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Engineering Consultants

SITE SPECIFIC FLOOD RISK ASSESSMENT

LAND AT HORN BROOK FARM, HORSHAM

Jaynic Properties Ltd and Hornbrook Developments LLP

March 2026

Project no: 62726

Document Review Sheet: -

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Date: - 05 / 03 / 2026

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Date: - 05 / 03 / 2026

Document Status

DRAFT

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FINAL

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Revision Status

Issue	Date	Description	Prepared	Checked	Approved
-	05/03/26	Pre-application submission	SJA	MJG	MJG
	09/03/26	Planning Application	MJG	SJA	MJG

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Title: SITE SPECIFIC FLOOD RISK ASSESSMENT
 Project: LAND AT HORN BROOK FARM, HORSHAM
 Client: Jaynic Properties Ltd and Hornbrook Developments LLP
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1. Introduction

- 1.1. Richard Jackson Ltd has been appointed by Jaynic Properties Ltd to produce a Flood Risk Assessment to support an outline planning application for up to 180 dwellings, open space and associated works and infrastructure ancillary works and the detailed means of access with all other matters reserved.
- 1.2. This FRA has been prepared in accordance with the National Planning Policy Framework (NPPF), the National Planning Practice Guidance (NPPG), the National Standards for Sustainable Drainage Systems (NSSD), West Sussex strategic flood risk assessment (SFRA), and Local flood risk management strategy (LFRMS) guide and CIRIA C753 SuDS Manual.
- 1.3. A pre-application response was received from the West Sussex County Council LLFA (Ref: LFA/PLAN/PREAPP/25/006) dated 21st November 2025 and is presented at **Appendix K**. This FRA will respond to the points outlined in the letter cited above throughout the text.

2. Development Site and Location

- 2.1. The proposed development site is to be built on 9.23ha of greenfield land with a net developable area of 4.83ha (52.3%). The site is bounded by the A281 Brighton Road to the south, Doomsday Lane to the east, and housing developments to the north and west buffered by woodland along the Horn Brook watercourse which runs in a westerly and southerly direction.
- 2.2. The site is known as Land at Hornbrook Farm, Brighton Road, Horsham ("the site"). The nearest postcode is RH13 6QA at the Hornbrook Farm with a National Grid reference of TQ 18895 29776 at the approximate centre of the site. A site location plan is presented at the. **Appendix A**.
- 2.3. The site red line boundary is set back from Horn Brook watercourse; however, a small portion of the western boundary is shown to be in the Flood Zone 3 extent as shown on the EA flood map for planning at **Appendix B**. It is prudent to note that all the development parcels are located outside the fluvial flood zone, wholly in Flood Zone 1, such that the dwellings are in a low risk area in flood risk terms.
- 2.4. A topographical survey produced by Survey Solutions (Ref: 69948BWLS-00) dated 10/10/24 show the predominant fall of the site to be from southeast to southwest with a high point elevation of 65.92 mAOD to a low point elevation 48.61 mAOD.
- 2.5. The survey shows a short length of ditch / swale, approximately 45m long on the eastern boundary of the site, parallel with Doomsday Lane. A headwall is observed at the southern end of this ditch/swale indicating an outfall to the south, yet unknown. The existing ditch/swale is approximately 0.3m to 0.65m deep from the bank levels.

2.6. There is also evidence of a possible highway ditch along the southern boundary edge parallel to Brighton Road.

2.7. The topographical survey is presented at **Appendix C**.

3. Development Proposals

3.1. The proposed development will comprise of residential dwellings with a simple network of estate roads to provide access to plots. The external works will comprise hard and soft landscaping to support sustainable features compliant with the NPPF and National SuDS Standards.

3.2. The site parameter plan is presented at **Appendix D**.

4. Sequential Test

4.1. The northern and western boundaries of the site are in flood zone 3, however, all buildings will be sited outside the flood zone, such that they are wholly in Flood Zone 1. The site is therefore located within Flood Zone 1 and therefore sequential test is not required.

4.2. Except for a small, isolated pond of water observed at the central western boundary near the watercourse bank and low point of the site, which could be attributed to topographical anomalies within the watercourse extents, the site is not subject to any significant risk of surface water flooding.

4.3. Within the context of paragraph 175 of the NPPF, the aim of the sequential test is to steer new development to areas with the lowest risk of flooding from any source unless other sites are reasonably available appropriate for the proposed development in areas with a lower flood risk of flooding now and in the future.

4.4. Paragraph 027 of the NPPG (revised 17/09/25) states, in reference to paragraph 175 of the NPPF that: "Where a site-specific flood risk assessment demonstrates clearly that the proposed layout, design, and mitigation measures would ensure that occupiers and users would remain safe from current and future surface water flood risk for the lifetime of the development (therefore addressing the risks identified e.g. by Environment Agency flood risk mapping), without increasing flood risk elsewhere, then the sequential test need not be applied."

4.5. The proposed development is for residential use, defined as "More Vulnerable" in accordance with Annex 3 of the NPPF and has been spatially planned such that the risk of flooding is minimised.

4.6. Based on the above, it is considered that, in accordance with the NPPF and NPPG the sequential test is not required for this site.

5. Climate Change

5.1. The NPPF defines climate change allowances that should be considered for various development proposals across the nation. The proposals fall into the "More Vulnerable" use and is located in the Arun and Western Streams Management Catchment providing the following peak rainfall uplift for the 1% AEP central allowance shown in Figure 1.

- Peak rainfall uplift: 45%
- Watercourse uplift: 27%

5.2. The peak rainfall uplift is based on a design life of 100 years for residential use.



Fig 1: Peak rainfall climate change allowance

6. Site Specific Flood Risk

Groundwater Flood Risk

6.1. The 1:50,000 British Geological Survey (BGS) map shown in Figure 2, indicates that the site is completely underlain by the Upper Tunbridge Wells Sand (interbedded Sandstone and Siltstone).

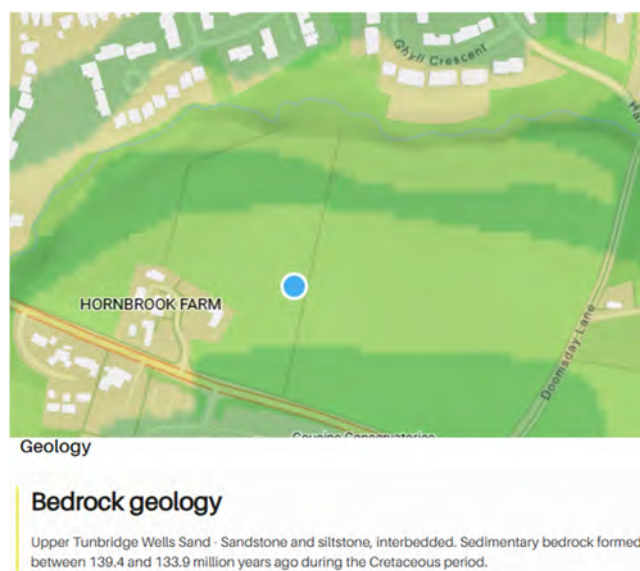


Fig 2: BGS map extract

6.2. A geotechnical report undertaken by Obsidian Geo-Consulting Ltd dated December 2024 (Ref: 24-1979-P-R2) "the Obsidian Report" confirms the

geology to comprise a complex succession of interbedded deposits with both upward-fining and upward-coarsening cycles, thinly bedded silty mudstones, siltstones, silty sandstones and fine-grained sandstones.

- 6.3. The characteristics of this type of geology lends itself to groundwater emergence due to the high but variable permeability. Groundwater emergence is not uniform across this geological area and may be more localised in some geological features due to the open joints.
- 6.4. The DeFRA Magic Map (see Figure 3 below) indicates a banding across the site comprising of high groundwater vulnerability and unproductive strata across the site supporting the statement in the paragraph above. This type of hydrogeology is further described in paragraph 3.2.2 of the Obsidian Report as *"unproductive strata in the south-east and in a band that runs from the south-west to the north-east, however a significant proportion of the central and northern areas of the site designated as high vulnerability secondary 'A' aquifers"*

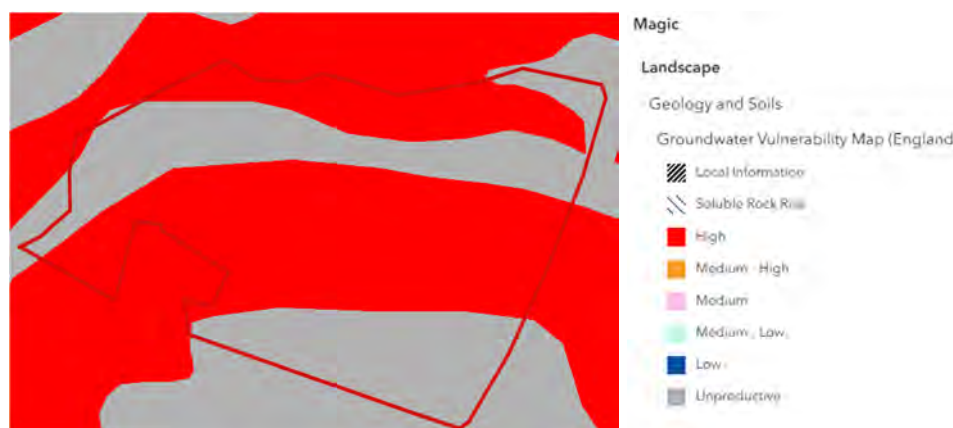


Fig. 3: DeFRA Magic Map extract

- 6.5. Table 5.2 of the Obsidian Report indicates that groundwater was encountered between 0.53 mbgl and 2.99 mbgl in some trial holes, likely to be perched water over the impermeable sandstone bedrock. A review of the Environment Agency's data indicates, however, that the potential for groundwater emergence at this site is unlikely.
- 6.6. The Obsidian Report is appended to the planning application under separate cover.

Surface Water Flood Risk

- 6.7. The EA surface water mapping presented at **Appendix E** shows a small area of ponding to the west near the watercourse, possibly due to topographical low point in this area (not surveyed due to growth). Outside of this ponding, the site is not at risk of surface water in any event.
- 6.8. This site is therefore at a low risk of surface water flooding and is considered to have little influence or impact on development proposals.

- 6.9. The EA data for historic flooding presented at **Appendix F** shows some anecdotal evidence of historical flooding outside the red line boundary in Hammerpond Road to the northeast, however, the site has not been subjected to any historical flooding.

Fluvial Flood Risk

- 6.10. The EA fluvial flood risk mapping presented at **Appendix G** shows the western and northern boundary inside Flood Zone 3 due to the Horn Brook Watercourse – an ordinary watercourse (OWC).
- 6.11. All development will be located completely in Flood Zone 1, thus removing the risk of fluvial flooding risk to the properties. It is therefore concluded that the risk of fluvial flooding to the proposed development is low.

Reservoir and Artificial Flooding

- 6.12. The EA flood mapping shows that flooding from a reservoir failure is unlikely in this area.
- 6.13. Given the previous land use, it is possible that land drains may exist within the site which may be a further source of flooding, however, as part of the site strip, these, where encountered will be removed, thereby reducing the risk.

