



# Flood Risk Assessment

Land Opposite 26 Lodge Lane, Keymer BN6 8NA

## Client

**Mrs Wakeham**

**Ref:** 13895

**Date:** December 2025

## Consulting Engineers

**GTA Civils & Transport Limited**

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| Issue             | Issue date       | Compiled | Checked  |
|-------------------|------------------|----------|----------|
| Preliminary Issue | 27 November 2025 | JP       | FVV / MR |
| First Issue       | 15 December 2025 | JP       | FVV / MR |
| Second Issue      | 29 January 2026  | JP       | FVV / MR |
|                   |                  |          |          |
|                   |                  |          |          |
|                   |                  |          |          |

## 1 Introduction

- 1.1 This report has been prepared for Mrs Wakeham in relation to the application for Full Planning Permission for land opposite 26 Lodge Lane, Keymer BN6 8NA. No responsibility is accepted to any third party for all or part of this study in connection with this or any other development.
- 1.2 GTA Civils & Transport Limited was appointed by the client to provide a Flood Risk Assessment (FRA) to support a Planning Application for demolition of a domestic garage and building a detached outbuilding for use as an office/workroom and utility space.
- 1.3 This report will take the form of a formal Flood Risk Assessment in accordance with the 2025 National Planning Policy Framework (NPPF) and the current Planning Practice Guidance (PPG).
- 1.4 The second version of this report has been prepared following comments from the LLFA. The EA's fluvial and pluvial flood layers have been superimposed on to the proposed layout – refer to Appendix B.

## 2 Existing Site and Current Flood Risk

- 2.1 The application site lies within Keymer village, which is administered by Mid Sussex District Council. The application site comprises a single garage flanked by 2-storey dwellings. Site location maps and an aerial view are shown in **Appendix A**.
- 2.2 Topography: a topographic survey is shown in **Appendix C**. The site is relatively flat and level with external levels ranging between - approximately – 51.09m AOD and 50.77m AOD. (There is a SE – NW slope, albeit at a very shallow gradient over the wider context, looking at lidar mapping online.)
- 2.3 Hydrology: The site lies within the catchment area of the Herrings Stream, a tributary of the River Adur. There are various unnamed ditches to the NW of the site that flow north and northwest to the Herrings Stream. The nearest watercourse shown on the OS maps is approximately 100m to the west; this is culverted in many sections.
- 2.4 Geology: the BGS online mapping shows this area is underlain by Gault Formation (mudstone); there are no drift deposits recorded in this area.
- 2.5 Soil soakage testing was undertaken on site at one location on 20/10/25. The pit was filled 3 times and the emptying was timed – refer to the results page and graphs in **Appendix D**. The first test was the slowest, which would indicate that the pressure from this opened fissures in the soil, even if only slightly. The lowest calculated soakage rate (test 1) is  $2.45 \times 10^{-6}$  m/s.
- 2.6 Surface Water drainage from the garage is assumed to drain via gravity to a house soakaway.
- 2.7 Fluvial flooding: the Environment Agency's Rivers and Seas Flood Map in **Appendix B** shows the site falling within in Flood Zone 3 (FZ3) – High Risk. Fluvial sites in FZ3 are susceptible to an annual exceedance probability (AEP) from rivers and watercourses of more than 1 in 100 years (>1% AEP).
- 2.8 Tidal flooding: This inland site lies many kilometres from the nearest tidally influenced river.
- 2.9 The EA's modelled data-pack (in **Appendix B**) shows the modelled fluvial outputs for this site. The flood levels and depths are displayed at 5 nodes around the site, with #3 near to the centre and #1 and #2 to the NW and NE respectively (#4 and #5 covering the SW and SE corner).
- 2.10 Only the undefended scenario has been modelled because this area does not benefit from defences. The 3 levels of climate change (35%, 45% and 105%) used in this model are out of date; these are now determined on a river catchment basis. The site lies in the Adur and Ouse Management Catchment. The correct level of climate change to be used for a site in FZ3 for development whose design life extends

beyond the 2080s is 37%. As there is very little variation in flood level between no CC and 105% CC it is safe to equate the 35% flood levels with 37% CC. These range between 50.96m and 50.81m AOD at nodes #2 and #4 respectively. The key nodes are #3 and #5 as the centre of the proposed unit falls approximately halfway between these. The interpolated flood level is  $(50.95 + 50.93 \div 2 =)$  **50.94m AOD**. As the lowest measured level is 50.77m the maximum flood depth is 0.17m, therefore.

- 2.11 The EA's fluvial and pluvial flood layers have been superimposed on to the proposed layout – refer to Appendix B, this being a stated requirement by the LLFA.
- 2.12 Surface water flooding: this *can* occur when excess rainwater does not infiltrate into the ground, or is not intercepted by urban drainage systems, and instead flows across the surface. The EA's surface water flood maps in **Appendix B** show the current day and 2040-2060 scenarios. It is clear from the flood patterns on these maps that this source of flood risk has less impact than the fluvial risk, with shallower flood levels/depths.
- 2.13 Artificial sources: flooding from reservoirs, canals and docks. The EA's reservoir flooding map in **Appendix B** shows the site is not liable to flood from this source. There are no docks or canals close to the site.
- 2.14 The EA's Historical Flood Map in **Appendix B** confirms that this area is removed from the nearest flooding.
- 2.15 Groundwater Flooding: such flooding may occur when groundwater rises up from the underlying aquifer to flood subsurface infrastructure or to emerge at the ground surface. The EA's Groundwater Vulnerability Zones (GWVZ) and Groundwater Source Protection Zones (GWPZ) maps are shown in **Appendix B**. The site is removed from the nearest SPZ and the Groundwater Vulnerability Zones map shows the site overlies an unproductive zone. The risk of flooding from this source is Low.
- 2.16 In summary the flood risk profile of this site is **High**; the critical predicated maximum fluvial flood depth (in the 100yrs + 37% CC storm) is 0.06m (at #2: 50.96m – 50.90m); the maximum surface water flood depth (estimated from the EA's various SW flood maps) is 0.25m.

### 3 Proposed Development & Flood Risk Mitigation

- 3.1 The proposed Planning Application is to demolish the garage and build an outbuilding for use as an office/workroom and utility space. See Appendix D for the proposed site layout drawing.
- 3.2 Garages, offices and ancillary space are all classed as **Less Vulnerable** in Appendix C of the NPPF. There is no increase in vulnerability, therefore. The proposed increase in building footprint constitutes the only increase in flood risk between pre- and post-development scenarios.
- 3.3 The Sequential Test: the proposed development, according to Table 3 of the NPPF's Appendix C, is allowed, subject to passing the Sequential Test. This procedure lies outside the scope of this report. This report's main role is to demonstrate that the development a) will be **safe** over its predicted lifetime and b) will not increase flood risks elsewhere.
- 3.4 For compliance with the NPPF, habitable accommodation in *new* developments must be set 0.3m above the critical flood level. The building's floor level will be set at 0.3m above the critical fluvial flood level of 50.94, ie **51.24m AOD**.
- 3.5 Proposed Flood Resistance: A demountable flood barrier (with a minimum height of 0.45m to extend above 51.24m AOD) shall be fitted in front of each external door.
- 3.6 Floodplain volume: to offset the loss of surface water floodplain, there will be a floodable void set under the ground floor, which shall be suspended and flood resilient, eg beam and block or similar. There is no land within this site in FZ1 to lower, thereby leaving only a floodable void as the only way to balance the displaced flood volume.
- 3.7 The soffit of the void shall be set at or above the predicted flood level of 51.10m AOD. There will be a minimum of 20% (1m in 5m) openings over the external perimeter (walls) to minimise impedance of the floodplain. All openings shall be fitted with mesh or louvres to stop vermin and birds from entering this space. The base of the void space shall be of oversite concrete, which shall be trowelled smooth with a 1 in 60 slope down to a drain that connects to the house's surface water drainage.
- 3.8 Safe Access to Dry Land: Occupants will be able to reside safely above the flood level. As this is ancillary to the main unit occupants would make their way to the main house, if unduly inclement weather set in. (If minded to do so, occupants can make their way safely to dry land - as the route east and then either north or south along Lodge Lane is in FZ1.)
- 3.9 As set out in Section 2.5 above, the lowest of the 3 tests' soil soakage rate is  $2.45 \times 10^{-6}$  m/s. The total contributing area is 82m<sup>2</sup>, which include the roof, gravel parking area and porous paved area next to the unit. 10% allowance for urban creep has been added to the roof area.

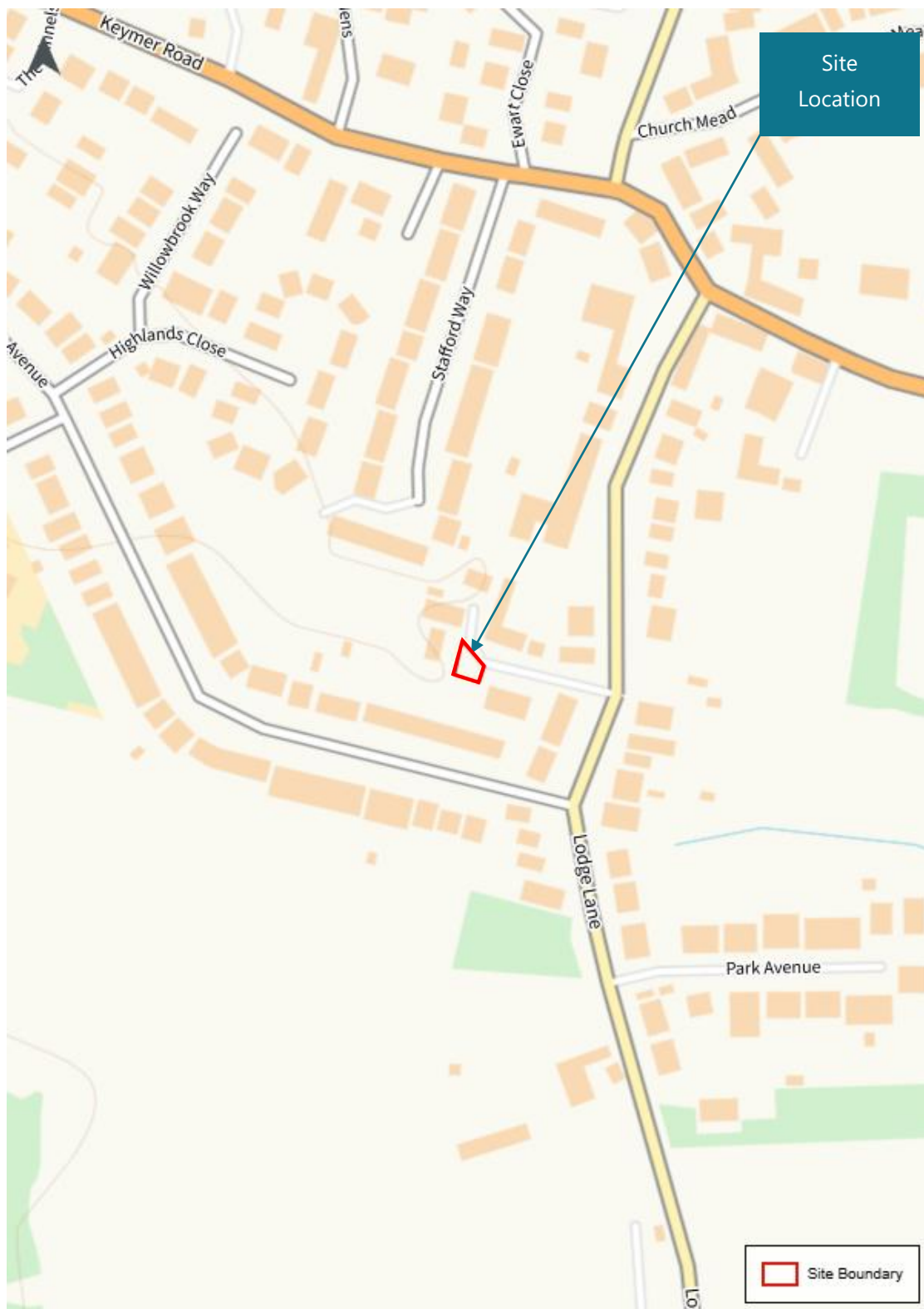
- 3.10 A Flow drainage calculation is shown in Appendix E. This shows that the storage volume needed is 8.9m<sup>3</sup> in the critical '100 years plus 45% CC' storm event. FEH22 hydrological data and Cv values of 1.0 have been used. The soil's soakage rate has been rounded downwards to 2 x 10<sup>-6</sup>m/s – as a conservative measure, given that the slowest test was the first, which is unusual.
- 3.11 The design of the porous paved areas will be finalised during the next stage: it is likely that a cellular soakaway shall be placed underneath the sub-base.
- 3.12 Treatment: The discharge from the roofs will be of low hazard so no treatment is needed. The discharge from the pavings shall be through the sub-base layers. The mitigation indices of porous pavings are equal or greater than the pollution indices for a residential development – according to CIRIA C753, the SuDS Manual.
- 3.13 Conclusion

