

Flood Risk Assessment and SuDS Strategy

Barns at New Salts Farm, Shoreham-by-Sea

NSF Barns Ltd

27 May 2026

33646-HML-XX-XX-RP-

U-870001

Issue P09





Project Name: Barns at New Salts Farm, Shoreham-by-Sea

Report Name: Flood Risk Assessment and SuDS Strategy

Issue Status: Final

Reference: 33646-HML-XX-XX-RP-U-870001

Date of Issue: 27 May 2026

Issue: P09

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Document History:

Issue	Date	Details
P01	9/7/2025	DRAFT FOR COMMENTS
P02	31/7/2025	FINAL VERSION
P03	18/11/2025	FINAL UPDATED VERSION
P04	25/11/2025	FINAL UPDATED VERSION
P05	26/11/2025	FINAL UPDATED VERSION
P06	3/12/2025	FINAL UPDATED VERSION
P07	8/5/2026	FINAL UPDATED VERSION
P08	12/5/2026	FINAL UPDATED VERSION
P09	27/5/2026	FINAL UPDATED VERSION

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Contents

Executive Summary.....	5
1. Introduction	7
1.1. Instruction	7
1.2. Purpose.....	7
1.3. Scope	8
1.4. Limitations	8
2. Policy Framework and Regulation	9
2.1. Planning Policy.....	9
2.1.1. National	9
2.1.2. Local.....	9
2.2. Legislation	11
2.2.1. Building Regulations Part H: Drainage and Waste Disposal (2010).....	11
2.2.2. Water Industry Act (1991)	11
2.2.3. Environmental Protection Act (1990).....	11
2.2.4. Flood and Water Management Act (2010).....	12
3. Proposed Development	13
3.1. Site Location	13
3.2. Proposal.....	14
4. Baseline Conditions	15
4.1. Existing Site.....	15
4.2. Topography.....	15
4.3. Geology and Soils.....	16
4.3.1. Source Protection Zone	18
5. Hydrology.....	20
5.1. Information Sources	20
5.2. Surface Waters	20
5.2.1. Sewer Records	21
5.3. Fluvial Sources	21
5.3.1. Background.....	21
5.3.2. Product 4 data	23
5.3.3. Climate change correction.....	25
5.3.4. EA consultation.....	27
5.3.5. Local flood defences	28
5.4. Groundwater	30
5.5. Surface Water Flooding (Pluvial)	30
5.6. Sewer Flooding	32

5.7.	Reservoirs and Artificial Waterbodies	32
5.8.	Records of Historical Flooding	33
5.9.	Conclusions	33
6.	Mitigation & Enhancement	35
6.1.	Background	35
6.2.	LLFA Consultation	36
6.3.	Assessment of Impact	36
6.3.1.	General Design Concept	36
6.3.2.	Preliminary Runoff Calculations	37
6.3.3.	National Standards for SuDS	39
6.3.4.	SuDS Design Concept	44
6.3.5.	Surface Water Drainage Strategy	45
6.3.6.	Foul Water Sewer Diversion	47
6.3.7.	Flood Resilience Measures	47
6.3.8.	Pollution Minimisation during Construction	50
7.	Sequential Test & Exception Test	51
7.1.	Policy	51
7.2.	Methodology	52
7.2.1.	Evidence Base	52
7.2.2.	Assessment of Alternative Sites	54
7.3.	Exception Test	59
7.3.1.	Test A: Wider Sustainability Benefits to the Community	59
7.3.2.	Test B: Flood Risk	61
7.4.	Conclusion	61
8.	Summary & Conclusion	63
	Appendix A – Southern Water Sewer Records	65
	Appendix B – EA Product 4 Data	66
	Appendix C – EA Pre-App Consultation Response	67
	Appendix D – Greenfield Runoff Rates	68
	Appendix E - Post-development Drainage Calculations	69
	Appendix F – LLFA Consultation	70
	Appendix G – Infiltration Testing and Groundwater Monitoring Results	71
	Appendix H – Surface Water Catchment Plan	72
	Appendix I – Exceedance Flow Plan	73

Appendix J – Drainage Strategy Drawing	74
Appendix K – Proposed Foul Sewer Diversion	75
Appendix L – Pre-Application Response	76
Appendix M – LPA Correspondence	77
Appendix N – Estate Agents Correspondence	78
Appendix O – SuDS Proforma	79

Executive Summary

Hilson Moran has been commissioned by NSF Barns Ltd (the 'Client') to undertake a Flood Risk Assessment (FRA) and Sustainable Drainage Systems (SuDS) Strategy for the proposed development at New Salts Farm Barns, New Salts Farm Road, Lancing. This document constitutes a formal National Planning Policy Framework (NPPF) compliant FRA, SuDS Strategy, Sequential Test and Exception Test, appropriate to the scale and nature of the development and risk involved.

The proposed development is approximately 0.6 ha in size, and is located within agricultural land approximately 500 m south of Brighton City Airport, Lancing. The site is classified as a greenfield site and is currently occupied by two farm buildings (agricultural barns). The topography of the site has a general slope towards the west and north along the access road. Access to the site is via an access road leading off New Salts Farm Road.

The development proposals are for 10 new residential dwellings as well as supporting amenities such as open community space and play area.

The Environment Agency (EA) Flood Map for Planning has identified that the site is wholly within Flood Zone 3 (benefitting from coastal and tidal defences), with no flooding of the site in the current or future defended scenarios. The main source of flood risk in the area is a combination of coastal surges (with the coast located approximately 500 m to the south), as well as a tributary of the River Adur which is tidally influenced (located approximately 130 m to the east). This combination of coastal surges and high tides raising the water levels of the river is the likely reason why the predicted area at risk of flooding during a 1 in 200-year event, in the absence of defences, is extensive. The Product 4 data, corrected for climate change (CC) as per the EA's recommended methodology, shows that during the 1 in 200-year + CC undefended event, the predicted flood level will be 5.34 mAOD (Higher Central allowance). Consequently, without flood defences, flood depths within the site could reach 3.65 m on the site access road and 1.52 m in the eastern part of the site (accounting for the Higher Central allowance).

The Product 4 data does show that the site benefits from local flood defences, including "*Demountable Defences*" along the entire stretch of the coastline directly south of the site with an effective crest level of 6.15 mAOD, and "*The Beach*", which has a standard protection of 1 in 100 years with an effective crest level of 7.10 mAOD. These levels are higher than the predicted undefended flood levels within the development. Flood risk within the development is further mitigated due to local flood defence schemes such as the Shoreham Adur Tidal Walls Flood Defence Scheme, which provides protection against tidal surge for up to a 1 in 300 year (0.33% AEP) storm.

Other sources of flooding have been assessed and are deemed as low risk to the site.

In order to manage runoff generated by the proposed development, c. 99.2m³ of attenuation within SuDS features will be provided within the site. This will be achieved by installing permeable paving within the central road, and an infiltration basin within the south east of the site. Runoff will be attenuated within these SuDS features and discharged to the ground via infiltration.

The proposed SuDS on site will manage the quality of surface water runoff leaving the site. The Simple Index Approach has been applied, showing that the total SuDS mitigation indices are greater than the pollution hazard indices, demonstrating that adequate treatment will be provided by the proposed SuDS features.

The proposed Drainage Strategy aligns with the Defra National Standards for SuDS. It provides a SuDS approach that manages development runoff, including allowances for climate change and urban creep, without increasing flood risk on site or elsewhere. It will discharge runoff in line with the drainage hierarchy and the proposed SuDS features will provide added water quality, amenity and biodiversity benefits.

A Sequential Test has been conducted for the application site. Following a detailed and robust assessment of sequentially preferable sites, in full accordance with relevant guidance and advice, this study finds that there are no other reasonably available or currently developable sequentially preferable sites in the study area.

Consequently, it is wholly evident that the proposal passes the Sequential Test. It has also been demonstrated that the proposals meet both requirements of the Exception Test.

In light of the findings and recommendations presented within this report, the principle of the proposed development is deemed appropriate on flood risk grounds.

1. Introduction

1.1. Instruction

Hilson Moran Partnership Ltd ('Hilson Moran') has been commissioned by NSF Barns Ltd (the 'Client') to undertake a FRA and SuDS Strategy for the proposed development at New Salts Farm Barns. The proposed site is located within agricultural fields in Shoreham-by-Sea, the nearest postcode to the site is BN43 5FE, and the National Grid Reference is TQ 20346 04704.

The assessment was undertaken in connection with the proposed development of the site for 10 new residential dwellings as well as supporting amenities such as open community space and play area.

The red line boundary for the site is shown in **Figure 1.1** below.



Figure 1.1 Red line boundary of the development site and the existing site access

1.2. Purpose

The purpose of the FRA and SuDS Strategy constitutes formal support for the planning application. The NPPF¹ requires that developments which have a size greater than 1 ha and/or are located in Flood Zone 2 or 3, along with change of use of land to a more vulnerable classification, will require a FRA. As the site is within Flood Zone 3, a NPPF-compliant FRA and SuDS strategy has been prepared.

The FRA and SuDS recommendations are appropriate to the scale and nature of the development and risks involved and address the surface water drainage requirements of the Lead Local Flood Authority (LLFA), West Sussex County Council (WSCC)ⁱⁱ, and Local Planning Authority (LPA), Adur and Worthing Councilsⁱⁱⁱ.

1.3. Scope

This document comprises a full FRA and SuDS Strategy, using relevant information and up-to-date methodologies available.

The remainder of this document describes the legislative context of WSCC LLFA's guidance for SuDS strategies and sewer adoptions, demonstrates the flood risk status of the site from all sources of flooding, presents surface water runoff calculations, proposes a Surface Water Drainage Strategy for the scheme, and finally presents a summary and conclusions relating to this report.

1.4. Limitations

This report has been prepared on behalf of and for the exclusive use of NSF Barns Ltd, the Client, for whom the services were undertaken and is subject to and issued in connection with the provisions of the agreement set out by Hilson Moran Partnership Ltd. Hilson Moran Partnership Ltd accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report by any third party. Furthermore, this report is subject to the following limitations:

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2. Policy Framework and Regulation

2.1. Planning Policy

2.1.1. National

The NPPF sets out policies that apply to the preparation of local plans, and development management decisions. This framework sets out the Government's economic, environmental, and social planning policies for England. Taken together, these policies articulate the Government's vision of sustainable development, which should be interpreted and applied locally to meet local aspirations.

The NPPF states that flood risk and surface water disposal are material considerations for Local Planning Authorities (LPAs) when determining individual land-use planning proposals.

The NPPF reinforces the importance that the Government attaches to the management and reduction of flood risk in the land-use planning process, whilst also adopting a precautionary approach and fully accounting for the effects of climate change. The NPPF states how flood risk should be considered at all stages of planning and development, in an attempt to reduce future loss of life and damage to property.

The NPPF also states that surface water disposal is a material consideration for LPAs when determining individual land-use planning proposals and that SuDS should be incorporated into a development wherever practical development "unless there is clear evidence that this would be inappropriate. The systems used should:

- a) take account of advice from the lead local flood authority;
- b) have appropriate proposed minimum operational standards;
- c) have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development; and
- d) where possible, provide multifunctional benefits."

The NPPF is supported by Planning Practice Guidance^{iv}, which provides further information on key issues in the implementation of policies identified in the NPPF.

2.1.2. Local

Local Planning Policy is provided by the Adur Local Plan^v, which plays an important part in the development of the local area. The document seeks to achieve a balance in meeting the needs for development, while striving to protect and enhance the character and features within Adur.

Key issues have been highlighted in the documentation which includes:

- **The need to meet identified housing needs** - Adur needs to address a range of housing requirements including the projected increase in smaller households, more family housing and affordable housing.
- **The need to address climate change and flood risk** - A significant amount of land is designated as Flood Zone 2 (medium probability of flooding), 3a (high

probability) and 3b (functional floodplain). As part of the Rivers Arun to Adur Flood and Erosion Management Strategy 2010 - 2020, the Environment Agency (EA) has constructed the Shoreham Adur Tidal Walls Scheme^{vi} (operational since 2019) to improve flood defences along the east and west banks of the River Adur.

Policy 36: Flood Risk and Sustainable Drainage in the Local Plan states:

“It has not been possible to allocate all strategic sites within areas at low risk of flooding due to the limited capacity of Adur for further development as well as wider sustainability and regeneration objectives for the area. The Environment Agency, as part of the Rivers Arun to Adur Flood and Erosion Management Strategy 2010-2020, are progressing a flood defence scheme along both the east and west bank of the River Adur, which will help to considerably reduce the risk of tidal flooding in the district. An indicative completion date for this scheme is 2018.”

Regarding developments, site specific FRAs must be submitted with planning applications for:

- Proposals of 1 hectare (ha) or greater in Flood Zone 1;
- All development or changes of use to more vulnerable use in Flood Zones 2 and 3; and
- All developments (excluding minor development) or changes of use to a more vulnerable use regardless of flood zone or size, where flood risk from other sources (surface water, sewer, groundwater) is identified by the SFRA.

The FRA will need to demonstrate that development:

- is appropriately flood resilient and resistant, includes safe access and escape routes where required, and that any residual risk can be safely managed;
- will be safe for its lifetime taking account of the vulnerability of its users;
- will not increase flood risk (including sewer flooding, surface water and groundwater flood risk) elsewhere;
- will, where possible, reduce flood risk overall; and
- will give priority to the use of sustainable drainage systems.

New development within Adur must include some form of SuDS or other appropriate design measures in order to reduce the risks of surface water flooding and to mitigate the risk of pollution to groundwater sources. SuDS should be considered before other forms of disposal. For all developments, applicants will be required to demonstrate that acceptable management arrangements are in place and funded to ensure the ongoing maintenance of SuDS into the future.

2.2. Legislation

2.2.1. Building Regulations Part H: Drainage and Waste Disposal (2010)

Building Regulations Approved Document Part H^{vii} provides guidance on the hierarchy of options for surface water removal from a development site. The document states that, where feasible, the first choice for surface water removal should be to discharge such waters to an adequate soakaway or infiltration system. If this is not reasonably practicable then discharge should be to a watercourse, with discharge to an existing sewer being the least favoured option. Infiltration techniques should therefore be applied wherever they are feasible.

Building Regulation H3 stipulates that “...[Infiltration devices should not be built] *where the presence of any contamination in the run-off could result in the pollution of a groundwater source or resource*”. This is reaffirmed in the SuDS Manual, which states that “*in areas containing contaminated soils or contaminated groundwater, soakaways are not acceptable*”.

2.2.2. Water Industry Act (1991)

Legislation covering connection to a public sewer is contained in Section 106 to Section 109 of the Water Industry Act 1991 (the Act)^{viii}. Section 106 of the Act stipulates that the owner or occupier of any premises may have their drains or private sewer connected to the public sewers of the sewerage undertaker.

In accordance with the Act, the following types of connection may (subject to approval) be made to the public sewerage system. The type of connection you make will depend on the sewerage system in the area of the required connection.

- a. Foul water into a foul sewer (*e.g.* from toilets, sinks, showers, and baths);
- b. Surface water into a surface water sewer (*e.g.* roof and paved area drainage);
- c. Foul and surface water into a combined water sewer (both a. and b. above); and
- d. Other types of connections may be permitted in exceptional circumstances, but they would be considered at the time of application.

2.2.3. Environmental Protection Act (1990)

Part II of the Environmental Protection Act 1990^{ix} states that “*contaminated land is any land which appears to be in such a condition, because of substances in, on or under the land, that:*

- *significant harm is being caused or there is a significant possibility of such harm being caused; or,*
- *pollution of controlled waters is being or is likely to be caused”.*

2.2.4. Flood and Water Management Act (2010)

The Act states that construction work that has drainage implications may not be commenced unless a drainage system for the work has been approved by an approving body (unitary authority/ County Council)^x.

In determining an application for approval, the approving body must *“grant it, if satisfied that the drainage system if constructed as proposed will comply with national standards for sustainable drainage; or refuse it if not satisfied”*.

The Act therefore removes the automatic right to connect to the public sewer if the proposed drainage strategy does not fully consider the feasibility of sustainable drainage techniques.

As part of the provisions of the Act, Defra released updated ‘National standards for sustainable drainage systems (SuDS)^{xi} in June 2025. These Standards are outlined in Section 6.3.3 of this report.

3. Proposed Development

3.1. Site Location

The proposed development is located at New Salts Farm Barns (the nearest postcode to the site is BN43 5FE, and the National Grid Reference is TQ 20346 04704).

The site is located in agricultural land which is currently occupied by two barns (which measure 902 m² and 300 m² respectively). The proposed site measures approximately 0.6 ha. Since the site is occupied by agricultural buildings only, it is classified as a greenfield site.

Approximately 500 m to the north of the site is Brighton City Airport, and 200 m south is the A259 (main highway). Immediately west of the site is agricultural land with a caravan site located approximately 500 m west of the site, and immediately east of the site are residential houses, garages, and the local highway (New Salts Farm Road).

Nearby watercourses include a tributary to the River Adur, which is located approximately 220 m east of the site and two small field drains immediately west and south of the site that drain into the Widewater Lagoon, approximately 300 m south of the site. The site is located approximately 500 m north of the coastline of the English Channel (Figure 3.1).

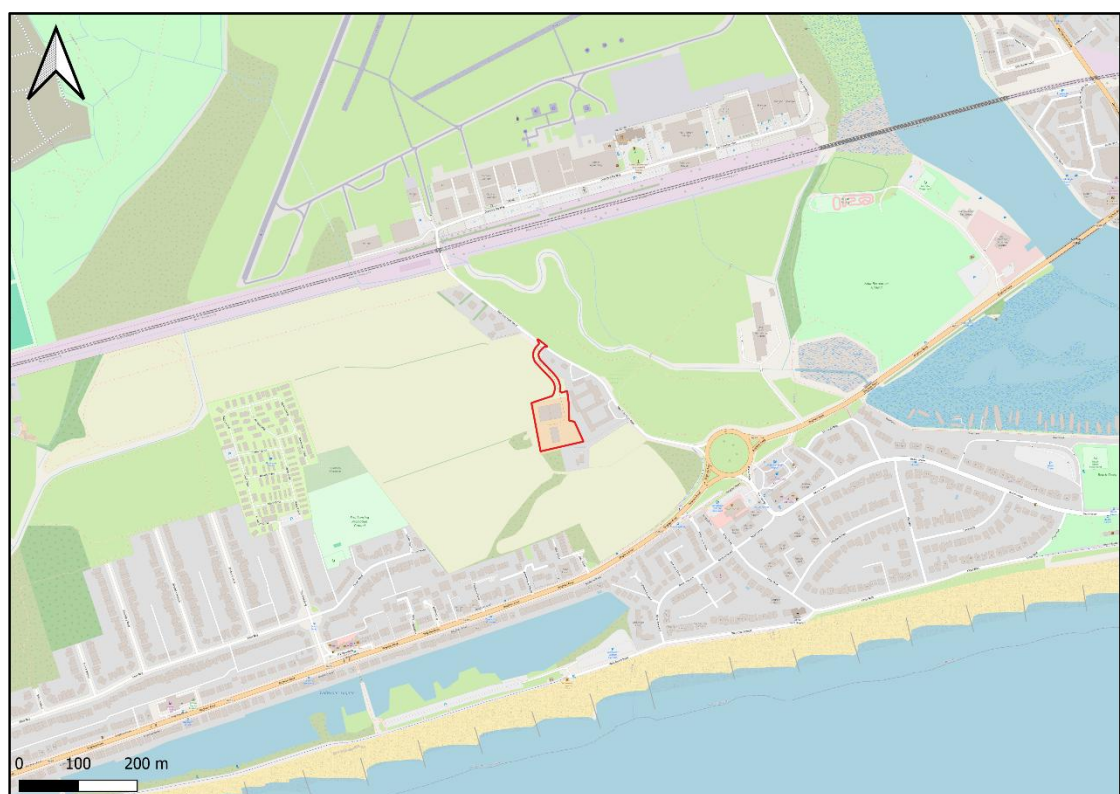


Figure 3.1 Location of the proposed site and the surrounding areas

3.2. Proposal

It is understood that NSF Barns Ltd (the 'Applicant') intends to submit a Full Planning Application for the development of 10 new residential dwellings, as well as supporting amenities such as community space, children's play area and SuDS for surface water management. Since the development consists of 10 dwellings, it is classified as a major application.

A proposed master plan has been produced and is included as **Figure 3.2**.



4. Baseline Conditions

4.1. Existing Site

The application site comprises approximately 0.6 ha of land within the red line boundary. The site is classified as a greenfield site and is currently occupied by two farm buildings (agricultural barns), which measure 902 m² and 300 m². The site is largely concealed from public view due to its location away from public roads and shielded by existing farmhouses. The site is accessible by a gravel road that connects to New Salts Farm Road (the local highway).



Figure 4.1 Existing site location

4.2. Topography

The site has a gentle slope towards the west, and also slopes down towards the north along the access road; there are no distinctive topographical features within the red line boundary other than an area of raised made ground (*circa* 750 mm high) in the south eastern corner of the site. According to the local digital terrain model (DTM), the highest recorded ground levels are in the east at *circa* 4.7 m above Ordnance Datum (mAOD), within the area of raised made ground. The topography of the lowest “developable area” (the area within the red line boundary excluding the site access) is located on the north east of the site at 1.8 m AOD.

The access road at the north of the site undulates with the highest areas being 2.94 mAOD (by the junction to the highway), and 2.44 m AOD (the access nearest to the

barns), with the lowest area in the middle of the track measuring 1.73 mAOD (**Figure 4.2**).



Figure 4.2 Topographical view of the proposed site along with a cross-section showing the general slope of the site.

4.3. Geology and Soils

The British Geological Survey's (BGS) Geology of Britain viewer^{xii} provides an understanding of the geological formations throughout Great Britain. A review of 1:50,000 scale mapping of the area shows the superficial deposits underlying eastern and south eastern parts of the site to comprise Quaternary Raised Beach Deposits, comprising sands and gravels. This is a relatively small outcrop that extends beyond the red line boundary to the south and east, forming a slightly raised plateau in the vicinity of the adjacent Brooklands residences.

The northern and western parts of the site are overlain by superficial Quaternary Alluvium, comprising clay, silt, sand, and peat, which are extensive locally and associated with the nearby Rive Adur.

The underlying bedrock geology wholly comprises the Cretaceous Newhaven Chalk Formation.

The geology underlying the site is shown in **Figure 4.3** and **Figure 4.4** below.

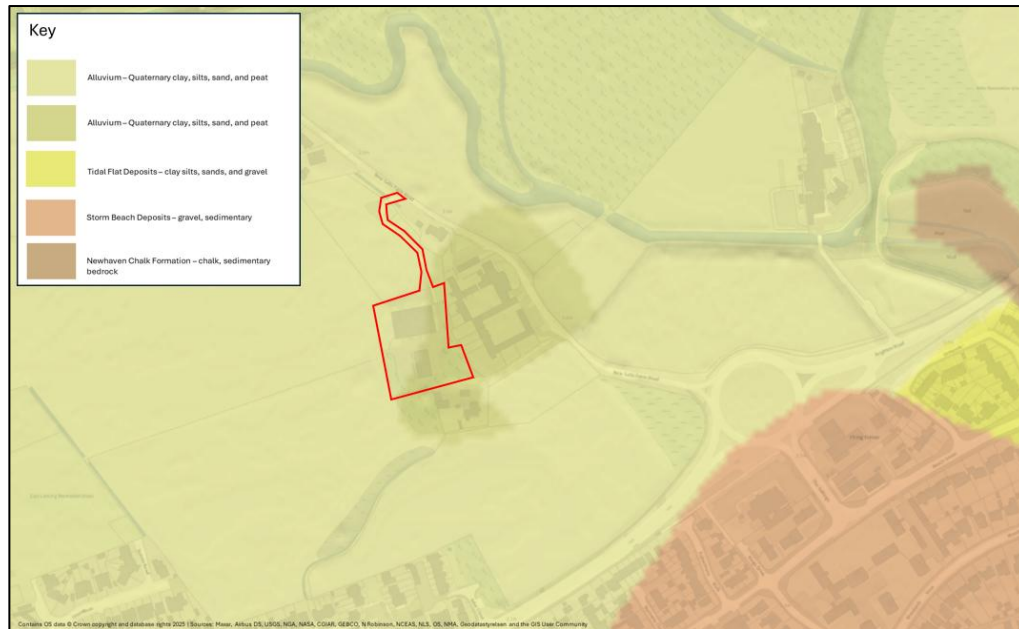


Figure 4.3 Superficial deposits underlying the site and surrounding area (Source BGS)



Figure 4.4 Bedrock deposits underlying the site and surrounding area (Source: BGS)

With reference to the National Soil Resources Institute (NSRI) Soilscape^{xiii}, the soils at the site are shown to consist of naturally wet loamy and clayey soils, as illustrated in **Figure 4.5**.

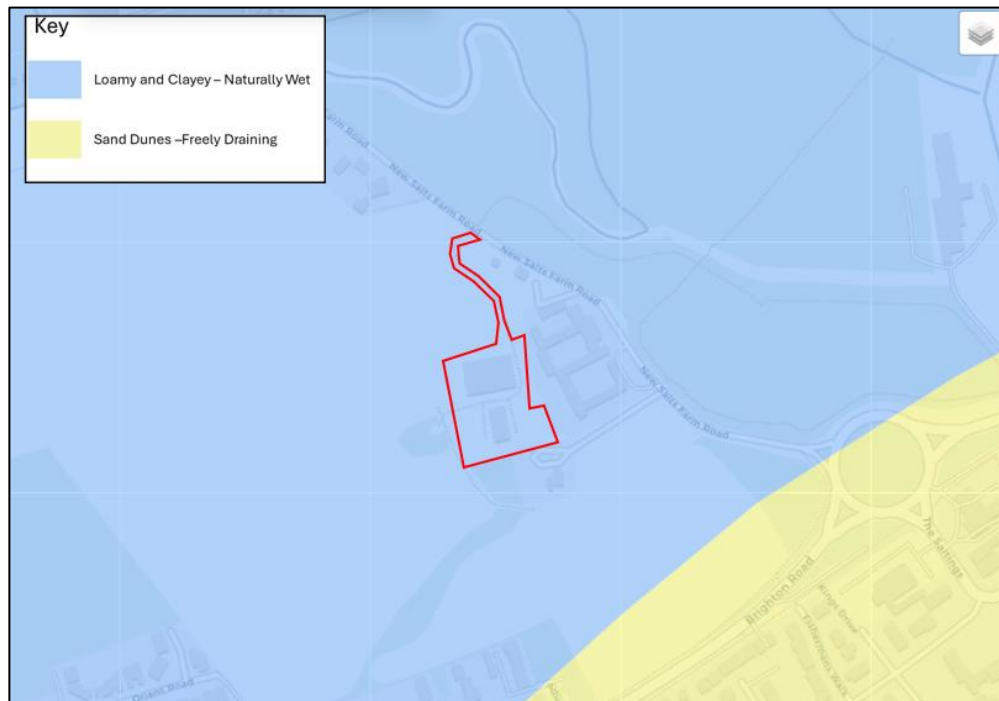


Figure 4.5 Soil map of the site and the surrounding area (Source: Soilscape).

