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Groby, Leicestershire - Flood Risk Assessment

Final Report

S1-P01

Prepared for
Bloor Homes East
Midlands

Date
July 2026

BLOOR HOMES[®]

Document Status

Issue date	July 2026
Issued to	Bloor Homes East Midlands
BIM reference	SIW-JBA-XX-XX-RP-HM-0001
Revision	S0-P01.03
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This report describes work commissioned by Bloor Homes East Midlands, on behalf of by an instruction dated 1st August 2024. The Client's representative for the contract was Sally Smith of Bloor Homes East Midlands. Harry Wightman, Ruth Gale and Megan Cruise of JBA Consulting carried out this work.

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Abbreviations

AEP	Annual Exceedance Probability
AOD	Above Ordnance Datum
BGS	British Geological Survey
CFMP	Catchment Flood Management Plan
DTM	Digital Terrain Model
EA	Environment Agency
FMfP	Flood Map for Planning
FRA	Flood Risk Assessment
ID	Identifier
LiDAR	Light Detection And Ranging
LPA	Local Planning Authority
NaFRA2	National Flood Risk Assessment 2
NGR	National Grid Reference
NPPF	National Planning Policy Framework
OS	Ordnance Survey
OS NGR	Ordnance Survey National Grid Reference
PFRA	Preliminary Flood Risk Assessment
PPG	Planning Policy Guidance
SFRA	Strategic Flood Risk Assessment

1 Introduction

1.1 Terms of reference

JBA Consulting was commissioned by Bloor Homes East Midlands to undertake a Flood Risk Assessment (FRA) for a residential development of up to 180 dwellings at Sacheverall Way, Groby, Leicestershire (hereafter referred to as 'the site').

This FRA provides information on all aspects of flood risk at the site in accordance with the National Planning Policy Framework (NPPF), associated Planning Practice Guidance (PPG) and Local Planning Policy. It also considers the flood risk mitigation relevant to the nature of the proposed development and the identified flood risks.

1.2 FRA requirements

It is a requirement for applications to consider the potential risk of flooding from various sources to a proposed development over its lifetime and any possible impacts on flood risk elsewhere as a result of the development.

Where appropriate, the following aspects of flood risk should be addressed:

- The nature and expected lifetime of the development and the extent to which the development is designed to deal with flood risk.
- The area liable to flood from various sources.
- The probability of the current and future flood risk.
- The extent and standard of existing flood defences and their effectiveness over time.
- The likely depth of flooding.
- The rates of predicted flows.
- The likelihood of impacts on other areas, properties and habitats.
- The effects of climate change.

The level of flood risk to the site has been determined based on a review of the site topography and information provided to us by the client and a review of publicly available information including open licence flood risk datasets provided on the Defra Data Services website by the Environment Agency. This includes the Flood Map for Planning, LIDAR Digital Terrain Model (DTM) and flood history datasets. Site-specific hydraulic modelling has also been undertaken to inform this FRA.

2 Site Details

2.1 Site description

The site is located to the south of Sacheverall Way, Groby and is greenfield in nature. The site is located approximately 400m north of Rothley Brook, an Environment Agency designated Main River.

Table 2-1: Site description

Site descriptors	Site details
Site location	Sacheverall Way, Groby, Leicestershire
Site area	10.55ha
Existing land use	Greenfield land
Proposed land use	Residential development of up to 180 dwellings
OS NGR	SK 52595 06329
County	Leicestershire
Country	England
Local Planning Authority	Hinckley and Bosworth Borough Council
Lead Local Flood Authority	Leicestershire County Council



2.2 Proposed development

The proposed development is for a residential development of up to 180 dwellings within the site boundary. Access is proposed from Sacheverell Way to the north. The proposed high level development concept is shown in Appendix A and an extract is shown in Figure 2-1.

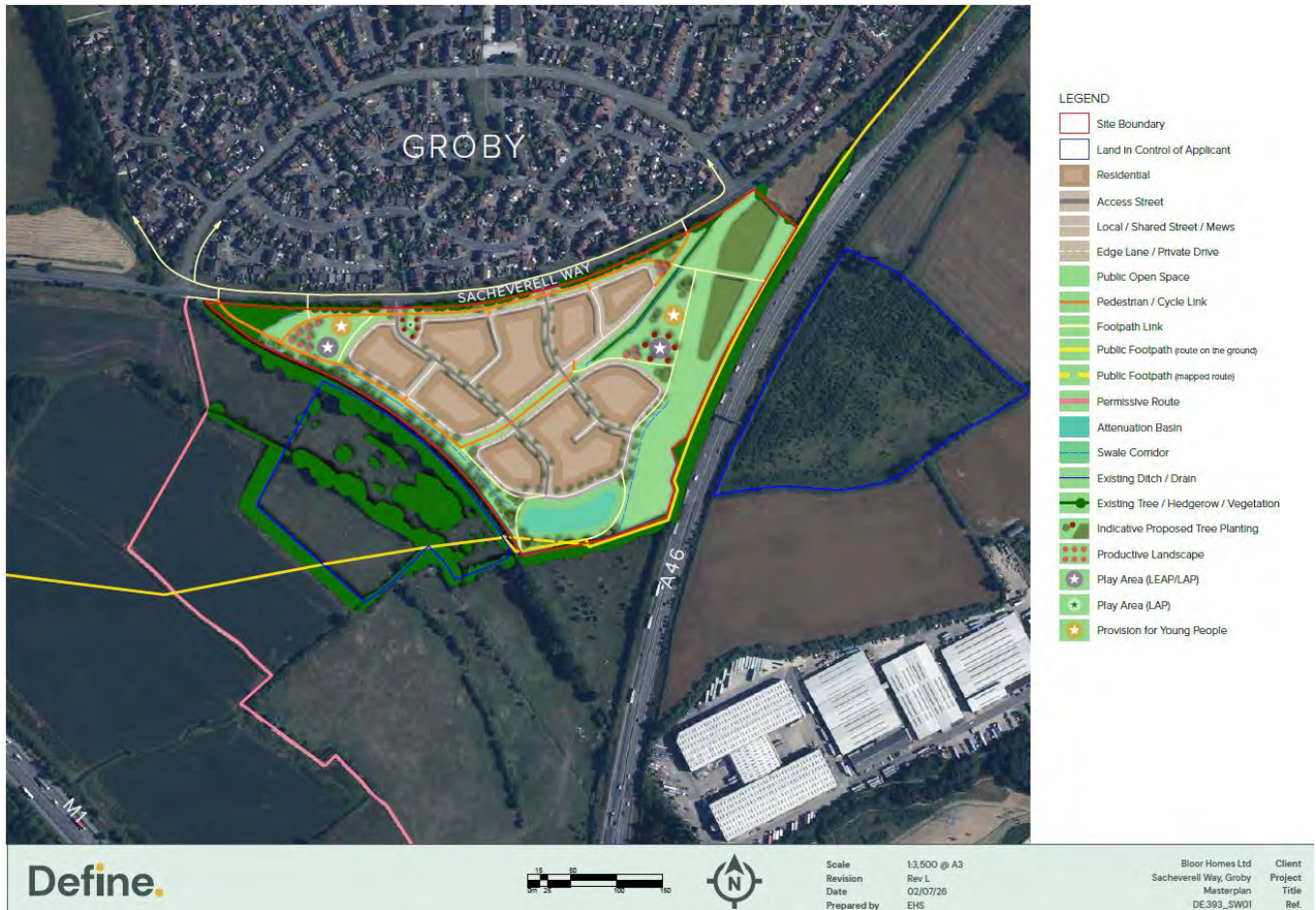


Figure 2-1: Proposed development concept

2.3 Topography

Publicly available LiDAR elevation data shown in Figure 2-2 along with site-specific topographic survey data (included in Appendix B) shows that the north and east of the site have a higher elevation than the west and south of the site with the lowest point of 76m above ordnance datum (AOD) being on the south corner of the site. The elevation increases up to 89.4m AOD in the north-eastern corner of the site. Some of the topographic features in the south-west of the site are likely associated with a dismantled railway shown on the mapping.

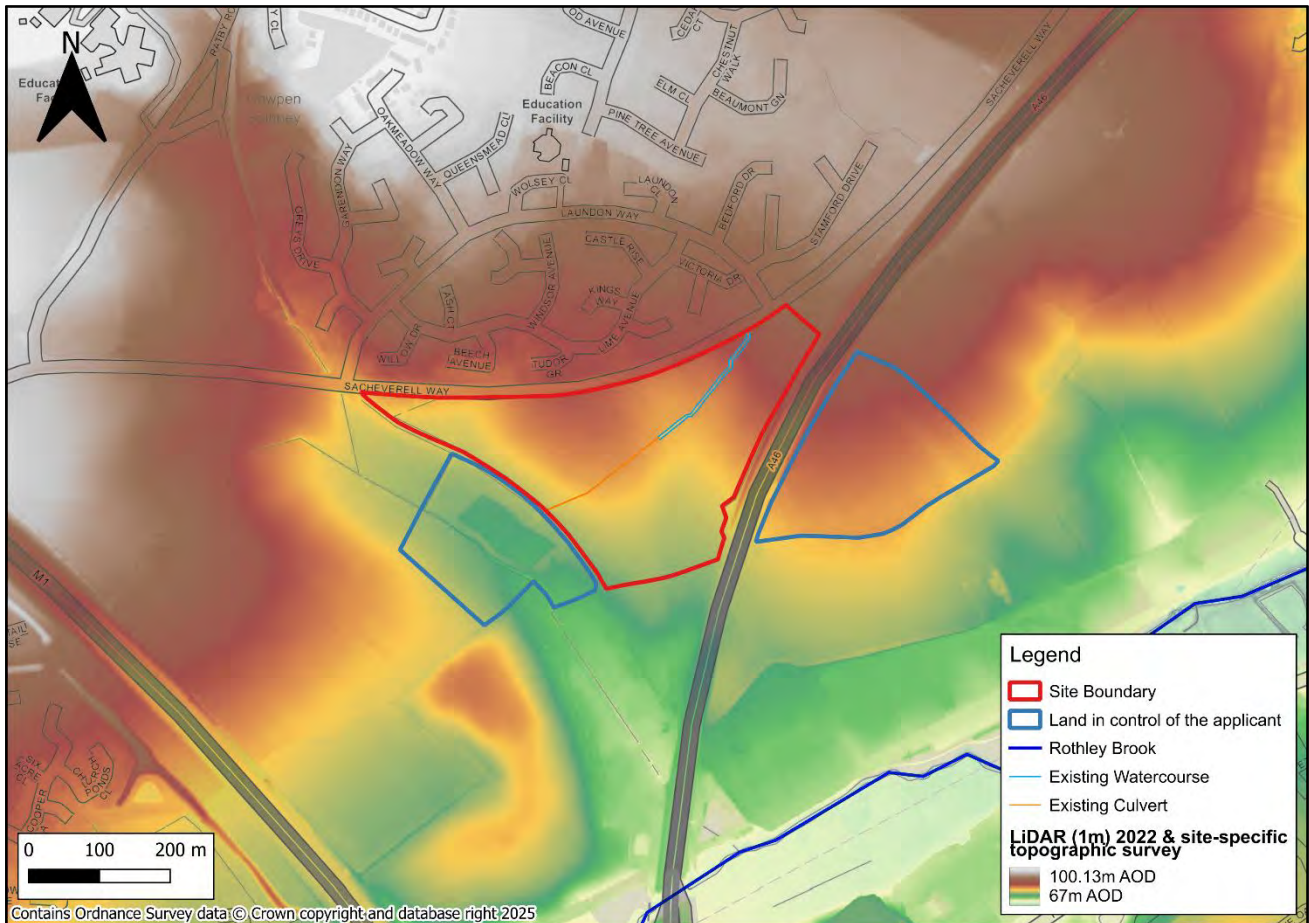


Figure 2-2: Topography (m AOD)

2.4 Geology

The British Geological Survey (BGS) 50k geological mapping¹ indicates the underlying bedrock at the site is Edwalton Member - Mudstone. Soils mapping² indicates that the underlying soil types are loamy and clayey soils that are seasonally wet. A Ground Investigation Report was produced in January 2026 by Geodyne Limited, which is shown in Appendix C.

2.5 Watercourses

As shown in Figure 2-3, the Rothley Brook, an Environment Agency Main River, flows in a north-easterly direction approximately 400m to the south of the site. Ordinary Watercourses flow through the west of the site and on the eastern site boundary. A 900mm culvert runs across the centre of the site from the existing watercourse shown in Figure 2-3.

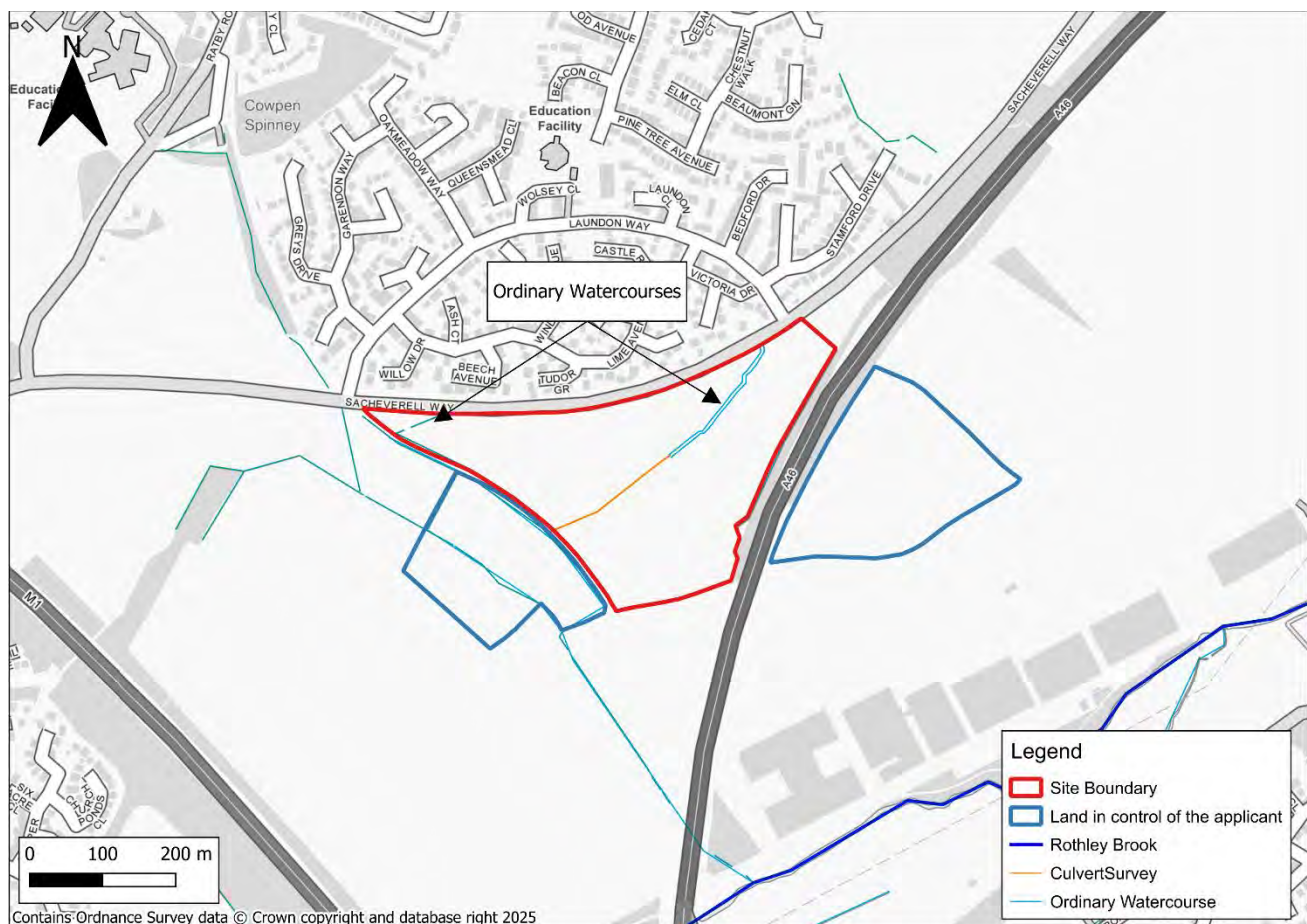


Figure 2-3: Watercourses

¹ BGS Geology of Britain viewer:

https://mapapps2.bgs.ac.uk/geoindex/home.html?layers=BGSBedrock50,BGSSuperficial50,BGSArtificial50,BGSMass50,BGSLinearFeat50&_ga=2.247862343.1190925926.1671547286-757587520.1671547286

² Soils mapping: <https://www.landis.org.uk/soilsmapping/>

3 Planning Policy and Flood Risk

3.1 Planning context

The National Planning Policy Framework³ (NPPF) was issued by the Department for Communities and Local Government in March 2012 and last updated in February 2025. The NPPF is accompanied by the Planning Practice Guidance⁴ (PPG) on Flood Risk and Coastal Change, updated in August 2022, which gives further information on the approaches to be adopted in the assessment of flood risk for development. The PPG, in relation to development planning and flood risk, uses a sequential characterisation of risk based on planning zones and the Environment Agency Flood Map for Planning. A principal study requirement is to identify the Flood Zones and vulnerability classification relevant to the proposed development, based on an assessment of current and future conditions.

3.2 Development of sites in Flood Zones

Flood risk is a combination of the probability and the potential consequences of flooding from all sources – including from rivers and the sea, directly from rainfall on the ground surface and rising groundwater, overwhelmed sewers and drainage systems, from reservoirs and, canals, lakes and other artificial sources.

The Environment Agency categorise the fluvial and tidal risk in a series of Flood Zones within the Flood Map for Planning; a definition of such Flood Zones can be found in Table 3-1 (reproduction of Table 1 of the PPG). The Environment Agency's Flood Map for Planning shows the risk of flooding in England for different return period events. This map provides the basis for the assessment of flood risk and development suitability.

It is important to note that the Environment Agency's Flood Map for Planning, in some cases, is based on broad-scale river modelling and provides an indication of the potential flood risk in the area rather than a level of detail suitable for a site-specific assessment. In some areas the Flood Map is informed by historic flood mapping.

3.3 NPPF and PPG Flood Zones and development tables

Table 3-1 shows how the Flood Zones are defined (as based on Table 1 in the PPG). Figure 3-1 shows the Environment Agency's Flood Map for Planning in relation to the site. This shows that the entirety of the site is outside of Flood Zones 2 and 3 and is therefore located within Flood Zone 1. It should be noted that the Flood Map for Planning focuses on the Environment Agency Main Rivers and tidal risk and not the risk from Ordinary Watercourses, which are the responsibility of the Lead Local Flood Authority.

³ National Planning Policy Framework:

https://assets.publishing.service.gov.uk/media/67aafe8f3b41f783cca46251/NPPF_December_2024.pdf

⁴ Planning Practice Guidance: <https://www.gov.uk/government/collections/planning-practice-guidance>

Table 2 of the NPPF⁵ determines the classification of flood risk vulnerability in relation to a proposed development type. Residential land-uses, such as that proposed, are considered to be 'More Vulnerable' development.

Table 3-2 shows the compatibility of flood zones and vulnerability classifications. This shows that More Vulnerable development is compatible with sites within Flood Zone 1.

Table 3-1: Flood Zones

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than 0.1% annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map for Planning – all land outside Zones 2, 3a and 3b)
Zone 2 Medium Probability	Land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding. (Land shown in light blue on the Flood Map)
Zone 3a High Probability	Land having a 1% or greater annual probability of river flooding; or Land having a 0.5% or greater annual probability of sea. (Land shown in dark blue on the Flood Map)
Zone 3b The Functional Floodplain	This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise: - land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or - land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding). Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map)
Note: The Flood Zones shown on the Environment Agency's Flood Map for Planning (Rivers and Sea) do not take account of the possible impacts of climate change and consequent changes in the future probability of flooding. Reference should therefore also be made to the Strategic Flood Risk Assessment when considering location and potential future flood risks to developments and land uses. Paragraph: 078 Reference ID: 7-078-20220825 Revision date: 25 08 2022	

⁵ <https://www.gov.uk/guidance/national-planning-policy-framework/annex-3-flood-risk-vulnerability-classification>

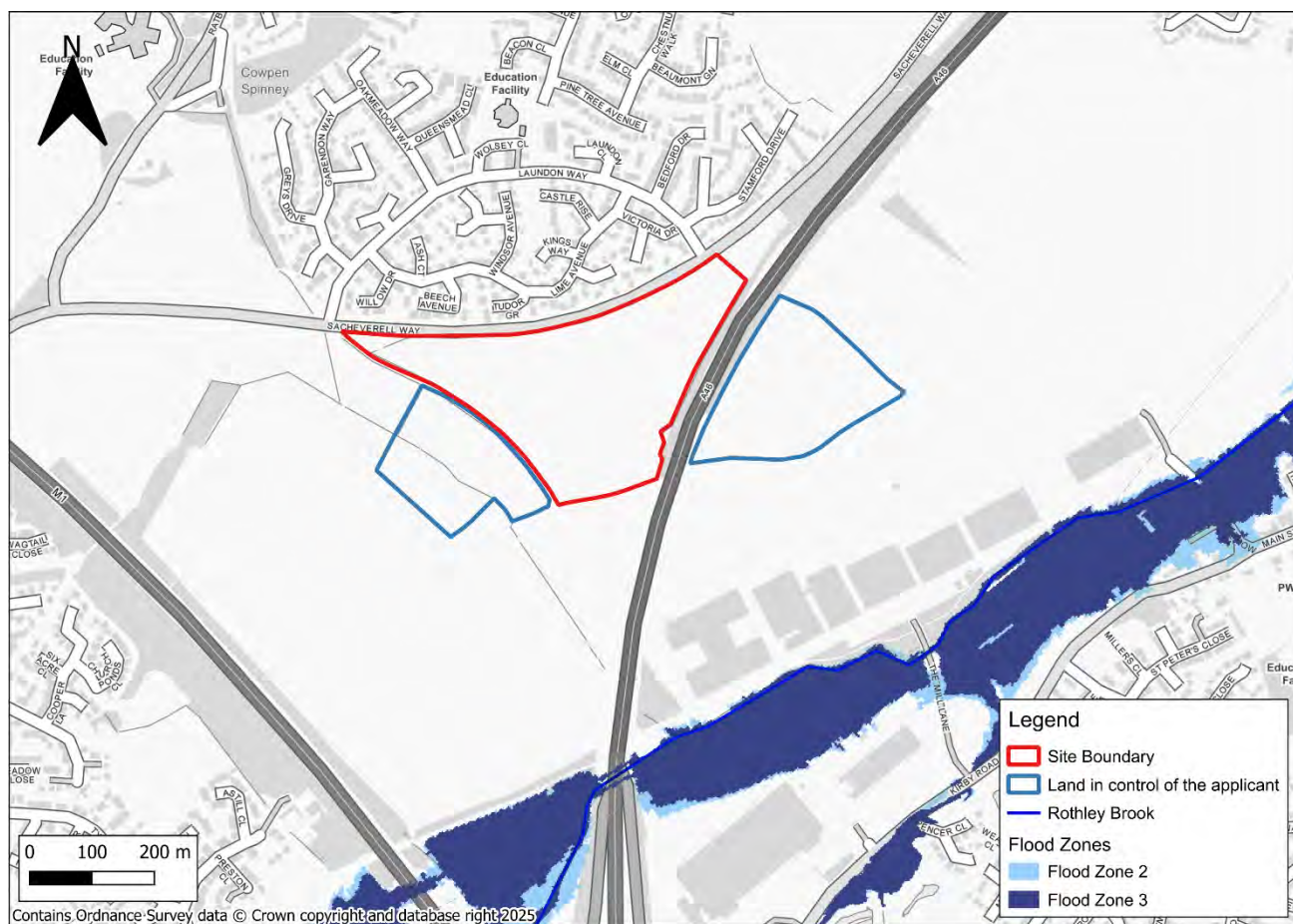


Figure 3-1: Flood Map for Planning

Table 3-2: Flood Risk Vulnerability and Flood Zone 'incompatibility'

Vulnerability Classification (NPPF Table 2)		Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
Flood Zone	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	Exception Test	✓	✓	✓
	Zone 3a	Exception Test	✗	Exception Test	✓	✓
	Zone 3b	Exception Test	✗	✗	✗	✓
Source: Table 3, NPPF Technical Guidance						

✓ *Exception test is not required*✗ *Development should not be permitted*

Notes:

1. Some developments may contain different elements of vulnerability and the highest vulnerability category should be used, unless the development is considered in its component parts.

3.4 Climate change allowances

The NPPF and supporting PPG on Flood Risk and Coastal Change explain when and how flood risk assessments should be used. This includes demonstrating how flood risk will be managed now and over the development's lifetime, taking climate change into account.

In May 2022, the Environment Agency released new guidance on climate change allowances⁶ to support the NPPF.

Table 3-3 shows peak river flow allowances⁷ for the Soar and tributaries Management Catchment. For 'more vulnerable' development the guidance states the central allowance should be used for the development lifetime i.e. 28%.

Table 3-3: Soar and tributaries Management Catchment peak river flow allowances

Epoch	Central	Higher	Upper End
2020s	14%	18%	28%
2050s	16%	21%	35%
2080s	28%	37%	60%

Table 3-4 shows the peak rainfall allowances⁸ for the Soar and tributaries Management Catchment that should be used to assess the impacts of climate change on surface water flood risk. The Upper End 2070s allowance should be used for development proposed with a lifetime beyond 2100.

Table 3-4: Soar and tributaries Management Catchment peak rainfall allowances

Epoch	3.3% annual exceedance rainfall event		1% annual exceedance rainfall event	
	Central	Upper End	Central	Upper End
2050s	20%	35%	20%	40%
2070s	25%	35%	25%	40%

⁶ Flood Risk Assessments – <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>

⁷ Peak river flow allowances: <https://environment.data.gov.uk/hydrology/climate-change-allowances/river-flow>

⁸ Peak rainfall allowances: <https://environment.data.gov.uk/hydrology/climate-change-allowances/rainfall?mgmtcatid=3078>

3.5 Policy and guidance review

3.5.1 Hinckley and Bosworth Local Plan (2006-2026)

The Hinckley and Bosworth Local Plan⁹ sets out the vision and objectives for the growth of the borough up to 2026. The proposed site is located just within the eastern boundary of Hinckley and Bosworth Borough.

The document sets out a series of policies which includes:

- Housing for Everyone: "The focus of development will be in and around the Hinckley urban area, with more limited development in the rural areas to meet local needs. All housing will be high quality, locally distinctive, sustainable developments." (Hinckley and Bosworth Local Plan, 2006-2026)
- Natural Environment and Cultural Assets: " To deliver a linked network of green infrastructure, enhancing and protecting the borough's distinctive landscapes, woodlands, geology, archaeological heritage and biodiversity and encourage its understanding, appreciation, maintenance and development. " (Hinckley and Bosworth Local Plan, 2006-2026)
- Climate Change and Resource Efficiency: " To minimise the impacts of climate change by promoting the prudent use of resources through sustainable patterns of development, investment in green infrastructure, minimising the use of resources and energy, increasing reuse and recycling of natural resources, increasing the use of renewable energy technologies and minimising pollution, including greenhouse gas emissions. " (Hinckley and Bosworth Local Plan, 2006-2026).

3.5.2 Hinckley and Bosworth Level 1 Strategic Flood Risk Assessment (2019)

A Strategic Flood Risk Assessment (SFRA)¹⁰ is undertaken by the Local Planning Authority to assess the current and future flood risk within their administrative boundary and, to determine the impact development may have on flood risk. The current version of the Hinckley and Bosworth Borough Council Level 1 Strategic Flood Risk Assessment was published in July 2019.

The recommendations and policies section relating to flood risk are summarised below:

- Use sustainable flood storage and mitigation schemes to store water and manage surface water runoff in locations that provide overall flood risk reduction as well as environmental benefits.
- In areas where flood risk is being managed effectively, there will be a need in the future to keep pace with increasing flood risk as a result of climate change.
- Promote partnership working with all relevant stakeholders in the Tame,

⁹ <https://www.hinckley-bosworth.gov.uk/localplandocs>

¹⁰ https://www.hinckley-bosworth.gov.uk/info/1004/planning_policy_and_the_local_plan/1571/strategic_flood_risk_assessment_sfra_2020

Anker and Mease Humber RMP management catchment. This includes working with land managers and farmers to reduce soil erosion from intensively farmed land.

- Assess long-term opportunities to move development away from the floodplain and create green river corridors through Leicestershire.
- Identify opportunities to use areas of the floodplain to store water during high flows, to reduce long term dependence on engineered flood defences located both within the borough (at Witherley) and outside the borough (for instance, in Rothley, Charnwood).
- Safeguard the natural floodplain from inappropriate development.
- Where possible, land management change should be used to reduce run-off rates from the development whilst maintaining or enhancing the capacity of the natural floodplain to retain water. Land management and uses that reduce runoff rates in upland areas should be supported.
- Development should maintain conveyance of watercourses through hamlets and villages (e.g. Sheepy Magna), to help reduce the impact of the more frequently experienced floods and to improve the natural environment.
- Use SFRAs to inform future development and minimise flood risk from all sources.
- Implement upstream catchment management e.g. slow the flow and flood storage schemes could be implemented in upper catchments to reduce flooding downstream and across neighbouring authority boundaries.
- Promote and consider SUDS at the earliest stage of the development of a site.

3.5.3 Leicestershire County Council Local Flood Risk Management Strategy

Leicestershire's first Local Flood Risk Management Strategy¹¹ (LFRMS) was published in 2015 and was revised and updated in February 2024. This document sets out the main recommendations for flood risk management in the area in the council's role as the Lead Local Flood Authority (LLFA).

The LFRMS is an important tool to help understand and manage flood risk within the county. Flood risk management is beginning a new stage which will be marked by better knowledge of the risks in the county, better co-operation between organisations involved in flood risk management, and better communication with the public about those risks.

There are 5 objectives for managing local flood risk in Leicestershire. The objectives of the LFRMS include:

1. Assets, Watercourses and catchments: To manage local flood risk through the effective management of flood risk assets, watercourses, and catchments.
2. Encouraging Sustainable Development: To manage local flood risk through encouraging sustainable development.
3. Flood Preparedness, Response and Recovery: To manage local flood risk through effective preparedness, response to, and recovery from flood events.

¹¹ <https://www.leicestershire.gov.uk/sites/default/files/2024-02/Local-Flood-Risk-Management-Strategy-for-Leicestershire.pdf>

4. Better Understanding Flood Risk: To better understand local flood risk and impacts, informing approaches to managing this risk.
5. Local Projects: To manage local flood risk through developing and or managing local projects for at-risk communities.

4 Assessment of Flood Risk

4.1 Historic flooding

The Environment Agency's Recorded Flood Outlines dataset for the site and surrounding area has been reviewed. The site does not fall within the Environment Agency's historical flood outlines.

4.2 Fluvial flood risk

4.2.1 Flood Map for Planning

Figure 3-1 shows the Environment Agency's Flood Map for Planning. The entirety of the site is outside of Flood Zones 2 and 3. The nearest area within Flood Zone 3 is situated approximately 400m south of the site. The Flood Map for Planning is focused on the risk from Environment Agency Main Rivers so should represent the risk from Rothley Brook. In the event of a breach of Rothley Brook's banks, it is very unlikely flood water will travel towards the site due to the site topography sloping south-west. Therefore, the risk of flooding from fluvial sources is **Very Low**.

4.3 Surface water flood risk

4.3.1 Environment Agency RoFSW mapping

Surface water flooding arises following periods of intense rainfall, or rain falling on saturated soil, that is unable to soak into the ground or where drainage systems are unavailable or unable to manage surface water runoff. This surface water runoff forms overland flow when following 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.

Figure 4-1 shows the Environment Agency's Risk of Flooding from Surface Water (RoFSW) from the NaFRA2 mapping. The site has areas within the High (3.3% AEP), Medium (1% AEP) and Low (0.1% AEP) surface water flood events, on account of the Ordinary Watercourses which cross the site. However, the NaFRA2 mapping 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 developed to refine the flood risk shown within the NaFRA2 mapping and to provide results suitable for a site-specific assessment of flood risk.

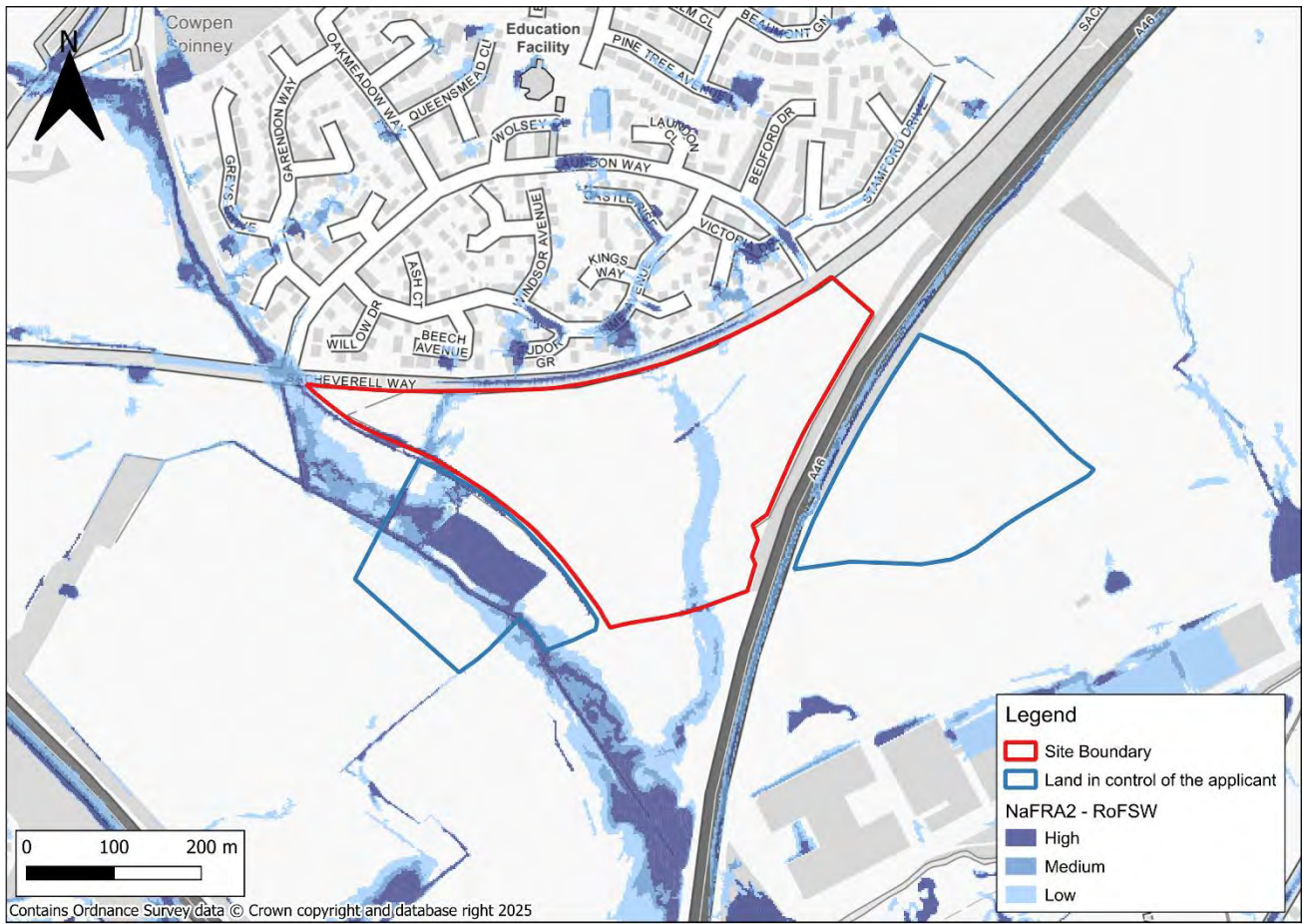


Figure 4-1 Environment Agency's NaFRA2 RoFSW mapping

4.3.2 Hydraulic modelling

4.3.2.1 Baseline modelling

A surface water rainfall-runoff hydraulic modelling study to allow the detailed representation of flood depths, velocity and hazard within the site boundary was undertaken. A 2D InfoWorks-ICM hydraulic model was built, and a hydrological assessment was carried out to derive rainfall hyetographs. The existing culvert which crosses the site was represented within the modelling together with the existing Ordinary Watercourses. Detailed technical reporting is included within Appendix D.

The predicted baseline flood extents during the 3.3%, 1% and 0.1% AEP events are shown in Figure 4-2. Figure 4-2 shows that flooding is predicted to occur on the site during all modelled events. Flow is present through the existing culvert in all modelled events.

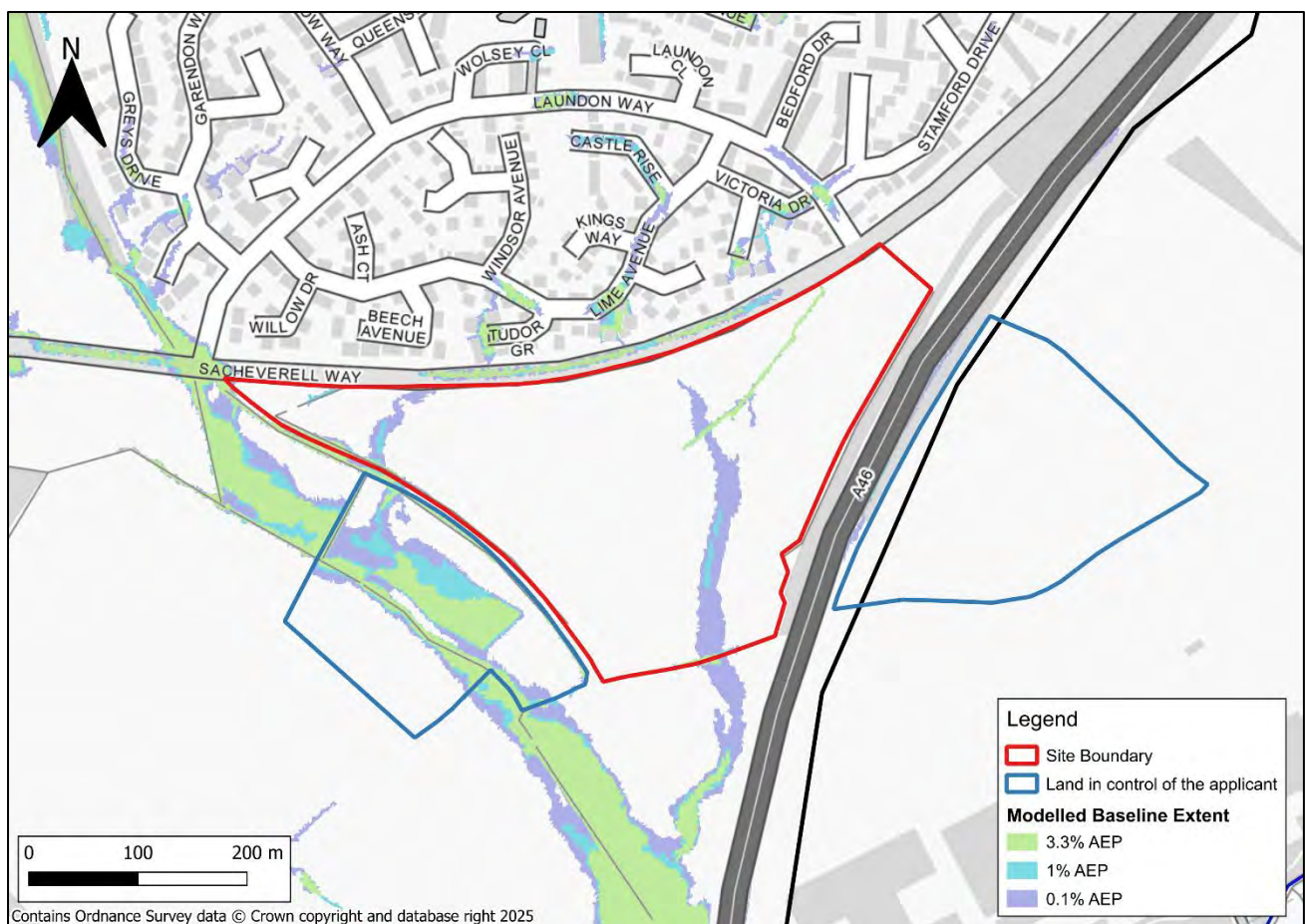


Figure 4-2: Baseline Flood Extents

The allowance used to represent climate change during the design flood event (1% AEP plus climate change) has been set in line with EA guidance for rainfall i.e. 40% (Table 3-4). The modelled flood extents for the baseline climate change events is shown in Figure 4-3. This indicates that flooding is predicted to occur within the site during the 3.3% AEP with (+35%) climate change and 1% AEP with (+40%) climate change event

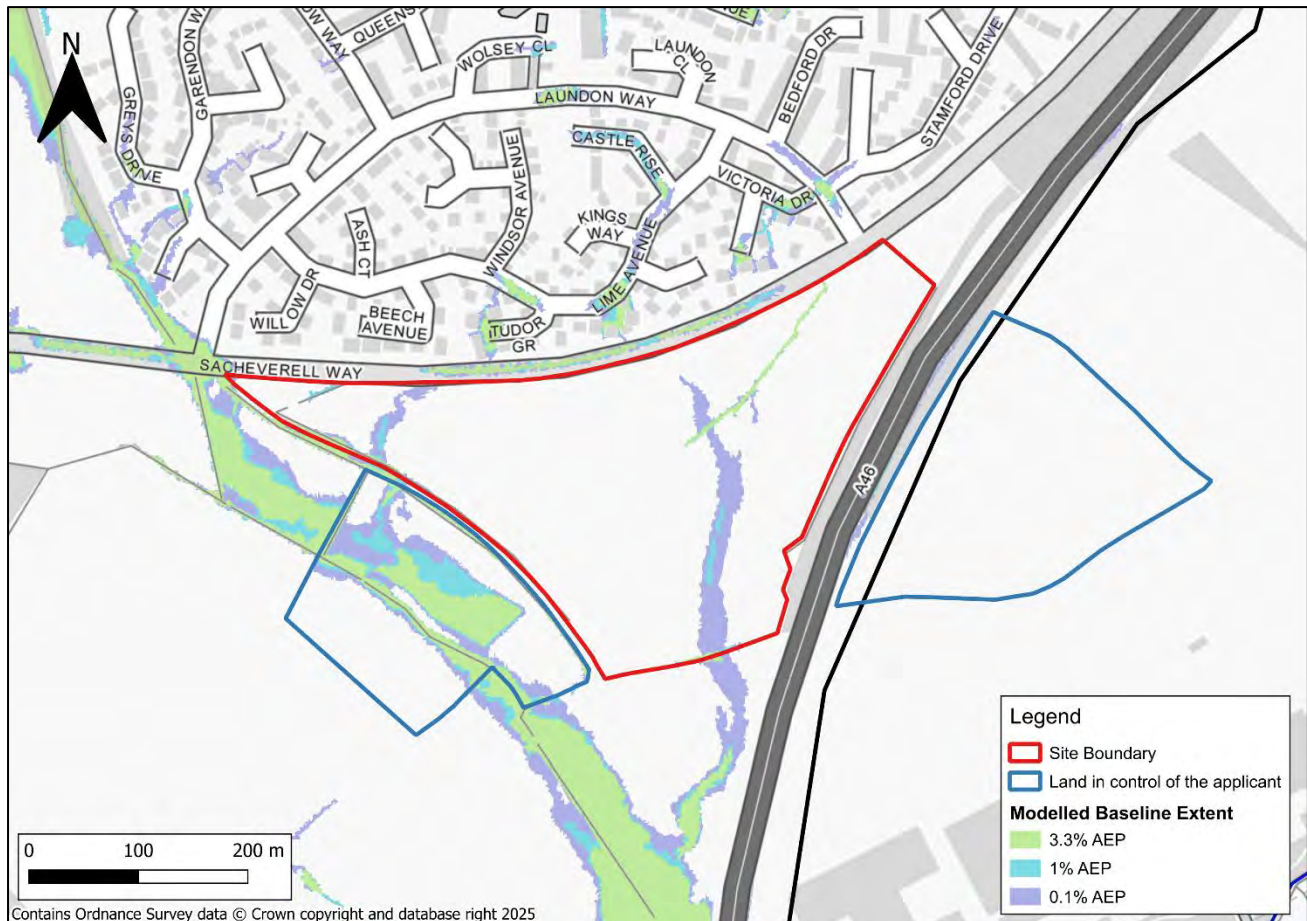


Figure 4-3 Baseline flood extents with climate change uplifts

Figure 4-4 shows the peak flood depths within the site boundary during the 1% AEP plus 40% climate change event for the baseline scenario i.e. the design flood event. Peak modelled flood depths of up to 0.99m are predicted to occur within the site during the 100-year (1% AEP) plus 40% climate change event. However, typical floodplain depths are <0.2m during this event.

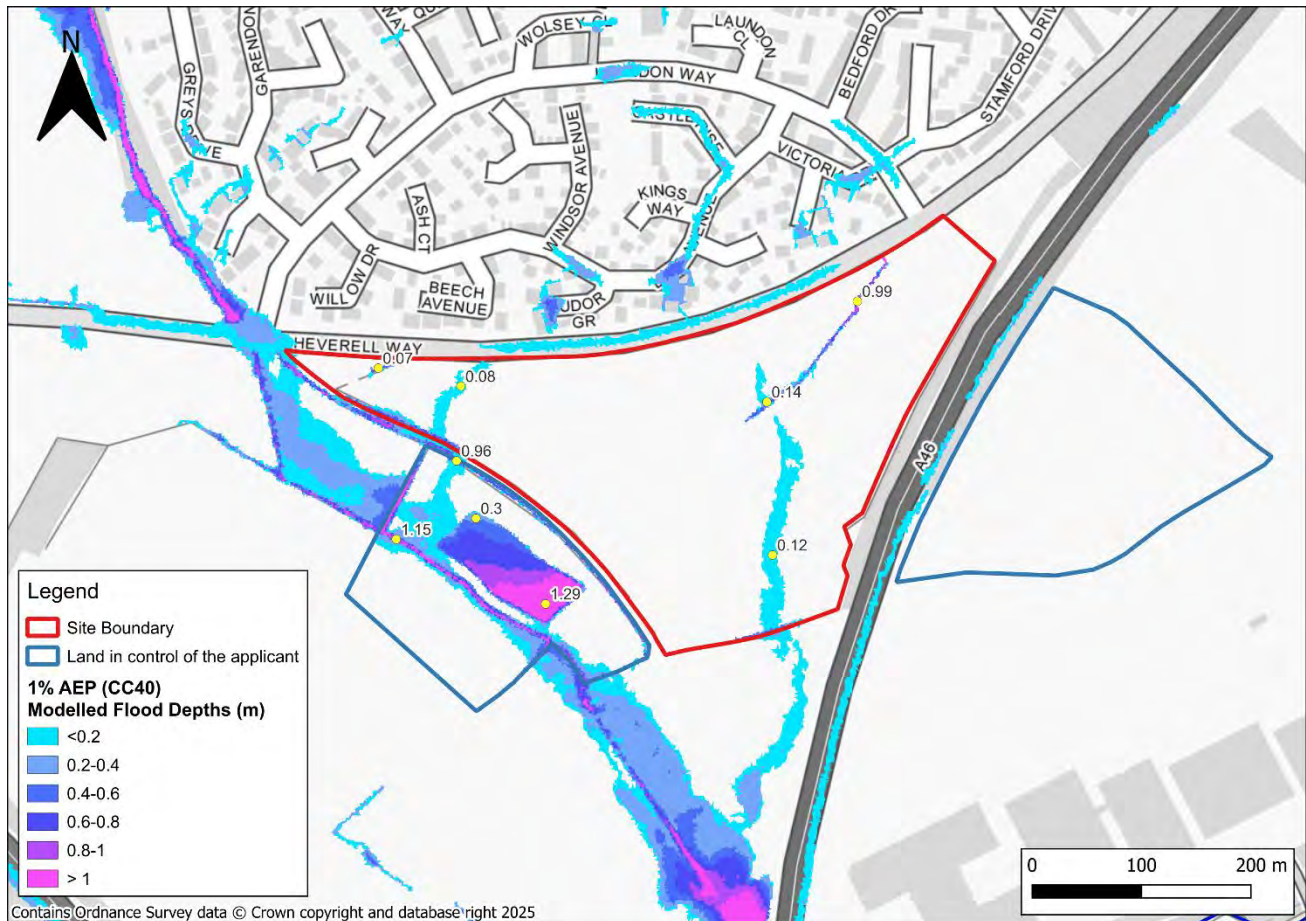


Figure 4-4 Modelled flood depths with 1% AEP +40CC flood event

Figure 4-5 shows the peak flood levels within the site boundary during the 1% AEP plus 40% climate change event for the baseline scenario. Peak modelled flood levels are predicted to range between 84.29m AOD and 78.92m AOD during the 1% AEP plus 40% climate change event.

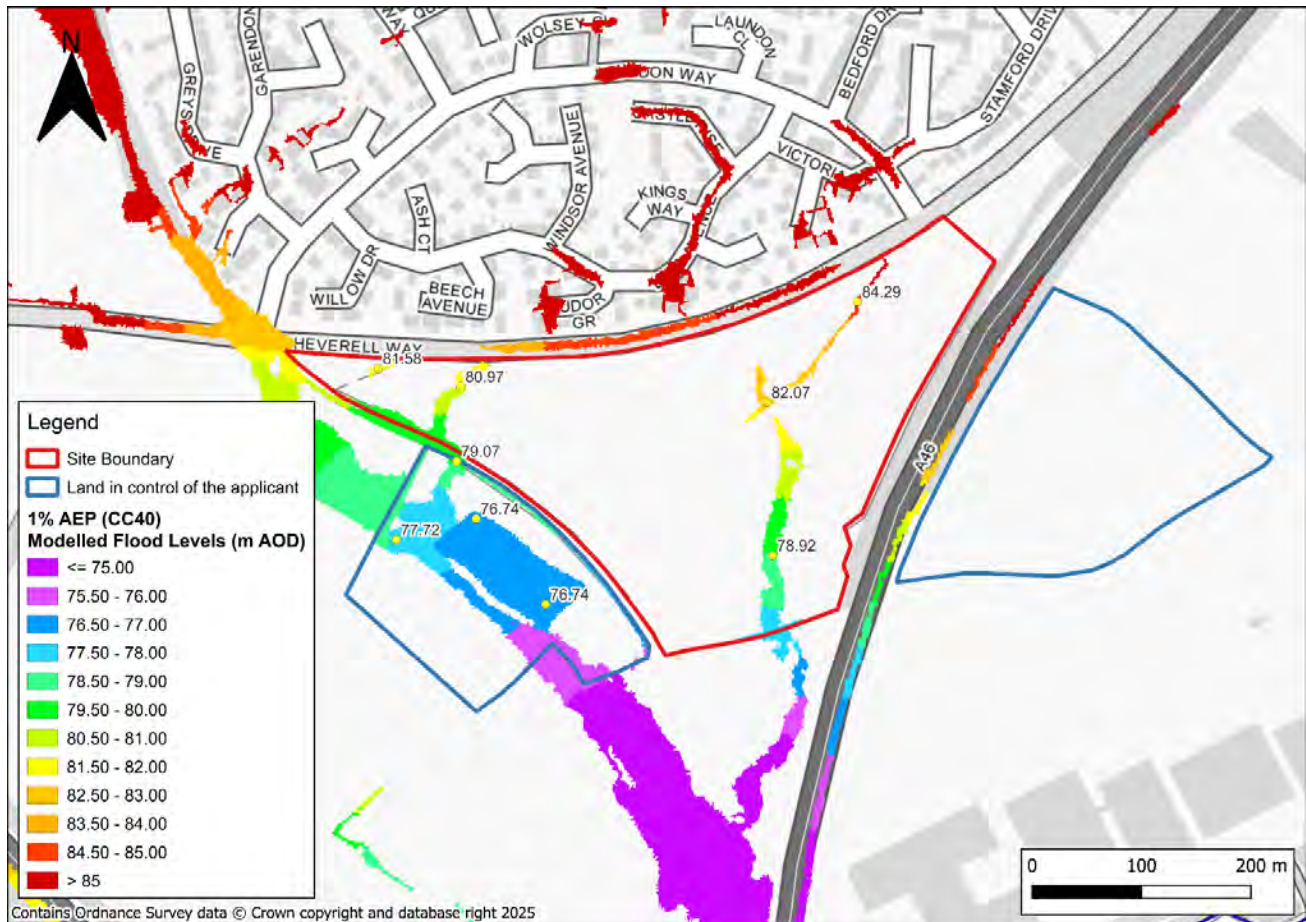


Figure 4-5 Modelled levels in 1% AEP +40% climate change flood event

4.3.2.2 Post development modelling

The baseline model was amended by applying proposed ground level changes including a swale to redirect high flows previously entering the onsite culvert. To facilitate this, ground levels were raised around the culvert inlet, ensuring that when water levels reached 81.6 m AOD, the excess flows could be redirected eastward into a swale designed to channel the water southwards. The existing 900 mm culvert has been reduced to 750 mm to represent the installation of a 750 mm orifice plate at its inlet. This measure aims to lower the proposed downstream flood risk and redirect overland flow through the swale into the drainage ditch along the site's southeastern boundary.

Further to discussions with the LLFA on the 17th December 2024, it was confirmed that if the existing culvert running through the site was not daylight, the LLFA would not object to the planning application on the basis that the 'status quo is being maintained' (Appendix E).

Indicative development parcels are shown in Figure 4-6. Rainfall inputs were removed from the areas shown to represent the impact of the proposed surface water drainage strategy.

This post-development scenario aimed to redirect off-site generated overland flow paths southwards around Development Zone B.