7. Surface Water Management

- 7.1. The strategy to manage surface water flows will be in accordance with the National Standards for Sustainable Drainage Systems (SuDS) hierarchy which recently replaced the LASOO Non-Technical Standards for Sustainable Drainage. The new SuDS guidance dictates that capturing surface water at source is the foremost option to manage surface water runoff from developments, where rainwater harvesting is at the apex of the hierarchy
- 7.2. The drainage disposal hierarchy based on the new SuDS standards follows:
- Priority 1: collected for non-potable use
 - Priority 2: infiltrated to ground
 - Priority 3: discharged to an above ground surface water body
 - Priority 4: discharged to a surface water sewer, or another piped surface water drainage system
 - Priority 5: discharged to a combined sewer
- 7.3. As the scheme is for residential dwellings opportunity for Priority 1 should consider rainwater reuse on site on a plot-by-plot basis, adopting such methods as water butts to collect and reuse rainwater for the plots.

- 7.4. The site geology indicates, subject to a geotechnical report and infiltration testing that there may be the potential to adopt Priority 2 in part. Priority 3 is the mostly likely outcome for this site where runoff will be discharged in the Horn Brook. The LLFA's pre-application response concurs that due to the site geology that low infiltration rates would be expected, except around Parcel 5 where infiltration may be a viable option and will require infiltration testing to demonstrate otherwise.
- 7.5. Priority 4 may be utilised where Priority 3 is not viable, subject to surface water drainage being in /around the site vicinity and capacity check.
- 7.6. Priority 5 has been discounted based on the available options to discharge surface water. Table 1 below considers the options for surface water re-use and disposal.

Table 1: SuDS Hierarchy		
Discharge	4 Pillars of SuDS	Comment
Rainwater re-use	Water quantity	Yes. E.g. rainwater butts
Green/Blue roofs	Quantity / Amenity / biodiversity	No. Traditional gable/hip roofs. Not practical for these roof types.
Rain gardens	Amenity / biodiversity	Yes
Soakaway	Water quality/quantity	Infiltration possible on Parcel 5 (TP25). Refer to para 7.10
Permeable paving	Water quality/quantity	Yes. Parking bays
Swales	Amenity / biodiversity / quality / quantity	Yes. See layout at appendix H. Easements may be required for maintenance.
To watercourses	Quantity	Yes. Horn Brook
Detention / Retention basins	Water quantity / biodiversity / Amenity	Yes. Subject to levelling
Surface water sewer	Water quantity	Possible. Details TBC
Combined sewer	Water quantity	No. Top level hierarchical options available.

- 7.7. The proposed development will manage surface water run-off attenuation and conveyance using a combination of the features listed in Table 1 where appropriate within the green corridors prior to being discharged to the watercourse.

- 7.8. An outline drainage strategy and supporting calculations based on the parameter plan are provided within **Appendix H**. The drainage strategy illustrates how each parcel is likely to be discharged via a swale with a final outfall into Horn Brook watercourse at the western site boundary. Each parcel will be responsible for providing surface water attenuation to enable a reduction in offsite discharge to the 1 year (100% AEP) greenfield runoff rate equivalent to their impermeable areas.
- 7.9. Calculation have been simulated based on the WSCC guideline using the following parameters:
- Rainfall: FEH22
 - Cv value: 1
 - Urban Creep: 10%
 - MADD Factor: 0
- 7.10. A connection serving the main spine road will be provided into the overall site-wide drainage network.
- 7.11. In accordance with the LLFA's Pre-application response, the greenfield runoff rates have been calculated for the whole site using the HR Wallingford SuDS tool, using the FEH methodology for the whole site, presented at **Appendix I**. The site will be discharged at the maximum 100% AEP greenfield runoff rate of 27.5l/s
- 7.12. The Horsham District Council (HDC) SuDS Proforma has been completed at **Appendix J**.
- 7.13. Table 2 below provides a summary of the runoff rates for the parcel of land assuming a developable area of 65%. The green corridors surrounding these areas will continue to drain as per the current situation and therefore will not contribute to the development runoff.

Table 2: Proposed developable area greenfield runoff rates			
Parcel	Area (ha)	Impermeable Area (ha)	Runoff (l/s)
1	1.356	0.881	7.1
2	0.884	0.575	5.0
3	0.552	0.359	3.2
4	1.480	0.962	8.6
5	0.563	0.366	3.6

- 7.14. Table 7.1 of the Obsidian Report signposted in paragraph 6.6 provides a summary of the soakaway test results undertaken across the site. The data summarized that, except for the test within TP25 located in the west (Parcel 5) of the site, that the soakaways in the central and eastern areas of the site are "...unlikely to provide infiltration at the adequate rate and may therefore be unsuitable."

- 7.15. It is worth noting that TP25 is localized, and further testing may be required at detailed designed stage to confirm soakaways are feasible across this parcel. Where further tests confirm this, shallow infiltration techniques above the sandstone bedrock may be adopted.
- 7.16. The proposed development will manage surface water run-off attenuation and conveyance using a combination of attenuation structures, piped networks and SuDS features including, rain gardens, rainwater harvesting, swales, detention basin(s), permeable paving, and other SuDS features. Each parcel will be responsible for providing surface water attenuation on-parcel, with a connection to the overall site-wide drainage network serving the main spine road for each catchment area.
- 7.17. Attenuation for each parcel of land is sized to provide surface water attenuation features for all events up to and including the 1 in 100 event plus 45% climate change.
- 7.18. The proposal of open SuDS features will be determined following confirmation of overall site plan layout and on-parcel layouts, as well as surface water run-off collection methods.
- 7.19. Given the likely size of the units, it may be necessary to plateau the site to provide level platforms, and this will be done in conjunction with the requirements to provide gravity drainage connections to the water courses.
- 7.20. The LLFA have clarified that WSCC is not the riparian owner of the Horn Brook watercourse, and it is therefore assumed that the Hornbrook watercourse adjacent to the land is managed by the landowner as a riparian owner. Headwalls at outfall locations will need to be set back from the watercourse (flush with the bank) such that it does not impede the natural flow of the watercourse. If this is not possible, the works will require consent from the Environment Agency.
- 7.21. Measures to accommodate overland flows from the site will need to be considered as part of the development process at the detailed design stage to manage exceedance.

Surface Water Quality

- 7.22. The surface water drainage systems should provide a sufficient level of water quality treatment to prevent pollution of receiving waterbodies. Table 4.3 of the SuDS Manual advocates the use of the 'simple index approach' to determine an appropriate level of pollution mitigation for development sites.
- 7.23. The proposed development has a combination of different land uses, and the pollution hazard level for each land use is defined in Table 3, in accordance with Table 26.2 of the SuDS manual.

Table 3: Pollution Hazard Indices (SuDS Manual, table 26.2)				
Land use	Hazard Level	TSS	Metals	Hydrocarbons

Residential roof	Very low	0.2	0.2	0.05
Resi-car parking	Low	0.5	0.4	0.4
Spine road / Estate Road	Medium	0.7	0.6	0.7

- 7.24. Table 4 provides the mitigation indices for discharge to surface waters in accordance with the SuDS Manual, Table 26.3

Table 4: SuDS Mitigation Indices (SuDS Manual, table 26.2)			
SuDS Component	TSS	Metals	Hydrocarbons
Permeable paving	0.4	0.4	0.5
Swales	0.5	0.6	0.6

- 7.25. The mitigation indices shown in Table 2 is insufficient in isolation to provide satisfactory treatment for surface water runoff, however in series as demonstrated below, satisfactory treatment has been achieved in accordance with the CIRIA SuDS Manual.

Total mitigation index:

- TSS $0.4 + (0.5 \times 0.5) = 0.65$
- Metals $0.4 + (0.5 \times 0.6) = 0.70$
- Hydrocarbons $0.5 + (0.5 \times 0.6) = 0.80$

- 7.26. A mixture of SuDS techniques such as permeable paving, swales and basins may be constructed for the car parking areas and proprietary treatment systems installed to provide sufficient mitigation indices for all other categories of land use, prior to entering the site-wide drainage system. Additionally, if infiltration is not suitable to provide sufficient mitigation indices to address runoff from the spine and estate road network, it is proposed that SuDS components in combination with a proprietary treatment system is placed within the client's boundary upstream of the surface water outfall to the watercourse.

8. Foul Water Drainage

- 8.1. It is the intention that the development will connect to the public foul sewerage network, which complies with the foul drainage hierarchy that prioritises connection to the public sewer system.
- 8.2. The preferred point of connection is to MH 3803, located at the junction of Kerves Lane/Brighton Road to the west of the application site (refer to the Southern Water plan at **Appendix L**).

9. Management and Maintenance Plan

- 9.1. The maintenance regime will be such that the work to maintain the attenuation features and drainage system, regular checks and maintenance will be undertaken in accordance with a maintenance schedule to be produced, with further details of maintenance contained within the SuDS Manual (2015). The maintenance of the drainage and Suds train within each parcel will be the responsibility of the ownership of

each parcel, and the network of access roads will be the responsibility of the management team for the site.

- 9.2. A preliminary maintenance and management plan is provided at **Appendix M**. The plan assumes the drainage components that may be installed within the development and should be tailored to suit as the scheme develops.

10. Users of the Development

The proposed development will be built in Flood Zone 1 and is unlikely to experience fluvial or tidal flooding, therefore the users will remain safe throughout the lifetime of the development.

11. Exception Test

- 11.1. The exception test is not relevant to these proposals for "More vulnerable" development built out in Flood Zone 1.

