

BLOOR HOMES LTD

**LAND SOUTH OF MADDOXFORD LANE, BOORLEY
GREEN**

FLOOD RISK ASSESSMENT & DRAINAGE STATEMENT

**REPORT REF.
2501890_A-ACE-XX-XX-RP-C-0301**

February 2026

HEAD OFFICE (LONDON): 3rd Floor, The Hallmark Building, 52-56 Leadenhall Street, London, EC3M 5JE **T** | 020 7680 4088

SUFFOLK: Suffolk Enterprise Centre, 44 Felaw Street, Ipswich, IP2 8SJ **T** | 01473 407 321

ESSEX: 1 - 2 Crescent Court, Billericay, Essex, CM12 9AQ **T** | 01277 657 677

NOTTINGHAM: Office 3, Garage Studios, 41-43 St Mary's Gate, Lace Market, Nottingham, NG1 1PU **T** | 0115 697 0940

KENT: Suite 10, Building 40, Churchill Business Centre, Kings Hill, Kent, ME19 4YU **T** | 01732 752 155

BRISTOL: Temple Studios, Temple Gate, Bristol, BS1 6QA **T** | 0117 456 4994

EDINBURGH: Lochside Way Edinburgh EH12 9DT **T** | 0131 516 8111

MANCHESTER: Chancery Place, 50 Brown Street, Manchester, M2 2JG **T** | 020 7680 4088

GLASGOW: 22 Montrose Street, Glasgow, G1 1RE **T** | 0141 648 7670

Contents

1.0	Introduction	1
2.0	Baseline Conditions	2
	Existing Site	2
	Development Proposals	3
	Hydrology.....	3
	Ground Conditions - British Geological Survey.....	4
	Ground Conditions – Soil Investigation	5
	Ground Conditions – Department for Environment, Food & Rural Affairs (DEFRA)	6
	Existing Sewer Infrastructure	6
3.0	Policy Context	7
	National Planning Policy	7
	Flood and Water Management Act	8
	Sustainable Drainage Systems – Non-statutory technical standard for sustainable drainage systems (March 2015)	8
	Climate Change Allowances	9
	Sequential and Exception Tests	9
4.0	Sources of Flooding	12
	Planning Practice Guidance (PPG)	12
	Flood Zone Designation	12
	Fluvial/Tidal Flood Risk.....	13
	Surface Water Flooding	13
	Groundwater Flooding	15
	Sewer Flooding	18
	Artificial Sources	18
5.0	Surface Water Drainage Strategy	19
	Proposed Sustainable Drainage Systems (SuDS)	19
	SuDS Opportunities and Constraints	20
	Proposed Surface Water Drainage Strategy.....	21
	Surface Water Runoff Quality	23
	Exceedance Routes.....	23
	Maintenance During Construction	24
	Future Maintenance	24
6.0	Foul Water Drainage Strategy	25
7.0	Conclusion.....	26

Figures

Figure 2-1:	Site Location (Source: Google Maps)
Figure 2-2:	Land Use and Access Plan (Source: Thrive Architects)
Figure 2-3:	Local Hydrology (Source: DEFRA Magic Map)
Figure 2-4:	Topography (Source: Encompass Geospatial)
Figure 2-5:	Sewer Records (Source: Southern Water)
Figure 4-1:	Flood Map for Planning (Source: Environment Agency)
Figure 4-2a:	RoSFW – 1 in 30 year Extent (Source: Environment Agency)
Figure 4-2b:	RoSFW – 1 in 100 year Extent (Source: Environment Agency)
Figure 4-2c:	RoSFW – 1 in 1000 year Extent (Source: Environment Agency)
Figure 4-3:	Recorded Flood Outlines (Source: EBC Level 1 SFRA – Part 8)
Figure 4-4:	Groundwater Flooding Map (Source: EBC Level 1 SFRA – Part 8)
Figure 4-5:	Groundwater Flooding Vulnerability (Source: DEFRA Magic Map)

Tables

Table 3-1:	East Hampshire Management Catchment peak rainfall allowances
Table 3-2:	Flood Risk Vulnerability Classification
Table 3-3:	Flood Risk Vulnerability and Flood Zone Compatibility
Table 5-1:	SuDS Opportunities & Constraints
Table 5-2:	Drainage Strategy Catchment Areas Summary Table
Table 5-3:	Attenuation Storage Summary

Appendices

Appendix A:	Land Use and Access Plan
Appendix B:	Topographical Survey
Appendix C:	Southern Water Sewer Records
Appendix D:	Greenfield Runoff Calculations
Appendix E:	HCC LLFA Meeting Minutes
Appendix F:	Drainage Calculations
Appendix G:	Concept Drainage Strategy
Appendix H:	SuDS treatment Methods
Appendix I:	Maintenance Plan
Appendix J:	Pre-development Foul Capacity Check

Document Control Sheet

REV	ISSUE PURPOSE	AUTHOR	CHECKED	APPROVED	DATE
A	DRAFT FOR COMMENT	DR	TR	AW	12.12.2025
B	DRAFT	DR	DR	AW	18.12.2025
C	DRAFT	AW	TR	AW	06.02.2026
D	DRAFT	AW	TR	AW	06.02.2026
E	DRAFT	TR	TR	AW	17.02.2026

Revision E: Report updated for draft purposes.

Distribution

This report has been prepared for the exclusive use of BLOOR HOMES LTD. It should not be reproduced in whole or in part, or relied upon by third parties, without the express written authority of Ardent Consulting Engineers.

1.0 Introduction

- 1.1. Ardent Consulting Engineers (hereafter referred to as Ardent) has been appointed by Bloor Homes Ltd to carry out a Flood Risk Assessment (FRA) and Drainage Statement to support a planning application for development at Land south of Maddoxford Lane (herein referred to as 'the Site').
- 1.2. Outline planning application with all matters reserved (except the main points of access) for the demolition of a residential dwelling (Use Class C3), removal of a mobile home, and demolition of existing buildings associated with a motor vehicle storage and motor vehicle body parts and scrap material business and the construction of up to 280 dwellings (Use Class C3), including affordable dwellings, and associated provision of informal and formal public open space, together with associated highways, landscape, earth works and level changes, foul and surface water drainage facilities, utilities provision and other associated and necessary infrastructure works.
- 1.3. The planning application is submitted to Eastleigh Borough Council (EBC) as the Local Planning Authority (LPA). Hampshire County Council (HCC) is the Lead Local Flood Authority (LLFA).
- 1.4. The FRA has been prepared with specific reference to the requirements of the National Planning Policy Framework (NPPF) (December 2024, as amended February 2025) and the Planning Practice Guidance (PPG), which superseded the Technical Guidance to the NPPF, in March 2014. The report demonstrates that the site can be suitably redeveloped whilst complying with the requirements of the NPPF in terms of Flood Risk.
- 1.5. The NPPF requires a Flood Risk Assessment to be carried out for all developments greater than 1ha in Flood Zone 1.
- 1.6. A Drainage Statement has also been included within this document to demonstrate how foul and surface water flows from the development will be managed appropriately.

2.0 Baseline Conditions

Existing Site

2.1. The Site is located south of Maddoxford Lane, Boorley Green, SO32 2DB. The Site is centred on National Grid Reference SU 51400 14200 (451428 mN, 114240mE). The entire site, including the access road, is approximately 14.31 hectares. Refer to **Figure 2-1** below.

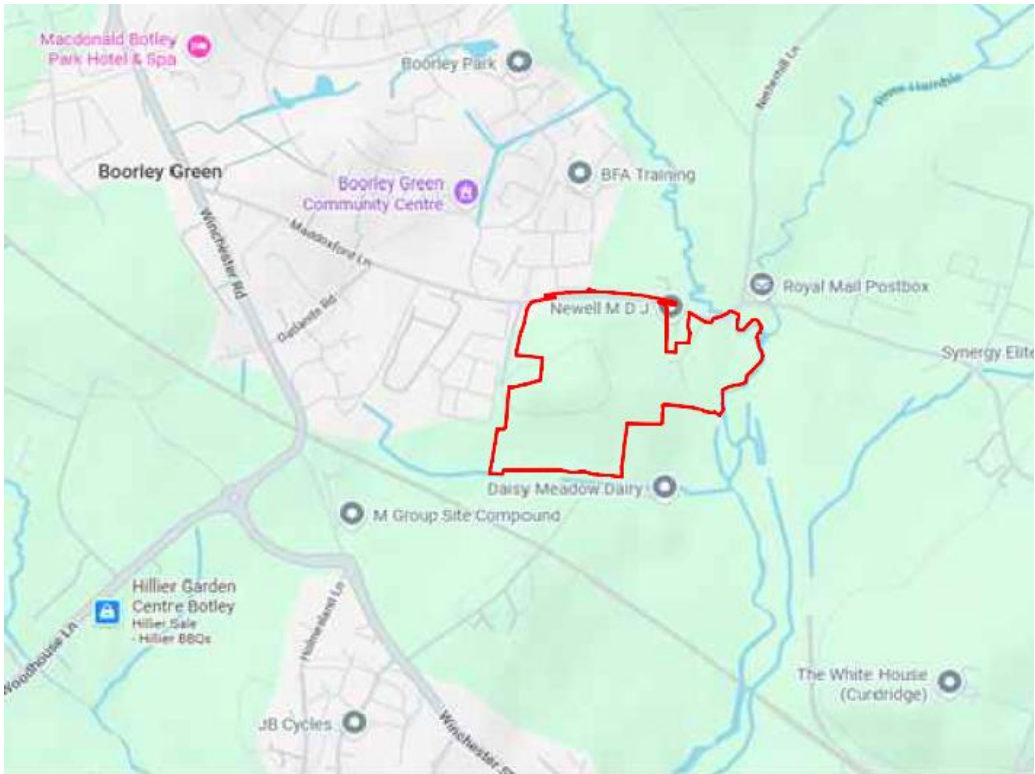


Figure 2-1: Site Location (Source: Google Maps)

- 2.2. The Site is bound by Maddoxford Lane to the north of the Site, where access will be provided. The east of the Site is bounded by existing hedgerows/woodland and the River Hamble. Existing buildings at Maddoxford Farm are located outside the application boundary to the north-east. The south of the Site is bounded by greenfield land and a tree belt with an existing watercourse. The west/north-west of the Site sits adjacent to a new housing development currently under construction, as well as an existing field.
- 2.3. The Site currently comprises predominantly comprises agricultural land. The site also includes an existing residential dwelling and mobile home, as well as a car workshop and vehicle restoration area to the north-east.

Development Proposals

2.4. The proposed development seeks to provide up to 280 dwellings (use Class C3) together with access, public open space, parking, landscaping and associated infrastructure. The Land Use and Access Plan is illustrated in **Figure 2-2** below with the full drawing provided in **Appendix A**.



Figure 2-2: Land Use and Access Plan (Source: Thrive Architects)

Hydrology

2.5. The River Hamble to the east is identified as a Statutory Main River by the Environment Agency (EA). An unnamed tributary to the south appears to connect into the River Hamble. Refer to **Figure 2-3** below.

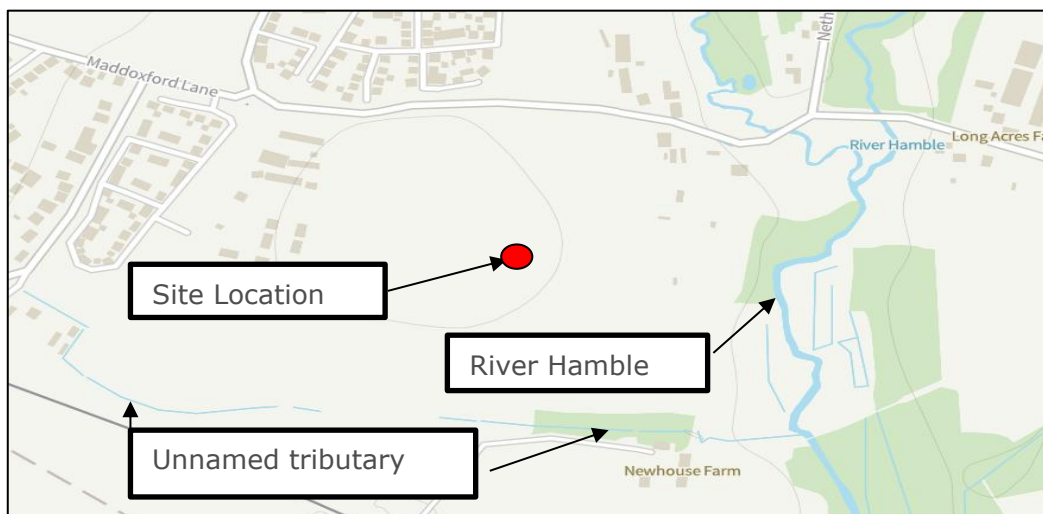


Figure 2-3: Local Hydrology (Source: DEFRA Magic map)

- 2.6. A topographical survey of the area outlined for the proposed development and immediate vicinity is included of the development proposals within **Appendix B**.
- 2.7. The highest point within the proposed development area is approximately 26.24m AOD, located at the central-western portion of the Site. Levels fall from this high point towards the north, east, and south reaching a minimum of around 6.56m AOD at the eastern corner adjacent to the River Hamble. This represents an overall difference in elevation of approximately 20m across the site, with gradients generally ranging between 1 in 60 and 1 in 12. Refer to **Figure 2-4** below.

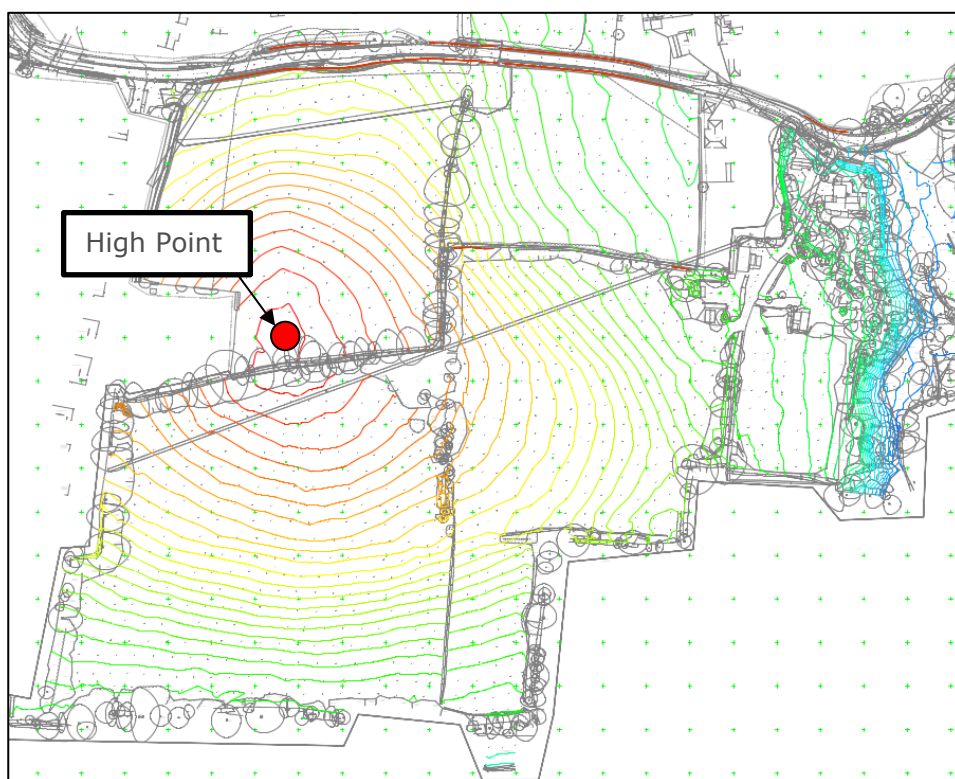


Figure 2-4: Topography (Source: Encompass Geospatial)

Ground Conditions - British Geological Survey

- 2.8. According to BGS mapping, the Site appears to be located on Wittering Formation, comprising of sand, silt and clay. The superficial deposits appear to be River Terrace Deposits, comprising of sand and gravel.
- 2.9. According to BGS mapping, the Site appears to be located on Wittering Formation, comprising of sand, silt and clay. The superficial deposits appear to be River Terrace Deposits, comprising of sand and gravel.

- 2.10. According to BGS mapping, there is also a small area of Alluvium superficial deposit, comprising of clay, silt, sand and gravel towards the River Hamble. Due to the presence of clay, it is anticipated that there is limited potential for infiltration on site.
- 2.11. Available borehole data from BGS within the Site shows high groundwater levels. BGS Borehole Reference: SU51SW105 located in the northwest recorded levels of water struck from 1.6m to 8mbgl. It should be noted there is no reference to where the boreholes pits were specifically located.

Ground Conditions – Soil Investigation

- 2.12. Ground investigations were carried out by Geo-Environmental to investigate the underlying ground conditions at the Site.
- 2.13. The Report Identified that the ground conditions encountered conform to that anticipated from the examination of the geology map. A Capping of Topsoil/Made Ground was noted to overlie the River Terrace Deposits.
- 2.14. The Topsoil was encountered across the Site comprising of silt, sand and gravel – colouration dark brown and brown. This material is typical of topsoil disturbed by normal agricultural practices.
- 2.15. The Made Ground was encountered across the Site comprising of grey silty sand with limestone gravel and occasional plastic and metal. This material is typical of topsoil disturbed by normal agricultural practices.
- 2.16. The River Terrace Deposits across the Site comprising of firm to very stiff orange and grey and orange brown clay with varying proportions of silt, sand and gravel. This was located throughout the southern and eastern fields of the Site.
- 2.17. There is also a London Clay Formation across the Site comprising of firm to very stiff orange and grey clay with varying proportions of silt and sand. Located on the south eastern field of the Site only.