The proposed drainage basin was represented as at capacity as this feature would be serving the site drainage strategy and would be unavailable for off-site flows.

The post-development scenario was simulated for the 1% AEP plus climate change (40%) event and the post-developed maximum depths are shown in Figure 4-7.

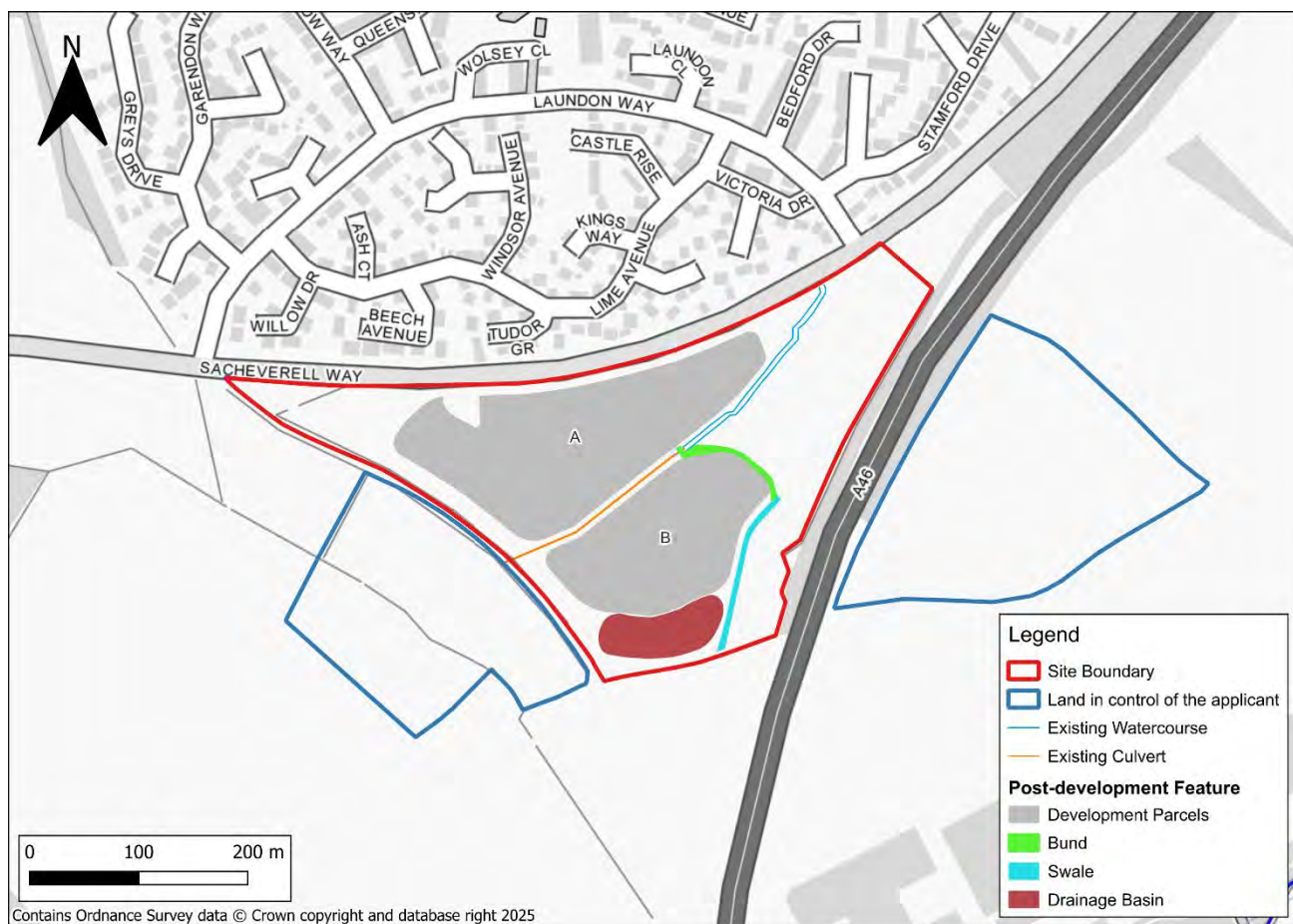


Figure 4-6: Post-development model scenario concept

The results of the post-development modelling for the 1% AEP with (+40%) climate change event shows that maximum flood depths within the eastern part of the site vary between 0m and 0.41m in Figure 4-7. The proposed access from the two parcels and to the north remains operational during the modelled post-developed design flood event.

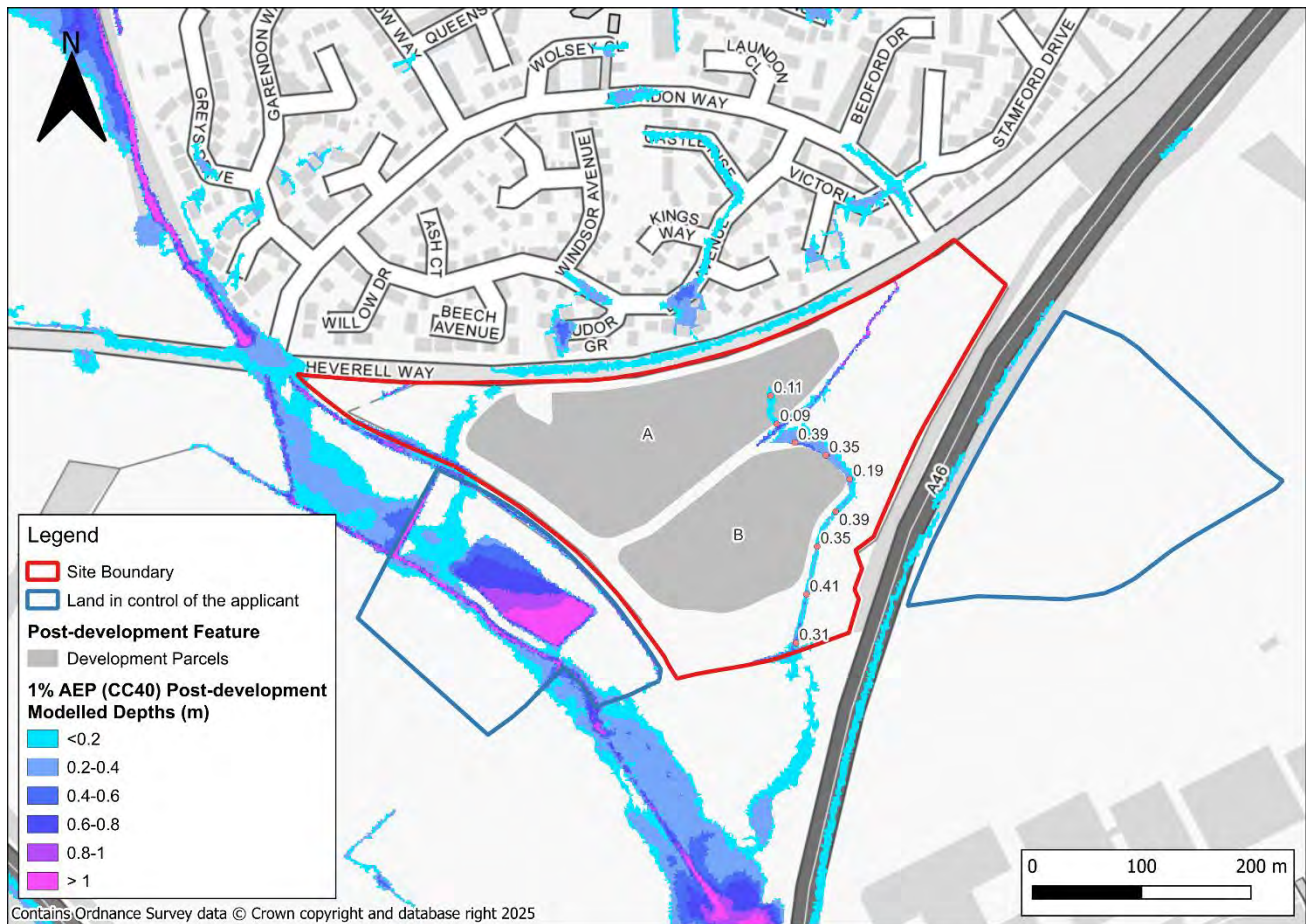


Figure 4-7: Post-developed flood depths for 1% AEP plus 40% climate change event

The post-developed results were then compared with the baseline results to determine any flood risk impacts as a result of the proposed development; this impact assessment is shown in Figure 4-8.

The proposed development does not result in any adverse flood risk impacts to third party land. The northeast of the site, where the proposed ground modification is located, shows a significant increase in depths of +10cm due to ground level changes in order to divert the overland flow paths. There is a significant reduction in peak flood depth by +0.15m south of the modification, which shows the diversion from this area. The reduction in modelled flood depths extends further south of the site.

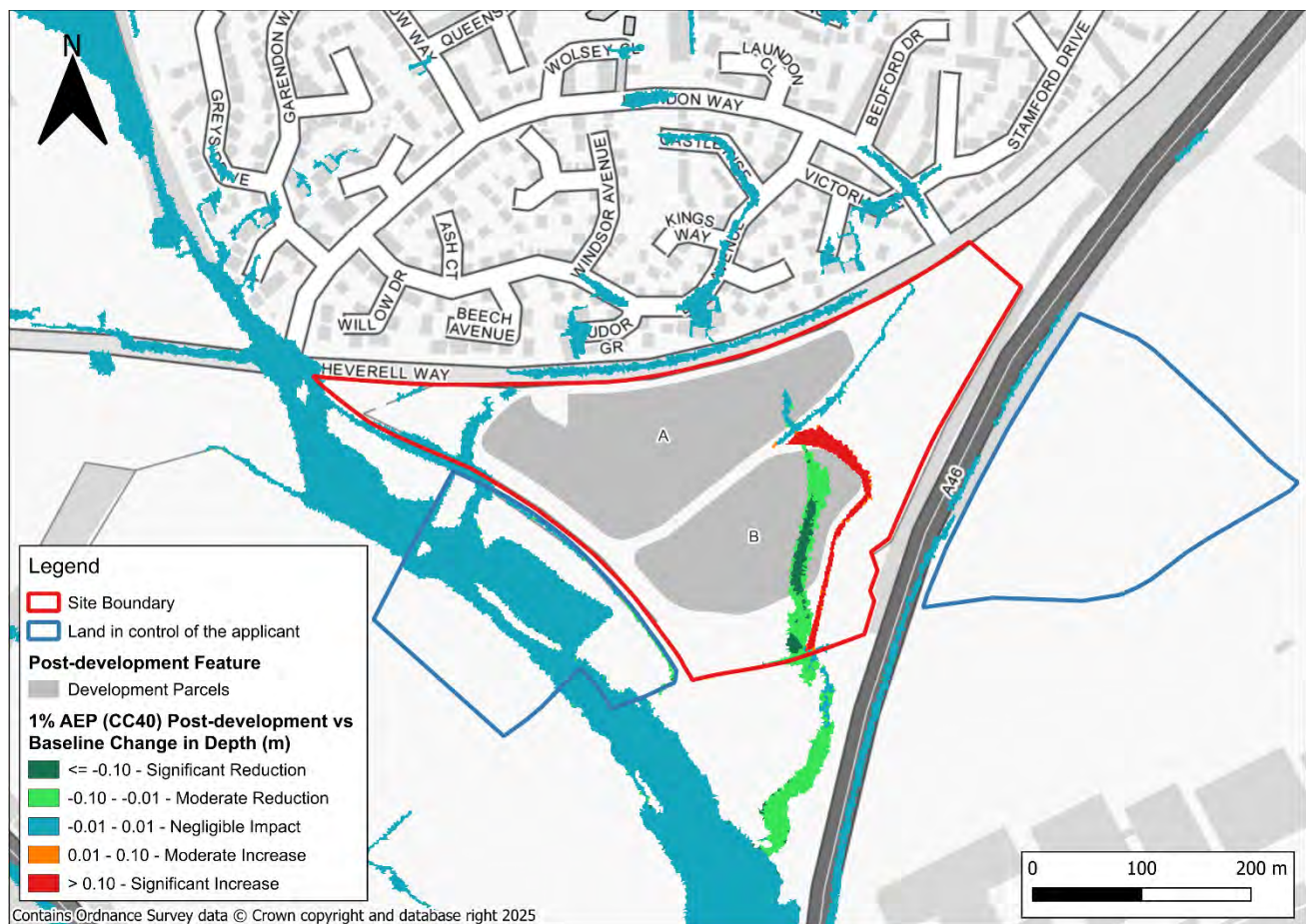


Figure 4-8: Post-developed depth comparison for 1% AEP plus 40% climate change event

The surface water hazard-to-people rating for the post-developed scenario during the 1% AEP plus 40% climate change flood scenario has been mapped using the formula as suggested in Defra's FD2320/TR2 "Flood Risk to People". The different hazard categories are shown in Table 4-1 and the hazard classification for the post-developed scenario during the 1% AEP plus 40% climate change scenario is shown in Figure 4-9.

Table 4-1: Defra's FD2320/TR2 "Flood Risks to People" classifications

Flood hazard rating depth x (velocity+0.5) +DF	Level of Flood Hazard Description	Class label
<0.75	Low	Caution "Flood zone with shallow flowing water or deep standing water"
0.75 to 1.25	Moderate	Dangerous for some (i.e. Children) "Danger: flood zone with deep or fast flowing water"
1.25 to 2.00	Significant	Dangerous for most "Danger: flood zone with deep fast flowing water"
>2.00	Extreme	Dangerous for all "Extreme danger: flood zone with deep fast flowing water"
Using the hazard equation $HR = d*(v+0.5) + DF$ Where d = depth of flooding (m) v = velocity of floodwaters (m/sec) DF = debris factor		

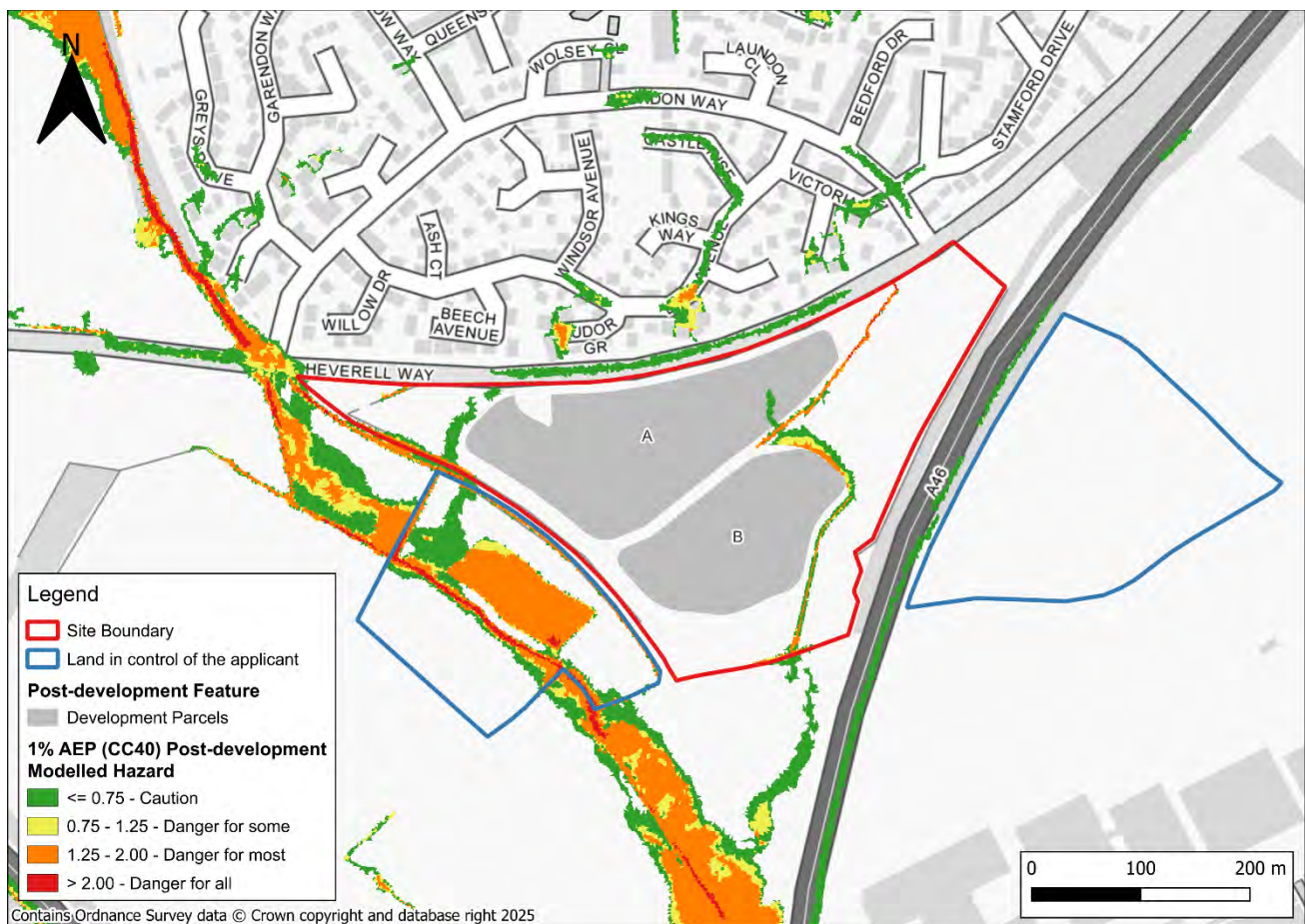


Figure 4-9: Post-developed modelled flood hazard in 1% AEP with (+40%) climate change event

Figure 4-9 shows that the Hazard to People rating for the flooded areas of the site largely falls within the 'Caution' hazard category, with a small area along the southwestern falling into 'Danger for most' hazard category and the southwest ditch falling into the 'Danger for all' category.

The proposed access from the two parcels and to the north along Sacheverell Way remains operational during the modelled post-developed design flood event.

4.4 Groundwater flood risk

Groundwater flooding can occur when the water table rises after prolonged rainfall and emerges above ground level. This is most likely to occur in low-lying areas that are underlain by permeable bedrock and superficial geology. According to Soilscales¹², the underlying soils are loamy and clayey which are seasonally wet.

The Hinckley and Bosworth Borough Council Level 1 SFRA¹³ shows that, in general, the majority of Hinckley and Bosworth borough is within the <25% susceptible classification for groundwater flooding (% per km sq). Parts of the borough were identified as higher risk, but the Sacheverell Way site was not included.

Based on the above, the risk of flooding at the site from groundwater sources is considered to be **Low**.

4.5 Sewer flood risk

According to the Hinckley and Bosworth Borough Council SFRA, sewer flooding is one of the main sources of flooding within the borough

However, as the site is greenfield in nature with no existing sewers crossing the site, the risk of flooding from sewers is considered to be **Low**.

4.6 Reservoir flood risk

Figure 4-10 shows the Environment Agency's Reservoir Failure Flood Extents. The mapping shows the site is not at risk of flooding if a reservoir were to fail during both a flood event (wet day) and when river levels are normal (dry day). Based on the above, the risk of flooding at the site as a result of a reservoir failure is considered to be **Very Low**.

¹² Soilscales soil types viewer - Cranfield Environment Centre. Cranfield University (landis.org.uk)

¹³ <https://www.wokingham.gov.uk/sites/wokingham/files/2023-07/1.%20WBC%20SFRA%202020%20Report.pdf>

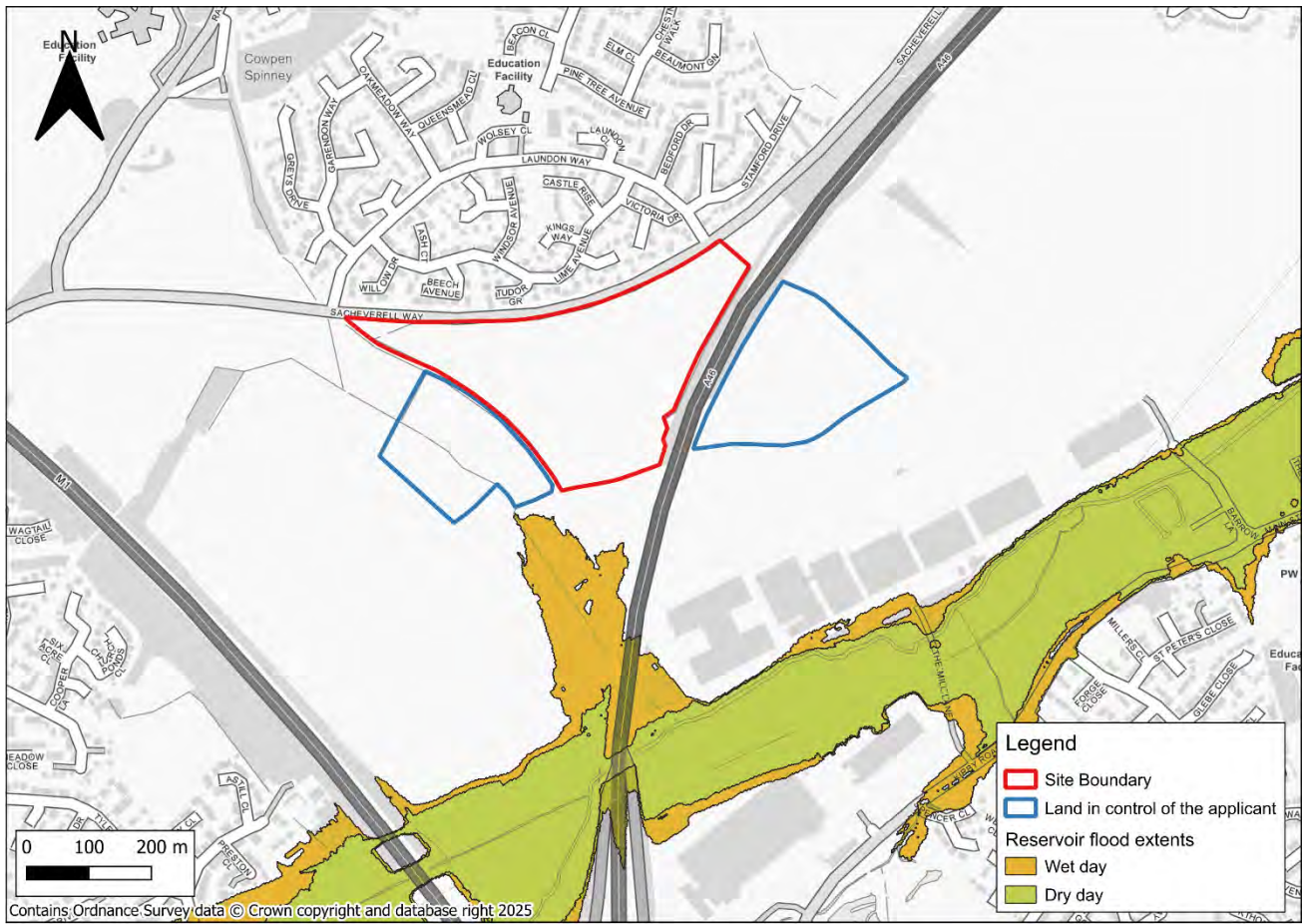


Figure 4-10 Environment Agency's Reservoir Flood Extents

5 Flood Mitigation Measures

In accordance with the NPPF and the associated PPG, it must be demonstrated that the proposed development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

5.1 Site layout

In line with best practice, the development layout has followed a sequential approach to avoid development in areas most at risk of flooding. The surface water flow routes across the site are respected and maintained within the masterplan.

5.2 Finished Floor Levels

The Finished Floor Levels (FFLs) of the proposed residential units should be set above the predicted flood level adjacent to each individual unit in the 1% AEP plus 40% climate change surface water flood event noting that across the site the design flood level ranges from 78.92m AOD to 84.29m AOD. Current Environment Agency guidance states that finished floor levels should be set 600mm above the Design Flood Level.

A detailed site plan was not available at the time of this report and individual FFLs not able to be determined. However, a range of peak water levels for the Design Flood (surface water flood level) is provided in Table 5-1 based on the labels in Figure 5-1. This is provided to give an indication of the range of flood levels in the absence of detail of individual properties. It is recommended that when individual property footprints are known, the flood level adjacent to each property is used to inform its FFL.

Furthermore, in line with part H of the Building Regulations, FFLs and openings (e.g. air bricks) of the proposed buildings should also be set to a minimum of 150mm above the surrounding ground levels

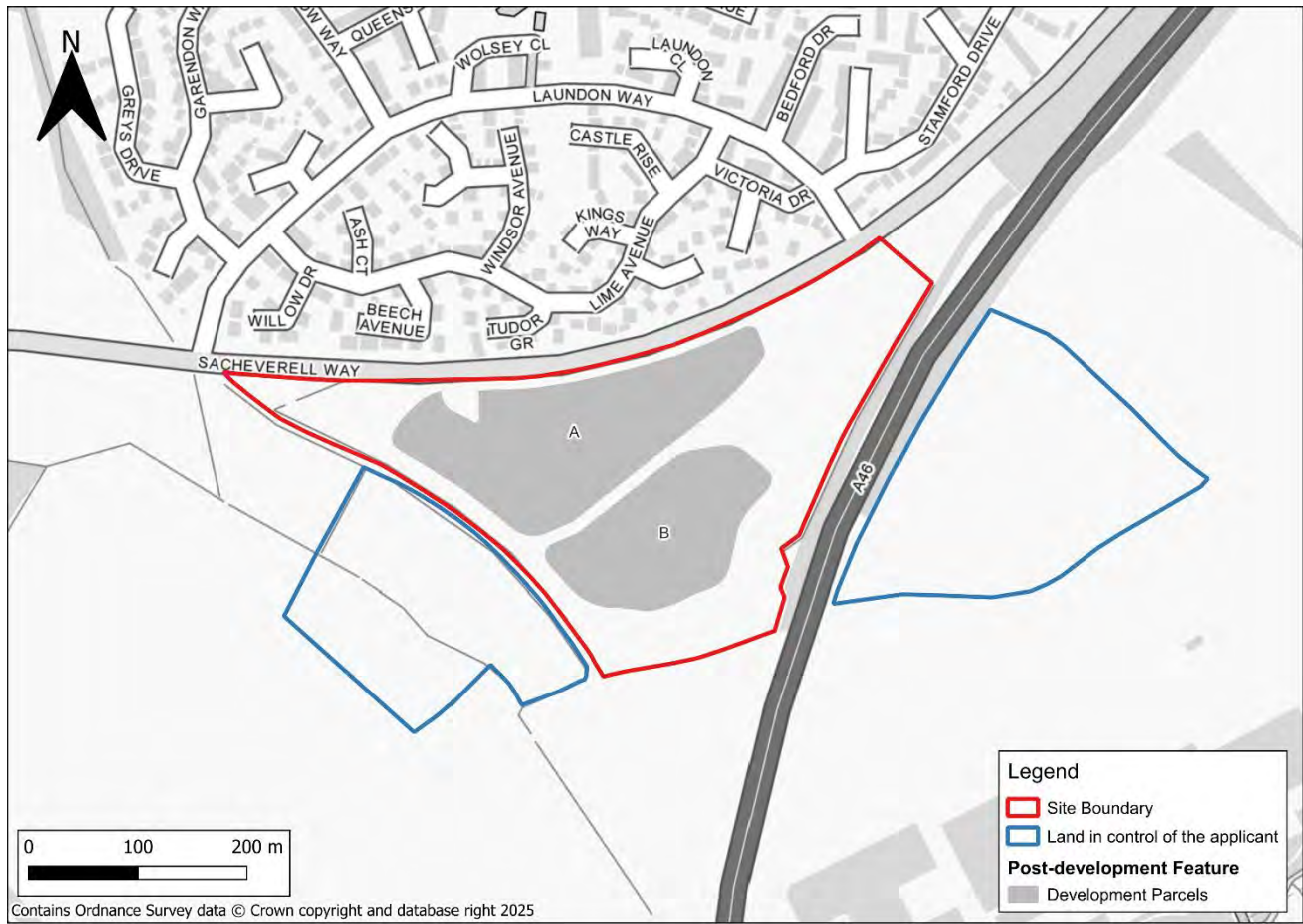


Figure 5-1: Development parcels

Table 5-1: Peak Design Flood level by development parcel

Development Parcel label	Minimum peak flood level (m AOD)	Maximum peak flood level (m AOD)
A	82.16	82.44
B	81.23	82.38

5.3 Surface water management

Surface water runoff from the site will be managed as part of a surface water drainage strategy which will be carried out by JBA Consulting separately to this FRA. This will ensure that surface flows are managed so that there is no adverse flood risk impact to third parties as a result of increased impermeable surfaces on site.

5.4 Safe access and egress

Where a development or its main route of access is located within a flood risk area, the NPPF recommends that Flood Response Plans are put in place for managing the flood risk to the development and, if necessary, support the evacuation of the site. The site is not served by the Environment Agency's flood warning service, which focuses on fluvial flood risk.

Safe access and egress from the two development parcels and to the north along Sacheverall Way remains operational during the flood events considered within this FRA including the Design Flood.

6 Conclusions and Recommendations

6.1 Conclusions

- JBA Consulting was commissioned by Bloor Homes East Midlands to undertake a Flood Risk Assessment (FRA) for a residential development of up to 180 dwellings at Sacheverall Way, Groby, Leicestershire. This FRA has been prepared in accordance with National Planning Policy Framework (NPPF).
- The 10.55ha site is currently greenfield land and falls from an elevation of 89.4m AOD along Sacheverall Way to the north to 76m AOD to the south-west. The Rothley Brook flows in a north-easterly direction approximately 400m to the south of the site. One small ordinary watercourse flows through the west of the site and one on the eastern site boundary. A 900mm culvert runs across the centre of the site.
- The Site is not in Flood Zones 2 or 3 of the Environment Agency's Flood Map for Planning. More Vulnerable development, such as that proposed, is compatible with the site, without the need to apply the Exception Test.
- The site does not fall within the Environment Agency's historical flood outlines and is considered to be at a low risk of flooding from fluvial sources, groundwater, sewers or as a result of a reservoir failure.
- The Environment Agency's NaFRA2 dataset shows significant overland flow paths exist across the Site. However, the NaFRA2 mapping is informed by a generalised mapping approach. Therefore, a detailed rainfall-runoff model (2D InfoWorks-ICM) has been developed to refine the flood risk shown within the NaFRA2 and to provide results suitable for a site-specific assessment of flood risk.
- Results from the rainfall-runoff hydraulic model confirm that overland flow paths are present on site during modelled events.
- During the baseline 1% AEP plus 40% climate change surface water event, typical peak flood depths within the site are predicted to reach up to 0.99m. Peak water levels range from 84.29m AOD down to 78.92m AOD.
- The baseline model was amended by including development parcels, modelling the culvert diameter as 750mm to represent the implementation of a 150mm orifice plate at the inlet and implementing a swale to divert the existing flow path within the 2D model domain to form a post-developed scenario. The post-development scenario was then simulated for the 1% AEP plus climate change event. There is no adverse flood risk impact to third party land as a result of the proposed development. There is a reduction in flood depth to the southeast of the site as a result of the proposed culvert diameter and swale modelled north of Development Zone B.
- Surface water runoff from the site will be managed as part of a surface water drainage strategy which will be carried out by JBA Consulting separately to this FRA.

- Safe access and egress from the two development parcels and to the north along Sacheverall Way remains operational during the flood events considered within this FRA including the Design Flood.
- This FRA report demonstrates that the proposed development may be designed in a sustainable and safe manner without adversely impacting the flood risk either at the Site or to any third-party land.

6.2 Recommendations

Following a review of all sources of flood risk on site, it is recommended to integrate the following mitigation measures as part of the proposal:

- The Finished Floor Levels (FFLs) of the proposed residential units are to be set above the predicted flood level in the 1% AEP plus 40% climate change surface water flood event (84.29m AOD and 78.92m AOD). Current Environment Agency guidance states that finished floor levels should be set 600mm above the Design Flood Level.
- The FFLs and openings (e.g. air bricks) of buildings are set to a minimum of 150mm above surrounding finished ground levels to prevent ingress of surface water.
- The floors of all new buildings should be made of solid construction materials and the ground beneath suspended floors should be sealed to prevent ingress of groundwater should the water table levels increase directly beneath the site.
- At the reserved matter stage, the proposed layout will be refined with detailed topography and building footprints, and the hydraulic model will be updated to confirm there is no adverse impact on flood risk to third-party land.

A Site layout



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



urban contours

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	Telegraph post	Sp	Sign post
G	Gate	Ep	Electricity post	TH	Threshold
		Ti	Traffic light	BH	Borehole
		Bus	Bus stop	ELC	Electric
		SV	Stop valve	BT	British Telecom
		SI	Stop tap	CTBX	Control box
		Er	Earth rod	TT	Tactile
		Wm	Water meter	BP	Brick paved
		Gas	Gas valve	CPS	Concrete paving slabs
		Av	Air valve	CVR	Cover
		ICU	Unidentified inspection	R/wall	Retaining wall
		Wm	Wash out	TWL	Top of Wall Level
		Re	Rodding eye	TCL	Tree canopy level
		BB	Beltline beacon	G	Girth
		CTV	Cable tv	MG	Multi grn
		Mur	Marker post	IC	Inspection chamber
		Gmr	Gas marker post	CL	Cover level
		So	Soil	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	DATE	DRAWN	CHECKED BY
1mts@a1	19.07.20	GY	RH

Level datum

G.P.S OSGB36/15

Job number

GROBY 001

Drawing No.

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 Ground Investigation Report



Geotechnical &
Environmental
Consultants

Land South of Sacheverell Way
Groby

**Phase II Exploratory Investigation
For
Bloor Homes Ltd**



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

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Appendices

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- II Initial Masterplan
- III Annotated Site Plan
- IV Site Plan Showing General Site Views
- V Exploratory Hole Location Plan
- VI Exploratory Hole Logs
- VII Plates
- VIII Laboratory Soil Test Results
- IX Ground Gas & Water Level Monitoring Results
- X Conditions & Limitations

Project No: D44049		Date: 21st January 2026	
Issue/revision	Prepared by	Checked By	Approved By
	Paul Kershaw BSc (Hons) PGDip CGeol FGS Director	Stephen Sellers BSc (Hons) MSc FGS Principal Geo-Environmental Engineer	Paul Kershaw BSc (Hons) PGDip CGeol FGS Director
			
Comments			

EXECUTIVE SUMMARY

GEOTECHNICAL CONSIDERATIONS	
Ground Conditions	Topsoil was encountered generally to a depth of 0.30m begl. Firm becoming stiff slightly sandy slightly silty CLAY with varying proportions of gravel. Siltstone cobbles were locally present and mudstone lithorelicts were evident with increased depth. In two trial pits advanced in the central eastern area, the clay soils graded into a very silty very sandy CLAY / very clayey very silty SAND. In one of the boreholes advanced within the north-eastern area, a dense very silty SAND was encountered beneath the clay soils. In one of the trial pits advanced in the central northern area, the clay soils graded into a very weak very silty highly weathered MUDSTONE.
Foundation Design	Traditional strip / trench fill. The natural near surface soils appear suitable to support a nett allowable ground bearing pressure of up to 120kN/m². It is recommended that foundations should be advanced to a minimum founding depth of 0.90m below existing or proposed ground level (whichever being the deeper) and founded within undisturbed suitably competent natural soils. Should any Made Ground, disturbed ground or soft spots be encountered at founding depth, foundations will require further deepening to encounter underlying undisturbed suitably competent natural soils. It is recommended that an allowance is made for the inclusion of nominal mesh reinforcement within foundations which straddle the interface of cohesive (Clay) soils and localised granular (Sand) soils. Alternatively, foundations could be deepened in order to achieve a single competent founding stratum.
Floor Slab Design	Ground bearing floor slabs provided there is less than 0.60m of suitably compacted geotechnically competent sub-slab fill and subject to NHBC Standards Chapter 4.2. Where in excess of 0.60m of sub-slab fill is present, a suspended slab may be adopted, which may be either a cast in-situ reinforced concrete slab or a pre-cast suspended floor with a clear ventilated void.
Ground Gas	No precautions required based on the findings of the ground gas monitoring.
Radon	No precautions required.
Building Near Trees	Foundation designs may locally require adjusting in accordance with NHBC Standards Chapter 4.2. Cohesive soils of a medium volume change potential should be assumed for design purposes.
Water	Dewatering of foundation excavations is considered unlikely to be necessary. Dewatering of deeper excavations (i.e. for sewers) may be locally required.
Excavations / Stability	The majority of excavations are unlikely to require trench support other than for health and safety reasons. The assessment of excavations and provision of support will be the responsibility of the contractor on site.
Sulphate Classification	Design Class DS-1/ACEC Class AC-1s (BRE Spec. Digest 1:2005).
Coal Mining	No precautions required.
CBRs	A CBR value of between less than 2% and 4% can be anticipated within the shallow Natural Strata, subject to confirmation by in-situ testing.
Surface Water Drainage	The use of soakaways is unlikely to be feasible.
ENVIRONMENTAL CONSIDERATIONS	
Contamination Assessment	The topsoil and Natural Strata may be considered to be uncontaminated in the context of the proposed end-use.
Remediation Proposals	Based on the testing undertaken, no specific remediation works will be required for the site.
GENERAL CONSIDERATIONS	
Construction Workers	A copy of all reports relating to the site should be included in the site health and safety file, and site workers should be made fully aware of the sites setting.
Utilities	Prior to development, we would recommend that a copy of this report is supplied to utility companies, and that their recommendations relating to appropriate supply pipes are adhered to.
Unforeseen Circumstances	Should any areas of potentially contaminated soil be encountered during site construction works we would recommend consultation with GeoDyne to ensure our recommendations continue to apply
Licenses etc	The Contractor / Developer is responsible for, and must ensure that, all necessary licenses, permits, plans, registrations and approvals are in place prior to commencing with the construction works at the site.
Statutory Consultation	We would recommend that a copy of our report is issued by the Client to the Local Authority (and Warranty Provider, if necessary) for review / comment and approval prior to commencing with development.

1.0 INTRODUCTION

1.1 Introduction

GeoDyne Limited has been appointed by the Client, Bloor Homes Ltd, to undertake a Phase II Exploratory Investigation on a parcel of land off Sacheverell Way, Groby, Leicestershire. A Site Location Plan (Figure No. D44049/P2/01) is included in Appendix I.

1.2 Project Understanding

We understand that it is proposed to develop the main body of the site with residential dwellings. The proposed development also includes attenuation ponds and areas of public open space. The south-western portion of the site (to the south-west of the existing track, as shown within the blue line) is to remain undeveloped.

An Initial Masterplan has been provided by the Client, a copy of which is included in Appendix II.

The foregoing understanding has formed the basis of our assessment. Where the proposed site end-use is not consistent with our current understanding, it would be necessary to review our assessment to ensure it continues to apply.

1.3 Previous Report

The following report has previously been completed in relation to the site:

- GeoDyne Limited report '*Land South of Sacheverell Way, Groby – Phase I Desk Study*', reference D44049 for Bloor Homes East Midlands, dated 13th August 2024. Revision C issued 31st July 2025.

It is recommended that the foregoing report is read in conjunction with this Phase II report. A brief summary of the Desk Study report is provided in Section 2.0.

1.4 Objectives

The scope of works detailed herein has been designed to ascertain the key geotechnical and environmental issues pertaining to the proposed development, based on the findings of recommendations within the existing Phase I Desk Study report.

1.5 Scope of Works

Based on the defined objectives of the works (detailed in Section 1.4), and taking account of the findings and recommendations within the Desk Study report (referenced in Section 1.3), the scope of the Phase II works designed for the site included the following:

- A sub-contracted sub-surface utility scan of proposed exploratory hole locations.
- A series of mechanically excavated trial pits and window sampling boreholes across the site.
- Installation of ground gas monitoring wells.
- A preliminary programme of in-situ soakaway testing.
- Geotechnical and environmental soil testing.
- An initial programme of ground gas monitoring.
- Revision of the preliminary Conceptual Site Model (pCSM).

1.6 Limitations

The conclusions and recommendations made in this report are limited to those that can be made based on the findings of the investigation. Where comments are made based on information obtained from third parties, GeoDyne Limited assumes that all third party information is true and correct. No independent action has been undertaken to validate the findings of third parties.

This report has been prepared in accordance with our understanding of current good practice. However, changes to good practice, guidance or legislation may necessitate revision of this report after the date of issue.

GeoDyne Limited has prepared this report for the sole use and reliance of Bloor Homes Ltd, in accordance with our standard Conditions & Limitations (included in Appendix X). This report may not be used or relied upon by any unauthorised third party without the explicit written agreement of GeoDyne Limited. Reliance may not be placed on our report until all invoices associated with the project have been paid.

2.0 SITE SETTING

2.1 Site Description

The site comprises an irregularly shaped parcel of land situated to the immediate south of Sacheverell Way on the southern periphery of Groby. The site may be located centred around approximate Ordnance Survey National Grid Reference 452560E, 306330N and covers an area of approximately 10.55 hectares.

A detailed description of the site and its surrounding area, at the time of our initial walkover (August 2024), is provided in the Desk Study report (referenced in Section 1.3). The only significant difference at the time of our intrusive works (November 2025) was that the site was fallow, with weeds and crop remains, present at the surface. It should be noted that prior to commencement of our intrusive works, we were informed by the client of the presence of two underground water mains and an underground drain passing through the site.

An updated Annotated Site Plan is provided in Appendix III of this report (Figure No. D44049/P2/02), showing the main features of the site and immediate surrounding area. General views of the site at the time of our intrusive works are included on the plan in Appendix IV of this report (Figure No. D44049/P2/03).

2.2 Site History

A detailed review of the historical mapping for the site and its immediate surrounding area is included within the Desk Study report (referenced in Section 1.3). In summary, the site is indicated to have remained essentially undeveloped since the earliest reviewed mapping of the 1880s. The railway line that separated the south-western portion of the site from the main body of the site was present from the 1880s and was dismantled c1960s (currently a track facilitating access to horse paddocks to the south of the site). The Flood Relief Basin within the south-western portion of the site first appeared on the historical maps of the 1980s.

2.3 Geology

2.3.1 Strata Descriptions

The Desk Study describes the anticipated geology beneath the site as follows:

Superficial Drift Deposits

A variety of superficial drift deposits are indicated on the reviewed geological maps to be present across the majority of the site. Glaciofluvial Deposits and Alluvium are shown within the south-western portion of the site, whereas the Thrussington Member and Oadby Member are shown within the central and eastern areas of the site.

Drift deposits have the potential to alter rapidly in character and geotechnical properties both laterally and vertically over relatively short distances and may also be water bearing.

Bedrock Geology

The majority of the site is indicated to be underlain by strata of the Edwalton Member. Part of the south-western portion of the site is indicated to be underlain by the Gunthorpe Formation with a band of Cotgrave Sandstone Member present between the Edwalton Member and the Gunthorpe Formation.

2.3.2 Faults

The Desk Study report identifies no surface faults within the boundary of the site, or within the immediate vicinity of the site, on the geological maps viewed.

2.4 Man-Made Deposits

The Desk Study report states the following with regard to man-made deposits:

'The geological publications do not show the presence of any man-made deposits (i.e. Made Ground, Worked Ground or Landscaped Ground) beneath the site.

A large area of Made Ground is indicated to be present from approximately 200m to the south-east of the site. The area of the Made Ground broadly corresponds to the area of the excavations (now infilled) associated with the former brick and terra cotta works, which were identified on historical maps. Any infill materials to these former excavations may represent a source of potentially harmful ground gas which may affect the subject site.

An elongated area of Worked Ground is indicated to be present to the north-east of the site, which appears to correspond to a cutting along the route of the A46 main road'.

2.5 Environmental Setting

The sites detailed environmental setting, including a site-specific Landmark Envirocheck report and preliminary Conceptual Site Model, can be found in the Desk Study report (referenced in Section 1.3). The salient points are listed below:

- The site is potentially underlain by three aquifer classifications, specific to the anticipated geology. These are summarised as follows:

Drift deposits – Secondary Undifferentiated Aquifer or Secondary A Aquifer.

Bedrock – Secondary A Aquifer or Secondary B Aquifer.

- The site is shown not to lie within a Source Protection Zone (SPZ).
- An open drain passes through the eastern half of the site trending in a north-east to south-west direction. The drain becomes culverted beneath the western half of the site.
- The site is shown not to be located within an area where Natural Metal Enrichment of the underlying natural soils is likely to be present.
- No radon protection measures are indicated to be necessary at the site.
- No specific investigation or mitigation in relation to historical coal mining issues is considered to be necessary at the site.
- An initial Unexploded Bomb Risk Map search was commissioned through ZeticaUXO, which revealed that the site is within a 'Low' risk area with regard to unexploded ordnance.
- A former landfill site is located approximately 190m to the south-east of the site associated with a former brick and terra cotta works.

2.6 Site Assessment

Based on the information provided within the Desk Study report (referenced in Section 1.3), the assessment of potential general soil contamination that may be present remains broadly applicable. This may be summarised as follows:

- Metals and metalloids associated with any potential localised Made Ground beneath the site.

- Polycyclic Aromatic Hydrocarbons (PAHs) from any ashy inclusions and / or carbonaceous inclusions in the near surface soils.
- Pesticides associated with the historical agricultural use of the site.

The Phase I desk study enquiries have revealed the presence of the following potential source of hazardous ground gas (i.e. carbon dioxide and methane), which lies within possible influencing distance (i.e. <250m) of the site:

- The former landfill site located to the south-east of the site.

3.0 GROUND INVESTIGATION

3.1 Introduction

Sub-Surface Utility Avoidance Scan

Prior to the commencement of our intrusive works at the site, 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 service scan and taking account of the requirement to avoid buried services, the exploratory holes were positioned to maximise the amount of information obtained at the site.

Exploratory Holes

Twenty-eight mechanically excavated trial pits (TP1 to TP28) and four soakaway pits (SA1 to SA4) were excavated at the site between 24th and 26th November 2025. The trial pits were excavated to depths of between 1.50m and 3.00m below existing ground level (begl) and the soakaway pits were excavated to depths of between 1.50m and 1.80m begl.

Ten window sampling boreholes (WS1 to WS10) were advanced at the site on 4th and 5th December 2025. The boreholes were advanced to depths of either 3.00m or 4.00m begl.

Exploratory Hole Locations / Logs

The approximate locations of the exploratory holes are indicated on the plan presented in Appendix V of this report (Figure No. D44049/P2/04). The exploratory hole logs are presented in Appendix VI of this report.

3.2 Ground Conditions

The general ground conditions encountered across the site may be summarised as follows.

3.2.1 Topsoil

Clayey topsoil was encountered at surface within all of the exploratory holes advanced at the site. The topsoil was generally encountered to a depth of 0.30m begl.

3.2.2 Made Ground

Made Ground was not encountered within any of the exploratory holes advanced at the site.

3.2.3 Natural Strata

Undifferentiated drift deposits were encountered beneath the topsoil across the site. These soils generally comprised firm becoming stiff slightly sandy slightly silty CLAY. Varying proportions of gravel were noted within the clay, which predominantly comprised quartzite, siltstone and chalk. Siltstone cobbles were also locally present within the clay and mudstone lithorelicts were evident with increased depth.

In two of the trial pits advanced in the central eastern area of the site (TP24 and TP25), the clay soils graded into a very silty very sandy CLAY / very clayey very silty SAND at depths approaching approximately 3m begl. In one of the boreholes advanced within the north-eastern area of the site (WS5), a dense very silty SAND was encountered beneath the clay soils, from a depth of 2m begl.

In one of the trial pits advanced in the central northern area of the site (TP13), the clay soils graded into a very weak very silty highly weathered MUDSTONE, which is considered to be representative of the bedrock (Edwalton Member), which is indicated on geological information to underlie the majority of the site.

3.3 Visual & Olfactory Evidence of Soil Contamination

We would note that no obvious visual or olfactory evidence of significant soil contamination was identified in the soils during the course of the site works (such as hydrocarbons or visible fragments of asbestos, for example).

3.4 Water

Water seepages were absent from the vast majority of the exploratory holes during their advancement.

The Clay / Sand soils were noted to become damp in trial pits TP24 and TP25 at depths approaching approximately 3m begl and water seepages were encountered within the Clay in borehole WS10, between depths of 2.00m and 3.70m begl. These three exploratory holes were advanced in the central eastern area of the site.

3.5 Excavations / Stability

The trial pits remained generally stable during their excavation and for the short period of time they remained open following completion. The sides of the boreholes remained stable following their completion and were advanced without the requirement for casing.

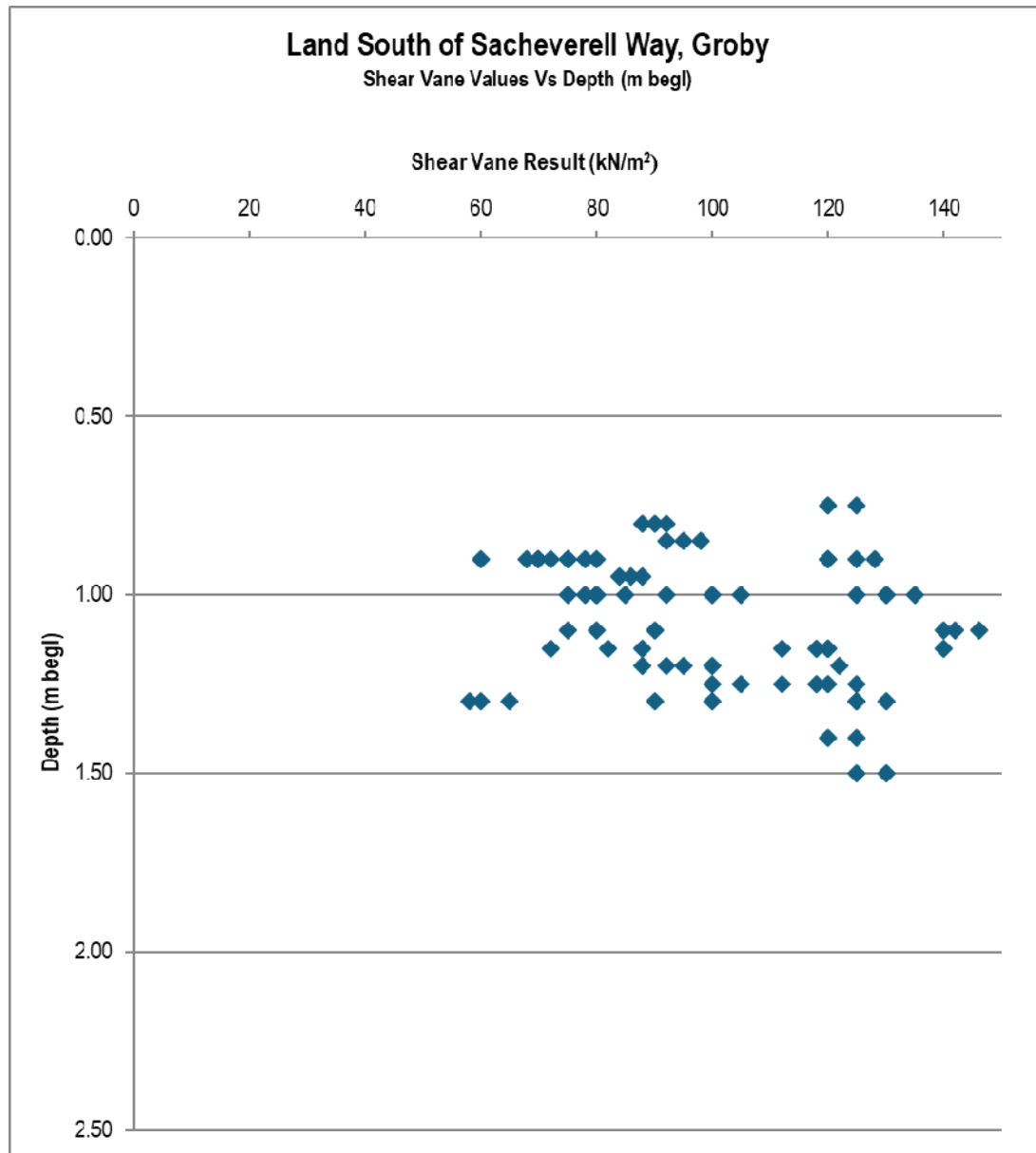
3.6 Plates

A photographic record of the exploratory investigation was obtained during the intrusive works. Photographs, including views of selected completed trial pits and borehole cores, are presented on the plates presented in Appendix VII of this report (Plate Nos. 1 to 19).

3.7 Shear Vane Values

Shear vane testing was undertaken within the visually cohesive natural soils encountered within the trial pits. The shear vane values are detailed on the logs presented in Appendix VI.

A graph showing shear vane results in relation to depth is presented on the next page for the trial pits advanced across the site.