4.3.1. Source Protection Zone

Source Protection Zones (SPZs) are defined as areas that contain groundwater that is used to supply drinking water and are protected by the Environment Agency (EA). This includes wells, boreholes, and springs.

The EA's MAGIC Map^{xiv} identified that the site is not located within an SPZ, with the closest SPZ (SPZ3 – Total Catchment) located 600 m to the northeast of the site (**Figure 4.6**). According to the Manual for the Production of Groundwater Source Protection Zones^{xv}, an SPZ3 is defined as the total area needed to support the abstraction or discharge from the protected groundwater source.



Figure 4.6 The site relative to the closet SPZ

5. Hydrology

5.1. Information Sources

In determining the hydrological conditions across the site and environs, reference has been made to several sources. In particular, information has been brought together from:

- The EA's Flood Map for Planning^{xvi};
- The EA's Long-Term Flood Risk Map^{xvii}
- LLFA Strategic Flood Risk Assessment (West Sussex SFRA)
- Adur Local Plan (Local Council)
- Adur and Worthing Level 1 SFRA

5.2. Surface Waters

The nearest significant watercourse to the site is located approximately 130 m east of the site, which is a unnamed tributary to the River Adur (with the nearest part of the Adur Main River located 530 m southeast). Approximately 300 m south of the site is the Widewater Lagoon, to which the main highway (A259 Brighton Road) runs parallel. Further south of the lagoon is the English Channel, approximately 500bm south of the site. There are also field drains immediately south and west of the site, which take surface water from the fields southwards and discharge to the lagoon (**Figure 5.1**).

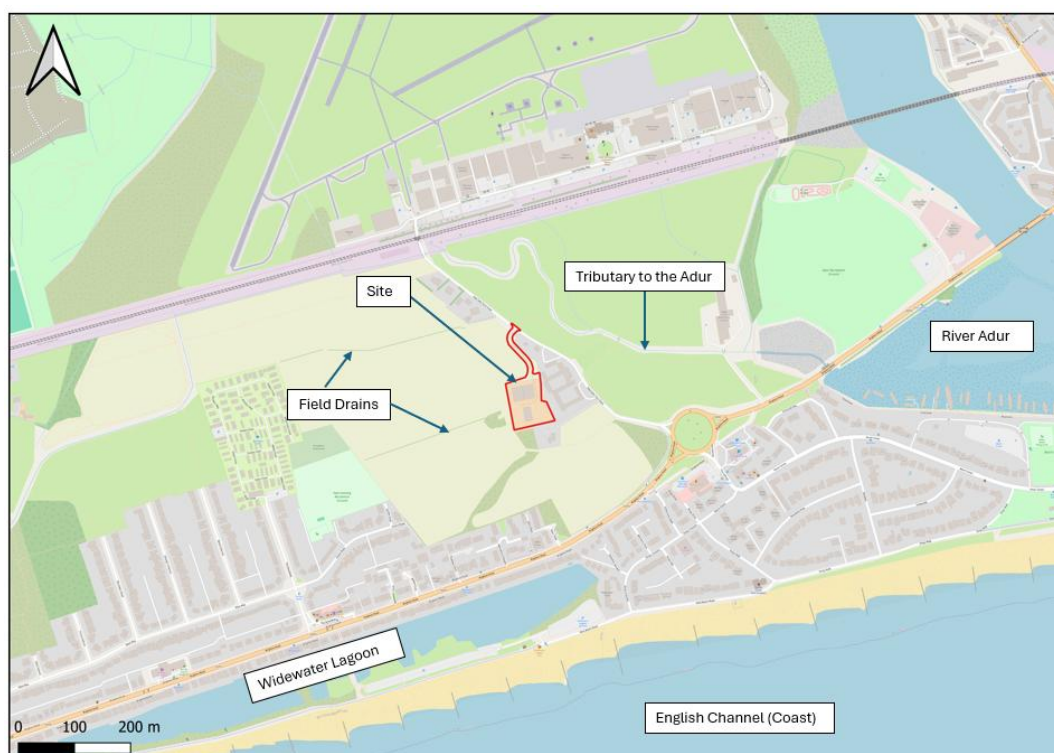


Figure 5.1 Surface water features in the vicinity of the proposed site

5.2.1. Sewer Records

A utilities survey was conducted by Hilson Moran on 20/05/2025, to identify any sewers within the vicinity of the site. The search results indicate that there is a 200 mm foul gravity sewer that runs across the eastern side of the site from north to south, with the closest manhole being MH 3703. There are no records of adopted surface water sewers within the vicinity of the site. Refer to Appendix A for the Southern Water local sewer records.

5.3. Fluvial Sources

5.3.1. Background

Fluvial flooding occurs when water levels exceed the banks of a watercourse or culverts being exacerbated, causing it to overflow into the surrounding areas. This can be caused by excessive rainfall, snowmelts or coastal surges. The areas where the water can spill out from the channel are called floodplains, and some have flood-compatible uses such as farming.

The EA Flood Map for Planning indicates that during an undefended scenario, the entire site is within the floodplain and thus designated Flood Zone 3. This is due to the combination of being in close proximity to the coast and the River Adur being tidally influenced.

The extent of Flood Zone 3 demonstrates that significant portions of West Shoreham, Shoreham Beach, and parts of Lancing will be at flood risk. A significant part of the Flood Zone 3 extends northwards, affecting Brighton City Airport. The flooding inland is mainly along the River Adur and its tributaries, which include the tributary in the vicinity of the proposed site.

An area that is defined as Flood Zone 3 has a risk of flooding of 1 in 100-year event (1% Annual Exceedance Probability (AEP)) from riverine sources or during a 1 in 200-year (0.5% AEP) tidal event.



Figure 5.2 EA Flood Map for Planning (Source: EA).

To protect the infrastructure within the town, including critical infrastructure such as the railway station and the airport, Shoreham benefits from local flood defences. This includes the Shoreham Adur Tidal Walls Scheme (construction completed in 2018) to provide better protection against tidal surges with a 0.33% AEP or a 1 in 300-year storm event.

In the defended 1 in 100-year fluvial and 1 in 200-year tidal events, flooding has been greatly reduced in the area and mainly affects the waterfront and buildings south of the Widewater Lagoon. The site is not affected by fluvial flooding during these events. However, during the defended 1 in 1000-year fluvial and tidal event (0.1% AEP), there is very minor inundation in the northwestern corner of the main developable area, and a small part of the site access, as shown in **Figure 5.3** below.

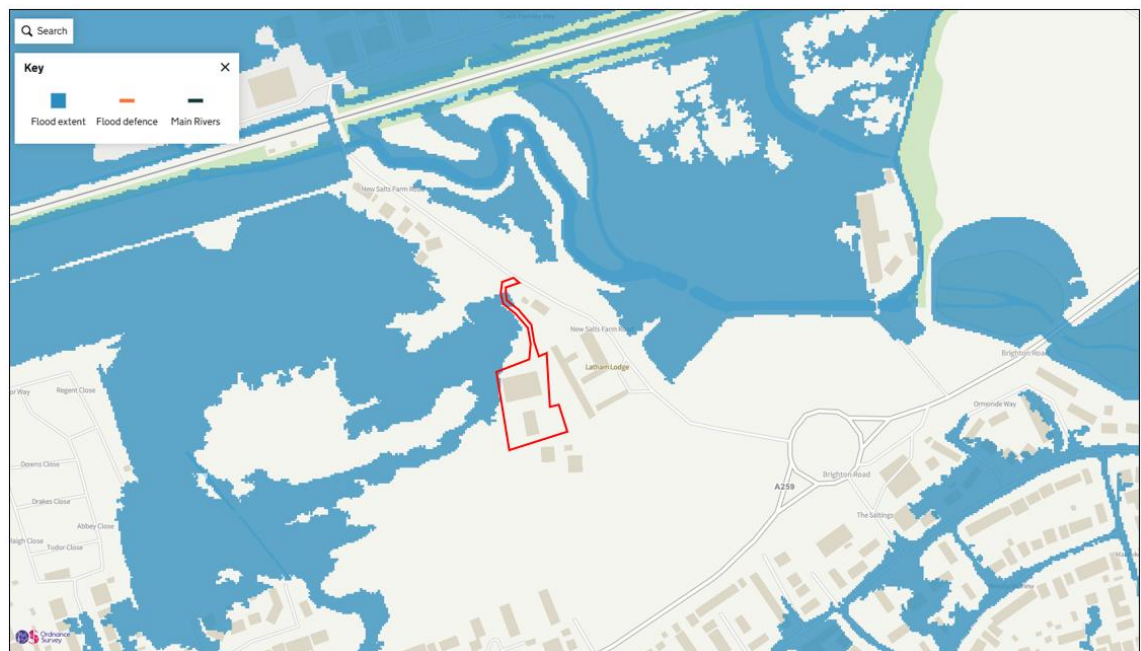


Figure 5.3 1 in 1000 year (0.1% AEP) fluvial and tidal defended flooding extent

The EA long-term flood risk maps also reduce the flood risk classification to “*Medium Chance*” of flooding across most of the site for the period from 2036 – 2069. The map shows that the northwestern corner of the developable area and the small area of the site access have a “*High Chance*” of flooding (**Figure 5.4**). The long-term flood maps also show that at “*present day*” the chances of flooding between depths of 0.2 m to 0.6 m is very low, but in the future scenarios (2036 – 2069) the risk has been upgraded to medium for flood depths between 0.2-0.3 m and low chance for flood depths of 0.6 m.



Figure 5.4 Fluvial flood risk in the local area for the future scenario (2036 -2069)

5.3.2. Product 4 data

To further understand the fluvial flooding affecting the site, Hilson Moran requested Product 4 data from the EA which was received on 18/03/2025. This data contained information regarding the flood extents during the undefended scenarios which is based on the Arun to Adur Coastal Modelling (2012). A follow up response from the EA received on 10/06/2025 confirmed that updated defended scenarios from the 2018 Adur Tidal Walls Scheme modelling are the most up to date data (Refer to Appendix B). A total of seven “Spot Points” (**Figure 5.5**) were created to assess the potential flood depths and flood levels within the site boundary. The Product 4 provided results for the current 1 in 200 year (0.5% AEP) event as well as the 2070 and 2115 future scenarios, and the current 1 in 1000-year (0.1% AEP) event. **Tables 5.1** and **5.2** show the modelled flood levels and the flood depths, respectively.

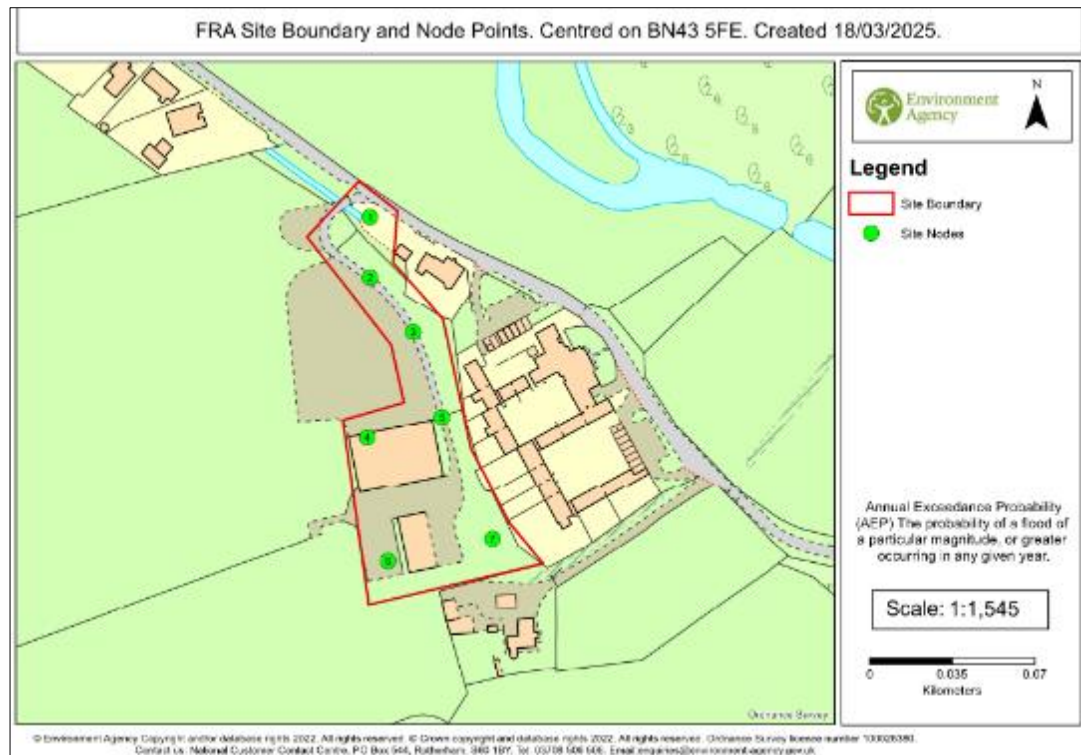


Figure 5.5 Nominated spot levels within the red line boundary

Table 5.1 Water Levels: Tidal Undefended (Arun to Adur Coastal Modelling)

Node Ref	NGR		Modelled Flood Levels in Metres AOD			
	Eastings	Northings	Undefended Annual Exceedance Probability			
			0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	520331	104799	4.25	4.79	5.38	4.48
2	520331	104774	4.25	4.78	5.38	4.48
3	520349	104750	4.25	4.78	5.38	4.48
4	520329	104705	4.25	4.78	5.38	4.48
5	520361	104714	4.25	4.78	5.39	4.48
6	520338	104653	4.25	4.78	5.39	4.48
7	520383	104662	4.25	4.78	5.39	4.48

Table 5.2 Water Depths: Tidal Undefended (Arun to Adur Coastal Modelling)

Node Ref	NGR		Modelled Flood Depths in Metres			
	Eastings	Northings	Undefended Annual Exceedance Probability			
			0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	520331	104799	2.44	2.97	3.57	2.66
2	520331	104774	2.56	3.10	3.70	2.79
3	520349	104750	2.24	2.77	3.37	2.46
4	520329	104705	2.27	2.80	3.40	2.49
5	520361	104714	1.46	1.99	2.59	1.69
6	520338	104653	1.83	2.37	2.97	2.06
7	520383	104662	0.43	0.93	1.54	0.63

5.3.3. Climate change correction

Within the Product 4 request, the EA highlighted that the flood risk data provided does not contain updated CC allowances, and only incorporates a CC allowance of 20%. It states that the user should undertake a further assessment of future flood risk using the updated CC allowances, available at <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances> following their recommended methodology, including the derivation of baseline (2017) extreme sea levels from the EA's "Coastal Design Sea Levels - Coastal Flood Boundary Extreme Sea Levels (2018)" dataset and adhering to associated guidance ("Coastal flood boundary conditions for the UK: update 2018, Technical summary report"¹³, considering both the Higher Central and Upper End allowances. With reference to EA guidance (re: <https://www.gov.uk/guidance/flood-and-coastal-risk-projects-schemes-and-strategies-climate-change-allowances>), the Higher Central level should be used as the design flood level and the Upper End level "to test sensitivity to severe climate change and any required mitigation."

Consequently, this has been addressed in the following way:

Step 1: Derivation of baseline (2017) extreme sea levels

2017 baseline 1 in 200-year and 1 in 1,000 year extreme sea levels of **4.24 mAOD** and **4.45 mAOD** respectively were obtained from the Arun to Adur Coastal Model, from the closest chainage point to the proposed development (chainage 4552, x,y 520916.4, 102217.2).

Step 2: Derivation of Higher Central allowance

Assuming a precautionary completion year of 2027 and a 100-year operational lifetime of the residential scheme, and applying the recently updated sea level CC allowances across this period, as described above, gives the following Higher Central allowance for the South East region:

2017 to 2035 = (2035-2017) x 5.7 mm = 102.6 mm

2036 to 2065 = (2065-2036) x 8.7mm = 252.3 mm

2066 to 2095 = (2095-2066) x 11.6 mm = 336.4 mm

2096 to 2127 = (2127-2096) x 13.1 mm = 406.1 mm

Total over period 2017 to 2127 = 1097.4 mm

1097.4 mm /1000 + 4.24 mAOD = **5.34 mAOD** for the undefended Higher Central 1 in 200-year event

1097.4 mm/1000 + 4.45 mAOD = **5.55 mAOD** for the undefended Higher Central 1 in 1,000 year event.

Step 3: Derivation of Upper End allowance

Using the above approach gives the following Upper End allowance for the South East region:

2017 to 2035 = (2035-2017) x 6.9 mm = 124.2 mm

2036 to 2065 = (2065-2036) x 11.3 mm = 327.7 mm

2066 to 2095 = (2095-2066) x 15.8 mm = 458.2 mm

2096 to 2127 = (2127-2096) x 18.2 mm = 564.2 mm

Total over period 2017 to 2127 = 1474.3 mm

1474.3 mm /1000 + 4.24 m AOD = **5.71 m AOD** for the undefended Upper End 1 in 200-year event

1474.3 mm/1000 + 4.45 m AOD = **5.92 m AOD** for the undefended Upper End 1 in 1000-year event.

Tables 5.3 and 5.4 show the tidal undefended levels and depths, after the adjustment to the Higher Central and Upper End allowances has been made.

Table 5.3 Water Levels: Tidal Undefended (Arun to Adur Coastal Modelling) with CC allowance adjustment

Node Ref	NGR		Modelled Flood Levels in Metres AOD			
	Eastings	Northings	Undefended Annual Exceedance Probability			
			0.5% (Higher Central)	0.5% (Upper End)	0.1% (Higher Central)	0.1% (Upper End)
1	520331	104799	5.34	5.71	5.55	5.92
2	520331	104774	5.34	5.71	5.55	5.92
3	520349	104750	5.34	5.71	5.55	5.92
4	520329	104705	5.34	5.71	5.55	5.92
5	520361	104714	5.34	5.71	5.55	5.92
6	520338	104653	5.34	5.71	5.55	5.92
7	520383	104662	5.34	5.71	5.55	5.92

Table 5.4 Water Depths: Tidal Undefended (Arun to Adur Coastal Modelling) with CC allowance adjustment

Node Ref	NGR		Modelled Flood Depths in Metres			
	Eastings	Northings	Undefended Annual Exceedance Probability			
			0.5% (Higher Central)	0.5% (Upper End)	0.1% (Higher Central)	0.1% (Upper End)
1	520331	104799	3.53	4.43	4.64	4.10
2	520331	104774	3.65	4.56	4.77	4.23
3	520349	104750	3.33	4.23	4.44	3.90
4	520329	104705	3.36	4.26	4.47	3.93
5	520361	104714	2.55	3.45	3.66	3.13
6	520338	104653	2.92	3.83	4.04	3.50
7	520383	104662	1.52	2.39	2.61	2.07

Consequently, the following conclusions can be drawn from the revised flood levels and depths.

The results indicate that the highest flood levels are on the site access road and along the northern half of the site. This is due to these areas being closest to the tributary of the Adur and affected by tidal influences. In the current 0.5% AEP undefended scenario, the deepest flood depth has been measured to 3.65 m (assuming the Higher Central allowance) or 4.56m (assuming the Upper End allowance) at Point 2, whereas the area that has the shallowest depths is in the south east at Point 7, with modelled flood depths

of 1.52 m (Higher Central allowance) or 2.39 m (Upper End allowance) during the 0.5% AEP scenario.

The predicted design flood level for the for the undefended Higher Central 1 in 200-year event is **5.34 mAOD**.

5.3.4. EA consultation

Given that such flood levels are only predicted on site during the undefended scenario, and that the removal of all defences in the future is an unlikely prospect, given their continued maintenance by the EA and Adur & Worthing Councils, it was initially deemed appropriate to provide a 300 mm freeboard for the sleeping accommodation of the first floors of the proposed dwellings. A first draft of this FRA, with a proposed freeboard of 300 mm was then subsequently submitted to the EA for review under their Cost Recovered Advice service.

The response from the EA was received on 10/10/25 and is included in Appendix C. The response states that:

“Whilst we welcome the specification that all sleeping accommodation will only be located on the first floors (or above) of the new dwellings, we do recommend that floor levels are set at least 600 millimetres (mm) above the estimated flood level.....

On some occasions, developments are able to reduce the required freeboard to 300mm, where extra flood resistance and resilience measures have been incorporated. However, flood water can put pressure on buildings, causing structural issues. At the location site, flood depths in the design flood event (0.5% AEP Higher Central) reach more than 3 metres. If flood resistance and resilience measures are being utilized to compensate for lower finished floor levels, the FRA should include information that demonstrates the new dwellings could withstand the hydrostatic pressure from flood water.

As noted above, if a planning application was submitted with only the 300mm freeboard proposed and no further justification for this or evidence of how the new dwellings could withstand the hydrostatic pressure, we are likely to object to the proposal.

If the freeboard is increased as specified above and reflected in the planning application documents, then we are likely to recommend a condition requiring implementation of the FRA and the mitigation measures detailed therein.”

In addition, informative advice was also included suggesting appropriate consultation with the emergency planners at Adur & Worthing Councils and drawing attention to the risk of floating vehicles during flood events and potential damage to building and utilities.

Consequently, this advice has been taken on board and the first floors to the new development will all be set at least 600 mm above the undefended Higher Central 1 in 200-year event of **5.34 mAOD** i.e. with finished floor levels (FFL) of **5.94 mAOD**.

As is standard practise for developments within flood risk areas, it is recommended that an appropriate post-permission Flood Warning and Evacuation Plan (FWEP) is developed for the scheme, in consultation with the emergency planners at Adur & Worthing Councils, addressing issues such as safe access and egress and the risk of floating cars. It

is anticipated that the preparation of such a FWEP is secured by an appropriate planning condition.

5.3.5. Local flood defences

Additional information regarding the local flood defences and the standard of protection (SoP) is also detailed in the Product 4. The information shows that the proposed site benefits from 8 local flood defence assets. **Figure 5.6** shows the flood defences relevant to the site, and **Table 5.5** details the asset type and the standard of protection.

Effective crest levels have been provided for the Demountable Defence and the Beach, which are **6.15 mAOOD** and **7.10 mAOOD** respectively. There is no risk of overtopping of either the “*Demountable Defence*” or “*The Beach*” as the crest levels of the defences are greater than the predicted flood levels in the 0.5% and 0.1% AEP scenarios. It is therefore considered that the risk of flooding to the site from overtopping of defences is low.

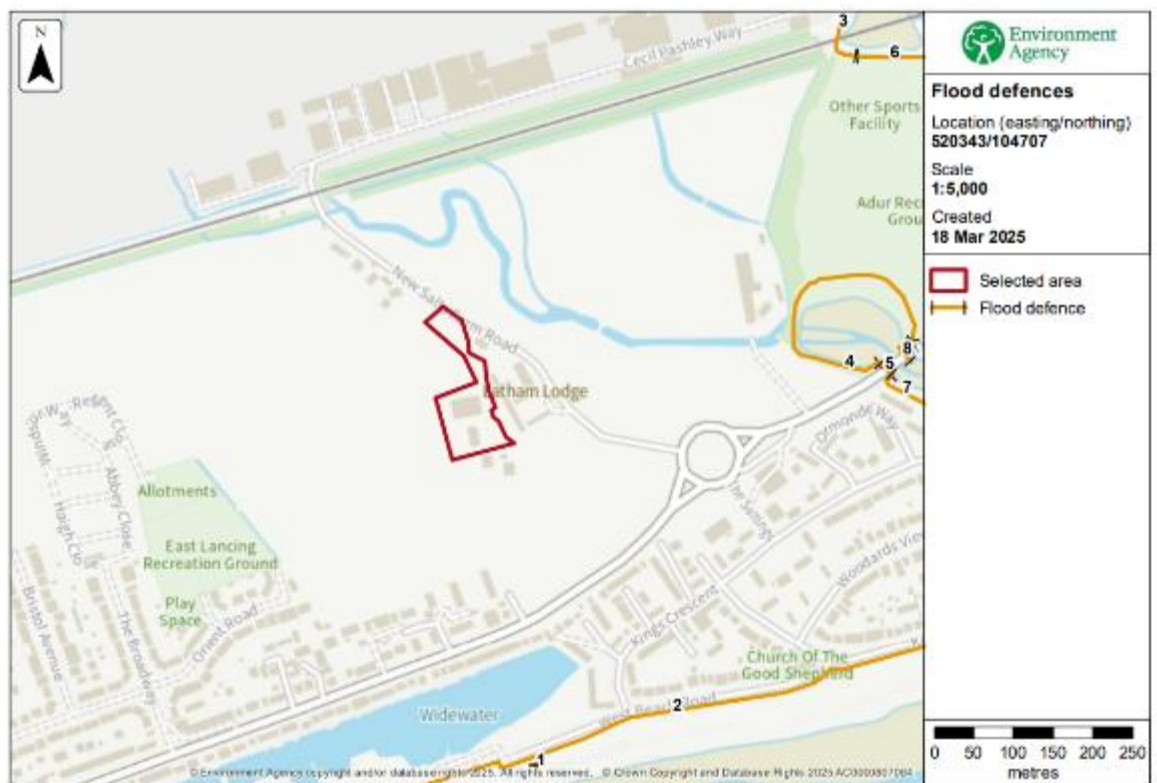


Figure 5.6 EA Product 4 – Identifying the local flood defences.

Table 5.5 Breakdown of the local flood defence assets and the standard of protection

Label	Asset ID	Asset Type	Standard of protection (years)	Current condition	Downstream actual crest level (mAOD)	Upstream actual crest level (mAOD)	Effective crest level (mAOD)
1	331052	Demountable Defence			6.15	6.15	6.15
2	149939	Beach	100				7.10
3	144540	Wall	1				
4	126312	Embankment	1				
5	143315	Bridge Abutment	1				
6	130597	Embankment	1				
7	143313	Wall	50				
8	130437	Bridge Abutment	1				

Any blank cells show where a particular value has not been recorded for an asset.

The Product 4 does not provide the conditions for the flood defences, and no flood levels are provided for any flood spot levels during the defended scenario. The EA states that the site is not affected by flooding during these scenarios. A further data request was issued to the EA for modelled data (Product 6), which included the data files for the 2018 Shoreham Scheme (coastal) model, which modelled the flood defences and used a more recent topographic survey to understand flooding in the area as a result of the proposed defences. The results of the modelling for this scenario are presented in **Figure 5.7**, and demonstrate that the site remains free from combined coastal flooding during the 1 in 200-year event, even with the inclusion of future scenarios (2067 and 2117).



Figure 5.7 Flood extents based on 2018 Shoreham Scheme (coastal model)

5.4. Groundwater

Groundwater flooding occurs when water from underground emerges above the surface. Depending on the underlying geology and superficial geology of the area, flooding from this source usually occurs after a particularly heavy storm when the infiltrated rainfall raises the local water table, causing the flows to flood the surface. Flooding from groundwater is generally more common in winter months and in areas that are in low-lying areas, where the water table is likely to be shallow.

