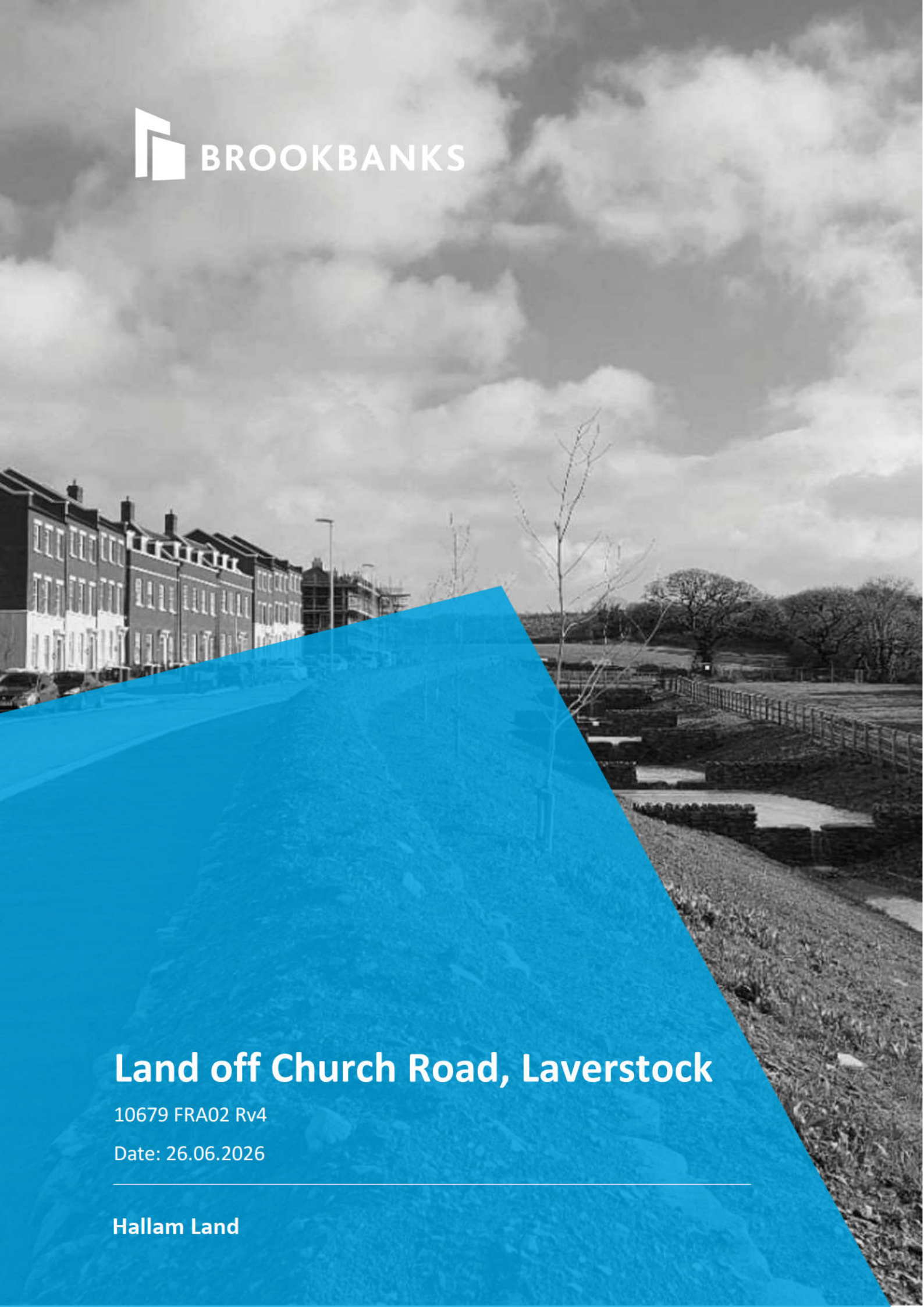


Land off Church Road, Laverstock

10679 FRA02 Rv4

Date: 26.06.2026

Hallam Land

Document Control Sheet

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Document Ref	10679 FRA02 Rv4
Project Name	Land off Church Road, Laverstock
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Executive Summary

Development Summary and Existing Conditions Overview		Section
Development Summary	The proposed development is to build a residential development that includes up to 110 dwellings within a 3.15ha area. The Site will include greenspace amenity and a SuDS network.	1
Existing Land Use	The majority of the Site is currently agricultural and is not thought to have been historically subject to any significant built development.	3

Baseline Conditions		Section
Existing Watercourses	The Site lies approximately 370m east of the River Bourne, with no watercourses on Site or other watercourse amenities within the vicinity of the Site.	2
Topography	A review of the levels across the Site indicates that the topography across the Site is characterised by moderate gradients falling in a westerly direction. Levels fall from a high point of circa 60mAOD in the east of the Site, down to a low point of circa 53mAOD in the west.	3
Geology	With reference to the British Geological Survey map, the Site is shown to be underlain by chalk bedrock geology belonging to the Newhaven Chalk Formation. The Site includes superficial Head deposits comprising Clay, Silt, Sand And Gravel.	3
Hydrogeology	The underlying bedrock geology forms a Principal aquifer across the whole Site and the superficial deposits form a secondary (undifferentiated) Aquifer. With reference to the Magic Maps Groundwater Vulnerability Zones Map, the Site is shown to be within a 'High' to 'Medium High' category. The Site does not lie within a source protection zone.	3

Flood Risk			
Mechanisms	Potential	Comment	Section
Coastal & Tidal	N	The Site lies approximately 35km northeast from the nearest tidal watercourse and lies at a minimum of circa 53m above ordnance datum and therefore, has a very low risk of coastal flooding.	4
Fluvial	N	The EA mapping shows that the entire Site lies within Flood Zone 1.	4
Overland Flow (Pluvial)	N	The EA mapping illustrates areas of very low risk of surface water flooding.	4
Reservoirs, Canals etc	N	The Site is shown to lie approximately 2.4km north from the potential maximum extent of flooding.	4
Sewers	N	The SFRA investigated flooding from sewers by collecting historic flooding incidents data from Wessex Water; the data does not identify any historic incidences. However, there are existing sewers on Site, which has the potential to flood.	4
Groundwater	N	The SFRA does not identify any historic groundwater flooding for Laverstock. However, it does identify that the chalk geology does have the possibility of being susceptible for groundwater flooding.	4

Drainage Strategy		Section
Surface Water Drainage		
Discharge Method	Surface water will discharge via infiltration through an infiltration basin. As the scheme progresses there will be opportunities to incorporate on plot SuDS such as permeable paving and rain gardens.	8
Pre Development Conditions	The existing runoff rate for the Site (8.07ha, excluding Church Road) is 16.10 l/s for the 100 year storm event and 4.30 l/s for the 1 year storm event. There are no existing drainage feature within or adjacent to the Site, which is underlain by Chalk geology. Therefore, based on these conditions, it is expected that the Site infiltrates.	8
Post Development Conditions	An infiltration rate of 0.075 m/hr has been utilised, with the rate calculated from the testing completed by GEG in 2015.	8
Foul Drainage		
Discharge Method	Foul water will be discharged into Church Road and connect into the closest appropriate existing manhole.	10

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Appendix E – Wessex Water

1 Introduction

1.1.1.1 Brookbanks is appointed by Hallam Land to complete a Flood Risk Assessment (FRA) for a development Site at Land off Church Road Laverstock, Salisbury.

1.1.1.2 The proposed development (illustrated in **Appendix A**) is to comprise of:

"Outline Planning Application with all matters reserved (except for principal access to the highway) for the construction of up to 110 dwellings, public open space, landscaping, biodiversity enhancements, and associated green, hard, and other infrastructure."

1.1.1.3 This document forms an FRA, to accord with current guidance and addresses national, regional and local policy requirements in demonstrating that the proposed development lies within the acceptable flood risk parameters. The objective of the study is to demonstrate the development proposals are acceptable from a flooding risk and drainage viewpoint.

1.1.1.4 This report summarises the findings of the study and specifically addresses the following issues in the context of the current legislative regime:

- Flood risk
- Surface water drainage
- Foul water drainage

1.1.1.5 The **National Planning Policy Framework** (NPPF), updated in December 2024 (with an alteration in February 2025), sets out Governmental Policy on a range of matters, including Development and Flood Risk. The policies were largely carried over from the former PPS25: Development & Flood Risk, albeit with certain simplification. The allocation of development Sites and local planning authorities' development control decisions must be considered against a risk-based search sequence, as provided by the document.

1.1.1.6 NPPF key objectives related to drainage and summary of flood risk:

- The National Planning Policy Framework (NPPF) encourages the use of SuDS to manage surface water runoff and reduce flood risk. SuDS will be integrated into new developments to mimic natural drainage and manage water at the source.
- Sequential, Risk-Based Approach: Development plans will use a sequential, risk-based approach to avoid flood risk, considering all sources of flood risk and the impacts of climate change.
- Avoiding Increased Flood Risk: New developments will not increase flood risk elsewhere. They will be designed to manage and mitigate any potential impacts on flooding in other areas.
- Climate Change Mitigation and Adaptation: Plans will proactively address climate change, considering long-term implications for flood risk, coastal change, water supply, biodiversity, and landscapes. Policies will support measures to ensure the resilience of communities and infrastructure.
- Development will not increase flood risk elsewhere. This means that any new development will be designed to ensure that it does not exacerbate flooding in other areas. Measures will be taken to manage and mitigate any potential impacts.

1.1.1.7 Chapter 14: Meeting the challenge of climate change, flooding and coastal change of the NPPF reviews how new development should plan around flood risk and future climate change. Paragraph 172 states that:

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 – so as to avoid, where possible, flood risk to people and property.

1.1.1.8 An assessment of the Sites current flood risk and a review of the Site in regards to the sequential test are reviewed in later chapters of this report.

1.1.1.9 The Planning Practice Guidance (PPG) flood risk and coastal change, updated September 2025, sets out tests that have been set out to protect people and property from flooding.

1.1.1.10 Allocation and planning of development must be considered against a risk-based search sequence, as provided by the PPG. In terms of fluvial flooding, the guidance categorises flood zones in three principal levels of risk, as follows in **Table 1-1**.

Flood Zone	Annual Probability of Flooding
Zone 1: Low probability	< 0.1 %
Zone 2: Medium probability	0.1 – 1.0 %
Zone 3a / 3b: High probability	> 1.0 %

Table 1-1: PPG Flood Risk Parameters

1.1.1.11 In accordance with the PPG, residential development, being designated as "More Vulnerable" classifications, should lie outside the envelope of the predicted 1 in 100-year (1%) flood, with preference given to Sites lying outside the 1 in 1,000 (0.1%) year events and within Flood Zone 1.

1.2 Planning Application

1.2.0.12 This FRA has been produced in order to provide information for an outline planning application, with all matters reserved except access.

1.2.0.13 Everything designed within this report is to illustrate that a drainage strategy can be successfully designed and applied for the development Site.

1.2.0.14 The FRA will then be the subject of a reserved matters application where detailed design layouts and criteria will be provided.

2 Site Context

2.1 Location

2.1.0.1 The proposed development lies approximately 2.3km northeast of Salisbury town centre, Wiltshire.

2.1.0.2 The Site is bound by Church Road to the west, residential properties to the northwest, agricultural fields to the northeast, east and southeast. The southwest of the Site is bound by an electrical supply shop. The land is not thought to have been historically subject to any significant built development.

2.2 Existing Site Drainage

2.2.0.3 There are no watercourses or drainage channels within or adjacent to the Sit. The closest Environment Agency (EA) main river is River Bourne, which is located approximately 370m west of the Site.

2.2.0.4 The Site location and drainage features are shown indicatively on **Figure 2-1** below.

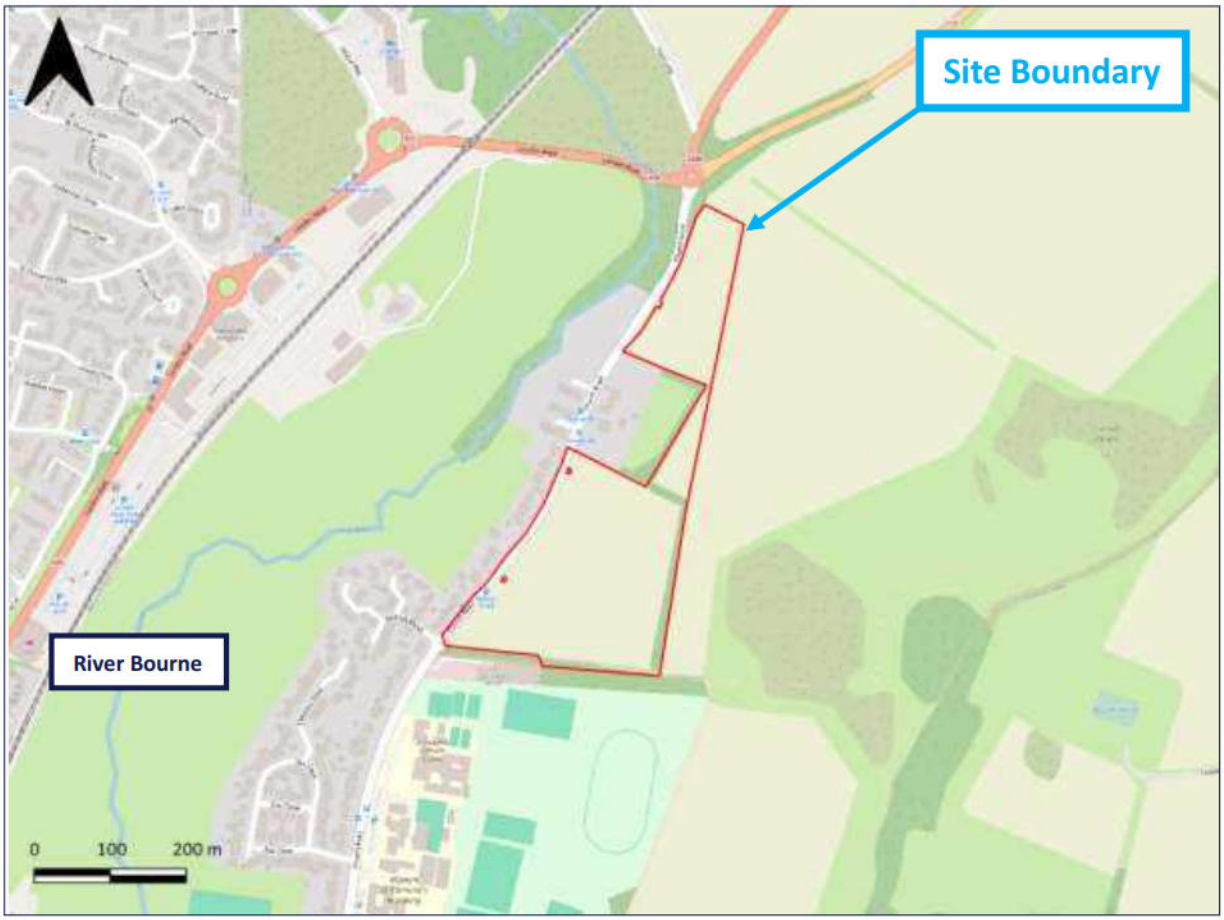


Figure 2-1: Site Location

3 Baseline Conditions

3.1 Present Day

3.1.0.1 The Site is currently undeveloped agricultural land, which is not thought to have been historically subject to any significant built development.

3.2 Topography

3.2.0.2 A topographical survey of the Site was completed by SUMO Survey Ltd in May 2026. The topography across the Site is characterised by moderate gradients falling in a westerly direction. Levels fall from a high point of circa 65.67mAOD in the south east of the Site, down to a low point of circa 52.23mAOD in the west.

3.3 Geology

3.3.0.3 With reference to the British Geological Survey map, the Site is shown to be underlain by chalk bedrock geology belonging to the Newhaven Chalk Formation.

3.3.0.4 The Site includes superficial Head deposits comprising Clay, Silt, Sand and Gravel. The published Site geology is illustrated on **Figure 3-1**.



Figure 3-1: BGS Published Bedrock Geology (2026)

3.4 Hydrogeology

3.4.1 Aquifers

3.4.1.5 Aquifers form a body of porous rock which can contain or transmit groundwater and are categorised into four types. The type of aquifer is defined by the "geological characteristics, how much groundwater it is possible to extract, and how easily and how much they support river flows and habitats."

3.4.1.6 The underlying bedrock geology forms a Principal aquifer and the superficial geology forms a Secondary (undifferentiated) aquifer. The EA provides the following definitions:

Principal Aquifers *– These are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer.*

Secondary Aquifers *- These include a wide range of rock layers or drift deposits with an equally wide range of water permeability and storage. Secondary aquifers are subdivided into two types:*

Secondary Undifferentiated *- has been assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.*

3.4.2 Groundwater Vulnerability

3.4.2.7 The vulnerability of groundwater is determined by its risk of pollution. The risk of pollution is determined by the:

- *physical, chemical and biological properties of the underlying soil and rocks*
- *depth and quality of soil*
- *presence of glacial sediment and other materials – known as 'drift'*
- *depth of the unsaturated zone*

3.4.2.8 The EA Groundwater Vulnerability Zones (GVZ) Mapping summarises the overall risk to groundwater, taking into account groundwater vulnerability, the types of aquifer present (superficial and/or bedrock) and their designation status, as discussed previously.

3.4.2.9 With reference to the Magic Maps Groundwater Vulnerability Zones Map, the Site is shown to be within a 'High' to 'Medium High' category. The northern side of the side is primarily in the High status while the Southern (and bulk of the Site area) is within the 'Medium – High' range.

3.4.2.10 The EA provides the following definition for the underlying GVZ:

High *- "These are high priority groundwater resources that have very limited natural protection. This results in a high overall pollution risk to groundwater from surface activities. Operations or activities in these areas are likely to require additional measures over and above good practice pollution prevention requirements to ensure that groundwater isn't impacted.*

Medium-high *- These are high priority groundwater resources that have limited natural protection. This results in a medium-high overall pollution risk to groundwater from surface activities. Activities in these areas may require additional measures over and above good practice to ensure they do not cause groundwater pollution.*

3.4.2.11 The published Site Vulnerability Map is illustrated on **Figure 3-2**.

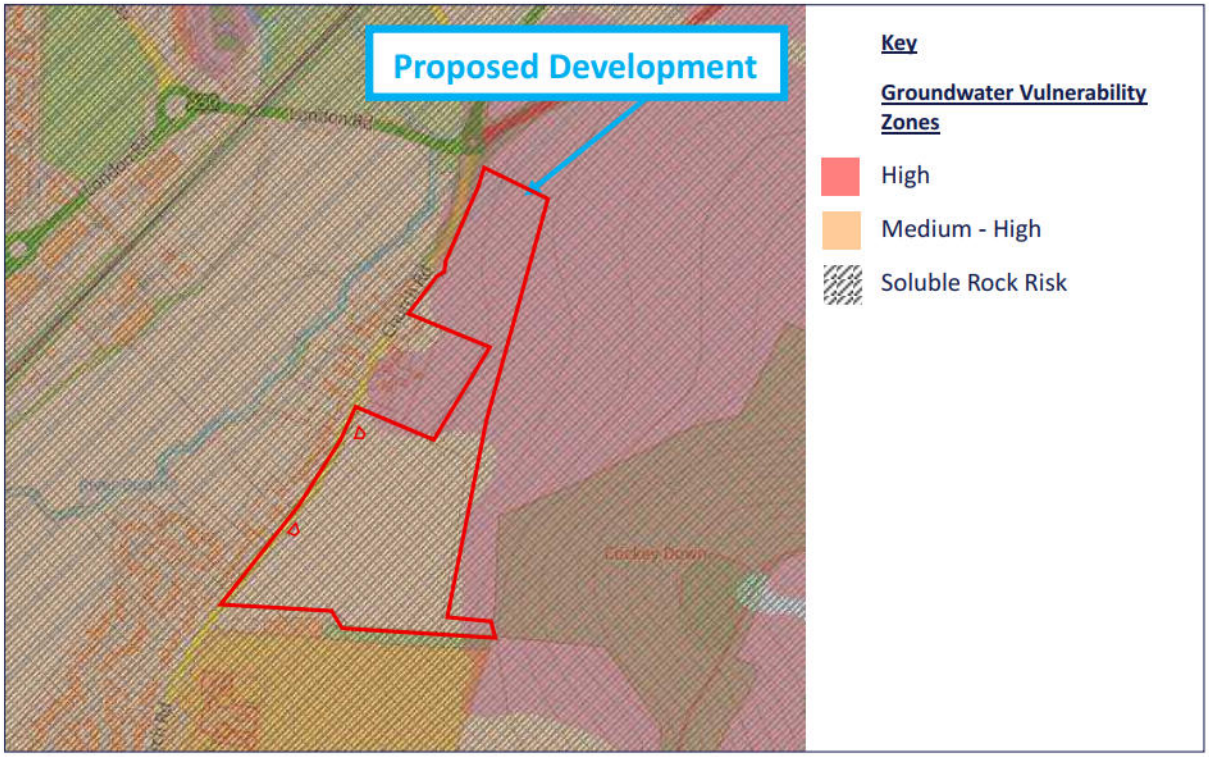


Figure 3-2: EA Groundwater Vulnerability Zones Map

3.5 Source Protection Zone

3.5.2.12 The Site does not lie within a source protection zone, with the nearest source protection zone is located approximately 650m west of the Site.

4 Flood Risk

4.1.1.1 Having completed a site hydrological desk study, the possible flooding mechanisms at the Site are identified as follows.

4.2 Coastal Flooding

4.2.0.2 The Site lies approximately 35km northeast from the nearest tidal watercourse and lies at a minimum of circa 53m above ordnance datum and therefore, has a very low risk of coastal flooding.

4.3 Fluvial Flooding

4.3.0.3 The EA mapping below on **Figure 4-1** shows that the entire Site lies within Flood Zone 1; being an area of Low Probability of flooding and outside both the 1 in 100 (1% AEP) and 1 in 1,000 (0.1% AEP) year flood events;



Figure 4-1: EA Flood Map for Planning – Fluvial Flooding (June, 2026)

4.3.2 Historic Flooding

4.3.2.4 The EA have kept fluvial flood extent records since 1946, and as such any events previous to that are not likely to have been recorded. The mapping does not identify any previous fluvial flooding events across the Site.

4.4 Pluvial Flooding

4.4.2.5 Overland flow flooding, sometimes referred to as overland sheet flow or pluvial flooding, overland flow flooding is characterised by water flowing over the ground surface where there is no drainage system to accept it. It is caused when the intensity of rainfall exceeds the infiltration capacity of the surface onto which it falls or when the soil is saturated and cannot accept more water.

4.4.2.6 **Figure 4-2** illustrates that the Site has a very low risk of surface water flooding:

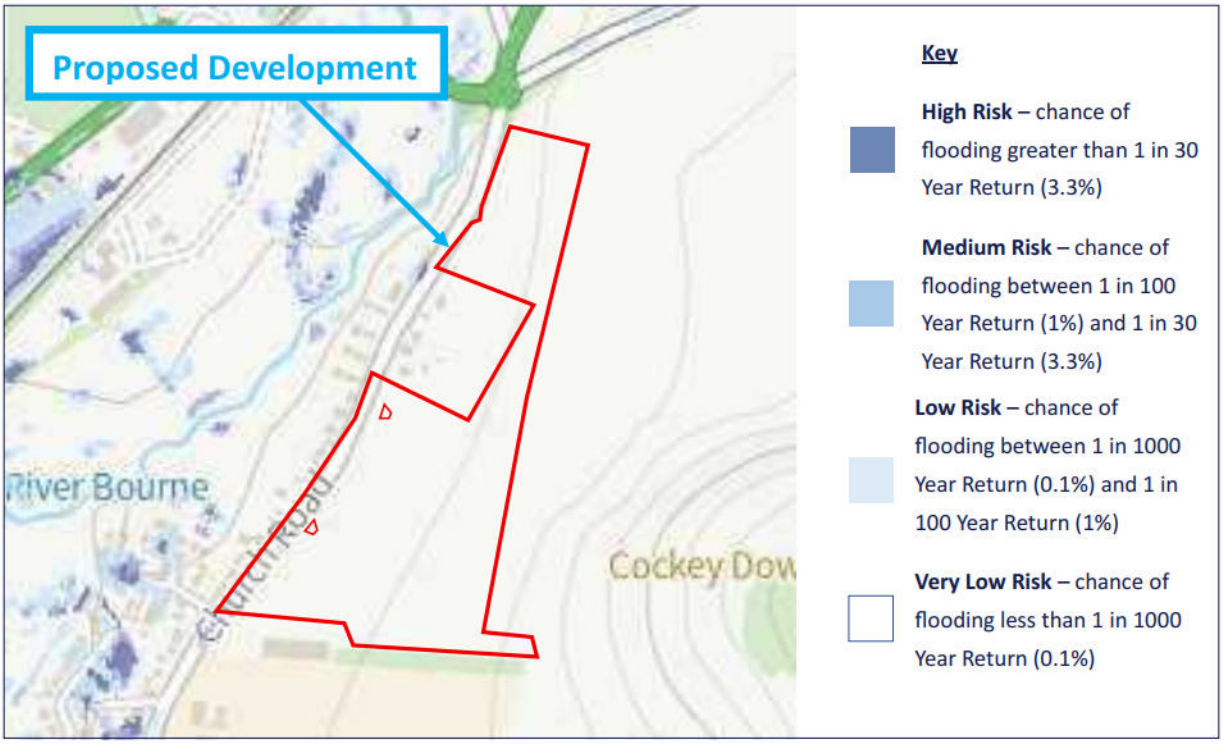


Figure 4-2: EA Long Term Flood Risk Maps – Surface Water Flooding 2040 and 2060 (June 2026)

4.4.2.7 The pluvial flood modelling that forms the basis of the EA's surface water flood mapping does not include high capacity drainage features such as culverts or the details of any local/existing drainage systems and is therefore the areas shown at risk are conservative. Notwithstanding this, the potential of surface water/pluvial flooding should be considered when designing the finished floor level and the external levels for the proposed scheme.