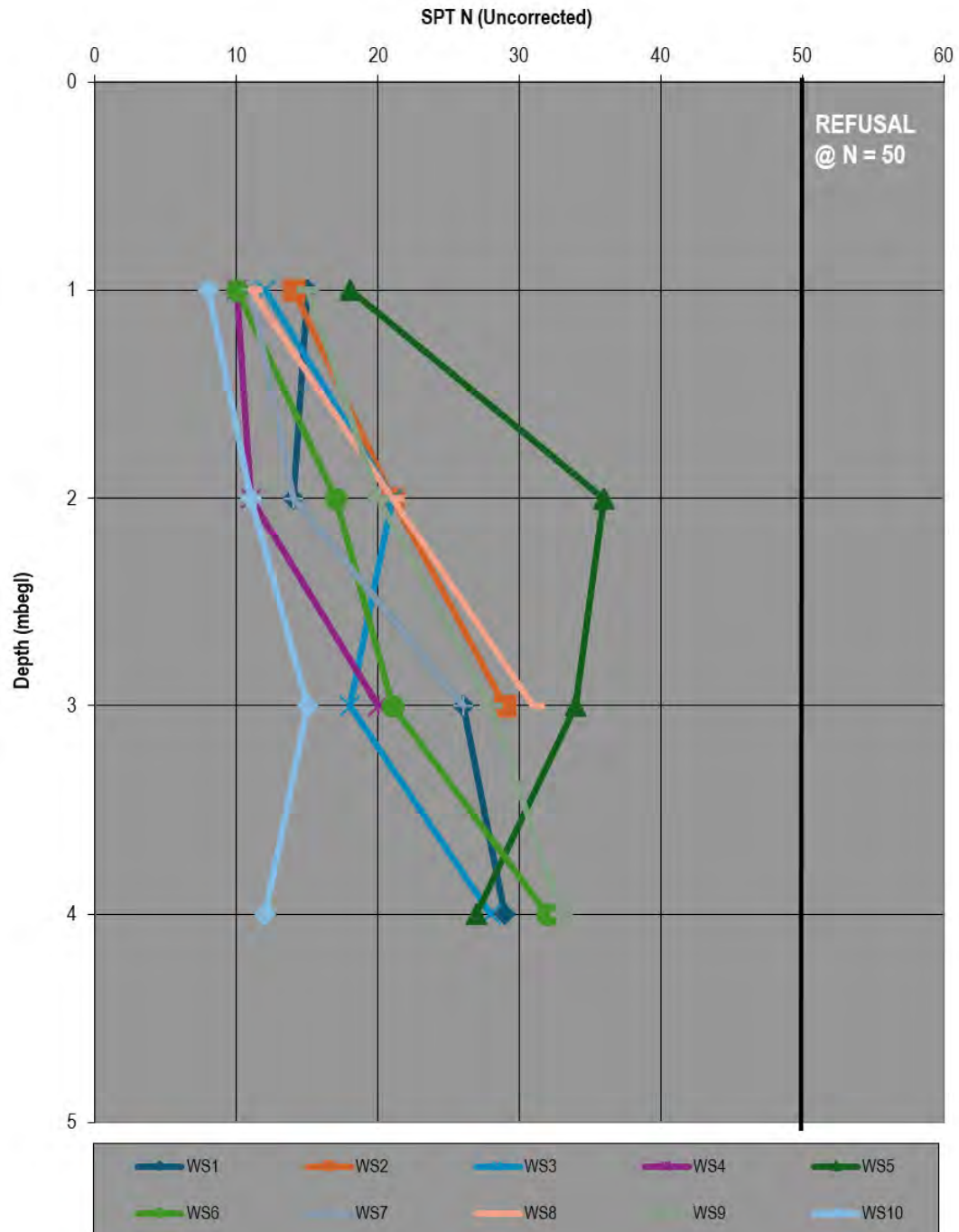
3.8 Standard Penetration Test (SPT) Data

In order to establish a strength / depth profile of the soils beneath the site, SPT testing was undertaken at regular intervals within the window sample boreholes.

A graph showing the SPT results in relation to depth is provided below, with SPT results also provided on the exploratory hole logs included in Appendix VI.

Land South of Sacheverell Way, Groby

SPT N Values Vs Depth (m begl)



3.9 In-Situ Soakaway Testing

Four soakaway pits (SA1 to SA4) were excavated at the site. Pits SA1 and SA2 were targeted to the proposed attenuation basin in the southern area of the site and pits SA3 and SA4 were targeted within the proposed developable area.

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

The water level within each of the pits had no discernible drop over the course of the monitoring period, therefore soil infiltration rates could not be calculated, as summarised in Table 1.

TABLE 1 – SUMMARY OF SOIL INFILTRATION RATES				
Soakaway Reference	Test No.	Date of Test	Duration of Test (mins)	Preliminary Soil Infiltration Rate (m/s)
SA1	1	26 th November 2025	240	Not Calculated*
SA2	1	26 th November 2025	240	Not Calculated*
SA3	1	26 th November 2025	210	Not Calculated*
SA4	1	26 th November 2025	210	Not Calculated*
<u>Notes</u> * = Soil infiltration rate not calculated due to insufficient drop in water level.				

4.0 LABORATORY TESTING & CONTAMINATION ASSESSMENT

4.1 Introduction

As part of our works a suite of geotechnical laboratory soils testing has been undertaken, which comprised the following:

- 16No. Plasticity Index tests.
- 9No. Water soluble sulphate tests.
- 18No. pH tests.

In addition, environmental soil testing was carried out on visually representative samples recovered from the exploratory holes. The testing strategy was based on the land use assessment and preliminary CSM (within the existing Desk Study referenced in Section 1.3), and was considered sufficient to enable an assessment of the chemical status of the soils at the site. The following testing has been undertaken as part of our works:

- 15No. Contamination suites (including metals, speciated Polycyclic Aromatic Hydrocarbons and Total Organic Carbon).
- 9No. Pesticide suites.

All laboratory soil test results are included in Appendix VIII.

4.2 Geotechnical Soil Test Results

Water Soluble Sulphate / pH

Water soluble sulphate testing was undertaken on 9No. samples of the Natural Strata recovered during the site works. The testing revealed water soluble sulphate concentrations of between <10mg/l SO₄ and 90mg/l SO₄ within each of the samples tested. The pH values of the soil samples analysed (excluding topsoil) ranged between 7.26 and 8.60.

In accordance with the Building Research Establishment publication Special Digest 1 '*Concrete in Aggressive Ground*' (2005), the mean of the highest two of the sulphate results should be used to indicate the Design Sulphate Class (i.e. 80mg/l SO₄), together with the mean of the lowest two of the pH values (7.4).

Therefore, in accordance with Special Digest 1:2005, the site falls into Design Sulfate Class DS-1 and an Aggressive Chemical Environment for Concrete (ACEC) classification of AC-1s. This classification has been made based on the assumption of a natural ground location with predominantly static groundwater conditions beneath the site.

Plasticity Index Tests

A total of 16No. Plasticity Index (PI) tests have been undertaken on selected samples of the Natural Strata obtained during the site works (i.e. Clay). In accordance with NHBC standards Chapter 4.2 '*Building Near Trees*' and BRE Digest 240 '*Low-rise buildings on shrinkable clay soils: Part 1*' (1993), the reported PI values may be modified based on the portion of the sample passing the 425µm sieve.

The results of the PI analysis are summarised in Table 2.

TABLE 2 – SUMMARY OF PLASTICITY INDEX (PI) DATA						
Sample Ref.	Depth (m begl)	Strata	Reported PI Value (%)	Portion <425µm (%)	Modified PI Value (%)	Volume Change Potential
TP2	0.90	CLAY	27	84	23	Medium
TP3	1.30	CLAY	18	98	18	Low
TP6	0.70	CLAY	28	95	27	Medium
TP7	1.50	CLAY	32	92	29	Medium
TP8	2.00	CLAY	28	94	26	Medium
TP10	0.80	CLAY	30	100	30	Medium
TP11	2.20	CLAY	28	100	28	Medium
TP12	0.70	CLAY	26	97	25	Medium
TP13	1.30	CLAY	19	90	17	Low
TP14	2.20	CLAY	28	100	28	Medium
TP17	0.85	CLAY	23	97	22	Medium
TP19	1.70	CLAY	28	100	28	Medium
TP22	1.00	CLAY	29	100	29	Medium
TP23	0.60	CLAY	25	100	25	Medium
TP24	1.10	CLAY	23	100	23	Medium
TP26	0.90	CLAY	24	100	24	Medium

In accordance with NHBC and BRE Guidance, Table 2 reveals that the visually cohesive natural soils (i.e. Clay) may be regarded as being of low to medium volume change potential. Soils of a medium volume change potential should be assumed for design purposes.

4.3 Contamination Assessment Rationale

We understand that it is proposed to develop the main body of the site with residential dwellings. The proposed development also includes attenuation ponds and areas of public open space.

4.3.1 Assessment Methodology

In order to undertake a Generic Quantitative Risk Assessment (GQRA) we have adopted the Suitable for Use Levels (S4ULs) published by LQM/CIEH in their publication referenced: Nathanail, C.P., McCaffrey, C. Gillett, A.G., Ogden, R.C. and Nathanail, J.F, 2015. *'The LQM/CIEH S4ULs for Human Health Risk Assessment. Land Quality Press, Nottingham. All rights reserved.'* In the absence of an S4UL screening value, we have made reference to the Category 4 Screening Levels (C4SLs) published by DEFRA.

In consideration of the available generic land uses utilised in the derivation of the adopted screening criteria, we have adopted a residential end-use with plant uptake scenario for the purposes of our assessments. For assessment purposes, we have adopted a policy whereby determinands within the dataset are individually compared to the relevant screening value (i.e. individual S4ULs).

Where determinands within the dataset are less than the appropriate screening value, the determinand is considered to be present at an acceptable concentration and no further assessment is required. Additional comment, statistical assessment or further Detailed Quantitative Risk Assessment (DQRA) may be provided where elevated values are revealed.

4.3.2 Selection of Soil Organic Matter (SOM) Content

The SOM content and soil type are used to provide an assessment of the applicability of the screening values adopted (the S4UL values are typically based upon SOM of 1%, 2.5% and 6%, as applicable, with all metals derived utilising 6% SOM as standard).

Where available at Tier 1 level, determinands have in the first instance been compared to screening values adopting a conservative SOM of 1%.

Where the determinand exceeds the relevant screening value at 1% SOM, a site-specific SOM may be adopted as appropriate to derive more site-specific screening values and the dataset reassessed.

4.4 Sampling Strategy

The sampling strategy for the site was primarily to retrieve visually representative soil samples from a selection of locations that provide an initial coverage across the entire site area, where access allowed. The sampling strategy was based on a review of the historical, geological and environmental information (see previous Desk Study report referenced in Section 1.3) and the current and proposed site setting together with the ground conditions encountered during our Phase II exploratory works.

No specific areas of concern were identified at the site with respect to ground contamination with the exception of the potential off-site source of ground gas as detailed in Section 2.6. Therefore, it was considered appropriate to position the majority of the exploratory holes to provide general coverage across the site, taking account of the presence of known buried services.

Table 3 summarises the reasoning behind the exploratory hole positions.

TABLE 3 – REASONING FOR EXPLORATORY HOLE LOCATION	
Exploratory Hole Reference	Reasoning Behind Location
TP1 & TP28 & WS1 to WS10	General site coverage avoiding known utilities.
TP2-TP26, WS1-WS10, SA3 & SA4	Targeted to the proposed developable area.
TP1, TP27 & TP28	Targeted to the proposed areas of public open space.
WS1, WS3, WS5, WS6, WS9 & WS10	Boreholes installed with ground gas monitoring wells with WS9 & WS10 positioned closest to the off-site former landfill site to the south-east.
SA1 & SA2	Targeted to the proposed attenuation basin.
SA3 & SA4	Targeted to the proposed developable area.
Key TP – Trial Pit WS – Window Sample Borehole SA – Soakaway Pit	

The ground conditions encountered during our Phase II works revealed the presence of two distinct types of material, i) topsoil and ii) the underlying Natural Strata.

Representative samples of these soil types were obtained during our Phase II works and subjected to chemical analysis for a suite of contaminants deemed appropriate based on the review of the desk study information and the ground conditions encountered during the intrusive investigation. It is noted that the suite of contaminants detailed in Section 2.6 of this report was considered to remain applicable as an initial chemical screen of the encountered soils following completion of the site investigation works.

4.5 Contamination Analysis

Contamination tests (including metal and PAH suites) were undertaken on visually representative samples of the topsoil (9No.) and the underlying Natural Strata (6No.) obtained from the site during our works. In addition, 9No. samples of the topsoil were subjected to pesticide analysis.

For initial assessment purposes, we have collated the results into two datasets, for individual comparison of the reported determinand concentrations against appropriate Tier 1 GACs, namely topsoil and the underlying undisturbed Natural Strata.

Please note that screening values have only been used for determinands where they are present at concentrations in excess of the LOD on at least one occasion.

4.6 Contamination Soil Test Results

4.6.1 Topsoil

The contamination assessment for the topsoil at the site is summarised in Table 4.

TABLE 4 – SUMMARY OF TIER 1 GAC ASSESSMENT (TOPSOIL – RESIDENTIAL WITH PLANT UPTAKE END-USE)				
Contaminants – Potentially Harmful to Human Health	No. of Samples Tested	Concentration Range (mg/kg)	Tier 1 GAC (mg/kg)	Tier 1 GAC Exceeded (Yes/No) & No. of Exceedances (n/9)
Metals				
Arsenic	9	4 – 8	37 S4UL	No
Copper	9	16 – 23	2400 S4UL	No
Chromium III	9	19 – 31	910 S4UL	No
Lead	9	22 – 41	200 C4SL	No
Nickel	9	18 – 28	130 S4UL	No
Zinc	9	48 – 80	3700 S4UL	No
Key S4UL – CIEH/LQM Suitable 4 Use Levels (2015). Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3026. All rights reserved. C4SL – value for Lead taken from DEFRA publication SP1010 and based on a residential (with home-grown produce) end-use.				

All determinands for the topsoil assessed (including speciated PAHs) were present at individual concentrations below the Limit of Detection of the method of analysis adopted by the laboratory and / or below the appropriate Tier 1 GAC based on a residential with plant uptake end-use.

Pesticides

Pesticide and herbicide testing was undertaken on 9No. samples of the topsoil collected from across the site as part of the contamination assessment. The pesticide and herbicide determinands assessed were present at individual concentrations below the limits of detection of the method of analysis adopted by the laboratory.

4.6.2 Natural Strata

The contamination assessment for the Natural Strata at the site is summarised in Table 5.

TABLE 5 – SUMMARY OF TIER 1 GAC ASSESSMENT (NATURAL STRATA – RESIDENTIAL WITH PLANT UPTAKE END-USE)				
Contaminants – Potentially Harmful to Human Health	No. of Samples Tested	Concentration Range (mg/kg)	Tier 1 GAC (mg/kg)	Tier 1 GAC Exceeded (Yes/No) & No. of Exceedances (n/6)
Metals				
Arsenic	6	3 – 5	37 S4UL	No
Copper	6	8 – 24	2400 S4UL	No
Chromium III	6	20 – 52	910 S4UL	No
Lead	6	12 – 50	200 C4SL	No
Nickel	6	16 – 63	130 S4UL	No
Zinc	6	37 – 52	3700 S4UL	No
Key S4UL – CIEH/LQM Suitable 4 Use Levels (2015). Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3026. All rights reserved. C4SL – value for Lead taken from DEFRA publication SP1010 and based on a residential (with home-grown produce) end-use.				

All determinands for the Natural Strata assessed (including speciated PAHs) were present at individual concentrations below the Limit of Detection of the method of analysis adopted by the laboratory and / or below the appropriate Tier 1 GAC based on a residential with plant uptake end-use.

4.7 Contamination Assessment Summary

Human Health

Contamination testing was carried out on selected samples of the topsoil and the underlying Natural Strata.

On the basis of the chemical contamination assessment undertaken, the soils may be considered to be uncontaminated in the context of the proposed end-use (i.e. in relation to human health).

Controlled Waters

Given the low contaminant concentrations revealed by the testing undertaken, there are considered to be no specific risks posed to Controlled Waters by the findings of the laboratory analysis undertaken.

5.0 GROUND GAS & WATER LEVEL MONITORING RESULTS

5.1 Introduction

Based on the potential presence of an off-site source of potentially harmful ground gas, monitoring points were installed in selected window sample boreholes to facilitate an initial programme of monitoring (i.e. for methane and carbon dioxide).

5.2 Monitoring Installations

Upon completion, boreholes WS1, WS3, WS5, WS6, WS9 and WS10 were installed with combined ground gas and water monitoring standpipes to depths of 4.00m begl, to facilitate an initial programme of monitoring. Installations were positioned to provide general site coverage, as well as targeting the off-site former landfill site to the south-east.

The ground gas and water monitoring data obtained from the site is presented in Appendix IX of this report.

5.3 Results of the Ground Gas Monitoring

A total of six ground gas and water monitoring visits have been undertaken at the site over a seven week period. The ground gas monitoring results are summarised in Table 6.

TABLE 6 – SUMMARY OF GROUND GAS MONITORING DATA		
Parameter	Minimum	Maximum
Methane (v/v)	0.0	0.0
Carbon Dioxide (v/v)	0.1	0.9
Oxygen (v/v)	16.2	20.5
Peak Flow (L/h)	0.0	0.0
Steady Flow (L/h)	0.0	0.0
KEY v/v - % by volume L/h – litres/hour		

A maximum carbon dioxide concentration of 0.9% by volume was recorded during the monitoring programme. Measurable methane concentrations were not recorded during the monitoring programme. No discernible flow rates (positive or negative) in excess of +/-0.1 litres per hour were recorded during the monitoring carried out at the site.

Periods of rapidly falling atmospheric pressure are considered to be the optimum barometric conditions for gas emissions from the ground. Four of the gas monitoring visits were carried out during periods of falling atmospheric pressure.

The atmospheric pressure trends over the 24hrs prior to monitoring are summarised below:

- 11th December 2025 – Fall of 4mb
- 18th December 2025 – Fall of 14mb
- 23rd December 2025 – Rise of 12mb
- 6th January 2026 – Fall of 5mb
- 14th January 2026 – Rise of 10mb
- 21st January 2026 – Fall of 8mb

The atmospheric pressure trends noted during the monitoring period do not appear to have affected the ground gas concentrations recorded or more pertinently the flow rates. No variations in flow rates were noted during the monitoring carried out during the differing atmospheric conditions, as no flow rates were recorded on any of the monitoring visits.

The highest recorded carbon dioxide concentration of 0.9% by volume was detected when the atmospheric pressure fell by 5mb in the 24 hour period prior to monitoring on 6th January 2026 and when the atmospheric pressure rose by 10mb in the 24 hour period prior to monitoring on 14th January 2026.

Water was encountered each of the wells during the monitoring visits, at depths of between 0.14m and 3.84m begl. Based on the general absence of water seepages within the exploratory holes during their advancement, it is considered likely that the water recorded within the installations during the monitoring visits represents water that has seeped into the wells from near surface.

5.4 Appropriate Guidance

5.4.1 British Standard & CIRIA

The results of the gas monitoring have been reviewed with reference to the following documentation:

- British Standard BS 8485 '*Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings*' (2015+A1:2019).
- CIRIA Report C665 '*Assessing risks posed by hazardous ground gases to buildings*' (2007).
- CIRIA Report C735 '*Good practice on the testing and verification of protection systems for buildings against hazardous ground gases*' (2014).

5.4.2 Gas Screening Value Calculation

BS 8485 and CIRIA Report C665 recommend a risk-based methodology to ground gas assessment, the first step of which includes the calculation of a site-specific Gas Screening Value (GSV). The GSV of a particular ground gas regime equates to:

- $GSV (l/h) = \text{maximum borehole flow rate (l/h)} \times (\text{maximum gas concentration}/100).$

The GSV should be calculated for both Methane and Carbon Dioxide (where appropriate) to determine a site-specific Characteristic Situation for each gas. The higher the calculated GSV, the greater the risk posed by the presence of ground gas. The CIRIA guidance document notes that '*...the GSV is a guideline value and not an absolute threshold*'.

5.4.3 Site Classification

The next step in the assessment process is determining the sites classification. Table 2 of BS 8485 (reproduced below) presents six Characteristic Situations (CS) to assist in the classification of the site, based on the calculated GSV for Methane and Carbon Dioxide.

Table 2 — CS by site characteristic GSV

CS	Hazard potential	Site characteristic GSV ^{A)} L/h	Additional factors
CS1	Very low	<0.07	Typically <1% methane concentration and <5% carbon dioxide concentration (otherwise consider an increase to CS2)
CS2	Low	0.07 to <0.7	Typical measured flow rate <70 L/h (otherwise consider an increase to CS3)
CS3	Moderate	0.7 to <3.5	–
CS4	Moderate to high	3.5 to <15	–
CS5	High	15 to <70	–
CS6	Very high	>70	–

^{A)} The figures used in this column are empirical.

NOTE The CS is equivalent to the characteristic GSV in CIRIA C665 [6].

5.4.5 Proposed Building Type

In accordance with BS 8485, the CS classification for the site should be considered in conjunction with the proposed Building Type to determine the appropriate level of ground gas protection measures that should be installed to mitigate the risk posed by ground gases.

BS 8485 notes *‘The Building Type is determined based the proposed construction and use of the building, together with the control of future structural changes to the building and its maintenance (the building’s management) should be assessed, since potential risks posed by ground gases are strongly influenced by these factors’.*

Subject to the development proposals, each building may be categorised as a whole, or for each different part of the building.

The Building Types presented in Table 3 of BS 8485, are reproduced below.

Table 3 — Building types

	Type A	Type B	Type C	Type D
Ownership	Private	Private or commercial/ public, possible multiple	Commercial/ public	Commercial/ industrial
Control (change of use, structural alterations, ventilation)	None	Some but not all	Full	Full
Room sizes	Small	Small/ medium	Small to large	Large industrial/ retail park style

- **Type A building:** private ownership with no building management controls on alterations to the internal structure, the use of rooms, the ventilation of rooms or the structural fabric of the building. Some small rooms present. Probably conventional building construction (rather than civil engineering). Examples include private housing and some retail premises.
- **Type B building:** private or commercial property with central building management control of any alterations to the building or its uses but limited or no central building management control of the maintenance of the building, including the gas protection measures. Multiple occupancy. Small to medium size rooms with passive ventilation of rooms and other internal spaces throughout ground floor and basement areas. May be conventional building or civil engineering construction. Examples include managed apartments, multiple occupancy offices, some retail premises and parts of some public buildings (such as schools, hospitals, leisure centres) and parts of hotels.
- **Type C building:** commercial building with central building management control of any alterations to the building or its uses and central building management control of the maintenance of the building, including the gas protection measures. Single occupancy of ground floor and basement areas. Small to large size rooms with active ventilation or good passive ventilation of all rooms and other internal spaces throughout ground floor and basement areas. Probably civil engineering construction. Examples include offices, some retail premises, and parts of some public buildings (such as schools, hospitals, leisure centres and parts of hotels).
- **Type D building:** industrial style building having large volume internal space(s) that are well ventilated. Corporate ownership with building management controls on alterations to the ground floor and basement areas of the building and on maintenance of ground gas protective measures. Probably civil engineering construction. Examples are retail park sales buildings, factory shop floor areas, warehouses. (Small rooms within these style buildings should be separately categorized as Type B or Type C).

NOTE 2 Type A buildings are those where the risk of failure of the gas protection measures is likely to be most significant to the safety of the occupants and Type D buildings are those where this same risk is likely to be least significant.

5.4.6 Gas Protection Score (Number of Points to be Achieved)

Table 4 of BS 8485, reproduced below, should be used to derive the minimum level of gas protection applicable to the Building Type, based on the CS determined from the calculated GSV. The Gas protection Score in Table 4 below is used to determine the level and type of protection measures used.

Table 4 — Gas protection score by CS and type of building

CS	Minimum gas protection score (points)			
	High risk	Medium risk		Low risk
	Type A building	Type B building	Type C building	Type D building
1	0	0	0	0
2	3.5	3.5	2.5	1.5
3	4.5	4	3	2.5
4	6.5 ^{A)}	5.5 ^{A)}	4.5	3.5
5	— ^{B)}	 6  ^{A)}	5.5	4.5
6	— ^{B)}	— ^{B)}	 — ^{B)} 	 6 

^{A)} Residential buildings should not be built on CS4 or higher sites unless the type of construction or site circumstances allow additional levels of protection to be incorporated, e.g. high-performance ventilation or pathway intervention measures, and an associated sustainable system of management of maintenance of the gas control system, e.g. in institutional and/or fully serviced contractual situations.

^{B)} The gas hazard is too high for this empirical method to be used to define the gas protection measures.

5.4.7 Methods of Achieving Gas Protection Scores

The appropriate level of precautions, to be designed in accordance with the point scoring system of BS 8485:2019, should therefore be determined for the specific type of developments based on the GSV and CS of the site. These may include a combination of two or more of the following three types of protection measures, which could be used to achieve the required score:

- The structural barrier of the floor slab, or of the basement slab and walls if a basement is present;
- Ventilation measures; and
- Gas resistant membrane which may include an element of verification and potentially integrity testing.

Verification and integrity testing should be undertaken in accordance with CIRIA report C735 ‘Good practice on the testing and verification of protection systems for buildings against hazardous ground gases’ (2014) and would be detailed in a Remediation Method Statement report in advance of construction which should be agreed with the Local Planning Authority.

The points achieved for each element of the ground gas precautions are summarised in Tables 5, 6 and 7 of the British Standard. These tables are reproduced below.

Table 5 — Gas protection scores for the structural barrier

Floor and substructure design (see Annex A)	Score ^{A)}
Precast suspended segmental subfloor (i.e. beam and block)	0
Cast in situ ground-bearing floor slab (with only nominal mesh reinforcement)	0.5
Cast in situ monolithic reinforced ground bearing raft or reinforced cast in situ suspended floor slab with minimal penetrations	1 or 1.5 ^{B)}
Basement floor and walls conforming to BS 8102:2009, Grade 2 waterproofing ^{C)}  ^{D)} 	2
Basement floor and walls conforming to BS 8102:2009, Grade 3 waterproofing ^{C)}  ^{D)} 	2.5

^{A)} The scores are conditional on breaches of floor slabs, etc., being effectively sealed.

^{B)} To achieve a score of 1.5 the raft or suspended slab should be well reinforced to control cracking and have minimal penetrations cast in (see A.2.2.2).

^{C)} The score is conditional on the waterproofing  being provided by a suitable structural barrier with the design and detailing of the walls and floor meeting the requirements for Type B protection. The score cannot be assigned for Type A (waterproof membrane) or Type C (drained cavity wall). 

^{D)}  If a membrane is installed beneath and around the basement to provide Type A waterproofing (BS 8102:2009), it can be assigned a gas protection score in accordance with Table 7, if it meets all the criteria for a gas resistant membrane in that table. 

Table 6 — Gas protection scores for ventilation protection measures

Protection element/system	Score	Comments
(a) Pressure relief pathway (usually formed of low fines gravel or with a thin geocomposite blanket or strips terminating in a gravel trench external to the building)	0.5	Whenever possible a pressure relief pathway (as a minimum) should be installed in all gas protection measures systems. If the layer has a low permeability and/or is not terminated in a venting trench (or similar), then the score is zero.

Table 6 (continued)

Protection element/system	Score	Comments
(b) Passive sub floor dispersal layer:	2.5	Performance criteria for methane and carbon dioxide are shown in Figure B.6 and Figure B.7 , respectively.
Very good performance:	1.5	
Good performance:		
Media used to provide the dispersal layer are:		The ventilation effectiveness of different media depends on a number of different factors including the transmissivity of the medium, the width of the building, the side ventilation spacing and type and the thickness of the layer. The selected score should be assigned taking into account the recommendations in Annex B . Passive ventilation should be designed to meet at least "good performance", see Annex B .
• Clear void • Polystyrene void former blanket • Geocomposite void former blanket • No-fines gravel layer with gas drains • No-fines gravel layer		
(c) Active dispersal layer, usually comprising fans with active abstraction (suction) from a subfloor dilution layer, with roof level vents. The dilution layer may comprise a clear void or be formed of geocomposite or polystyrene void formers	1.5 to 2.5	This system relies on continued serviceability of the pumps, therefore alarm and response systems should be in place. There should be robust management systems in place to ensure the continued maintenance of the system, including pumps and vents. Active ventilation should always be designed to meet at least "good performance", as described in Annex B.
(d) Active positive pressurization by the creation of a blanket of external fresh air beneath the building floor slab by pumps supplying air to points across the central footprint of the building into a permeable layer, usually formed of a thin geocomposite blanket	1.5 to 2.5	This system relies on continued operation of the pumps, therefore alarm and response systems should be in place. The score assigned should be based on the efficient "coverage" of the building footprint and the redundancy of the system. Active ventilation should always be designed to meet at least "good performance".
(e) Ventilated car park (floor slab of occupied part of the building under consideration is underlain by a basement or undercroft car park)	4	Assumes that the car park is vented to deal with car exhaust fumes, designed to <i>Buildings Regulations 2000, Approved Document F [9]</i> .

Table 7 — Gas protection score for the gas resistant membrane

Protection element/system	Score	Comments
Gas resistant membrane meeting all of the following criteria: • sufficiently impervious ^{A1}, both in the sheet material ^{A1} and in the sealing of sheets and sealing around sheet penetrations, to prevent any significant passage of methane and/or carbon dioxide through the membrane; ^{A1} • sufficiently durable to remain serviceable for the anticipated life of the building and duration of gas emissions; • ^{A1} Text deleted ^{A1} • sufficiently strong ^{A1} ^{B1} ^{A1} to withstand the installation process and following trades until covered (e.g. penetration from steel fibres in fibre reinforced concrete, penetration of reinforcement ties, tearing due to working above it, dropping tools, etc); ^{A1} and to withstand in-service stresses (e.g. settlement if placed below a floor slab); ^{A1} • capable, after installation, of providing a complete barrier to the entry of the relevant gas; and • verified in accordance with CIRIA C735 [N1].	2	The performance of membranes is heavily dependent on the quality and design of the installation, resistance to damage after installation and integrity of joints. ^{A1} Text deleted ^{A1} If a membrane is installed that does not meet all the criteria in column 1 then the score is zero.

^{A1} ^{A1} A membrane with a methane gas transmission rate <40.0 ml/day/m²/atm (average) for sheets and joints (tested in accordance with BS ISO 15105-1:2007 manometric method) is regarded as sufficiently impervious.

^{B1} For example, reinforced LDPE (virgin polymer) membranes having a minimum mass per unit area of 370 g/m² and not significantly less than 0.4 mm thickness between the reinforcement scrim (tested in accordance with Procedure D (2 mm diameter tip) of BS EN ISO 9863-1:2016) installed above floor slabs are considered sufficiently strong to meet the performance criteria (see also C.3). Thicker and more robust membranes or an additional membrane protection layer should be installed directly beneath cast-in-situ floor slabs. ^{A1}

5.5 Ground Gas Analysis

5.5.1 Gas Screening Value & Site Classification

The ground gas monitoring has identified a maximum carbon dioxide concentration of 0.9% v/v. Measurable methane concentrations and steady flow rates were not recorded during the monitoring visits. In the absence of a measurable steady flow rate, the limit of detection of the gas monitoring instrument (0.1 l/h) should be utilised.

The GSV for carbon dioxide at the site may be calculated as follows:

- $0.1 \times (0.9 / 100) = 0.0009 \text{ l/h}$

Therefore, with a maximum GSV of 0.0009 l/h and a maximum carbon dioxide concentration of 0.9% v/v, together with no measurable methane and no steady flow rates, this classifies the site as **Characteristic Situation CS1**, in accordance with Table 2 of BS 8485 (2015+A1:2019) and based on the visits undertaken.

5.5.2 Building Type

We understand that it is proposed to develop the site with residential dwellings. In accordance with Table 3 of BS 8485, **Building Type A** is considered to be the most appropriate classification for the residential dwellings.

5.5.3 Gas Protection Score

On the basis of Characteristic Situation (CS1) and the development proposals with buildings that may be designated as Building Type A and in accordance with Table 4 of BS 8485 (2015+A1:2019), the minimum gas protection score for the site is **0 points**.

5.5.4 Comments

The results of the gas monitoring carried out indicate that no ground gas precautions will be required for the site based on the gas protection score of zero in accordance with BS 8485:2015 (2015+A1:2019).

6.0 REVISED CONCEPTUAL SITE MODEL

6.1 Introduction

In accordance with industry good practice, the Conceptual Site Model (CSM) for the site should be refined following acquisition and collection of additional data following completion of the site investigation works.

As a result of the site investigation, no potential sources, pathways or receptors have been excluded from the pCSM. However, the potential contaminant linkages have been re-assessed to reflect the findings of the investigations and risk assessments completed.

Our revised assessment following the acquisition and collection of information from the site investigation works is provided in Table 7.

**TABLE 7 – RISK ASSESSMENT SUMMARY TABLE
PHASE II EXPLORATORY INVESTIGATION**

Potential Contaminant Source [C]	Potential Pathway(s) [P]	Potential Receptor [R]	Probability of CPR Linkage	Consequence of CPR Linkage	Risk Level	Comments / Justification	Residual Risk After Remedial / Mitigation Measures
Near Surface Soils (Topsoil & underlying Natural Strata)	Direct contact, ingestion or inhalation of fugitive dust	End users	Low Likelihood	Mild	Low	Phase II Exploratory Investigation works have indicated the soils at the site (Topsoil and Natural Strata) may be regarded as uncontaminated, based on a residential with plant uptake end-use.	Low – as per 'Risk Level'. No remedial / mitigation measures required.
	Plant uptake / Soil Attached to Home Grown Produce	End users	Low Likelihood	Mild	Low	Phase II Exploratory Investigation works have indicated the soils at the site (Topsoil and Natural Strata) may be regarded as uncontaminated, based on a residential with plant uptake end-use.	Low – as per 'Risk Level'. No remedial / mitigation measures required.
	Vertical and lateral migration	Neighbouring properties	Unlikely	Mild	Negligible	No significant sources of potential mobile hydrocarbon contamination have been identified during the intrusive works and there was no obvious visual or olfactory evidence of any significant contamination (i.e. hydrocarbon impacted soils, for example).	Negligible – as per 'Risk Level'. No remedial / mitigation measures required.
	Leaching of Contaminants through unsaturated zone and/or vertical and lateral migration	Controlled Waters	Unlikely	Mild	Negligible	No significant sources of potential mobile hydrocarbon contamination have been identified during the intrusive works and there was no obvious visual or olfactory evidence of any significant contamination (i.e. hydrocarbon impacted soils, for example). Laboratory testing of recovered soil samples has not revealed sufficiently elevated concentrations to represent a significant risk to Controlled Waters.	Negligible – as per 'Risk Level'. No remedial / mitigation measures required.
	Direct contact or contact with vapours	Plastic building products (i.e. water supply pipes) and buried concrete	Low Likelihood	Mild	Low	Contamination testing has not revealed concentrations of contaminants which may pose a risk to buried services. Design Class DS-1/ACEC Class AC-1s (BRE Spec. Digest 1:2005).	Low – as per 'Risk Level'. Adopt appropriate classification for buried concrete.
Former Landfill Site	Vertical and lateral migration of ground gases to indoor air	End users of new buildings (asphyxiation) or new buildings (damage via explosion)	Unlikely	Medium	Low	Ground gas monitoring undertaken at the site has revealed that the site may be classified as Characteristic Situation 'CS1'. Ground gas protection measures are not required at the site.	Low – as per 'Risk Level'. No remedial / mitigation measures required.

7.0 CONCLUSIONS & RECOMMENDATIONS

7.1 Site Summary

At the time of our Phase II works, the site comprised a gently undulating fallow agricultural field.

Historically, the site is indicated to have remained undeveloped and used as farmland since the earliest reviewed mapping circa the 1880s.

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.

7.2 Geotechnical Information

7.2.1 Ground Conditions

Made Ground was not encountered within any of the exploratory holes advanced at the site.

Clayey topsoil was encountered at surface within all of the exploratory holes, generally to a depth of 0.30m begl.

Undifferentiated drift deposits were encountered beneath the topsoil. These soils generally comprised firm becoming stiff slightly sandy slightly silty CLAY. Varying proportions of gravel were noted within the clay, which predominantly comprised quartzite, siltstone and chalk. Siltstone cobbles were also locally present within the clay and mudstone lithorelicts were evident with increased depth.

In two of the trial pits advanced in the central eastern area of the site (TP24 and TP25), the clay soils graded into a very silty very sandy CLAY / very clayey very silty SAND at depths approaching approximately 3m begl. In one of the boreholes advanced within the north-eastern area of the site (WS5), a dense very silty SAND was encountered beneath the clay soils, from a depth of 2m begl.

In one of the trial pits advanced in the central northern area of the site (TP13), the clay soils graded into a very weak very silty highly weathered MUDSTONE (Edwalton Member).

7.2.2 Foundation Design

Foundations for the proposed residential dwellings may be traditional strip / trench fill. The natural near surface soils underlying the site appear suitable to support a nett allowable ground bearing pressure of up to 120kN/m².

It is recommended that foundations should be advanced to a minimum founding depth of 0.90m below existing or proposed ground level (whichever being the deeper) and founded within undisturbed suitably competent natural soils. Should any Made Ground, disturbed ground or soft spots be encountered at founding depth, foundations will require further deepening to encounter underlying undisturbed suitably competent natural soils.

Foundations may also require deepening due to the influence of trees and hedgerows in accordance with NHBC Standards Chapter 4.2 '*Building near trees*' (see Section 7.2.6).

It is recommended that an allowance is made for the inclusion of nominal mesh reinforcement within foundations which straddle the interface of cohesive (Clay) soils and localised granular (Sand) soils, to minimise the potential for differential settlement. Alternatively, foundations could be deepened in order to achieve a single competent founding stratum.

Undulating Topography

Based on the undulating topography across some areas of the site, in order to create suitable development platforms, future development proposals may explore options to regrade some areas of the site by means of localised cut-and-fill earthworks.

Any raised areas, where deep trench fill foundations are deemed to be unfeasible, may necessitate the requirement for a deeper foundation solution (e.g. piles). If piles are chosen as a foundation solution, further works are recommended at the site (to include cable percussive or rotary boreholes with appropriate in-situ tests) to assess the deeper ground conditions to enable pile design. The use of piles would be subject to advice from a specialist piling contractor to confirm the depths of the piles and the most feasible and cost-efficient type of pile to be used at the site.

7.2.3 Floor Slab Design

Ground bearing floor slabs may be adopted provided that there is less than 0.60m of suitably compacted geotechnically competent sub-slab fill beneath proposed slabs and subject to the requirements of NHBC Standards Chapter 4.2 '*Building Near Trees*'. Where in excess of 0.60m of sub-slab fill is present, a suspended slab may be adopted, which may be either a cast in-situ reinforced concrete slab or a pre-cast suspended floor with a clear ventilated void (i.e. beam and block).

7.2.4 Ground Gas

Based on the findings of the ground gas monitoring undertaken, no ground gas precautions relating to methane or carbon dioxide are required at the site.

7.2.5 Radon

No radon precautions are required at the site.

7.2.6 Building Near Trees

Foundation designs may locally require adjusting in accordance with NHBC Standards Chapter 4.2, when building near existing, proposed or recently removed trees / hedgerows, based on the presence of shrinkable soils underlying the site. Based on the laboratory testing undertaken, cohesive soils of a medium volume change potential should be assumed for design purposes.

We would recommend that an arborist survey is undertaken (where not already completed) to identify the species and heights of the existing trees and hedgerows within influencing distance of the site to enable a foundation schedule to be produced, where appropriate.

7.2.7 Water

Water seepages were absent from the vast majority of the exploratory holes during their advancement.

The Clay / Sand soils were noted to become damp in trial pits TP24 and TP25 at depths approaching approximately 3m begl and water seepages were encountered with the Clay in borehole WS10, between depths of 2.00m and 3.70m begl. These three exploratory holes were advanced in the central eastern area of the site.

Water was encountered each of the wells during the monitoring visits, at depths of between 0.14m and 3.84m begl. Based on the general absence of water seepages within the exploratory holes during their advancement, it is considered likely that the water recorded within the installations during the monitoring visits represents water that has seeped into the wells from near surface.

On this basis, dewatering of foundation excavations during development is considered unlikely to be necessary across the vast majority of the site area. Dewatering of deeper excavations (i.e. for sewers) may be locally required involving minor sump pumping techniques in the first instance.

We would note that groundwater levels, and the presence of standing water, may vary due to seasonal or other effects.

7.2.8 Excavations / Stability

The trial pits remained generally stable during their excavation and for the short period of time they remained open following completion. The sides of the boreholes remained stable following their completion.

It is considered that the majority of excavations across the site are unlikely to require trench support other than for health and safety reasons or where excavations are left open and exposed to adverse weather conditions. The assessment of excavations and provision of support will be the responsibility of the contractor on site.

The natural soils may be subject to deterioration and softening if excavations are left open and exposed to wet weather. Any softened soils should be removed from excavations prior to the pouring of concrete and foundation construction.

7.2.9 Sulphate Classification

In accordance with BRE Special Digest 1 (2005), the site falls into Design Sulphate Class DS-1 and an Aggressive Chemical Environment for Concrete (ACEC) classification of AC-1s. Therefore, an appropriate concrete mix should be adopted in accordance with BRE Special Digest 1 for all buried concrete in contact with the ground.

7.2.10 Coal Mining

No coal mining precautions or associated investigation works are required at the site.

7.2.11 California Bearing Ratios (CBRs)

A CBR value of between less than 2% and 4% can be anticipated within the shallow Natural Strata, subject to confirmation by in-situ testing. No frost susceptible material should be within 450mm of the ground surface in road construction.

7.2.12 Surface Water Drainage

Based on the results of in-situ permeability testing and due to the presence of relatively impermeable strata underlying the site (i.e. Clay), it is considered that the use of soakaways is unlikely to be feasible. Therefore, it is recommended that alternative methods of surface water drainage are investigated in the first instance.

7.3 Environmental Considerations

7.3.1 Soil Contamination Assessment

Human Health

Contamination testing was carried out on selected samples of the topsoil and the underlying Natural Strata.

On the basis of the chemical contamination assessment undertaken, the soils may be considered to be uncontaminated in the context of the proposed end-use (i.e. in relation to human health).

Controlled Waters

Given the low contaminant concentrations revealed by the testing undertaken, there are considered to be no specific risks posed to Controlled Waters by the findings of the laboratory analysis undertaken.

7.3.2 Remediation Proposals

Human Health

Based on the testing undertaken, no specific remediation works will be required for the site. The provision of topsoil is considered necessary in proposed gardens and areas of soft landscape to provide a suitable growing media for plants. The topsoil and Natural Strata may be regarded as suitable for re-use within the proposed development. It may be necessary to increase the thickness of topsoil around the root balls of trees to suit the proposed planting regime. The physical suitability of the existing topsoil should be assessed by the developer.

Controlled Waters

No specific remediation in relation to Controlled Waters is considered to be necessary at the site on the basis of the available information.

7.3.3 Topsoil

Whilst the existing topsoil is considered uncontaminated and suitable for re-use from a human health protection perspective, should there be a requirement to import additional quantities of topsoil to the site, it will be necessary to test the topsoil at source to ensure it is suitably clean (prior to importation) in accordance with CLEA / generic guidance. The topsoil should also conform to BS3882: 2015 '*Specification for topsoil*', with respect to the presence of foreign objects, and ideally nutrient levels etc. The results of the chemical analysis on topsoil proposed for importation should be forwarded to the Local Authority (Environmental Health Officer) for approval (prior to importation).

Similarly, if soils are proposed to be imported as part of the raising of site levels and are to be placed at shallow depth in proposed gardens and / or areas of public open space, it will be necessary to test the soils at source to ensure they are suitably clean (prior to importation) in accordance with CLEA / generic guidance.

The results of the chemical analysis on soils proposed for importation should be forwarded to the Local Authority (Environmental Health Officer) for approval (prior to importation).

Any soils brought onto site that are placed in gardens and / or areas of public open space that have not been tested at source may need to be subject to post-placement testing, subject to the requirements of the Local Authority (Environmental Health Officer) in accordance with the National Contaminated Land Officers Group (NCLOG) document entitled '*A Regulator's Guide to Cover Systems and their Verification*' (2024).

7.3.4 Off Site Disposal & Waste Acceptance Criteria Testing

The Topsoil and the Natural Strata may be regarded as suitable for re-use within proposed garden areas as subsoil (to raise levels, as appropriate) or for landscaping / capping on alternative developments (subject to regulatory approval and the production of any necessary plans or permits) where surplus arisings are generated from the site and adequate control measures are in place.

If off-site disposal is required, the chemical testing regime can be different to the chemical testing required to assess the suitability of the soils for retention on site and the risks to human health. Therefore, a separate contamination assessment may be required to include bespoke leachate analysis (i.e. Waste Acceptance Criteria [WAC] testing) to classify the soils for off-site disposal with testing criteria to assess whether the soil is hazardous, non-hazardous or inert waste. However, the existing chemical test data will assist this process.

If disposal is necessary then the environmental laboratory test results (included within Appendix VIII) should be provided to several landfill operators for consideration and cost provision in the first instance, prior to the material being removed from the site.

7.4 General Considerations

7.4.1 Construction Workers

It is recommended that construction personnel involved with direct contact with the soils at the site use appropriate PPE equipment together with hygiene facilities in accordance with general health and safety guidelines. The chosen Contractor should undertake the necessary Risk Assessments and Method Statements (RAMS) to determine the most appropriate protection required for safe working practices at the site.

A copy of all reports relating to the site should be included in the site health and safety file, and site workers should be made fully aware of the sites setting.

7.4.2 Utilities

Prior to development of the site, we would recommend that a copy of this report is supplied to utility companies, and that their recommendations relating to appropriate supply pipes are adhered to.

7.4.3 Unforeseen Circumstances

Should any areas of potentially contaminated soil be encountered during site construction works we would recommend consultation with GeoDyne to ensure that our recommendations continue to apply. Any potentially contaminated soils should be left in-situ and subjected to further assessment, to potentially include further chemical testing and risk assessment.

The following procedure should be adhered to if any areas of previously unidentified suspected contamination are encountered during the development of the site:

- i. Suspected contaminated material will remain in-situ.
- ii. GeoDyne to be notified. We will then undertake a visual assessment of the possible contamination, followed by appropriate sampling/testing (as necessary).
- iii. If necessary, contamination will then be treated or removed from site. All necessary remediation works should be validated by testing in accordance with an approved strategy, with the relevant Regulators informed accordingly.

7.4.4 Licenses, Permits, Registrations, Plans and Approvals

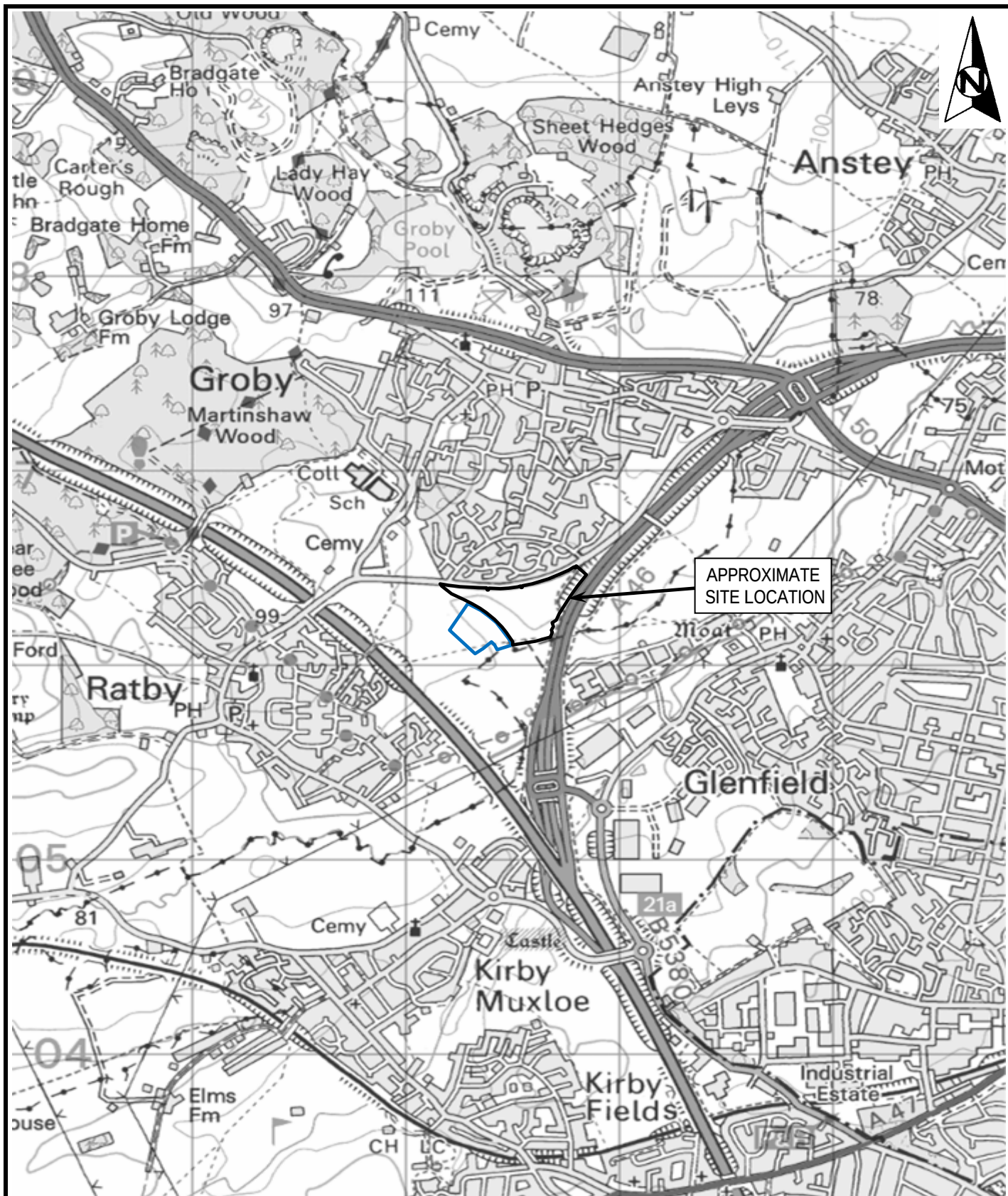
The Contractor / Developer is responsible for, and must ensure that, all necessary licenses, permits, plans, registrations and approvals are in place prior to commencing with the construction works at the site. These may include any Materials Management Plans (MMPs), Site Waste Management Plans (SWMPs) and / or Environmental Permits / Exemptions as necessary to enable the completion of the proposed works. Any MMP should be accompanied by a Qualified Person Declaration (QPD) and will require verification in due course.

7.4.5 Statutory Consultation

In accordance with normal planning requirements, we would recommend that a copy of our report is issued by the Client to the Local Authority (and Warranty Provider, if necessary) for review / comment and approval prior to commencing with the development of the site.

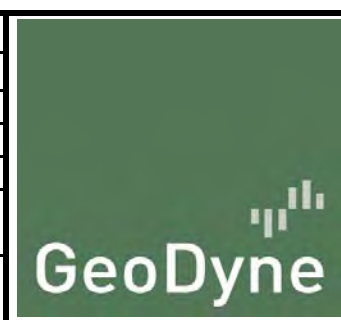
APPENDIX I

**Site Location Plan
(Figure No. D44049/P2/01)**



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Project No.	D44049	Drawn	SJ
Client	Bloor Homes Ltd.	Checked	PK
Project	Land South of Sacheverell Way, Groby	Approved	PK
		Scale	NTS
		Date Drawn	02/12/2025
Title	Site Location Plan	Rev.	
		Figure No.	D44049/P2/01



APPENDIX II
Initial Masterplan

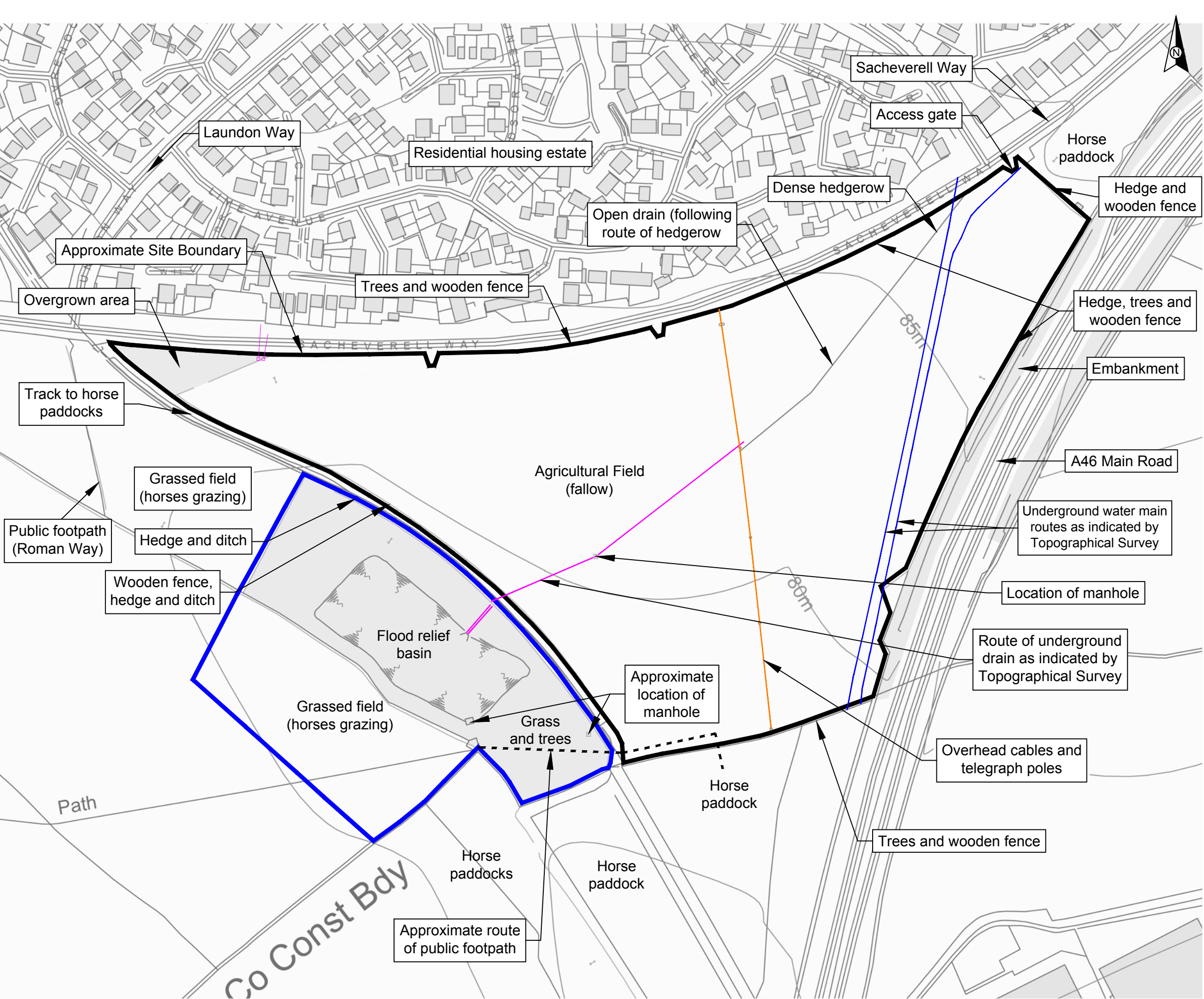


- LEGEND
- Site Boundary
 - Land in Control of Applicant
 - Residential
 - Primary Road
 - Secondary Street
 - Tertiary Street
 - Mews Street
 - Public Open Space
 - Pedestrian / Cycle Link
 - Footpath Link
 - Public Footpath (route on the ground)
 - Public Footpath (mapped route)
 - Permissive Route
 - Attenuation Basin
 - Swale Corridor
 - Existing Ditch / Drain
 - Existing Tree / Hedgerow / Vegetation
 - Indicative Proposed Tree Planting
 - Productive Landscape
 - Play Area (LEAP)
 - Entrance Green Space



APPENDIX III

**Annotated Site Plan
(Figure No. D44049/P2/02)**



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- Based on drawing entitled 'Site Location Plan' by Define, Drawing Ref. DE_393_SLP_001 Dated: 24/07/2024. Used, edited and reproduced with permission of the Client.