The Local SFRA has stated that historically, the catchment has had groundwater flooding affecting areas along the coastal floodplain, with the West Sussex SFRA highlighting that the proposed site, along with the majority of the coastal areas is at “*High Risk*” from potential groundwater flooding. This is likely due to the underlying geology being chalk, which is typically porous and permeable, along with an alluvium superficial deposit. This, combined with the proximity to the Adur, which can result in tidal locking, preventing the drainage of groundwater (**Figure 5.8**).

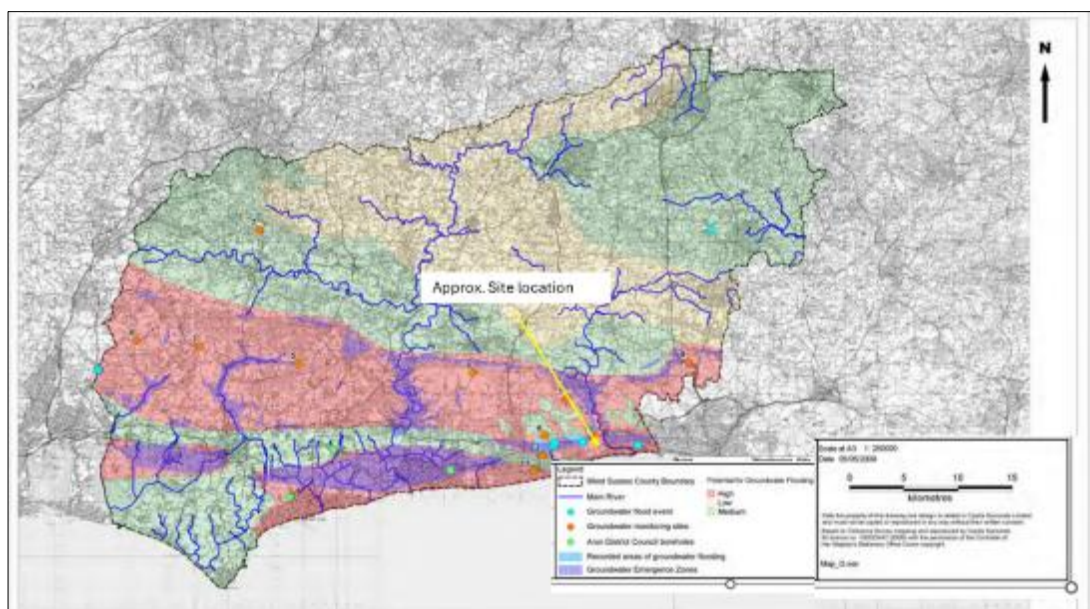


Figure 5.8 Areas prone to groundwater flooding - extract from the West Sussex SFRA

The LLFA (WSCC) has the primary responsibility for managing surface water and groundwater flooding within the local area.

Overall, the flood risk from groundwater sources is considered low, as the local LiDAR data demonstrates that the site is perched on a regional high point (refer to Sections 4.2 and 4.3 above), rendering it less susceptible to groundwater flooding.

5.5. Surface Water Flooding (Pluvial)

Surface water flooding occurs when intense, often short-duration, precipitation events are unable to enter a drainage system due to blockages, breakages in water pipes, or where the drainage capacity has been exceeded. This may be caused by a combination of factors, including site topography, rainfall exceeding the capacity of local surface water/

combined systems, or blockages to the sewer systems. The EA Risk of Flooding from Surface Water (RoFSW) dataset indicates that the site has a very low chance of flooding from surface water sources, including in the future scenarios (2040-2060). The only areas at risk of flooding are the sides of the access road, which have medium to low risk of surface water flooding. None of the predicted flooding is greater 0.2 m in depth, even during future scenarios. Therefore, the flood risk from surface water sources is deemed very low (**Figures 5.9 and 5.10**).

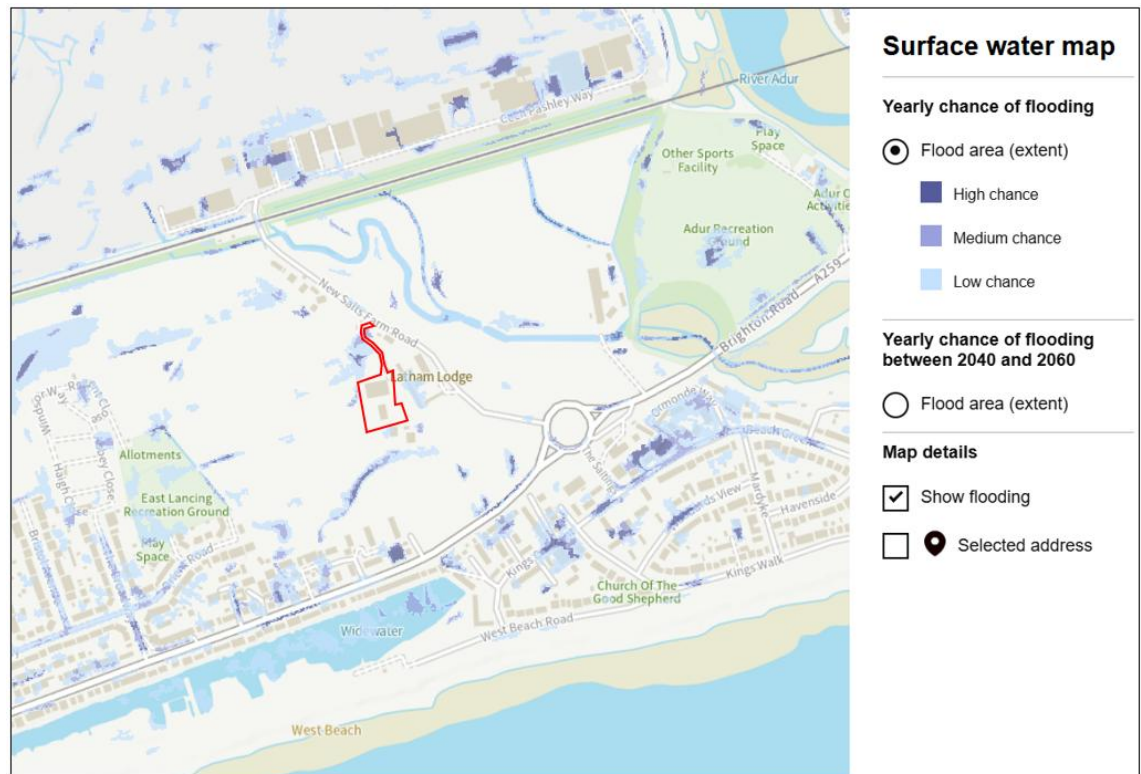


Figure 5.9 EA RoFSW Map for the current site and the surrounding area (Source: EA)

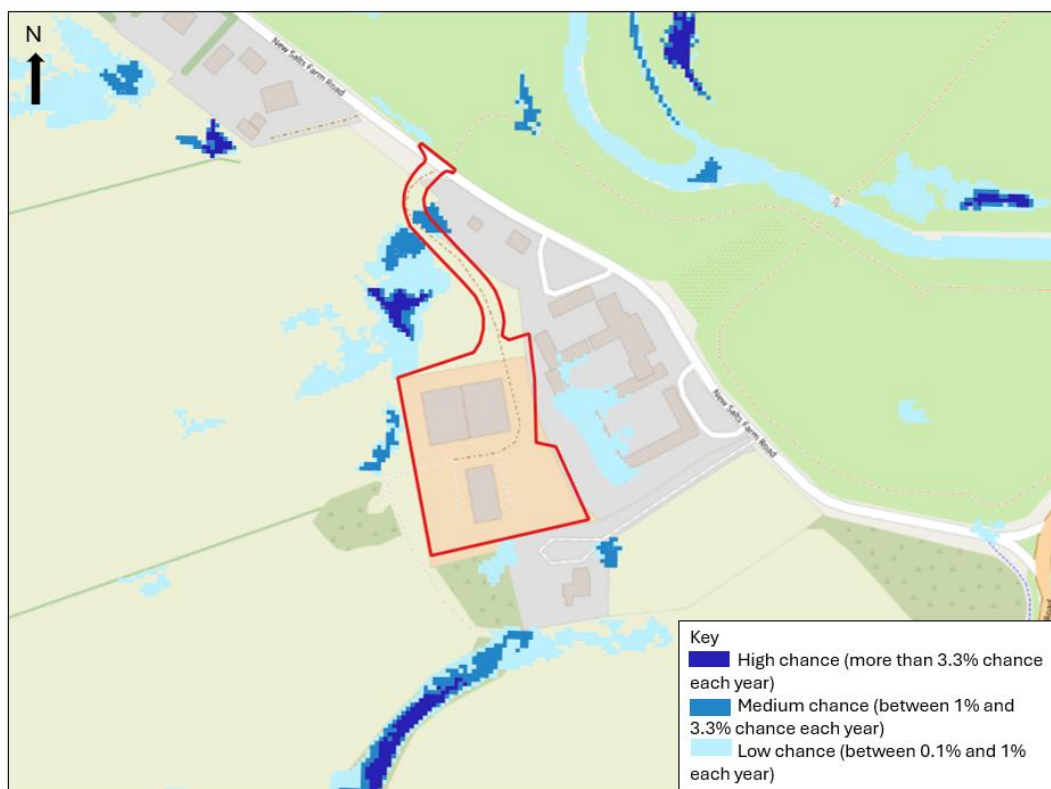


Figure 5.10 EA RoFSW Map for the current site (Source: EA)

5.6. Sewer Flooding

Sewer flooding occurs when flows overload the capacity of the sewers. This can be from intense rainfall, but blockages and sewer failures can also lead to flooding downstream of the network. The Adur and Worthing SFRA has reported that there have been 309 Southern Water incidents of sewer flooding in the catchment area. The West Beach (500 m south of the site) area is noted to have frequently flooded as a result of wastewater. There has been a total of 8 recorded incidents of sewer flooding in the local postcode (BN43 5); this postcode area covers a large part of north Shoreham, including Brighton City Airport. Sewer flooding in the site is deemed low due to the site being rural and located upstream of urban areas.

5.7. Reservoirs and Artificial Waterbodies

A reservoir is a large natural or artificial lake that is designed to collect and store water. Flooding from reservoirs is extremely unlikely. An area is considered at risk if peoples' lives could be threatened in the event of a dam or reservoir failure.

The EA Reservoir Flood Risk Map shows that there is no risk of reservoir flooding to the site or within its vicinity. The nearest large reservoir to the site, the Ardingly Reservoir, is located approximately 27 km to the north-east of the site. The Adur and Worthing SFRA also states that there are no large, raised reservoirs in the study area, but there is the Somerset Lake, which is a small lake located approximately 9.3 km west of the site (at

Worthing). Breach modelling has been modelled for this lake and demonstrates that the flood extent is further west and will not affect the proposed site.

National reservoir breach flood risk mapping for has been found not to impact Adur and Worthing, and therefore, the risk of flooding for this source is deemed very low.

5.8. Records of Historical Flooding

The EA Recorded Flood Outlines is a GIS layer that shows all historical flooding from rivers, the sea, groundwater, and surface water (from 1946 onwards). The local GIS layer indicates that no historic flooding has occurred within the red line boundary, with the nearest area that has been recorded located 200 m away to the north east, close to the tributary of the River Adur. The flooding was recorded in 1972 and is indicated to be surface water flooding.

5.9. Conclusions

The above desk study highlights all the potential sources of flooding that may affect the site for the proposed development at New Salts Farm.

The EA Flood Map for Planning has identified that the site is wholly within Flood Zone 3 (benefitting from coastal and tidal defences), with no flooding of the site in the current of future defended scenarios. The main source of flood risk in the area is a combination of coastal surges (with the coast located approximately 500 m to the south), as well as a tributary of the River Adur which is tidally influenced (located approximately 130 m to the east). This combination of coastal surges and high tides raising the water levels of the river is the likely reason why the predicted area at risk of flooding during a 1 in 200-year event, in the absence of defences is extensive.

The Product 4 data shows that during the 1 in 200-year + CC undefended event, the predicted design flood level is **5.34 mAOD** (Higher Central allowance). Consequently, without flood defences, flood depths within the site could reach 3.65 m on the site access road and 1.52 m in the eastern part of the site (accounting for the Higher Central allowance).

The Product 4 data does show that the site benefits from local flood defences, including “*Demountable Defences*” along the entire stretch of the coastline directly south of the site with an effective crest level of 6.15 mAOD, and “*The Beach*”, which has a standard protection of 1 in 100 years with an effective crest level of 7.10 mAOD. These levels are higher than the predicted undefended flood levels within the development. Flood risk within the development is further mitigated due to local flood defence schemes such as the Shoreham Adur Tidal Walls Flood Defence Scheme, which provides protection against tidal surge for up to a 1 in 300 year (0.33% AEP) storm.

Other sources of flooding have been assessed and are deemed as low risk to the site.

The EA has confirmed that they would approve the scheme, as long as first floors to the development are set at least 600 mm above the undefended Higher Central 1 in 200-year flood level, at a minimum of 5.94 mAOD.

Therefore, the development complies with national and local planning policy by providing an FRA for schemes located in an EA Flood Zone 3, evaluating the risks, and providing appropriate mitigation where necessary. Please refer to Chapter 6 below for further details of proposed mitigation and enhancement measures.

6. Mitigation & Enhancement

6.1. Background

The NPPF states that the Government's policy is to reduce flood risk. Therefore, the development of the site should be seen as an opportunity for environmental enhancement and a net reduction in flood risk. As such, the development should aim to reduce runoff below the existing runoff rates and volumes. If this is deemed impractical due to various constraints, the proposed development should at least maintain runoff rates and volumes at existing conditions.

Adur Local Plan Policy 36 requires all new development within Adur to include some form of SuDS or other appropriate design measures to reduce the risks of surface water flooding. SuDS should be considered before other forms of surface water disposal.

To provide betterment and to futureproof the scheme against climate change, the proposals will include the attenuation of surface water runoff rates and volumes from the site, to maintain discharge rates at the pre-existing (Greenfield) rates throughout the lifetime of the scheme, taking into account the impact of climate change.

This will be achieved by incorporating SuDS into the design and is detailed in the later sections of this chapter. It is anticipated that detailed design for the scheme will be secured by an appropriate planning condition.

SuDS can be a combination of both physical structures and techniques used to control surface water runoff as close to its origin as possible before surface water discharges to a watercourse or ground. There is a wide variety of sustainable drainage options available. Specific solutions need to be developed for each site, the choice of which will depend on factors such as the nature of the site, the type of pollutants potentially present, the hydrology of the area, and the presence of Groundwater Source Protection Zones (SPZs).

The implementation of SuDS as an alternative to conventional drainage systems can achieve significant direct and indirect long-term environmental benefits. Depending on the choice of the system these can include:

- Reduction in overall flood risk on-site and downstream from the proposed redevelopment by reducing surface water runoff to watercourses, either permanently or after peak flow periods in the system;
- Providing an opportunity for infiltration of surface water into soil, where feasible, to replenish groundwater, and help maintain baseflows in rivers;
- Promoting a healthier waterway flow regime to receiving watercourses and reducing the impact of bank erosion and habitat damage caused by the increase in flow rate of additional surface water runoff;
- Reducing the quantity of pollutants reaching waterways and infiltrating the ground; and
- Habitat creation and enhancement of the amenity of an area. This applies predominantly to open drainage options, especially where wet ponds or wetlands are implemented.

6.2. LLFA Consultation

In December 2025, a draft version of the proposed Surface Water Drainage Strategy report was sent to West Sussex LLFA for review. A meeting was held on 19th January 2026, and following this formal comments were received from the LLFA, which are presented in Appendix F. This document presents an amended Surface Water Drainage Strategy which aligns with the comments raised by the LLFA.

The LLFA requested that further infiltration testing was undertaken in the region of the proposed infiltration basin and permeable paving, alongside further groundwater monitoring between February and April (following the initial testing and monitoring conducted from November 2024 to February 2025), to determine that a 1m unsaturated zone between the base of SuDS features and the water table was achievable. Additional infiltration testing was therefore conducted in February 2026 and groundwater monitoring was undertaken between February 2026 and April 2026. The results of this are shown in Section 6.3.3.1 and Appendix G.

The LLFA also requested that the report was amended to align with each of the National Standards for SuDS, showing how these have been achieved. These are outlined in Sections 6.3.3.1 to 6.3.3.7 below.

The hydraulic calculations were also updated to include the 3.3% AEP event (provided in Appendix E), and a corresponding Surface Water Strategy Drainage Layout drawing is provided in Appendix J.

6.3. Assessment of Impact

6.3.1. General Design Concept

For new developments, there is a general expectation that a drainage system should be adequate, particularly with regard to drains created by developments subject to Building Regulations. Adequate performance will usually be achieved if the drainage system:

- Conveys the flow via a suitable network or treatment systems to a suitable outfall (a soakaway, a watercourse, surface water, or combined sewer);
- Minimises the risk of blockage or leakage with good access for clearing blockages and any necessary maintenance;
- Has sufficient capacity to carry or retain the expected flow at any point in the system and so does not increase the vulnerability of the development to flooding; and
- Provides drainage from roofs or paved areas to an adequately and suitably designed drainage system;

In considering the most appropriate SuDS for the proposed development, reference has been made to the CIRIA *“Sustainable Drainage System Manual”* (the *“SuDS Manual”*)^{xviii}, local LLFA Summary Guidance for developers, and DEFRA 2025 National Standards for Sustainable Drainage Systems.

6.3.2. Preliminary Runoff Calculations

The following section provides an empirical demonstration of the reduction in surface water runoff volumes and rates, anticipated from the installation of appropriate SuDS devices.

6.3.2.1. Methodology

Firstly, the greenfield peak runoff rates for a range of return periods have been estimated using the IH124 methodology, included within HR Wallingford's Greenfield Runoff Rate Estimation Tool. For sites <50 ha, the method uses a *pro-rata* methodology based on IH Report 124 with growth curves from the Flood Studies Report and CIRIA Book 14. The method requires input of the standard average annual rainfall (SAAR) for the site in question (718 mm). The SuDS Manual and Wallingford Procedure Technical Report were used to determine values for soil index (SOIL) and 'urban catchment wetness index' (UCWI) for the Application Site, 0.643 and 130 respectively.

In addition, Flood Estimation Handbook (FEH) / Flood Studies Report (FSR) methods have been employed to facilitate the determination of the surface water runoff from the developed site for a range of return periods. The FEH Web service generates the design rainfall depth for a range of specified return periods and storm durations.

Results were obtained using:

- The FEH method to establish rainfall depths for a range of return periods;
- The Modified Rational Method to calculate peak discharges for each return period;
- Derivation of runoff volume from RUNVOL (volume of runoff expressed as mm over total area) using the Wallingford Procedure.

A range of storm return periods have been modelled, using the modified Wallingford Procedure, to simulate a range of worst-case scenario surface water runoff rates and volumes from the site.

The existing greenfield runoff volumes were approximated using the simple method presented on HR Wallingford's "*UK Sustainable Drainage Guidance & Tools*" website, whereby it is assumed that the greenfield runoff volume is equal to the Standard Percentage Runoff (SPR) value of the soil. With reference to the same website, a value of 0.37 has been determined for the Application Site.

Thus, the greenfield runoff volume for the rainfall event can be calculated as:

$$\text{Greenfield Vol} = \text{RD} \times \text{AREA} \times 10 \times \text{SPR}, m^3$$

Where RD = Rainfall Depth for the return period storm of interest.

Similarly, for those areas of impermeable surfaces, the following equation has been used:

$$\text{Runoff volume} = \text{RD} \times \text{AREA} \times \text{Runoff Coefficient}, m^3$$

Appropriate runoff coefficients have been sourced from the 2015 CIRIA SuDS Manual. There will be green roofs on each of the dwellings, however as a precautionary approach to account for saturated conditions, a coefficient of 0.90 has been selected. Therefore, a

coefficient of 0.90 has been used for the proposed roofs and 0.75 for the proposed hardstanding in the calculations.

With reference to the size and topography of the site, the time to concentration (t_c) of peak overland runoff from the site was determined using the Kinematic Wave Equation. The average time to concentration for a 50 mm/hr storm (Building Regulations recommended design rainfall intensity for surface water drainage design for normal situations – equating roughly to a 1 hour 1 in 100-year rainfall event) was estimated to be approximately 12.4 minutes (t_c) on the basis that the existing developable area has an average gradient of around 0.8% slope from high point to the low point.

Furthermore, the 100-year 6-hour rainfall event was also modelled for each scenario, permitting the difference in runoff volume and pre- and post-development for this event to be calculated, as per EA guidance.

6.3.2.2. Greenfield runoff rates

Greenfield runoff rates were calculated using the methodology described above. The results of this procedure are presented in **Table 6.1** and Appendix D, which demonstrates an estimated greenfield runoff rate for the 100-year event of **1.9 l/s**.

Table 6.1 Greenfield Runoff Rates

Return period (years)	Peak Greenfield runoff rate (l/s)	Peak Greenfield runoff rate (l/s/ha)
$Q_{bar_{rural}}$	0.6	1.00
1	0.5	0.83
30	1.4	2.33
100	1.9	3.17

6.3.2.3. Post-development drainage calculations

Within the design of drainage networks for new developments, the incorporation of an appropriate allowance for future CC impacts on peak rainfall intensities is recommended to ensure that all future developments give rise to a net reduction in runoff rates and volumes throughout their operational lifetime.

Updated UK Government climate change allowances are available for the “*Adur and Ouse Management Catchment peak rainfall allowance*” online (refer to <https://environment.data.gov.uk/hydrology/climate-change-allowances/rainfall>).

Both Central and Upper End allowances for peak rainfall intensity are provided. Associated guidance advises that “*for flood risk assessments and strategic flood risk assessments, assessments should be provided for both the central and upper-end allowances to understand the range of impact*”. Assuming a 100 year lifetime for the proposed development, the guidance suggests that the total potential change anticipated for 2061 to 2125 is 45% for the upper end allowance in the 1 in 100 year event.

A 45% climate change allowance has therefore been included within the post-development drainage calculations. A 10% allowance for urban creep has also been

included. It is proposed that the site will discharge runoff entirely by infiltration (see Section 6.3.3.1 for further information), therefore the rate of runoff leaving the site will be 0 l/s. The post-development drainage calculations are presented in Appendix E.

6.3.3. National Standards for SuDS

It is intended that the proposed development will aim to meet the DEFRA 2025 National Standards for Sustainable Drainage Systems. Sections 6.3.3.1 to 6.3.3.7 below outline the requirements for these Standards and how the proposed development will meet them.

6.3.3.1. Standard 1: Runoff Destinations

Standard 1 requires that runoff from the development shall be discharged to the following final destinations in accordance with the below hierarchy:

1. **Priority 1: collected for non-potable use.** Water butts will be provided for each of the dwellings, which will be used for garden irrigation.
2. **Priority 2: infiltrated to ground.** BRE365 infiltration testing was initially conducted for the site in November 2024. Infiltration tests in four trial pits were carried out which demonstrated that infiltration was not feasible in the north of the site, however, in the south and east of the site, infiltration was shown to be very good. Instant soakage was observed in the east of the site, so no infiltration rate could be recorded, and in the south of the site a rate of 2.34×10^{-3} m/s was recorded. Due to the very good infiltration rates in the south and east of the site (sands and gravels of the superficial Quaternary Raised Beach Deposits), it is intended that runoff will be conveyed to permeable paving within the southern part of the central road, with an overflow to an infiltration basin in the southeastern corner of the site. Both the permeable paving and infiltration basin will then discharge runoff to the ground.

Following consultation with the LLFA (Appendix F), further infiltration testing was undertaken in the location of the proposed infiltration basin and permeable paving in February 2026. Very good infiltration rates were recorded in both trial pits, with the slowest rate in the location of the permeable paving being 3.91×10^{-4} m/s, and the slowest rate in the location of the infiltration basin being 1.04×10^{-3} m/s. The results of both sets of infiltration testing are presented in Appendix G.

Groundwater level monitoring was initially undertaken in two standpipes from November 2024 and February 2025. Water levels in the standpipe in the north of the site fluctuated between 1.57 to 2.01m below ground level (mbgl). In the standpipe in the south of the site, water levels fluctuated between 1.40 and in excess of 1.63 mbgl. This standpipe was dry at 1.63 mbgl on five occasions over the monitoring period due to it silting up at its base as a result of the granular nature of the soils encountered. Following the consultation with the LLFA, further groundwater level monitoring was then undertaken between February 2026 and April 2026. Water levels in the standpipe in the north of the site fluctuated between 1.86 to 2.00m below ground level (mbgl). In the standpipe in the south

of the site, water levels fluctuated between 1.53 and in excess of 1.63 mbgl. This standpipe was dry at 1.63 mbgl on one occasion over the monitoring period.

The results demonstrate that a 1m unsaturated zone below the base of the permeable paving and infiltration basin will be achieved on site (refer to Section 6.3.5 for further details on levels). The groundwater monitoring results are included within Appendix G.

3. **Priority 3: discharged to an above ground surface water body.** Field drains are located immediately to the south and west of the site, however discharging to the ground (infiltration) is higher up on the SuDS hierarchy and therefore is a more sustainable drainage solution.
4. **Priority 4 - discharged to a surface water sewer, or another piped surface water drainage system.** There are no surface water sewers in the vicinity of the site. Discharging to the ground is higher up on the SuDS hierarchy and therefore is a more sustainable drainage solution.
5. **Priority 5: discharged to a combined sewer.** There are no combined sewers in the vicinity of the site. Discharging to the ground is higher up on the SuDS hierarchy and therefore is a more sustainable drainage solution.

6.3.3.2. Standard 2: Management of everyday rainfall (interception)

Standard 2 requires that a 'SuDS approach' is applied 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.

As the proposed development will infiltrate entirely to ground, with no runoff leaving the site for storm events with a 1 in 1 or greater chance of occurring each month, the proposed surface water drainage strategy is compliant with standard 2.

6.3.3.3. Standard 3: Management of extreme rainfall and flooding

Standard 3 requires that a 'SuDS approach' shall be adopted to address the management of development runoff during extreme rainfall, including allowances for climate change and urban creep.

When discharging to an infiltration feature, the system shall be appropriately sized to accommodate the design event based on ground conditions and contributing areas. A surface water catchment plan is included within Appendix H.

Any flooding from the surface water drainage system for events up to the 1% AEP event shall be managed within the development.

Surface water drainage calculations provided in Appendix E include allowances for climate change and urban creep, and show that no flooding is predicted up to the 1% AEP event, which demonstrates that the system has been appropriately sized to accommodate the 1% AEP design event.