12. Residual Risks

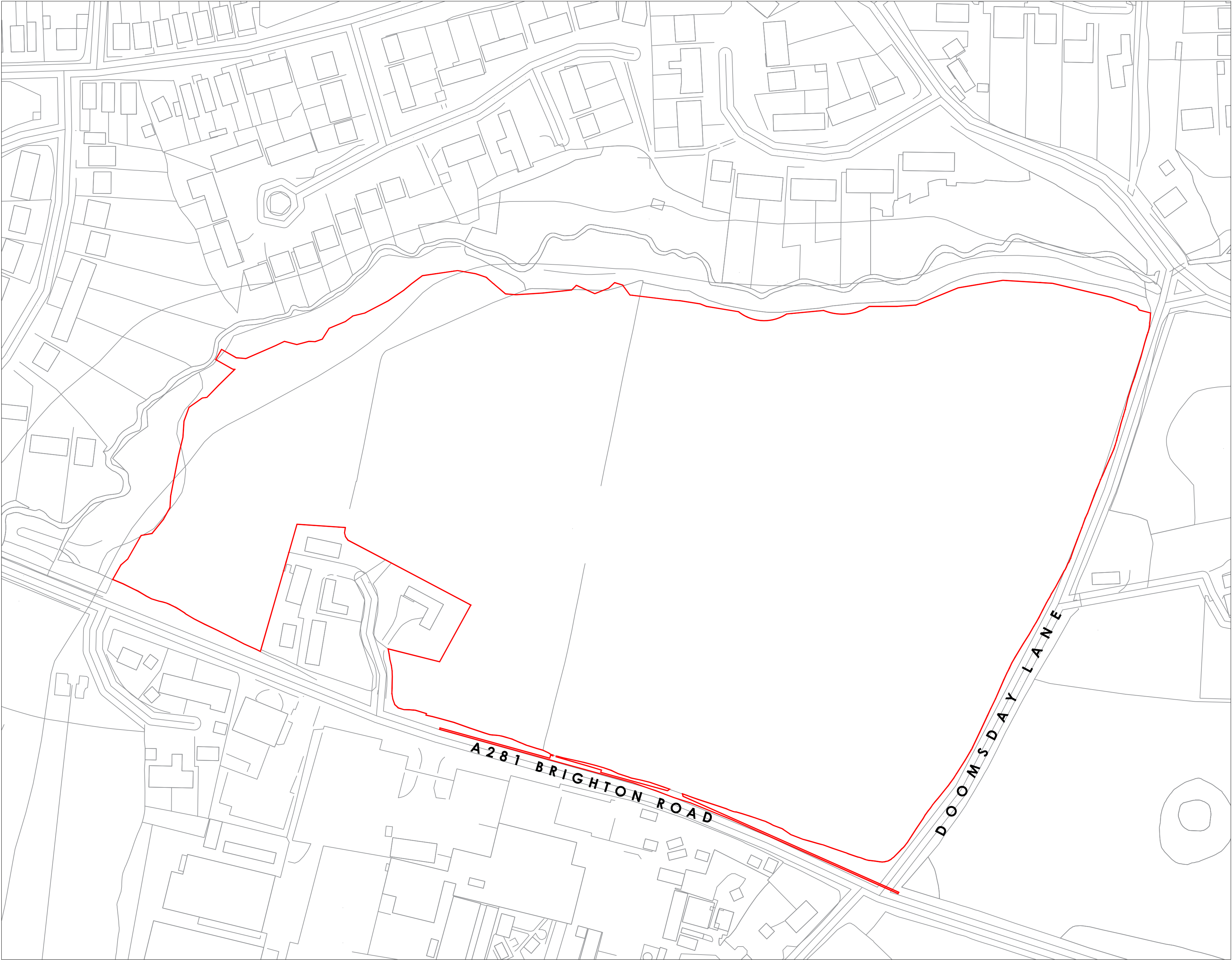
- 12.1. The residual risk is usually taken to refer to the portion of overall risk that remains once risk mitigation measures have been implemented.
- 12.2. A surface water flood greater than the 1.0% Annual Probability event could occur, which may exceed the capacity of the SUDs system and cause flooding to the site. Extreme flow routes can be derived from the contours shown on the drawings.
- 12.3. Flooding during an extreme event could occur during the construction phase of development. To minimise the impact of this, and to mitigate the risk, a Construction Surface Water Management Plan will be developed.

Appendices

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Appendix A

Site Location Plan



0 10 20 30 40 50 metres



Site boundary: **9.23ha**

Rev	Date	By	Description
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Dixies Barns, High Street,
Ashwell, Hertfordshire SG7 5NT

t 01462 743647
e ashwell@csaenvironmental.co.uk
w csaenvironmental.co.uk

Project Land at Hornbrook Farm, Brighton
Road, Horsham

Title Site Location plan

Client Jaynic Properties Ltd

Scale 1:1250 @ A2 **Drawn** DF

Date February 2025 **Checked** RR

Drawing No. CSA/7416/101 **Rev** G

Appendix B

Flood Map for Planning

Title: SITE SPECIFIC FLOOD RISK ASSESSMENT
Project: LAND AT HORN BROOK FARM, HORSHAM
Client: Jaynic Properties Ltd and Hornbrook Developments LLP
Project No.: 62726

Flood map for planning

Your reference
62726 - Horsham

Location (easting/northing)
518905/129769

Created
6 January 2026 16:22

Your selected location is in flood zone 3, an area with a high probability of flooding.

This means:

- you must complete a flood risk assessment for development in this area
- you should follow the Environment Agency's standing advice for carrying out a flood risk assessment (see <https://www.gov.uk/guidance/flood-risk-assessment-standing-advice>)

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2026 AC0000807064. <https://flood-map-for-planning.service.gov.uk/os-terms>



Flood map for planning

Your reference
62726 - Horsham

Location (easting/northing)
518905/129769

Scale
1:2,500

Created
6 Jan 2026 16:22

-  Selected area
-  Flood zone 3
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Water storage area

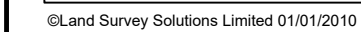


0 20 40 60m

Appendix C

Topographical Survey

Title: SITE SPECIFIC FLOOD RISK ASSESSMENT
Project: LAND AT HORN BROOK FARM, HORSHAM
Client: Jaynic Properties Ltd and Hornbrook Developments LLP
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TOPOGRAPHICAL & MEASURED BUILDING SURVEYS

ABBREVIATIONS & SYMBOLS

[illegible]

DRAWING NOTES

Topographical Surveys

Trees are drawn to scale showing the average canopy spread. Descriptions and heights should be used as a guide only.

All building names, descriptions, number of storeys, construction type including roof line details are indicative only and taken externally from ground level.

All below ground details including drainage, voids and services have been identified from above ground and therefore all details relating to these features including; sizes, depth, description etc will be approximate only. All critical dimensions and connections should be checked and verified prior to starting work.

Detail, services and features may not have been surveyed if obstructed or not reasonably visible at the time of the survey.

Surveyed physical features may not necessarily represent the legal boundary line.

Measured Building Success

Measurements to internal walls are taken to the wall finishes at approx 1m above the floor level and the wall assumed to be vertical.

General

The contractor must check and verify all site and building dimensions, levels, utilities and drainage details and connections prior to commencing work. Any

The accuracy of the digital data is the same as the plotting scale implies. All

The survey control listed is only to be used for topographical surveys at the

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This drawing should only be scaled using digital methods.

SURVEY CONTROL CO-ORDINATES				
STATION	EASTINGS	NORTHINGS	ELEVATION	DESCRIPTION
BP01	518767.188	1269629.94	58.272	Pt Nail
RC06	518757.288	1269707.51	58.481	Pt Nail
RC05	518749.725	1269712.44	58.359	Pt Nail
RC04	518743.625	1269713.63	58.298	Pt Nail
RC03	518803.473	1269724.616	59.768	Peg&P Nail
RC01	518874.094	1269749.554	59.364	Peg&P Nail
RC02	518820.718	1269815.612	58.917	Peg&P Nail
BP02	518951.662	1269629.409	60.539	Pt Nail
BP03	519002.409	1269680.020	64.836	Pt Nail
BP04	519044.121	1269645.780	75.798	Pt Nail
BP05	519091.131	1269720.446	65.025	Pt Nail
BP06	519135.861	1269845.104	66.142	Peg&P Nail
BP07	519147.559	1269900.734	50.548	Pt Nail
BP08	519122.854	1269830.314	50.859	Pt Nail
ST01	518666.518	1269655.518	57.246	Pt Nail
ST02	518680.353	1269647.510	50.062	Pt Nail
ST03	518655.669	1269874.231	50.472	Pt Nail

SURVEY GRID AND LEVEL DATUM

The coordinate system established for this survey is related to Ordnance Survey (OS) National Grid at multiple points using GNSS with a scale factor of 1.000.

The level datum established for this survey is related to Ordnance Survey (OS) using GPS Smartnet.

To avoid discrepancies within the survey, adding to the survey or setting out points from the survey, any coordinated data must be directly derived from the original survey control. Survey Solutions are not responsible for any third-party adding survey data to the existing information.

B	BROOK OS MAP ADDED	RC	RM	08/11/24
A	ADDITIONAL AREA ADDED	RC	RM	05/11/24
REV	DESCRIPTION	DRAWN	APPR	DATE

**SURVEY
SOLUTIONS**

LAND SURVEYING
BUILDING SURVEYING
UNDERGROUND SURVEYING
SITE ENGINEERING
MONITORING

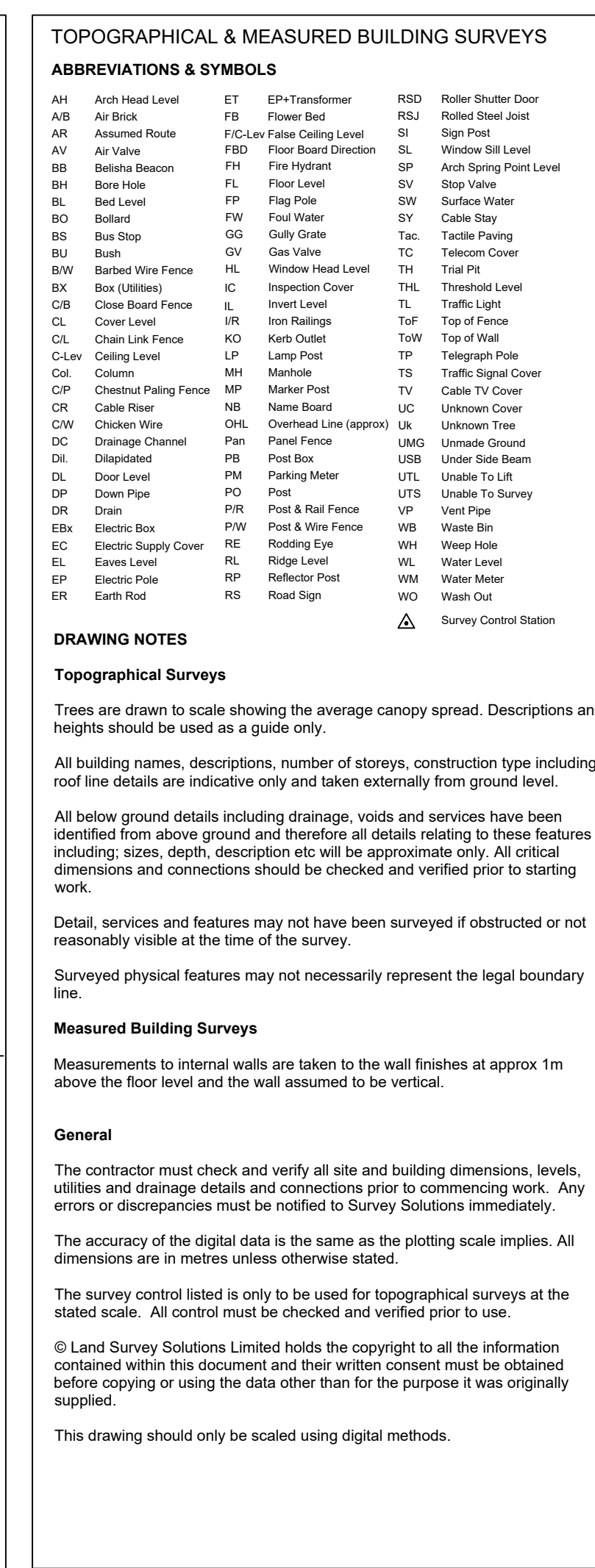
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LONDON-EAST / MANCHESTER / NEWCASTLE / NORWICH / NOTTINGHAM / THAMES VALLEY

PROJECT TITLE _____

HORNBOEK FARM, HORSHAM WEST SUSSEX, RH13, UNITED KINGDOM					
DRAWING DETAIL TOPOGRAPHICAL SURVEY Sheet 4 of 8					
CLIENT JAYNIC PROPERTIES LTD					SCALE 1:200
SURVEYOR RCBP	SURVEY DATE 03/10/2024	CHECKED BY SB	APPROVED BY RM	DWG STATUS FINAL	
DRAWING NUMBER 69948BWL-04			REVISION	ISSUE DATE 10/10/2024	



[illegible]

Topographical Surveys

Trees are drawn to scale showing the average canopy spread. Descriptions and heights should be used as a guide only.