Project No.	D44049
Client	Bloor Homes Ltd.
Project	Land South of Sacheverell Way, Groby
Title	Annotated Site Plan
Drawn By	SJ
Checked By	PK
Approved By	PK
Scale	NTS
Date Drawn	18/12/2025
Revision	
Figure No.	D44049/P2/02



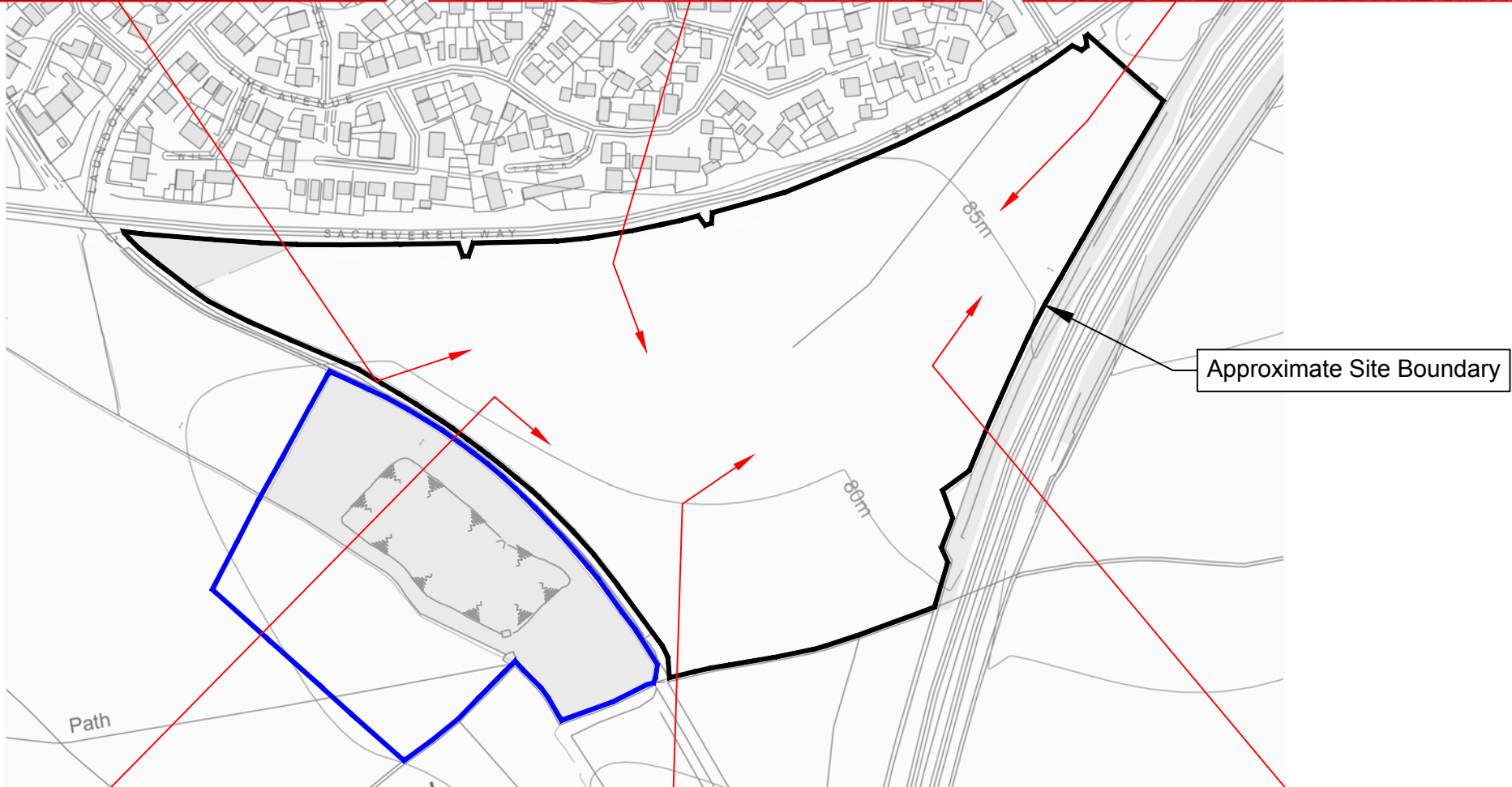
Nottingham 0115 962 0001
Derby 01332 290 798
info@geodyne.co.uk
www.geodyne.co.uk

APPENDIX IV

**Site Plan Showing General Site Views
(Figure No. D44049/P2/03)**



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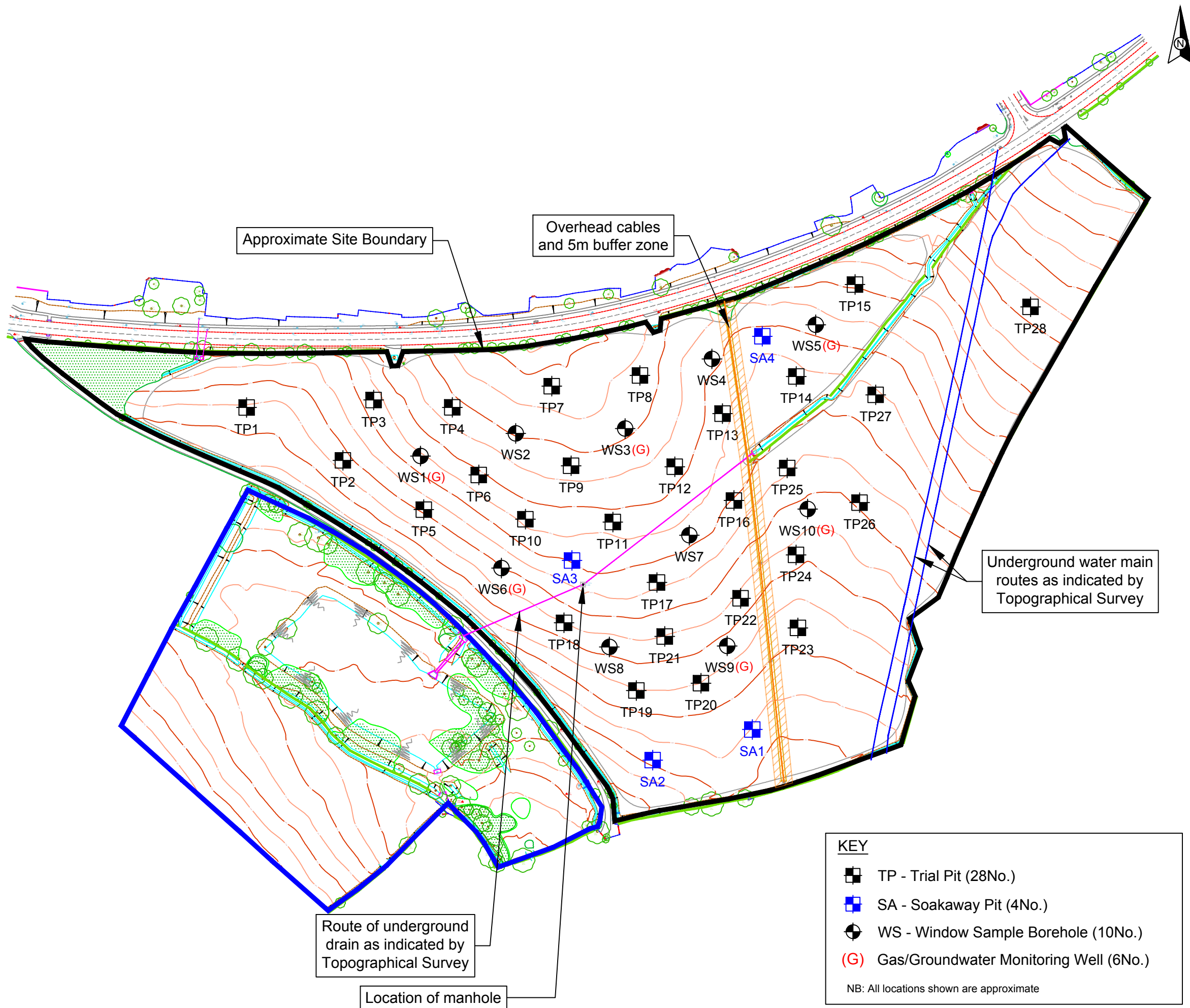
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Client	Bloor Homes Ltd.
Project	Land South of Sacheverell Way, Groby
Title	Site Plan Showing General Site Views
Drawn By	SJ
Checked By	PK
Approved By	PK
Scale	NTS
Date Drawn	18/12/2025
Revision	
Figure No.	D44049/P2/03



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APPENDIX V

**Exploratory Hole Location Plan
(Figure No. D44049/P2/04)**



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Project No.	D44049
Client	Bloor Homes Ltd.
Project	Land South of Sacheverell Way, Groby
Title	Exploratory Hole Location Plan
Drawn By	SJ
Checked By	PK
Approved By	PK
Scale	NTS
Date Drawn	18/12/2025
Revision	
Figure No.	D44049/P2/04



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APPENDIX VI

**Exploratory Hole Logs
(TP1 to TP28, SA1 to SA4 & WS1 to WS10)**



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email: info@geodyne.co.uk

TP1

Project No: D44049

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)							
Firm light brown-grey slightly sandy slightly silty CLAY (UNDIFFERENTIATED DRIFT DEPOSITS)		0.30					
		0.50	T1	D			
...becoming gravelly with depth. Gravel comprises predominantly subrounded quartzite and angular flint		1.00					
Firm red-brown/grey slightly gravelly CLAY. Gravel comprises subrounded quartzite and angular flint with occasional chalk (UNDIFFERENTIATED DRIFT DEPOSITS)		1.50					
End of Trial Pit at 1.50m							

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample = Water Strike (m) = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Client:

Bloor Homes Limited

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/1

Plant:

360° Tracked
Excavator

Date:

24/11/2025

Approved:

PK

Scale:

1:20

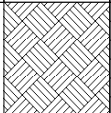
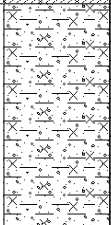
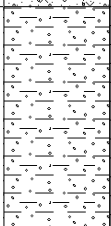
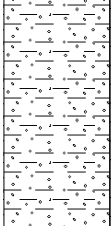
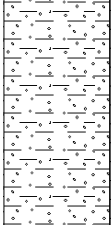
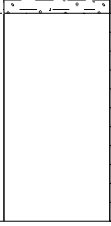
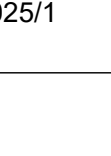
Drawing No.

TP1

**Project No: D44049**

Sheet 1 of 1

Remarks: 1.Sides generally stable. 2.No water seepages encountered.				
Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2) J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)				
Project: Land South of Sacheverell Way, Groby			Client: Bloor Homes Limited	
Logged: PK	Checked: PK	Field Book Ref: PK2025/1	Plant: 360° Tracked Excavator	Drawing No. TP2
Date: 24/11/2025	Approved: PK		Scale: 1:20	

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.30					
Firm light brown slightly sandy slightly silty slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)							
Stiff red-brown/blue-grey slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite, angular flint and occasional chalk (UNDIFFERENTIATED DRIFT DEPOSITS)		0.90	T3	D	In-Situ SV	112 118 120	
		0.95					
		1.15	B2	B			
		1.30					
...becoming less gravelly with depth							
...with mudstone lithorelicts with depth							
End of Trial Pit at 2.70m		2.70					

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/1

Date:

24/11/2025

Approved:

PK

Client:

Bloor Homes Limited

Plant:

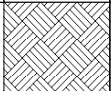
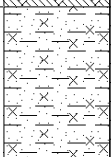
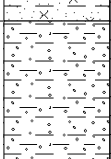
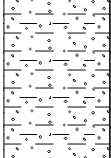
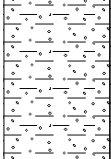
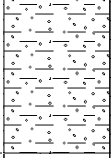
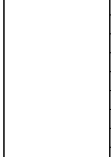
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Excavator

Scale:

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Drawing No.

TP3

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.10	T4	D			
Firm light brown slightly sandy slightly silty CLAY (UNDIFFERENTIATED DRIFT DEPOSITS)		0.25					
Stiff red-brown/grey gravelly CLAY. Gravel comprises predominantly subrounded quartzite, angular flint and siltstone (UNDIFFERENTIATED DRIFT DEPOSITS)		0.70					
...with occasional chalk gravel with depth		1.00			In-Situ SV	125 125 130	
...becoming red-brown/blue-grey with depth							
...with mudstone lithorelicts with depth							
...with rare cobbles of quartzite and siltstone with depth							
End of Trial Pit at 2.30m		2.30					

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/1

Date:

24/11/2025

Approved:

PK

Client:

Bloor Homes Limited

Plant:

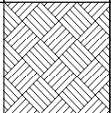
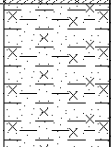
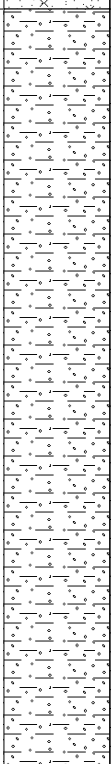
360° Tracked
Excavator

Scale:

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Drawing No.

TP4

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.30	T5	D	In-Situ SV	125 130 130	
Firm light brown slightly sandy slightly silty CLAY (UNDIFFERENTIATED DRIFT DEPOSITS)		0.50					
Stiff red-brown/grey gravelly CLAY. Gravel comprises predominantly subrounded quartzite, angular flint, siltstone and rare chalk (UNDIFFERENTIATED DRIFT DEPOSITS)		0.70					
...with mudstone lithorelicts with depth		1.30					
...with rare cobbles of quartzite and siltstone with depth		2.70					
End of Trial Pit at 2.70m							

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Client:

Bloor Homes Limited

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/1

Plant:

360° Tracked
Excavator

Scale:

1:20

Drawing No.

TP5

Date:

24/11/2025

Approved:

PK



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

TP6

Project No: D44049

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.30	B3	B	In-Situ SV	92 95 98	
Firm light brown slightly sandy slightly silty CLAY (UNDIFFERENTIATED DRIFT DEPOSITS)							
...becoming stiff and slightly gravelly with depth. Gravel comprises predominantly subrounded quartzite							
Stiff red-brown/grey slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite and siltstone (UNDIFFERENTIATED DRIFT DEPOSITS)		0.70	B3	B	In-Situ SV	92 95 98	
...with mudstone lithorelicts with depth		0.85					
...becoming red-brown/blue-grey with depth		0.90					
...becoming less gravelly with depth		2.80	B3	B	In-Situ SV	92 95 98	
End of Trial Pit at 2.80m							

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample = Water Strike (m) = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Client:

Bloor Homes Limited

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/1

Plant:

360° Tracked
Excavator

Scale:

1:20

Drawing No.

TP6



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

TP7

Project No: D44049

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.30					
Firm light brown slightly sandy slightly silty slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite and siltstone (UNDIFFERENTIATED DRIFT DEPOSITS)		0.80					
Stiff red-brown/grey CLAY with rare subrounded quartzite gravel (UNDIFFERENTIATED DRIFT DEPOSITS)		1.00			In-Situ SV	105 80 92	
...with rare siltstone gravel with depth		1.50	B4	B			
...with mudstone lithorelicts with depth							
...with rare siltstone cobbles with depth							
End of Trial Pit at 2.30m		2.30					

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample = Water Strike (m) = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Client:

Bloor Homes Limited

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/1

Plant:

360° Tracked
Excavator

Date:

24/11/2025

Approved:

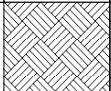
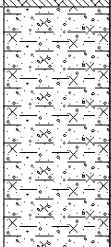
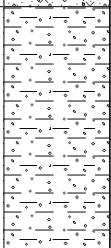
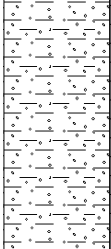
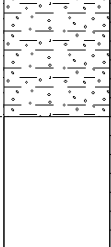
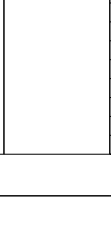
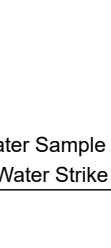
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Scale:

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Drawing No.

TP7

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.25	T6	D			
Firm brown slightly sandy slightly silty slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite, angular flint and siltstone (UNDIFFERENTIATED DRIFT DEPOSITS)		0.40					
Stiff to very stiff red-brown/grey gravelly CLAY. Gravel comprises predominantly subrounded quartzite and siltstone (UNDIFFERENTIATED DRIFT DEPOSITS)		0.90					
...with occasional chalk gravel with depth		1.10	B5	B	In-Situ SV	146+ 146+ 146+	
...with mudstone lithorelicts with depth		2.00					
...with rare cobbles of siltstone with depth		2.50					
...becoming red-brown/blue-grey and less gravelly with depth							
End of Trial Pit at 2.50m							

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Client:

Bloor Homes Limited

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/1

Plant:

360° Tracked
Excavator

Scale:

1:20

Drawing No.

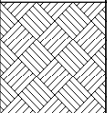
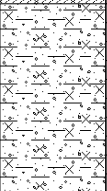
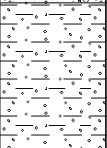
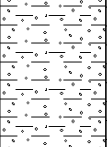
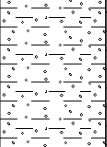
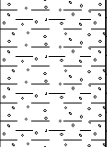
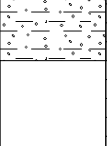
TP8

Date:

24/11/2025

Approved:

PK

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.15	T7	D	In-Situ SV	130 135	
Firm light brown slightly sandy slightly silty slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.30					
Stiff red-brown gravelly CLAY. Gravel comprises predominantly subrounded quartzite, angular flint and siltstone (UNDIFFERENTIATED DRIFT DEPOSITS)		0.80					
...with occasional siltstone cobbles with depth		1.00					
...becoming red-brown/grey with depth							
...with mudstone lithorelicts with depth							
...with rare chalk gravel with depth							
End of Trial Pit at 2.50m		2.50					

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/1

Date:

24/11/2025

Approved:

PK

Client:

Bloor Homes Limited

Plant:

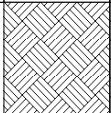
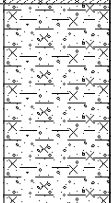
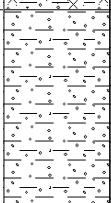
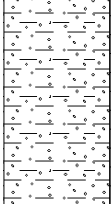
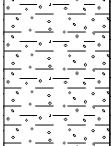
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Scale:

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Drawing No.

TP9

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.30	B6	B	In-Situ SV	100 95 95	
Firm light brown slightly sandy slightly silty slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.80 0.85					
Stiff red-brown slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite and siltstone (UNDIFFERENTIATED DRIFT DEPOSITS)		1.20					
...with occasional chalk gravel with depth		2.30					
...with mudstone lithorelicts with depth							
End of Trial Pit at 2.30m							

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/1

Date:

24/11/2025

Approved:

PK

Client:

Bloor Homes Limited

Plant:

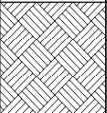
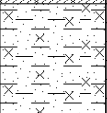
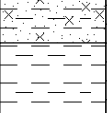
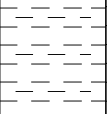
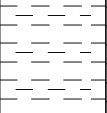
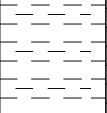
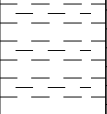
360° Tracked
Excavator

Scale:

1:20

Drawing No.

TP10

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.30					
Firm light brown slightly sandy slightly silty CLAY (UNDIFFERENTIATED DRIFT DEPOSITS)		0.70					
...with rare siltstone gravel with depth		1.00			In-Situ SV	100 100	
Stiff red-brown/blue-grey CLAY (UNDIFFERENTIATED DRIFT DEPOSITS)		1.40			In-Situ SV	120 125	
...with rare chalk gravel with depth		2.00	T8	D			
		2.20	B7	B			
End of Trial Pit at 2.60m		2.60					

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Client:

Bloor Homes Limited

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/1

Plant:

360° Tracked
Excavator

Scale:

1:20

Drawing No.

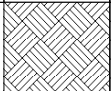
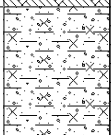
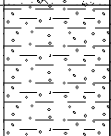
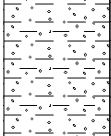
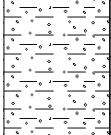
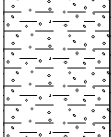
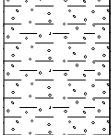
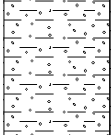
TP11

Date:

24/11/2025

Approved:

PK

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.25					
Firm light brown slightly sandy slightly silty slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.60					
Stiff red-brown/grey slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite, siltstone and rare chalk (UNDIFFERENTIATED DRIFT DEPOSITS)		0.70	B8	B	In-Situ SV	120	
...with mudstone lithorelicts with depth		0.75				120	
...with rare siltstone cobbles with depth						125	
...becoming red-brown/blue-grey with depth							
...becoming less gravelly with depth							
End of Trial Pit at 2.90m		2.90					

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/1

Date:

25/11/2025

Approved:

PK

Client:

Bloor Homes Limited

Plant:

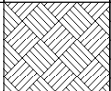
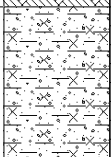
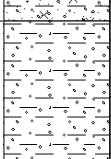
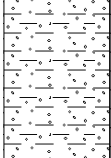
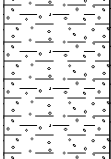
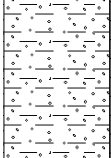
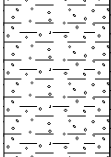
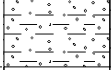
360° Tracked
Excavator

Scale:

1:20

Drawing No.

TP12

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.15 0.25	T9	D			
Firm light brown slightly sandy slightly silty slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.70					
Stiff red-brown/grey slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite and siltstone (UNDIFFERENTIATED DRIFT DEPOSITS)		1.25 1.30	B9	B	In-Situ SV	100 105 112	
...with occasional siltstone cobbles with depth							
...with rare chalk gravel with depth							
...with very silty mudstone lithorelicts with depth							
...grading into a very weak red-brown very silty highly weathered MUDSTONE with depth (EDWALTON MEMBER)							
End of Trial Pit at 2.90m		2.90					

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/1

Date:

25/11/2025

Approved:

PK

Client:

Bloor Homes Limited

Plant:

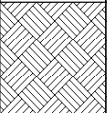
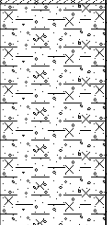
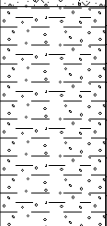
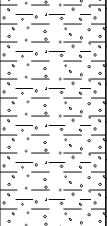
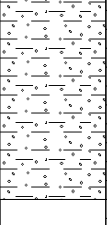
360° Tracked
Excavator

Scale:

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Drawing No.

TP13

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.30					
Firm light brown slightly sandy slightly silty slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.60	T10	D			
Firm to stiff red-brown/grey slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite and siltstone (UNDIFFERENTIATED DRIFT DEPOSITS)		0.90			In-Situ SV	70 75 80	
...becoming stiff and with rare chalk gravel with depth							
...with mudstone lithorelicts with depth							
...becoming more gravelly with depth with rare siltstone cobbles		2.20	B10	B			
End of Trial Pit at 2.60m		2.60					

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/1

Date:

25/11/2025

Approved:

PK

Client:

Bloor Homes Limited

Plant:

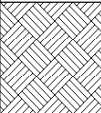
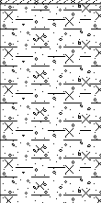
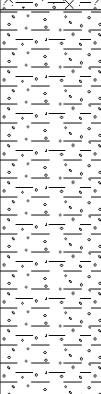
360° Tracked
Excavator

Scale:

1:20

Drawing No.

TP14

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.10	T11	D			
Firm light brown slightly sandy slightly silty slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.30					
Stiff red-brown/grey slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite and siltstone (UNDIFFERENTIATED DRIFT DEPOSITS)		0.85					
...with mudstone lithorelicts with depth		1.90					
End of Trial Pit at 1.90m							

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/1

Date:

25/11/2025

Approved:

PK

Client:

Bloor Homes Limited

Plant:

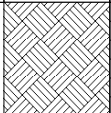
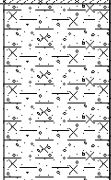
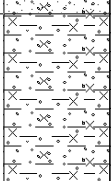
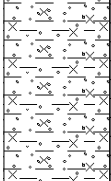
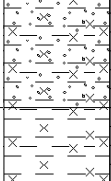
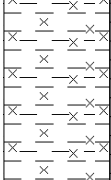
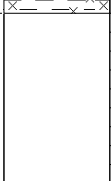
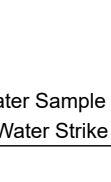
360° Tracked
Excavator

Scale:

1:20

Drawing No.

TP15

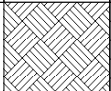
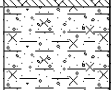
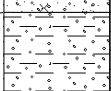
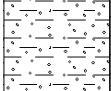
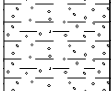
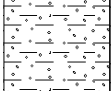
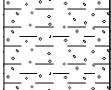
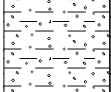
Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.30					
Firm light brown slightly sandy slightly silty slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.80					
Firm to stiff red-brown slightly gravelly silty CLAY. Gravel comprises predominantly subrounded quartzite and siltstone (UNDIFFERENTIATED DRIFT DEPOSITS)		1.00			In-Situ SV	75 78 80	
...becoming stiff with depth		1.30			In-Situ SV	100 125 90	
...becoming red-brown/grey with depth and very sandy and very silty							
...with rare siltstone cobbles with depth							
...with large pockets of damp very silty sand with depth							
Stiff red-brown/blue-grey silty CLAY (UNDIFFERENTIATED DRIFT DEPOSITS)		2.00					
...with mudstone lithorelicts with depth							
End of Trial Pit at 2.70m		2.70					

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)

Project: Land South of Sacheverell Way, Groby			Client: Bloor Homes Limited	
Logged: PK	Checked: PK	Field Book Ref: PK2025/1	Plant: 360° Tracked Excavator	Drawing No. TP16
Date: 25/11/2025	Approved: PK		Scale: 1:20	

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.20 0.25	T12	D			
Firm light brown slightly sandy slightly silty slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite and siltstone (UNDIFFERENTIATED DRIFT DEPOSITS)		0.50					
Stiff red-brown/grey slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite and siltstone (UNDIFFERENTIATED DRIFT DEPOSITS)		0.85 0.90	B11	B	In-Situ SV	120 125 128	
...becoming red-brown/blue-grey with depth with mudstone lithorelicts		1.25			In-Situ SV	118 120 125	
...becoming less gravelly with depth							
...with rare chalk gravel with depth							
...becoming silty with depth							
End of Trial Pit at 2.90m		2.90					

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Client:

Bloor Homes Limited

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/1

Plant:

360° Tracked
Excavator

Scale:

1:20

Drawing No.

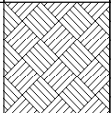
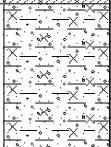
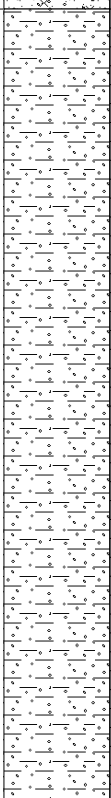
TP17

Date:

25/11/2025

Approved:

PK

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.30	T13	D	In-Situ SV	120 140	
Firm light brown slightly sandy slightly silty slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.50					
Stiff red-brown slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite, siltstone and chalk (UNDIFFERENTIATED DRIFT DEPOSITS)		0.70					
...becoming red-brown/grey with depth		1.15					
...with mudstone lithorelicts with depth							
...becoming red-brown/blue-grey with depth							
End of Trial Pit at 2.80m		2.80					

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/1

Date:

25/11/2025

Approved:

PK

Client:

Bloor Homes Limited

Plant:

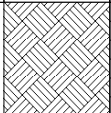
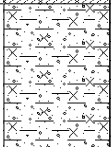
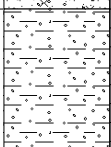
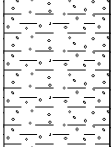
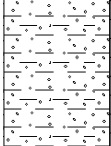
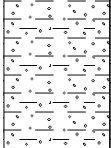
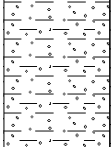
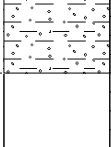
360° Tracked
Excavator

Scale:

1:20

Drawing No.

TP18

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.20	T14	D			
Firm light brown slightly sandy slightly silty slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.30					
Stiff red-brown slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.70					
...becoming red-brown/blue-grey with depth with rare siltstone cobbles		1.00			In-Situ SV	80 80 85	
...becoming less gravelly with depth		1.70	B12	B			
...with rare chalk gravel with depth							
...with mudstone lithorelicts with depth							
End of Trial Pit at 2.80m		2.80					

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Client:

Bloor Homes Limited

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/1

Plant:

360° Tracked
Excavator

Date:

25/11/2025

Approved:

PK

Scale:

1:20

Drawing No.

TP19



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

TP20

Project No: D44049

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)							
Firm light brown slightly sandy slightly silty slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.30					
Stiff red-brown slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite and siltstone (UNDIFFERENTIATED DRIFT DEPOSITS)		0.60					
...becoming red-brown/blue-grey with depth		0.90			In-Situ SV	120 120	
...with mudstone lithorelicts with depth							
...with rare siltstone cobbles with depth							
End of Trial Pit at 2.80m		2.80					

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample = Water Strike (m) = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/1

Date:

25/11/2025

Approved:

PK

Client:

Bloor Homes Limited

Plant:

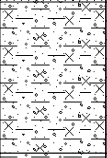
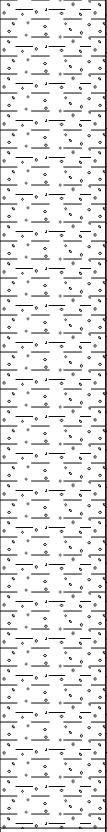
360° Tracked
Excavator

Scale:

1:20

Drawing No.

TP20

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.20					
Firm light brown slightly sandy slightly silty slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.60					
Stiff red-brown/grey slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite and siltstone (UNDIFFERENTIATED DRIFT DEPOSITS)		1.10 1.20	T15	D	In-Situ SV	140 142	
...becoming red-brown/blue-grey with depth							
...with rare chalk gravel with depth							
...with mudstone lithorelicts with depth							
...becoming less gravelly with depth							
End of Trial Pit at 2.80m		2.80					

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/1

Date:

25/11/2025

Approved:

PK

Client:

Bloor Homes Limited

Plant:

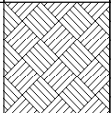
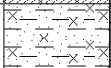
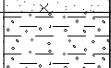
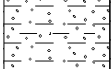
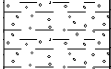
360° Tracked
Excavator

Scale:

1:20

Drawing No.

TP21

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.30	B13	B	In-Situ SV	88 90 92	
Firm light brown slightly sandy slightly silty CLAY (UNDIFFERENTIATED DRIFT DEPOSITS)							
Stiff red-brown slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite and platey siltstone (UNDIFFERENTIATED DRIFT DEPOSITS)		0.50					
...with occasional platey siltstone cobbles with depth		0.80					
...with mudstone lithorelicts with depth		1.00					
...with rare chalk gravel with depth		2.60					
End of Trial Pit at 2.60m							

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/1

Date:

25/11/2025

Approved:

PK

Client:

Bloor Homes Limited

Plant:

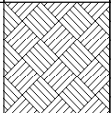
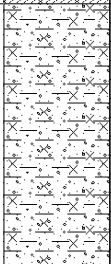
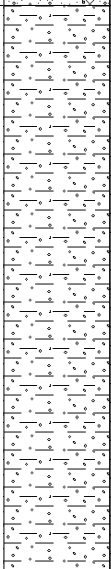
360° Tracked
Excavator

Scale:

1:20

Drawing No.

TP22

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.15	T16	D			
Firm light brown slightly sandy slightly silty slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.30					
...becoming firm to stiff with depth		0.60	B14	B			
		0.90			In-Situ SV	72	
		1.00				75	
Stiff red-brown slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite and siltstone (UNDIFFERENTIATED DRIFT DEPOSITS)		1.20			In-Situ SV	122	
...with rare siltstone cobbles with depth						88	
...with mudstone lithorelicts with depth						92	
End of Trial Pit at 2.50m		2.50					

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Client:

Bloor Homes Limited

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/1

Plant:

360° Tracked
Excavator

Scale:

1:20

Drawing No.

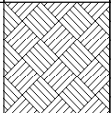
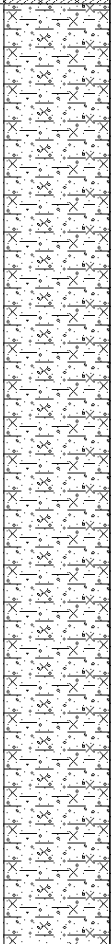
TP23

Date:

25/11/2025

Approved:

PK

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.30					
Firm light brown/light grey sandy silty slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		1.10	B15	B			
...with occasional large pockets of damp very sandy very silty clay with depth		1.30			In-Situ SV	58 60 65	
...becoming slightly less gravelly with depth							
...grading into a damp very silty very sandy CLAY/very clayey very silty SAND with depth							
End of Trial Pit at 2.80m		2.80					

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/1

Date:

25/11/2025

Approved:

PK

Client:

Bloor Homes Limited

Plant:

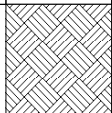
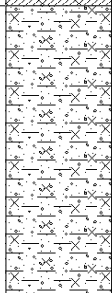
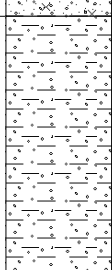
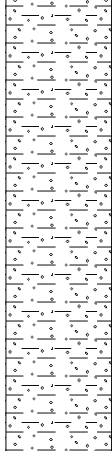
360° Tracked
Excavator

Scale:

1:20

Drawing No.

TP24

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water		
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.30	T17	D	In-Situ SV	60 68 70			
Firm light brown slightly sandy slightly silty slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)								0.60	
...with rare quartzite cobbles with depth								0.90	
Firm to stiff red-brown slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite and siltstone (UNDIFFERENTIATED DRIFT DEPOSITS)		1.10 1.15						In-Situ SV	72 82 88
...with large pockets of damp very sandy very silty clay with depth									
...grading into a damp very silty very sandy CLAY/very clayey very silty SAND with depth									
End of Trial Pit at 3.00m		3.00							

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Client:

Bloor Homes Limited

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/1

Plant:

360° Tracked
Excavator

Scale:

1:20

Drawing No.

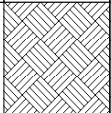
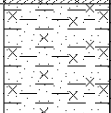
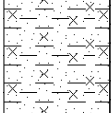
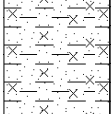
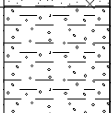
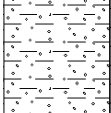
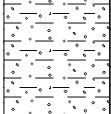
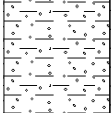
TP25

Date:

25/11/2025

Approved:

PK

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.30	B16	B	In-Situ SV	75 80 90	
Firm light brown slightly sandy slightly silty CLAY (UNDIFFERENTIATED DRIFT DEPOSITS)							
...with rare subrounded quartzite gravel with depth							
...becoming stiff with depth							
Stiff red-brown/grey slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite and siltstone (UNDIFFERENTIATED DRIFT DEPOSITS)		0.90	B16	B	In-Situ SV	75 80 90	
...with rare chalk gravel with depth and rare siltstone cobbles		1.10					
...with mudstone lithorelicts with depth		1.20					
...becoming red-brown/blue-grey with depth		3.00					
End of Trial Pit at 3.00m							

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Client:

Bloor Homes Limited

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/2

Plant:

360° Tracked
Excavator

Scale:

1:20

Drawing No.

TP26

Date:

26/11/2025

Approved:

PK



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TP27

Project No: D44049

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.20	T18	D			
Firm light brown slightly sandy slightly silty CLAY (UNDIFFERENTIATED DRIFT DEPOSITS)		0.30					
...with rare subrounded quartzite gravel with depth		0.90					
Stiff red-brown/grey slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		1.60					
End of Trial Pit at 1.60m							

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample = Water Strike (m) = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Client:

Bloor Homes Limited

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/2

Plant:

360° Tracked
Excavator

Date:

26/11/2025

Approved:

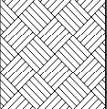
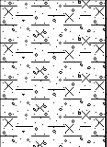
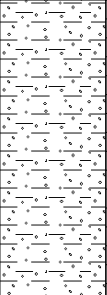
PK

Scale:

1:20

Drawing No.

TP27

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.30	T19	D			
Firm light brown slightly sandy slightly silty slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.50					
Stiff red-brown/grey slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.70					
End of Trial Pit at 1.50m		1.50					

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Client:

Bloor Homes Limited

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/2

Plant:

360° Tracked
Excavator

Scale:

1:20

Drawing No.

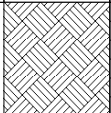
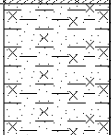
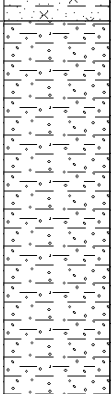
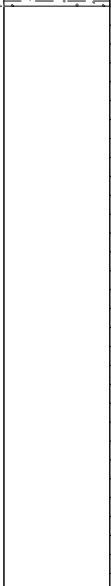
TP28

Date:

26/11/2025

Approved:

PK

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.30					
Firm light brown slightly sandy slightly silty CLAY (UNDIFFERENTIATED DRIFT DEPOSITS)							
Stiff red-brown/blue-grey gravelly CLAY. Gravel comprises predominantly subrounded quartzite and siltstone (UNDIFFERENTIATED DRIFT DEPOSITS)		0.70					
End of Trial Pit at 1.70m		1.70					

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/2

Date:

26/11/2025

Approved:

PK

Client:

Bloor Homes Limited

Plant:

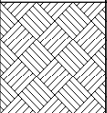
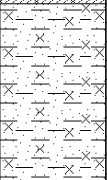
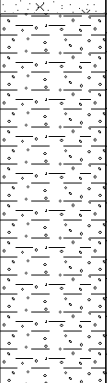
360° Tracked
Excavator

Scale:

1:20

Drawing No.

SA1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.30					
Firm light brown slightly sandy slightly silty CLAY (UNDIFFERENTIATED DRIFT DEPOSITS)							
Stiff red-brown/blue-grey slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite and siltstone (UNDIFFERENTIATED DRIFT DEPOSITS)		0.80					
...with rare siltstone cobbles with depth							
...with mudstone lithorelicts with depth							
End of Trial Pit at 1.80m		1.80					

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Client:

Bloor Homes Limited

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/2

Plant:

360° Tracked
Excavator

Date:

26/11/2025

Approved:

PK

Scale:

1:20

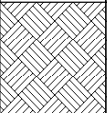
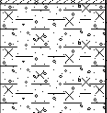
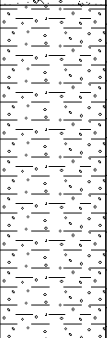
Drawing No.

SA2

**Project No:** D44049

Sheet 1 of 1

Remarks: 1.Sides generally stable. 2.No water seepages encountered.				
Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2) J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)				
Project: Land South of Sacheverell Way, Groby			Client: Bloor Homes Limited	
Logged: PK	Checked: PK	Field Book Ref: PK2025/2	Plant: 360° Tracked Excavator	Drawing No. SA3
Date: 26/11/2025	Approved: PK		Scale: 1:20	

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.30					
Firm light brown slightly sandy slightly silty slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.60					
Stiff red-brown/blue-grey slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite and siltstone (UNDIFFERENTIATED DRIFT DEPOSITS)		1.50					
End of Trial Pit at 1.50m							

Remarks:

- Sides generally stable.
- No water seepages encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m²) P = Penetrometer (kN/m²)
J = Jar Sample V = Vial Sample  = Water Strike (m)  = Steady Water Level (m)

Project:

Land South of Sacheverell Way, Groby

Client:

Bloor Homes Limited

Logged:

PK

Checked:

PK

Field Book Ref:

PK2025/2

Plant:

360° Tracked
Excavator

Date:

26/11/2025

Approved:

PK

Scale:

1:20

Drawing No.

SA4

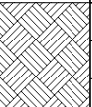
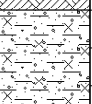
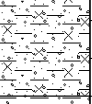
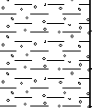
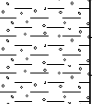
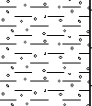
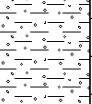


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WS1

Project No. D44049

Sheet 1 of 1

Samples and Tests				Description of Strata	Legend	Depth & (Thickness) (m)	Casing (m)	Ground-water	Installation	
Depth (m)	Type	Sample Ref	SPT "N" Value							
1.00 - 1.45	C		15	Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		(0.30)				
				Firm light brown slightly sandy slightly silty slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.30				
				...becoming stiff with depth		(0.50)				
				Stiff red-brown/grey slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.80				
2.00 - 2.45	C		14	...with rare chalk gravel and mudstone lithorelicts with depth		(3.20)				
3.00 - 3.45	C		26							
4.00 - 4.45	C		29							
End of Borehole at 4.00m										

Remarks

1.Sides generally stable.
2.No water seepages encountered.
3.Plain pipe installed from ground level to 1.00m in a bentonite surround. Slotted pipe installed from 1.00m to 4.00m in a gravel surround.
4.Bung, valve and lockable cover installed.

Key

- D = Disturbed Sample

U = Undisturbed Sample

B = Bulk Sample

J = Jar Sample

V = Vial Sample

W = Water Sample
- S = Standard Penetration Test (Split Spoon)

C = Standard Penetration Test (Cone)

= Water Strike (m)

= Steady Water Level (m)

Project: Land South of Sacheverell Way, Groby			Client: Bloor Homes Limited		
Logged: PK	Checked: PK	Field Book Ref: PK2025/2	Plant: Competitor Rig	Drawing Ref: WS1	
Date: 04/12/2025	Approved: PK		Scale: 1:20		



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email: info@geodyne.co.uk

WS2

Project No. D44049

Sheet 1 of 1

Samples and Tests				Description of Strata	Legend	Depth & (Thickness) (m)	Casing (m)	Ground-water	Installation
Depth (m)	Type	Sample Ref	SPT "N" Value						
1.00 - 1.45	C		14	Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		(0.30)			
				Firm light brown slightly sandy slightly silty slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.30			
						(0.50)			
				Firm light brown slightly sandy slightly silty gravelly CLAY. Gravel comprises predominantly subrounded quartzite, siltstone and chalk (UNDIFFERENTIATED DRIFT DEPOSITS)		0.80			
2.00 - 2.45	C		21	Stiff red-brown/grey slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.90			
						(2.10)			
3.00 - 3.45	C		29	End of Borehole at 3.00m		3.00			

Remarks

1.Sides generally stable.
2.No water seepages encountered.

Key

- D = Disturbed Sample

U = Undisturbed Sample

B = Bulk Sample

J = Jar Sample

V = Vial Sample

W = Water Sample
- S = Standard Penetration Test (Split Spoon)

C = Standard Penetration Test (Cone)

= Water Strike (m)

= Steady Water Level (m)

Project: Land South of Sacheverell Way, Groby				Client: Bloor Homes Limited			
Logged: PK		Checked: PK		Field Book Ref: PK2025/2	Plant: Competitor Rig		Drawing Ref: WS2
Date: 04/12/2025		Approved: PK			Scale: 1:20		



9 Brunel Parkway, Pride Park, Derby DE24 8HR
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WS3

Project No. D44049

Sheet 1 of 1

Samples and Tests				Description of Strata	Legend	Depth & (Thickness) (m)	Casing (m)	Ground-water	Installation
Depth (m)	Type	Sample Ref	SPT "N" Value						
1.00 - 1.45	C		12	Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		(0.30)			
				Firm light brown slightly sandy slightly silty slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.30 (0.40)			
				Stiff red-brown/grey slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.70			
2.00 - 2.45	C		21	...with rare siltstone and chalk gravel with depth		(3.30)			
3.00 - 3.45	C		18	...becoming less gravelly with depth with mudstone lithorelicts					
4.00 - 4.45	C		28	End of Borehole at 4.00m		4.00			

Remarks

1.Sides generally stable.
2.No water seepages encountered.
3.Plain pipe installed from ground level to 1.00m in a bentonite surround. Slotted pipe installed from 1.00m to 4.00m in a gravel surround.
4.Bung, valve and lockable cover installed.

Key

- D = Disturbed Sample

U = Undisturbed Sample

B = Bulk Sample

J = Jar Sample

V = Vial Sample

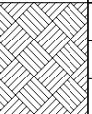
W = Water Sample
- S = Standard Penetration Test (Split Spoon)

C = Standard Penetration Test (Cone)

= Water Strike (m)

= Steady Water Level (m)

Project: Land South of Sacheverell Way, Groby				Client: Bloor Homes Limited			
Logged: PK		Checked: PK		Field Book Ref: PK2025/2	Plant: Competitor Rig		Drawing Ref: WS3
Date: 04/12/2025		Approved: PK			Scale: 1:20		

Samples and Tests				Description of Strata	Legend	Depth & (Thickness) (m)	Casing (m)	Ground-water	Installation
Depth (m)	Type	Sample Ref	SPT "N" Value						
1.00 - 1.45	C		10	Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		(0.30)			
				Firm light brown slightly sandy slightly silty slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.30			
						(0.50)			
				Firm light brown slightly sandy slightly silty gravelly CLAY. Gravel comprises predominantly subrounded quartzite, siltstone and chalk (UNDIFFERENTIATED DRIFT DEPOSITS)		0.80			
2.00 - 2.45	C		11	Stiff red-brown/grey slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.90			
						(2.10)			
3.00 - 3.45	C		20	End of Borehole at 3.00m		3.00			

Remarks

1.Sides generally stable.
2.No water seepages encountered.

Key

- D = Disturbed Sample

U = Undisturbed Sample

B = Bulk Sample

J = Jar Sample

V = Vial Sample

W = Water Sample
- S = Standard Penetration Test (Split Spoon)

C = Standard Penetration Test (Cone)

 = Water Strike (m)

 = Steady Water Level (m)

Project: Land South of Sacheverell Way, Groby				Client: Bloor Homes Limited			
Logged: PK		Checked: PK		Field Book Ref: PK2025/2	Plant: Competitor Rig		Drawing Ref: WS4
Date: 04/12/2025		Approved: PK			Scale: 1:20		

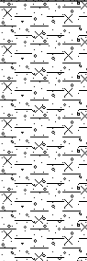
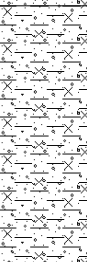
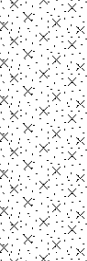
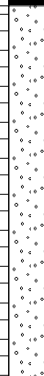
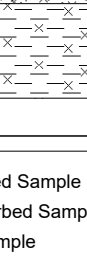
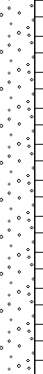
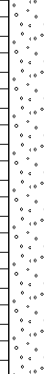
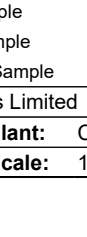
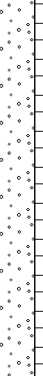
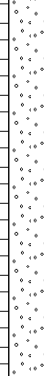


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WS5

Project No. D44049

Sheet 1 of 1

Samples and Tests				Description of Strata	Legend	Depth & (Thickness) (m)	Casing (m)	Ground-water	Installation	
Depth (m)	Type	Sample Ref	SPT "N" Value							
1.00 - 1.45	C		18	Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		(0.30)				
				Firm light brown slightly sandy slightly silty slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.30				
				...becoming very sandy with depth		(0.70)				
				Firm to stiff red-brown very sandy silty gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		1.00				
2.00 - 2.45	C		36			(1.00)				
				Dense red-brown very silty fine to medium grained SAND with rare subrounded quartzite gravel (UNDIFFERENTIATED DRIFT DEPOSITS)		2.00				
3.00 - 3.45	C		34			(1.75)				
						3.75				
4.00 - 4.45	C		27	Stiff grey-brown silty CLAY (UNDIFFERENTIATED DRIFT DEPOSITS)						
				End of Borehole at 4.00m		4.00				

Remarks

1.Sides generally stable.
2.No water seepages encountered.
3.Plain pipe installed from ground level to 1.00m in a bentonite surround. Slotted pipe installed from 1.00m to 4.00m in a gravel surround.
4.Bung, valve and lockable cover installed.

Key

- D = Disturbed Sample

U = Undisturbed Sample

B = Bulk Sample

J = Jar Sample

V = Vial Sample

W = Water Sample
- S = Standard Penetration Test (Split Spoon)

C = Standard Penetration Test (Cone)

= Water Strike (m)

= Steady Water Level (m)

Project: Land South of Sacheverell Way, Groby			Client: Bloor Homes Limited		
Logged: PK	Checked: PK	Field Book Ref: PK2025/2	Plant: Competitor Rig	Drawing Ref: WS5	
Date: 04/12/2025	Approved: PK		Scale: 1:20		

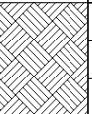
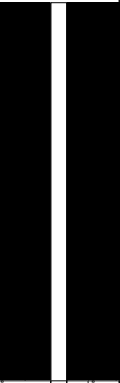
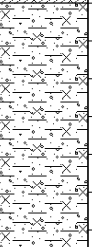
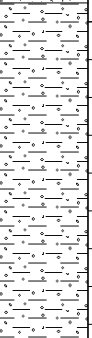
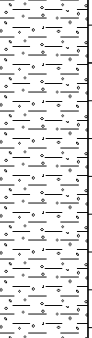
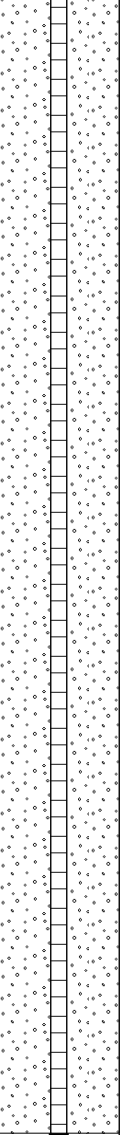
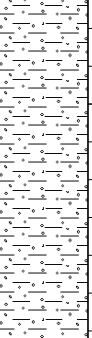
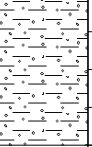


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WS6

Project No. D44049

Sheet 1 of 1

Samples and Tests				Description of Strata	Legend	Depth & (Thickness) (m)	Casing (m)	Ground-water	Installation
Depth (m)	Type	Sample Ref	SPT "N" Value						
1.00 - 1.45	C		10	Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		(0.30)			
				Firm light brown slightly sandy slightly silty slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.30 (0.65)			
				Stiff red-brown/grey slightly gravelly CLAY. Gravel comprises predominantly subrounded quartzite (UNDIFFERENTIATED DRIFT DEPOSITS)		0.95			
2.00 - 2.45	C		17			(3.05)			
3.00 - 3.45	C		21						
4.00 - 4.45	C		32	End of Borehole at 4.00m		4.00			

Remarks

1.Sides generally stable.
2.No water seepages encountered.
3.Plain pipe installed from ground level to 1.00m in a bentonite surround. Slotted pipe installed from 1.00m to 4.00m in a gravel surround.
4.Bung, valve and lockable cover installed.