The risks (both on and off the development) associated with flooding from the surface water drainage system for exceedance events greater than the 1% AEP event shall be

appropriately managed. An exceedance flow plan is included in Appendix I, showing that exceedance flows are directed away from the proposed dwellings.

For infiltrating sites, Standard 3 requires that geotechnical investigations shall be undertaken to ensure that the ground conditions are suitable for infiltrating surface water runoff. This is demonstrated in Section 6.3.3.1 above and Appendix G. The standard also requires that infiltration features are designed so that rainfall events up to the 3.3% AEP event shall half empty their runoff volume within a maximum of 24 hours. Appendix E shows that the half drain time for the permeable paving and infiltration basin are 9 and 23 minutes respectively for the 3.3% AEP event.

6.3.3.4. Standard 4: Water quality

Standard 4 requires application of a ‘SuDS approach’ that protects surface waters, groundwater and coastal waters by managing the quality of the surface water runoff to adequately address water quality risks from the development. The LLFA consultation recommended that this standard should be addressed using the Ciria SuDS Manual Simple Index Approach.

The Simple Index Approach follows a three-step process:

1. Allocate suitable pollution hazard indices for the proposed land use
2. Select SuDS with a total pollution mitigation index that equals or exceeds the pollution hazard index
3. Where discharge is to protected surface waters or groundwater, consider the need for a more precautionary approach

Step 1 – Define pollution hazard indices

The pollution hazard indices presented in Table 6.4 are relevant for the land use categories on the proposed site (residential use).

Table 6.4 Pollution hazard indices at the proposed site (Source: SuDS Manual).

Land use	Pollution hazard level	Total suspended solids (TSS)	Metals	Hydrocarbons
Residential roofs	Very low	0.2	0.2	0.05
Individual property driveways, residential car parks, low traffic roads and non-residential car parking with infrequent change	Low	0.5	0.4	0.4
Total pollution hazard index	-	0.7	0.6	0.45

Step 2 – Determine SuDS pollution mitigation indices

The proposed SuDS components should have a total pollution mitigation index (for each contaminant type) that equals or exceeds the pollution hazard index (for each contaminant type) in order to provide adequate treatment. This is determined by the following formula:

$$\text{Total SuDS mitigation index} \geq \text{pollution hazard index}$$

(for each contaminant type) (for each contaminant type)

Where the mitigation index of an individual component is insufficient, then two or more components in series will be required, where:

$$\text{Total SuDS mitigation index} = \text{mitigation index}_1 + 0.5 (\text{mitigation index}_2)$$

A factor of 0.5 is used to account for the reduced performance of secondary or tertiary components associated with already reduced inflow concentrations. The SuDS mitigation indices relevant for the site are shown in Table 6.5.

Table 6.5 SuDS mitigation indices at the proposed site – groundwater (Source: SuDS Manual)

SuDS Component	Mitigation indices		
	TSS	Metals	Hydrocarbons
Constructed permeable pavement	0.7	0.6	0.7
Infiltration basin (underlain by a soil with good contaminant attenuation potential of at least 300mm)	0.4	0.3	0.3

Step 3 - Consider the need for a more precautionary approach where discharges are to protected waters

Protected surface waters or groundwater is defined by the SuDS Manual as those which are protected for the supply of drinking water. This is not the case for the proposed site, as the nearest SPZ is located over 600 m away from the site.

Table 6.6 shows the total SuDS mitigation index calculated using the formula outlined above. It has been demonstrated that the SuDS mitigation index (Table 6.6) is greater than the pollution hazard index (Table 6.4) for each contaminant type. The SuDS treatment train will therefore provide adequate pollutant removal on site before runoff is discharged to the ground.

Table 6.6 Proposed SuDS treatment trains and total SuDS Mitigation indices for groundwater.

SuDS treatment train	Total SuDS mitigation index		
	TSS	Metals	Hydrocarbons
Permeable paving > infiltration basin	0.9	0.75	0.85

6.3.3.5. Standard 5: Amenity

Standard 5 requires a ‘SuDS approach’ shall be adopted that maximises benefits for amenity through the creation of multi-functional places and landscapes.

The proposed infiltration basin will be an attractive, usable and well-integrated landscape feature, contributing to visual amenity and environmental enhancement. The basin will form part of the open space within the development which can be used by residents and visitors, and will be surrounded by trees, benches and a walkway around the basin, supporting the mental and physical health and wellbeing of its users. The slopes of the basin will be gentle (not exceeding 1:3) to enable safe access and egress.

6.3.3.6. Standard 6: Biodiversity

Standard 6 requires that a ‘SuDS approach’ is adopted to ensure the surface water drainage system maximises biodiversity benefits throughout the development lifecycle. The proposed infiltration basin and associated soft landscaping, including native trees, shrubs and marginal planting, will deliver a multifunctional SuDS feature that enhances ecological value on the site. It will provide additional aquatic and terrestrial habitats, contributing to Biodiversity Net Gain. Over the lifetime of the development, the infiltration basin will mature into a biodiverse landscape feature that enhances green infrastructure and improves water quality through natural filtration.

6.3.3.7. Standard 7: Design of drainage for construction, operation, maintenance, decommissioning and structural integrity

Standard 7 requires that a ‘SuDS approach’ is adopted to ensure that surface water drainage systems are designed so they can be easily and safely constructed, operated and maintained. A Construction Management Plan and SuDS Maintenance and Management plan will be provided at discharge of condition stage. This will be subsequently coordinated and paid for by the applicant and comprise:

- Periodic checking of inspection chambers and pipework for blockages or physical damage, and remediation as required;
- Periodic jetting or rodding of pipework as required to clear blockages;
- Periodic desilting of any flow control (e.g. Hydrobrake) sumps. The sumps should be emptied/checked at least as follows (but with an annual inspection and additional cleansing if required): On completion of drainage works, Year 1, Year 3, then every 5 years;

- Infiltration basin: Monthly to half yearly mowing (spring and autumn) dependant on vegetation length preference, together with half yearly inspection of inlets, underdrain pipes and outlets for blockages or physical damage and management of other vegetation.
- On-site wetland vegetation and silt disposal; and
- Also ensure that safe access and egress is maintained throughout the lifetime.

6.3.4. SuDS Design Concept

6.3.4.1. Infiltration basin

Infiltration basins are surface storage features that are typically dry during normal conditions and can be used for other amenities (such as football pitches or other recreational activities) but will act as additional storage to attenuate and infiltrate runoff during storm events. These SuDS features can retain stormwater from the site and also have good removal capability of urban pollutants. This is due to the additional retention time attenuated water has within the basin that will remove the pollutants through sedimentation, and the opportunity for biological uptake mechanisms to reduce nutrient concentrations (**Figure 6.1**).



Figure 6.1 An example of a detention/infiltration basin installed within a housing development, which will provide amenity space when not in used for flood storage – Susdrain

6.3.4.2. Permeable Paving

Permeable paving is a type of hard surfacing that allows rainwater to infiltrate through the surface and into underlying layers, which can be temporarily stored before infiltrating into the ground or into attenuation layers. Permeable paving can be made from various materials, such as gravel, resin-bound gravel, concrete, asphalt, and even reinforced

grass. Typically, the paving material itself allows water to infiltrate through and water can be infiltrated through the space in between the paving's voids. An underdrain can be provided if a granular sub-base is used (Figure 6.2). Some of the advantages of permeable paving include reducing peak flows by intercepting surface water runoff. The voids can also act as a pollution control, can replace gullies and manholes, and they are typically low in maintenance.

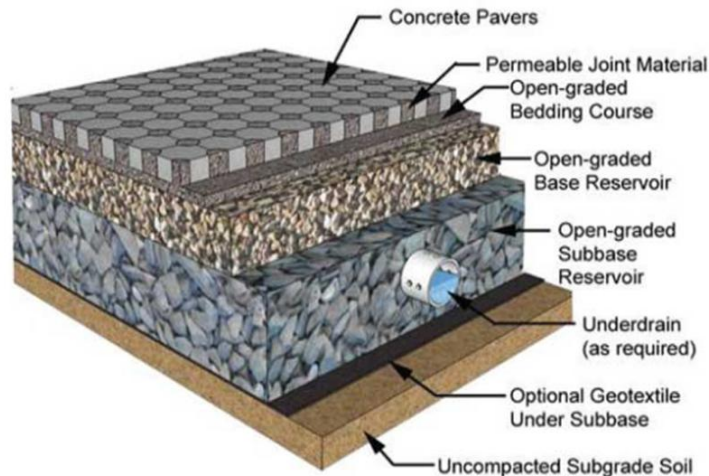


Figure 6.2 Example of cross-section of a permeable paving system (top layer) along with subsurface layers and drainage

6.3.5. Surface Water Drainage Strategy

The main storage mechanism for the additional surface water runoff at the site will be via permeable paving located within the southern part of the central road, and an infiltration basin located in the south east of the site. The access road between New Salts Farm Road and the site will be surfaced with a permeable material that is suitable to accommodate access for large service and emergency vehicles, and runoff would therefore infiltrate through the surface and underlying strata or drain to the adjacent fields. Within the site itself, the northern part of the central road would comprise lined permeable paving which will convey runoff southwards. The permeable paving in the southern part of the site would be used for attenuation storage, before infiltrating runoff to the ground (where infiltration rates are more favourable).

Green roofs will be included on each of the proposed dwellings. These will offer some attenuation benefit for frequent rain events, but as a precautionary measure, due to their tendency to be saturated during winter months, they have not been included in the surface water storage calculations.

It is intended that the surface water within the red line boundary will be positively drained from the site via gravity. From the drainage strategy drawing (Appendix J), these are mainly from conduit pipes and channel drains that will connect impermeable areas (roofs, patios and driveways) to the permeable paving, which will infiltrate to the ground at a rate of 3.91×10^{-4} m/s. There will be an overflow pipe from the permeable paving to

the infiltration basin in the south east of the site, which will be utilised in low frequency storm events (less than 1 in 1-year). Runoff in these events will also infiltrate to ground at the same rate of 3.91×10^{-4} m/s.

The gradients of the slopes of the infiltration basin should be gentle and not exceed 1:3 to allow safe access and egress. With a maximum average depth of 520 mm (including 150 mm freeboard) and an area of approximately 164 m² it will provide a storage volume of **45 m³**. The proposed level of the basin is 2.32 mAOD and the base will be 1.8 mAOD, allowing for a 1 m unsaturated zone between the basin and the water table (the highest recorded groundwater level was 1.4 mbgl, which is at 0.8 mAOD). The permeable paving will cover an area of approximately 317 m² and have a maximum depth of 570 mm, which will provide a storage volume of **54.2 m³**. The proposed level of the permeable paving is 2.5 mAOD and the base will be 1.8 mAOD, also allowing for a 1 m unsaturated zone between the permeable paving and the water table (at 0.8 mAOD). A total of **99.2 m³** of attenuation will therefore be provided across the site, which is enough storage to attenuate the additional flows from a 1 in 100-year critical storm event (including 45% climate change allowance). It has been demonstrated that the proposed permeable paving and the infiltration basin will empty to at least half full within 24 hours, so that it can accommodate runoff from two storms in quick succession. A half drain time of 9 minutes was calculated for the permeable paving and 23 minutes was calculated for the basin.

Additionally, the infiltration basin can present an opportunity to enhance biodiversity, such as creating wetlands. This can be further explored in later design stages.

Trial pit logs undertaken alongside the infiltration testing identified 700 mm depth of made ground overlying natural brown sandy gravel in the south east of the site in the location of the proposed infiltration basin. The Phase 1 Contaminated Land Assessment produced by Hilson Moran identified potential contamination on the site, due to the site's location being on a historical gravel pit which has been infilled. Although there has been no visual indications of contamination from trial pits and groundwater monitoring boreholes, the made ground will be tested as part of post-permission intrusive site investigation (SI) works.

If the test of made ground demonstrates that it is contaminated, then either:

- a. The contaminated made ground will be removed off-site and therefore the infiltrating approach as described above will be pursued in the remaining natural sandy gravel strata; or
- b. Some of the made ground will remain *in situ* and the basin will be lined with an impermeable geotextile and the basin will act as a detention basin. Any underlying contaminants in the made ground will therefore not be mobilised by infiltration. An outfall pipe with complex control (*e.g.* hydrobrake set at the greenfield rate) will be provided, which will direct flow towards a discharge pipe located beyond the southern boundary of the site (with the pipe being laid to run parallel with the western boundary of the New Salts Farm farmhouse curtilage) and discharge into the large ditch to the south of the site (approximately 70 m to the south), which is part of the wider surface water drainage ditch network. The developer has a right to lay services across the adjacent land within his title deed,

so that no 3rd part agreements would need to be made if this option needed to be pursued.

6.3.6. Foul Water Sewer Diversion

The Southern Water sewer records in Appendix A show that a 200 mm vitrified clay foul sewer crosses the eastern and southern parts of the site, with 70 m of this sewer falling within the red line boundary of the site. This sewer crosses the proposed rear gardens of Plots 2, 3, and 4, adjacent to the patio of Plot 4, and across the open space surrounding the infiltration basin. In order to allow for sufficient easements between the sewer and the proposed dwellings and open space, a proposed diversion route is shown in Appendix K. It is assumed that 3 new manholes will be required for this diversion route, as shown in Appendix K.

6.3.7. Flood Resilience Measures

6.3.7.1. Floor Levels

As described in Section 5.3 above, within the vicinity of the proposed development, the flood defences have an effective crest height of 6.15 and 7.10 mAOD, providing a SoP against the 1 in 200 and 1 in 1,000 year tidal flood events.

Catastrophic failure of the defences (*i.e.* a tidal breach) in the vicinity of the site is possible, but the risk of occurrence is very low. Regular maintenance reduces the chances of a catastrophic failure, and it is highly unlikely this will cease.

The predicted undefended flood level for the site in the 1 in 200-year tidal event is **5.34 mAOD**, which, with reference to Section 4.2 above, is 2.88 m above the lowest point in the developable part of the site, which is at 2.46 mAOD (the red line boundary area excluding the access road). Sleeping accommodation (confined to the first floor) will be set at least 600 mm above this level, at a minimum of **5.94 mAOD**.

Ingress of floodwater to the ground floor levels of the dwellings may occur during the 1 in 200-year Higher Central event if the maximum hydrostatic head limit of the building is exceeded. Nevertheless, although ingress of flood waters may occur at ground floor level, the sleeping accommodation would still be 600 mm above the predicted flood level during this event. As such, the safety of occupants is maintained.

The ground floor levels are located below the 1 in 200-year Upper Central design flood level, but will be provided with suitable waterproofing and other mitigation measures (refer to Section 6.3.7.4 below).

6.3.7.2. Flood Warnings

The EA is responsible for issuing flood warnings to the public based on meteorological reports and forecasts, including the use of radar to track storms and rainfall intensity, and data from the national tide gauge network.

The EA operates a 24-hour telephone service on 0345 988 1188 (Floodline), which includes direct operator advice & frequently updated flood warning information.

The site is located within a Flood Warning Area and it is anticipated that the occupants of the new homes will subscribe to free live flood warnings from the EA which will provide warnings via text, call and email (<https://www.gov.uk/sign-up-for-flood-warnings>).

6.3.7.3. Safe Access & Egress

The NPPF states that safe access and escape routes for emergency services to and from the development during a flood event should be identified, where required. Given that the site lies wholly within undefended Flood Zone 3, it is not considered that guaranteed dry ingress and egress routes could be provided during the undefended scenario.

With reference to **Figure 6.3**, if instructed to evacuate by the emergency services, the shortest route to land outside Flood Zones 2 or 3 would constitute a distance of approximately 500 m and traversing south along New Salts Farm Road, then east onto Brighton Road. To ensure safe evacuation from the area without passing back into Flood Zone 2 or 3, it is recommended that evacuees continue east along Brighton Road and cross the bridge over the River Adur onto Shoreham High Street (if flood-free and safe to do so), which affords an area of continuous Flood Zone 1. Shoreham High Street then offers routes northwards safely away from areas in Flood Zone 2 and 3.

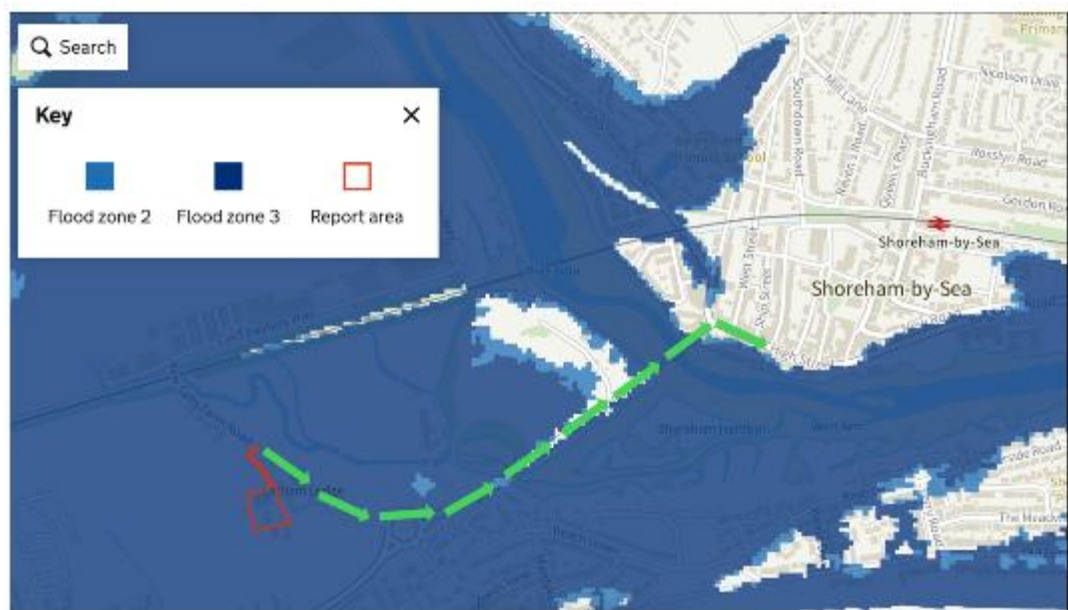


Figure 6.3 Recommended evacuation route to continuous Flood Zone 1

Multi-agency plans activated at the time of the event may include the provision of public transport to aid rapid evacuation. Attention must be given to advice provided by the emergency services at the time of the incident.

Nevertheless, a catastrophic failure of coastal flood defences may not permit sufficient warning time to be given to facilitate a safe evacuation from the premises. The decision whether or not to evacuate would be given at the time by the emergency services. Such warnings are issued by local radio, supplemented by direct dial telephone systems and other local systems as appropriate.

In the unlikely event of catastrophic failure of the coastal flood defences and insufficient time being available to evacuate the premises (coordinated by emergency services, along dry egress routes to areas above the floodplain), then internal “invacuation” routes have also been provided to 1st floor levels above the maximum design flood level.

For each of the 10 dwellings, as the ground floor is located below the predicted 1 in 200-year Higher Central flood level, internal stairs permit escape to the 1st floor for additional safety. As discussed above, 1st floor FFLs will be set at least 600mm above the predicted flood level, at a minimum of **5.94 mAOD**.

6.3.7.4. Flood Resilient Construction

In addition to the above, as a precautionary measure against extreme future flooding, building specific flood resistant measures will be included in the scheme (in line with the UK Government’s *“Improving the Flood Performance of New Buildings: Flood Resilient Construction”* guidance^{xix}), i.e.:

- No air bricks within the floor slab construction;
- Use of building materials, where necessary, that are effective for resisting water ingress, including engineering bricks, cement-based materials including water retaining concrete and dense stone;
- External walls/windows capable of withstanding a hydrostatic head up to 600 mm;
- Sealed PVC external framed doors should be used and, where the use of wooden doors is a preferred option, all effort should be made to ensure a good fit and seal to their frames;
- Windows and patio doors are vulnerable to flood water and similar measures to those used for doors should be taken; special care should be taken to ensure adequate sealing of any PVC window/door sills to the fabric of the house.
- Ground floor double glazing conforming to the relevant standards to adequately resist the pressures generated by flood waters and debris carrying flows;
- Place fittings (e.g. electrical appliances, gas oven) on plinths as high as practicable above the floor to minimise the risk of being affected by flood water;
- Pipework: Closed cell insulation should be used for pipes which are below the predicted flood level;
- Drainage services: Non-return valves are recommended in the drainage system to prevent back-flow of diluted sewage in situations where there is an identified risk of the foul sewer surcharging;
- Maintenance of these valves is important to ensure their continued effectiveness;
- Water, electricity and gas meters: should be located above predicted flood level;
- Electrical services: electrical sockets should be installed above flood level for ground floors to minimise damage to electrical services and allow speedy re-occupation;

- Electric ring mains should be installed at first floor level with drops to ground floor sockets and switches;
- Heating systems: boiler units and ancillary devices should be installed above predicted flood level and preferably on the first floors;
- Underfloor heating: should be avoided on ground floors and controls such as thermostats should be placed above flood level.
- Communications wiring: wiring for telephone, TV, Internet and other services should be protected by suitable insulation in the distribution ducts to prevent damage.
- Any proposed design solution for flood insulation on all potentially vulnerable wiring should be discussed with the relevant service providers.

6.3.8. Pollution Minimisation during Construction

Minimisation of pollution events during the construction phase will be ensured by the adequate maintenance of vehicles, the responsible handling and storage of potentially polluting materials and liquids, and suitable training of staff.

In order to reduce the impact of accidental spillages (*e.g.* from plant fuel) during construction, appropriate planning will identify such risks and the precautionary measures to be taken such as:

- Spillage response kits;
- Seals to drains;
- Bunding of high-risk areas; and,
- Training of staff in emergency procedures.

Furthermore, the Control of Pollution (Oil Storage) (England) Regulations 2001 (together with the EA's former Pollution Prevention Guidelines 2 [PPG2]) will be complied with. The Regulations cover the storage of oil of any kind, including petrol, mineral oil, heating oil, lubricating oil, vegetable oil, heavy oils such as bitumen, and oils used as solvents, such as paraffin or kerosene. The Regulations stipulate the strength, integrity, and delivery systems of oil containers and prescribe secondary containment systems such as drip trays or bunds, which will ensure that the likelihood of oil spillages is minimised.

7. Sequential Test & Exception Test

7.1. Policy

The need to carry out a Sequential Test for flood risk is prescribed in the NPPF. It advises that a Sequential Test must be applied at all stages of the planning process to ensure that any new development is steered to areas with the lowest probability of flooding.

Paragraphs 172 to 180 of the NPPF give guidance on the aim of the Sequential Test, which states: -

“All plans should apply a sequential, risk-based approach to the location of development – taking into account all sources of flood risk and the current and future impacts of climate change – so as to avoid, where possible, flood risk to people and property. They should do this, and manage any residual risk, by:

- a) applying the sequential test and then, if necessary, the exception test as set out below.*
- b) safeguarding land from development that is required, or likely to be required, for current or future flood management.*
- c) using opportunities provided by new development and improvements in green and other infrastructure to reduce the causes and impacts of flooding, (making as much use as possible of natural flood management techniques as part of an integrated approach to flood risk management); and*
- d) where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to relocate development, including housing, to more sustainable locations.*

Within this context the aim of the sequential test is to steer new development to areas with the lowest risk of flooding from any source. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding. The strategic flood risk assessment will provide the basis for applying this test.

The sequential approach should be used in areas known to be at risk now or in the future from any form of flooding, except in situations where a site-specific flood risk assessment demonstrates that no built development within the site boundary, including access or escape routes, land raising or other potentially vulnerable elements, would be located on an area that would be at risk of flooding from any source, now and in the future (having regard to potential changes in flood risk).

Applications for some minor development and changes of use should also not be subject to the sequential test, nor the exception test set out below, but should still meet the requirements for site-specific flood risk assessments set out in footnote 63.

Having applied the sequential test, if it is not possible for development to be located in areas with a lower risk of flooding (taking into account wider sustainable development objectives), the exception test may have to be applied. The need for the exception test will depend on the potential vulnerability of the site and of the development proposed, in line with the Flood Risk Vulnerability Classification set out in Annex 3.

The application of the exception test should be informed by a strategic or site specific flood risk assessment, depending on whether it is being applied during plan production or at the application stage. 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 to be allocated or permitted.”

The following sections (7.2 to 7.4) have been written with contribution from Rodway Planning Consultancy from a planning perspective.

7.2. Methodology

Sections 7.2.1 to 7.2.3 describe the methodology used to conduct the Sequential Test.

Based on correspondence from the Stage 1 pre-application, the Local Planning Authority (LPA) has confirmed that the appropriate Search Area for the Sequential Test comprises the whole of Adur Borough. This can be viewed in Appendix L.

7.2.1. Evidence Base

Based on correspondence from the Stage 1 pre-application, 12 allocated sites from the 2025 Adur Strategic Housing Land Availability Assessment^{xx} (SHLAA) have been compared against the application site. These sites are shown in **Figure 7.1** and **Table 7.1** below.

An assessment of windfall sites was also undertaken, by identifying applications within Adur borough which have been submitted to Adur and Worthing Council’s planning portal and had planning permission granted within the last two years, but construction has not commenced. A request for an acceptable minimum and maximum size of comparator sites was made to Adur and Worthing’s LPA. The response received confirmed that thresholds should not be applied and all identified sites should be considered, which can be seen in Appendix M.

The proposed site provides open space in the north eastern and south eastern parts of the site in line with the requirements of Adur Local Plan Policy 32 (Open Space, Recreation and Leisure) for major applications for residential use (*i.e.* 10 dwellings or more). It is therefore concluded that any windfall sites to be used as comparator sites should at least be able to accommodate a minimum of ten dwellings as well as open space, in order to provide the open space benefit associated with major developments. This is in line with the Judgement from the recent Redrow/Mead judgment (*“the Bushey decision”*)^{xxi} which requires that any disaggregated smaller sites should act as a series of sites with a discernible relationship which makes them suitable in combination to accommodate any need or demand conferred by the comparator site. This is also in line with paragraphs 27a and 28 of the PPG which states that *“The sequential test should be applied proportionately, focusing on realistic alternatives in areas of lower flood risk that could meet the same development need.”* and *“Sites should be considered ‘reasonably*

available' for the purposes of the sequential test if their location is suitable for the type of development proposed, they are able to meet the same development needs and they have a reasonable prospect of being developed at the same time as the proposal."

A further search of sites was conducted by contacting estate agents within the local area. A total of three estate agents were contacted, including Bacon and Company, Jacobs Steel and Coast & Country Real Estate. The responses received from all three agents confirmed that they held no available land within the search area. Correspondence received from the estate agents can be viewed in Appendix N. The response from Wayne Kenward of Bacon and Company is of particular interest, stating *"Unfortunately we do not have any suitable land available within the Adur Borough. We are finding that sites for suitable development are extremely hard to come by"*.

