Flood Risk Assessment & Drainage Strategy

Land east of Trowbridge Road, Bradford on Avon

Waddeton Park Ltd

Prepared by:

SLR Consulting Limited

3rd Floor, Brew House, Jacob Street, Tower Hill,
Bristol, BS2 0EQ

SLR Project No.: 416.066301.00001

7 April 2026

Revision: 02

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
01	11 March 2026	Helena Preston	Nick Bosanko	Nick Bosanko
02	7 April 2026	Helena Preston	Nick Bosanko	Nick Bosanko
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1.0 Introduction

1.1 Background

Waddeton Park Ltd are seeking outline planning permission (with all matters reserved except for access) for the erection of up to 224 residential dwellings (Class C3), 72-bed care home (Class C2), with community sports pitches, country park and landscaping and open space. The proposed Illustrative Layout is enclosed in Appendix A.

SLR Consulting Limited (SLR) has been appointed by Waddeton Park Limited to evaluate the potential flood risk to this proposed residential led mixed-use development located on land east of Trowbridge Road, Bradford on Avon, Wiltshire ("the site"). The objective of this report is to assess the flood risk posed to and arising from the proposed development, which is intended to support the outline planning application submission.

This Flood Risk Assessment (FRA) has been prepared under the direction of a Technical Director of Hydrology at SLR who specialises in flood risk and associated planning matters. Reporting has been completed in accordance with guidance published by the Environment Agency (EA)[1]. The report is also aligned with the requirements of the National Planning Policy Framework[2] (NPPF), its associated Planning Practice Guidance[3] (PPG) and local planning policies.

1.2 Site Location

The site covers an area of approximately 31 hectares (ha) and is centred at National Grid Reference (NGR) ST 83722 60108 (approximate postcode BA15 1JE). A site location plan is provided in Figure 1.

1.3 Administrative Context

The site falls completely within the planning jurisdiction of Wiltshire Council, who are responsible for determining this planning application. The drainage team at Wiltshire Council are the Lead Local Flood Authority (LLFA), who are responsible for matters relating to localised flood risk and surface water drainage.

The site is located within the Environment Agency Wessex region. Relevant to this FRA, the Environment Agency are responsible for river flooding from the River Avon.

Wessex Water is the sewerage undertaker for the local area.

1 Flood risk assessments: applying for planning permission, Environment Agency (March 2014, Updated October 2025)

2 Revised National Planning Policy Framework: Communities and Local Government (March 2012, Updated February 2025)

3 Planning Practice Guidance, Flood Risk and Coastal Change: Communities and Local Government (March 2014, Updated September 2025)

Figure 1: Site Location Plan

2.0 Site Location and Description

Satellite imagery of the area has been provided in Figure 2. The site consists of several agricultural fields, which are currently used for camping, grassland and arable farming. The River Avon forms the north-eastern boundary of the site.

The site is at the southeastern end of the town of Bradford on Avon. The area immediately north-west of the site comprises medium-density residential dwellings, whilst Trowbridge Road is located immediately east of the site. The Kennett and Avon Canal is located approximately 25 m south of the site at its closest point. The area to the east and south of the site is rural and mainly comprises agricultural fields.

Figure 2: Satellite Imagery

2.1 Topography

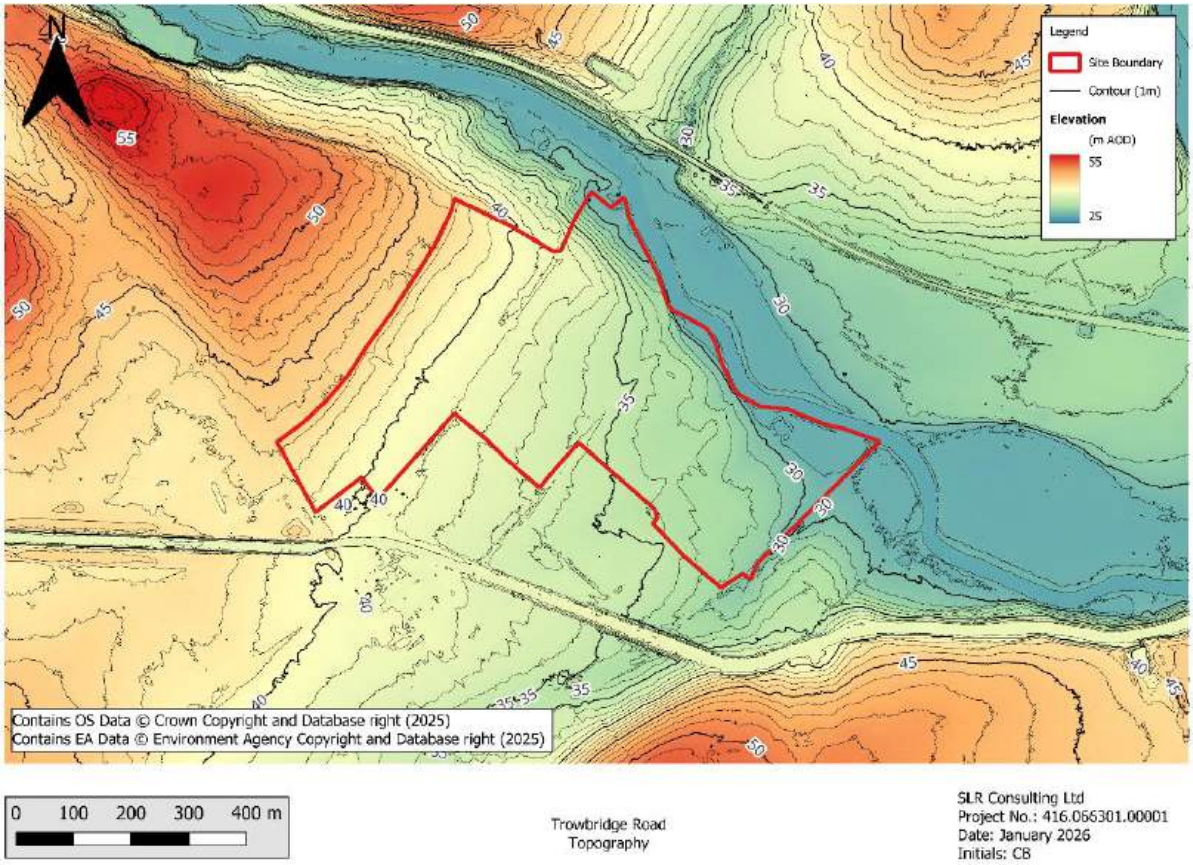
A topographical survey of the site was prepared in June 2025 9see Appendix B). This indicates that the site falls gently from northwest to southeast, towards the River Avon. The highest point is approximately 44.0m above Ordnance Datum (AOD), at the northwestern end of the site. The lowest point is approximately 28.5m AOD at the eastern end of the site, next to the River Avon.

The northeastern end of the site falls steeply towards the River Avon. Water levels in the River Avon were recorded to be 28.06m AOD, in June 2025.

As part of this FRA, topographic data from the site and surrounding area, gathered using Light Detection and Ranging (LiDAR) aerial photogrammetry, has been downloaded from the

Environment Agency open data website[4]. A plot of this data shown in Figure 3. The dataset comprises a 1-metre Digital Terrain Model (DTM), which excludes buildings and other features of the built environment. This shows that ground levels within the site fall from west to east, towards the River Avon.

Figure 3: Local Topography



2.2 Hydrology

The site is greenfield in nature and therefore, under normal conditions, rainfall infiltrates to the shallow soils where it contributes to recharge of groundwater, shallow subsurface flows or is evaporated. During prolonged, or extreme, rainfall, where the infiltration capacity of the underlying ground is exceeded, rainfall would contribute to overland surface water runoff in line with local topography and towards the River Avon.

The topographical survey (Appendix B) does not record any ditches or land drains within the site area. A 'pond and wet area' is recorded in the eastern part of the site, along with a short 'grassy rhyne', which leads to the River Avon.

The River Avon is located alongside the northeast boundary of the site. The Wid Brook is located immediately south-east of the south-eastern end of the site. The Wid Brook flows to the north-east and discharges into the River Avon, immediately east of the site.

4 Environment Agency, National LIDAR Programme, Data.gov. Available from: https://www.data.gov.uk/dataset/f0db0249-f17b-4036-9e65-309148c97ce4/national-lidar-programme [Accessed: January 2026].

2.3 Public Drainage

Wessex Water is the sewerage undertaker for the local area. Asset records obtained from Wessex Water (Appendix C) indicate the presence of a 600 mm diameter strategic surface water sewer flowing from northwest across the centre of the site. A wider network of foul and surface water serves the existing residential development to the west of the site.

2.4 Geology and Hydrogeology

British Geological Survey (BGS) mapping[5] indicates that the north-eastern end of the site is underlain by Alluvium (Clay, Silt, and Gravel) associated with the River Avon. No superficial deposits are indicated beneath the remainder of the site.

The bedrock underlying the majority of the site comprises Limestone of the Cornbrash Formation. The bedrock geology underlying a small area at the north-eastern end of the site is indicated to be Mudstone of the Forest Marble Formation.

A ground investigation was undertaken at the site in June 2025 by Geo Consulting Engineering Limited, which comprised 14 trial pits and 8 boreholes, which focused on the west part of the site (i.e. the area proposed for development). This found that topsoil was underlain by naturally occurring soils. Generally, this consisted of gravel and cobbles or sandy gravelly clay, of the weathered Cornbrash Formation. Limestone of the Cornbrash Formation found typically at around 2.0 m below ground level (bgl), but ranging from 1.0 to 3.0 m depth across the site, apart from the northern part of the study where it is was not found.

The ground investigation included infiltration testing at six trial pits. Trial pits TP03 and TP04 failed to drain. Infiltration potential was favourable in trial pits TP01, TP02, TP03B and TP04B. Refer to Table 1 and ground investigation extracts in Appendix D.

Table 1: Infiltration Rates Recorded June 2025

Trial Pit	Trial pit Depth (m bgl)	Test Strata	Test Number	Infiltration Rate (m/s)
TP01	2.55	Sandy Gravel and Cobbles	1	1.77×10^{-5}
			2	9.03×10^{-6}
			3	1.26×10^{-5}
TP02	2.15	Sandy Gravel and Cobbles, Silty Clay, Sandy Gravel	1	2.91×10^{-6}
			2	3.04×10^{-6}
			3	3.09×10^{-6}
TP03	2.15	Gravel and Cobbles, Silty Clay	1	-
TP03B	1.15	Sandy Gravel, Silty Clay	1	4.99×10^{-5}
			2	4.01×10^{-5}
			3	3.84×10^{-5}
TP04	2.15	Sandy Gravel, Silty Clay	1	-
TP04B	1.00		1	2.41×10^{-5}

5 BGS GeoIndex Onshore. Available at: https://mapapps2.bgs.ac.uk/geoindex/home.html [Accessed: January 2026].

Trial Pit	Trial pit Depth (m bgl)	Test Strata	Test Number	Infiltration Rate (m/s)
		Sandy Gravel, Silty Clay	2	3.52×10^{-5}
			3	3.28×10^{-5}

The infiltration testing shows that in some pits (i.e. TP03 and TP04) deeper ground conditions were not suitable, but an adjacent shallower pit did offer some infiltration potential.

Groundwater level monitoring was commenced in June 2025 and is ongoing. The latest data is enclosed in Appendix D. Eight boreholes were used to monitor groundwater levels. Boreholes were included at the four trial pits that had favourable infiltration testing results. At TP02, TP03B and TP04B, shallow groundwater was encountered (i.e. less than 1 m bgl), which discounts the use of infiltration as a means of surface water disposal at these locations. However, at TP01, groundwater was recorded (in BH03) at 3.28 m bgl. Whilst groundwater may continue to rise further into spring, this localised area does appear to offer some opportunity for infiltration as a means of surface water disposal.

The Cornbrash Limestone Formation beneath the site is designated as a Secondary A aquifer[6]. These comprise permeable layers that can support local water supplies and may form an important source of base flow to rivers.

The site is not located within a groundwater Source Protection Zone (SPZ).

6 Magic Map Application, managed by Natural England, delivered by Landmark. Available at: https://magic.defra.gov.uk/MagicMap.aspx [Accessed: January 2026].

3.0 Planning Policy and Guidance

3.1 Proposal Summary

Waddeton Park Limited are seeking outline planning permission (with all matters reserved except for access) for the erection of up to 224 residential dwellings (Class C3), 72-bed care home (Class C2), with community sports pitches, country park and landscaping and open space.

The proposed Illustrative Layout for the proposed development is provided in Appendix A.

Under the development types detailed in Annex 3 of NPPF[2], this mixed-use scheme includes *'more vulnerable'* and *'less vulnerable'* development types.

In line with PPG[3] in the absence of more specific information, a 100 year development lifetime is assumed.

3.2 National Planning Policy

This FRA report has been completed in accordance with the guidance presented in the NPPF[2] and with reference to PPG[3].

3.2.1 Flood Zone Classification

The definition of Environment Agency flood zones is provided in PPG[3] *Table 1: Flood Zones*:

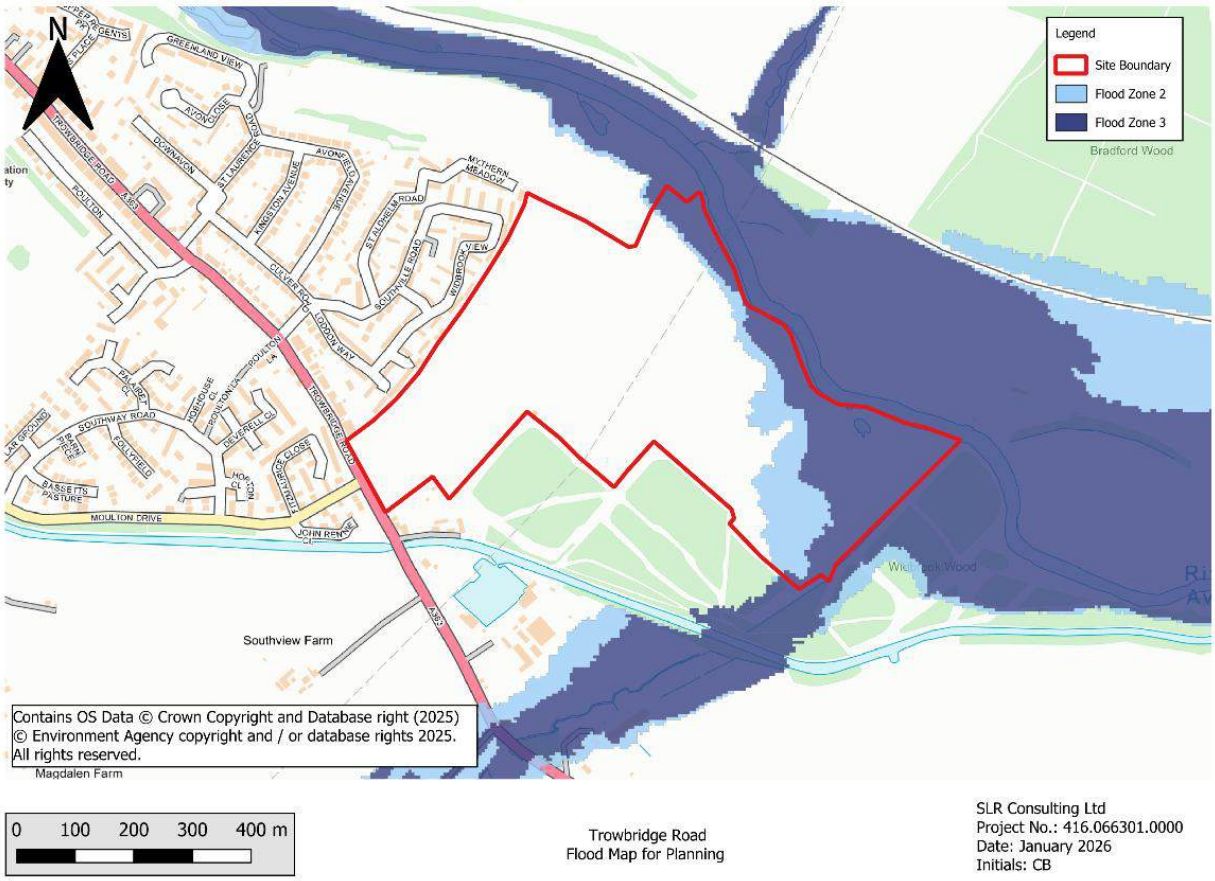
- *Zone 1 - Low Probability* (Flood Zone 1) is defined as *'Land having a less than 0.1% annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map for Planning – all land outside Zones 2, 3a and 3b)'*
- *Zone 2 - Medium Probability* (Flood Zone 2) is defined as '*Land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding. (Land shown in light blue on the Flood Map).'*
- *Zone 3a - High Probability* (Flood Zone 3a) is defined as '*and having a 1% or greater annual probability of river flooding; or Land having a 0.5% or greater annual probability of sea. (Land shown in dark blue on the Flood Map).'*
- *Zone 3b - the Functional Floodplain (Flood Zone 3b), 'This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise:*
    - *land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or*
    - *land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding).*

    Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. It is not separately distinguished from Zone 3a on the Flood Map.

In assessing the boundary between Flood Zones 1, 2 and 3, the protection afforded by any flood defence structures, and other local circumstances, is not considered by the Environment Aency.

With reference to the Flood Map for Planning[7] (reproduced as Figure 4), the majority of the site is within Flood Zone 1. Part of the eastern end of the site is within Flood Zone 2 and Flood Zone 3, which is associated with the River Avon and the Wid Brook.

Figure 4: Extract of the Flood Map for Planning



3.2.2 Flood Risk Compatibility

The proposed development is located entirely within Flood Zone 1 and as classified within Annex 3 of NPPF[2], comprises *'more vulnerable'* and *'less vulnerable'* development types. The areas within Flood Zone 2 and 3 will comprise public open spaces, woodland and wetland and no development is planned in this area.

PPG[3] Table 2: Flood risk vulnerability and flood zone 'incompatibility' (reproduced as Table 2 below) confirms that, with respect to flood risk, these development types are considered appropriate in Flood Zone 1.

7 https://flood-map-for-planning.service.gov.uk/location (accessed January 2026)

Table 2: Flood Risk Vulnerability and Flood Zone 'Incompatibility'

Flood Risk Vulnerability Classification (PPG Table 2)		Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
Flood Zone (PPG Table 1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	Exception Test Required	✓	✓	✓
	Zone 3a†	Exception Test Required†	x	Exception Test Required	✓	✓
	Zone 3b* (functional floodplain)	Exception Test Required*	x	x	x	✓*

Key:

✓ Development is appropriate

x Development should not be permitted

† In Flood Zone 3a essential infrastructure should be designed and constructed to remain operational and safe in times of flood.

* In Flood Zone 3b (functional floodplain) essential infrastructure that has passed the Exception Test, and water-compatible uses, should be designed and constructed to:

- remain operational and safe for users in times of flood;
- result in no net loss of floodplain storage;
- not impede water flows and not increase flood risk elsewhere.

3.2.3 Sequential Test

With reference to the NPPF[2], the Sequential Test gives preference to locating new development in areas that are at lowest risk of flooding.

In paragraph 174 of NPPF[2] the Sequential Test sets out that:

> "*Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding.*"

Paragraph 172 confirms that this process should take into account:

> *"all sources of flood risk and the current and future impacts of climate change".*

All built development, including the vehicular access, been located within Flood Zone 1. Therefore, this has been sequentially located in the areas of lowest flood risk.

This assessment confirms that the risk of flooding at the site from rivers and the sea is low and will remain low throughout the development's lifetime, considering changes associated with climate change. Given this, the site is considered to pass the Sequential Test. No other significant sources of flood risk have been identified and thus do not trigger the need for the Sequential Test. All sources of flood risk are discussed in Section 4.

3.2.4 Exception Test

The Exception Test, as set out in paragraph 178-179 of NPPF[2], states that;

> *"To pass the exception test it should be demonstrated that:*
>
> *(a) the development would provide wider sustainability benefits to the community that outweigh the flood risk; and*
>
> *(b) the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.*

Both elements of the exception test should be satisfied for development for be allocated or permitted."

As outlined in the Table 2, PPG[3] identifies that '*more vulnerable'* and *'less vulnerable'* developments located within Flood Zone 1 do not need to pass the Exception Test.

3.2.5 Design Flood

With reference to PPG[3] Paragraph 002 the design flood events typically applied within England are as follows;

- *river flooding likely to occur with a 1% annual probability (a 1 in 100 chance each year); or*
- *tidal flooding with a 0.5% annual probability (1 in 200 chance each year); or*
- *surface water flooding likely to occur with a 1% annual probability (a 1 in 100 chance each year),"*

These should be applied across the lifetime of a development with appropriate allowances applied to reflect changes associated with climate change (see Section 3.4.2).

Unless otherwise stated, these design standards have been applied within this assessment.

3.3 Local Planning Policy

The Core Strategy for Wiltshire (to 2026)[8] forms the Local Plan for Wilshire and provides the basis for determining planning applications for development in this area. An update to the Local Plan for Wiltshire is currently being prepared to cover the period up to 2038[9], however, this is not yet published.

Core Policy 67 (Flood Risk), includes the following requirements:

- *Development proposed in Flood Zone 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.*

The local plan is supported and informed by the Wiltshire Level 1 Strategic Flood Risk Assessment (2024)[10]. This document is an important source of information on local flood risk, historic flooding and flood risk management. Where appropriate, the contents of the SFRA have informed this report.

3.4 Environment Agency Guidance

3.4.1 Flood Risk Assessment Guidance

This report has been prepared reflecting the Environment Agency guidance[1] relating to the requirement for and content of FRAs.

8 https://www.wiltshire.gov.uk/planning-policy-core-strategy (accessed January 2026)

9 https://www.localplanservices.co.uk/wiltshirelpexamination (accessed January 2026)

10 https://www.wiltshire.gov.uk/article/14991/Strategic-Flood-Risk-Assessments-SFRA (accessed January 2026)

While this report does not follow the Environment Agency FRA template[11] the contents of the template are covered by this report and consideration is also made of the guidance associated with the template[12].

3.4.2 Climate Change Guidance

In February 2016 the Environment Agency issued guidance[13] on the impacts of climate change on flood risk in the UK to support the NPPF[2]. This advice, which was most recently updated in May 2022, sets out that peak rainfall intensity, sea level, peak river flow, offshore wind speed and extreme wave heights are all expected to increase in the future as a result of climate change.

PPG[3] recommends that considerations for future climate change are included in FRAs for proposed developments.

As discussed in detail in Section 4, flood risk tidal sources (and therefore wind speed and waves heights) are not of relevance in the proximity of the site. As such, the consideration of climate change in this assessment is limited to potential changes in rainfall intensity.

Allowances for Peak River Flows

An extract of *Table 1 Peak Flow Allowances by River Basin District (use 1961 to 1990 baseline)* is reproduced as Table 3 for the Avon Bristol and North Somerset Streams Management Catchment.

Table 3: Peak River Flow Allowances

River Basin District	Allowance Category	2020s	2050s	2080s
Avon Bristol and North Somerset Streams	Upper	27%	38%	71%
	Higher	15%	19%	39%
	Central	10%	12%	26%

Guidance indicates that for both “*more vulnerable*” and "*less vulnerable*" development types, the "*Central*" allowance should be applied. Based on the 100-year expected lifespan of the proposed development, this report has evaluated potential increases in peak river flow up to 2126, resulting in a 26% uplift for the 2080s epoch (2070 to 2125).

Peak Rainfall Intensity

Peak Rainfall Intensity Allowances, published by the Environment Agency for the Avon Bristol and North Somerset Streams Management Catchment, are presented in Table 4. This shows the anticipated changes to extreme rainfall intensity or rainfall depth.

11 Environment-Agency Flood-Risk-Assessment-Template, V1, https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fecab.planningportal.co.uk%2Fuploads%2Fea%2FEnvironment-Agency_Flood-Risk-Assessment-Template.docx&wdOrigin=BROWSELINK, [Accessed: January 2026]

12 Flood Risk Assessment Template – Guidance, https://ecab.planningportal.co.uk/uploads/ea/Environment-Agency_Flood-Risk-Assessment-Template_Guidance.pdf, [Accessed: January 2026]

13 Environment Agency, Flood Risk Assessments: Climate change allowances, February 2016 (Updated May 2022).

Table 4: Peak Rainfall Allowance

Management Catchment	Annual Exceedance Rainfall Event	Allowance	2050s	2070s
Avon Bristol and North Somerset Streams	3.3%	Upper End	35%	40%
		Central	20%	25%
	1%	Upper End	40%	45%
		Central	25%	25%

Guidance states that for developments with a lifetime beyond 2100, flood risk assessments should assess the '*Upper End*' allowances to understand the range of impact for both the 3.3% and 1% annual exceedance probability events through to the end of the lifetime of the development. For the 100 year anticipated lifetime of the proposed development this equates to an uplift to the 3.3% AEP rainfall intensity of 40% and an uplift to the 1% AEP rainfall intensity of 45%.

The management of surface water runoff from the proposed development is discussed in Section 6, where these climate change allowances are applied.

3.4.3 Groundwater Protection

EA[14] guidance does not restrict disposal of "clean" (i.e. clean roof drainage or highway drainage) from new development sites which are not within a groundwater SPZ. However, Sustainable Drainage Systems (SuDS) will be required to improve water quality prior to disposal.

14 The Environment Agency's approach to groundwater protection February 2018 Version 1.2

4.0 Flood Risk Screening

4.1 Methodology and Best Practice

This FRA report has been prepared in accordance with the advice and requirements prescribed in Environment Agency guidance[1] and other best practice documents relating to management of flood risk in development as published by the Construction Industry Research and Information Association (CIRIA)[15].

A screening study has been completed to identify whether there are any potential sources of flooding at the site which may warrant further consideration. If required, any potential significant flooding issues identified in the screening study are then considered in subsequent sections of this assessment.

4.2 Screening Study

Potential sources of flooding include:

- Flooding from the sea or tidal flooding;
- Flooding from rivers or fluvial flooding;
- Flooding from surface water and overland flow;
- Flooding from groundwater;
- Flooding from sewers;
- Flooding from reservoirs, canals, and other artificial sources; and
- Flooding from infrastructure failure.

The flood risk from each of these potential sources is discussed below and summarised in Section 4.3.

4.2.1 Flooding from the Sea or Tidal Flooding

Flood from the sea, or tidal flooding, is caused by exceptionally high sea levels and extreme wave heights.

The site is located remote from the coast and is elevated to minimum elevations of approximately 28.5m AOD. Therefore, the risk of flooding from the sea or tidal flooding at the site is deemed to be very low and has not been considered further.

4.2.2 Flooding from Rivers or Fluvial Flooding

Fluvial flooding occurs when the capacity of rivers (including streams, brooks and ditches etc.) are exceeded due to intense or prolonged rainfall events. The River Avon is located immediately east of the site, and is classified as a Main River by the Environment Agency

Modelled flood data was requested from the Environment Agency and received in May 2025. The Environment Agency indicated that fluvial flooding has been recorded in the area, most recently in 2024. Refer to Environment Agency flood data in Appendix E.

Modelled flood data obtained from the Environment Agency indicates that within Flood Zone 3, in the eastern end of the site, flood depth of up to 4 m are expected in a 1 in 100 year storm. However, the Environment Agency advises that this data was produced using the

15 CIRIA Report C624, Development and flood risk: guidance for the construction industry.

National Generalised Model (JFLOW) from 2006 and is not fit a site-specific Flood Risk Assessment.

The Strategic Flood Risk Assessment (SFRA) for Wiltshire (2024) includes additional fluvial flood mapping. This includes for the allowances of climate change. In the proximity of the site, a 1 in 100 plus climate change flood extent is unavailable (see Appendix F). Therefore, in its absence, the SFRA uses Flood Zone 2 as a proxy.

All built development is located within Flood Zone 1 (i.e. outside of Flood Zone 2 and 3). Therefore, the risk of flooding from rivers at the site is deemed to be low, both now, and in the future; and this source of flood risk has not been considered further.

4.2.3 Flooding from Surface Water and Overland Flow

Flooding from surface water and overland flow is caused by rain falling onto the surface which does not reach watercourses or drainage infrastructure.

As discussed in Section 2, the site is greenfield in nature and therefore, under normal conditions, rainfall infiltrates to the shallow soils where it contributes to recharge of groundwater and shallow subsurface flows or is evaporated. During very heavy or prolonged rainfall, where the infiltration capacity of the underlying ground is exceeded, surface water runoff will flow to the south-east, towards the River Avon.

Long Term Flood Risk Information (LTFRI)[16] prepared by the Environment Agency includes mapping of surface water flood risk. This has been derived through modelling undertaken by the Environment Agency in order to establish areas at risk of surface water flooding based upon latest hydrological techniques and surface terrain data.

An extract of the map for the site and surrounding area is presented in Figure 5, where the Environment Agency define the surface water flood risk categories as:

- Very Low: less than 1 in 1,000 annual probability of flooding in any given year;
- Low: less than 1 in 100 annual probability but greater than or equal to 1 in 1,000 annual probability of flooding in any given year;
- Medium: between 1 in 100 annual probability and 1 in 30 annual probability of flooding in any given year; and
- High: greater than 1 in 30 annual probability of flooding in any given year.

Two surface water flood flow paths are noted on the surface water flood map, which flow from southwest to northeast across the site. One of these flow paths is within the area proposed for development. The topographic survey (see Appendix B) shows that this surface water flooding accumulates behind an area of elevated land, which follows the hedge line.

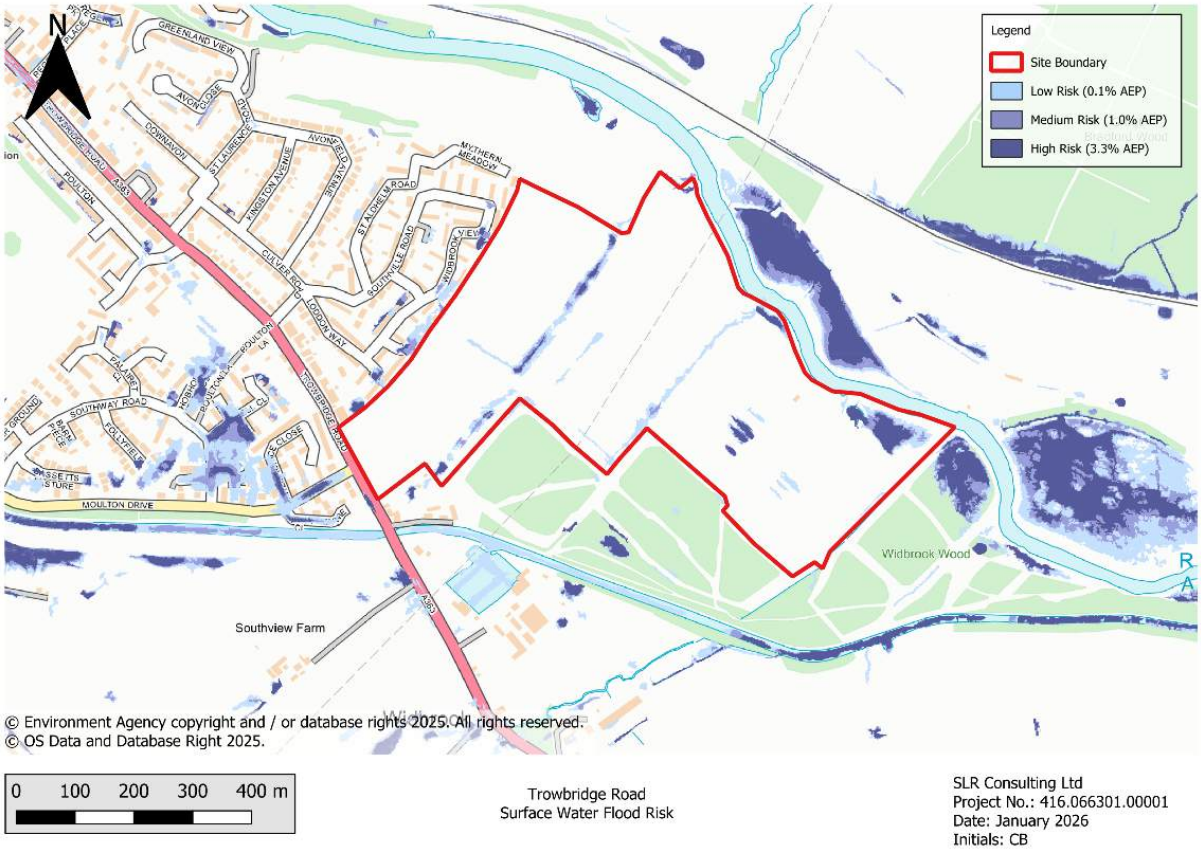
There are no major flow paths shown draining onto the site. Therefore, this flow path is likely to be a result of runoff from the site itself. Once developed, this rainfall will be captured by the SuDS, and the localised flooding is likely to be negligible. Furthermore, as part of the proposed development, ground levels will be recontoured, and any low points will be removed which will also prevent the ponding of rainfall.

A few areas at high risk of surface water flooding are indicated in the south and west of the site, close to the River Avon, which are outside of the area proposed for built development.

Therefore, once developed, the proposed development is considered to be at low risk of surface water flooding, and flooding from this source is not considered in more detail.

16 Environment Agency, Long Term Flood Risk Information Service: https://check-long-term-flood-risk.service.gov.uk/risk# [Accessed: January 2026].

Figure 5: Environment Agency Surface Water Flood Map



4.2.4 Flooding from Groundwater

Groundwater flooding can be defined as flooding caused by the emergence of water originating from subsurface strata. Groundwater flooding can occur where sites are located on permeable ground. After a prolonged period of rainfall and groundwater recharge, a considerable rise in the water table can result in inundation for extended periods of time.

The SFRA for Wiltshire indicates that the site is within an area with a risk of flooding to surface and subsurface assets, and a possibility of groundwater emerging at the surface locally.

The ground investigation did encounter groundwater. Whilst this was variable across the site, groundwater levels less than 1 m bgl were recorded in places. However, the Met Office has recently announced its provisional statistics for Winter 2025/26, which show that Southern England saw its fourth wettest winter on record. Groundwater monitoring showed that groundwater levels did not rise above the surface.

Should groundwater emerge at the surface, this is more likely to be a nuisance as opposed to a flood risk. The topography of the site would allow this to drain away and into the River Avon. It should also be noted that no basements are proposed as part of the development, which would be more vulnerable to groundwater flooding.

Whilst the risk from groundwater flooding is low it will need to be accounted for within the design of finished floor levels. Recommended mitigation measures are outlined in Section 5, which will help to ensure that the development is safe from this potential source of flood risk.

4.2.5 Flooding from Sewers

Flooding from sewers can occur when capacity is exceeded or there is a blockage or collapse in the network. Sewer plans have been obtained and are included in Appendix C. A strategic 600 mm diameter surface water sewer flows from southwest to northeast, below the northern part of the site. The depth of this sewer is not known, however, if this sewer was to surcharge and flood, any resulting floodwater could impact the proposed development.

However, the presence of a sewer is no different to any development site where these are a critical part of the infrastructure. The sewer is maintained by Wessex Water, which will help to reduce the risk of blockage or collapse.

The Illustrative Layout shows that part of the sewer has been located within the proposed highway. Highway levels, and wider site levels, can be designed to help convey and any floodwater into open space. The remainder of the sewer on site is positioned outside of the area proposed for development and in land at a lower elevation. Therefore, any floodwater would largely flow away into open space and towards the River Avon.

The risk of flooding from sewers is low and this is not considered further.

4.2.6 Flooding from Reservoirs, Canals and Other Artificial Sources

Flooding from reservoirs, canals and artificial sources occurs when their associated dams, embankments or other retaining structures fail or are breached.

Environment Agency Reservoir Breach mapping[16] indicates that the site is not at risk of flooding from reservoirs. The Kennett and Avon Canal is located 25 m south of the site at its closest point. However, the canal is not impounded in the proximity of the site, and the likelihood of flooding is therefore low.

The risk of flooding from reservoirs, canals and artificial sources is therefore considered to be low and this is not considered further.

4.2.7 Flooding from Infrastructure Failure

Flooding from infrastructure failure can occur when infrastructures designed to manage flooding fails. This can include flood defences or pumping stations and can result in flooding that is very different in terms of extent, severity and timing from that which would have occurred if the infrastructure did not exist.

There are no formal flood defences in the proximity of the site which could cause a source of flooding should a failure or breach occur.

The risk of flooding from infrastructure failure is therefore considered to be low and this is not considered further.

4.3 Summary of Flood Screening

Table 5 summarises the flood screening assessment and confirms that all sources of flooding pose a low risk to the proposed development. A detailed assessment of flood risk is therefore, not required. However, some limited flood mitigation measures are set out in Section 5.

Table 5: Summary of Flood Screening

Potential Source	Potential Flood Risk at Site?
Sea or Tidal Flooding	Low

Potential Source	Potential Flood Risk at Site?
Fluvial Flooding	Low
Surface Water and Overland Flow	Low
Groundwater	Low
Sewers	Low
Reservoirs, Canals and other Artificial Sources	Low
Infrastructure Failure	Low

5.0 Flood Risk Management

The various sources of flood risk to the development are not considered to be significant. However, finished floor levels (FFL) of all dwellings should be elevated above the surrounding ground levels by approximately 150 mm to 300 mm. This will protect against the possibility of shallow ponding, or saturated ground conditions, which can occur following heavy or prolonged rainfall.

6.0 Surface Water Drainage Strategy

6.1 Overview

It is well understood that one of the effects of development is typically to reduce the permeability of a site and consequently change its response to rainfall. Therefore, a drainage strategy is required to ensure that the surface water runoff regime is managed appropriately and that the proposed development does not increase flood risk on the site and/or to surrounding areas.