All building names, descriptions, number of storeys, construction type including roof line details are indicative only and taken externally from ground level.

All below ground details including drainage, voids and services have been identified from above ground and therefore all details relating to these features including: sizes, depth, description etc will be approximate only. All critical dimensions and connections should be checked and verified prior to starting work.

Detail, services and features may not have been surveyed if obstructed or not

Surveyed physical features may not necessarily represent the legal boundary

Measured Building Surveys

Measurements to internal walls are taken to the wall finishes at approx 1m above the floor level and the wall assumed to be vertical.

General

The accuracy of the digital data is the same as the plotting scale implies. All dimensions are in metres unless otherwise stated.

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contained within this document and their written consent must be obtained before copying or using the data other than for the purpose it was originally supplied.

SURVEY CONTROL CO-ORDINATES					DESCRIPTION
STATION	EASTINGS	NORTHINGS	LEVEL		
BP01	181760.168	129696.294	58.272	Pk Nail	
RD08	181672.298	129707.571	58.681	Pk Nail	
RD05	181748.725	129712.447	58.359	Pk Nail	
RD04	181754.010	129743.868	58.705	Peg&P/Nail	
RD03	181803.475	129724.616	59.768	Peg&P/Nail	
RD01	181876.094	129749.854	59.364	Peg&P/Nail	
RD02	181820.718	129815.612	59.987	Peg&P/Nail	
BP02	181915.602	129820.049	60.539	Peg&P/Nail	
BP03	185002.048	129580.020	60.145	Pk Nail	
BP04	181848.480	129665.700	60.768	Peg&P/Nail	
BP05	181909.131	129720.466	60.025	Pk Nail	
BP06	181935.861	129845.104	56.142	Peg&P/Nail	
BP07	181947.550	129903.734	50.548	Pk Nail	
BP08	181912.854	129930.134	50.859	Pk Nail	
ST01	181746.779	129668.818	57.346	Pk Nail	
ST02	181800.353	129647.510	59.062	Pk Nail	
BP08	181910.660	129874.221	50.472	Pk Nail	

SURVEY GRID AND LEVEL DATUM

The coordinate system established for this survey is related to Ordnance Survey (OS) National Grid at multiple points using GNSS with a scale factor of 1.000.

The level datum established for this survey is related to Ordnance Survey (OS) using GPS Smartnet.

To avoid discrepancies within the survey, adding to the survey or setting out points from the survey, any coordinated data must be directly derived from the original survey control. Survey Solutions can not be responsible for any third party actions.

survey control. Survey Solutions are not responsible for any third-party adding survey data to the existing information.

B	BROOK OS MAP ADDED	RC	RM	08/11/
A	ADDITIONAL AREA ADDED	RC	RM	05/11/
REV	DESCRIPTION	DRAWN	APPR	DATE

		SURVEY SOLUTIONS	
LAND SURVEYING UNDERGROUND SURVEYING SITE ENGINEERING MONITORING		0845 040 5969 www.survey-solutions.co.uk	
PRIORITY: ☐ PRIORITY: ☒ STANDARD: ☐ URGENT: ☐ DELIVER: ☐ LOCAL: ☐ NATIONAL: ☐ INTERNATIONAL: ☐ CHECKED BY: MRAND-ESTHER NORDCASTLE MONROEY NOTTINGHAM THOMAS VALLEY			
PROJECT TITLE HORNBOCK FARM, HORSHAM SOUTH SUSSEX, RH13, UNITED KINGDOM			
DRAWING DETAIL TOPOGRAPHICAL SURVEY Sheet 5 of 8			
CLIENT JAYNIX CONCRETE LTD			
SURVEYOR: RCBP	SURVEY DATE: 03/10/2024	CHECKED BY: SB	APPROVED BY: RM
DRAWING NUMBER: 69646BVS-L-05		REVISION	DWG STATUS: FINAL
			ISSUE DATE: 10/10/2024
 			

ABBREVIATIONS & SYMBOLS

DRAWING NOTES

Trees are drawn to scale showing the average canopy spread. Descriptive heights should be used as a guide only.

All below ground details including drainage, voids and services have been identified from above ground and therefore all details relating to these features including; sizes, depth, description etc will be approximate only. All critical dimensions and connections should be checked and verified prior to start of work.

Surveyed physical features may not necessarily represent the legal boundary line.

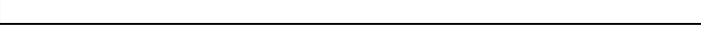
Measurements to internal walls are taken to the wall finishes at approx 1

The contractor must check and verify all site and building dimensions, level, utilities and drainage details and connections prior to commencing work.

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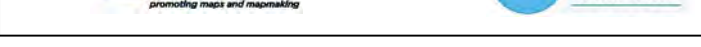
The coordinate system established for this survey is related to Ordnance Survey (OS) National Grid at multiple points using GNSS with a scale factor of 1.

To avoid discrepancies within the survey, adding to the survey or setting off from the survey, any coordinated data must be directly derived from the original survey control. Survey Solutions are not responsible for any third party use.

[illegible]

DRAWING DETAIL

Sheet 7 of 8





TOPOGRAPHICAL & MEASURED BUILDING SURVEYS

[illegible]

DRAWING NOTES

Topographical Surveys

Trees are drawn to scale showing the average canopy spread. Descriptions and heights should be used as a guide only.

All building names, descriptions, number of storeys, construction type including roof line details are indicative only and taken externally from ground level.

All below ground details including drainage, voids and services have been identified from above ground and therefore all details relating to these features including; sizes, depth, description etc will be approximate only. All critical dimensions and connections should be checked and verified prior to starting

Detail, services and features may not have been surveyed if obstructed or not reasonably visible at the time of the survey.

Surveyed physical features may not necessarily represent the legal boundary line.

Measured Building Surveys

Measurements to internal walls are taken to the wall finishes at approx 1m above the floor level and the wall assumed to be vertical.

General

The contractor must check and verify all site and building dimensions, levels, utilities and drainage details and connections prior to commencing work. Any errors or discrepancies must be notified to Survey Solutions immediately.

The accuracy of the digital data is the same as the plotting scale implies. All dimensions are in metres unless otherwise stated.

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This drawing should only be scaled using digital methods.

SURVEY CONTROL CO-ORDINATES				
STATIONS	EASTINGS	NORTHINGS	LEVEL	DESCRIPTION
BP01	187601.168	126966.294	58.272	Px Nail
RC06	187677.288	127070.571	58.481	Px Nail
BP02	187679.720	127071.423	58.359	Px Nail
BP03	187854.010	127493.308	58.785	Peg&Px
BP08	188063.473	127426.616	59.364	Peg&Px
BP09	188072.490	127427.414	59.368	Peg&Px
BP02	188020.718	126915.612	58.917	Peg&Px
BP02	189151.682	126926.409	60.539	Peg&Px
BP03	193002.449	126950.020	60.748	Px Nail
BP04	193447.480	126965.441	60.748	Px Nail
BP09	190091.131	127020.466	65.025	Px Nail
BP06	191358.861	126845.104	56.142	Px Nail
BP07	191277.850	126900.170	56.142	Px Nail
BP09	191227.854	126930.314	58.659	Px Nail
ST01	187646.179	126968.518	57.346	Px Nail
ST02	187646.179	126968.518	57.346	Px Nail
BP01	187651.689	126984.231	58.062	Px Nail

SURVEY GRID AND LEVEL DATUM

The coordinate system established for this survey is related to Ordnance Survey (OS) National Grid at multiple points using GNSS with a scale factor of 1.000.

The level datum established for this survey is related to Ordnance Survey (OS) using GPS Smartnet.

To avoid discrepancies within the survey, adding to the survey or setting out points from the survey, any coordinated data must be directly derived from the original survey control. Survey Solutions are not responsible for any third-party adding survey data to the existing information.

B	BROOK OS MAP ADDED	RC	RM	08/11/24
A	ADDITIONAL AREA ADDED	RC	RM	05/11/24
REV	DESCRIPTION	DRAWN	APPR	DATE



LAND SURVEYING
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UNDERGROUND SURVEYING
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LONDON-EAST / MANCHESTER / NEWCASTLE / NORWICH / NOTTINGHAM / THAMES VALLEY

PROJECT TITLE
HORN BROOK FARM, HORSHAM
WEST SUSSEX, RH13, UNITED KINGDOM

DRAWING DETAIL	
TOPOGRAPHICAL SURVEY	
Sheet 8 of 8	
CLIENT	SCALE

JAYNIC PROPERTIES LTD				SCALE 1:200
SURVEYOR RC/BP	SURVEY DATE 03/10/2024	CHECKED BY SB	APPROVED BY RM	DWG STATUS FINAL

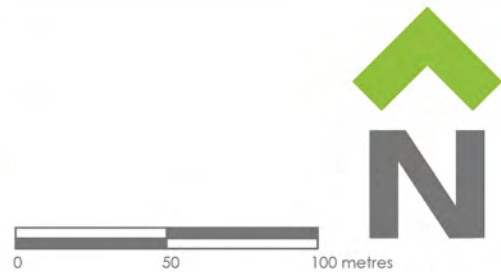
DRAWING NUMBER	REVISION	ISSUE DATE
69948BWLS-08		10/10/2024



Appendix D

Parameters Plan

Title: SITE SPECIFIC FLOOD RISK ASSESSMENT
Project: LAND AT HORNBROOK FARM, HORSHAM
Client: Jaynic Properties Ltd and Hornbrook Developments LLP
Project No.: 62726



- Site boundary: 9.23ha**
- DEVELOPMENT**
- Developable area: 4.83ha
- GREEN INFRASTRUCTURE**
- Proposed public open space (including open space, landscaping, play facilities, SuDS features and recreational routes)
 - Existing on-site vegetation
 - Opportunity for natural play-on-the-way and trim trail features along the recreational routes
 - Opportunity for children's play area
 - Proposed SuDS features
- MOVEMENT**
- Proposed vehicular access
 - Proposed signalised crossing and pedestrian access
 - Indicative street connections between parcels
 - Potential emergency access
 - Opportunity to relocate east-bound bus stop along A281 Brighton Road
 - Proposed riverside walk
 - Indicative recreational routes
- CONTEXT**
- Horn Brook