The application site is wholly located within an area of Flood Zone 3, both currently and with CC. In the CC scenario, 86% of the application site is located within Flood Zone 3b. The site has also been identified as being in an area where groundwater levels are between 0.025 m and 0.5 m below the ground surface. The site is not at high risk of surface water flooding (currently or in the future) or reservoir flooding. Consequently, after reviewing the twelve SHLAA sites and any windfall sites with recent planning permission, the sites remaining in the Sequential Test will be those that exhibit:

- Less than 100% of the site area is currently within Flood Zone 3.
- Less than 100% of the site area is within Flood Zone 3a in the CC scenario.
- Less than 86% of the site area is within Flood Zone 3b in the CC scenario.
- Are not at risk of groundwater flooding or are in an area where groundwater levels are more than 0.5 m below the ground surface.
- Are not at risk of surface water flooding.
- Are not at risk of reservoir flooding.
- Are able to provide open space, as per the development proposals for the application site and in line with Local Plan Policy 32 (Open Space, Recreation and Leisure) requirements for major residential applications.
- Have a realistic prospect of gaining planning permission, being built and delivered by 2030.

These criteria were, therefore, used to form an appropriate basis for comparison with the application site.



Figure 7.1 Allocated sites within the Adur SHLAA

7.2.2. Assessment of Alternative Sites

An assessment of 15 alternative sites (12 allocated sites and 3 windfall sites) was made by determining the following:

- Assessing the fluvial / tidal flood risk of each site. According to the Adur and Worthing SFRA Sequential Test Methodology^{xxii}, to assess current fluvial / tidal flood risk, Flood Zones 1, 2 and 3 should be used. To assess future fluvial / tidal flood risk, Flood Zone 2 (undefended), Flood Zone 3a (undefended) and Flood Zone 3b (defended) should be used where available (all with a CC allowance incorporated). The proposed site is wholly within Flood Zone 3 in the current day scenario. In the future scenario, the site is wholly within Flood Zones 2 and 3a, and 86% of the site area is within Flood Zone 3b.
- Assessing the surface water flood risk of each site. The SFRA Sequential Test Methodology states that the EA's Risk of Flooding of Surface Water mapping should be used to define high, medium and low risk zones. These equate to areas at risk in the 1 in 30 year event, 1 in 100 year event, and 1 in 1,000 year event respectively. The area of the site at risk of surface water flooding in the low and medium risk zones is negligible (<1% low risk in the current day and <2% in the future, <1% medium risk both in the current day and in the future). The proposed site is not predicted to be at high risk of surface water flooding in the current day or future scenarios.
- Assessing the groundwater flood risk of each site. Groundwater mapping produced by JBA is presented in the Adur and Worthing SFRA, which shows the

predicted groundwater level below the ground surface. The SFRA Sequential Test Methodology highlights that this dataset can provide an indication of groundwater flooding, but lacks confidence and certainty. The proposed site is located in an area where groundwater levels are between 0.025 m and 0.5 m below the ground surface. This dataset provides an indication of current day groundwater flood risk only.

Reservoir flood risk within the borough is confined to the channel of the River Adur, upstream of Shoreham Tollbridge. None of the sites are at risk of flooding from reservoirs. Furthermore, the SFRA Sequential Test Methodology recommends that sewer flood risk is not considered within the Sequential Test due to the available information not being of appropriate resolution or format.

A summary table of the Sequential Test selection process is presented **Table 7.1** below. The proposed development site is shown in bold.

Table 7.1 Sequential Test Summary of allocated sites and windfall sites

ID number	Type	Site name/ address	Area (ha)	Flood Risk Status (current day)	Flood Risk Status (future)
-	Proposed Site	Barns at New Salts Farm, Shoreham-by-Sea	0.6	Not within Flood Zone 2. 100% of site area within Flood Zone 3. Not at high risk of surface water flooding. Groundwater levels between 0.025-0.5m below the ground surface.	100% of site area within Flood Zone 2 and 3a. 86% of site area within Flood Zone 3b. Not at high risk of surface water flooding.
ADC/151/18	SHLAA site	E of Manor Close/S of 72/88 Old Shoreham Rd, Lancing	2.1	Not within Flood Zone 2. 100% of site area within Flood Zone 3. 3% of site area at high risk of surface water flooding. Not at risk of groundwater flooding.	94% of site area within Flood Zone 2, 100% of site area within Flood Zone 3a, 99% of site area within Flood Zone 3b. 8% of site area at high risk of surface water flooding.
AWDM/1450/21	Windfall site	Land East Of 1 To 11 Mercury House Ham Road Shoreham-By-Sea West Sussex	0.63	Not within Flood Zone 2. 100% of site area within Flood Zone 3. 13% of site area at high risk of surface water flooding. Groundwater levels between 0.5-5m	100% of site area within Flood Zones 2, 3a and 3b. 25% of site area at high risk of surface water flooding.

ID number	Type	Site name/ address	Area (ha)	Flood Risk Status (current day)	Flood Risk Status (future)
				below the ground surface.	
SH/013/18	SHLAA site	Fuel Tanks, Lennards Wharf, Brighton Road, Shoreham	0.65	31% of site area within Flood Zone 2, 60% of site area within Flood Zone 3. 31% of site area at high risk of surface water flooding. Not at risk of groundwater flooding.	100% of site area within Flood Zones 2 and 3a, 99% of site area within Flood Zone 3b. 33% of site area at high risk of surface water flooding.
SH/009/18	SHLAA site	Paladone, New Wharf, Brighton Road, Shoreham-by-Sea	0.36	Not within Flood Zones 2 or 3. 5% of site area at high risk of surface water flooding. Not at risk of groundwater flooding.	100% of site area within Flood Zones 2, 3a and 3b. 7% of site area at high risk of surface water flooding.
SH/014/18	SHLAA site	EMR, Egypt Wharf, Brighton Road, Shoreham-by-Sea	1.86	7% of site area within Flood Zone 2, 51% of site area within Flood Zone 3. 1% of site area at high risk of surface water flooding. Not at risk of groundwater flooding.	98% of site area within Flood Zones 2 and 3a, 79% of site area within Flood Zone 3b. 1% of site area at high risk of surface water flooding.
ADC/086/13	SHLAA site	Community Buildings, Pond Road, Shoreham	0.66	Not within Flood Zones 2 or 3. 5% of site area at high risk of surface water flooding. Not at risk of groundwater flooding.	82% of site area within Flood Zones 2 and 3a. Not within Flood Zone 3b. 15% of site area at high risk of surface water flooding.
AWDM/0378/25	Windfall site	Land At 68 And South Of 68 To 86 Manor Hall Road Southwick West Sussex	0.75	Not within Flood Zones 2 or 3. 6% of site area at high risk of surface water flooding. Groundwater levels between 0.025-0.5m below the ground surface.	Not within Flood Zones 2, 3a or 3b. 1% of site area at high risk of surface water flooding.

ID number	Type	Site name/ address	Area (ha)	Flood Risk Status (current day)	Flood Risk Status (future)
ADC/025/13	SHLAA site	Lancing Police Station, 107- 111 North Road, Lancing	0.12	Not within Flood Zones 2 or 3. Not at high risk of surface water flooding. Groundwater levels within 0.025m of the ground surface.	Not within Flood Zones 2, 3a or 3b. Not at high risk of surface water flooding.
AWDM/0092/25	Windfall site	Development Site At 12 To 18 Old Shoreham Road Shoreham-by- sea West Sussex	0.32	7% of site area within Flood Zone 2, 51% of site area within Flood Zone 3. Not at high risk of surface water flooding Groundwater levels between 0.5-5m below the ground surface.	63% of site area within Flood Zones 2 and 3a, 23% of site area within Flood Zone 3b. <1% of site area at high risk of surface water flooding
ADC/082/13	SHLAA site	Gochers Laundry, Alma Street, Lancing	0.09	Not within Flood Zones 2 or 3. Not at high risk of surface water flooding. Groundwater levels between 0.5-5m below the ground surface.	Not within Flood Zones 2, 3a or 3b. Not at high risk of surface water flooding.
ADC/136/13	SHLAA site	The Pilot, Station Road, Southwick	0.11	Not within Flood Zones 2 or 3. Not at high risk of surface water flooding. Not at risk of groundwater flooding.	Not within Flood Zones 2, 3a or 3b. Not at high risk of surface water flooding.
ADC/171/21	SHLAA site	Prince Charles Close, Southwick	0.28	Not within Flood Zones 2 or 3. Not at high risk of surface water flooding. Groundwater levels between 0.5-5m below the ground surface.	Not within Flood Zones 2, 3a or 3b. Not at high risk of surface water flooding.
ADC/173/23	SHLAA site	Garage Block Downsway	0.23	Not within Flood Zones 2 or 3.	Not within Flood Zones 2, 3a or 3b.

ID number	Type	Site name/ address	Area (ha)	Flood Risk Status (current day)	Flood Risk Status (future)
				Not at high risk of surface water flooding. Groundwater levels at least 5m below the ground surface.	Not at high risk of surface water flooding.
ADC/174/23	SHLAA site	Garage compound at Millfield, Sompting	0.07	Not within Flood Zones 2 or 3. Not at high risk of surface water flooding. Groundwater levels between 0.5-5m below the ground surface.	Not within Flood Zones 2, 3a or 3b. Not at high risk of surface water flooding.
ADC/175/23	SHLAA site	Garage compound & overgrown land at Nelson Close	0.08	Not within Flood Zones 2 or 3. Not at high risk of surface water flooding. Not at risk of groundwater flooding.	Not within Flood Zones 2, 3a or 3b. Not at high risk of surface water flooding.

Key:

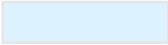
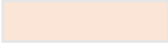
	Site at higher fluvial / tidal flood risk than proposed site
	Site at higher surface water flood risk than proposed site
	Site at higher groundwater flood risk than proposed site
	Site at lower flood risk than proposed site

Table 7.1 shows that out of the 15 alternative sites assessed there are 7 alternative sites which are at a lower flood risk than the proposed site. A further assessment has been conducted to determine the deliverability of these sites.

According to the Adur SHLAA, for sites ADC/082/13 and ADC/175/23 the potential yield is only 8 dwellings, and for site ADC/174/23, it is only 6-8 dwellings. The proposed development is for 10 dwellings alongside the provision of open space, and therefore it is not considered that these sites are capable of accommodating the proposed development. Furthermore, for site ADC/082/13 potential contamination of high significance has been identified and further investigation and mitigation is required prior to any development. Due to these reasons, these three sites have been excluded from the assessment.

Previous planning applications have been made for sites ADC/136/13, ADC/171/21 and AWD/0092/25. The SHLAA identifies the potential yield of sites ADC/136/13 and ADC/171/21 as 34 and 14 dwellings respectively, and previous planning applications for

AWDM/0092/25 have been for up to 24 dwellings. However, each of the previous planning applications have been for high density apartment blocks (sites ADC/136/13 and ADC/171/21) or terraced houses (sites ADC/171/21 and AWDM/0092/25), whereas the proposed development is for 10 detached dwellings with children's play area and community space in the north east and south east corners of the site. Consequently, it is not considered that these sites are capable of accommodating the proposed development. Furthermore, site ADC/171/21 is split into two smaller sites which further reduces the ability to provide open space within the site. Due to these reasons, these three sites have been excluded from the assessment.

The remaining site in the Sequential Test is ADC/173/23. This site is owned by Adur District Council and currently comprises a backlands car park with garages, used by local residents for parking. A provisional scheme was worked up for the site and went out to public consultation in 2020 (refer to the Downsway Garages consultation website at <https://adur-downsway.consultationonline.co.uk/>). However, the scheme did not progress from the consultation phase and no planning application for the site has been lodged since. Nevertheless, the consultation website states that the site will be used wholly for affordable homes, for "local people on the Council's housing register" and that "Housing will be owned and managed by Adur Homes [i.e. the housing department of Adur District Council]". As such, this would preclude the site being reasonably available for the 10 x 3- and 4-bedroom, largely open market-led dwellings planned for the Applicant's site at New Salts Farm Barns. This remaining site has therefore been excluded from the assessment.

7.3. Exception Test

The NPPF (paragraphs 178 and 179), states that for the Exception Test to be passed 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 to be allocated or permitted.

According to Annex 3 of the NPPF¹, the proposed residential use will be classified as "More vulnerable" development. "More vulnerable" development within Flood Zone 3a requires the Exception Test to be carried out. Further information on this is provided in Sections 7.3.1 and 7.3.2.

7.3.1. Test A: Wider Sustainability Benefits to the Community

The proposed development will satisfy various requirements of Adur and Worthing's Local Plan Policies. The provision of the community open space and play area aligns with the aims of Policies 30 (Green Infrastructure), 31 (Biodiversity), 32 (Open Space, Recreation and Leisure), and 36 (Flood Risk and Sustainable Drainage).

Furthermore, the proposals will make a valuable contribution to the Council's housing requirements, and this is a significant material consideration that weighs heavily in favour of the proposed development. The NPPF seeks to promote "strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to

meet the needs of present and future generations". Although located outside of the built-up area boundary, the site is within a sustainable location with attractive pedestrian routes to local services and facilities, including public transport opportunities, retail, employment and education services.

The NPPF also requires that local planning authorities meet their full need for both market and affordable housing as far as is consistent with other policies in the Framework.

With reference to the Adur Five Year Housing Land Supply 2024-2029^{xxiii}, the five year requirement is 3,282 dwellings, with a shortfall of 1,143 dwellings.

The Housing Delivery Test (HDT) was introduced by the Ministry of Housing, Communities and Local Government (MHCLG) in 2018 to ensure that local authorities and other stakeholders are held accountable for their role in ensuring new homes are delivered. With reference to the Adur District Council's Housing Delivery Test Action Plan (2024)^{xxiv}, the Adur Districts have failed to meet the delivery targets, with the LPA scoring 81% deliveries of providing new homes.

The council has identified that it is required to take appropriate action to address the under-delivery. The Housing Delivery Action Plan demonstrates the proactive approach being taken by the Council and its partners to increase the level of housing delivery in the Local Plan area. The site, therefore, provides redevelopment and revitalisation, in accordance with the objectives and policies of the Core Strategy. Small sites, such as the proposed development site will play a greater role in meeting housing delivery as stated in the Test Action Plan. As such, the provision of 10 much-needed dwellings in a sustainable location would make a valuable contribution to local housing needs.

Additionally, as the development will provide 10 dwellings it will make an Affordable Housing Contribution in the form of a commuted sum.

Furthermore, there is an overriding need to ensure that development should contribute to protecting and enhancing the natural, built and historic environment. The proposed development in terms of layout, scale and conserves and enhances the character and appearance of the surrounding area, which is located within designated countryside. The proposed development's high quality and well thought out design would result in no harm to the local gap or the surrounding rural locale. Flood Risk concerns have been sufficiently addressed by the Flood Risk Assessment. SuDS in the form of an infiltration basin and permeable paving will be integrated throughout the site which provide water quality, biodiversity and amenity benefits in addition to reducing water quantity. The SuDS will provide in excess of the amount of storage required to accommodate the 1 in 100-year 6-hour rainfall event (including a CC allowance) for the lifetime of the scheme. There are no biodiversity, heritage or landscape constraints that relate to this site.

The proposed development would also result in the creation of construction jobs during the build period. This additional population could help generate more local spending in the local community, provision of infrastructure and services. This is a material consideration that weighs in favour of the development.

In summary, the proposed redevelopment capitalises on the site by repurposing it from under-utilised agricultural storage buildings to a modern high-quality residential scheme,

thereby optimising its potential to accommodate development as required by the NPPF. It is understood that Adur Council have a committed plan for the future use of the adjacent land as a wetland /community space. If this is implemented then the agricultural barns will cease to be used for farming purposes and may become redundant in the foreseeable future. The proposed redevelopment also provides a highly sustainable form of development that accords with the Development Plan for the area and makes a valuable contribution to the local severe shortage in housing.

Test A of the Exception Test is therefore passed.

7.3.2. Test B: Flood Risk

The EA Flood Map for Planning shows that in the current day scenario the site is wholly within Flood Zone 3. The EA Flood Zones show the undefended scenario, however, when the presence of local flood defences are taken into account the site is entirely removed from the predicted fluvial / tidal flood extent in the 1 in 100 year (fluvial) and 1 in 200 year (tidal) return period (equivalent to Flood Zone 3). Only very small parts of the site along the access road and in the north western corner of the site are predicted to be at risk in the 1 in 1,000 year return period (equivalent to Flood Zone 2). It will be possible to locate the proposed dwellings outside of these predicted areas of risk.

The site is protected by eight local flood defence assets, which are detailed in **Table 5.5** within Chapter 5 of this report. The highest SoP is provided by the Beach, which has a SoP of 100 years. It has been demonstrated in Section 5.3 that the risk of flooding to the site from overtopping of the defences is low, due to the effective crest level of the Beach being higher than the predicted 1 in 200-year Upper Central flood level.

A site-specific FRA has been completed for the site which demonstrates that the development will be safe from flooding throughout its lifetime, taking account of the vulnerability of its users, and without increasing flood risk elsewhere.

Sleeping accommodation will be set at least 600 mm above the 1 in 200-year Upper Central design flood level. The ground floor levels are located below this level, but will be provided with suitable waterproofing and internal stairways to refuge areas on the 1st floor and above, in the unlikely event of catastrophic failure of defences. Furthermore, SuDS have been provided on the site to exceed the required amount of storage to accommodate the 1 in 100-year 6-hour rainfall event including an allowance for CC for the lifetime of the scheme, providing betterment over the existing situation.

Test B of the Exception Test is therefore passed.

7.4. Conclusion

After application of the Sequential Test it has been shown that there are seven alternative sites within the search area. However, a further assessment of the deliverability of these sites showed that three of these sites did not have the capacity to provide 10 dwellings, and of these, one site had potential contamination of high significance with further investigation and mitigation required prior to development.

Of the remaining sites, there are three sites for which previous planning application have been made. Each of these planning applications have been for high density apartment

blocks or terraced houses whereas the proposed development is for 10 detached dwellings with children's play area and community space in the north east and south east corners of the site. It is therefore not considered that these sites are capable of accommodating the proposed development.

The last remaining site is owned by Adur District Council and reserved wholly for affordable housing. This would preclude the site being reasonably available for the 10 x 3- and 4-bedroom largely open market-led dwellings planned for the Applicant's site at New Salts Farm Barns. Consequently, this remaining site has been excluded from the assessment.

It should be noted that even if the seven alternative sites were all developed, Adur District Council still requires more housing in order to meet its delivery targets, as outlined in Section 7.3.1.

The proposed development at New Salts Farm Barns, New Salts Farm Road, Lancing is therefore deemed to satisfy the requirements of the NPPF Flood Risk Sequential Test. The application demonstrates that the proposals will result in wider sustainability benefits to the community and that the design will include flood risk measures without increasing flood risk elsewhere, and the development will be safe for its lifetime. Therefore, the proposals meet both requirements of the Exception Test.

In conclusion, following a detailed and robust assessment of sequentially preferable sites in full accordance with relevant guidance and advice, this study finds that there are no other reasonably available sequentially preferable sites in the study area.

8. Summary & Conclusion

Hilson Moran has been commissioned by NSF Barns Ltd (the 'Client') to undertake a FRA and SuDS Strategy for the proposed development at New Salts Farm Barns, New Salts Farm Road, Lancing. This document constitutes a formal NPPF compliant FRA, SuDS Strategy, Sequential Test and Exception Test, appropriate to the scale and nature of the development and risk involved.

The proposed development is approximately 0.6 ha in size, and is located within agricultural land approximately 500m south of Brighton City Airport, Lancing. The site is classified as a greenfield site and is currently occupied by two farm buildings (agricultural barns). The topography of the site has a general slope towards the west and north along the access road. Access to the site is via an access road leading off New Salts Farm Road.

The development proposals are for 10 new residential dwellings as well as supporting amenities such as open community space and play areas.

The EA Flood Map for Planning has identified that the site is wholly within Flood Zone 3 (benefitting from coastal and tidal defences), with no flooding of the site in the current of future defended scenarios. The main source of flood risk in the area is a combination of coastal surges (with the coast located approximately 500 m to the south), as well as a tributary of the River Adur which is tidally influenced (located approximately 130 m to the east). This combination of coastal surges and high tides raising the water levels of the river is the likely reason why the predicted area at risk of flooding during a 1 in 200-year event, in the absence of defences is extensive. The Product 4 data shows that during the 1 in 200-year + CC undefended event, the design flood level is predicted to be to **5.34 mAOD** (Higher Central allowance). Consequently, without flood defences, flood depths within the site could reach 3.65 m on the site access road and 1.52 m in the eastern part of the site (accounting for the Higher Central allowance).

The Product 4 data does show that the site benefits from local flood defences, including "*Demountable Defences*" along the entire stretch of the coastline directly south of the site with an effective crest level of **6.15 mAOD**, and "*The Beach*", which has a standard protection of 1 in 100 years with an effective crest level of **7.10 mAOD**. These levels are higher than the predicted undefended flood levels within the development. Flood risk within the development is further mitigated due to local flood defence schemes such as the Shoreham Adur Tidal Walls Flood Defence Scheme, which provides protection against tidal surge for up to a 1 in 300 year (0.33% AEP) storm.

Other sources of flooding have been assessed and are deemed as low risk to the site.

In order to manage runoff generated by the proposed development, c. 99.2m³ of attenuation within SuDS features will be provided within the site. This will be achieved by installing permeable paving within the central road, and an infiltration basin within the south east of the site. Runoff will be attenuated within these SuDS features and discharged to the ground via infiltration.

The proposed SuDS on site will manage the quality of surface water runoff leaving the site. The Simple Index Approach has been applied, showing that the total SuDS mitigation

indices are greater than the pollution hazard indices, demonstrating that adequate treatment will be provided by the proposed SuDS features.

The proposed Drainage Strategy aligns with the Defra National Standards for SuDS. It provides a SuDS approach that manages development runoff, including allowances for climate change and urban creep, without increasing flood risk on site or elsewhere. It will discharge runoff in line with the drainage hierarchy and the proposed SuDS features will provide added water quality, amenity and biodiversity benefits.

A Sequential Test has been conducted for the application site. Following a detailed and robust assessment of sequentially preferable sites, in full accordance with relevant guidance and advice, this study finds that there are no other reasonably available or currently developable sequentially preferable sites in the study area.

Consequently, it is wholly evident that the proposal passes the Sequential Test. It has also been demonstrated that the proposals meet both requirements of the Exception Test.

In light of the findings and recommendations presented within this report, the principle of the proposed development is deemed appropriate on flood risk grounds.

Appendix A – Southern Water Sewer Records



(c) Crown copyright and database rights 2025 Ordnance Survey AC0000808122 Date: 29/05/25 Scale: 1:1250 Map Centre: 520396,104619 Data updated: 20/05/25 Our Ref: 1782908 - 1 Wastewater Plan A3
Powered by digdat

The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site. This plan is produced by Southern Water Services Ltd (c) Crown copyright and database rights 2025 Ordnance Survey AC0000808122. This map is to be used for the purposes of viewing the location of Southern Water plant only. Any other uses of the map data or further copies is not permitted.

WARNING: BAC pipes are constructed of Bonded Asbestos Cement.

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

alam@hilsonmoran.com
New Salts Farm



Appendix B – EA Product 4 Data

Andy Lam

From: PSOEastSussex <PSOEastSussex@environment-agency.gov.uk>
Sent: 10 June 2025 09:58
To: Andy Lam
Subject: RE: 240228 SSD 400474 CJ - Due 27 Mar - Product 4 Request for Site at TQ 20346 04708 (BN43 5FE). FR4_P.
Attachments: Modelled Flood Outlines (Defended Tidal).pdf

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender. **Report if suspicious.**

Dear Andy,

Apologies for the delay in responding to you but I wanted to consult with the West Sussex PSO and NaFRA2 teams as to provide you with the most appropriate response.

I can confirm that the local modelling in this area (provided in the P4 data) has been retained for the flood zones in this location following NaFRA2 and so is still the most up to date model. We are unable to provide any defended levels because the site is unaffected by flooding in these scenarios. Please see the attached Defended tidal modelled flood outlines which demonstrates this.

Please do not hesitate to contact the West Sussex team at psowestsussex@environment-agency.gov.uk if you have any further queries regarding this enquiry.

East Sussex Partnership and Strategic Overview Team

Flood and Coastal Risk Management

Environment Agency | Teville Gate House, 25 Railway Approach, Worthing, West Sussex, BN11 1UR

PSOeastsussex@environment-agency.gov.uk

Tel: 02030 257283



Rights of appeal: If you are not satisfied you can contact us within 2 calendar months to ask for our decision to be reviewed. We shall review our response to your request and give you our decision in writing within 40 working days.

If you are still not satisfied following this, you can raise a concern with the Information Commissioner, who is the statutory regulator for Freedom of Information and the Environmental Information Regulations. The contact details are:

Information Commissioner's Office, Wycliffe House, Water Lane, Wilmslow, Cheshire, SK9 5AF Tel: 303 123 1113 Website: <http://ico.org.uk>

From: Andy Lam <alam@hilsonmoran.com>

Sent: 27 May 2025 09:22

To: PSOEastSussex <PSOEastSussex@environment-agency.gov.uk>

Cc: Paul Bond <pbond@hilsonmoran.com>

Subject: RE: 240228 SSD 400474 CJ - Due 27 Mar - Product 4 Request for Site at TQ 20346 04708 (BN43 5FE). FR4_P.

You don't often get email from alam@hilsonmoran.com. [Learn why this is important](#)

Dear EA,

I have previously sent a Product 4 request for the site at TQ 20346 04708 (BN43 5FE). Which was received on the 18th of March. We have since reviewed the Product 4 and released that the Product 4 data sent did not include the latest NaFRA2.

Within the accompanying email it states that "Please note that flood zones will be updated on 25th March 2025 on our Flood Map for Planning service. The flood zone extent may change for your area of interest, but the flood levels provided in Product 4 will not. There is no need to contact us again to request flood risk data. You can visit our Flood Map for Planning service after that date and download the map showing the new flood zone (Product 1)." This is very confusing. If the flood extent will change and not the levels, it indicates that a new DTM is to be used in the modelling, but if the flood levels are to stay the same, then that indicates that the NaFRA2 tidal flooding data will include the same (20%) CC factor and not be updated to the new climate change allowance. Is the main aims of NaFRA2 to include the updated CC allowances and at <https://www.gov.uk/guidance/updates-to-national-flood-and-coastal-erosion-risk-information> it states that NaFRA2 "includes the potential impact of climate change on flood risk, based on UK Climate Projections (UKCP18)"?

We have also noticed that the Product 4 data only plots and tabulated data for the undefended 0.5 % (2012, 2070 & 2115) and 0.1% AEP (2012) scenarios are provided i.e. no data provided for the defended scenarios.

Can you provide information that the new product 4 data has been updated for the correct climate change allowances? If not, when do they anticipate that such correctly updated data will be available?
Can we also be provided with the defended data plots and tables (ideally also corrected to the right climate change allowance)?