4.5 Artificial Water Bodies

4.5.2.8 Non-natural or artificial sources of flooding comprises of reservoirs, canals and lakes where water is retained above the natural ground level. However unlikely, reservoirs, canals and other artificial sources have a potential to cause flooding due to the release of large volumes of water, resulting from a dam or bank failure.

4.5.2.9 The Environment Agency has produced mapping to indicate a worst case scenario of flooding that would be caused, as a result of unlikely structural failure or damage of a reservoir. The Site is shown to lie approximately 2.4km north from the nearest extent of potential reservoir flooding.

4.6 Sewerage Systems

4.6.2.10 Flooding related to sewerage systems is a result of there being insufficient capacity within an existing sewerage system (combined and surface water sewers) or from there being a blockage within the system.

4.6.2.11 The SFRA investigated flooding from sewers by collecting historic flooding incidents data from Wessex Water; the data does not identify any historic incidences. However, there are existing sewers on Site, which has the potential to flood.

4.6.2.12 Positive drainage measures incorporated on Site, coupled with sustainable drainage systems (SuDS) will ensure that no increase in surface water will result from the Site. Flood risk associated with sewer flooding is therefore considered to be a low probability.

4.7 Groundwater

4.7.2.13 Groundwater flooding is characterised by low-lying areas often associated with shallow unconsolidated sedimentary aquifers which overly non-aquifers. These aquifers are reported to be susceptible to flooding, especially during the winter months, due to limited storage capacity.

4.7.2.14 Where groundwater flooding is present, persistent issues can arise that are problematic to resolve. Such mechanisms often develop due to construction activities that may have an unforeseen effect on the local geology or hydrogeology.

4.7.2.15 There is no mention of groundwater flooding within the SFRA for Laverstock. However, it does identify that the chalk geology does have the possibility of being susceptible for groundwater flooding.

5 Local Planning Policy

5.1 Catchment Flood Management Plans (CFMP)

5.1.0.1 A Catchment Flood Management Plan (CFMP) is a high-level strategic plan through which the Environment Agency seeks to work with other key-decision makers within a river catchment to identify and agree long-term policies for sustainable flood risk management.

5.1.0.2 The Hampshire Avon Catchment Flood Management Plan (June, 2012), outlines that the catchment has been divided into 8 sub-catchments. The Site is shown to be situated within the Salisbury catchment which is covered by the following policy:

Policy 5: Areas of moderate to high flood risk where we can generally take further action to reduce flood risk

This policy will tend to be applied to those areas where the case for further action to reduce flood risk is most compelling, for example where there are many people at high risk, or where changes in the environment have already increased risk. Taking further action to reduce risk will require additional appraisal to assess whether there are socially and environmentally sustainable, technically viable and economically justified options.

5.2 Strategic Flood Risk Assessment (SFRA)

5.2.0.3 To support local planning policy, NPPF guidance recommends that local planning authorities produce a Strategic Flood Risk Assessment (SFRA). The SFRA should be used to help define the Local Plan and associated policies; considering potential development zones in the context of the sequential test defined in the guidance.

5.2.0.4 Wiltshire Council, published their Level 1 Strategic Flood Risk Assessment in November 2024. The document generally underpins national guidance and provides recommendations to developers with regards to SuDS and design which will be explored further in this report under the Storm Drainage section.

5.2.0.5 The SFRA Objectives are outlined below:

- Inform the preparation of development documents prepared by Wiltshire Council and assist town and parish councils in the preparation of neighbourhood plans by assessing flood risk from all sources, current and future using updated information sources.
- Identify which locations are most and least vulnerable to flooding from all relevant sources, including a review of the proposed allocations in the draft Local Plan and draft Gypsies and Travellers Plan.
- Produce a comprehensive set of maps presenting flood risk from all sources, including historic records, that can be used as an evidence base for flood management purposes.
- Identify areas where further assessment of flood risk is needed and provide sufficient detail to enable the Sequential Test to be applied to inform allocations of land for development.
- Provide clear advice based on the type and intensity of flood risk for developers undertaking site-specific Flood Risk Assessments (FRAs).
- Assess or identify existing and proposed flood defences and the maintenance requirements of these defences.
- Summarise the role that the Lead Local Flood Authority (LLFA) will play in the management of flood risk.

- Consider outputs from the Preliminary Flood Risk Assessment (PFRA) and any local flood risk strategies.
- Take into account climate change.
- Assess the cumulative impact that development will have on flood risk.

5.3 Core Strategy

5.3.0.6 Wiltshire adopted their Core Strategy in January 2015. Policies 67 and 68 addresses flood risk and water resources.

Core Policy 67 – Flood Risk

Development proposed in Flood Zones 2 and 3 as identified within the Strategic Flood Risk Assessment will need to refer to the Strategic Housing Land Availability Assessment when providing evidence to the local planning authority in order to apply the sequential test in line with the requirements of national policy and established best practice. All new development will include measures to reduce the rate of rainwater run-off and improve rainwater infiltration to soil and ground (sustainable urban drainage) unless Site or environmental conditions make these measures unsuitable.

Core Policy 68 – Water Resources

Development must not prejudice the delivery of the actions and targets of the relevant River Basin or Catchment Management Plan, and should contribute towards their delivery where possible. 310 Non-residential development will be required to incorporate water efficiency measures. Developers will be expected to submit details of how water efficiency has been taken into account during the design of proposals. Development proposals within a Source Protection Zone, Safeguard Zone or Water Protection Zone must assess any risk to groundwater resources and groundwater quality and demonstrate that these would be protected throughout the construction and operational phases of development.

5.4 Neighbourhood Plan

5.4.0.7 Laverstock and Ford Communities Neighbourhood Plan (2021 to 2036) was adopted in 2022. This plan will, alongside Wiltshire Council's Local Plan and the National Planning Policy Guidelines, guide the development and use of land in the Parish to 2036. There are no policies within this document that relate directly to flood risk and drainage.

6 Flood Risk Vulnerability

6.1.1.1 In accordance with the PPG:

"Flood risk is a combination of the probability and the potential consequences of flooding. Areas at risk of flooding are those at risk of flooding from any source, now or in the future. Sources include rivers and the sea, direct rainfall on the ground surface, rising groundwater, overwhelmed sewers and drainage systems, reservoirs, canals and lakes and other artificial sources. Flood risk also accounts for the interactions between these different sources."

6.1.1.2 When building within a flood zone, the vulnerability of the development must be taken into consideration. The impacts of flooding will affect types of development differently.

6.1.1.3 The EA's vulnerability classification table is illustrated below in **Table 6-1**. The table outlines the PPG technical guidance for flood risk vulnerability and flood zone compatibility assessment to propose which type of development is appropriate for which Sites.

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

Table 6-1: Environment Agency's Flood Risk Vulnerability Classification Table

6.2 Sequential Testing

6.2.0.4 The PPG states that:

"a sequential, risk-based approach is followed to steer new development to areas with the lowest risk of flooding, taking all sources of flood risk and climate change into account. Where it is not possible to locate development in low-risk areas, the Sequential Test should go on to compare reasonably available Sites:

- *Within medium risk areas; and*
- *Then, only where there are no reasonably available Sites in low and medium risk areas, within high-risk areas."*

6.2.0.5 In order to steer development towards areas and Sites with the lowest probability of flooding, Diagram 2 of the PPG (illustrated in **Figure 6-1**) must be followed for all types of flooding.

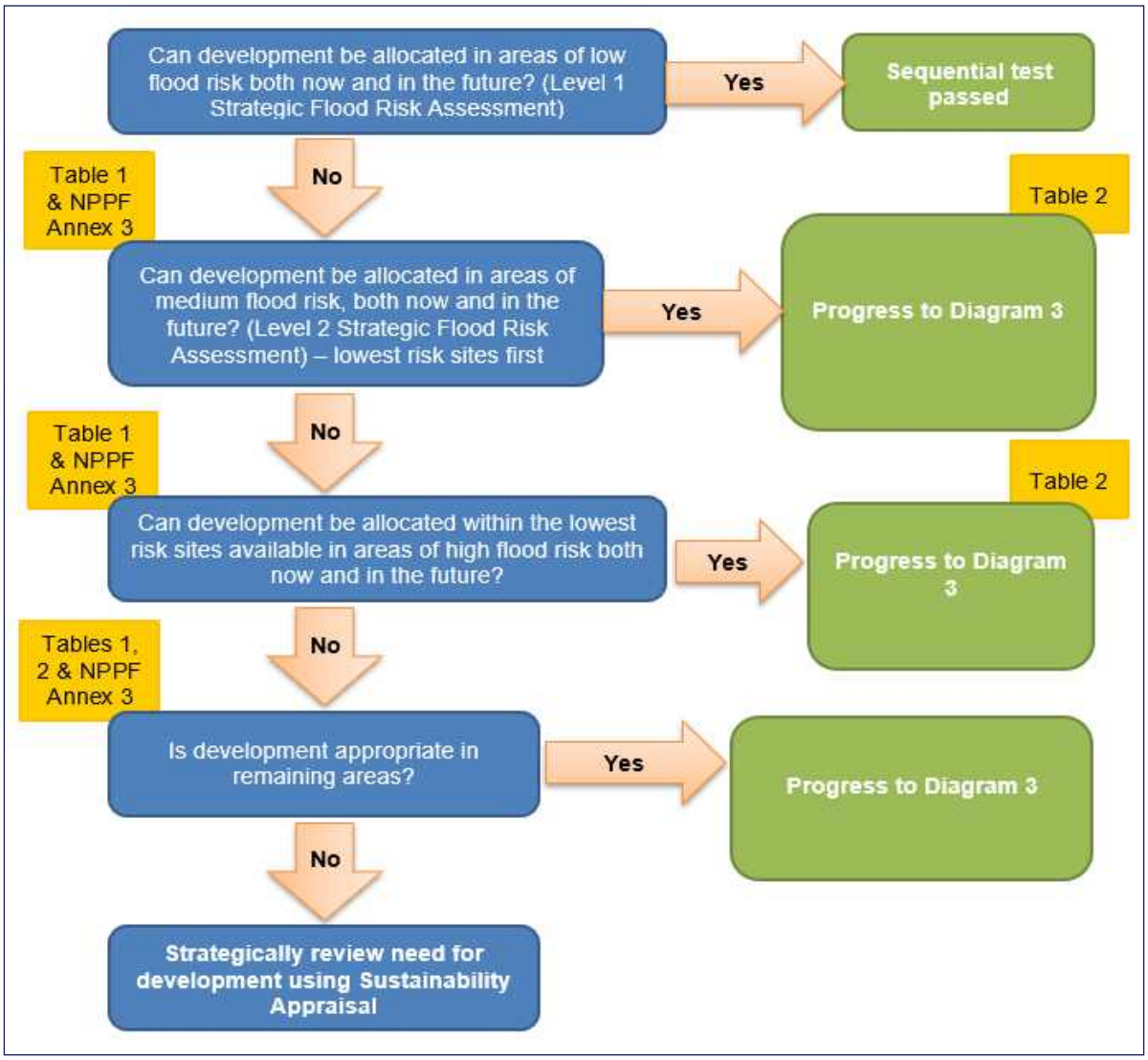


Figure 6-1: 'Diagram 2': Application of the Sequential Test for Plan Preparation

6.2.0.6 All of the proposed built development will lie entirely within Flood Zone 1, as illustrated on the illustrative masterplan provided in **Appendix A**.

6.2.0.7 The EA mapping does show a very low risk of surface water flooding across the Site, however the majority of the Site is within a very low risk area of flooding.

6.2.0.8 Updates to the PPG (September 2025), state that:

"In applying paragraph 175 a proportionate approach should be taken. Where a site-specific flood risk assessment demonstrates clearly that the proposed layout, design, and mitigation measures would ensure that occupiers and users would remain safe from current and future surface water flood risk for the lifetime of the development (therefore addressing the risks identified e.g. by Environment Agency flood risk mapping), without increasing flood risk elsewhere, then the sequential test need not be applied."

6.2.0.9 Therefore, any surface water flooding on site will not require a sequential test and the risk of flooding will be managed on Site through the SuDS strategy.

6.3 Exception Test

6.3.0.10 An exception test should only be applied as set out in **Table 6-1** and only if the sequential test has shown that there are no reasonably available, lower-risk sites, suitable for the proposed development, to which the development could be steered. The exception test should not need to be applied in this case.

7 Surface Water Drainage

7.1 Current Site Surface Water Drainage

7.1.0.1 As the Site is currently greenfield and there are no flow paths across the Site and have a very low risk of surface water flooding, it is assumed that surface water infiltrates into the chalk geology.

7.1.0.2 The Site does not currently have any formal drainage infrastructure and therefore, it is necessary that a SuDS strategy is incorporated into the development.

7.2 SuDS Components

7.2.0.3 It is proposed to implement a SuDS scheme consistent with local and national policy at the proposed development.

7.2.0.4 The nature of source control measures to be implemented will need to remain flexible, at the outline stage, in order to provide each house builder with a 'toolkit' of options to reach an agreed target for peak discharge reduction and water treatment.

7.2.0.5 However, a variety of SuDS features, both at source and catchment wide, will be reviewed and proposed within this strategy.

7.2.0.6 **Table 7-1** is an extract of Table 7.1 from the CIRIA SuDS Manual C753 which outlines a number of options available.

Component Types	Description	Collection Mechanism	Design Criteria					
			Water Quantity			Water Quality	Amenity	Biodiversity
			Peak Runoff Rate	Runoff Volumes				
				Small Events	Large Events			
Rainwater Harvesting Systems	Systems that collect runoff from the roof of a building or other paved surface for use	P		●	●		●	
Green Roofs	Planted soil layers on the roof of buildings that slow and store runoff	S	○	●		●	●	●
Infiltration Systems	Systems that collect and store runoff, allowing it to infiltrate into the ground	P	●	●	●	●	●	●
Proprietary Treatment System	Subsurface structures designed to provide treatment of runoff	P				●		

Filter Strips	Grass strips that promote sedimentation and filtration as runoff is conveyed over the surface	L		●		●	○	○
Filter Drains	Shallow stone filled trenches that provide attenuation, conveyance and treatment of runoff	L	●	○		●	○	○
Swales	Vegetated channels (sometimes planted) used to convey and treat runoff	L	●	●	●	●	●	●
Bioretention Systems	Shallow landscaped depressions that allow runoff to pond temporarily on the surface, before filtering through vegetation and underlying soils	P	●	●	●	●	●	●
Trees	Trees within soil-filled tree pots, tree planters or structural soils used to collect, store and treat runoff	P	●	●		●	●	●
Pervious Pavements	Structural paving through which runoff can soak and subsequently be stored in the sub-base beneath, and/or allowed to infiltrate into the ground below	S	●	●	●	●	○	○
Attenuation Storage Tanks	Large, below ground voided spaces used to temporarily store runoff before infiltration, controlled release or use	P	●					
Detention Basins	Vegetated depressions that store and treat runoff	P	●	●		●	●	●
Ponds and Wetlands	Permanent pools of water used to facilitate treatment runoff – runoff can also be stored in an attenuation zone above the pool	P	●			●	●	●

* Key
P – Point (collected where rainfall lands), L – Lateral (rainfall runoff collected in a drain or channel),
S – Surface (collected where rainfall lands over a surface)
○ Likely Valuable Contribution ● Some Potential Contribution to Delivery of Design Criterion

Table 7-1: Ciria Guidance Table 7.1 (SuDS Component Delivery of Design Criteria)

7.3 Drainage Hierarchy

7.3.0.7 The following paragraphs in this section outline the proposed drainage strategy to meet national and local design requirements and guidance.

7.3.0.8 The NPPG and the latest National Standards for SuDS (July 2025) requires new development to implement means of storm water control, known as SuDS, to maintain flow rates discharged to the surface water receptor at the pre-development 'baseline conditions' and improve the quality of water discharged from the land.

7.3.0.9 When appraising suitable storm water discharge options for a development site, the National Standards provide the following search sequence for identification of the most appropriate drainage methodology.

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

7.3.0.10 Dealing with the search order in sequence:

7.3.0.11 There is opportunity to include water butts within each dwelling, however as a residential scheme there is not sufficient demand for non-potable water to include a larger scale collection.

7.3.0.12 Infiltration testing has been undertaken which shows that the Site is viable for the use of an infiltration SuDS system. Where subsequent investigations show infiltration is viable locally to work, this will be incorporated throughout Site at detailed design stage.

7.3.0.13 The River Bourne lies approximately 370m to the west of the Site, there are no identifiable watercourses, drainage ditches or networks located within the Site boundaries.

7.3.0.14 Wessex Water records confirm the presence of surface water sewers in the surrounding area that could be employed should the need arise.

7.3.0.15 The search sequence outlined above indicates that an infiltration basin is the most viable option for discharging surface water from the Site.

7.4 Primary Drainage Systems (source control)

7.4.0.16 At the head of the drainage network, across the Site, source control measures could be implemented to reduce the amount of run-off being conveyed directly to piped drainage systems.

7.4.0.17 The common aims of a Primary Drainage System are:

- Reduction in peak discharges to the agreed Site wide run-off rate from the development areas.
- Provide water quality treatment where appropriate

7.4.0.18 Through consultations at outline planning stage, it has been agreed that the nature of source control measures to be implemented will need to remain flexible, providing a 'toolkit' of options to reach an agreed target for peak discharge reduction and water treatment.

7.4.0.19 The following SuDS guidance is for Wiltshire is as follows:

"SuDS can be integrated into the design of all new development within Wiltshire. The effectiveness of SuDS within a Site is defined by Site characteristics including (but not limited to) topography, geology, soil permeability, water table, existing water flows across the Site, land ownership and extent of Site coverage necessary to effectively manage surface water runoff and drainage."

7.4.0.20 **Table 7-2** outlines which options will be used within the outline application and which will be considered at reserved matters.

Component Types	Used at Outline	To be Considered at Reserved Matters
Rainwater Harvesting Systems		✓
Infiltration Systems	✓	✓
Filter Strips		✓
Filter Drains		✓
Swales	✓	✓
Tree Pits		✓
Pervious Pavements		✓
Detention Basins	✓	✓

Table 7-2: Types of SuDS Components to be Considered

7.4.0.21 Proposals have been developed to inform the strategic drainage network across the development. It is proposed that the drainage system for the site utilises a SuDS system as the primary storm water management scheme.

7.4.0.22 Coupled with the storm water control benefits, the use of SuDS can also provide betterment on water quality. National guidance in the form of CIRIA 753 outlines that by implementing SuDS, storm water from the site can be polished to an improved standard thus ensuring the development proposals have no adverse effects on the wider hydrology.

8 Preliminary Drainage Proposals

8.1.1.1 The common aims of a Primary Drainage System are:

- Reduction in peak discharges to the agreed Site wide run-off rate from the development areas.
- Provide water quality treatment where appropriate

8.1.1.2 Preliminary assessment of the requirements for storm drainage has been based on the following criteria as shown in **Table 8-1**.

Criteria	Measure/Rate/Factor
Application Site Area	8.33ha
Developed Area – Residential Parcels and Access	3.20 ha
Church Road	0.26 ha
Landscaped Area	4.87 ha
Impermeability - Residential	0.60
Sewer design return period	1 in 1 year
Sewer flood protection	1 in 30 years
Fluvial / Development flood protection	1 in 100 years
BFIHOST	0.881
BFIHOST19	0.9
PROPWET	0.35
SAAR9120	808 mm
Minimum cover to sewers	1.2 m
Minimum velocity	1.0 m/sec
Pipe ks value	0.6 mm
Allowance for climate change	45%

* FEH Catchment Descriptors- Site constants for calculating rainfall depths

Table 8-1: Drainage Criteria and Measure

8.2 Ground Investigations

8.2.0.3 Infiltration testing completed by GEG in May 2015 and consisted of 5 tests across three trial pits.

8.2.0.4 The infiltration tests undertaken indicate that the ground conditions are permeable with respect to soakaway potential. Infiltration rates ranged from 2.83 x 10^{-6} m/s to 6.09 x 10-^{4} m/s across the site where ground conditions are associated with the Newhaven Chalk Formation.

8.2.0.5 The full report has been provided in **Appendix B**.

8.3 Outline Surface Water Drainage Strategy

8.3.0.6 For this Site a SuDS strategy comprising of conveyance swales and an infiltration basin has been designed.

8.3.0.7 As the scheme progresses the opportunity to incorporate on-plot SuDS, such as permeable paving, rain gardens and conveyance swales, to provided treatment train to ensure water quality prior from roads and driveways prior to infiltration. The incorporation of on plot SuDS will also reduce the speed storm water flows into the basins.

8.3.0.8 There is an existing fuel pipeline that crosses the northern development parcel. As detailed sewer and level design progresses, should a gravity connection from the development area east of the pipeline prove unviable, surface water runoff from this 0.47ha area (approximately 272m³) will be attenuated on the parcel, rather than within the proposed basin, and discharged via a series of infiltration features.

8.3.0.9 At present the Site lies within Flood Zone 1 or within a very low risk of surface water flooding and therefore, lies above the maximum flood water level from all sources.

8.3.0.10 The proposed strategic drainage masterplan is shown illustratively on drawing 10679-DR-03 A in **Appendix C**.

8.4 SuDS Basin Design

8.4.0.11 The detention proposals have been assessed for the potential effects of climate change. The 1 in 100 year (1% AEP) return events have been modelled for 45% climate change (including peak rainfall intensity), calculations for the climate change scenarios are contained within **Appendix D**.

Catchment Land Use	Developable Area (ha)	Total Impermeable Area (ha) *	Design Run-off (m/hr)	Required Storage Volume (m3)	Approx 5mm (m3) On Plot
Residential	3.20	2.11	0.075	1,854	159

* Impermeable area has been calculated by using the impermeability parameters and 10% urban creep

Table 8-2: Design Parameters and Volume Storage

8.4.0.12 The basin has been designed to a depth of 1.2m, 1 in 3 slopes with a 300mm freeboard and an infiltration rate of 2.08×10^{-5} (m/s) was used. During construction of the basin it will be important to ensure that there is a good pollution retaining soil below the basin to ensure that quality of water that is infiltrating.

8.4.0.13 Once a housing layout has been finalised a detailed swale and pipe network will follow the road layout to also convey surface water from the development into the infiltration basin. The swales and pipe network will be sized accordingly at the detailed design stage.

8.5 The Wider Catchment

8.5.0.14 The development Site lies within a wider 31ha catchment area, that drains through the Site. The wider catchment is illustrated on the drainage strategy plan 10680-DR-03 A.

8.5.0.15 In order to prevent surface water flooding from the catchment, a swale has been placed along the eastern boundary of the Site that will convey any surface water runoff away from the development.

9 SuDS Management

9.1 Water Quantity

9.1.0.1 No long term storage is currently proposed for surface water within the SuDS design.

9.1.0.2 The suitability of the types of rainwater harvesting systems that can be incorporated within the Site will be investigated further at the detailed design stage.

9.2 Water Quantity

9.2.0.3 Impermeable surfaces collect pollutants from a wide variety of sources including cleaning activities, wear from car tyres, vehicle oil and exhaust leaks and general atmospheric deposition (source: CIRIA C609). The implementation of SuDS in development drainage provides a significant benefit in removal of pollutant from development run-off.

9.2.0.4 The SuDS Manual C753 describes a 'Simple Index Approach' for assessing the pollution risk of surface run-off to the receiving environment using indices for likely pollution levels for different land uses and SuDS performance capabilities.

9.2.0.5 CIRIA document C753 Table 26.2, as shown in **Table 9-1**, indicates the minimum treatment indices appropriate for contributing pollution hazards for different land use classifications. To deliver adequate treatment, the selected SuDS components should have a total pollution mitigation index (for each contaminant type) that equals or exceeds the pollution hazard index.

Land Use	Pollution Hazard Level	Total suspended solids (TSS)	Metals	Hydro-carbons
Residential roofs	Very Low	0.2	0.2	0.05
Individual property driveways, residential car parks, low traffic roads (e.g. cul-de-sacs, home zones and general access roads) and non-residential car parking with infrequent change (e.g. schools, offices) i.e. < 300 traffic movements/day	Low	0.5	0.4	0.4
Other roofs (typically commercial/ industrial roofs)	Low	0.3	0.2 (up to 0.8 where there is potential for metals to leach from the roof)	0.05

Table 9-1: CIRIA 753 Table 26.2 Pollution Hazard Indices

9.2.0.6 For a residential type development, roof water requires a very low treatment of 0.2 for total suspended solids, 0.2 for heavy metals and 0.05 for hydrocarbons, and run-off from low traffic roads such as cul-de-sacs and individual property driveways requires low treatment of 0.5 for total suspended solids, 0.4 for heavy metals and 0.4 for hydrocarbons.

9.2.0.7 To provide the correct level of treatment, an assessment needs to be made of the mitigation provided by each SuDS feature. Table 26.4 of The SuDS Manual CIRIA document C753 shown as **Table 9-2** for discharges to groundwater indicates the treatment mitigation indices provided by each SuDS feature.