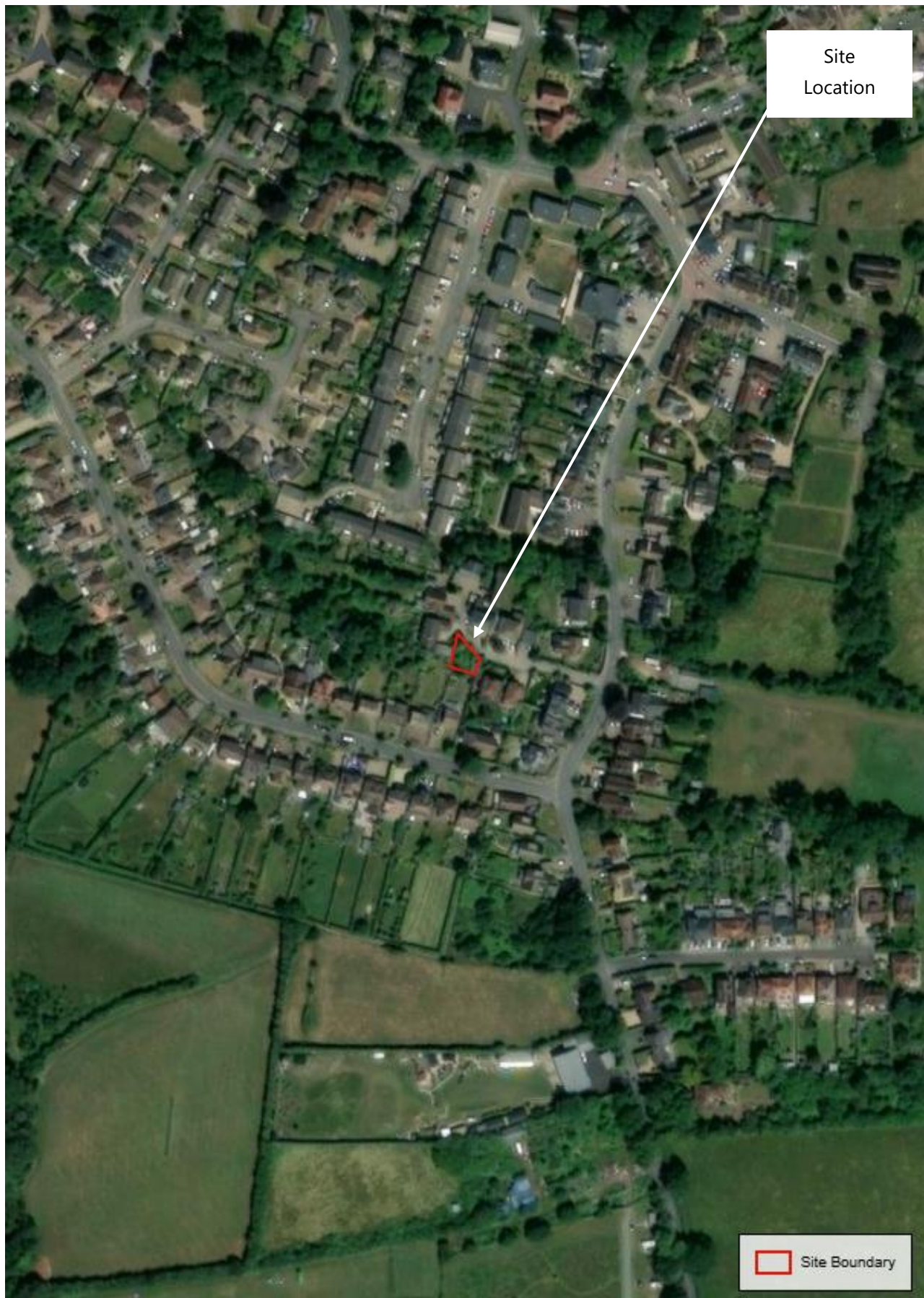
This development will not increase the flood risk, either on this site or to neighbouring properties, and so complies fully with the 2025 NPPF and current PPG.

- End of Report -

## Appendix A

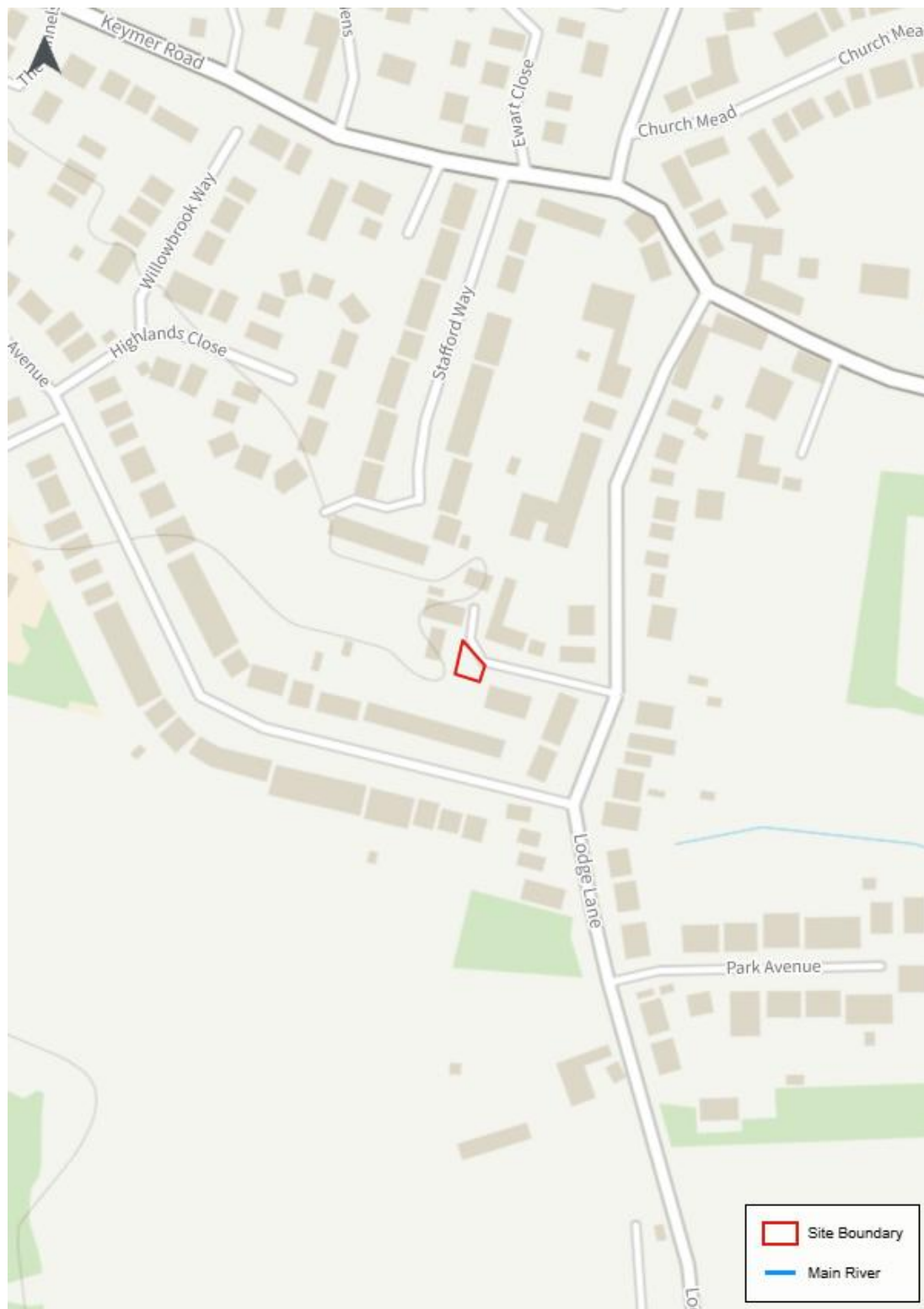
### Site Location Map & Aerial Photo



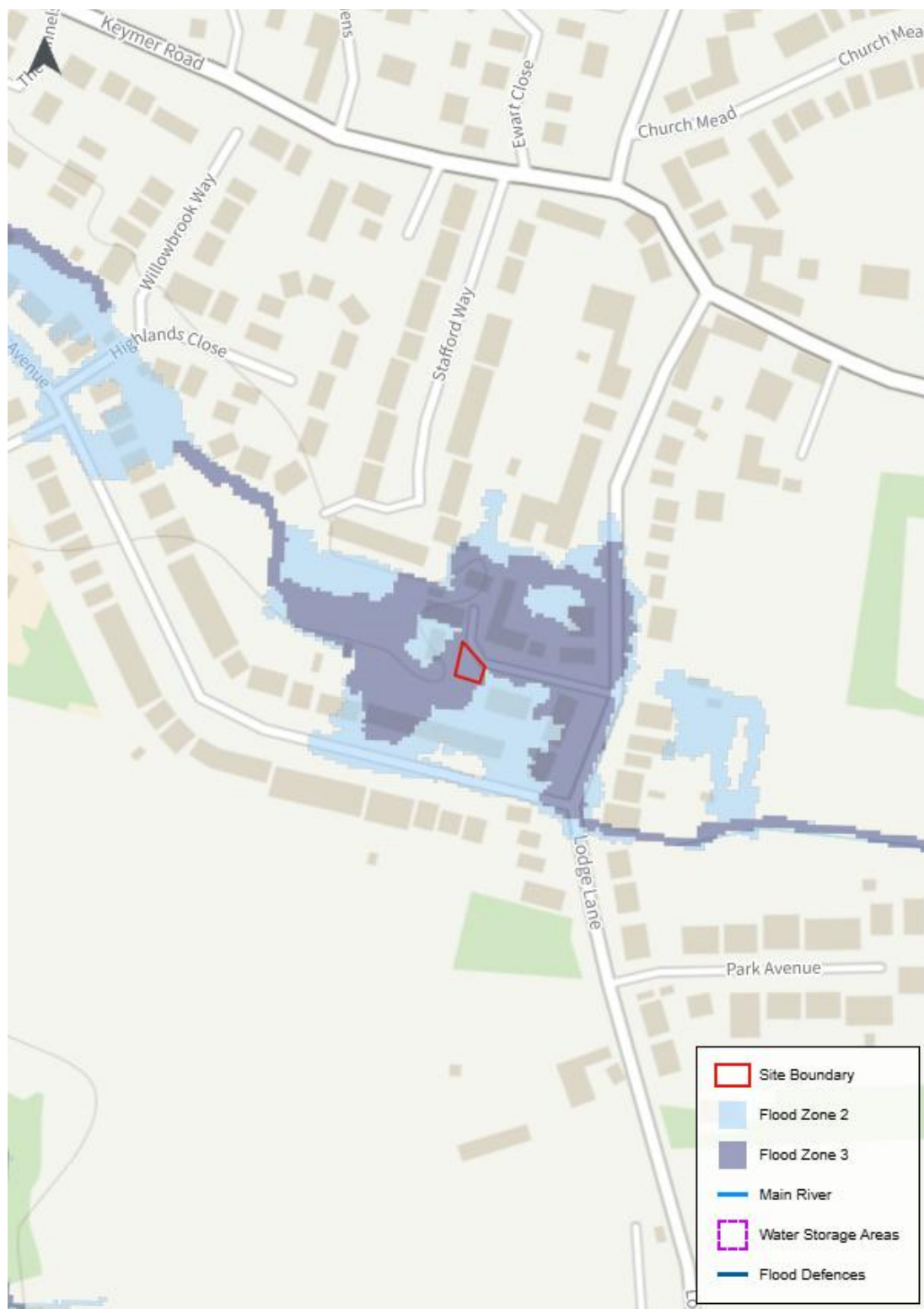


## Appendix B

### Environment Agency Flood Data

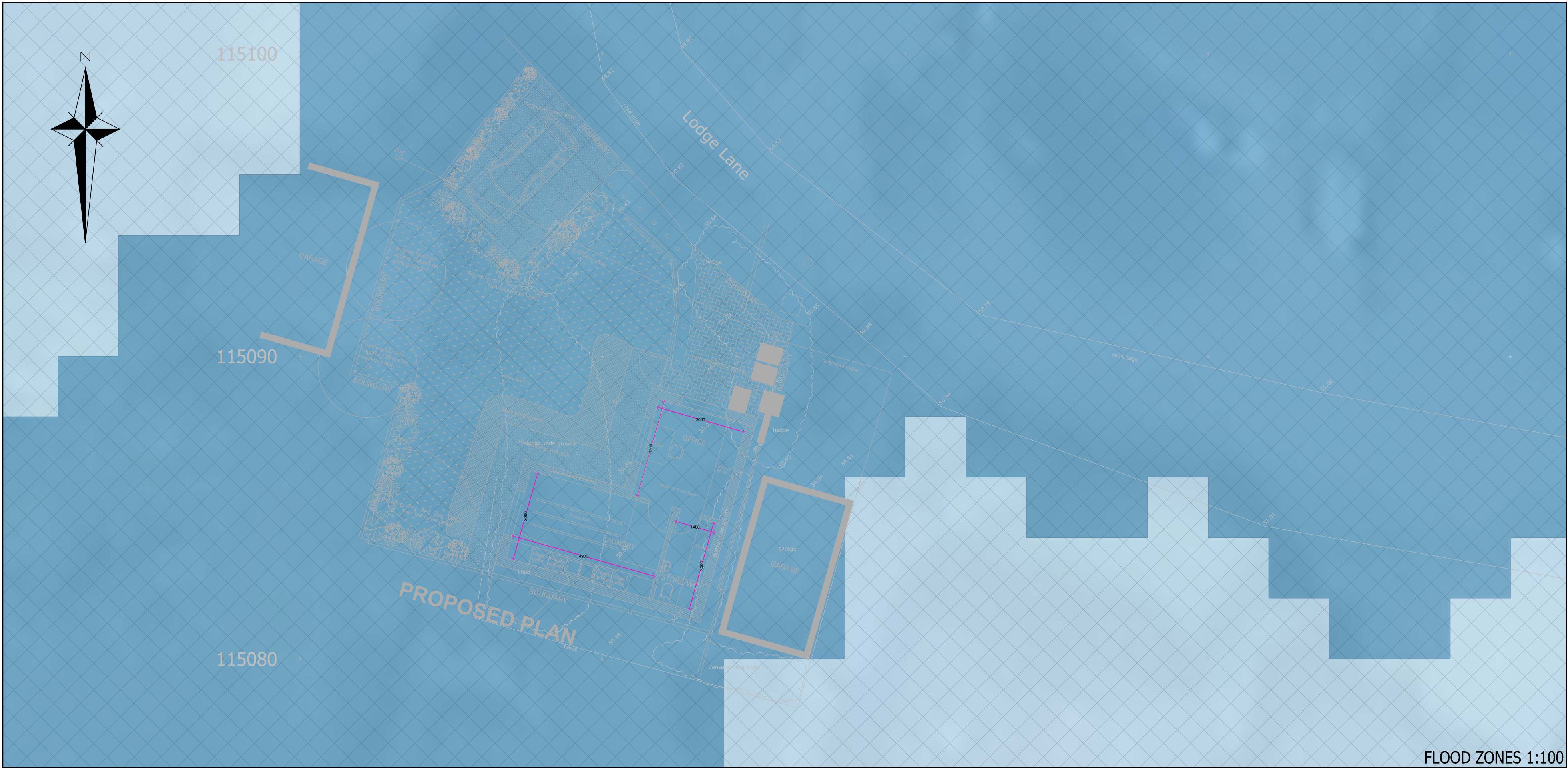


**Environment Agency Main Rivers Map**



### **Environment Agency Flood Map for Planning**

The site lies in Flood Zone 3



- GENERAL NOTES**
1. The location, size, depth and identification of existing services that may be shown or referred to on this drawing have been assessed from non intrusive observations, record drawings or the like. The contractor shall safely carry out intrusive investigations, trial holes or soundings prior to commencing work to satisfy himself that it is safe to proceed and that the assessments are accurate. any discrepancies shall be notified to gta prior to works commencing.
  2. Tender or billing drawings shall not be used for construction or the ordering of materials.
  3. Do not scale. All dimensions and levels to be site confirmed.
  4. This drawing shall be read in conjunction with all relevant architects, consultants drawings and specifications, together with H&S plan requirements.
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  9. Should any apparent discrepancies between the data contained within the DWG file and the current contract drawings become evident, it must be reported back to GTA Civils & Transport as soon as reasonably practicable. Precedence should be given to the current contract drawings (PDF) unless advised otherwise.