Many Thanks,

Andy

Andy Lam | MSc, BSc (Hons), MCIWEM
Consultant - Environment

S +4420 7940 8888
hilsonmoran.com



From: PSOEastSussex <PSOEastSussex@environment-agency.gov.uk>

Sent: 18 March 2025 16:16

To: Andy Lam <alam@hilsonmoran.com>

Subject: RE: 240228 SSD 400474 CJ - Due 27 Mar - Product 4 Request for Site at TQ 20346 04708 (BN43 5FE). FR4_P.

You don't often get email from psoeastsussex@environment-agency.gov.uk. [Learn why this is important](#)

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Dear Andy,

Thank you for your Product 4 request for the site at BN43 5FE. Please see Appendix 1 below detailing each product.

I am unable to load the Spot Point supplied into ArcMap but have provided levels and depths at 7 points across the site.

We respond to requests under the Freedom of Information Act 2000 and Environmental Information Regulations 2004.

Please find attached the Product 4 letter. You are encouraged to use and re-use the information provided freely and flexibly, however there are a few conditions. Please see licence details here: <http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>

We are licensing the supplied data to you under the [Environment Agency Conditional Licence](#). You must first check this supporting information, to determine if the conditions of use are suitable for your purposes. If the conditions for use are not suitable for your purposes, this information is not provided with a licence for use, and the data is provided for the right to read only.

For FRA and pre-planning advice please see attached 'FRA Advisory Text' and 'SSD Pre-app advice note September 2019'.

For information on flooding from other sources such as surface water please contact the Lead Local Flood Authority, West Sussex County Council.

Guidance on climate change allowances and how to use them in Flood Risk Assessments can be found [here](#).

For future reference, detailed flood information and maps can be viewed using the [Check the long term flood risk for an area in England - GOV.UK](#) service and [Flood Map for Planning](#) service. Flood and Coastal Risk Management asset information, and details of all planned maintenance activities can be viewed using the [Asset Management Service](#).

Please note that flood zones will be updated on 25th March 2025 on our Flood Map for Planning service. The flood zone extent may change for your area of interest, but the flood levels provided in this Product 4 will not. There is no need to contact us again to request flood risk data. You can visit our [Flood Map for Planning service](#) after that date and download the map showing the new flood zone (Product 1).

You are encouraged to use and re-use the information provided freely and flexibly, however there are a few conditions. Please see licence details here: <http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>

Please do not hesitate to contact the West Sussex team at psowestsussex@environment-agency.gov.uk if you have any further queries regarding this enquiry.

Kind regards,
Alice

East Sussex Partnership and Strategic Overview Team

Flood and Coastal Risk Management

Environment Agency | Guildbourne House, Chatsworth Road, Worthing, West Sussex, BN11 1LD

PSOeastsussex@environment-agency.gov.uk

Tel: 02030 257283



Appendix 1

Product 4	Detailed Flood Risk Assessment Map, including flood zones, defences and storage areas, areas benefiting from defences, statutory main river designations, historic flood event outlines and more detailed information from hydraulic models (including model extents and 2D flood level data for specific points)
Product 5	Reports, including flood modelling reports, model user logs and guides, hydrology reports, etc
Product 6	Model Output Data, including product 5. • flood outlines usually provided in shapefile format • 2D grids (level (h), depth (d) velocity (v) and hazard ZKU0) usually provided in ASCII or GeoTIFF format • 1D flow and level data Requires GIS software such as ArcGIS, MapInfo, QGIS or similar.
Product 7	Calibrated and Verified Model Input Data (CaVMID), including product 5. Enables customer to re-run and/or make changes to a hydraulic model. Requires specific hydraulic modelling software such as Flood Modeller, TUFLOW, or ICM InfoWorks.
Product 8	Breach Hazard Map Provides a hazard map of breaches in PDF format including, maximum flood depth, maximum flood velocity and maximum flood hazard. Please note product 8 is not available for fluvial models.

Rights of appeal: If you are not satisfied you can contact us within 2 calendar months to ask for our decision to be reviewed. We shall review our response to your request and give you our decision in writing within 40 working days.

If you are still not satisfied following this, you can raise a concern with the Information Commissioner, who is the statutory regulator for Freedom of Information and the Environmental Information Regulations. The contact details are:

Information Commissioner's Office, Wycliffe House, Water Lane, Wilmslow, Cheshire, SK9 5AF Tel: 303 123 1113 Website: <http://ico.org.uk>

From: Andy Lam <alam@hilsonmoran.com>
Sent: 27 February 2025 16:11
To: SSD Enquiries <SSDEnquiries@environment-agency.gov.uk>
Cc: Paul Bond <pbond@hilsonmoran.com>
Subject: Product 4 Request for Site at TQ 20346 04708 (BN43 5FE)

Dear EA,

I would like to order the Product 4 data to support a Flood Risk Assessment for the following site by New Salts Farm Road, at Shoreham-by-Sea, the nearest postcode is BN43 5FE and the National Grid reference is TQ 20346 04708.

Currently, the site is used as barns for agriculture (Storing hay), the site boundary measures to 0.583 ha. The entire site is within flood zone 3 (See Image below), which shows the flood is mainly affected by the coast, the site also has a small tributary of the River Adur along the northern boundary.

It is also noted that EA flood maps indemnified the coastal flood defences along the stretch of the beach, can you provide information of the current conditions of this flood defence.

I have attached the points within the RLB (shp.) in this email, can you provide spot levels for these points. Because of the coastal element, it will be great if the defended and undefended levels (plus climate change) are also provided.



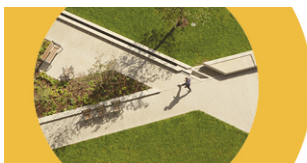
Let me know is there are any issues,

Many thanks,

Andy

Andy Lam | MSc, BSc (Hons), MCIWEM
Consultant - Environment

S +4420 7940 8888
hilsonmoran.com



People. Places. Planet.



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Appendix C – EA Pre-App Consultation Response

Sent by email: pbond@hilsonmoran.com

System ref: HA/2025/127059/04
Project ref: ENVPAC/1/SSD/00372
Your ref: 33646

10 October 2025

Dear Paul,

New Salts Farm, New Salts Farm Road, Lancing

Thank you for accepting our offer to provide detailed planning advice. We have reviewed the 'Flood Risk Assessment and SuDS Strategy' (dated 31 July 2025, ref: 33646-HML-XX-XX-RP-U-870001), herein referred to as 'the FRA'.

We are providing this advice under Project no. ENVPAC/1/SSD/00372. Please note we have taken 5 hours to review and provide our advice on these documents which is the same as we estimated in our Programme of Works. The total will be £575 plus VAT which is payable on receipt of our invoice.

Environment Agency advice

We have reviewed the submitted information in relation to the proposed development and have the following detailed comments:

Finished floor levels

At this stage, we are of the opinion that the FRA does not adequately address flood risk for the lifetime of the proposed development. In particular, the FRA proposes inadequate raised finished floor levels. Whilst we welcome the specification that all sleeping accommodation will only be located on the first floors (or above) of the new dwellings, we do recommend that floor levels are set at least 600 millimetres (mm) above the estimated flood level. The FRA states that sleeping accommodation (on the first floor) should be set at 5.64mAOD, which is only 300mm above the 0.5% Higher Central flood level. Occupiers of sleeping accommodation set at this level may be asleep during the onset of a flooding event, and as a result, would be at a greater risk due to the limited time for them to reach

safe refuge. We would therefore request that amended designs and a revised FRA sets sleeping accommodation at a minimum of 5.94mAOD.

On some occasions, developments are able to reduce the required freeboard to 300mm, where extra flood resistance and resilience measures have been incorporated. However, flood water can put pressure on buildings, causing structural issues. At the location site, flood depths in the design flood event (0.5% AEP Higher Central) reach more than 3 metres. If flood resistance and resilience measures are being utilized to compensate for lower finished floor levels, the FRA should include information that demonstrates the new dwellings could withstand the hydrostatic pressure from flood water.

Proposals for evacuation/safe refuge

We recognise that the access/egress routes for this site are entirely within Flood Zone 3, which is not ideal. However, the adequacy of rescue or evacuation arrangements, or of emergency plans, are not issues within the Environment Agency's direct remit or expertise. This will be something that the Local Planning Authority's emergency planners consider in more detail. We recommend you refer to guidance in the following publication ['Flood risk emergency plans for new development'](#) and undertake appropriate consultation with the emergency planners at Adur & Worthing Council.

Risks from floating vehicles during flood event

This development has been proposed within an area identified as being at risk of flooding and includes the provision of car parking within buildings. It is important to be aware that vehicles can start to float in flood depths of less than 60cm – less if it is fast-flowing. Buildings will need to be constructed in such a way that vehicles floating or displaced as a result of flooding would not jeopardise its structural stability. This is something the Local Planning Authority are likely to consider in more detail.

In addition, you should ensure that any sensitive infrastructure such as gas and water pipes or electrical cables are located and designed to withstand the potential impacts of floating or displaced vehicles.

Next steps

As noted above, if a planning application was submitted with only the 300mm freeboard proposed and no further justification for this or evidence of how the new dwellings could withstand the hydrostatic pressure, we are likely to object to the proposal.

If the freeboard is increased as specified above and reflected in the planning application documents, then we are likely to recommend a condition requiring implementation of the FRA and the mitigation measures detailed therein.

I hope the above advice is helpful. If there is any further work you anticipate needing our detailed advice on in relation to this project, please do not hesitate to contact me.

Yours sincerely,

Anna Rabone

Sustainable Places Technical Specialist – Solent & South Downs

Email: anna.rabone@environment-agency.gov.uk

Direct dial: 02077 140525

Disclaimer

Our opinion is based on the information available to us at the time of the enquiry. When the formal planning application is submitted, our position may change if there have been changes to environmental risk or evidence, and/or planning policy.

Appendix D – Greenfield Runoff Rates

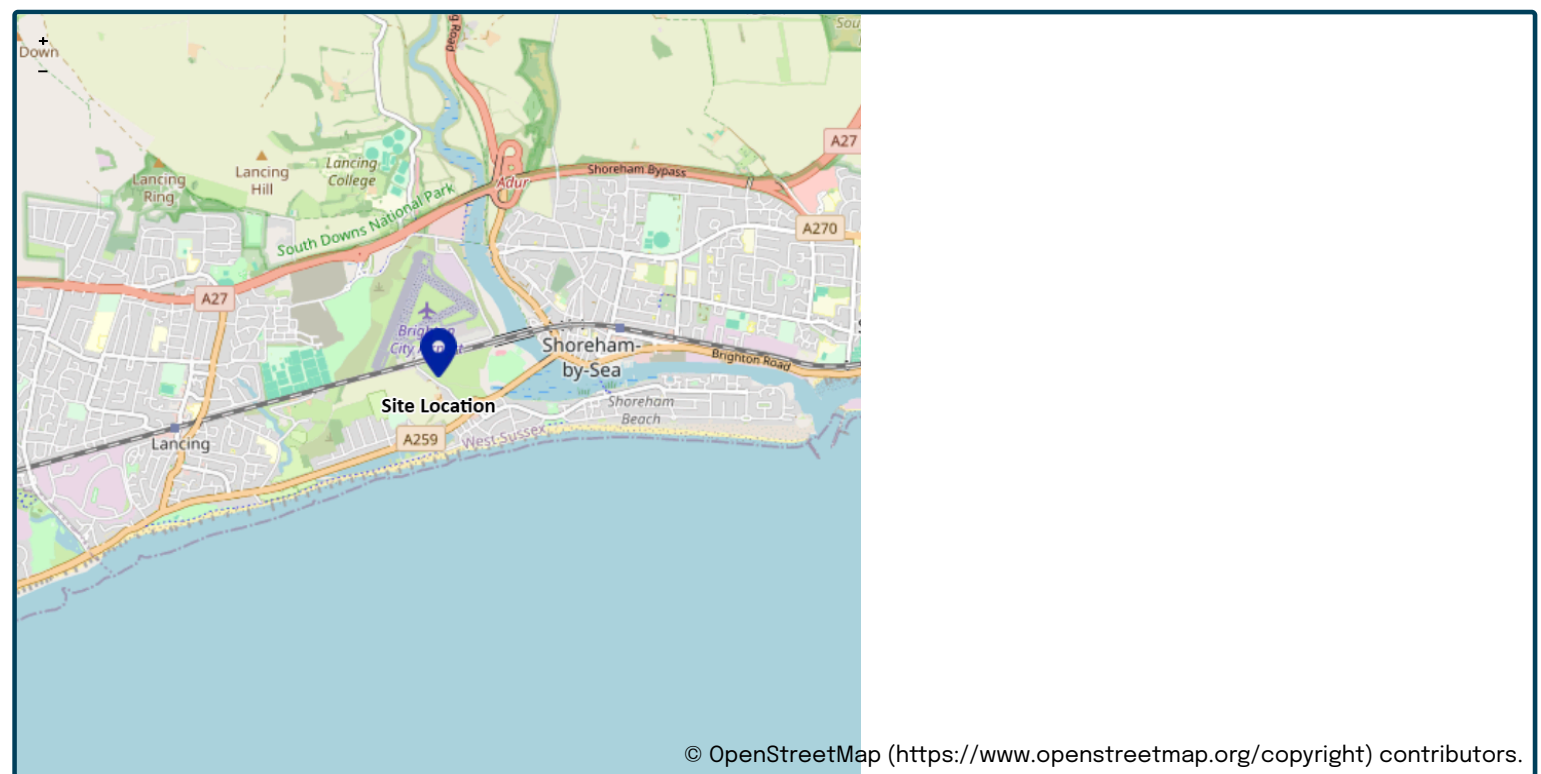
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015).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

Project details

Date	12/03/2026
Calculated by	Emma Rowlands
Reference	
Model version	2.2.3

Location

Site name	New Salts Farm
Site location	Shoreham



Site easting (British National Grid)	520346
Site northing (British National Grid)	104676

Site details

Total site area (ha)	0.6	ha
----------------------	----------------------------------	----

Greenfield runoff

Method

Method	IH124	
IH124		
	<u>My value</u>	<u>Map value</u>
SAAR (mm)	718 mm	718
How should SPR be derived?	Estimate using BFI	
BFIHOST	0.746	
SPR	0.224	
QBar (IH124) (l/s)	0.6 l/s	

Growth curve factors

	<u>My value</u>	<u>Map value</u>
Hydrological region	7	7
1 year growth factor	0.85	
2 year growth factor	0.88	
10 year growth factor	1.62	
30 year growth factor	2.3	
100 year growth factor	3.19	
200 year growth factor	3.74	

Results

Method	IH124	
Flow rate 1 year (l/s)	0.5 l/s	
Flow rate 2 year (l/s)	0.5 l/s	
Flow rate 10 years (l/s)	1.0 l/s	
Flow rate 30 years (l/s)	1.4 l/s	
Flow rate 100 years (l/s)	1.9 l/s	
Flow rate 200 years (l/s)	2.2 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 (2.2.3) developed by HR Wallingford and available at [uksuds.com](https://www.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) (<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.

Appendix E - Post-development Drainage Calculations



INFODRAINAGE QUICK STORAGE ESTIMATE

Analysis Criteria

Runoff Type

Dynamic

Select Rainfall

Create New

From Library

All

FEH

Method

FEH

Number of Storms

190

Max. Run Time (mins)

20160

Output Interval (mins)

5

Time Step

Shortest

Urban Creep

Apply Global Value

Urban Creep Global Value (%)

10

Junction Flood Risk Margin (mm)

300

☐ Prefill Manhole Sumps

☐ Perform No Discharge Analysis

Rainfall Depth (mm)

1.0

Run Time (mins)

1440

OK

Cancel

Apply

Help

Catchment Area

Name

Catchment Area

Runoff

Pollution

Advanced

Rainwater Tank

Area (ha)

0.247

Preliminary Sizing

Volumetric Runoff Coefficient

1.000

Percentage Impervious (%)

100

Time of Concentration (mins)

5

Dynamic Sizing

Runoff Method

Time of Concentration

Summer

Winter

Volumetric Runoff Coefficient

1.000

1.000

Time of Concentration (mins)

5

Percentage Impervious (%)

100

Urban Creep (%)

0

OK

Cancel

Apply

Help

Quick Storage Estimate

Results

Quick Storage Estimate variables require approximate storage of between 479m³ - 479m³.

With Infiltration storage is reduced to between 30m³ - 138m³.

These values are estimates only and should not be used for final design purposes.

Input

Results

2D Graph

OK

Cancel

Help

0.0 <= Infiltration Rate (m/hr) <= 1000.0

Project: New Salts Farm	Date: 29/04/2026			
	Designed by: MV	Checked by: GG	Approved By: GG	
Report Details: Type: Stormwater Controls Storm Phase: Phase	Company Address: AKT II White Collar Factory, 1 Old Street Yard London EC1Y 8AF			



Pond

Type : Pond

Dimensions

Exceedance Level (m)	2.320
Depth (m)	0.520
Base Level (m)	1.800
Freeboard (mm)	150
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:X)	3.045
Total Volume (m³)	44.880

Depth (m)	Area (m²)	Volume (m³)
0.000	100.00	0.000
0.520	164.00	67.957

Inlets

Inlet (5)

Inlet Type	Point Inflow
Incoming Item(s)	Pipe (2)
Bypass Destination	(None)
Capacity Type	No Restriction

Advanced

Base Infiltration Rate (m/hr)	1.4076
Side Infiltration Rate (m/hr)	1.4076
Safety Factor	5.0
Perimeter	Circular
Length (m)	52.200
Friction Scheme	Manning's n
n	0.05

Project: New Salts Farm	Date: 29/04/2026		
	Designed by: MV	Checked by: GG	Approved By: GG
Report Details: Type: Stormwater Controls Storm Phase: Phase	Company Address: AKT II White Collar Factory, 1 Old Street Yard London EC1Y 8AF		





Porous Paving

Type : Porous Paving

Dimensions	
Exceedance Level (m)	2.500
Depth (m)	0.700
Base Level (m)	1.800
Paving Layer Depth (mm)	80
Membrane Percolation (m/hr)	2.5
Porosity (%)	30
Length (m)	36.200
Long. Slope (1:X)	1000.00
Width (m)	8.750
Total Volume (m³)	59.923

Under Drain	
Height Above Base (m)	0.000
Diameter (mm)	225
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

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

Outlets	
Outlet (5)	
Outgoing Connection	Pipe (2)
Outlet Type	Orifice
Diameter (m)	0.225
Coefficient of Discharge	0.600
Invert Level (m)	1.800

Advanced	
Base Infiltration Rate (m/hr)	1.4076
Side Infiltration Rate (m/hr)	1.4076
Safety Factor	5.0
Conductivity (m/hr)	216.0

Project: New Salts Farm	Date: 29/04/2026			
	Designed by: MV	Checked by: GG	Approved By: GG	
Report Details: Type: Inflow Summary Storm Phase: Phase	Company Address: AKT II White Collar Factory, 1 Old Street Yard London EC1Y 8AF			

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Catchment Area	Porous Paving		Time of Concentration	0.247	100	10	110	0.272
TOTAL		0.0		0.247				0.272

Project: New Salts Farm	Date: 29/04/2026		
	Designed by: MV	Checked by: GG	Approved By: GG
Report Title: Rainfall Analysis Criteria	Company Address: AKT II White Collar Factory, 1 Old Street Yard London EC1Y 8AF		



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

Rainfall	
FEH	Type: FEH
Site Location	GB 520340 104697 TQ 20340 04697
Rainfall Version	2013
Data Type	Point
Summer	☒
Winter	☒

Return Period

Return Period (years)	Increase Rainfall (%)
2.0	0.000
30.0	0.000
30.0	45.000
100.0	0.000
100.0	45.000

Storm Durations

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

Project: New Salts Farm	Date: 29/04/2026			
	Designed by: MV	Checked by: GG	Approved By: GG	
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: AKT II White Collar Factory, 1 Old Street Yard London EC1Y 8AF			



FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Porous Paving	FEH: 2 years: +0 %: 15 mins: Summer	1.889	1.850	0.053	0.050	58.2	5.619	0.000	23.732	3.2	1.558	4	90.622
Pond	FEH: 2 years: +0 %: 15 mins: Summer	1.826	1.800	0.026	0.000	3.2	0.525	0.000	1.559	0.0	0.000	3	98.831

Project: New Salts Farm	Date: 29/04/2026		
	Designed by: MV	Checked by: GG	Approved By: GG
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: AKT II White Collar Factory, 1 Old Street Yard London EC1Y 8AF		



Status
OK
OK

Project: New Salts Farm	Date: 29/04/2026			
	Designed by: MV	Checked by: GG	Approved By: GG	
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: AKT II White Collar Factory, 1 Old Street Yard London EC1Y 8AF			



FEH: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Porous Paving	FEH: 30 years: +0 %: 15 mins: Summer	2.078	2.016	0.242	0.216	131.2	22.787	0.000	39.694	28.1	17.235	9	61.973
Pond	FEH: 30 years: +0 %: 30 mins: Summer	1.930	1.929	0.130	0.129	28.6	13.823	0.000	21.707	0.0	0.000	19	69.200

Project: New Salts Farm	Date: 29/04/2026		
	Designed by: MV	Checked by: GG	Approved By: GG
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: AKT II White Collar Factory, 1 Old Street Yard London EC1Y 8AF		



Status
OK
OK

Project: New Salts Farm	Date: 29/04/2026			
	Designed by: MV	Checked by: GG	Approved By: GG	
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: AKT II White Collar Factory, 1 Old Street Yard London EC1Y 8AF			



FEH: 30 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Porous Paving	FEH: 30 years: +45 %: 15 mins: Summer	2.263	2.126	0.427	0.326	190.2	37.991	0.000	44.779	44.8	30.601	12	36.600
Pond	FEH: 30 years: +45 %: 60 mins: Summer	2.052	2.053	0.252	0.253	42.2	28.851	0.000	41.105	0.0	0.000	32	35.716

Project: New Salts Farm	Date: 29/04/2026			
	Designed by: MV	Checked by: GG	Approved By: GG	
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: AKT II White Collar Factory, 1 Old Street Yard London EC1Y 8AF			

Status
OK
OK

Project: New Salts Farm	Date: 29/04/2026			
	Designed by: MV	Checked by: GG	Approved By: GG	
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: AKT II White Collar Factory, 1 Old Street Yard London EC1Y 8AF			



FEH: 100 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Porous Paving	FEH: 100 years: +0 %: 15 mins: Summer	2.181	2.073	0.345	0.273	165.5	31.125	0.000	43.922	39.4	25.243	11	48.058
Pond	FEH: 100 years: +0 %: 60 mins: Summer	2.005	2.005	0.205	0.205	38.0	22.897	0.000	33.915	0.0	0.000	26	48.981

Project: New Salts Farm	Date: 29/04/2026		
	Designed by: MV	Checked by: GG	Approved By: GG
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: AKT II White Collar Factory, 1 Old Street Yard London EC1Y 8AF		



Status
OK
OK

Project: New Salts Farm		Date: 29/04/2026			
		Designed by: MV	Checked by: GG	Approved By: GG	
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Company Address: AKT II White Collar Factory, 1 Old Street Yard London EC1Y 8AF			



FEH: 100 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Porous Paving	FEH: 100 years: +45 %: 30 mins: Summer	2.445	2.265	0.609	0.465	161.6	54.777	0.754	84.374	55.0	54.346	7	8.588
Pond	FEH: 100 years: +45 %: 60 mins: Summer	2.159	2.159	0.359	0.359	52.1	43.312	0.000	54.962	0.0	0.000	44	3.492

Project: New Salts Farm	Date: 29/04/2026			
	Designed by: MV	Checked by: GG	Approved By: GG	
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: AKT II White Collar Factory, 1 Old Street Yard London EC1Y 8AF			

Status
OK
OK

Appendix F – LLFA Consultation

Eleanor Read

Flood Risk Management Officer
Highways, Transport and Planning,
Place Services

Eleanor.Read@westsussex.gov.uk

www.westsussex.gov.uk

Ground Floor
Northleigh
County Hall
Chichester
PO19 1RH
03302 227048



Emma Rowlands
Third Floor
Shackleton House
4 Battle Bridge Lane
Southwark
London
SE1 2HP

BY EMAIL ONLY

5th February 2026

Dear Emma,

WSSC-773159697 – Land and Barns, New Salts Farm, New Salts Farm Road, Lancing, West Sussex, BN43 5FE

Level 2 Flood Risk Management Pre-Application Advice has been sought for a 0.6 ha site in Adur district. The application is a brownfield site, currently including 2 barns and a gravel track. The application will be for a full planning application for 10 dwellings, including SuDS.

The following documents were reviewed as part of the pre-application advice service:

- Flood Risk Assessment and SuDS Strategy by Hilson Moran, 3rd December 2025, Issue P06
- Phase 1 Contaminated Land Assessment by Hilson Moran, 24th November 2025, Issue P04

The site currently has no modelled surface water flood risk within the red line boundary.

It is noted that the site is within Flood Zone 3.

We have no comments to make in relation to fluvial or tidal flood risk, as this falls within EA remit. We also have no comments to make in relation to foul drainage, as this falls under the sewerage undertakers' remit (in this location Southern Water). The sequential test falls within LPA remit.

The meeting was held on 19th January 2026 via MS Teams. Following the meeting and review of documents, we have the following advice:

It is proposed to drain the surface water using an infiltration basin and permeable paving. Site investigations showed that the infiltration rates across the site are varied, with the south-east corner having good infiltration rates.

There is currently no infiltration testing in the location of the infiltration basin. As this will be a full planning application, we will require infiltration testing in the location, depth and head of the infiltration basin. We will also require shallow infiltration testing for the permeable paving, also to the design depth. This is because the

results of the additional infiltration testing required could affect the drainage strategy for the site and therefore alter the site layout (which will be determined at full planning stage).

In addition, the winter groundwater monitoring demonstrated that for WS1 the maximum winter level was 1.57 mbgl and WS2 was 1.4. For any infiltration feature it must be clearly demonstrated that there is 1m clearance between the base of an infiltration feature and the maximum winter groundwater level.

In addition, the geology logs demonstrate for the infiltration basin in particular, the infiltration depth could be entering made ground, rather than a geology which is permeable. Given the site's previous use as a historical gravel pit, it is important that the underlying geology for the infiltration features is viable.

In the instance that it is determined that infiltration is not a viable method of draining the site, we will require:

- Watercourse location, onward connectivity and condition (to be able to receive flows)
- As there were discussions in the meeting about connecting outside of the red line boundary, we will require evidence to demonstrate that there are suitable easements to the watercourse for the lifetime of the development.
- Calculations to demonstrate the changes to the drainage strategy

For the Groundwater flood risk section, we'd suggest using the AWC SFRA, as this is more recent. This also includes Tidal Risk Groundwater Zones. [Flood risk \(Adur and Worthing\) - Adur & Worthing Councils](#)

For the surface water flood risk mapping, the Flood Map for Planning should be used instead of Check your long-term flood risk.

For the half drain time, we will require more evidence that the calculations are for the 3.3% AEP event, in line with the national Standards for SuDS.