Key

- D = Disturbed Sample

U = Undisturbed Sample

B = Bulk Sample

J = Jar Sample

V = Vial Sample

W = Water Sample
- S = Standard Penetration Test (Split Spoon)

C = Standard Penetration Test (Cone)

 = Water Strike (m)

 = Steady Water Level (m)

Project: Land South of Sacheverell Way, Groby				Client: Bloor Homes Limited			
Logged: PK		Checked: PK		Field Book Ref: PK2025/2	Plant: Competitor Rig		Drawing Ref: WS6
Date: 04/12/2025		Approved: PK			Scale: 1:20		

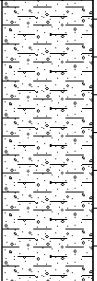
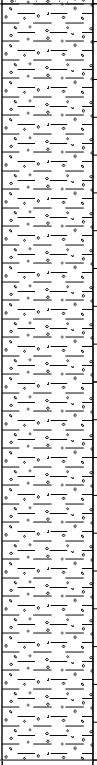
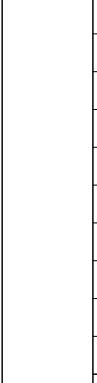


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WS7

Project No. D44049

Sheet 1 of 1

Samples and Tests				Description of Strata	Legend	Depth & (Thickness) (m)	Casing (m)	Ground-water	Installation
Depth (m)	Type	Sample Ref	SPT "N" Value						
1.00 - 1.45	C		11	Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.25			
				Firm grey-brown sandy slightly gravelly CLAY. Gravel is fine to medium and subangular to rounded (UNDIFFERENTIATED DRIFT DEPOSITS)		(0.75)			
				Stiff dark grey-brown slightly gravelly CLAY. Gravel is fine to coarse and angular to rounded (UNDIFFERENTIATED DRIFT DEPOSITS)		1.00			
2.00 - 2.45	C		14	...very stiff below approximately 2.55m		(2.00)			
3.00 - 3.45	C		26			3.00			
				End of Borehole at 3.00m					

Remarks

1.Sides generally stable.
2.No water seepages encountered.

Key

- D = Disturbed Sample

U = Undisturbed Sample

B = Bulk Sample

J = Jar Sample

V = Vial Sample

W = Water Sample
- S = Standard Penetration Test (Split Spoon)

C = Standard Penetration Test (Cone)

 = Water Strike (m)

 = Steady Water Level (m)

Project: Land South of Sacheverell Way, Groby				Client: Bloor Homes Limited			
Logged: PK		Checked: PK		Field Book Ref: SS/22	Plant: Competitor Rig		Drawing Ref: WS7
Date: 05/12/2025		Approved: PK			Scale: 1:20		

Samples and Tests				Description of Strata	Legend	Depth & (Thickness) (m)	Casing (m)	Ground-water	Installation
Depth (m)	Type	Sample Ref	SPT "N" Value						
1.00 - 1.45	C		11	Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.25			
				Firm grey-brown slightly gravelly CLAY. Gravel is fine to medium and subangular to subrounded (UNDIFFERENTIATED DRIFT DEPOSITS)		(0.95)			
				...terracotta land drain at 0.95m to 1.05m					
2.00 - 2.45	C		21	Stiff dark grey-brown slightly gravelly CLAY. Gravel is fine to coarse angular to rounded (UNDIFFERENTIATED DRIFT DEPOSITS)		1.20			
				...very stiff below approximately 2.45m		(1.80)			
3.00 - 3.45	C		31	End of Borehole at 3.00m		3.00			

Remarks

1.Sides generally stable.
2.No water seepages encountered.

Key

D = Disturbed Sample
U = Undisturbed Sample
B = Bulk Sample
J = Jar Sample
V = Vial Sample
W = Water Sample

S = Standard Penetration Test (Split Spoon)
C = Standard Penetration Test (Cone)
 = Water Strike (m)
 = Steady Water Level (m)

Project: Land South of Sacheverell Way, Groby

Client: Bloor Homes Limited

Logged: PK

Checked: PK

Field Book Ref:

Plant: Competitor Rig

Drawing Ref:

Date: 05/12/2025

Approved: PK

SS/22

Scale: 1:20

WS8



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WS9

Project No. D44049

Sheet 1 of 1

Samples and Tests				Description of Strata	Legend	Depth & (Thickness) (m)	Casing (m)	Ground-water	Installation
Depth (m)	Type	Sample Ref	SPT "N" Value						
1.00 - 1.45	C		15	Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		0.25			
				Firm grey-brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium and subrounded to angular (UNDIFFERENTIATED DRIFT DEPOSITS)		(0.45)			
				Stiff dark grey-brown slightly gravelly CLAY. Gravel is fine to coarse and subangular to rounded (UNDIFFERENTIATED DRIFT DEPOSITS)		0.70			
2.00 - 2.45	C		20	...very stiff below approximately 2.60m		(3.30)			
3.00 - 3.45	C		28						
4.00 - 4.45	C		33	End of Borehole at 4.00m		4.00			

Remarks

1.Sides generally stable.
2.No water seepages encountered.
3.Plain pipe installed from ground level to 1.00m in a bentonite surround. Slotted pipe installed from 1.00m to 4.00m in a gravel surround.
4.Bung, valve and lockable cover installed.

Key

- D = Disturbed Sample

U = Undisturbed Sample

B = Bulk Sample

J = Jar Sample

V = Vial Sample

W = Water Sample
- S = Standard Penetration Test (Split Spoon)

C = Standard Penetration Test (Cone)

= Water Strike (m)

= Steady Water Level (m)

Project: Land South of Sacheverell Way, Groby				Client: Bloor Homes Limited			
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Date: 05/12/2025		Approved: PK			Scale: 1:20		

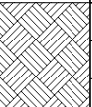
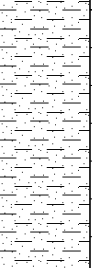
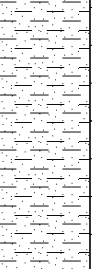
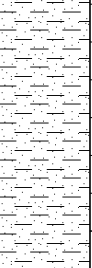
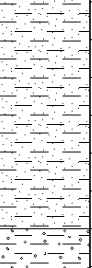
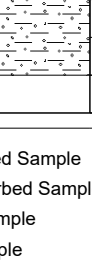
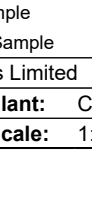


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WS10

Project No. D44049

Sheet 1 of 1

Samples and Tests				Description of Strata	Legend	Depth & (Thickness) (m)	Casing (m)	Ground-water	Installation	
Depth (m)	Type	Sample Ref	SPT "N" Value							
1.00 - 1.45	C		8	Grass, weeds and rooty crop remains over dark brown clayey TOPSOIL (TOPSOIL)		(0.30)				
				Firm yellow-brown sandy CLAY (UNDIFFERENTIATED DRIFT DEPOSITS)		0.30				
				...becoming slightly gravelly with increased depth						
				...stiff below approximately 1.10m						
2.00 - 2.45	C		11	...less sandy below approximately 1.80m						
				...locally very sandy between 2.00m and 3.70m		(3.40)				
3.00 - 3.45	C		15							
4.00 - 4.45	C		12	Stiff dark grey-brown slightly gravelly CLAY. Gravel is fine to coarse and subangular to rounded (UNDIFFERENTIATED DRIFT DEPOSITS)		3.70				
						(0.30)				
				End of Borehole at 4.00m		4.00				

Remarks

1.Sides generally stable.
2.Slight water seepages between 2.00m and 3.70m.
3.Plain pipe installed from ground level to 1.00m in a bentonite surround. Slotted pipe installed from 1.00m to 4.00m in a gravel surround.
4.Bung, valve and lockable cover installed.

Key

D = Disturbed Sample
U = Undisturbed Sample
B = Bulk Sample
J = Jar Sample
V = Vial Sample
W = Water Sample
S = Standard Penetration Test (Split Spoon)
C = Standard Penetration Test (Cone)
 = Water Strike (m)
 = Steady Water Level (m)

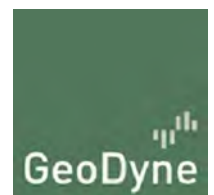
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Logged: PK		Checked: PK		Field Book Ref: SS/22	Plant: Competitor Rig		Drawing Ref: WS10
Date: 05/12/2025		Approved: PK			Scale: 1:20		

APPENDIX VII

Plates



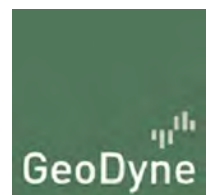
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Client	Bloor Homes Ltd.	Checked By	PK
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Project	Land South of Sacheverell Way, Groby	Scale	NTS
		Date Drawn	19/12/2025
Title	TP2 - Completed excavation	Revision	
		Plate No.	1



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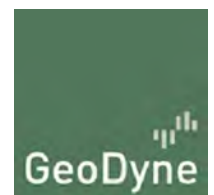
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Client	Bloor Homes Ltd.	Checked By	PK
		Approved By	PK
Project	Land South of Sacheverell Way, Groby	Scale	NTS
		Date Drawn	19/12/2025
Title	TP4 - Completed excavation	Revision	
		Plate No.	2



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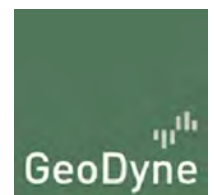
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Client	Bloor Homes Ltd.	Checked By	PK
		Approved By	PK
Project	Land South of Sacheverell Way, Groby	Scale	NTS
		Date Drawn	19/12/2025
Title	TP6 - Completed excavation	Revision	
		Plate No.	3



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Project No.	D44049	Drawn By	DL
Client	Bloor Homes Ltd.	Checked By	PK
		Approved By	PK
Project	Land South of Sacheverell Way, Groby	Scale	NTS
		Date Drawn	19/12/2025
Title	TP8 - Completed excavation	Revision	
		Plate No.	4



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Derby 01332 290 798
info@geodyne.co.uk
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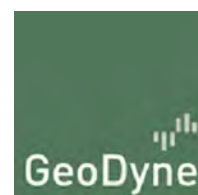
Project No.	D44049	Drawn By	DL
Client	Bloor Homes Ltd.	Checked By	PK
		Approved By	PK
Project	Land South of Sacheverell Way, Groby	Scale	NTS
		Date Drawn	19/12/2025
Title	TP10 - Completed excavation	Revision	
		Plate No.	5



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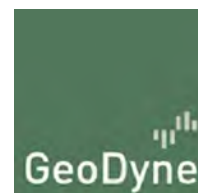
Project No.	D44049	Drawn By	DL
Client	Bloor Homes Ltd.	Checked By	PK
		Approved By	PK
Project	Land South of Sacheverell Way, Groby	Scale	NTS
		Date Drawn	19/12/2025
Title	TP12 - Completed excavation	Revision	
		Plate No.	6



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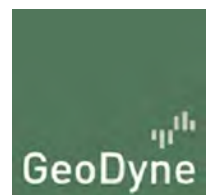
Project No.	D44049	Drawn By	DL
Client	Bloor Homes Ltd.	Checked By	PK
		Approved By	PK
Project	Land South of Sacheverell Way, Groby	Scale	NTS
		Date Drawn	19/12/2025
Title	TP14 - Completed excavation	Revision	
		Plate No.	7



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Project No.	D44049	Drawn By	DL
Client	Bloor Homes Ltd.	Checked By	PK
		Approved By	PK
Project	Land South of Sacheverell Way, Groby	Scale	NTS
		Date Drawn	19/12/2025
Title	TP18 - Completed excavation	Revision	
		Plate No.	8



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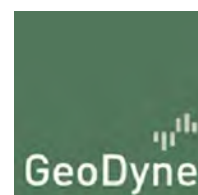
Project No.	D44049	Drawn By	DL
Client	Bloor Homes Ltd.	Checked By	PK
		Approved By	PK
Project	Land South of Sacheverell Way, Groby	Scale	NTS
		Date Drawn	19/12/2025
Title	TP20 - Completed excavation	Revision	
		Plate No.	9



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Project No.	D44049	Drawn By	DL
Client	Bloor Homes Ltd.	Checked By	PK
		Approved By	PK
Project	Land South of Sacheverell Way, Groby	Scale	NTS
		Date Drawn	19/12/2025
Title	TP22 - Completed excavation	Revision	
		Plate No.	10



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Project No.	D44049	Drawn By	DL
Client	Bloor Homes Ltd.	Checked By	PK
		Approved By	PK
Project	Land South of Sacheverell Way, Groby	Scale	NTS
		Date Drawn	19/12/2025
Title	TP24 - Completed excavation	Revision	
		Plate No.	11



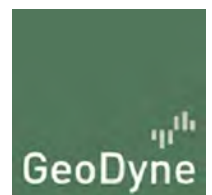
Nottingham 0115 962 0001
Derby 01332 290 798
info@geodyne.co.uk
www.geodyne.co.uk



Project No.	D44049	Drawn By	DL	 Nottingham 0115 962 0001 Derby 01332 290 798 info@geodyne.co.uk www.geodyne.co.uk
Client	Bloor Homes Ltd.	Checked By	PK	
		Approved By	PK	
Project	Land South of Sacheverell Way, Groby	Scale	NTS	
		Date Drawn	19/12/2025	
Title	TP26 - Completed excavation	Revision		12
		Plate No.		



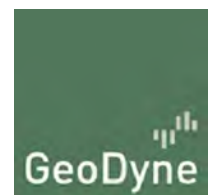
Project No.	D44049	Drawn By	DL
Client	Bloor Homes Ltd.	Checked By	PK
		Approved By	PK
Project	Land South of Sacheverell Way, Groby	Scale	NTS
		Date Drawn	19/12/2025
Title	SA1 - Soakaway monitoring in progress	Revision	
		Plate No.	13



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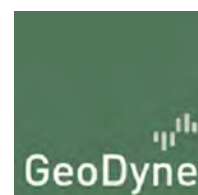
Project No.	D44049	Drawn By	DL
Client	Bloor Homes Ltd.	Checked By	PK
		Approved By	PK
Project	Land South of Sacheverell Way, Groby	Scale	NTS
		Date Drawn	19/12/2025
Title	SA4 - Soakaway monitoring in progress	Revision	
		Plate No.	14



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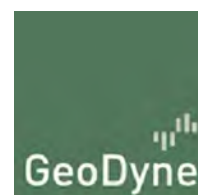
Project No.	D44049	Drawn By	DL
Client	Bloor Homes Ltd.	Checked By	PK
		Approved By	PK
Project	Land South of Sacheverell Way, Groby	Scale	NTS
		Date Drawn	19/12/2025
Title	WS1 - Recovered cores	Revision	
		Plate No.	15



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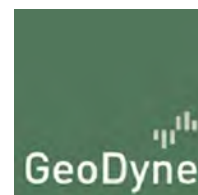
Project No.	D44049	Drawn By	DL
Client	Bloor Homes Ltd.	Checked By	PK
		Approved By	PK
Project	Land South of Sacheverell Way, Groby	Scale	NTS
		Date Drawn	19/12/2025
Title	WS3 - Recovered cores	Revision	
		Plate No.	16



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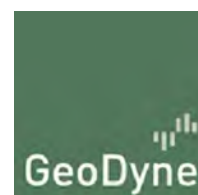
Project No.	D44049	Drawn By	DL
Client	Bloor Homes Ltd.	Checked By	PK
		Approved By	PK
Project	Land South of Sacheverell Way, Groby	Scale	NTS
		Date Drawn	19/12/2025
Title	WS4 - Recovered cores	Revision	
		Plate No.	17



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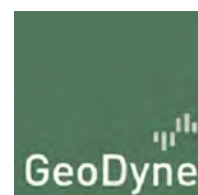
Project No.	D44049	Drawn By	DL
Client	Bloor Homes Ltd.	Checked By	PK
		Approved By	PK
Project	Land South of Sacheverell Way, Groby	Scale	NTS
		Date Drawn	19/12/2025
Title	WS7 - Recovered cores	Revision	
		Plate No.	18



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Project No.	D44049	Drawn By	DL
Client	Bloor Homes Ltd.	Checked By	PK
		Approved By	PK
Project	Land South of Sacheverell Way, Grobby	Scale	NTS
		Date Drawn	19/12/2025
Title	WS9 - Recovered cores	Revision	
		Plate No.	19



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APPENDIX VIII

Laboratory Soil Test Results



LABORATORY REPORT



Contract Number: PSL25/9446

Report Date: 12 December 2025

Client's Reference: D44049

Client Name: GeoDyne Derby
9 Brunel Parkway
Pride Park
Derby
DE24 8HR

For the attention of: Paul Kershaw

Contract Title: Land South of Sacheverell Way, Groby

Date Received: 04/12/2025

Date Commenced: 04/12/2025

Date Completed: 12/12/2025

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Managing Director)

R Berriman
(Associate Director)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)


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Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP2	B1	CLAY	0.90		Brown slightly sandy slightly gravelly CLAY.
TP3	B2	CLAY	1.30		Brown slightly sandy slightly gravelly CLAY.
TP6	B3	CLAY	0.70		Brown slightly sandy slightly gravelly CLAY.
TP7	B4	CLAY	1.50		Brown slightly sandy slightly gravelly CLAY.
TP8	B5	CLAY	2.00		Brown slightly sandy slightly gravelly CLAY.
TP10	B6	CLAY	0.80		Brown slightly sandy CLAY.
TP11	B7	CLAY	2.20		Brown mottled grey slightly sandy CLAY.
TP12	B8	CLAY	0.70		Brown mottled grey slightly sandy slightly gravelly CLAY.
TP13	B9	CLAY	1.30		Brown slightly sandy slightly gravelly CLAY.
TP14	B10	CLAY	2.20		Brown slightly sandy CLAY.
TP17	B11	CLAY	0.85		Brown slightly sandy slightly gravelly CLAY.
TP19	B12	CLAY	1.70		Brown mottled grey slightly sandy CLAY.
TP22	B13	CLAY	1.00		Brown slightly sandy CLAY.
TP23	B14	CLAY	0.60		Brown slightly sandy CLAY.
TP24	B15	CLAY	1.10		Brown slightly sandy CLAY.
TP26	B16	CLAY	0.90		Brown slightly sandy CLAY.



Land South of Sacheverell Way, Groby

Contract No:

PSL25/9446

Client Ref:

D44049

SUMMARY OF SOIL CLASSIFICATION TESTS

BS 1377 - Part 2 : 2022 in accordance with BS EN ISO 17892 (as below)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Water Content %	Linear Shrinkage	Particle Density Mg/m ³	Liquid Limit %	Plastic Limit %	Plasticity Index %	Passing 0.425mm %	Remarks
TP2	B1	CLAY	0.90		20.4			43	16	27	84	Medium Plasticity CIM
TP3	B2	CLAY	1.30		22.4			37	19	18	98	Medium Plasticity CIM
TP6	B3	CLAY	0.70		21.2			46	18	28	95	Medium Plasticity CIM
TP7	B4	CLAY	1.50		22.3			53	21	32	92	High Plasticity CIH
TP8	B5	CLAY	2.00		23.9			49	21	28	94	Medium Plasticity CIM
TP10	B6	CLAY	0.80		21.5			46	16	30	100	Medium Plasticity CIM
TP11	B7	CLAY	2.20		23.3			52	24	28	100	High Plasticity CIH
TP12	B8	CLAY	0.70		18.1			43	17	26	97	Medium Plasticity CIM
TP13	B9	CLAY	1.30		14.8			36	17	19	90	Medium Plasticity CIM
TP14	B10	CLAY	2.20		14.7			41	13	28	100	Medium Plasticity CIM
TP17	B11	CLAY	0.85		18.4			40	17	23	97	Medium Plasticity CIM
TP19	B12	CLAY	1.70		23.5			50	22	28	100	High Plasticity CIH
TP22	B13	CLAY	1.00		21.1			45	16	29	100	Medium Plasticity CIM
TP23	B14	CLAY	0.60		24.0			40	15	25	100	Medium Plasticity CIM
TP24	B15	CLAY	1.10		21.0			39	16	23	100	Medium Plasticity CIM

Water Content - BS 1377 - Part 2 : 2022 : Clause 4 in accordance with BS EN ISO 17892 - 1 : 2014 + A1 : 2022

Linear Shrinkage - BS 1377 - Part 2 : 2022 : Clause 7

Particle Density (Gas Jar method) - BS 1377 - Part 2 : 2022 : Clause 9

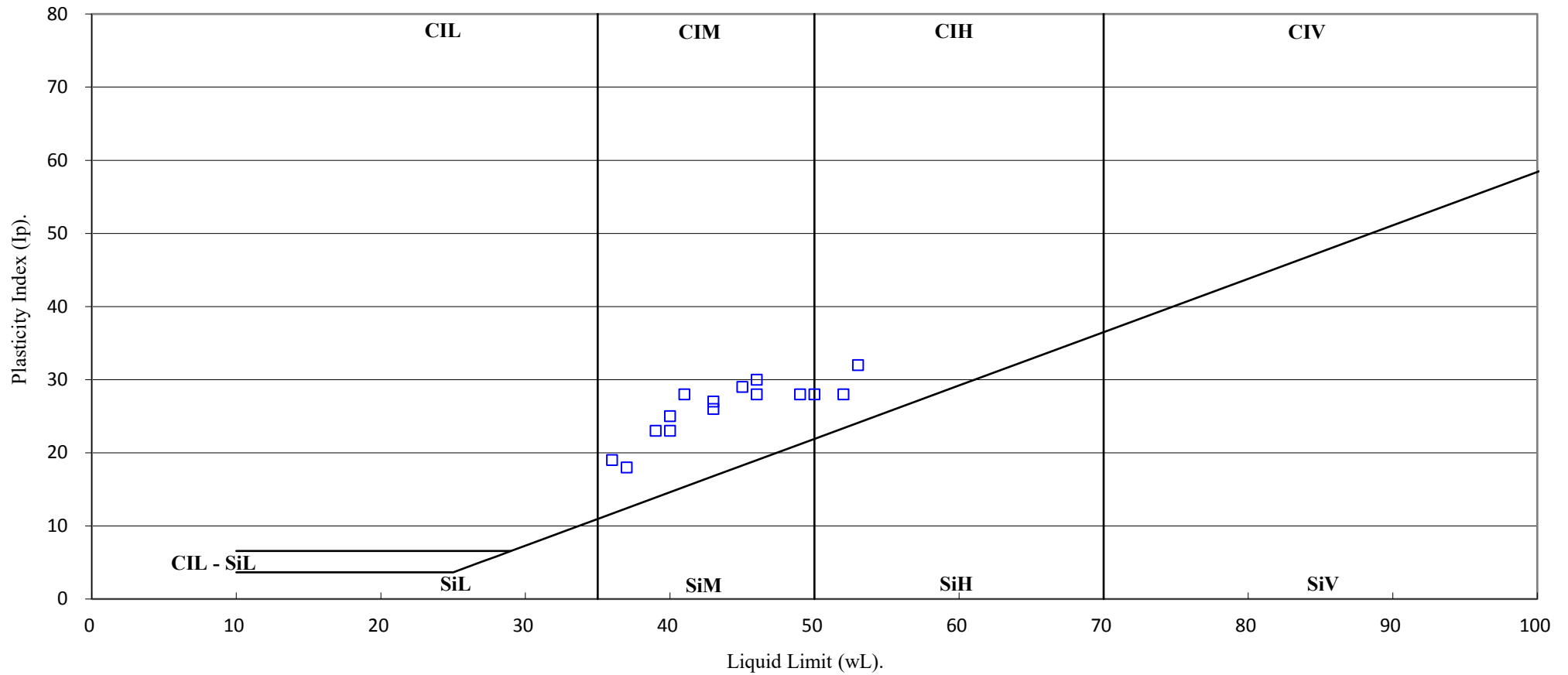
Liquid, Plastic Limit & Plasticity Index - BS 1377 - Part 2 : 2022 : Clause 5 & 6 in accordance with BS EN ISO 17892 - 12 : 2018 + A2 : 2022

SYMBOLS : NP = Non Plastic

		Land South of Sacheverell Way, Groby	Contract No:
			PSL25/9446
			Client Ref:
			D44049

PLASTICITY CHART

BS EN ISO 14688-2:2017 Clause 4.4



Land South of Sacheverell Way, Groby

Contract No:

PSL25/9446

Client Ref:

D44049

SUMMARY OF SOIL CLASSIFICATION TESTS

BS 1377 - Part 2 : 2022 in accordance with BS EN ISO 17892 (as below)

[illegible]

Water Content - BS 1377 - Part 2 : 2022 : Clause 4 in accordance with BS EN ISO 17892 - 1 : 2014 + A1 : 2022

Linear Shrinkage - BS 1377 - Part 2 : 2022 : Clause 7

Particle Density (Gas Jar method) - BS 1377 - Part 2 : 2022 : Clause 9

Liquid, Plastic Limit & Plasticity Index - BS 1377 - Part 2 : 2022 : Clause 5 & 6 in accordance with BS EN ISO 17892 - 12 : 2018 + A2 : 2022

SYMBOLS : NP = Non Plastic



Land South of Sacheverell Way, Groby

Contract No:

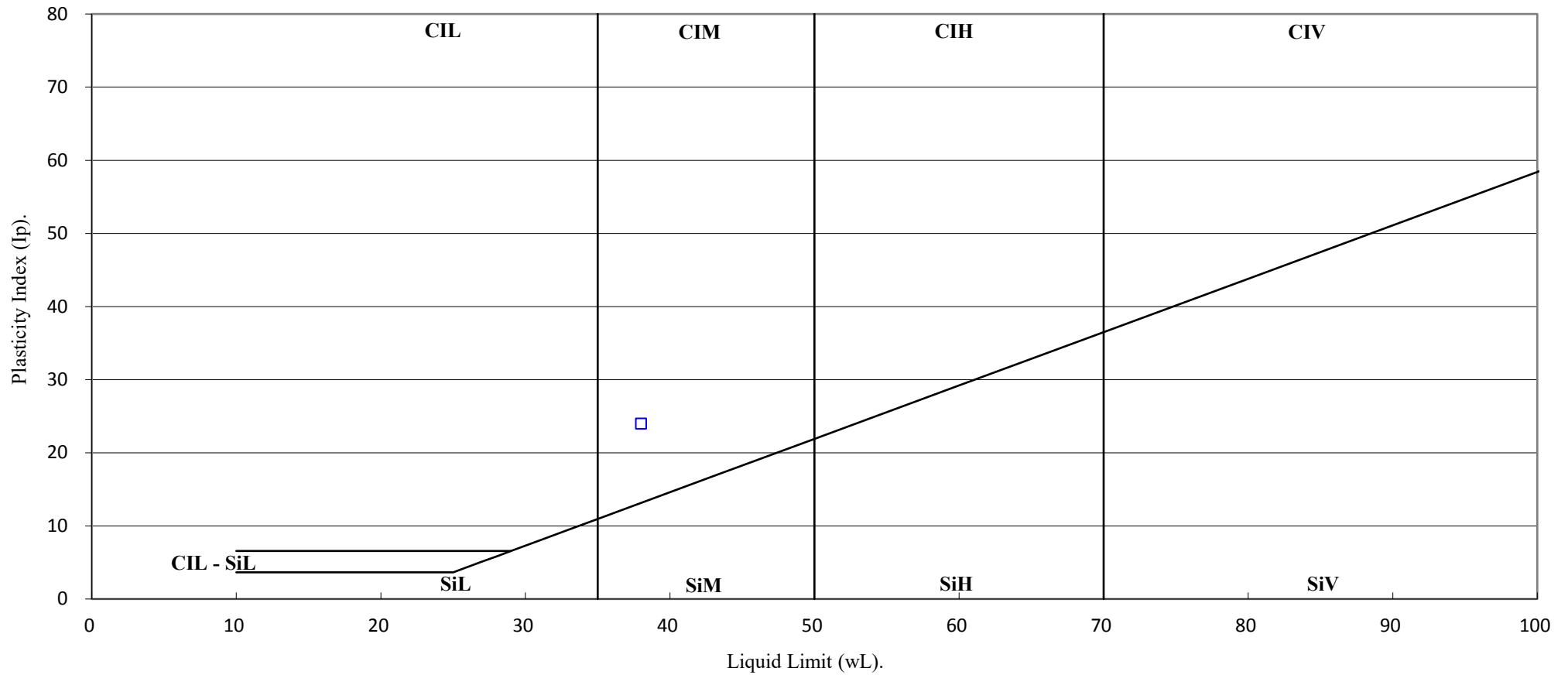
PSL25/9446

Client Ref:

D44049

PLASTICITY CHART

BS EN ISO 14688-2:2017 Clause 4.4



Land South of Sacheverell Way, Groby

Contract No:

PSL25/9446

Client Ref:

D44049

FINAL ANALYTICAL TEST REPORT SUPPLEMENT TO TEST REPORT 25/13892/2

Amendments: Request for split report

Envirolab Job Number: 25/13892
Issue Number: 3-S1

Date: 14 January, 2026

Client: GeoDyne (Derby)
9 Brunel Parkway
Pride Park
Derby
Derbyshire
UK
DE24 8HR

Project Manager: Paul Kershaw
Project Name: Land South of Sacheverell Way, Groby
Project Ref: D44049
Order No: D44049/PK
Date Samples Received: 28/11/25
Date Instructions Received: 01/12/25
Date Analysis Completed: 15/12/25

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 25/13892

Client Project Name: Land South of Sacheverell Way,
Groby

Client Project Ref: D44049

Lab Sample ID	25/13892/1	25/13892/2	25/13892/3	25/13892/4	25/13892/5	25/13892/6	25/13892/7	Units	Limit of Detection	Method ref
Client Sample No	T1	T2	T3	T4	T5	T6	T7			
Client Sample ID	TP1	TP2	TP3	TP4	TP5	TP8	TP9			
Depth to Top	0.50	0.20	0.95	0.10	0.50	0.40	0.15			
Depth To Bottom										
Date Sampled	24-Nov-25	24-Nov-25	24-Nov-25	24-Nov-25	24-Nov-25	24-Nov-25	24-Nov-25			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	6	6	6	4A	5A	5A	4AE			
% Stones >10mm _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	% w/w	0.1	A-T-044
pH _D ^{M#}	7.82	6.53	8.60	7.04	8.50	8.48	7.28	pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.04	-	0.04	-	0.03	0.07	-	g/l	0.01	A-T-026s
Total Organic Carbon _D ^{M#}	0.28	2.97	-	2.78	0.67	0.73	2.17	% w/w	0.08	A-T-032s
Arsenic _D ^{M#}	3	5	-	5	5	5	4	mg/kg	1	A-T-024s
Cadmium _D	<1.0	<1.0	-	<1.0	<1.0	<1.0	<1.0	mg/kg	1	A-T-024s
Copper _D ^{M#}	8	21	-	18	22	19	16	mg/kg	1	A-T-024s
Chromium _D ^{M#}	20	23	-	23	25	21	19	mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	-	<1	<1	<1	<1	mg/kg	1	A-T-040s
Chromium (trivalent)	20	23	-	23	25	21	19	mg/kg	1	Calc
Lead _D ^{M#}	12	36	-	39	13	12	23	mg/kg	1	A-T-024s
Mercury _D	<0.17	<0.17	-	<0.17	<0.17	<0.17	<0.17	mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	16	20	-	19	31	26	18	mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	-	<1	<1	<1	<1	mg/kg	1	A-T-024s
Zinc _D ^{M#}	45	57	-	56	52	45	52	mg/kg	1	A-T-024s
OCP (incl. Atrazine and Simazine)										
Dichlobenil _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Tecnazene _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Trifluralin _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
alpha-Hexachlorocyclohexane (HCH) _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Hexachlorobenzene (HCB) _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Simazine _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Atrazine _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
beta-Hexachlorocyclohexane (HCH) _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Quintozene (PCNB) _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
gamma-Hexachlorocyclohexane (HCH) _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Triallate _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Heptachlor _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Aldrin _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Triadimefon _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Telodrin _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Isodrin _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056

Envirolab Job Number: 25/13892

Client Project Name: Land South of Sacheverell Way,
Groby

Client Project Ref: D44049

Lab Sample ID	25/13892/1	25/13892/2	25/13892/3	25/13892/4	25/13892/5	25/13892/6	25/13892/7	Units	Limit of Detection	Method ref
Client Sample No	T1	T2	T3	T4	T5	T6	T7			
Client Sample ID	TP1	TP2	TP3	TP4	TP5	TP8	TP9			
Depth to Top	0.50	0.20	0.95	0.10	0.50	0.40	0.15			
Depth To Bottom										
Date Sampled	24-Nov-25	24-Nov-25	24-Nov-25	24-Nov-25	24-Nov-25	24-Nov-25	24-Nov-25			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	6	6	6	4A	5A	5A	4AE			
Pendimethalin _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Heptachlor epoxide _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
trans-Chlordane (Gamma) _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
o,p-DDE (2,4) _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Endosulphan I (Alpha) _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
cis-Chlordane (Alpha) _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
p,p-DDE (4,4) _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Dieldrin _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Endrin _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Endosulphan II (Beta) _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
p,p-DDD (4,4) _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
o,p-DDT (2,4) _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Endrin Aldehyde _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Endosulphan Sulphate _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
p,p-DDT (4,4) _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
o,p-Methoxychlor _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Endrin Ketone _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
p,p-Methoxychlor _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Permethrin I (cis) _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Permethrin II (trans) _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
o,p-DDD (2,4) _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Chlorothalonil _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
delta-Hexachlorocyclohexane (HCH) _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
OPP										
Dichlorvos _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Mevinphos _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Demeton-S _A	-	<0.50	-	<0.50	-	-	<0.50	mg/kg	0.5	A-T-056
Phorate _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Dimethoate _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Demeton-O _A	-	<0.50	-	<0.50	-	-	<0.50	mg/kg	0.5	A-T-056
Propetamphos _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Diazinon (Dimpylate) _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056

Envirolab Job Number: 25/13892

Client Project Name: Land South of Sacheverell Way,
Groby

Client Project Ref: D44049

Lab Sample ID	25/13892/1	25/13892/2	25/13892/3	25/13892/4	25/13892/5	25/13892/6	25/13892/7	Units	Limit of Detection	Method ref
Client Sample No	T1	T2	T3	T4	T5	T6	T7			
Client Sample ID	TP1	TP2	TP3	TP4	TP5	TP8	TP9			
Depth to Top	0.50	0.20	0.95	0.10	0.50	0.40	0.15			
Depth To Bottom										
Date Sampled	24-Nov-25	24-Nov-25	24-Nov-25	24-Nov-25	24-Nov-25	24-Nov-25	24-Nov-25			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	6	6	6	4A	5A	5A	4AE			
Disulfoton _A	-	<0.10	-	<0.10	-	-	<0.10	mg/kg	0.1	A-T-056
Chlorpyrifos-methyl _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Methyl Parathion _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Pirimiphos-methyl _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Fenitrothion _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Malathion _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Chlorpyrifos _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Fenthion _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Parathion (Ethyl Parathion) _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Trichloronate _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Chlorfenvinphos _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Fensulphothion _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Ethion _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Triazophos _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Carbophenothion _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Phosalone _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Azinphos-methyl _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Azinphos-ethyl _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Coumaphos _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056
Prothiofos (Tokuthion) _A	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-056

Envirolab Job Number: 25/13892

Client Project Name: Land South of Sacheverell Way,
Groby

Client Project Ref: D44049

Lab Sample ID	25/13892/1	25/13892/2	25/13892/3	25/13892/4	25/13892/5	25/13892/6	25/13892/7	Units	Limit of Detection	Method ref
Client Sample No	T1	T2	T3	T4	T5	T6	T7			
Client Sample ID	TP1	TP2	TP3	TP4	TP5	TP8	TP9			
Depth to Top	0.50	0.20	0.95	0.10	0.50	0.40	0.15			
Depth To Bottom										
Date Sampled	24-Nov-25	24-Nov-25	24-Nov-25	24-Nov-25	24-Nov-25	24-Nov-25	24-Nov-25			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	6	6	6	4A	5A	5A	4AE			
PAH-16MS										
Acenaphthene _A ^{M#}	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	mg/kg	0.1	A-T-019s
Acenaphthylene _A ^{M#}	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	mg/kg	0.1	A-T-019s
Anthracene _A ^{M#}	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	mg/kg	0.1	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	mg/kg	0.1	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	mg/kg	0.1	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	mg/kg	0.1	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	mg/kg	0.1	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	mg/kg	0.1	A-T-019s
Chrysene _A ^{M#}	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	mg/kg	0.1	A-T-019s
Dibenzo(ah)anthracene _A	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	mg/kg	0.1	A-T-019s
Fluoranthene _A ^{M#}	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	mg/kg	0.1	A-T-019s
Fluorene _A ^{M#}	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	mg/kg	0.1	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	mg/kg	0.1	A-T-019s
Naphthalene _A ^{M#}	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	mg/kg	0.1	A-T-019s
Phenanthrene _A ^{M#}	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	mg/kg	0.1	A-T-019s
Pyrene _A ^{M#}	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	mg/kg	0.1	A-T-019s
Total PAH-16MS _A	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	mg/kg	0.1	A-T-019s

Envirolab Job Number: 25/13892

Client Project Name: Land South of Sacheverell Way,
Groby

Client Project Ref: D44049

Lab Sample ID	25/13892/9	25/13892/10	25/13892/11	25/13892/12	25/13892/13	25/13892/14	25/13892/15	Units	Limit of Detection	Method ref
Client Sample No	T9	T10	T11	T12	T13	T14	T15			
Client Sample ID	TP13	TP14	TP15	TP17	TP18	TP19	TP21			
Depth to Top	0.1	0.60	0.10	0.20	0.50	0.20	1.20			
Depth To Bottom										
Date Sampled	25-Nov-25	25-Nov-25	25-Nov-25	25-Nov-25	25-Nov-25	25-Nov-25	25-Nov-25			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	4E	4	6A	6AE	6AE	6AE	5A			
% Stones >10mm _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	% w/w	0.1	A-T-044
pH _D ^{MF}	7.08	7.50	7.21	7.64	8.40	7.78	8.56	pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{MF}	-	<0.01	-	-	0.02	-	0.09	g/l	0.01	A-T-026s
Total Organic Carbon _D ^{MF}	2.11	-	0.98	2.33	0.65	1.88	-	% w/w	0.08	A-T-032s
Arsenic _D ^{MF}	4	-	8	5	3	4	-	mg/kg	1	A-T-024s
Cadmium _D	<1.0	-	<1.0	<1.0	<1.0	<1.0	-	mg/kg	1	A-T-024s
Copper _D ^{MF}	16	-	18	20	16	18	-	mg/kg	1	A-T-024s
Chromium _D ^{MF}	21	-	23	22	30	22	-	mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	-	<1	<1	<1	<1	-	mg/kg	1	A-T-040s
Chromium (trivalent)	21	-	23	22	30	22	-	mg/kg	1	Calc
Lead _D ^{MF}	22	-	22	37	17	30	-	mg/kg	1	A-T-024s
Mercury _D	<0.17	-	<0.17	<0.17	<0.17	<0.17	-	mg/kg	0.17	A-T-024s
Nickel _D ^{MF}	20	-	23	21	28	20	-	mg/kg	1	A-T-024s
Selenium _D ^{MF}	<1	-	<1	<1	<1	<1	-	mg/kg	1	A-T-024s
Zinc _D ^{MF}	48	-	57	57	49	56	-	mg/kg	1	A-T-024s
OCP (incl. Atrazine and Simazine)										
Dichlobenil _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Tecnazene _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Trifluralin _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
alpha-Hexachlorocyclohexane (HCH) _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Hexachlorobenzene (HCB) _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Simazine _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Atrazine _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
beta-Hexachlorocyclohexane (HCH) _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Quintozene (PCNB) _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
gamma-Hexachlorocyclohexane (HCH) _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Triallate _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Heptachlor _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Aldrin _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Triadimefon _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Telodrin _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Isodrin _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056

Envirolab Job Number: 25/13892

Client Project Name: Land South of Sacheverell Way,
Groby

Client Project Ref: D44049

Lab Sample ID	25/13892/9	25/13892/10	25/13892/11	25/13892/12	25/13892/13	25/13892/14	25/13892/15	Units	Limit of Detection	Method ref
Client Sample No	T9	T10	T11	T12	T13	T14	T15			
Client Sample ID	TP13	TP14	TP15	TP17	TP18	TP19	TP21			
Depth to Top	0.1	0.60	0.10	0.20	0.50	0.20	1.20			
Depth To Bottom										
Date Sampled	25-Nov-25	25-Nov-25	25-Nov-25	25-Nov-25	25-Nov-25	25-Nov-25	25-Nov-25			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	4E	4	6A	6AE	6AE	6AE	5A			
Pendimethalin _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Heptachlor epoxide _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
trans-Chlordane (Gamma) _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
o,p-DDE (2,4) _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Endosulphan I (Alpha) _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
cis-Chlordane (Alpha) _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
p,p-DDE (4,4) _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Dieldrin _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Endrin _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Endosulphan II (Beta) _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
p,p-DDD (4,4) _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
o,p-DDT (2,4) _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Endrin Aldehyde _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Endosulphan Sulphate _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
p,p-DDT (4,4) _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
o,p-Methoxychlor _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Endrin Ketone _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
p,p-Methoxychlor _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Permethrin I (cis) _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Permethrin II (trans) _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
o,p-DDD (2,4) _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Chlorothalonil _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
delta-Hexachlorocyclohexane (HCH) _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
OPP										
Dichlorvos _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Mevinphos _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Demeton-S _A	<0.50	-	<0.50	<0.50	-	<0.50	-	mg/kg	0.5	A-T-056
Phorate _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Dimethoate _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Demeton-O _A	<0.50	-	<0.50	<0.50	-	<0.50	-	mg/kg	0.5	A-T-056
Propetamphos _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Diazinon (Dimpylate) _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056

Envirolab Job Number: 25/13892

Client Project Name: Land South of Sacheverell Way,
Groby

Client Project Ref: D44049

Lab Sample ID	25/13892/9	25/13892/10	25/13892/11	25/13892/12	25/13892/13	25/13892/14	25/13892/15	Units	Limit of Detection	Method ref
Client Sample No	T9	T10	T11	T12	T13	T14	T15			
Client Sample ID	TP13	TP14	TP15	TP17	TP18	TP19	TP21			
Depth to Top	0.1	0.60	0.10	0.20	0.50	0.20	1.20			
Depth To Bottom										
Date Sampled	25-Nov-25	25-Nov-25	25-Nov-25	25-Nov-25	25-Nov-25	25-Nov-25	25-Nov-25			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	4E	4	6A	6AE	6AE	6AE	5A			
Disulfoton _A	<0.10	-	<0.10	<0.10	-	<0.10	-	mg/kg	0.1	A-T-056
Chlorpyrifos-methyl _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Methyl Parathion _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Pirimiphos-methyl _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Fenitrothion _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Malathion _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Chlorpyrifos _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Fenthion _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Parathion (Ethyl Parathion) _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Trichloronate _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Chlorfenvinphos _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Fensulphothion _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Ethion _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Triazophos _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Carbophenothion _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Phosalone _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Azinphos-methyl _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Azinphos-ethyl _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Coumaphos _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056
Prothiofos (Tokuthion) _A	<0.01	-	<0.01	<0.01	-	<0.01	-	mg/kg	0.01	A-T-056

Envirolab Job Number: 25/13892

Client Project Name: Land South of Sacheverell Way,
Groby

Client Project Ref: D44049

Lab Sample ID	25/13892/9	25/13892/10	25/13892/11	25/13892/12	25/13892/13	25/13892/14	25/13892/15	Units	Limit of Detection	Method ref
Client Sample No	T9	T10	T11	T12	T13	T14	T15			
Client Sample ID	TP13	TP14	TP15	TP17	TP18	TP19	TP21			
Depth to Top	0.1	0.60	0.10	0.20	0.50	0.20	1.20			
Depth To Bottom										
Date Sampled	25-Nov-25	25-Nov-25	25-Nov-25	25-Nov-25	25-Nov-25	25-Nov-25	25-Nov-25			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	4E	4	6A	6AE	6AE	6AE	5A			
PAH-16MS										
Acenaphthene _A ^{MS}	<0.10	-	<0.10	<0.10	<0.10	<0.10	-	mg/kg	0.1	A-T-019s
Acenaphthylene _A ^{MS}	<0.10	-	<0.10	<0.10	<0.10	<0.10	-	mg/kg	0.1	A-T-019s
Anthracene _A ^{MS}	<0.10	-	<0.10	<0.10	<0.10	<0.10	-	mg/kg	0.1	A-T-019s
Benzo(a)anthracene _A ^{MS}	<0.10	-	<0.10	<0.10	<0.10	<0.10	-	mg/kg	0.1	A-T-019s
Benzo(a)pyrene _A ^{MS}	<0.10	-	<0.10	<0.10	<0.10	<0.10	-	mg/kg	0.1	A-T-019s
Benzo(b)fluoranthene _A ^{MS}	<0.10	-	<0.10	<0.10	<0.10	<0.10	-	mg/kg	0.1	A-T-019s
Benzo(ghi)perylene _A ^{MS}	<0.10	-	<0.10	<0.10	<0.10	<0.10	-	mg/kg	0.1	A-T-019s
Benzo(k)fluoranthene _A ^{MS}	<0.10	-	<0.10	<0.10	<0.10	<0.10	-	mg/kg	0.1	A-T-019s
Chrysene _A ^{MS}	<0.10	-	<0.10	<0.10	<0.10	<0.10	-	mg/kg	0.1	A-T-019s
Dibenzo(ah)anthracene _A	<0.10	-	<0.10	<0.10	<0.10	<0.10	-	mg/kg	0.1	A-T-019s
Fluoranthene _A ^{MS}	<0.10	-	<0.10	<0.10	<0.10	<0.10	-	mg/kg	0.1	A-T-019s
Fluorene _A ^{MS}	<0.10	-	<0.10	<0.10	<0.10	<0.10	-	mg/kg	0.1	A-T-019s
Indeno(123-cd)pyrene _A ^{MS}	<0.10	-	<0.10	<0.10	<0.10	<0.10	-	mg/kg	0.1	A-T-019s
Naphthalene _A ^{MS}	<0.10	-	<0.10	<0.10	<0.10	<0.10	-	mg/kg	0.1	A-T-019s
Phenanthrene _A ^{MS}	<0.10	-	<0.10	<0.10	<0.10	<0.10	-	mg/kg	0.1	A-T-019s
Pyrene _A ^{MS}	<0.10	-	<0.10	<0.10	<0.10	<0.10	-	mg/kg	0.1	A-T-019s
Total PAH-16MS _A	<0.10	-	<0.10	<0.10	<0.10	<0.10	-	mg/kg	0.1	A-T-019s

Envirolab Job Number: 25/13892

Client Project Name: Land South of Sacheverell Way,
Groby

Client Project Ref: D44049

Lab Sample ID	25/13892/16	25/13892/17	25/13892/18	25/13892/19				Units	Limit of Detection	Method ref
Client Sample No	T16	T17	T18	T19						
Client Sample ID	TP23	TP25	TP27	TP28						
Depth to Top	0.15	0.60	0.20	0.50						
Depth To Bottom										
Date Sampled	25-Nov-25	25-Nov-25	26-Nov-25	26-Nov-25						
Sample Type	SOIL	SOIL	SOIL	SOIL						
Sample Matrix Code	4E	6A	6A	6A						
% Stones >10mm _A	<0.1	<0.1	0.3	<0.1				% w/w	0.1	A-T-044
pH _D ^{M#}	7.27	7.26	7.95	8.29				pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	-	<0.01	-	0.05				g/l	0.01	A-T-026s
Total Organic Carbon _D ^{M#}	3.30	0.77	1.30	0.46				% w/w	0.08	A-T-032s
Arsenic _D ^{M#}	6	3	7	5				mg/kg	1	A-T-024s
Cadmium _D	<1.0	<1.0	<1.0	<1.0				mg/kg	1	A-T-024s
Copper _D ^{M#}	23	11	20	24				mg/kg	1	A-T-024s
Chromium _D ^{M#}	31	18	24	52				mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	<1				mg/kg	1	A-T-040s
Chromium (trivalent)	31	18	24	52				mg/kg	1	Calc
Lead _D ^{M#}	41	19	29	50				mg/kg	1	A-T-024s
Mercury _D	<0.17	<0.17	<0.17	<0.17				mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	25	16	28	63				mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	<1				mg/kg	1	A-T-024s
Zinc _D ^{M#}	80	37	51	43				mg/kg	1	A-T-024s
OCP (incl. Atrazine and Simazine)										
Dichlobenil _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Tecnazene _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Trifluralin _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
alpha-Hexachlorocyclohexane (HCH) _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Hexachlorobenzene (HCB) _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Simazine _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Atrazine _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
beta-Hexachlorocyclohexane (HCH) _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Quintozene (PCNB) _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
gamma-Hexachlorocyclohexane (HCH) _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Triallate _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Heptachlor _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Aldrin _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Triadimefon _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Telodrin _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Isodrin _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056

Envirolab Job Number: 25/13892

Client Project Name: Land South of Sacheverell Way,
Groby

Client Project Ref: D44049

Lab Sample ID	25/13892/16	25/13892/17	25/13892/18	25/13892/19				Units	Limit of Detection	Method ref
Client Sample No	T16	T17	T18	T19						
Client Sample ID	TP23	TP25	TP27	TP28						
Depth to Top	0.15	0.60	0.20	0.50						
Depth To Bottom										
Date Sampled	25-Nov-25	25-Nov-25	26-Nov-25	26-Nov-25						
Sample Type	SOIL	SOIL	SOIL	SOIL						
Sample Matrix Code	4E	6A	6A	6A						
Pendimethalin _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Heptachlor epoxide _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
trans-Chlordane (Gamma) _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
o,p-DDE (2,4) _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Endosulphan I (Alpha) _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
cis-Chlordane (Alpha) _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
p,p-DDE (4,4) _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Dieldrin _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Endrin _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Endosulphan II (Beta) _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
p,p-DDD (4,4) _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
o,p-DDT (2,4) _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Endrin Aldehyde _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Endosulphan Sulphate _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
p,p-DDT (4,4) _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
o,p-Methoxychlor _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Endrin Ketone _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
p,p-Methoxychlor _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Permethrin I (cis) _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Permethrin II (trans) _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
o,p-DDD (2,4) _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Chlorothalonil _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
delta-Hexachlorocyclohexane (HCH) _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
OPP										
Dichlorvos _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Mevinphos _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Demeton-S _A	<0.50	-	<0.50	-				mg/kg	0.5	A-T-056
Phorate _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Dimethoate _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Demeton-O _A	<0.50	-	<0.50	-				mg/kg	0.5	A-T-056
Propetamphos _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Diazinon (Dimpylate) _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056

Envirolab Job Number: 25/13892

Client Project Name: Land South of Sacheverell Way,
Groby

Client Project Ref: D44049

Lab Sample ID	25/13892/16	25/13892/17	25/13892/18	25/13892/19				Units	Limit of Detection	Method ref
Client Sample No	T16	T17	T18	T19						
Client Sample ID	TP23	TP25	TP27	TP28						
Depth to Top	0.15	0.60	0.20	0.50						
Depth To Bottom										
Date Sampled	25-Nov-25	25-Nov-25	26-Nov-25	26-Nov-25						
Sample Type	SOIL	SOIL	SOIL	SOIL						
Sample Matrix Code	4E	6A	6A	6A						
Disulfoton _A	<0.10	-	<0.10	-				mg/kg	0.1	A-T-056
Chlorpyrifos-methyl _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Methyl Parathion _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Pirimiphos-methyl _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Fenitrothion _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Malathion _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Chlorpyrifos _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Fenthion _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Parathion (Ethyl Parathion) _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Trichloronate _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Chlorfenvinphos _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Fensulphothion _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Ethion _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Triazophos _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Carbophenothion _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Phosalone _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Azinphos-methyl _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Azinphos-ethyl _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Coumaphos _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056
Prothiofos (Tokuthion) _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-056

Envirolab Job Number: 25/13892

Client Project Name: Land South of Sacheverell Way,
Groby

Client Project Ref: D44049

Lab Sample ID	25/13892/16	25/13892/17	25/13892/18	25/13892/19				Units	Limit of Detection	Method ref
Client Sample No	T16	T17	T18	T19						
Client Sample ID	TP23	TP25	TP27	TP28						
Depth to Top	0.15	0.60	0.20	0.50						
Depth To Bottom										
Date Sampled	25-Nov-25	25-Nov-25	26-Nov-25	26-Nov-25						
Sample Type	SOIL	SOIL	SOIL	SOIL						
Sample Matrix Code	4E	6A	6A	6A						
PAH-16MS										
Acenaphthene _A ^{M#}	<0.10	<0.10	<0.10	<0.10				mg/kg	0.1	A-T-019s
Acenaphthylene _A ^{M#}	<0.10	<0.10	<0.10	<0.10				mg/kg	0.1	A-T-019s
Anthracene _A ^{M#}	<0.10	<0.10	<0.10	<0.10				mg/kg	0.1	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.10	<0.10	<0.10	<0.10				mg/kg	0.1	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.10	<0.10	<0.10	<0.10				mg/kg	0.1	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.10	<0.10	<0.10	<0.10				mg/kg	0.1	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.10	<0.10	<0.10	<0.10				mg/kg	0.1	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.10	<0.10	<0.10	<0.10				mg/kg	0.1	A-T-019s
Chrysene _A ^{M#}	<0.10	<0.10	<0.10	<0.10				mg/kg	0.1	A-T-019s
Dibenzo(ah)anthracene _A	<0.10	<0.10	<0.10	<0.10				mg/kg	0.1	A-T-019s
Fluoranthene _A ^{M#}	<0.10	<0.10	<0.10	<0.10				mg/kg	0.1	A-T-019s
Fluorene _A ^{M#}	<0.10	<0.10	<0.10	<0.10				mg/kg	0.1	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.10	<0.10	<0.10	<0.10				mg/kg	0.1	A-T-019s
Naphthalene _A ^{M#}	<0.10	<0.10	<0.10	<0.10				mg/kg	0.1	A-T-019s
Phenanthrene _A ^{M#}	<0.10	<0.10	<0.10	<0.10				mg/kg	0.1	A-T-019s
Pyrene _A ^{M#}	<0.10	<0.10	<0.10	<0.10				mg/kg	0.1	A-T-019s
Total PAH-16MS _A	<0.10	<0.10	<0.10	<0.10				mg/kg	0.1	A-T-019s

Report Notes

General

- This report shall not be reproduced, except in full, without written approval from Envirolab.
- The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client and can affect the validity of results.
- The results reported herein relate only to the material supplied to the laboratory.
- The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **four weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
- Analytical results reflect the quality of the sample at the time of analysis only.
- Opinions and Interpretations expressed are outside our scope of accreditation.
- A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
- If a sample is outside of the calibration range or affected by interferences then it may need diluting. This will result in the limit of detection (LOD) being raised.
- Subcontracted Analysis: Please see the appended report for any deviations, current LODs and accreditation status of the test.