**LEGEND**

**FLOOD MAP FOR PLANNING**

Flood Zone 2

Flood Zone 3

**RISK OF FLOODING FROM SURFACE WATER**

High Risk - 1 in 30 AEP

Medium Risk - 1 in 100 AEP

Low Risk - 1 in 1,000 AEP

**FUTURE FLOOD RISK**

Future Flood Zone + CC

|                                                                                                                                                                                                                                                                                |               |                                                   |     |                     |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------------------------------------------|-----|---------------------|--|
|                                                                                                                                                                                                                                                                                |               |                                                   |     |                     |  |
| P1                                                                                                                                                                                                                                                                             | INITIAL ISSUE | 28/01/26                                          | NG  | JP                  |  |
| Rev                                                                                                                                                                                                                                                                            | Amendments    | Date                                              | Dsn | Chk                 |  |
| Status                                                                                                                                                                                                                                                                         |               | FOR INFORMATION                                   |     |                     |  |
| Client                                                                                                                                                                                                                                                                         |               | MRS WAKEHAM                                       |     |                     |  |
| Architect                                                                                                                                                                                                                                                                      |               |                                                   |     |                     |  |
| Project                                                                                                                                                                                                                                                                        |               | LAND OPPOSITE 26 LODGE LANE,<br>HASSOCKS, BN6 8NA |     |                     |  |
| Title                                                                                                                                                                                                                                                                          |               | FLOOD RISK CONSTRAINT PLAN                        |     |                     |  |
| Date                                                                                                                                                                                                                                                                           |               | JANUARY 2026                                      |     | Scale @ A1<br>1:100 |  |
| Clients Ref.                                                                                                                                                                                                                                                                   |               | Project Ref.                                      |     | 13895               |  |
| <div><div></div><div>Civils &amp; Transport</div><div>Maple House, 192-198 London Road,<br/>Burgess Hill, West Sussex, RH15 9RD<br/>Tel 01444 871444 Web: www.gtacivils.co.uk</div></div> |               |                                                   |     |                     |  |
| Drawing Number                                                                                                                                                                                                                                                                 |               |                                                   |     | Rev.                |  |
| 13895-1000                                                                                                                                                                                                                                                                     |               |                                                   |     | P1                  |  |

# Flood risk assessment data



**Location of site:** 531292 / 115086 (shown as easting and northing coordinates)

**Document created on:** 6 August 2025

**This information was previously known as a product 4.**

**Customer reference number:** A86YJ88HE89U / EIR2025/22777

Map showing the location that flood risk assessment data has been requested for.



## How to use this information

You can use this information as part of a flood risk assessment for a planning application. To do this, you should include it in the appendix of your flood risk assessment.

**We recommend that you work with a flood risk consultant to get your flood risk assessment.**

## Included in this document

In this document you'll find:

- how to find information about surface water and other sources of flooding
- definitions for the terminology used throughout
- flood map for planning (rivers and the sea)
- information about strategic flood risk assessments
- information about this data
- information about flood risk activity permits
- help and advice

## Information that's unavailable

This document **does not** contain:

- past floods
- flood defences and attributes
- modelled data

We do not have past flooding data for this location.

Please note that:

- flooding may have occurred that we do not have records for
- flooding can come from a range of different sources
- we can only supply flood risk data relating to flooding from rivers or the sea

You can contact your Lead Local Flood Authority or Internal Drainage Board to see if they have other relevant local flood information. Please note that some areas do not have an Internal Drainage Board.

We aren't able to display flood defence locations and attributes as there are no formal flood defences in the area of interest.

There is not any modelled data available for this location. This is because detailed modelling hasn't been carried out in this area.

## Surface water and other sources of flooding

When using the surface water map on the [check your long term flood risk service](#) the following considerations apply:

- surface water extents are suitable for use in planning
- surface water climate change scenarios may help to inform risk assessments, but the available data fall short of what is required to assess planned development
- surface water depth information should not be used for planning purposes

To find out about other factors that might affect the flood risk of this location, you should also check:

- [reservoir flood risk](#)
- groundwater flood risk - you could use the [British Geological Survey groundwater flooding data](#), [groundwater: current status and flood risk](#) and the guide on [mining and groundwater constraints for development](#) - further information may be available from the lead local flood authority (LLFA)
- your local planning authority's SFRA, which includes future flood risk

Your Lead Local Flood Authority is West Sussex County.

For information about sewer flooding, contact the relevant water company for the area.

## About the models used

Model name: Hassocks Model

Scenario(s): Undefended Fluvial

Date: 2013

Model name: Hassocks Climate Change Allowance Update

Scenario(s): Undefended Fluvial

Date: 2016

This model contains the most relevant data for your area of interest.

## Terminology used

### Annual exceedance probability (AEP)

This refers to the probability of a flood event occurring in any year. The probability is expressed as a percentage. For example, a large flood which is calculated to have a 1% chance of occurring in any one year, is described as 1% AEP.

### Metres above ordnance datum (mAOD)

All flood levels are given in metres above ordnance datum which is defined as the mean sea level at Newlyn, Cornwall.

## **Flood map for planning (rivers and the sea)**

Your selected location is in flood zone 3.

Flood zone 3 shows the area at risk of flooding for an undefended flood event with a:

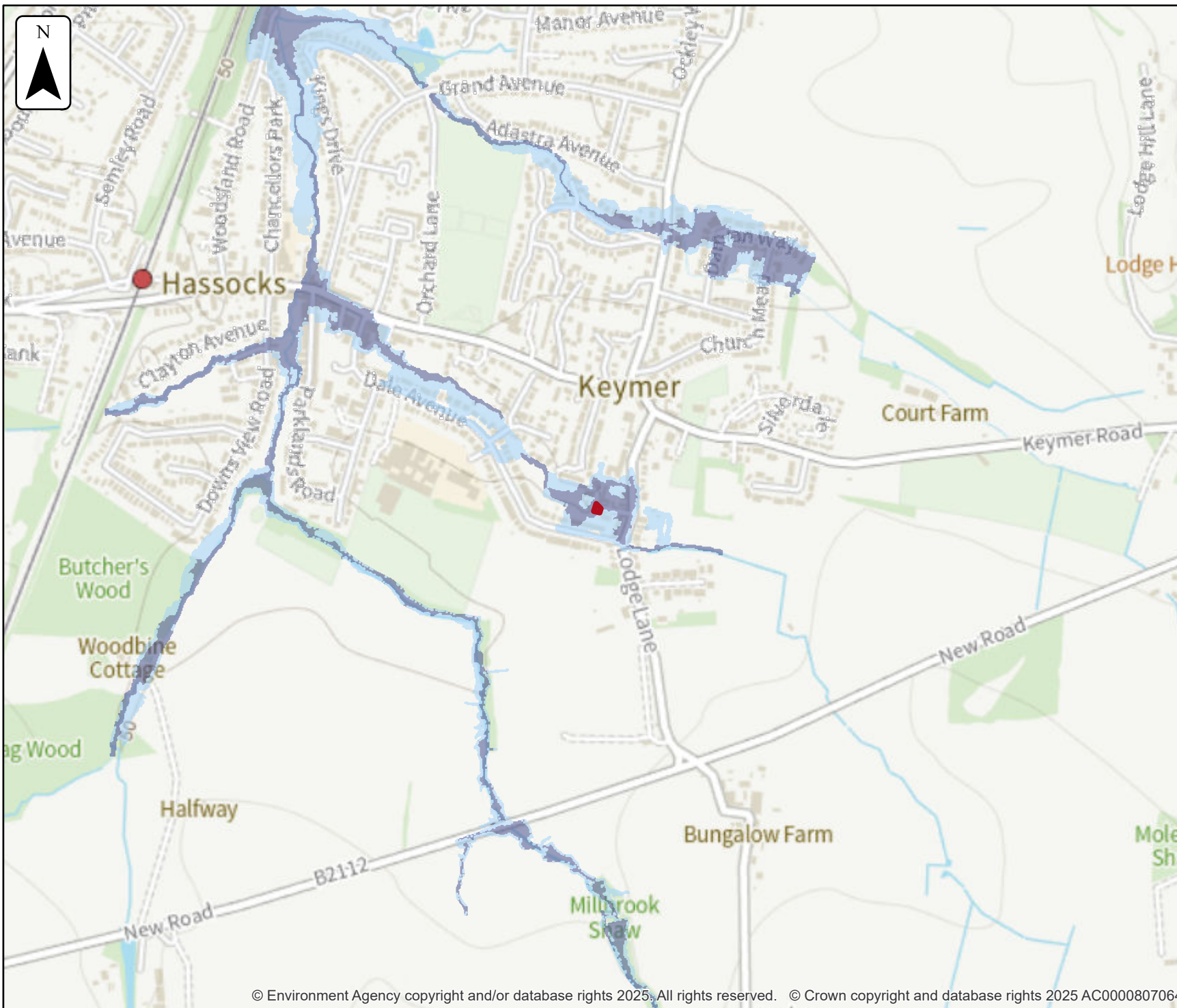
- 0.5% or greater probability of occurring in any year for flooding from the sea
- 1% or greater probability of occurring in any year for fluvial (river) flooding

Flood zone 2 shows the area at risk of flooding for an undefended flood event with:

- between a 0.1% and 0.5% probability of occurring in any year for flooding from the sea
- between a 0.1% and 1% probability of occurring in any year for fluvial (river) flooding

It's important to remember that the flood zones on this map:

- refer to the land at risk of flooding and do not refer to individual properties
- refer to the probability of river and sea flooding, ignoring the presence of defences
- do not take into account potential impacts of climate change



## Flood map for planning

Location (easting/northing)  
**531292/115086**

Scale  
**1:10,000**

Created  
**6 Aug 2025**

- Selected area
- Flood Zone 3
- Flood Zone 2

0 100 200 300 400 500  
metres

## Modelled data

This section provides details of different scenarios we have modelled and includes the following (where available):

- outline maps showing the area at risk from flooding in different modelled scenarios

## Climate change

The climate change data included in the models may not include the latest [flood risk assessment climate change allowances](#). Where the new allowances are not available you will need to consider this data and factor in the new allowances to demonstrate the development will be safe from flooding.

The Environment Agency will incorporate the new allowances into future modelling studies. For now, it's your responsibility to demonstrate that new developments will be safe in flood risk terms for their lifetime.

## Modelled scenarios

The following scenarios are included:

- Undefined modelled fluvial: risk of flooding from rivers where there are no flood defences
- Undefined climate change modelled fluvial: risk of flooding from rivers where flood defences have been removed, including estimated impact of climate change

# Modelled Flood Outlines (Undefended Fluvial). Centred BN6 8NA. Created 11/08/2025.

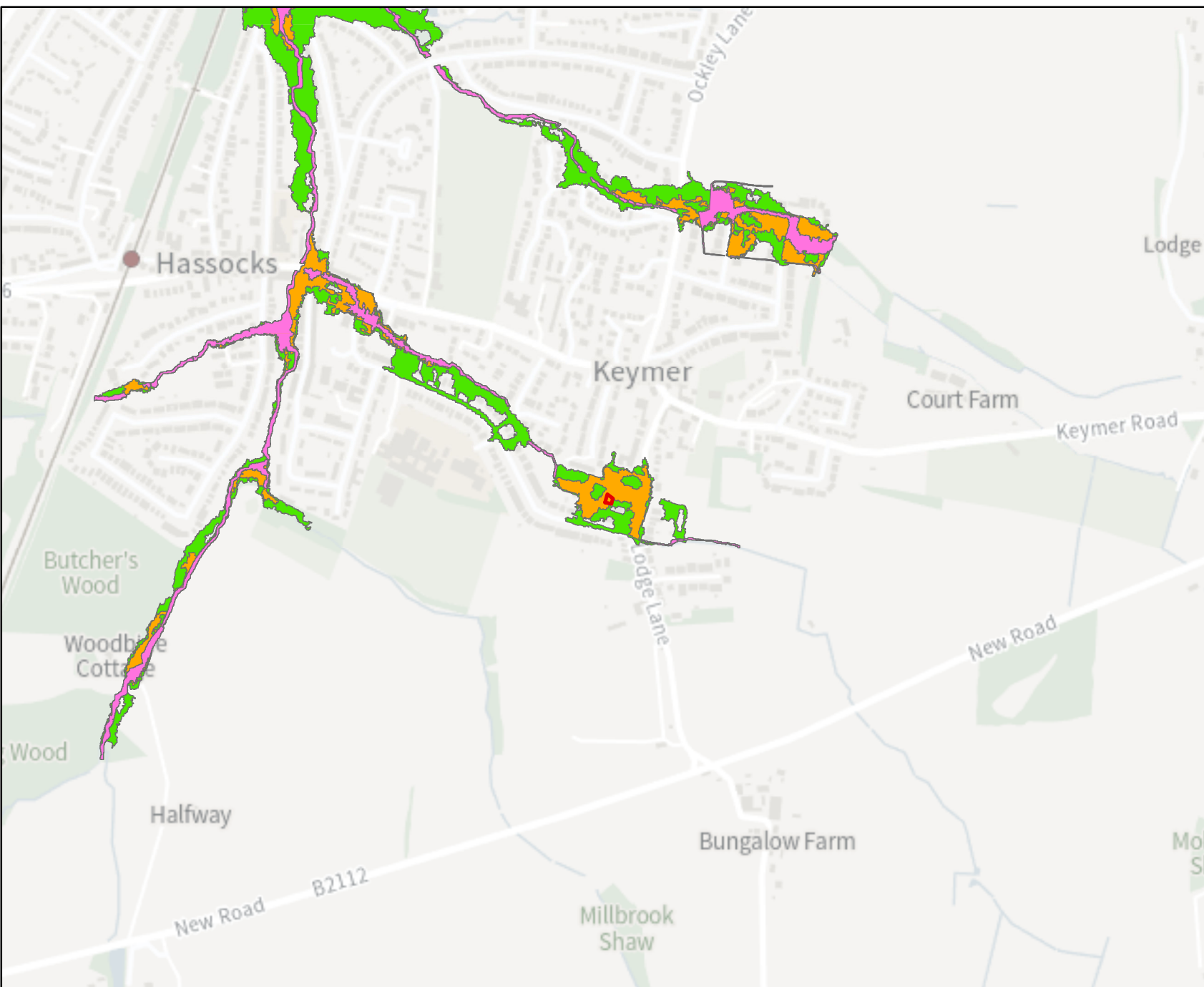
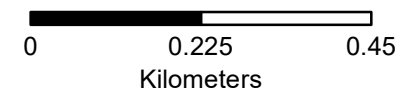


## Legend

-  Site Boundary
-  5% AEP (Undefended Fluvial)
-  1% AEP (Undefended Fluvial)
-  0.1% AEP (Undefended Fluvial)

Annual Exceedance Probability (AEP) The probability of a flood of a particular magnitude, or greater occurring in any given year.