Characteristics of the material overlying the proposed infiltration surface, through which the runoff percolates	Total suspended solids (TSS)	Metals	Hydro-carbons
A layer of dense vegetation underlain by a soil with good contaminant attenuation potential of at least 300 mm in depth	0.6	0.5	0.6
A soil with good contaminant attenuation potential of at least 300 mm in depth	0.4	0.3	0.3
Infiltration trench (where a suitable depth of filtration material is included that provides treatment, i.e. graded gravel with sufficient smaller particles but not single size coarse aggregate such as 20mm gravel) underlain by a soil with good contaminant attenuation potential of at least 300 mm in depth	0.4	0.4	0.4
Constructed permeable pavement (where a suitable filtration layer is included that provides treatment, and including a geotextile at the base separating the foundation from the subgrade) underlain by a soil with good contaminant attenuation potential of at least 300 mm in depth	0.7	0.6	0.7
Bioretention underlain by a soil with good contaminant attenuation potential of at least 300 mm in depth	0.8	0.8	0.8
Proprietary treatment systems	These must demonstrate that they can address each of the contaminant types to acceptable levels for frequent events up to approximately the 1 in 1 year return period event, for inflow concentrations relevant to the contributing drainage area.		

Table 9-2: CIRIA 753 Table 26.4 SuDS Mitigation Indices for Discharges to Groundwater

9.2.0.8 Where more than one mitigation feature is to be used, CIRIA guidance states that the total mitigation index shall be calculated as follows:

Total SuDS mitigation index = Mitigation Index 1 + 0.5 x Mitigation Index 2

9.2.0.9 At present, the Site and surrounding area does not benefit from any additional measures of stormwater treatment.

9.2.0.10 Due to the need to provide wider sustainability benefits and view the development at a strategic level, SuDS will be implemented to passively treat run off from the development so as to have a positive impact on the surrounding natural environment.

9.2.0.11 The use of this SuDS network will ensure that runoff from the developed areas will be treated, through sedimentation, filtration and biological uptake prior to infiltration, protecting the quality of storm water. The combination of on plot and catchment SuDS features are widely accepted to be of high pollutant removal efficiency (CIRIA C753), which provides at least 2 stages of treatment.

9.2.0.12 As the Site is not presently served by any means of storm water treatment mechanisms, by providing the afore mentioned SuDS within the proposed development the Site will be introducing a treatment train. This will ensure the water quality in the area and thus the development can be seen to be having no significant environmental impact in relation to water.

9.3 Amenity

9.3.0.13 A number of the SuDS will be incorporated into the landscaping of the Site to provide open space, recreational areas, areas of open water and habitat areas.

9.4 Biodiversity

9.4.0.14 The SuDS will provide new habitats for fauna and flora across the Site, as well as enhancing the existing space.

9.4.0.15 The type and location of planting within the SuDS can shelter, food, foraging and breeding opportunities for a variety of wildlife. Further details of how SuDS will improve the ecology and BNG is provided within the Ecology report.

9.5 Exceedance Flows

9.5.0.16 Careful regard has to be made in respect of potential exceedance flows, being events that are more extreme than current design criteria. Various national guidance has been published on the matter of exceedance flows and measures that should be incorporated into a development to ensure the safety of occupiers and those using the infrastructure.

9.5.0.17 The principal aim is to direct any exceedance flows away from properties and along defined corridors. At a local level, this may mean water being conveyed along a length of highway, as long as the predicted flow depths and velocities are acceptable. More strategically, the implementation of conveyance corridors is important in avoiding deep and high velocity flows that present a high risk. The drainage system being promoted for Laverstock provides a good opportunity to incorporate exceedance flow routes into the design.

9.5.0.18 Careful and considered design in other areas, can also reduce the risk. For example the strategic SuDS system being promoted for Laverstock, provides a layered and disbursed system of treatment across the Site, thereby avoiding a traditional and more risky design that might, for example, have all storm water being collected in a strategic spine sewer that conveys flows to a large basin at the bottom of the catchment. This latter system concentrates peak discharges into a single corridor, that if blocked can have unacceptable consequences.

9.5.0.19 Clearly, many of the measures for dealing with exceedance flows must be dealt with at the detailed design stage. However, the strategic layout for proposed development at Laverstock provides the framework of a network that can effectively deal with any future exceedance problems.

9.5.0.20 An indicative exceedance flow route has been provided on the Drainage Strategy Plan within **Appendix C**.

9.6 Construction Phase

9.6.0.21 During the construction phase, surface water flow will be temporary conveyed and discharged into the watercourse.

9.6.0.22 A Construction Environmental Management Plan (CEMP) will outline all construction works.

9.6.0.23 The CEMP will detail the procedures and methods that must be followed to minimise the potential environmental effects of construction activities at the Site.

9.7 Implementation Proposals

9.7.0.24 The conceptual drainage proposals have been developed in a manner that will allow the Site wide system to be designed to encourage passive treatment of discharged flows and to improve the water quality by removing the low-level silts, oils which could be attributed to track/parking area run off of this nature. Final design will provide for appropriate geometry and planting to maximise this benefit.

9.7.0.25 The storm water management features will be constructed and operational prior to the first use of the Site.

9.7.0.26 It has previously been the case that the functionality of the storm water management system would be ensured by ongoing maintenance, completed by the Local Authority, Drainage Authority, or a private maintenance company as appropriate. It is proposed that, for this development, a private maintenance company will be appointed to carry out the maintenance regime below in **Table 9-3**. It is usual for the following maintenance regime to be implemented:

Frequency	Operation
Post major storm events	Inspection and removal of debris.
Every two months	Grass mowing (growing season) & litter removal.
Annual	Weeding & vegetation maintenance. Minor swale clearance. Sweeping of permeable pavements.
2 years	Tree pruning.
5-10 years	Desilting of channels. Remove silt around inlet and outlet structures.
15-20 years	Major vegetation maintenance and watercourse channel works.

Table 9-3: Framework Maintenance of Detention System

9.7.0.27 The conceptual drainage masterplan proposals outlined in this report will be used for final drainage design and detailing. The storm water management system will be constructed and operational in full prior to first use of the relevant phase of development.

10 Foul Drainage

10.1 Background

10.1.0.1 A copy of Wessex Water's sewerage network records has been obtained which confirm the presence of foul sewers. Wessex Water operate 150mm foul water sewers west of the Site (west of Church Road). In addition, foul water sewers, surface water sewers and rising mains are shown to the south-west of the Site, supplying the local residential dwellings along individual roads.

10.2 Design Criteria

10.2.0.2 Peak design discharges have been calculated based on the current development criteria as described in Section 1 of this report and for the following:

Domestic peak = 4,000 litres * dwelling / day (peak)

10.2.0.3 Assessed in accordance with the Design and Construction Guidance for Foul and Surface Water Sewers requirements, the development will have a design peak discharge of approximately 5.09l/s.

10.3 Network Requirements

10.3.0.4 Wessex Water was contacted and confirm (**Appendix E**) that foul flows from the development can be accepted to the public sewers. WW confirm that 150mm public sewers are recorded to the south west of the Site in Bishops Mead (Manhole SU16311501 – with a Cover Level 50.35 and an Invert Level of 48.90).

10.3.0.5 Wessex Water has confirmed that a connection of this scale will have an impact on the local foul pumping station and WW will need to undertake sewer modelling to determine if capacity improvements are required.

10.4 Treatment Requirements

10.4.0.6 Water companies have a statutory obligation through the Water Industry Act 1991, 2003 et al, to provide capital investment in strategic treatment infrastructure to meet development growth. This investment planning is managed and regulated by OFWAT through the Asset Management Plan (AMP) process. The five yearly cyclical process requires that water companies allocate finances to a range of strategic projects to meet their statutory obligations.

10.4.0.7 Where development programming requirements necessitate the reinforcement of facilities ahead of allocation in an AMP period, mechanisms are available to ensure the infrastructure can be delivered in a timely fashion, to meet the development programme.

10.5 Implementation Proposals

10.5.0.8 Any new foul sewers across the Site will be designed to current Design and Construction Guidance for Foul and Surface Water Sewers standards, employing a point of connection agreed with Wessex Water. The system will be offered for the adoption of Wessex Water under S104 of the Water Industry Act 1991.

11 Summary

11.1.1.1 The objective of the study is to demonstrate the development proposals are acceptable from a flooding risk and drainage viewpoint.

11.1.1.2 The Site is fully able to comply with the NPPF and PPG together with associated local and national policy guidance.

11.1.1.3 The Site lies primarily within Flood Zone 1, a preferable location for development when considered in the context of the NPPF.

11.1.1.4 There is a very low risk of surface water flooding identified by the EA mapping, and assessment of other potential flooding mechanisms shows the land to have an overall low probability of flooding from reservoir, sewer and groundwater flooding.

11.1.1.5 This document describes how the potential of surface water flooding will be dealt with across the Site and that the proposals are able to comply with guidance from national, regional and local policy.

- demonstrate the development proposals are acceptable from a drainage viewpoint complying with these policies, together with non-statutory SuDS standards for the 100 year design lifetime of the development;
- examine the potential quantitative impacts of the development on the risk of surface water flooding both on-Site and within the broader catchment area. It also explores the types of SuDS that could be integrated into the masterplan. According to the NPPF, SuDS will be considered wherever feasible.
- address the four pillars of SuDS: quantity, quality, amenity, and biodiversity.
- ensure peak discharges from the Site do not exceed that of the baseline conditions.

11.1.1.6 As a greenfield Site, the Site currently does not utilise an existing surface water network.

11.1.1.7 A preliminary strategy for storm drainage at the site has been developed with storm water discharged from development through a series of swales and detention basins, located in the lowest lying part of the Site before discharging via infiltration.

11.1.1.8 The scheme also allows for the incorporation of on plot SuDS, such as permeable paving and rain gardens, throughout the parcels, as the scheme progresses.

11.1.1.9 The use of this SuDS network and the introduction of a treatment train, will ensure that runoff from the developed areas will be treated, through sedimentation, filtration and biological uptake prior to infiltration, protecting the quality of storm water.

11.1.1.10 The incorporation of these features will be investigated as the design progresses and updated drainage drawings and calculations will be provided at the appropriate stage.

11.1.1.11 Any new sewers across the Site will be designed to current Design and Construction Guidance for Foul and Surface Water Sewers standards.

11.1.1.12 Means to discharge foul water drainage will be established that comply with current guidance and requirements of Wessex Water. Once development is complete, the network conveying flows from the site will be offered for adoption to United Utilities to be maintained as part of their statutory duties.

12 Disclaimer

12.1.1.1 The conclusions and recommendations contained herein are limited to those given the general availability of background information and the planned usage of the Site.

12.1.1.2 Third party information has been used in the preparation of this report, which Brookbanks, by necessity assumes is correct at the time of writing. While all reasonable checks have been made on data sources and the accuracy of data, Brookbanks accepts no liability for same.

12.1.1.3 The benefits of this report are provided solely to Hallam Land for the proposed development at Land off Church Road, Laverstock only.

12.1.1.4 Brookbanks excludes third party rights for the information contained in the report.

12.2 Sources of Information

12.2.0.5 The following bodies have been consulted while completing the study:

• Wessex Water	-	Storm & foul water drainage
• Environment Agency	-	Flood risk and storm drainage
• Magic Maps	-	Baseline Site Conditions
• British Geological Survey	-	Published Geology
• Salisbury District Council	-	Flood risk, drainage and associated policy
• Wiltshire County Council	-	Wiltshire County Council Level 1 & 2 Strategic Flood Risk Assessment

13 Glossary of Terms

- **Aquifer** - a body of permeable rock which can contain or transmit groundwater.
- **Flood Risk Vulnerability** - the extent of harm, which can be expected under certain conditions of exposure, susceptibility and resilience.
- **Groundwater Vulnerability Zone** – how easily areas can transmit pollution to groundwater.
- **Hydrogeology** - the branch of geology concerned with water occurring underground or on the surface of the earth.
- **Infiltration** - the flow of water from aboveground into the subsurface.
- **Ordinary Watercourse** - include every river, stream, ditch, drain, cut, dyke, sluice, sewer and passage through which water flows and which does not form part of a main river.
- **Main River (watercourse**)- A large river or stream that is maintained by the Environment Agency, any water course that isn't a main river is an ordinary water course.
- **Primary Drainage System** - a network of lateral drains or swales that carry water to an attenuation basin or SuDS and away from the playing surface.
- **Sustainable Drainage System** – Features designed to manage stormwater locally (as close its source as possible), to mimic natural drainage and encourage its infiltration, attenuation and passive treatment.

Appendix A – Illustrative Masterplan

Ordnance Survey Mastermap - Crown Copyright. All rights reserved. License Number: 100019980 (Centremapslive.com).

0 70 m

KEY

- Application Site Boundary 8.33 ha
- Residential [up to 110 dwellings @ 35 DPH] 3.15 ha
- Existing Trees, Hedgerows & Vegetation to be retained
- Open Access Land
- Proposed Structural Planting
- Proposed Amenity Greenspace
- Proposed SANGS Area
- Proposed LEAP 0.04 ha
- Proposed Vehicular Access Point
- Potential Pedestrian Connection to Church Road
- Pedestrian Connection to SANGS Area
- Pedestrian Connection Only to Cockey Down
- Proposed Indicative Drainage Basin

SANGS Area

River Bourne

Church Road

View through to highest point on Cockey Down

Laverstock

Cockey Down
Open Access Land

New footpath connection to gate in Cockey Down

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JUB / CEH	1:1250 @ A1	22. 06. 2026
number	status	rev
6450-FPCR-DR-XX-XX-DR-L-0002	S3	P16

client
Hallam Land Management Ltd

project
Land off Church Road, Laverstock

title
PARAMETERS PLAN

FPCR | environment & design

Appendix B – Infiltration Testing Report

GEG | Geo Environmental Group
Geotechnical, Environmental & Ecological Consultants

GEG House, 17 Graham Road, Malvern, WR14 2HR
Tel. 01684 212526 Fax 01684 576917 www.g-eg.co.uk

INFILTRATION TESTING REPORT



CHURCH LANE
LAVERSTOCK
WILTSHIRE
SP1 1RB

MAY 2015

Prepared for:

Hallam Land Management

Brookbanks Consulting

Registered Company - GEG Ltd
Registered in England No 6469985
Registered Office: Granta Lodge, 71 Graham Rd, Malvern, WR14 2JS

REPORT TITLE: INFILTRATION TESTING REPORT

Site Address:

Land east of Church Lane
Laverstock
Wiltshire
SP1 1RB

Performed By:
Geo Environmental Group
GEG House
17 Graham Road
Malvern
WR14 2HR

On Behalf Of:
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EXECUTIVE SUMMARY

Current Site Status

The site lies on land east of Church Lane located to the north of Laverstock, Wiltshire, at the approximate National Grid Reference 416373E, 131694N. The site, which falls gently to the west, comprises agricultural fields presently cropped with internal and external hedged boundaries. It is understood that an oil pipeline traverses the site underground crossing roughly north west to south east across the site.

Geology and Water Infiltration Properties

The site is underlain by solid geology of the Newhaven Chalk Formation (Principal Aquifer) of the Cretaceous Period overlain by Superficial Deposits consisting of Head Deposits (Secondary (Undifferentiated) Aquifer).

In terms of water infiltration, the strata of the Newhaven Chalk Formation are considered likely to be sufficiently permeable for soakaway drainage.

Intrusive Investigation

The intrusive investigation was undertaken on the 31st March 2015 and comprised infiltration testing.

Ground Conditions

Natural topsoil was encountered across the site to depths of 0.30m and typically comprised soft slightly sandy slightly gravelly CLAY with occasional rootlets.

Head Deposits were encountered in the underlying topsoil in the south of the site in IT02 and IT03 to depths of 0.60m to 0.90m respectively and were absent in the north of the site in IT01. It comprised soft friable slightly gravelly to gravelly (flint and chalk) CLAY.

The Newhaven Chalk Formation was encountered underlying the topsoil in IT01 and underlying the Head Deposits in IT02 and IT03 from depths of 0.30m to 0.90m. It typically comprised structureless and structured CHALK composed of GRAVEL with some cobbles of chalk and flint. The gravel was very weak to moderately weak and of low to medium density. The matrix was uncompact and cream.

No groundwater was encountered in any of the trial pits during the investigation.

Infiltration Tests

A total of 5 No. infiltration tests were undertaken in the 3 No. trial pits (IT01 to IT3) which were excavated to depths ranging from 2.65m to 3.50m bgl, targeting the Newhaven Chalk Formation. The tests were undertaken in general accordance with BRE Digest 365.

Soakaway Calculations

The infiltration tests undertaken indicate that the ground conditions are permeable with respect to soakaway potential. Infiltration rates ranged from 2.83×10^{-06} m/s to 6.09×10^{-04} m/s across the site where ground conditions are associated with the Newhaven Chalk Formation.

This executive summary is intended to provide an outline of the site assessment in relation to ground infiltration rates. It does not provide a definitive analysis of the information obtained.

1. INTRODUCTION

1.1 General

Geo Environmental Group (GEG) were commissioned by Brookbanks Consulting Ltd (Brookbanks) on behalf of their client, Hallam Land Management, to undertake infiltration testing at the site known as 'Church Lane, Laverstock' for the purpose of determining infiltration rates of the strata and the suitability for soakaway drainage.

1.2 Available Information

The following drawing was supplied by Brookbanks:

- 'Soakaway Site Investigation Location Plan' on behalf of Hallam Land Management, Brookbanks Consulting Ltd, Drawing No. 10340-SI-01, dated 2nd March 2015.
- 'Esso Petroleum Plan' on behalf of Brookbanks Consulting Ltd, Drawing No. FAP-20140416, Issue A, dated 16th April 2014.

1.3 Proposed Site Usage

The site is currently being considered for residential development.

1.4 Scope

The works performed by GEG included:

- Trial pitting and infiltration testing.
- Calculation of infiltration rates, subject to ground conditions encountered.
- Provision of a report documenting the above.

Limitations to the scope of the report are outlined in Section 7.

2. SITE SETTING

2.1 Site Location

The site lies on land east of Church Lane located to the north of Laverstock, Wiltshire, at the approximate National Grid Reference 416373E, 131694N.

A section of the 1:25,000 Ordnance Survey (OS) map identifying the site location is shown in Figure 1 of Appendix A. The site layout plan is presented in Figure 2 (Appendix A) and a photographic record is provided in Appendix B.

2.2 Site Description

The site, which falls gently to the west, comprises agricultural fields presently cropped with internal and external hedged boundaries. It is understood that an oil pipeline traverses the site underground crossing roughly north west to south east across the site.

3. GEOLOGY & HYDROGEOLOGY

3.1 Published Geology

British Geological Survey digital mapping indicates that the site is underlain by solid geology of the Newhaven Chalk Formation of the Cretaceous Period. It is described as soft to medium hard, smooth white chalk with numerous marl seams and flint bands.

The solid geology is overlain by Superficial Deposits consisting of Head Deposits (poorly sorted and poorly stratified deposits formed mostly by solifluction and/or hillwash and soil creep) in the southern section of the site.

3.2 Hydrogeology

Environment Agency data indicates that the solid geology is regarded as a Principal Aquifer.

Principal Aquifers are defined as geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers.

The Superficial Deposits are characterised as a Secondary (Undifferentiated) Aquifer.

Secondary (undifferentiated) Aquifers are defined as assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.

3.3 Potential Water Infiltration Properties of the Strata

In terms of water infiltration, the strata of the Newhaven Chalk Formation are considered likely to be sufficiently permeable for soakaway drainage. The superficial Head Deposits are considered to be potentially relatively impermeable.

3.4 Groundwater Source Protection Zone

According to the Environment Agency, the site does not lie within a currently defined Groundwater Source Protection Zone.

4. INTRUSIVE INVESTIGATION

The following section outlines the scope of the intrusive investigation undertaken by GEG and details the ground conditions encountered and the infiltration testing undertaken.

4.1 Scope of Works

The intrusive investigation was undertaken on the 31st March 2015 and comprised the excavation of 3 No. infiltration test trial pits (IT01 to IT03) at the locations determined by Brookbanks (as shown on Figure 2) to depths ranging from 2.65m to 3.50m bgl targeting the most permeable strata present in each case.

All works were carried out in accordance with current British Standard guidance (BS: 5930 and BS: 10175) and infiltration testing in general accordance with BRE Digest 365 (Soakaway Design).

The ground conditions were logged by an experienced GEG geo-environmental engineer. The strata encountered, groundwater levels / seepages, stability of excavations and depths of sampling are recorded on the trial pit logs presented in Appendix C.

4.1.1 Limitations of Intrusive Investigation

There were no specific limitations to access across the site for the duration of the intrusive investigation, with the exception of the underground oil pipeline traversing the site from north west to south east. An easement of in excess of 30m from the plotted position of the oil pipeline was strictly adhered to and all intrusive positions were scanned with a Cable Avoidance Tool (CAT) prior to excavation.

4.2 Strata Encountered

The ground conditions encountered are described below and broadly confirmed the published geology.

4.2.1 Topsoil

Natural topsoil was encountered across the site to depths of 0.30m and typically comprised soft slightly sandy slightly gravelly CLAY with occasional rootlets.

4.2.2 Head Deposits

Head Deposits were encountered in the underlying topsoil in the south of the site in IT02 and IT03 to depths of 0.60m to 0.90m respectively and were absent in the north of the site in IT01. It comprised soft friable slightly gravelly to gravelly (flint and chalk) CLAY.

4.2.3 Newhaven Chalk Formation

The Newhaven Chalk Formation was encountered underlying the topsoil in IT01 and underlying the Head Deposits in IT02 and IT03 from depths of 0.30m to 0.90m. It typically comprised structureless and structured CHALK composed of GRAVEL with some cobbles of chalk and flint. The gravel was very weak to moderately weak and of low to medium density. The matrix was uncompact and cream.

4.2.4 *Groundwater*

No groundwater was encountered in any of the trial pits during the investigation.

4.3 Infiltration Tests

A total of 5 No. infiltration tests were undertaken in the 3 No. trial pits (IT01 to IT3) which were excavated to depths ranging from 2.65m to 3.50m bgl, targeting the Newhaven Chalk Formation. The tests were undertaken in general accordance with BRE Digest 365.

Clean water was dispensed from a bowser at a rapid rate to fill each excavation as quickly as possible to the proposed depth of the invert levels and/or the most permeable strata. The excavations took less than 5 minutes to fill to their maximum capacity. Each test pit was filled to give a head of water of approximately 1.00m.

Measurements were then taken of the fall of water at suitable time increments to allow the infiltration rate to be calculated from the time taken for the water level to drop from 75% to 25% effective depth (where possible). If there was sufficient time, the tests were repeated a maximum of three times in accordance with BRE Digest 365.

On completion of the measurements, the infiltration pits were backfilled with arisings.

4.4 Calculated Infiltration Rates

The water level measurements from the infiltration tests are tabulated and graphically depicted on Figures D-1 to D-5 in Appendix D.

The effective depths reached during the tests and associated times are summarised in Table 1 below.

Table 1. Infiltration Test Results

Location	Test No.	Strata	Effective Depth Reached	Time (mins)	Infiltration Rate (m/s)
IT01	1*	NCF	39%	NA	NA
IT01	2	NCF	25%	4.70	$7.79E^{-04}$
IT01	3	NCF	25%	5.09	$6.09E^{-04}$
IT02	1	NCF	25%	128	$2.83E^{-05}$
IT03	2	NCF	25%	51	$1.35E^{-05}$

*Test abandoned due to collapse of sides.
NCF=Newford Chalk Formation.

5. CONCLUSIONS

The infiltration tests undertaken indicate that the ground conditions are permeable with respect to soakaway potential. Infiltration rates ranged from 2.83×10^{-06} m/s

to 6.09 x 10^{-04} m/s across the site where ground conditions are associated with the Newhaven Chalk Formation.

6. REFERENCES

1. British Standard Institute (1990) BS: 1377 Parts 1-9. Methods of Tests for Soils for Civil Engineering Purposes.

2. British Standard Institute (1999) BS: 5930 Code of Practice for Site Investigations. BSI, London.

3. BRE Digest 365 (September 1991) Soakaway Design.

7. LIMITATIONS

As with all intrusive site investigations, there is a possibility that there are local variations in ground conditions not identified by the current investigation.

The conclusions and recommendations stated herein are based on information available at the time of production. These may not necessarily apply if the site is to be utilised for a more or less sensitive purpose in the future, or if operational procedures or management alter over time.