Ground Conditions – Department for Environment, Food & Rural Affairs (DEFRA)

- 2.18. According to DEFRA’s MAGIC Map, the Site is underlain by a ‘Secondary A’ Aquifer in both the bedrock and superficial drift deposits. A ‘Secondary A’ Aquifer comprises permeable geological strata capable of supporting local water supplies and providing an important contribution to river baseflow. In light of this designation, infiltration techniques are not considered appropriate within the proposed drainage strategy. Instead, the design should incorporate a suitable SuDS treatment train to ensure adequate water quality management prior to discharge.
- 2.19. According to the DEFRA’s ‘MAGIC Map’, the Site is outside the Source Protection Zone (SPZ). Therefore, there is **no risk** of contamination to possible drinking water from groundwater sources such as but not limited to, wells, boreholes and springs.

Existing Sewer Infrastructure

- 2.20. The topographical survey of the Site and surrounding area has picked up existing ditches north of the site, which likely serve Maddoxford Lane.
- 2.21. Public sewers have been investigated through a Southern Water (SW) asset location search, refer to **Figure 2-5** below and the full record is within **Appendix C**. The search confirmed the presence of a 225mm diameter surface water sewer and a 150mm diameter foul water sewer within Maddoxford Lane, approximately 250m west of the site access.

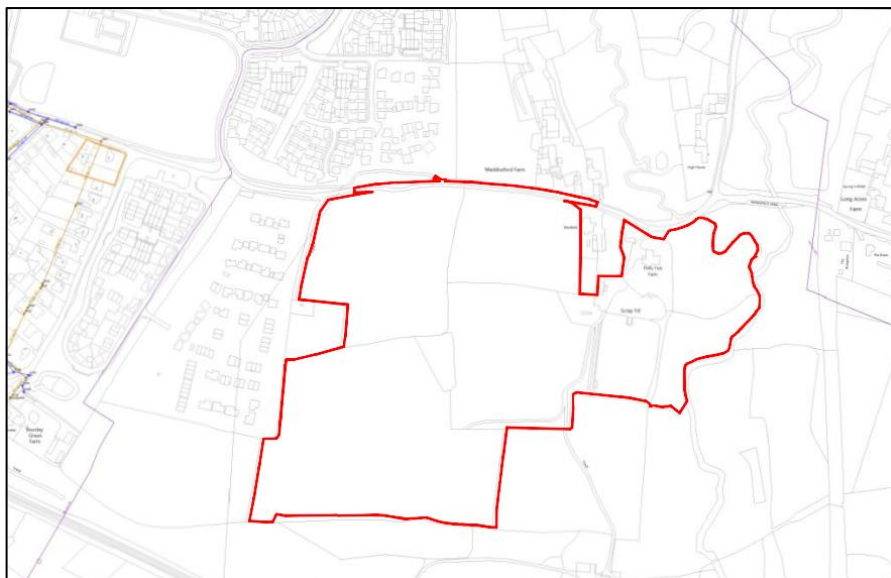


Figure 2-5: Sewer Records (Source: Southern Water)

3.0 Policy Context

National Planning Policy

- 3.1. Chapter 14 of the NPPF sets out the national planning policy relating to flood risk management. It states all plans should apply a sequential, risk-based approach to the location of development – taking into account all sources of flood risk and the current and future impacts of climate change – to avoid where possible, flood risk to people and property. Proposals should do this and manage residual risk, by:
- a) applying the sequential test, and if necessary, the exception test;
 - b) safeguarding land from development that is required for current and future flood management;
 - c) using opportunities provided by new development and improvements in green and other infrastructure to reduce the causes and impacts of flooding (making as much use as possible of natural flood management techniques as part of an integrated approach to flood risk management); and
 - d) where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to relocate development including housing, to more sustainable locations.
- 3.2. The NPPF states at footnote 63 that *"A site-specific flood risk assessment The NPPF states at footnote 63 that "A site-specific flood risk assessment should be provided for all development in Flood Zones 2 and 3. In Flood Zone 1, an assessment should accompany all proposals involving: sites of 1 hectare or more; land which has been identified by the Environment Agency as having critical drainage problems; land identified in a strategic flood risk assessment as being at increased flood risk in future; or land that may be subject to other sources of flooding, where its development would introduce a more vulnerable use."*
- 3.3. The Planning Practice Guidance (PPG), last updated in September 2025, provides the methodology for undertaking the Sequential and Exception Tests. The Sequential Test should be applied in areas that are known to be at risk now or in the future from any source of flooding. As detailed within this report, all sources of flood risk affecting the proposed areas of development are assessed to be low or very low. On this basis, and in accordance with the latest PPG, it is not anticipated that the Sequential Test is required.

Flood and Water Management Act

- 3.4. The Flood and Water Management Act places a duty on all flood risk management authorities to co-operate with each other. The Act also provides lead local flood authorities (LLFA) and the Environment Agency (EA) with a power to request information required in connection with their flood risk management functions.
- 3.5. The LLFAs are responsible for developing, maintaining, and applying a strategy for local flood risk management in their areas, and for maintaining a register of flood risk assets. They also have lead responsibility for managing the risk of flooding from surface water, groundwater, and ordinary watercourses. As part of this, LLFAs are responsible for maintaining a register of assets that are significant impact on flooding within their area.

Sustainable Drainage Systems – Non-statutory technical standard for sustainable drainage systems (March 2015)

- 3.6. The Non-statutory technical standards for sustainable drainage systems were published in March 2015. They should be used in conjunction with the Planning Practice Guidance. In addition, the Best Practice Guidance for the Non-statutory technical standards were published in July 2015 by the Local Authority SuDS Officer Organisation (LASOO).
- 3.7. The Local Planning Authority (LPA) may set local requirements for planning permission that have the effect of more stringent requirements than these non-statutory technical standards.
- 3.8. In addition, SuDS should be designed in accordance with CIRIA 753 SuDS Manual, which represents current best practice.
- 3.9. The design team are aware of the updated guidance 'Sustainable Drainage Systems – Technical Standards for Sustainable Drainage Systems (June 2025)', which supersedes this document. However, following initial discussions with the LLFA, the March 2015 standards have been agreed and used at this stage.

Climate Change Allowances

3.10. The Planning Practice Guidance states that to allow for the predicted impacts of climate change on Peak Rainfall Allowances, consideration should be given to the catchment within which the site is located.

3.11. The Planning Practice Guidance states that to allow for the predicted impacts of climate change on surface water runoff within the catchment, the following increases detailed in **Table 3-1** below to rainfall intensity should be allowed for. For development with a lifetime up to or beyond 2100, the upper end allowances should be used, as shown.

Table 3-1: East Hampshire Management Catchment peak rainfall allowances

Colne Management Catchment	Higher Central	Upper End
3.3% annual exceedance rainfall event (1 in 30yr)		
Total potential change 2050s	20%	35%
Total potential change 2070s	25%	40%
1% annual exceedance rainfall event (1 in 100yr)		
Total potential change 2050s	20%	40%
Total potential change 2070s	25%	45%

Sequential and Exception Tests

3.12. The aim of the Sequential Test is to steer new development to areas with the lowest risk of flooding from any source. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding. The strategic flood risk assessment will provide the basis for applying this test. The sequential approach should be used in areas known to be at risk now or in the future from any form of flooding.

3.13. According to Table 2 of the Planning Practice Guidance, reiterated in **Table 3-2** below, the proposed residential development for the Site is classified as '**More Vulnerable**'.

Table 3-2: Flood Risk Vulnerability Classification

Classification	Definition
Essential Infrastructure	Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk. Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood. Wind turbines.
Highly Vulnerable	Police stations, ambulance stations and fire stations and command centres and telecommunications installations required to be operational during flooding. Emergency dispersal points. Basement dwellings. Caravans, mobile homes and park homes intended for permanent residential use. Installations requiring hazardous substances consent⁴. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as "essential infrastructure").
More Vulnerable	Hospitals. Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels. Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels. Non-residential uses for health services, nurseries and educational establishments. Landfill and sites used for waste management facilities for hazardous waste⁶. Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.
Less Vulnerable	Police, ambulance and fire stations which are not required to be operational during flooding. Buildings used for shops, financial, professional and other services, restaurants and cafes, hot food takeaways, offices, general industry, storage and distribution, non-residential institutions not included in "more vulnerable", and assembly and leisure. Land and buildings used for agriculture and forestry. Waste treatment (except landfill and hazardous waste facilities). Minerals working and processing (except for sand and gravel working). Water treatment works which do not need to remain operational during times of flood. Sewage treatment works (if adequate measures to control pollution and manage sewage during flooding events are in place).
Water-compatible development	Flood control infrastructure. Water transmission infrastructure and pumping stations. Sewage transmission infrastructure and pumping stations. Sand and gravel working. Docks, marinas and wharves. Navigation facilities. Ministry of Defence defence installations. Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location. Water-based recreation (excluding sleeping accommodation). Lifeguard and coastguard stations. Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms. Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.

3.14. As the Site is located within **Flood Zone 1** and the proposed development is classified as **‘More Vulnerable’** in accordance with the Planning Practice Guidance, these inputs can be assessed using the Flood Risk Vulnerability and Flood Zone Compatibility Table. **Table 3-3** below cross-references these classifications and confirms that the Exception Test is **not** required for this type of development.

Table 3-3: Flood Risk Vulnerability and Flood Zone Compatibility

Flood Zones	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	✗	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	✗	✗	✗	✓ *

Key; ✓ Exception test is not required, ✗ Development should not be permitted, † Policy nuance / specific conditions apply for Zone 3a, * Policy nuance / specific conditions apply for Zone 3b.

4.0 Sources of Flooding

Planning Practice Guidance (PPG)

4.1. The PPG requires flood risk from the following sources to be assessed, each of which are assessed separately below:

- Fluvial sources (river flooding);
- Tidal sources (flooding from the sea);
- Groundwater sources;
- Pluvial sources (flooding resulting from overland flows);
- Sewer Flooding;
- Artificial sources, canals, reservoirs etc.; and
- It also requires the risk from increases in surface water discharge to be assessed (surface water management).

Flood Zone Designation

4.2. Flood Zones refer to the probability of river and sea flooding, ignoring the presence of defences. The PPG defines Flood Zones as follows:

- **Flood 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)
- **Flood 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).
- **Flood 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)
- **Flood 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).

Fluvial/Tidal Flood Risk

- 4.3. According to the Environment Agency's indicative flood map for planning, as illustrated in **Figure 4-1** below, the entire area designated for development is located within Flood Zone 1, defined as having a **low** risk of flooding. It's noted that the eastern corner of the Site is in Flood Zone 2 & 3, however this area is to remain as existing green space, therefore not impacting existing flood risk.

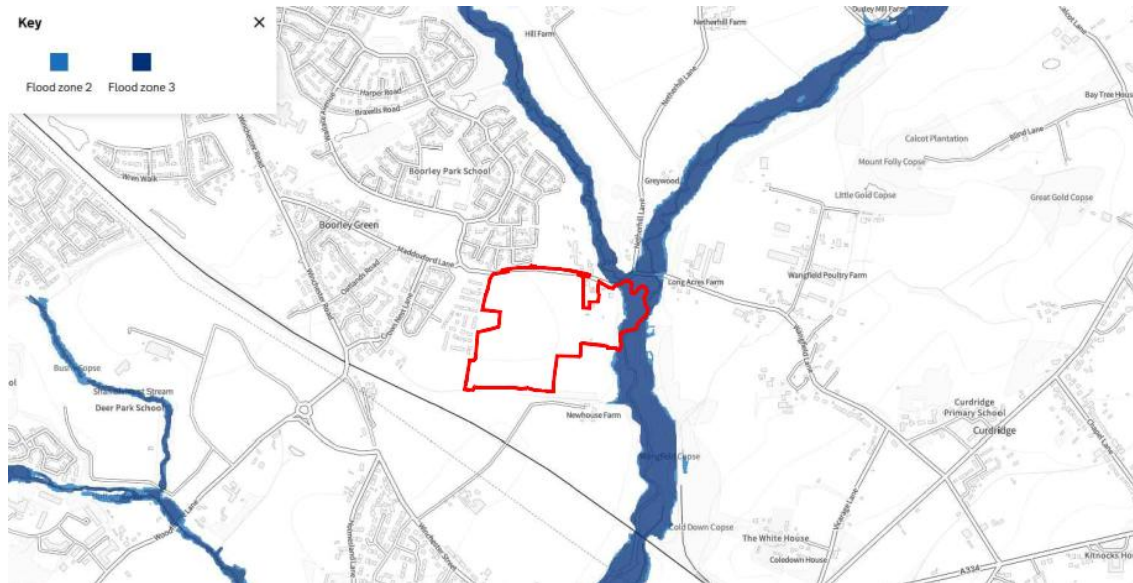


Figure 4-1: Flood Map for Planning (Source: Environment Agency)

- 4.4. Therefore, fluvial flood risk at the Site is assessed to be **low**. As the site is located inland, with the lowest level on site 6.56m AOD, tidal flood risk has been discounted.

Surface Water Flooding

- 4.5. The EA Risk of Surface Water Flooding (RoSFw) mapping shows that the majority of the site, is at a very low risk of flooding from surface water (**Figure 4-2a, 4-2b & 4-2c**), defined as land which has an annual chance of flooding of less than 0.1%.

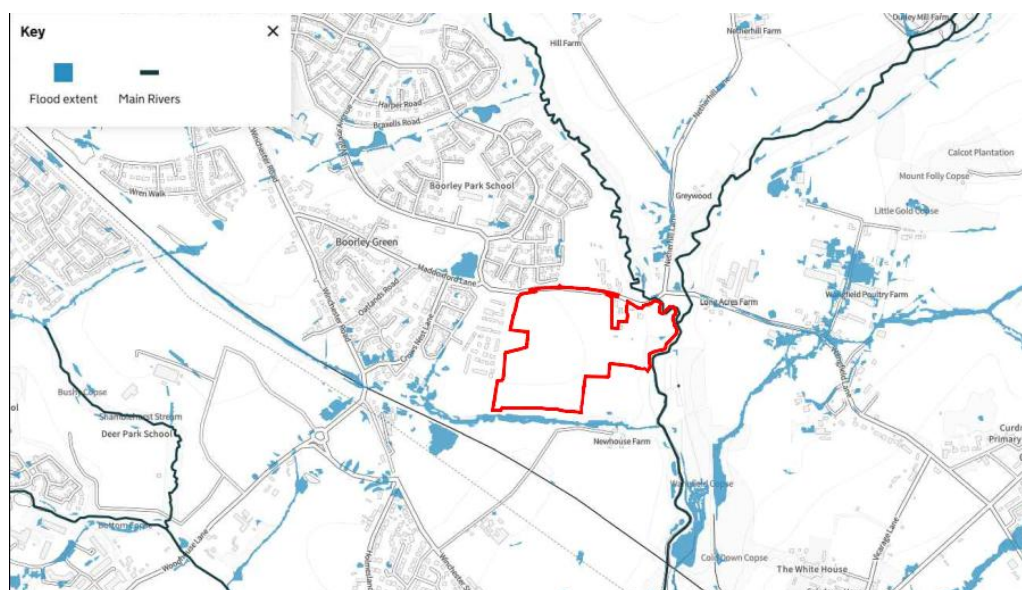


Figure 4-2a: RoSFW – 1 in 30 year Extent (Source: Environment Agency)

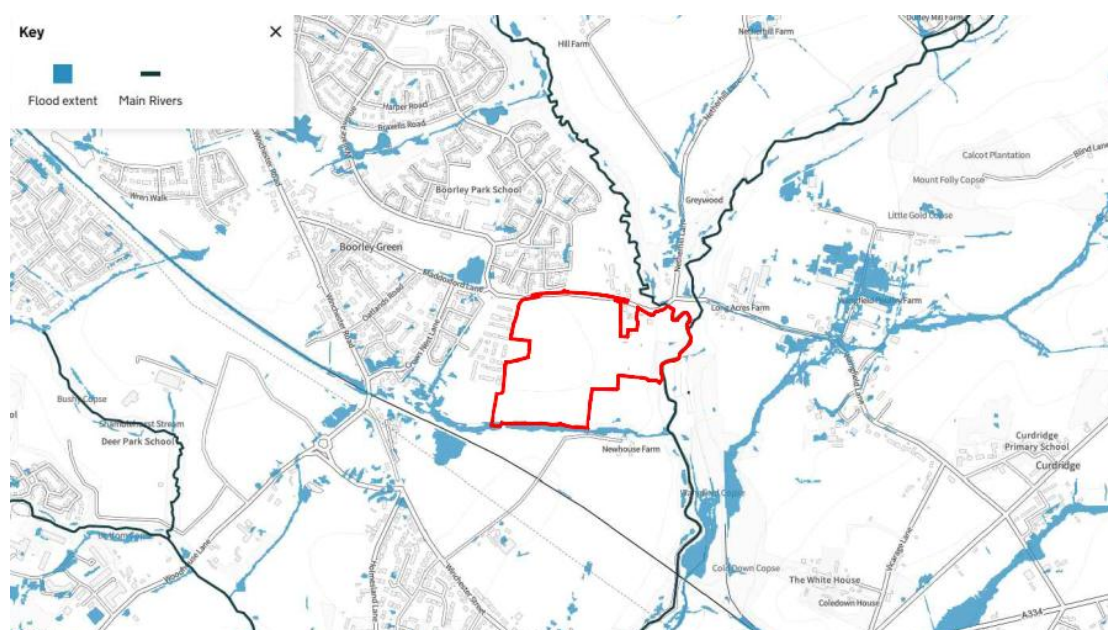


Figure 4-2b: RoSFW – 1 in 100 year Extent (Source: Environment Agency)

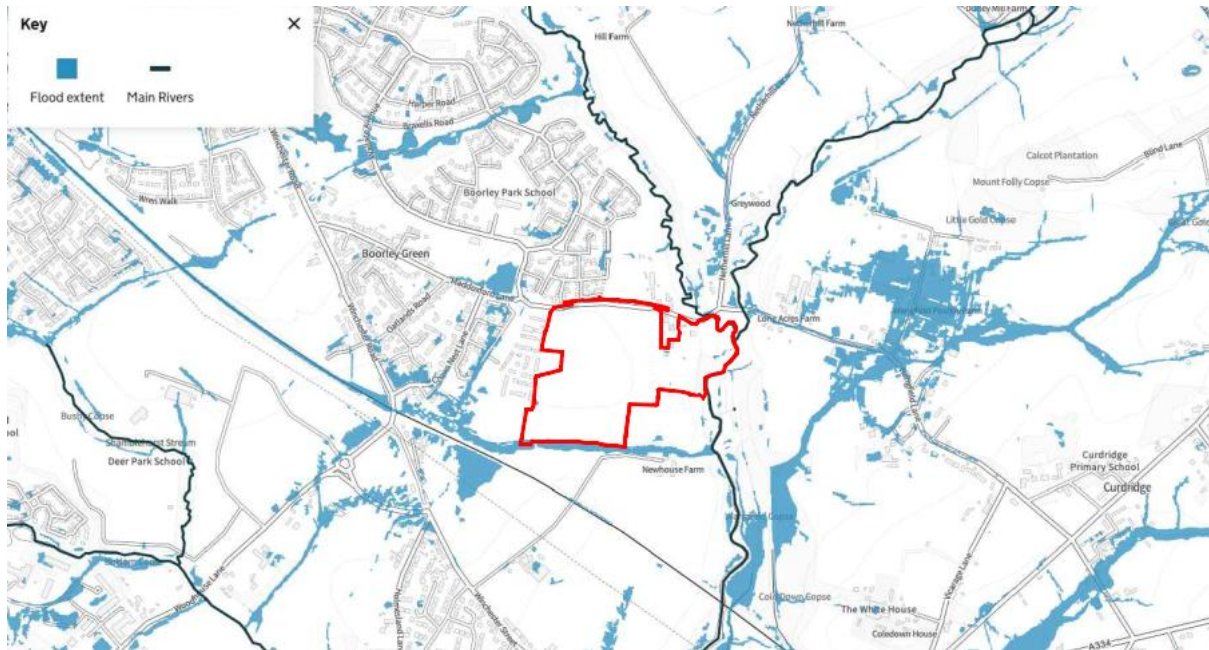


Figure 4-2c: RoSFW – 1 in 1000 year Extent (Source: Environment Agency)

Groundwater Flooding

4.6. A review of Eastleigh Borough Council's (EBC) Strategic Flood Risk Assessment (SFRA) shows the underlying areas of concern for flooding. The following documents have been reviewed on EBC's website.