Rev	Date	By	Description

CSA
environmental

Dixies Barns, High Street,
Ashwell, Hertfordshire SG7 5NT

01462 743647
ashwell@csaenvironmental.co.uk
csaenvironmental.co.uk

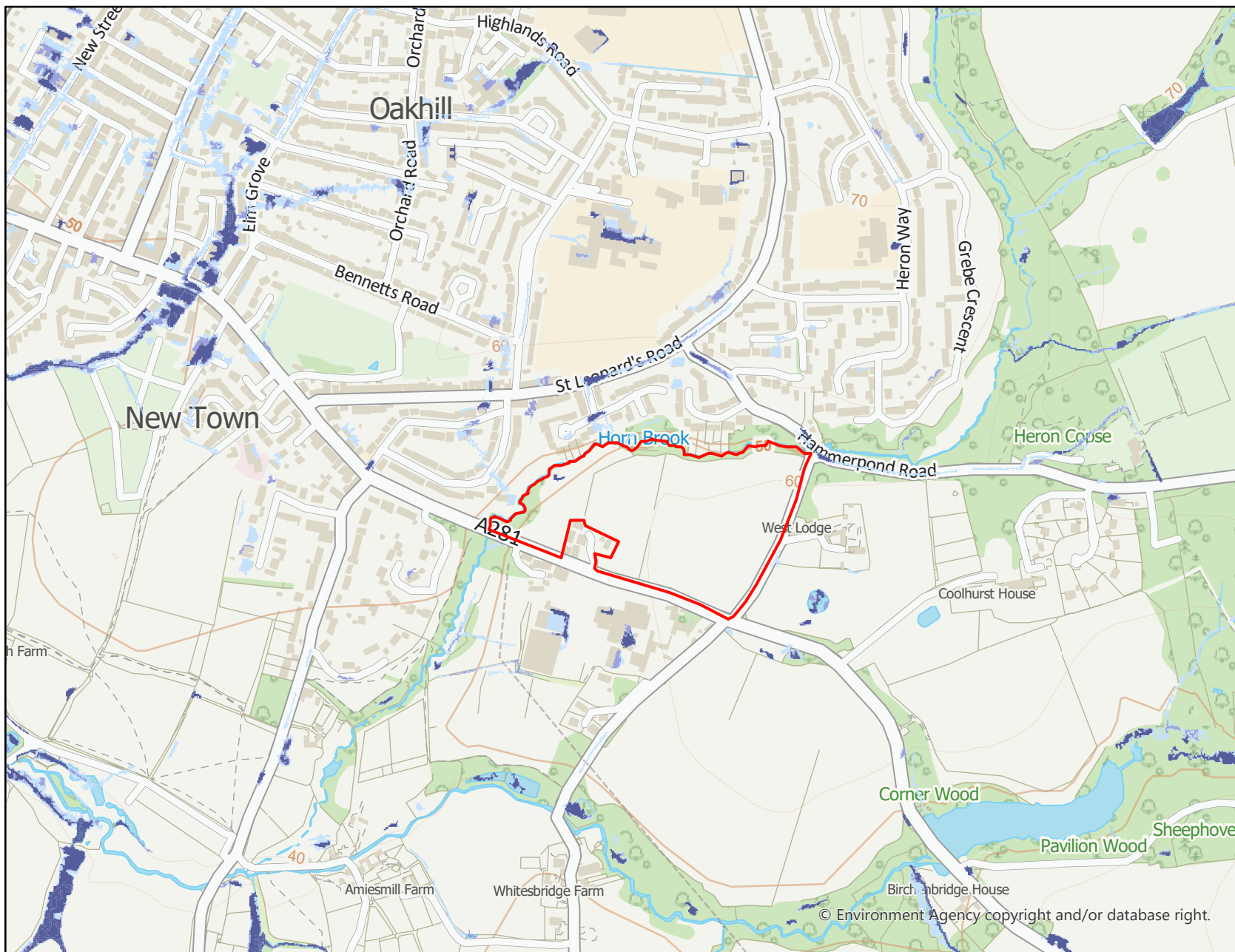
Project	Land at Hornbrook Farm, Brighton Road, Horsham		
Title	Parameter Plan		
Client	Jaynic Properties Ltd		
Scale	1:1250 @ A2	Drawn	DF
Date	Jan 2026	Checked	RR
Drawing No.	CSA/7416/102	Rev	L

Appendix E

Surface Water Flood Risk

Title: SITE SPECIFIC FLOOD RISK ASSESSMENT
Project: LAND AT HORNBROOK FARM, HORSHAM
Client: Jaynic Properties Ltd and Hornbrook Developments LLP
Project No.: 62726

Risk of Flooding from Surface Water. Centred 518843,129834. Created 28/10/2025.



Risk of Flooding from Surface Water

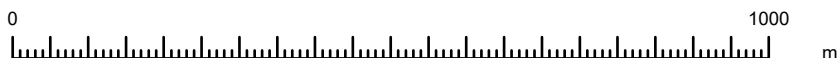
- High ($\geq 3.3\%$)
- Medium (3.3% - 1%)
- Low (1% - 0.1%)
- Very Low

Likelihood of flooding from Surface Water

- High:** Greater than or equal to 3.3% (1 in 30) chance in any given year
- Medium:** Less than 3.3% (1 in 30) but greater than 1% (1 in 100) chance in any given year
- Low:** Less than 1% (1 in 100) but greater than 0.1% (1 in 1000) chance in any given year
- Very Low:** Less than 0.1% (1 in 1000) chance in any given year

This information is shown on the Risk of Flooding from Surface Water map on GOV.UK

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



Flood map for planning

Get a boundary report

[Edit](#)[Delete](#)

Datasets

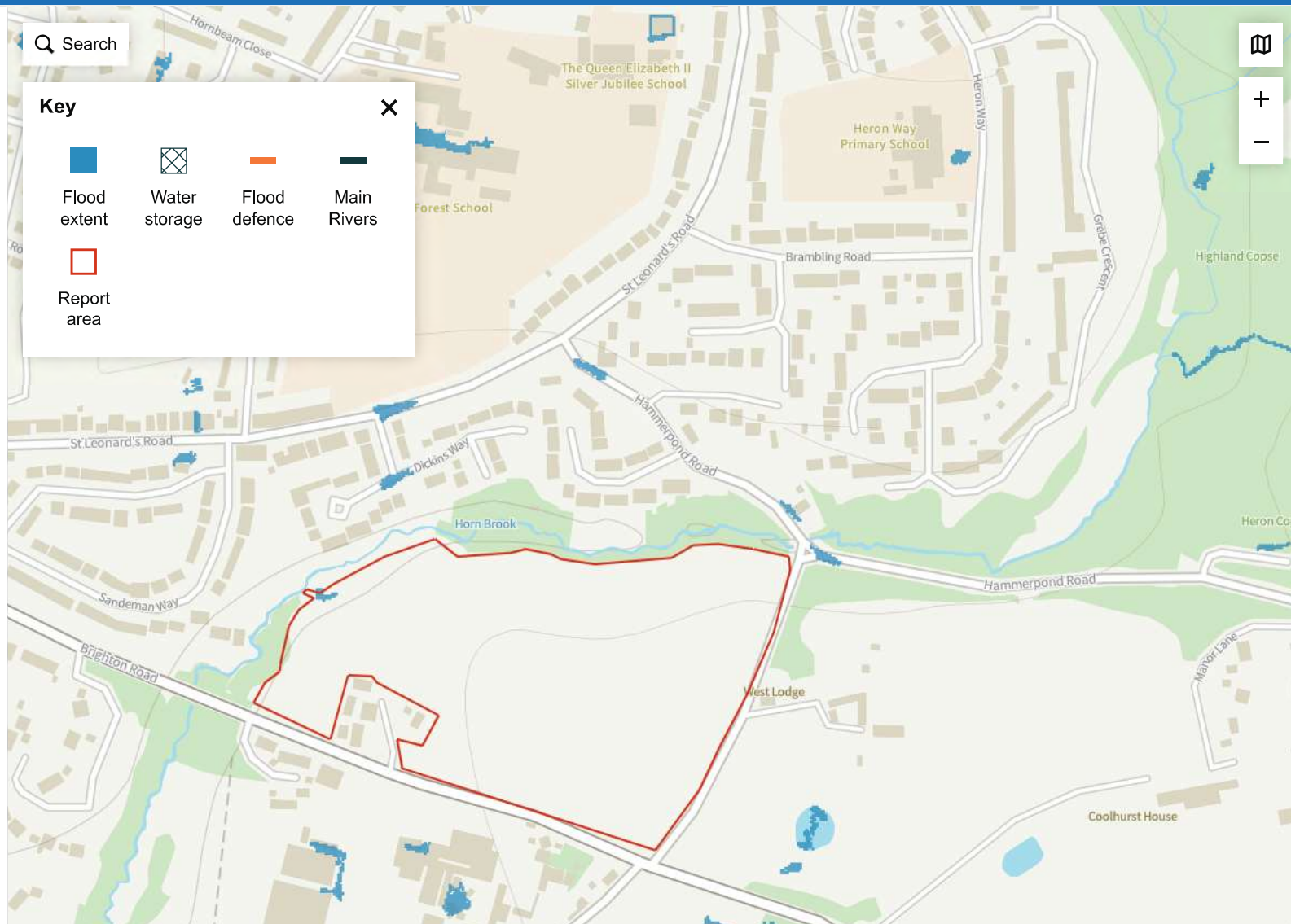
- ☐ Flood zones 2 and 3
- ☒ Surface water
- ☐ None

Annual likelihood of flooding

- ☒ 1 in 30
- ☐ 1 in 100
- ☐ 1 in 1000

Map features

- ☒ Water storage
- ☒ Flood defence
- ☒ Main Rivers

[Get summary report](#)

Flood map for planning

Get a boundary report

[Edit](#)[Delete](#)

Datasets

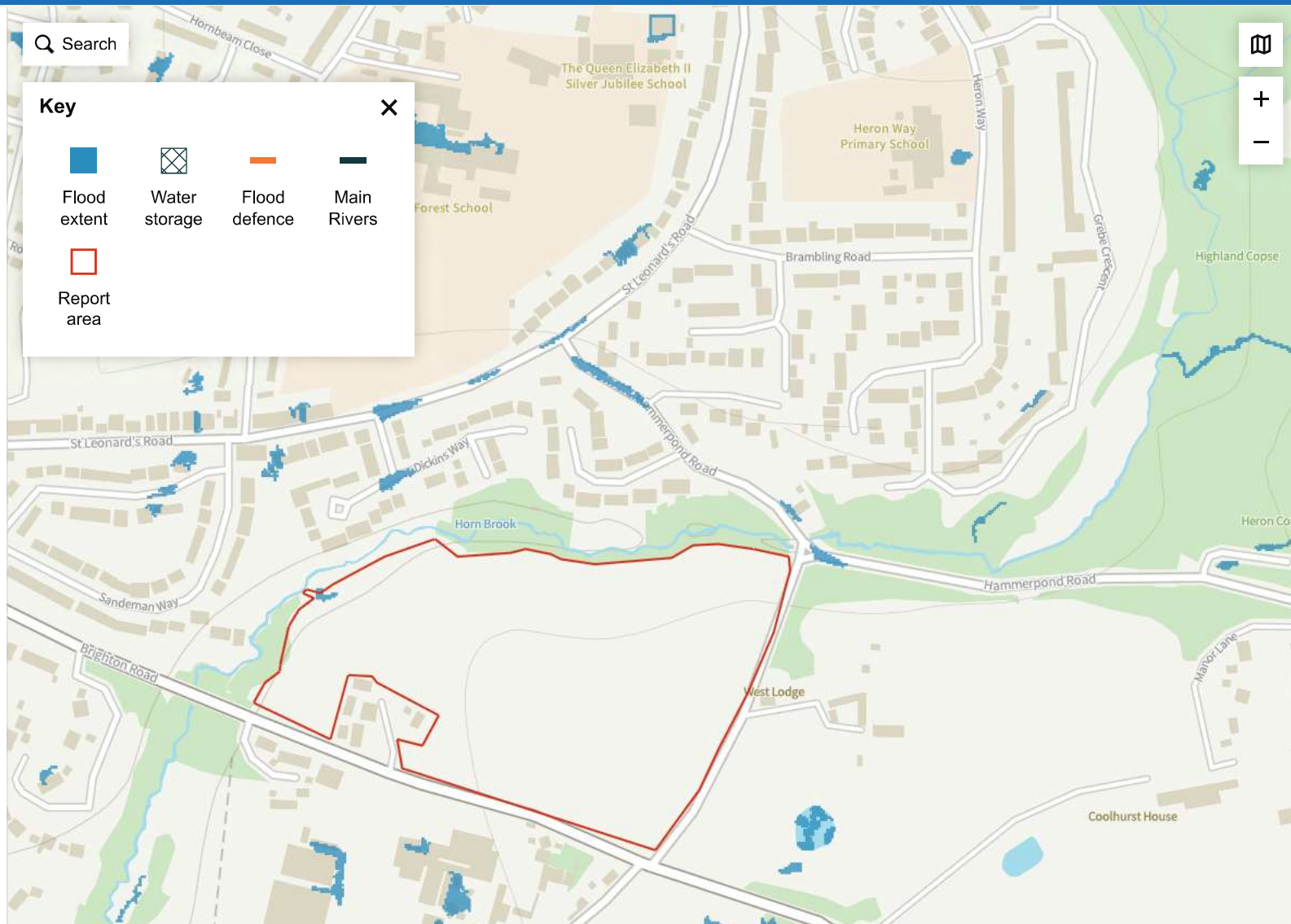
- ☐ Flood zones 2 and 3
- ☒ Surface water
- ☐ None