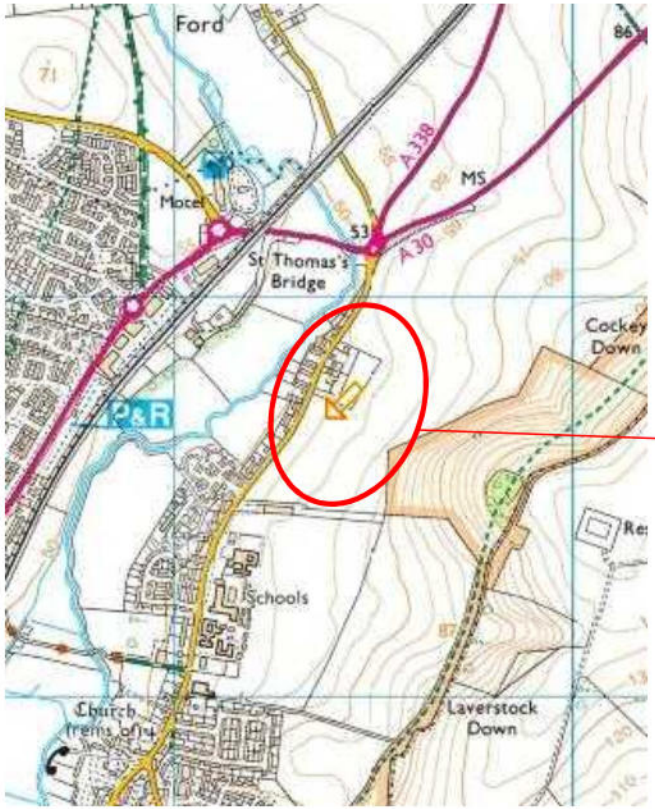
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APPENDIX A

FIGURES AND PLANS





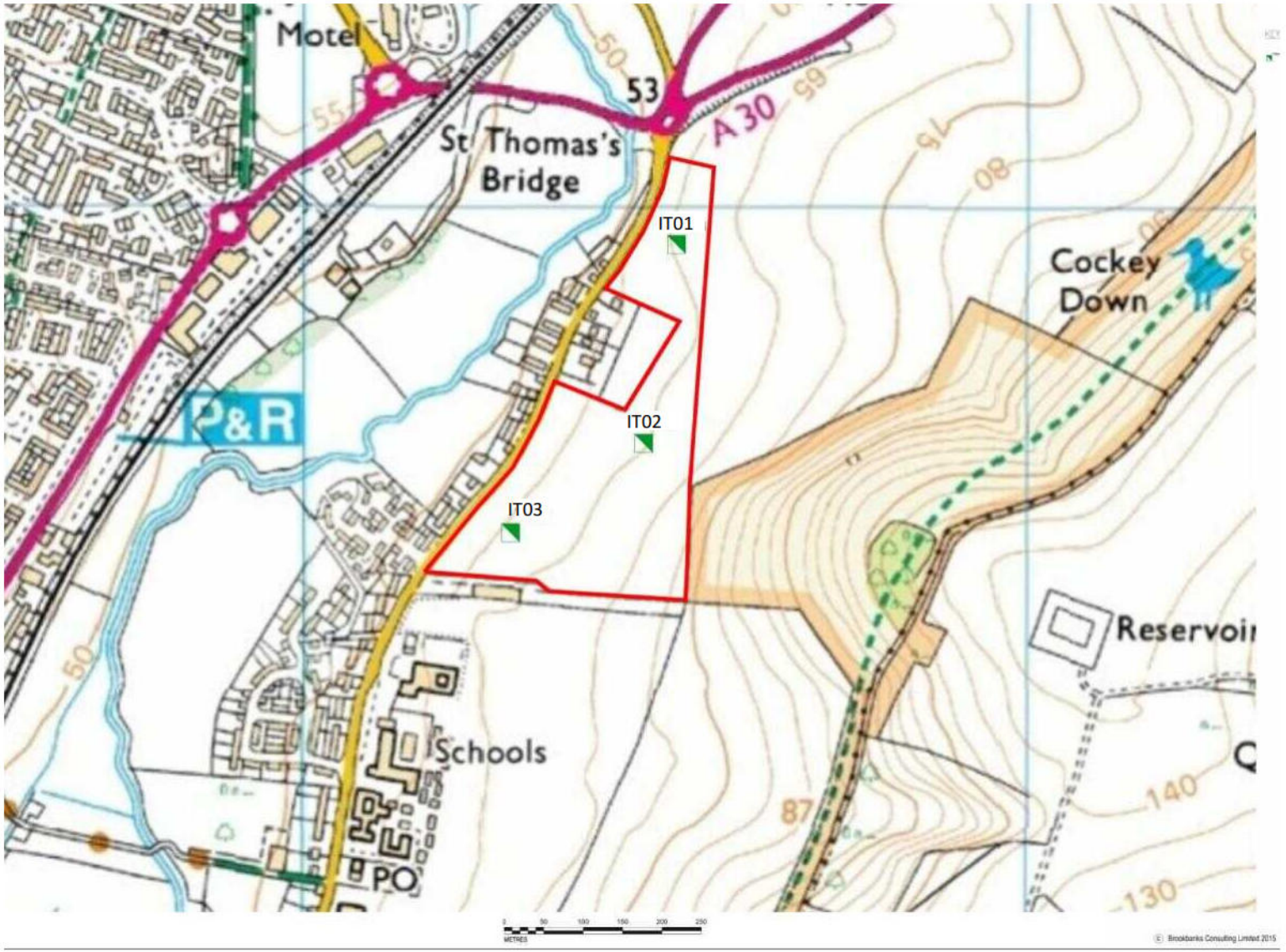
SITE LOCATION

Ordnance Survey © Crown Copyright 2015 All rights reserved. License number 100048258

TITLE: FIGURE 1 : SITE LOCATION PLAN	
SITE: CHURCH LANE, LAVERSTOCK	
CLIENT: HALLAM LAND MANAGEMENT/ BROOKBANKS CONSULTING LTD	
PROJECT No.: GEG-15-384	**DRAWN/CHECKED:** MP / AM
SCALE: NTS	**DATE:** 12/05/15

Geo Environmental Group

GEG House
17 Graham Road
Malvern, WR14 2HR
Tel. 01684 212526
Fax 01684 576917
admin@g-eg.co.uk
www.g-eg.co.uk



Note: all locations shown are approximate

TITLE: FIGURE 2: EXPLORATORY HOLE LOCATION PLAN	**CLIENT:** BROOKBANKS / HALLAM LAND		**DRAWN/CHECKED:** MP / AM		GEG House, 17 Graham Road Malvern, WR14 2HR Tel. 01684 212526 Fax 01684 576917 admin@g-eg.co.uk, www.g-eg.co.uk Geo Environmental Group
SITE: CHURCH LANE, LAVERSTOCK	**PROJECT No.:** GEG-15-384	**SCALE:** NTS	**DATE:** 12/05/15	**REVISION:** A	

APPENDIX B

PHOTOGRAPHIC RECORD



Photo 1: Excavation of trial pit IT01.



Photo 2: Arisings from trial pit IT01.



Photo 3: Excavation of trial pit IT02.



Photo 4: Excavation of trial pit IT03.

Geo Environmental Group
Geotechnical, Environmental &
Ecological Consultants

Geo Environmental Group
GEG House
17 Graham Road
Malvern
WR14 2HR

Client:

Brookbanks / Hallam Land Management

Project:

Church Lane, Laverstock

Project No.:

GEG-15-384



Photo 5: Arisings from trial pit IT03.

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Geotechnical, Environmental &
Ecological Consultants

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GEG House
17 Graham Road
Malvern
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Brookbanks / Hallam Land Management

Project:

Church Lane, Laverstock

Project No.:

GEG-15-384

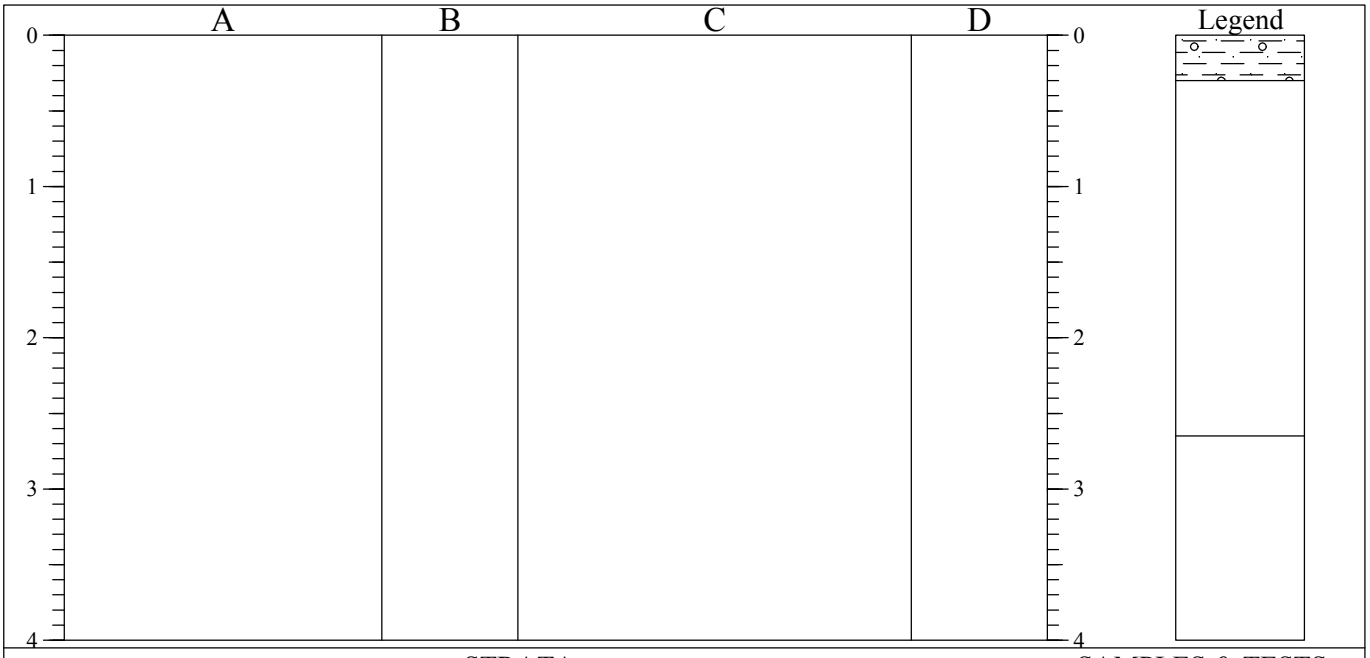
APPENDIX C

EXPLORATORY HOLE LOGS

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Telephone: 01684 212526
Fax: 01684 576917

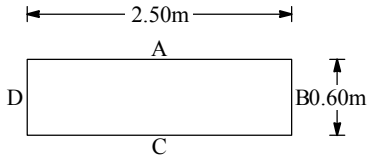
TRIAL PIT LOG

Project				TRIAL PIT No
Church Lane, Laverstock, SP1 1RB				**IT01**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
GEG-15-384	31-03-15		E 416,496.6 N 131,996.5	
Contractor				Sheet
				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		(Soft) friable light brown slightly sandy slightly gravelly CLAY with occasional rootlets. Gravel is sub-angular flint and sub-rounded chalk.			
0.30-2.65		(TOPSOIL)			
		Structured CHALK composed of sub-angular to sub-rounded, clast supported, GRAVEL with some cobbles. Gravel is weak to moderately weak, medium density, white. Matrix is uncompact, cream. (WEATHERED NEWHAVEN CHALK FORMATION)			
		1.20 - 2.65 With occasional to some chalk cobbles.			

Shoring/Support: None
Stability: Sides stable becoming unstable during test



GENERAL REMARKS

1. No groundwater encountered. 2. Infiltration test undertaken. 3. Upon completion, trial pit backfilled with arisings.

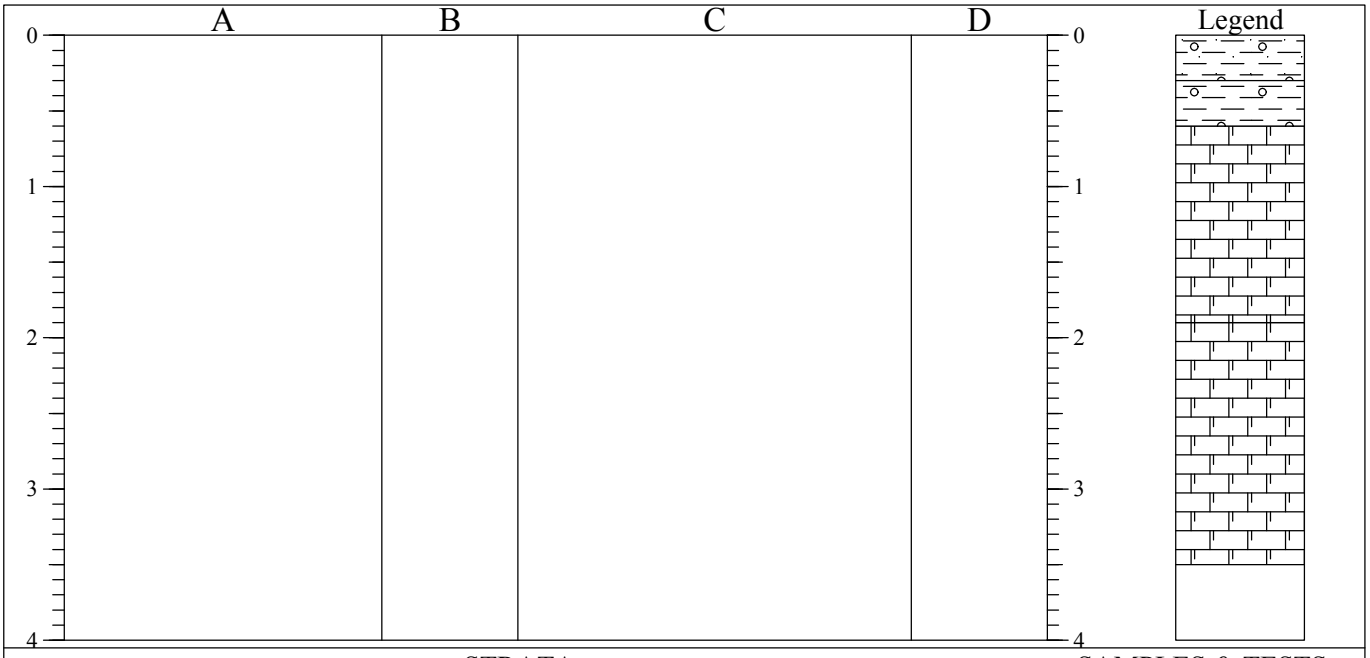
All dimensions in metres Scale 1:50	Client Brookbanks / Hallam Land Management	Method/ Plant Used JCB 3CX	Logged By FT

AGS3 UK TP GEG-15-384 LAVERSTOCK.GPJ GINT STD AGS 3_1.GDT 12/5/15

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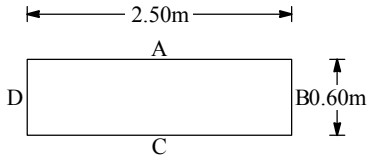
TRIAL PIT LOG

Project				TRIAL PIT No
Church Lane, Laverstock, SP1 1RB				**IT02**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
GEG-15-384	31-03-15		E 416,508.6 N 131,799.3	
Contractor				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		(Soft) friable dark brown slightly sandy slightly gravelly CLAY with occasional rootlets. Gravel is sub-angular flint and sub-rounded chalk.			
0.30-0.60		(TOPSOIL)			
0.60-1.90		(Soft) friable light yellow-brown gravelly CLAY. Gravel is sub-angular to sub-rounded flint and sub-rounded chalk. (HEAD DEPOSITS)			
		Structureless CHALK composed of sub-angular to sub-rounded, medium, matrix supported, GRAVEL with many flint nodules. Gravel is very weak, low density, cream. Matrix is uncompact, cream. (WEATHERED NEWHAVEN CHALK FORMATION)			
1.90-3.50		Structured CHALK composed of sub-angular to sub-rounded, fine to medium, matrix supported, GRAVEL. Gravel is weak, medium density, white. Matrix is uncompact, cream. (WEATHERED NEWHAVEN CHALK FORMATION) 2.10 - 3.50 With occasional to some chalk cobbles.			

Shoring/Support: None
Stability: Sides stable



GENERAL REMARKS

1. No groundwater encountered. 2. Infiltration test undertaken. 3. Upon completion, trial pit backfilled with arisings.

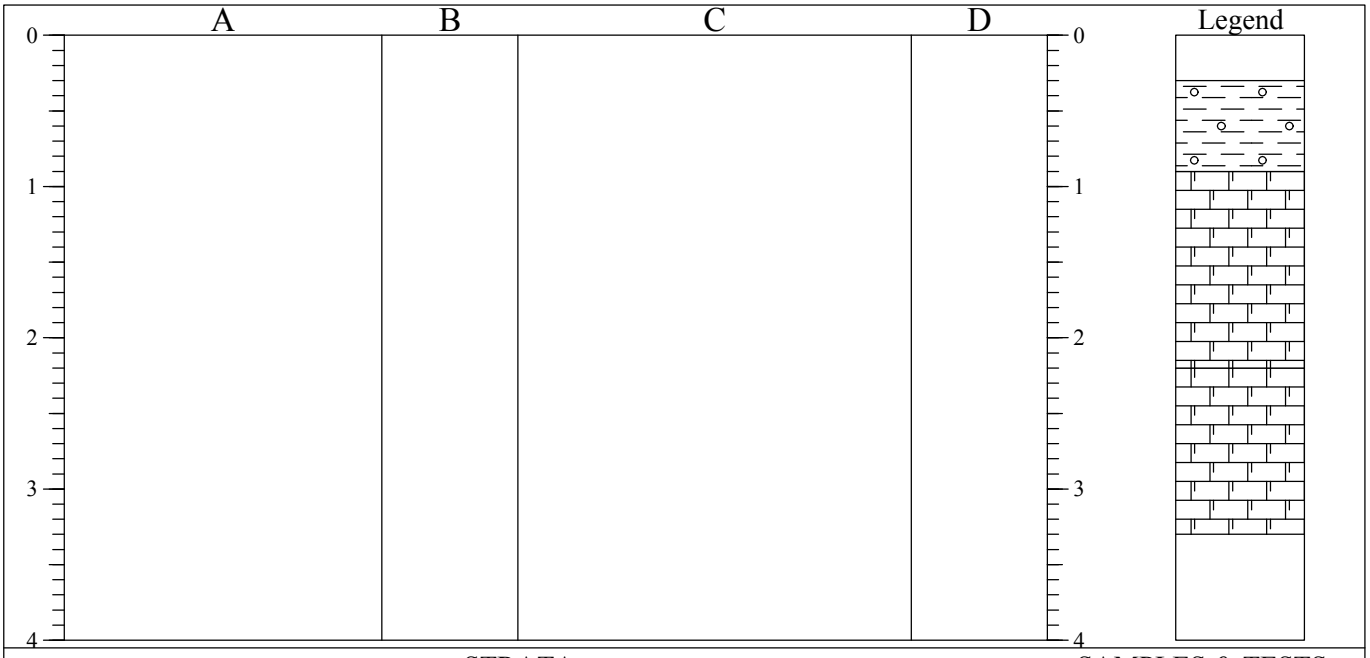
All dimensions in metres Scale 1:50	Client Brookbanks / Hallam Land Management	Method/ Plant Used JCB 3CX	Logged By FT

AGS3 UK TP GEG-15-384 LAVERSTOCK.GPJ GINT STD AGS 3_1.GDT 12/5/15

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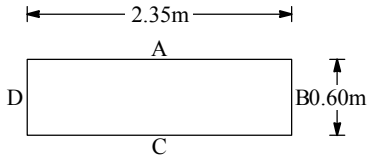
TRIAL PIT LOG

Project				TRIAL PIT No
Church Lane, Laverstock, SP1 1RB				**IT03**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
GEG-15-384	31-03-15		E 416,285.5 N 131,600.9	
Contractor				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		(Soft) friable dark brown slightly sandy slightly gravelly CLAY with occasional rootlets. Gravel is sub-angular flint and sub-rounded chalk.			
0.30-0.90		(TOPSOIL)			
		(Soft) friable light yellow-brown slightly gravelly CLAY. Gravel is sub-angular flint and sub-rounded chalk. (HEAD DEPOSITS)			
0.90-2.20		Structureless CHALK composed of sub-angular to sub-rounded medium matrix supported GRAVEL with occasional flint nodules. Gravel is very weak, low density, white. Matrix is uncompact, cream. (WEATHERED NEWHAVEN CHALK FORMATION)			
2.20-3.30		Structured CHALK composed of sub-angular to sub-rounded clast supported GRAVEL with some cobbles. Gravel is weak, medium density, white. Matrix is uncompact, cream. (WEATHERED NEWHAVEN CHALK FORMATION)			

Shoring/Support: None
Stability: Sides stable



GENERAL REMARKS

1. No groundwater encountered. 2. Infiltration test undertaken. 3. Upon completion, trial pit backfilled with arisings.

All dimensions in metres Scale 1:50	Client Brookbanks / Hallam Land Management	Method/ Plant Used JCB 3CX	Logged By FT

AGS3 UK TP GEG-15-384 LAVERSTOCK.GPJ GINT STD AGS 3_1.GDT 12/5/15

APPENDIX D

INFILTRATION TEST DATA

Appendix D
Infiltration Tests

Project Name: **Church Lane, Laverstock**
Project Ref.: **GEG-15-384**
Trial Pit: **IT01 Test 1**

Depth of Pit (cm): 265
Depth of Water at Start of Depth (cm): 164
Date of Test: 31 March 2015

Time (min)	Depth from Surface (cm)	% Effective Depth
0	164	100%
1	171	93%
2	183	81%
3	200	64%
5	218	47%
6	226	39%
End of Test		

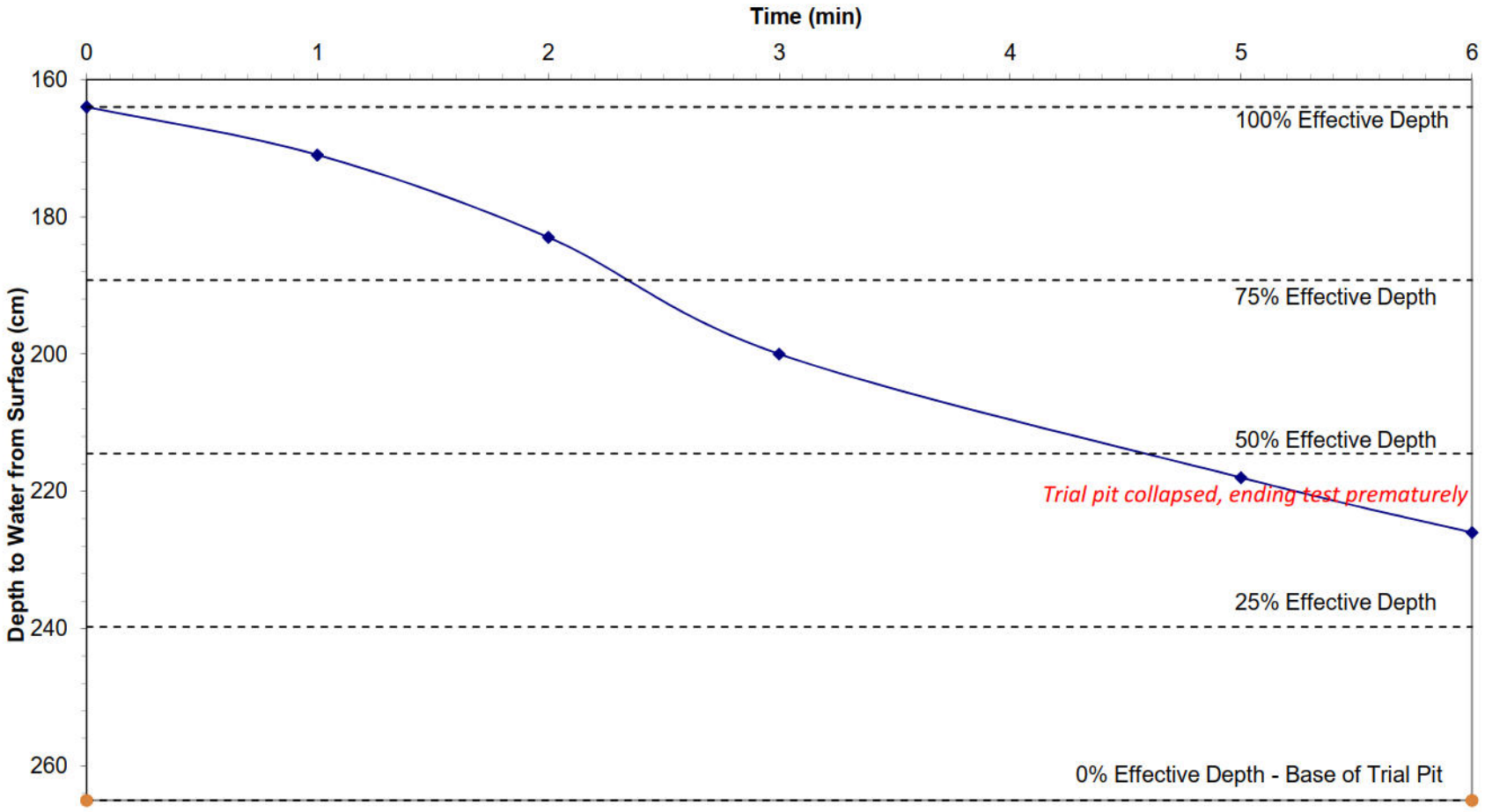
Note: Trial pit collapsed during test to depth 2.26m.