- Level 1 SFRA - Part 1: Main report AECOM 2024
- The Level 1 SFRA - Part 8: Eastleigh Borough Council, AECOM 2023

4.7. The recorded flood outlines data from Appendix A, Figure 2 of the Level 1 SFRA – Part 8 is shown below in **Figure 4-3**. There appears to be a historic Southern Water observed flooding approximately 400m west of the site. Both the Site and the nearby flooding drain toward the River Hamble, but the site sits at levels that prevent floodwater from entering it. The drainage design includes on-site storage and restricts discharge to rates below current runoff levels. This ensures the development will not add to downstream flood pressures and offers a degree of betterment to the wider catchment by reducing peak flows to the river.

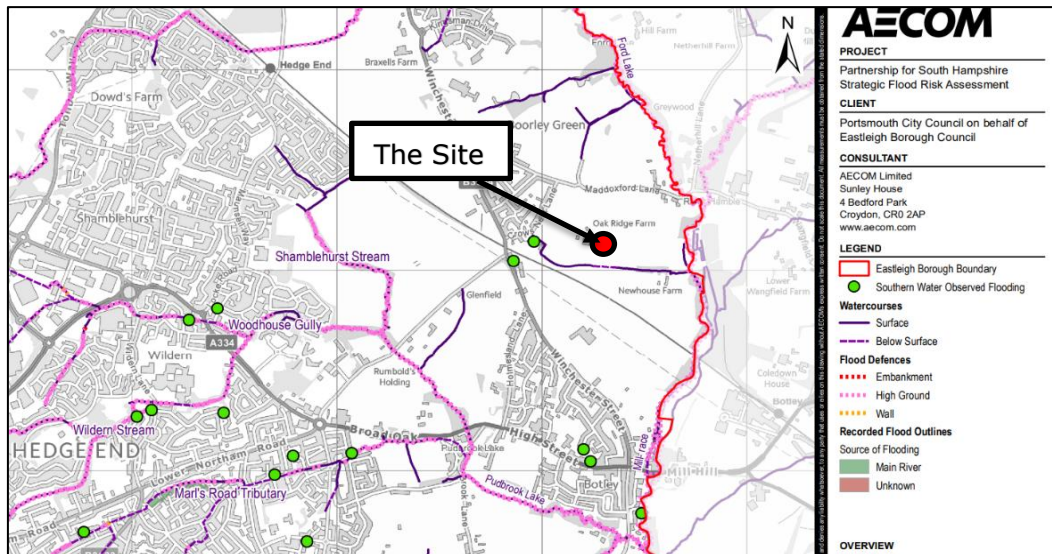


Figure 4-3: Recorded Flood Outlines (Source: EBC Level 1 SFRA – Part 8)

4.8. Appendix A, Figure 4 of the Level 1 SFRA – Part 8 gives an overview of areas susceptible of groundwater flooding. The extract is shown in **Figure 4-4** indicating the Site has a $\geq 25\%$ <50% risk for groundwater flooding.

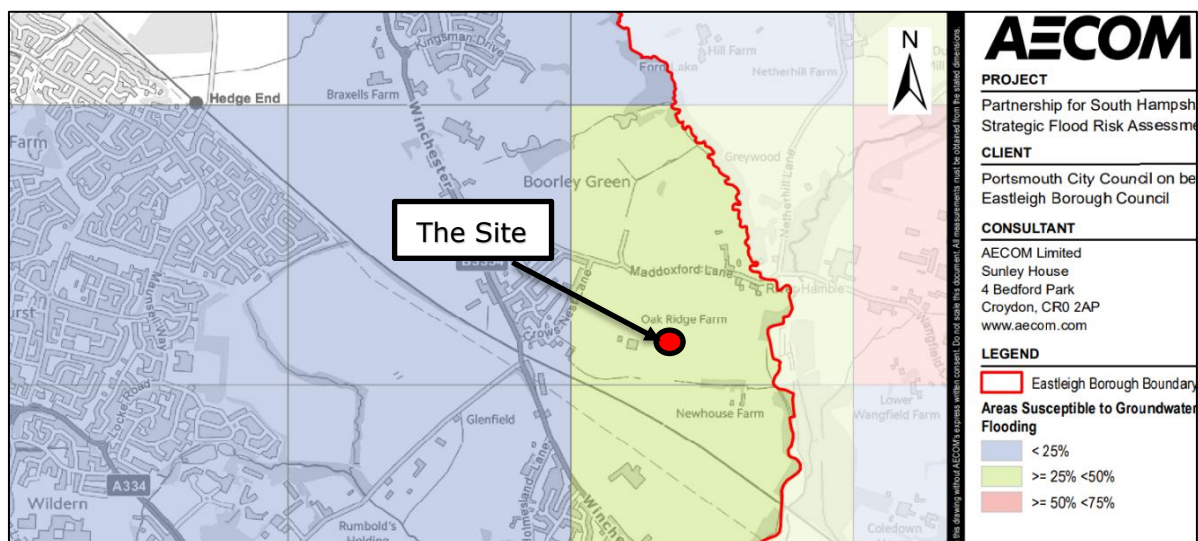


Figure 4-4: Groundwater Flooding Map (Source: EBC Level 1 SFRA – Part 8)

4.9. Groundwater flood risk at the Site can therefore be classed as **medium** according to EBC's SFRA. However, the SFRA also notes that this mapped information should not be relied upon in isolation at the planning stage. Instead, it should be reviewed alongside the more dynamic data sets, which assesses groundwater flood risk at a site-specific scale, rather than the broader 1 km² resolution used in the SFRA.

4.10. Further investigation into groundwater flooding within the more dynamic data set on DEFRA 'MAGIC Map' shows the Site is located solely within the **medium** category for groundwater vulnerability, see **Figure 4-5** below.



Figure 4-5: Groundwater Flooding Vulnerability (Source: DEFRA Magic Map)

4.11. Groundwater was also encountered in several exploratory locations — including boreholes and trial pits — during the ground investigation. Based on the observed ground conditions, some of these groundwater strikes are likely to represent perched or trapped water, resulting from the intermediate London Clay layer preventing downward percolation into the underlying Wittering Formation.

4.12. Although Groundwater Vulnerability has been reviewed as **medium** risk, this does not preclude development – subject to proportionate mitigation measures. These include, but are not limited to;

- Avoid infiltration drainage design;
- Incorporate lined SuD features; and
- Appropriate SuDS treatment train.

4.13. As the Site is considered to be of medium risk, it will also be appropriate to undertake site-specific validation. Further groundwater testing will need to be undertaken to confirm seasonal groundwater levels, inform foundation design and shape the final drainage design.

Sewer Flooding

4.14. The public surface water sewers surrounding the Site are much lower than the proposed development and will not convey water into the Site.

4.15. Sewer flooding in Eastleigh has been expressed in paragraph 4.7 and within **Figure 4-3** above – flooding from sewers has been observed from a Southern Water asset 400m west of the site.

4.16. A review of the area's levels has determined that the risk of site flooding due to sewer failure is **low**, as Maddoxford Lane and other associated roads will direct flows away from the site and there are no sewers within the site boundary.

Artificial Sources

4.17. The Environment Agency's flood maps from reservoirs indicate that the Site is not within an area at risk of reservoir flooding. Consequently, the risk of flooding from reservoirs is assessed to be **negligible**.

5.0 Surface Water Drainage Strategy

- 5.1. DEFRA's Non-statutory technical guidance for Sustainable Drainage Systems and CIRIA Guidance C753 "The SuDS Manual" have been used to determine the appropriate SuDS Strategy, which considers the spatial and environmental constraints of the Site.
- 5.2. In accordance with PPG, an allowance of 45% for the effects of climate change will achieve the policy requirements for the proposed development. Refer to **Table 3-1** for further information.

Proposed Sustainable Drainage Systems (SuDS)

- 5.3. In accordance with the CERIA SuDS Guidance, surface water runoff should be disposed of according to the following hierarchy;
- into the ground (infiltration);
 - to a surface water body;
 - to a surface water sewer, highway drain, or another drainage system;
 - to a combined sewer.

Infiltration

- 5.4. As discussed in **Section 2**, governing data indicates that the Site is predominantly underlain by the Wittering Formation, comprising sand, silt, and clay. Superficial deposits across the majority of the Site consist of River Terrace Deposits, made up of sand and gravel. Additionally, a small area near the River Hamble contains Alluvium, comprising clay, silt, sand, and gravel. Given the presence of clay within both the bedrock and superficial deposits, infiltration potential across the Site is anticipated to be limited. In addition, although there are signs of infiltration in pockets, the area with infiltration is in an area of contamination and due to the area being located within a Secondary A Aquifer, infiltration has been ruled out to reduce the risk of contamination to the aquifer. Therefore, it is appropriate to look to the next stage of the SuDS hierarchy.

To a Surface Water Body

- 5.5. Multiple surface water bodies are located within or adjacent to the Site.
- To the north, a highway drainage ditch currently serves only Maddoxford Lane and must not receive any additional flows to avoid overloading the system.

- To the east lies the River Hamble, which currently receives the majority of the site's surface water runoff. This will be the preferred discharge location to maintain existing natural flow paths in a more formalised and controlled manner.
- To the south, an existing unnamed tributary is located just outside the site boundary. This is also a potential discharge location, allowing natural flow routes to be retained while providing a more formalised outfall arrangement.

To a Surface Water Sewer

- 5.6. The closest Southern Water surface water sewer is circa 250m west of the Site, as discussed in paragraph 2.21. It is not considered feasible nor preferable to connect to this when there are existing rivers/watercourses available for surface water discharge within the vicinity of the Site.

To a Combined Sewer

- 5.7. There are no existing combined sewers within the vicinity of the Site.

SuDS Opportunities and Constraints

- 5.8. The constraints and opportunities for the use of SuDS techniques are appraised using the Management Train approach outlined in CIRIA C753 'The SuDS Manual' in **Table 5-1** below.

Table 5-1: SuDS Opportunities & Constraints

Type:	Infiltration Devices (Source Control)
Constraints:	Ground Conditions do not allow for infiltration.
Opportunities:	None due to geological constraints.
Type:	Lined Permeable Paving (Source Control)
Constraints:	The effectiveness of Permeable Paving is dependent upon regular maintenance, in private areas this cannot be assured. It is the intention to construct the estate roads serving the development to an adoptable standard, which will limit the use of lined permeable paving.
Opportunities:	None within the main carriageways due to potential adoption issues and risks associated with maintenance.
Type:	Rainwater Harvesting (Source Control)
Constraints:	The benefits of rainwater harvesting on a specific design storm event cannot be quantified, due to the seasonal availability of storage within the structure.
Opportunities:	Opportunities in amenity areas to provide harvesting features such as water butts exist. However, it is difficult to quantify contribution, and therefore not included within calculations as part of this surface water drainage strategy. This may be reviewed at detail design stage
Type:	Basins/Swales, etc. (Permeable Conveyance)
Constraints:	In order to provide practicable attenuation benefits 1:3 side-slope basin/swales tend to require a significant land requirement.
Opportunities:	Where possible try to develop swales/basins along the roads and in open spaces as long as it does not impact road adoptability.
Type:	Green Roofs
Constraints:	Subject to Architect's design and house-types, all houses are pitched. Increased structural load not feasible for individual houses.
Opportunities:	None.
Type:	Attenuation Tanks (end of pipe treatment)
Constraints:	Can only be located in areas of open space or private areas, tanks are not feasible under adoptable roads.
Opportunities:	Where possible tanks can be used where readily accessible such as parking spaces and open spaces.

Proposed Surface Water Drainage Strategy

- 5.9. After consideration of the CIRIA C753 SuDS Management Train approach, the most viable SuDS options for the Site is discharging to a main river/watercourse via a system of cascading basins and swales.
- 5.10. The existing Site currently forms a broad hill, with surface water naturally draining northwards, eastwards, and southwards before ultimately converging and

discharging to the River Hamble. The proposed surface water strategy has been developed to respect this existing drainage arrangement by maintaining these natural catchment directions within the design, ensuring flows continue to follow their historic pathways.

- 5.11. The drainage design has been run using FEH data, for the purposes of using the most up to date information.
- 5.12. The total catchment area of the Site is 14.31ha. The total development catchment area is 7.83ha. The development area of the Site has been measured based upon **Appendix A**. The total proposed impermeable area is 5.09ha. This has been based on 65% of the overall catchment areas, which assumes urban creep allowance.
- 5.13. The proposed drainage strategy is split into two catchments; a northern and a southern catchment. These are summarised below in **Table 5-2** and concur with the total areas mentioned in paragraph 5.12.

Table 5-2: Drainage Strategy Catchment Areas Summary Table

Catchment	Developable Area (Ha)	Assumed Impermeable Area (Ha)
North	4.70	3.06
South	3.13	2.03
Total	7.83	5.09

- 5.14. In accordance with Hampshire County Council’s drainage guidance, discharge from the Site is to be restricted to the greenfield baseline (Q_{bar}). The Q_{bar} rate has been calculated using the FEH statistical method and is **6.9l/s/ha** and discharge rates for individual catchments are based upon the developable area, full calculations provided in **Appendix D**.
- 5.15. Following a meeting with Hampshire County Council as Lead Local Flood Authority (LLFA), it was confirmed and agreed that Q_{bar} would be adopted as the design discharge rate for this strategy (see meeting minutes in **Appendix E**).
- 5.16. ‘Flow’ modelling has been undertaken to demonstrate that the proposed drainage strategy can restrict the Site to equivalent greenfield runoff rates (Q_{bar}). Copies of

the surface drainage calculations are included in **Appendix F**, for storm events; 1 in 2 year, 1 in 30 year and 1 in 100 year plus climate change allowance.

5.17. To accommodate the flows generated, the total attenuation required for the Site is **2,770m³**. **Table 5-3** below shows how this requirement is split per catchment and how current plans respond with proposed storage at this Outline stage. The total attenuation will be refined during the detailed design stage.

Table 5-3: Attenuation Storage Summary

Catchment	Required Storage (m³)	Proposed Storage (m³)
North	1,672	1,691
South	1,098	1,123
Total	2,770	2,814

5.18. The Concept Drainage Strategy is shown in **Appendix G** and indicates how the Site will be drained, including the location of the attenuation features, the indicative piped network and discharge location.

Surface Water Runoff Quality

- 5.19. Surface water runoff quality has been assessed in accordance with CIRIA C753, using the Simple Index Approach (Tables 26.2–26.4; **Appendix H**). This approach compares the Site’s pollution hazard index with the mitigation potential of proposed SuD features.
- 5.20. The Surface Water Strategy incorporates a treatment train with a target of three cascading features, including attenuation basins with separating weirs and conveyance swales, designed to ensure adequate pollutant removal.
- 5.21. All runoff passes through stages of treatment system prior to discharge into the River Hamble or other receiving watercourses, meeting the requirements of the Simple Index Approach and the LLFA.

Exceedance Routes

5.22. During extreme rainfall events, the volume of water can exceed the design capacity of sewers and drainage systems, resulting in them being temporarily overloaded.

Drainage exceedance will occur when the rate of surface water runoff is greater than the inlet capacity of the drainage system, when the receiving water or pipe system becomes overloaded, blocked or when the outfall is restricted due to flood levels in the receiving water.

- 5.23. As the proposed attenuation features will be located within their respective lowest lying areas of the Site, it will be the intention to ensure flows are directed away from residential units and towards SuD features. The proposed flow routes are shown on the Concept Drainage Strategy in **Appendix G**. The routes will ultimately mimic the current flow routes associated with the existing site as a result of the topography.

Maintenance During Construction

- 5.24. Once SuDS are constructed, they will not be subjected to construction traffic without appropriate protection. All storage will be fenced off once installed whilst the Site is still under construction to avoid any construction traffic damage the storage.