The NPPF states that flood risk to land and property must not be increased as a result of development. The NPPF also states that flood risk should not increase for events up to and including a 1 in 100 year return period, including an appropriate allowance for climate change.

The concept of sustainable drainage is that environmental and social factors such as the quantity and quality of runoff and amenity value of surface water in the urban or developed environment are considered when making decisions about drainage. SuDS can be used to compliment or replace conventional piped urban drainage to recreate the natural water cycle.

This process can be used in certain locations to reduce the existing problems associated with such conventional piped systems, which can include the risk of flooding, the potential of pollution or poor water quality and damage to the natural environment.

In June 2025, the National Standards for Sustainable Drainage Systems (SuDS) were released. The standards introduce a structured framework: Standard 1 outlines the hierarchy for runoff drainage, while Standards 2 through 7 establish the minimum design criteria for surface water drainage systems. These updated requirements form the foundation of the preliminary surface water drainage strategy outlined in this chapter.

However, it is important to note that the planning application is in outline and some of these detailed considerations are subject to the Reserved Matters stage.

6.2 Standard 1 – Runoff Destinations

The drainage hierarchy states that surface water runoff from the proposed development shall be discharged to the following final destinations, to the maximum extent practicable, in accordance with the below hierarchy:

1. Priority 1: Collected for non-potable use;
2. Priority 2: Infiltrated into the ground;
3. Priority 3: Discharged to an above ground surface water body;
4. Priority 4: Discharged to a surface water sewer, or another piped surface water drainage system; or
5. Priority 5: Discharged to a combined sewer.

The standards note that Priority 1 consists of the collection of rainfall for non-potable use and shall be considered in all circumstances where any of the following apply:

1. There is a demand for non-potable water and available contributing catchment area that will deliver safe and efficient water savings. Examples include industrial, commercial, horticultural, educational, public sector, residential and multiple-occupancy buildings;
2. There is a need for landscape irrigation; or
3. The development is in an area identified as seriously water stressed.

The site is located within the Wessex Water region which is not classified as an area of serious water stress[17].

Small private roof surfaces do not offer an opportunity for efficient water savings. Whilst water butts could be encouraged across the proposed development, they cannot form part of the drainage strategy as the available capacity within the water butts cannot be guaranteed. Areas of landscaping and open spaces would be designed to have a low water use.

Priority 2 promotes the use of infiltration into the ground. As noted in Section 2.4, infiltration testing was undertaken across the site. The investigation found that groundwater level is relatively shallow (less than 1 m bgl) across most of the site (where tested). However, in the far north part of the site (at TP01), groundwater was deeper and infiltration rates were suitable. Therefore, the area in the proximity of TP01 can drain to the ground.

However, this will not accommodate the full development. The only remaining location for storage of runoff is to the east. This is closer to the floodplain of the River Avon and given the shallow groundwater recorded across most of the site, this area is unlikely to be suitable for infiltration as a means of surface water disposal. Therefore, at this outline stage, it has been assumed that runoff will need to be stored within an attenuation basin and released at greenfield rates into the River Avon.

These assumptions will need to be validated at the Reserved Matters stage, but it is clearly evident that at least two options are available for the disposal of surface water runoff and therefore a viable solution exists.

6.3 Standard 2: Management of Everyday Rainfall (Interception)

This refers to the application of ‘SuDS approach’ so that at least the first 5 mm of rainfall for the majority of rainfall events does not result in runoff from the site to surface waters or piped drainage systems.

Areas of the proposed development drained to systems that are designed to infiltrate runoff would be considered to achieve interception requirements. However, as previously noted, the ground conditions are not anticipated to permit the use of infiltration from the full development area. Consequently, alternative solutions are needed to achieve interception requirements. However, at this outline stage, no fixed site layout is available and is subject to the Reserved Matters stage.

In order to achieve the interception requirements, the attenuation basin is likely to be classified a detention basin (as opposed to a pond that would hold water permanently). It will intermittently hold water (i.e. when it rains) and will require wet tolerant planting. The extensive network of swales will also contribute to the interception requirements. However, additional measures are likely to be required at the detailed design stage, such as rainwater harvesting, permeable paving and/or rain gardens.

6.4 Standard 3 – Management of Extreme Rainfall and Flooding

Standard 3 refers to adopting a SuDS approach to manage surface water runoff from the proposed development during extreme rainfall.

The Preliminary Surface Water Drainage Strategy, enclosed in Appendix G, shows how SuDS could be utilised to manage extreme rainfall landing on the proposed development. This includes a network of swales, an infiltration basin and an attenuation basin.

[17] Environment Agency (2021). Water stressed areas – 2021 Classification. Available online at: https://www.gov.uk/government/publications/water-stressed-areas-2021-classification [Accessed: November 2025].

The preliminary surface water drainage strategy has been based on providing attenuation storage up to and including the 1 in 100 year plus a 45% allowance climate change event. The basins have been designed to ensure that there is no flooding during this extreme event. The following information outlines how the attenuation requirements have been estimated.

6.4.1 Greenfield Runoff Rates

The Flood Estimation Handbook (FEH) Method has been used to calculate the existing greenfield runoff rates for the site using the online HR Wallingford UK SuDS tool. The parameters utilised are detailed in Table 6, which show the calculation was undertaken for an arbitrary area of 1 ha. The calculated rates are presented in Table 7 and in Appendix H.

Table 6: Calculation Parameters

Parameter	Value	Unit
Area	1.0	ha
SAAR	805	mm
BFIHOST	0.535	-
Region	8	-

Table 7: Greenfield Runoff Rates

Return Period	Peak Greenfield Runoff Rate (l/s/ha)
QBAR	3.5
50% AEP	3.3
3.33% AEP	6.9
1% AEP	8.6

6.4.2 Greenfield Runoff Volumes

The following extracts are from the National Standards for SuDS:

> "*Where the volume of runoff discharged from the development to surface waters or sewers for the 1% Annual Exceedance Probability (AEP), 6-hour rainfall event is greater than the volume of greenfield runoff for the same rainfall event, the peak allowable discharge rate from the development for the 1% AEP event shall be limited to the 50% AEP greenfield runoff rate or 3l/s/ha, whichever is the greater*".
>
> "*Where the volume of runoff discharged from the development to surface waters or sewers for the 1% AEP, 6-hour rainfall event is less than or equivalent to the volume of greenfield runoff for the same event, the peak allowable discharge rate from the development for the 1% AEP event shall be limited to the 1% AEP greenfield runoff rate or 3l/s/ha, whichever is the greater*".

Given these requirements, it was necessary to calculate the greenfield runoff volumes for the greenfield and post-development condition in the 1% AEP 6-hour rainfall event.

The CIRIA SuDS Manual (2015) states that the greenfield volume can be calculated using the following method:

Runoff volume = Standard percentage runoff (SPR) x catchment area x rainfall depth

The SPR is calculated as part of the FEH Method using the online HR Wallingford UK SuDS tool, which identified a value of 36.4% (see Appendix H for further details).

For the catchment area a value of 1 hectare (or 10,000 m^2) has been adopted.

The rainfall depth was estimated to be 11.967 mm/hr using MicroDrainage software. This was the average depth over a 1% AEP 6-hour event. The generated rainfall profile is enclosed in Appendix H.

The greenfield runoff volume was estimated to be 261 m^3/ha (i.e. 0.364 x 10,000 m^2 x 0.011967 m/hr x 6 hours).

The post-development runoff volume was estimated using the greenfield runoff rates identified in Table 7. This was also calculated for the 6-hour storm and using the following method:

Runoff volume = Greenfield rate x 60 x 60 x 6 / 1000

The 1% AEP 6-hour event post-development runoff volume was estimated to be to be 186 m^3/ha (i.e. 8.6 l/s/ha x 60 seconds x 60 minutes x 6 hours / 1000).

The 1% AEP 6-hour event post-development runoff volume (186 m^3/ha) is less than the greenfield equivalent (261 m^3/ha). Therefore, in accordance with the National Standards for SuDS, the peak allowable discharge rate from the proposed development for the 1% AEP event can be limited to the 1% AEP greenfield runoff rate or 3 l/s/ha, whichever is the greater. The 1% AEP greenfield runoff rate (8.6 l/s/ha) is greater and has been adopted.

Where runoff is to be disposed to the ground, these greenfield runoff rates are irrelevant.

6.4.3 Proposed Discharge Rates

Table 8 presents the proposed discharge rates to be adopted for key design rainfall events. The 50% AEP greenfield rate has been adopted for the smaller magnitude rainfall events. This will require a complex flow control device at the outfall of each attenuation basin.

Table 8: Proposed Discharge Rates

Return Period	Peak Greenfield Runoff Rate (l/s/ha)	Proposed Discharge Rate (l/s/ha)
50% AEP	3.3	3.3
3.33% AEP	6.9	3.3
1% AEP	8.6	8.6
1% AEP + Climate Change	-	8.6

Where runoff is to be disposed to the ground, these greenfield runoff rates are irrelevant.

6.4.4 Estimation of Impermeable Areas

At this outline stage it is necessary to estimate the likely coverage of impermeable surfaces across the proposed developable areas of the site. For residential areas, the current day impermeable area has been calculated based upon a 65% impermeable ratio (i.e. that 65% of the developed area would have an impermeable cover). For the care home, an 80% impermeable ratio has been used.

6.4.5 SuDS Contribution

The National Standards for SuDS indicate that the footprint of SuDS features should not be ignored when estimating attenuation requirements. Therefore, the area of each basin has been included in the estimate of impermeable surfaces.

6.4.6 Urban Creep

A 10% allowance has been used to account for the potential of urban creep. However, given that this was applied to the full impermeable area (and not just private residential curtilage), a 5% value was used in the calculation.

It is only necessary to apply urban creep to the private residential curtilage, or more specifically, just the impermeable area in the private residential curtilage. Given the outline nature of the planning application, a fixed housing layout is unavailable. Therefore, it is not possible to measure each individual private residential curtilage, or indeed the impermeable areas within.

If a 10% urban creep allowance was applied to the full impermeable area (i.e. private areas and the highway), this would result in a significant overestimate.

Typically, the total impermeable area within all private residential curtilages is similar to the impermeable area on the internal road network. Therefore, application of a 5% allowance to the full impermeable area would approximately equate to a 10% allowance overall.

No urban creep has been applied to the proposed care home.

6.4.7 Example Calculation

In order to calculate the attenuation requirements of the proposed development, a future impermeable area needs to be established. An example of this estimation (for the same arbitrary developable area of 1 ha), using the information outlined previously, is presented below:

1. Current day impermeable area = developable area x impermeable factor

   = 1.00 x 0.65 = 0.65 ha

2. Future impermeable area

   = current day impermeable area x 5% (urban creep) + basin area

   = 0.65 x 1.05 + 0.1 = 0.783 ha

6.4.8 Catchment Areas

Two catchment areas were defined. One is located in the north part of the site and drains to the infiltration basin. The second accommodates the majority of the site and drains to the attenuation basin. These are shown on the Preliminary Surface Water Drainage Strategy, enclosed in Appendix G.

6.4.9 Attenuation Storage Calculations

A Causeway Flow model has been constructed to inform the volume of attenuation storage required. This has been simulated using Flood Estimation Handbook 22 (FEH22) data and includes a 45% climate change allowance. The calculations are enclosed in Appendix H and the parameters used are outlined in Table 9 and Table 10, for Catchment 1 and Catchment 2, respectively.

Table 9: Causeway Flow Parameters – Catchment 1

Parameter	Value	Units
Residential developable area	1.171	ha
Estimated impermeable area	0.761	ha
Urban creep	5	%
Future impermeable area (including basin)	0.929	ha
CV factor	1	-
Discharge rate	-	l/s
Infiltration rate	0.03251	m/hr
Climate change allowance	45	%
Basin freeboard (min)	300	mm
Basin side slope (average)	1 in 4	-

Table 10: Causeway Flow Parameters – Catchment 2

Parameter	Value	Units
Residential developable area	6.405	ha
Estimated impermeable area	4.163	ha
Urban creep	5	%
Care home developable area	0.322	
Care home impermeable area	0.258	
Future impermeable area (including basin)	5.044	ha
CV factor	1	-
Discharge rate	38.0	l/s
Infiltration rate	-	m/hr
Climate change allowance	45	%
Basin freeboard (min)	300	mm
Basin side slope (average)	1 in 4	-

The total volume of storage required is 951 m^3 (excluding freeboard) for Catchment 1 which is shown to be provided within an area of 1,300 m^2 to manage the 1 in 100 year storm, with a 45% allowance for future climate change.

The total volume of storage required is 4,812 m^3 (excluding freeboard) for Catchment 2 which is shown to be provided within an area of 4,149 m^2 to manage the 1 in 100 year storm, with a 45% allowance for future climate change.

This storage requirements are shown on the Preliminary Surface Water Drainage Strategy enclosed in Appendix G.

6.5 Standard 4: Water Quality

In accordance with the SuDS Manual (2015), SuDS components must have a total pollution index that equals or exceeds the pollution hazard index for different land use classifications. It is considered that the SuDS provided as part of the surface water drainage strategy would offer sufficient mitigation for the land use classification as demonstrated in Table 11, Table 12 and Table 13 (as informed by Table 26.2 and 26.3 of the SuDS Manual (2015), respectively).

As per the CIRIA SuDS Manual (2015), where the mitigation index of an individual component is insufficient, two components (or more) will be required. However, a factor of 0.5 is used to account for the secondary or tertiary components associated with the already reduced inflow concentrations.

Table 11: Pollution Hazard Indices for Different Land Use Classifications

Land Use	Pollution Hazard Indices for Different Land Use Classifications			
	Pollution Hazard Level	Total Suspended Solids (TSS)	Metals	Hydro-carbons
Residential roofs	Very Low	0.20	0.20	0.05
Individual property driveways, residential car parks, low traffic roads and non-residential car parking with infrequent change	Low	0.50	0.40	0.40
Total	Low	0.70	0.60	0.45

Table 12: SuDS Mitigation Indices for Discharges to Surface Waters – Catchment 1

Type of SuDS	Mitigation Indices		
	TSS	Metals	Hydro-carbons
Swale	0.5	0.6	0.50
Basin	0.5 (0.25)	0.5 (0.25)	0.6 (0.3)
Total Mitigation Provided	0.75	0.85	0.80

Table 13: SuDS Mitigation Indices for Discharges to Surface Waters – Catchment 2

Type of SuDS	Mitigation Indices		
	TSS	Metals	Hydro-carbons
Swale	0.5	0.6	0.5

Infiltration basin[18]	0.6 (0.30)	0.5 (0.25)	0.6 (0.3)
Total Mitigation Provided	0.80	0.85	0.8

A comparison of the total hazard indices for the proposed development (Table 11) with the total mitigation provided (Table 12 and Table 13), indicates that the proposed surface water drainage strategy provides adequate treatment of surface water.

Other more local, or source control, SuDS can also contribute to the management of surface water across the site, including water quality improvement. However, it is difficult to determine the detail of source control features at this outline stage. These could consist of permeable paving, rain gardens and/or tree pits etc, used in parts of the site to supplement the wider features. These opportunities will be considered in more detail as part of the Reserved Matters stage and would provide an even greater degree of water quality treatment.

6.6 Standard 5: Amenity

Standard 5 requires a 'SuDS approach' that maximises benefits for amenity through the creation of multi-functional places and landscapes.

Extensive areas of public open space are proposed, which encapsulate the swales and attenuation basins. Wider areas of woodland planting and wetlands have also been shown on the Illustrative Layout. However, these wider areas of green infrastructure have been designed by others.

6.7 Standard 6: Biodiversity

Standard 6 states that the surface water drainage system shall add biodiversity by:

1. Creating diverse, self-sustaining, resilient local ecosystems which contribute to net gains in biodiversity;
2. Supporting and promoting natural local habitat and species, for example, through local nature recovery strategies (LNRS);
3. Contributing to the delivery of local biodiversity strategies; and
4. Contributing to habitat connectivity.

Basins and swales provide an opportunity to create high value habitat and contribute an important biodiversity function for the site. However, biodiversity, and specifically, Biodiversity Net Gain (BNG), has been considered by others.

6.8 Standard 7: Design of Drainage for Construction, Operation, Maintenance, Decommissioning and Structural Integrity

Generally, these requirements are subject to the Reserved Matter stage. However, the key maintenance requirements have been set out below.

The SuDS may be offered for adoption to Wessex Water or will be privately maintained. Where privately maintained, the general maintenance requirements should be undertaken in accordance with the recommendations outlined in the CIRIA SuDS Manual (2015), as replicated in Figure 6 to Figure 8.

[18] Basin to include a layer of dense vegetation underlain by a soil with good contamination potential of at least 300 mm depth

Figure 6: Operation and Maintenance Requirements for Swales

TABLE 17.1 Operation and maintenance requirements for swales

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Remove litter and debris	Monthly, or as required
	Cut grass – to retain grass height within specified design range	Monthly (during growing season), or as required
	Manage other vegetation and remove nuisance plants	Monthly at start, then as required
	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
	Inspect infiltration surfaces for ponding, compaction, silt accumulation, record areas where water is ponding for > 48 hours	Monthly, or when required
	Inspect vegetation coverage	Monthly for 6 months, quarterly for 2 years, then half yearly
	Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies	Half yearly
Occasional maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required	As required or if bare soil is exposed over 10% or more of the swale treatment area
Remedial actions	Repair erosion or other damage by re-turfing or reseeding	As required
	Relevel uneven surfaces and reinstate design levels	As required
	Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface	As required
	Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip	As required
	Remove and dispose of oils or petrol residues using safe standard practices	As required

Figure 7: Operation and Maintenance Requirements for Infiltration Basins

TABLE 13.2 Operation and maintenance requirements for infiltration basins

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Remove litter, debris and trash	Monthly
	Cut grass – for landscaped areas and access routes	Monthly (during growing season) or as required
	Cut grass – meadow grass in and around basin	Half yearly: spring (before nesting season) and autumn
	Manage other vegetation and remove nuisance plants	Monthly at start, then as required
Occasional maintenance	Reseed areas of poor vegetation growth	Annually, or as required
	Prune and trim trees and remove cuttings	As required
	Remove sediment from pre-treatment system when 50% full	As required
Remedial actions	Repair erosion or other damage by reseeding or re-turfing	As required
	Realign the rip-rap	As required
	Repair or rehabilitate inlets, outlets and overflows	As required
	Rehabilitate infiltration surface using scarifying and spiking techniques if performance deteriorates	As required
	Relevel uneven surfaces and reinstate design levels	As required
Monitoring	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
	Inspect banksides, structures, pipework etc for evidence of physical damage	Monthly
	Inspect inlets and pre-treatment systems for silt accumulation; establish appropriate silt removal frequencies	Half yearly
	Inspect infiltration surfaces for compaction and ponding	Monthly

Figure 8: Operation and Maintenance Requirements for Detention Basins

TABLE 22.1 Operation and maintenance requirements for detention basins

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Remove litter and debris	Monthly
	Cut grass – for spillways and access routes	Monthly (during growing season), or as required
	Cut grass – meadow grass in and around basin	Half yearly (spring – before nesting season, and autumn)
	Manage other vegetation and remove nuisance plants	Monthly (at start, then as required)
	Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly
	Inspect banksides, structures, pipework etc for evidence of physical damage	Monthly
	Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies.	Monthly (for first year), then annually or as required
	Check any penstocks and other mechanical devices	Annually
	Tidy all dead growth before start of growing season	Annually
	Remove sediment from inlets, outlet and forebay	Annually (or as required)
	Manage wetland plants in outlet pool – where provided	Annually (as set out in Chapter 23)
Occasional maintenance	Reseed areas of poor vegetation growth	As required
	Prune and trim any trees and remove cuttings	Every 2 years, or as required
	Remove sediment from inlets, outlets, forebay and main basin when required	Every 5 years, or as required (likely to be minimal requirements where effective upstream source control is provided)
Remedial actions	Repair erosion or other damage by reseeding or re-turfing	As required
	Realignment of rip-rap	As required
	Repair/rehabilitation of inlets, outlets and overflows	As required
	Relevel uneven surfaces and reinstate design levels	As required

Various other smaller assets of the surface water drainage strategy consist of gutters, down water pipes, manholes, pipes and drainage channels. These assets should be checked annually and after large storm events, in order to remove debris and inspect the condition.

Jet washing may be required on occasion to remove any blockages within the pipe network. If the condition is found to be poor, replacement or repairs may be required.

7.0 Foul Drainage

Developers may now connect to the nearest public sewer on a size for size basis at their cost and, in this case, Wessex Water will provide capacity in the network to accommodate domestic type flows from granted development which is funded by their infrastructure charging arrangements.

To accommodate the proposed development on the size for size rules, a 225 mm diameter public foul water sewer is required. A 225 mm diameter foul sewer is available in Trowbridge Road, which is anticipated to be the likely point of connection. However, this is subject to agreement with Wessex Water. A pumping station will be required on site to achieve this point of connection.

8.0 Conclusion

SLR has been instructed by Waddeton Park to prepare a Flood Risk Assessment (FRA) including drainage strategy to accompany an outline planning application (with all matters reserved except for access) for the erection of up to 224 residential dwellings (Class C3), 72-bed care home (Class C2), with community sports pitches, country park and landscaping and open space.

This report has been prepared by SLR Consulting in accordance with the guidelines set out in the National Planning Policy Framework, regional and local guidance documents.

The proposed development (including access) is entirely within Flood Zone 1 (i.e. land having a less than 1 in 1,000 annual probability of river or sea flooding, with this considered to be low risk). No other sources of flood risk have been identified that represent a significant development constraint. The proposed development is therefore considered to be safe throughout its lifetime without increasing flood risk elsewhere.

The surface water drainage strategy adopts infiltration as a means of surface water disposal, were practical. Elsewhere, an attenuation-based solution has been proposed to manage the impact of the development on surface water runoff. This has been based on the principles of Sustainable Drainage Systems (SuDS).

Foul water from the proposed development is likely to be discharged to the existing public foul sewer network in Trowbridge Road. However, this point of connection is subject to agreement with Wessex Water.

Appendix A Illustrative Layout

Legend

- Application boundary
- 1 Existing pipeline
- 2 Access from Trowbridge Road
- 3 Proposed mobility hub
- 4 Residential care facility
- 5 Primary access route
- 6 Proposed community allotments
- 7 Local Area of Play (LAP)
- 8 Local Equipped Area of Play (LEAP)
- 9 Changing facilities and associated pitches
- 10 Pedestrian connection
- 11 Proposed woodland buffer
- 12 Central green street
- 13 Community garden i.e orchard
- 14 Higher density core
- 15 Lower density periphery
- 16 Wetland and marginal planting
- 17 Proposed attenuation pond
- 18 Proposed swales
- 19 Drainage outfall
- Public Right of Way

Trowbridge Road, Bradford-on-Avon Illustrative Layout		E
		CW / DH
250310 L 02 03	NTS @ A2	Feb 2026

CliftonEmerydesign

Bristol • Exeter • London • Plymouth
www.cliftonemerydesign.co.uk mail@cliftonemerydesign.co.uk

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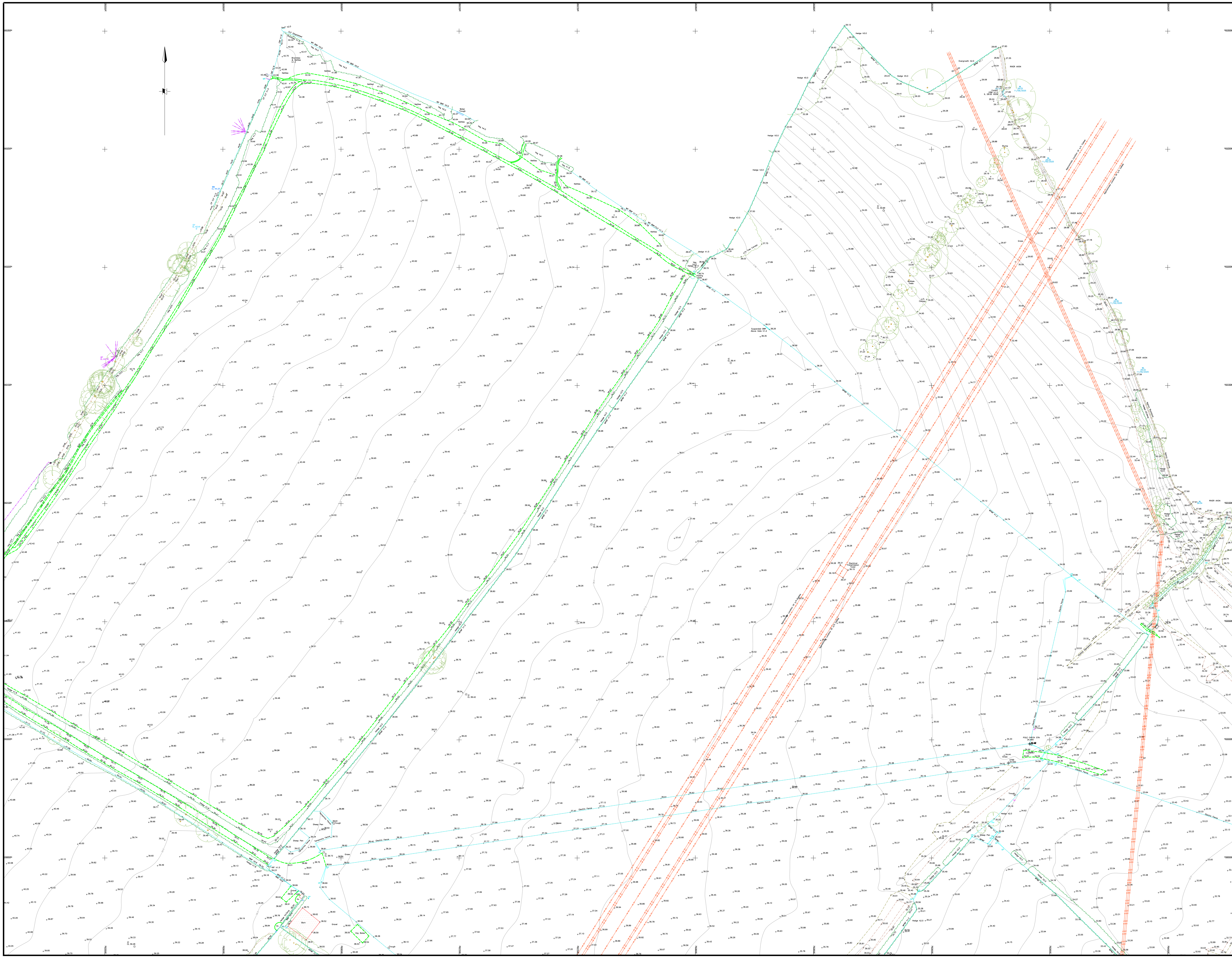
Appendix B Topographical Survey



LEVEL INFORMATION

Heights in Metres

Datum Derived From:	GNSS Derived
Value:	ST99 34.550m A.O.D.
Active Station Locations:	OS ACTIVE
Conversions Used:	OSTN15;_OSGM15;

COORDINATE INFORMATION

Values in Metres

All Coordinates are:	TRUE NATIONAL GRID
Scale Factor:	

SURVEY STATION SCHEDULE

STN	TYPE	EASTINGS	NORTHINGS	LEVEL
ST95	PKN	383407.923	159689.688	42.116
ST96	PKN	383293.402	159891.550	43.435
ST97	PKN	383308.629	159854.881	42.879
ST98	PKN	383331.621	159801.585	41.804
ST99	PGM	383932.576	159990.191	34.550

ABBREVIATIONS

General

(A)	Approximate	IL	Invert Level
AIF	Angle Iron Fence	IRF	Iron Rail Fence
(AR)	Assumed Route	IWF	Inter Woven Fence
Avg	Average	KO	Kerb Outlet
BD	Bollard	Ldr	Ladder
Bin	Litter Bin	LP	Lamp Post
Bld	Building	MH	Manhole
BLW	Block Wall	MHR	Metal Hand Rail
BS	Bush	MK	Marker
BT	British Telecom Inspection Chamber	MP	Metal Post
BW	Brick Wall	MPRF	Metal Post & Rail Fence
BWF	Barbed Wire Fence	OH	Overhead Cable
Cab	Cabinet	OH ETL	Overhead Electricity Transmition Lines
CB	Crash Barrier	OH TTL	Overhead Telephone Transmition Lines
CBF	Close Boarded Fence	o/l	Outline
CDC	Concrete Drainage Channel	OSBM	Ordnance Survey Bench Mark
CE	Concrete Edging	PalF	Pallisade Fence
ChP	Chestnut Paling	Pav	Paviors
CI	Cable Into Ground	PI	Pipe Into Ground
CIF	Corrugated Iron Fence	Plt	Pavement Light
CL	Cover Level	(R)	Records
CLF	Chain Link Fence	RE	Rodding Eye
CM	Cable Marker	RS	Road Sign
Col	Column	RSJ	Rolled Steel Joist
Conc	Concrete	RW	Retaining Wall
CP	Concrete Post	SD	Slot Drain
CPS	Concrete Paving Slabs	SE	Stone Edging
CT	Cable TV Inspection Chamber	SecF	Security Fence
CW	Concrete Wall	Shb	Shrubs
d	Depth	SL	Soffit Level
Dil	Dilapidated	Slt	Spotlight
DK	Drop Kerb	SN	Sign
DP	Rainwater Down Pipe	SV	Stop Valve
DSW	Dry Stone Wall	SVMK	Stop Valve Marker
Ea	Earth	SW	Stone Wall
EIC	Electricity Inspection Chamber	SWIC	Storm Water Inspection Chamber
EM	Electricity Meter	SY	Stay Wire
EP	Electricity Pole	Tar	Tarmac
ER	Earth Rod	ThL	Threshold Level
F	Fence	TL	Traffic Light
FH	Fire Hydrant	TMIC	Traffic Management IC
FHMK	Fire Hydrant Marker	TP	Telegraph Pole
FL	Floor Level	TPS	Tactile Paving Slabs
Flb	Flowerbed	u/g	Underground
Flt	Floodlight	UTL	Unable To Lift
FP	Footpath	Veg	Vegetation
FWIC	Foul Water Inspection Chamber	VP	Vent Pipe
GM	Gas Meter	VT	Vent
GMK	Gas Marker	W	Wall
GP	Gate Post	WE	Wood Edging
Gr	Grass	WL	Water Level
GV	Gas Valve	WM	Water Meter
Gvl	Gravel	WMF	Wire Mesh Fence
GY	Gully	WMK	Water Meter Marker
h	Height	WO	Wash Out
Hc	Hardcore	WP	Wooden Post
IB	Illuminated Bollard	WPR	Wooden Post & Rail Fence
IC	Inspection Cover		

Station Abreviations

HN	Hilti Nail	PKN	Parker Kalon Nail
PGM	Permanent Ground Marker	WP	Wooden Peg

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Sheet 01, Sheet 02, Sheet 03, Sheet 04, Sheet 05

Rev.	Date	Amendments

THE SURVEY ASSOCIATION
LEWIS BROWN Chartered Land Surveyors
RICS

Quattro House
Castle Road
Chelston Business Park
Wellington
TA21 9JQ
Tel. 01823 667200
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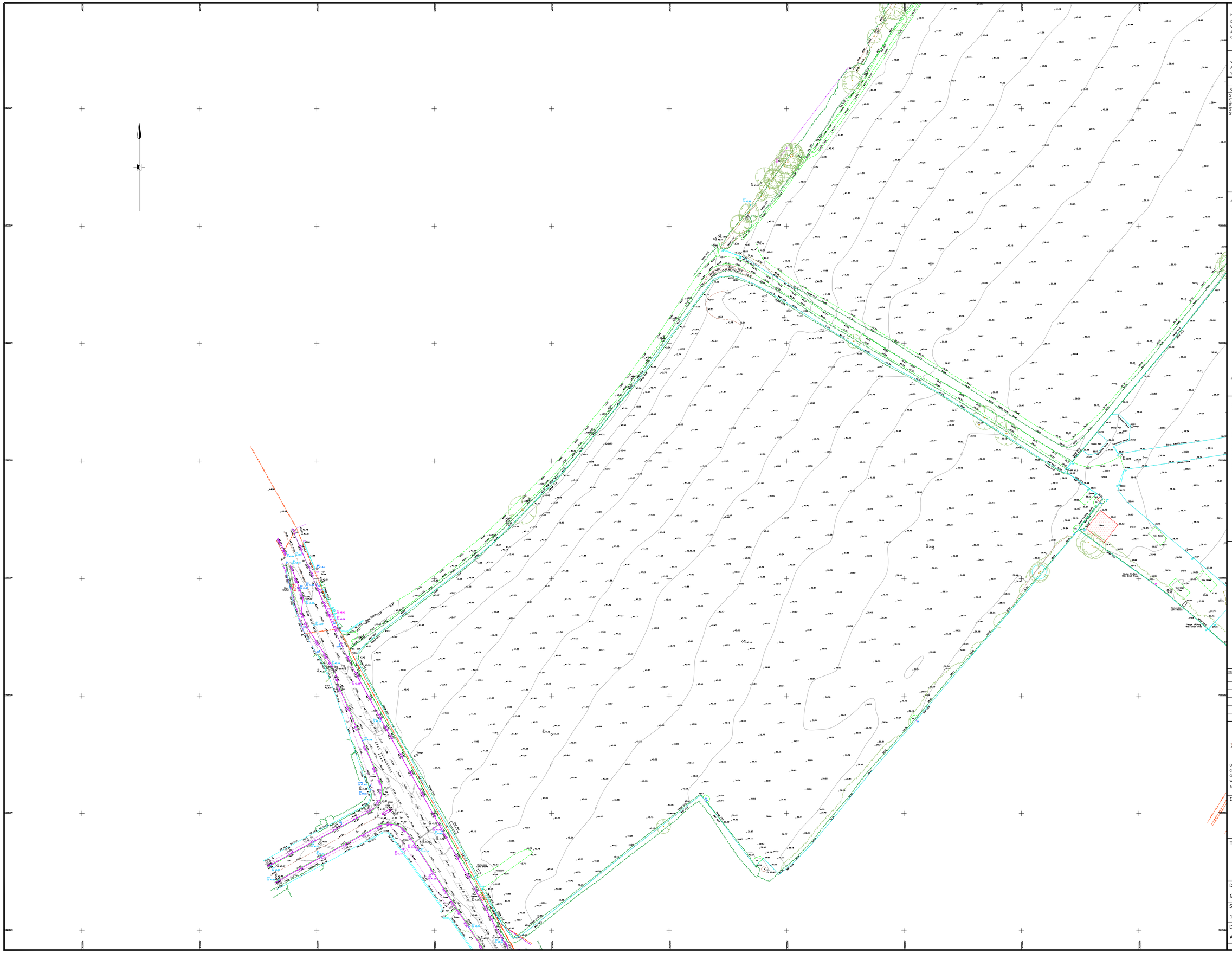
CLIENT:
WADDETON PARK LTD
GREENDALE COURT
CLYST ST MARY
EXETER
EX5 1AW

TITLE:
LAND AT BRADFORD ON AVON
BRADFORD ON AVON
BRISTOL
WILTSHIRE
TOPOGRAPHICAL SURVEY

Drawing Number:		Revision:
G25114_2DSX		
Scale: 1:500	Sheet: A0 1 of 5	Survey Date: June 2025
Drawn: AT/MA	Checked: RDJB	Project Number: G25114



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ST99	PGM	383932.576	159990.191	34.550

ABBREVIATIONS

General

(A)	Approximate
(BF)	Barbed Wire Fence
(AR)	Assumed Route
Avg	Average
BD	Bollard
Bin	Litter Bin
BH	Bore Hole
BLW	Block Wall
BS	Bush
BT	British Telecom Inspection Chamber
BW	Brick Wall
CBF	Cattle Wire Fence
Cab	Cabinet
CB	Crash Barrier
CBF	Close Boarded Fence
CDC	Concrete Drainage Channel
CH	Chestnut Fence
CHP	Chestnut Paling
CI	Cable Into Ground
CLD	Close Boarded Iron Fence
CL	Cover Level
CLF	Chain Link Fence
CM	Cable Marker
Col	Column
Conc	Concrete
CP	Concrete Post
CPS	Concrete Paving Slabs
CT	Cable TV Inspection Chamber
CW	Concrete Wall
D	Down
Dil	Dilapidated
DK	Drop Kerb
DP	Rainwater Down Pipe
DSW	Dry Stone Wall
E	East
EIC	Electricity Inspection Chamber
EM	Electricity Meter
EP	Electricity Pole
ER	Earth Rod
F	Fence
FH	Fire Hydrant
FHM	Fire Hydrant Marker
FL	Flood Light
FB	Flowerbed
Flt	Floodlight
FP	Footpath
FWIC	Foul Water Inspection Chamber
GM	Gas Marker
GPM	Gas Marker
GP	Gate Post
G	Grass
GV	Gas Valve
GU	Gully
GY	Gully
h	Height
HS	Hardcore
IB	Illuminated Bollard
IC	Inspection Cover