Annual likelihood of flooding

- ☐ 1 in 30
- ☒ 1 in 100
- ☐ 1 in 1000

Map features

- ☒ Water storage
- ☒ Flood defence
- ☒ Main Rivers

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Flood map for planning

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Datasets

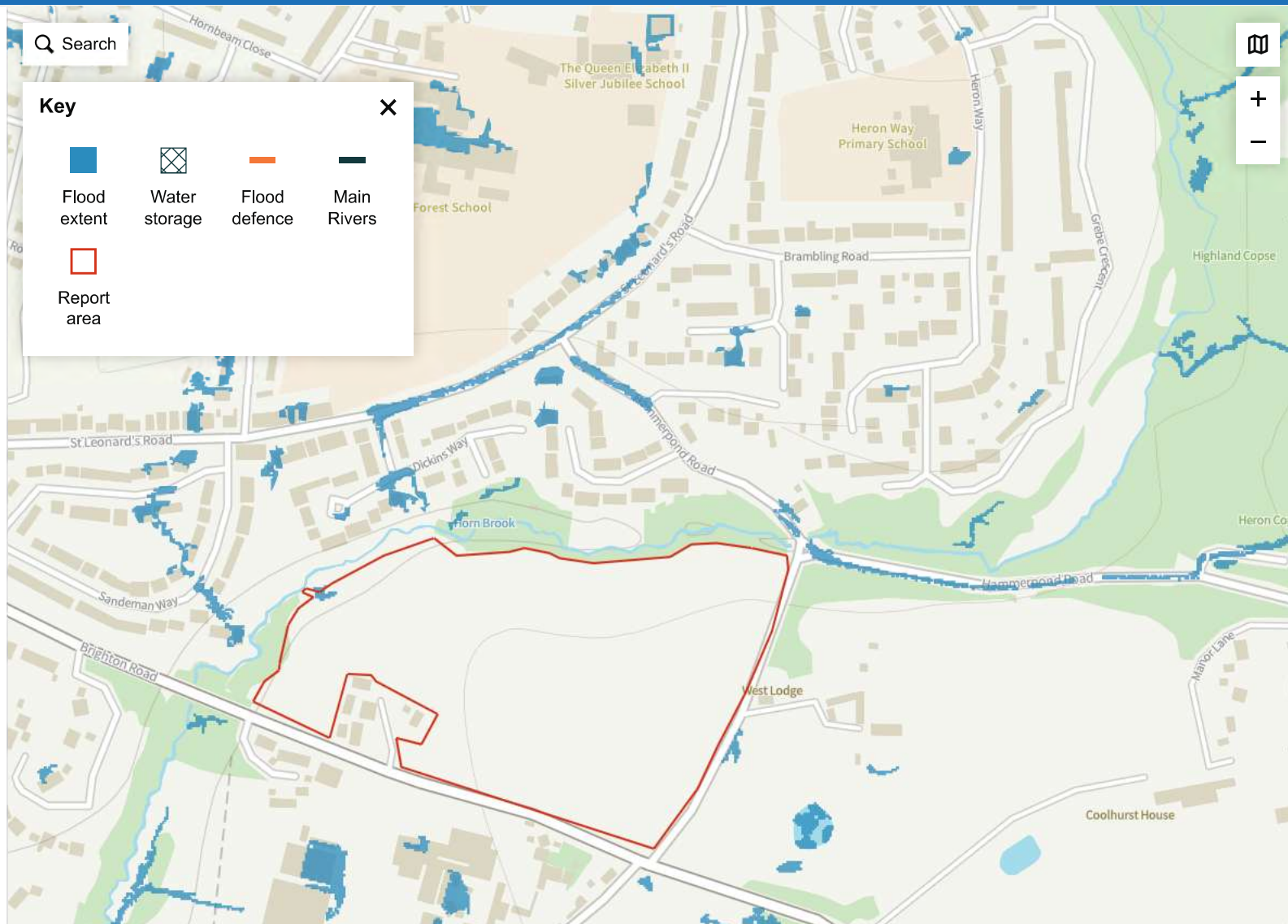
- ☐ Flood zones 2 and 3
- ☒ Surface water
- ☐ None

Annual likelihood of flooding

- ☐ 1 in 30
- ☐ 1 in 100
- ☒ 1 in 1000

Map features

- ☒ Water storage
- ☒ Flood defence
- ☒ Main Rivers

[Get summary report](#)

Appendix F

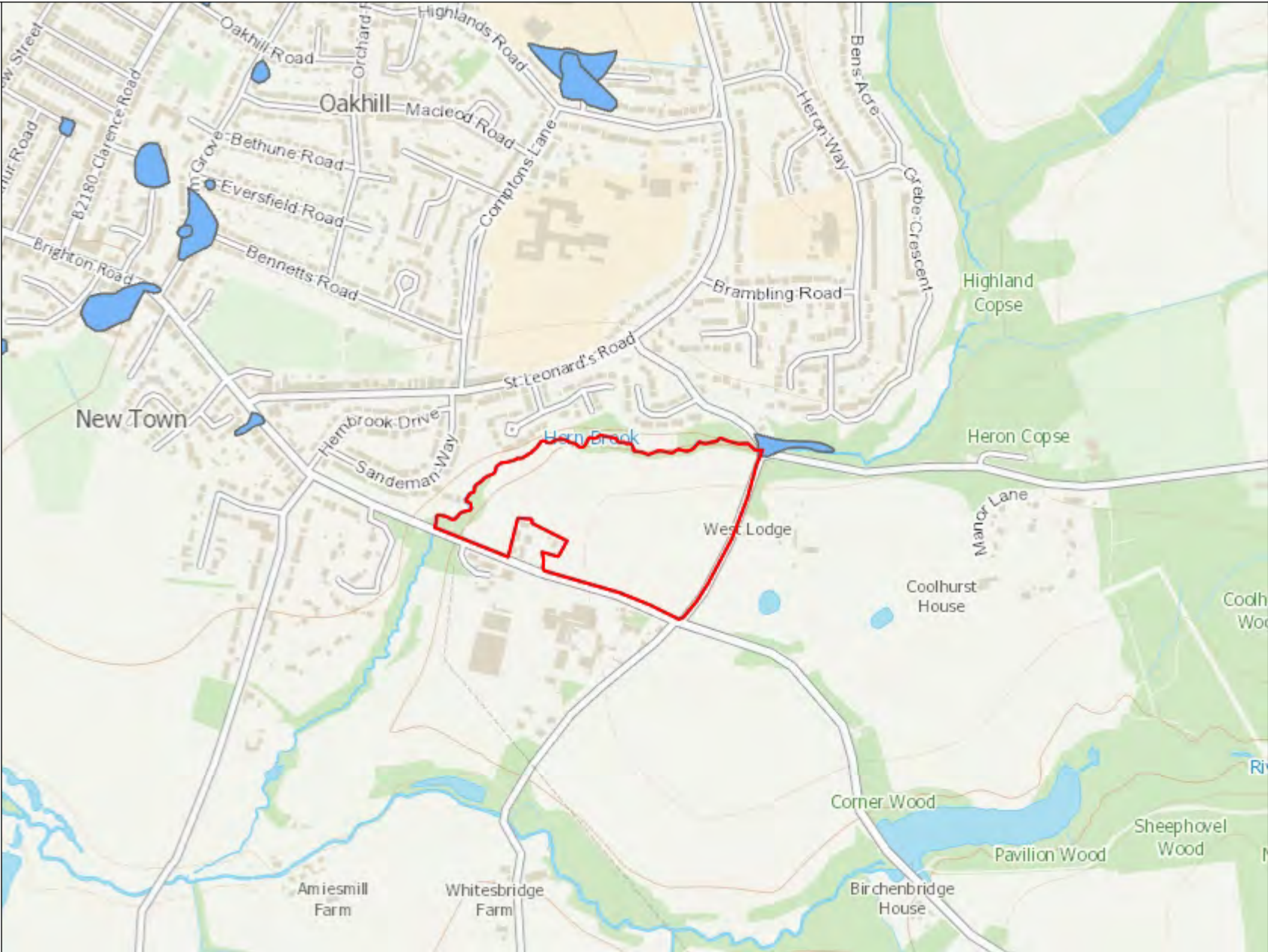
Recorded Flood Outlines

Recorded Flood Outlines. Centred 518843,129834. Created 28/10/2025.