We are pleased to see the National Standards for SuDS being used. We suggest structuring the drainage strategy report based on the Standards, demonstrating how each standard will be met.

We would encourage further consideration of rainwater harvesting as West Sussex is water stressed. The National Standards for SuDS state that water butts do not comply when they are limited to garden use during dry periods as they do not typically guarantee storage.

Appropriate easements are also required for the infiltration basin. The SuDS Manual should be followed when selecting these.

For a full planning application, we require:

Drainage layout (which corresponds with the hydraulic calculations and the other plans submitted such as landscaping).

Standard 1

Details of how the site currently drains. Please note, for brownfield sites, a CCTV survey is useful early in the planning process to determine the location of any existing surface water sewers etc. The ownership of the existing drainage shall be determined prior to submission of the application, to avoid delays later in the planning process.

Evidence that the hierarchy/runoff destinations are being followed.

As West Sussex is water stressed, Priority 1 (collected for non-potable use) is required. It is acknowledged that this is likely to be in conjunction with a lesser priority final destination.

Winter groundwater monitoring to determine the maximum winter groundwater level. The maximum level must be considered when designing the drainage strategy. This shall include plan showing location of monitoring points, depths of boreholes, winter/spring (November to April) groundwater monitoring levels (mAOD levels preferred) and evidence of strata.

Winter infiltration testing (compliant with BRE 365 or similar approved method) to demonstrate hierarchy is being followed. This shall include location of trial pits, spread appropriately across the site, testing to BRE365 standards of similar approved method (3 tests in each pit, lowest infiltration rate used in the design and calculations, not an average or extrapolated ones), pit dimensions, depth, date and time of testing, infiltration rate calculations for each test in each pit.

For discharge to surface waterbody (as defined in NSfS), it shall be demonstrated that the waterbody is connected to the wider network and has capacity to receive the flows. We suggest submitting the following details:

- Clearly show water body connectivity on drawings (verify using topo survey and our mapping).
- Proposing to connect within red line boundary. If not, applicant shall provide evidence that suitable easements are in place with the landowner.
- Drawings must show relevant easements from water bodies (minimum 3m for ordinary watercourses including culverts, 8m for main rivers (EA remit)).
- Watercourse condition – hard bed levels should be provided where there is minimal clearance (less than 100mm) between outfall IL and current ditch bed (from topographic survey) or where pumps are proposed.
- Surface water discharges to watercourses should reflect the site's pre-development natural drainage patterns.

Standard 2:

Evidence that the first 5mm of rainfall in 'everyday' rainfall events does not result in runoff discharging into surface water or sewers.

For sites where infiltration is not viable, interception is required. Please use the table in the NSfS to assess this. Section 24.8 of the SuDS Manual provides further guidance on interception.

Standard 3

For infiltration-based sites:

- Appropriately sized features based on ground conditions and contributing areas.

- For each infiltration feature, the invert level, cover level, impermeable area drained (including urban creep), infiltration rate (site specific and compliant with BRE365 testing, SuDS Standards or similar), maximum groundwater level from winter groundwater monitoring (to show 1m clearance from maximum groundwater level) and appropriate safety factor provided.
- Evidence that the 3.33% AEP event plus climate change half drains/empties within 24 hours

For discharge to surface water bodies or surface water sewers:

- Greenfield runoff rate calculations, following EA Flood Estimation Guidelines. Please note, this should not include climate change or urban creep allowances.
- Proposed discharge rate
- Proposed discharge volumes
- Proposed attenuation features
- Exceedance plan for 1% AEP event plus climate change (design storm in PPG). This must show that there is no off-site flooding, with exceedance plan showing any areas/depths of flooding within the site from the surface water drainage system, no flooding of property or critical infrastructure and that safe access/egress is retained.
- Hydraulic calculations – including summary of results for critical storms including 1 in 1 (no surcharging), 1 in 30 plus climate change (no flooding) and 1 in 100 year plus climate change
- Surcharged outfall (as this can affect layout of the site)
- Consideration of blockage risk

Standard 4:

Evidence that the SuDS management train has been used.

Water quality assessment using Ciria SuDS Manual Simple Index Approach. For sites with multiple catchments, it is suggested that a separate assessment for each catchment might be useful, to ensure the water from each catchment is adequately treated prior to infiltration or discharge.

Standard 5:

Evidence that the SuDS have amenity benefits, following the Ciria SuDS Manual and NSfS.

For safety reasons, water depths shall be no greater than 2 metres. For more detailed design guidance for SuDS features, we recommend following the Ciria SuDS Manual. This can help with removing the need for safety features, such as life buoy or fencing, which can have negative impacts on the amenity/landscaping of residential development sites.

The LLFA will not comment on amenity in detail, and instead expect the LPA to seek input from others with greater expertise in this area.

Standard 6:

Evidence that the SuDS have biodiversity benefits, following the Ciria SuDS Manual and NSfS.

The LLFA will not comment on biodiversity in detail and instead expect the LPA to seek input from others with greater expertise in this area.

When habitat is created through SuDS, there can be BNG gains. In these instances, best practice techniques/guidance need to be followed for both SuDS and BNG metrics.

Standard 7:

We can condition Construction Management Plan/Construction Phase Surface Water Management Plan and the SuDS Maintenance and Management plan.

The following parameters should be used in calculations:

- a. FEH2022 rainfall
- b. Upper end climate change allowances
- c. 10% urban creep, as per the Standards
- d. MADD factor or additional storage of 0
- e. Cv value of 1

Yours sincerely,

Eleanor Read

Flood Risk Management Team

Appendix G – Infiltration Testing and Groundwater Monitoring Results



Ground and Environmental Services Limited
Unit 2 Montpelier Business Park
Dencora Way
Ashford
Kent
TN23 4FG
01233 646237

Jack Ashby

Date: 18th February 2025

Our ref: 13373

Dear Jack,

RE: SOAKAGE TESTING – NEW SALTS FARM, NEW SALTS FARM ROAD, SHOREHAM BN43 5FE

Introduction

Ground and Environmental Services Ltd (GES) was commissioned by Jack Ashby to undertake soakage testing at New Salts Farm, New Salts Farm Road, Shoreham-on-Sea, West Sussex BN43 5FE.

The purpose of the ground investigation was to carry out soakage testing in order to obtain infiltration characteristics for use in assessing the feasibility of adopting shallow soakaways. In addition groundwater level monitoring standpipes were installed in order to monitor groundwater levels over a 12 week period.

This report specifically excludes comment or advice with regards to contaminated land or pollution related issues.

Fieldwork

The site works were carried out on 26th November 2024 and comprised the following:

- BRE DG365 Soakage Testing;
- Window Sampling

Trial Pitting

Four trial pits designated IT1 to IT4 were machine excavated to depths ranging between 1.1 and 1.5mbegl (metres below ground level) using a 3T mechanical excavator.

Logs of the trial pits are enclosed.

Soakage Testing

Infiltration testing was carried out in all trial pits using water pumped from a 2,000L water bowser. The testing was carried out in accordance with the methodology given in BRE DG365 'Soakaway design' and comprised discharging water into the trial excavation and monitoring the fall in water level against time.

The results are enclosed and are summarised below:

Trial Pit ID	Test No	Test Depth (m)	Test duration (minutes)	Volume of water drained (%)	Infiltration rate (m/s)	Comment
IT1	1	0.47-1.5	170	0	NR	No Infiltration
IT 2	1	0.84-1.5	128	0	NR	Water seeping into pit from farmyard. No Infiltration
IT 3	1	1.2	0	100	NR	Instant soakage. 700L water pumped into pit at 9L/second
IT 4	1	0.65-1.1	1	100	2.34×10^{-3}	500L water pumped into pit at 8L/second. Pit dry in 1 minute. Very good Infiltration potential - full test

Window Sampling

Two window sample holes were WS1 and WS2 were excavated to depths of 5.0m and 3.5m respectively. Arisings from the window sample holes were logged by a suitably qualified geotechnical engineer.

Upon completion the window sample holes collapsed to depths of 3.0m (WS1) and 2.0 (WS2) and were completed with 35mm groundwater level monitoring standpipes.

Logs of the window sample holes and installation details are appended.

Groundwater Level Monitoring Results

Groundwater level readings recorded over a 12 week period in the standpipes installed in WS1 and WS2 are appended. The water levels recorded in WS1 fluctuated between depths of 1.57 and 2.01 metres below ground level (mbegl). In WS2 the groundwater level fluctuated between 1.4 and in excess of 1.63mbegl. It should be noted that WS2 was dry at 1.63mbegl on five occasions over the monitoring period with the standpipe having 'silted' up from its base at 2m during the monitoring period as a result of the granular nature of the soils encountered.

We trust that this is satisfactory and addresses your requirements, but should you have any queries please do not hesitate to contact this office.

Yours sincerely,



Craig Spanton
Director
Ground and Environmental Services Limited

Enc:
Test Location Plan
Window Sample Logs
Trial Pit Logs
Soakage Test Results
Groundwater Level Monitoring Data



KEY:

- WS - WINDOW SAMPLE
- BH - BOREHOLE
- (I) - INSTALLATION
- TP - TRIAL PIT
- HDTP - HAND DUG TRIAL PIT
- SP - SOAKAGE PIT
- ▲ DCP - DYNAMIC CONE PENETRATION
- DP - DYNAMIC PROBE
- HA - HAND AUGER
- PT - PERCOLATION TEST
- GM - GAS MONITORING STANDPIPE
- S - SAMPLE LOCATION

CLIENT:

Mr J. Ashby

SITE ADDRESS:

New Salts Farm
Shoreham
BN43 5FE

DRAWING NO.:

Figure 1

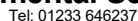
DRAWING TITLE:

Exploratory Hole Location Plan

PROJECT NO.: 13373	DATE: 12/24
DRAWN: PJ	REVISION: 00

GROUND AND ENVIRONMENTAL
SERVICES (GES) LIMITED
UNIT 2
MONTPELIER BUSINESS PARK
DENCORA WAY
ASHFORD
KENT TN23 4FG
TEL: 01233 646 237





Sheet: 1 of 1

13373

Date Completed: 26/11/2024

Notes: For explanation of symbols and abbreviations, see Key Sheet.



Ground and Environmental Services Limited

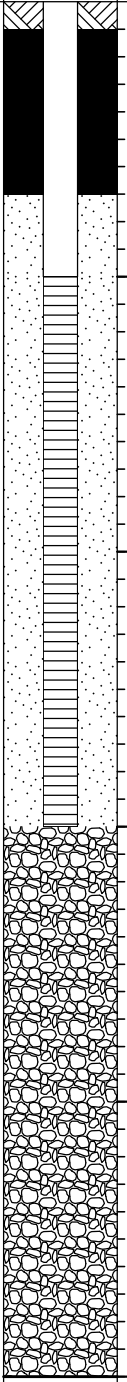
Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

T: 01233 646237

Hole ID. WS1

Installation Details & Readings

Sheet: 1 of 1

Equipment & Methods. Premier Compact 110 _Support Used:None _Backfill: Standpipe		Project Name: New Salts Farm Project Location: New Salts Road, Shoreham, BN43 5FE Client: Mr Ashby		Job No: 13373			
Co-ordinates: E: N:		Ground Level (m):		Date Started:26/11/2024 Date Completed:26/11/2024			
Installation Date : 26/11/2024 Depth to TOP Response Zone : 1 (m) Installation Type : SP Depth to BASE Response Zone : 3 (m)				Installation Diagram		Depth Related Remarks (Elevation)	
				0.1 Flush cover			
				Bentonite seal			
				0.7			
				1 (-1.00)			
				3 (-3.00)			
slough backfill							
End of Hole 5.00 m							
Notes: For explanation of symbols and abbreviations, see Key Sheet.				Compiled By:		Checked By:	
				CSS		PAD	
				Scale:		Approved By:	
				FIG No.			



Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

T: 01233 646237

Hole ID. WS2

Installation Details & Readings

Sheet: 1 of 1

Equipment & Methods. Premier Compact 110 _Support Used:None _Backfill: Standpipe		Project Name: New Salts Farm Project Location: New Salts Road, Shoreham, BN43 5FE Client: Mr Ashby		Job No: 13373	
Co-ordinates: E: N:		Ground Level (m):		Date Started:26/11/2024 Date Completed:26/11/2024	
Installation Date : 26/11/2024 Depth to TOP Response Zone : 1 (m) Installation Type : SP Depth to BASE Response Zone : 2 (m)				Installation Diagram	Depth Related Remarks (Elevation)
				0.1	Flush cover
					Bentonite seal
				0.7	
				1	(-1.00)
				2	(-2.00)
	slotted standpipe with gravel annulus				
	slough backfill				
	End of Hole 3.50 m				
Notes: For explanation of symbols and abbreviations, see Key Sheet.				Compiled By:	Checked By:
				CSS	PAD
				Scale:	Approved By:
				FIG No.	



Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

Tel: 01233 646237

Trial Pit No. IT1

Sheet: 1 of 1

Equipment & Methods. 3T ExcavatorSupport Used:None Backfill: Arisings				Project Name: New Salts Farm Project Location: New Salts Road, Shoreham, BN43 5FE Client: Mr Ashby		Job No: 13373		
Co-ordinates: E: N:				Ground Level (m):		Date Started:26/11/2024 Date Completed:26/11/2024		
Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADEGROUND: Vegetation over dark brown sandy, silty, clayey topsoil.	-0.10		(0.10) 0.10
					MADEGROUND: White and brown, speckled red gravelly clay fill. Gravel is chalk and brick.			(0.30)
					Soft to firm, brown sandy, silty CLAY. Occasional fine to medium flint gravel. ...from 0.45 Becoming mottled orange.	-0.40		0.40
					...from 0.70 Becoming firm.			(1.10)
					...from 1.10 Becoming silty clay.			
						-1.50		1.50
						End of Trial Pit 1.50 m (Thickness of basal layer not proven)		
Remarks: Dry and Stable.						Logged By:		Checked By:
						CSS		PAD
						Scale: 1:10		Approved By:
						FIG No.		
Notes: For explanation of symbols and abbreviations, see Key Sheet.								



SOAKAWAY TESTING

Test in accordance with BRE 365 Guidelines

Project Reference Number: 13373 Client: Jack Ashby

Site: New Salts Farm

Location: New Salts Farm Road, Shoreham-on-Sea

IT 1
Test 1 / 1

Weather: _____

Date of Test: 26-Nov-24

TRIAL PIT DIMENSIONS

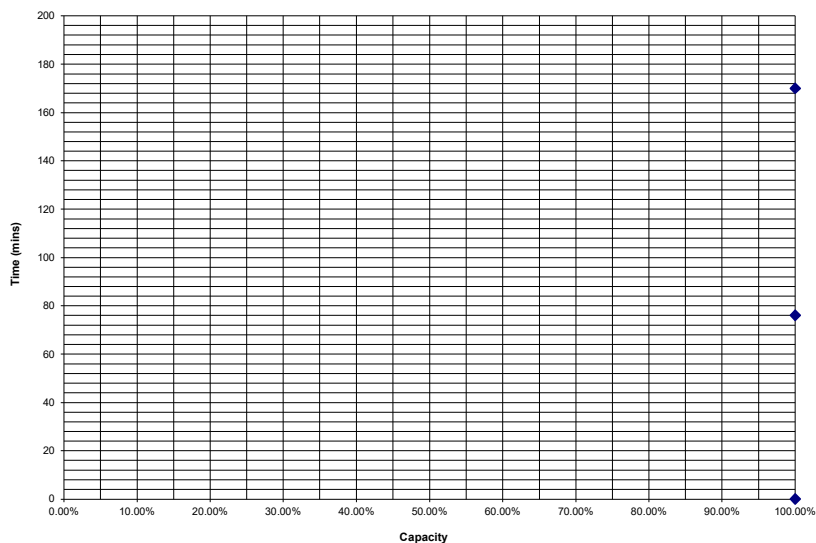
Width (m): 0.3 Length (m): 1.2

Depth (m): 1.5 Invert Depth (m): 0.47

Drainage time of test (mins): 170 (0% Drained)

SOAKAGE RESULTS

Depth	(%)	Time
0.47	100.00%	0
0.47	100.00%	76
0.47	100.00%	170



INFILTRATION RATE

Depth (B.G.L) (m)	Infiltration Rate (m/s)
0.47-1.5	NR

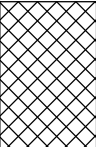
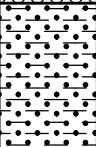
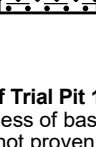
Departures from the specified test method: None

No soakage

Remarks: _____

Authorised Signatory: C SPANTON Date: 06/12/2024



Equipment & Methods. 3T ExcavatorSupport Used:None Backfill: Arisings				Project Name: New Salts Farm Project Location: New Salts Road, Shoreham, BN43 5FE Client: Mr Ashby		Job No: 13373		
Co-ordinates: E: N:				Ground Level (m):		Date Started:26/11/2024 Date Completed:26/11/2024		
Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADEGROUND: Vegetation over dark brown sandy gravel. Gravel is flint and occasional tarmac.	-0.20		(0.20)
					MADEGROUND: Greyish brown clayey, sandy gravel. Gravel is flint, brick and concrete. Occasional cobbles and concrete.			0.20
					...from 0.45 Metal fragments at northern end of pit.			0.50
					MADEGROUND: Greyish brown gravelly clay. Gravel is fine to coarse flint and occasional brick.			(0.20)
						-0.70		0.70
					Soft to firm, brown mottled orange sandy CLAY with occasional gravel.			(0.80)
						-1.50		1.50
						End of Trial Pit 1.50 m (Thickness of basal layer not proven)		
Remarks: Stable with water seeping into pit through Made Ground.						Logged By:		Checked By:
						CSS		PAD
						Scale: 1:10		Approved By:
						FIG No.		
Notes: For explanation of symbols and abbreviations, see Key Sheet.								



SOAKAWAY TESTING

Test in accordance with BRE 365 Guidelines

Project Reference Number: 13373 Client: Jack Ashby
Site: New Salts Farm
Location: New Salts Farm Road, Shoreham-on-Sea

IT 2
Test 1 / 1

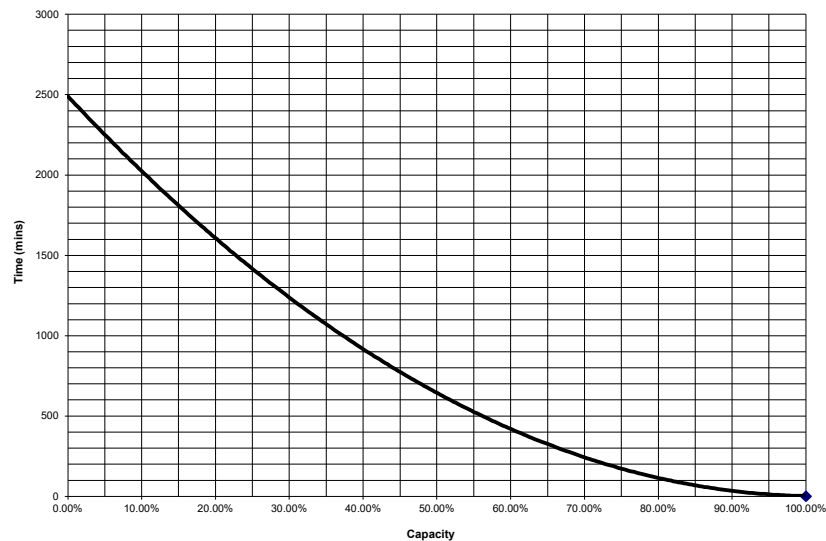
Weather: _____
Date of Test: 26-Nov-24

TRIAL PIT DIMENSIONS

Width (m): 0.35 Length (m): 1.2
Depth (m): 1.5 Invert Depth (m): 0.64
Drainage time of test (mins): 128 (0% Drained)

SOAKAGE RESULTS

Depth	(%)	Time
0.64	100.00%	0
0.57	108.14%	20
0.47	119.77%	69
0.435	123.84%	128



INFILTRATION RATE

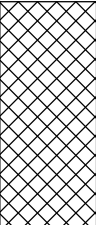
Depth (B.G.L) (m)	Infiltration Rate (m/s)
0.64-1.5	NR

Departures from the specified test method: None

Remarks: water seeping into pit from farmyard - water level raised, No soakage

Authorised Signatory: C SPANTON Date: 06/12/2024



Equipment & Methods. 3T ExcavatorSupport Used:None Backfill: Arisings				Project Name: New Salts Farm Project Location: New Salts Road, Shoreham, BN43 5FE Client: Mr Ashby		Job No: 13373		
Co-ordinates: E: N:				Ground Level (m):		Date Started:26/11/2024 Date Completed:26/11/2024		
Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADEGROUND: Grass over light brown sandy, clayey gravel. Gravel is fine to coarse flint.	-0.30		(0.30) 0.30
					MADEGROUND: Brown mottled orange, grey and red gravelly clayey sand. Gravel is flint and brick. ...from 0.40 Chalk gravel.			
					Brown sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subrounded flint gravel.	-0.70		(0.50) 1.20
Remarks: Dry and unstable from 0.7m.						Logged By: CSS		Checked By: PAD
Notes: For explanation of symbols and abbreviations, see Key Sheet.						Scale: 1:10		Approved By:
						FIG No.		



SOAKAWAY TESTING

Test in accordance with BRE 365 Guidelines

Project Reference Number: 13373 Client: Jack Ashby
Site: New Salts Farm
Location: New Salts Farm Road, Shoreham-on-Sea

IT 3
Test 1 / 1

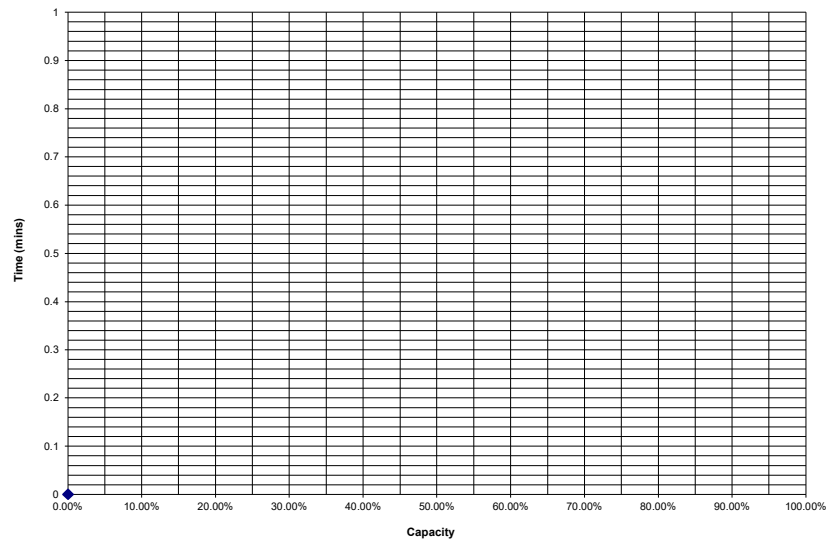
Weather: _____
Date of Test: 26-Nov-24

TRIAL PIT DIMENSIONS

Width (m): 0.3 Length (m): 1.1
Depth (m): 1.2 Invert Depth (m): 1.2
Drainage time of test (mins): 0 (100% Drained)

SOAKAGE RESULTS

Depth (%) Time



INFILTRATION RATE

Depth (B.G.L) (m)	Infiltration Rate (m/s)
	NR

Departures from the specified test method: None

Remarks: Instant soakage - 700L of water pumped into trial pit at 9L/second - unable to raise head

Authorised Signatory: C SPANTON Date: 26/11/2024



Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

Tel: 01233 646237

Trial Pit No. IT4

Sheet: 1 of 1

Equipment & Methods. 3T ExcavatorSupport Used:None Backfill: Arisings				Project Name: New Salts Farm Project Location: New Salts Road, Shoreham, BN43 5FE Client: Mr Ashby		Job No: 13373		
Co-ordinates: E: N:				Ground Level (m):		Date Started:26/11/2024 Date Completed:26/11/2024		
Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADEGROUND: Grass over dark brown silty, sandy topsoil.	-0.05		(0.05)
					MADEGROUND: Dark brown slightly clayey, sandy gravel. Gravel is fine to coarse subrounded flint and rare carbon.			(0.30)
					Brown clayey, sandy GRAVEL. Sand is fine to coarse. Gravel is fine to medium subrounded flint. Occasional shell fragments.	-0.35		0.35
					Brown slightly clayey, sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subrounded flint.	-0.65		0.65
						-1.10		1.10
						End of Trial Pit 1.10 m (Thickness of basal layer not proven)		
Remarks: Dry and unstable in gravel.						Logged By: CSS		Checked By: PAD
						Scale: 1:10		Approved By:
Notes: For explanation of symbols and abbreviations, see Key Sheet.						FIG No.		