Station Abreviations

HN	Hilti Nail
PGM	Permanent Ground Marker
PKN	Parker Kalon Nail
WP	Wooden Peg

IL	Invert Level
IRF	Iron Rail Fence
JWF	Joint Woven Fence
KO	Kerb Outlet
LP	Lamp Post
LF	Lamp Post
MH	Manhole
MHR	Metal Hand Rail
MK	Marker
MP	Mooring Post
MRP	Metal Post & Rail Fence
OH	Overhead Cable
OH ETL	Overhead Electricity Transmition Lines
OH TTL	Overhead Telephone Transmition Lines
OP	Outcrop
OSBM	Ordnance Survey Bench Mark
PalF	Palisade Fence
Pav	Pavers
PI	Pipe Into Ground
PL	Permanent Light
R	Recess
RE	Rodding Eye
RS	Road Sign
RSJ	Rolled Steel Joist
RWall	Reinforced Wall
SD	Soil Drain
SE	Stone Edging
SecF	Security Fence
Shb	Shrubs
SL	Sump Level
Sit	Spotlight
SN	Sign
SV	Stop Valve
SVM	Stop Valve Marker
SW	Stone Wall
SWIC	Storm Water Inspection Chamber
ST	Stay Wire
T	Telephone
TH	Threshold Level
TL	Traffic Light
TMC	Traffic Management IC
TP	Telegraph Pole
TSP	Tactile Paving Slabs
UG	Underground
UTL	Unable To Lift
Veg	Vegetation
VP	Vent Pipe
V	Valve
W	Wall
WE	Wood Edging
WM	Water Meter
WM	Water Meter
WMF	Wire Mesh Fence
WMM	Water Meter Marker
WO	Wash Out
WP	Wooden Post
WPR	Wooden Post & Rail Fence

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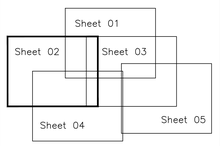

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THE SURVEY ASSOCIATION
LEWIS BROWN
Chartered Land Surveyors
RICS

Quattro House
Castle Road
Chelston Business Park
Wellington
TA21 9JQ

Tel. 01823 667200
Fax. 01823 663266
www.lewisbrown.co.uk
Email. survey@lewisbrown.co.uk

Lewis Brown Limited Registered in England No. 4100534

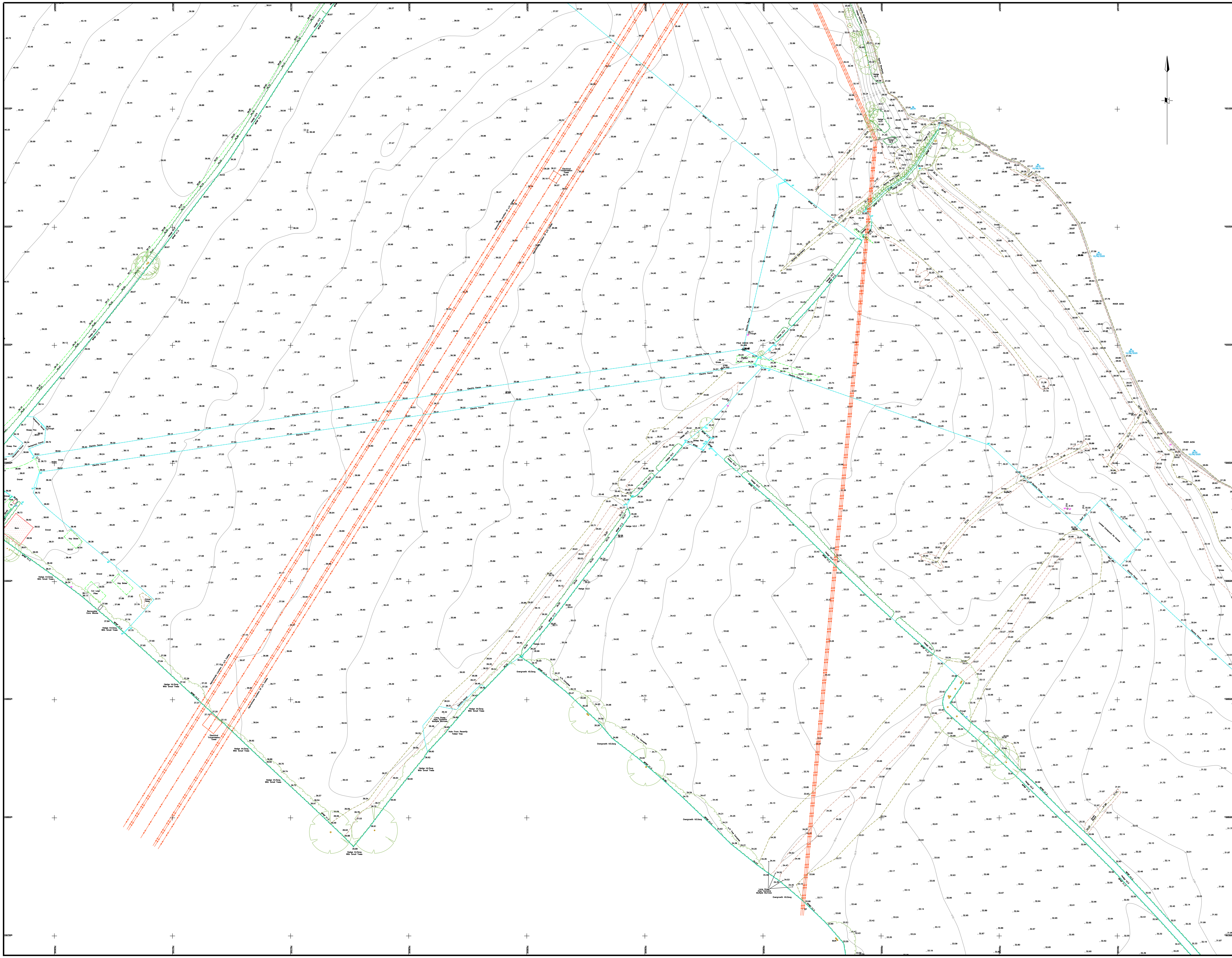
CLIENT:

WADDETON PARK LTD
GREENDALE COURT
CLYST ST MARY
EXETER
EX5 1AW

TITLE:

LAND AT BRADFORD ON AVON
BRADFORD ON AVON
BRISTOL
WILTSHIRE
TOPOGRAPHICAL SURVEY

Drawing Number: G25114_2DSX		Revision:
Scale: 1:500	Sheet: A0 2 of 5	Survey Date: June 2025
Drawn: AT/MA	Checked: RDJB	Project Number: G25114



LEVEL INFORMATION

Heights in Metres

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COORDINATE INFORMATION

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ABBREVIATIONS

General

(A)	Approximate	IL	Invert Level
AIF	Angle Iron Fence	IRF	Iron Rail Fence
(AR)	Assumed Route	IWF	Inter Woven Fence
Avg	Average	KO	Kerb Outlet
BD	Bollard	Ldr	Ladder
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Sheet 01
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Wellington
TA21 9JQ

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LAND AT BRADFORD ON AVON
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TOPOGRAPHICAL SURVEY

Drawing Number:		Revision:
G25114_2DSX		
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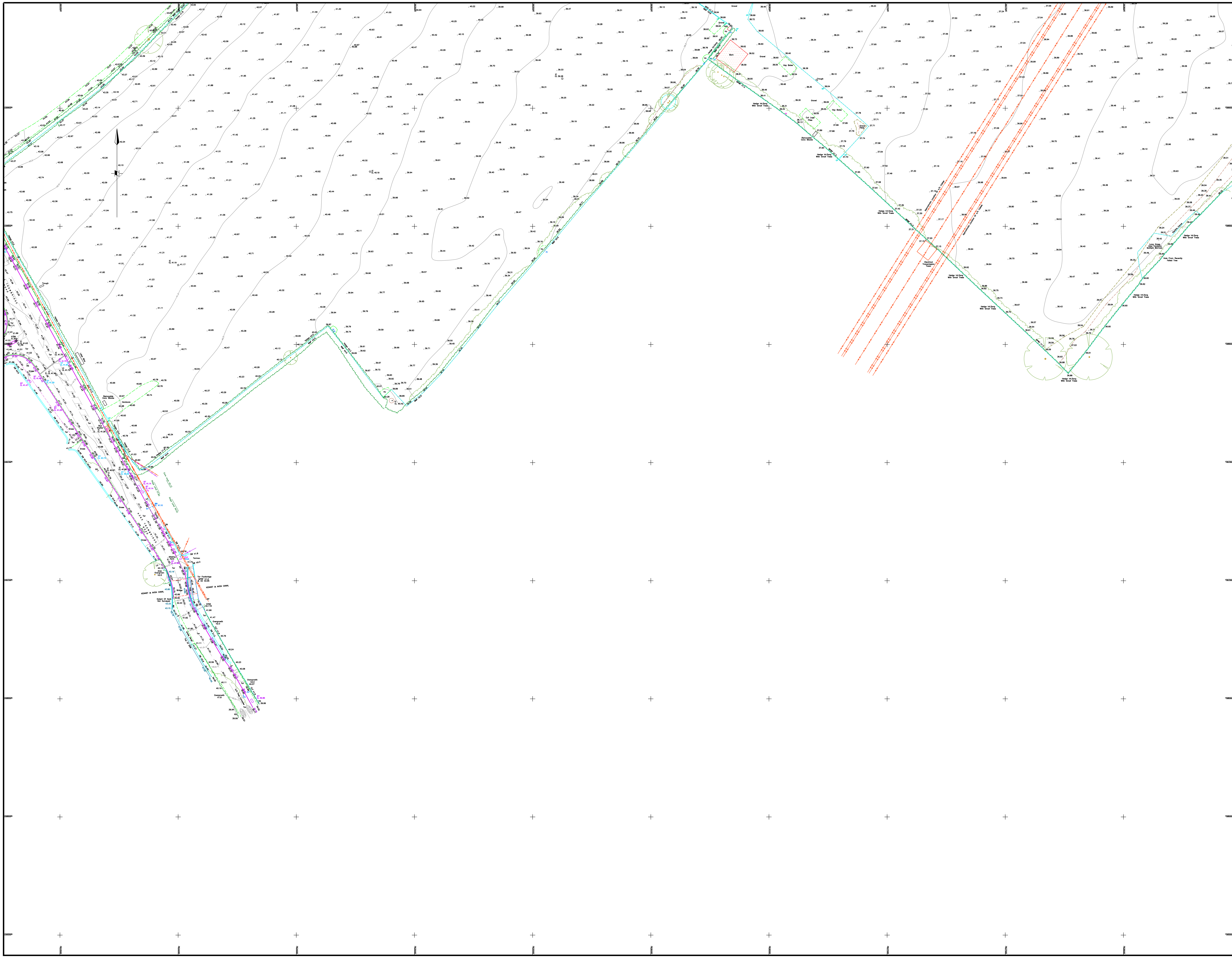
1:500	A0 3 of 5	June 2025
Drawn:	Checked:	Project Number:
AT/MA	RDJB	G25114



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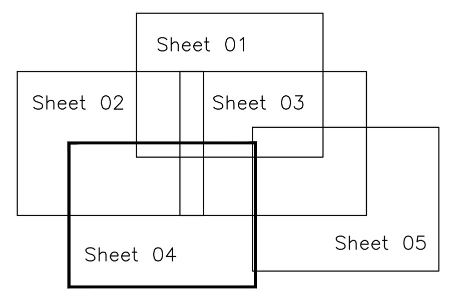

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GAT	Gate Post	W	Water
GMK	Gas Marker	WI	Well
GP	Gate Post	WE	Wood Edging
GR	Grass	WF	Wooden Fence
GV	Gas Valve	WM	Water Meter
GW	Guard Wire	WMF	Wire Mesh Fence
GY	Gully	WMK	Water Meter Marker
h	Height	WO	Wash Out
HL	Hardcore	WP	Wooden Post
SB	Shuttmetter Bollard	WPR	Wooden Post & Rail Fence
IC	Inspection Cover		

Station Abreviations

HN	Hilti Nail	PKN	Parker Kalon Nail
PGM	Permanent Ground Marker	WP	Wooden Peg

NOTES

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SCALE

Information has been gathered for the quoted scale.
Any enlargement should be verified on site.

DRAINAGE

Pipe sizes and connections are determined from surface level inspection and service records where available.

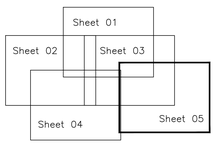
UNDERGROUND SERVICES

Any underground services shown on this survey are from information on service enquiries and tracing with Electrolocation equipment.
Some underground services may be undetectable, e.g. non-conductive pipes or cables and therefore NOT SHOWN.

CONTOURS

Any contours depicted on this drawing have been interpolated from surveyed points, levels and features.
The contour line positions have been generated by ground modelling software and are INDICATIVE only.

SHEET DIAGRAM



Rev.	Date	Amendments

THE SURVEY ASSOCIATION
LEWIS BROWN Chartered Land Surveyors
RICS

Quattro House
Castle Road
Chelston Business Park
Wellington
TA21 9JQ

Tel. 01823 667200
Fax. 01823 663266
www.lewisbrown.co.uk
Email. survey@lewisbrown.co.uk

Lewis Brown Limited Registered in England No. 4193534

CLIENT:

WADDETON PARK LTD
GREENDALE COURT
CLYST ST MARY
EXETER
EX5 1AW

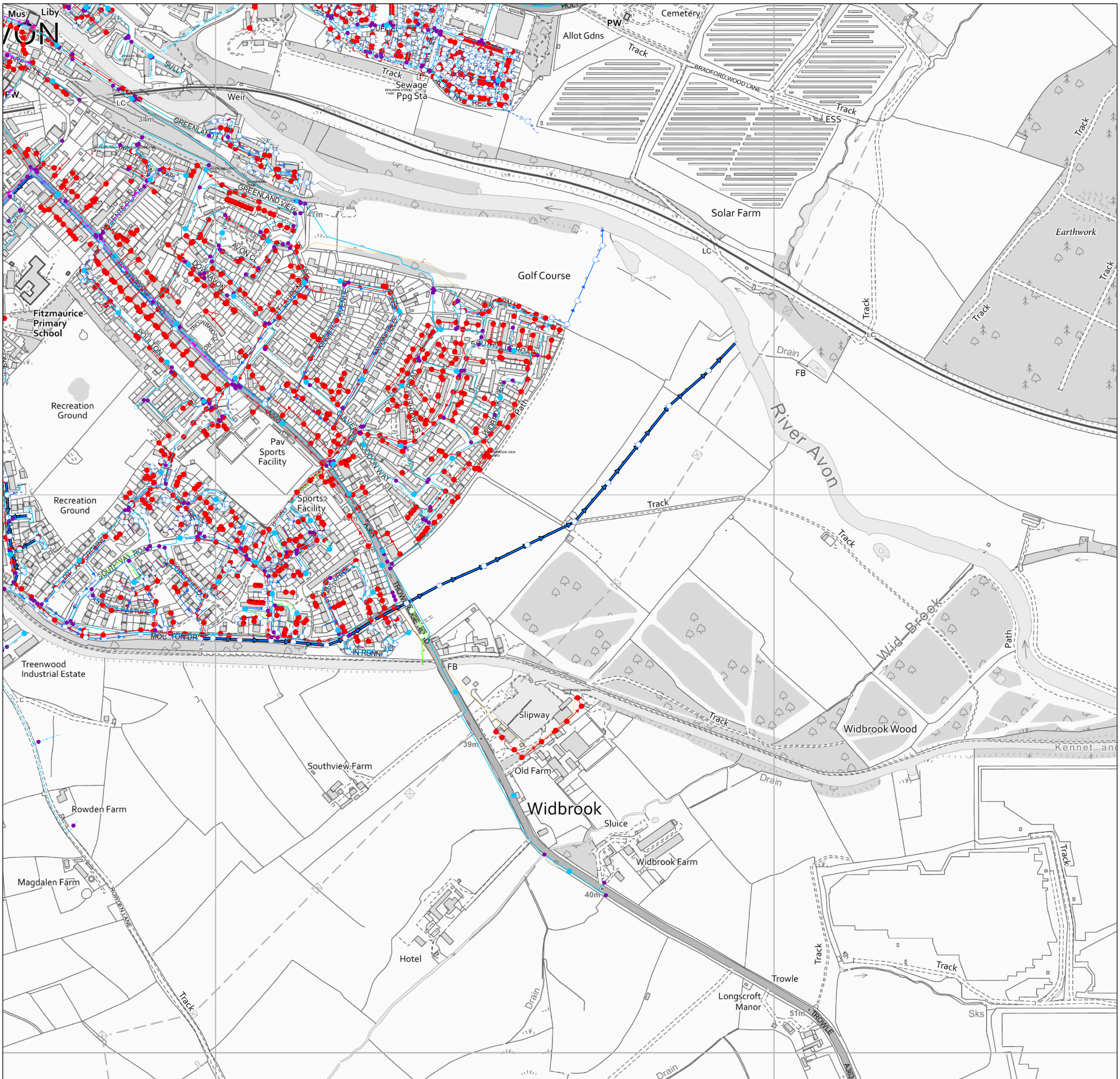
TITLE:

LAND AT BRADFORD ON AVON
BRADFORD ON AVON
BRISTOL
WILTSHIRE
TOPOGRAPHICAL SURVEY

Drawing Number:		Revision:
G25114_2DSX		
Scale:	Sheet:	Survey Date:
1:500	A0 5 of 5	June 2025
Drawn:	Checked:	Project Number:
AT/MA	RDJB	G25114

Appendix C Wessex Water Sewer Records

Wessex Water Web Map



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WATER MAINS

- Distribution
- Washout
- Raw Water
- Abandoned
- Private

FITTINGS

- Hydrant
- Other

SEWERS

	STRATEGIC	PUBLIC	PRIVATE	SECTION 104
Foul				
Surface				
Combined				
Abandoned				

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).
Some styles of line and symbol are shown on the key in sample/typical colours.

STRUCTURES

- Manhole - Foul
- Manhole - Surface
- Manhole - Combined
- Inlet
- Outfall
- Lamphole (LH)
- Bifurcation - Foul
- Bifurcation - Surface
- Bifurcation - Combined
- Combined Sewage Overflow (CSO)
- Pumping Station - Surface
- Pumping Stn - Foul/Combined
- Gully (G)
- Vent Column (VE)
- Rodding Eye (RE)
- Catchpit (CP)
- Flushing Chamber (FC)
- Soakaway (SK)
- Non Return Valve
- Air Valve
- Hatch Box (HB)
- Washout

OTHER WESSEX PIPES

- Rising Mains
- Standby Rising Mains
- Effluent Disposal (EDM)
- Overflow
- Syphon (S)

NON-WESSEX / UNKNOWN

- Private Rising Mains
- Culverted Watercourse (CW)
- Highway Drain (H)
- Use Unknown (?)
- Status Unknown (SU)

OTHER STRUCTURES

- Attenuation Tank
- Storage Tank
- Chamber
- Tunnel
- Interceptor

Wessex Water
YTL GROUP

Information in this map 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. If you are proposing to build over or near Wessex Water's apparatus you should contact the Developer Services Team, tel: 01225 526333 or e-mail: developer.enquiries@wessexwater.co.uk to discuss your proposals. Details of assets within Wessex Water's land ownership are unavailable through this service.

Date: 09/04/2025
Centre: 383617E, 159882N
Scale: 1:3,536
(when printed at A1 size)

N W E S

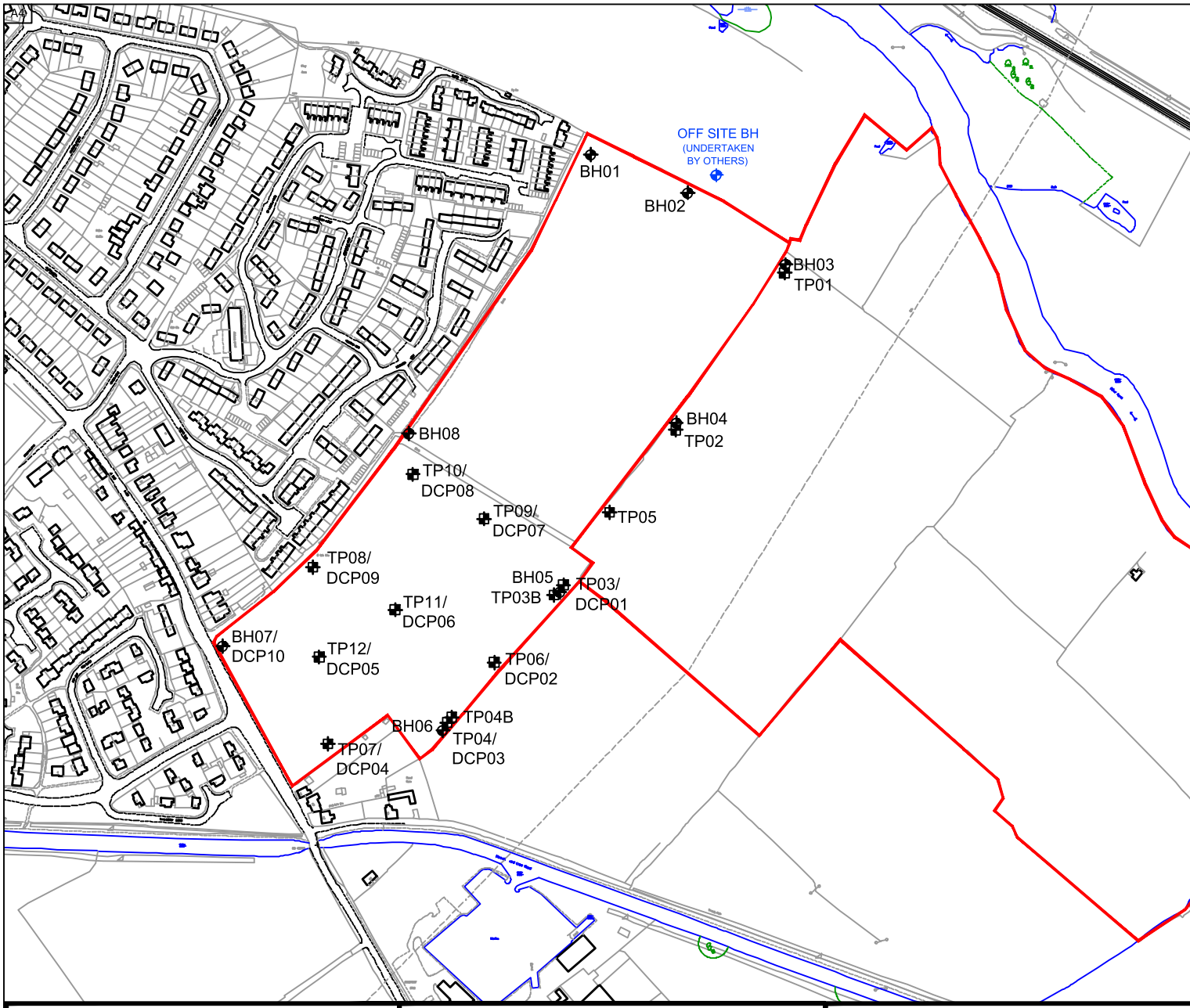
Appendix D Ground Investigation Extracts

Phase 2a Preliminary Ground Investigation

Land off Trowbridge Road, Bradford-on-Avon

Report: GCE01390/R2v2

March 2026



geoconsulting engineering ltd

Geo Consulting Engineering Ltd
Castle View Barns, Woodmanton,
Woodbury, Exeter, EX5 1HQ

T: 01395 239977
E: mail@geoconsultingeng.co.uk
W: www.geoconsultingeng.co.uk

Client:
Waddeton Park Limited

Job Title:
Trowbridge Road
Bradford-On-Avon

Dwg Title:
Exploratory Hole
Location Plan
(Existing Layout)

4.2 Ground Conditions

The following tables summarise the ground conditions observed across the southern field (Field 1), with locations presented roughly from east to west (low elevation to high elevation).

Table 4.2.1 – Ground Conditions (Field 1)

Stratum	BH05	TP03	TP03B	TP06	BH06
Topsoil/subsoil	GL-0.30	GL-0.50	GL-0.35	GL-0.45	GL-0.35
GRAVEL & COBBLES (wCF)	-	0.50-0.80	0.35-0.70	0.45-0.85	-
GRAVEL (wCF)	0.30-1.20	-	-	-	0.35-0.85
sandy, gravelly silty CLAY (wCF)	1.20-2.00	0.80-1.90	0.70-0.85	0.85-1.10	0.85-1.15
GRAVEL (wCF)	-	-	0.85-1.15+	1.10-1.70	1.15-2.00
sandy, gravelly silty CLAY (wCF)	-	-	-	1.70-1.90	-
LIMESTONE (CF)	2.00-3.20	1.90-2.15+	-	1.90-2.15+	2.00-3.50
silty CLAY (CF)	3.20-5.15+	-	-	-	3.50-5.00+
Groundwater	**NE**	**NE**	**NE**	**NE**	**NE**

Table 4.2.2 – Ground Conditions (Field 1)

Stratum	TP04	TP04B	TP07	TP12	TP11
Topsoil/subsoil	GL-0.45	GL-0.35	GL-0.25	GL-0.25	GL-0.30
GRAVEL & COBBLES (wCF)	-	0.35-0.70	0.25-0.40	0.25-0.65	0.30-0.70
GRAVEL (wCF)	0.45-1.05	-	-	-	-
sandy, gravelly silty CLAY (wCF)	1.05-1.25	0.70-1.00+	0.40-0.80	0.65-1.00	0.70-0.95
GRAVEL (wCF)	1.25-1.80	-	0.80-1.45	1.00-1.55	0.95-1.55
sandy, gravelly silty CLAY (wCF)	1.80-2.00	-	1.45-1.60	1.55-1.85	1.55-1.75
LIMESTONE (CF)	2.00-2.15+	-	1.60-1.70+	1.85-1.90+	1.75-1.80+
Groundwater	**NE**	**NE**	**NE**	**NE**	**NE**

Table 4.2.3 – Ground Conditions (Field 1)

Stratum	TP09	BH07	TP08	TP10
Topsoil/subsoil	GL-0.45	GL-0.40	GL-0.70	GL-0.30
GRAVEL & COBBLES (wCF)	0.45-0.90	-	0.70-1.20	-
sandy, gravelly silty CLAY (wCF)	0.90-1.10	0.40-2.05	1.20-1.50	0.30-0.55
GRAVEL (wCF)	1.10-1.60	-	1.50-1.95	0.55-1.10
sandy, gravelly silty CLAY (wCF)	1.60-1.95	-	1.95-2.10	1.10-1.40
LIMESTONE (CF)	1.95-2.00+	2.05-3.20	2.10-2.20+	1.40-1.45+
silty CLAY (CF)	-	3.20-5.00+	-	-
Groundwater	**NE**	**NE**	**NE**	**NE**

wCF = weathered Cornbrash Formation

CF = Cornbrash Formation

NE = Not Encountered

The following tables summarise the ground conditions observed across the northern field (Field 2), with locations presented roughly from north to south.

Table 4.2.4 – Ground Conditions (Field 2)

Stratum	BH01	BH02	BH03	TP01	BH04
Topsoil/subsoil	GL-0.40	GL-0.40	GL-0.60	GL-0.60	GL-0.40
(soft and firm) slightly sandy silty CLAY (Head)	0.40-4.75	0.40-4.60	-	-	-
slightly gravelly silty CLAY (wFMF)	4.75-5.70+	4.60-5.00+	-	-	-
GRAVEL & COBBLES (wCF)	-	-	0.60-0.90	0.60-1.40	0.40-1.00
GRAVEL (wCF)	-	-	0.90-3.00	1.40-2.55+	1.00-2.00
LIMESTONE (CF)	-	-	3.00-4.10	-	2.00-3.40
silty CLAY (CF)	-	-	4.10-4.50	-	3.40-5.00+
LIMESTONE (CF)	-	-	4.50-5.00+	-	-
Groundwater	**NE**	**NE**	**NE**	**NE**	**NE**

Table 4.2.5 – Ground Conditions (Field 2)

Stratum	TP02	TP05	BH08
Topsoil/subsoil	GL-0.40	GL-0.35	GL-0.25
GRAVEL & COBBLES (wCF)	0.40-0.75	0.35-0.65	-
sandy, gravelly silty CLAY (wCF)	0.75-1.05	0.65-0.95	0.25-1.00
GRAVEL (wCF)	1.05-1.70	0.95-1.90	-
sandy, gravelly silty CLAY (wCF)	1.70-2.05	-	-
LIMESTONE (CF)	2.05-2.15+	1.90-2.00+	1.00-3.80
silty CLAY (CF)	-	-	3.80-5.00+
Groundwater	**NE**	**NE**	**NE**

wFMF = weathered Forest Marble Formation

wCF = weathered Cornbrash Formation

CF = Cornbrash Formation

NE = Not Encountered

The following table present the groundwater depth in metres below ground level (mbgl):

Table 4.3.3 – Groundwater Monitoring Results in mbgl

Borehole	16/06/2025*	17/06/2025*	18/06/2025*	26/06/2025	21/07/2025	03/09/2025	25/09/2025	30/10
BH01	Dry (>5.23)	Dry (>5.23)	Dry (>5.23)	Dry (>5.23)	Dry (>5.23)	Dry (>5.23)	Dry (>5.23)	Dry (>
BH02	Dry (>4.94)	Dry (>4.94)	Dry (>4.94)	Dry (>4.94)	Dry (>4.94)	4.20	Dry (>4.94)	Dry (>
BH03	Dry (>4.88)	-	Dry (>4.88)	4.53	3.69	3.77	3.75	3.
BH04	2.74	2.73	2.74	2.79	2.80	2.78	2.78	2.
BH05	-	Dry (>5.15)	Dry (>5.15)	Dry (>5.15)	4.92	4.40	4.17	3.
BH06	3.45	2.63	1.93	1.91	2.05	2.31	2.21	2.
BH07	-	2.06	2.09	2.27	2.27	2.39	2.10	1.
BH08	Dry (>4.70)	Dry (>4.70)	Dry (>4.70)	Dry (>4.70)	4.42	3.84	3.15	2.
Off-Site BH	-	-	Dry (>2.19)	Dry (>2.19)	Dry (>2.19)	Dry (>2.19)	Dry (>2.19)	Dry (>

**Measured during the infiltration testing.*

Borehole	11/12/2025	30/12/2025	08/01/2026	30/01/2026	12/02/2026	24/02/2026
BH01	Dry (>5.23)	Dry (>5.23)	Dry (>5.23)	Dry (>5.23)	Dry (>5.23)	Dry (>5.23)
BH02	3.88	4.21	4.66	3.76	3.58	3.90
BH03	3.28	3.64	4.47	3.63	3.62	3.63
BH04	2.18	2.57	3.59	1.29	0.87	2.45
BH05	3.28	1.63	2.58	1.08	0.63	1.28
BH06	1.65	0.95	2.15	0.50	0.25	0.72
BH07	0.84	1.38	1.82	0.99	1.42	1.20
BH08	1.67	2.27	3.28	1.81	1.63	2.01
Off-Site BH	Dry (>2.19)	Dry (>2.19)	Dry (>2.19)	Dry (>2.19)	Dry (>2.19)	Dry (>2.19)

The groundwater monitoring completed to date has shown relatively stable levels during the summer months of 2025 with levels typically starting to rise around November. Two groundwater peak events have been measured so far, one in December, typically on the 11th December 2025 visit and one in February 2026, typically on the 12th February 2026 visit. Groundwater depths above 1m have been measured in BH04, BH05, BH06 and BH07. Some pairs of boreholes appear closely linked in terms of timing and magnitude of groundwater rise and fall between visits, they are; BH07 and BH08, BH02 and BH03, BH05 and BH06.

4.4 Ground Gas Monitoring

Ground gas is present on all sites, the composition would normally be similar to atmospheric however, decomposition of organics can result in production of CO_2 in aerobic and CH_4 in anaerobic conditions. Previous industrial processes may result in VOCs.

Potential gas risk was identified as a result of the off-site landfill to the north-west of the proposed development area. A borehole, labelled “Off Site BH” on the proposed exploratory hole plans, was found over the northern boundary of Field 2 within the disused golf course site, and in very close proximity to the edge of the historical landfill. This borehole has been ground gas monitored alongside BH01, BH02 and BH03 which are located along the northern boundary of the site and therefore the closest locations to the landfill. Thirteen visits have been undertaken between June 2025 and February 2026. After two visits the off-site borehole in the disused golf course was damaged and no more ground gas monitoring could be undertaken in it.

Ground gas monitoring data for bulk gas composition is compared with typical threshold values of 1% for methane and 5% for carbon dioxide to provide a preliminary screen of the data. The following is noted after thirteen visits:

6.6 Buried Concrete

The pH and water-soluble sulphate results indicate that buried concrete can be designed in accordance with design sulphate class DS-1 ACEC class AC-1 of BRE Special Digest 1(2005), assuming mobile groundwater conditions.

Where the oxidisable sulphides exceed 0.3% and thereby the potential for pyrite exists, the total potential sulphate will dictate the design sulphate class in disturbed ground. Disturbed ground is defined by the BRE as:

"This is, initially, natural ground that is substantially disturbed; for example, by cutting and filling to terrace a site, or by excavation and backfilling, so that air can enter and oxidise any pyrite contained therein."

6.7 Infiltration Testing

Large-scale infiltration testing was carried out in TP01, TP02, TP03, TP03B, TP04 and TP04B. The following table summarises the results of the testing:

Table 6.7.1 – Infiltration Test Results

Location	Test Range (mbgl)	Test Range Strata	Infiltration Rate (ms^{-1})		
			Test 1	Test 2	Test 3
TP01	0.79-2.55	0.79-1.40m Gravel & cobbles (wCF) 1.65-2.55m Gravel (wCF)	$1.77x10^{-5}$	$9.03x10^{-6}$	$1.26x10^{-5}$
TP02	1.00-2.15	1.00-1.05m Gravelly clay (wCF) 1.05-1.70m Gravel (wCF) 1.70-2.05m Gravelly clay (wCF) 2.05-2.15m Limestone (CF)	$2.91x10^{-6}$	$3.04x10^{-6}$	$3.09x10^{-6}$
TP03	1.00-2.15	1.00-1.90m Gravelly clay (wCF) 1.90-2.15m Limestone (CF)	-*	-	-
TP03B	0.33-1.15	0.35-0.70m Gravel & cobbles (wCF) 0.70-0.85m Gravelly clay (wCF) 0.85-1.15m Gravel (wCF)	$4.99x10^{-5}$	$4.01x10^{-5}$	$3.84x10^{-5}$
TP04	1.01-2.15	1.05-1.25m Gravelly clay (wCF) 1.25-1.80m Gravel (wCF) 1.80-2.00m Gravelly clay (wCF) 2.00-2.15m Limestone (CF)	-*	-	-
TP04B	0.30-1.00	0.35-0.70m Gravel (wCF) 0.70-1.00m Gravelly clay (wCF)	$2.41x10^{-5}$	$3.52x10^{-5}$	$3.28x10^{-5}$

**Test did not reach 25% effective depth required to calculate an infiltration rate.*

The above results should be used by the appointed drainage engineer taking into account the recommendations of CIRIA C753 and BRE365 in relation to risks associated with infiltration of water into the ground and subsequent changes of stress resulting in unintended consequences. For example, potential hazards include but are not limited to:

- Slope instability
- Retaining wall instability
- Contaminant mobilisation (creation of new pollutant linkages)
- Groundwater/ sub-surface water levels and seasonal variation
- Internal erosion/ washout and undermining of foundations
- Down-gradient flooding
- Re-activation washout of choked dissolution features
- Volume change shrink and swell

6.8 Road Pavement Design

The sub-grade CBR is normally used to select the minimum capping thickness for road foundation construction. Testing is confined to the near surface soils and the preliminary sub-grade CBR is based on the soils below the topsoil, organic rich layers, soft spots or Made Ground. It is assumed that the topsoil, organic rich layers, soft spots and Made Ground will be removed. The removal of this may increase the thickness of capping required to make up the finished road level, which is not known at the time of this investigation.

The Specification for Highway Works provides guidance on the methods normally adopted for road construction. Useful details may be found in, but not limited to, Series 200 Site Clearance details the requirements for clearance of the site and removal of existing trees, hedges and bushes; Series 500 Drainage and Service Ducts provides details for drainage excavation, backfilling and land drains; Series 600 Earthworks identifies unacceptable materials and provides details for sub-formation capping materials and prohibits the use of the sub-formation and formation for construction traffic without appropriate protection in addition to weather protection.

Trial Pit Log

TrialPit No: TP01
Sheet 1 of 1

Project Name:	Land off Trowbridge Road	Project No. GCE01390	Co-ords: 383799.99 - 160181.08 Level: 38.88
Location:	Bradford on Avon, Wiltshire	Dimensions (m): 2.70 × 0.65	Date: 16/06/2025
Client:	Waddeton Park Ltd	Depth 2.55	Scale: 1:20 Logged: SK

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	JG		0.15	38.72		Grass over brown slightly sandy slightly gravelly silty clay, with numerous rootlets and occasional roots.
							Stiff, brown, sandy, slightly gravelly, silty CLAY, with occasional rootlets and roots.
				0.60	38.28		Brown and light grey, slightly clayey/silty, slightly sandy, GRAVEL & COBBLES. Gravel is fine to coarse, gravel and cobbles are subangular limestone.
	0.90	JP					
	1.20	JP					
				1.40	37.48		Light greyish brown and light brown occasionally orangish brown, clayey/silty, sandy, GRAVEL, locally gravelly silty clay. Gravel is fine to coarse subangular fossiliferous limestone.
	1.50	JP		1.65	37.22		Light greyish brown, clayey/silty, sandy, GRAVEL, with a low cobble content. Gravel is fine to coarse, gravel and cobbles are subangular fossiliferous limestone.
	1.90	JP					
	2.45	JP					
				2.55	36.33		End of Pit at 2.55m

1
2
3
4

Remarks: No groundwater encountered during excavation. Large scale infiltration test undertaken in pit. Pit backfilled with arisings upon completion.

Stability: Slight overbreak to 1.4m.