Parameter	Symbol	Calculation	Units	IT01 Test 1
Effective Depth of Trial Pit	d_p		m	1.01
Width of Trial Pit	w		m	0.60
Length of Trial Pit	l		m	2.50
Volume of Trial Pit	V	$= d_p \times w \times l$	m^3	1.52
Volume of Trial Pit at 50% Effective Depth	$V_{50\%}$	$= V \times 0.5$	m^3	0.7575
Internal Surface Area of Trial Pit*	$a_{p50\%}$	$= l \times w + d_p \times (w + l)$	m^2	4.63
Time to reach 75% Effective Depth	$T_{p75\%}$		min	2.33
Time to reach 25% Effective Depth	$T_{p25\%}$		min	N/A
Time 75% - 25%	$T_{p75\%-25\%}$	$= T_{p25\%} - T_{p75\%}$	min	N/A
Infiltration Rate	f	$= V_{50\%} / a_{p50\%} \times (T_{p75\%-25\%})$	m/s	**N/A**

*To 50% Effective Depth (including base)

With Reference to: **Figure D-1**

Figure D-1 **GEG-15-384** **Church Lane, Laverstock** **IT01 Test 1**



Appendix D
Infiltration Tests

Project Name: **Church Lane, Laverstock**
Project Ref.: **GEG-15-384**
Trial Pit: **IT01 Test 2**

Depth of Pit (cm): 226
Depth of Water at Start of Depth (cm): 126
Date of Test: 31 March 2015

Time (min)	Depth from Surface (cm)	% Effective Depth
0	126	100%
1	148	78%
3	170	56%
4	190	36%
6	220	6%
7	226	0%
End of Test		

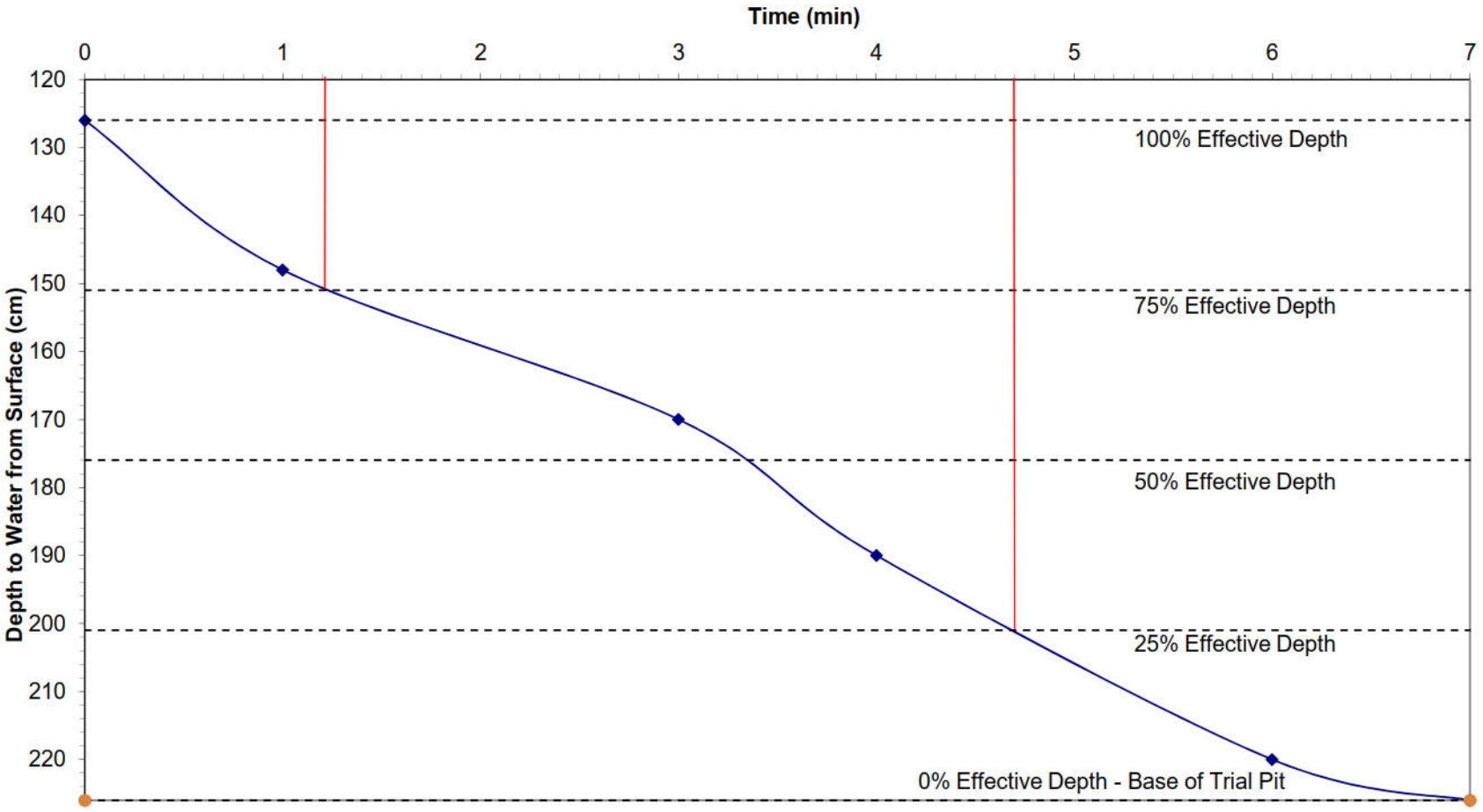
Note: At end of test, trial pit collapsed to 1.90m

Parameter	Symbol	Calculation	Units	IT01 Test 2
Effective Depth of Trial Pit	d_p		m	1.00
Width of Trial Pit	w		m	0.60
Length of Trial Pit	l		m	2.50
Volume of Trial Pit	V	$= d_p \times w \times l$	m^3	1.50
Volume of Trial Pit at 50% Effective Depth	$V_{50\%}$	$= V \times 0.5$	m^3	0.75
Internal Surface Area of Trial Pit*	$a_{p50\%}$	$= l \times w + d_p \times (w + l)$	m^2	4.60
Time to reach 75% Effective Depth	$T_{p75\%}$		min	1.21
Time to reach 25% Effective Depth	$T_{p25\%}$		min	4.70
Time 75% - 25%	$T_{p75\%-25\%}$	$= T_{p25\%} - T_{p75\%}$	min	3.49
Infiltration Rate	f	$= V_{50\%} / a_{p50\%} \times (T_{p75\%-25\%})$	m/s	**7.79E-04**

*To 50% Effective Depth (including base)

With Reference to: **Figure D-2**

Figure D-2 **GEG-15-384** **Church Lane, Laverstock** **IT01 Test 2**



Appendix D
Infiltration Tests

Project Name: **Church Lane, Laverstock**
Project Ref.: **GEG-15-384**
Trial Pit: **IT01 Test 3**

Depth of Pit (cm): 190
Depth of Water at Start of Depth (cm): 90
Date of Test: 31 March 2015

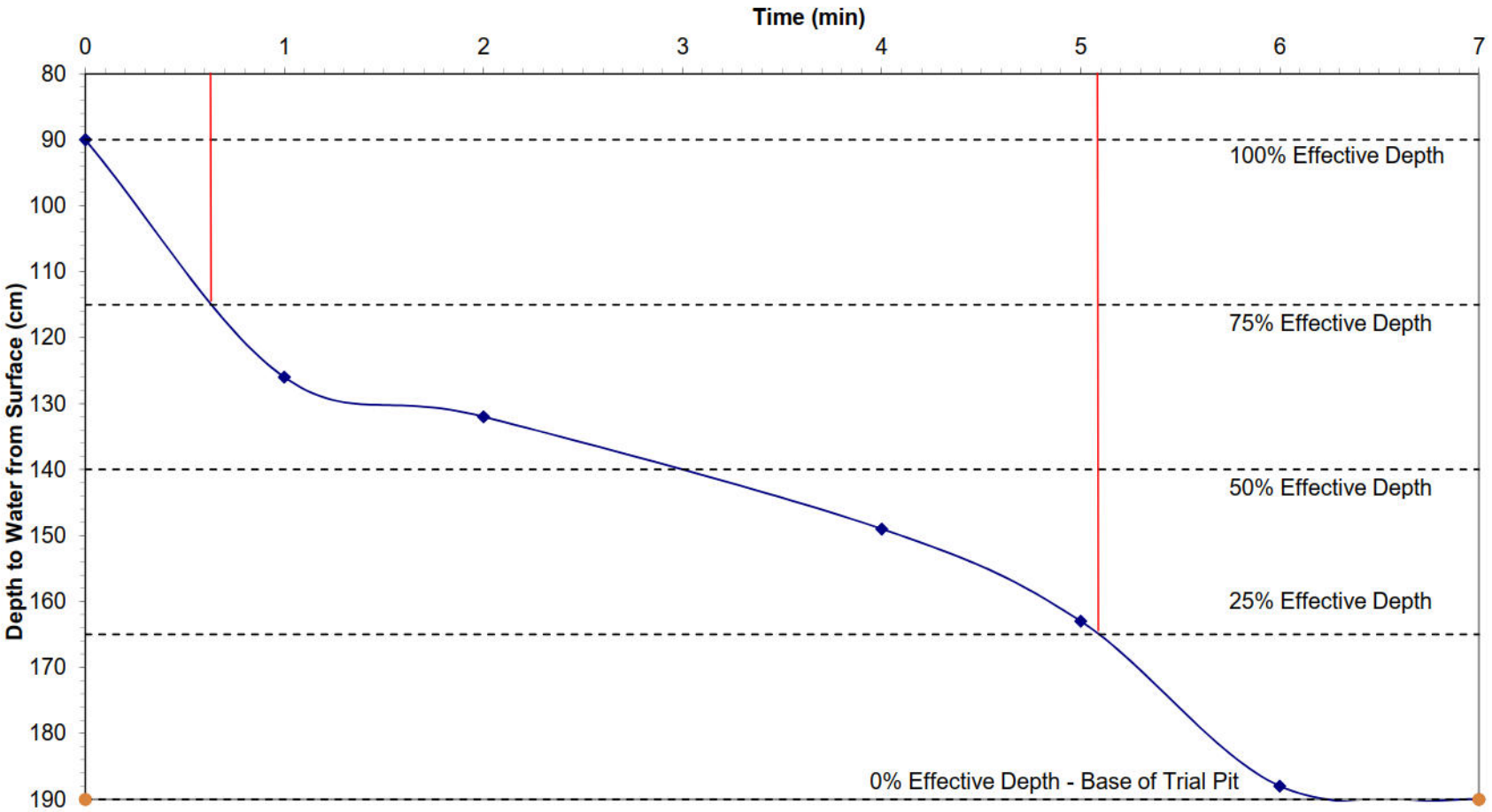
Time (min)	Depth from Surface (cm)	% Effective Depth
0	90	100%
1	126	64%
2	132	58%
4	149	41%
5	163	27%
6	188	2%
7	190	0%
End of Test		

Parameter	Symbol	Calculation	Units	IT01 Test 3
Effective Depth of Trial Pit	d_p		m	1.00
Width of Trial Pit	w		m	0.60
Length of Trial Pit	l		m	2.50
Volume of Trial Pit	V	$= d_p \times w \times l$	m^3	1.50
Volume of Trial Pit at 50% Effective Depth	$V_{50\%}$	$= V \times 0.5$	m^3	0.75
Internal Surface Area of Trial Pit*	$a_{p50\%}$	$= l \times w + d_p \times (w + l)$	m^2	4.60
Time to reach 75% Effective Depth	$T_{p75\%}$		min	0.63
Time to reach 25% Effective Depth	$T_{p25\%}$		min	5.09
Time 75% - 25%	$T_{p75\%-25\%}$	$= T_{p25\%} - T_{p75\%}$	min	4.46
Infiltration Rate	f	$= V_{50\%} / a_{p50\%} \times (T_{p75\%-25\%})$	m/s	**6.09E-04**

*To 50% Effective Depth (including base)

With Reference to: **Figure D-3**

Figure D-3 **GEG-15-384** **Church Lane, Laverstock** **IT01 Test 3**



Appendix D
Infiltration Tests

Project Name: **Church Lane, Laverstock**
Project Ref.: **GEG-15-384**
Trial Pit: **IT02 Test 1**

Depth of Pit (cm): 350
Depth of Water at Start of Depth (cm): 236
Date of Test: 31 March 2015

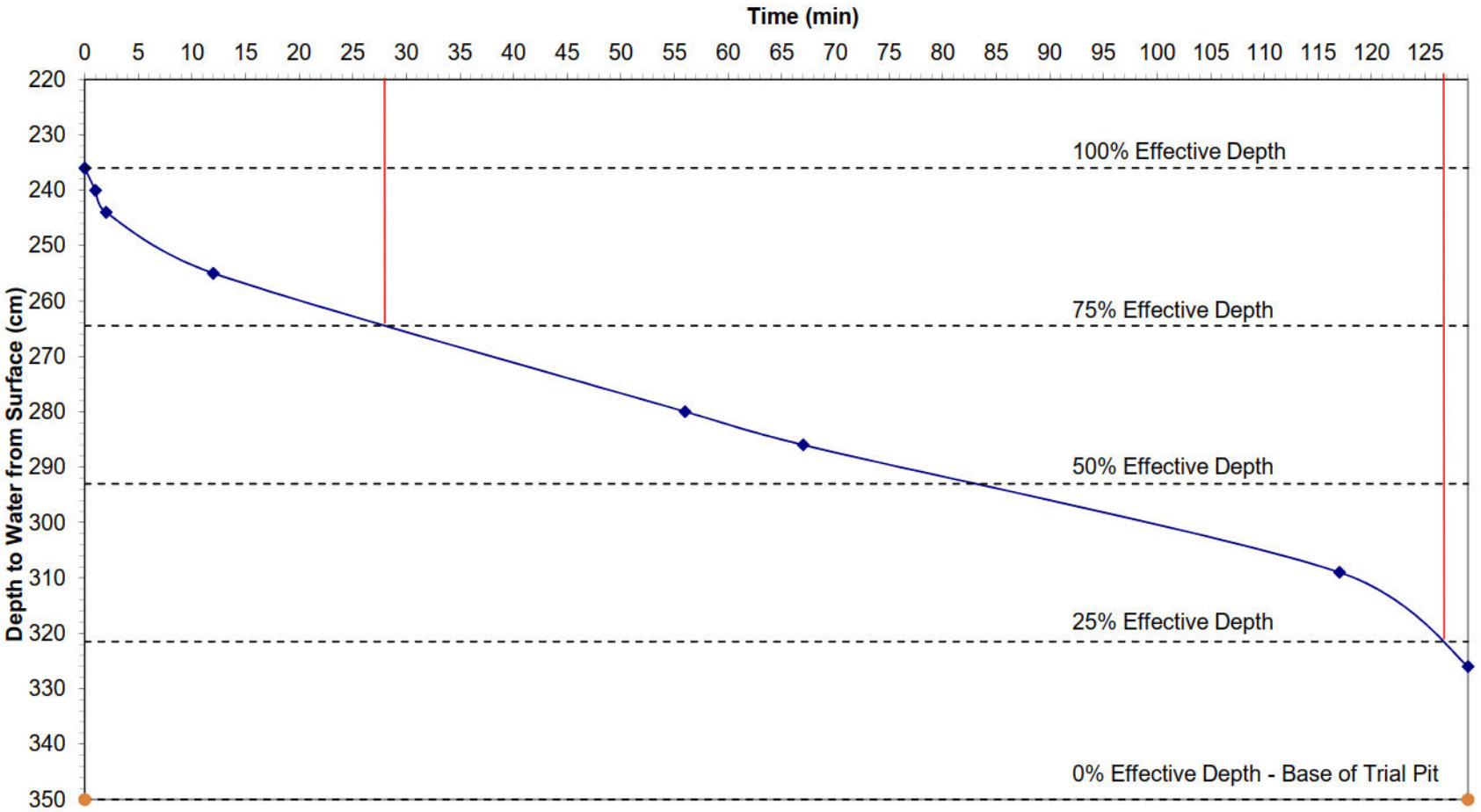
Time (min)	Depth from Surface (cm)	% Effective Depth
0	236	100%
1	240	96%
2	244	93%
12	255	83%
56	280	61%
67	286	56%
117	309	36%
129	326	21%
End of Test		

Parameter	Symbol	Calculation	Units	IT02 Test 1
Effective Depth of Trial Pit	d_p		m	1.14
Width of Trial Pit	w		m	0.60
Length of Trial Pit	l		m	2.50
Volume of Trial Pit	V	$= d_p \times w \times l$	m^3	1.71
Volume of Trial Pit at 50% Effective Depth	$V_{50\%}$	$= V \times 0.5$	m^3	0.855
Internal Surface Area of Trial Pit*	$a_{p50\%}$	$= l \times w + d_p \times (w + l)$	m^2	5.03
Time to reach 75% Effective Depth	$T_{p75\%}$		min	28.00
Time to reach 25% Effective Depth	$T_{p25\%}$		min	128.00
Time 75% - 25%	$T_{p75\%-25\%}$	$= T_{p25\%} - T_{p75\%}$	min	100
Infiltration Rate	f	$= V_{50\%} / a_{p50\%} \times (T_{p75\%-25\%})$	m/s	**2.83E-05**

*To 50% Effective Depth (including base)

With Reference to: **Figure D-4**

Figure D-4 **GEG-15-384** **Church Lane, Laverstock** **IT02 Test 1**



Appendix D
Infiltration Tests

Project Name: **Church Lane, Laverstock**
Project Ref.: **GEG-15-384**
Trial Pit: **IT03 (Test 1)**

Depth of Pit (cm): 330
Depth of Water at Start of Depth (cm): 225
Date of Test: 31 March 2015

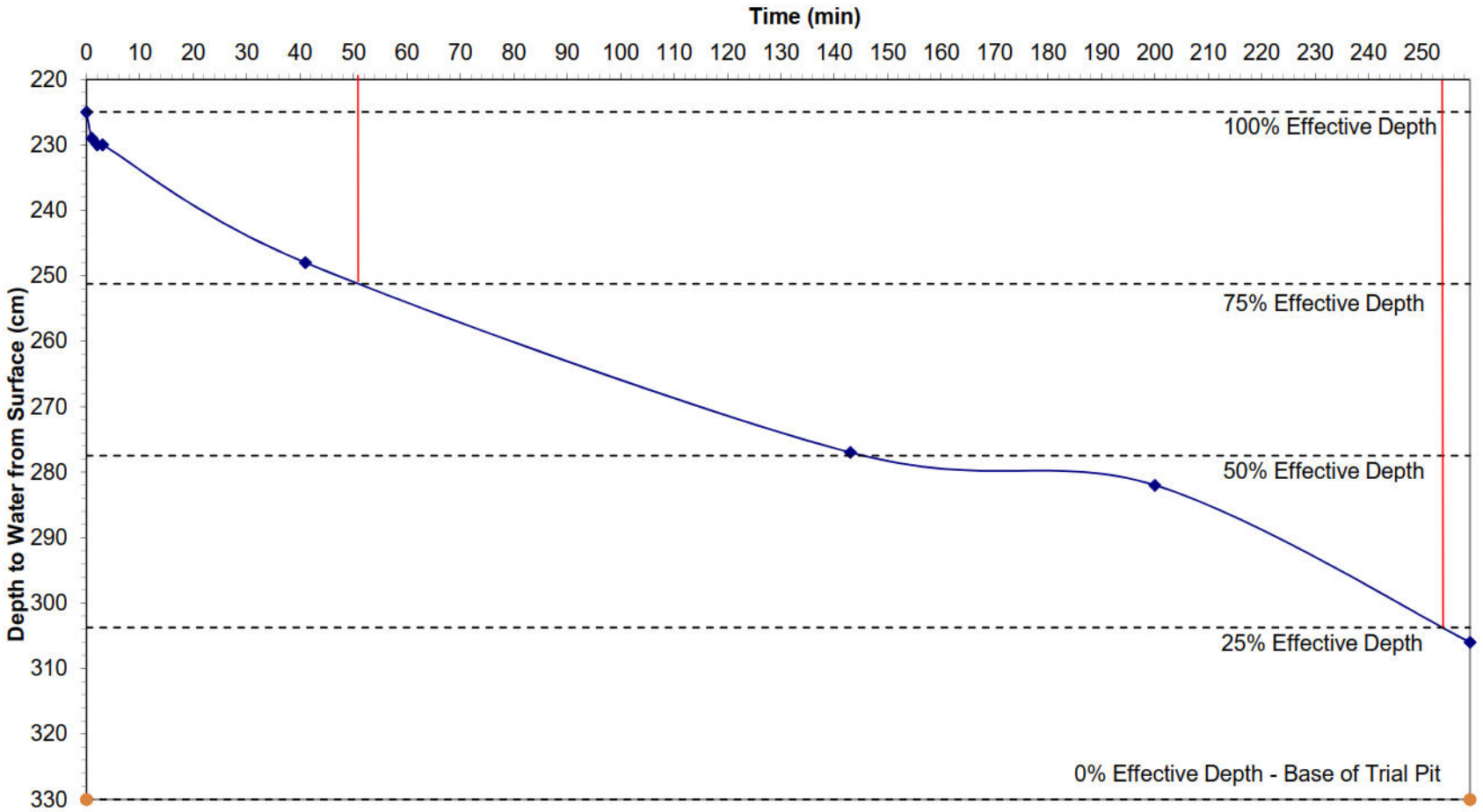
Time (min)	Depth from Surface (cm)	% Effective Depth
0	225	100%
1	229	96%
2	230	95%
3	230	95%
41	248	78%
143	277	50%
200	282	46%
259	306	23%
End of Test		

Parameter	Symbol	Calculation	Units	IT03 (Test 1)
Effective Depth of Trial Pit	d_p		m	1.05
Width of Trial Pit	w		m	0.60
Length of Trial Pit	l		m	2.35
Volume of Trial Pit	V	$= d_p \times w \times l$	m^3	1.48
Volume of Trial Pit at 50% Effective Depth	$V_{50\%}$	$= V \times 0.5$	m^3	0.74025
Internal Surface Area of Trial Pit*	$a_{p50\%}$	$= l \times w + d_p \times (w + l)$	m^2	4.51
Time to reach 75% Effective Depth	$T_{p75\%}$		min	51.00
Time to reach 25% Effective Depth	$T_{p25\%}$		min	254.00
Time 75% - 25%	$T_{p75\%-25\%}$	$= T_{p25\%} - T_{p75\%}$	min	203
Infiltration Rate	f	$= V_{50\%} / a_{p50\%} \times (T_{p75\%-25\%})$	m/s	**1.35E-05**

*To 50% Effective Depth (including base)

With Reference to: **Figure D-5**

Figure D-5 **GEG-15-384** **Church Lane, Laverstock** **IT03 (Test 1)**



Our Ref: WB362-01/SM/DOP/TNO

LAVERSTOCK, SALISBURY

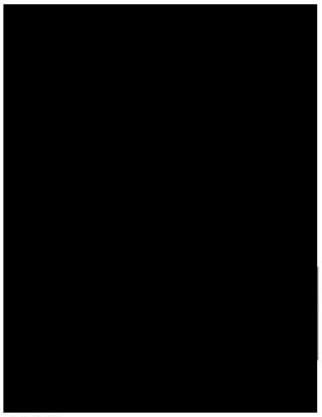
GROUND INVESTIGATION REPORT

This report was carried out in accordance with JPB Quality Assurance procedures.

Report prepared by: Shannon Mills
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Date	Revision	Details of Amendment	Authorised by:
October 2023	Rev 0	-	

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Client Supplied	Site Plan indicating proposed SuDS basin (Drawing no. 10679-SI-02)
WB362-01/R/F/01	Site Location Plan
WB362-01/R/F/02	Extract from the British Geological Survey Map – Solid & Drift
WB362-01/R/F/03	Existing Site Plan Indicating Borehole Locations

EXECUTIVE SUMMARY

Hallam Land Management Ltd are assessing the potential of a site located at Laverstock, Salisbury (JPB Drawing WB362-01/R/F/01). The purpose of this investigation was to determine the groundwater levels and hydrogeological setting beneath the site. It should be noted that the scope of the investigation was designed by Brookbanks Consulting Limited.

This section provides a brief summary of the investigation findings in relation to the ground conditions and groundwater regime beneath the site.

Historical Background

On Site	Off Site
Greenfield	Residential development/ greenfield and factories

Invasive Plants

An invasive plant survey was not carried out during the investigation works and a survey of the site by an ecologist is recommended prior to commencement of works at the site.

Geology

The investigation has indicated the site to be underlain by topsoil down to between 0.32m and 0.52m bgl. This generally comprised brown slightly sandy slightly gravelly silt with flint and chert gravels and fine rootlets.

The topsoil was generally underlain by light brown slightly sandy gravelly silt with gravels of chert, flint and chalk with occasional chalk cobbles down to between 0.87m and 1.63m bgl. Given the nature of this strata, it is considered that this is likely the superficial Head Deposits.

Weathered bedrock of the Newhaven Chalk Member was encountered at between 0.87m and 1.63m bgl, down to the termination depths of the boreholes at 5.45m bgl. This strata generally comprised structureless chalk composed of cream slightly sandy gravelly silt with occasional cobbles (weathering grade Dm). The gravels and cobbles are very weak low density. Thin lenses of structureless chalk composed of slightly silty sandy sub-angular to subrounded fine to coarse gravel with cobbles (weathering grade Dc) were also encountered (BH01 at between 3.43m and 3.56m, BH02 at between 3.68m and 3.79m, BH03 at between 3.83m and 3.96m and BH04 at between 2.68m and 2.82m, and 3.68m and 4.27m bgl).

Groundwater

Water was recorded in the boreholes during drilling as follows.

Borehole	Groundwater Depth (m bgl)	Groundwater Level (mAOD)	Comment
BH01	1.0	53.36	-
BH02	2.0	52.41	-
BH03	2.0	54.36	-
BH04	-	-	Recorded as dry, however strata was recorded as very wet at between 4.47m and 4.70m bgl.

The standpipes installed during the investigation were subsequently monitored and the results are summarised in the following table.