Key

Superscript “#”	Accredited to ISO 17025
Superscript “M”	Accredited to MCertS
Superscript “U”	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript “A”	Analysis performed on as-received Sample
Subscript “D”	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript “D” on Asbestos	Analysis performed on a dried aliquot of sample provided.
Subscript “^”	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
Trace	Asbestos found not suitable for Gravimetric Quantification – not enough to accurately weigh.
N/A	Not applicable

Asbestos

Identification: Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis

“Trace Asbestos Identified” will be reported if there is not enough present to verify the type.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs

Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.

Soil Chemical Analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as “% stones >10mm”.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any “D” subscripts.

TPH by method A-T-007:

For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.

Results “with Clean up” indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:

EPH CWG results have humics mathematically subtracted through instrument calculation.

Where these humic substances have been identified in any IDs from “TPH CWG with clean up” please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Analysis Dates

Lab Sample ID	25/13892/1	25/13892/2	25/13892/3	25/13892/4	25/13892/5	25/13892/6	25/13892/7	25/13892/9	25/13892/10	25/13892/11	25/13892/12	25/13892/13
Client Sample No	T1	T2	T3	T4	T5	T6	T7	T9	T10	T11	T12	T13
Client Sample ID/Depth	TP1 0.50m	TP2 0.20m	TP3 0.95m	TP4 0.10m	TP5 0.50m	TP8 0.40m	TP9 0.15m	TP13 0.1m	TP14 0.60m	TP15 0.10m	TP17 0.20m	TP18 0.50m
Date Sampled	24/11/25	24/11/25	24/11/25	24/11/25	24/11/25	24/11/25	24/11/25	25/11/25	25/11/25	25/11/25	25/11/25	25/11/25
A-T-019s	04/12/2025	04/12/2025		04/12/2025	04/12/2025	04/12/2025	04/12/2025	04/12/2025		04/12/2025	04/12/2025	04/12/2025
A-T-024s	08/12/2025	08/12/2025		08/12/2025	08/12/2025	08/12/2025	08/12/2025	08/12/2025		08/12/2025	08/12/2025	08/12/2025
A-T-026s	08/12/2025		08/12/2025		08/12/2025	08/12/2025			08/12/2025			08/12/2025
A-T-031s	05/12/2025	05/12/2025	05/12/2025	05/12/2025	05/12/2025	05/12/2025	05/12/2025	05/12/2025	05/12/2025	05/12/2025	05/12/2025	05/12/2025
A-T-032s	08/12/2025	08/12/2025		08/12/2025	08/12/2025	08/12/2025	08/12/2025	08/12/2025		08/12/2025	08/12/2025	08/12/2025
A-T-040s	08/12/2025	08/12/2025		08/12/2025	08/12/2025	08/12/2025	08/12/2025	08/12/2025		08/12/2025	08/12/2025	08/12/2025
A-T-044	05/12/2025	05/12/2025	05/12/2025	05/12/2025	05/12/2025	05/12/2025	05/12/2025	05/12/2025	05/12/2025	05/12/2025	05/12/2025	05/12/2025
A-T-056		15/12/2025		15/12/2025			15/12/2025	15/12/2025		15/12/2025	15/12/2025	
Calc	08/12/2025	08/12/2025		08/12/2025	08/12/2025	08/12/2025	08/12/2025	08/12/2025		08/12/2025	08/12/2025	08/12/2025

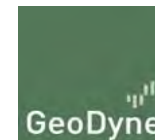
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Client Sample No	T14	T15	T16	T17	T18	T19
Client Sample ID/Depth	TP19 0.20m	TP21 1.20m	TP23 0.15m	TP25 0.60m	TP27 0.20m	TP28 0.50m
Date Sampled	25/11/25	25/11/25	25/11/25	25/11/25	26/11/25	26/11/25
A-T-019s	04/12/2025		04/12/2025	04/12/2025	04/12/2025	04/12/2025
A-T-024s	08/12/2025		08/12/2025	08/12/2025	08/12/2025	08/12/2025
A-T-026s		08/12/2025		08/12/2025		08/12/2025
A-T-031s	05/12/2025	05/12/2025	05/12/2025	05/12/2025	05/12/2025	05/12/2025
A-T-032s	08/12/2025		08/12/2025	08/12/2025	08/12/2025	08/12/2025
A-T-040s	08/12/2025		08/12/2025	08/12/2025	08/12/2025	08/12/2025
A-T-044	05/12/2025	05/12/2025	05/12/2025	05/12/2025	05/12/2025	05/12/2025
A-T-056	15/12/2025		15/12/2025		15/12/2025	
Calc	08/12/2025		08/12/2025	08/12/2025	08/12/2025	08/12/2025

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

APPENDIX IX

Ground Gas & Water Level Monitoring Results



Project No.	D44049
Client	Bloor Homes Ltd.
Site Location	Land South of Sacheverell Way, Groby
Date	11/12/2025
Weather	Overcast with moderate to strong wind
Atmospheric Pressure Trend	Fall of 4mb over 24hr period prior to monitoring
Equipment	GFM436 & Dipmeter
Operator	DL

MONITORING OF SOIL GASES AND GROUNDWATER - IN ACCORDANCE WITH CIRIA C665 / BS8485:2015													
Borehole No.	Time (00:00)	Ambient Pressure (mb)		Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	Time to steady gas readings (secs)	Duration of gas monitoring (secs)	Gas Flow (l/hr)	Depth to groundwater (m begl)	Other Issues i.e. odour, condition of installation, etc
WS1	14:24	1004	Peak	0.0	0.6	19.6	0	0	180	300	0.0	3.84	
			Steady	0.0	0.2	20.3	0	0			0.0		
WS3	14:38	1003	Peak	0.0	0.8	19.4	0	0	120	300	0.0	3.69	
			Steady	0.0	0.7	19.4	0	0			0.0		
WS5	13:27	1004	Peak	0.0	0.2	20.5	0	0	60	300	0.0	0.40	Water level above response zone
			Steady	0.0	0.2	20.5	0	0			0.0		
WS6	14:10	1004	Peak	0.0	0.7	18.6	0	0	30	330	0.0	3.54	
			Steady	0.0	0.7	18.6	0	0			0.0		
WS9	13:54	1003	Peak	0.0	0.7	19.7	0	0	300	390	0.0	3.32	
			Steady	0.0	0.7	19.7	0	0			0.0		
WS10	13:41	1003	Peak	0.0	0.4	20.3	0	0	180	300	0.0	0.57	Water level above response zone
			Steady	0.0	0.1	20.5	0	0			0.0		
Ambient				0.0	0.0	20.4	0	0					

Notes

Cell is highlighted in the following conditions

- Where Methane exceeds 1% v/v (after BR212)
- Where Carbon Dioxide exceeds 5% v/v (after BR212)

NA - Not Applicable/ Not Available

BOH - Bottom of Hole

ND - Not Determined

NGW - No groundwater encountered

NR - None Recorded

Where cell is highlighted further consideration of the recorded value is required in accordance with the specified guidance documents

Atmospheric pressure trend based on a review of available weather station data local to the site.

Ambient pressure readings at the time of monitoring each borehole standpipe taken from the gas analyser.



Project No.	D44049
Client	Bloor Homes Ltd.
Site Location	Land South of Sacheverell Way, Groby
Date	18/12/2025
Weather	Rain with moderate wind
Atmospheric Pressure Trend	Fall of 14mb over 24hr period prior to monitoring
Equipment	GFM436 & Dipmeter
Operator	DL

MONITORING OF SOIL GASES AND GROUNDWATER - IN ACCORDANCE WITH CIRIA C665 / BS8485:2015													
Borehole No.	Time (00:00)	Ambient Pressure (mb)		Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	Time to steady gas readings (secs)	Duration of gas monitoring (secs)	Gas Flow (l/hr)	Depth to groundwater (m begl)	Other Issues i.e. odour, condition of installation, etc
WS1	15:28	984	Peak	0.0	0.8	19.6	0	0	120	300	0.0	3.79	
			Steady	0.0	0.2	20.4	0	0			0.0		
WS3	15:11	986	Peak	0.0	0.8	19.6	0	0	30	300	0.0	3.54	
			Steady	0.0	0.8	19.7	0	0			0.0		
WS5	16:26	984	Peak	0.0	0.8	19.2	0	0	210	300	0.0	0.25	Water level above response zone
			Steady	0.0	0.1	20.3	0	0			0.0		
WS6	15:41	984	Peak	0.0	0.7	18.1	0	0	30	300	0.0	3.51	
			Steady	0.0	0.7	18.9	0	0			0.0		
WS9	15:56	984	Peak	0.0	0.7	19.8	0	0	150	300	0.0	3.30	
			Steady	0.0	0.7	19.8	0	0			0.0		
WS10	16:10	984	Peak	0.0	0.8	19.4	0	0	240	300	0.0	0.45	Water level above response zone
			Steady	0.0	0.1	20.3	0	0			0.0		
Ambient				0.0	0.0	20.4	0	0					

Notes

Cell is highlighted in the following conditions

- Where Methane exceeds 1% v/v (after BR212)
- Where Carbon Dioxide exceeds 5% v/v (after BR212)

NA - Not Applicable/ Not Available

BOH - Bottom of Hole

ND - Not Determined

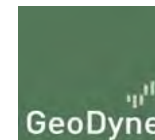
NGW - No groundwater encountered

NR - None Recorded

Where cell is highlighted further consideration of the recorded value is required in accordance with the specified guidance documents

Atmospheric pressure trend based on a review of available weather station data local to the site.

Ambient pressure readings at the time of monitoring each borehole standpipe taken from the gas analyser.



Project No.	D44049
Client	Bloor Homes Ltd.
Site Location	Land South of Sacheverell Way, Groby
Date	23/12/2025
Weather	Overcast with moderate to strong wind
Atmospheric Pressure Trend	Rise of 12mb over 24hr period prior to monitoring
Equipment	GFM436 & Dipmeter
Operator	DL

MONITORING OF SOIL GASES AND GROUNDWATER - IN ACCORDANCE WITH CIRIA C665 / BS8485:2015													
Borehole No.	Time (00:00)	Ambient Pressure (mb)		Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	Time to steady gas readings (secs)	Duration of gas monitoring (secs)	Gas Flow (l/hr)	Depth to groundwater (m begl)	Other Issues i.e. odour, condition of installation, etc
WS1	11:14	1009	Peak	0.0	0.7	19.7	0	0	210	300	0.0	3.76	
			Steady	0.0	0.2	20.3	0	0			0.0		
WS3	11:00	1010	Peak	0.0	0.8	19.6	0	0	90	300	0.0	3.43	
			Steady	0.0	0.8	19.6	0	0			0.0		
WS5	12:11	1009	Peak	0.0	0.8	19.1	0	0	270	360	0.0	0.35	Water level above response zone
			Steady	0.0	0.2	20.2	0	0			0.0		
WS6	11:27	1009	Peak	0.0	0.8	17.5	0	0	30	300	0.0	3.48	
			Steady	0.0	0.8	17.5	0	0			0.0		
WS9	11:42	1009	Peak	0.0	0.7	19.7	0	0	300	390	0.0	3.29	
			Steady	0.0	0.7	19.7	0	0			0.0		
WS10	12:17	1009	Peak	0.0	0.8	19.3	0	0	240	300	0.0	0.55	Water level above response zone
			Steady	0.0	0.3	19.9	0	0			0.0		
Ambient				0.0	0.0	20.2	0	0					

Notes

Cell is highlighted in the following conditions

1. Where Methane exceeds 1% v/v (after BR212)
2. Where Carbon Dioxide exceeds 5% v/v (after BR212)

NA - Not Applicable/ Not Available

BOH - Bottom of Hole

ND - Not Determined

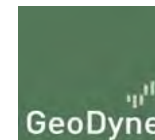
NGW - No groundwater encountered

NR - None Recorded

Where cell is highlighted further consideration of the recorded value is required in accordance with the specified guidance documents

Atmospheric pressure trend based on a review of available weather station data local to the site.

Ambient pressure readings at the time of monitoring each borehole standpipe taken from the gas analyser.



Project No.	D44049
Client	Bloor Homes Ltd.
Site Location	Land South of Sacheverell Way, Groby
Date	06/01/2026
Weather	Sunny with slight to moderate wind
Atmospheric Pressure Trend	Fall of 5mb over 24hr period prior to monitoring
Equipment	GFM436 & Dipmeter
Operator	DL

MONITORING OF SOIL GASES AND GROUNDWATER - IN ACCORDANCE WITH CIRIA C665 / BS8485:2015													
Borehole No.	Time (00:00)	Ambient Pressure (mb)		Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	Time to steady gas readings (secs)	Duration of gas monitoring (secs)	Gas Flow (l/hr)	Depth to groundwater (m begl)	Other Issues i.e. odour, condition of installation, etc
WS1	13:47	1000	Peak	0.0	0.9	19.6	0	0	120	300	0.0	3.52	
			Steady	0.0	0.6	19.9	0	0			0.0		
WS3	13:33	1001	Peak	0.0	0.9	19.7	0	0	120	330	0.0	3.01	
			Steady	0.0	0.9	19.7	0	0			0.0		
WS5	14:43	1000	Peak	0.0	0.9	18.3	0	0	270	330	0.0	0.57	Water level above response zone
			Steady	0.0	0.3	19.7	0	0			0.0		
WS6	14:01	1000	Peak	0.0	0.9	16.3	0	0	180	300	0.0	3.40	
			Steady	0.0	0.9	16.3	0	0			0.0		
WS9	14:16	1000	Peak	0.0	0.7	19.7	0	0	90	300	0.0	3.25	
			Steady	0.0	0.7	19.7	0	0			0.0		
WS10	14:31	1000	Peak	0.0	0.9	18.5	0	0	240	330	0.0	0.70	Water level above response zone
			Steady	0.0	0.5	19.4	0	0			0.0		
Ambient				0.0	0.0	20.1	0	0					

Notes

Cell is highlighted in the following conditions

- Where Methane exceeds 1% v/v (after BR212)
- Where Carbon Dioxide exceeds 5% v/v (after BR212)

NA - Not Applicable/ Not Available

BOH - Bottom of Hole

ND - Not Determined

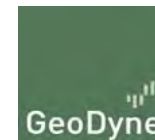
NGW - No groundwater encountered

NR - None Recorded

Where cell is highlighted further consideration of the recorded value is required in accordance with the specified guidance documents

Atmospheric pressure trend based on a review of available weather station data local to the site.

Ambient pressure readings at the time of monitoring each borehole standpipe taken from the gas analyser.



Project No.	D44049
Client	Bloor Homes Ltd.
Site Location	Land South of Sacheverell Way, Groby
Date	14/01/2026
Weather	Overcast with slight breeze
Atmospheric Pressure Trend	Rise of 10mb over 24hr period prior to monitoring
Equipment	GFM436 & Dipmeter
Operator	DL

MONITORING OF SOIL GASES AND GROUNDWATER - IN ACCORDANCE WITH CIRIA C665 / BS8485:2015													
Borehole No.	Time (00:00)	Ambient Pressure (mb)		Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	Time to steady gas readings (secs)	Duration of gas monitoring (secs)	Gas Flow (l/hr)	Depth to groundwater (m begl)	Other Issues i.e. odour, condition of installation, etc
WS1	13:54	1000	Peak	0.0	0.9	19.3	0	0	210	300	0.0	3.36	
			Steady	0.0	0.2	19.9	0	0			0.0		
WS3	13:40	1001	Peak	0.0	0.9	19.3	0	0	60	300	0.0	2.78	
			Steady	0.0	0.9	19.3	0	0			0.0		
WS5	14:51	999	Peak	0.0	0.8	18.7	0	0	240	300	0.0	0.32	Water level above response zone
			Steady	0.0	0.1	19.9	0	0			0.0		
WS6	14:00	1000	Peak	0.0	0.9	16.2	0	0	30	330	0.0	3.06	
			Steady	0.0	0.9	16.2	0	0			0.0		
WS9	14:22	1000	Peak	0.0	0.7	19.4	0	0	60	300	0.0	3.22	
			Steady	0.0	0.7	16.4	0	0			0.0		
WS10	14:37	1000	Peak	0.0	0.9	18.7	0	0	270	330	0.0	0.54	Water level above response zone
			Steady	0.0	0.4	19.5	0	0			0.0		
Ambient				0.0	0.0	20.0	0	0					

Notes

Cell is highlighted in the following conditions

- Where Methane exceeds 1% v/v (after BR212)
- Where Carbon Dioxide exceeds 5% v/v (after BR212)

NA - Not Applicable/ Not Available

BOH - Bottom of Hole

ND - Not Determined

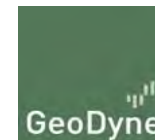
NGW - No groundwater encountered

NR - None Recorded

Where cell is highlighted further consideration of the recorded value is required in accordance with the specified guidance documents

Atmospheric pressure trend based on a review of available weather station data local to the site.

Ambient pressure readings at the time of monitoring each borehole standpipe taken from the gas analyser.



Project No.	D44049
Client	Bloor Homes Ltd.
Site Location	Land South of Sacheverell Way, Groby
Date	20/01/2026
Weather	Sunny with a moderate to strong wind
Atmospheric Pressure Trend	Fall of 8mb over 24hr period prior to monitoring
Equipment	GFM436 & Dipmeter
Operator	DL

MONITORING OF SOIL GASES AND GROUNDWATER - IN ACCORDANCE WITH CIRIA C665 / BS8485:2015													
Borehole No.	Time (00:00)	Ambient Pressure (mb)		Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	Time to steady gas readings (secs)	Duration of gas monitoring (secs)	Gas Flow (l/hr)	Depth to groundwater (m begl)	Other Issues i.e. odour, condition of installation, etc
WS1	14:38	992	Peak	0.0	0.8	19.9	0	0	150	300	0.0	3.26	
			Steady	0.0	0.3	20.3	0	0			0.0		
WS3	14:25	994	Peak	0.0	0.8	19.9	0	0	180	300	0.0	2.61	
			Steady	0.0	0.8	19.9	0	0			0.0		
WS5	15:34	993	Peak	0.0	0.9	19.0	0	0	240	300	0.0	0.14	Water level above response zone
			Steady	0.0	0.2	20.1	0	0			0.0		
WS6	14:50	991	Peak	0.0	0.9	16.2	0	0	270	330	0.0	2.92	
			Steady	0.0	0.2	19.8	0	0			0.0		
WS9	15:05	992	Peak	0.0	0.7	19.7	0	0	90	300	0.0	3.18	
			Steady	0.0	0.7	19.7	0	0			0.0		
WS10	15:19	993	Peak	0.0	0.8	19.2	0	0	30	330	0.0	0.52	Water level above response zone
			Steady	0.0	0.8	19.2	0	0			0.0		
Ambient				0.0	0.0	20.3	0	0					

Notes

Cell is highlighted in the following conditions

- Where Methane exceeds 1% v/v (after BR212)
- Where Carbon Dioxide exceeds 5% v/v (after BR212)

NA - Not Applicable/ Not Available

BOH - Bottom of Hole

ND - Not Determined

NGW - No groundwater encountered

NR - None Recorded

Where cell is highlighted further consideration of the recorded value is required in accordance with the specified guidance documents

Atmospheric pressure trend based on a review of available weather station data local to the site.

Ambient pressure readings at the time of monitoring each borehole standpipe taken from the gas analyser.

APPENDIX X

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.

D Hydraulic modelling report

Hydraulic Modelling study at land off Sacheverall Way in Groby, Leicestershire

A1-C02

December 2025

Prepared for:

Bloor Homes East Midlands

First Floor

1 Wheatfield Way

HINCKLEY

LE10 1YG

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Document Status

Issue date	December 2025
Issued to	Bloor Homes East Midlands
BIM reference	NXG-JBA-XX-XX-RP-HM-0002
Revision	A1-C03

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Megan Cruise Trainee Technician

Reviewed by	Alistair Clark BSc MSc Senior Flood Risk Analyst
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Authorised by	John Panesar BEng (Hons) CEng MICE Principal Civil Engineer
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Carbon Footprint

JBA is committed to championing sustainability and has made The Ten Principles of the UN Global Compact part of its culture and operations. We have a Group-wide objective to be a Net Zero carbon emissions business.

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Contract

JBA Project Manager	John Panesar BEng (Hons) CEng MICE
Address	Suite 1B, First Floor (Front Wing), Coleshill House, 1 Station Road, Coleshill, Warwickshire, B46 1HT
JBA Project Code	2024s1306

This report describes work commissioned by Jenny Brader, on behalf of Bloor Homes East Midlands by an email dated 1st August 2024. Harry Wightman and Megan Cruise of JBA Consulting carried out this work.

Purpose and Disclaimer

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Abbreviations

1D	One Dimensional
2D	Two Dimensional
AEP	Annual Exceedance Probability
CC	Climate Change
DTM	Digital Terrain Model
EA	Environment Agency
FEH	Flood Estimation Handbook
FFL	Finished Floor Levels
FRC	Fixed Runoff Coefficient
Ha	Hectares
ICM	Integrated Catchment Modelling
JBA	Jeremy Benn Associates
LIDAR	Light Detection and Ranging
m AOD	Metres Above Ordnance Datum
NaFRA2	National Flood Risk Assessment 2
NGR	National Grid Reference
OS	Ordnance Survey
ReFH	Revitalised Flood Hydrograph

Definitions

Term	Definition
Annual Exceedance Probability	The probability of an event size (often described in terms of peak flow rate) being equalled or exceeded in any one year
Flood risk	A combination of the statistical probability of a flood event occurring and the scale of the consequences if it does. So high risk can include circumstances that might not occur very frequently but have very substantial consequences, and also circumstances that occur relatively frequently and have more moderate consequences, causing relatively frequent but less severe harm
Manning's n	This is a roughness coefficient first introduced by Irish Engineer Robert Manning in 1889, which represents the roughness or friction affecting the flow of water by the surface (e.g. channel) over which the water flows. The rougher the surface the greater the effect of friction on the flow.

Executive Summary

JBA Consulting were commissioned by Bloor Homes East Midlands to undertake a detailed hydraulic modelling study in relation to a site located at Sacheverell Way, Groby, Leicestershire.

The purpose of the study is to refine and accurately assess the surface water flood risk to the site. To achieve this, a hydrological assessment was carried out to derive rainfall hyetographs and a 2D InfoWorks-ICM direct runoff hydraulic model was produced to allow the detailed representation of flood depths, flood levels and hazard within the site boundary.

The model was simulated for the following Annual Exceedance Probability (AEP) events: 3.3%, 3.3% with (+35%) climate change, 1%, 1% with (+40%) climate change, and 0.1% storm, for the 60-minute critical (summer) storm duration.

The baseline model results indicate that:

- Flooding is predicted to occur within the site during all modelled design events.
- Flooding is predicted to occur within the site during the 3.3% AEP with (+35%) climate change and 1% AEP with (+40%) climate change events.
- Peak modelled flood depths of up to 1.29m are predicted to occur within the site during the 100-year (1% AEP) plus climate change event.
- Peak modelled flood levels are predicted to range between 84.29m AOD to the north-east and 78.92m AOD towards the southern boundary of the site during the 100-year (1% AEP) plus climate change event.
- Hazard classification areas of 'caution' extend across the site, with areas of 'Danger for most' to 'Danger for all' located within the confines of the formal defences.
- Sensitivity testing of the model found that within the site boundary the model results are insensitive to changes in modelled roughness, and slightly sensitive to changes in the fixed runoff coefficient (runoff percentage) value.

The post-development model results indicate that:

- Raising the ground levels around the culvert inlet and redirecting the overland flow paths into a swale during the 1% AEP with (+40%) climate change event decreases modelled flood depths to third-party land at the south of the site.
- When comparing depths to the baseline scenario, the northeast of the site, where the ground modification is located, shows a significant increase in depths of +10cm due to ground level raising in order to divert the overland flow paths. There is a significant reduction south of the modification, which shows the diversion of overland flow paths from this area.

Recommendations

The results of the hydraulic modelling can be used to inform the Flood Risk Assessment for the site. However, it is recommended that the hydraulic modelling is reviewed and validated by the Lead Local Flood Authority.

It is recommended that the post-development scenario of the model is altered during the detailed layout design and that Finished Floor Levels (FFLs) are set above the modelled design flood level with freeboard is applied. It is recommended that the new levels be re-simulated in the hydraulic model to understand the impact on flood levels and flood hazard within the site, along with the incorporation of a site surface water drainage strategy.

The model results have been prepared for the purpose of quantifying surface water flood risk at the site and surrounding area. If the results are intended to be used for surface water flood risk mapping of the wider catchment, further model refinement is recommended. Additionally, if further data is made available it is recommended that the model is updated to improve the representation of surface water flood risk parameters.

1 Introduction

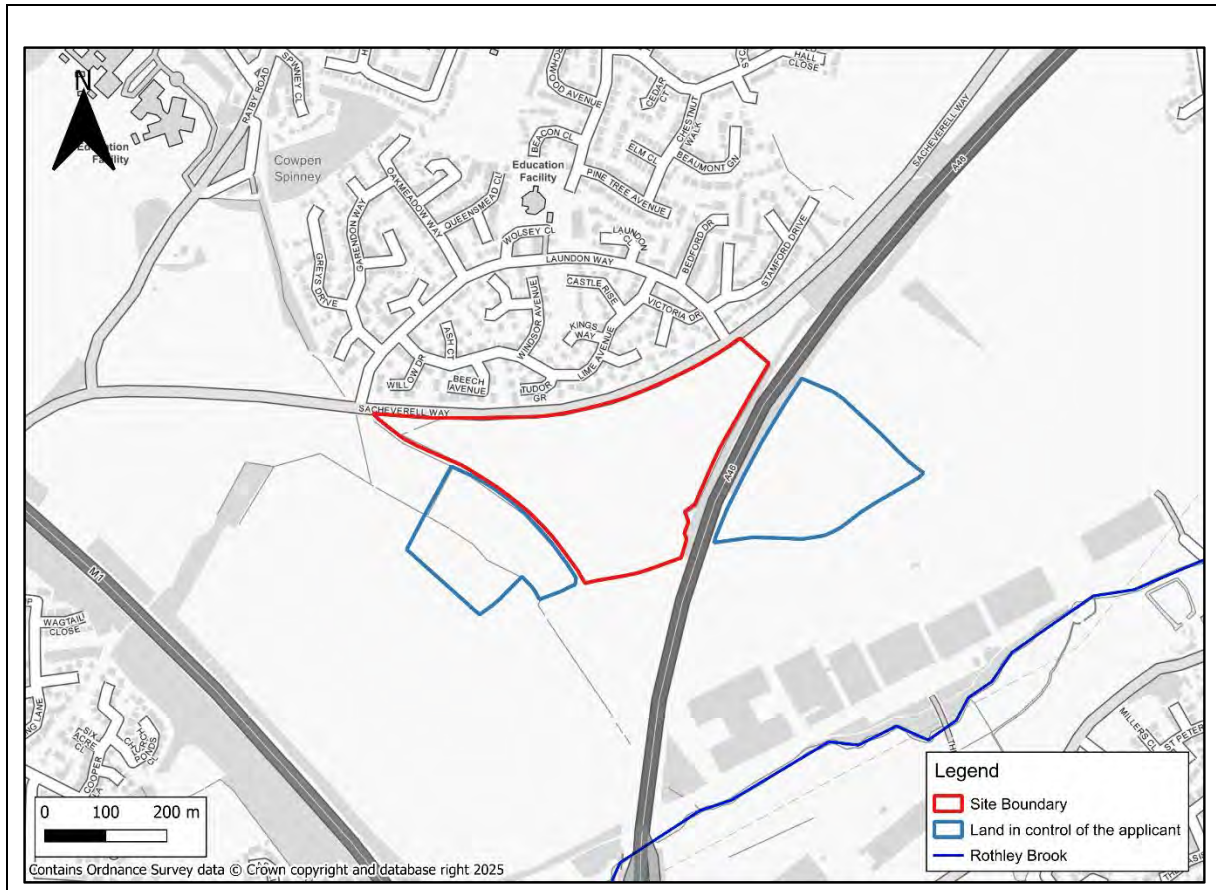
1.1 Terms of Reference

JBA Consulting were commissioned by Bloor Homes East Midlands to undertake a detailed hydraulic modelling study in relation to a site located off Sacheverall Way, Groby, Leicestershire (hereafter referred to as 'the site').

The purpose of the study is to refine and accurately assess the surface water flood risk to the site. To achieve this, a 2D InfoWorks-ICM direct runoff hydraulic model was produced to allow the detailed representation of flood depths, flood levels and hazard within and around the site boundary.

1.2 Site details

Table 1-1: Site details	
Site address	Sacheverall Way, Groby, Leicestershire
Site area	10.55ha
Existing land-use	Greenfield land
OS NGR	SK 52595 06329
County	Leicestershire
Country	England



1.3 Site description

The site is located south of Sacheverell Way, Groby. Agricultural land-uses make up the majority of the site. Located north and south-west to the site are large residential areas, which are both bounded by the M1 motorway and the A46. The catchment itself is mostly rural. Analysis of LiDAR elevation data shows the topography of the location slopes from the north-east to the south-west. There are several drainage ditches in the vicinity of the site and a presumed culvert running through the centre of the site. All drainage ditches are presumed to be draining into Rothley Brook, designated as an Environment Agency (EA) Main River, approximately 400m south-east of the site.

Analysis of existing surface water risk mapping, OS mapping and LIDAR elevation data indicates that the site topography slopes south-westerly towards the Rothley Brook tributary as shown in Figure 1-1.

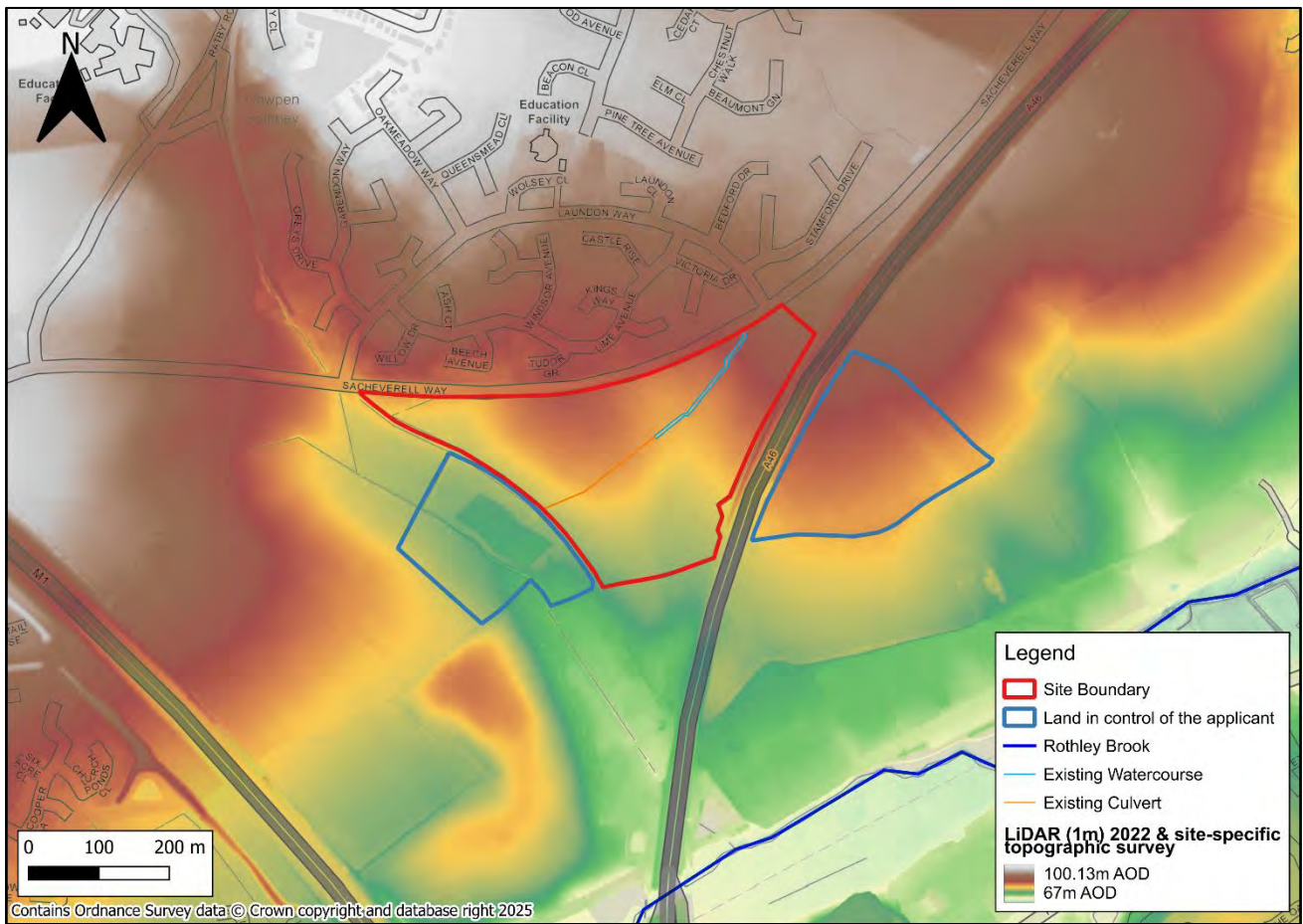


Figure 1-1: Site Topography

1.4 Existing flood data

The EA's NaFRA2 mapping for the site is shown in Figure 1-2.

The mapping indicates that the site is at risk from surface water flooding in the 3.3% AEP, 1% AEP and 0.1% AEP events. The main cause of flooding is suggested to be flow routes originating from the catchment of Rothley Brook, which is located on the southern boundary. However, these maps originate from broad-scale modelling techniques whereby the capacity public sewers, channel and the structures crossing it is approximated. Key structures including the upstream surface water public sewer network, and surface water features which may allow water to drain away in lower return period events, (such as culverts, drains, gullies, kerbs, etc.) are unlikely to be explicitly represented.

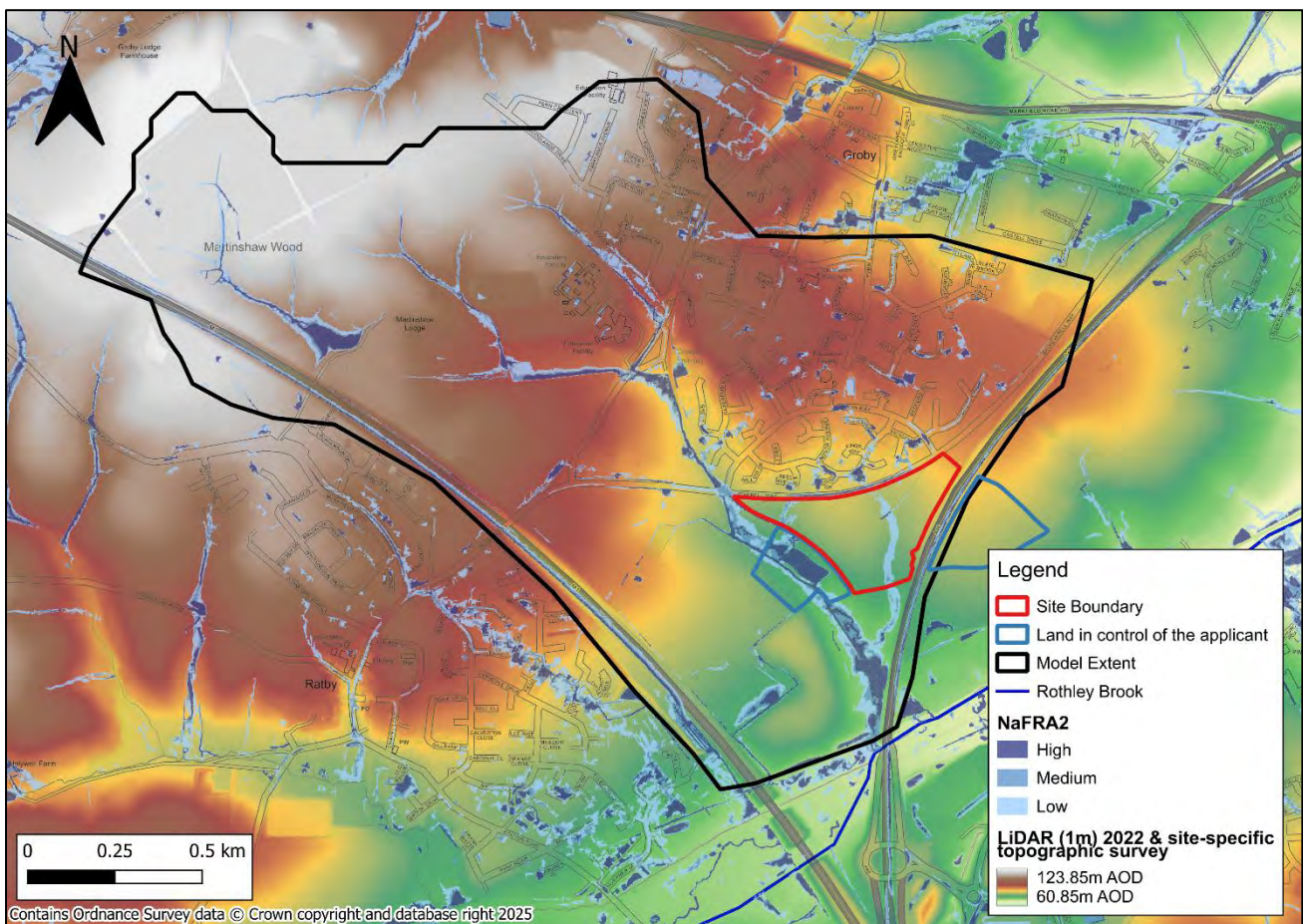


Figure 1-2: Environment Agency's Risk of Flooding from Surface Water Mapping

1.5 General modelling approach

A direct rainfall-runoff model was developed to refine the understanding of surface water flood risk at the site, incorporating local surface water drainage information and topographic data to improve upon the EA's Risk of Flooding from Surface Water mapping.

A 2D model was developed in InfoWorks ICM covering the study catchment draining towards the site. Rainfall hyetographs were derived for the following storm events:

- 3.3% AEP and 3.3% AEP with (+35%) climate change uplift.
- 1% AEP and 1% AEP with (+40%) climate change uplift.
- 0.1% AEP.

The rainfall hyetographs were applied directly to the model surface to provide baseline model results, including flood depths, flood levels and hazard in the vicinity of the site.

The hydraulic model sensitivity to roughness values and the fixed runoff coefficient was tested to improve confidence in the model results.

2 Approach

2.1 Data availability

Amber Utilities Ltd were commissioned to undertake a culvert information survey report within the vicinity of the site in October 2024 (see Appendix A). The survey consisted of one culvert identified within the vicinity of the site. Sewer maps covering the area around the site were obtained from Severn Trent Water (see Appendix C) and used to inform the representation of the public sewer network, to the north and north-east of the site.

Topographic survey of the site was collected in July 2020 by Urban Contours and was available for use in this study (See Appendix B). The topographic survey was used within the modelling to represent levels throughout the site. Environment Agency LiDAR data was obtained from the Open Data website and used within the modelling to represent ground levels within the wider catchment. The LiDAR data used has a grid resolution of 1m and flown in 2022.

Ordnance Survey (OS) ZoomStack mapping was used to inform land use information in the study catchment.

2.2 Site walkover

A site walkover was carried out by JBA Consulting in September 2024 to improve understanding of drainage features within the site and surrounding area. The visit confirmed the presence of a small watercourse flowing down the western edge of the main field, a flood relief basin in the west of the site and several structures. All structures noted in the topography and drainage drawing, provided by the client, were confirmed on site apart from the culverts along the northern edge of the site which were inaccessible due to heavy vegetation.

2.3 Hydraulic Model Build

The flood modelling approach was based on the "direct rainfall" concept where rainfall is applied to each mesh element in the hydraulic model and routed across the mesh surface, identifying flooding pathways and areas where ponding will occur. A 2D direct rainfall model has been built to refine the EA's NaFRA2 mapping by representing the local drainage network using the available information. The model was built using InfoWorks ICM version 2024.5.

2.4 2D domain

2.4.1 Model extent and topography

The hydraulic model extent encompasses the topographic catchment for the site and that of nearby surface water flow paths identified on the EA's NaFRA2 mapping. It also includes the sewer catchment for the surface water sewer that discharges into the watercourse near the site. The model extent is shown in Figure 2-1.

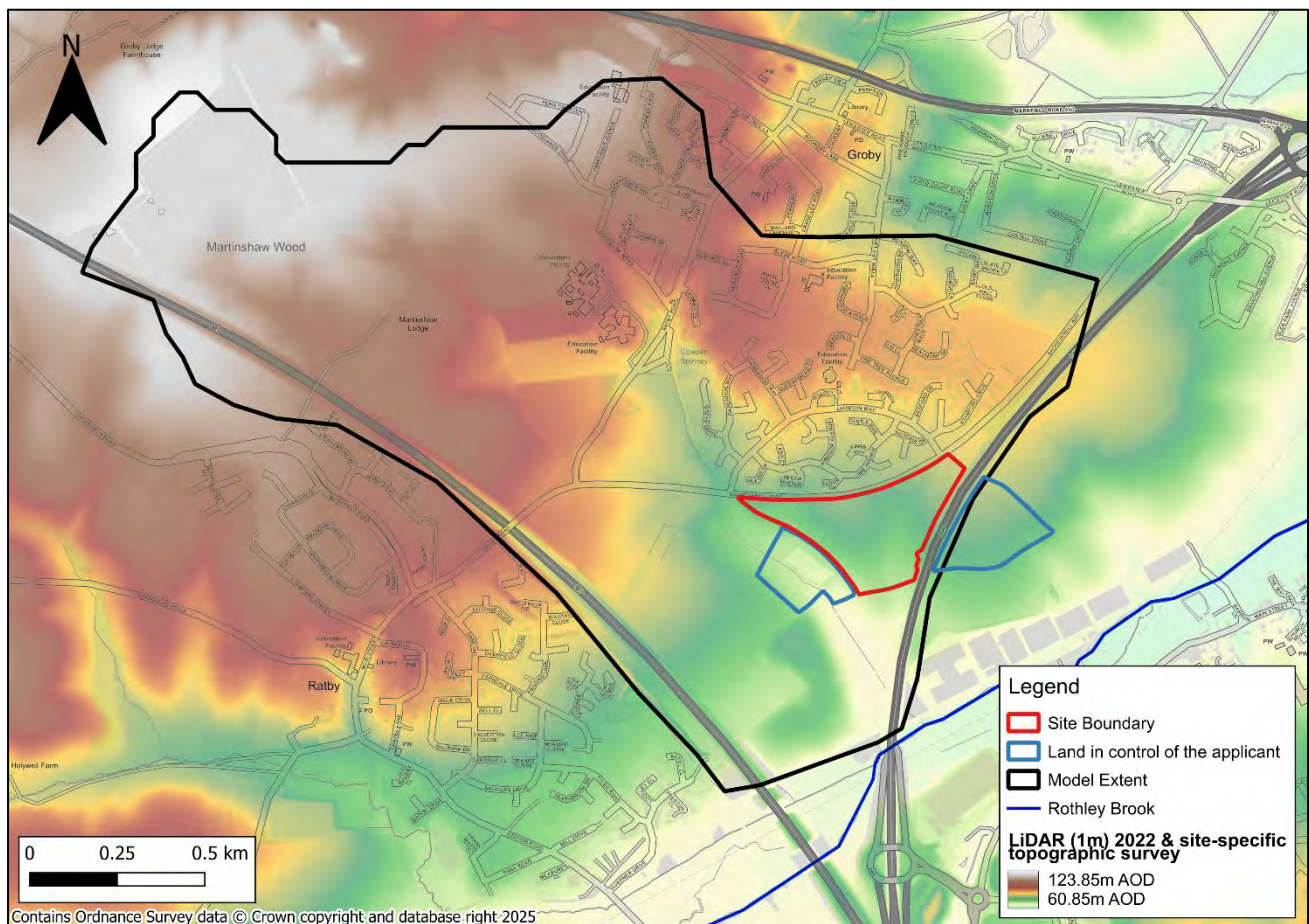


Figure 2-1: Model extent

The 1m Environment Agency 2022 LiDAR has been used to derive the topography throughout the model domain. A maximum triangle size of 10m² has been applied to the 2D zone, with terrain sensitive meshing used to increase the resolution in areas of steep topography and improve the representation of changes in the topography. A summary of the key 2D Zone parameters relating to model topography is shown in Table 2-1.

Table 2-1: 2D Zone parameters summary

	Value
Maximum triangle area (m ²)	10
Minimum element area (m ²)	2
Terrain-sensitive meshing	True
Maximum height variation (m)	0.25
Minimum angle (degrees)	25

2.4.2 Model roughness parameters

Manning's n roughness values were used to represent the model roughness in the hydraulic model's 2D domain based on land uses across the model extent. Land uses were defined using Ordnance Survey (OS) ZoomStack mapping (see Figure 2-2). Table 2-2 details the range of Manning's n values applied to the 2D domain.

Table 2-2: Manning's n values within the hydraulic model 2D domain

Land use	Manning's n
General Surface	0.050
Dense woodland	0.100
Roads	0.025
Buildings	0.300
Inland water	0.040

2.4.3 2D features

Mesh zones were used to represent buildings within the 2D domain and raise the mesh to a level 0.125m above the ground level to represent an assumed building threshold. This approach allows buildings threshold levels to be raised above the 2D mesh to account for their impact on overland flows.

Mesh zones were also used to represent roads, enforce kerb lines, and to represent watercourses. Levels were taken from LIDAR with no modifications made.

The 2D features are shown in the 2D model schematic in Figure 3-2.

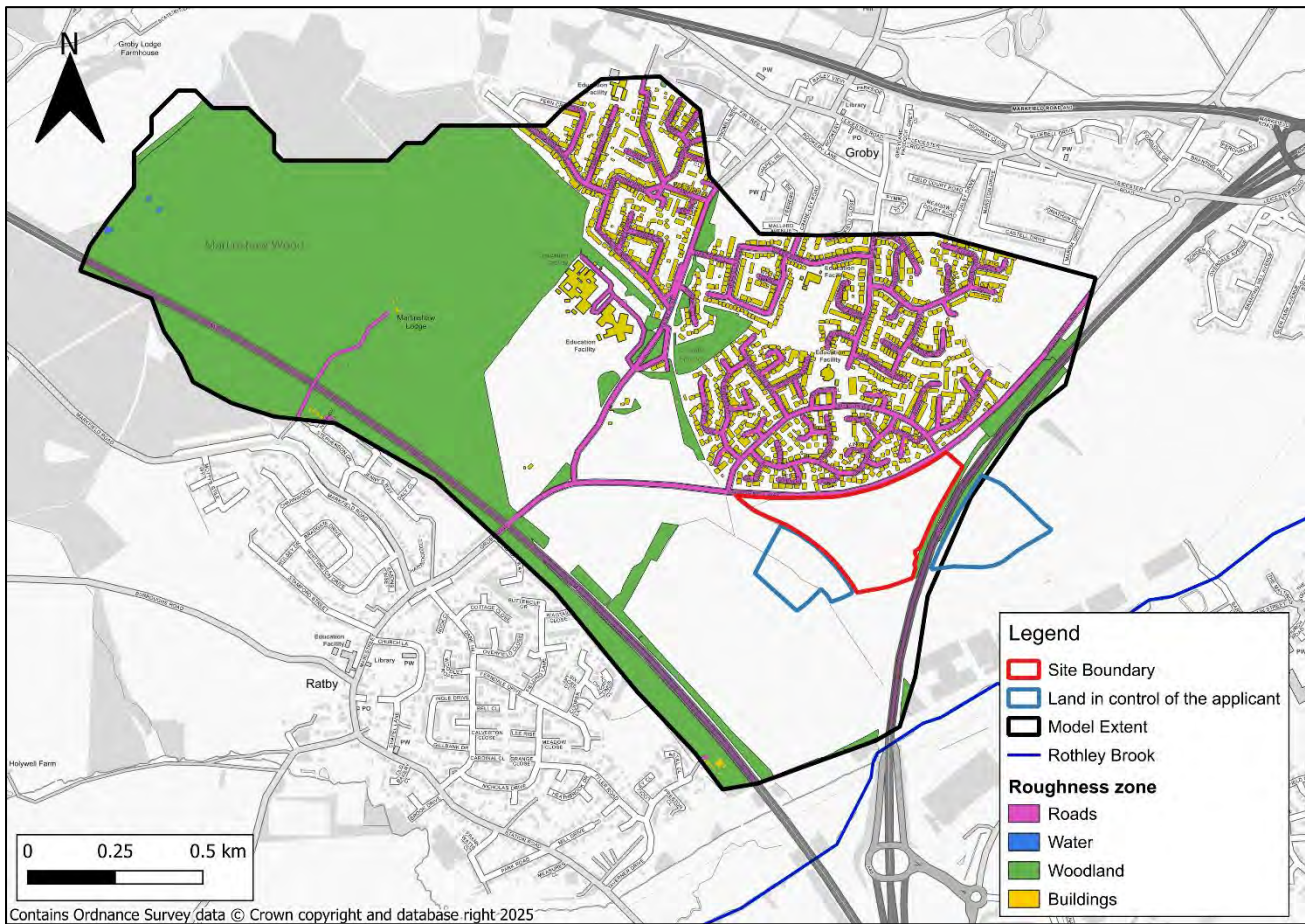


Figure 2-2: 2D model schematic

2.5 1D domain

2.5.1 Representation of sewers

The public surface water sewer network covering the area to the north of the site draining into the modelled drainage ditches via culvert has been represented in the 1D domain with conduits and manholes based on information from the Severn Trent Water sewer maps (see Appendix C).

It was necessary to make some assumptions about data taken from Severn Trent Water sewer mapping including the following:

- Missing pipe dimensions were assumed based on standard pipe sizes and upstream and downstream connections.
- Manholes have been set to have a 2D flood type with those on or close to the highway which uses the weir equation to determine flow between the 1D and 2D domains.
- Ground levels were assumed to be equal to the cover level.
- Manholes were assumed to be unsealed and allowed to surcharge.

- Manholes with unknown dimensions are modelled using the default calculation InfoWorks ICM uses for Chamber plan area: $A = \frac{\pi}{4} \times (\text{Width of incoming pipe} + 0.762)^2$

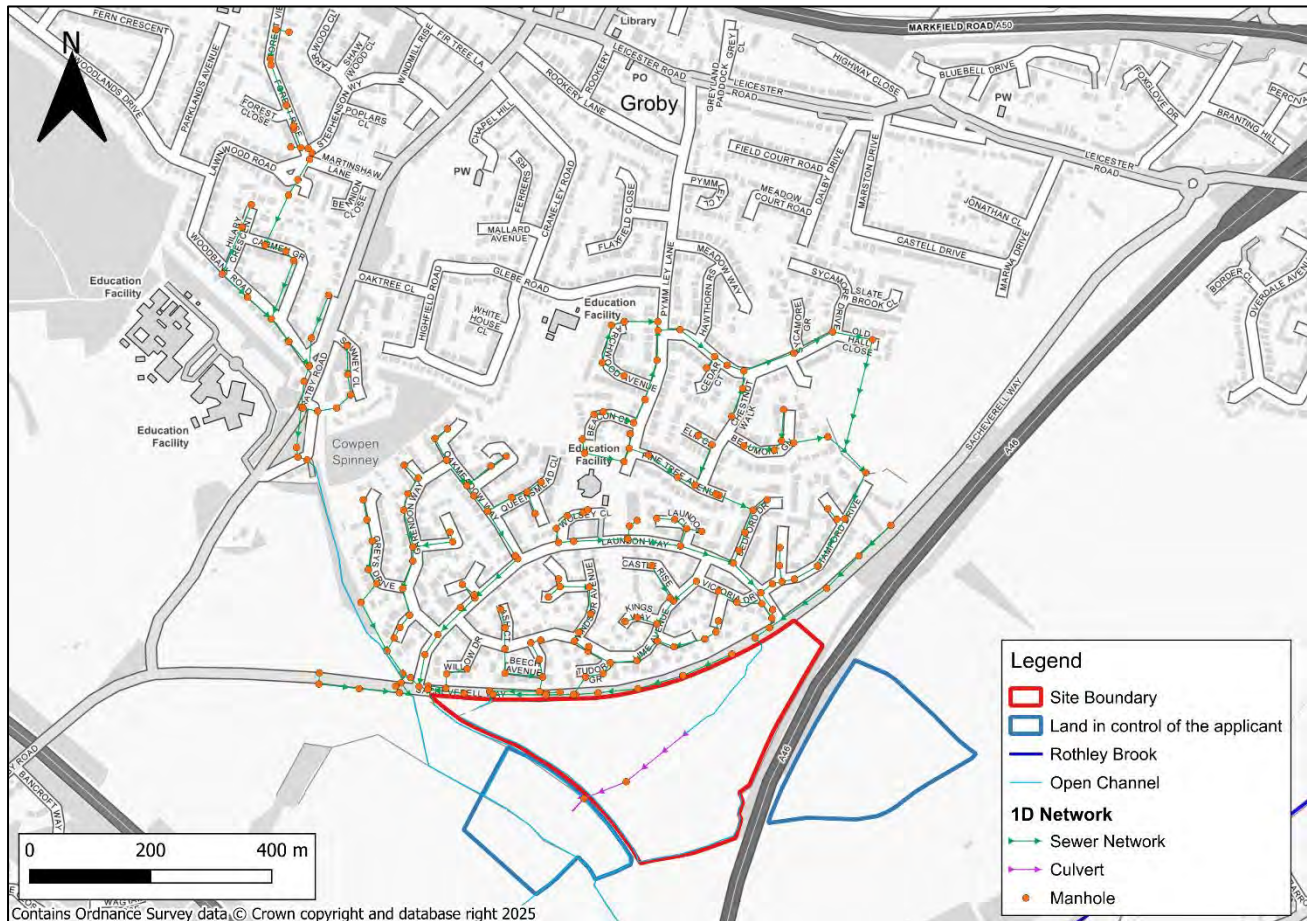


Figure 2-3: 1D model schematic

2.6 Application of hydrology

Rainfall hyetographs were applied directly to the ground model across the catchment using the ReFH2 rainfall generator in InfoWorks-ICM. InfoWorks-ICM allows hyetographs to be automatically generated within the software using catchment rainfall parameters from the FEH service. FEH22 rainfall descriptors were used to generate the rainfall events. An evapotranspiration value of 3mm/day was applied to summer storms to represent summer conditions, and an evapotranspiration value of 1mm/day was applied to winter storms.