Trial Pit Log

TrialPit No: TP02
Sheet 1 of 1

Project Name:	Land off Trowbridge Road	Project No. GCE01390	Co-ords: 383707.94 - 160048.23 Level: 38.76
Location:	Bradford on Avon, Wiltshire	Dimensions (m): Depth 2.15	3.00 × 0.65
Client:	Waddeton Park Ltd		

Date: 16/06/2025
Scale: 1:20
Logged: SK

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.15	38.61		Grass over brown slightly sandy slightly gravelly silty clay, with numerous rootlets.
	0.20	JG					Stiff, brown, slightly sandy, gravelly, silty CLAY, with occasional rootlets.
				0.40	38.36		Brown and light grey, slightly clayey/silty, slightly sandy, GRAVEL & COBBLES. Gravel is fine to coarse, gravel and cobbles are subangular limestone.
	0.60	JP					
				0.75	38.01		Stiff, light brown, sandy, gravelly, silty CLAY. Gravel is fine to medium subangular fossiliferous limestone.
	0.90	JP					
	0.90	HSV	HSV=138kPa				
	0.95	HSV	HSV=138kPa				
				1.05	37.71		Light greyish brown, clayey/silty, sandy, GRAVEL. Gravel is fine to medium subangular fossiliferous limestone.
	1.20	JP					
				1.70	37.06		Stiff, light greyish brown occasionally orangish brown and light brown, sandy, gravelly, silty CLAY. Gravel is fine to medium subangular fossiliferous limestone.
	1.80	JP					
	1.80	PP	PP=175				
	1.90	PP	PP=225				
				2.05	36.71		Medium strong, light greyish brown, LIMESTONE. Horizontal bed. Hard strata. Recovered as slightly clayey/ silty, slightly sandy, gravel & cobbles.
	2.10	JP		2.15	36.61		End of Pit at 2.15m

1
2
3
4

Remarks: No groundwater encountered during excavation. Trial pit terminated at 2.15m due to hard strata at base. Large scale infiltration test undertaken in pit. Pit backfilled with arisings upon completion.

Stability: Slight overbreak to 0.75m.

Trial Pit Log

TrialPit No: TP03
Sheet 1 of 1

Project Name: Land off Trowbridge Road	Project No. GCE01390	Co-ords: 383613.14 - 159916.80 Level: 39.10	Date 16/06/2025
Location: Bradford on Avon, Wiltshire		Dimensions (m): 2.40 x 0.65 Depth 2.15	Scale 1:20
Client: Waddeton Park Ltd			Logged SK

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.15	38.95		Grass over dark brown slightly sandy slightly gravelly silty clay, with numerous rootlets and occasional roots.
							Stiff, brown, slightly sandy, very gravelly, silty CLAY, with occasional rootlets and roots.
				0.50	38.60		Brown and light grey, clayey/silty, slightly sandy, GRAVEL & COBBLES. Gravel is fine to coarse, gravel and cobbles are subangular limestone.
	0.70	JG		0.80	38.30		Stiff, light brown and light greyish brown, slightly sandy, very gravelly, silty CLAY, locally gravel. Gravel is fine to coarse subangular fossiliferous limestone.
	0.90	JP					
	1.30	JP					
				1.50	37.60		Stiff, light greyish brown, sandy, gravelly, silty CLAY. Gravel is fine to medium subangular fossiliferous limestone.
	1.70	JP					
				1.90	37.20		Medium strong, light greyish brown, LIMESTONE. Horizontal bed. Hard strata. Recovered as slightly clayey/ silty, slightly sandy, gravel & cobbles.
	2.00	JP					
				2.15	36.95		End of Pit at 2.15m

Remarks: No groundwater encountered during excavation. Trial pit terminated at 2.15m due to hard strata at base. Large scale infiltration test undertaken in pit. Pit backfilled with arisings upon completion.

Stability: Slight overbreak to 0.8m.

Trial Pit Log

TrialPit No: TP03B
Sheet 1 of 1

Project Name:	Land off Trowbridge Road	Project No. GCE01390	Co-ords: 383605.46 - 159908.61 Level: 39.10
Location:	Bradford on Avon, Wiltshire	Dimensions (m): Depth 1.15	1.60 × 0.65
Client:	Waddeton Park Ltd		

Date: 16/06/2025
Scale: 1:20
Logged: SK

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.15	38.95		Grass over dark brown slightly sandy slightly gravelly silty clay, with numerous rootlets and occasional roots.
				0.35	38.75		Stiff, brown, slightly sandy, very gravelly, silty CLAY, with occasional rootlets and roots.
				0.70	38.40		Brown and light grey, clayey/silty, slightly sandy GRAVEL, with a low cobble content. Gravel is fine to coarse, gravel and cobbles are subangular limestone.
				0.85	38.25		Stiff, light brown and light greyish brown, sandy, gravelly, silty CLAY. Gravel is fine to coarse subangular fossiliferous limestone.
				1.15	37.95		Light greyish brown, clayey/silty, sandy GRAVEL. Gravel is fine to medium occasionally coarse subangular fossiliferous limestone.
							End of Pit at 1.15m

Remarks: No groundwater encountered during excavation. Trial pit terminated at 1.15m due to shallow infiltration testing. Large scale infiltration test undertaken in pit. Pit backfilled with arisings upon completion.

Stability: Slight overbreak

Trial Pit Log

TrialPit No: TP04
Sheet 1 of 1

Project Name:	Land off Trowbridge Road	Project No. GCE01390	Co-ords: 383515.09 - 159801.06 Level: 39.40
Location:	Bradford on Avon, Wiltshire	Dimensions (m): Depth 2.15	2.80 × 0.65
Client:	Waddeton Park Ltd		

Date: 16/06/2025
Scale: 1:20
Logged: SK

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	JG		0.20	39.20		Grass over brown slightly sandy slightly gravelly silty clay, with numerous rootlets and roots.
				0.45	38.94		Stiff, brown, slightly sandy, gravelly, silty CLAY, with occasional rootlets and roots.
	0.70	JP					Light brown, clayey/silty, sandy, GRAVEL. Gravel is fine to coarse subangular fossiliferous limestone.
	1.00	JP		1.05	38.34		
	1.15	PP	PP=175				Stiff, light brown occasionally light grey and orangish brown, sandy, slightly gravelly, silty CLAY. Gravel is fine to medium subangular fossiliferous limestone.
	1.20	JP		1.25	38.15		Light brown, clayey/silty, sandy, GRAVEL. Gravel is fine to coarse subangular fossiliferous limestone.
	1.70	JP		1.80	37.60		Stiff, light greyish brown, sandy, gravelly, silty CLAY. Gravel is fine to medium subangular fossiliferous limestone.
	1.90	JP		2.00	37.40		Medium strong, light greyish brown, LIMESTONE. Horizontal bed. Hard strata. Recovered as slightly clayey/ silty, slightly sandy, gravel & cobbles.
	2.10	JP		2.15	37.24		End of Pit at 2.15m

Remarks: No groundwater encountered during excavation. Trial pit terminated at 2.15m due to hard strata at base. Large scale infiltration test undertaken in pit. Pit backfilled with arisings upon completion.

Stability: Slight overbreak throughout.

Trial Pit Log

			TrialPit No TP04B Sheet 1 of 1
Project Name: Land off Trowbridge Road	Project No. GCE01390	Co-ords: 383518.40 - 159804.84 Level: 39.41	Date 16/06/2025
Location: Bradford on Avon, Wiltshire		Dimensions (m): 1.60 × 0.65 Depth 1.00	Scale 1:20
Client: Waddeton Park Ltd			Logged SK

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							Grass over brown slightly sandy slightly gravelly silty clay, with numerous rootlets and roots.
				0.20	39.21		Stiff, brown, slightly sandy, gravelly, silty CLAY, with occasional rootlets and roots.
				0.35	39.06		Brown and light grey, slightly clayey/silty, slightly sandy, GRAVEL, with a low cobble content. Gravel is fine to coarse, gravel and cobbles are subangular fossiliferous limestone.
				0.70	38.71		Stiff, light brown occasionally orangish brown, sandy, gravelly, silty CLAY. Gravel is fine to medium subangular fossiliferous limestone.
				1.00	38.41		End of Pit at 1.00m

Remarks: No groundwater encountered during excavation. Trial pit terminated at 1.0m due to shallow infiltration testing. Large scale infiltration test undertaken in pit. Pit backfilled with arisings upon completion.

Stability: Slight overbreak

Trial Pit Log

			TrialPit No TP05 Sheet 1 of 1
Project Name: Land off Trowbridge Road	Project No. GCE01390	Co-ords: 383652.06 - 159978.28 Level: 38.89	Date 16/06/2025
Location: Bradford on Avon, Wiltshire		Dimensions (m): 2.40 × 0.65 Depth 2.00	Scale 1:20
Client: Waddeton Park Ltd			Logged SK

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.15	38.74		Grass over brown slightly sandy slightly gravelly silty clay, with numerous rootlets and occasional roots.
				0.35	38.54		Stiff, brown, slightly sandy, slightly gravelly, silty CLAY, with occasional rootlets and roots.
	0.50	JP					Brown and light grey, slightly clayey/silty, slightly sandy, GRAVEL & COBBLES. Gravel is fine to coarse, gravel and cobbles are subangular limestone.
	0.70	PP	PP=150	0.65	38.24		Stiff, light greyish brown occasionally orangish brown and light brown, slightly sandy, gravelly, silty CLAY. Gravel is fine to medium subangular fossiliferous limestone.
	0.75	PP	PP=125				
	0.80	JG					
	0.80	JP					
				0.95	37.94		Light greyish brown, clayey/silty, slightly sandy GRAVEL, locally gravelly silty clay. Gravel is fine to medium subangular fossiliferous limestone.
	1.30	JP					
	1.80	JP					
				1.90	36.99		
	1.95	JP					Medium strong, light greyish brown, LIMESTONE. Horizontal bed. Hard strata. Recovered as slightly clayey/ silty, slightly sandy, gravel & cobbles.
				2.00	36.89		End of Pit at 2.00m

Remarks: No groundwater encountered during excavation. Trial pit terminated at 2.0m due to hard strata at base. Pit backfilled with arisings upon completion.

Stability: Slight overbreak to 0.65m.

Trial Pit Log

TrialPit No: TP06
Sheet 1 of 1

Project Name:	Land off Trowbridge Road	Project No. GCE01390	Co-ords: 383554.69 - 159851.64 Level: 39.17
Location:	Bradford on Avon, Wiltshire	Dimensions (m): Depth 2.15	2.20 × 0.65
Client:	Waddeton Park Ltd		

Date: 16/06/2025
Scale: 1:20
Logged: SK

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.15	39.02		Grass over brown slightly sandy slightly gravelly silty clay, with numerous rootlets and occasional roots.
	0.40	JG		0.45	38.72		Stiff, brown, slightly sandy, gravelly, silty CLAY, with occasional rootlets and roots. Gravel is fine to medium subangular limestone.
	0.70	B					Brown and light grey, slightly clayey/silty, slightly sandy, GRAVEL & COBBLES. Gravel is fine to coarse, gravel and cobbles are subangular limestone. Occasional rootlets.
	0.90	JP		0.85	38.32		Stiff, light brown occasionally orangish brown and light greyish brown, sandy, gravelly, silty CLAY. Gravel is fine to medium subangular fossiliferous limestone.
	1.30	JP		1.10	38.07		Light greyish brown, clayey/silty, sandy GRAVEL. Gravel is fine to medium subangular fossiliferous limestone.
	1.80	JP		1.70	37.47		Stiff, light greyish brown, sandy, gravelly, silty CLAY. Gravel is fine to medium subangular fossiliferous limestone.
	2.00	JP		1.90	37.27		Medium strong, light greyish brown, LIMESTONE. Horizontal bed. Hard strata. Recovered as slightly clayey/ silty, slightly sandy, gravel & cobbles.
				2.15	37.02		End of Pit at 2.15m

Remarks: No groundwater encountered during excavation. Trial pit terminated at 2.15m due to hard strata at base. Pit backfilled with arisings upon completion.

Stability: Slight overbreak to 0.85m.

Trial Pit Log

TrialPit No: TP07
Sheet 1 of 1

Project Name:	Land off Trowbridge Road	Project No. GCE01390	Co-ords: 383414.22 - 159783.13 Level: 40.38
Location:	Bradford on Avon, Wiltshire	Dimensions (m): 2.40 x 0.65 Depth 1.70	Date 16/06/2025 Scale 1:20
Client:	Waddeton Park Ltd		Logged SK

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	JG		0.25	40.13		Grass over dark brown slightly sandy slightly gravelly silty clay, with numerous rootlets.
				0.40	39.98		Brown and light grey, slightly clayey/silty, slightly sandy, GRAVEL & COBBLES. Gravel is fine to coarse, gravel and cobbles are subangular limestone. Occasional rootlets.
	0.60	JP					Stiff, light brown and light greyish brown occasionally orangish brown, sandy, gravelly, silty CLAY. Gravel is fine to medium subangular fossiliferous limestone.
	0.60	HSV	HSV=118kPa				
				0.80	39.58		Light greyish brown, clayey/silty, sandy GRAVEL. Gravel is fine to coarse subangular fossiliferous limestone.
	0.90	JP					
	1.10	B					
	1.20	JP					
				1.45	38.93		Stiff, light greyish brown, sandy, gravelly, silty CLAY. Gravel is fine to medium subangular fossiliferous limestone.
	1.50	JP					
	1.50	PP	PP=100				
	1.55	PP	PP=100	1.60	38.78		Medium strong, light greyish brown, LIMESTONE. Horizontal bed. Hard strata. Recovered as slightly clayey/ silty, slightly sandy, gravel & cobbles.
	1.65	JP		1.70	38.68		End of Pit at 1.70m

Remarks: No groundwater encountered during excavation. Trial pit terminated at 1.70m due to hard strata at base. Pit backfilled with arisings upon completion.

Stability: Slight overbreak to 0.4m.

Trial Pit Log

			TrialPit No TP08 Sheet 1 of 1
Project Name: Land off Trowbridge Road	Project No. GCE01390	Co-ords: 383401.47 - 159932.13 Level: 42.98	Date 16/06/2025
Location: Bradford on Avon, Wiltshire		Dimensions (m): 2.10 x 0.65 Depth 2.20	Scale 1:20
Client: Waddeton Park Ltd			Logged SK

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
							Grass over brown slightly sandy slightly gravelly silty clay, with numerous rootlets.
				0.25	42.73		Stiff, brown, slightly sandy, gravelly, silty CLAY, with occasional rootlets. Gravel is fine to coarse subangular limestone.
	0.50	JG					
				0.70	42.28		Brown and light grey, slightly clayey/silty, slightly sandy, GRAVEL & COBBLES. Gravel is fine to coarse, gravel and cobbles are subangular limestone.
	0.80	JP					
				1.20	41.78		Stiff, light brown and light greyish brown occasionally orangish brown, sandy, gravelly, silty CLAY. Gravel is fine to medium subangular fossiliferous limestone.
	1.30	JP					
	1.30	PP	PP=140				
	1.40	PP	PP=150				
				1.50	41.48		Light greyish brown, clayey/silty, sandy GRAVEL. Gravel is fine to medium occasionally coarse subangular fossiliferous limestone.
	1.60	JP					
				1.95	41.03		Stiff, light greyish brown, sandy, gravelly, silty CLAY. Gravel is fine to medium subangular fossiliferous limestone.
	2.00	JP					
	2.00	PP	PP=125				
	2.05	PP	PP=100				
				2.10	40.88		Medium strong, light greyish brown, LIMESTONE. Horizontal bed. Hard strata. Recovered as slightly clayey/ silty, slightly sandy, gravel & cobbles.
				2.20	40.78		End of Pit at 2.20m

Remarks: No groundwater encountered during excavation. Trial pit terminated at 2.20m due to hard strata at base. Pit backfilled with arisings upon completion.

Stability: Slight overbreak 0.7-1.2m.

Trial Pit Log

TrialPit No: TP09
Sheet 1 of 1

Project Name:	Land off Trowbridge Road	Project No. GCE01390	Co-ords: 383545.98 - 159972.88 Level: 40.09
Date	19/06/2025		
Location:	Bradford on Avon, Wiltshire	Dimensions (m): Depth 2.00	1.90 × 0.65
Scale	1:20		
Client:	Waddeton Park Ltd		
Logged	SK		

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							Grass over brown slightly sandy slightly gravelly silty clay, with numerous rootlets.
				0.25	39.84		Stiff, brown, slightly sandy, gravelly, silty CLAY, with occasional rootlets.
				0.45	39.64		Brown and light grey, slightly clayey/silty, slightly sandy, GRAVEL & COBBLES. Gravel is fine to coarse, gravel and cobbles are subangular limestone. Relic horizontal structure.
	0.60	JP					
	0.95	PP	PP=210	0.90	39.19		Stiff, light brown and light greyish brown occasionally orangish brown, sandy, gravelly, silty CLAY. Gravel is fine to medium subangular fossiliferous limestone.
	1.00	JP					
	1.00	PP	PP=125				
	1.05	PP	PP=150	1.10	38.99		Light greyish brown, clayey/silty, sandy GRAVEL. Gravel is fine to medium subangular fossiliferous limestone.
	1.30	JP					
				1.60	38.49		Stiff, light greyish brown occasionally light grey, sandy, gravelly, silty CLAY. Gravel is fine to medium subangular fossiliferous limestone.
	1.70	JP					
	1.70	PP	PP=175				
	1.75	PP	PP=150				
	1.80	PP	PP=110				
	1.85	PP	PP=110				
				1.95	38.14		Medium strong, light greyish brown, LIMESTONE. Horizontal bed. Hard strata. Recovered as slightly clayey/ silty, slightly sandy, gravel & cobbles.
	2.00	JP		2.00	38.09		End of Pit at 2.00m

Remarks: No groundwater encountered during excavation. Trial pit terminated at 2.00m due to hard strata at base. Pit backfilled with arisings upon completion.

Stability: Slight overbreak to 0.9m.

Trial Pit Log

			TrialPit No TP10 Sheet 1 of 1
Project Name: Land off Trowbridge Road	Project No. GCE01390	Co-ords: 383486.14 - 160010.68 Level: 41.77	Date 19/06/2025
Location: Bradford on Avon, Wiltshire		Dimensions (m): 2.20 x 0.65 Depth 1.45	Scale 1:20
Client: Waddeton Park Ltd			Logged SK

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.10	41.67		Grass over brown slightly sandy slightly gravelly silty clay, with numerous rootlets.
							Brown, clayey/silty, sandy GRAVEL, with occasional rootlets. Gravel is fine to medium subangular limestone.
				0.30	41.47		
	0.40	JP					Stiff, light brown and light greyish brown occasionally orangish brown, slightly sandy, gravelly, silty CLAY. Gravel is fine to medium subangular fossiliferous limestone.
	0.40	PP	PP=225				
	0.50	PP	PP=225				
				0.55	41.22		Light greyish brown, slightly clayey/silty, slightly sandy GRAVEL, with a low cobble content. Gravel is fine to coarse, gravel and cobbles are subangular fossiliferous limestone.
	0.70	JP					
				0.80	40.97		Light greyish brown, clayey/silty, sandy GRAVEL. Gravel is fine to medium subangular fossiliferous limestone.
	0.90	JP					
				1.10	40.67		Stiff, light greyish brown occasionally light grey, sandy, gravelly, silty CLAY. Gravel is fine to medium subangular fossiliferous limestone.
	1.20	PP	PP=110				
	1.25	PP	PP=125				
	1.30	JP					
	1.30	PP	PP=165				
				1.40	40.37		Medium strong, light greyish brown, LIMESTONE. Horizontal bed. Hard strata. Recovered as slightly clayey/ silty, slightly sandy, gravel & cobbles.
				1.45	40.32		End of Pit at 1.45m

Remarks: No groundwater encountered during excavation. Trial pit terminated at 1.45m due to hard strata at base. Pit backfilled with arisings upon completion.

Stability: Stable.

Trial Pit Log

TrialPit No: TP11
Sheet 1 of 1

Project Name: Land off Trowbridge Road	Project No. GCE01390	Co-ords: 383471.19 - 159896.16 Level: 40.60	Date 19/06/2025
Location: Bradford on Avon, Wiltshire		Dimensions (m): 2.20 x 0.65 Depth 1.80	Scale 1:20
Client: Waddeton Park Ltd			Logged SK

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.10	40.50		Grass over brown slightly sandy slightly gravelly silty clay, with numerous rootlets.
				0.30	40.30		Stiff, brown, slightly sandy, gravelly, silty CLAY, with occasional rootlets.
	0.60	JP					Brown and light grey, slightly clayey/silty, slightly sandy, GRAVEL & COBBLES. Gravel is fine to coarse, gravel and cobbles are subangular limestone.
	0.75	JP		0.70	39.90		
	0.80	PP	PP=225				Stiff, light brown and light greyish brown occasionally orangish brown, sandy, slightly gravelly, silty CLAY. Gravel is fine to medium subangular fossiliferous limestone. Numerous coarse sand sized fossil fragments.
	0.85	PP	PP=225				
	0.90	JP		0.95	39.65		Light greyish brown, clayey/silty, sandy GRAVEL. Gravel is fine to medium subangular fossiliferous limestone.
	1.30	JP					
	1.60	JP		1.55	39.05		Stiff, light greyish brown, sandy, gravelly, silty CLAY. Gravel is fine to medium subangular fossiliferous limestone.
	1.60	PP	PP=100				
	1.65	PP	PP=175				
	1.80	JP		1.75 1.80	38.85 38.80		Medium strong, light greyish brown, LIMESTONE. Horizontal bed. Hard strata. Recovered as slightly clayey/ silty, slightly sandy, gravel & cobbles.
							End of Pit at 1.80m

Remarks: No groundwater encountered during excavation. Trial pit terminated at 1.80m due to hard strata at base. Pit backfilled with arisings upon completion.

Stability: Slight overbreak 0.7m.

Trial Pit Log

TrialPit No: TP12
Sheet 1 of 1

Project Name: Land off Trowbridge Road	Project No. GCE01390	Co-ords: 383406.64 - 159856.49 Level: 41.26	Date 19/06/2025
Location: Bradford on Avon, Wiltshire		Dimensions (m): 2.10 x 0.65 Depth 1.90	Scale 1:20
Client: Waddeton Park Ltd			Logged SK

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.10	41.16		Grass over brown slightly sandy slightly gravelly silty clay, with numerous rootlets.
				0.25	41.01		Stiff, brown, slightly sandy, gravelly, silty CLAY, with occasional rootlets.
	0.50	JP					Brown and light grey, slightly clayey/silty, slightly sandy, GRAVEL & COBBLES. Gravel is fine to coarse, gravel and cobbles are subangular limestone.
				0.65	40.61		Stiff, light brown and light greyish brown occasionally orangish brown, sandy, slightly gravelly locally gravelly, silty CLAY. Gravel is fine to medium subangular fossiliferous limestone. Numerous coarse sand sized fossil fragments.
	0.85	HSV	HSV=118kPa				
	0.90	JP					
	0.90	HSV	HSV=120kPa				
				1.00	40.26		Light greyish brown, clayey/silty, sandy GRAVEL. Gravel is fine to medium subangular fossiliferous limestone.
	1.20	JP					
	1.50	JP					
				1.55	39.71		Stiff, light greyish brown, sandy, gravelly, silty CLAY. Gravel is fine to medium subangular fossiliferous limestone.
	1.70	JP					
	1.70	PP	PP=105				
	1.75	PP	PP=105				
				1.85	39.41		
	1.90	JP		1.90	39.36		Medium strong, light greyish brown, LIMESTONE. Horizontal bed. Hard strata. Recovered as slightly clayey/ silty, slightly sandy, gravel & cobbles.
							End of Pit at 1.90m

Remarks: No groundwater encountered during excavation. Trial pit terminated at 1.90m due to hard strata at base. Pit backfilled with arisings upon completion.

Stability: Slight overbreak to 0.65m.

Appendix D – Infiltration Testing Records

Soakaway Test:

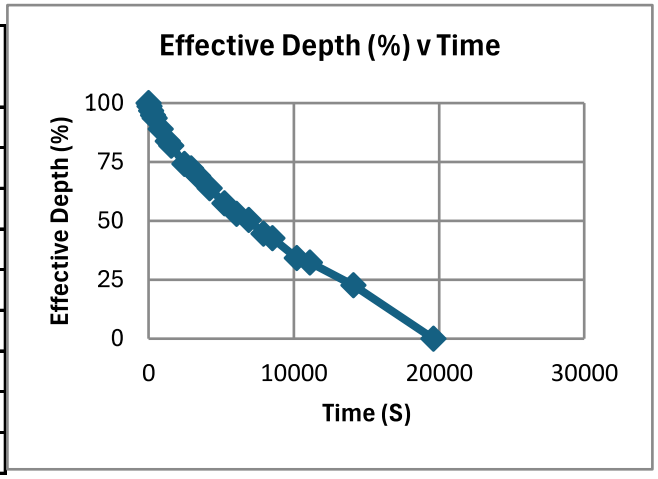
Trial Pit.	TP01
Test No.	1

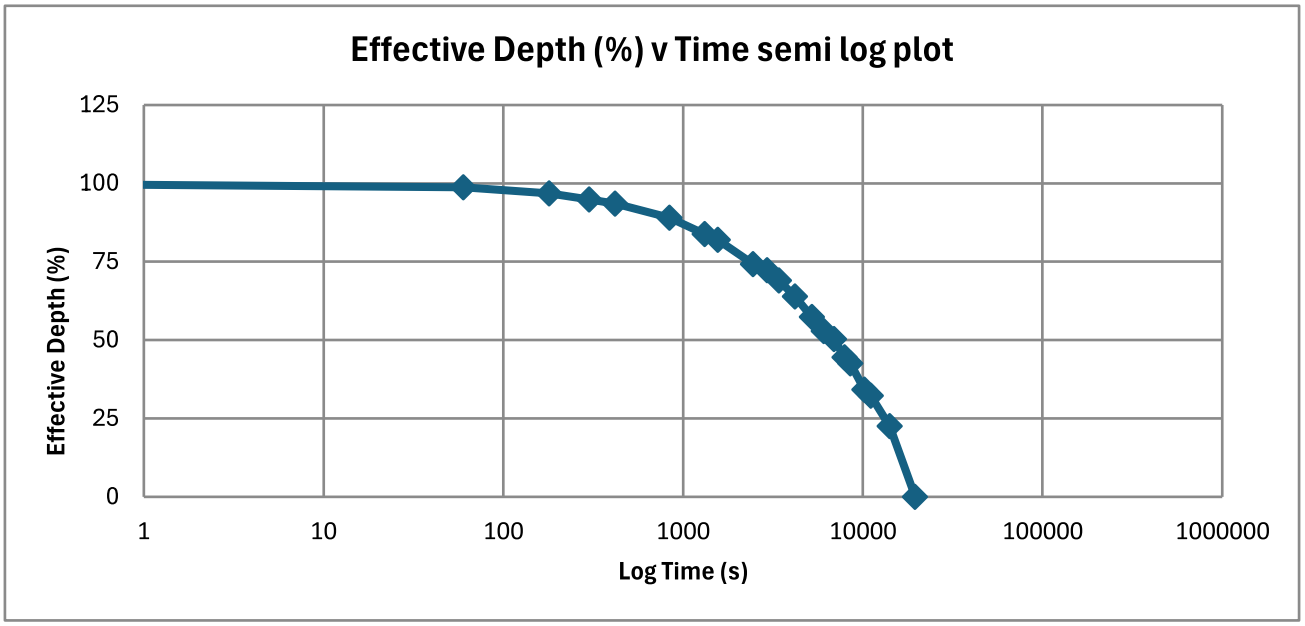
Dimensions:

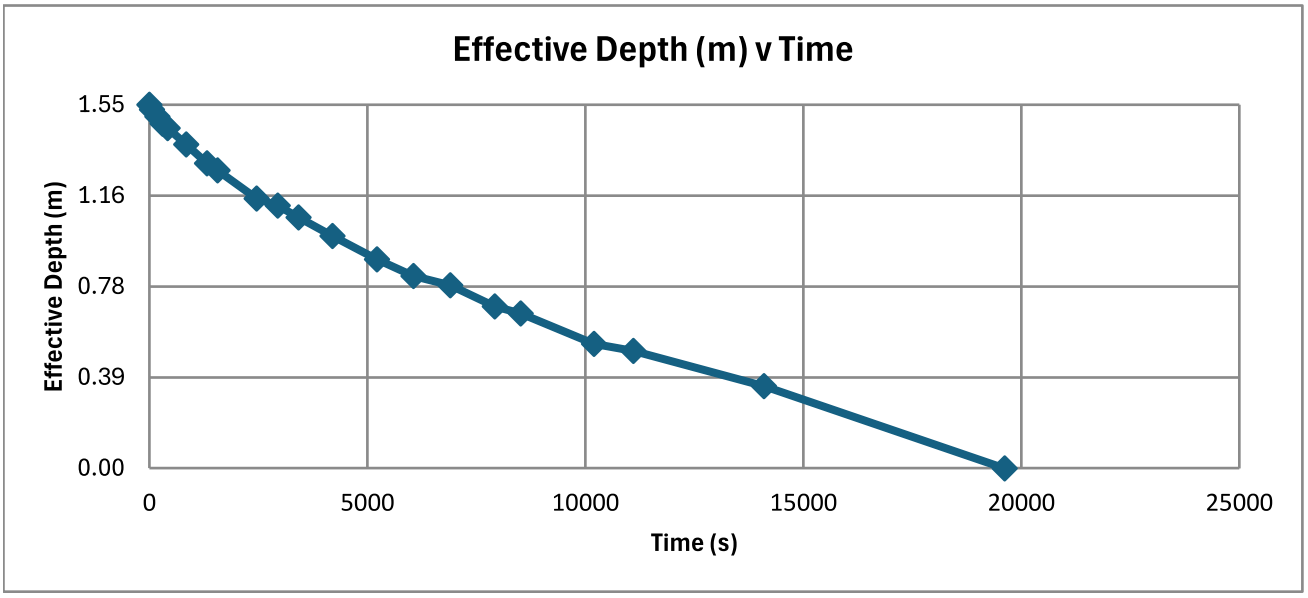
Length	2.70	m
Width	0.65	m
Depth	2.55	m
Start water depth	1.00	m
Effective Depth	1.55	m

Date	Time		Depth (mBGL)	Head/ Effective Depth (m)	Effective Depth (%)
	Hour	Seconds			
16 June 2025	10:28:00	0	1.00	1.55	100
16 June 2025	10:29:00	60	1.02	1.53	99
16 June 2025	10:31:00	180	1.05	1.50	97
16 June 2025	10:33:00	300	1.08	1.47	95
16 June 2025	10:35:00	420	1.10	1.45	94
16 June 2025	10:42:00	840	1.17	1.38	89
16 June 2025	10:50:00	1320	1.25	1.30	84
16 June 2025	10:54:00	1560	1.28	1.27	82
16 June 2025	11:09:00	2460	1.40	1.15	74
16 June 2025	11:17:00	2940	1.43	1.12	72
16 June 2025	11:25:00	3420	1.48	1.07	69
16 June 2025	11:38:00	4200	1.56	0.99	64
16 June 2025	11:55:00	5220	1.66	0.89	57
16 June 2025	12:09:00	6060	1.73	0.82	53
16 June 2025	12:23:00	6900	1.77	0.78	50
16 June 2025	12:40:00	7920	1.86	0.69	45
16 June 2025	12:50:00	8520	1.89	0.66	43
16 June 2025	13:18:00	10200	2.02	0.53	34
16 June 2025	13:33:00	11100	2.05	0.50	32
16 June 2025	14:23:00	14100	2.20	0.35	23
16 June 2025	15:55:00	19620	2.55	0.00	0
			Dry		

Effective Depth %	Depth (m)	Time (s)
75	1.1625	2350
25	0.3875	13400
	Vp75-25	tp75-25
Sum	1.360125	11050
Base	1.755	m2
Side long	2.0925	m
Side short	0.50375	m
ap50	6.9475	m2
Soil Infiltration Rate	**1.77E-05**	**m/s**




Effective Depth (%) v Time semi log plot
125
100
75
50
25
0
Effective Depth (%)
1
10
100
1000
10000
100000
1000000
Log Time (s)


Effective Depth (m) v Time
1.55
1.16
0.78
0.39
0.00
Effective Depth (m)
0
5000
10000
15000
20000
25000
Time (s)

Soakaway Test:

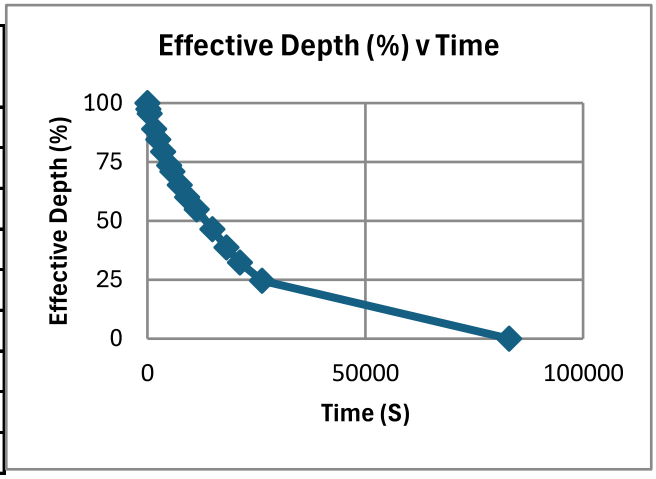
Trial Pit.	TP01
Test No.	2

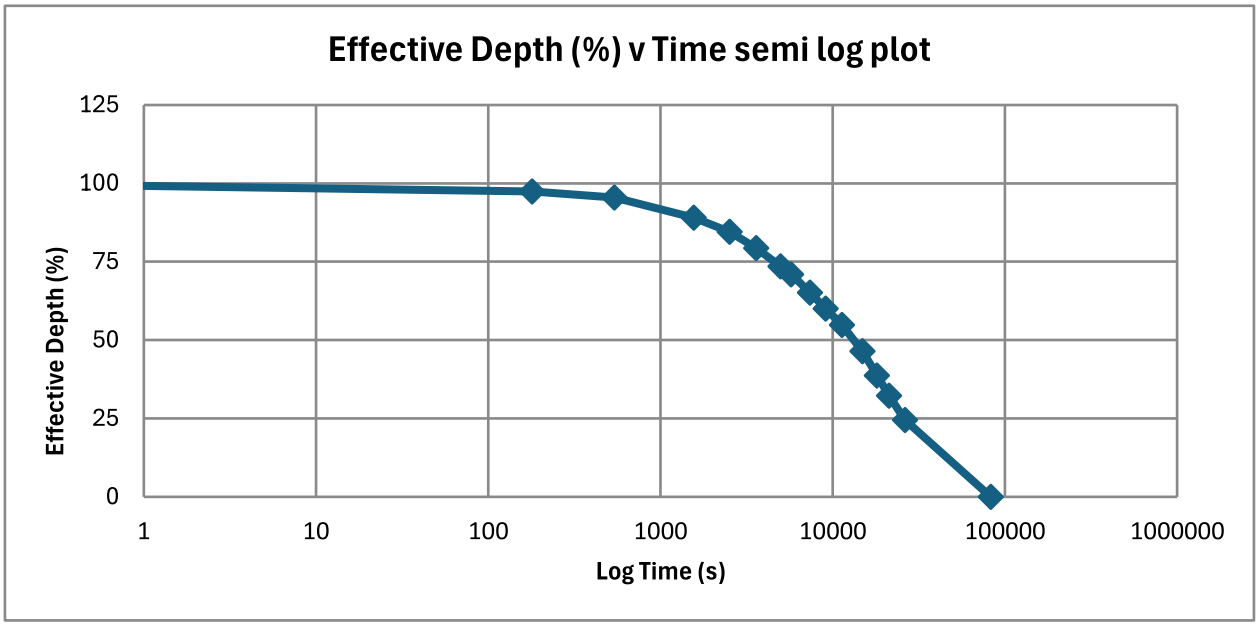
Dimensions:

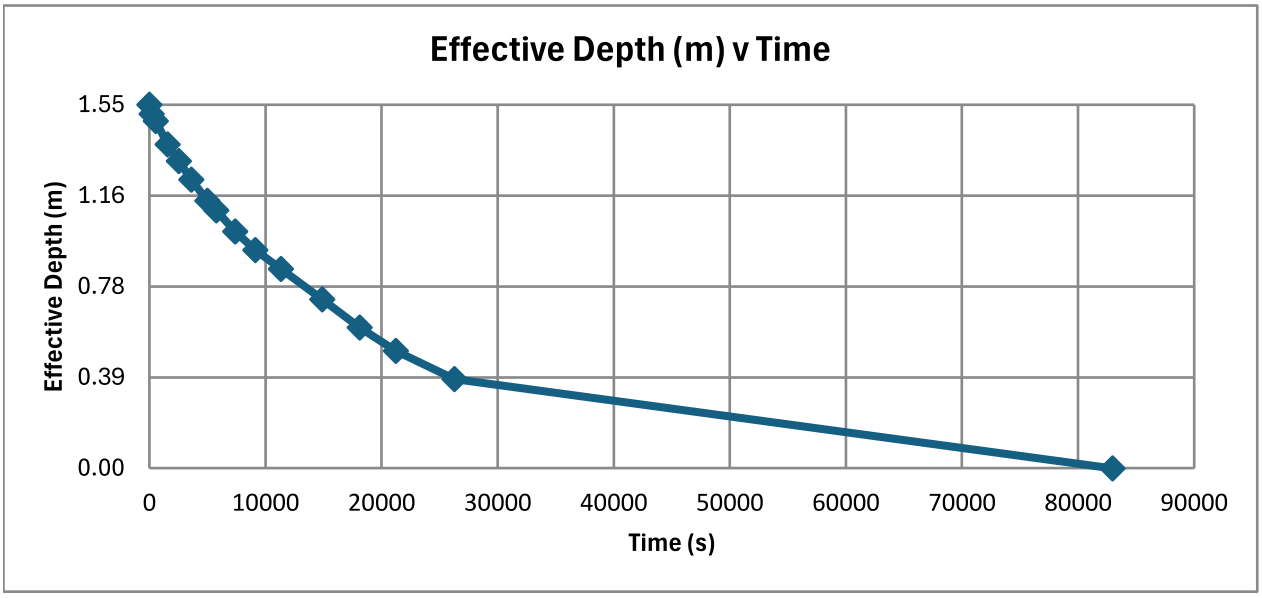
Length	2.70	m
Width	0.65	m
Depth	2.55	m
Start water depth	1.00	m
Effective Depth	1.55	m