Borehole	Approx level (mAOD)	Response Zone	Response Materials	Water Depths Recorded (m) Water level [mAOD]				
				16/01/23	16/02/23	17/03/23	05/05/23	07/06/23
BH01	54.36	1.0m to 5.45m	Superficial/Newhaven Chalk Member	4.16 [50.20]	5.08 [49.28]	Dry	Dry	Dry
BH02	54.41	1.0m to 5.45m	Newhaven Chalk Member	4.21 [50.20]	Dry	Dry	Dry	5.35 [49.06]
BH03	54.36	1.0m to 5.45m	Superficial/Newhaven Chalk Member	4.01 [50.35]	4.95 [49.41]	5.13 [49.23]	4.90 [49.46]	5.15 [49.21]
BH04	60.93	1.0m to 5.45m	Newhaven Chalk Member	Dry	Dry	Dry	Dry	NR*

*Unable to locate borehole as area had overgrown.

1.0 INTRODUCTION AND OBJECTIVES

1.1 Introduction

Hallam Land Management Ltd are assessing the potential of a site located at Laverstock, Salisbury (JPB Drawing WB362-01/R/F/01). The purpose of this investigation was to determine the groundwater levels and hydrogeological setting beneath the site.

It should be noted that the scope of the investigation was designed by Brookbanks Consulting Limited.

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1.2 Objectives

JPB were commissioned by Brookbanks Consulting Limited, on behalf of Hallam Land Management Ltd to undertake site investigation works. The aim of the investigation was to determine the underlying ground conditions and groundwater regime beneath the site. It should be noted that the scope of the investigation was designed by Brookbanks Consulting Limited.

The ground investigation and subsequent groundwater monitoring is now complete, and this report presents the factual investigation data and JPB's interpretation of the existing conditions.

2.0 SITE RECONNAISSANCE

2.1 Site Walkover

The site is located in the northern area of the village of Laverstock and is approximately centred on Ordnance Survey National Grid Reference 416357, 131701 and covers an area of approximately 8.0 hectares. A selection of site photographs is presented in Appendix 2.

At the time of the site walkover on Thursday 15th December 2022 the site comprised agricultural fields. The site was bounded by Church Road, residential houses and gardens to the west. To the south of the site was a commercial unit which manufactured electronics, beyond this were sports fields. To the east and north of the site was the continuation of agricultural fields.

It should be noted that the present site investigation was limited to the southern field. This field appeared to have been recently harrowed and was bounded by trees and hedges along the surrounding field boundaries to the north, east and south.

The site topography gently slopes downward towards the north.

2.2 Invasive Plant Survey

An invasive plant survey was not carried out during the investigation works and a survey of the site by an ecologist is recommended prior to commencement of works at the site.

3.0 APPRAISAL OF EXISTING INFORMATION

3.1 General

Initial research undertaken prior to the site investigation works included a routine examination of available geological maps, past and present editions of the Ordnance Survey and relevant in-house data. A summary of information obtained from our researches is presented in the following section.

3.2 UXO Assessment

A Zetica Map has been obtained with regards to the assessment of any risks which may or may not be posed by Unexploded Ordnance (UXO) at the site. The map indicates the site to be in an area of low risk which are areas indicated as having 15 bombs per 1000 acres or less. A copy of this map can be found in Appendix 3.

3.3 History of Land Use

An investigation of the past usage of the site can often provide an indication of former land uses. These researches can help to identify any potential constraints to developments upon which physical investigations can then concentrate. Past copies of Ordnance Survey Maps and air photos were examined, and a brief summary of the historical land uses identified on and adjacent to the site are described below.

Ordnance Survey Edition	On Site	Surrounding Area
1879	Greenfield	A road runs along the southern boundary of the site leading to New Hall farm that is roughly 20m from the northern boundary of the site.
1901	No significant changes.	No significant changes.
1926	No significant changes.	An additional farm building has been built at New Hall Farm.
1948	No significant changes.	No significant changes.
2023	Tress bound the northern, eastern and southern boundaries of the southern field.	New houses and building have been built to the north of New Hall farm. A commercial factory is shown immediately south of the site. Residential houses are now shown along Church Road to the west of the site.

3.4 Geology and Mining

An initial appreciation of the general geological conditions underlying the site was made from the available Geological Survey sheets (JPB Drawing WB362-01/R/F/02) and BGS supplied borehole logs (Appendix 4). The following is a summary of the indicated conditions as interpreted from the above information by JPB.

Made Ground	The site is greenfield therefore no made ground deposits are anticipated.
Natural Superficial Deposits	Head deposits comprising of mainly poorly sorted and stratified, angular rock debris of gravel, clay and sand are expected across the southern area of the site. Three BGS exploratory hole records (BGS reference SU13SE32, SU13SE49 and SU13SE47) immediately to the east of the southern field encountered topsoil comprising brown clayey silt with rootlets and flint gravels down to between 0.2m and 1.0m bgl. This was underlain by superficial Head Deposits comprising slightly clayey sandy silt with fine to coarse gravels of chalk and flints with cobbles of flint down to between 0.7m and 1.2m bgl in two of the records. This strata was shown to be absent from BGS borehole record SU13SE32. Bedrock is indicated to lie at between 0.5m and 1.2m depth below ground level.
Rock Strata	The underlying rock strata is indicated to belong to the Cretaceous Newhaven Chalk Member. This strata typically comprises soft to medium hard, smooth white chalk with numerous marl seams and flint bands. The formation often contains distinct phosphatic chalks of limited lateral extent. The geological maps indicate that the thickness of this formation is often between 45m to 75m. The BGS trial pit records immediately east of the investigation area encountered white structureless chalk, which was noted as soft to moderately strong, becoming white rubbly chalk, which was recorded as strong with flint nodules and iron staining. The chalk was noted as becoming blocky and strong to very strong near the termination depths of the trial pits at between 3.1m and 4.0m bgl. There are no faults that run close to the site to affect the geology of the area.
Quarrying	There is no indication of quarrying on site or in the immediate vicinity.
Mining	Examination of historical records shows no evidence of underground mining within the vicinity of the site and there is no current mining within influencing distance. The Coal Authority indicates the property is not within an area that could be affected by past recorded underground workings. The geological

	maps, and memoirs, the mine plans catalogues and Department of the Environment Report "Mining Instability in Great Britain", 1991 and BGS record on non-coal mining plans contain no records of any mineworkings or mine entries beneath the site. Therefore, based on our researches **mining is not a constraint.**

3.5 Hydrology and Hydrogeology

The available information, including the Environment Agency Catchment Data Explorer (Appendix 5), indicates that the following hydrological and hydrogeological conditions are present at the site.

Surface Water Features	The nearest major surface water feature to the site is the River Bourne located approximately 120m to the north-west of the site. The Environment Agency Catchment Data Explorer classifies the River Bourne as being of "Good" ecological potential, with a chemical status of "Fail". There are no minor surface water features within influencing distance of the site.
Superficial Deposits	Head deposits are indicated to be present and may comprise granular materials. The EA has classified these deposits as 'Secondary undifferentiated' with regards to aquifer classification.
Rock Strata	The indicates that the Newhaven Chalk Formation is classified as a 'Principal' aquifer.

4.0 SITE INVESTIGATIONS

4.1 Programme of Works and Investigation Rationale

All aspects of the investigation were designed by Brookbanks Consulting Limited. The investigation points were located where access, ground conditions and underground services allowed. It should be noted that soil and rock conditions are highly variable and may differ between sampling points and this may affect interpretation. Additional features may exist buried at depth beyond the scope of the drilling and could have therefore been undetected by investigation. The approximate locations of the boreholes is shown on JPB Drawing WB362-01/R/F/03.

Work Item	Description	Appendix
Window Sample Boreholes	**Four soils boreholes** (BH01 to BH04) to depths of 5.45m bgl, were sunk by Geospek Limited across the site on the Thursday 15th December 2022.	Appendix 6
Rationale	To investigate the nature and extent of the soil and rock underlying the site and install groundwater monitoring installation standpipes.	
Groundwater monitoring	**Groundwater monitoring** at standpipes installed in the boreholes (BH01 to BH04) was carried out on five occasions between January and June 2023 at monthly intervals, as specified by Brookbanks Consulting Limited.	Appendix 7
Rationale	To determine the groundwater regime at the site.	
Borehole decommissioning	Following the completion of the final groundwater monitoring visit, the borehole installations were decommissioned by Jackson Drilling Ltd on Friday 18th August as instructed by Hallam Land Management Ltd. This comprised removing the protective cover and standpipe and backfilling with bentonite.	N/A
Rationale	To remove the standpipes and protective covers at the site for continued land use as an agricultural field.	

5.0 SITE GEOLOGY

5.1 General

The general geological conditions beneath the site were assessed from the available information including a review of geological maps and boreholes. This provided an indication of the general thickness of the superficial cover.

The recent investigations appear to confirm the anticipated geological conditions with topsoil overlying head deposits, which is in turn underlain by chalk bedrock.

5.2 Made Ground

Made ground was not encountered in any of the boreholes at the site, however topsoil which was likely disturbed by farming/ploughing activities was present from ground level down to between 0.32m and 0.52m. This generally comprised brown slightly sandy slightly gravelly silt with flint and chert gravels and fine rootlets.

5.3 Natural Deposits

The topsoil was generally underlain by light brown slightly sandy gravelly silt with gravels of chert, flint and chalk with occasional chalk cobbles down to between 0.87m and 1.63m bgl. Given the nature of this strata, it is considered that this is likely to represent the superficial Head Deposits.

5.4 Solid Geology

Weathered bedrock of the Newhaven Chalk Member was encountered at between 0.87m and 1.63m bgl, down to the termination depths of the boreholes at 5.45m bgl. This strata generally comprised structureless chalk composed of cream slightly sandy gravelly silt with occasional cobbles (weathering grade Dm). The gravels and cobbles are very weak low density. Thin lenses of structureless chalk composed of slightly silty sandy sub-angular to subrounded fine to coarse gravel with cobbles (weathering grade Dc) were also encountered (BH01 at between 3.43m and 3.56m, BH02 at between 3.68m and 3.79m, BH03 at between 3.83m and 3.96m and BH04 at between 2.68m and 2.82m, and 3.68m and 4.27m bgl).

5.5 Groundwater

Water was recorded in the boreholes during drilling as follows.

Borehole	Groundwater Depth (m bgl)	Groundwater Level (mAOD)	Comment
BH01	1.0	53.36	-
BH02	2.0	52.41	-
BH03	2.0	54.36	-
BH04	-	-	Recorded as dry, however strata was recorded as very wet at between 4.47m and 4.70m bgl.

The standpipes installed during the investigation were subsequently monitored and the results are summarised in the following table.

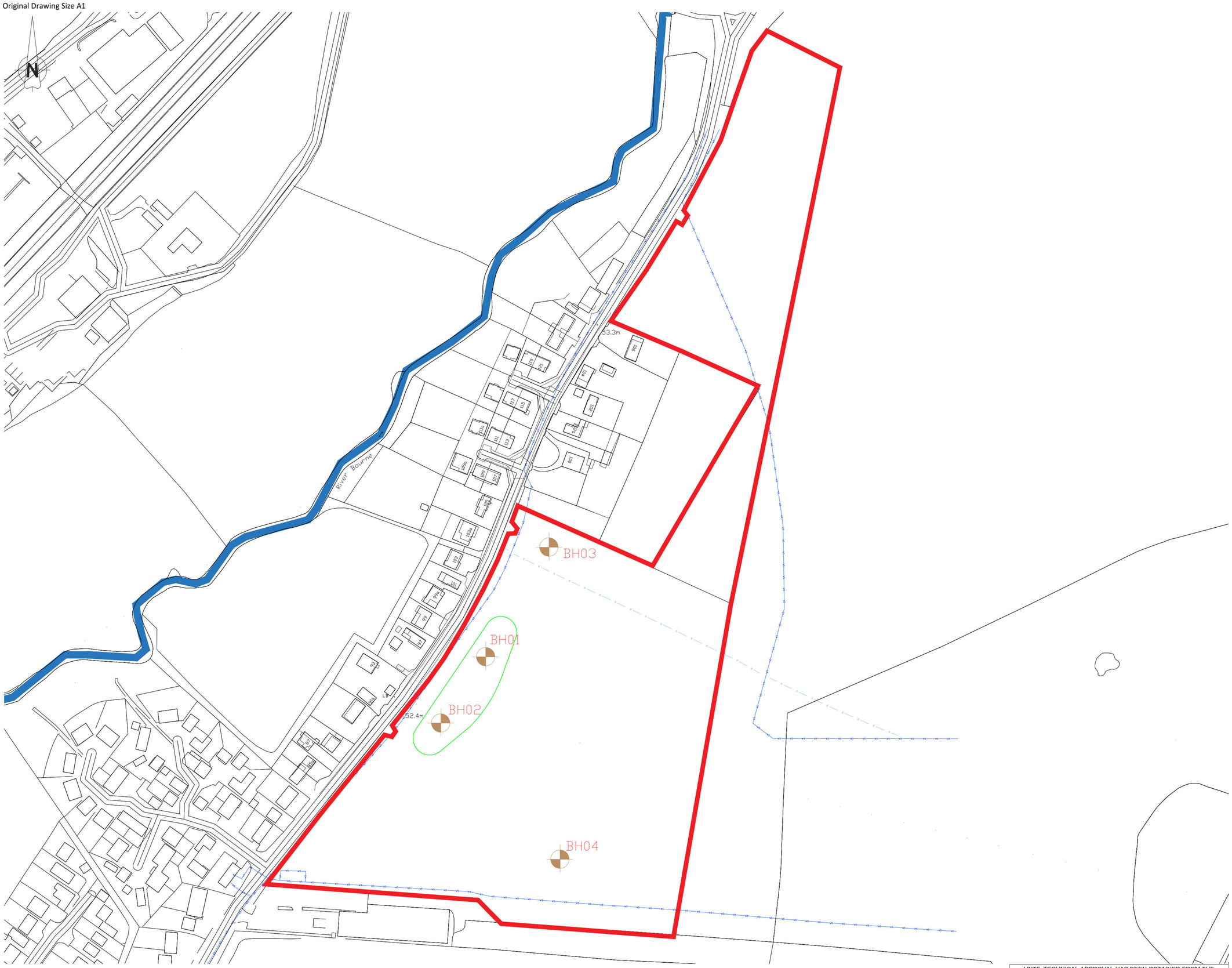
Borehole	Approx level (mAOD)	Response Zone	Response Materials	Water Depths Recorded (m) Water level [mAOD]				
				16/01/23	16/02/23	17/03/23	05/05/23	07/06/23
BH01	54.36	1.0m to 5.45m	Superficial/Newhaven Chalk Member	4.16 [50.20]	5.08 [49.28]	Dry	Dry	Dry
BH02	54.41	1.0m to 5.45m	Newhaven Chalk Member	4.21 [50.20]	Dry	Dry	Dry	5.35 [49.06]
BH03	54.36	1.0m to 5.45m	Superficial/Newhaven Chalk Member	4.01 [50.35]	4.95 [49.41]	5.13 [49.23]	4.90 [49.46]	5.15 [49.21]
BH04	60.93	1.0m to 5.45m	Newhaven Chalk Member	Dry	Dry	Dry	Dry	NR*

*Unable to locate borehole as area had overgrown.

APPENDICES

Appendix 1 Drawings

Original Drawing Size A1



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Construction Design and Management (CDM)
Key Residual Risks

Contractors entering the site should gain permission from the relevant land owners and/or principle contractor working on site at the time of entry. Contractors shall be responsible for carrying out their own risk assessments and for liaising with the relevant services companies and authorities. Listed below are Site Specific key risks associated with the project.

1) Overhead and underground services
2) Street Lighting Cables
3) Working adjacent to water courses and flood plain
4) Soft ground conditions
5) Working adjacent to live highways and railway line
6) Unchartered services
7) Existing buildings with potential asbestos hazards

NOTES:

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KEY:

- Red Line Boundary
- Groundwater Monitoring Location
- Proposed SuDS Basin Location

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-	First Issue	KM RB	RB 21.10.22

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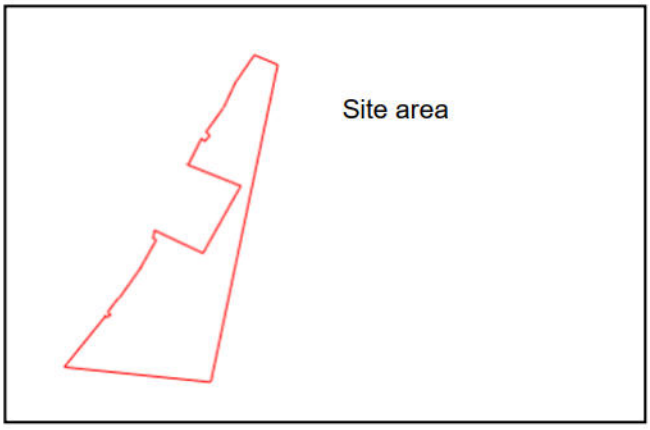
Laverstock,
Salisbury

Groundwater Monitoring Locations

Status		Status Date
Draft		OCT 2022
Drawn	**Checked**	**Date**
KM	RB	31.10.22
Scale	**Number**	**Rev**
1:1250	10679-SI-02	-

0 25 50 75 100 125
METRES





[1]BASE MAP PRODUCED FROM GOOGLE MAPS 2023.

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CLIENT

HALLAM LAND MANAGEMENT LTD

PROJECT TITLE

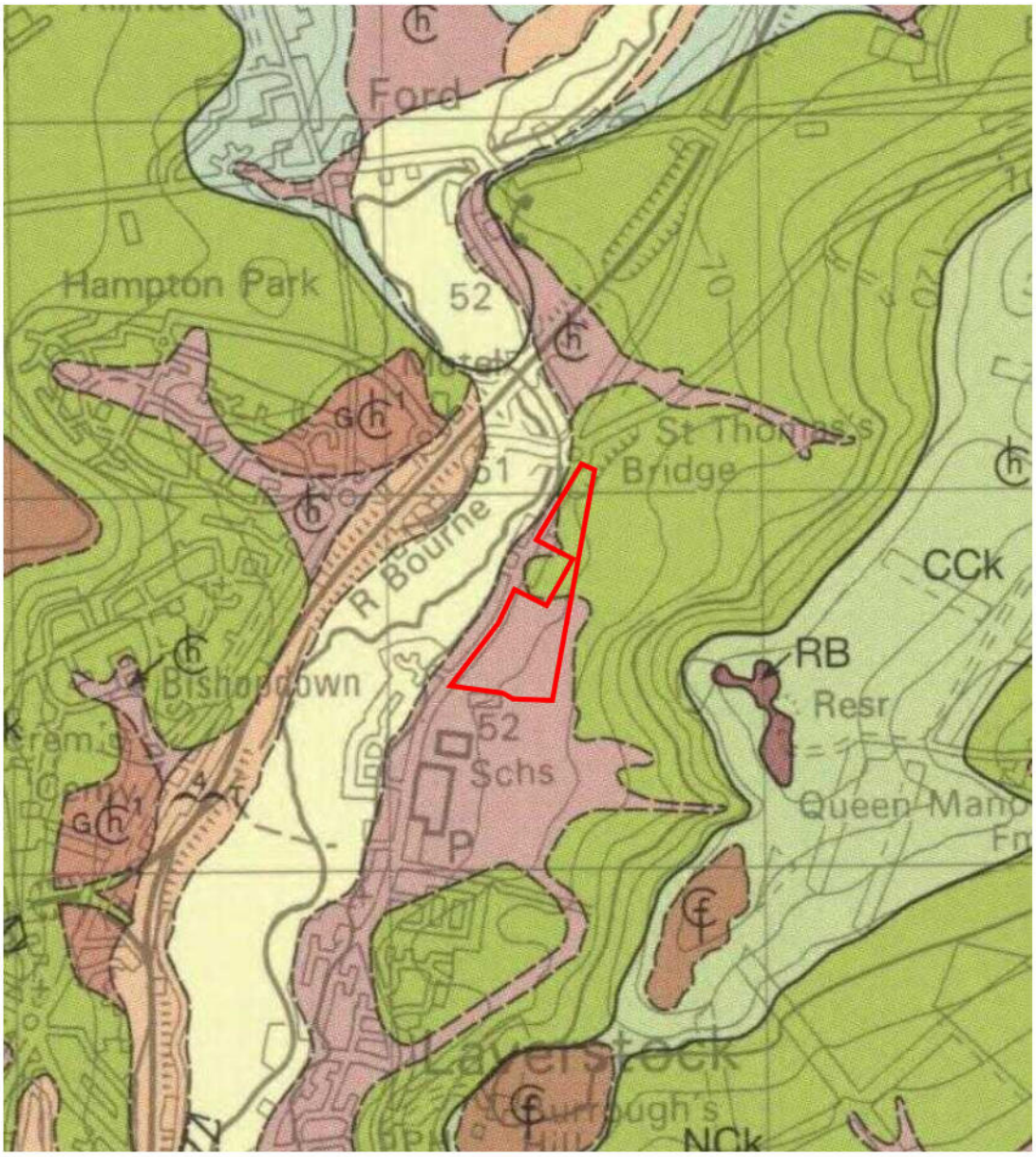
LAVERSTOCK, SALISBURY

DRAWING TITLE

Site Location Plan

Johnson Poole & Bloomer Consultants
GEO-ENVIRONMENTAL & MINERALS

DRAWN BY	APPROVED BY	DATE	SCALE	DRAWING No.
SM	SAG	06/09/2023	NTS	WB362-01-01/R/F/01



LEGEND

Approximate Site Boundary

Head: variable deposits of sandy, silty clay, locally gravelly; chalky and flinty in dry valleys

NCk — NEWHAVEN CHALK FORMATION (55 - 70 m) Chalk, white, soft to firm, with some flint and many marl seams

0 1 km

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PROJECT TITLE

LAVERSTOCK, SALISBURY

DRAWING TITLE

BGS Map Salisbury (Map Sheet 298) Extract – Drift and Solid

Johnson Poole & Bloomer Consultants
GEO-ENVIRONMENTAL & MINERALS

DRAWN BY	APPROVED BY	DATE	SCALE	DRAWING No.
SM	DOP	October 2023	1:50,000	WB362-01/R/F/02



Approximate Site Boundary

Approximate Window Sampling Borehole Location

NOTES

[1]Base map produced from Google maps 2023.

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Johnson Poole & Bloomer Consultants

GEO-ENVIRONMENTAL & MINERALS

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Hallam Land Management Ltd
Banner Cross Hall
Ecclesall Road South
Sheffield
S11 9PD

PROJECT TITLE

LAVERSTOCK, SALISBURY

DRAWING TITLE

EXPLORATORY HOLE LOCATION PLAN

DRAWN BY	APPROVED BY
SM	DOP
DATE	SCALES
SEP 2023	NTS

DRAWING No. WB362-01/R/F/03

Appendix 2 Site Photographs



Plate 1: View looking north-east from the southern area of the site. Showing fields.



Plate 2 View looking north-west from the south-eastern area of the site. Showing fields.



Plate 3: View looking west, taken from the south-eastern area of the site. Showing fields.

Appendix 3 Zetica Map

UNEXPLODED BOMB RISK MAP

zeticauxo

SITE LOCATION

Location: Laverstock, Wiltshire
Map Centre: 415500,130500



LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary | **industry** | **UXO find**
transport | **dock** | **Luftwaffe targets**
utilities | **Bombing decoy** | **other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

Zetica cannot guarantee the accuracy or completeness of the information or data used and cannot accept any liability for any use of the maps. These maps can be used as part of a technical report or similar publication, subject to acknowledgment. The copyright remains with Zetica Ltd.

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

Appendix 4 BGS Supplied Exploratory Hole Logs

British Geological Survey

BGS ID: 401266 : BGS Reference: SU13SE32
British National Grid (27700) : 416480,131530

STRUCTURAL SOILS

SU13SE 32

1648 3153

BOREHOLE LOG

Contract	Client	Borehole No
Salisbury Eastern Bypass	Wiltshire County Council	2

Job No	Date	Ground Level (m AOD)	Co-Ordinates	Sheet
20941	11/09/92	67.52 mAOD	E 6478.250 N 11532.250	1 of 1

Samples and In-situ Tests				Water	Instrumentation	Description of Strata	Depth (Thickness)	Legend
Depth	No	Type	Blows					
0.50	1	D				Brown silty TOPSOIL with some small lumps of weathered chalk and broken flint	(0.50) 0.50	
1.00-1.40	2	U	70			Highly weathered putty CHALK containing small lumps of weathered chalk and broken flint (zone VI)	(0.90) 1.40	
						Borehole terminated at 1.4m depth		

Boring Progress and Water Observations

Date	Time	Borehole Depth	Casing Depth	Casing Diameter	Water Depth

Chiselling

From	To	Hours

General Remarks

Borehole abandoned, struck water pipe. Relocated 5m away.