Rainfall hyetographs were calculated for the 3.3% AEP (1 in 30-year), 1% AEP (1 in 100-year), and 0.1% AEP (1 in 1000-year) storm events. Storm durations of 1-hour, 3-hours and 6-hours were simulated for each return period with the maximum extent generated for each event determined as the critical storm duration. Winter and summer rainfall were also compared. The results showed that the maximum flood extents at the site occur during the

1-hour storm duration and summer rainfall profile, in all return periods. This event was taken forward as the critical storm duration for all return periods.

The effect of climate change was assessed by increasing the peak rainfall by 35% for the 3.3% AEP event and 40% for the 1% AEP event (upper end allowance for the 2080's epoch from the Loddon and tributaries management catchment).

Rainfall was applied directly to the whole of the 2D model surface, with overland flow routed by surface topography and surface features, such as buildings and roads. Buildings within 50m of the sewer network were represented with subcatchments to route flow into the 1D sewer network, accounting for the drainage of buildings directly into the sewers. Drainage from roads into the sewers was represented using manholes where sewers have been modelled and so were not represented with subcatchments.

Infiltration zones were used to control the volume of rainfall allowed to flow onto the 2D mesh and were also used to account for losses from the 2D domain (e.g. water flowing into the sewer network through subcatchments or water lost through infiltration).

Infiltration surfaces represented in the model are shown in Figure 2-4. Roads and buildings have been given separate infiltration surfaces dependant on whether they have been modelled with a connection to the 1D sewer network or not. If the sewer network draining roads or buildings has not been represented in the model, they have been given a 12mm/hour loss to account for drainage to the sewer network.

In order to prevent any double counting of inflows to the model (by application of rainfall to the 2D mesh and the 1D sewer system using subcatchments) runoff coefficients used to route flows to the sewer system through subcatchments have been reduced based on the 2D runoff coefficient. The fixed runoff coefficients used are shown in Table 2-3.

Table 2-3: Fixed runoff coefficients

Land Use	1D runoff coefficient	2D runoff coefficient	Infiltration surfaces loss (mm/hr)
Roads (No sewer network represented)	-	0.9	12
Buildings (No sewer network represented)	-	1.0	12
Buildings (With sewer network represented)	0.8	0.2	-
Green space	-	0.43	-

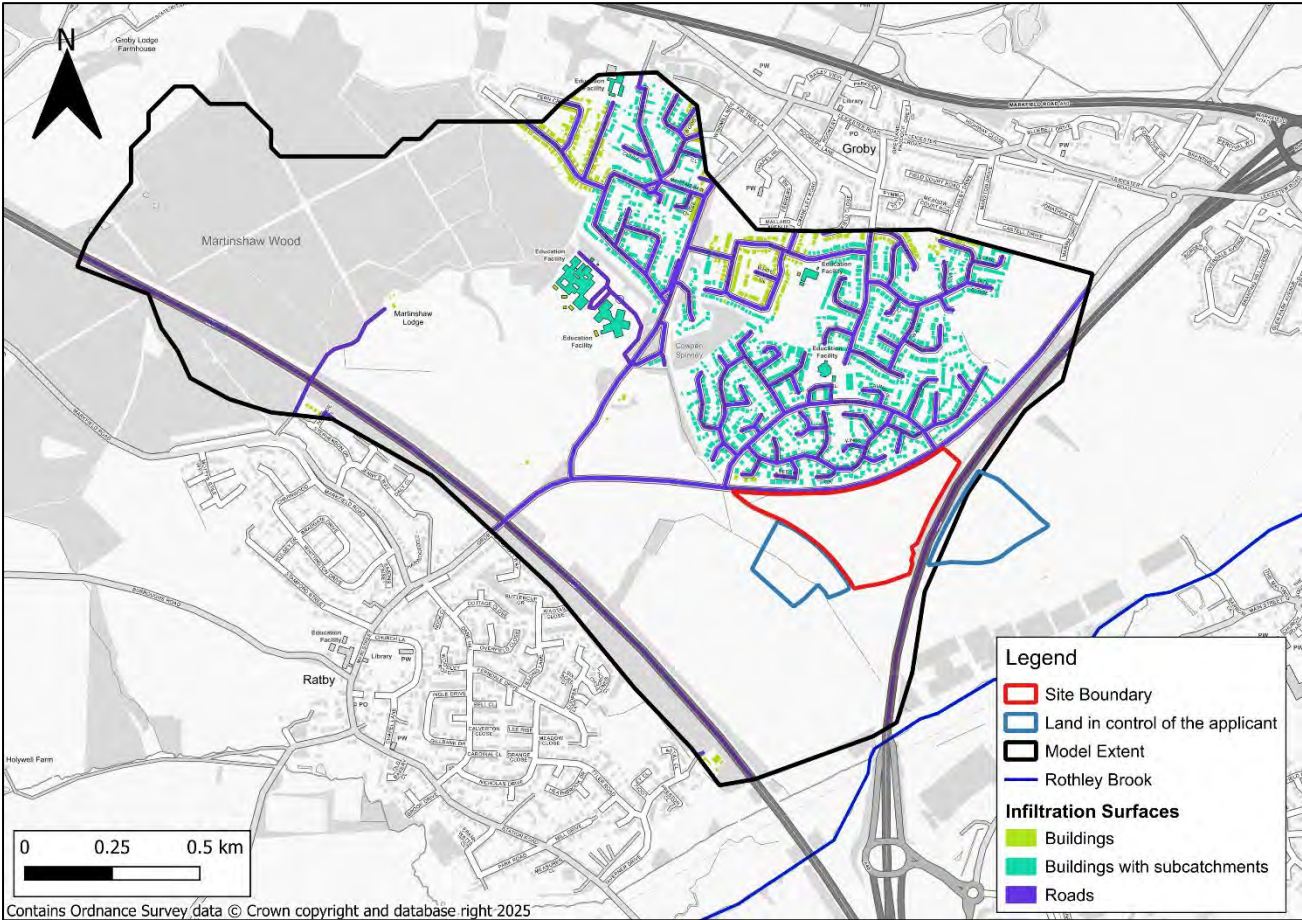


Figure 2-4: Infiltration surfaces

2.7 Calibration

No specific recorded flood levels or flow data were available for the study area. As a result, the model has not been calibrated. Instead, a model validation has been carried out through comparison with the EA's NaFRA2 mapping (see Section 3).

2.8 Model Runs

The following scenarios were simulated within the model:

Scenario	Return period	Description
Baseline scenario	3.3% AEP (30-year)	Existing condition scenario
Baseline scenario	3.3% AEP (30-year) with (+35%) climate change	Existing condition scenario
Baseline scenario	1% AEP (100-year)	Existing condition scenario
Baseline scenario	1% AEP (100-year) with (+40%) climate change	Existing condition scenario
Baseline scenario	0.1% AEP (1,000-year)	Existing condition scenario
Post-development scenario (Option 3)	1% AEP with (+40%) climate change	Post-development modelling
Sensitivity analysis	1% AEP (100-year)	20% increase in roughness
Sensitivity analysis	1% AEP (100-year)	20% decrease in roughness
Sensitivity analysis	1% AEP (100-year)	20% increase in fixed runoff coefficient
Sensitivity analysis	1% AEP (100-year)	20% decrease in fixed runoff coefficient

2.9 Sensitivity analysis

The model's sensitivity to changes in roughness and fixed runoff coefficient were assessed. Further detail on the sensitivity testing is provided in Appendix D.

Sensitivity testing of the model found that within the site boundary the model results are insensitive to changes in modelled roughness, and slightly sensitive to changes in the fixed runoff coefficient (runoff percentage) value.

3 Model validation

To assess the validity of the model results, the surface water modelling results were compared with the EA's NaFRA2 maps for one return period.

3.1 Comparison with the EA 1 in 100-year surface water flood map

Figure 3-1 shows the EA's 1% AEP NaFRA2 extent compared to the 1% AEP surface water extent modelled as part of this study. The flood extents within the site for the modelled 1% AEP event are predicted to be smaller compared to that of the 1% AEP NaFRA2 in the southwest of the site. The predicted decrease in flooded area within the site can be attributed to the representation of the sewer network, inclusion of site-specific topography and improving the resolution of the modelling.

At the east of the site, it is shown that there is no risk of flooding from surface water however, there is a risk of flooding in the modelled extent. This is due to the inclusion of a culvert immediately downstream of the extent within the model, which the Environment Agency's modelling does not explicitly represent in their NaFRA2 mapping.

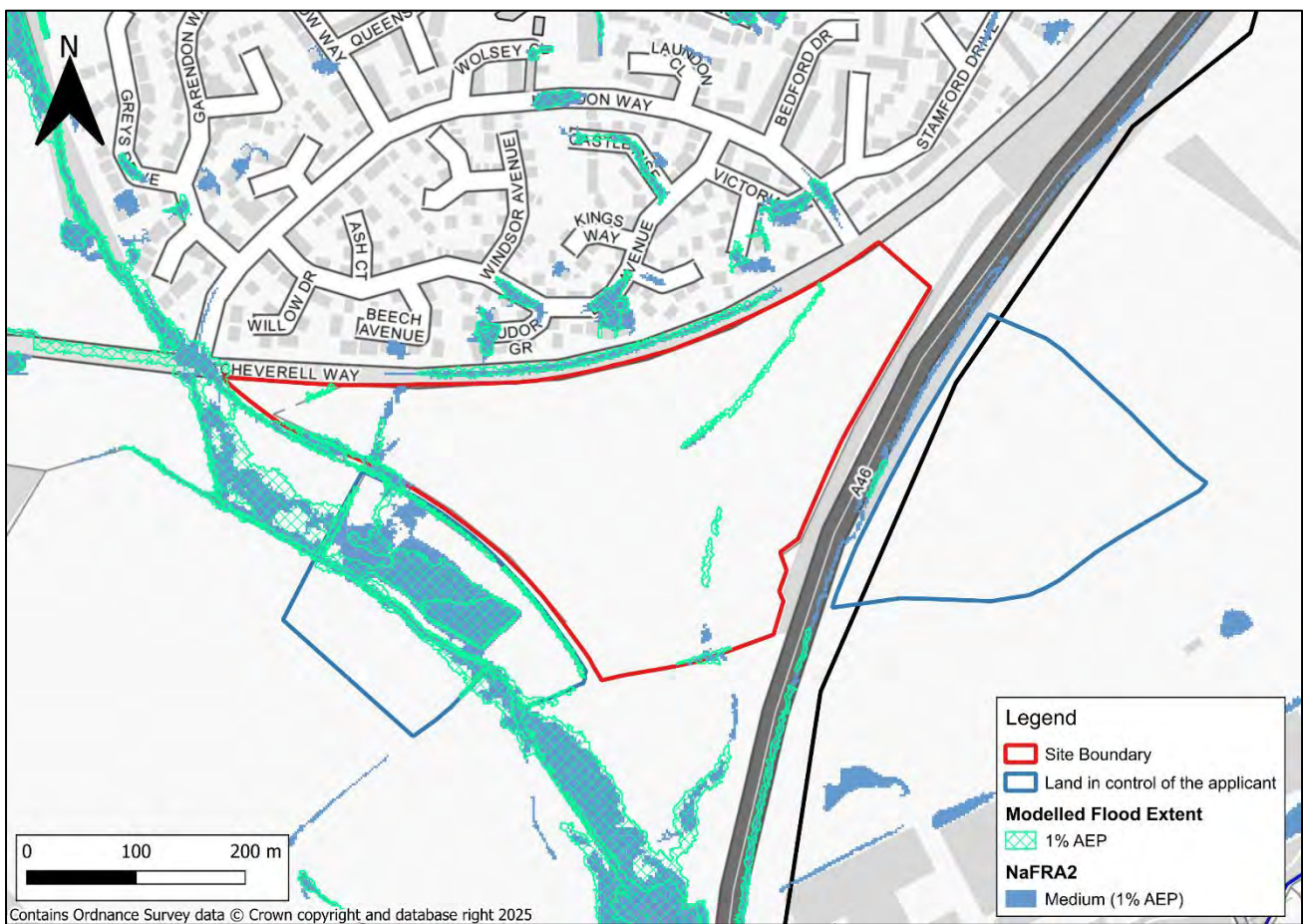


Figure 3-1: 1% AEP comparison with NaFRA2

4 Hydraulic model results

4.1 Processing of hydraulic model results

The following processing steps, aligned with those taken from the EA's National Scale Surface Water Flood Mapping Methodology¹, have been applied to the outputs of all hydraulic modelling results:

- Filtered to remove areas where Hazard to People rating is less than 0.575
- Filled areas with an area less than 50m²
- Removal of polygons with an area less than 100m².

Only 2D model results are included in these figures.

4.2 Existing conditions / baseline scenarios

4.2.1 Peak flood extents

Flood extents for the 3.33% AEP, 1% AEP and 0.1% AEP flood events are shown in Figure 4-1, with mapping for the 3.33% AEP with (+35%) climate change and 1% AEP with (+40%) climate change events shown in Figure 4-2.

Figure 4-1 indicates that flooding is predicted to occur within the site during all modelled events.

Figure 4-2 indicates that flooding is also predicted to occur within the site during the 3.3% AEP with (+35%) climate change and 1% AEP with (+40%) climate change events.

¹ <https://www.gov.uk/government/publications/flood-risk-maps-for-surface-water-how-to-use-the-map/risk-of-flooding-from-surface-water-understanding-and-using-the-map#how-the-rofsw-map-was-created>

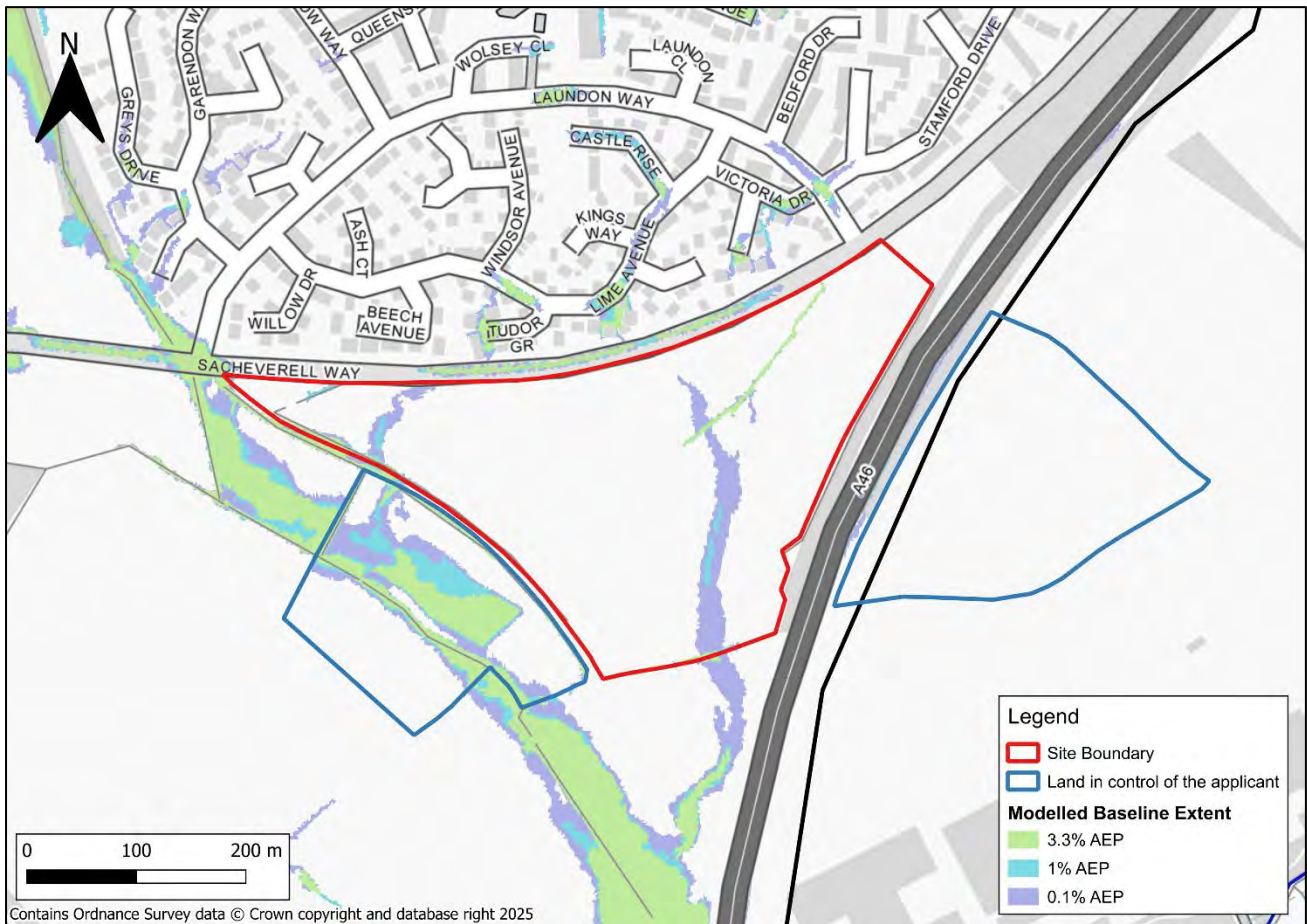


Figure 4-1: Baseline scenario peak flood extents

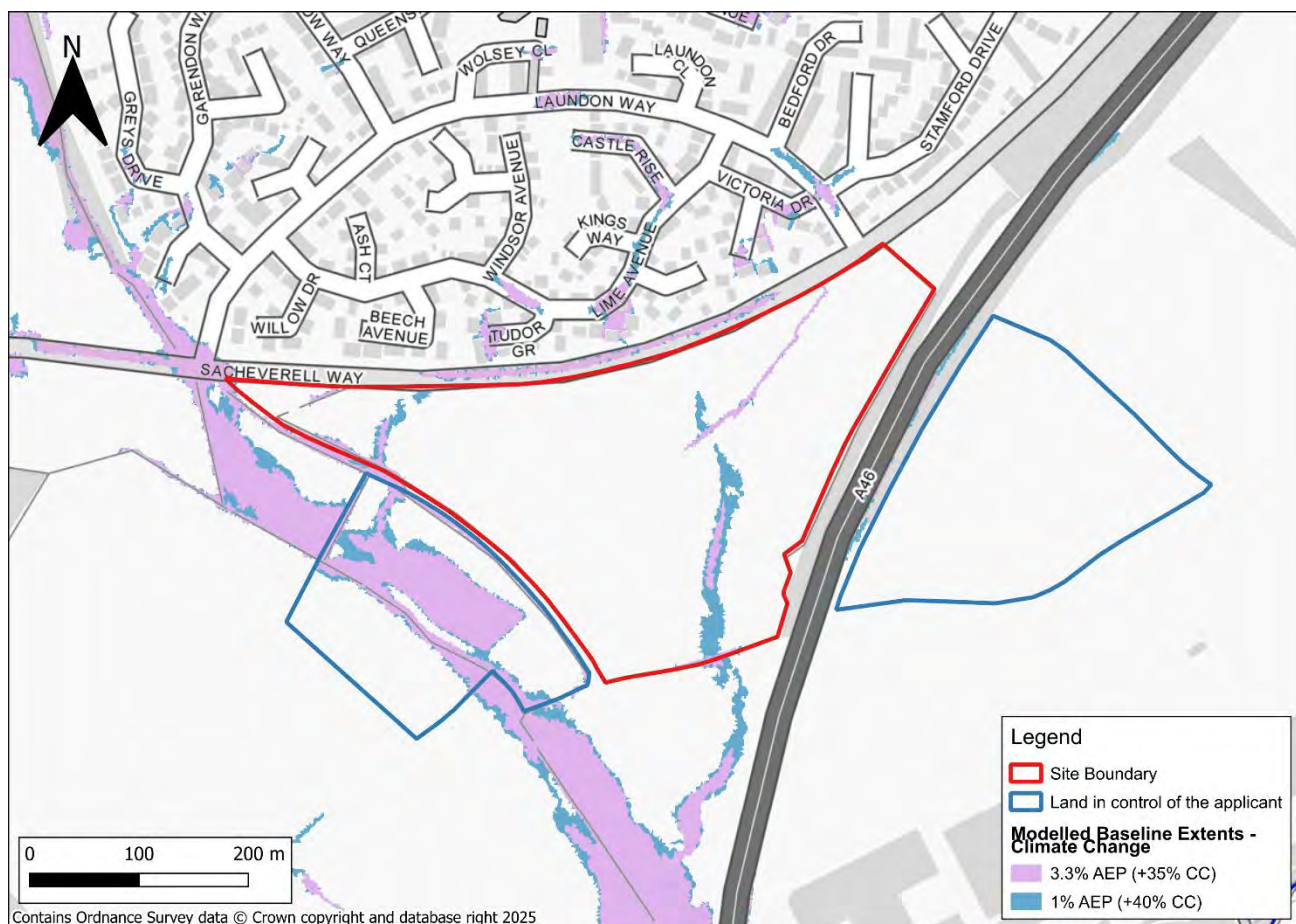


Figure 4-2: Baseline scenario climate change peak flood extents

4.2.2 Peak flood depths

Figure 4-3 shows the peak flood depths within the site boundary during the 1% AEP with (+40%) climate change event for the baseline scenario. Peak modelled flood depths of up to 0.99m are predicted to occur within the site during the 100-year (1% AEP) plus climate change event. The deepest areas of flooding are shown to be confined within the drainage channels running from northwest to southeast, along the western boundary of the site and northeast to southwest through the centre of the site.

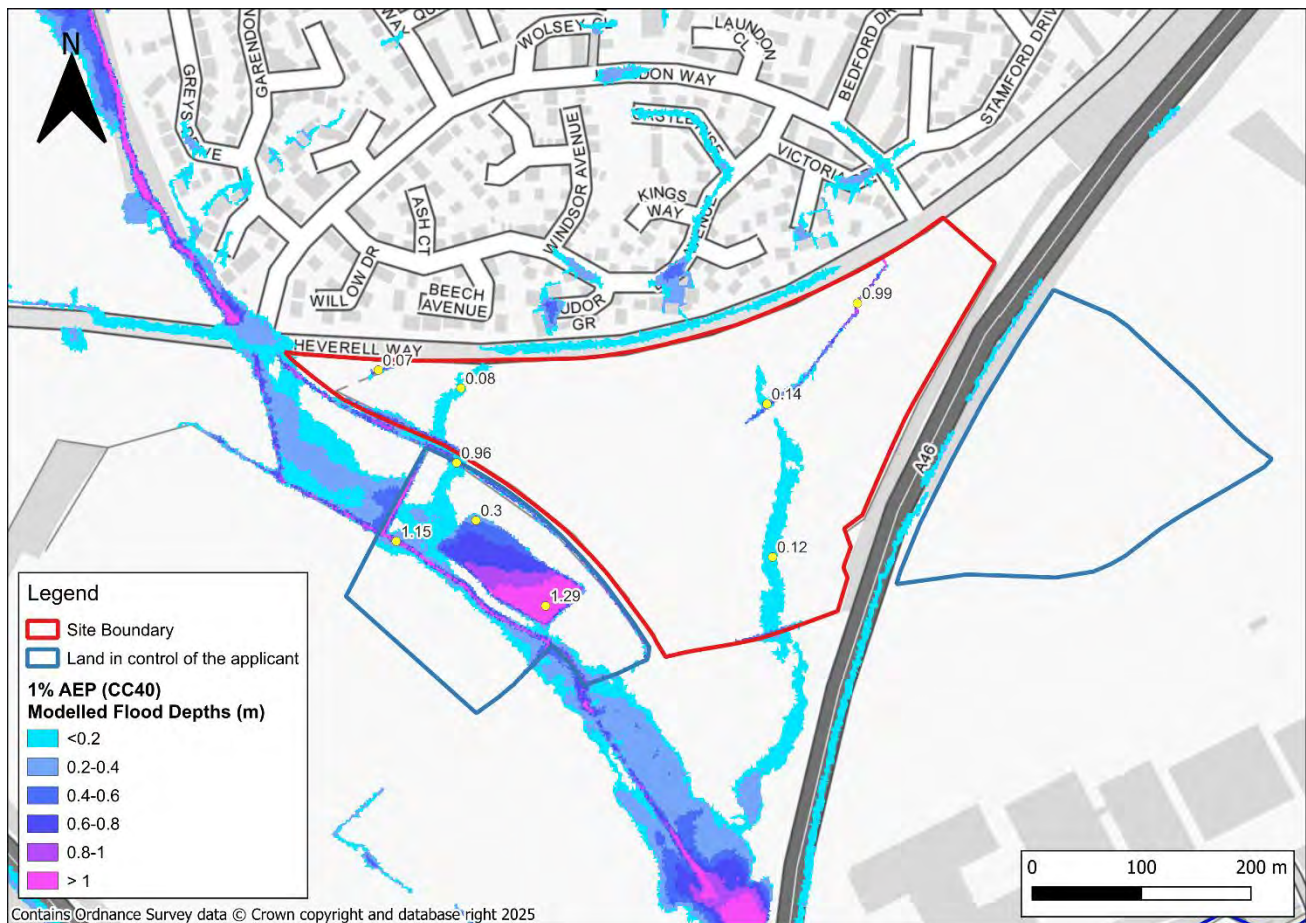


Figure 4-3: Modelled depths in 1% AEP with (+40%) climate change flood event

4.2.3 Peak flood levels

Figure 4-4 shows the peak flood levels within the site boundary during the 1% AEP with (+40%) climate change event for the baseline scenario. Peak modelled flood levels are predicted to range between 84.29m AOD to the north-east and 78.92m AOD towards the southern boundary of the site during the 100-year (1% AEP) plus climate change event.

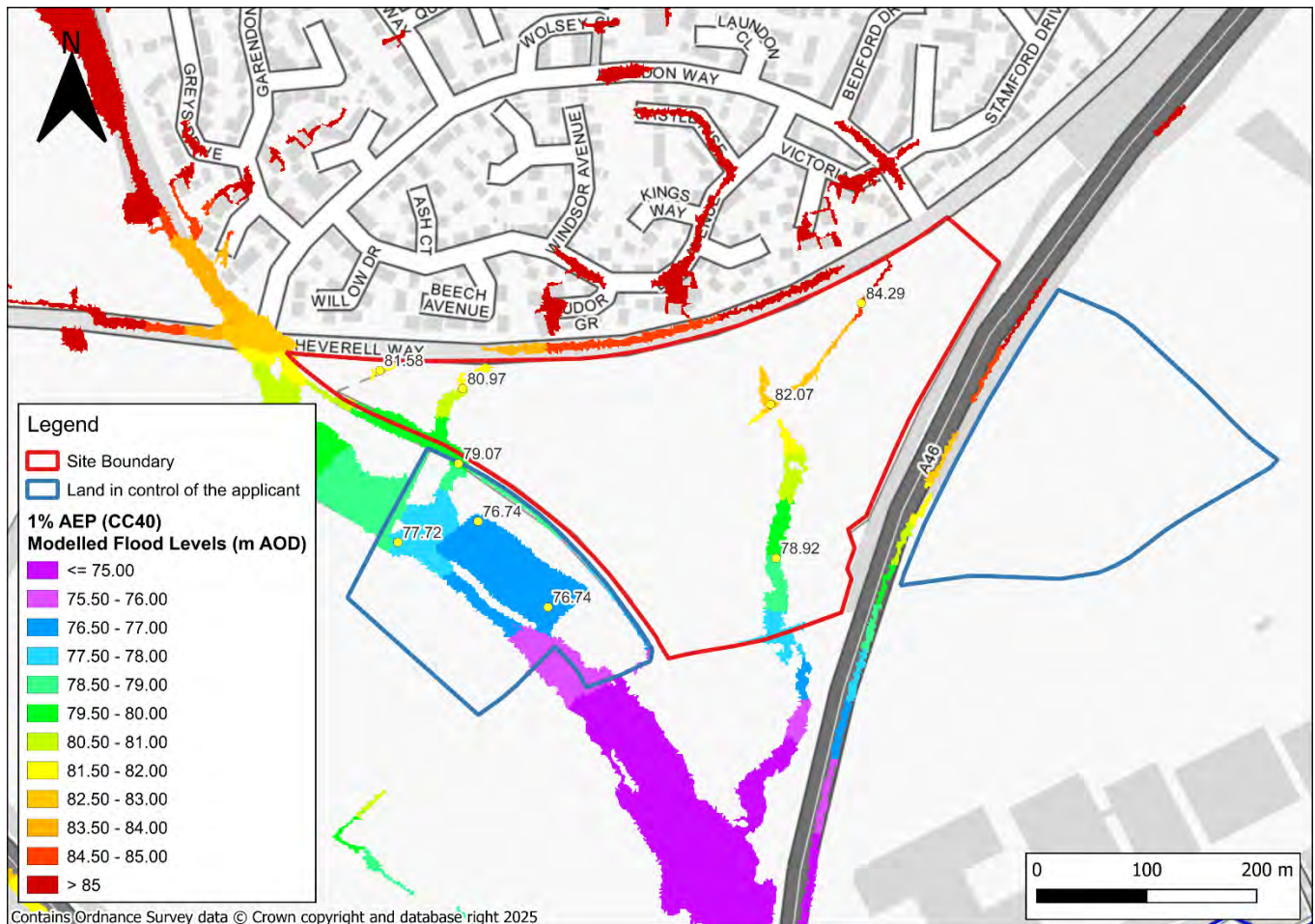


Figure 4-4: Modelled levels in the 1% AEP with (+40) climate change flood event

4.2.4 Hazard to people

The hazard-to-people rating has been mapped using the formula as specified in Defra's FD2320/TR2 "Flood Risk to People". The different hazard categories are shown in Table 4-1 and the hazard classification to the site during the 100-year (1% AEP) plus 40% climate change event is shown in Figure 4-5.

Table 4-1: Defra's FD2320/TR2 "Flood Risks to People" classifications

Flood hazard rating	Degree of Flood Hazard	Description
<0.75	Caution	Caution <i>"Flood zone with shallow flowing water or deep standing water"</i>
0.75 to 1.25	Moderate	Dangerous for some (i.e. Children) <i>"Danger: flood zone with deep or fast flowing water"</i>
1.25 to 2.00	Significant	Dangerous for most <i>"Danger: flood zone with deep fast flowing water"</i>
>2.00	Extreme	Dangerous for all <i>"Extreme danger: flood zone with deep fast flowing water"</i>
Using the hazard equation $HR = d*(v+0.5) + DF$ Where d = depth of flooding (m) v = velocity of floodwaters (m/sec) DF = debris factor		

Figure 4-5 shows that during the 100-year (1% AEP) plus 40% climate change event. The site is mostly comprised of areas of 'caution', with only these classification areas located on the edge of the eastern and western boundaries. There are a few areas along the southwest of the site that are a 'danger for most' in regions within the confines of the

drainage ditches and the flood relief basin. Along the most south-western drainage ditch, there is a 'danger for all' classification, which stretches across the site boundary.

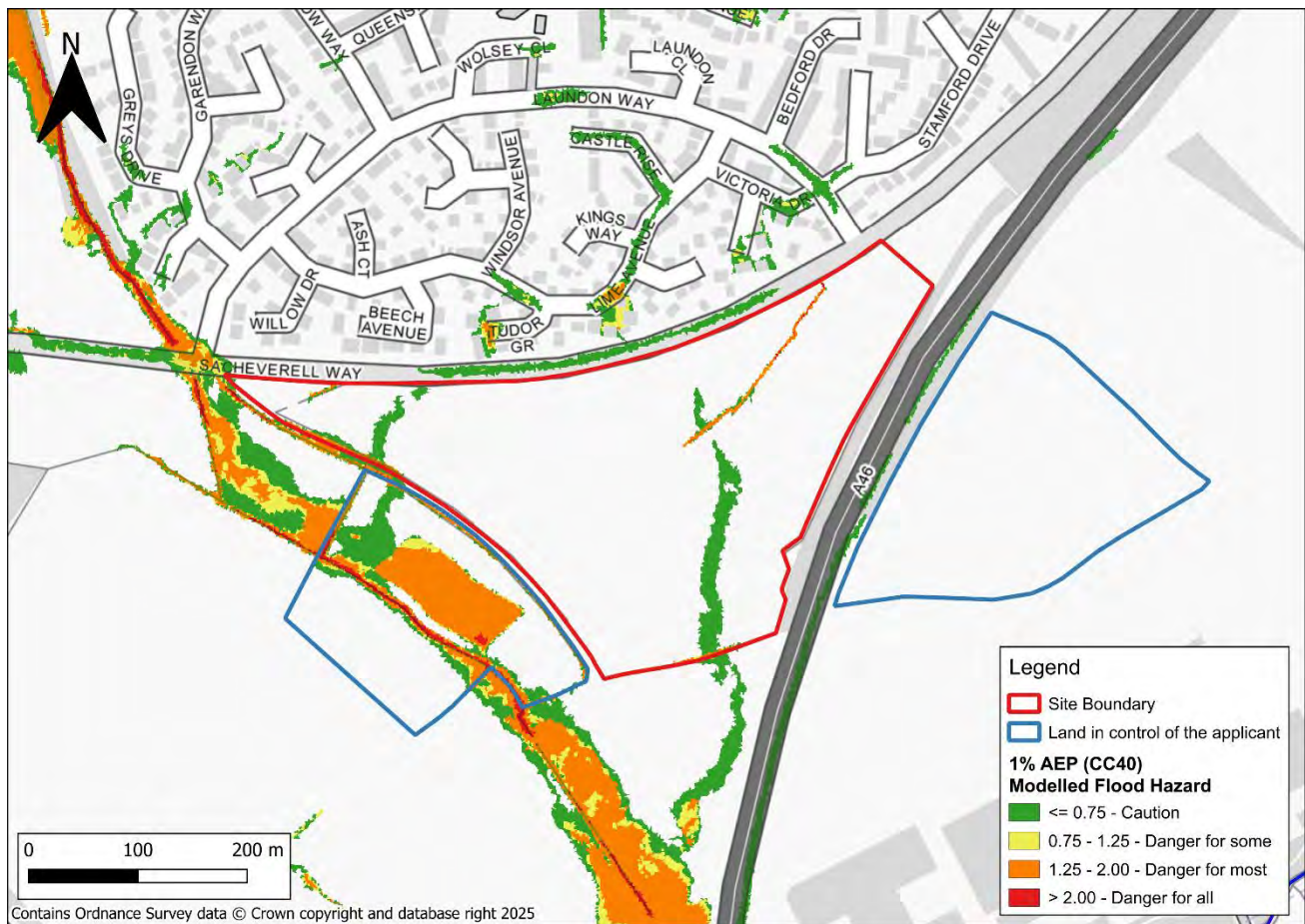


Figure 4-5: Baseline scenario peak flood hazard – 1% AEP plus 40% climate change

4.3 Post-development modelling

A post-development model scenario was developed and was tested for the 1% AEP with (+40%) climate change event. The post-development model scenario is shown in Figure 4-6

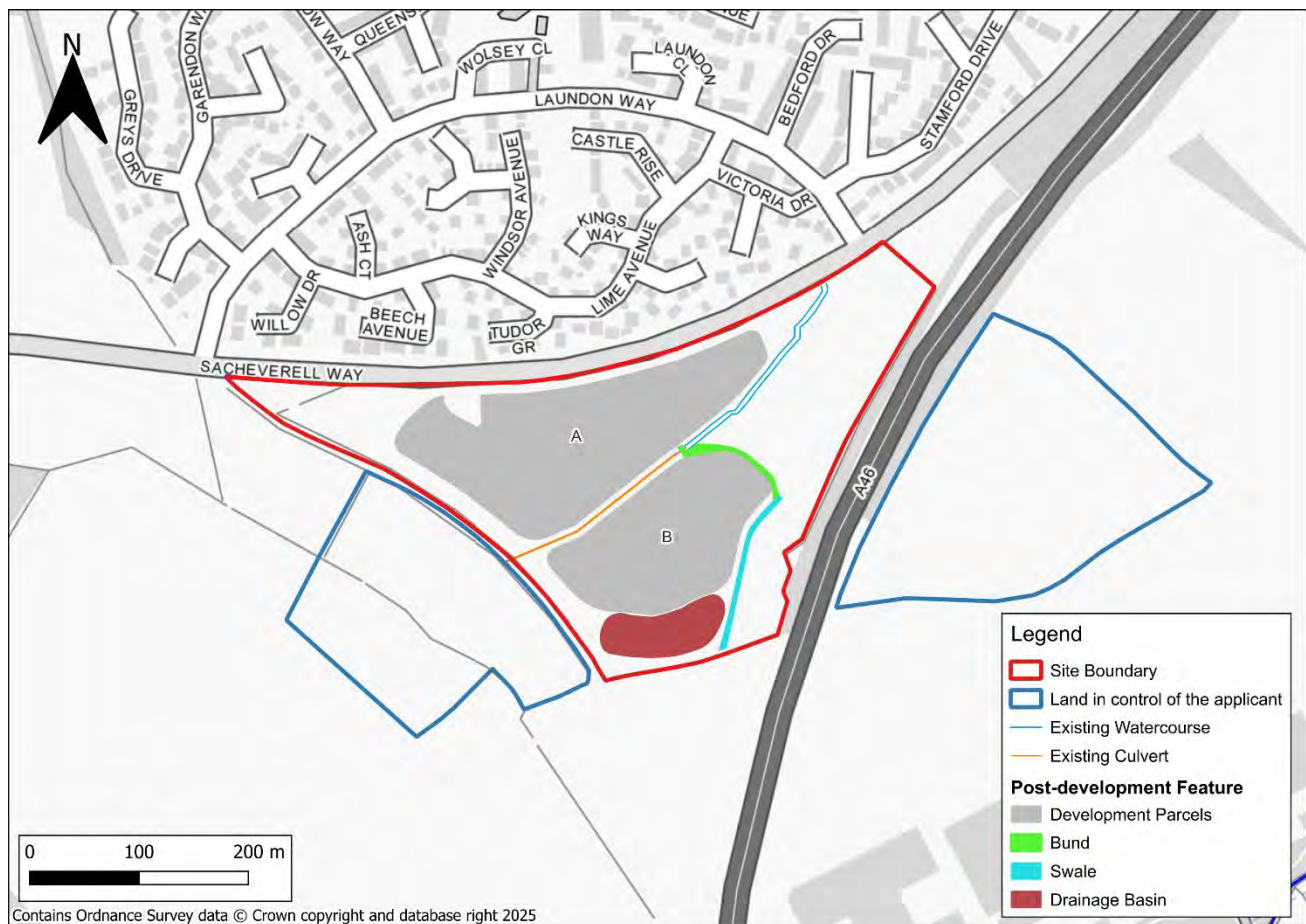


Figure 4-6: Post-Development model scenario

The baseline model was amended by applying proposed ground level changes, including a swale to redirect high flows previously entering the onsite culvert. To facilitate this, ground levels were raised around the culvert inlet, ensuring that when water levels reached 81.6 m AOD, the excess flows could be redirected eastward into a swale designed to channel the water southwards. The existing 900 mm culvert has been reduced to 750 mm to represent the installation of a 750 mm orifice plate at its inlet. This measure aims to lower the proposed downstream flood risk and redirect overland flow through the swale into the drainage ditch along the site's southeastern boundary.

Further to discussions with the LLFA on the 17th December 2024, it was confirmed that If the existing culvert running through the site was not daylight, the LLFA would not object to the planning application on the basis that the 'status quo if being maintained'.

Indicative development parcels are shown in Figure 4-6. Rainfall inputs were removed from the areas shown to represent the impact of the proposed surface water drainage strategy. This post-development scenario aimed to redirect off-site generated overland flow paths southwards around Development Zone B.

4.3.1 Post-development flood depths

The results of the post-development modelling for the 1% AEP with (+40%) climate change event shows that maximum flood depths within the site vary between 0.11m and 0.41m in Figure 4-7.

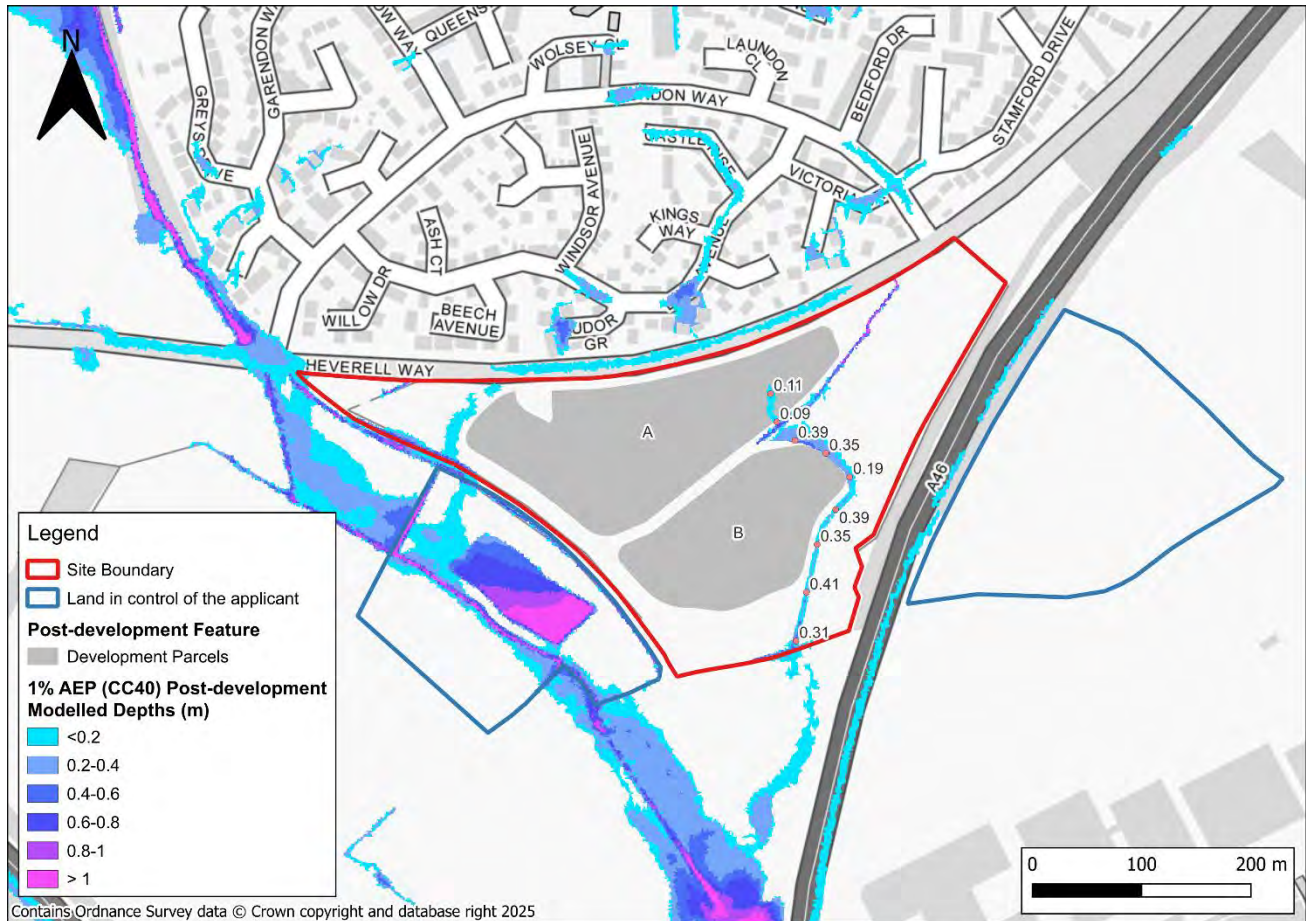


Figure 4-7: Post-development flood depths in the 1% AEP with (+40%) climate change event

4.3.2 Post-development flood levels

Maximum modelled flood levels within the site boundary during the post-development scenario for the 1% AEP with (+40%) climate change event ranged from 82.38m AOD within the central region of the site to 77.9m AOD towards the southern boundary of the site (Figure 4-8).

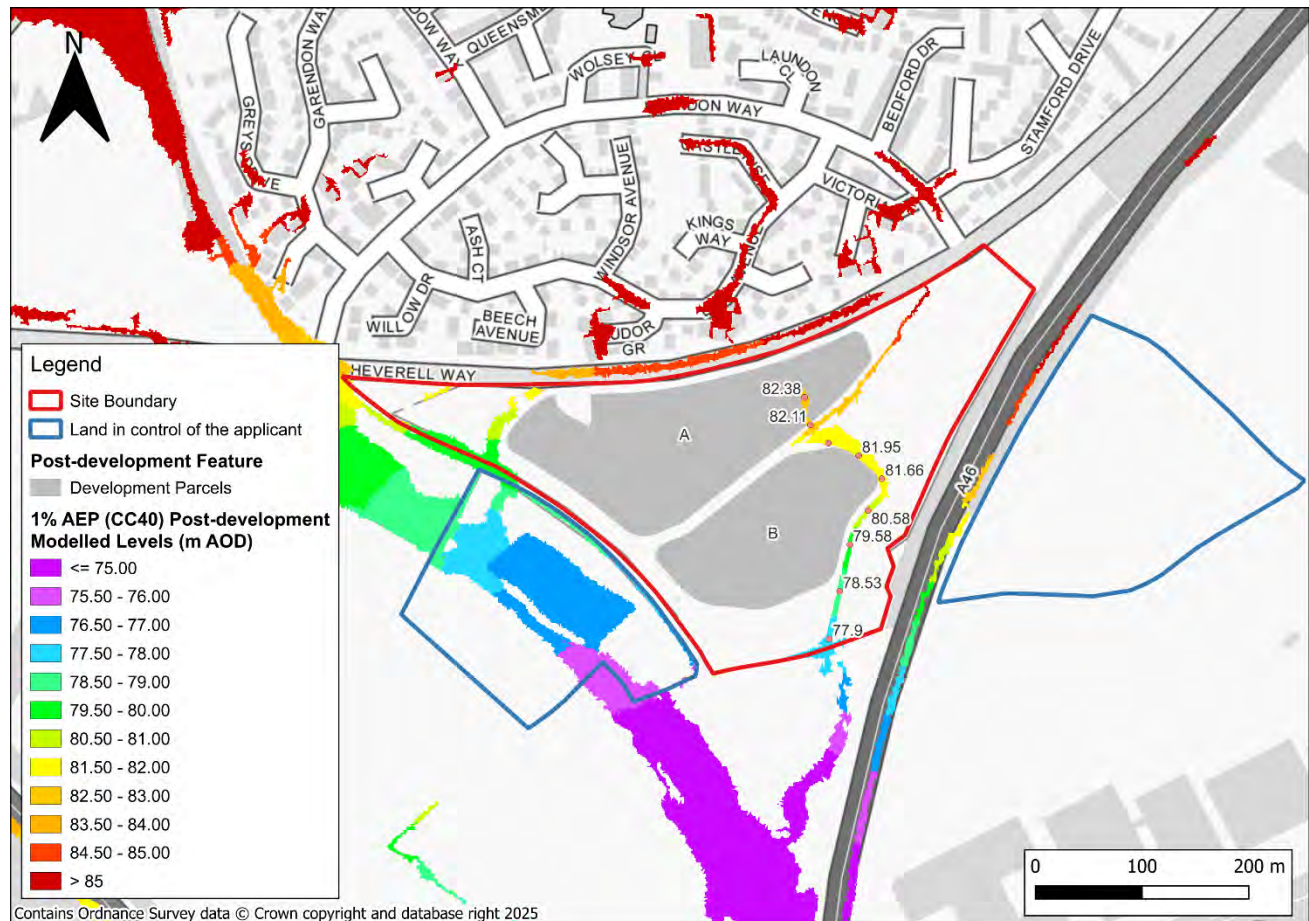


Figure 4-8: Post-development flood levels in the 1% AEP with (+40%) climate change event

4.3.3 Impact of post-development scenario on flood depth

The impact of the post-development model scenario on maximum flood depths has been assessed for the 1% AEP with (+40%) climate change event. The difference between baseline and the post-development maximum flood depths is shown in Figure 4-9.

Overall, the post-development scenario had no significant impact on flood risk at third-party land. The northeast of the site, where the ground modification is located, shows a significant increase in depths of +10cm due to ground level raising in order to divert the overland flow paths. There is a significant reduction south of the modification, which shows the diversion of overland flow paths from this area.

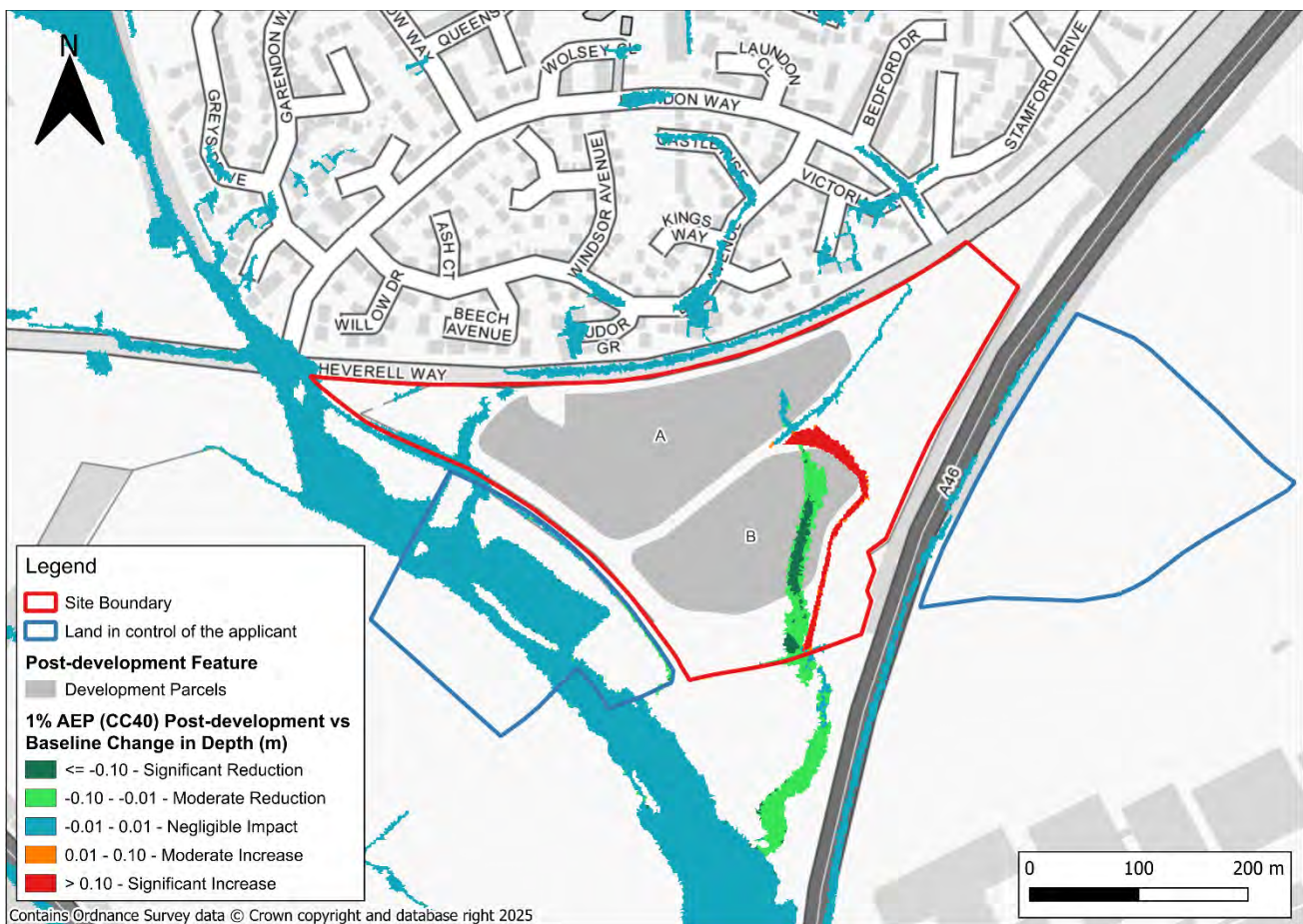


Figure 4-9: Depth comparison between baseline and post-development

4.3.4 Post-development flood hazard

Figure 4-10 shows the post-development hazard rating to the site for the 1% AEP with (+40%) climate change event. The Hazard-to-people rating for the site largely falls within the 'Caution' hazard category, with small, isolated patches along the proposed swale falling into 'Danger for some' and 'Danger for most' hazard category. Overall, there is safe access and egress.