Date	Time		Depth (mBGL)	Head/ Effective Depth (m)	Effective Depth (%)
	Hour	Seconds			
17 June 2025	09:02:00	0	1.00	1.55	100
17 June 2025	09:05:00	180	1.04	1.51	97
17 June 2025	09:11:00	540	1.07	1.48	95
17 June 2025	09:28:00	1560	1.17	1.38	89
17 June 2025	09:44:00	2520	1.24	1.31	85
17 June 2025	10:02:00	3600	1.32	1.23	79
17 June 2025	10:25:00	4980	1.41	1.14	74
17 June 2025	10:38:00	5760	1.45	1.10	71
17 June 2025	11:05:00	7380	1.54	1.01	65
17 June 2025	11:34:00	9120	1.62	0.93	60
17 June 2025	12:11:00	11340	1.70	0.85	55
17 June 2025	13:10:00	14880	1.83	0.72	46
17 June 2025	14:04:00	18120	1.95	0.60	39
17 June 2025	14:56:00	21240	2.05	0.50	32
17 June 2025	16:20:00	26280	2.17	0.38	25
18 June 2025	08:05:00	82980	2.55	0.00	0
			Dry		

Effective Depth %	Depth (m)	Time (s)
75	1.1625	4600
25	0.3875	26280
	Vp75-25	tp75-25
Sum	1.360125	21680
Base	1.755	m2
Side long	2.0925	m
Side short	0.50375	m
ap50	6.9475	m2
Soil Infiltration Rate	**9.03E-06**	**m/s**




Effective Depth (%) v Time semi log plot
125
100
75
50
25
0
Effective Depth (%)
1
10
100
1000
10000
100000
1000000
Log Time (s)


Effective Depth (m) v Time
1.55
1.16
0.78
0.39
0.00
Effective Depth (m)
0
10000
20000
30000
40000
50000
60000
70000
80000
90000
Time (s)

Soakaway Test:

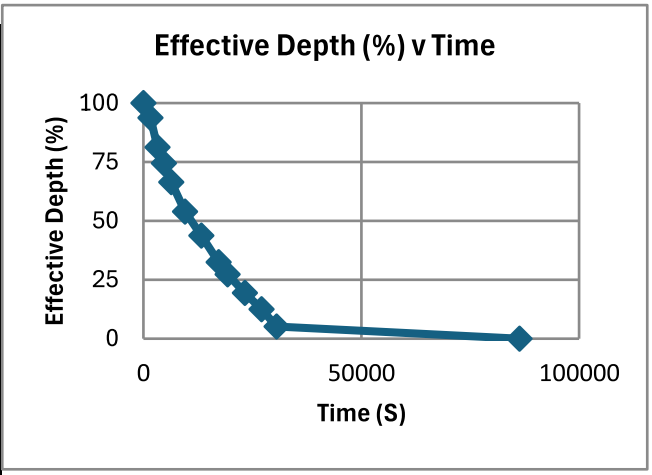
Trial Pit.	TP01
Test No.	3

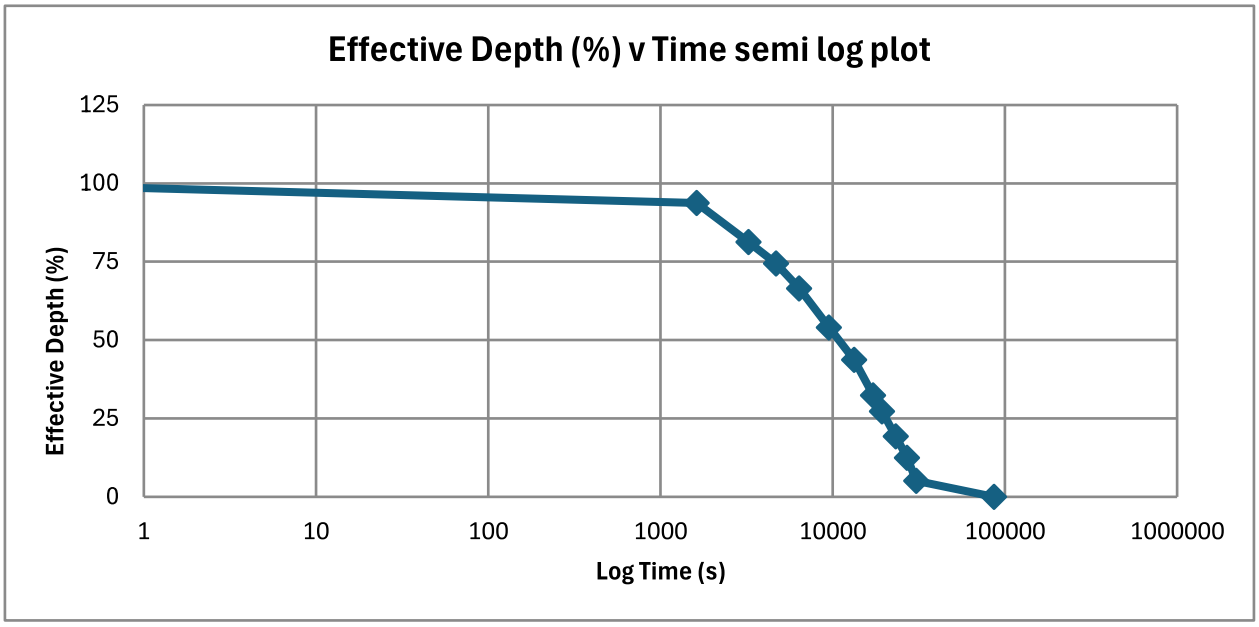
Dimensions:

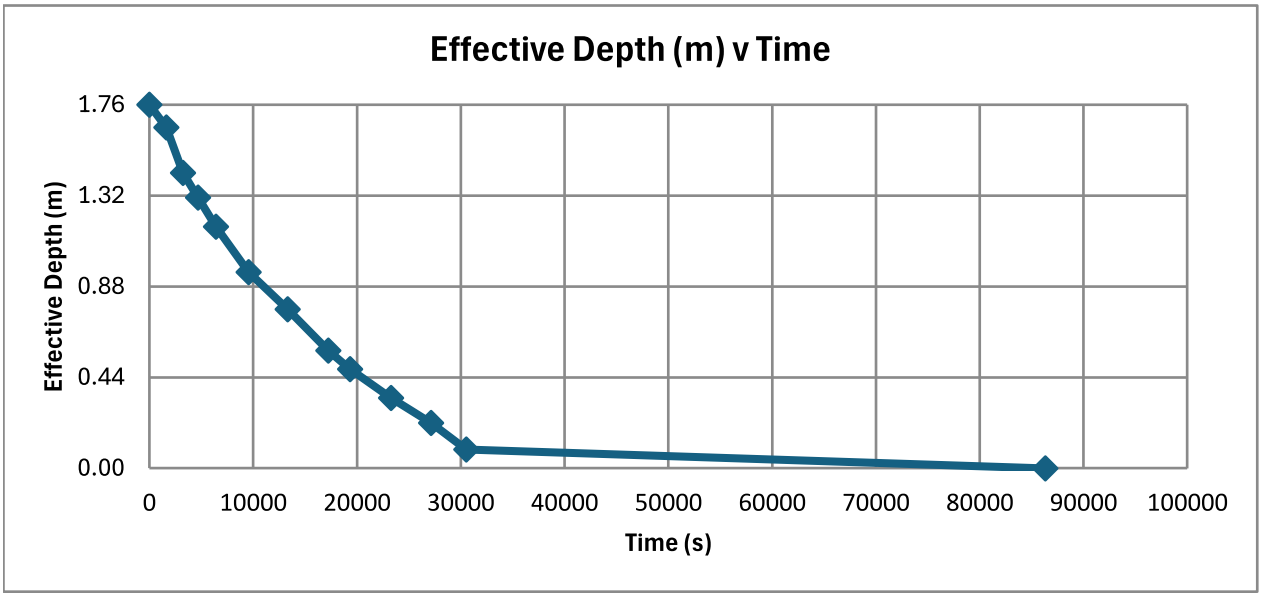
Length	2.70	m
Width	0.65	m
Depth	2.55	m
Start water depth	0.79	m
Effective Depth	1.76	m

Date	Time		Depth (mBGL)	Head/ Effective Depth (m)	Effective Depth (%)
	Hour	Seconds			
18 June 2025	08:35:00	0	0.79	1.76	100
18 June 2025	09:02:00	1620	0.90	1.65	94
18 June 2025	09:29:00	3240	1.12	1.43	81
18 June 2025	09:53:00	4680	1.24	1.31	74
18 June 2025	10:22:00	6420	1.38	1.17	66
18 June 2025	11:14:00	9540	1.60	0.95	54
18 June 2025	12:17:00	13320	1.78	0.77	44
18 June 2025	13:22:00	17220	1.98	0.57	32
18 June 2025	13:57:00	19320	2.07	0.48	27
18 June 2025	15:03:00	23280	2.21	0.34	19
18 June 2025	16:07:00	27120	2.33	0.22	13
18 June 2025	17:04:00	30540	2.46	0.09	5
19 June 2025	08:34:00	86340	2.55	0.00	0
			Dry		

Effective Depth %	Depth (m)	Time (s)
75	1.32	4500
25	0.44	20500
	Vp75-25	tp75-25
Sum	1.5444	16000
Base	1.755	m2
Side long	2.376	m
Side short	0.572	m
ap50	7.651	m2
Soil Infiltration Rate	**1.26E-05**	**m/s**




Effective Depth (%) v Time semi log plot
125
100
75
50
25
0
Effective Depth (%)
1
10
100
1000
10000
100000
1000000
Log Time (s)


Effective Depth (m) v Time
1.76
1.32
0.88
0.44
0.00
Effective Depth (m)
0
10000
20000
30000
40000
50000
60000
70000
80000
90000
100000
Time (s)

Soakaway Test:

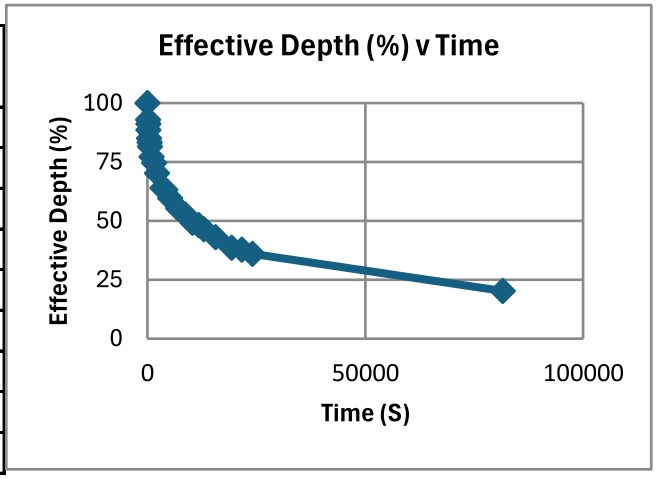
Trial Pit.	TP02
Test No.	1

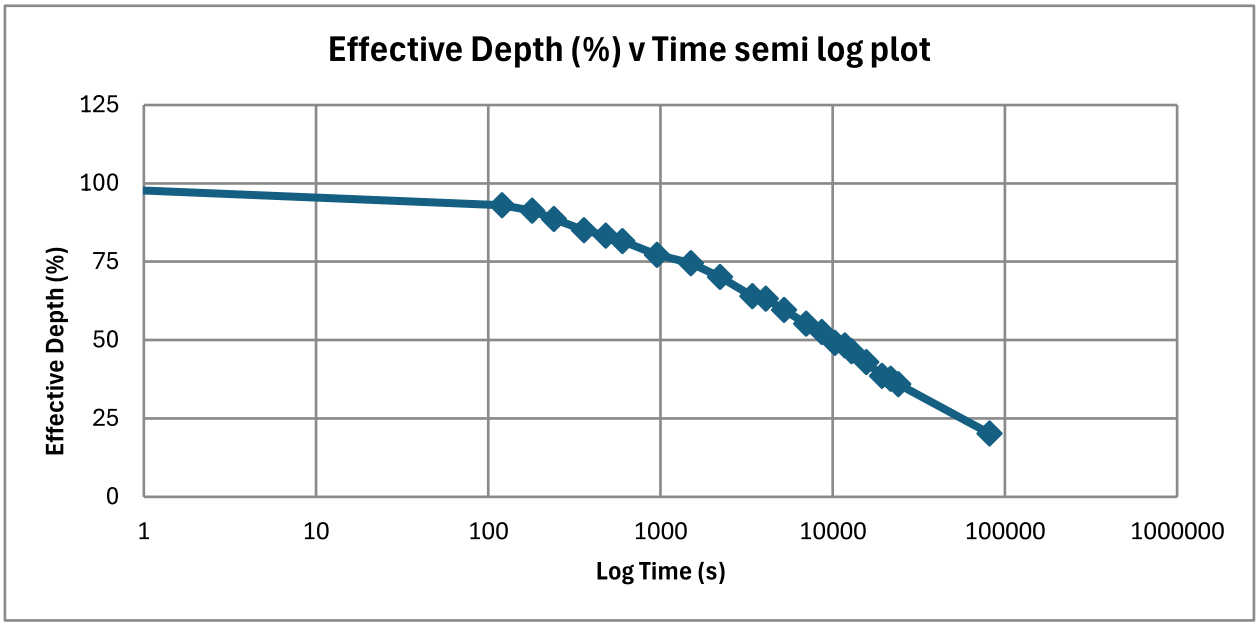
Dimensions:

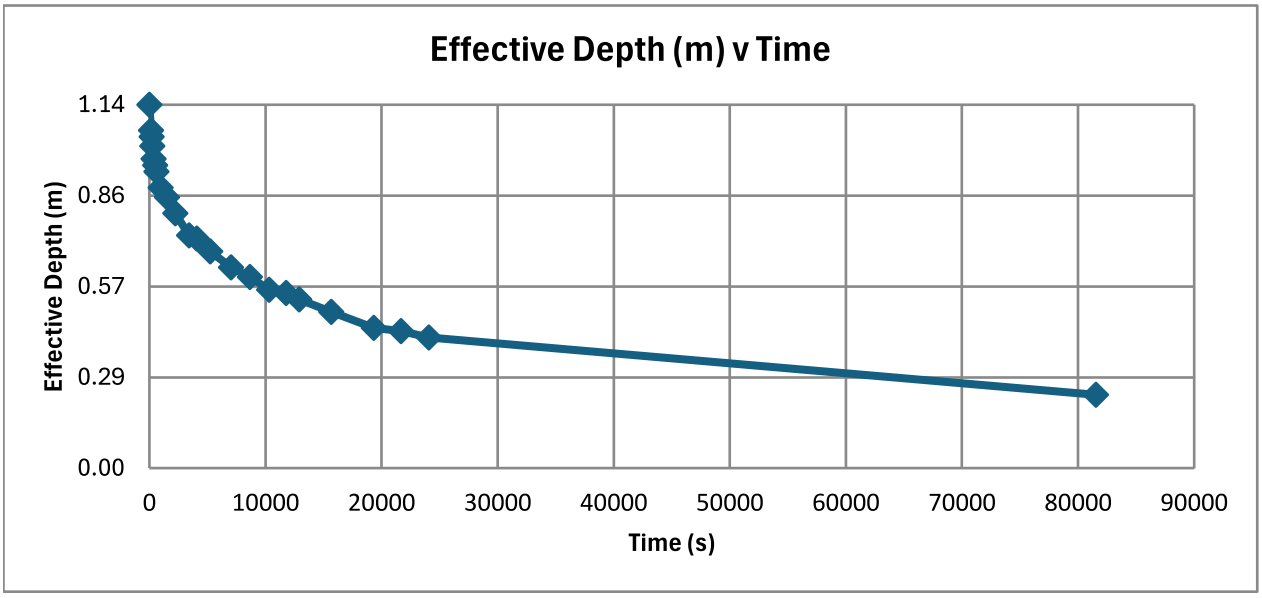
Length	3.00	m
Width	0.65	m
Depth	2.15	m
Start water depth	1.01	m
Effective Depth	1.14	m

Date	Time		Depth (mBGL)	Head/ Effective Depth (m)	Effective Depth (%)
	Hour	Seconds			
16 June 2025	10:00:00	0	1.01	1.14	100
16 June 2025	10:02:00	120	1.09	1.06	93
16 June 2025	10:03:00	180	1.11	1.04	91
16 June 2025	10:04:00	240	1.14	1.01	89
16 June 2025	10:06:00	360	1.18	0.97	85
16 June 2025	10:08:00	480	1.20	0.95	83
16 June 2025	10:10:00	600	1.22	0.93	82
16 June 2025	10:16:00	960	1.27	0.88	77
16 June 2025	10:25:00	1500	1.30	0.85	75
16 June 2025	10:37:00	2220	1.35	0.80	70
16 June 2025	10:57:00	3420	1.42	0.73	64
16 June 2025	11:08:00	4080	1.43	0.72	63
16 June 2025	11:27:00	5220	1.47	0.68	60
16 June 2025	11:57:00	7020	1.52	0.63	55
16 June 2025	12:24:00	8640	1.55	0.60	53
16 June 2025	12:52:00	10320	1.59	0.56	49
16 June 2025	13:16:00	11760	1.60	0.55	48
16 June 2025	13:35:00	12900	1.62	0.53	46
16 June 2025	14:21:00	15660	1.66	0.49	43
16 June 2025	15:22:00	19320	1.71	0.44	39
16 June 2025	16:01:00	21660	1.72	0.43	38
16 June 2025	16:41:00	24060	1.74	0.41	36
17 June 2025	08:39:00	81540	1.92	0.23	20

Effective Depth %	Depth (m)	Time (s)
75	0.855	1500
25	0.285	64000
	Vp75-25	tp75-25
Sum	1.1115	62500
Base	1.95	m2
Side long	1.71	m
Side short	0.3705	m
ap50	6.111	m2
Soil Infiltration Rate	**2.91E-06**	**m/s**




Effective Depth (%) v Time semi log plot
125
100
75
50
25
0
Effective Depth (%)
1
10
100
1000
10000
100000
1000000
Log Time (s)


Effective Depth (m) v Time
1.14
0.86
0.57
0.29
0.00
Effective Depth (m)
0
10000
20000
30000
40000
50000
60000
70000
80000
90000
Time (s)

Soakaway Test:

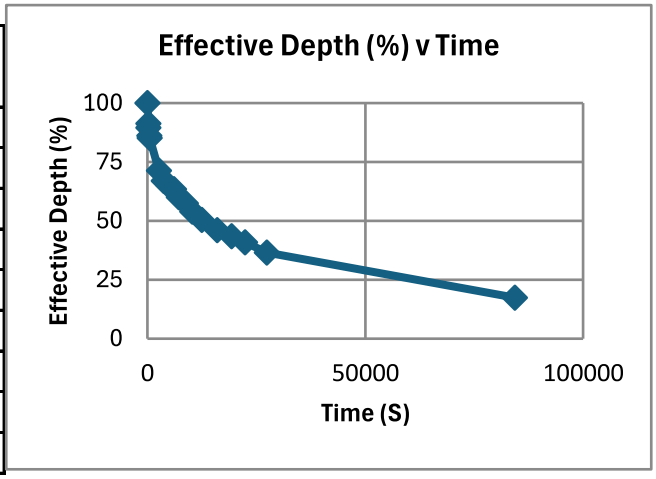
Trial Pit.	TP02
Test No.	2

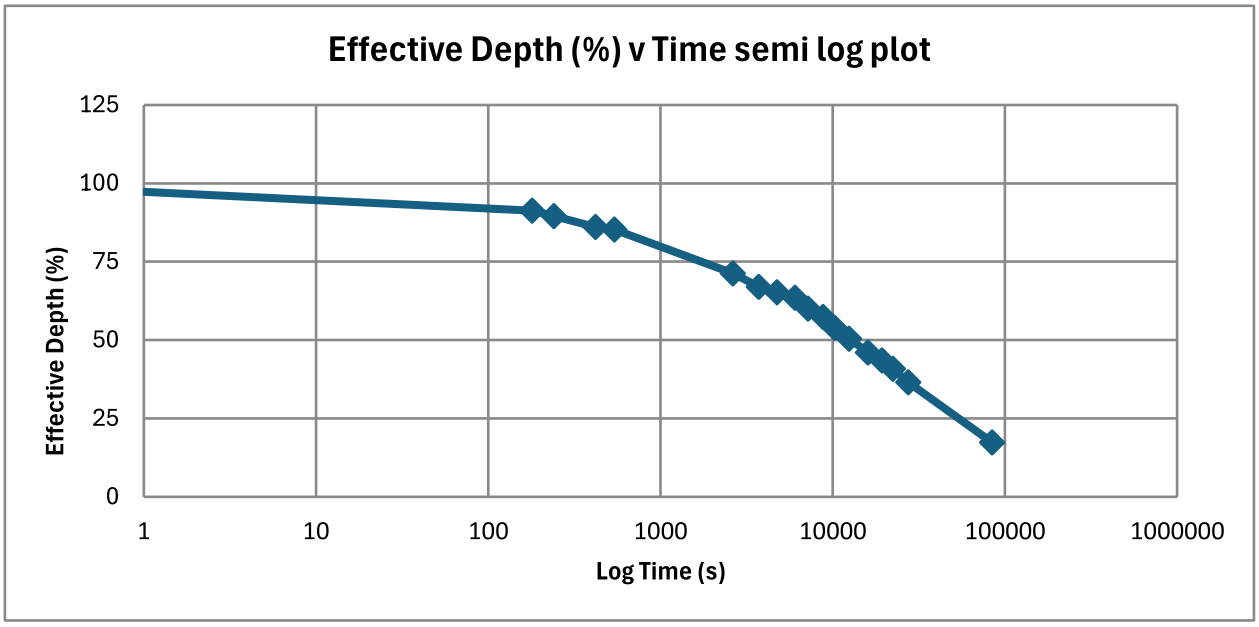
Dimensions:

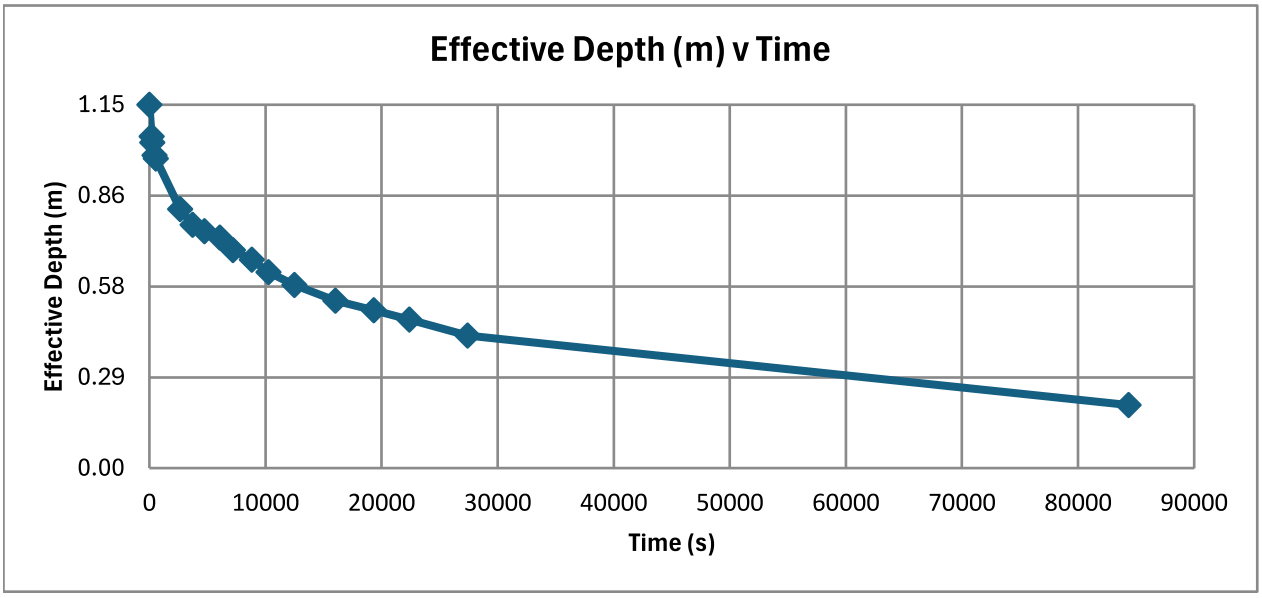
Length	3.00	m
Width	0.65	m
Depth	2.15	m
Start water depth	1.00	m
Effective Depth	1.15	m

Date	Time		Depth (mBGL)	Head/ Effective Depth (m)	Effective Depth (%)
	Hour	Seconds			
17 June 2025	08:41:00	0	1.00	1.15	100
17 June 2025	08:44:00	180	1.10	1.05	91
17 June 2025	08:45:00	240	1.12	1.03	90
17 June 2025	08:48:00	420	1.16	0.99	86
17 June 2025	08:50:00	540	1.17	0.98	85
17 June 2025	09:25:00	2640	1.33	0.82	71
17 June 2025	09:43:00	3720	1.38	0.77	67
17 June 2025	10:00:00	4740	1.40	0.75	65
17 June 2025	10:22:00	6060	1.42	0.73	63
17 June 2025	10:41:00	7200	1.46	0.69	60
17 June 2025	11:08:00	8820	1.49	0.66	57
17 June 2025	11:32:00	10260	1.53	0.62	54
17 June 2025	12:09:00	12480	1.57	0.58	50
17 June 2025	13:08:00	16020	1.62	0.53	46
17 June 2025	14:03:00	19320	1.65	0.50	43
17 June 2025	14:54:00	22380	1.68	0.47	41
17 June 2025	16:18:00	27420	1.73	0.42	37
18 June 2025	08:07:00	84360	1.95	0.20	17

Effective Depth %	Depth (m)	Time (s)
75	0.8625	2050
25	0.2875	62000
	Vp75-25	tp75-25
Sum	1.12125	59950
Base	1.95	m2
Side long	1.725	m
Side short	0.37375	m
ap50	6.1475	m2
Soil Infiltration Rate	**3.04E-06**	**m/s**




Effective Depth (%) v Time semi log plot
125
100
75
50
25
0
Effective Depth (%)
1
10
100
1000
10000
100000
1000000
Log Time (s)


Effective Depth (m) v Time
1.15
0.86
0.58
0.29
0.00
Effective Depth (m)
0
10000
20000
30000
40000
50000
60000
70000
80000
90000
Time (s)

Soakaway Test:

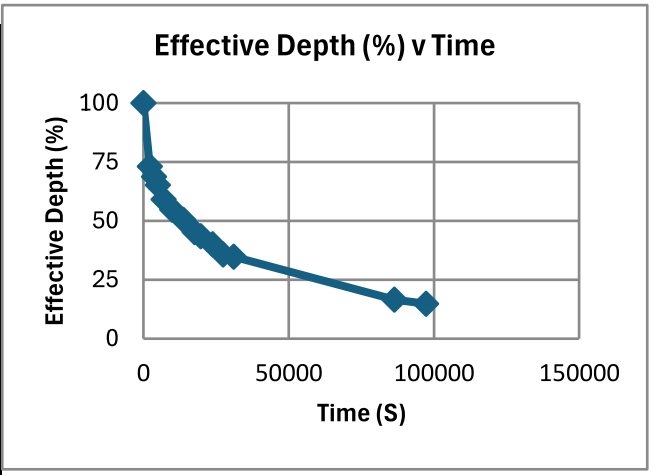
Trial Pit.	TP02
Test No.	3

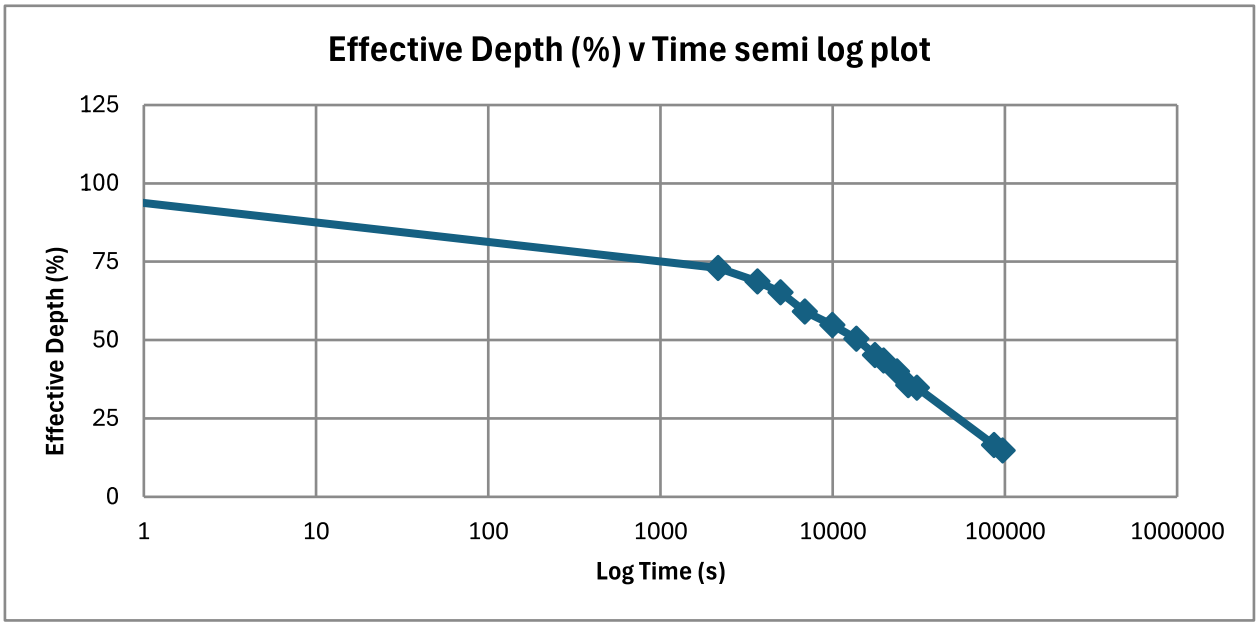
Dimensions:

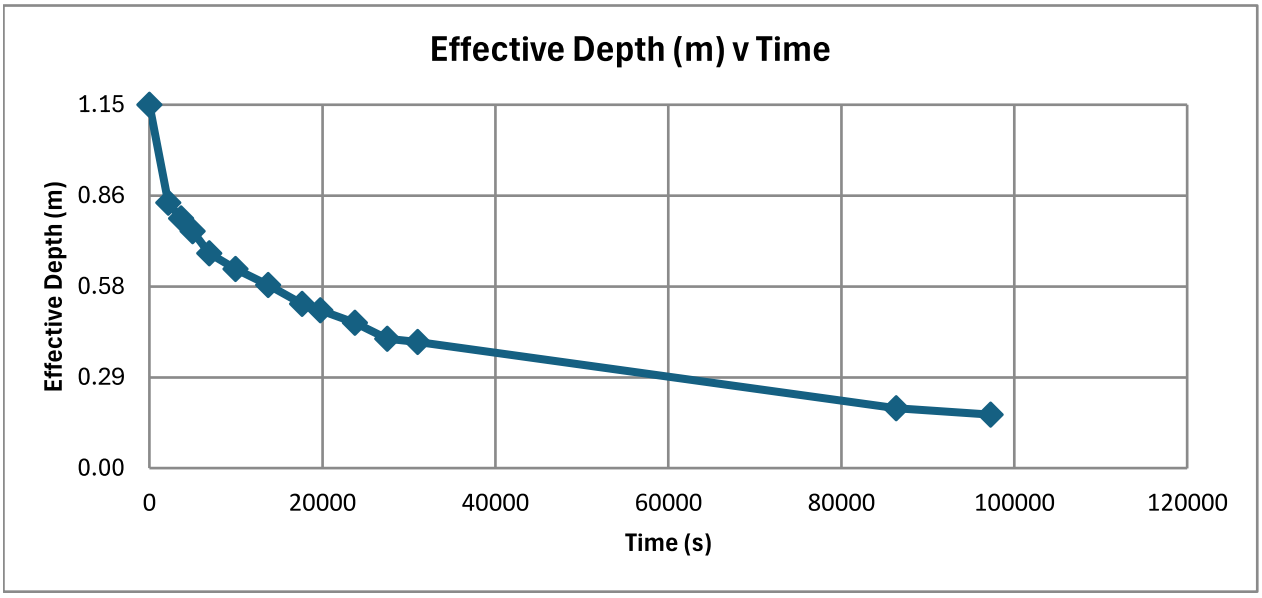
Length	3.00	m
Width	0.65	m
Depth	2.15	m
Start water depth	1.00	m
Effective Depth	1.15	m

Date	Time		Depth (mBGL)	Head/ Effective Depth (m)	Effective Depth (%)
	Hour	Seconds			
18 June 2025	08:29:00	0	1.00	1.15	100
18 June 2025	09:05:00	2160	1.31	0.84	73
18 June 2025	09:30:00	3660	1.36	0.79	69
18 June 2025	09:52:00	4980	1.40	0.75	65
18 June 2025	10:24:00	6900	1.47	0.68	59
18 June 2025	11:15:00	9960	1.52	0.63	55
18 June 2025	12:18:00	13740	1.57	0.58	50
18 June 2025	13:23:00	17640	1.63	0.52	45
18 June 2025	13:58:00	19740	1.65	0.50	43
18 June 2025	15:05:00	23760	1.69	0.46	40
18 June 2025	16:07:00	27480	1.74	0.41	36
18 June 2025	17:06:00	31020	1.75	0.40	35
19 June 2025	08:28:00	86340	1.96	0.19	17
19 June 2025	11:30:00	97260	1.98	0.17	15

Effective Depth %	Depth (m)	Time (s)
75	0.8625	2050
25	0.2875	61000
	Vp75-25	tp75-25
Sum	1.12125	58950
Base	1.95	m2
Side long	1.725	m
Side short	0.37375	m
ap50	6.1475	m2
Soil Infiltration Rate	**3.09E-06**	**m/s**




Effective Depth (%) v Time semi log plot
125
100
75
50
25
0
Effective Depth (%)
1
10
100
1000
10000
100000
1000000
Log Time (s)


Effective Depth (m) v Time
1.15
0.86
0.58
0.29
0.00
Effective Depth (m)
0
20000
40000
60000
80000
100000
120000
Time (s)

Soakaway Test:

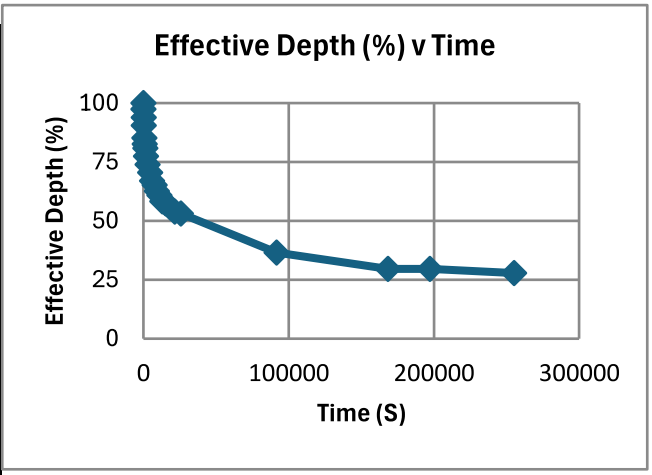
Trial Pit.	TP03
Test No.	1

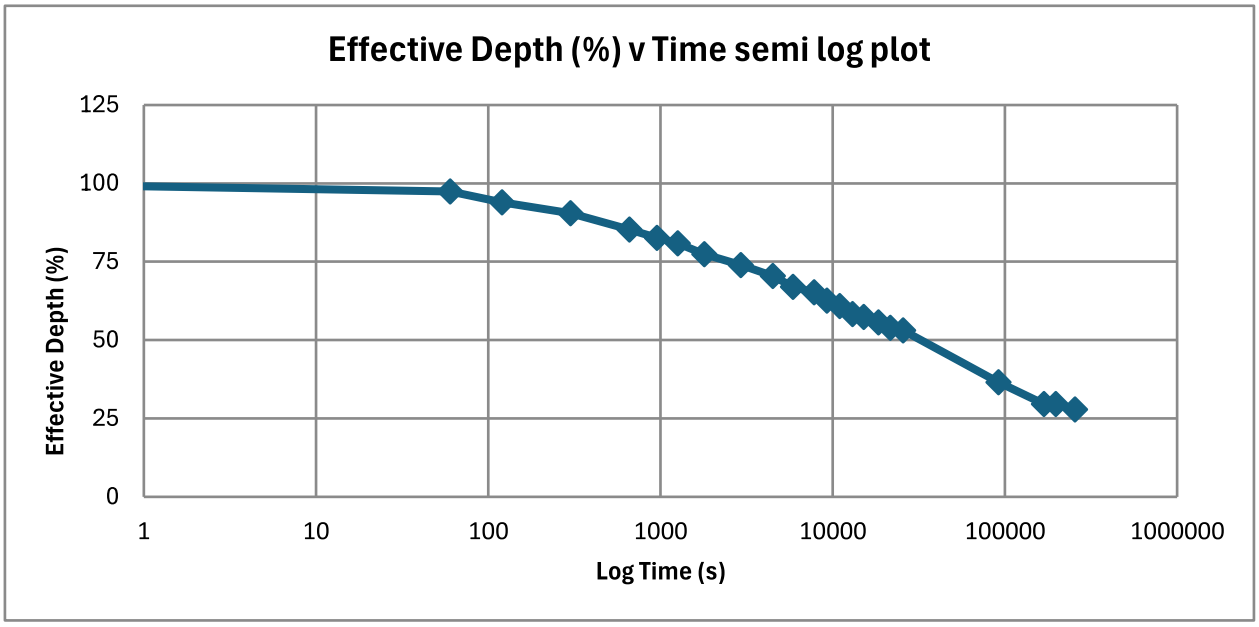
Dimensions:

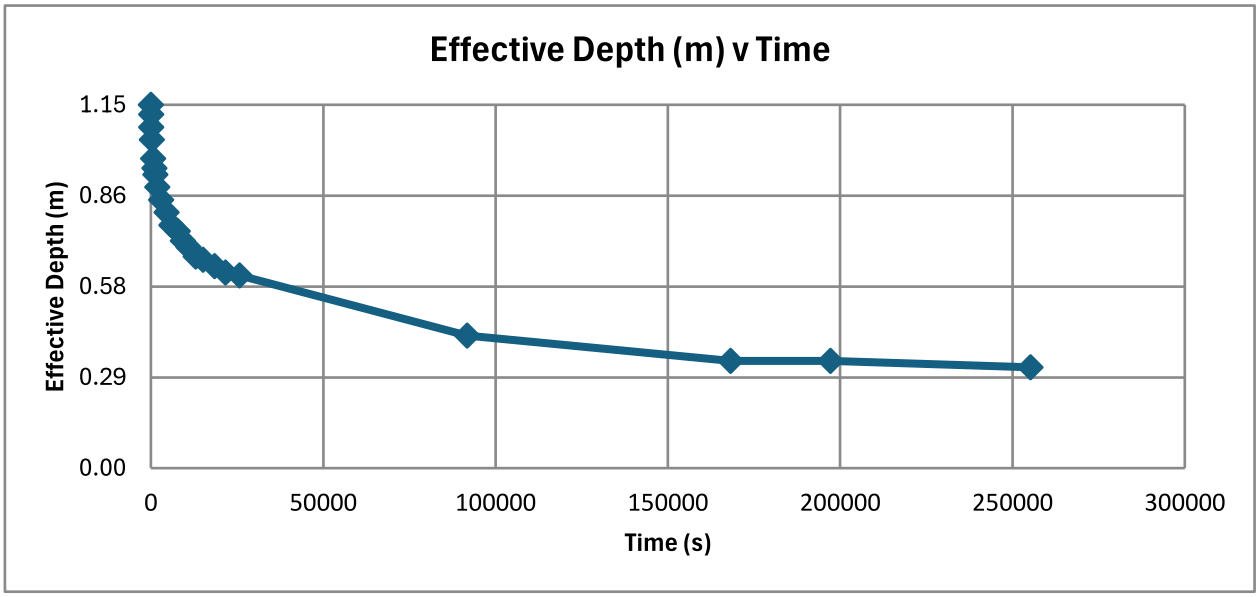
Length	2.60	m
Width	0.65	m
Depth	2.15	m
Start water depth	1.00	m
Effective Depth	1.15	m

Date	Time		Depth (mBGL)	Head/ Effective Depth (m)	Effective Depth (%)
	Hour	Seconds			
16 June 2025	09:25:00	0	1.00	1.15	100
16 June 2025	09:26:00	60	1.03	1.12	97
16 June 2025	09:27:00	120	1.07	1.08	94
16 June 2025	09:30:00	300	1.11	1.04	90
16 June 2025	09:36:00	660	1.17	0.98	85
16 June 2025	09:41:00	960	1.20	0.95	83
16 June 2025	09:46:00	1260	1.22	0.93	81
16 June 2025	09:55:00	1800	1.26	0.89	77
16 June 2025	10:14:00	2940	1.30	0.85	74
16 June 2025	10:40:00	4500	1.34	0.81	70
16 June 2025	11:03:00	5880	1.38	0.77	67
16 June 2025	11:35:00	7800	1.40	0.75	65
16 June 2025	11:59:00	9240	1.43	0.72	63
16 June 2025	12:28:00	10980	1.45	0.70	61
16 June 2025	13:02:00	13020	1.48	0.67	58
16 June 2025	13:37:00	15120	1.49	0.66	57
16 June 2025	14:33:00	18480	1.51	0.64	56
16 June 2025	15:25:00	21600	1.53	0.62	54
16 June 2025	16:33:00	25680	1.54	0.61	53
17 June 2025	10:54:00	91740	1.73	0.42	37
18 June 2025	08:09:00	168240	1.81	0.34	30
18 June 2025	16:11:00	197160	1.81	0.34	30
19 June 2025	08:19:00	255240	1.83	0.32	28

Effective Depth %	Depth (m)	Time (s)
75	0.8625	2550
25	0.2875	-
	Vp75-25	tp75-25
Sum	0.97175	-
Base	1.69	m2
Side long	1.495	m
Side short	0.37375	m
ap50	5.4275	m2
Soil Infiltration Rate	**-**	**m/s**




Effective Depth (%) v Time semi log plot
125
100
75
50
25
0
Effective Depth (%)
1
10
100
1000
10000
100000
1000000
Log Time (s)


Effective Depth (m) v Time
1.15
0.86
0.58
0.29
0.00
Effective Depth (m)
0
50000
100000
150000
200000
250000
300000
Time (s)

Soakaway Test:

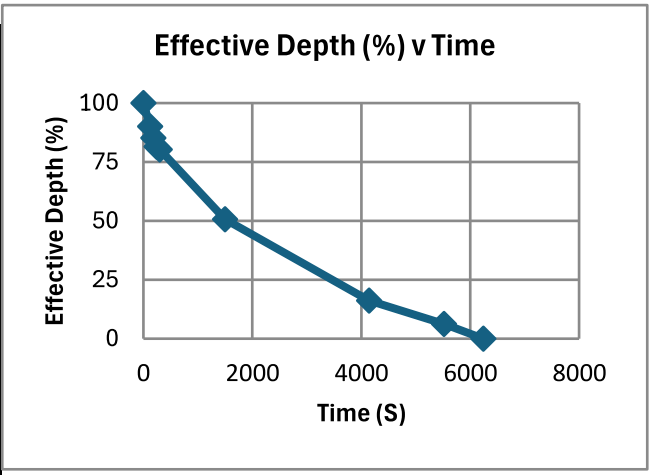
Trial Pit.	TP03B
Test No.	1

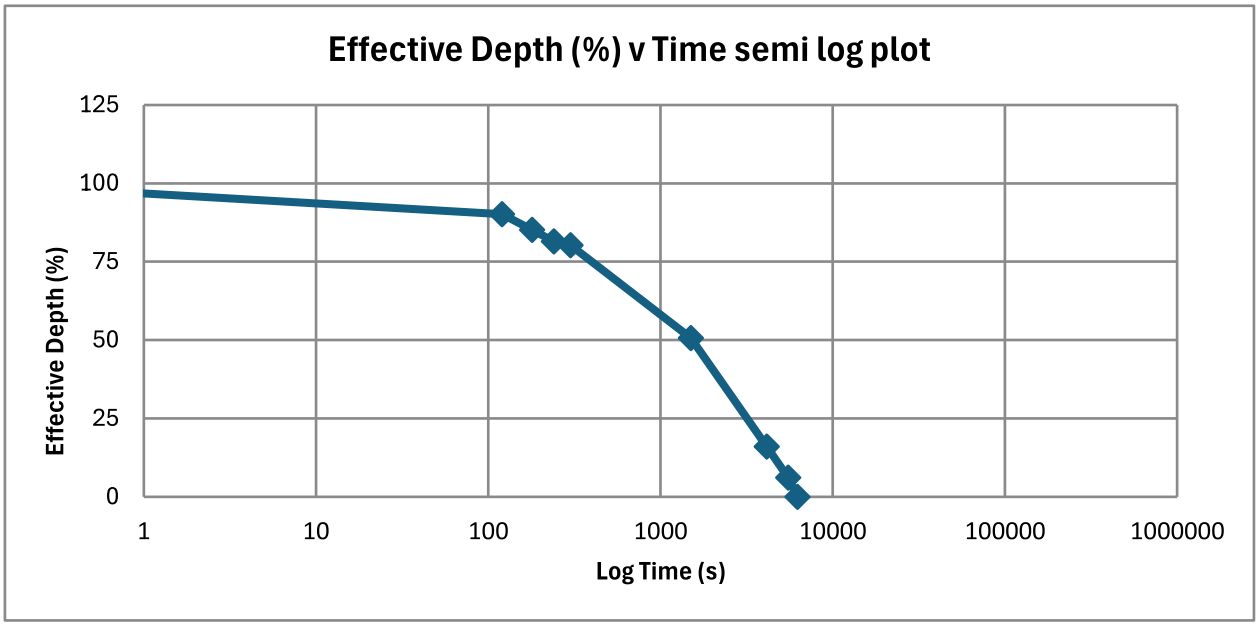
Dimensions:

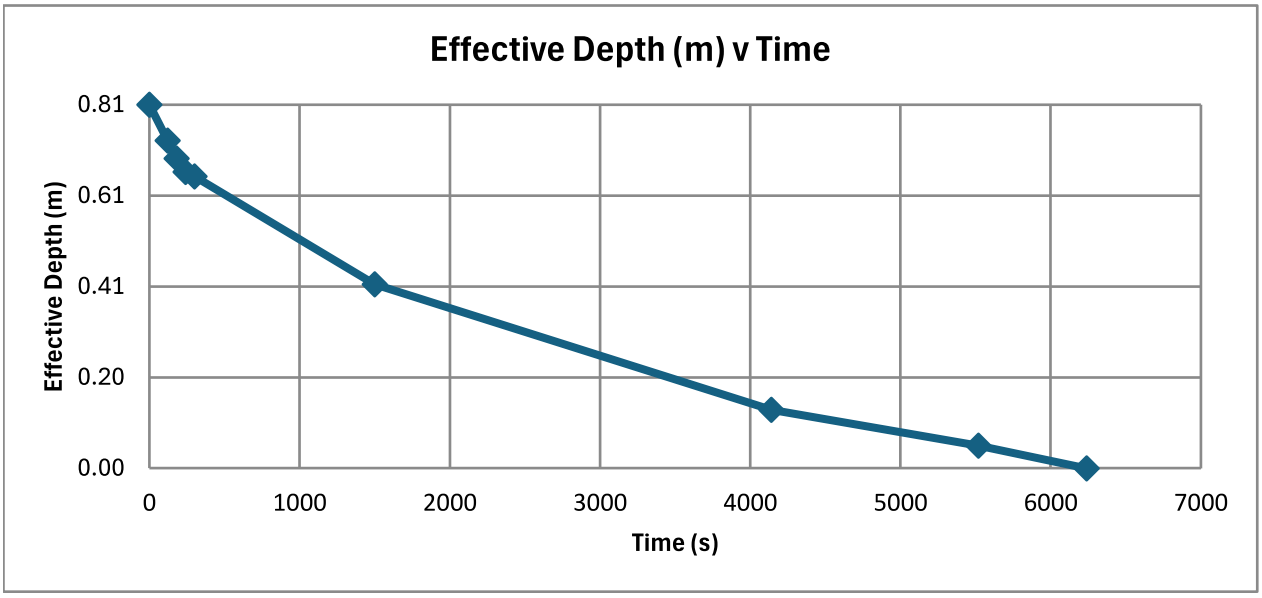
Length	1.60	m
Width	0.65	m
Depth	1.15	m
Start water depth	0.34	m
Effective Depth	0.81	m

Date	Time		Depth (mBGL)	Head/ Effective Depth (m)	Effective Depth (%)
	Hour	Seconds			
16 June 2025	14:09:00	0	0.34	0.81	100
16 June 2025	14:11:00	120	0.42	0.73	90
16 June 2025	14:12:00	180	0.46	0.69	85
16 June 2025	14:13:00	240	0.49	0.66	81
16 June 2025	14:14:00	300	0.50	0.65	80
16 June 2025	14:34:00	1500	0.74	0.41	51
16 June 2025	15:18:00	4140	1.02	0.13	16
16 June 2025	15:41:00	5520	1.10	0.05	6
16 June 2025	15:53:00	6240	1.15	0.00	0
			Dry		

Effective Depth %	Depth (m)	Time (s)
75	0.6075	530
25	0.2025	3480
	Vp75-25	tp75-25
Sum	0.4212	2950
Base	1.04	m2
Side long	0.648	m
Side short	0.26325	m
ap50	2.8625	m2
Soil Infiltration Rate	**4.99E-05**	**m/s**




Effective Depth (%) v Time semi log plot
125
100
75
50
25
0
Effective Depth (%)
1
10
100
1000
10000
100000
1000000
Log Time (s)


Effective Depth (m) v Time
0.81
0.61
0.41
0.20
0.00
Effective Depth (m)
0
1000
2000
3000
4000
5000
6000
7000
Time (s)

Soakaway Test:

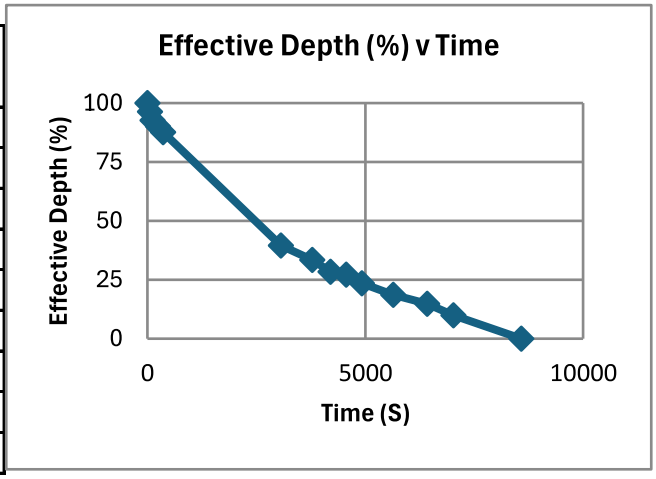
Trial Pit.	TP03B
Test No.	2

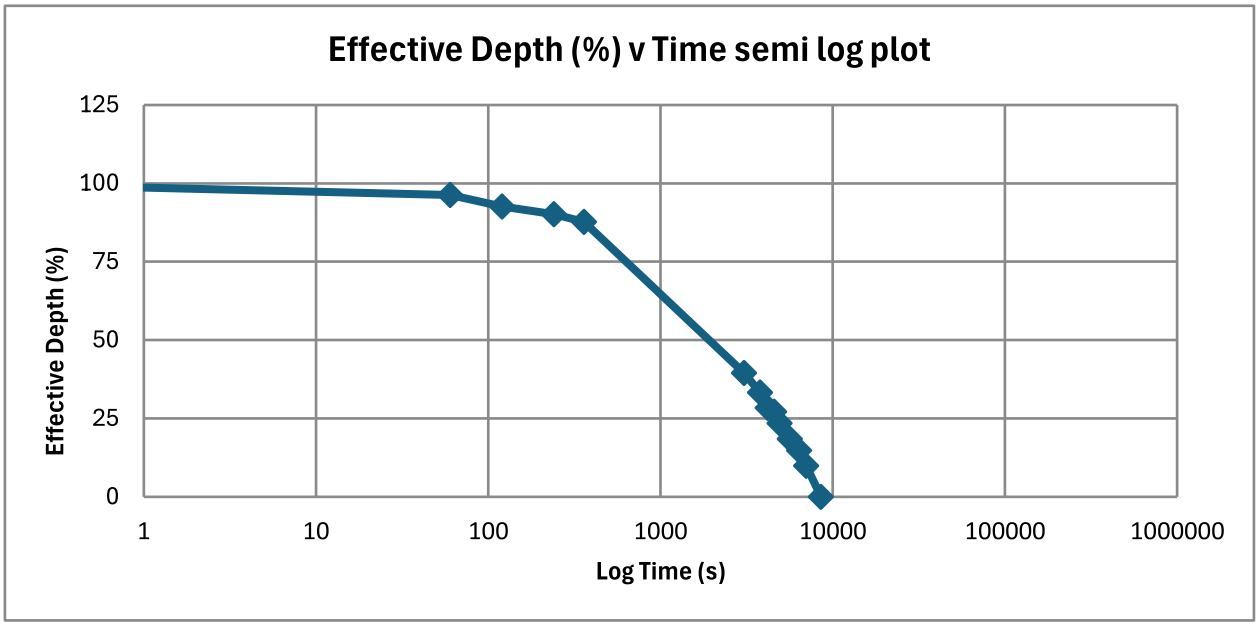
Dimensions:

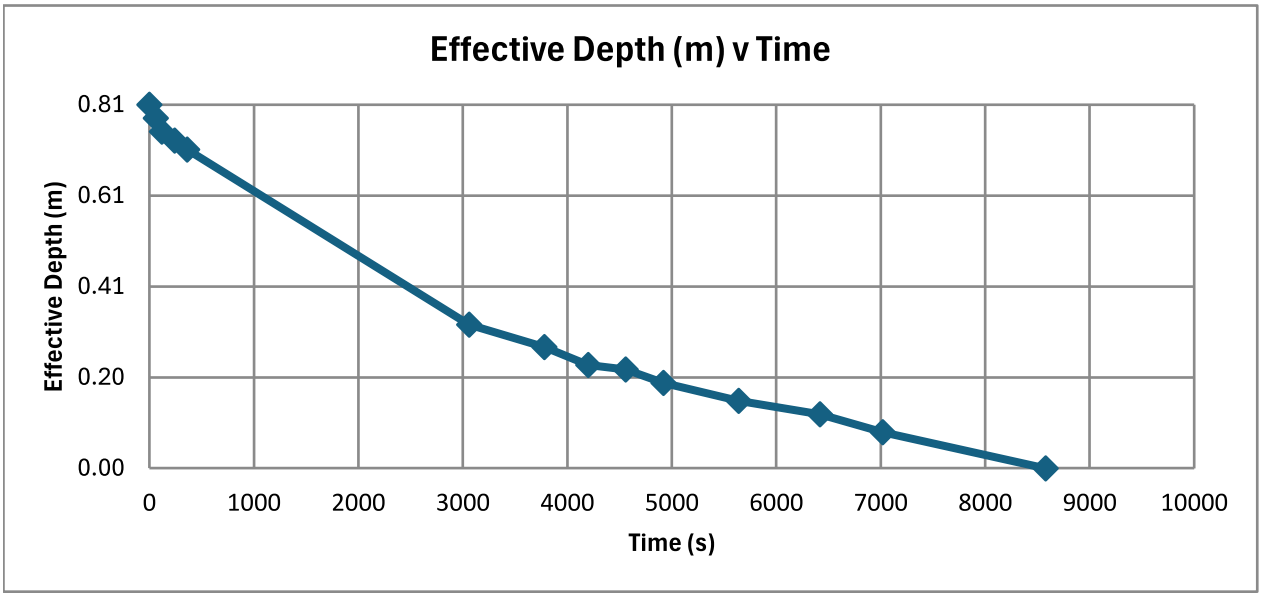
Length	1.60	m
Width	0.65	m
Depth	1.15	m
Start water depth	0.34	m
Effective Depth	0.81	m

Date	Time		Depth (mBGL)	Head/ Effective Depth (m)	Effective Depth (%)
	Hour	Seconds			
17 June 2025	08:30:00	0	0.34	0.81	100
17 June 2025	08:31:00	60	0.37	0.78	96
17 June 2025	08:32:00	120	0.40	0.75	93
17 June 2025	08:34:00	240	0.42	0.73	90
17 June 2025	08:36:00	360	0.44	0.71	88
17 June 2025	09:21:00	3060	0.83	0.32	40
17 June 2025	09:33:00	3780	0.88	0.27	33
17 June 2025	09:40:00	4200	0.92	0.23	28
17 June 2025	09:46:00	4560	0.93	0.22	27
17 June 2025	09:52:00	4920	0.96	0.19	23
17 June 2025	10:04:00	5640	1.00	0.15	19
17 June 2025	10:17:00	6420	1.03	0.12	15
17 June 2025	10:27:00	7020	1.07	0.08	10
17 June 2025	10:53:00	8580	1.15	0.00	0
			Dry		

Effective Depth %	Depth (m)	Time (s)
75	0.6075	1070
25	0.2025	4740
	Vp75-25	tp75-25
Sum	0.4212	3670
Base	1.04	m2
Side long	0.648	m
Side short	0.26325	m
ap50	2.8625	m2
Soil Infiltration Rate	**4.01E-05**	**m/s**




Effective Depth (%) v Time semi log plot
125
100
75
50
25
0
Effective Depth (%)
1
10
100
1000
10000
100000
1000000
Log Time (s)


Effective Depth (m) v Time
0.81
0.61
0.41
0.20
0.00
Effective Depth (m)
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
Time (s)

Soakaway Test:

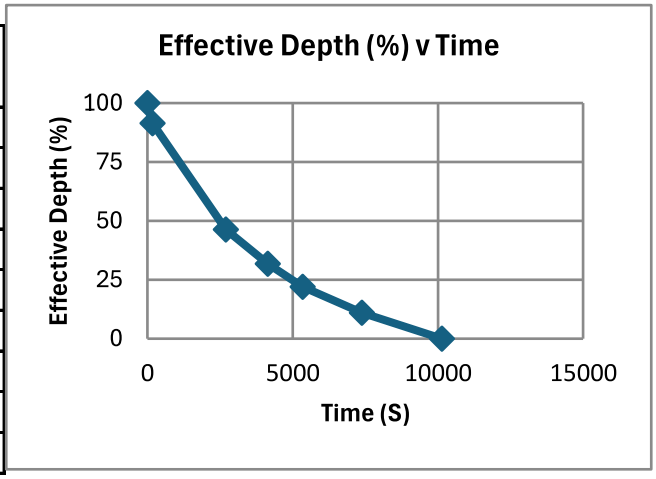
Trial Pit.	TP03B
Test No.	3

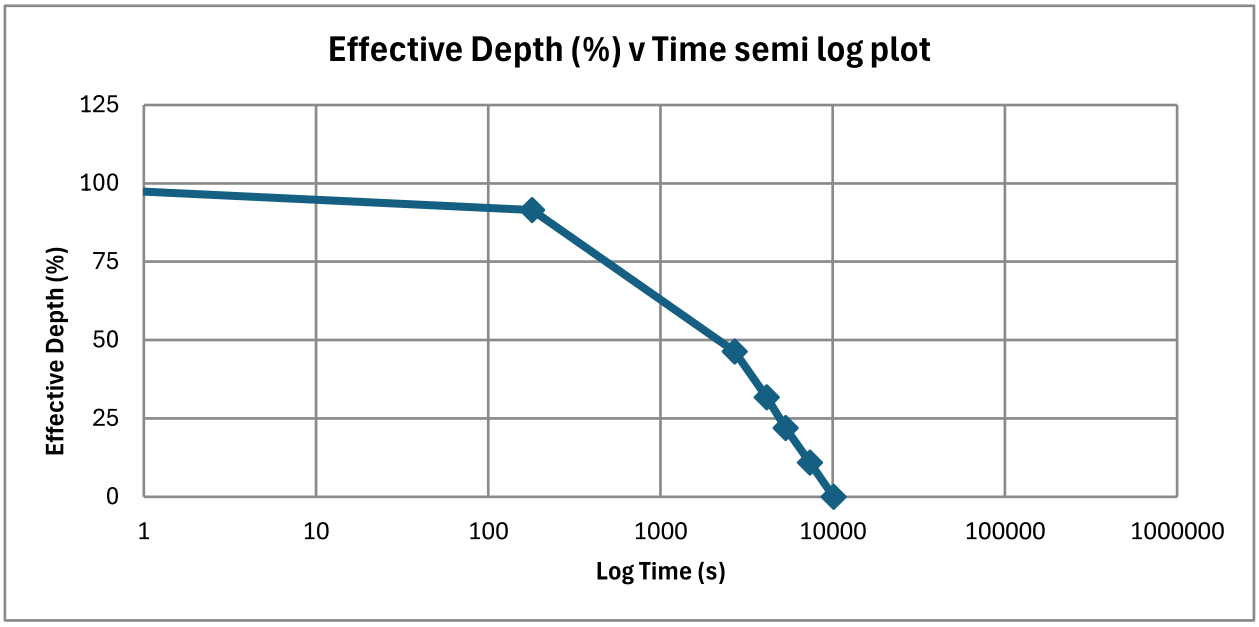
Dimensions:

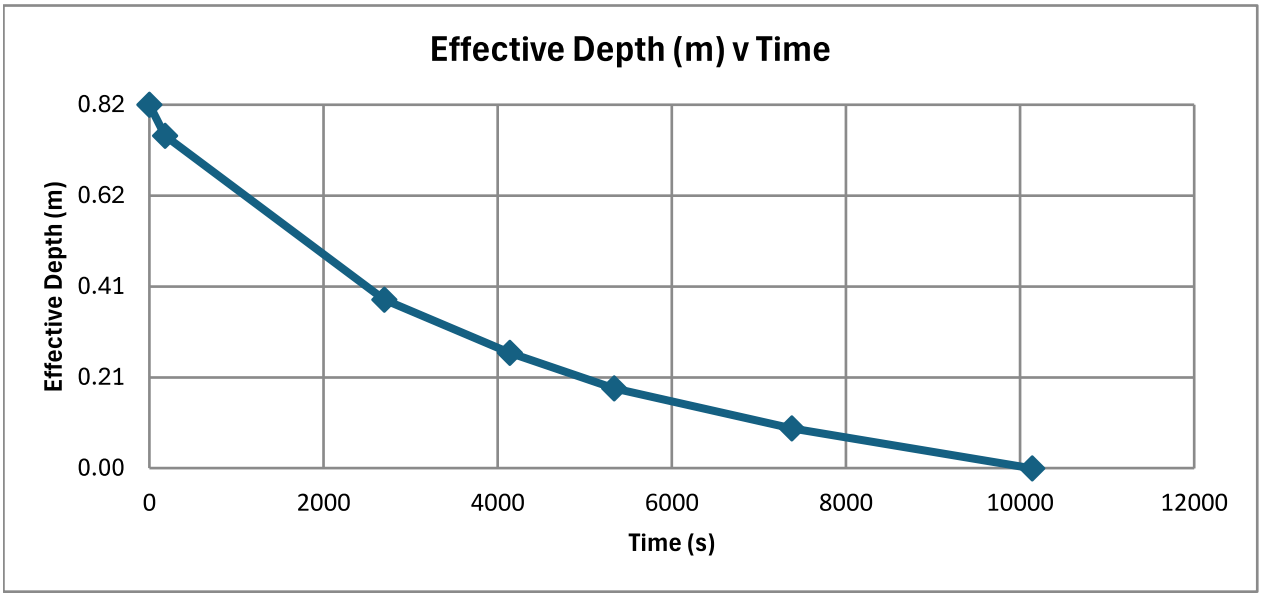
Length	1.60	m
Width	0.65	m
Depth	1.15	m
Start water depth	0.33	m
Effective Depth	0.82	m

Date	Time		Depth (mBGL)	Head/ Effective Depth (m)	Effective Depth (%)
	Hour	Seconds			
18 June 2025	08:22:00	0	0.33	0.82	100
18 June 2025	08:25:00	180	0.40	0.75	91
18 June 2025	09:07:00	2700	0.77	0.38	46
18 June 2025	09:31:00	4140	0.89	0.26	32
18 June 2025	09:51:00	5340	0.97	0.18	22
18 June 2025	10:25:00	7380	1.06	0.09	11
18 June 2025	11:11:00	10140	1.15	0.00	0
				Dry	

Effective Depth %	Depth (m)	Time (s)
75	0.615	1100
25	0.205	4950
	Vp75-25	tp75-25
Sum	0.4264	3850
Base	1.04	m2
Side long	0.656	m
Side short	0.2665	m
ap50	2.885	m2
Soil Infiltration Rate	**3.84E-05**	**m/s**




Effective Depth (%) v Time semi log plot
125
100
75
50
25
0
Effective Depth (%)
1
10
100
1000
10000
100000
1000000
Log Time (s)


Effective Depth (m) v Time
0.82
0.62
0.41
0.21
0.00
Effective Depth (m)
0
2000
4000
6000
8000
10000
12000
Time (s)

Soakaway Test:

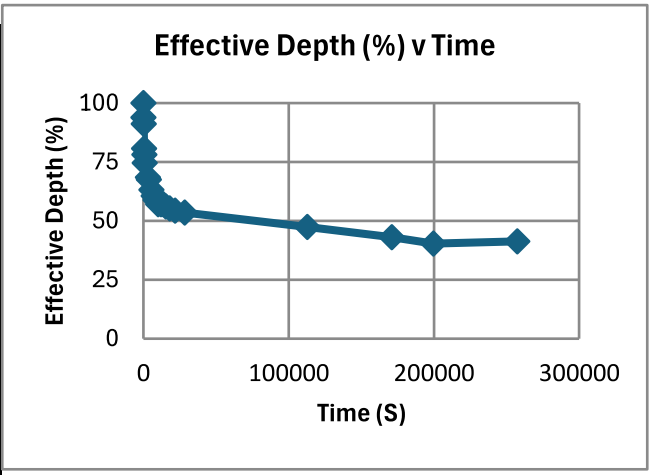
Trial Pit.	TP04
Test No.	1

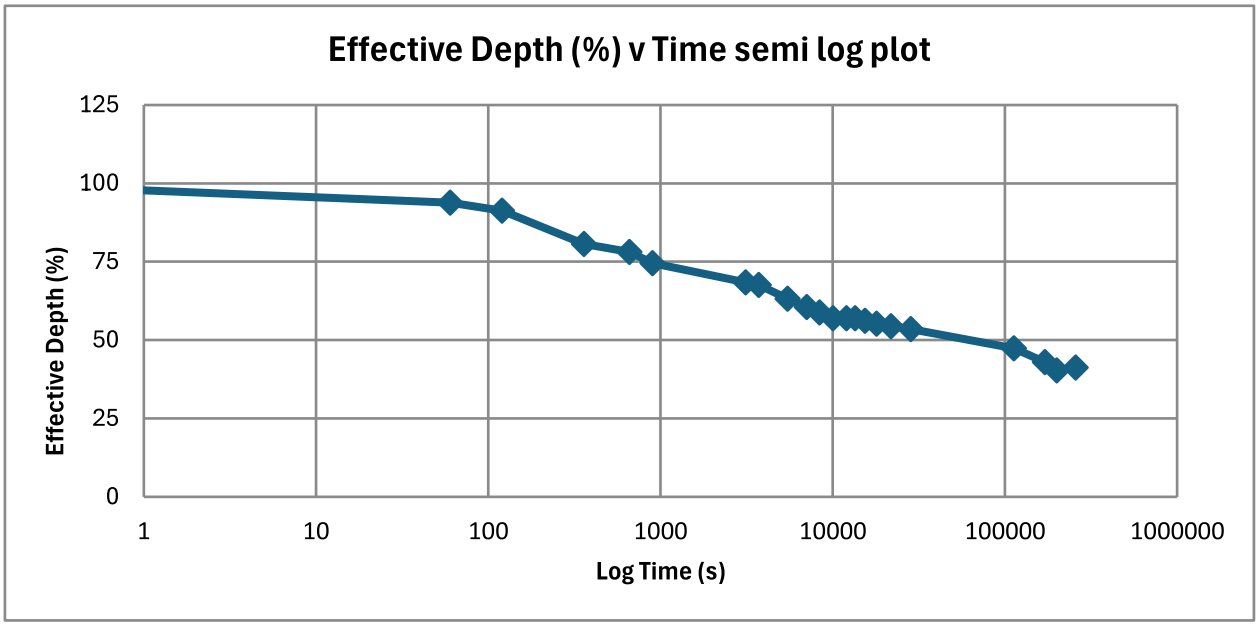
Dimensions:

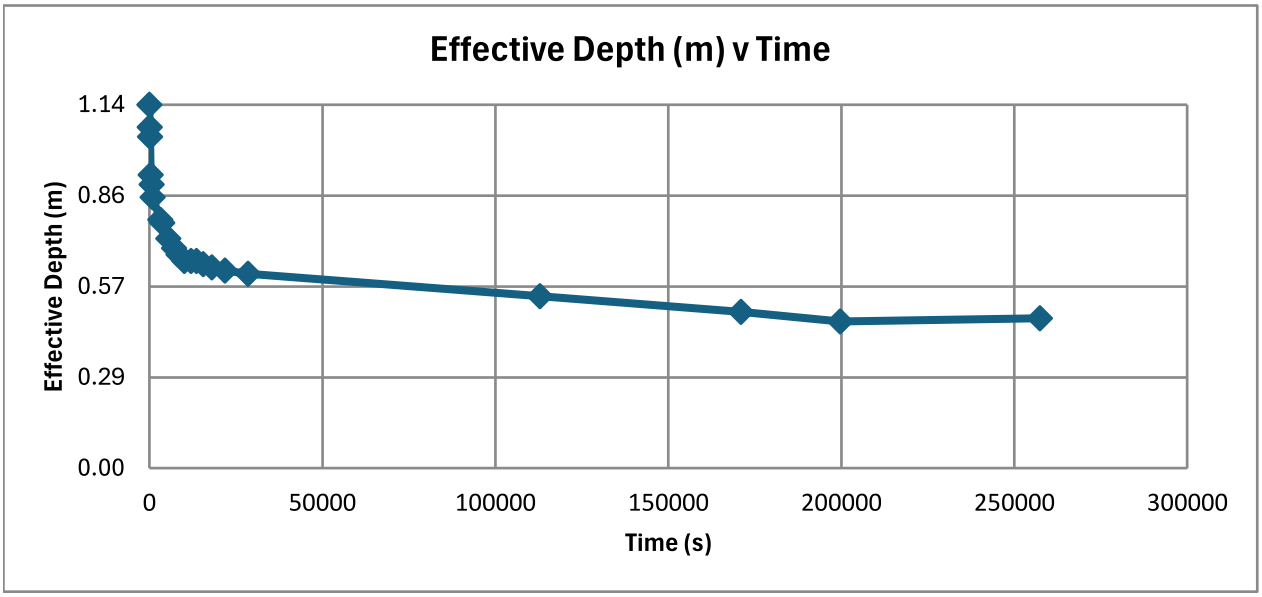
Length	2.80	m
Width	0.65	m
Depth	2.15	m
Start water depth	1.01	m
Effective Depth	1.14	m

Date	Time		Depth (mBGL)	Head/ Effective Depth (m)	Effective Depth (%)
	Hour	Seconds			
16 June 2025	08:41:00	0	1.01	1.14	100
16 June 2025	08:42:00	60	1.08	1.07	94
16 June 2025	08:43:00	120	1.11	1.04	91
16 June 2025	08:47:00	360	1.23	0.92	81
16 June 2025	08:52:00	660	1.26	0.89	78
16 June 2025	08:56:00	900	1.30	0.85	75
16 June 2025	09:33:00	3120	1.37	0.78	68
16 June 2025	09:43:00	3720	1.38	0.77	68
16 June 2025	10:12:00	5460	1.43	0.72	63
16 June 2025	10:39:00	7080	1.46	0.69	61
16 June 2025	11:01:00	8400	1.48	0.67	59
16 June 2025	11:29:00	10080	1.50	0.65	57
16 June 2025	12:01:00	12000	1.50	0.65	57
16 June 2025	12:27:00	13560	1.50	0.65	57
16 June 2025	12:59:00	15480	1.51	0.64	56
16 June 2025	13:41:00	18000	1.52	0.63	55
16 June 2025	14:44:00	21780	1.53	0.62	54
16 June 2025	16:35:00	28440	1.54	0.61	54
17 June 2025	16:02:00	112860	1.61	0.54	47
18 June 2025	08:11:00	171000	1.66	0.49	43
18 June 2025	16:09:00	199680	1.69	0.46	40
19 June 2025	08:11:00	257400	1.68	0.47	41

Effective Depth %	Depth (m)	Time (s)
75	0.855	900
25	0.285	-
	Vp75-25	tp75-25
Sum	1.0374	-
Base	1.82	m2
Side long	1.596	m
Side short	0.3705	m
ap50	5.753	m2
Soil Infiltration Rate	**-**	**m/s**




Effective Depth (%) v Time semi log plot
125
100
75
50
25
0
Effective Depth (%)
1
10
100
1000
10000
100000
1000000
Log Time (s)


Effective Depth (m) v Time
1.14
0.86
0.57
0.29
0.00
Effective Depth (m)
0
50000
100000
150000
200000
250000
300000
Time (s)

Soakaway Test:

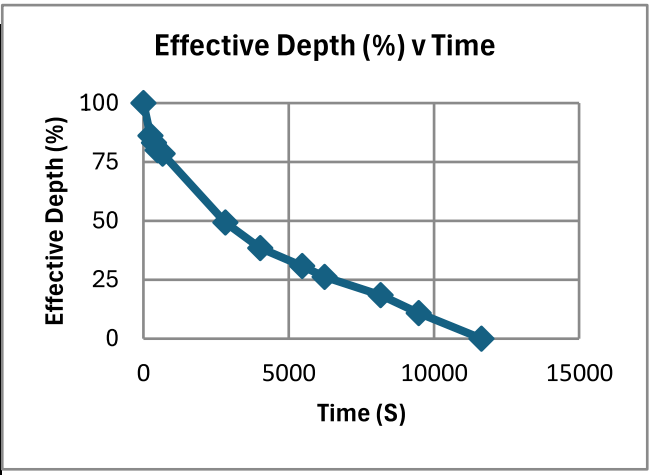
Trial Pit.	TP04B
Test No.	1

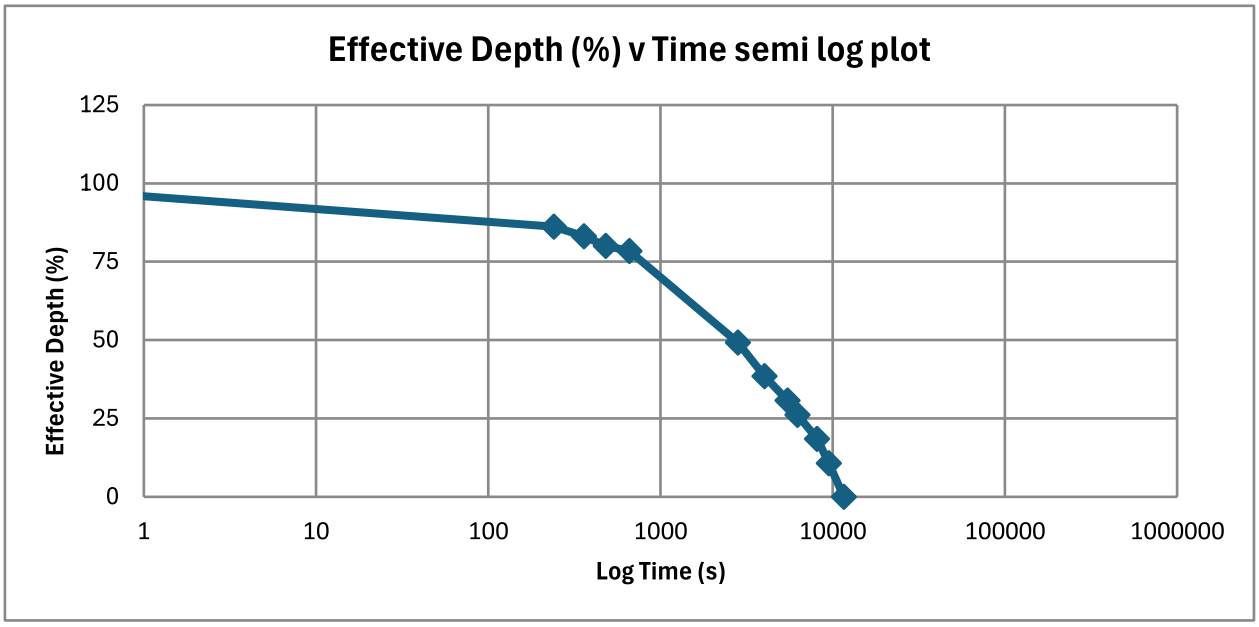
Dimensions:

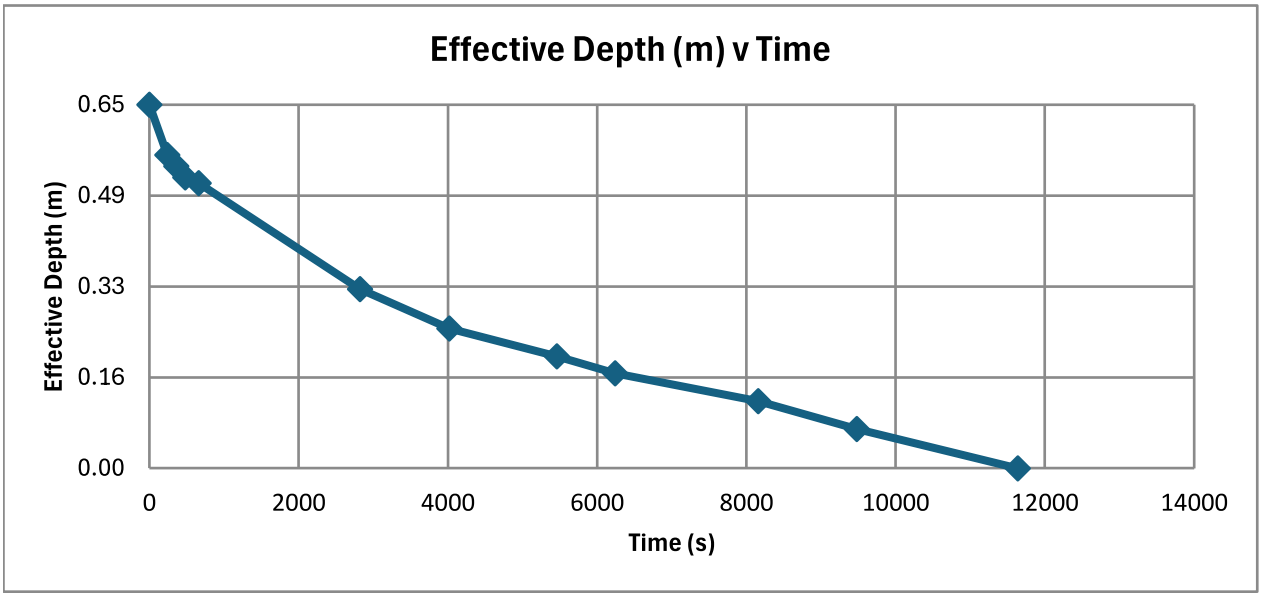
Length	1.60	m
Width	0.65	m
Depth	1.00	m
Start water depth	0.35	m
Effective Depth	0.65	m

Date	Time		Depth (mBGL)	Head/ Effective Depth (m)	Effective Depth (%)
	Hour	Seconds			
16 June 2025	13:56:00	0	0.35	0.65	100
16 June 2025	14:00:00	240	0.44	0.56	86
16 June 2025	14:02:00	360	0.46	0.54	83
16 June 2025	14:04:00	480	0.48	0.52	80
16 June 2025	14:07:00	660	0.49	0.51	78
16 June 2025	14:43:00	2820	0.68	0.32	49
16 June 2025	15:03:00	4020	0.75	0.25	38
16 June 2025	15:27:00	5460	0.80	0.20	31
16 June 2025	15:40:00	6240	0.83	0.17	26
16 June 2025	16:12:00	8160	0.88	0.12	18
16 June 2025	16:34:00	9480	0.93	0.07	11
16 June 2025	17:10:00	11640	1.00	0.00	0
			Dry		

Effective Depth %	Depth (m)	Time (s)
75	0.4875	900
25	0.1625	6500
	Vp75-25	tp75-25
Sum	0.338	5600
Base	1.04	m2
Side long	0.52	m
Side short	0.21125	m
ap50	2.5025	m2
Soil Infiltration Rate	**2.41E-05**	**m/s**




Effective Depth (%) v Time semi log plot
125
100
75
50
25
0
Effective Depth (%)
1
10
100
1000
10000
100000
1000000
Log Time (s)


Effective Depth (m) v Time
0.65
0.49
0.33
0.16
0.00
Effective Depth (m)
0
2000
4000
6000
8000
10000
12000
14000
Time (s)

Soakaway Test:

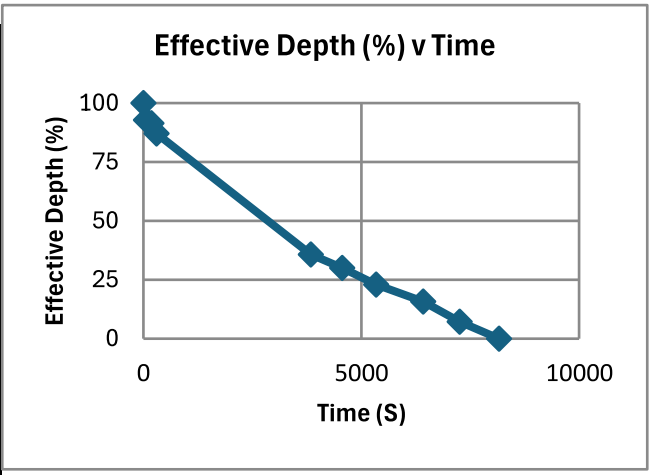
Trial Pit.	TP04B
Test No.	2

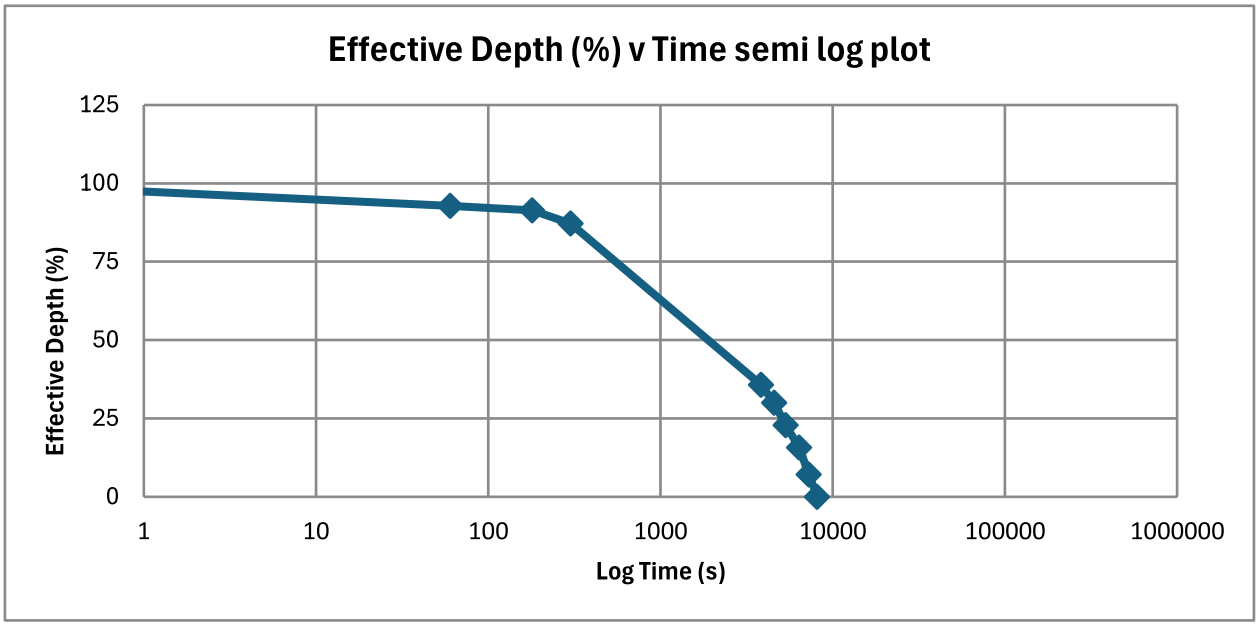
Dimensions:

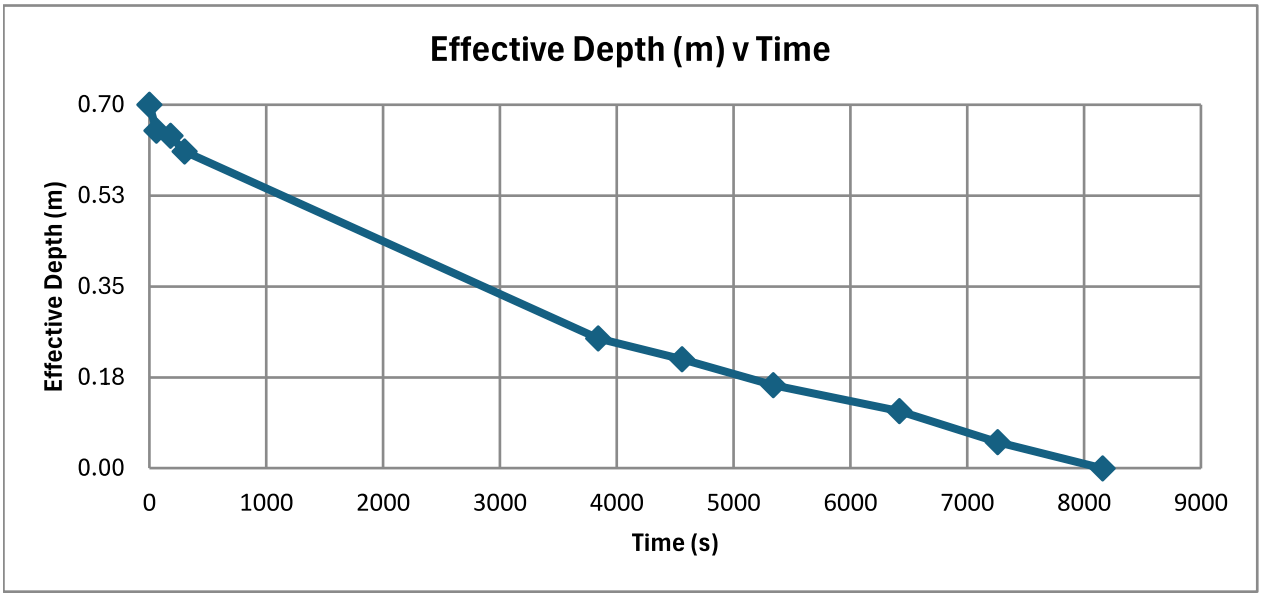
Length	1.60	m
Width	0.65	m
Depth	1.00	m
Start water depth	0.30	m
Effective Depth	0.70	m

Date	Time		Depth (mBGL)	Head/ Effective Depth (m)	Effective Depth (%)
	Hour	Seconds			
17 June 2025	08:19:00	0	0.30	0.70	100
17 June 2025	08:20:00	60	0.35	0.65	93
17 June 2025	08:22:00	180	0.36	0.64	91
17 June 2025	08:24:00	300	0.39	0.61	87
17 June 2025	09:23:00	3840	0.75	0.25	36
17 June 2025	09:35:00	4560	0.79	0.21	30
17 June 2025	09:48:00	5340	0.84	0.16	23
17 June 2025	10:06:00	6420	0.89	0.11	16
17 June 2025	10:20:00	7260	0.95	0.05	7
17 June 2025	10:35:00	8160	1.00	0.00	0
			Dry		

Effective Depth %	Depth (m)	Time (s)
75	0.525	1150
25	0.175	5100
	Vp75-25	tp75-25
Sum	0.364	3950
Base	1.04	m2
Side long	0.56	m
Side short	0.2275	m
ap50	2.615	m2
Soil Infiltration Rate	**3.52E-05**	**m/s**




Effective Depth (%) v Time semi log plot
125
100
75
50
25
0
Effective Depth (%)
1
10
100
1000
10000
100000
1000000
Log Time (s)


Effective Depth (m) v Time
0.70
0.53
0.35
0.18
0.00
Effective Depth (m)
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
Time (s)

Soakaway Test:

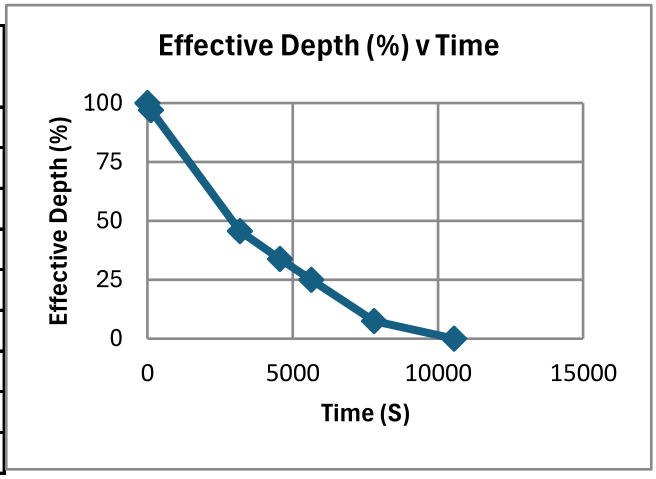
Trial Pit.	TP04B
Test No.	3

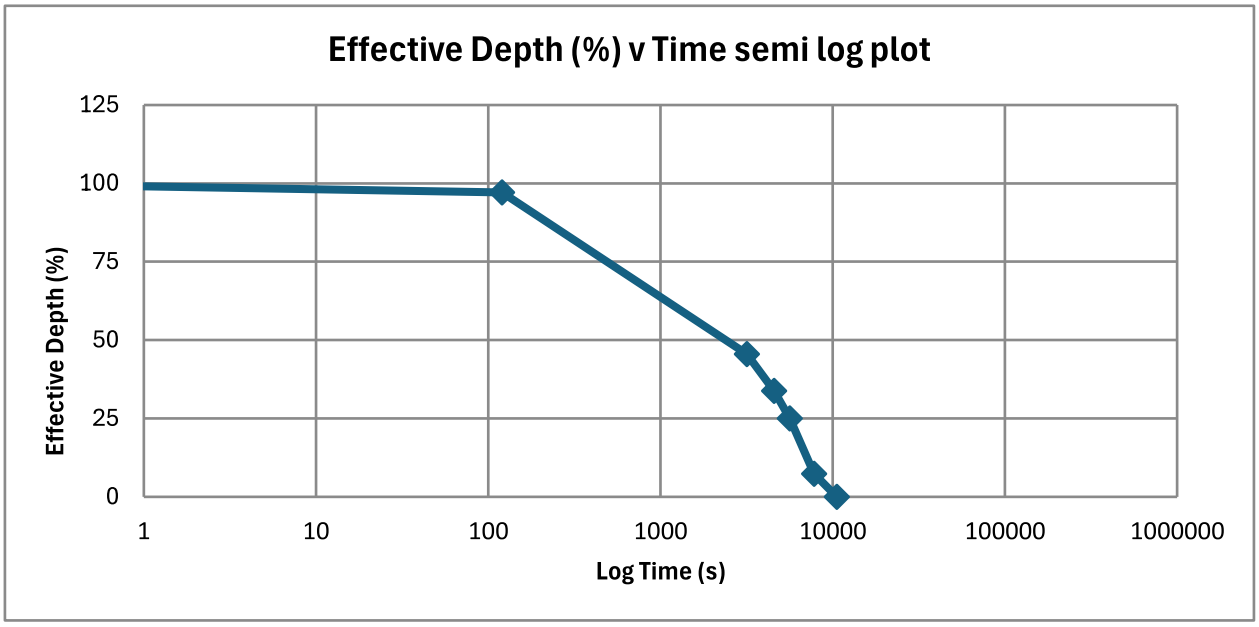
Dimensions:

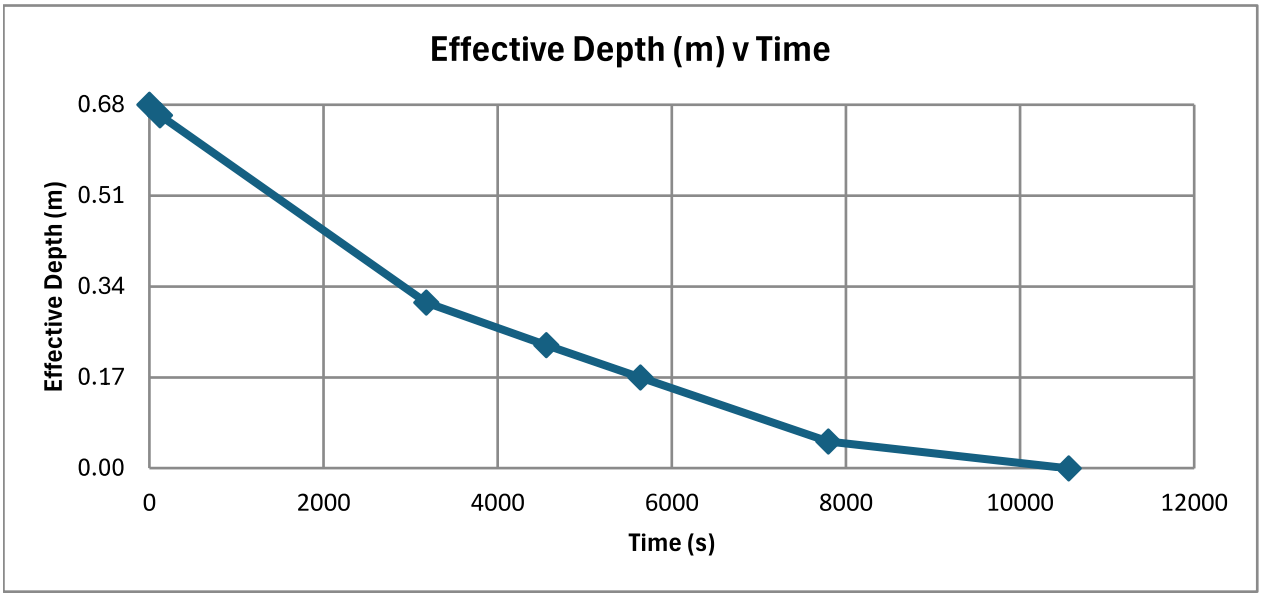
Length	1.60	m
Width	0.65	m
Depth	1.00	m
Start water depth	0.32	m
Effective Depth	0.68	m

Date	Time		Depth (mBGL)	Head/ Effective Depth (m)	Effective Depth (%)
	Hour	Seconds			
18 June 2025	08:16:00	0	0.32	0.68	100
18 June 2025	08:18:00	120	0.34	0.66	97
18 June 2025	09:09:00	3180	0.69	0.31	46
18 June 2025	09:32:00	4560	0.77	0.23	34
18 June 2025	09:50:00	5640	0.83	0.17	25
18 June 2025	10:26:00	7800	0.95	0.05	7
18 June 2025	11:12:00	10560	1.00	0.00	0
			Dry		

Effective Depth %	Depth (m)	Time (s)
75	0.51	1450
25	0.17	5640
	Vp75-25	tp75-25
Sum	0.3536	4190
Base	1.04	m2
Side long	0.544	m
Side short	0.221	m
ap50	2.57	m2
Soil Infiltration Rate	**3.28E-05**	**m/s**




Effective Depth (%) v Time semi log plot
125
100
75
50
25
0
Effective Depth (%)
1
10
100
1000
10000
100000
1000000
Log Time (s)


Effective Depth (m) v Time
0.68
0.51
0.34
0.17
0.00
Effective Depth (m)
0
2000
4000
6000
8000
10000
12000
Time (s)

Appendix E – Rotary Borehole Logs

Borehole Log

Borehole No. **BH01**

Sheet 1 of 2

Project Name:	Land off Trowbridge Road	Project No. GCE01390	Co-ords:	383637E - 160281N	Hole Type BH
Location:	Bradford on Avon, Wiltshire		Level:	42.27 m AOD	Scale 1:25
Client:	Waddeton Park Ltd		Dates:	13/06/2025	Logged By SK

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
						42.27		Rough grass over brown slightly sandy slightly gravelly clay, with numerous rootlets.	
					0.10	42.17		Stiff, brown, slightly sandy, slightly gravelly, silty CLAY, with occasional rootlets. Gravel is fine to medium subangular fossiliferous limestone.	
		0.20	JG						
					0.40	41.87		Stiff, light brown, slightly sandy, very silty CLAY.	
		0.50	JG						
		0.60	JP						
		0.70	PP	225.00					
		1.00	JP						1
		1.00	PP	200.00					
		1.20	PP	190.00					
		1.40	PP	80.00	1.40	40.87		Soft and firm, light brown, slightly sandy, very silty CLAY.	
		1.45	JP						
		1.50 - 1.95	JP						
		1.50	SPT	N=11 (1,2/3,2,3,3)					
		2.00	PP	65.00					2
		2.20	JP						
		2.20	PP	45.00					
		2.60	PP	20.00	2.55	39.72		Soft and firm, light brown, sandy, silty CLAY.	
		2.80	JP						
		2.80	PP	30.00					
		3.00 - 3.45	JP						3
		3.00	SPT	N=11 (2,1/2,3,4,2)					
		3.60	PP	50.00	3.55	38.72		Soft and firm, light brown mottled light grey, sandy, silty CLAY.	
		3.70	JP						
		3.70	PP	55.00					
		3.80	PP	45.00					
		3.90	PP	125.00					
		4.00	PP	50.00					4
		4.10	PP	100.00					
		4.30	PP	30.00					
		4.40	JP						
		4.50	SPT	N=25 (1,5/5,8,5,7)					
		4.80	PP	200.00	4.75	37.52		Stiff, greenish grey occasionally orangish brown, slightly gravelly, silty CLAY. Gravel is fine to medium subangular siltstone.	
		4.90	JP						
		5.00	PP	190.00					5
								Continued on Next Sheet	

Remarks

No groundwater encountered during drilling. Borehole drilled using dynamic sampling to base of borehole.SPT undertaken at 1.5m increments. Groundwater monitoring well installed to the base of the monitoring well comprising slotted pipe and gravel filter from 5.23m to 1.23m with plain pipe and bentonite seal to surface. Finished at surface with a raised lock cover and timber post.

Borehole Log

Borehole No. **BH01**

Sheet 2 of 2

Project Name:	Land off Trowbridge Road	Project No. GCE01390	Co-ords:	383637E - 160281N	Hole Type BH
Location:	Bradford on Avon, Wiltshire		Level:	42.27 m AOD	Scale 1:25
Client:	Waddeton Park Ltd		Dates:	13/06/2025	Logged By SK

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		5.20	PP	190.00				Stiff, greenish grey occasionally orangish brown, slightly gravelly, silty CLAY. Gravel is fine to medium subangular siltstone.
		5.50	PP	100.00				
		5.60	JP					
		5.60	PP	200.00	5.70			End of Borehole at 5.70m

Remarks

No groundwater encountered during drilling. Borehole drilled using dynamic sampling to base of borehole.SPT undertaken at 1.5m increments. Groundwater monitoring well installed to the base of the monitoring well comprising slotted pipe and gravel filter from 5.23m to 1.23m with plain pipe and bentonite seal to surface. Finished at surface with a raised lock cover and timber post.

Borehole Log

				Borehole No. **BH02** Sheet 1 of 1
Project Name:	Land off Trowbridge Road	Project No. GCE01390	Co-ords: 383718E - 160249N	Hole Type BH
Location:	Bradford on Avon, Wiltshire		Level: 40.08 m AOD	Scale 1:25
Client:	Waddeton Park Ltd		Dates: 13/06/2025	Logged By SK

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
						40.08		Open-hole drilled, arisings of; Rough grass over brown slightly sandy slightly gravelly clay, with numerous rootlets.
					0.40	39.68		Open-hole drilled, arisings of; Light brown, slightly sandy, silty CLAY.
					4.60	35.48		Open-hole drilled, arisings of; Greensih grey, slightly gravelly, silty CLAY. Gravel recovered as fine angular siltstone.
					5.00			End of Borehole at 5.00m

1 2 3 4 5

Remarks

No groundwater encountered during drilling. Borehole drilled using rotary open-hole methods. Strata description and depths based on arisings. Groundwater monitoring well installed to the base of the monitoring well comprising slotted pipe and gravel filter from 4.94m to 0.94m with plain pipe and bentonite seal to surface. Finished at surface with a raised lock cover and timber post.

Borehole Log

Borehole No. **BH03**

Sheet 1 of 1

Project Name:	Land off Trowbridge Road	Project No. GCE01390	Co-ords:	383801E - 160188N	Hole Type BH
Location:	Bradford on Avon, Wiltshire		Level:	38.97 m AOD	Scale 1:25
Client:	Waddeton Park Ltd		Dates:	12/06/2025	Logged By SK

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
						38.97		Open-hole drilled, arisings of; Grass over brown slightly sandy slightly gravelly clay, with numerous rootlets.
					0.60	38.37		Open-hole drilled, arisings of; Light grey, slightly clayey/silty, slightly sandy GRAVEL & COBBLES. Gravel recovered as fine, gravel and cobbles recovered as angular limestone.
					0.90	38.07		Open-hole drilled, arisings of; Light brownish grey, clayey/silty, sandy GRAVEL. Gravel recovered as fine angular limestone.
					3.00	35.97		Open-hole drilled, arisings of; Light brownish grey, sandy LIMESTONE.
					4.10	34.87		Open-hole drilled, arisings of; Dark grey, silty CLAY.
					4.50	34.47		Open-hole drilled, arisings of; Light brownish grey, sandy LIMESTONE.
					5.00			End of Borehole at 5.00m

1 2 3 4 5

Remarks

No groundwater encountered during drilling. Borehole drilled using rotary open-hole methods. Strata description and depths based on arisings. Groundwater monitoring well installed to the base of the monitoring well comprising slotted pipe and gravel filter from 4.88m to 0.88m with plain pipe and bentonite seal to surface. Finished at surface with a raised lock cover and timber post.

Borehole Log

Borehole No. **BH04**

Sheet 1 of 1

Project Name:	Land off Trowbridge Road	Project No. GCE01390	Co-ords:	383708E - 160054N	Hole Type BH
Location:	Bradford on Avon, Wiltshire		Level:	38.72 m AOD	Scale 1:25
Client:	Waddeton Park Ltd		Dates:	12/06/2025	Logged By SK

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
						38.72		Open-hole drilled, arisings of; Grass over brown slightly sandy slightly gravelly clay, with numerous rootlets.
					0.40	38.32		Open-hole drilled, arisings of; Light grey, slightly clayey/silty, slightly sandy GRAVEL & COBBLES. Gravel recovered as fine, gravel and cobbles recovered as angular limestone.
					1.00	37.72		Open-hole drilled, arisings of; Light brownish grey, clayey/silty, sandy GRAVEL. Gravel recovered as fine angular limestone.
					2.00	36.72		Open-hole drilled, arisings of; Light brownish grey, sandy LIMESTONE.
					3.40	35.32		Open-hole drilled, arisings of; Dark grey, silty CLAY.
					5.00			End of Borehole at 5.00m

1 2 3 4 5

Remarks

No groundwater encountered during drilling. Borehole drilled using rotary open-hole methods. Strata description and depths based on arisings. Groundwater monitoring well installed to the base of the monitoring well comprising slotted pipe and gravel filter from 5.00m to 1.00m with plain pipe and bentonite seal to surface. Finished at surface with a raised lock cover and timber post.

Borehole Log

Borehole No. **BH05**

Sheet 1 of 2

Project Name:	Land off Trowbridge Road	Project No. GCE01390	Co-ords:	383610E - 159911N	Hole Type BH
Location:	Bradford on Avon, Wiltshire		Level:	39.03 m AOD	Scale 1:25
Client:	Waddeton Park Ltd		Dates:	12/06/2025	Logged By SK

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
						39.03		Grass over brown slightly sandy slightly gravelly clay, with numerous rootlets.
					0.30	38.73		Light brown and light grey, very clayey/silty, sandy GRAVEL, locally gravelly silty clay. Gravel is fine to medium subangular fossiliferous limestone.
		0.60	JP					
		0.90	JP					
					1.20	37.83		Very stiff, light brown and brownish grey, slightly sandy, gravelly, very silty CLAY. Gravel is fine to medium subangular fossiliferous limestone. (Logged from SPT 1.50-1.75m, logged from open hole arisings 1.75-2.00m)
		1.30	JP					
		1.50 - 1.75 1.50	JP SPT	50 (5,8/50 for 90mm)				
					2.00	37.03		Open-hole drilled, arisings of; Light brownish grey, sandy LIMESTONE.
		3.20 - 3.65 3.20	JP SPT	N=42 (6,7/11,9,10,12)	3.20	35.83		Open-hole drilled, arisings of; Very stiff, dark grey, thinly laminated, silty CLAY. (Logged from SPT 3.20-3.65m)
								Continued on Next Sheet

Remarks

No groundwater encountered during drilling. Borehole drilled using dynamic sampling to SPT refusal at 1.5m. Rotary open-hole methods used to base of borehole, strata description and depths based on arisings. Groundwater monitoring well installed to the base of the monitoring well comprising slotted pipe and gravel filter from 5.15m to 1.15m with plain pipe and bentonite seal to surface. Finished at surface with a raised lock cover and timber post.

Borehole Log

				Borehole No. **BH05** Sheet 2 of 2
Project Name:	Land off Trowbridge Road	Project No. GCE01390	Co-ords: 383610E - 159911N	Hole Type BH
Location:	Bradford on Avon, Wiltshire		Level: 39.03 m AOD	Scale 1:25
Client:	Waddeton Park Ltd		Dates: 12/06/2025	Logged By SK

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					5.15			Open-hole drilled, arisings of; Very stiff, dark grey, thinly laminated, silty CLAY. (Logged from SPT 3.20-3.65m) End of Borehole at 5.15m

6
7
8
9
10

Remarks

No groundwater encountered during drilling. Borehole drilled using dynamic sampling to SPT refusal at 1.5m. Rotary open-hole methods used to base of borehole, strata description and depths based on arisings. Groundwater monitoring well installed to the base of the monitoring well comprising slotted pipe and gravel filter from 5.15m to 1.15m with plain pipe and bentonite seal to surface. Finished at surface with a raised lock cover and timber post.

Borehole Log

Borehole No. **BH06**

Sheet 1 of 1

Project Name:	Land off Trowbridge Road	Project No. GCE01390	Co-ords:	383512E - 159795N	Hole Type BH
Location:	Bradford on Avon, Wiltshire		Level:	39.42 m AOD	Scale 1:25
Client:	Waddeton Park Ltd		Dates:	12/06/2025	Logged By SK

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.07	39.42		Grass over brown slightly sandy slightly gravelly clay, with numerous rootlets.
					0.35	39.35		Stiff, brown, slightly sandy, gravelly, silty CLAY, with occasional rootlets.
		0.60	JP			39.08		Light brownish grey, clayey/silty, sandy GRAVEL. Gravel is fine to medium subangular fossiliferous limestone.
		1.00	JP		0.85	38.58		Stiff, light brown and light brownish grey, sandy, gravelly, silty CLAY. Gravel is fine to medium subangular fossiliferous limestone.
		1.30	JP		1.15	38.28		Light brownish grey, clayey/silty, sandy, GRAVEL. Gravel is fine to medium subangular fossiliferous limestone. (Logged from SPT 1.50-1.95m, logged from open hole arisings 1.95-2.00m)
		1.50 - 1.95 1.50	JP SPT	N=29 (6,7/5,4,5,15)				
					2.00	37.42		Open-hole drilled, arisings of; Light brownish grey, sandy LIMESTONE.
		3.50 - 3.93 3.50	JP SPT	N=50 (5,7/50 for 275mm)	3.50	35.92		Open-hole drilled, arisings of; Very stiff, dark grey, thinly laminated, silty CLAY. (Logged from SPT 3.50-3.93m)
					5.00			End of Borehole at 5.00m

Remarks

No groundwater encountered during drilling. Borehole drilled using dynamic sampling to 1.5m, last SPT increment was bouncing so dynamic sampling not recommenced. Rotary open-hole methods used to base of borehole, strata description and depths based on arisings. Groundwater monitoring well installed to the base of the monitoring well comprising slotted pipe and gravel filter from 4.86m to 0.86m with plain pipe and bentonite seal to surface. Finished at surface with a raised lock cover and timber post.

Borehole Log

Borehole No. **BH07**

Sheet 1 of 1

Project Name:	Land off Trowbridge Road	Project No. GCE01390	Co-ords:	383326E - 159866N	Hole Type BH
Location:	Bradford on Avon, Wiltshire		Level:	42.92 m AOD	Scale 1:25
Client:	Waddeton Park Ltd		Dates:	12/06/2025	Logged By SK

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
						42.92		
					0.10	42.82		Grass over brown slightly sandy slightly gravelly clay, with numerous rootlets.
								Brown and light grey, slightly clayey/silty, slightly sandy GRAVEL. Gravel is fine to coarse subangular fossiliferous limestone. Occasional rootlets.
					0.40	42.52		
		0.60	JP					Stiff, light brown and light brownish grey, slightly sandy, gravelly, silty CLAY. Gravel is fine to medium subangular fossiliferous limestone.
		0.80	PP	150.00				
		1.00	JP					
		1.00	PP	225.00				
		1.20	PP	225.00				
		1.45	JP		1.40	41.52		
		1.50 - 1.95	JP					Stiff, light brown and light brownish grey, sandy, gravelly, silty CLAY. Gravel is fine to medium subangular fossiliferous limestone.
		1.50	SPT	N=43 (3,5/7,9,15,12)				
					2.05	40.87		Open-hole drilled, arisings of; Light brownish grey, sandy LIMESTONE.
		3.20 - 3.62	JP		3.20	39.72		Open-hole drilled, arisings of; Very stiff, dark grey, thinly laminated, silty CLAY. Occasional coarse sand sized fossil fragments. (Logged from SPT 3.20-3.62m)
		3.20	SPT	N=50 (13,11/50 for 265mm)				
					5.00			End of Borehole at 5.00m

1 2 3 4 5

Remarks

No groundwater encountered during drilling. Borehole drilled using dynamic sampling to DS refusal at 2.05m. Rotary open-hole methods used to base of borehole, strata description and depths based on arisings. Groundwater monitoring well installed to the base of the monitoring well comprising slotted pipe and gravel filter from 4.70m to 0.70m with plain pipe and bentonite seal to surface. Finished at surface with a raised lock cover and timber post.

Borehole Log

Borehole No. **BH08**

Sheet 1 of 1

Project Name:	Land off Trowbridge Road	Project No. GCE01390	Co-ords:	383483E - 160045N	Hole Type BH
Location:	Bradford on Avon, Wiltshire		Level:	43.18 m AOD	Scale 1:25
Client:	Waddeton Park Ltd		Dates:	13/06/2025	Logged By SK

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
						43.18		
					0.10	43.08		Rough grass over brown slightly sandy slightly gravelly clay, with numerous rootlets.
		0.20	JG					Brown and light grey, clayey/silty, slightly sandy GRAVEL. Gravel is fine to coarse subangular fossiliferous limestone. Occasional rootlets.
					0.25	42.93		Stiff, brown, slightly sandy, gravelly, silty CLAY. Gravel is fine to medium subangular fossiliferous limestone.
		0.60	JP					
		0.90	JP					
		1.00 - 1.42	JP		1.00	42.18		Open-hole drilled, arisings of; Light brownish grey, sandy LIMESTONE.
		1.00	SPT	N=50 (12,13/50 for 265mm)				
		3.80 - 4.23	JP		3.80	39.38		Open-hole drilled, arisings of; Very stiff, dark grey, thinly laminated, silty CLAY. Occasional coarse sand sized fossil fragments. (Logged from SPT 3.80-4.23m)
		3.80	SPT	N=50 (11,13/50 for 275mm)				
					5.00			End of Borehole at 5.00m

Remarks

No groundwater encountered during drilling. Borehole drilled using dynamic sampling to SPT refusal at 1.5m. Rotary open-hole methods used to base of borehole, strata description and depths based on arisings. Groundwater monitoring well installed to the base of the monitoring well comprising slotted pipe and gravel filter from 4.70m to 0.70m with plain pipe and bentonite seal to surface. Finished at surface with a raised lock cover and timber post.