SOAKAWAY TESTING

Test in accordance with BRE 365 Guidelines

Project Reference Number: 13373 Client: Jack Ashby
Site: New Salts Farm
Location: New Salts Farm Road, Shoreham-on-Sea

IT 4
Test 1 / 1

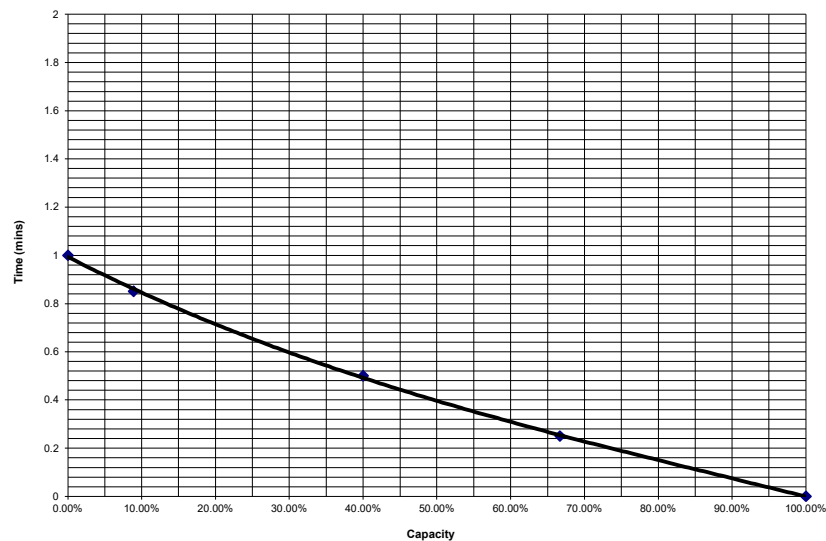
Weather: _____
Date of Test: 26-Nov-24

TRIAL PIT DIMENSIONS

Width (m): 0.3 Length (m): 1.1
Depth (m): 1.1 Invert Depth (m): 0.65
Drainage time of test (mins): 1 (100% Drained)

SOAKAGE RESULTS

Depth	(%)	Time
0.65	100.00%	0
0.8	66.67%	0.25
0.92	40.00%	0.5
1.06	8.89%	0.85



1.1 0.00%

INFILTRATION RATE

Depth (B.G.L) (m)	Infiltration Rate (m/s)
0.65-1.1	2.34E-03

Departures from the specified test method: None

Remarks: Very fast soakage. 500 litres pumped in at 8L/second. Water drained in 1 minute

Authorised Signatory: C SPANTON Date: 26/11/2024

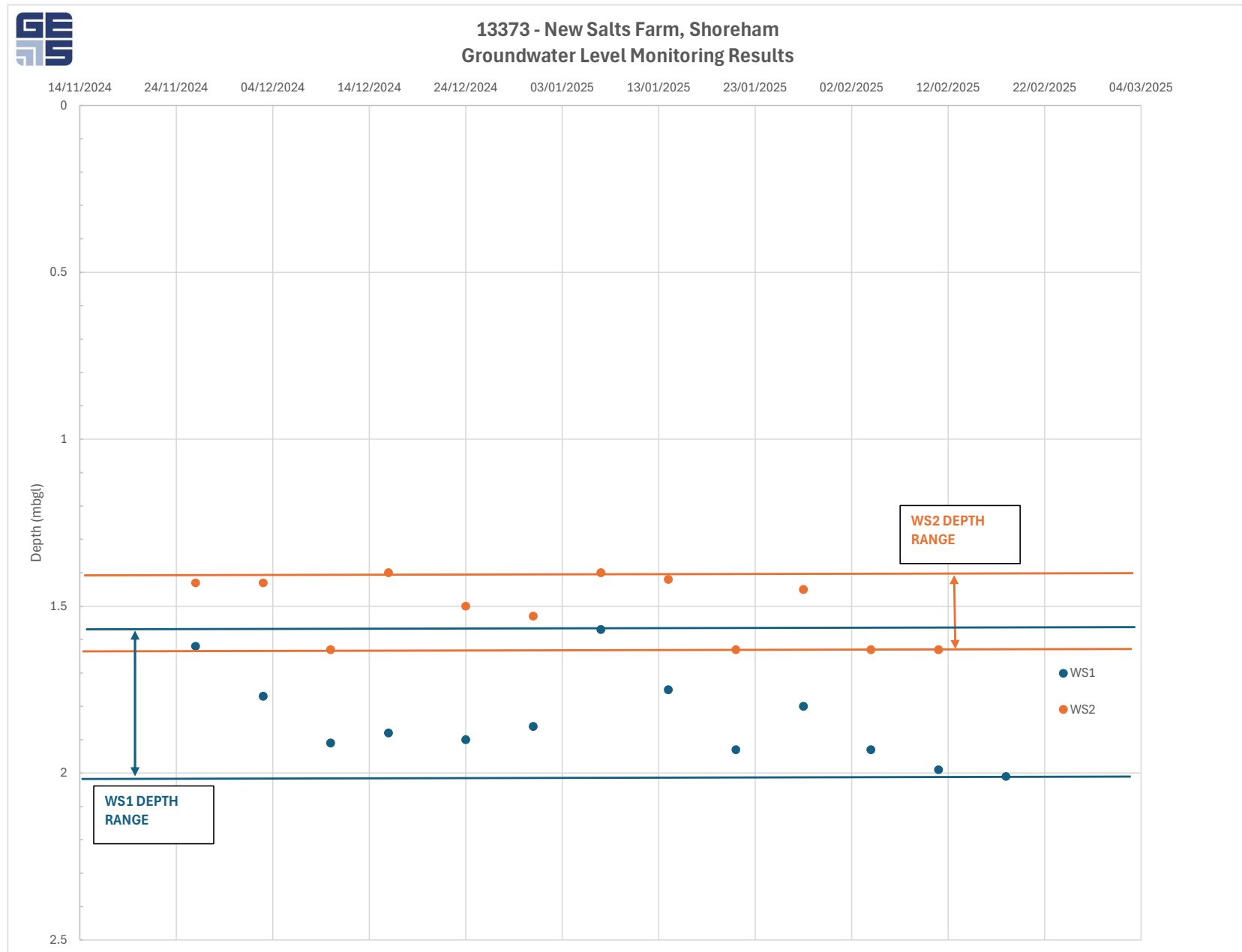


NEW SALTS FARM, NEW SALTS FARM ROAD, SHOREHAM

GROUNDWATER LEVEL MONITORING RESULTS

Job No 13373

Date	Monitoring Point		Comment
	WS1	WS2	
26/11/2024	1.62	1.43	At time of construction
03/12/2024	1.77	1.43	
10/12/2024	1.91	1.63	WS2 was dry - probe hit soil
16/12/2024	1.88	1.4	
24/12/2024	1.9	1.5	
31/12/2024	1.86	1.53	
07/01/2025	1.57	1.4	
14/01/2025	1.75	1.42	
21/01/2025	1.93	1.63	WS2 was dry - probe hit soil
28/01/2025	1.8	1.45	
04/02/2025	1.93	1.63	WS2 was dry - probe hit soil
11/02/2025	1.99	1.63	WS2 was dry - probe hit soil
18/02/2025	2.01	1.63	WS2 was dry - probe hit soil





Ground and Environmental Services Limited
Unit 2 Montpelier Business Park
Dencora Way
Ashford
Kent
TN23 4FG
01233 646237

Jack Ashby

Date: 2nd April 2026

Our ref: 13718

Dear Jack,

RE: SOAKAGE TESTING – NEW SALTS FARM, NEW SALTS FARM ROAD, SHOREHAM BN43 5FE

Introduction

Ground and Environmental Services Ltd (GES) was commissioned by Jack Ashby to undertake supplementary soakage testing at New Salts Farm, New Salts Farm Road, Shoreham-on-Sea, West Sussex BN43 5FE.

The purpose of the ground investigation was to carry out soakage testing in order to obtain infiltration characteristics for use in assessing the feasibility of adopting shallow soakaways. In addition, further groundwater level monitoring was carried out of the standpipes installed as part of a previous phase of investigation.

The findings of the earlier investigation are presented in our report ref 13373 and should be read in conjunction with this report.

This report specifically excludes comment or advice with regards to contaminated land or pollution related issues.

Fieldwork

The supplementary site work was carried out on 25th February 2026 and comprised the following:

- BRE DG365 Soakage Testing.

Trial Pitting

Two trial pits designated IT5 and IT6 were machine excavated to depths of 0.9 and 1.9mbegl (metres below ground level) respectively using a 1.8T mechanical excavator.

Logs of the trial pits are enclosed.

Soakage Testing

Infiltration testing was carried out in both trial pits using water pumped from a 2,000L water bowser. The testing was carried out in accordance with the methodology given in BRE DG365 'Soakaway design' and comprised discharging water into the trial excavation and monitoring the fall in water level against time.

The results are enclosed and are summarised below:

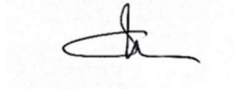
Trial Pit ID	Test No	Test Depth (m)	Test duration (minutes)	Volume of water drained (%)	Infiltration rate (m/s)	Comment
IT 5	1	0.5-0.9	5	82	5.31×10^{-4}	Very good Infiltration potential - full test
IT5	2	0.61-0.9	5	90	4.1×10^{-4}	Very good Infiltration potential - full test
IT 5	3	0.55-0.9	8	97	3.91×10^{-4}	Very good Infiltration potential - full test
IT 6	1	1.66-1.9	2	100	1.23×10^{-3}	500L water pumped into pit at 9L/second. Pit dry in 2 minutes. Very good Infiltration potential - full test
IT6	2	1.51-1.9	3.5	100	1.04×10^{-3}	500L water pumped into pit at 9L/second. Pit dry in 3.5 minutes. Very good Infiltration potential - full test

Groundwater Level Monitoring Results

Groundwater level readings recorded over a 5 week period in the standpipes installed in WS1 and WS2 are appended. The water levels recorded in WS1 fluctuated between depths of 1.86 and 2.00 metres below ground level (mbegl). In WS2 the groundwater level fluctuated between 1.53 and in excess of 1.63mbegl. It should be noted that WS2 was dry at 1.63mbegl on one occasion over the monitoring period.

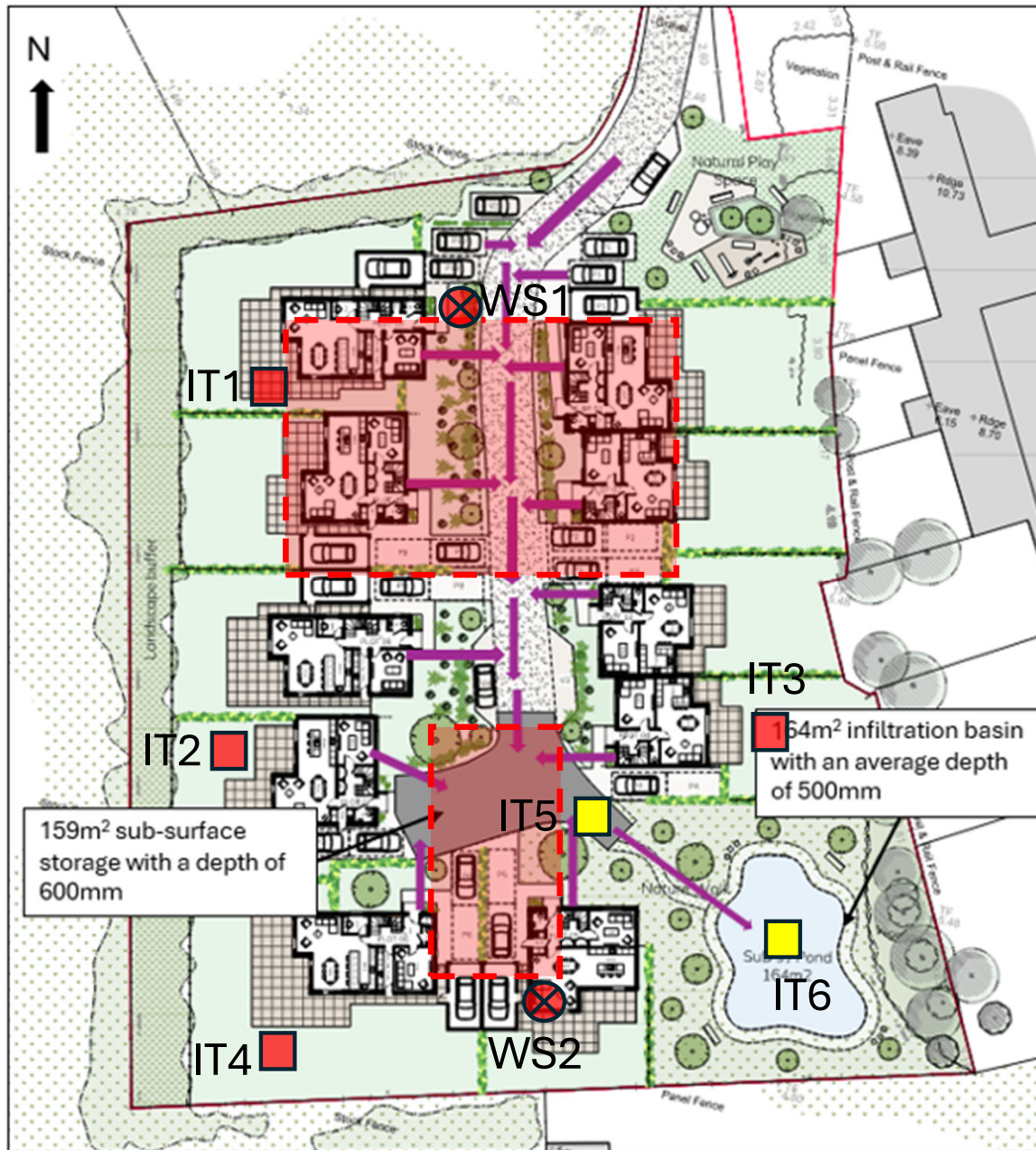
We trust that this is satisfactory and addresses your requirements, but should you have any queries please do not hesitate to contact this office.

Yours sincerely,



Craig Spanton
Director
Ground and Environmental Services Limited

Enc:
Test Location Plan
Trial Pit Logs
Soakage Test Results
2026 Groundwater Level Monitoring Data



Key

■ Previous infiltration test

⊗ Previous borehole

■ Proposed infiltration test

 Existing barn footprint



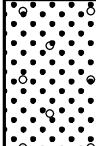
Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

Tel: 01233 646237

Trial Pit No. IT5

Sheet: 1 of 1

Equipment & Methods. 1.8T ExcavatorSupport Used:None Backfill: Arisings				Project Name: New Salts Farm Barn Project Location: New Salts Road, Shoreham, BN43 5FE Client: Mr Ashby		Job No: 13718					
Co-ordinates: E: N:				Ground Level (m):		Date Started:25/02/2026 Date Completed:25/02/2026					
Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)			
Depth (m)	No.	Type	Result								
					MADEGROUND: Hardcore surface	-0.20		(0.20)			
					MADEGROUND: White and brown, speckled red gravelly clay fill. Gravel is chalk and brick.				-0.60		(0.30)
					...from 0.45 Becoming mottled orange.						
					Orange brown gravelly SAND Gravel is fine to coarse flint ...from 0.70 Becoming firm.						
					Becoming silty clay.						
End of Trial Pit 0.90 m (Thickness of basal layer not proven)											
Remarks: Dry and Stable.						Logged By: CSS		Checked By: PAD			
						Scale: 1:15		Approved By:			
Notes: For explanation of symbols and abbreviations, see Key Sheet.						FIG No.					



SOAKAWAY TESTING

Test in accordance with BRE 365 Guidelines

Project Number: 13718 **Client:** Jack Ashby

IT5 Test 1

Site: Land at New Salts Barn, Shoreham

Weather: Dry sunny

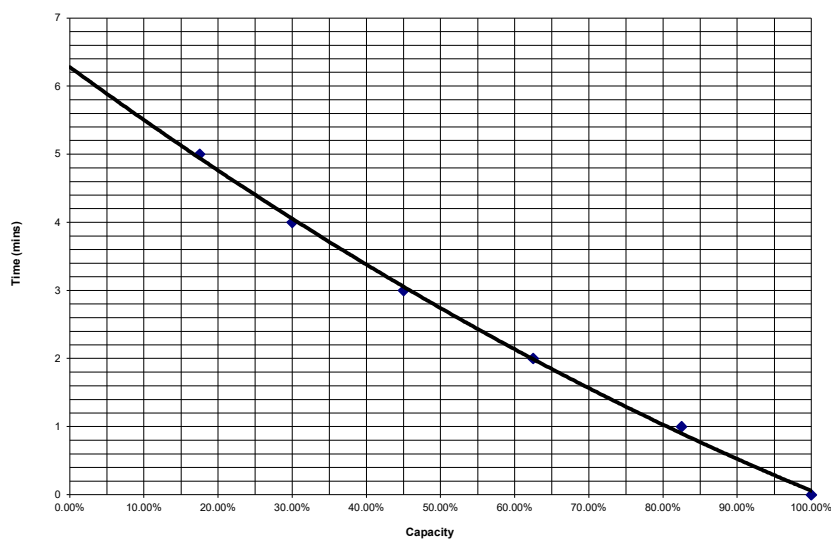
Date of Test: 25/02/2026

Trial Pit Dimensions:

Width (m): 0.5 Length (m): 1.1
Depth (m): 0.50 Invert Depth (m): 0.5
Drainage time of test (mins): 5 (82% Drained)

Soakage Results:

Depth	(%)	Time
0.5	100.00%	0
0.57	82.50%	1
0.65	62.50%	2
0.72	45.00%	3
0.78	30.00%	4
0.83	17.50%	5



0.9

Infiltration rate:

Depth (B.G.L)	Infiltration Rate
(m)	(m/s)
0.5-0.9	5.31E-04

Departures from the specified test method:

Remarks: Very Good infiltration

Authorised Signatory: C SPANTON Date: 25/02/2026



SOAKAWAY TESTING

Test in accordance with BRE 365 Guidelines

Project Number: 13718 **Client:** Jack Ashby

IT5 Test 2

Site: Land at New Salts Barn, Shoreham

Weather: Dry sunny

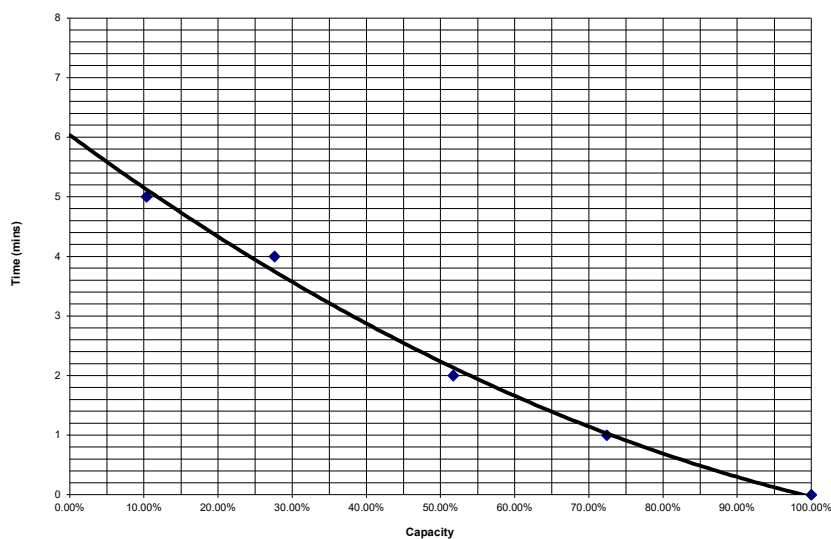
Date of Test: 25/02/2026

Trial Pit Dimensions:

Width (m): 0.5 Length (m): 1.1
Depth (m): 0.61 Invert Depth (m): 0.61
Drainage time of test (mins): 5 (90% Drained)

Soakage Results:

Depth	(%)	Time
0.61	100.00%	0
0.69	72.41%	1
0.75	51.72%	2
0.82	27.59%	4
0.87	10.34%	5



0.9

Infiltration rate:

Depth (B.G.L) (m)	Infiltration Rate (m/s)
0.61-0.9	4.10E-04

Departures from the specified test method:

Remarks: Very Good infiltration

Authorised Signatory: C SPANTON **Date:** 25/02/2026



SOAKAWAY TESTING

Test in accordance with BRE 365 Guidelines

Project Number: 13718 **Client:** Jack Ashby

IT5 Test 3

Site: Land at New Salts Barn, Shoreham

Weather: Dry sunny

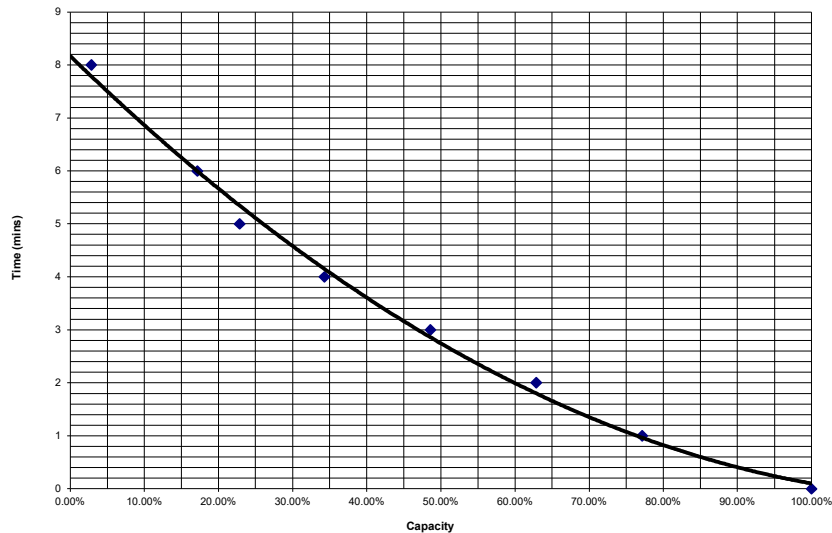
Date of Test: 25/02/2026

Trial Pit Dimensions:

Width (m): 0.5 Length (m): 1.1
Depth (m): 0.55 Invert Depth (m): 0.55
Drainage time of test (mins): 8 (97% Drained)

Soakage Results:

Depth	(%)	Time
0.55	100.00%	0
0.63	77.14%	1
0.68	62.86%	2
0.73	48.57%	3
0.78	34.29%	4
0.82	22.86%	5
0.84	17.14%	6
0.89	2.86%	8



0.9

Infiltration rate:

Depth (B.G.L.)	Infiltration Rate
(m)	(m/s)
0.55-0.9	3.91E-04

Departures from the specified test method:

Remarks: Very Good infiltration

Authorised Signatory: C SPANTON **Date:** 25/02/2026



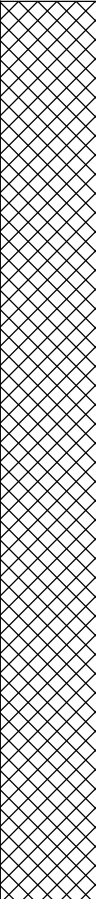
Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

Tel: 01233 646237

Trial Pit No. IT6

Sheet: 1 of 1

Equipment & Methods. 1.8T ExcavatorSupport Used:None Backfill: Arisings				Project Name: New Salts Farm Barn Project Location: New Salts Road, Shoreham, BN43 5FE Client: Mr Ashby		Job No: 13718			
Co-ordinates: E: N:				Ground Level (m):		Date Started:25/02/2026 Date Completed:25/02/2026			
Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)	
Depth (m)	No.	Type	Result						
					MADEGROUND: Vegetation over multicoloured slightly clayey very gravelly sand. Gravel is brick, slate, concrete and flint.			(1.80)	
					...from 0.45 Metal fragments at northern end of pit.				
					Brown gravelly SAND. Gravel is medium to coarse flint.				
						-1.80		1.80	
						-1.90		1.90	
						End of Trial Pit 1.90 m (Thickness of basal layer not proven)			
Remarks: Dry and Stable.						Logged By: CSS		Checked By: PAD	
						Scale: 1:15		Approved By:	
						FIG No.			
Notes: For explanation of symbols and abbreviations, see Key Sheet.									



SOAKAWAY TESTING

Test in accordance with BRE 365 Guidelines

Project Number: 13718 **Client:** Jack Ashby

IT6 Test 1

Site: Land at New Salts Barn, Shoreham

Weather: Dry sunny

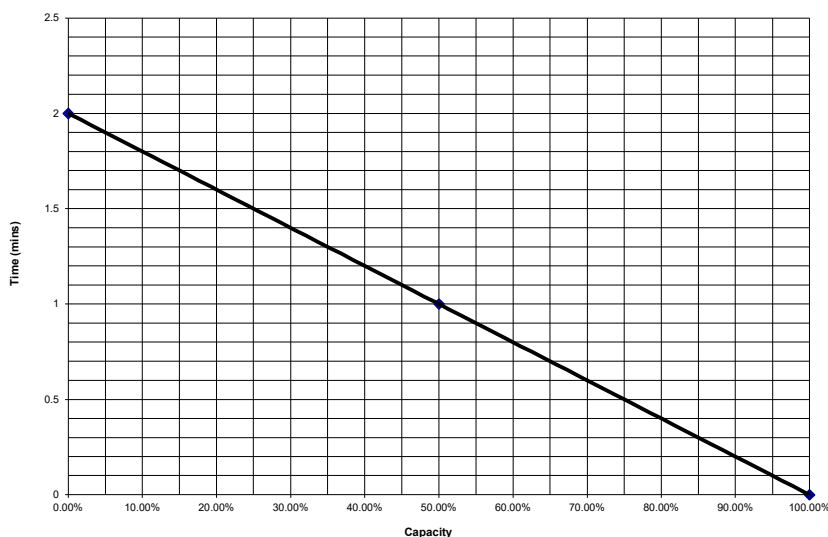
Date of Test: 25/02/2026

Trial Pit Dimensions:

Width (m): 0.5 Length (m): 1.6
Depth (m): 1.66 Invert Depth (m): 1.66
Drainage time of test (mins): 2 (100% Drained)

Soakage Results:

Depth	(%)	Time
1.66	100.00%	0
1.78	50.00%	1
1.9	0.00%	2



Infiltration rate:

Depth (B.G.L) (m)	Infiltration Rate (m/s)
1.66-1.9	1.23E-03

Departures from the specified test method:

Remarks: Very Good infiltration - 500 L added at 9L/sec - unable to raise head in trial pit. Dry in 2 minutes

Authorised Signatory: C SPANTON Date: 25/02/2026



SOAKAWAY TESTING

Test in accordance with BRE 365 Guidelines

Project Number: 13718 **Client:** Jack Ashby

IT6 Test 2

Site: Land at New Salts Barn, Shoreham

Weather: Dry sunny

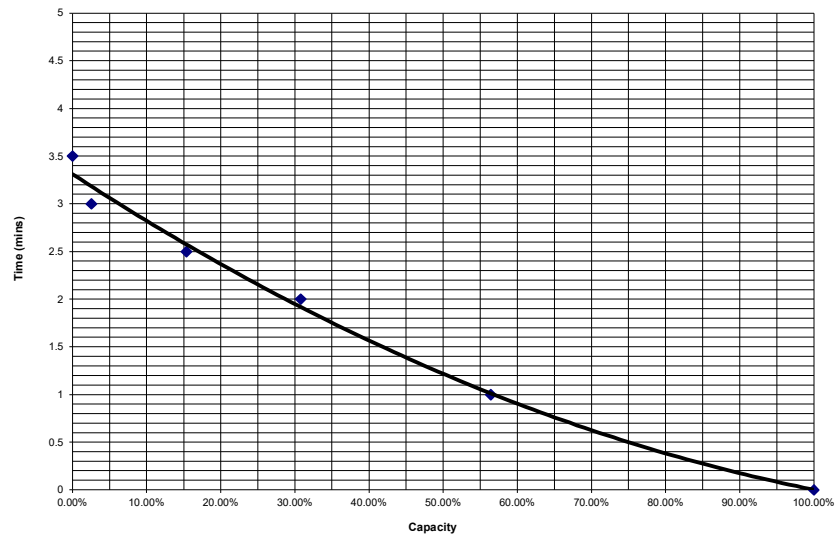
Date of Test: 25/02/2026

Trial Pit Dimensions:

Width (m): 0.5 Length (m): 1.6
Depth (m): 1.51 Invert Depth (m): 1.51
Drainage time of test (mins): 3.5 (100% Drained)

Soakage Results:

Depth	(%)	Time
1.51	100.00%	0
1.68	56.41%	1
1.78	30.77%	2
1.84	15.38%	2.5
1.89	2.56%	3
1.9	0.00%	3.5



1.9

Infiltration rate:

Depth (B.G.L) (m)	Infiltration Rate (m/s)
1.51-1.9	1.04E-03

Departures from the specified test method:

Remarks: Very Good infiltration - 500 L added at 9L/sec - unable to raise head in trial pit. Dry in less than 3.5 minutes

Authorised Signatory: C SPANTON **Date:** 25/02/2026

[illegible]