All dimensions in metres	Method	Logged By	Checked By
Scale 1:50	Cable Percussion	MF	

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 401266 : BGS Reference: SU13SE32
British National Grid (27700) : 416480,131530

STRUCTURAL SOILS

SU13SE 32

1648 3153

BOREHOLE LOG

Contract	Client	Borehole No
Salisbury Eastern Bypass	Wiltshire County Council	2A

Job No	Date	Ground Level (m AOD)	Co-Ordinates	Sheet
20941	11/09/92	67.52 mAOD	E 6478.250 N 11533.000	1 of 2

Samples and In-situ Tests				Water	Instrumentation	Description of Strata	Depth (Thickness)	Legend
Depth	No	Type	Blows					
0.50	1	D				Brown silty TOPSOIL ... with some small lumps of weathered chalk and broken flint	(1.00)	
1.00-1.50	2	U	47			Structureless matrix of deeply weathered CHALK containing partly weathered rubbly chalk blocks (zone V). Bedding and jointing absent	1.00	
1.50	3	D	9					
1.51	4	SPT						
2.10	5	D				... with some brown clay infill at 2.1m depth		
3.00	6	SPT	14					
4.00-4.50	7	U	33					
4.50	8	D	19			... becoming partially weathered rubbly CHALK by 4.5m depth, with bedding and jointing present. Joints open to 20mm with a chalk and clay infill (zone IV)		
4.51	9	SPT						
5.00	10	D				... with some flint at 5.0m depth		
5.50-6.00	11	U	27				(9.00)	
6.00	12	D	11			... losing structure by 6.0m depth, with jointing absent (zone V)		
6.01	13	SPT						
7.00	14	D				... becoming partially weathered rubbly CHALK, by 7.0m depth, with bedding and jointing present. Joints open to 20mm with a chalk and clay infill (zone IV)		
7.50	15	SPT	17					
8.00-8.50	16	U	29					
8.50	17	D						

Boring Progress and Water Observations						Chiselling			General Remarks
Date	Time	Borehole Depth	Casing Depth	Casing Diameter	Water Depth	From	To	Hours	

All dimensions in metres	Method	Logged By	Checked By
Scale 1:50	Cable Percussion	MF	

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 401281 : BGS Reference: SU13SE47
British National Grid (27700) : 416520,131720

Wiltshire COUNTY COUNCIL

SU13SE 47
1652 3172

TRIAL PIT LOG

SCHEME	CONTRACTOR	DATE	TRIAL PIT No
SALISBURY EASTERN BYPASS	WCED	04/09/92	TP10 SHEET 1 OF 1

JOB No.	GROUND LEVEL	CO-ORDINATES	EQUIPMENT	PLAN DIMENSION OF PIT	DEPTH OF PIT
508	61.54m AOD	N 11720.25 E 6510.75	HYMAC FH130	3.5m by 0.8m	4.0m

Water	Sample Type	Test Type	Depth	Test Result	Reduced Level	Description of Strata	Depth (Thick)	Legend
						Loose dark brown clayey sandy SILT with roots/rootlets and gravel size flints. (TOPSOIL)	(0.50)	
					61.04		0.50	
	B		0.80			Loose light brown clayey SILT/silty CLAY with fine to coarse gravel size rounded chalk fragments and flint cobbles/nodules. (Probably HILLWASH)	(0.70)	
					60.34		1.20	
	B		1.40			White structureless CHALK, soft to moderately strong. (Probably GRADE V CHALK)	(0.30)	
					60.04		1.50	
						White rubbly CHALK, strong with flint nodules and iron staining. (Probably GRADE IV CHALK)		
							(2.50)	
	B		3.00			....becoming blocky and strong to very strong		
	B		4.00		57.54	Pit terminated at 4.00m	4.00	

Remarks

Sides not stable below 1.2m. Groundwater was not encountered. Orientation of pit 028 degrees. Soakaway test carried out in this pit.

LOGGED BY: SL

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 401283 : BGS Reference: SU13SE49
British National Grid (27700) : 416520,131620

Wiltshire COUNTY COUNCIL

SU13SE 49
1652 3162

TRIAL PIT LOG

SCHEME	CONTRACTOR	DATE	TRIAL PIT No
SALISBURY EASTERN BYPASS	WCED	01/09/92	TP12 SHEET 1 OF 1

JOB No.	GROUND LEVEL	CO-ORDINATES	EQUIPMENT	PLAN DIMENSION OF PIT	DEPTH OF PIT
508	66.79m AOD	N 11623.25 E 6513.00	HYMAC FH130	3.9m by 1.3m	3.1m

Water	Sample Type	Test Type	Depth	Test Result	Reduced Level	Description of Strata	Depth (Thick)	Legend
					66.59	Loose dark brown clayey sandy SILT with roots/rootlets andgravel size flints. (TOPSOIL)	(0.20) 0.20	
						Loose to medium dense brown slightly clayey sandy SILT with coarse sand to fine gravel size rounded chalk fragments and coarse gravel to cobble size flints. (Probably HILLWASH)	(0.50)	
	B		0.70		66.09	White rubbly CHALK, bedding not visible, very closely spaced open fractures some infilled with clay,strong with flint nodules and iron staining. (Probably GRADE IV CHALK)	0.70 (0.90)	
	B		1.60		65.19	White rubbly CHALK,very thinly spaced bedding, very closely spaced open fractures,strong with flint nodules and iron staining. (Probably GRADE IV CHALK)	1.60	
	B		2.40			....becoming very strong	(1.50)	
					63.69	Pit terminated at 3.10m	3.10	

Remarks

Sides of the pit were stable during excavation. Groundwater was not encountered.
Orientation of pit 010 degrees.

LOGGED BY: SL

Contact BGS: ngdc@bgs.ac.uk

Appendix 5 Environment Agency Catchment Data

Bourne (Hampshire Avon) Water Body

Good ecological status



Get Bourne (Hampshire Avon) data

Download water body (Shapefile)
Download water body (GeoJSON)
Download classifications (CSV)
Download site classifications (CSV)
Download investigations (CSV)
Download challenges (CSV)
Download objectives (CSV)
Download protected areas (CSV)

Related links

Plan maps on ArcGIS online
Flood risk management plans

Attributes

Water Body ID	Water Body Type	Hydromorphological designation	NGR
GB108043022390	River	not designated	SU1853636562

Surveillance Water Body No	**Natural England Revised WB Protected Area targets** http://publications.naturalengland.org.uk/publication/4520877345472512	**Length** 47.764 km	**Catchment area** 17343.799 ha
Catchment area 173.438 km2			

Classifications

Time period: Cycle 3

Classification Item	2019	2022
Ecological	**Moderate**	**Good**
Biological quality elements	**Moderate**	**Good**
Fish	**Moderate**	**Good**
Invertebrates	**High**	**High**
Macrophytes and Phytobenthos Combined	**Good**	**Good**
Macrophytes Sub Element	**Good**	**Good**
Physico-chemical quality elements	**Good**	**Good**
Ammonia (Phys-Chem)	**High**	**High**
Dissolved oxygen	**High**	**High**
Phosphate	**Good**	**Good**
Temperature	**High**	**High**
pH	**High**	**High**
Hydromorphological Supporting Elements	**Supports good**	**Supports good**
Hydrological Regime	**Supports good**	**Supports good**
Morphology	**Supports good**	**Supports good**
Specific pollutants	**High**	**High**
Copper	**High**	**High**
Iron	**High**	**High**
Chemical	Fail	**Does not require assessment**
Priority hazardous substances	Fail	**Does not require assessment**
Benzo(a)pyrene	**Good**	
Dioxins and dioxin-like compounds	**Good**	
Heptachlor and cis-Heptachlor epoxide	**Good**	
Hexabromocyclododecane (HBCDD)	**Good**	
Hexachlorobenzene	**Good**	
Hexachlorobutadiene	**Good**	
Mercury and Its Compounds	Fail	

Classification Item	2019	2022
Priority substances	**Good**	**Does not require assessment**
Cypermethrin (Priority)	**Good**	
Fluoranthene	**Good**	
Other Pollutants	**Does not require assessment**	**Does not require assessment**

Why do all water bodies have a chemical status of fail?

Investigations into classification status

No data to show

Reasons for not achieving good (RNAG) and reasons for deterioration (RFD)

All reasons (RFDs and RNAGs) attributed to the classification elements in this water body.

Reason Type	SWMI	Activity	Category	Classification Element	More information
RNAG	Physical modification	Barriers - ecological discontinuity	Other	Fish	Details
RNAG	Physical modification	Urbanisation - urban development	Urban and transport	Fish	Details
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Mercury and Its Compounds	Details
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Polybrominated diphenyl ethers (PBDE)	Details
RNAG	Flow	Groundwater abstraction	Water Industry	Hydrological Regime	Details
RNAG	Flow	Groundwater abstraction	Water Industry	Fish	Details

Reasons for not achieving good status by business sector

The issues preventing waters reaching good status and the sectors identified as contributing to them. The numbers in the table are individual counts of the reasons for not achieving good status with a confidence status of 'confirmed' and 'probable', where the latest classification is less than good status. There may be more than one reason in a single water body. Note, table does not include reasons for deterioration.

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Agriculture and rural land management	0	0	0	0	0	0	0
Industry	0	0	0	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	0

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Urban and transport	0	0	0	0	0	0	0
Water Industry	0	0	0	0	0	0	0
Local & central government	0	0	0	0	0	0	0
Domestic general public	0	0	0	0	0	0	0
Recreation	0	0	0	0	0	0	0
Waste treatment and disposal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
No sector responsible	0	0	0	0	0	0	0
Sector under investigation	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Objectives

Classification Item	Status	Year	Reasons
Ecological	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Biological quality elements	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Fish	**Good**	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Invertebrates	**Good**	2015	
Macrophytes and Phytobenthos Combined	**Good**	2015	
Physico-chemical quality elements	**Good**	2015	
Ammonia (Phys-Chem)	**Good**	2015	
Dissolved oxygen	**Good**	2015	
Phosphate	**Good**	2015	
Temperature	**Good**	2015	
pH	**Good**	2015	
Hydromorphological Supporting Elements	**Supports good**	2015	
Hydrological Regime	**Supports good**	2021	Disproportionately expensive: Disproportionate burdens
Supporting elements (Surface Water)	**Not assessed**	2015	
Specific pollutants	**High**	2015	
Copper	**High**	2015	

Classification Item	Status	Year	Reasons
Chemical	**Good**	2063	Natural conditions: Chemical status recovery time
Priority hazardous substances	**Good**	2063	Natural conditions: Chemical status recovery time
Benzo(a)pyrene	**Good**	2015	
Dioxins and dioxin-like compounds	**Good**	2015	
Heptachlor and cis-Heptachlor epoxide	**Good**	2015	
Hexabromocyclododecane (HBCDD)	**Good**	2015	
Hexachlorobenzene	**Good**	2015	
Hexachlorobutadiene	**Good**	2015	
Mercury and Its Compounds	**Good**	2040	Natural conditions: Chemical status recovery time
Perfluorooctane sulphonate (PFOS)	**Good**	2015	
Polybrominated diphenyl ethers (PBDE)	**Good**	2063	Natural conditions: Chemical status recovery time
Priority substances	**Good**	2015	
Cypermethrin (Priority)	**Good**	2015	
Fluoranthene	**Good**	2015	
Other Pollutants	**Does not require assessment**	2015	

Protected areas

PA Name	Id	Directive	More information
River Avon	UK0013016	Special Area of Conservation	Natural England
South Wessex	G151	Nitrates Directive	

Monitoring sites which have been used to classify this water body

RIVER BOURNE AT FORD 50240169

RIVER BOURNE AT LAVERSTOCK 50240116

AVON (HAMPSHIRE)/RIVER BOURNE/BOURNE AT LAVERSTOCK/ 1921

AVON (HAMPSHIRE)/RIVER BOURNE/BOURNE AT ST THOMAS BRIDGE/ 1923

AVON (HAMPSHIRE)/RIVER BOURNE/WINTERBOURNE GUNNER/ 13932

9190 9190

AVON (HAMPSHIRE)/RIVER BOURNE/R.BOURNE AT MILLFORD/ 12826

201573 201573

AVON (HAMPSHIRE)/RIVER BOURNE/HURDCOTT/ 13550

Upstream water bodies

Downstream water bodies

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OGL

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Built by Swirrl

Appendix 6 Window Sampling Logs – Johnson Poole & Bloomer – December 2022

Johnson Poole & Bloomer

Site	Number
Laverstock, Salisbury	WS01

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler	102mm to 102mm	54.36	Hallam Land Management Ltd	WB362
	Location (dGPS) 416329.797, 131651.237	**Dates** 15/12/2022	**Engineer**	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
				54.01	(0.35) 0.35	TOPSOIL: Brown slightly sandy slightly gravelly SILT. Gravel is angular to sub-rounded fine to coarse flint and chert with fine rootlets.			
					(1.00)	Light brown slightly sandy gravelly SILT. Gravel is angular to sub-rounded fine to coarse chert, flint and chalk (Probable Head Deposits).		▽1	
1.00-1.45	SPT N=18		Water strike(1) at 1.00m. 3,3/4,5,4,5	53.01	1.35	Structureless CHALK composed of cream slightly sandy gravelly SILT with occassional cobbles. Gravel and cobbles are very weak low density white and rounded (Grade Dm). From 1.80m becoming more gravelly with a few low density very weak fine angular to sub-rounded cobbles.			
2.00-2.45	SPT N=16		5,4/3,4,4,5						
					(2.08)				
3.00-3.45	SPT N=16		3,3/3,4,4,5						
				50.93	3.43				
				50.80	(0.13) 3.56	Structureless CHALK composed of slightly silty sandy sub-angular to sub-rounded fine to coarse GRAVEL with occassional sub-rounded cobbles. Gravel is very weak, low density white. Cobbles are weak low to medium density white. Matrix is light brown (Grade Dc).			
4.00-4.45	SPT N=8		2,2/1,2,2,3						
					(1.89)	Structureless CHALK composed of cream slightly sandy gravelly SILT. Gravel is very weak low density white and rounded (Grade Dm).			
5.00-5.45	SPT N=4		1,1/1,1,1,1						
				48.91	5.45	Complete at 5.45m			

Remarks
Borehole location cleared by CAT scan and GPR techniques by Midland Survey Limited prior to drilling.
Groundwater was struck at 1m bgl.
50mm 10 HDPE gas and groundwater monitoring standpipe installed to 5.45m. Slotted standpipe with gravel fill from 5.45m to 1.00m.
Plain standpipe from 1.00m to ground level with bentanite seal. Concrete to ground level with a lockable security cover fitted at surface.

Scale (approx)	Logged By
1:50	SM

Figure No. WB362.WS01

Produced by the GEOtechnical DAtabase SYstem (GEODASY) (C) all rights reserved

Johnson Poole & Bloomer

Site	Number
Laverstock, Salisbury	WS02

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler	102mm to 102mm	54.41	Hallam Land Management Ltd	WB362
	Location (dGPS) 416297.002, 131605.232	**Dates** 15/12/2022	**Engineer**	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
				54.17	(0.24) 0.24	TOPSOIL: Brown slightly sandy slightly gravelly SILT. Gravel is angular to sub-rounded fine to coarse flint and chert with fine rootlets.			
				54.09	0.32	TOPSOIL: Light brown slightly sandy gravelly SILT. Gravel is angular to sub-rounded fine to medium flint and chert.			
				53.46	(0.63) 0.95	Light brown slightly sandy gravelly SILT. Gravel is angular to sub-rounded fine to coarse chert, flint and chalk (Probable Head Deposits).			
1.00-1.45	SPT N=18		3,3/5,5,4,4			Structureless CHALK composed of cream slightly sandy gravelly SILT with occassional cobbles. Gravel and cobbles are very weak, low density white with frequent black specks and angular to rounded. (Grade Dm).		▽1	
2.00-2.45	SPT N=9		Water strike(1) at 2.00m. 2,2/2,2,3,2	52.36	(1.10) 2.05	Structureless CHALK composed of slightly sandy gravelly SILT. Gravel is very weak low density white angular to sub-angular (Grade Dm).			
3.00-3.45	SPT N=7		2,2/2,1,2,2		(1.63)				
4.00-4.45	SPT N=9		1,1/1,2,3,3	50.73	3.68	Structureless CHALK composed of silty slightly sandy sub-angular to sub-rounded fine to coarse GRAVEL with occassional sub-rounded cobbles. Gravel is very weak low density white. Cobbles are weak low to medium density white. Matrix is uncompact cream (Grade Dc)			
				50.62	3.79				
5.00-5.45	SPT N=6		1,2/1,1,2,2		(1.66)	Structureless CHALK composed of slightly sandy gravelly SILT. Gravel is very weak low density white angular to sub-angular (Grade Dm).			
				48.96	5.45	Complete at 5.45m			

Remarks
Borehole location cleared by CAT scan and GPR techniques by Midland Survey Limited prior to drilling.
Groundwater was struck at 2m bgl when drilling.
50mm 10 HDPE gas and groundwater monitoring standpipe installed to 5.45m. Slotted standpipe with gravel fill from 5.45m to 1.00m.
Plain standpipe from 1.00m to ground level with bentanite seal. Concrete to ground level with a lockable security cover fitted at surface.

Scale (approx)	Logged By
1:50	SM

Figure No. WB362.WS02

Produced by the GEOtechnical DAtabase SYstem (GEODASY) (C) all rights reserved

Johnson Poole & Bloomer

Site	Number
Laverstock, Salisbury	WS03

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler	102mm to 102mm	54.36	Hallam Land Management Ltd	WB362
	Location (dGPS) 416374.037, 131728.540	**Dates** 15/12/2022	**Engineer**	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					(0.52)	TOPSOIL: Brown slightly sandy slightly gravelly SILT with occoassional sub-angular cobbles. Gravel is angular to sub-rounded fine to coarse flint and chert with fine to medium rootlets.			
				53.84	0.52				
1.00-1.45	SPT N=32		4,6/9,11,6,6		(1.11)	Light brown slightly sandy gravelly SILT. Gravel is angular to sub-rounded fine to coarse chert, flint and chalk (Probable Head Deposits).			
				52.73	1.63				
2.00-2.45	SPT N=16		Water strike(1) at 2.00m. 3,4/4,4,4,4			Structureless CHALK composed of cream slightly sandy slightly gravelly SILT with occassional cobbles and rare flints. Gravel and cobbles are very weak low density white sub-angular to sub-rounded (Grade Dm). Band of angular to sub-rounded fine to coarse flint gravel between 2.3-2.54m bgl.		▽1	
					(2.20)				
3.00-3.45	SPT N=12		2,3/3,3,3,3						
				50.53	3.83				
				50.40	(0.13) 3.96	Structureless CHALK composed of very silty slightly sandy angular to sub-angular fine to coarse GRAVEL with occassional sub-angular cobbles. Gravels and cobbles are very weak low density white. Matrix is cream (Grade Dc)			
4.00-4.45	SPT N=8		2,2/2,2,2,2						
					(1.49)	Structureless CHALK composed of cream slightly sandy slightly gravelly SILT with occassional sub-angular to sub-rounded cobbles. Gravels and cobbles are very weak low density white (Grade Dm).			
5.00-5.45	SPT N=0		1,0/0,0,0,0						
				48.91	5.45				
						Complete at 5.45m			

Remarks
Borehole location cleared by CAT scan and GPR techniques by Midland Survey Limited prior to drilling.
Groundwater was struck at 2m bgl when drilling.
50mm 10 HDPE gas and groundwater monitoring standpipe installed to 5.45m. Slotted standpipe with gravel fill from 5.45m to 1.00m.
Plain standpipe from 1.00m to ground level with bentanite seal. Concrete to ground level with a lockable security cover fitted at surface.

Scale (approx)	Logged By
1:50	SM

Figure No. WB362.WS03

Produced by the GEOtechnical DAtabase SYstem (GEODASY) (C) all rights reserved

Johnson Poole & Bloomer

Site	Number
Laverstock, Salisbury	WS04

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler	102mm to 102mm	60.93	Hallam Land Management Ltd	WB362
	Location (dGPS) 416382.037, 131509.600	**Dates** 15/12/2022	**Engineer**	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					(0.38)	TOPSOIL: Brown slighty sandy slightly gravelly SILT. Gravel is angular to sub-rounded fine to coarse chert and flint with fine rootlets.			
				60.55	0.38				
					(0.49)	Light brown mottled white slightly sandy gravelly SILT with occassional angular to sub-rounded cobbles. Gravel is angular to sub-rounded fine to coarse chert, flint and chalk. Cobbles are chalk (Probable Head Deposits).			
				60.06	0.87				
1.00-1.45	SPT N=8		3,3/2,2,2,2			Structureless CHALK composed of cream slightly sandy slightly gravelly SILT with occassional cobbles. Gravel and cobbles are very weak low density white angular to sub-rounded chalk (Grade Dm).			
					(1.81)				
2.00-2.45	SPT N=13		3,3/3,3,4,3						
				58.25	2.68				
				58.11	(0.14) 2.82	Structureless CHALK composed of silty slightly sandy sub-angular to sub-rounded fine to coarse GRAVEL with occassional sub-rounded cobbles. Gravel is very weak low density white. Cobbles are very weak low to medium density white. Matrix is cream (Grade Dc).			
3.00-3.45	SPT N=8		1,2/1,2,3,2						
					(0.86)				
				57.25	3.68	Structureless CHALK composed of cream slightly sandy slightly gravelly SILT with occassional cobbles. Gravel and cobbles are very weak low density white angular to sub-rounded chalk (Grade Dm).			
4.00-4.45	SPT N=11		1,2/1,3,3,4		(0.59)				
				56.66	4.27	Structureless CHALK composed of silty slightly sandy sub-angular to sub-rounded fine to coarse GRAVEL with sub-rounded cobbles. Gravel is very weak low denisty white. Cobbles are weak low to medium density white. Matrix is cream (Grade Dc).			
					(1.18)				
5.00-5.45	SPT N=14		2,2/2,4,4,4			Structureless CHALK composed of cream slightly sandy slightly gravelly SILT with occassional cobbles. Gravel and cobbles are very weak low density white angular to sub-rounded white (Grade Dm).			
				55.48	5.45				
						Complete at 5.45m			

Remarks
Borehole location cleared by CAT scan and GPR techniques by Midland Survey Limited prior to drilling.
Groundwater was not encountered during drilling. Strata recorded as being very wet between 4.47 and 4.70m bgl.
50mm 10 HDPE gas and groundwater monitoring standpipe installed to 5.45m. Slotted standpipe with gravel fill from 5.45m to 1.00m.
Plain standpipe from 1.00m to ground level with bentanite seal. Concrete to ground level with a lockable security cover fitted at surface.