Scale: 1:10,000



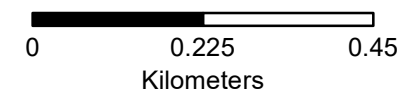


## Legend

-  Site Boundary
-  1% AEP +CC (35%) Undefined Fluvial
-  1% AEP +CC (45%) Undefined Fluvial
-  1% AEP +CC (105%) Undefined Fluvial

Annual Exceedance Probability (AEP) The probability of a flood of a particular magnitude, or greater occurring in any given year.

Scale: 1:10,000



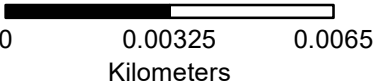


**Legend**

-  Site Boundary
-  Site Nodes

Annual Exceedance Probability (AEP) The probability of a flood of a particular magnitude, or greater occurring in any given year.

Scale: 1:150



**Product 4 Flood Risk Data Requested by:** Elizabeth Wakeham

**Site:** BN6 8NA

**Table 1:** Water Levels: Fluvial Undefended

| Node Ref | NGR      |           | Modelled Flood Levels in Metres AOD      |       |              |              |               |       |
|----------|----------|-----------|------------------------------------------|-------|--------------|--------------|---------------|-------|
|          | Eastings | Northings | Undefended Annual Exceedance Probability |       |              |              |               |       |
|          |          |           | 5%                                       | 1%    | 1% +CC (35%) | 1% +CC (45%) | 1% +CC (105%) | 0.1%  |
| 1        | 531290   | 115095    | -                                        | -     | 50.95        | 50.96        | 50.97         | 50.97 |
| 2        | 531298   | 115090    | -                                        | 50.93 | 50.96        | 50.97        | 50.98         | 50.98 |
| 3        | 531293   | 115088    | -                                        | 50.92 | 50.95        | 50.95        | 50.97         | 50.96 |
| 4        | 531288   | 115084    | -                                        | 50.80 | 50.81        | 50.81        | 50.82         | 50.82 |
| 5        | 531296   | 115082    | -                                        | 50.91 | 50.93        | 50.93        | 50.95         | 50.95 |

**Table 5:** Water Depths: Fluvial Undefended

| Node Ref | NGR      |           | Modelled Flood Depths in Metres AOD      |      |              |              |               |      |
|----------|----------|-----------|------------------------------------------|------|--------------|--------------|---------------|------|
|          | Eastings | Northings | Undefended Annual Exceedance Probability |      |              |              |               |      |
|          |          |           | 5%                                       | 1%   | 1% +CC (35%) | 1% +CC (45%) | 1% +CC (105%) | 0.1% |
| 1        | 531290   | 115095    | -                                        | -    | 0.01         | 0.01         | 0.03          | 0.02 |
| 2        | 531298   | 115090    | -                                        | 0.04 | 0.07         | 0.07         | 0.09          | 0.08 |
| 3        | 531293   | 115088    | -                                        | 0.01 | 0.04         | 0.04         | 0.06          | 0.05 |
| 4        | 531288   | 115084    | -                                        | 0.00 | 0.01         | 0.02         | 0.02          | 0.02 |
| 5        | 531296   | 115082    | -                                        | 0.00 | 0.01         | 0.01         | 0.03          | 0.02 |

All levels taken from: Hassocks 2013, Hassocks Climate Change 2016

Produced on: 11/08/2025

**\* Climate Change allowances for this model only show the superseded 20% increase in flows. The current allowances should be checked here:**

**<https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>.**

**\*\* The flood risk data provided is based on existing EA hydraulic models for existing 0.5% annual probability events with an allowance for climate change. Please note the climate change allowances provided are not up to date. These were updated on 17 December 2019.**

**You should refer to 'Flood risk assessments: climate change allowances' for the most up to date allowances. You will need to undertake further assessment of future flood risk using different allowances to ensure your assessment of future flood risk is based on best available evidence.**

**There is no additional information or health warnings for these levels/depths or the model from which they have been produced.**

## Strategic flood risk assessments

We recommend that you check the relevant local authority's strategic flood risk assessment (SFRA) as part of your work to prepare a site specific flood risk assessment.

This should give you information about:

- the potential impacts of climate change in this catchment
- areas defined as functional floodplain
- flooding from other sources, such as surface water, ground water and reservoirs

Your Lead Local Flood Authority is West Sussex County.

## About this data

This data has been generated by strategic scale flood models and is not intended for use at the individual property scale. If you're intending to use this data as part of a flood risk assessment, please include an appropriate modelling tolerance as part of your assessment. The Environment Agency regularly updates its modelling. We recommend that you check the data provided is the most recent, before submitting your flood risk assessment.

## Flood risk activity permits

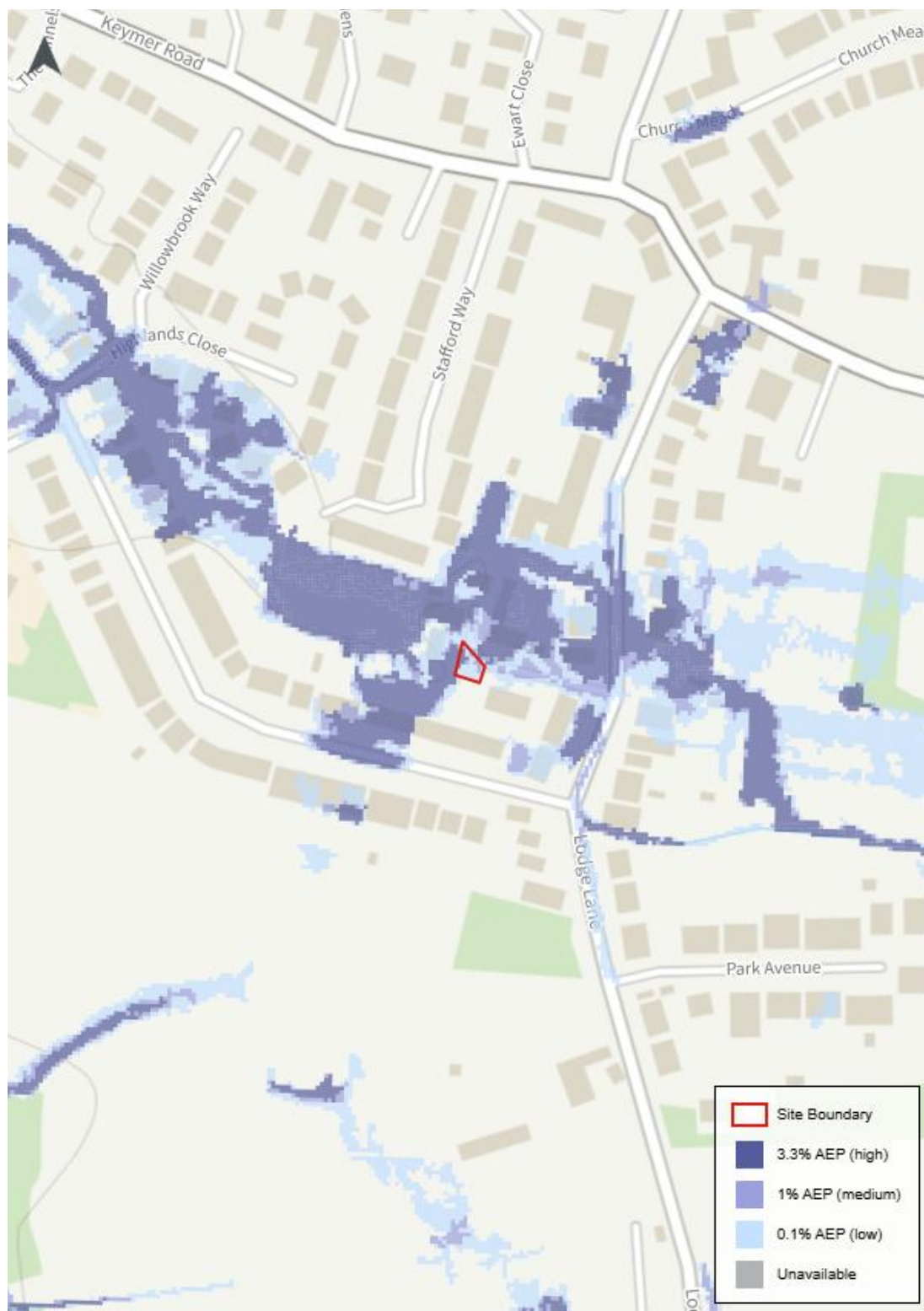
Under the Environmental Permitting (England and Wales) Regulations 2016 some developments may require an environmental permit for flood risk activities from the Environment Agency. This includes any permanent or temporary works that are in, over, under, or nearby a designated main river or flood defence structure.

[Find out more about flood risk activity permits](#)

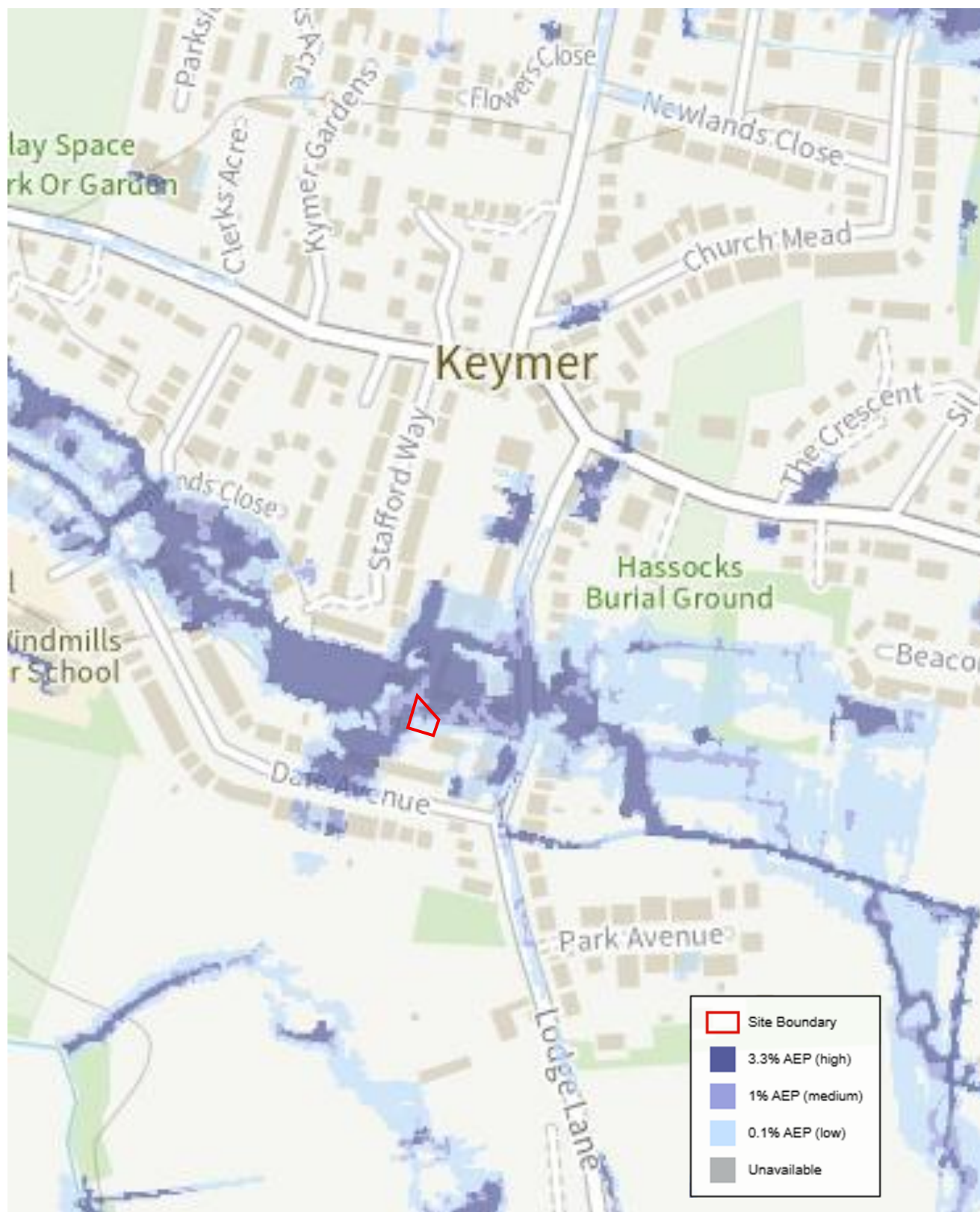
## Help and advice

Contact the Solent and South Downs Environment Agency team at [ssdenquiries@environment-agency.gov.uk](mailto:ssdenquiries@environment-agency.gov.uk) for:

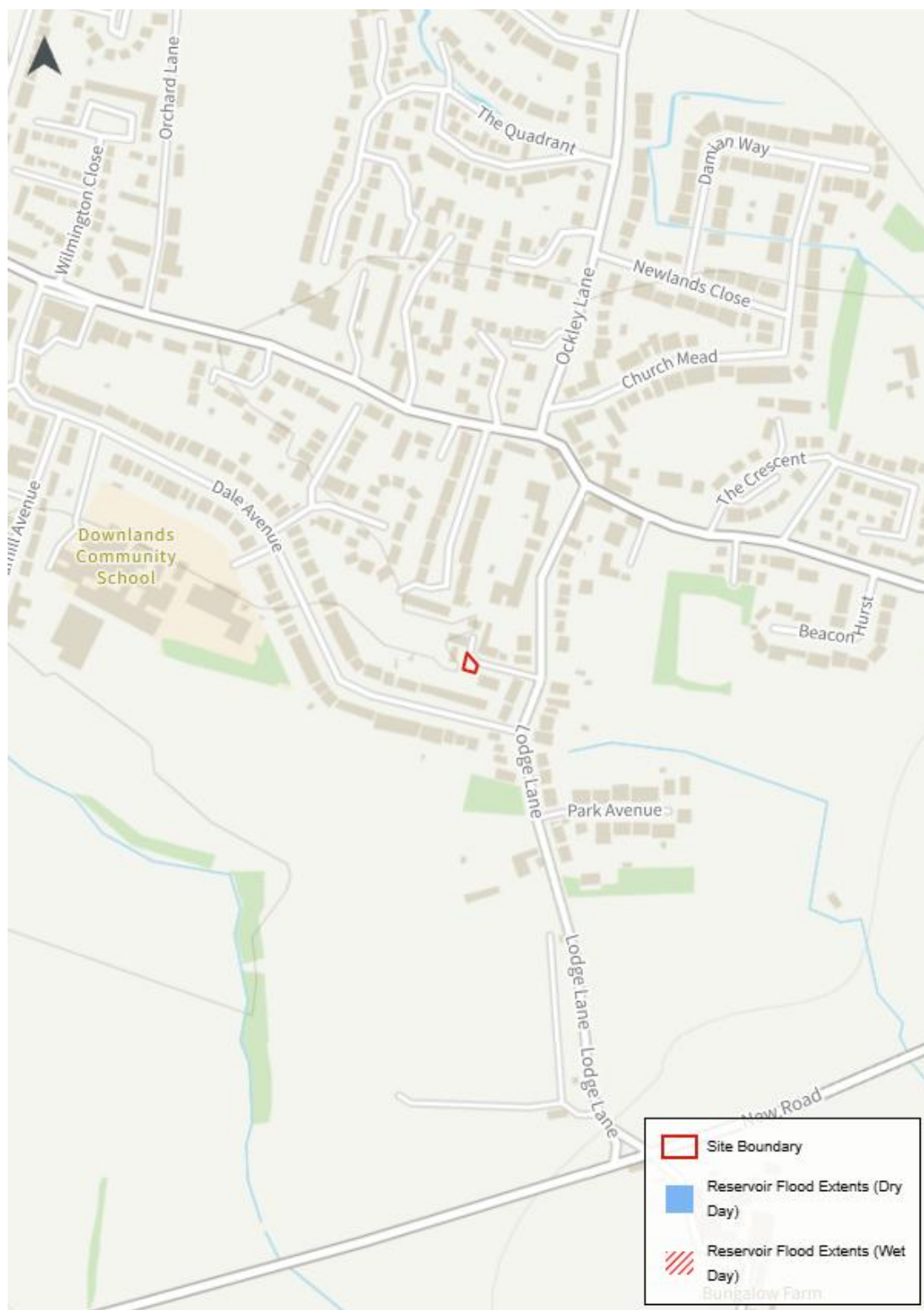
- [more information about getting a product 5, 6, 7 or 8](#)
- general help and advice about the site you're requesting data for



**EA Surface Water Flood Extents Map (Yearly Chance of Flooding)**

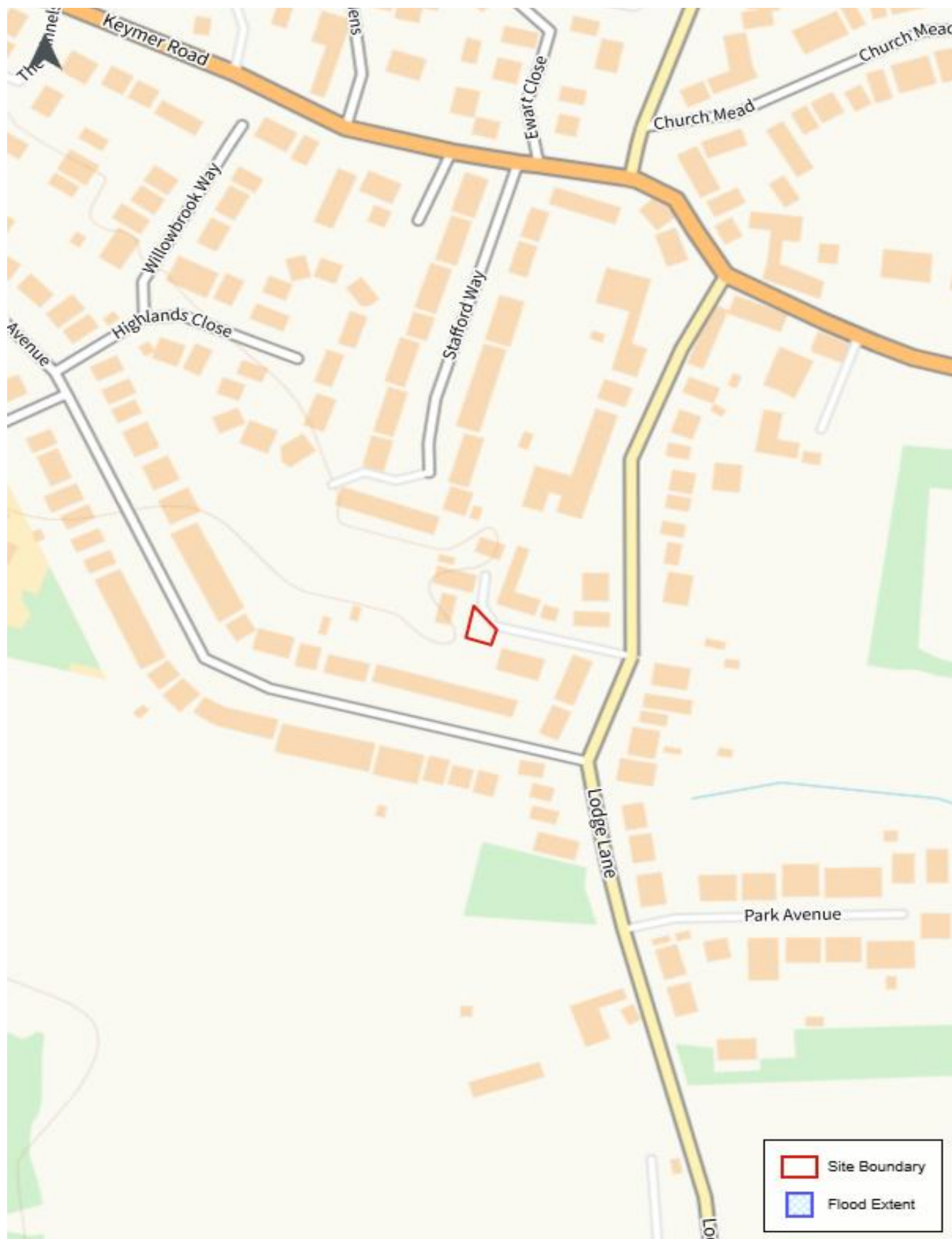


**EA Surface Water Flood Extents Map (Yearly Chance of Flooding Between 2040 and 2060)**



### **Environment Agency Flood Risk from Reservoirs**

The site is clear from the risk of flooding from this source



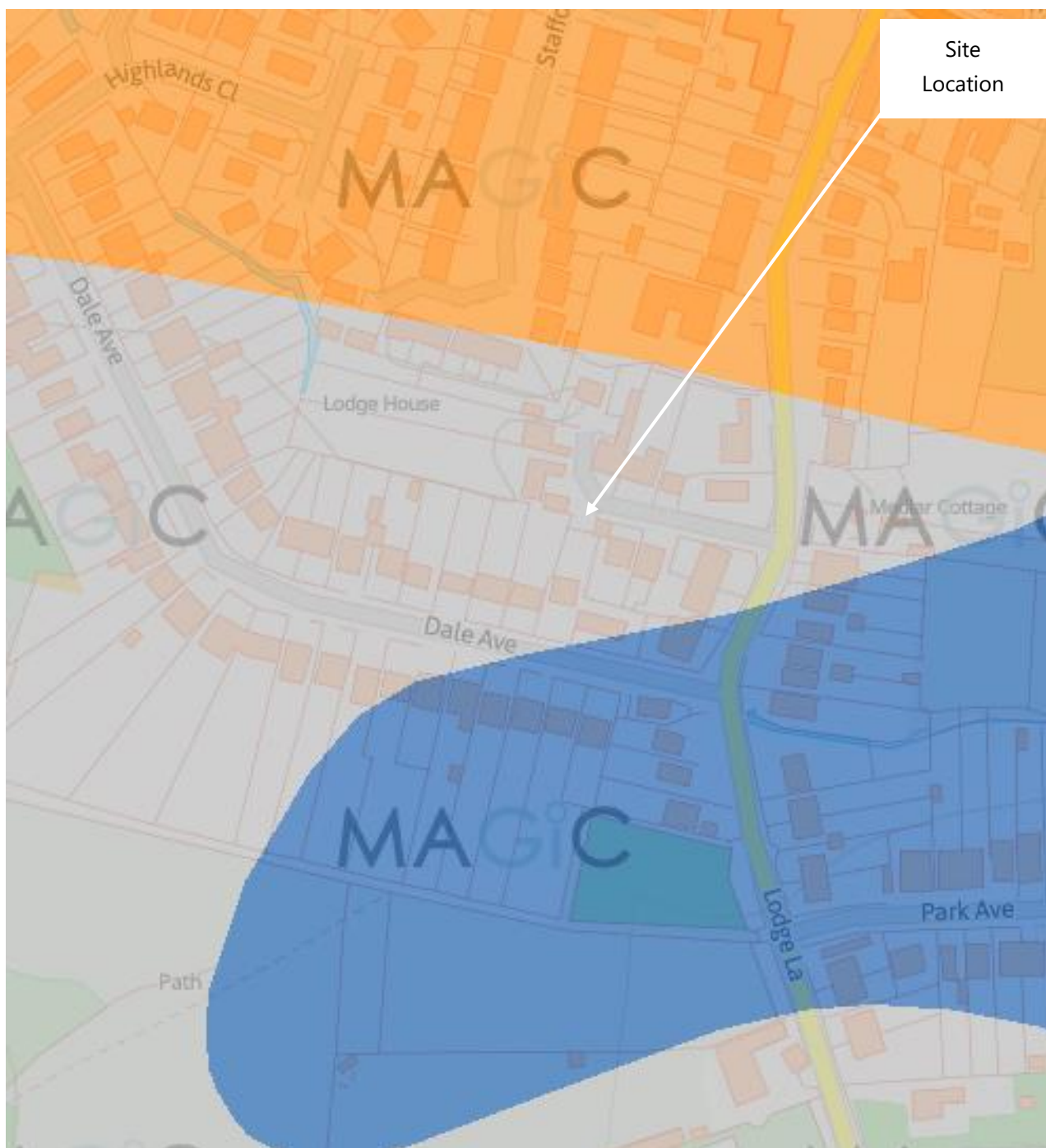
### **DEFRA Historical Flooding Map**

Neither this site nor anywhere in the vicinity has been affected by flooding in the past



**Environment Agency Groundwater Source Protection Zones Map**

The site is removed from the nearest such zone



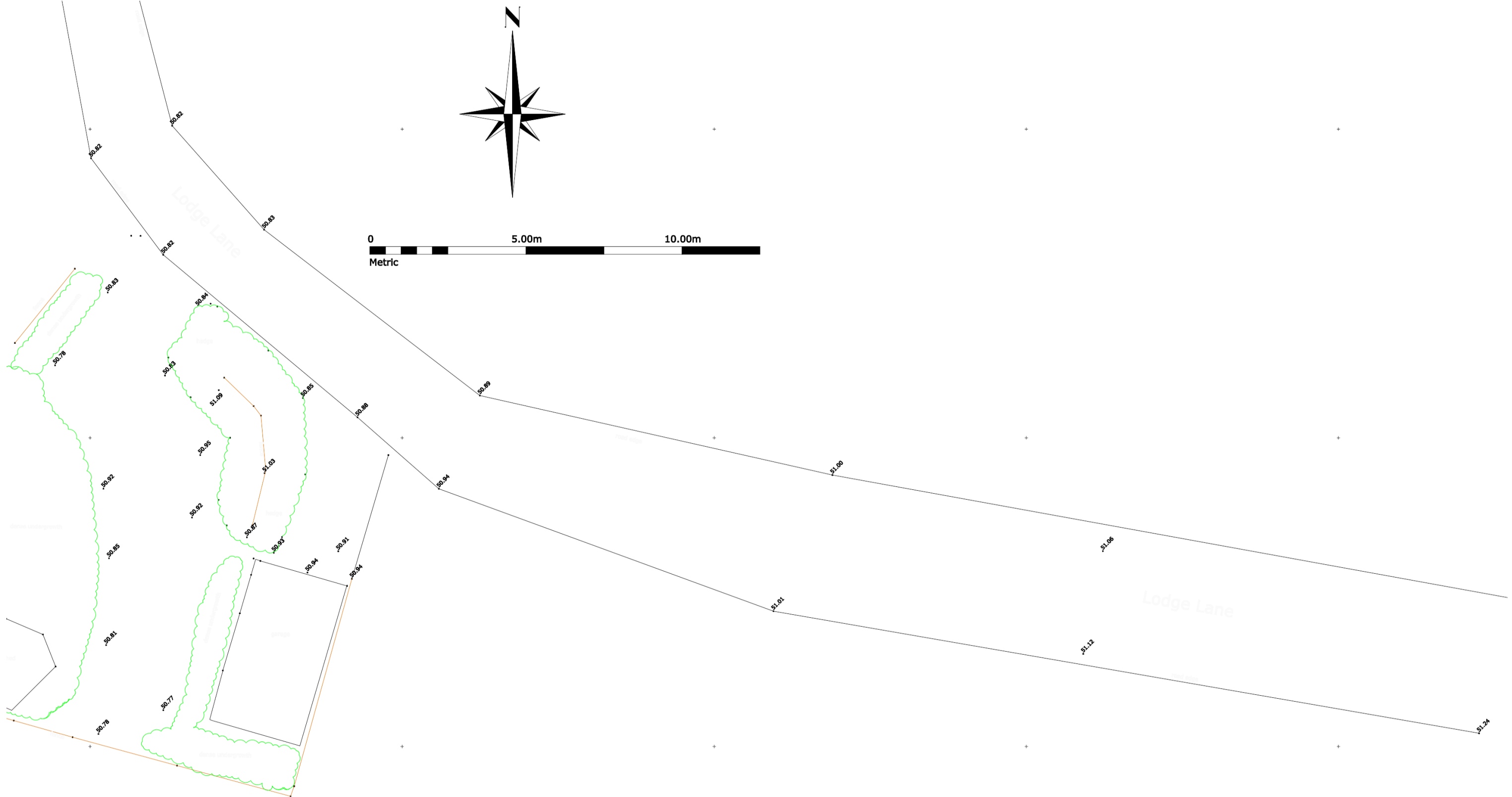
**Environment Agency Online Groundwater Vulnerability Zones Map**

