
1365	0.0	0.434	0.434	1235.309	0.000	29.0
1370	0.0	0.432	0.432	1226.614	0.000	28.9
1375	0.0	0.429	0.429	1217.948	0.000	28.8
1380	0.0	0.426	0.426	1209.311	0.000	28.7
1385	0.0	0.423	0.423	1200.703	0.000	28.6
1390	0.0	0.420	0.420	1192.124	0.000	28.5
1395	0.0	0.417	0.417	1183.575	0.000	28.4
1400	0.0	0.414	0.414	1175.055	0.000	28.3
1405	0.0	0.411	0.411	1166.565	0.000	28.2

2024s1879 Groby SW & FW Drainage Strategy: Attenuation Sizing	Date: 28/03/2025		
	Designed by: A Jennings	Checked by:	Approved By:
Report Details: Type: Stormwater Control Results Storm Phase: Phase	JBA Consulting: Unit 2.1 Quantum Court Edinburgh		



Time (mins)	Total Inflow (L/s)	US Depth (m)	DS Depth (m)	Resident Volume(m³)	Flooded Volume (m³)	Total Outflow (L/s)
1410	0.0	0.408	0.408	1158.104	0.000	28.2
1415	0.0	0.406	0.406	1149.672	0.000	28.1
1420	0.0	0.403	0.403	1141.269	0.000	28.0
1425	0.0	0.400	0.400	1132.895	0.000	27.9
1430	0.0	0.397	0.397	1124.550	0.000	27.8
1435	0.0	0.394	0.394	1116.234	0.000	27.7
1440	0.0	0.391	0.391	1107.905	0.000	27.6

G Proposed Drainage Strategy



GENERAL NOTES

- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
- ALL LEVELS ARE IN METRES RELATIVE TO ORDNANCE DATUM NEWLYN (mAOD) UNLESS NOTED OTHERWISE.
- ALL COORDINATES ARE IN METRES RELATIVE TO ORDNANCE SURVEY NATIONAL GRID.
- DO NOT SCALE FROM THIS DRAWING. ALL DIMENSIONS MUST BE CHECKED/VERIFIED ON SITE.
- THIS DRAWING IS BASED ON THE PROPOSED SITE PLAN DRAWING 'DE_393 SW01 E MASTERPLAN 070525' BY BLOOR HOMES ON 07/05/2025.
- NO GEOTECHNICAL AND STRUCTURAL ANALYSIS OF THE PROPOSED DRAINAGE SYSTEM HAS BEEN CARRIED OUT AT THIS STAGE.
- NO PROPOSED GROUND LEVELS HAVE BEEN PROVIDED TO SUPPORT THIS STUDY, THUS GROUND LEVELS HAVE BEEN ASSUMED FROM THE EXISTING TOPOGRAPHIC SURVEY 'Groby Sacheverell Way 3D' BY CHARTERED SURVEYORS DATED JULY 2020 AND SHARED ON 8 SEPTEMBER 2024.
- NO DEEP ROOTED TREES/BUSHES SHOULD BE PLANTED WITHIN THE IMMEDIATE VICINITY OF THE UNDERGROUND DRAINAGE SYSTEM TO PREVENT DAMAGE DUE TO ROOT INGRESS.
- THE LOCATIONS OF ANY KNOWN SERVICES SHOWN ON THE DRAWING ARE APPROXIMATE AND FOR GUIDANCE ONLY. OTHER SERVICES, NOT SHOWN ON THIS DRAWING, MAY ALSO BE PRESENT WITHIN THE AREA OF INTEREST. TO BE CONFIRMED IN FUTURE PRIOR FOR DETAILED DESIGN COMMENCEMENT.
- NO DETAIL HYDRAULIC MODELLING OF THE PROPOSED DRAINAGE NETWORK HAS BEEN UNDERTAKEN AT THIS STAGE. DETAIL DESIGN TO CONFIRM EXACT PIPES AND ATTENUATION SIZES, GRADIENT AND FLOW VELOCITIES.
- THE ELECTRONIC VERSION OF THIS DRAWING IS NOT TO BE USED FOR SETTING OUT.
- THIS DRAWING IS HAS BEEN PRODUCED CONSULTATION PURPOSES ONLY AND DOES NOT CONSTITUTE A 'FOR CONSTRUCTION' DESIGN. THE DESIGN FOR CONSTRUCTION MUST INDEPENDENTLY VERIFY AND FURTHER DEVELOP ALL ELEMENTS TO A SUITABLE LEVEL OF DETAIL. JBA CANNOT ACCEPT LIABILITY FOR THE DESIGN FOR CONSTRUCTION OR THE SCHEME AS-CONSTRUCTED.
- THIS DRAWING SHOULD BE PRINTED IN COLOUR.