Future Maintenance

- 5.25. It is the intention that the main sewers will be adopted under a S104 agreement.
- 5.26. It is intended that the SuDS components will be and connecting pipework are managed by a private management company or adopted under the S104 agreement.
- 5.27. Gullies and connections located within adoptable roads will be maintained by Hampshire County Council (HCC). Gullies and connections within non-adoptable areas will be maintained by a private management company.
- 5.28. A maintenance plan is also included in **Appendix I**. These have been informed by the guidance outlined within CIRIA C753 and would be supplemented by manufacturer's specifications.



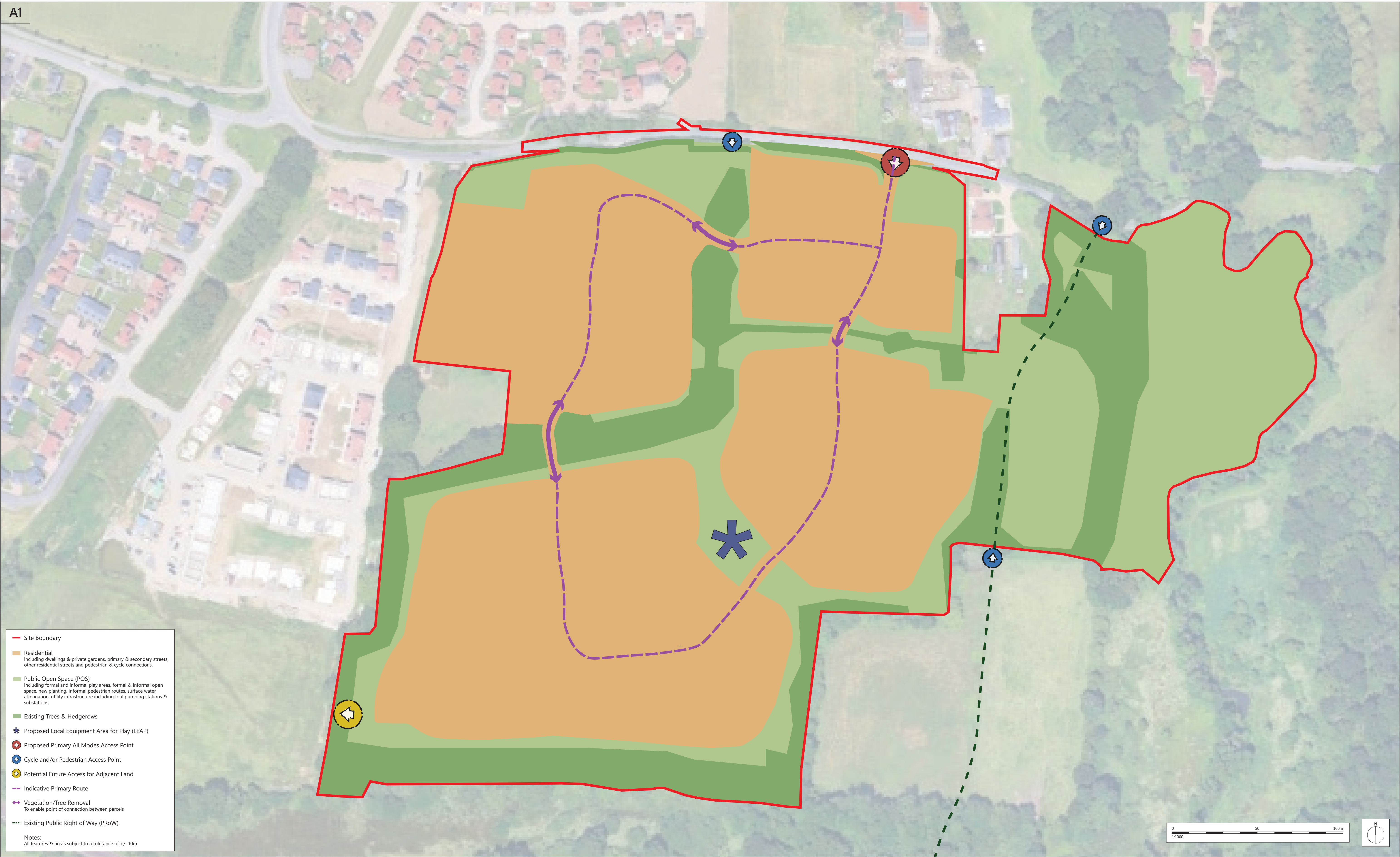
6.0 Foul Water Drainage Strategy

- 6.1. As set out in **section 2**, the only existing foul network in the vicinity is circa 250m to the west of the Site. This is the proposed point of connection for the foul drainage serving the Site.
- 6.2. A predevelopment foul capacity check has been undertaken to confirm the ability to connect to this foul network. Southern Water have responded and confirmed there will be capacity provided through the upgrade to their sewerage network to accommodate foul flow for the Site. See **Appendix J** for confirmation of connection and upgrade suggestion for the existing network capacity.
- 6.3. To facilitate full Site drainage, two pump stations are required due to the significant distance to the outfall manhole, existing level constraints, and the need to avoid constructing a deep sewer network. Pump stations are therefore proposed: one on the eastern side of the site and one on the southwestern side. The latter pump station will convey flows partway up the Site, discharging into the proposed gravity system, which in turn directs flows to the eastern pump station. This station will ultimately discharge to the Southern Water foul asset; FW0401 located approximately 250m west along Maddoxford Lane.
- 6.4. This foul water pump stations will be designed to adoptable standards and will be offered for adoption via the S104 application. The overall pump rate that will look to discharge to the existing Southern Water sewer is **12.96l/s**, subject to detail design, as such the pump stations would need be designed to handle this level of flow rate. The Southern Water foul system will need to be upgraded to account for the proposed foul discharge rate – see **Appendix J** of the Southern water correspondence letter.
- 6.5. The foul design can be found in the Concept Drainage Strategy within **Appendix G**.

7.0 Conclusion

- 7.1. The development proposals at Land south of Maddoxford Lane include the construction of up to 280 residential dwellings and associated infrastructure.
- 7.2. The Site has been assessed as being at low risk of fluvial, tidal, surface water, sewer and artificial source flooding. Groundwater risk is identified as medium; however, this can be appropriately managed through proportionate mitigation and site-specific investigation and does not preclude the proposed development.
- 7.3. The surface water drainage strategy has followed a drainage hierarchy. It involves utilising two catchment areas and incorporates a piped network within the proposed highways and green infrastructure. Each catchment is managed through its own dedicated basins and swales, with flows conveyed independently without interconnection between the systems. Although both catchments ultimately discharge to the River Hamble, this occurs via two separate outfalls rather than a combined outfall. Storage has been assessed separately for each catchment to ensure adequate capacity is available.
- 7.4. The quality of surface water runoff has been assessed based on guidance within CIRIA C753 SuDS Manual. The results demonstrate that all surfaces within the development will receive adequate treatment prior to discharge of run-off into the existing watercourse and surface water sewer networks with numerous stages of treatment to be proposed.
- 7.5. The surface water Discharge rate has been agreed with the LLFA and will be limited to the Q_{bar} rate at 6.9l/s/ha for the developable area.
- 7.6. Surface water design calculations have been carried out for the 1 in 2 year, 1 in 30 year and 1 in 100 year plus climate change allowance storm events using FEH data, with a 45% allowance for climate change applied to the 1 in 100 year rainfall intensities.
- 7.7. The development has been based on a conservative 65% impermeable catchment area, which accounts for an assumed Urban Creep of 10%. Measured impermeable areas will be refined at RM and detail design stage.
- 7.8. Southern Water have confirmed there is ability to connect to the existing foul water network and confirmed that upgrade works to their existing system will be required once planning has been agreed, in line with the current infrastructure charges.
- 7.9. The proposed foul flows generated from the site is to be pumped and to discharge to the existing Southern Water foul network 250m west of the site, on Maddoxford Lane via rising main, to manhole FW0401.
- 7.10. In conclusion, this report demonstrates that the proposals are consistent with the aims of the NPPF, PPG and the Local Plan. The Site would not be at risk of flooding or increase the flood risk to others and can sufficiently deal with surface water and foul water drainage.

**Appendix A
Land Use and Access Plan**



Site Boundary

Residential
Including dwellings & private gardens, primary & secondary streets,
other residential streets and pedestrian & cycle connections.

Public Open Space (POS)
Including formal and informal play areas, formal & informal open
space, new planting, informal pedestrian routes, surface water
attenuation, utility infrastructure including foul pumping stations &
substations.

Existing Trees & Hedgerows

Proposed Local Equipment Area for Play (LEAP)

Proposed Primary All Modes Access Point

Cycle and/or Pedestrian Access Point

Potential Future Access for Adjacent Land

Indicative Primary Route

Vegetation/Tree Removal
To enable point of connection between parcels

Existing Public Right of Way (PRoW)

Notes:

All features & areas subject to a tolerance of +/- 10m

Romsey T: 01794 367703
Portishead T: 01275 407000
London T: 01794 367703

www.thrivearchitects.co.uk

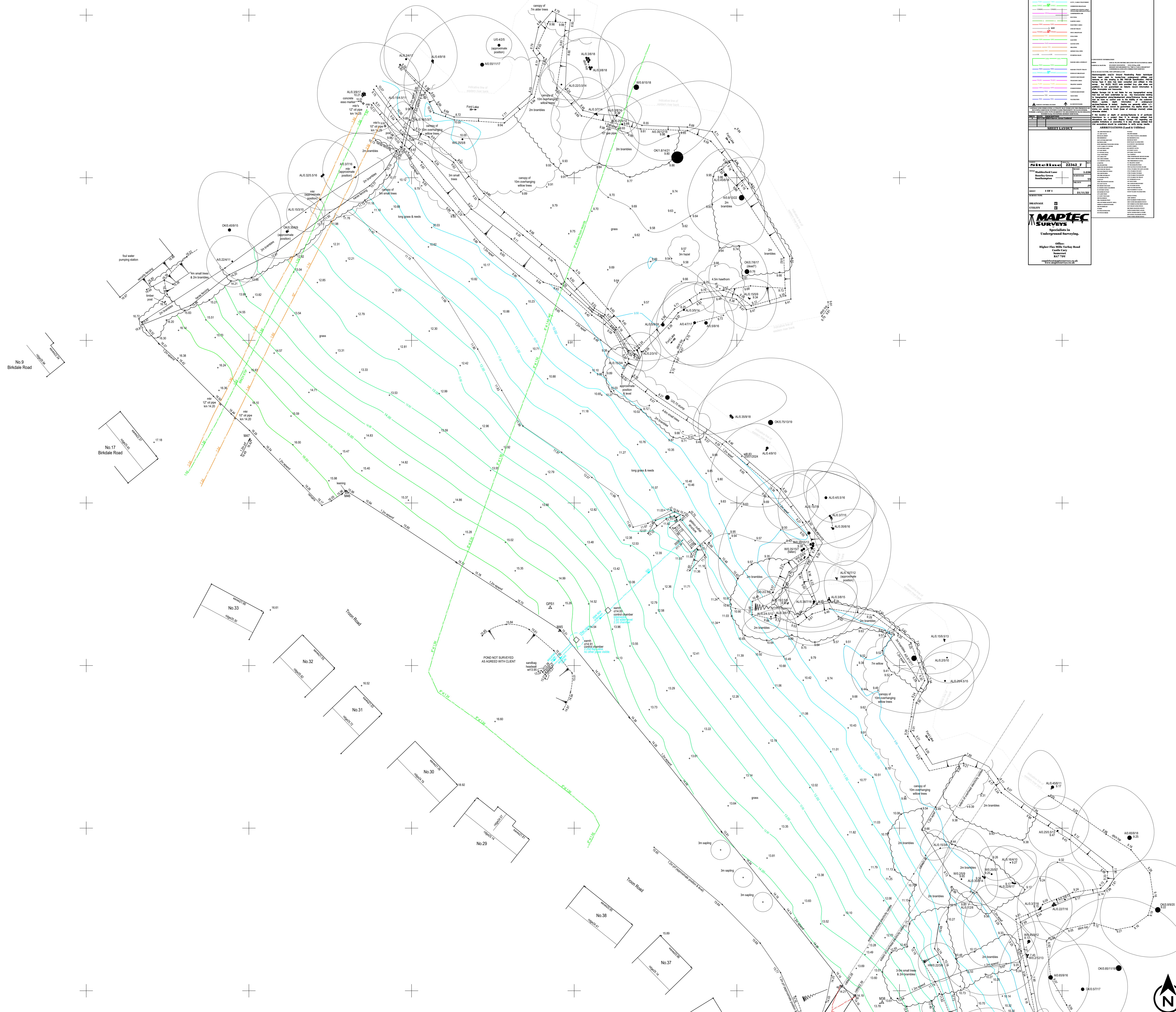
This drawing is the copyright of Thrive Architects Ltd ©. All rights reserved. Ordnance Survey Data © Crown. Copyright. All rights reserved. Licence No. 100007359. Permission is granted to scale from this drawing for the purposes of **Local Authority Planning Applications only**. For all other purposes DO NOT scale from this drawing. Contractors, Sub-Contractors and suppliers are to check all relevant dimensions and levels of the site and building before commencing any shop drawings or building work. Any discrepancies should be recorded to the Architect. Where applicable this drawing is to be read in conjunction with the Consultants' drawings / Clients' Construction Specification.

Rev	Description	Date	Au	Ch
P1	Preliminary issue	04.11.25	GR/NR	GR
P2	Revised parcels and design changes	13.11.25	GR/NR	GR
P3	Revised parcels	17.11.25	GR/NR	GR
P4	Revised parcels & key	04.12.25	DB/GR	GR
P5	Revised key & primary route	05.12.25	DB/GR	GR
P6	Revised primary route	05.12.25	DB/GR	GR
P7	Adjusted aerial	10.12.25	DB/GR	GR

Project	Land South of Maddoxford Farm, Boorley Green		
Drawing	Land Use and Access Plan		
Client	Bloors (Newbury)		
Job no.	BLOO240103	Date	10.12.25
Dwg no.	LUP-01	Rev.	P7
Author	DB/GR	Checked	GR
Status	PRELIMINARY	Scale	1:1000@A1
		Office	Romsey
Client ref.	-		



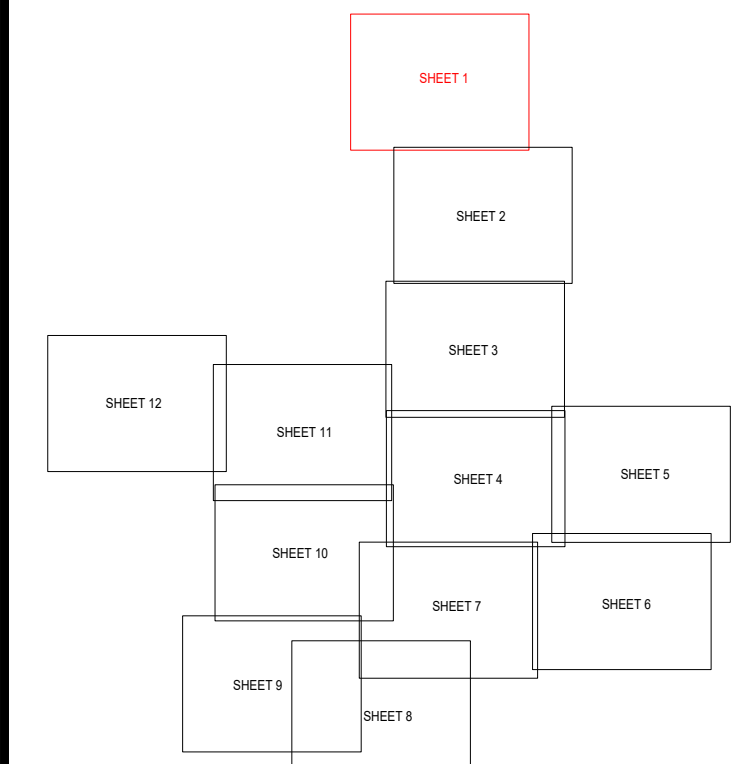
**Appendix B
Topographical Survey**

[illegible]

A/C	air conditioning	pb	post box
av	air valve	pc	plain crossing
bol	borehole	pd	padding
bol	boltard	rp	road name plate
br	brake	rs	road sign
ctv	cable tv	rw	rain water pipe
cl	electric box	sw	seawalk
cl	electric pole	st	street
ep	transformer pole	sl	stop valve
ep	earth rod	sv	soft vent pipe
fmwh	foul water gully	svmh	storm water main hole
fmwh	foul water gully	tl	telephone box
g	gas	tc	telex cover
ic	inspection cover	th	thick
kd	kerb drain	ti	traffic light
lh	fire hydrant	tl	traffic light
lh	lamp post	vt	vent pipe
lp	light	w	water
mp	manhole	wv	wash out
mkr	marking post	wv	water stop valve
wh	well	yv	yard gully
oh	overhead		

TREES (species / trunk diameter / max. spread / height)			
A	ash	LR	laurel
Al	alder	M	maple
B	birch	MG	mulberry
B	BK	MP	monkey puzzle
CB	blackthorn	P	pear
CB	cedar	PA	plane
CT	copper beech	PL	plum
CH	cherry	PO	pear
CH	chestnut	PR	pear
EU	eucalyptus	RO	red oak
FR	field maple	Rh	rhododendron
FR	fruit (generic)	RD	roan
HC	horse chestnut	SB	silver birch
HC	horm oak	SC	scots pine
HT	holly	SU	sycamore
HT	holly	SV	sycamore
IB	indian bean tree	TU	untidified
LB	japanese maple	W	willow
LB	laburnum	WB	whitman
LM	lime	WN	walnut
LM	lime	WW	weir

FENCES	LEVELS
bwf	cl cover level
cbf	dfc damp-proof course
cp	fl floor level
cwf	gu gully level
cwi	il invert level
irf	oh overhead cable level
pkf	sof soffit level
prf	th threshold level
pwf	u/s underside level
scf	wl water level
sp	wt wall top
wmf	
wpf	



Revision E - 25th June 2025
Add Routeline of hedges and any other features adjacent to highway boundary in area along Maddoxford Lane as specified by client.

Revision D - March 2025
Survey data updated as instructed by client.
Information outside of the 2025-03 survey area has not been checked or updated since original survey date.