Legend

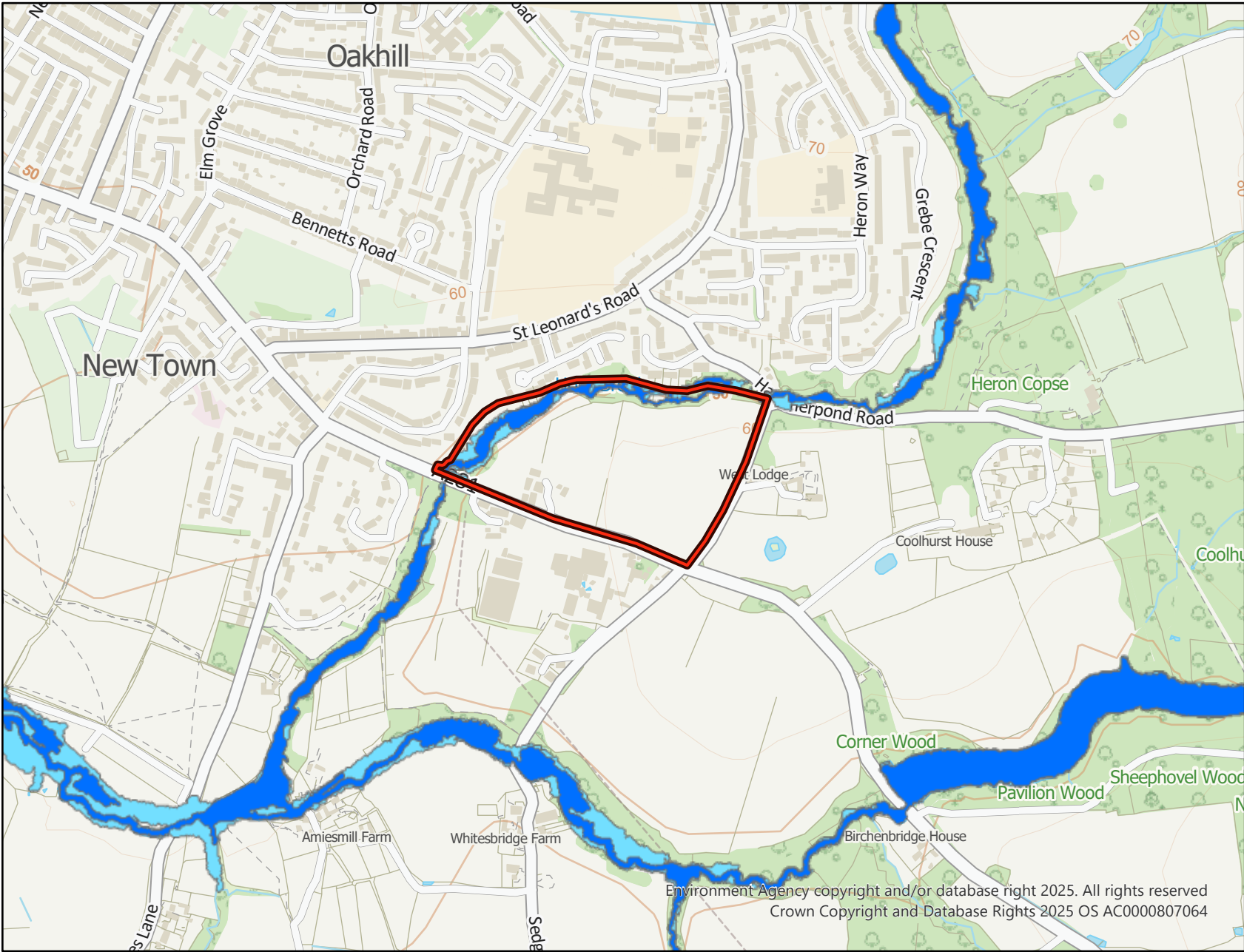
■ All recorded flood outlines



Appendix G:

Flood Map for Planning (Rivers and Sea)

Flood Map for Planning (Rivers and Sea). Centred 518878,129784. Created 10/09/2025.



Flood Zones 2 and 3 Rivers and Sea

Flood Zone

- Flood Zone 2
- Flood Zone 3

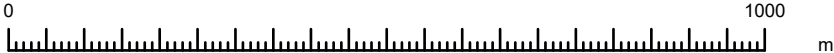
Flood Map Area (assuming no defences)

Flood Zone 3 shows the area that could be affected by flooding:

- from the sea with a 1 in 200 or greater chance of happening each year
- or from a river with a 1 in 100 or greater chance of happening each year

Flood Zone 2 shows the extent of an extreme flood from rivers or sea with up to a 1 in 1000 chance of occurring each year

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



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Appendix H:

Drainage Strategy

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
Parcel 1	0.881	5.00	100.000	1200	0.000	0.000	1.500	98.500
Outfall_Parcel 1			99.000	1200	10.000	0.000	1.427	97.573
Parcel 2	0.575	5.00	100.000	1200	10.000	10.000	1.500	98.500
Outfall_Parcel 2			99.000	1200	0.000	10.000	1.500	97.500
Parcel 3	0.359	5.00	100.000	1200	20.000	20.000	1.500	98.500
Outfall_Parcel 3			99.000	1200	20.000	0.000	1.500	97.500
Parcel 4	0.962	5.00	100.000	1200	30.000	30.000	1.500	98.500
Outfall_Parcel 4			99.000	1200	30.000	0.000	1.500	97.500
Parcel 5	0.366	5.00	100.000	1200	40.000	40.000	1.500	98.500
Outfall_Parcel 5			99.000	1200	0.000	40.000	1.425	97.575

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
5.000	Parcel 1	Outfall_Parcel 1	10.000	0.600	98.500	97.573	0.927	10.8	225	5.04	50.0
2.001	Parcel 2	Outfall_Parcel 2	10.000	0.600	98.500	97.500	1.000	10.0	300	5.03	50.0
2.002	Parcel 3	Outfall_Parcel 3	20.000	0.600	98.500	97.500	1.000	20.0	300	5.09	50.0
2.003	Parcel 4	Outfall_Parcel 4	30.000	0.600	98.500	97.500	1.000	30.0	300	5.17	50.0
2.004	Parcel 5	Outfall_Parcel 5	40.000	0.600	98.500	97.575	0.925	43.2	225	5.33	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Pro Depth (mm)	Pro Velocity (m/s)
5.000	4.006	159.3	159.2	1.275	1.202	186	4.540
2.001	4.999	353.4	103.9	1.200	1.200	111	4.365
2.002	3.531	249.6	64.9	1.200	1.200	104	2.984
2.003	2.881	203.6	173.8	1.200	1.200	214	3.220
2.004	1.995	79.3	66.1	1.275	1.200	158	2.225

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
5.000	10.000	10.8	225	Circular	100.000	98.500	1.275	99.000	97.573	1.202
2.001	10.000	10.0	300	Circular	100.000	98.500	1.200	99.000	97.500	1.200
2.002	20.000	20.0	300	Circular	100.000	98.500	1.200	99.000	97.500	1.200
2.003	30.000	30.0	300	Circular	100.000	98.500	1.200	99.000	97.500	1.200
2.004	40.000	43.2	225	Circular	100.000	98.500	1.275	99.000	97.575	1.200

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
5.000	Parcel 1	1200	Manhole	Adoptable	Outfall_Parcel 1	1200	Manhole	Adoptable
2.001	Parcel 2	1200	Manhole	Adoptable	Outfall_Parcel 2	1200	Manhole	Adoptable
2.002	Parcel 3	1200	Manhole	Adoptable	Outfall_Parcel 3	1200	Manhole	Adoptable
2.003	Parcel 4	1200	Manhole	Adoptable	Outfall_Parcel 4	1200	Manhole	Adoptable
2.004	Parcel 5	1200	Manhole	Adoptable	Outfall_Parcel 5	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
Parcel 1	0.000	0.000	100.000	1.500	1200				
Outfall_Parcel 1	10.000	0.000	99.000	1.427	1200	0 1 	5.000 5.000	98.500 97.573	225 225
Parcel 2	10.000	10.000	100.000	1.500	1200				
Outfall_Parcel 2	0.000	10.000	99.000	1.500	1200	0 1 	2.001 2.001	98.500 97.500	300 300
Parcel 3	20.000	20.000	100.000	1.500	1200				
Outfall_Parcel 3	20.000	0.000	99.000	1.500	1200	0 1 	2.002 2.002	98.500 97.500	300 300
Parcel 4	30.000	30.000	100.000	1.500	1200				
Outfall_Parcel 4	30.000	0.000	99.000	1.500	1200	0 1 	2.003 2.003	98.500 97.500	300 300
Parcel 5	40.000	40.000	100.000	1.500	1200				
Outfall_Parcel 5	0.000	40.000	99.000	1.425	1200	0 1 	2.004 2.004	98.500 97.575	225 225

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	✓	Check Discharge Rate(s)	x
Summer CV	1.000	Drain Down Time (mins)	240	Check Discharge Volume	✓
Winter CV	1.000	Additional Storage (m³/ha)	0.0	2 year 360 minute (m³)	217

Storm Durations

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

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
30	35	0	0
100	0	0	0
100	45	0	0

Pre-development Discharge Volume

Site Makeup	Greenfield	CWI	0.360
Greenfield Method	FSR/FEH	Return Period (years)	2
Positively Drained Area (ha)	9.230	Climate Change (%)	0
Soil Index	3	Storm Duration (mins)	360
SPR	0.40	Betterment (%)	0

Pre-development Discharge Volume

PR 0.088 | Runoff Volume (m³) 217

Node Parcel 1 Online StormBrake™ Control

Flap Valve	x	Design Flow (l/s)	7.1
Replaces Downstream Link	x	Product Code	FPM-SB1-01500-00710-1100
Invert Level (m)	98.500	Min Outlet Diameter (m)	0.150
Design Depth (m)	1.500	Min Node Diameter (mm)	1200

Node Parcel 2 Online StormBrake™ Control

Flap Valve	x	Design Flow (l/s)	5.0
Replaces Downstream Link	x	Product Code	FPM-SB1-01500-00500-1100
Invert Level (m)	98.500	Min Outlet Diameter (m)	0.150
Design Depth (m)	1.500	Min Node Diameter (mm)	1200

Node Parcel 3 Online StormBrake™ Control

Flap Valve	x	Design Flow (l/s)	3.2
Replaces Downstream Link	x	Product Code	FPM-SB1-01500-00320-1100
Invert Level (m)	98.500	Min Outlet Diameter (m)	0.150
Design Depth (m)	1.500	Min Node Diameter (mm)	1200

Node Parcel 4 Online StormBrake™ Control

Flap Valve	x	Design Flow (l/s)	8.6
Replaces Downstream Link	x	Product Code	FPM-SB1-01500-00860-1100
Invert Level (m)	98.500	Min Outlet Diameter (m)	0.150
Design Depth (m)	1.500	Min Node Diameter (mm)	1200

Node Parcel 5 Online StormBrake™ Control

Flap Valve	x	Design Flow (l/s)	3.3
Replaces Downstream Link	x	Product Code	FPM-SB1-01500-00330-1100
Invert Level (m)	98.500	Min Outlet Diameter (m)	0.150
Design Depth (m)	1.500	Min Node Diameter (mm)	1200

Node Parcel 1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	98.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	575.0	575.0	1.500	575.0	702.5

Node Parcel 2 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	98.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	370.0	370.0	1.500	370.0	472.3

Node Parcel 3 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	98.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	230.0	230.0	1.500	230.0	310.6

Node Parcel 4 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	98.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