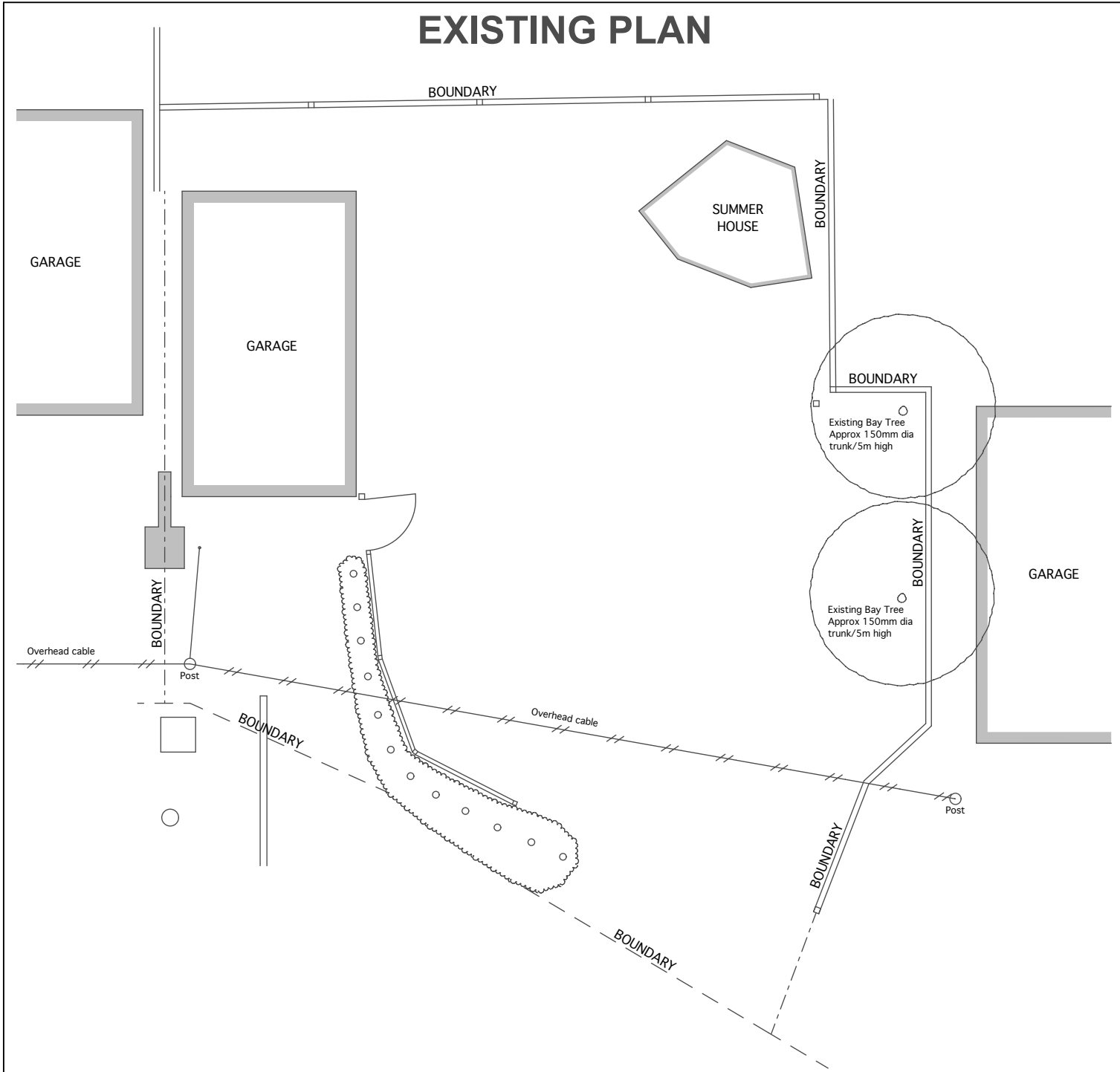
The application site overlies an 'Unproductive' Groundwater Vulnerability Zone

## Appendix C

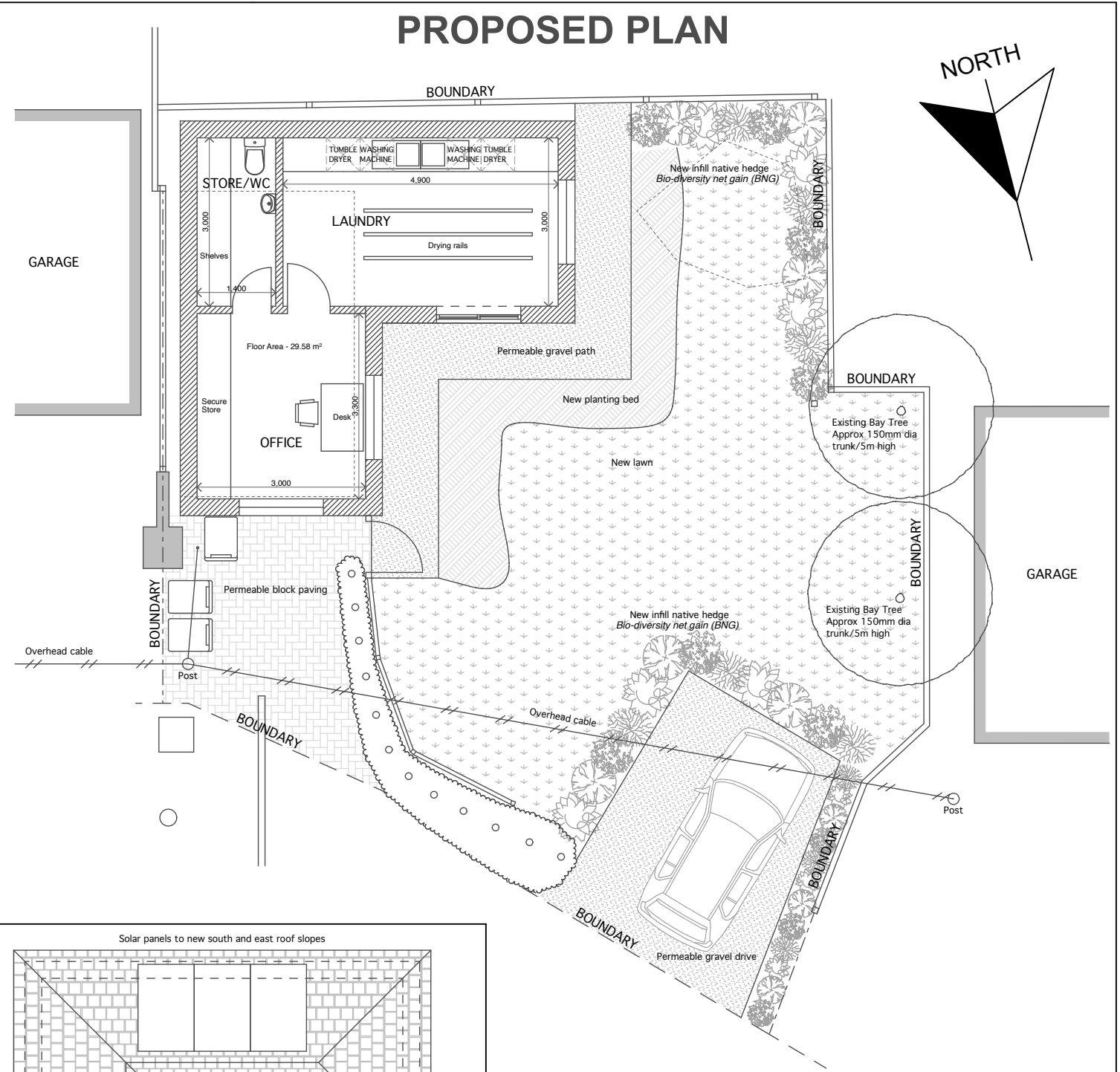
### Topographic Survey & Architect's Scheme Drawings

Hassocks , land opp 26 Lodge Lane.dwg

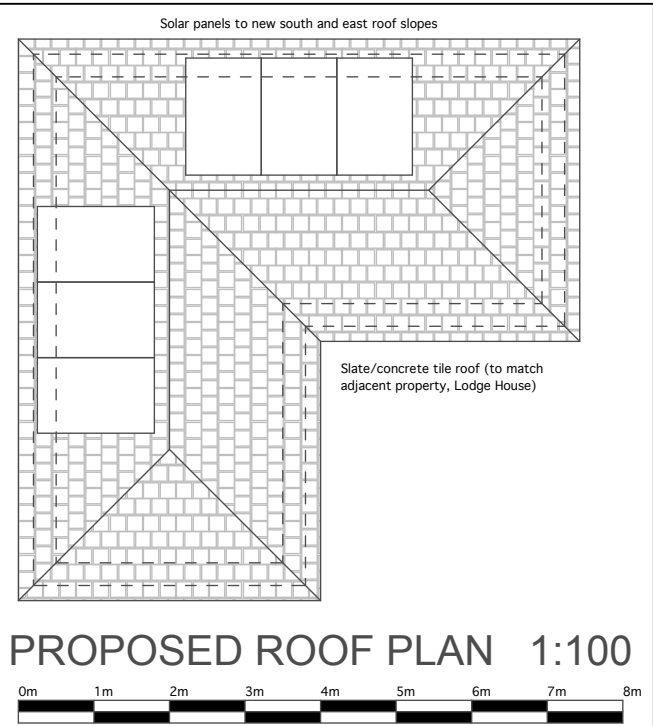




EXISTING GROUND FLOOR PLAN 1:100

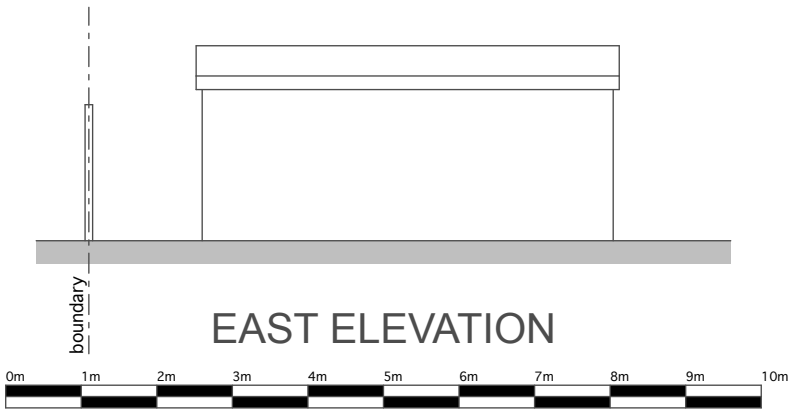
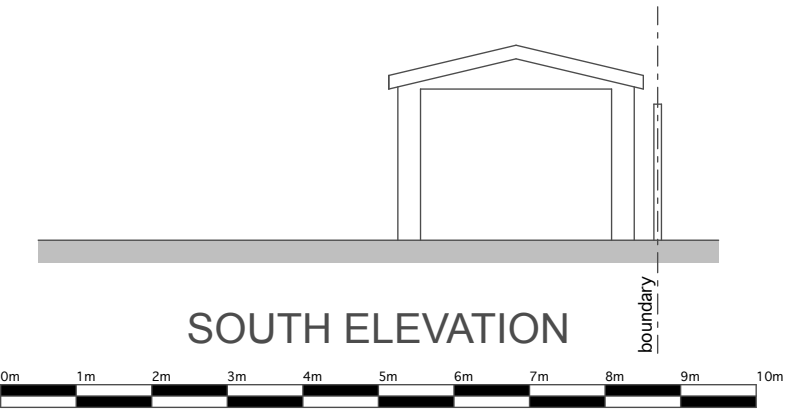
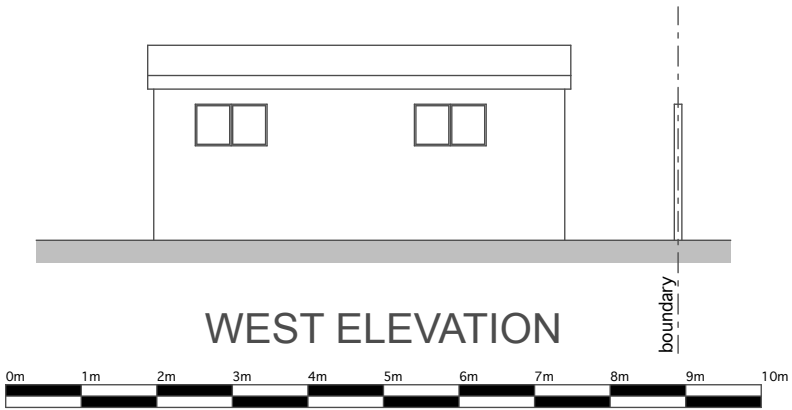
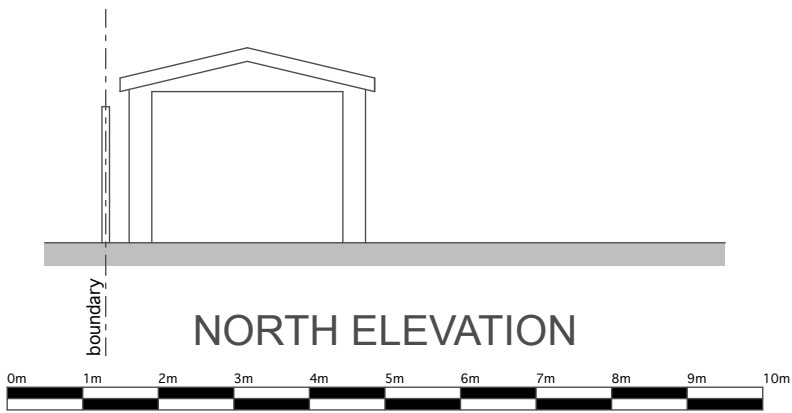