Revision C - January 2024
Utility survey data added to northern land. Land previously under Fisher German control (south of Maddoxford Lane) updated.

Revision B - January 2024
Survey extended to the north & land south of Maddoxford Lane updated as instructed by client.

Revision A - February 2023
Pipe crossing Maddoxford Lane north of Holly Tree Farm - pipe size amended.

NOTES

The survey grid has been related to OS National Grid using a flat earth projection and metric scale factor of 1, centred on Station MT9. Levels are related to OS datum determined from the National GPS Network using OSGM15.

The position and height of adjacent buildings have been obtained using higher level reflectorless measurement and may not take account of single storey extensions or conservatories below the line of sight.

Please note that the comms records drawing (Instalcom) is very poor quality. We were unable to survey the route on site.



ENCOMPASS GEOSPATIAL

MULTI-DISCIPLINARY SURVEY SOLUTIONS

AERIAL | BUILDING | LAND | SUB-SURFACE | MODELLING



**chartered
ICES**



**THE SURVEY
ASSOCIATION**

Encompass Geospatial Ltd. Registered in England & Wales
Registration Number 0602121 VAT Number BE153823
Company Number 0602121 Limited by guarantee,
Soleil Business Park, Warraby, PO13 3JH

Tel +44(0)20 9000 2020
Email: encompass@geospacial.co.uk
Website: www.geospacial.co.uk

Drawing Title

TOPOGRAPHICAL & UTILITY SURVEY

Drawing Number 01MX02E	SHEET 1 OF 12
--------------------------------------	----------------------

Client

BLOOR HOMES

Contract

MADDOXFORD LANE
BOORLEY GREEN
SOUTHAMPTON

Scale 1:200 at A0	Date NOVEMBER 2022
---------------------------------	----------------------------------

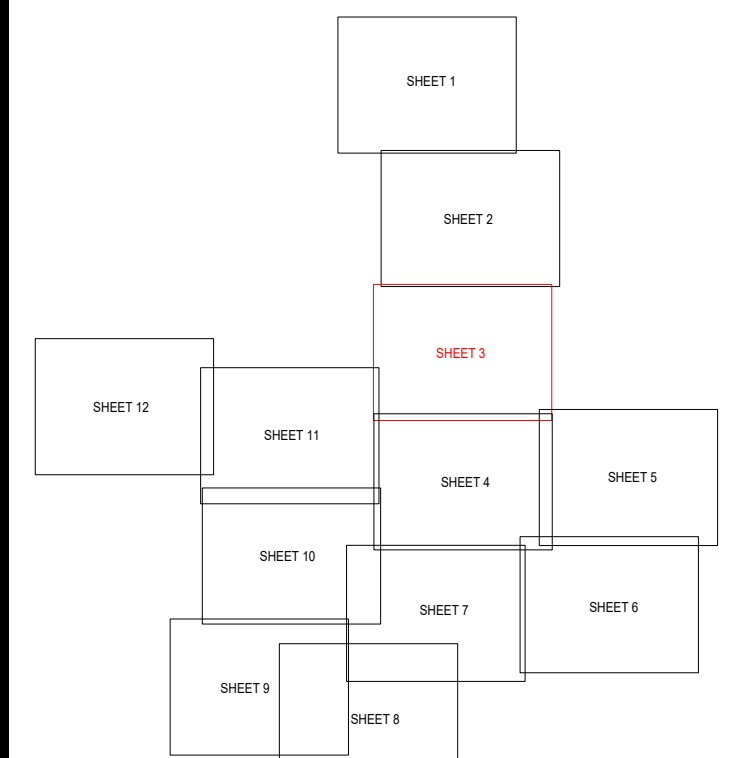
Survey(s) AB MU HB	Drawn by HB Checked by IA
----------------------------------	--



RECEIVED By <u>Mr. [Name]</u> on <u>12/15/2016</u> at <u>10:00 AM</u> File # <u>16-00000000</u>		NOTES:
KEY ● GREEN - Green ● BLUE - Blue ● RED - Red ● YELLOW - Yellow ● MAGENTA - Magenta ● CYAN - Cyan ● BLACK - Black ● GREY - Grey ● BROWN - Brown ● PINK - Pink ● PURPLE - Purple ● ORANGE - Orange ● LIGHT BLUE - Light Blue ● LIGHT GREEN - Light Green ● LIGHT YELLOW - Light Yellow ● LIGHT MAGENTA - Light Magenta ● LIGHT CYAN - Light Cyan ● LIGHT GREY - Light Grey ● LIGHT BROWN - Light Brown ● LIGHT PINK - Light Pink ● LIGHT PURPLE - Light Purple ● LIGHT ORANGE - Light Orange ● LIGHT TEAL - Light Teal ● LIGHT LAVENDER - Light Lavender ● LIGHT PEACH - Light Peach ● LIGHT MINT - Light Mint ● LIGHT CORAL - Light Coral ● LIGHT SALMON - Light Salmon ● LIGHT PINK2 - Light Pink2 ● LIGHT PURPLE2 - Light Purple2 ● LIGHT ORANGE2 - Light Orange2 ● LIGHT TEAL2 - Light Teal2 ● LIGHT LAVENDER2 - Light Lavender2 ● LIGHT PEACH2 - Light Peach2 ● LIGHT MINT2 - Light Mint2 ● LIGHT CORAL2 - Light Coral2 ● LIGHT SALMON2 - Light Salmon2 ● LIGHT PINK3 - Light Pink3 ● LIGHT PURPLE3 - Light Purple3 ● LIGHT ORANGE3 - Light Orange3 ● LIGHT TEAL3 - Light Teal3 ● LIGHT LAVENDER3 - Light Lavender3 ● LIGHT PEACH3 - Light Peach3 ● LIGHT MINT3 - Light Mint3 ● LIGHT CORAL3 - Light Coral3 ● LIGHT SALMON3 - Light Salmon3 ● LIGHT PINK4 - Light Pink4 ● LIGHT PURPLE4 - Light Purple4 ● LIGHT ORANGE4 - Light Orange4 ● LIGHT TEAL4 - Light Teal4 ● LIGHT LAVENDER4 - Light Lavender4 ● LIGHT PEACH4 - Light Peach4 ● LIGHT MINT4 - Light Mint4 ● LIGHT CORAL4 - Light Coral4 ● LIGHT SALMON4 - Light Salmon4 ● LIGHT PINK5 - Light Pink5 ● LIGHT PURPLE5 - Light Purple5 ● LIGHT ORANGE5 - Light Orange5 ● LIGHT TEAL5 - Light Teal5 ● LIGHT LAVENDER5 - Light Lavender5 ● LIGHT PEACH5 - Light Peach5 ● LIGHT MINT5 - Light Mint5 ● LIGHT CORAL5 - Light Coral5 ● LIGHT SALMON5 - Light Salmon5 ● LIGHT PINK6 - Light Pink6 ● LIGHT PURPLE6 - Light Purple6 ● LIGHT ORANGE6 - Light Orange6 ● LIGHT TEAL6 - Light Teal6 ● LIGHT LAVENDER6 - Light Lavender6 ● LIGHT PEACH6 - Light Peach6 ● LIGHT MINT6 - Light Mint6 ● LIGHT CORAL6 - Light Coral6 ● LIGHT SALMON6 - Light Salmon6 ● LIGHT PINK7 - Light Pink7 ● LIGHT PURPLE7 - Light Purple7 ● LIGHT ORANGE7 - Light Orange7 ● LIGHT TEAL7 - Light Teal7 ● LIGHT LAVENDER7 - Light Lavender7 ● LIGHT PEACH7 - Light Peach7 ● LIGHT MINT7 - Light Mint7 ● LIGHT CORAL7 - Light Coral7 ● LIGHT SALMON7 - Light Salmon7 ● LIGHT PINK8 - Light Pink8 ● LIGHT PURPLE8 - Light Purple8 ● LIGHT ORANGE8 - Light Orange8 ● LIGHT TEAL8 - Light Teal8 ● LIGHT LAVENDER8 - Light Lavender8 ● LIGHT PEACH8 - Light Peach8 ● LIGHT MINT8 - Light Mint8 ● LIGHT CORAL8 - Light Coral8 ● LIGHT SALMON8 - Light Salmon8 ● LIGHT PINK9 - Light Pink9 ● LIGHT PURPLE9 - Light Purple9 ● LIGHT ORANGE9 - Light Orange9 ● LIGHT TEAL9 - Light Teal9 ● LIGHT LAVENDER9 - Light Lavender9 ● LIGHT PEACH9 - Light Peach9 ● LIGHT MINT9 - Light Mint9 ● LIGHT CORAL9 - Light Coral9 ● LIGHT SALMON9 - Light Salmon9 ● LIGHT PINK10 - Light Pink10 ● LIGHT PURPLE10 - Light Purple10 ● LIGHT ORANGE10 - Light Orange10 ● LIGHT TEAL10 - Light Teal10 ● LIGHT LAVENDER10 - Light Lavender10 ● LIGHT PEACH10 - Light Peach10 ● LIGHT MINT10 - Light Mint10 ● LIGHT CORAL10 - Light Coral10 ● LIGHT SALMON10 - Light Salmon10 ● LIGHT PINK11 - Light Pink11 ● LIGHT PURPLE11 - Light Purple11 ● LIGHT ORANGE11 - Light Orange11 ● LIGHT TEAL11 - Light Teal11 ● LIGHT LAVENDER11 - Light Lavender11		

[illegible]

FENCES	LEVELS
bwf	cl cover level
cbf	dfc damp-proof course
cp	fl floor level
cwf	gu gully level
cwl	il invert level
irf	oh overhead cable level
pkf	sof soffit level
prf	th threshold level
pwf	u/s underside level
scf	wl water level
sp	wt wall top
wmf	
wpf	



Revision E - 25th June 2025
Add Routeline of hedges and any other features adjacent to highway boundary in area along Maddoxford Lane as specified by client.

Revision D - March 2025
Survey data updated as instructed by client.
Information outside of the 2025-03 survey area has not been checked or updated since original survey date.

Revision C - January 2024
Utility survey data added to northern land. Land previously under Fisher German control (south of Maddoxford Lane) updated.

Revision B - January 2024
Survey extended to the north & land south of Maddoxford Lane updated as instructed by client.

Revision A - February 2023
Pipe crossing Maddoxford Lane north of Holly Tree Farm - pipe size amended.

NOTES

The survey grid has been related to OS National Grid using a flat earth projection and metric scale factor of 1, centred on Station M19. Levels are related to OS datum determined from the National GPS Network using OSGM15.

The position and height of adjacent buildings have been obtained using higher level reflectorless measurement and may not take account of single storey extensions or conservatories below the line of sight.

Please note that the comms records drawing (Instalcom) is very poor quality. We were unable to survey the route on site.



ENCOMPASS GEOSPATIAL

MULTI-DISCIPLINARY SURVEY SOLUTIONS
AERIAL | BUILDING | LAND | SUB-SURFACE | MODELLING




Encompass Geospatial Ltd. Registered in England & Wales
 Registered Number 08652121 VAT Number BE1535823
 Registered Office: 19/20A-19/20B, 120/190, New
 Square, Bedford Way, WIMBORNE, PO11 1JZ

Tel: +44(0) 129 30905 2002
 Email: enquiries@encompass.co.uk
 Website: encompassgeospatial.co.uk

Drawing Title

**TOPOGRAPHICAL & UTILITY
SURVEY**

Drawing Number

01M0X02E

Client

SHEET 05 OF 12

BLOOR HOMES

Contract

**MADDOXFORD LANE
BOORLEY GREEN
SOUTHAMPTON**

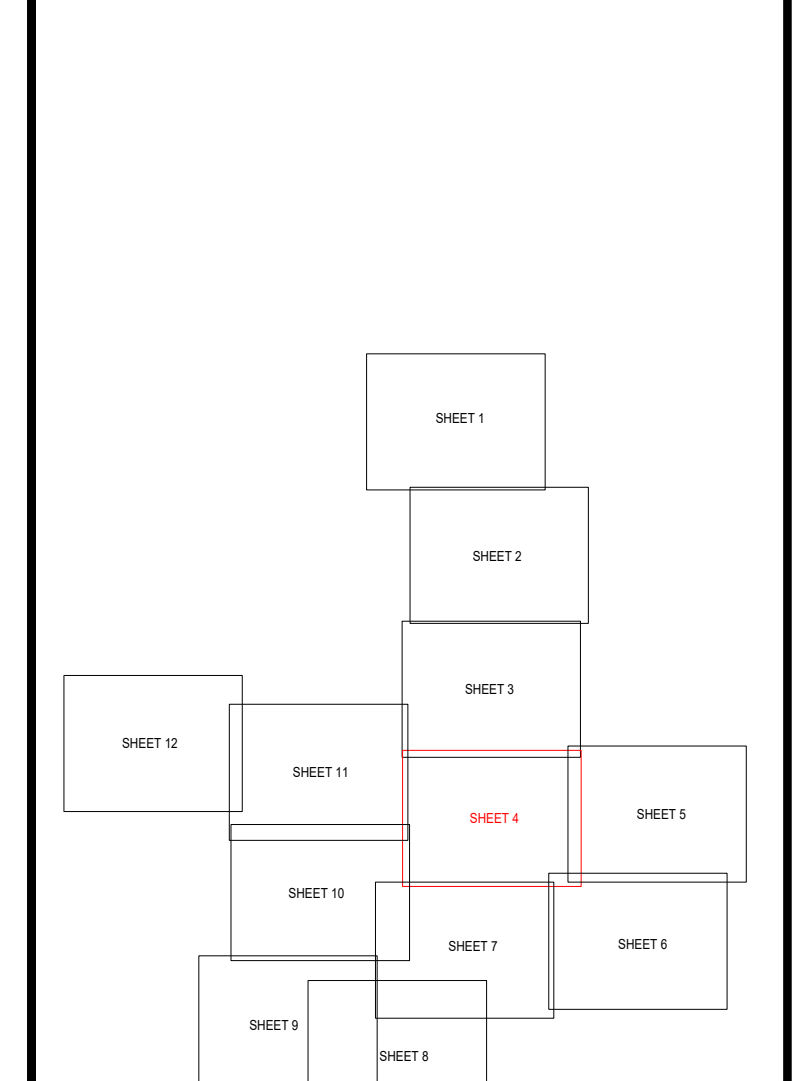
Scale	Date
1:200 at A0	NOVEMBER 2022
Survey(s) of	Drawn by
AB MU HB	HB
	Checked by
	IA



KEY			
a/c	air conditioning	pb	post box
alc	aluminum	pc	pram crossing
b	bottle	re	rodding eye
bol	bollock	rnp	road name sign
bs	brass	rs	road sign
cbv	cable tv	rwp	rain water pipe
el	electric box	sa	soakaway
st	stair	st	stop
tr	transformer pole	sv	stop valve
fe	fire	st	storm valve
eh	earth red	st	storm water
fmwh	foul water mainhole	tp	telephone box
g	gas	tp	telephone pole
gsv	gas stop valve	trh	trial hole
ic	inspection cover	ti	traffic light
ker	kerbside	tp	top
l	litter bin	u	unable to fit
lmp	lamp post	vp	vertical pipe
li	light	wm	water meter
mh	manhole	wo	wash out
mk	market	wv	water stop valve
mw	monitoring well	yg	yard gully
oh	overhead		

TREES (species / trunk diameter / max. spread / height)			
A	ash	AL	alder
AP	apple	MC	maple
BA	bamboo	MG	magnolia
BE	beech	MP	money puzzle
BA	birch	OK	oak
PL	cedar	P	pine
C	copper	PL	palm
CH	cherry	PM	pear
E	elder	PR	plum
EU	eucalyptus	R	red gum
ED	Euodia	RD	red oak
F	fig	RDH	rhododendron
FR	frat (genetic)	SW	swain
HB	hornbeam	SB	silver birch
HO	horse chestnut	SC	sweet gum
H	holm oak	SI	scots pine
HA	hazel	SU	sycamore
HT	holly	TU	tulip
I	ivy	UV	unidentified
IB	indian bean tree	SW	swain
J	japanese maple	W	whitebeam
LB	laburnum	WN	walnut
LM	lime		
LO	locust		

FENCES		LEVELS	
bwf	barbed wire fence	cl	cover level
cbf	closed-board fence	dpc	damp-proof course
ccf	concrete pad	fl	floor level
cpf	chestnut paling fence	gu	gully level
cwf	chicken wire	il	invert level
irf	iron railing fence	oh	overhead cable level
pkf	picket fence	sof	soffit level
prf	post and rail fence	th	threshold level
pwf	post and wire fence	u/s	underside level
scf	security fence	wl	water level
ssf	steel post	wt	wall top
wmf	wire mesh fence		
wpf	wood panel fence		



Revision E - 25th June 2025
Add Routine of hedges and any other features adjacent to highway boundary in area along Maddoxford Lane as specified by client.

Revision D - March 2025
Survey extended and updated as instructed by client.
Information outside of the 2025-03 survey area has not been checked or updated since original survey date.

Revision C - January 2024
Utility survey data added to northern land. Land previously under Fisher German control (south of Maddoxford Lane) updated.

Revision B - January 2024
Survey extended to the north & land south of Maddoxford
Lane updated as instructed by client.

Revision A - February 2023
Pipe crossing Maddoxford Lane north of Holly Tree Farm -
pipe size amended.