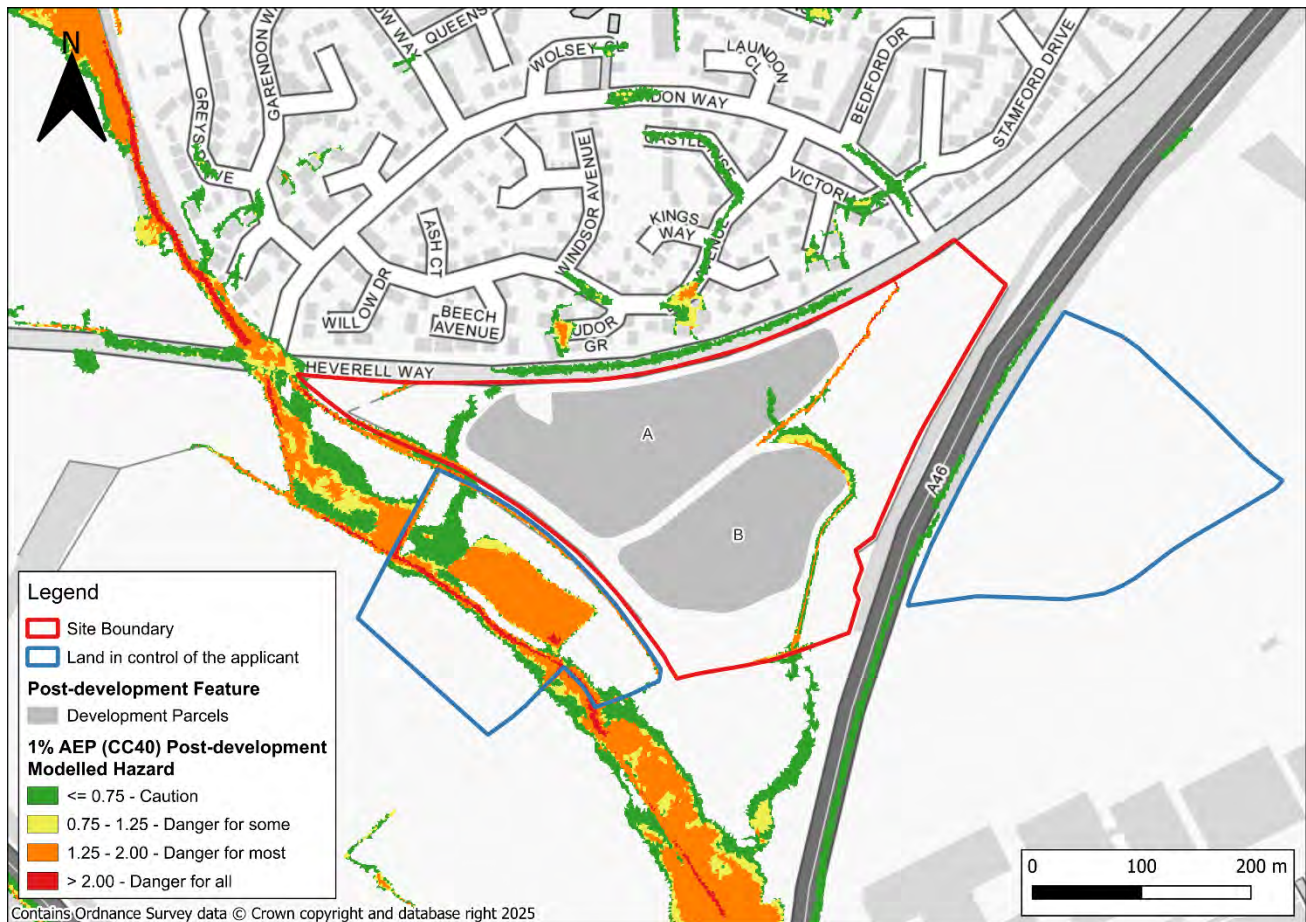


Figure 4-10: Post-development peak flood hazard in the 1% AEP with (+40%) climate change event

5 Model assumptions and uncertainties

5.1 General assumptions/uncertainties

The representation of any complex system by a model requires a number of assumptions to be made. In the case of the 1D elements of the model the following assumptions have been made:

- Model parameters used, such as roughness and structure coefficients, are representative of the general conditions.
- The units used to represent hydraulic structures within the model represent the situation accurately using the information available at the time of the study.
- A stable numerical solution can be achieved.
- The design hydrology accurately represents flows in the models given there was no flow / level data or historical flood data for the catchment available for calibration of flows in the surface water model.
- The watercourse and culverts around the site have been represented as un-silted using hard bed levels.

In terms of the 2D elements of the model the following assumptions have been made:

- The LIDAR and topographic survey are representative of the land surface and no errors have been introduced through filtering algorithms.
- Model parameters used, such as roughness, are representative of the general conditions.
- The losses applied to rainfall accurately represents the amount of runoff that is lost to infiltration and evaporation.

6 Summary and recommendations

6.1 Summary

- Bloor Homes East Midlands commissioned JBA Consulting to assess surface water flood risk in relation to a site located off Sacheverall Way, Groby, Leicestershire.
- A 2D InfoWorks-ICM direct runoff hydraulic model was produced to allow the detailed representation of flood depths, flood levels and hazard within the site boundary.
- The model was run for the 3.3% AEP, 3.3% AEP with (+35%) climate change, 1% AEP, 1% AEP with (+40%) climate change, and 0.1% AEP storm events for the 60-minute critical (summer) storm duration.

The baseline model results indicate that:

- Flooding is predicted to occur within the site during all modelled design events.
- Flooding is predicted to occur within the site during the 3.3% AEP with (+35%) climate change and 1% AEP with (+40%) climate change events.
- Peak modelled flood depths of up to 1.29m are predicted to occur within the site during the 100-year (1% AEP) plus climate change event.
- Peak modelled flood levels are predicted to range between 84.29m AOD to the north-east and 78.92m AOD towards the southern boundary of the site during the 100-year (1% AEP) plus climate change event.
- Hazard classification areas of 'caution' extend across the site, with areas of 'Danger for most' to 'Danger for all' located within the confines of the formal defences.
- Sensitivity testing of the model found that within the site boundary the model results are insensitive to changes in modelled roughness, and slightly sensitive to changes in the fixed runoff coefficient (runoff percentage) value.

The post-development model results indicate that:

- Raising the ground levels around the culvert inlet and redirecting the overland flow paths into a swale during the 1% AEP with (+40%) climate change event decreases modelled flood depths to third-party land at the south of the site.
- When comparing depths to the baseline scenario, the northeast of the site, where the ground modification is located, shows a significant increase in depths of +10cm due to ground level raising in order to divert the overland flow paths. There is a significant reduction south of the modification, which shows the diversion of overland flow paths from this area.

6.2 Recommendations

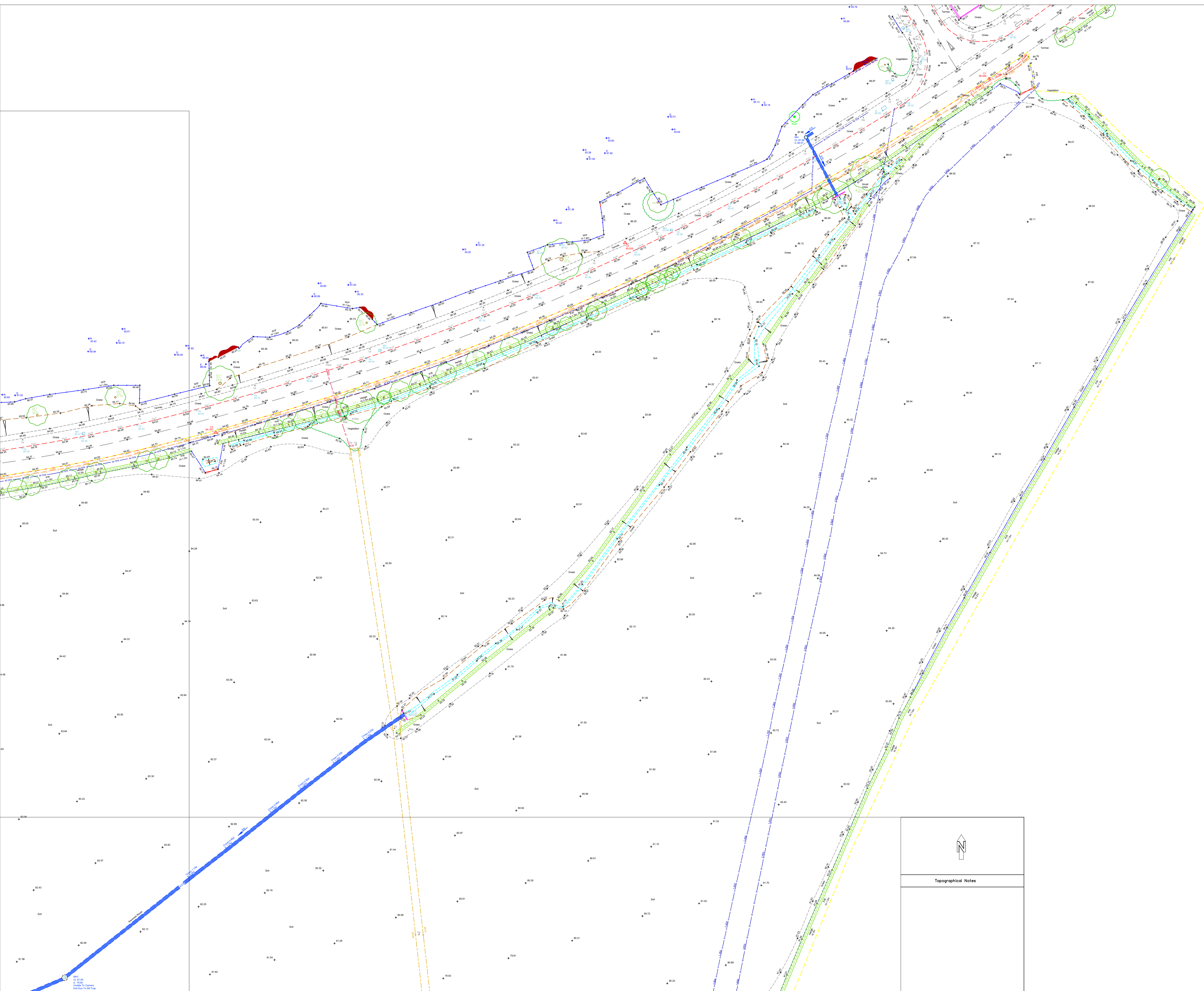
The results of the hydraulic modelling can be used to inform the Flood Risk Assessment for the site. However, it is recommended that the hydraulic modelling is reviewed and validated by the Lead Local Flood Authority, ideally before developing a masterplan or submitting a planning application.

It is recommended that the post-development scenario of the model is altered during the master planning and that Finished Floor Levels (FFLs) are set above the modelled design flood level with freeboard is applied. It is recommended that the new levels be re-simulated in the hydraulic model to understand the impact on flood levels and flood hazard within the site, along with the incorporation of a site surface water drainage strategy.

The model results have been prepared for the purpose of quantifying surface water flood risk at the site and surrounding area. If the results are intended to be used for surface water flood risk mapping of the wider catchment, further model refinement is recommended. Additionally, if further data is made available it is recommended that the model is updated to improve the representation of surface water flood risk parameters.

Appendices

A Culvert Survey



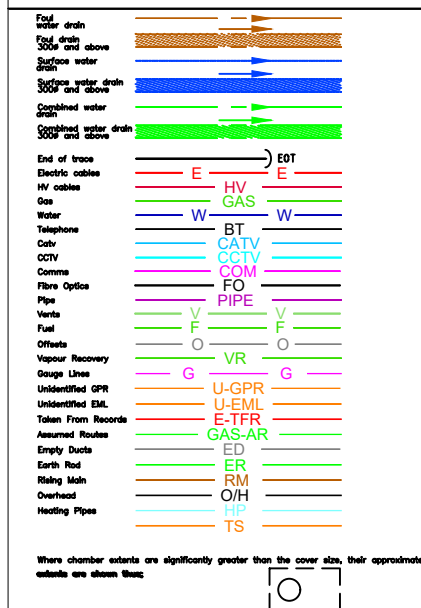
Topographical Notes

STANDARD REFERENCES

ABBREVIATIONS

[illegible]

KEY FOR UNDERGROUND SERVICES



ABBREVIATION KEY

[illegible]

UTILITY SURVEY NOTES

[illegible]

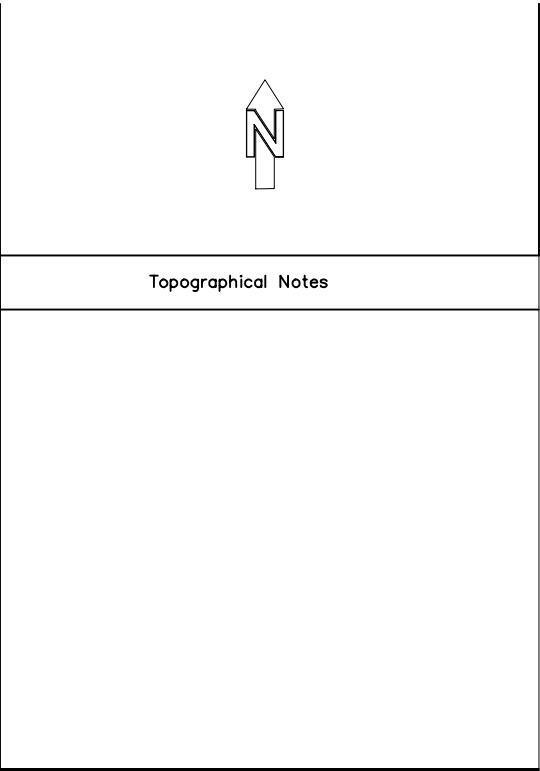
AMBER UTILITIES LTD

CLIENT: Bloor Homes

SITE LOCATION:
Sacheverell Way
Grobby
Leicester

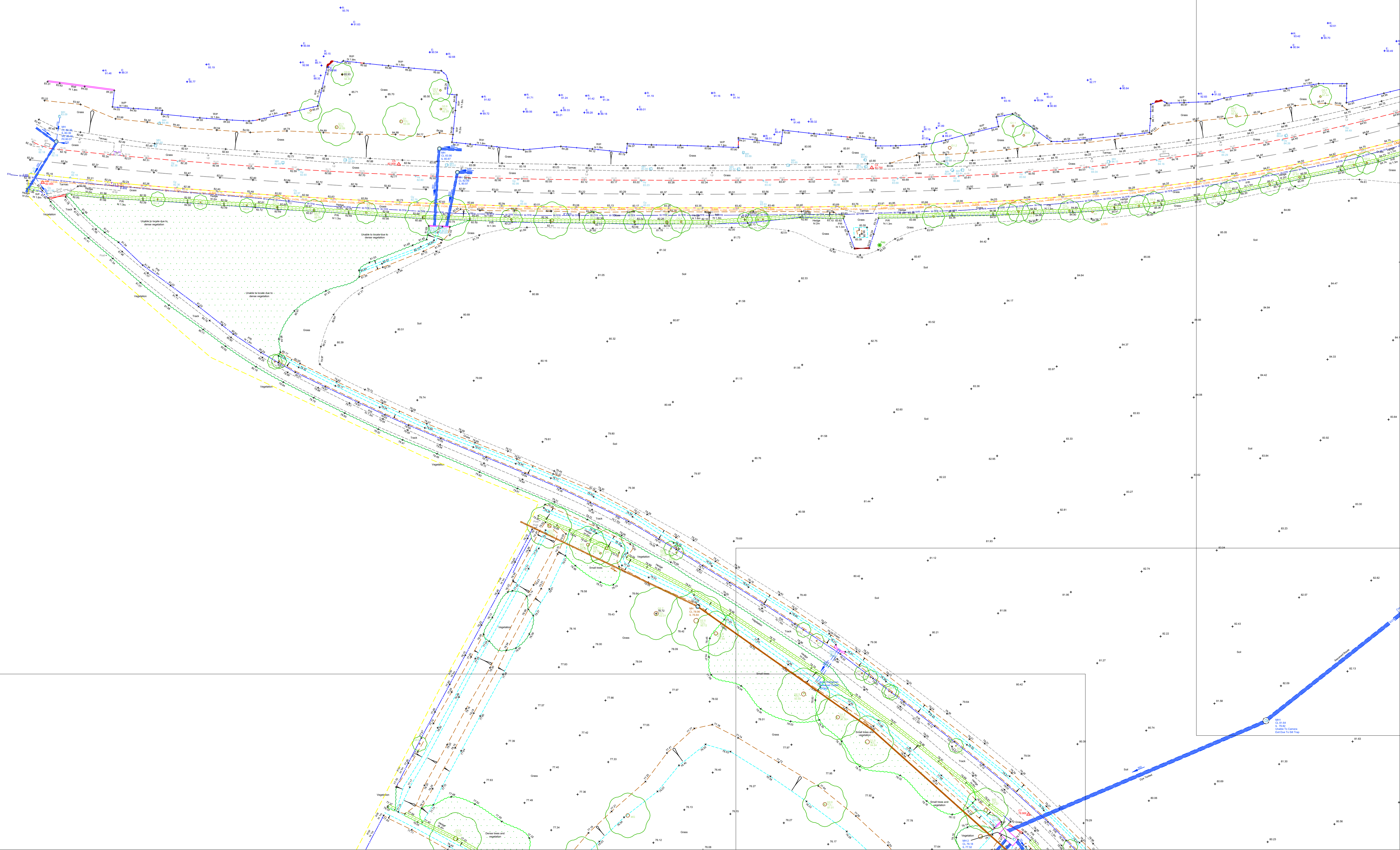
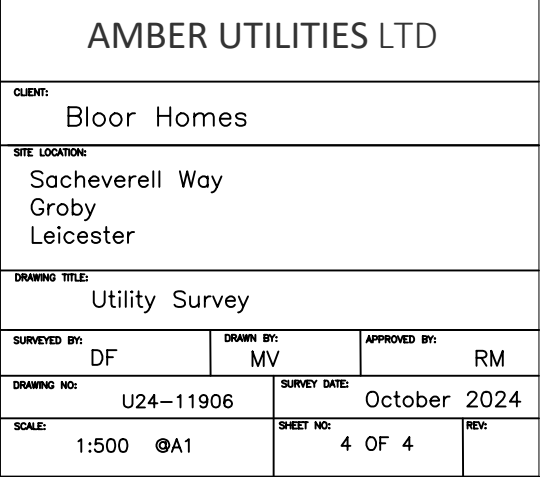
DRAWING TITLE:
Utility Survey

SURVEYED BY: DF	DRAWN BY: MV	APPROVED BY:
DRAWING NO: U24-11906		SURVEY DATE: October 2
SCALE: 1:500 @A1		SHEET NO: 1 OF 4



ABBREVIATIONS			
bb	bellows beacon	ko	kerb outer
bl	bolard	lo	light bollard
br	brick, rat	lp	load point
br	brake, stop	mh	manhole
bt	but	mk	mark
bu	bulb	mp	met. post
bu	brick wall	mp	met. post
cbv	cable TV cover	no	non-polemate (road)
cd	classified	ns	not sign
cbw	concrete block, ret.	p	post
cl	cover level	pb	push button
cl	cover level	pt	pot. retaining wall
ctf	chokinik fence	re	redding eye
con	concrete	rg	road sign
co	concrete post	rg	road sign
cs	concrete wall	rw	rainwater pipe
cs	concrete, thinner	s	sign
de	drop kerb	sw	stone ret. wall
ep	electric pole	sw	stone wall
ESS	ESS, Sub-Station	sw	stone wall
fl	flower bed	sw	stone wall
fr	fire hydrant	s/w	stone wall
f	floor	sws	astomat water sewer
f	floor	sws	astomat water sewer
f	foot, ratel sewer	t	traffic light
gav	gas valve	to	tegraph pole
hy/h	hydrant	to	to rotate
ic	inspection cover	vp	vent pipe
i	inert ball	w	woodchip fence
ip	iron ratel fence	w	wood
j	junction box	wp	wood post

These element abundances are significantly greater than the ones that are shown here.

[illegible][illegible]

B Topographic Survey

B.1 Topographic Survey drawing



urban contours

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	Telegraph post	Sp	Sign post
G	Gate	Ep	Electricity post	TH	Truethole
		Ti	Traffic light	BH	Borehole
		Bus	Bus stop	ELC	Electric
		SV	Stop valve	BT	British Telecom
		SI	Stop tap	CTBX	Control box
		Er	Earth rod	TT	Tactile
		Wm	Water meter	BP	Brick paved
		Gas	Gas valve	CPS	Concrete paving slabs
		Av	Air valve	CVR	Cover
IR	Iron Railings	ICU	Unidentified inspection	R/wall	Retaining wall
WM	Wire Mesh	Wo	Wash out	TWL	Top of Wall Level
PR	Post & Rail	Re	Rodding eye	TCL	Tree canopy level
PW	Post & Wire	BB	Beltsha beacon	G	Girth
CL	Chain Link	CTV	Cable tv	MG	Multi grn
WP	Wooden Panels	Mur	Marker post	IC	Inspection chamber
CB	Close Boarded	Gmr	Gas marker post	CL	Cover level
SP	Steel Palisade	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	DATE	DRAWN	CHECKED BY
1mts@a1	19.07.20	GY	RH

Level datum

G.P.S OSGB36/15

Job number

GROBY 001

Drawing No.

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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AND MAY NOT BE REPRODUCED OR AMENDED EXCEPT BY WRITTEN PERMISSION. NO LIABILITY WILL BE ACCEPTED FOR AMENDMENTS MADE BY OTHER PERSONS.

B.2 Topographic Survey data

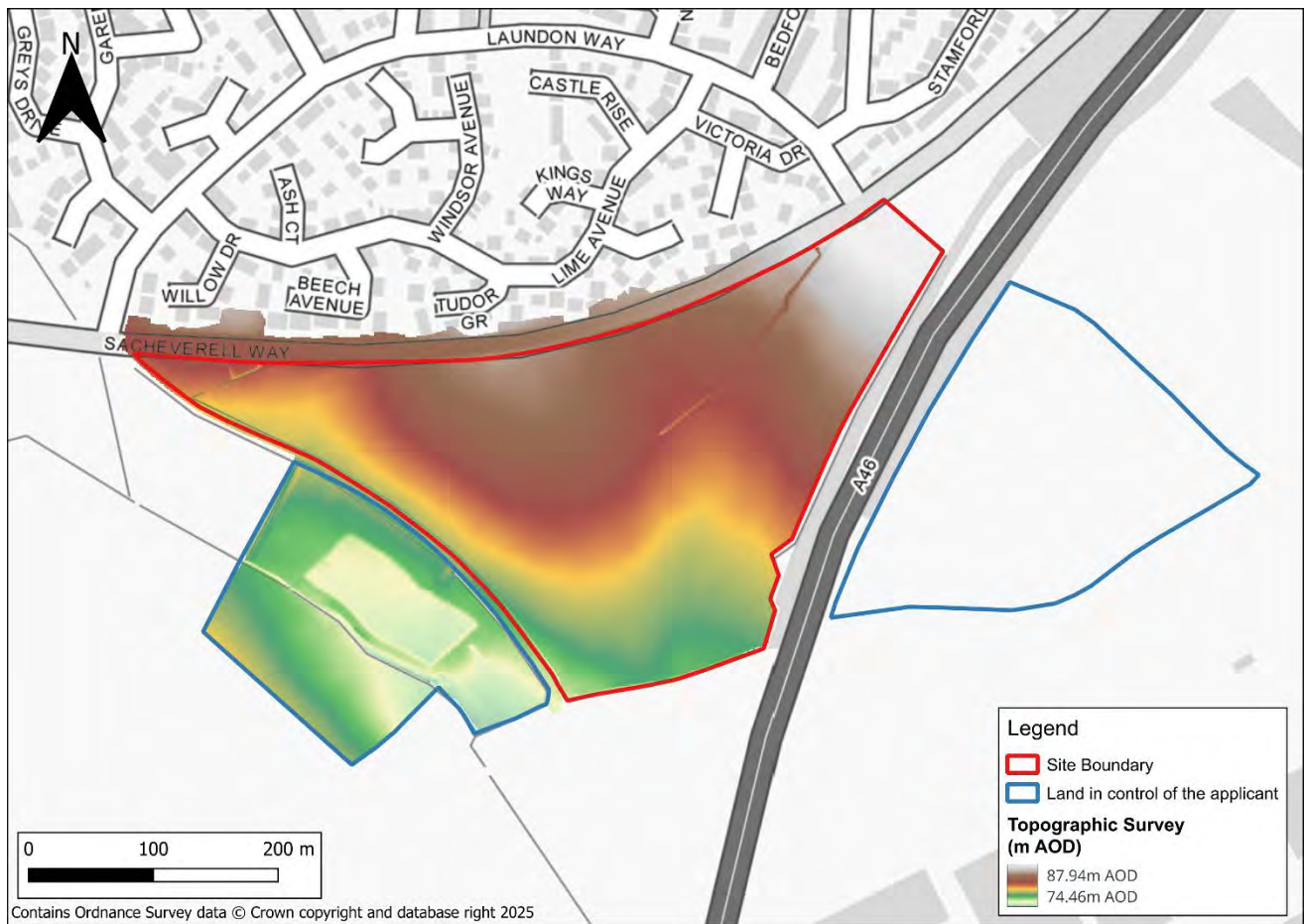


Figure B-1: Topographic Survey

B.3 Quality assessment

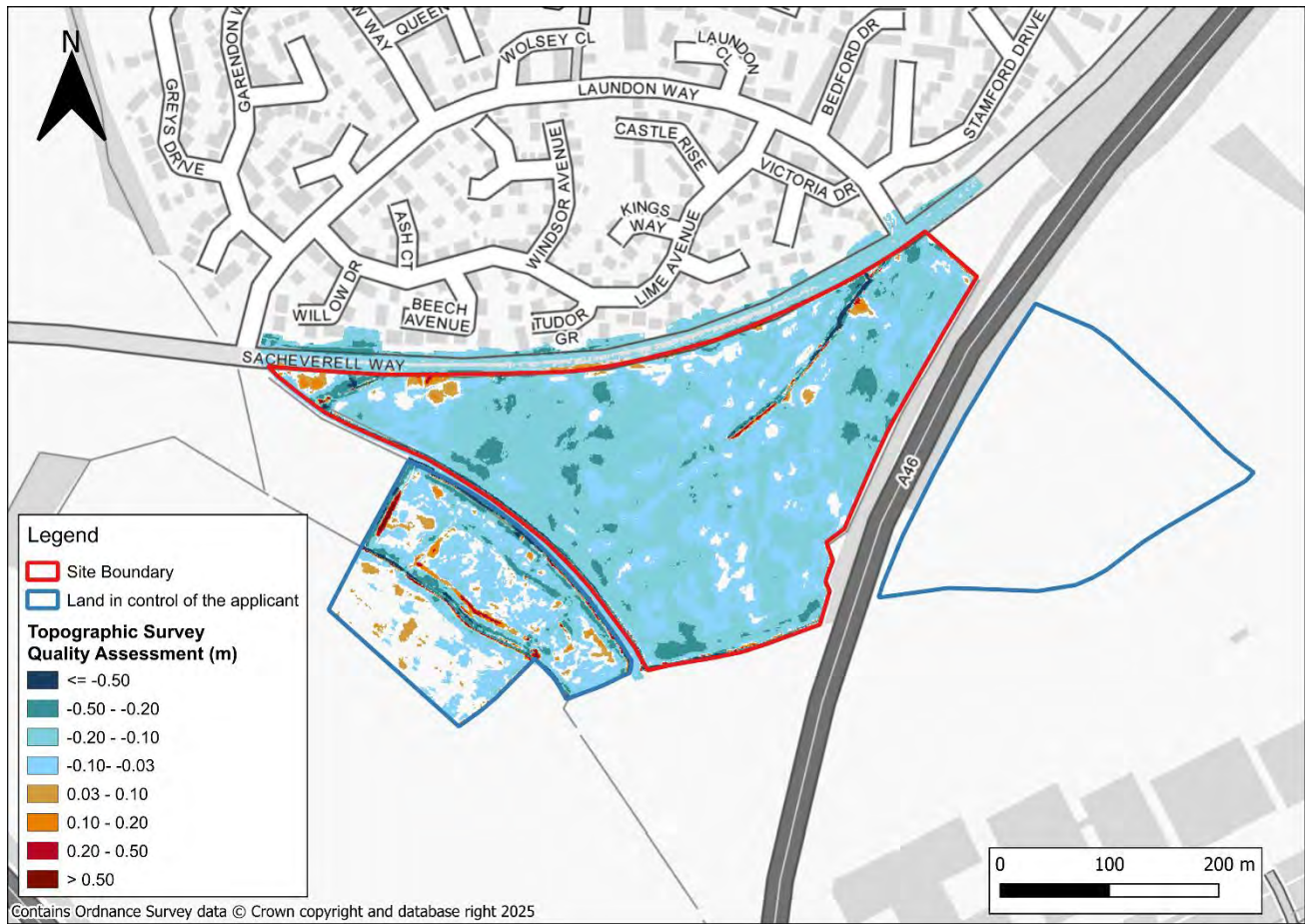


Figure B-2: Topographic Survey Quality Assessment

C Severn Trent Water sewer maps



GENERAL CONDITIONS AND PRECAUTIONS TO BE TAKEN WHEN CARRYING OUT WORK ADJACENT TO SEVERN TRENT WATER'S APPARATUS

Please ensure that a copy of these conditions is passed to your representative and/or your contractor on site. If any damage is caused to Severn Trent Water Limited (STW) apparatus (defined below), the person, contractor or subcontractor responsible must inform STW immediately on:
0800 783 4444 (24 hours)

- a) These general conditions and precautions apply to the public sewerage, water distribution and cables in ducts including (but not limited to) sewers which are the subject of an Agreement under Section 104 of the Water Industry Act 1991(a legal agreement between a developer and STW, where a developer agrees to build sewers to an agreed standard, which STW will then adopt); mains installed in accordance with an agreement for the self-construction of water mains entered into with STW and the assets described at condition b) of these general conditions and precautions. Such apparatus is referred to as "STW Apparatus" in these general conditions and precautions.
- b) Please be aware that due to The Private Sewers Transfer Regulations June 2011, the number of public sewers has increased, but many of these are not shown on the public sewer record. However, some idea of their positions may be obtained from the position of inspection covers and their existence must be anticipated.
- c) On request, STW will issue a copy of the plan showing the approximate locations of STW Apparatus although in certain instances a charge will be made. The position of private drains, private sewers and water service pipes to properties are not normally shown but their presence must be anticipated. This plan and the information supplied with it is furnished as a general guide only and STW does not guarantee its accuracy.
- d) STW does not update these plans on a regular basis. Therefore the position and depth of STW Apparatus may change and this plan is issued subject to any such change. Before any works are carried out, you should confirm whether any changes to the plan have been made since it was issued.
- e) The plan must not be relied upon in the event of excavations or other works in the vicinity of STW Apparatus. It is your responsibility to ascertain the precise location of any STW Apparatus prior to undertaking any development or other works (including but not limited to excavations).
- f) No person or company shall be relieved from liability for loss and/or damage caused to STW Apparatus by reason of the actual position and/or depths of STW Apparatus being different from those shown on the plan.

In order to achieve safe working conditions adjacent to any STW Apparatus the following should be observed:

1. All STW Apparatus should be located by hand digging prior to the use of mechanical excavators.
2. All information set out in any plans received from us, or given by our staff at the site of the works, about the position and depth of the mains, is approximate. Every possible precaution should be taken to avoid damage to STW Apparatus. You or your contractor must ensure the safety of STW Apparatus and will be responsible for the cost of repairing any loss and/or damage caused (including without limitation replacement parts).
3. Water mains are normally laid at a depth of 900mm. No records are kept of customer service pipes which are normally laid at a depth of 750mm; but some idea of their positions may be obtained from the position of stop tap covers and their existence must be anticipated.
4. During construction work, where heavy plant will cross the line of STW Apparatus, specific crossing points must be agreed with STW and suitably reinforced where required. These crossing points should be clearly marked and crossing of the line of STW Apparatus at other locations must be prevented.
5. Where it is proposed to carry out piling or boring within 20 metres of any STW Apparatus, STW should be consulted to enable any affected STW Apparatus to be surveyed prior to the works commencing.
6. Where excavation of trenches adjacent to any STW Apparatus affects its support, the STW Apparatus must be supported to the satisfaction of STW. Water mains and some sewers are pressurised and can fail if excavation removes support to thrust blocks to bends and other fittings.
7. Where a trench is excavated crossing or parallel to the line of any STW Apparatus, the backfill should be adequately compacted to prevent any settlement which could subsequently cause damage to the STW Apparatus. In special cases, it may be necessary to provide permanent support to STW Apparatus which has been exposed over a length of the excavation before backfilling and reinstatement is carried out. There should be no concrete backfill in contact with the STW Apparatus.
8. No other apparatus should be laid along the line of STW Apparatus irrespective of clearance. Above ground apparatus must not be located within a minimum of 3 metres either side of the centre line of STW Apparatus for smaller sized pipes and 6 metres either side for larger sized pipes without prior approval. No manhole or chamber shall be built over or around any STW Apparatus.
9. A minimum radial clearance of 300 millimetres should be allowed between any plant or equipment being installed and existing STW Apparatus. We reserve the right to increase this distance where strategic assets are affected.
10. Where any STW Apparatus coated with a special wrapping is damaged, even to a minor extent, STW must be notified and the trench left open until the damage has been inspected and the necessary repairs have been carried out. In the case of any material damage to any STW Apparatus causing leakage, weakening of the mechanical strength of the pipe or corrosion-protection damage, the necessary remedial work will be recharged to you.
11. It may be necessary to adjust the finished level of any surface boxes which may fall within your proposed construction. Please ensure that these are not damaged, buried or otherwise rendered inaccessible as a result of the works and that all stop taps, valves, hydrants, etc. remain accessible and operable. Minor reduction in existing levels may result in conflict with STW Apparatus such as valve spindles or tops of hydrants housed under the surface boxes. Checks should be made during site investigations to ascertain the level of such STW Apparatus in order to determine any necessary alterations in advance of the works.
12. With regard to any proposed resurfacing works, you are required to contact STW on the number given above to arrange a site inspection to establish the condition of any STW Apparatus in the nature of surface boxes or manhole covers and frames affected by the works. STW will then advise on any measures to be taken, in the event of this a proportionate charge will be made.
13. You are advised that STW will not agree to either the erection of posts, directly over or within 1.0 metre of valves and hydrants,
14. No explosives are to be used in the vicinity of any STW Apparatus without prior consultation with STW.

TREE PLANTING RESTRICTIONS

There are many problems with the location of trees adjacent to sewers, water mains and other STW Apparatus and these can lead to the loss of trees and hence amenity to the area which many people may have become used to. It is best if the problem is not created in the first place. Set out below are the recommendations for tree planting in close proximity to public sewers, water mains and other STW Apparatus.

15. Please ensure that, in relation to STW Apparatus, the mature root systems and canopies of any tree planted do not and will not encroach within the recommended distances specified in the notes below.
16. Both Poplar and Willow trees have extensive root systems and should not be planted within 12 metres of a sewer, water main or other STW Apparatus.
17. The following trees and those of similar size, be they deciduous or evergreen, should not be planted within 6 metres of a sewer, water main or other STW Apparatus. E.g. Ash, Beech, Birch, most Conifers, Elm, Horse Chestnut, Lime, Oak, Sycamore, Apple and Pear. Asset Protection Statements Updated May 2014
18. STW personnel require a clear path to conduct surveys etc. No shrubs or bushes should be planted within 2 metre of the centre line of a sewer, water main or other STW Apparatus.
19. In certain circumstances, both STW and landowners may wish to plant shrubs/bushes in close proximity to a sewer, water main of other STW Apparatus for screening purposes. The following are shallow rooting and are suitable for this purpose: Blackthorn, Broom, Cotoneaster, Elder, Hazel, Laurel, Privet, Quickthorn, Snowberry, and most ornamental flowering shrubs.

2405	S	82.97	80.61	2.36															
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D Sensitivity Analysis

D.1 Sensitivity to roughness

Figure D-1 shows the impact on flood extents within the site when the Manning's 'n' roughness values are increased and decreased by 20%. The model results indicate a slight increase in flood extent within the site when the roughness was decreased by 20%, while a 20% increase in roughness remains the same as the baseline extent. It shows that within the development site, the model is not sensitive to roughness changes.

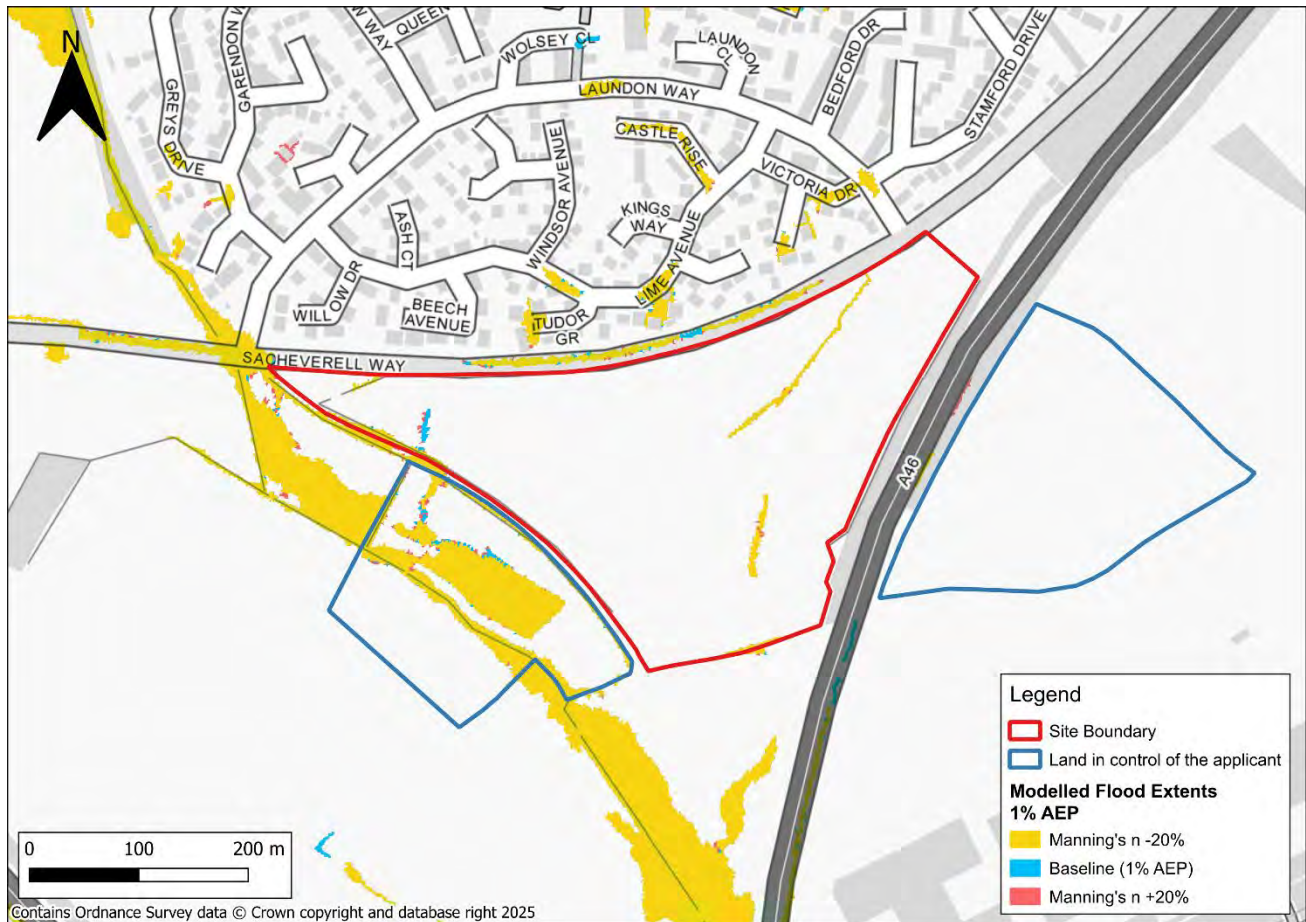


Figure D-1: Sensitivity to changes in roughness coefficients

D.2 Sensitivity to fixed runoff coefficient (FRC)

Figure D- 2 shows the impact on flood extents within the site when the fixed runoff coefficient values are increased and decreased by 20%. The model results indicate a minor increase in flood extent within the site when the fixed runoff coefficient was increased by 20%, while a 20% reduction in the fixed runoff coefficient is predicted to result in a corresponding reduction in flood extent. This suggests that the model is slightly sensitive to changes in fixed runoff coefficient values in this location.

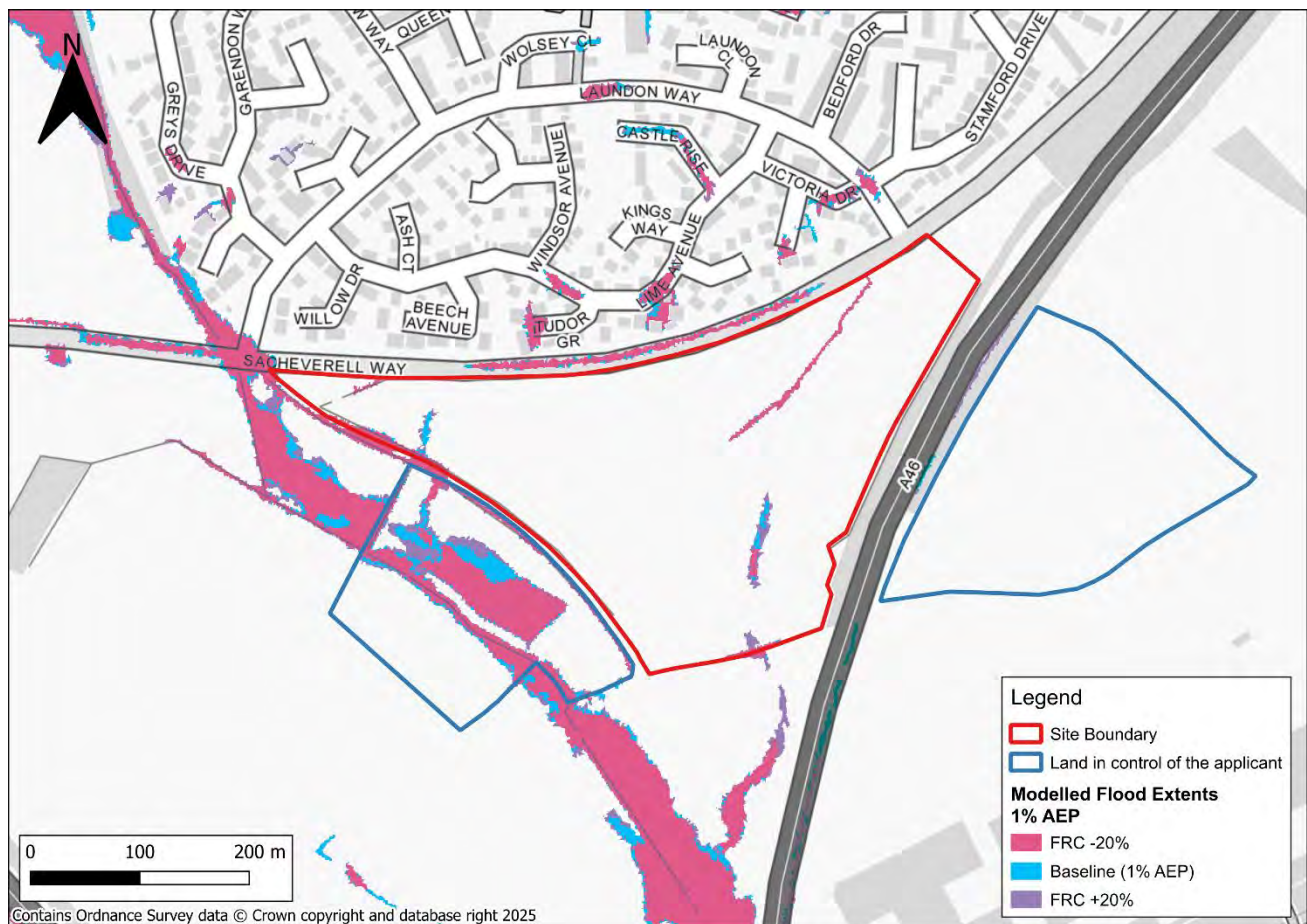


Figure D- 2: Sensitivity to changes in fixed runoff coefficient (FRC)

Offices at

Bristol
Coleshill
Doncaster
Dublin
Edinburgh
Exeter
Glasgow
Haywards Heath
Leeds
Limerick
Newcastle upon Tyne
Newport
Peterborough
Portsmouth
Saltaire
Skipton
Tadcaster
Thirsk
Wallingford
Warrington

Registered Office
1 Broughton Park
Old Lane North
Broughton
SKIPTON
North Yorkshire
BD23 3FD
United Kingdom

+44(0)1756 799919

info@jbaconsulting.com

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ISO 9001:2015
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ISO 27001:2013
ISO 45

E Culvert Daylighting

From: Jack Harriman Jack.Harriman@leics.gov.uk
Subject: RE: 2024s1306 Groby, Leicestershire - Culvert Response
Date: 17 December 2024 at 15:58
To: John Panesar John.Panesar@jbaconsulting.com

JH

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See the Phishing page on IMS on SP for more information about how to spot and report suspicious messages.

WARNING: The sender of this email could not be validated and may not match the person in the "From" field.

Hi John,

Yes this is what we discussed, I've just added a note in red to contextualise the discussion.

Jack Harriman
Senior Technician (Flood Risk Management)
Union Rep for UNISON
Environment & Transport Department
Leicestershire County Council
Tel: 0116 305 2261

www.flooding@leics.gov.uk

www.leicestershire.gov.uk/planning-and-environment/flooding-and-drainage

From: John Panesar <John.Panesar@jbaconsulting.com>
Sent: Tuesday, December 17, 2024 3:51 PM
To: Jack Harriman <Jack.Harriman@leics.gov.uk>
Subject: 2024s1306 Groby, Leicestershire - Culvert Response

CAUTION: This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Jack,

Further to our telephone conversation this afternoon, can you please confirm the following as discussed:

- If we did not daylight the watercourse culvert running through this site, the LLFA would not object to the planning application **based upon the status quo being maintained**.
- If we were to discharge surface water from the proposed development into the culverted watercourse, then LLFA would have grounds to ask for the culvert to be daylighted.
- The storm discharge from the proposed development would be acceptable into the southern watercourse (greenfield runoff rate)
- We will need to model the culvert to prove that it would not cause flooding to the proposed development.

Kind Regards,

John Panesar



John Panesar BEng(Hons) CEng MICE

Suite 1B, First Floor (Front Wing), Coleshill House, 1 Station Road,
Coleshill, B46 1HT

T: 01675 437750

M:07834586390



From: John Panesar
Sent: 17 December 2024 15:24
To: Jack Harriman <Jack.Harriman@leics.gov.uk>
Subject: FW: 2024s1306 Groby, Leicestershire - Culvert Response

Jack,

Can we arrange a Teams meeting to discuss the 'daylight' the existing culverted watercourses.

Can you please give me your availability and also any cost involved.

All the site and culvert details are indicated on the emails attached below.

Kind Regards,

John Panesar



John Panesar BEng(Hons) CEng MICE

Suite 1B, First Floor (Front Wing), Coleshill House, 1 Station Road,
Coleshill, B46 1HT

T: 01675 437750
M: 07834586390



From: Jack Harriman <Jack.Harriman@leics.gov.uk>
Sent: 29 October 2024 08:55
To: John Panesar <John.Panesar@jbaconsulting.com>
Subject: RE: 2024s1306 Groby, Leicestershire - Proposed Residential Development.

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Hi John,

Thank you for request for pre-application advice. Following review of the submitted documents, I can confirm the following.

The basin is not an asset Leicestershire County Council has produced, as such there is no design data held. From review, it seems likely that this serves the estate at southern Groby to the north of your site before it discharges into the unnamed ordinary watercourse to the southwest. Where there is insufficient information regarding any aspect of risk, the responsibility to investigate falls to the applicant.

Leicestershire County Council acting as Lead Local Flood Authority (LLFA) would be adverse to the proposal of the watercourse transecting the site being wholly diverted, especially if the function of the adjacent basin cannot be identified. It would be preferable that the watercourse be kept in situ and the development proposals designed around the existing land drainage. The LLFA's culverting policy, located in the County Council Flood Risk Management Strategy, welcomes proposals to 'daylight' existing culverted watercourses. Since the LLFA acts as the deciding body on alterations to existing ordinary watercourse under Section 23 of the Land Drainage Act 1991 it would be the ultimate assessor of any proposals here. As such, continued engagement would be welcomed regarding this matter.

To safeguard access to watercourses or ditches for future maintenance, inspection and improvement works in the future; clear margins should be provided from the top of banks. A minimum clear margin of 3m should be provided from each top of bank for watercourses less than 2 metres in width, a minimum clear margin of 4.5m should be provided for watercourses 2 metres or greater in width. Watercourses here would be considered the 'riparian responsibility' of the controlling landowner for any given land parcel a watercourse travels.

I hope this helps.

Jack Harriman
Senior Technician (Flood Risk Management)
Union Rep for UNISON
Environment & Transport Department
Leicestershire County Council
Tel: 0116 305 2261

www.flooding@leics.gov.uk

www.leicestershire.gov.uk/planning-and-environment/flooding-and-drainage

From: John Panesar <John.Panesar@jbaconsulting.com>
Sent: Tuesday, October 8, 2024 6:05 PM
To: flooding <flooding@leicester.gov.uk>
Subject: 2024s1306 Groby, Leicestershire - Proposed Residential Development.

Dear Sirs,

We are proposing a residential development consisting of 200 units and associated infrastructure in Groby.

The site has several watercourses running along the along the boundaries (south and east) and one watercourse running through the centre of the site, east to west.

The basin to the east of the site has a flood elevation basin – planning reference appears to be 79/01386/4-the central watercourse we believe feeds into the basin..

Location details are as follows:

Address (near) :

Sacheverell Way, Groby, Hinckley and Bosworth, Leicestershire, England, LE6 0YL, United Kingdom

Postcode (nearest) :

LE6 0YL

220 012

Grid Reference

SK 52641 06335

Grid Reference (6 figure)

SK526063

X (Easting) , Y (Northing)

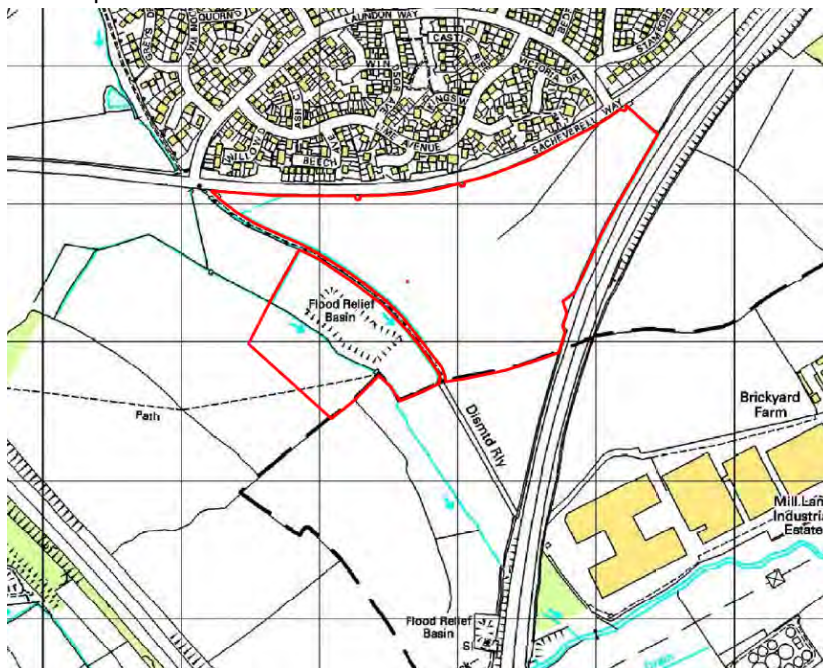
452641 , 306335

We have attached the following plans for your reference:

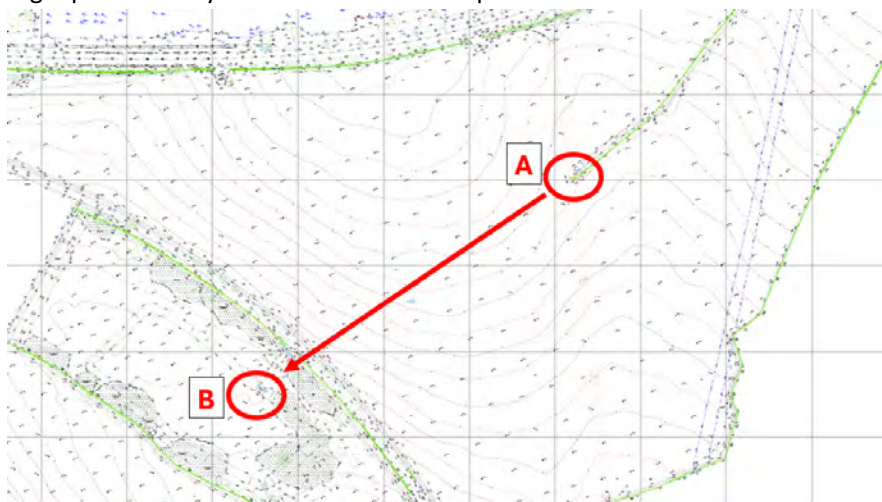
- Location Plan
- Masterplan
- Sewer Records
- Topographical Survey

Please find attached below further information for your reference:

The OS plan indicates a flood relief basin to the west of the site.



A geophysical survey was carried out which proved that the watercourse connects to the flood relief basin.



Basin outfall structure detail.





A planning layout indicating residential proposal and the watercourse diversion to the southern boundary existing watercourse.



We would be grateful for your advice/comments on the following items:

- Can you please explain or provide details of this flood relief basin and how the surrounding watercourses interact with it.
- Can we divert the watercourse running centrally towards the flood relief basin and connect to the southern watercourse.
- Who is responsible for these watercourses.
- What is the required easements for these watercourses.
- Would we need to open up the culverted watercourse and keep the same alignment.

We trust the above is satisfactory however if you require any further information please do not hesitate to

contact me.

Kind Regards,

John Panesar



John Panesar BEng(Hons) CEng MICE

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Coleshill, B46 1HT
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M: 07834586390



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