PROPOSED GROUND FLOOR PLAN 1:100

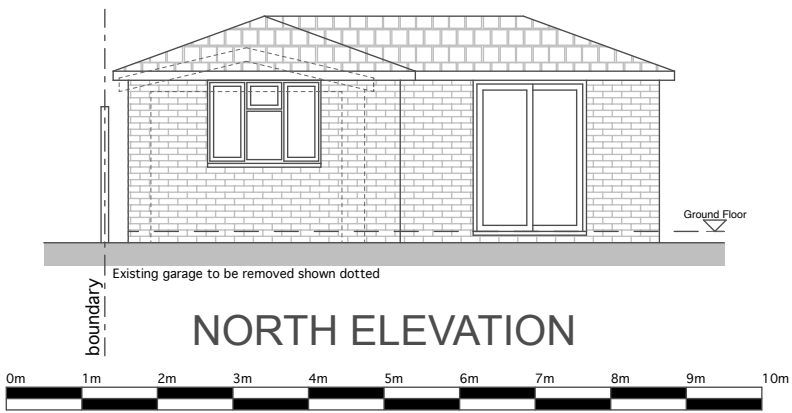


PROPOSED ROOF PLAN 1:100

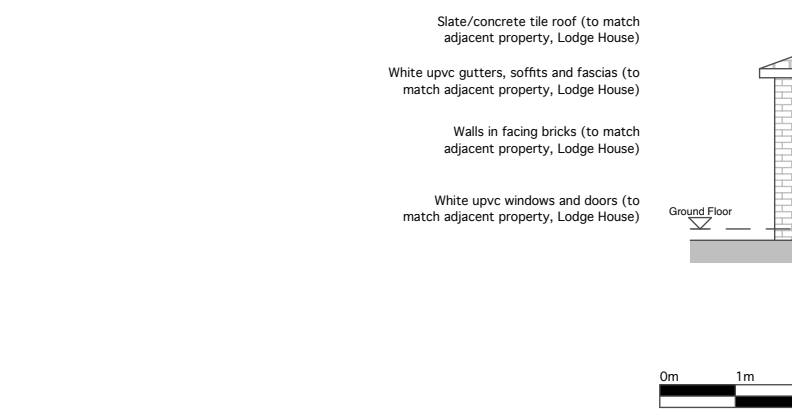
EXISTING ELEVATIONS



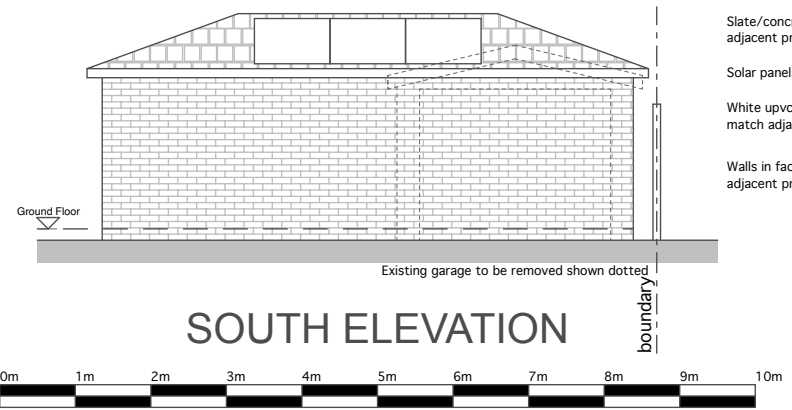
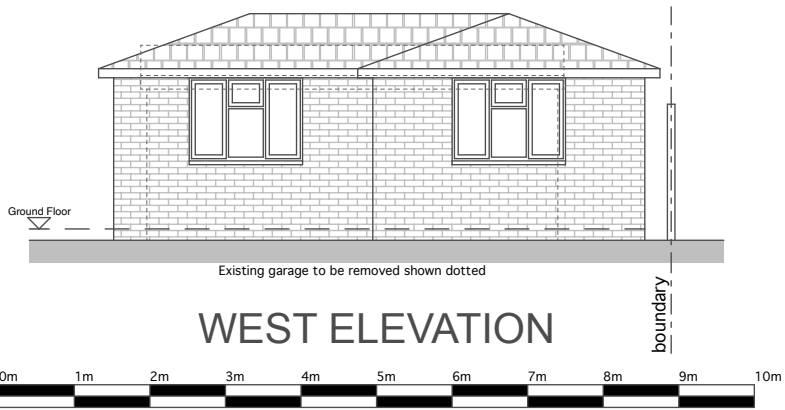
PROPOSED ELEVATIONS



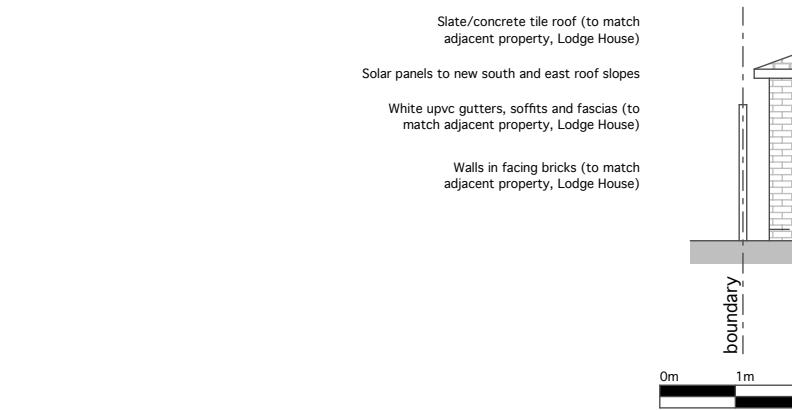
- Slate/concrete tile roof (to match adjacent property, Lodge House)
- White upvc gutters, soffits and fascias (to match adjacent property, Lodge House)
- Walls in facing bricks (to match adjacent property, Lodge House)
- White upvc windows and doors (to match adjacent property, Lodge House)



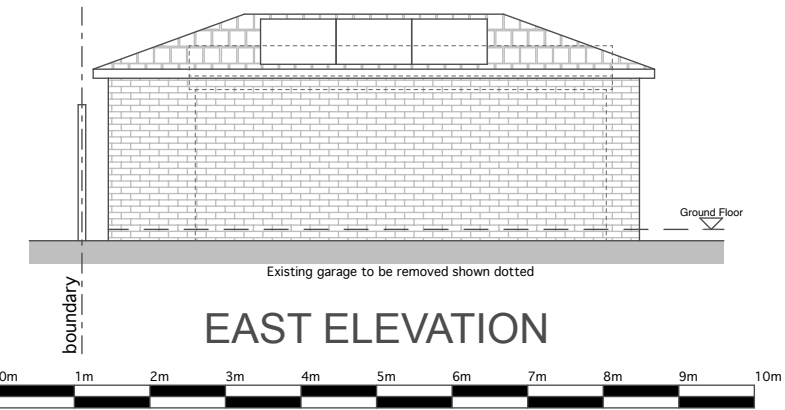
- Slate/concrete tile roof (to match adjacent property, Lodge House)
- White upvc gutters, soffits and fascias (to match adjacent property, Lodge House)
- Walls in facing bricks (to match adjacent property, Lodge House)
- White upvc windows and doors (to match adjacent property, Lodge House)



- Slate/concrete tile roof (to match adjacent property, Lodge House)
- Solar panels to new south and east roof slopes
- White upvc gutters, soffits and fascias (to match adjacent property, Lodge House)
- Walls in facing bricks (to match adjacent property, Lodge House)



- Slate/concrete tile roof (to match adjacent property, Lodge House)
- Solar panels to new south and east roof slopes
- White upvc gutters, soffits and fascias (to match adjacent property, Lodge House)
- Walls in facing bricks (to match adjacent property, Lodge House)



## Appendix D

### BRE 365 Soil Soakage Test Results & Graphs



Est. 1975

Mr & Mrs J & B Wakeham  
Swallow field House  
Keymer Road,  
Keymer Hassocks,  
Sussex  
BN6 8QU

Page 1 of 3

7 Nov 25

**Results of Infiltration Test at 26 Lodge Lane Keymer  
Carried out week Commencing 20 Oct 2025**

Dear Mr & Mrs Wakeham

20 10 25 Excavation of test hole 1550deep x 1500long x 600wide  
Last 18hrs of torrential rain with test hole exposed but no water in base the following morning.

**First Test 21 10 25 Started test with following results Start depth 1550mm**

| Time         | Elapsed Min | Water dip | Depth mm |
|--------------|-------------|-----------|----------|
| 10.42        | 0.0         |           | 1550     |
| 10.43        | 1.0         |           | 1540     |
| 10.44        | 2.0         |           | 1520     |
| 10.45        | 3.0         |           | 1510     |
| 10.46        | 4.0         |           | 1500     |
| 10.47        | 5.0         |           | 1485     |
| 10.49        | 7.0         |           | 1465     |
| 10.51        | 9.0         |           | 1445     |
| 10.54        | 12.0        |           | 1425     |
| 11.01        | 19.0        |           | 1400     |
| 11.20        | 38.0        |           | 1315     |
| 11.50        | 68.0        |           | 1250     |
| 12.20        | 98.0        |           | 1195     |
| 13.05        | 143.0       |           | 1140     |
| 13.35        | 173.0       |           | 1110     |
| 14.35        | 233.0       |           | 1070     |
| 16.00        | 318.0       |           | 1000     |
| Next Morning |             |           |          |
| 09.00        | 1338.0      |           | 342      |

**Second Test 22 10 2025**

| Time  | Elapsed Min | Water dip | Depth |
|-------|-------------|-----------|-------|
| 09.08 | 0.0         |           | 1550  |
| 09.10 | 2.0         |           | 1530  |
| 09.12 | 4.0         |           | 1515  |
| 09.14 | 6.0         |           | 1490  |
| 09.16 | 8.0         |           | 1475  |
| 09.20 | 12.0        |           | 1460  |

cont Page 2

**NEW BUILDINGS ALTERATIONS HOUSEHOLD EXTENSIONS**

Oak Cottage Spring Lane Clayton Hassocks Sussex BN6 9PN  
Mobile: 07860 556939 Email: eadebuilders@hotmail.com  
Proprietor: L.G. Eades VAT No. 1191 0597 56

cont Page 2

7 Nov 25

**Second Test 22. 10. 2025**

| Time  | Elapsed Min | Water dip | Depth mm |
|-------|-------------|-----------|----------|
| 09.25 | 17.0        |           | 1430     |
| 09.30 | 22.0        |           | 1405     |
| 09.35 | 27.0        |           | 1385     |
| 09.40 | 32.0        |           | 1370     |
| 09.50 | 42.0        |           | 1335     |
| 10.00 | 52.0        |           | 1300     |
| 10.10 | 62.0        |           | 1275     |
| 10.20 | 72.0        |           | 1255     |
| 10.30 | 82.0        |           | 1230     |
| 11.00 | 112.0       |           | 1180     |
| 11.15 | 127.0       |           | 1155     |
| 12.00 | 172.0       |           | 1085     |
| 12.45 | 217.0       |           | 1040     |
| 13.30 | 262.0       |           | 995      |

**Third Test 22 10 2025**

| Time  | Elapsed Min | Water dip | Depth mm |
|-------|-------------|-----------|----------|
| 13.35 | 0.0         |           | 1550     |
| 13.36 | 1.0         |           | 1540     |
| 13.37 | 2.0         |           | 1530     |
| 13.38 | 3.0         |           | 1520     |
| 13.40 | 5.0         |           | 1515     |
| 13.42 | 7.0         |           | 1510     |
| 13.44 | 9.0         |           | 1500     |
| 13.46 | 11.0        |           | 1495     |
| 13.48 | 13.0        |           | 1485     |
| 13.50 | 15.0        |           | 1480     |
| 13.55 | 20.0        |           | 1460     |
| 14.00 | 25.0        |           | 1440     |
| 14.05 | 30.0        |           | 1420     |
| 14.15 | 40.0        |           | 1390     |
| 14.25 | 50.0        |           | 1365     |
| 14.35 | 60.0        |           | 1280     |
| 15.15 | 100.0       |           | 1255     |
| 16.25 | 170.0       |           | 1135     |
| 17.43 | 248.0       |           | 1040     |

Heavy Rain over night on 23rd and pit in the morning at 08 55hrs water depth 460mm  
24<sup>th</sup> @ 10.30hrs pit dry after heavy overnight rain then back filled  
Assuring you of our best attention at all times.

Yours sincerely  
L G Eade



## Results of Infiltration Test at 26 Lodge Lane Keymer: 20/10/25 - 22/10/25

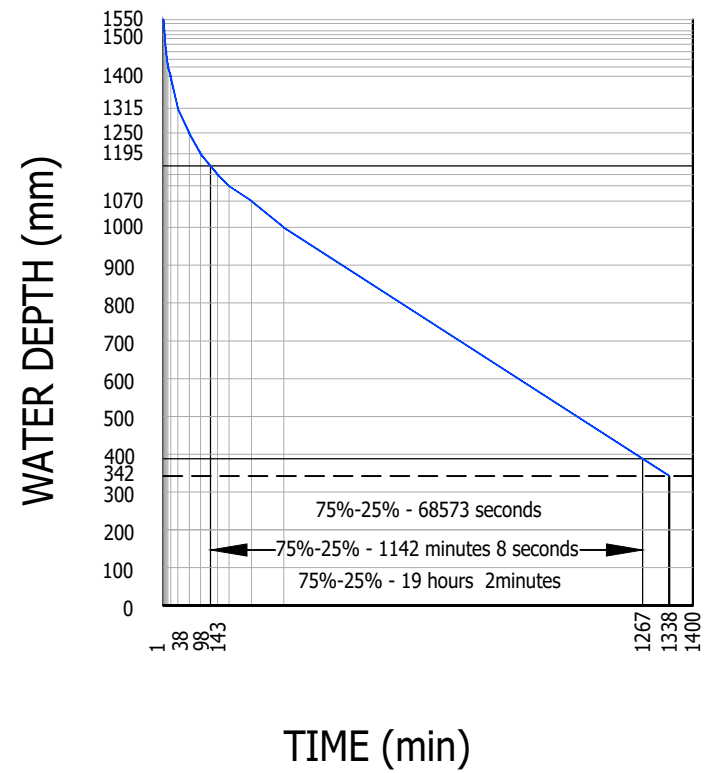
Test hole: 1550 x 1500 x 600; capacity 1600lts

Excavated material mix of topsoil, flint, sand, chalk and clay.