NOTES

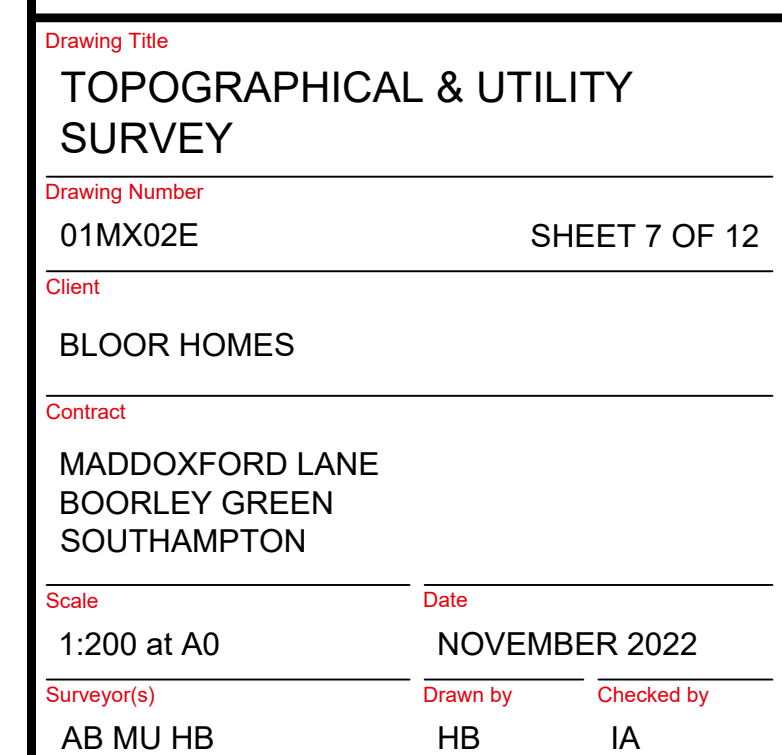
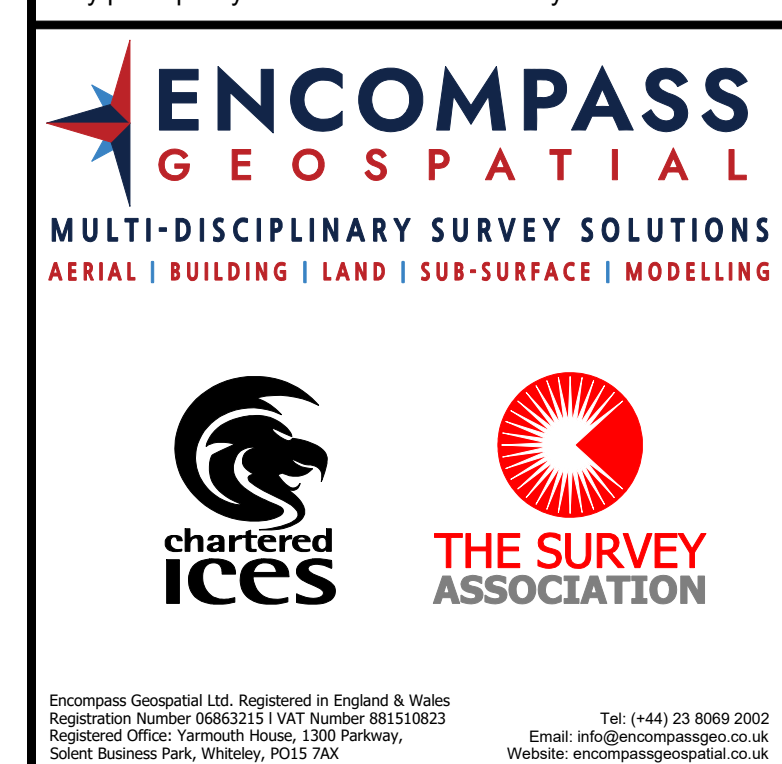
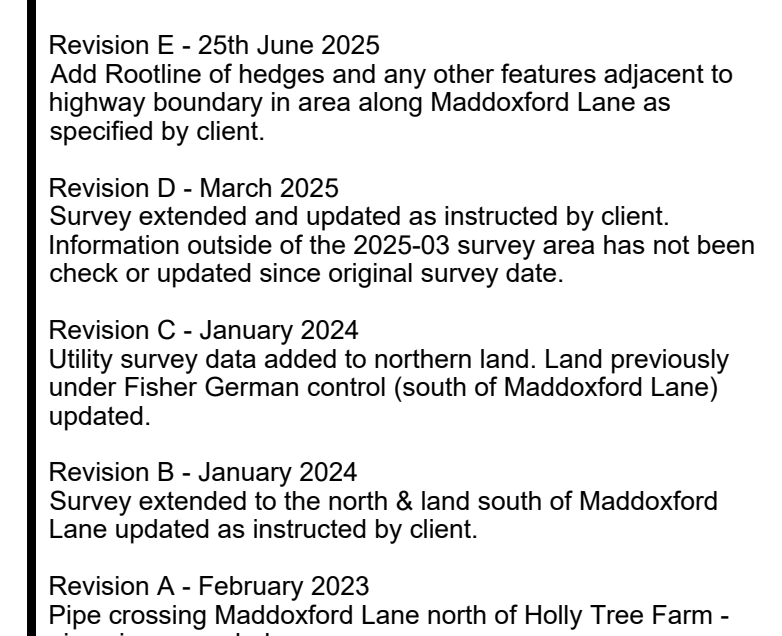
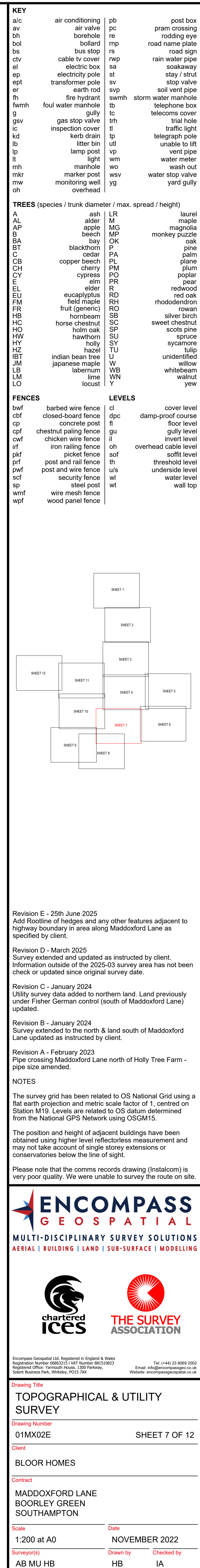
The survey grid has been related to OS National Grid using a flat earth projection and metric scale factor of 1, centred on Station M19. Levels are related to OS datum determined from the National GPS Network using OSGM15.

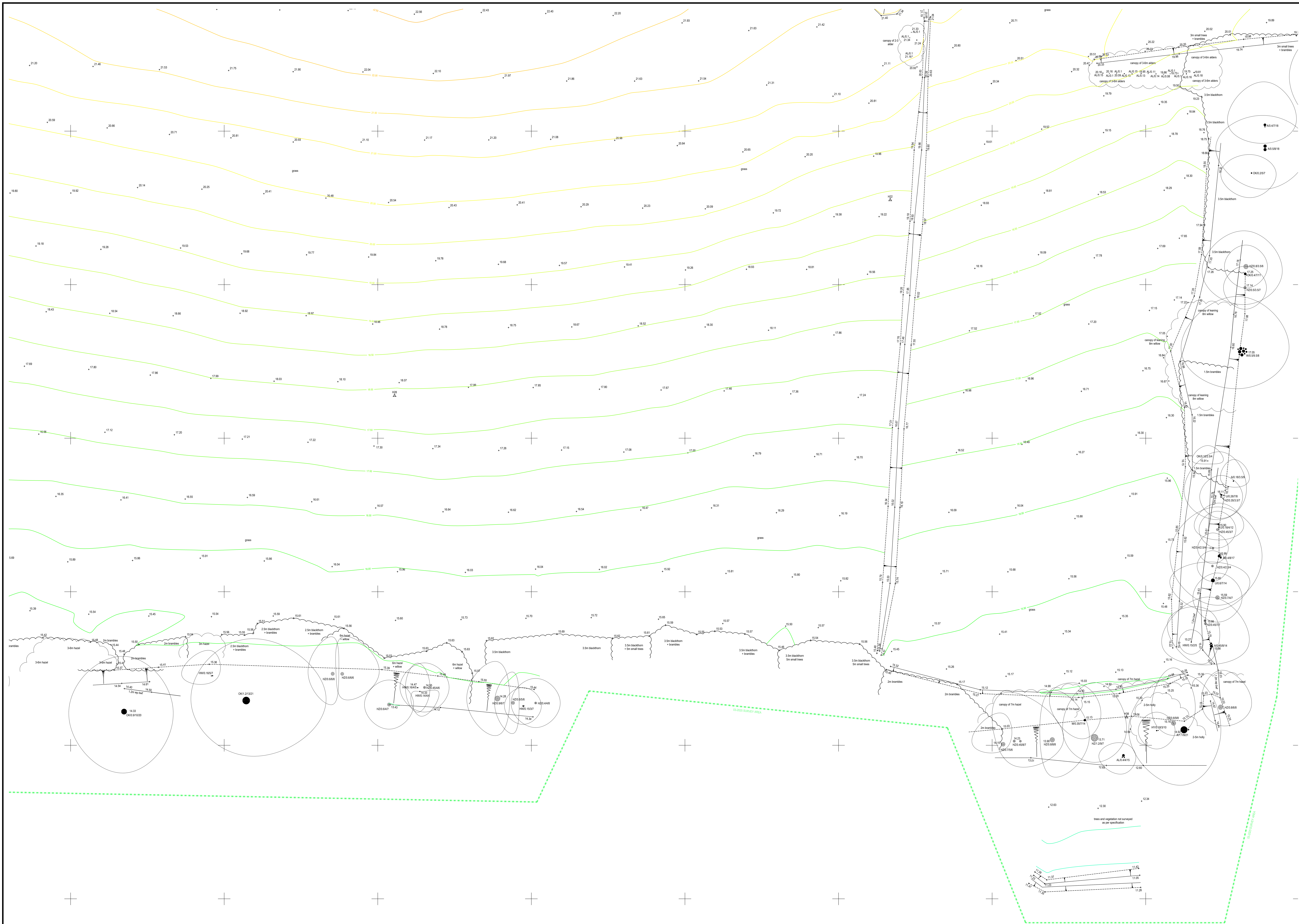
The position and height of adjacent buildings have been obtained using higher level reflectorless measurement and may not take account of single storey extensions or conservatories below the line of sight.

Please note that the comms records drawing (Instalcom) is very poor quality. We were unable to survey the route on site.

The image contains three logos. At the top is the ENCOMPASS GEOSPATIAL logo, featuring a stylized compass rose icon to the left of the text 'ENCOMPASS' in large blue letters and 'GEOSPATIAL' in smaller red letters. Below this is the text 'MULTI-DISCIPLINARY SURVEY SOLUTIONS' in blue, followed by 'AERIAL | BUILDING | LAND | SUB-SURFACE | MODELLING' in red. At the bottom left is the chartered ICCS logo, which includes a black silhouette of a bird (likely a crow or raven) perched on a branch, with the text 'chartered' in a script font and 'ICCS' in a bold sans-serif font below it. To the right of this is the THE SURVEY ASSOCIATION logo, featuring a red circular icon with white lines radiating from the center, resembling a sun or a surveying instrument, with the text 'THE SURVEY ASSOCIATION' in red below it.

Drawing Title	
TOPOGRAPHICAL & UTILITY SURVEY	
Drawing Number	
01MX02E	SHEET 4 OF 12
Client	
BLOOR HOMES	
Contract	
MADDOXFORD LANE BOORLEY GREEN SOUTHAMPTON	
Scale	Date
1:200 at A0	NOVEMBER 2022
Surveyor(s)	Drawn by Checked by
AB MU HB	HB IA

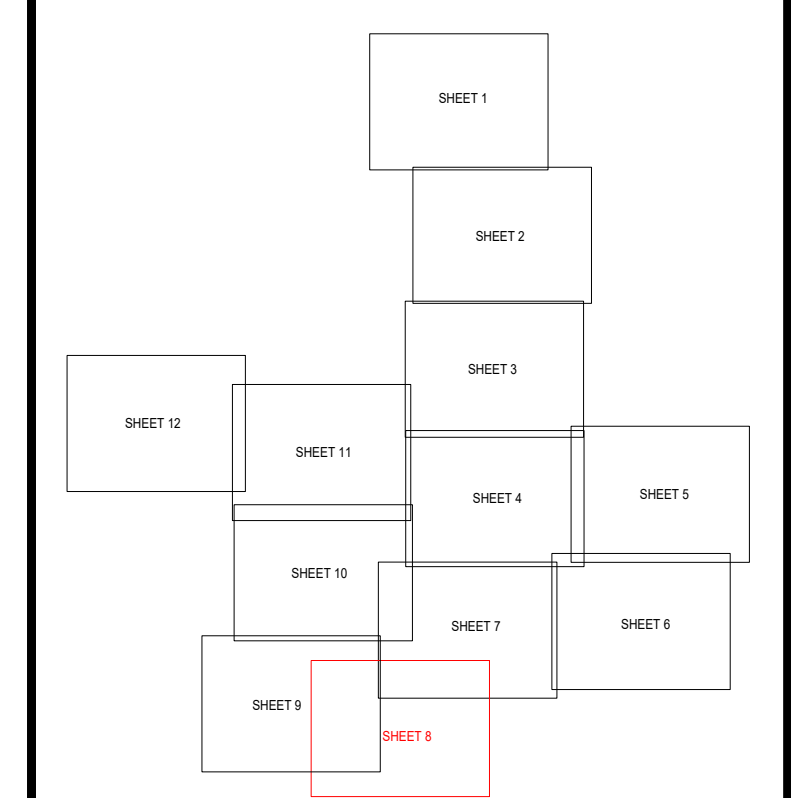




KEY			
alc	air conditioning	pb	post box
av	air valve	pc	padding
bowl	air	rv	road crossing
boll	ballard	rp	road
bu	bus stop	sa	road sign
ch	cable	sv	rain water
cl	electric box	sa	soakaway
ep	electrical pole	st	stop / start
fr	transformer	sv	stop valve
er	earth road	sw	storm water
h	hydrant	swmh	storm water manhole
fmh	fuel filler manhole	tel	telephone
g	gas	tl	telecoms cover
gv	gas valve	tr	traffic
ic	inspection cover	th	traffic light
kb	kerb drain	tl	telegraph pole
ld	light	utl	underground
l	lamp post	vp	vent pipe
li	light	vm	water meter
lh	manhole	vs	water valve
mk	marker post	wsv	water stop valve
mwr	monitoring well	wy	yard gulch

TREES (species / trunk diameter / max. spread / height)			
A	ash	LR	laurel
AL	alder	MR	maple
AP	ash	MG	malva
B	beech	PK	monkey puzzle
BT	blackthorn	P	pine
CB	copper beech	PL	plane
CH	cherry	PM	pear
CO	cypress	PO	poplar
E	elm	PR	pear
EL	elm	RD	red oak
EU	eucalyptus	RD	red oak
F	field maple	RS	rowan
FR	fruit (genetic)	RO	rowan
H	hazel	SB	sweet chestnut
HC	horse chestnut	SC	sweet chestnut
HO	holm oak	SP	sosh pine
HU	hazel	U	ulm
HT	holly	Y	ycamore
HU	hazel	U	ulm
I	indian beech	IV	unidentified
J	japanese maple	W	whitebeam
L	laburnum	WB	whitebeam
LB	larch	Y	ycamore
LO	locust	WN	yellow

FENCES		LEVELS	
bwf	barbed wire fence	cl	cover level
cbf	closed-board fence	dpc	damp-proof course
cp	concrete post	fl	floor level
cpf	chestnut paling fence	gu	gully level
cwf	chicken wire fence	il	invert level
irf	iron railing fence	oh	overhead cable level
pf	picket fence	scf	soffit level
prf	post and rail fence	th	threshold level
pwf	post and wire fence	u/s	underside level
scf	security fence	wl	water level
sp	steel post	wt	wall top
wf	wire mesh fence		
wnf	wood nagen fence		



Revision E - 25th June 2025
Add Routline of hedges and any other features adjacent to highway boundary in area along Maddoxford Lane as specified by client.

Revision D - March 2025
Survey extended and updated as instructed by client.
Information outside of the 2025-03 survey area has not been kept or updated since original survey date.

Revision C - January 2024
Utility survey data added to northern land. Land previously under Fisher German control (south of Maddoxford Lane) updated.

Revision B - January 2024
Survey extended to the north & land south of Maddoxford Lane updated as instructed by client.

Revision A - February 2023
Pipe crossing Maddoxford Lane north of Holly Tree Farm - pipe size amended.

NOTES

The survey grid has been related to OS National Grid using a flat earth projection and metric scale factor of 1, centred on Station M19. Levels are related to OS datum determined from the National GPS Network using OSGM15.