Appendix E Environment Agency Data

creating a better place
for people and wildlife

Environment Agency

Nick Bosanko
SLR Consulting
Nick.Bosanko@slrconsulting.com

Our ref: EIR2025/07334
Date: 15 May 2025

Dear Nick

Thank you for your enquiry which was received on 1st May 2025. We respond to requests under the Freedom of Information Act 2000 and Environmental Information Regulations 2004.

Abstract

Name	Product 4
Description	Detailed Flood Risk Assessment Map for **Land southeast of town centre, Bradford-on-Avon, BA15 1UA** NGR: ST8380860026
Licence	Open Government Licence
Information Warnings	*The mapping of features provided as a background in this product is © Ordnance Survey. It is provided to give context to this product. The Open Government Licence does not apply.*
Attribution	Contains Environment Agency information © Environment Agency and/or database rights. Contains Ordnance Survey data © Crown copyright 2025 Ordnance Survey *AC0000807064*.

Open Data
Environment Agency published datasets are available on the weblink below as part of the Government's 'Open Data' project and are available for you to download free of charge.
Environment Agency published datasets: Find open data - data.gov.uk

Examples of datasets you may require:

- Flood Map for Planning
- Recorded Flood Outlines
- Historic Flood Map
- Surface Water for Spatial Planning extents

You can also access the Flood Map for Planning here: https://flood-map-for-planning.service.gov.uk/

You can also access the Risk of Flooding from Surface Water maps and Risk of Flooding from Reservoirs information here: https://check-long-term-flood-risk.service.gov.uk/

If you have requested this information to help inform a development proposal, then you should also note the detail in the attached advisory text on the use of Environment Agency Information and Further Guidance for FRAs.

Recorded Historic Flood Events
We no longer produce pdf copies of the Historic Flood Map. This information is available to search select, and download free of charge as part of the Government's 'Open Data' project as

- Recorded Flood Outlines
- Historic Flood Map

These are GIS layers and can be downloaded from: Environment Agency - Publishers - data.gov.uk

Our historic records indicate that there was fluvial (main river) flooding in the area in **1925, 1932, 1960, 1979, 1982, 1999, 2012** and **2014.**

Please note: we cannot guarantee that this is an exhaustive list of all past flood events in this location. All reasonable care has been taken to ensure that the historical flood event data is as accurate as possible. The Environment Agency will update it's records if new evidence emerges.

Strategic Flood Risk Assessment (SFRA)
When preparing a FRA to support a development proposal in this location you should refer to Wiltshire Council's SFRA Reports Level 1 which is available to download via the following link: https://www.wiltshire.gov.uk/media/14497/SD67-Wiltshire-Level-1-Strategic-Flood-Risk-Assessment-2024/pdf/SD67_Wiltshire_Level_1_Strategic_Flood_Risk_Assessment_2024.pdf?m=1733141632550
The Wiltshire Council Local Plan is available via this link: https://www.wiltshire.gov.uk/planning-policy-local-plan-review-consultation. Please contact Wiltshire Council for further information about their latest SFRA.

Planning Advice
We now charge for aspects of discretionary planning advice including pre-application enquiries. This approach provides advice to developers in two ways. Firstly, there is the provision of 'free' high level advice available to everyone where we give a preliminary opinion on a proposed development. This sets out the environmental constraints together with any issues this raises for us. Should you wish us to obtain more detailed advice, we may be able to provide this through our discretionary chargeable scheme aimed at recovering our costs. If you have questions regarding elements of your enquiry related to Planning and Development, please contact our Sustainable Places team on wx.sp@environment-agency.gov.uk.

Flood Levels

Flood Levels and Updates to National Modelling
The Environment Agency has carried out a National project to update our flood risk information for the whole of England. We have updated our flood risk information in 2025 as part of the new National Flood Risk Assessment (NaFRA2). This includes the data displayed on the Check Your Long-Term Flood Risk service and the data displayed in the Flood Map for Planning (Rivers and Sea). The Risk of Flooding from Rivers and Sea (RoFRS), and Risk of Flooding from Surface Water (RoFSW) was updated on 28th January 2025 using NaFRA2 information. The Flood Map for Planning update took place on 25th March 2025.
The Flood Zones in this location were retained from the previous publication and have been produced using our National Generalised Model (JFLOW) 2006. Therefore, for your information we have supplied maps showing the water depths derived from JFLOW for the 1% AEP (100yr) and 0.1% AEP (1000yr) fluvial modelled flood scenarios. This modelling is fit for the purpose of the Flood Zones. However, it is not based on a specific channel survey. Neither water depths nor water levels were outputs specified when we commissioned this generalised modelling for the Flood Zones. Whilst the modelling process does provide some information on depth of water, it would have been possible to produce the flood extents without storing the water depth values, since water depth is only a 'by-product' of the calculation process. As this type of modelling was developed, tested and reviewed for production of the Flood Zone extents only, we have no information on the accuracy of the water depth data. Water depth or level outputs from this model are only suitable to

be used for decision making at a broad catchment scale and is not fit for the purpose of a site-specific flood risk assessment.

This information will be updated with outputs from our New National Model through the NaFRA2 system and the Flood Zones will be updated in the flood map for planning update (currently estimated early 2026). Following this we expect the new flood level and depth data to be available to share.

Environmental Permit for Flood Risk Activities
In addition to any other permission(s) that you may have already obtained e.g. planning permission, you may need an environmental permit for flood risk activities (formerly known as Flood Defence Consent prior to 06 April 2016) if you want to do work:

- in, under, over or near a main river (including where the river is in a culvert)
- on or near a flood defence on a main river
- in the flood plain of a main river
- on or near a sea defence

For further information and to check whether a permit is required please visit: https://www.gov.uk/guidance/flood-risk-activities-environmental-permits.

For any further advice, please email Blandford.frap@environment-agency.gov.uk.

Flood Defences
There are no formal flood defences in the area of interest.

Further Information
We advise that you also contact Wiltshire Council by email: drainage@wiltshire.gov.uk, or by phone: 0300 456 0105, based at: Bythesea Road, Trowbridge, Wiltshire, BA14 8JN as they may be able to provide further advice with respect to localised flooding and drainage issues.

Further details about the Environment Agency information supplied can be found on our website: https://www.gov.uk/browse/environment-countryside/flooding-extreme-weather

If you have requested this information to help inform a development proposal, then you should note the information on GOV.UK on the use of Environment Agency Information for FRAs: https://www.gov.uk/planning-applications-assessing-flood-risk https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion

We hope you find this information helpful. It is provided subject to the guidance below, which we strongly recommend you read.

Yours sincerely

Customer & Engagement, Wessex
Rivers House, East Quay, Bridgwater, Somerset, TA6 4YS
Email: wessexenquiries@environment-agency.gov.uk

Enc: Use of Environment Agency Information for Flood Risk Assessments (below)
EIR2025-07334 100yr JFLOW Depth Map (1%AEP)
EIR2025-07334 1000yr JFLOW Depth Map (0.1%AEP)

Use of Environment Agency Information for Flood Risk Assessments (FRAs)

Important
Use of Environment Agency data: you should note that

1. Information supplied by the Environment Agency may be used to assist in producing a Flood Risk Assessment (FRA) where one is required, but the use of Environment Agency information does not constitute such an assessment on its own.

2. As part of your data request, we have provided all of the modelled data we hold for your location. Please note that some of our modelled information may have been produced for purposes other than for flood zone generation. This may mean that some of the modelled data you have been provided with has a lower confidence level, and has not been used in producing our flood map, nor definitively reflects the predicted flood water level at the property/development site scale. To check the suitability of the use of this information in your FRA please contact your local Partnership & Strategic Overview (PSO) team.

3. This information covers flood risk from main rivers and the sea, and you will need to consider other potential sources of flooding, such as groundwater or surface water runoff. The information produced by the Local Planning Authority and the Lead Local Flood Authority (LLFA) may assist in assessing other sources of flood risk.

4. Where a planning application requires a FRA and this is not submitted or deficient, the Environment Agency may well raise an objection.

5. For more significant proposals in higher flood risk areas, we would be pleased to discuss details with you ahead of making any planning application, and you should also discuss the matter with your Local Planning Authority.

Pre-Planning Advice from the Environment Agency
If you have requested this information to help inform a development proposal, then we recommend that you undertake a formal pre-application enquiry using the form available from our website:

Pre-application Preliminary Opinion:
https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion

Pre-application Charged Service:
https://www.gov.uk/government/publications/planning-advice-environment-agency-standard-terms-and-conditions

Depending on the enquiry we may also provide advice on other issues related to our responsibilities, including flooding, waste, land contamination, water quality, biodiversity, navigation, pollution, water resources, foul drainage or Environmental Impact Assessment.

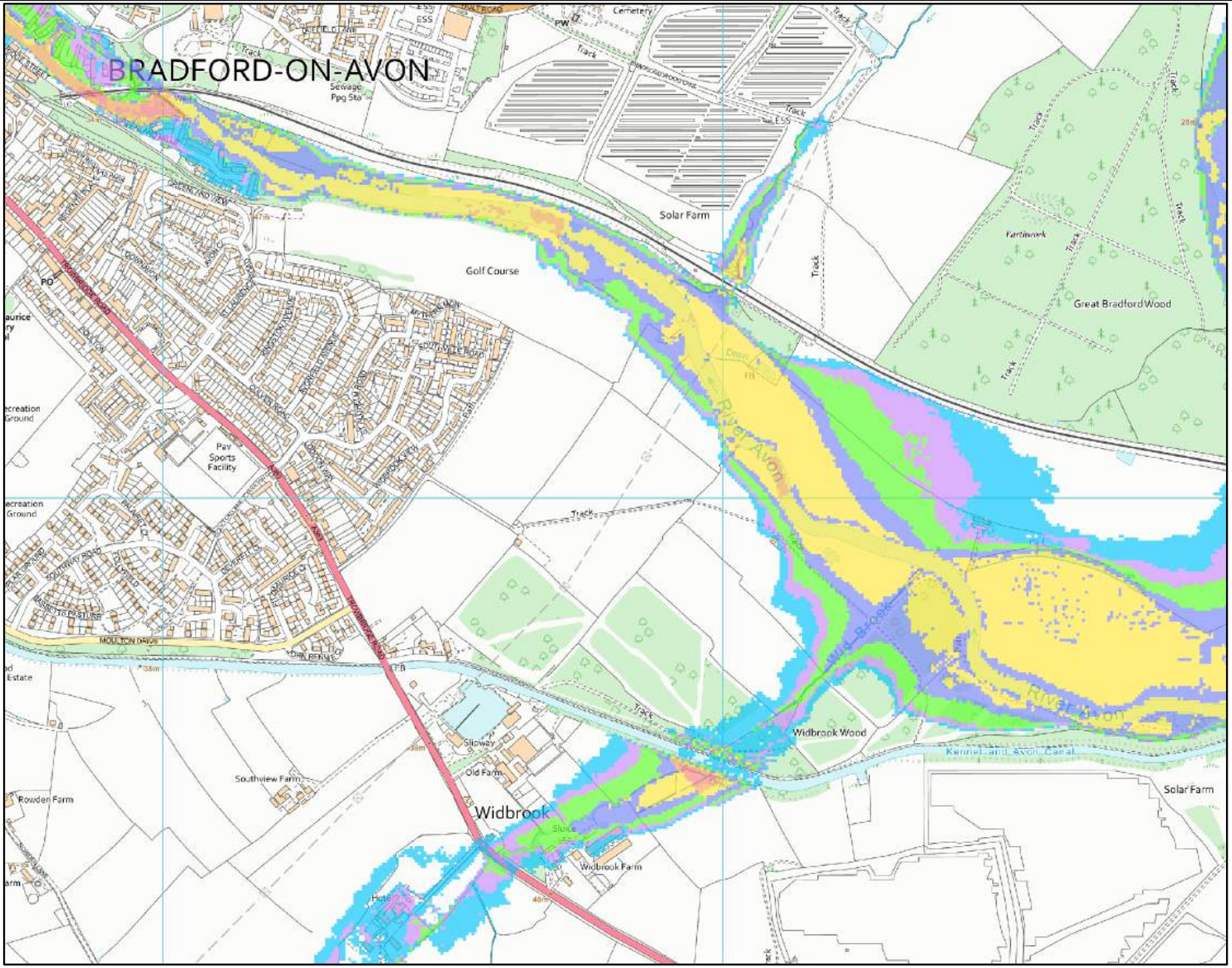
Flood Risk Assessment (FRA) Guidance
You should refer to the Planning Practice Guidance of the National Planning Policy Framework (NPPF) and the Environment Agency's Flood Risk Standing Advice for information about Flood Risk Assessment (FRA) for new development in the different Flood Zones. These documents can be accessed via:

National Planning Policy Framework Planning Practice Guidance:
http://planningguidance.planningportal.gov.uk/

Environment Agency advice on FRAs:
https://www.gov.uk/flood-risk-assessment-for-planning-applications#when-to-follow-standing-advice

https://www.gov.uk/government/publications/planning-applications-assessing-flood-risk

EIR2025/07334 - JFLOW Fluvial Water depths (m) Without Flood Defences. 100 year (1% AEP) centred on land at Bradford-on-Avon [383808,160026].
Created 14.05.2025



Environment Agency

Scale 1:10,000

N W E S

Legend

100yr JFLOW Depth

Metres

- 0 - 0.5
- 0.500000000 - 1
- 1.000000001 - 2
- 2.000000001 - 3
- 3.000000001 - 4
- 4.000000001 - 5
- 5.000000001 - 10
- 10.00000001 - 100

Information Warning
We do not recommend the use of water depths/levels derived from JFLOW for site specific investigations such as Flood Risk Assessments.

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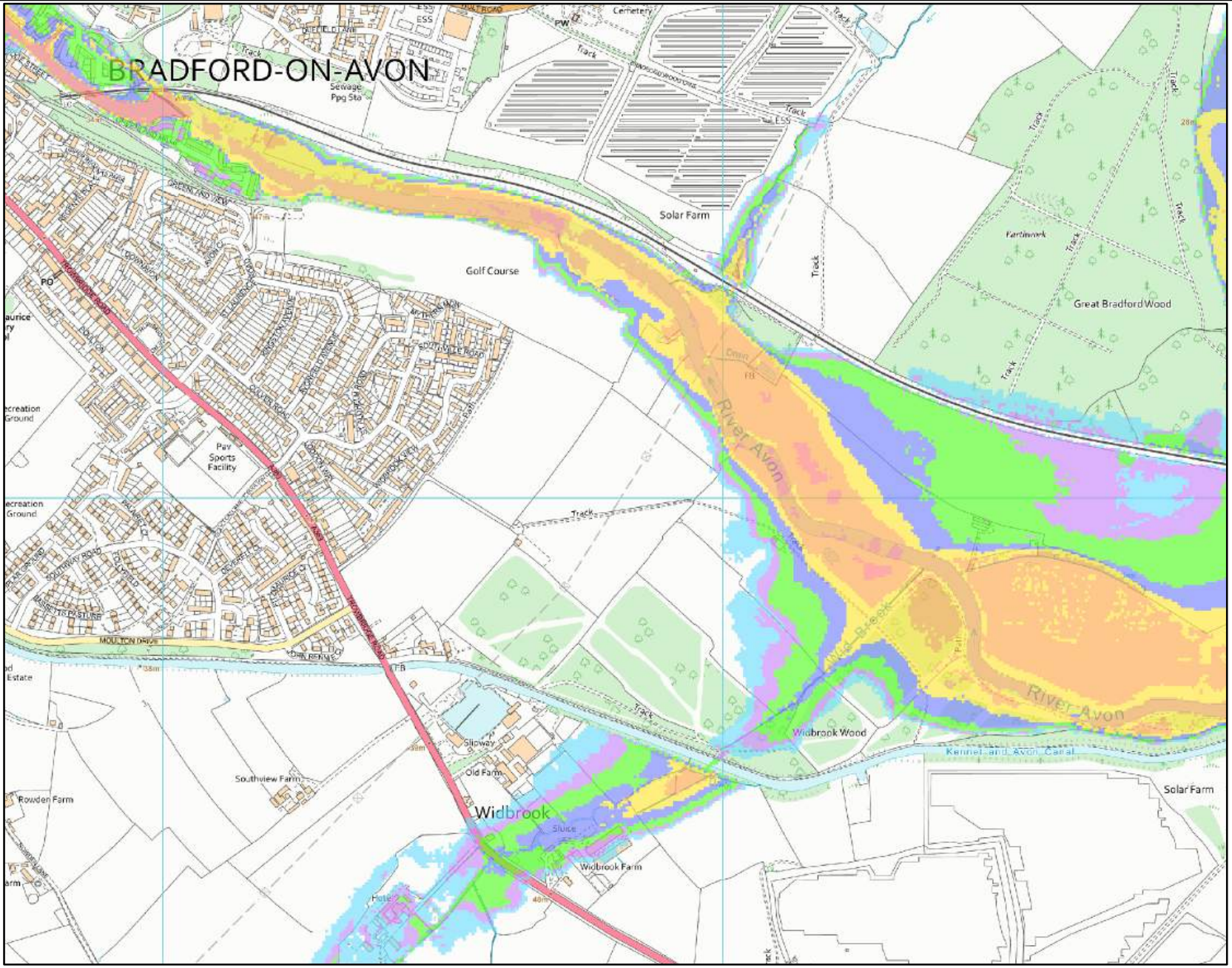
Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

EIR2025/07334 - JFLOW Fluvial Water depths (m) Without Flood Defences. 1000 year (0.1% AEP) centred on land at Bradford-on-Avon [383808,160026].
Created 14.05.2025



Environment Agency

Scale 1:10,000

N W E S

Legend

1000yr JFLOW Depth

Metres

- 0 - 0.5
- 0.500000000 - 1
- 1.000000001 - 2
- 2.000000001 - 3
- 3.000000001 - 4
- 4.000000001 - 5
- 5.000000001 - 10
- 10.00000001 - 100

Information Warning
We do not recommend the use of water depths/levels derived from JFLOW for site specific investigations such as Flood Risk Assessments.

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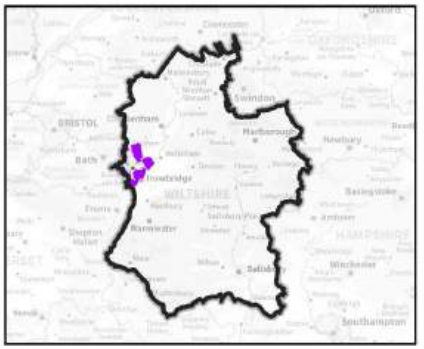
Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

Appendix F SFRA Mapping

Arlington House
Park Five
Harrier Way
Sowton
Exeter
EX2 7HU
+44 (0)1392 706050
info@jbaconsulting.com

JBA consulting

Wiltshire Council



Fluvial + Central Climate Change: Bradford on Avon

Legend

- Wiltshire boundary
- Community Partnership Area
- 1% AEP + Central CC
- Flood Zone 2 proxy

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Appendix G Surface Water Drainage Strategy

N

BASIN 01 – INFILTRATION BASIN
CREST LEVEL:38.500m
INVERT LEVEL:37.000m
DEPTH:1.50m
SIDE SLOPE: 1:4
AREA AT CREST:1,300m²
VOLUME (EXCLUDING FREEBOARD):951m³
INFILTRATION RATE: 0.03251m/hr

TP01

OUTFALL – HEADWALL
INVERT LEVEL:28.000m

FC2 – FLOW CONTROL
HYDRO–BRAKE
COVER LEVEL:34.500m
INVERT LEVEL:32.500m
DESIGN HEAD:1.70m
DESIGN FLOW: 38.0l/s

TP02

BASIN 02
CREST LEVEL:34.500m
INVERT LEVEL:32.700m
DEPTH:1.80m
SIDE SLOPE: 1:4
AREA AT CREST:4,149m²
VOLUME (EXCLUDING FREEBOARD):4,812m³

TP03B

TP04B

400m

Woodland

River

Dra

Ranscombe Lane

Residents Garden

Care Home

Mobility Hub

LAP

LEAP

TROWBRIDGE ROAD

0 10 20 30 40 50 60 70 80 90 100m

Scale 1:1,000

Notes:

1. DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT DOCUMENTS AND SLR FLOOD RISK ASSESSMENT.
2. DRAINAGE STRATEGY IS SUBJECT TO DETAILED DESIGN INCLUDING LEVELS.
3. ALL LEVELS ARE SHOWN IN METRES ABOVE ORDNANCE DATUM.
4. DRAINAGE STRATEGY DESIGN STORES SURFACE WATER RUNOFF FOR THE 1 IN 100 YEAR EVENT PLUS 45% CLIMATE CHANGE.
5. DISPLAYED ACRONYMS:

- CL - COVER LEVEL
- IL - INVERT LEVEL

Legend:

- SITE BOUNDARY
- PROPOSED SURFACE WATER DRAIN
- PROPOSED HEADWALL
- PROPOSED SWALE
- PROPOSED ATTENUATION BASIN
- PROPOSED INFILTRATION BASIN
- CATCHMENT 01 (DEVELOPABLE AREA: 1.171ha)
- CATCHMENT 02A (DEVELOPABLE AREA: 6.405ha)
- CATCHMENT 02B - CARE HOME (DEVELOPABLE AREA: 0.322ha)
- PROPOSED FLOOD EXCEEDANCE ROUTE
- FLOOD ZONE 2
- FLOOD ZONE 3
- TRIAL PIT LOCATION

Rev	Amendments	Date	By	Chk	Auth
P05	Layout updated	09.04.26	HE	NB	NB
P04	Updated infiltration basin	17.03.26	PB	NB	NB
P03	Layout updated, drainage revised to suit	13.03.26	PB	NB	NB
P02	Layout updated, drainage revised to suit	12.01.26	PB	NB	NB
P01	First issue	31.08.25	HE	NB	NB

SLR

www.slrconsulting.com

Drawing Status & Suitability Code: **FOR PLANNING**

Client: WADDETON PARK LIMITED

Project: TROWBRIDGE ROAD
BRADFORD ON AVON

Drawing Title: PRELIMINARY SURFACE WATER DRAINAGE LAYOUT

Scale	SLR Project No.
1:1,000 @ A1	416.066301.00001

Designed	Drawn	Checked	Authorised
HE	HE	NB	NB
Date: AUG 2025	Date: AUG 2025	Date: AUG 2025	Date: AUG 2025

Drawing Number: **416.066301.00001_PDL_01** Rev: **P05**

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\\slr.local\eu\Offices\UKBristol\Admin\Projects\UK.044820 - Waddeton Park Limited\416.066301.00001 - Trowbridge Road, Bradford on Avon – FRA\Tech\HYD\Dwgs\Wking\416.066301.00001_PDL_01-P05 Preliminary Surface Water Drainage Layout.dwg 09/04/2026

Appendix H Surface Water Calculations

Greenfield runoff rate estimation tool

www.uksuds.com | Greenfield runoff rate estimation tool (https://www.uksuds.com/)

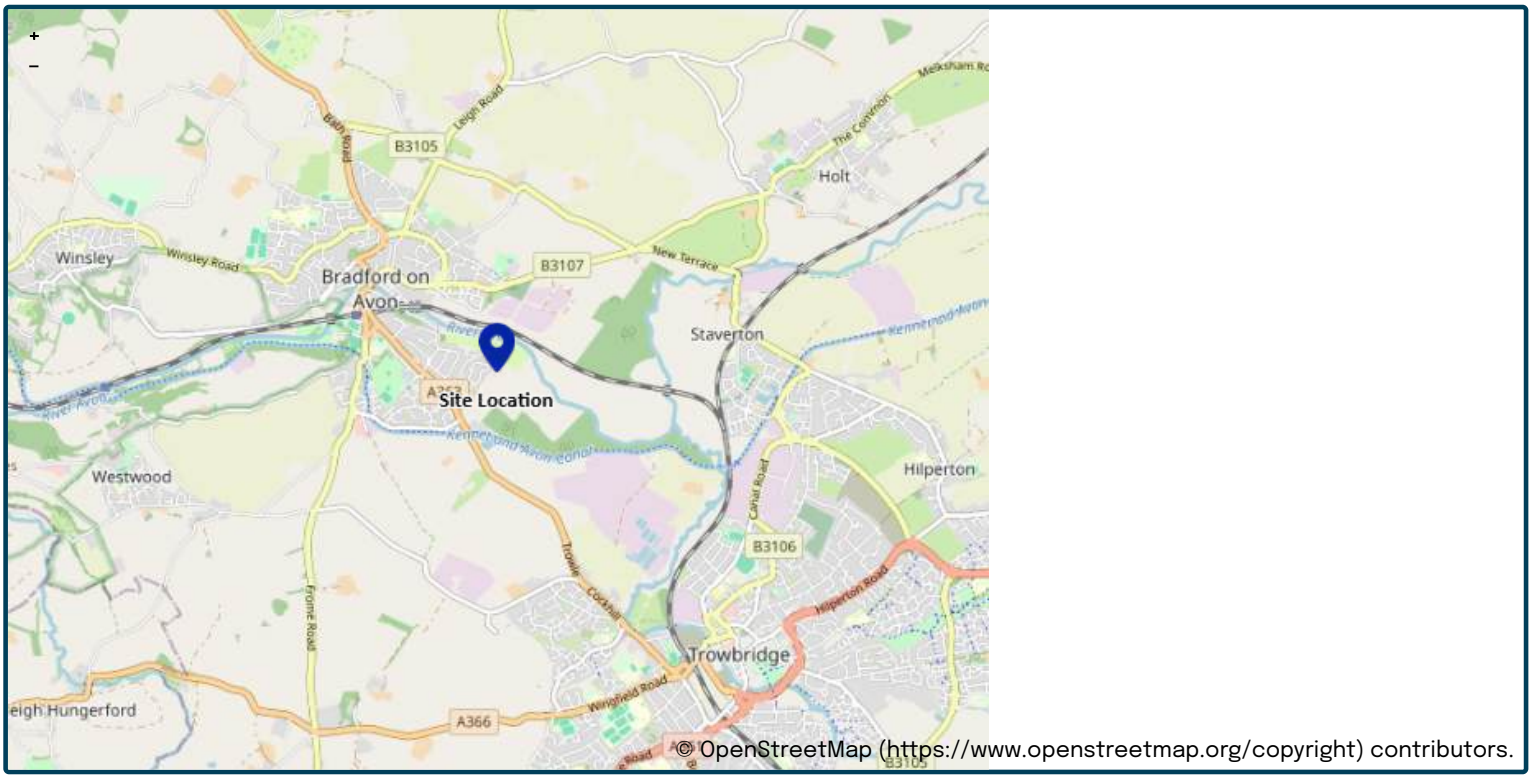
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015).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

Project details

Date	08/01/2026
Calculated by	
Reference	
Model version	2.2.2

Location

Site name	Trowbridge Road
Site location	BoA



Site easting (British National Grid)	383652
Site northing (British National Grid)	160013

Site details

Total site area (ha)	1 ha

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Greenfield runoff

Method

Method	FEH statistical (2025)

FEH statistical (2025)

	My value		Map value
SAAR9120 (mm)	803 mm		
BFIHOST19scaled	.535		
QMed-QBar conversion	1.075		1.075
QMed (l/s)	3.3 l/s		
QBar (FEH statistical 2025) (l/s)	3.5 l/s		

Growth curve factors

	My value		Map value
Hydrological region	8		8
1 year growth factor	0.78		
2 year growth factor	0.93		
10 year growth factor	1.49		
30 year growth factor	1.95		
100 year growth factor	2.43		
200 year growth factor	2.78		

Results

Method	FEH statistical (2025)
Flow rate 1 year (l/s)	2.8 l/s
Flow rate 2 year (l/s)	3.3 l/s
Flow rate 10 years (l/s)	5.3 l/s
Flow rate 30 years (l/s)	6.9 l/s
Flow rate 100 years (l/s)	8.6 l/s
Flow rate 200 years (l/s)	9.9 l/s

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

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.2.2) developed by HR Wallingford and available at uksuds.com (https://www.uksuds.com/). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at uksuds.com/terms-conditions (https://www.uksuds.com/terms-conditions). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

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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	x
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
Basin 01	0.929	5.00	38.500	1200	383799.990	160181.080	1.500	37.000
Dummy			40.000	1200	383799.990	160191.080	1.500	38.500

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	Basin 01	Dummy	10.000	0.600	37.000	38.500	-1.500	-6.7	100	30.00	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	0.005	0.0	167.9	1.400	1.400	0.929	0.0	100	0.000

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	10.000	-6.7	100	Circular	38.500	37.000	1.400	40.000	38.500	1.400

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	Basin 01	1200	Manhole	Adoptable	Dummy	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
Basin 01	383799.990	160181.080	38.500	1.500	1200				
						0	1.000	37.000	100
Dummy	383799.990	160191.080	40.000	1.500	1200	1	1.000	38.500	100

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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)	2880	Check Discharge Volume	x
Winter CV	1.000	Additional Storage (m³/ha)	0.0		

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440

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

Node Basin 01 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.03251	Safety Factor	2.0	Invert Level (m)	37.000
Side Inf Coefficient (m/hr)	0.03251	Porosity	1.00	Time to half empty (mins)	1440

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	480.8	480.8	1.500	1299.8	1773.8

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Results for 2 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	Basin 01	570	37.332	0.332	16.7	189.9597	0.0000	SURCHARGED
15 minute summer	Dummy	1	38.500	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
720 minute winter	Basin 01	1.000	Dummy	0.0	0.000	0.000	0.0391	0.0
720 minute winter	Basin 01	Infiltration		3.3				

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Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	Basin 01	690	37.678	0.678	34.4	452.6642	0.0000	SURCHARGED
15 minute summer	Dummy	1	38.500	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
720 minute winter	Basin 01	1.000	Dummy	0.0	0.000	0.000	0.0391	0.0
720 minute winter	Basin 01	Infiltration		4.7				

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Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	Basin 01	1320	38.184	1.184	38.8	953.4026	0.0000	SURCHARGED
15 minute summer	Dummy	1	38.500	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
1440 minute winter	Basin 01	1.000	Dummy	0.0	0.000	0.000	0.0391	0.0
1440 minute winter	Basin 01	Infiltration		6.7				

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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	x
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
Basin 02	5.044	5.00	34.500	1350	383908.935	160038.091	1.800	32.700
FC2			34.500	2100	383930.538	160083.530	2.000	32.500
Outfall			29.000	1350	384000.976	160108.689	1.000	28.000

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.001	FC1	Basin 02	95.031	0.600	35.500	32.700	2.800	33.9	300	5.58	50.0
1.002	Basin 02	FC2	50.313	0.600	32.700	32.500	0.200	251.6	375	5.74	50.0
1.003	FC2	Outfall	74.796	0.600	32.500	28.000	4.500	16.6	375	6.02	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.001	2.707	191.4	0.0		1.500	0.000	0.0	0	0.000
1.002	1.138	125.6	911.5	1.425	1.625	5.044	0.0	375	1.152
1.003	4.462	492.8	911.5	1.625	0.625	5.044	0.0	375	4.519

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.001	95.031	33.9	300			35.500		34.500	32.700	1.500
1.002	50.313	251.6	375	Circular	34.500	32.700	1.425	34.500	32.500	1.625
1.003	74.796	16.6	375	Circular	34.500	32.500	1.625	29.000	28.000	0.625

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.001					Basin 02	1350	Manhole	Adoptable
1.002	Basin 02	1350	Manhole	Adoptable	FC2	2100	Manhole	Adoptable
1.003	FC2	2100	Manhole	Adoptable	Outfall	1350	Manhole	Adoptable

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Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
Basin 02	383908.935	160038.091	34.500	1.800	1350	0	1.002	32.700	375
FC2	383930.538	160083.530	34.500	2.000	2100	1	1.002	32.500	375
						0	1.003	32.500	375
Outfall	384000.976	160108.689	29.000	1.000	1350	1	1.003	28.000	375

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)	1440	Check Discharge Volume	x
Winter CV	1.000	Additional Storage (m³/ha)	0.0		

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440

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

Node FC2 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	32.500	Product Number	CTL-SHE-0253-3800-1700-3800
Design Depth (m)	1.700	Min Outlet Diameter (m)	0.300
Design Flow (l/s)	38.0	Min Node Diameter (mm)	2100

Node Basin 02 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	32.700
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	1200

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	2534.5	2534.5	1.800	4149.3	4190.3

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Results for 2 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute summer	Basin 02	328	33.013	0.313	181.6	836.3047	0.0000	OK
480 minute summer	FC2	328	32.996	0.496	37.7	1.7180	0.0000	SURCHARGED
480 minute summer	Outfall	328	28.069	0.069	37.7	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
480 minute summer	Basin 02	1.002	FC2	37.7	0.507	0.300	5.2441	
480 minute summer	FC2	1.003	Outfall	37.7	2.665	0.076	1.0575	1337.2

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Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	Basin 02	456	33.433	0.733	253.3	2098.7730	0.0000	SURCHARGED
480 minute winter	FC2	456	33.413	0.913	38.2	3.1615	0.0000	SURCHARGED
240 minute summer	Outfall	632	28.070	0.070	37.9	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
480 minute winter	Basin 02	1.002	FC2	38.2	0.504	0.304	5.5494	
480 minute winter	FC2	1.003	Outfall	37.9	2.671	0.077	1.0627	2830.4

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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
960 minute winter	Basin 02	930	34.196	1.496	287.0	4795.8170	0.0000	SURCHARGED
960 minute winter	FC2	930	34.175	1.675	38.1	5.8026	0.0000	SURCHARGED
15 minute winter	Outfall	11	28.070	0.070	37.9	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
960 minute winter	Basin 02	1.002	FC2	38.1	0.496	0.303	5.5494	
960 minute winter	FC2	1.003	Outfall	37.9	2.671	0.077	1.0626	4774.4

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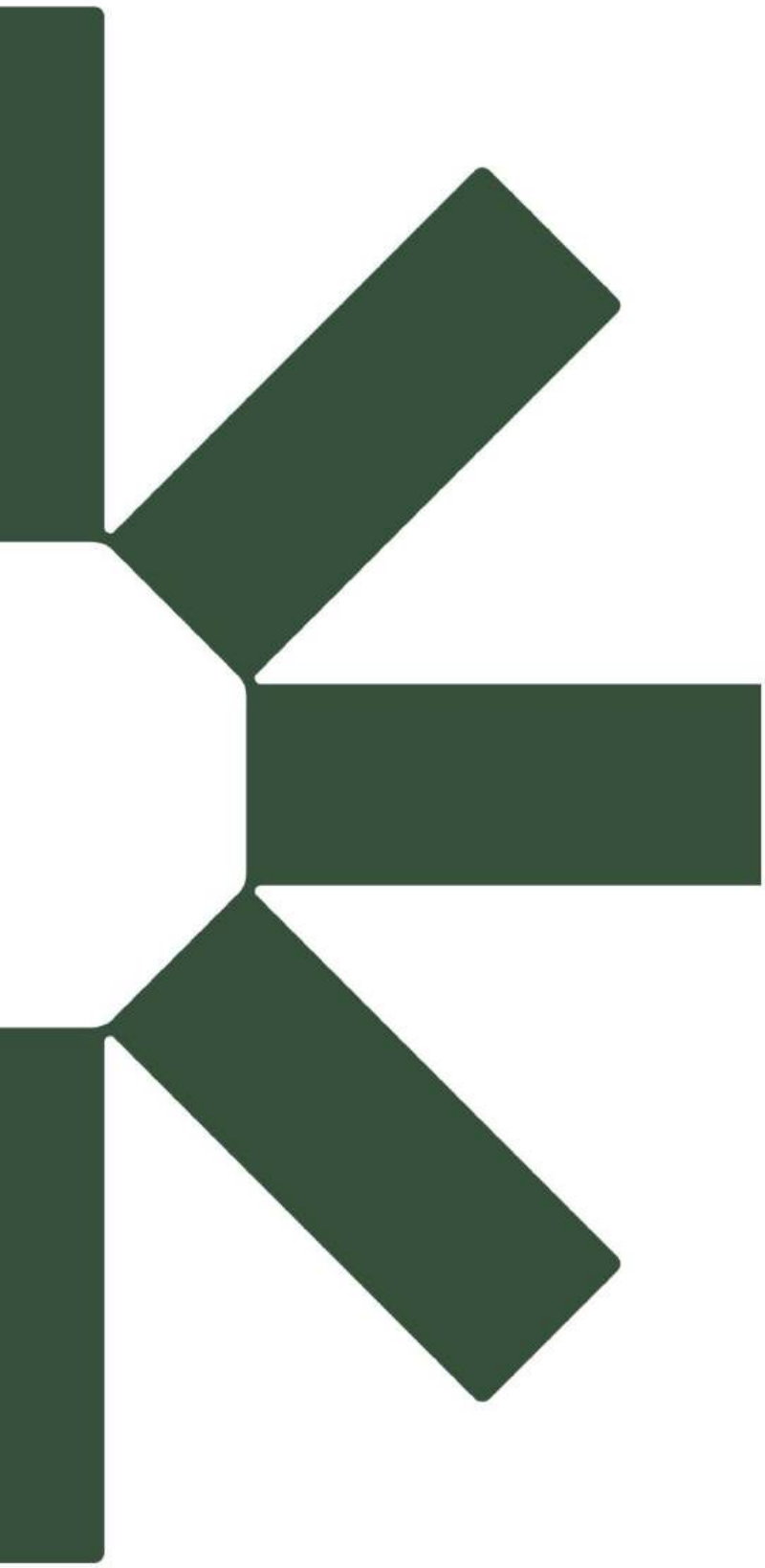

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