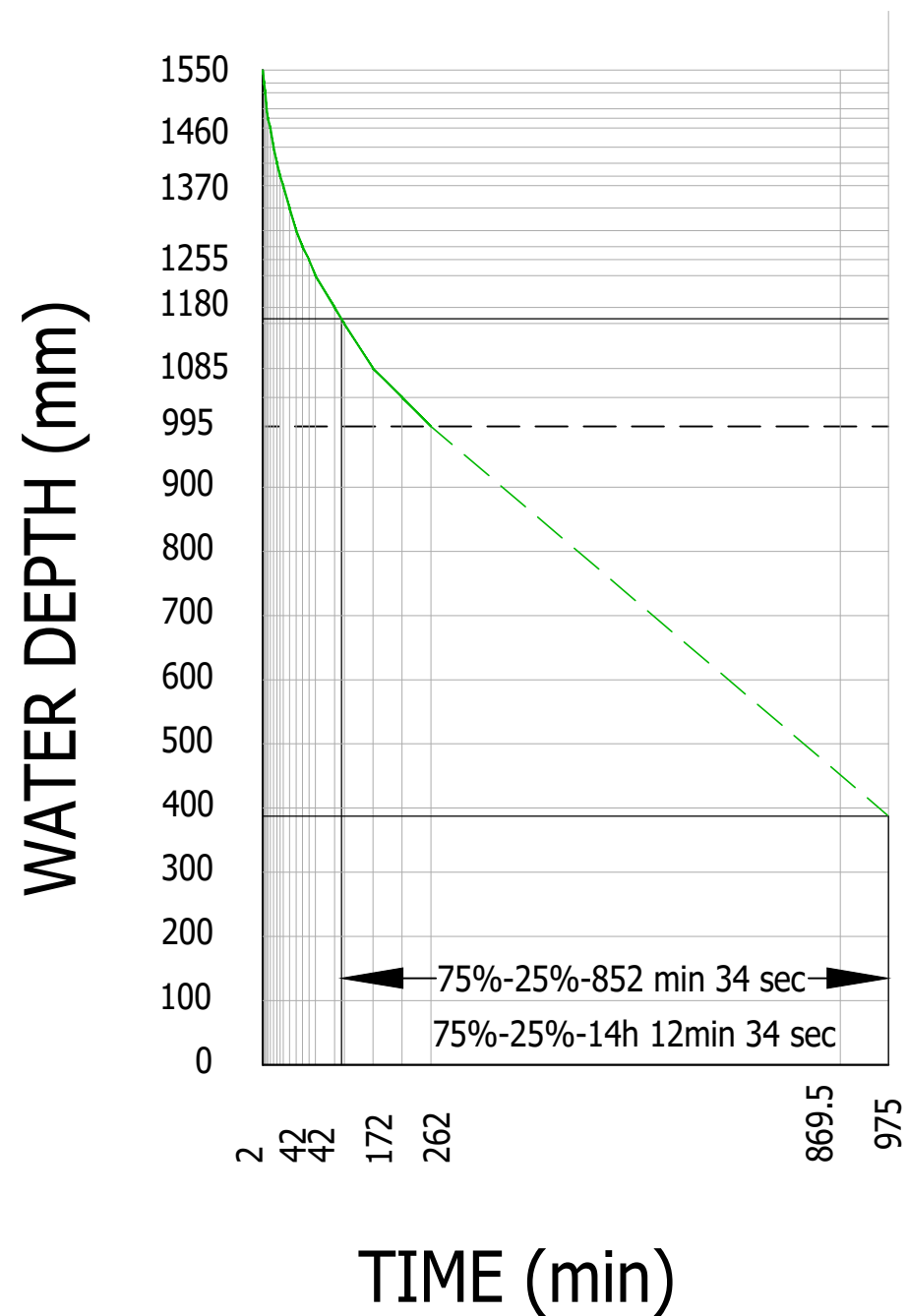
Test carried out during week of high rainfall.



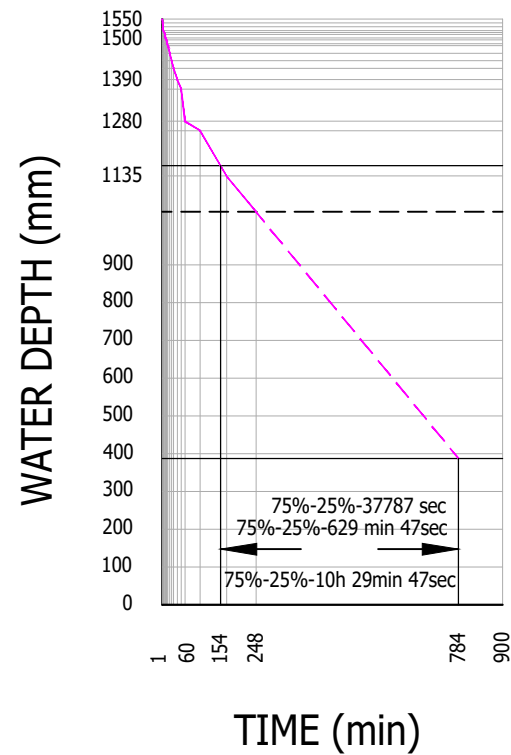




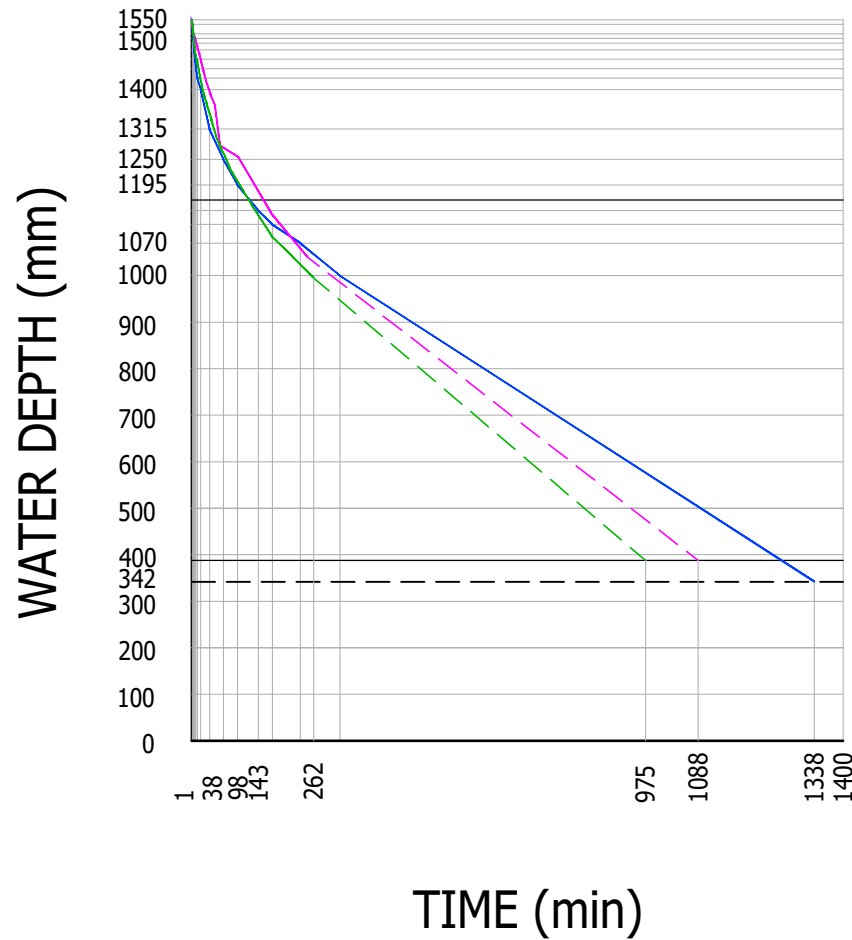
26 LODGE LANE, HASSOCKS - SOAKAWAY TEST 1 RESULTS GRAPH



26 LODGE LANE, HASSOCKS - SOAKAWAY TEST 2 RESULTS GRAPH



26 LODGE LANE, HASSOCKS - SOAKAWAY TEST 3 RESULTS GRAPH



- TEST 1 RESULTS GRAPH
- TEST 2 RESULTS GRAPH
- TEST 3 RESULTS GRAPH

26 LODGE LANE, HASSOCKS - SOAKAWAY TEST COMBINED RESULTS GRAPH



Job: 13895 - 26 Lodge Lane

## Infiltration Calculator

$$f = \frac{V_{p75-25}}{ap_{50} \times tp_{75-25}}$$

$V_{p75-25}$  = Effective storage volume between 75% and 25% effective depth

$ap_{50}$  = Internal surface area of the trial pit up to 50% effective depth and including the base area

$tp_{75-25}$  = The time for the water level to fall from 75% to 25% effective depth

$f$  = Infiltration rate

|                  |   |      |
|------------------|---|------|
| Trial pit width  | = | 0.6  |
| Trial pit depth  | = | 1.55 |
| Trial pit length | = | 1.5  |

$ap_{50}$  = 4.155 m/squared

$tp_{75-25}$  = 68528 seconds

$V_{p75-25}$  = 0.6975 m/cubed

**F** = 2.45E-06

## Appendix E

### Drainage Calculation Sheets

### Design Settings

|                                      |        |                                    |               |
|--------------------------------------|--------|------------------------------------|---------------|
| Rainfall Methodology                 | FEH-22 | Minimum Velocity (m/s)             | 1.00          |
| Return Period (years)                | 100    | Connection Type                    | Level Soffits |
| Additional Flow (%)                  | 45     | Minimum Backdrop Height (m)        | 0.200         |
| CV                                   | 1.000  | Preferred Cover Depth (m)          | 1.200         |
| Time of Entry (mins)                 | 5.00   | Include Intermediate Ground        | ✓             |
| Maximum Time of Concentration (mins) | 30.00  | Enforce best practice design rules | ✓             |
| Maximum Rainfall (mm/hr)             | 50.0   |                                    |               |

### Nodes

| Name    | Area<br>(ha) | T of E<br>(mins) | Cover<br>Level<br>(m) | Depth<br>(m) |
|---------|--------------|------------------|-----------------------|--------------|
| Storage | 0.009        | 5.00             | 51.000                | 1.300        |

### Links

| Name  | US<br>Node | DS<br>Node | Length<br>(m) | ks (mm) /<br>n | US IL<br>(m) | DS IL<br>(m) | Fall<br>(m) | Slope<br>(1:X) | Dia<br>(mm) | T of C<br>(mins) | Rain<br>(mm/hr) |
|-------|------------|------------|---------------|----------------|--------------|--------------|-------------|----------------|-------------|------------------|-----------------|
| 1.000 | Storage    | Outfall    | 1.200         | 0.600          | 51.000       | 50.800       | 0.200       | 6.0            | 100         | 5.55             | 50.0            |

| Name  | US<br>Depth<br>(m) |
|-------|--------------------|
| 1.000 | -0.100             |

### Simulation Settings

|                      |          |                            |        |                         |   |
|----------------------|----------|----------------------------|--------|-------------------------|---|
| Rainfall Methodology | FEH-22   | Analysis Speed             | Normal | Starting Level (m)      |   |
| Rainfall Events      | Singular | Skip Steady State          | x      | Check Discharge Rate(s) | x |
| Summer CV            | 1.000    | Drain Down Time (mins)     | 4320   | Check Discharge Volume  | x |
| Winter CV            | 1.000    | Additional Storage (m³/ha) | 20.0   |                         |   |

### Storm Durations

|    |     |     |     |     |      |      |      |
|----|-----|-----|-----|-----|------|------|------|
| 15 | 60  | 180 | 360 | 600 | 960  | 2160 | 4320 |
| 30 | 120 | 240 | 480 | 720 | 1440 | 2880 |      |

| Return Period<br>(years) | Climate Change<br>(CC %) | Additional Area<br>(A %) | Additional Flow<br>(Q %) |
|--------------------------|--------------------------|--------------------------|--------------------------|
| 100                      | 45                       | 0                        | 0                        |

### Node Storage Carpark Storage Structure

|                             |         |                           |        |               |        |
|-----------------------------|---------|---------------------------|--------|---------------|--------|
| Base Inf Coefficient (m/hr) | 0.00720 | Invert Level (m)          | 49.700 | Slope (1:X)   | 1000.0 |
| Side Inf Coefficient (m/hr) | 0.00720 | Time to half empty (mins) | 1820   | Depth (m)     |        |
| Safety Factor               | 2.0     | Width (m)                 | 3.600  | Inf Depth (m) |        |
| Porosity                    | 0.30    | Length (m)                | 10.000 |               |        |

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

| Node Event         | US<br>Node | Peak<br>(mins) | Level<br>(m) | Depth<br>(m) | Inflow<br>(l/s) | Node<br>Vol (m³) | Flood<br>(m³) | Status |
|--------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|--------|
| 1440 minute summer | Storage    | 1410           | 50.683       | 0.983        | 0.6             | 10.6939          | 0.0000        | OK     |

| Link Event<br>(Upstream Depth) | US<br>Node | Link         | Outflow<br>(l/s) |
|--------------------------------|------------|--------------|------------------|
| 1440 minute summer             | Storage    | Infiltration | 0.1              |



## Civil Engineering - Transport Planning - Flood Risk

GTA Civils & Transport, Maple House, 192-198 London Road, Burgess Hill, West Sussex, RH15 9RD

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