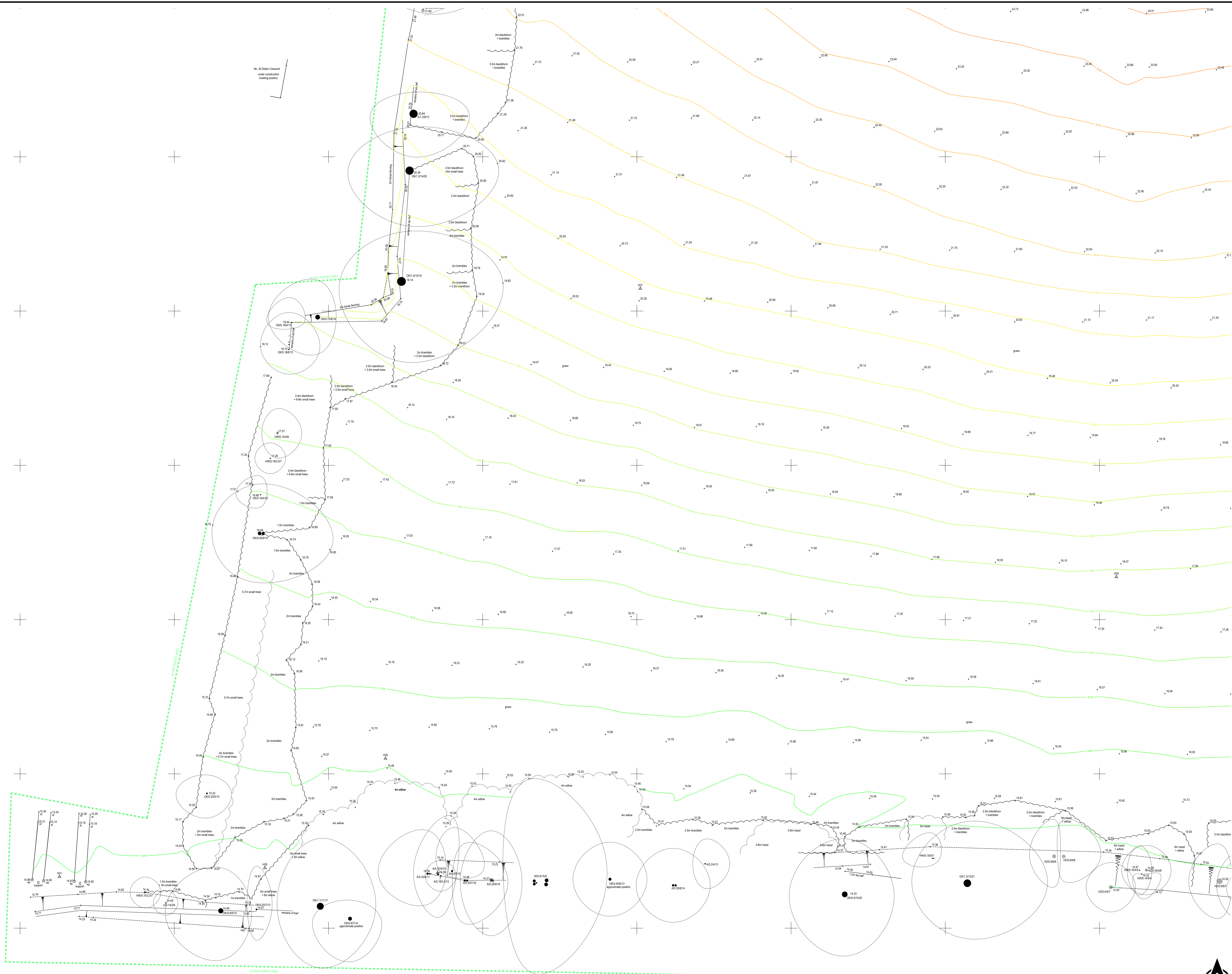
The position and height of adjacent buildings have been obtained using higher level reflectorless measurement and may not take account of single storey extensions or conservatories below the line of sight.

Please note that the comms records drawing (Instalcom) is very poor quality. We were unable to survey the route on site.



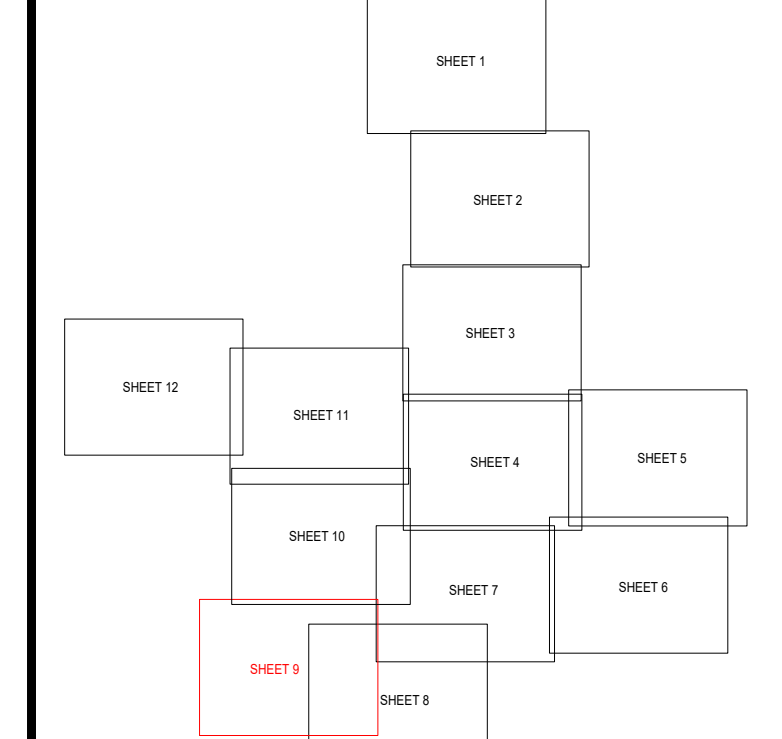
Erasmus College Ltd., Registered in England & Wales
 Companies Number: 02068693
 Registered Office: 100, Victoria Road, Walsby, Doncaster
 South Yorkshire, W.A.Y., WF1 3JA
 Tel: (+44) (0) 1909 200211
 Email: enquiries@ernasmuscollege.co.uk
 Website: www.ernasmuscollege.co.uk

Drawing Title
TOPOGRAPHICAL & UTILITY
SURVEY
Drawing Number
 01MX02E SHEET 8 OF 12
Client
 BLOOR HOMES
Contract
 MADDOXFORD LANE
 BOORLEY GREEN
 SOUTHAMPTON
Scale
 1:200 at A0
Date
 NOVEMBER 2022
Survey(s)
 AB MU HB
Drawn by
 HB
Checked by
 IA

[illegible]

TREES (species / trunk diameter / max. spread / height)			
A	ash	LR	laurel
B	alder	M	maple
AL	apple	MG	maple
B	beech	MP	monkey puzzle
B	oak	OK	
BT	cedar	PA	palm
B	chestnut	PL	plane
CH	cherry	PM	pear
CH	oak	PO	poplar
E	elm	PR	pear
E	alder	RD	redwood
EU	frustrating	RD	red oak
EU	field maple	RW	rhododendron
R	nut (generic)	RO	roan
H	hazelnut	SC	silver birch
HB	hormbeam	SP	scots pine
HO	holm oak	SP	scots pine
HW	hawthorn	SY	sycamore
H	holy	SY	sycamore
H	hazel	TU	untidied
IBT	indian tree fern	U	untidied
J	japanese maple	W	willow
L	laburnum	WB	whitebeam
L	locust	VN	walnut
L	loose	W	willow

FENCES		LEVELS	
bwf	barbed wire fence	cl	cover level
cbf	closed-board fence	dfc	damp-proof course
cbp	concrete post	fl	floor level
cpf	chestnut paling fence	gu	gully level
cwf	chicken wire fence	il	invert level
irf	iron railing fence	ch	overhead cable level
pf	picket fence	sh	scuff level
prf	post and rail fence	th	threshold level
pwf	post and wire fence	u/s	underside level
scf	security fence	w/s	water level
sf	steel post	wt	wall top
wmf	wire mesh fence		
wpf	wood panel fence		



Revision E - 25th June 2025
Add Roodline of hedges and any other features adjacent to highway boundary in area along Maddoxford Lane as specified by client.

Revision D - March 2025
Survey extended and updated as instructed by client.
Information outside of the 2025-03 survey area has not been
check or updated since original survey date.

Revision C - January 2024
Utility survey data added to northern land. Land previously
under Fisher German control (south of Maddoxford Lane)
updated.

Revision B - January 2024
Survey extended to the north & land south of Maddoxford
Lane updated as instructed by client.

Revision A - February 2023
Pipe crossing Maddoxford Lane north of Holly Tree Farm -
pipe size amended.

NOTES

The survey grid has been related to OS National Grid using a flat earth projection and metric scale factor of 1, centred on Station M19. Levels are related to OS datum determined from the National GPS Network using OSGM15.

The position and height of adjacent buildings have been obtained using higher level reflectorless measurement and may not take account of single storey extensions or conservatories below the line of sight.

Please note that the comms records drawing (Instalcom) is very poor quality. We were unable to survey the route on site.



Encompass Geospatial Ltd. Registered in England & Wales
Registration Number 06863215 / VAT Number 881510823
Registered Office: Yarmouth House, 1300 Parkway,
Solihull Business Park, Birmingham, B37 7YU
Tel: (+44) 23 8069 2002
Email: info@encompassgeo.co.uk
Website: encompassgeo.co.uk

Drawing Title
TOPOGRAPHICAL & UTILITY
SURVEY

Drawing Number 01MX02E SHEET 9 OF 12

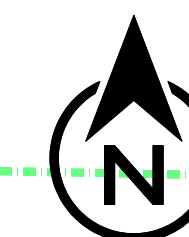
Client

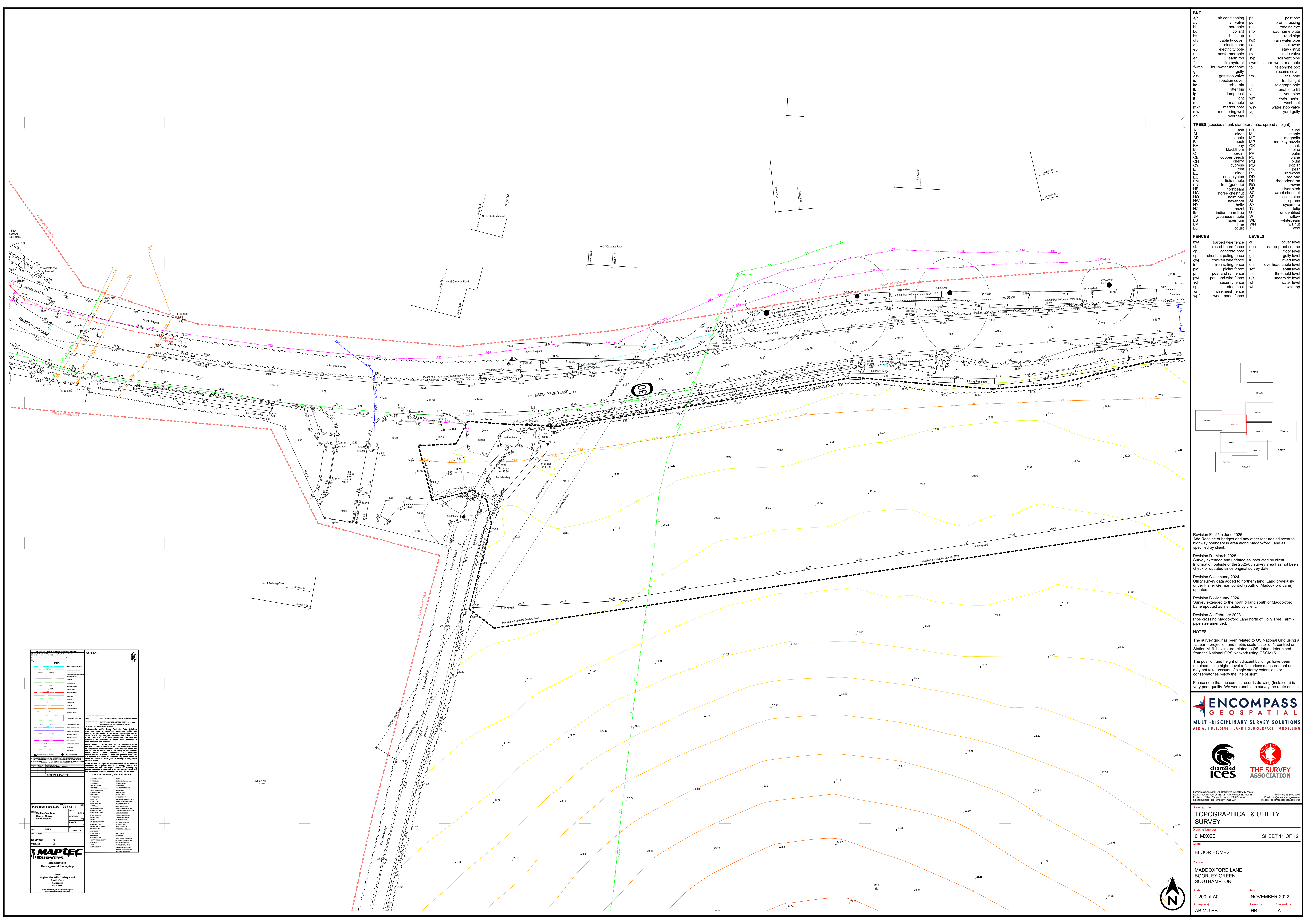
BLOOR HOMES

Contract

MADDOXFORD LANE
BOORLEY GREEN
SOUTHAMPTON

Scale	Date
1:200 at A0	NOVEMBER 2022
Surveyor(s)	Drawn by
AB MU HB	HB
	Checked by
	IA

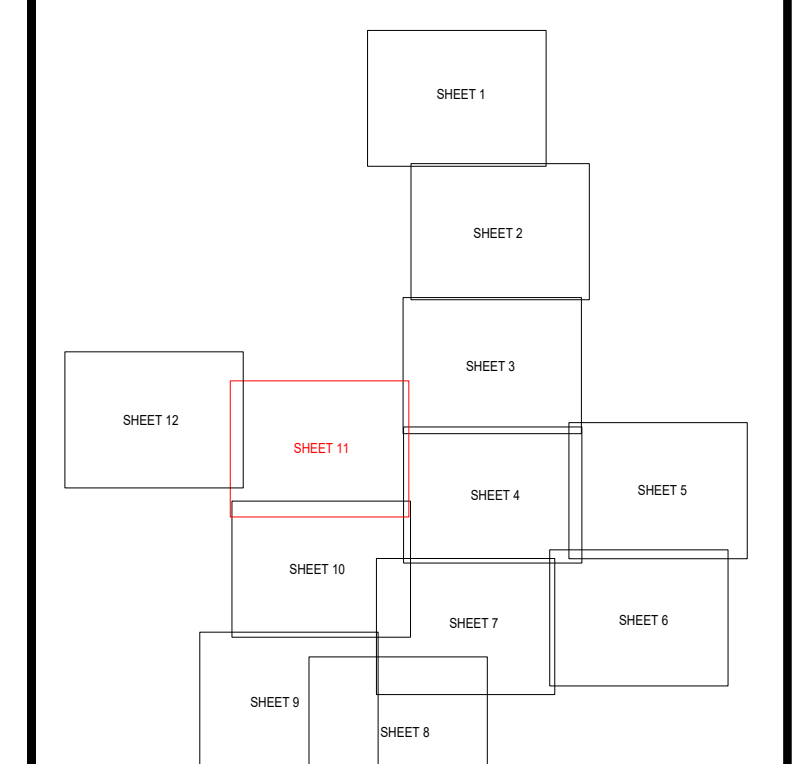




KEY	air conditioning	pb	post box
av	air valve	pc	pram crossing
bt	bartholomew	rd	rodding eye
bd	bolton	rs	road name plate
bs	bus stop	rs	road sign
cb	cable tv cover	rw	rain water pipe
el	electric box	sa	soakaway
ep	electricity pole	st	slay / strut
ex	exhaust	sv	stop valve
er	earth rod	sv	soil vent pipe
fn	fire hydrant	swmh	storm water manhole
fwmh	foul water manhole	tb	telephone box
g	gully	tc	telecoms cover
gv	gas stop valve	th	trial hole
ic	inspection cover	tl	traffic light
kd	kerb drain	tp	telegraph pole
ld	litter bin	ul	unable to lift
lp	lamp post	vp	vent pipe
lt	light	vm	water meter
mh	manhole	wo	wash out
mkr	marker post	wsv	water stop valve
mw	monitoring well	yg	yard gully
oh	overhead		

TREES (species / trunk diameter / max. spread / height)			
A	ash	LR	laurel
AL	alder	M	maple
AP	apple	MG	magnolia
BA	beech	MP	monkey puzzle
BT	bay	OK	oak
C	blackthorn	P	pine
CB	copper beech	PL	plane
CH	cherry	PM	plum
CY	cypress	PQ	poplar
EL	elder	R	redwood
FM	field maple	RH	rhododendron
FR	fruit (genetic)	RO	rowan
HB	hornbeam	SB	silver birch
HC	horse chestnut	SC	sweet chestnut
HO	holm oak	SP	scots pine
HW	hawthorn	SU	spruce
HY	holly	SY	sycamore
HZ	hazel	TU	tulip
IM	indian bean tree	U	undulant
JM	japanese maple	W	willow
LJM	laburnum	WB	whitebeam
LO	locust	Y	yew

FENCES	barbed wire fence	cl	cover level
bwf	closed-board fence	dpc	damp-proof course
cbf	concrete post	fl	floor level
cp	chestnut paling fence	gl	gully level
cwf	chicken wire fence	il	invert level
if	iron railing fence	oh	overhead cable level
pkf	picket fence	sof	suffit level
prf	post and rail fence	th	threshold level
pwf	post and wire fence	ul	underside level
scf	security fence	wl	water level
sp	steel post	wt	wall top
wmf	wire mesh fence		
wpf	wood panel fence		



Revision E - 25th June 2025
Add Routeline of hedges and any other features adjacent to highway boundary in area along Maddoxford Lane as specified by client.

Revision D - March 2025
Survey extended and updated as instructed by client. Information outside of the 2025-03 survey area has not been checked or updated since original survey date.

Revision C - January 2024
Utility survey data added to northern land. Land previously under Fisher German control (south of Maddoxford Lane) updated.

Revision B - January 2024
Survey extended to the north & land south of Maddoxford Lane updated as instructed by client.

Revision A - February 2023
Pipe crossing Maddoxford Lane north of Holly Tree Farm - pipe size amended.

NOTES

The survey grid has been related to OS National Grid using a flat earth projection and metric scale factor of 1, centred on Station M19. Levels are related to OS datum determined from the National GPS Network using OSCM15.

The position and height of adjacent buildings have been obtained using higher level reflectorless measurement and may not take account of single storey extensions or conservatories below the line of sight.

Please note that the comms records drawing (Instalcom) is very poor quality. We were unable to survey the route on site.

KEY

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----

NOTES

1. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

2. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

3. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

4. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

5. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

6. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

7. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

8. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

9. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

10. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

11. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

12. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

13. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

14. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

15. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

16. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

17. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

18. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

19. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

20. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

21. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

22. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

23. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

24. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

25. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

26. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

27. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

28. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

29. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

30. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

31. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

32. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

33. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

34. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

35. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

36. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

37. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

38. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

39. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

40. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

41. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

42. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

43. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

44. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

45. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

46. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

47. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

48. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

49. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

50. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

51. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

52. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

53. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

54. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

55. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

56. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

57. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

58. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

59. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

60. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

61. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

62. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

63. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

64. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

65. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

66. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

67. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

68. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

69. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

70. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

71. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

72. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

73. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

74. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

75. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

76. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

77. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

78. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

79. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

80. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

81. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

82. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

83. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

84. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

85. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

86. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

87. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

88. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

89. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

90. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

91. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

92. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

93. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

94. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

95. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

96. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

97. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

98. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

99. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

100. The survey was carried out in accordance with the British Standard BS5400: Part 1: 1990 and the British Standard BS5400: Part 2: 1990.