Scale (approx)	Logged By
1:50	SM

Figure No. WB362.WS04

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Appendix 7 Results of On Site Groundwater Monitoring – Enitial Limited – January to June 2023

Ground Gas and Groundwater Monitoring Record Sheet

JOB DETAILS:

Client: Johnson Poole & Bloomer
Site: Laverstock, Sailsbury
Date: 16/01/2023
Quote No:
Visit No: 1 **of** 5
Operator: Hazel Alabaster **Project Manager:** Dan Stodgell

	GAS CONCENTRATIONS												VOLATILES		FLOW DATA				WELL AND WATER DATA		Comments
Monitoring Point	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Water level (mbgl)	Depth of well (m)	
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Min.	Steady			Peak	Steady					
BH01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.16	5.18	
BH02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.21	5.11	
BH03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.01	5.13	
BH04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	5.63	
Max	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**NR**	**ND**	**ND**	**ND**	**ND**	**NA**	**4.21**	**5.63**	
Min	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0**	**0**	**0**	**0**	**0.0**	**0.0**	**NR**	**0.0**	**0.0**	**0.0**	**0.0**	**NA**	**DRY**	**5.11**	

ND - Not detected
NR - Not recorded
NA - Non applicable

METEOROLOGICAL AND SITE INFORMATION: (Select correct box with X or enter data, as applicable)

State of ground:		Dry		Moist		Wet		Snow	X	Frozen
Wind:		Calm	X	Light		Moderate		Strong		
Cloud cover:		None		Slight		Cloudy	X	Overcast		
Precipitation:	X	None		Slight		Moderate		Heavy		
Time monitoring performed:			10:10	Start			10:40	End		
Barometric pressure (mbar):			989	Start			989	End		
Pressure trend (Daily):				Falling	X	Steady		Rising		
Source:	Online									
Air Temperature (Deg. C):			0	Before			0	After		

Ground Gas and Groundwater Monitoring Record Sheet

JOB DETAILS:

Client: Johnson Poole and Bloomer
Site: Laverstock
Date: 16/02/2023
Quote No: Q2023.008
Visit No: 2 **of** 5
Operator: Hazel Alabaster **Project Manager:** Dan Stodgell

Monitoring Point	GAS CONCENTRATIONS												VOLATILES		FLOW DATA				WELL AND WATER DATA		Comments
	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Water level (mbgl)	Depth of well (m)	
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Min.	Steady			Peak	Steady					
BH01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.08	5.21	
BH02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	5.13	
BH03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.95	5.17	
BH04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	5.66	
Max	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**NR**	**ND**	**ND**	**ND**	**ND**	**NA**	**5.08**	**5.66**	
Min	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0**	**0**	**0**	**0**	**0.0**	**0.0**	**NR**	**0.0**	**0.0**	**0.0**	**0.0**	**NA**	**DRY**	**5.13**	

ND - Not detected
NR - Not recorded
NA - Non applicable

METEOROLOGICAL AND SITE INFORMATION: (Select correct box with X or enter data, as applicable)

State of ground:		Dry		Moist	x	Wet		Snow		Frozen
Wind:		Calm	x	Light		Moderate		Strong		
Cloud cover:		None		Slight		Cloudy	x	Overcast		
Precipitation:		None	x	Slight		Moderate		Heavy		
Time monitoring performed:			11:55	Start			12:15	End		
Barometric pressure (mbar):			1020	Start			1020	End		
Pressure trend (Daily):				Falling	x	Steady		Rising		
Source:	met office									
Air Temperature (Deg. C):			11	Before			11	After		

Ground Gas and Groundwater Monitoring Record Sheet

JOB DETAILS:

Client: Johnson Poole and Bloomer
Site: Laverstock
Date: 17/03/2023
Quote No: Q2023.008
Visit No: 3 **of** 5
Operator: Hazel Alabaster **Project Manager:** Dan Stodgell

Monitoring Point	GAS CONCENTRATIONS												VOLATILES		FLOW DATA				WELL AND WATER DATA		Comments
	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Water level (mbgl)	Depth of well (m)	
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Min.	Steady			Peak	Steady					
BH01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	5.17	
BH02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	5.12	
BH03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.13	5.53	
BH04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	5.63	
Max	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**NR**	**ND**	**ND**	**ND**	**ND**	**NA**	**5.13**	**5.63**	
Min	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0**	**0**	**0**	**0**	**0.0**	**0.0**	**NR**	**0.0**	**0.0**	**0.0**	**0.0**	**NA**	**DRY**	**5.12**	

ND - Not detected
NR - Not recorded
NA - Non applicable

METEOROLOGICAL AND SITE INFORMATION:

(Select correct box with X or enter data, as applicable)

State of ground:		Dry		Moist	x	Wet		Snow		Frozen
Wind:		Calm	x	Light		Moderate		Strong		
Cloud cover:		None		Slight		Cloudy	x	Overcast		
Precipitation:		None	x	Slight		Moderate		Heavy		
Time monitoring performed:			09:45	Start			10:10	End		
Barometric pressure (mbar):			1003	Start			1003	End		
Pressure trend (Daily):				Falling	x	Steady		Rising		
Source:	met office									
Air Temperature (Deg. C):			10	Before			10	After		

Ground Gas and Groundwater Monitoring Record Sheet

JOB DETAILS:

Client: Johnson Poole and Bloomer
Site: Laverstock
Date: 05/05/2023
Quote No: Q2023.008
Visit No: 4 **of** 5
Operator: Hazel alabaster
Project Manager: Dan Stodgell

Monitoring Point	GAS CONCENTRATIONS												VOLATILES		FLOW DATA				WELL AND WATER DATA		Comments
	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Water level (mbgl)	Depth of well (m)	
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Min.	Steady			Peak	Steady					
BH01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	5.18	
BH02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	5.57	
BH03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.90	5.52	
BH04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	5.63	
Max	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**NR**	**ND**	**ND**	**ND**	**ND**	**NA**	**4.90**	**5.63**	
Min	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0**	**0**	**0**	**0**	**0.0**	**0.0**	**NR**	**0.0**	**0.0**	**0.0**	**0.0**	**NA**	**DRY**	**5.18**	

ND - Not detected
NR - Not recorded
NA - Non applicable

METEOROLOGICAL AND SITE INFORMATION: (Select correct box with X or enter data, as applicable)

State of ground:		Dry	x	Moist		Wet		Snow		Frozen
Wind:		Calm	x	Light		Moderate		Strong		
Cloud cover:		None		Slight	x	Cloudy		Overcast		
Precipitation:		None	x	Slight		Moderate		Heavy		
Time monitoring performed:			12:15	Start			12:45	End		
Barometric pressure (mbar):			1014	Start			1014	End		
Pressure trend (Daily):				Falling	x	Steady		Rising		
Source:	met office									
Air Temperature (Deg. C):			16	Before			16	After		

Ground Gas and Groundwater Monitoring Record Sheet

JOB DETAILS:

Client: Johnson Poole and Bloomer
Site: Laverstock
Date: 07/06/2023
Quote No: Q2023.008
Visit No: 5 **of** 5
Operator: Hazel Alabaster **Project Manager:** Dan Stodgell

Monitoring Point	GAS CONCENTRATIONS												VOLATILES		FLOW DATA				WELL AND WATER DATA		Comments
	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Water level (mbgl)	Depth of well (m)	
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Min.	Steady			Peak	Steady					
BH01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	5.16	
BH02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.35	5.50	all ok
BH03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.15	5.50	all ok
BH04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	couldn't locate, area overgrown.
Max	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**5.35**	**5.50**	
Min	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**DRY**	**5.16**	

ND - Not detected
NR - Not recorded
NA - Non applicable

METEOROLOGICAL AND SITE INFORMATION:

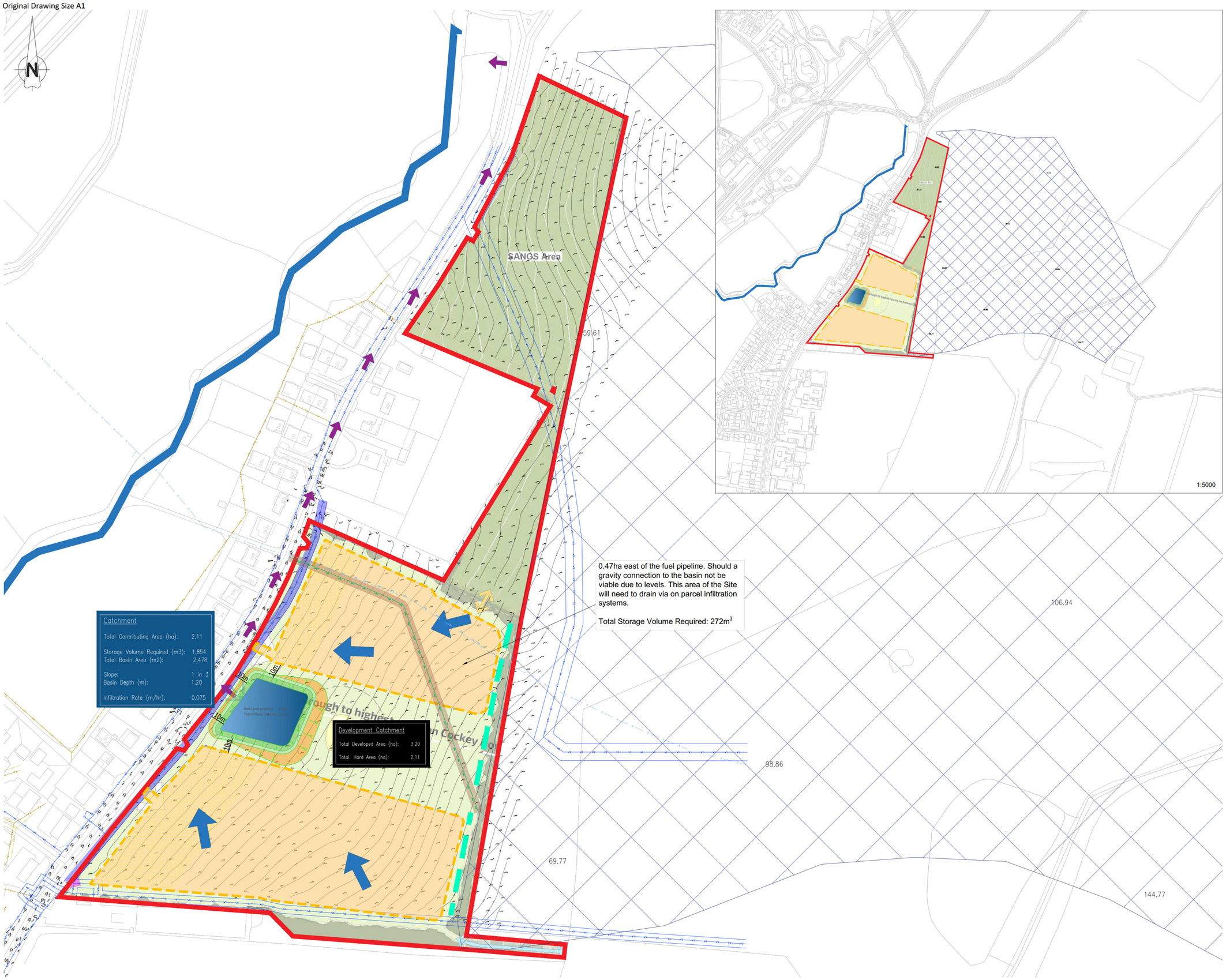
(Select correct box with X or enter data, as applicable)

State of ground:	x	Dry		Moist		Wet		Snow		Frozen
Wind:		Calm	x	Light		Moderate		Strong		
Cloud cover:	x	None		Slight		Cloudy		Overcast		
Precipitation:	x	None		Slight		Moderate		Heavy		
Time monitoring performed:			12:24	Start			13:00	End		
Barometric pressure (mbar):			1014	Start			1014	End		
Pressure trend (Daily):				Falling	x	Steady		Rising		
Source:	met office									
Air Temperature (Deg. C):			19	Before			19	After		


Johnson
Poole &
Bloomer
Consultants
GEO-ENVIRONMENTAL & MINERALS

Appendix C – Surface Water Drainage Strategy Plan

Original Drawing Size A1



NOTES:

1. Do not scale from this drawing.
2. All dimensions are in metres unless otherwise stated.
3. Brookbanks Consulting Ltd has prepared this drawing for the sole use of the client. The drawing may not be relied upon by any other party without the express agreement of the client and Brookbanks Consulting Ltd. Where any data supplied by the client or from other sources has been used, it has been assumed that the information is correct. No responsibility can be accepted by Brookbanks Consulting Ltd for inaccuracies in the data supplied by any other party. The drawing has been produced based on the assumption that all relevant information has been supplied by those bodies from whom it was requested.
4. No part of this drawing may be copied or duplicated without the express permission of Brookbanks Consulting Ltd.
5. The SuDS basin has been located in the lowest lying areas of the Site. The basins shown are indicative and will be developed alongside the master planning.
6. A Topographic Survey was completed by SUMO Services Ltd in May 2026. All levels currently shown are indicative and are subject to change.
7. Sewer Locations are approximate based off Wessex Water Record Plans.
8. Indicative ground raising has been based assuming an indicative 1 in 300 pipe run.
10. SuDS basin has been located a minimum of 10m from the highway and existing building as it is assumed that infiltration will be used to discharge storm water from the Site.

KEY:

- Red Line Boundary
- 1m Contours
- Catchment Boundary
- Flow Direction
- Infiltration SuDS Basin
- Indicative Conveyance Swales
- Potable Water Main and 6m Easement
- Foul Water Sewer
- Surface Water Sewer
- Abandoned Water Main
- Esso Fuel Pipe Line and 3m Easement (approx location)
- Cutoff Ditch to Prevent any Runoff from the East - to remain as an infiltration feature, with the potential to divert exceedence flows towards the SuDS basin in the west.
- Exceedance Flow Route
- 56.23 Spot Levels - Existing
- Proposed Areas of Ground Raising
- Catchment Area Draining towards the Site

A	Updated Drainge Information	KP	HW	08.06.26
-	First Issue	KP	CP	HW 17.03.26

BROOKBANKS

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Hallam Land

Laverstock,
Salisbury

Illustrative Surface Water Drainage Strategy

Status		Status Date
Draft		JUN 2026
Drawn	**Checked**	**Date**
KP	CP	17.03.26
Scale	**Number**	**Rev**
1:1250	10679-DR-03	A

0 20 40 60 80 100
METRES

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UNTIL TECHNICAL APPROVAL HAS BEEN OBTAINED FROM THE RELEVANT LOCAL AUTHORITIES, IT SHOULD BE UNDERSTOOD THAT ALL DRAWINGS ARE ISSUED AS PRELIMINARY AND NOT FOR CONSTRUCTION. SHOULD THE CONTRACTOR COMMENCE SITE WORK PRIOR TO APPROVAL BEING GIVEN, IT IS ENTIRELY AT HIS OWN RISK.

Appendix D- Surface Water Drainage Calculations

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	500.0		

Nodes

Name	Area (ha)	Cover Level (m)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
Catchment	2.110	54.200	23.119	77.458	1.200	53.000

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	1.000	Drain Down Time (mins)	240	Check Discharge Volume	x
Winter CV	1.000	Additional Storage (m³/ha)	20.0		

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 %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0	100	45	0	0
30	40	0	0				

Node Catchment Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.07500	Safety Factor	5.0	Invert Level (m)	53.000
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	2095

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	1432.0	1432.0	1.200	2057.0	2081.6

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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
720 minute winter	Catchment	675	53.282	0.282	36.9	434.7173	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
720 minute winter	Catchment	Infiltration	6.0

Flow+ v17.0 Copyright © 1988-2026 Causeway Technologies Ltd

Results for 30 year +40% 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
1440 minute winter	Catchment	1410	53.830	0.830	54.0	1397.4620	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
1440 minute winter	Catchment	Infiltration	6.0

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

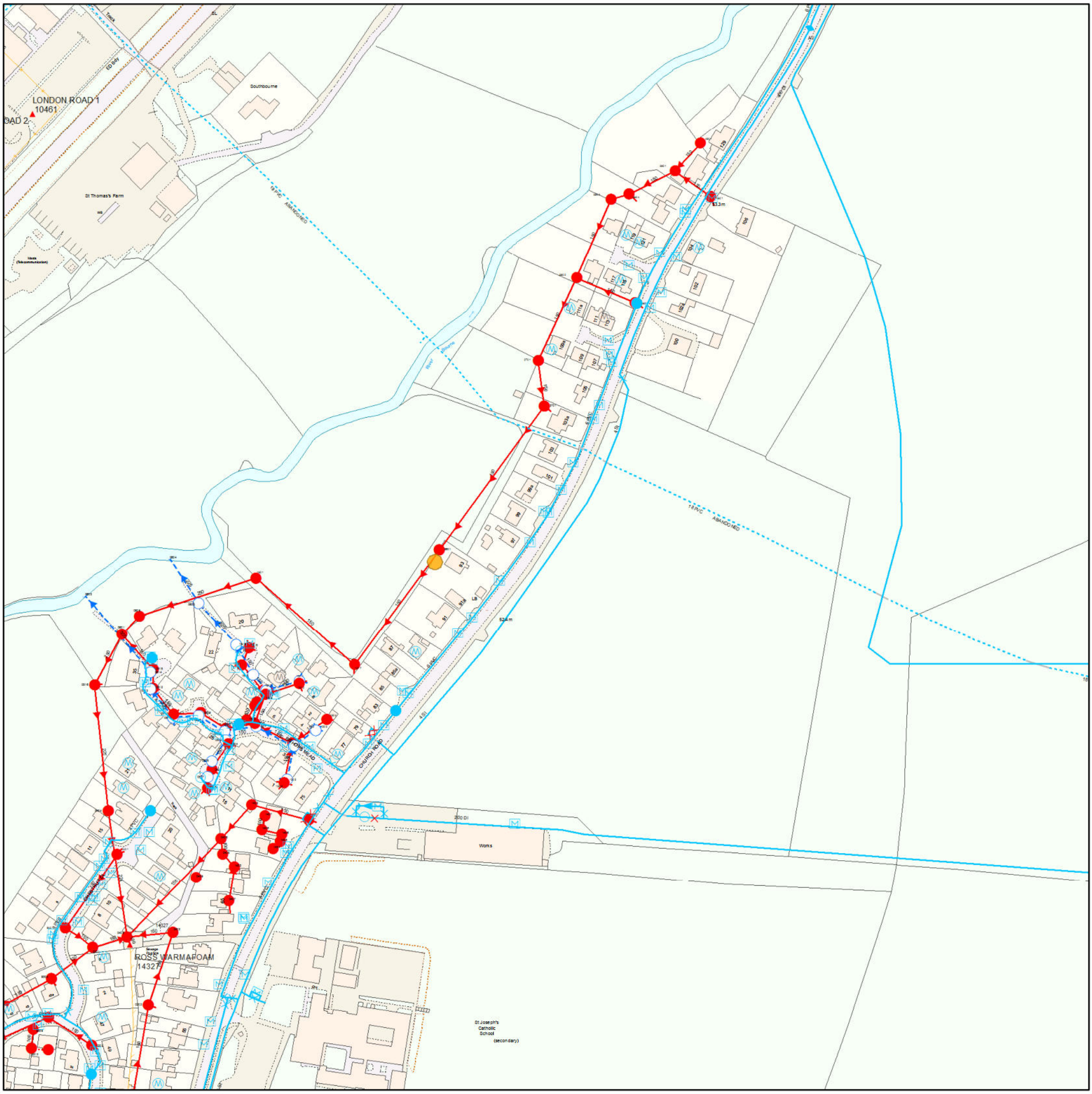
Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	Catchment	1410	54.063	1.063	67.5	1853.5300	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
1440 minute winter	Catchment	Infiltration	6.0

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Appendix E – Wessex Water

Church Road Laverstock salisbury



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WATER MAINS
- Distribution Main
- Washout Main
- Raw Water Main
- Abandoned Main
- Private Main

SITES
- Source
- Reservoir
- Pump
- Treatment Works

FITTINGS
- Valve - Open
- Valve - Closed
- Fire Hydrant
- Pressure Reducing Valve
- Meter

SEWERS — PUBLIC / PRIVATE / SECTION 104
- Foul
- Surface
- Combined
- Abandoned

OTHER WESSEX PIPES
- Rising Mains
- Effluent Disposal
- Overflow
- Syphon

NON-WESSEX / UNKNOWN
- Private Rising Mains
- Culverted Watercourse
- Highway Drain
- Use Unknown
- Status Unknown

Colours generally indicate the use of the sewer/drain (i.e Red - Foul, Dark Blue - Surface, Magenta - Combined/Dual Use, Light Green - Highway Drain, Mid Green - Overflow) styles of line are shown on the key in sample/typical colours.

STRUCTURES
- Manhole - Foul
- Manhole - Surface
- Manhole - Combined
- Outfall
- Inlet
- Lamphole
- Bifurcation - Foul
- Bifurcation - Surface
- Bifurcation - Combined
- Combined Sewage Overflow
- Pumping Station - Surface
- Pumping Stn - Foul/Combined
- Gully
- Vent Column
- Rodding Eye
- Catchpit
- Flushing Chamber
- Soakaway
- Non Return Valve
- Washout
- Air Valve
- Hatch Box

OTHER STRUCTURES
- Attenuation Tank
- Storage Tank
- Chamber
- Tunnel
- Interceptor

Information in this plan is provided for identification purposes only. No warranty as to accuracy is given or implied. The precise route of pipe work may not exactly match that shown. Wessex Water does not accept liability for inaccuracies. Sewers and lateral drains adopted by Wessex Water under the Water Industry (Schemes for Adoption of Private Sewers) Regulations 2011 are to be plotted over time and may not yet be shown. In carrying out any works, you accept liability for the cost of any repairs to Wessex Water apparatus damaged as a result of your works. You are advised to commence excavations using hand tools only. Mechanical digging equipment should not be used until pipe work has been precisely located. If you are considering any form of building works and pipe work is shown within the boundary of your property or a property to be purchased (or very close by) a surveyor should plot its exact position prior to commencing works or purchase. Building over or near Wessex Water's apparatus is not normally permitted.

Wessex Water — a YTL company

Date: 22/07/2020 16:07:04

Scale: 1:2500

Centre: 416303, 131658

N W E S

Adam Melia

From: Alison Kurobasa <Alison.Kurobasa@wessexwater.co.uk>
Sent: 22 July 2020 16:38
To: Adam Melia
Subject: WWDevRespSU13SE/ 99 - 0679 PROPOSED DEVELOPMENT AT LAND AT LAVERSTOCK, SALISBURY - Budget Estimate
Attachments: 3043-SK-01C - Concept Layout with Car Park.pdf; Charges Calculator 2020-21.xlsx; WWmap Church Road Laverstock.pdf

Hello Adam

Site: Church Road, Laverstock, Salisbury
Proposal: 150 dwellings

Wessex Water Pre-Planning Ref: SU13SE/ 99

Thank you for your development enquiry. Please find attached an extract from our records showing the approximate location of our apparatus within the vicinity of the site.

Water Apparatus Crossing Site
Our records indicate that we have water mains crossing the site which must be accurately located and marked on site and on development plans:

450mm crossing the north east corner
200mm along southern boundary
4'' along Church Road boundary

How close can I build over a water main?

This table shows our 'stand-off distances' required between any new structure and our water main. The easement strip is the minimum width necessary to repair, maintain or renew our asset. It varies with the size, depth and pressure of the water main, and we also consider pipe material and ground conditions. Wessex Water reserves the right to change the requirements for specific sites or strategic mains. If you are in any doubt please ask.

No structure or other obstruction is allowed over or within the stand-off distance. Building foundations must be taken down to a lower depth or be designed in such a way that they do not place additional loading onto a water main. Piling proposals are reviewed on a case by case basis - auger bored is preferred rather than driven methods.

Water main diameter (mm)	Not exceeding 180mm	181mm to 399mm	400mm and above
Minimum stand-off distance (m) each side of pipe	3m	5m	6m

Measurements are given for a pipeline depth of between 900mm and 2000mm. The stand off distance may increase for a strategic water main due to material, size, depth and pressure.

Water Supply
There are public water mains in the vicinity of the site and we can provide a water supply from the local network with new water mains laid in to the site under a S41 / self lay application.
https://www.wessexwater.co.uk/services/building-and-developing/connecting-to-water-supply/supply-services#Supply

Developers fund the cost of connecting to the water network on a size for size basis and Wessex Water fund any necessary reinforcement from infrastructure charges income. The costs of any off-site improvements to supply permitted development would be met by Wessex Water, in accordance with our infrastructure charging arrangements.

Proposed Sewerage

The site shall be served by separate systems of drainage:

Foul Sewerage

- We can accept foul only flows from this development to the public sewer. 150mm public sewers are recorded to the south west in Bishops Mead MH SU16311501 Cover Level 50.35 Invert Level 48.90
- The proposed scale of the development will have an impact on the local foul pumping station and Wessex Water will need to undertake sewer network modelling to determine if capacity improvements are required.
- Developers fund the cost of connecting to the nearest public sewer on a size for size basis and Wessex Water fund any necessary capacity improvements from infrastructure charges income. The costs of any off-site improvements to accommodate permitted development would be met by Wessex Water, in accordance with our infrastructure charging arrangements.

Surface Water Sewerage

- Surface water to be disposed of in accordance with Suds Hierarchy and NPPF Guidelines and directed to local land drainage systems.
- A connection to the public surface water system will only be considered if infiltration or other methods in the hierarchy are proven not viable. The maximum discharge rate from the site must be agreed with the Wiltshire lead local flood authority and we would expect to see calculations for greenfield runoff rates with a reduction for climate change in accordance with their policy and procedures. We will then check this discharge rate against surface water sewer capacity.
- Surface water disposal to the foul sewer is not permitted.
- Land drainage run-off shall not be permitted to discharge either directly or indirectly to the public sewerage system.

Please note that new Sewerage Sector Guidance (published 1st April 2020) enables Water Companies to adopt SuDS features as part of the surface water drainage network. The SuDS philosophy is to replicate as closely as possible the natural drainage from a site before development. SuDS is designed within the opportunities and constraints of the site to deliver the most benefits for water quantity, quality, amenity and biodiversity. These 4 pillars of a sustainable drainage system should be given equal weight through the design process to achieve the maximum possible benefits.

Wessex Water Policies and Guidance on this can be found at https://www.wessexwater.co.uk/services/building-and-developing/sector-guidance-on-sewerage-and-water-adoption-agreements. If the intention is to offer the drainage scheme up for adoption the applicant will need to consult with Wessex Water, prior to the submission of any drainage scheme details to the local planning authority, to ensure compliance under the new adoption codes and to formally commence the adoption process. Applicants should contact Wessex Water through planning.liaison@wessexwater.co.uk for further pre-planning information/ discussion.

Budget Cost Estimates

For budget cost estimates we have an online charges calculator available at: https://www.wessexwater.co.uk/services/building-and-developing/charges-and-performance

- click on New Connection Services Charges Calculator 2020/21 to open an excel spreadsheet,
- there are tabs along the bottom of the sheet, click on the appropriate blue tabs for water S41 & S185 water main diversion and S104 for sewers.
- I have attached an Excel copy but you should use the online version which will always have the most current charging arrangements.

I trust that you will find the above comments of use, please keep us updated on your proposals at all stages of the planning and development process so we may review and plan our works to ensure that any capacity improvements to accommodate granted sites can be delivered to match the rate of your development.

Kind regards

ALISON KUROBASA
PLANNING LIAISON

Wessex Water
Claverton Down Bath BA2 7WW
wessexwater.co.uk

From: Adam Melia <Adam.Melia@brookbanks.com>
Sent: 10 July 2020 16:00
To: Planning Liaison <planning.liaison@wessexwater.co.uk>
Subject: 0679 - PROPOSED DEVELOPMENT AT LAND AT LAVERSTOCK, SALISBURY - Budget Estimate

Our ref: 10679

10th July 2020

Dear Sir/Madam,

10679 - PROPOSED DEVELOPMENT AT LAND AT LAVERSTOCK, SALISBURY

I write, on behalf of our client to advise you of the proposed development at **Land at Laverstock, Salisbury** (Nearest Postcode**: SN12 6TJ;** Nearest Grid reference **390751, 162583**).

For our purposes we require a budget supply quotation for the above site, as detailed within the attached site location plan (*Please use in the strictest of confidence).*

The proposed development is to comprise of the following:

- **Up to 150 Residential Dwellings**

  - Estimated Peak Potable Water Loading = **2.00l/s**
  - Estimated Peak Foul Water Loading = **1.90l/s**

Please could you indicate the nearest Point of Connection to the potential site.

Please could you also confirm your lead in time and when we may expect the assessment, as unfortunately this is an **urgent** request. We appreciate you have an existing workload but if possible could you please deal with our enquiry as a priority as that would really assist us, thank you.

If you require any further information please do let me know.

Kind Regards

Adam Melia BSc (Hons)
Assistant Consultant

Brookbanks

Brookbanks Consulting Ltd

Office:0121 329 4330
Direct:0121 329 4338
Email: Adam.Melia@brookbanks.com
Web:www.brookbanks.com

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