SITE ADDRESS

Sacheverell Way
Groby, Hinckley and Bosworth
Leicestershire
England
LE8 0YL

LEGEND

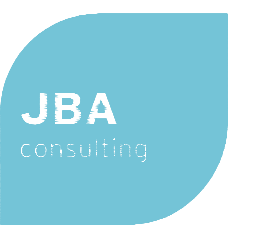
- SITE BOUNDARY
- EXISTING GROUND LEVELS
- 3.5m WIDE PROPOSED MAINTENANCE ACCESS ROAD
- 1 IN 3 SIDE SLOPES EXTENT OF PROPOSED BASIN
- BOTTOM OF PROPOSED BASIN
- NET DEVELOPABLE AREA
- PROPOSED 6.5m WIDE OFFSITE SURFACE WATER CHANNEL
- EXISTING PUBLIC FOUL WATER GRAVITY SEWER PIPE
- EXISTING 11KV OVERHEAD POWERLINE
- INDICATIVE PROPOSED FW SEWER PIPE ROUTE
- PUBLIC FOOTPATH
- SURFACE WATER OVERLAND FLOW DIRECTION ARROWS
- EXISTING WATERCOURSE
- INLET AND OUTFALL SYMBOL
- INDICATIVE SURFACE WATER GRAVITY PIPE

ABBREVIATIONS:

- BL - Base Level
- IL - Invert Level
- CL - Cover Level
- SW - Surface Water
- FW - Foul Water
- mAOD - Metres Above Ordnance Datum

p03		Comments		Issued for client information.						
Rev.:	Date	11/04/25	Drawn	ES	Designed	AJ	Checked	AM	Approved	RD
Client Approval										
A - Approved										
B - Approved with Revisions										
C - Do Not Use										

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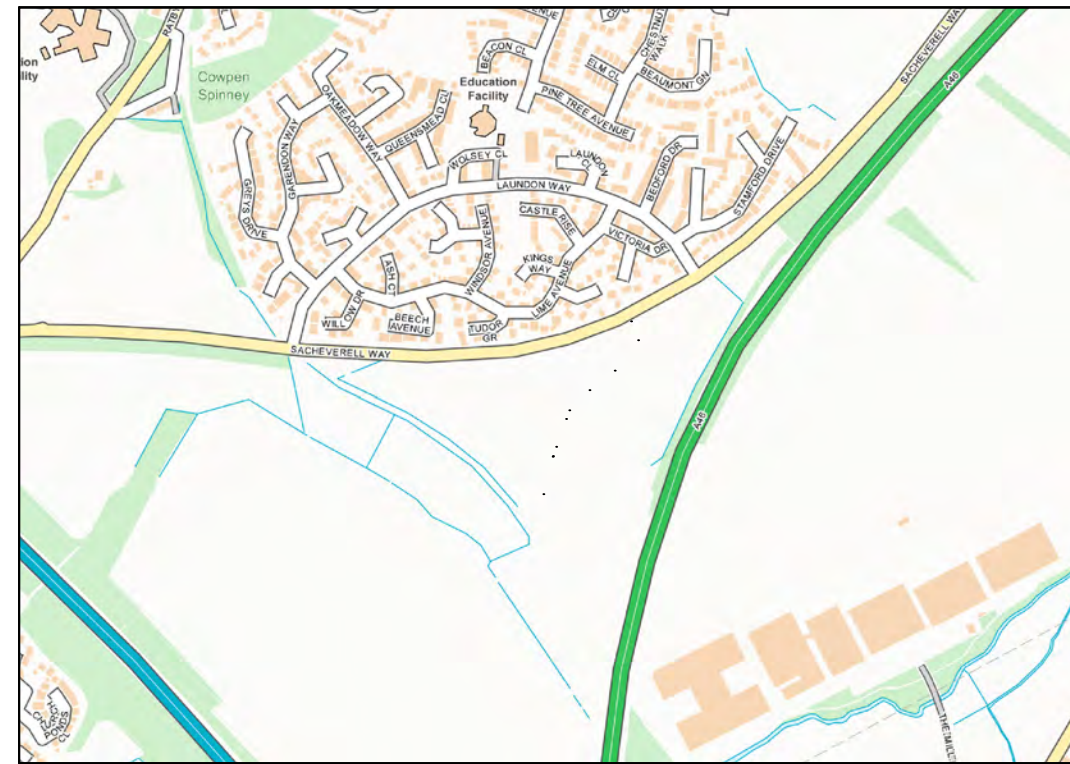


Project
Groby Outline SW & FW Drainage Strategy

Title
General Arrangement

Client
for
Bloor Homes

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Drawn: E.Smith		Designed: E.Smith		Checked: A.Mallak		Approved: R.Dobson		Project Reference: 2024s1306	
Drawing Number: MXE-JBA-XX-00-DR-C-0001		Status: S3		Revision: P03		Sheet Size: A1			



Location Plan
NTS

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General Arrangement
1:1000



Catchment Areas
1:5000



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