ENCOMPASS
GEOSPATIAL

MULTI-DISCIPLINARY SURVEY SOLUTIONS
AERIAL | BUILDING | LAND | SUB-SURFACE | MODELLING

chartered
ices

THE SURVEY
ASSOCIATION

Registration Number: 08802121 (UK) / 08802121 (EU)
Registration Number: 08802121 (UK) / 08802121 (EU)
Registration Number: 08802121 (UK) / 08802121 (EU)

Tel: (+44) 23 9560 2002
Email: info@encompassgeospatial.co.uk
Website: encompassgeospatial.co.uk

Drawing Title
TOPOGRAPHICAL & UTILITY SURVEY

Drawing Number
01MX02E

Client
BLOOR HOMES

Contract
**MADDOXFORD LANE
BOORLEY GREEN
SOUTHAMPTON**

Scale
1:200 at A0

Date
NOVEMBER 2022

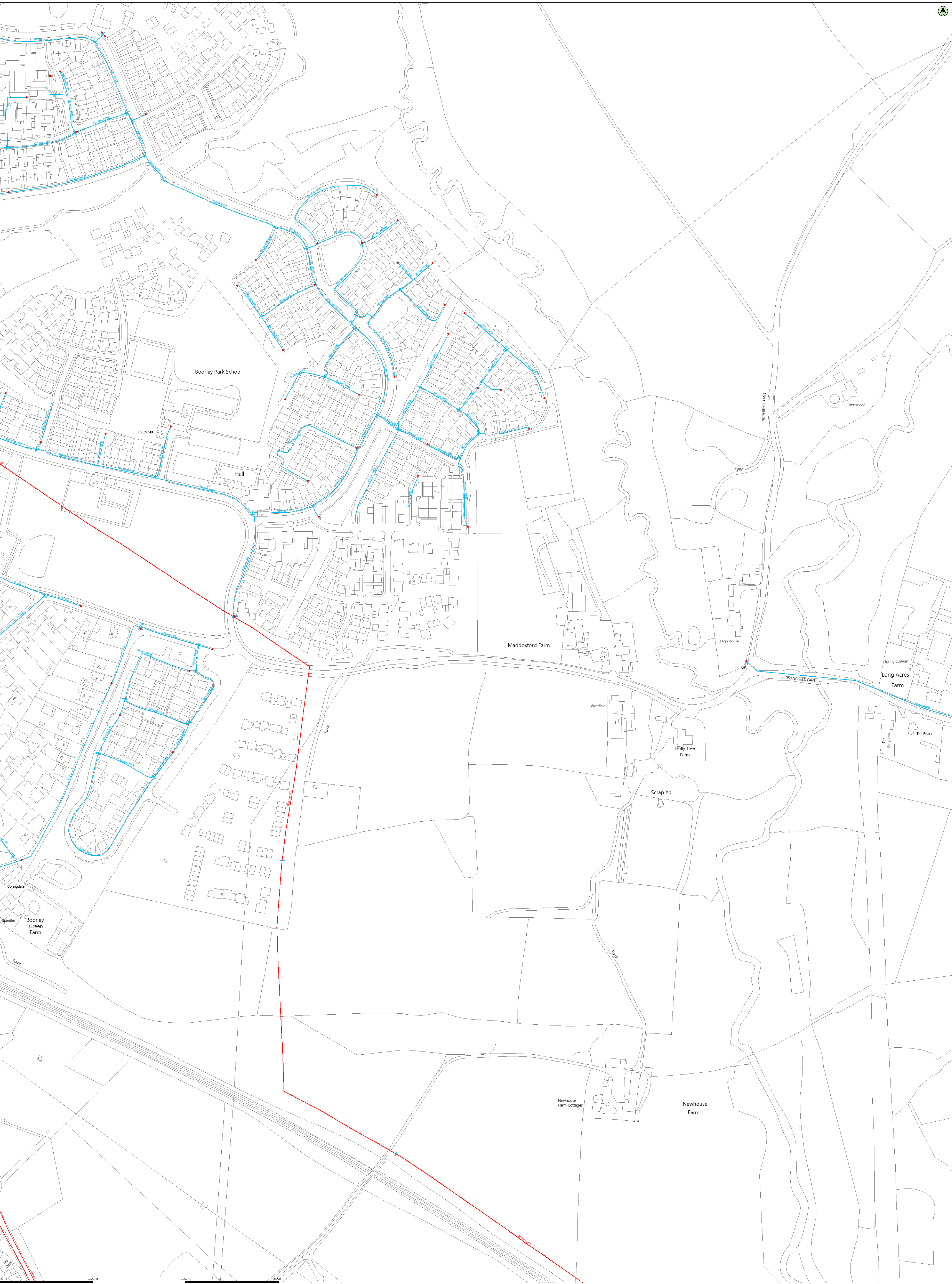
Surveyor(s)
AB MU HB

Drawn by
HB

Checked by
IA

Appendix C

Southern Water Sewer Records



© Crown copyright and database rights 2024 Ordnance Survey 100033073
Data updated: 20/11/23

Scale: 1:2500
Map Centre: 451445.114432
Date: 09/01/24
Our Ref: 1362079 - 13
Clean Water Plan A01
Powered by dgipt

 Water Main	 Proposed Water Main	 Track	 New private Water Main	 Flooded Water Main	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve	 Water Valve
--	---	--	--	--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

payments.utilitysolutions@adkinsglobal.com

216275

WARNING: BAC pipes are constructed of Bonded Asbestos Cement.

WARNING: Unknown (UK) materials may include Bonded Asbestos Cement.

Appendix D

Greenfield Runoff Calculations

Pre-development discharge

Site Makeup	Greenfield
Greenfield Method	FEH
Positively Drained Area (ha)	1.000
SAAR (mm)	862
Host	1
BFIHost	0.412
Region	1
QBar/QMed conversion factor	1.111
Betterment (%)	0
	Calc
QMed (l/s)	6.2
QBar (l/s)	6.9

Load

Return Period (years)	Growth Factor	Q (l/s)
1	0.85	5.9
30	1.99	13.7
100	2.48	17.1

Appendix E

LLFA Meeting Minutes

MEETING MINUTES

DATE AND TIME: 10:00 – 11:00 Thursday 29th May 2025

SUBJECT: Hampshire County Council (HCC) LLFA /
Ardent Consulting Engineers (ACE) - Catch up

VENUE: Video Call (Microsoft Teams)

REF: 2025-05-29_HCC-ACE

THOSE PRESENT: Sarah Reghif (SR) – HCC (LLFA);
William Bartlett (WB) – HCC (LLFA);
Lucy Ormrod (LO) – Bloor Homes (Southern);
Adam Rickenbach (AR) – Bloor Homes (Southern);
Andrew Wren (AW) – Ardent Consulting Engineers;
Thomas Rayment (TR) – Ardent Consulting Engineers.

APOLOGIES: Ben Brooks (BB) – Ardent Consulting Engineers.

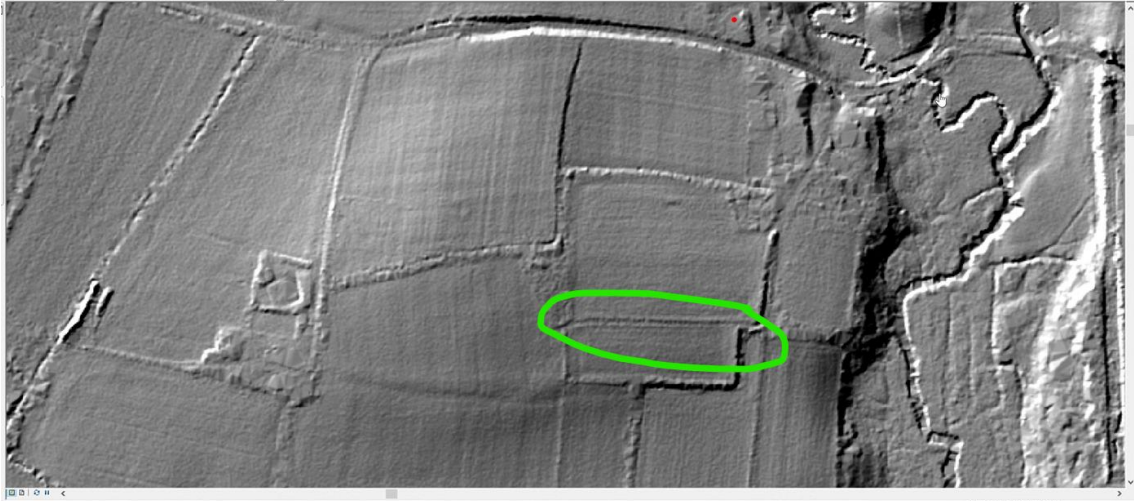
DISCUSSION:

- 1.0 Welcome and introduction,
- 2.0 Land south of Maddoxford Lane,
- 3.0 General Comments.

These minutes, prepared by ACE, are subject to agreement with HCC prior to submission. For improved clarity, the minutes have been structured by development/project rather than in a chronological (time-stamped) format.

ITEM	NOTES	ACTION
1.00	Welcome and Introductions	
1.01	LO introduces themself followed by the all others on the call. It is noted BB sends his apologies due to a prior commitment.	
1.02	AW outlines the proposal of this meeting is to discuss Holly Tree Farm, and address drainage parameters which are acceptable with HCC.	
2.00	Holly Tree Farm	
		
2.01	AW outlines the surface water drainage strategy. The strategy suggests a piped network discharging to network or basins and swales which propose a two final discharge locations, one into the River Hamble the other into a ditch to the south which eventually connect to the River Hamble, see Appendix A for the “concept surface water drainage strategy”. POST MEETING ALTERATION- TR has updated the drainage strategy show a new proposed discharge to the south which connects to what is believed to be the top of the bank with the ditch further south. SR to confirm position on alteration of discharge location. See Appendix C.	SR
2.02	AW outlines the existing drainage on the periphery of the site such as highway ditches and if necessary acquiring land agreements.	

ITEM	NOTES	ACTION
2.03	SR requires confirmation if the ditches are highway owned, as it will provide greater clarity. ACE to answer this clearly in their submission, there is also a possibility to include the ditches into the maintenance schedule if not already highway ditches.	TR
2.04	SR agrees in the proposed drainage strategy which suggests a combining all flows to discharge to the same main river, this is seen as a positive and a betterment. ACE will have to be cautious as if the drainage strategy removes water from one area and directs it to another it could cause damage to existing habitats and/or ecosystems. TR to outline this in the FRA.	TR
2.05	AW outlines the drainage strategy is achieving the 3 stages of treatment or more for the whole of the site which aligns with EBC's local plan. See Appendix B for the initial SuDS treatment table.	
2.06	SR notes there is limited source control measures around the site. AW outlines the 3 stages of treatment overachieves the water quality requirements for a site of this size.	
2.07	AW notes the need for foul pumping stations within the site. SR states pumping stations are acceptable, but further information will need to be provided why a gravity connection is not acceptable. ACE to provide. AR comments on the above, regarding the benefits of raising ground to achieve a gravity connection or proposing a pumping station. SR outlines pumping stations are normally questioned on a case by case basis and there are many ecological, sustainable, political issues as to why a foul pumping station would be required.	TR
2.08	SR asks if basins are too close to the road and what consideration has been accounted for to minimise poor design. AW confirms a minimum offset from the back of carriageway/footway is 1m and suitable levels will be outlined to make sure basins are safe and fit for purpose.	
2.09	AW confirms this site will be submitted as an outline application. SR confirms HCC would just need to see viability at that stage, but the more information provided reduces the conditions stated.	
2.10	WB notes there is an identified depression not shown on our plans see extract below. ACE to investigate surface water risk in this zone and if there is still a ditch located within this area of the site.	

ITEM	NOTES	ACTION
	 POST MEETING RESOLUTION – TR has attended site and note this depression is an informal route for tracktor movements, see google maps photo below. Also see photo from site visit take looking east. 	
2.11	SR notes OWC will be required. That is a planning process handled separately. ACE to provide with FRA.	TR

3.00	General Comments regarding HCC drainage design																
3.01	AW confirms the discharge rate as flow mathcing or Qbar. SR agrees not increase flows so can work with flow matching as well as Qbar.																
3.02	AW asks about drainage parameters, SR confirms FEH is best practice for discharge calculations.																
3.03	TR confirms causeway flow and Site 3D are acceptable hydraulic modelling softwares. SR does note that the reports will need to show the correct data so an indepth review can be undertaken.																
3.04	AW confirms Default Cv, MADD Factors for the drainage parameters.																
3.05	SR confirms the drainage design can accept flooding elements in the 1 in 100year + CC as long as it is appropriately managed on site, prior to discharge.																
3.06	Urban creep is applied private curtilage; i.e. to the roof of plot, roof of the garage and the driveway. Urban creep to be based on density of the development. See table below showing percentages. <table><tr><th>Residential development density (Dwellings per hectare)</th><th>Urban Creep allowance (% of impermeable area)</th></tr><tr><td>fewer than 25</td><td>10</td></tr><tr><td>30</td><td>8</td></tr><tr><td>35</td><td>6</td></tr><tr><td>40</td><td>4</td></tr><tr><td>more than 50</td><td>2</td></tr><tr><td>Flats and Apartments</td><td>0</td></tr></table>		Residential development density (Dwellings per hectare)	Urban Creep allowance (% of impermeable area)	fewer than 25	10	30	8	35	6	40	4	more than 50	2	Flats and Apartments	0	
Residential development density (Dwellings per hectare)	Urban Creep allowance (% of impermeable area)																
fewer than 25	10																
30	8																
35	6																
40	4																
more than 50	2																
Flats and Apartments	0																
3.07	Greenfield run off rate based on development area not impermeable area. SR suggest clear catchment should be shown. And that if we intersect open space or natural flow routes we should be including it. AW confirms existing catchment plan will be provided.																
3.08	Maintenance schedule and SuDS Treatment tables to be provided within the FRA																
3.09	AR confirms the discharge rate will be shown in l/s/ha due to the evolving nature of the development.																
3.10	AW confirms the minimal orifice size is 100mm																
3.11	TR confirms the basin depth will be in accordance with CIRIA guidance and suggested depths to be circa 1.5m deep. SR confirms freeboards can be to CIRIA																

	guidance as well noting acceptable freeboards in the past have been 150-300mm in some instances.	
3.12	SR states areas of open space should be taken into account if they're draining towards the proposed SuD Features.	
3.13	SR notes the climate change is mentioned for the 1:30yr. ACE should review the climate change requirements for the development in the 1:30yr. POST MEETING RESOLUTION - TR The 1:30 year climate change rate is 40%, the 1:100 year climate change rate is 45%.	

**Appendix F
Drainage Calculations**

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Easting (m)	Northing (m)	Depth (m)
Basin B	2.030	5.00	10.000	59.529	69.713	1.500
Basin A	3.060	5.00	10.000	121.378	51.222	1.500

Simulation Settings

Rainfall Methodology	FEH-22	Skip Steady State	x	1 year (l/s)	5.9
Rainfall Events	Singular	Drain Down Time (mins)	240	2 year (l/s)	6.2
Summer CV	0.750	Additional Storage (m ³ /ha)	0.0	30 year (l/s)	13.7
Winter CV	0.840	Starting Level (m)		100 year (l/s)	17.1
Analysis Speed	Detailed	Check Discharge Rate(s)	✓	Check Discharge Volume	x

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	45	0	0

Pre-development Discharge Rate

Site Makeup	Greenfield	Growth Factor 30 year	1.99
Greenfield Method	FEH	Growth Factor 100 year	2.48
Positively Drained Area (ha)	1.000	Betterment (%)	0
SAAR (mm)	862	QMed	6.2
Host	1	QBar	6.9
BFIHost	0.412	Q 1 year (l/s)	5.9
Region	1	Q 2 year (l/s)	6.2
QBar/QMed conversion factor	1.111	Q 30 year (l/s)	13.7
Growth Factor 1 year	0.85	Q 100 year (l/s)	17.1
Growth Factor 2 year	0.90		

Node Basin B Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	8.500	Product Number	CTL-SHE-0203-2160-1200-2160
Design Depth (m)	1.200	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	21.6	Min Node Diameter (mm)	1500

Node Basin A Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	8.500	Product Number	CTL-SHE-0242-3240-1200-3240
Design Depth (m)	1.200	Min Outlet Diameter (m)	0.300
Design Flow (l/s)	32.4	Min Node Diameter (mm)	1800

Node Basin B Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	8.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	730.0	0.0	1.500	1224.6	0.0

Node Basin A Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	8.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	1200.0	0.0	1.500	1816.2	0.0

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	Basin B	176	8.800	0.300	66.8	233.8800	0.0000	OK
240 minute winter	Basin A	176	8.793	0.293	100.6	369.6397	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)	Discharge Vol (m³)				
240 minute winter	Basin B	Hydro-Brake®	21.4	334.8				
240 minute winter	Basin A	Hydro-Brake®	31.7	475.5				

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
180 minute winter	Basin B	176	9.156	0.656	163.3	550.0983	0.0000	OK
180 minute winter	Basin A	176	9.131	0.631	246.1	839.2327	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)	Discharge Vol (m ³)
180 minute winter	Basin B	Hydro-Brake®	21.6	462.9
180 minute winter	Basin A	Hydro-Brake®	32.4	687.8

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	Basin B	236	9.687	1.187	233.0	1098.4240	0.0000	OK
240 minute winter	Basin A	236	9.662	1.162	351.2	1671.9100	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)	Discharge Vol (m³)				
240 minute winter	Basin B	Hydro-Brake®	21.6	525.9				
240 minute winter	Basin A	Hydro-Brake®	32.4	769.8				

Appendix G

Concept Drainage Strategy