 Richard Jackson Engineering Consultants	Richard Jackson Ltd 1st Katherine's Way St Katherine's & Wapping London, E1W 1UN	File: 62726-RJL-01-XX-CA-C- Network: Storm Network Jerome Klein 04/03/2026	Page 4 62726 Hornbrook Farm, Horsham Surface Water Management		
Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	620.0	620.0	1.500	620.0	752.4
Node Parcel 5 Depth/Area Storage Structure					
Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	98.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	
Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	235.0	235.0	1.500	235.0	316.5
Rainfall					
Event		Peak Intensity (mm/hr)	Average Intensity (mm/hr)		
2 year 15 minute summer		104.606	29.600		
2 year 15 minute winter		73.408	29.600		
2 year 30 minute summer		67.045	18.971		
2 year 30 minute winter		47.049	18.971		
2 year 60 minute summer		43.872	11.594		
2 year 60 minute winter		29.148	11.594		
2 year 120 minute summer		33.099	8.747		
2 year 120 minute winter		21.990	8.747		
2 year 180 minute summer		27.270	7.018		
2 year 180 minute winter		17.726	7.018		
2 year 240 minute summer		22.218	5.872		
2 year 240 minute winter		14.761	5.872		
2 year 360 minute summer		17.219	4.431		
2 year 360 minute winter		11.193	4.431		
2 year 480 minute summer		13.512	3.571		
2 year 480 minute winter		8.977	3.571		
2 year 600 minute summer		10.977	3.003		
2 year 600 minute winter		7.500	3.003		
2 year 720 minute summer		9.694	2.598		
2 year 720 minute winter		6.515	2.598		
2 year 960 minute summer		7.821	2.060		
2 year 960 minute winter		5.181	2.060		
2 year 1440 minute summer		5.532	1.483		
2 year 1440 minute winter		3.718	1.483		
2 year 2160 minute summer		3.885	1.074		
2 year 2160 minute winter		2.677	1.074		
2 year 2880 minute summer		3.209	0.860		
2 year 2880 minute winter		2.157	0.860		
2 year 4320 minute summer		2.452	0.641		
2 year 4320 minute winter		1.615	0.641		
2 year 5760 minute summer		2.063	0.528		
2 year 5760 minute winter		1.335	0.528		
2 year 7200 minute summer		1.802	0.460		
2 year 7200 minute winter		1.163	0.460		
2 year 8640 minute summer		1.622	0.414		
2 year 8640 minute winter		1.047	0.414		
2 year 10080 minute summer		1.493	0.381		
2 year 10080 minute winter		0.964	0.381		
30 year 15 minute summer		315.545	89.288		
30 year 15 minute winter		221.435	89.288		
30 year 30 minute summer		203.231	57.507		
30 year 30 minute winter		142.618	57.507		
30 year 60 minute summer		133.627	35.314		
30 year 60 minute winter		88.778	35.314		
30 year 120 minute summer		85.432	22.577		
30 year 120 minute winter		56.759	22.577		
30 year 180 minute summer		65.834	16.941		
30 year 180 minute winter		42.794	16.941		
30 year 240 minute summer		51.669	13.655		
30 year 240 minute winter		34.327	13.655		
30 year 360 minute summer		38.469	9.899		
30 year 360 minute winter		25.006	9.899		
30 year 480 minute summer		29.525	7.803		
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<u>Rainfall</u>		
Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
30 year 480 minute winter	19.616	7.803
30 year 600 minute summer	23.626	6.462
30 year 600 minute winter	16.143	6.462
30 year 720 minute summer	20.630	5.529
30 year 720 minute winter	13.864	5.529
30 year 960 minute summer	16.372	4.311
30 year 960 minute winter	10.845	4.311
30 year 1440 minute summer	11.277	3.022
30 year 1440 minute winter	7.579	3.022
30 year 2160 minute summer	7.703	2.129
30 year 2160 minute winter	5.308	2.129
30 year 2880 minute summer	6.228	1.669
30 year 2880 minute winter	4.186	1.669
30 year 4320 minute summer	4.581	1.198
30 year 4320 minute winter	3.017	1.198
30 year 5760 minute summer	3.736	0.956
30 year 5760 minute winter	2.418	0.956
30 year 7200 minute summer	3.179	0.811
30 year 7200 minute winter	2.052	0.811
30 year 8640 minute summer	2.796	0.713
30 year 8640 minute winter	1.805	0.713
30 year 10080 minute summer	2.522	0.643
30 year 10080 minute winter	1.628	0.643
30 year +35% CC 15 minute summer	425.986	120.539
30 year +35% CC 15 minute winter	298.938	120.539
30 year +35% CC 30 minute summer	274.362	77.635
30 year +35% CC 30 minute winter	192.535	77.635
30 year +35% CC 60 minute summer	180.396	47.673
30 year +35% CC 60 minute winter	119.851	47.673
30 year +35% CC 120 minute summer	115.334	30.479
30 year +35% CC 120 minute winter	76.625	30.479
30 year +35% CC 180 minute summer	88.875	22.871
30 year +35% CC 180 minute winter	57.771	22.871
30 year +35% CC 240 minute summer	69.753	18.434
30 year +35% CC 240 minute winter	46.342	18.434
30 year +35% CC 360 minute summer	51.933	13.364
30 year +35% CC 360 minute winter	33.758	13.364
30 year +35% CC 480 minute summer	39.859	10.534
30 year +35% CC 480 minute winter	26.481	10.534
30 year +35% CC 600 minute summer	31.896	8.724
30 year +35% CC 600 minute winter	21.793	8.724
30 year +35% CC 720 minute summer	27.850	7.464
30 year +35% CC 720 minute winter	18.717	7.464
30 year +35% CC 960 minute summer	22.102	5.820
30 year +35% CC 960 minute winter	14.641	5.820
30 year +35% CC 1440 minute summer	15.224	4.080
30 year +35% CC 1440 minute winter	10.231	4.080
30 year +35% CC 2160 minute summer	10.399	2.874
30 year +35% CC 2160 minute winter	7.165	2.874
30 year +35% CC 2880 minute summer	8.408	2.253
30 year +35% CC 2880 minute winter	5.651	2.253
30 year +35% CC 4320 minute summer	6.185	1.617
30 year +35% CC 4320 minute winter	4.073	1.617
30 year +35% CC 5760 minute summer	5.044	1.291
30 year +35% CC 5760 minute winter	3.265	1.291
30 year +35% CC 7200 minute summer	4.292	1.095
30 year +35% CC 7200 minute winter	2.770	1.095
30 year +35% CC 8640 minute summer	3.775	0.963
30 year +35% CC 8640 minute winter	2.436	0.963
30 year +35% CC 10080 minute summer	3.404	0.868
30 year +35% CC 10080 minute winter	2.197	0.868
100 year 15 minute summer	407.976	115.443
100 year 15 minute winter	286.299	115.443
100 year 30 minute summer	264.084	74.727
100 year 30 minute winter	185.322	74.727
100 year 60 minute summer	174.368	46.080

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
100 year 60 minute winter	115.846	46.080
100 year 120 minute summer	109.316	28.889
100 year 120 minute winter	72.627	28.889
100 year 180 minute summer	83.846	21.577
100 year 180 minute winter	54.502	21.577
100 year 240 minute summer	65.753	17.377
100 year 240 minute winter	43.685	17.377
100 year 360 minute summer	49.042	12.620
100 year 360 minute winter	31.879	12.620
100 year 480 minute summer	37.727	9.970
100 year 480 minute winter	25.065	9.970
100 year 600 minute summer	30.224	8.267
100 year 600 minute winter	20.651	8.267
100 year 720 minute summer	26.400	7.075
100 year 720 minute winter	17.742	7.075
100 year 960 minute summer	20.923	5.510
100 year 960 minute winter	13.860	5.510
100 year 1440 minute summer	14.357	3.848
100 year 1440 minute winter	9.649	3.848
100 year 2160 minute summer	9.708	2.683
100 year 2160 minute winter	6.689	2.683
100 year 2880 minute summer	7.769	2.082
100 year 2880 minute winter	5.222	2.082
100 year 4320 minute summer	5.611	1.467
100 year 4320 minute winter	3.695	1.467
100 year 5760 minute summer	4.505	1.153
100 year 5760 minute winter	2.916	1.153
100 year 7200 minute summer	3.784	0.965
100 year 7200 minute winter	2.442	0.965
100 year 8640 minute summer	3.292	0.840
100 year 8640 minute winter	2.125	0.840
100 year 10080 minute summer	2.941	0.750
100 year 10080 minute winter	1.898	0.750
100 year +45% CC 15 minute summer	591.565	167.392
100 year +45% CC 15 minute winter	415.133	167.392
100 year +45% CC 30 minute summer	382.922	108.354
100 year +45% CC 30 minute winter	268.717	108.354
100 year +45% CC 60 minute summer	252.833	66.816
100 year +45% CC 60 minute winter	167.976	66.816
100 year +45% CC 120 minute summer	158.508	41.889
100 year +45% CC 120 minute winter	105.309	41.889
100 year +45% CC 180 minute summer	121.577	31.286
100 year +45% CC 180 minute winter	79.028	31.286
100 year +45% CC 240 minute summer	95.342	25.196
100 year +45% CC 240 minute winter	63.343	25.196
100 year +45% CC 360 minute summer	71.111	18.299
100 year +45% CC 360 minute winter	46.224	18.299
100 year +45% CC 480 minute summer	54.703	14.457
100 year +45% CC 480 minute winter	36.344	14.457
100 year +45% CC 600 minute summer	43.824	11.987
100 year +45% CC 600 minute winter	29.944	11.987
100 year +45% CC 720 minute summer	38.279	10.259
100 year +45% CC 720 minute winter	25.726	10.259
100 year +45% CC 960 minute summer	30.338	7.989
100 year +45% CC 960 minute winter	20.097	7.989
100 year +45% CC 1440 minute summer	20.817	5.579
100 year +45% CC 1440 minute winter	13.991	5.579
100 year +45% CC 2160 minute summer	14.077	3.890
100 year +45% CC 2160 minute winter	9.700	3.890
100 year +45% CC 2880 minute summer	11.266	3.019
100 year +45% CC 2880 minute winter	7.571	3.019
100 year +45% CC 4320 minute summer	8.136	2.127
100 year +45% CC 4320 minute winter	5.358	2.127
100 year +45% CC 5760 minute summer	6.532	1.672
100 year +45% CC 5760 minute winter	4.228	1.672
100 year +45% CC 7200 minute summer	5.487	1.400

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
100 year +45% CC 7200 minute winter	3.541	1.400
100 year +45% CC 8640 minute summer	4.773	1.218
100 year +45% CC 8640 minute winter	3.081	1.218
100 year +45% CC 10080 minute summer	4.264	1.088
100 year +45% CC 10080 minute winter	2.752	1.088

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.88%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute summer	Parcel 1	328	98.781	0.281	33.1	161.8307	0.0000	SURCHARGED
480 minute summer	Outfall_Parcel 1	328	97.605	0.031	6.7	0.0000	0.0000	OK
360 minute summer	Parcel 2	256	98.771	0.271	27.5	100.7390	0.0000	OK
360 minute summer	Outfall_Parcel 2	256	97.524	0.024	4.8	0.0000	0.0000	OK
360 minute summer	Parcel 3	256	98.766	0.266	17.2	61.5182	0.0000	OK
360 minute summer	Outfall_Parcel 3	256	97.523	0.023	3.0	0.0000	0.0000	OK
480 minute summer	Parcel 4	328	98.781	0.281	36.1	174.4706	0.0000	OK
480 minute summer	Outfall_Parcel 4	328	97.540	0.040	7.8	0.0000	0.0000	OK
360 minute summer	Parcel 5	256	98.767	0.267	17.5	63.0669	0.0000	SURCHARGED
360 minute summer	Outfall_Parcel 5	256	97.605	0.030	3.1	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
480 minute summer	Parcel 1	5.000	Outfall_Parcel 1	6.7	1.951	0.042	0.0342	184.2
360 minute summer	Parcel 2	2.001	Outfall_Parcel 2	4.8	1.751	0.014	0.0274	114.6
360 minute summer	Parcel 3	2.002	Outfall_Parcel 3	3.0	1.202	0.012	0.0500	74.4
480 minute summer	Parcel 4	2.003	Outfall_Parcel 4	7.8	1.395	0.038	0.1686	206.7
360 minute summer	Parcel 5	2.004	Outfall_Parcel 5	3.1	0.968	0.039	0.1273	75.2

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.78%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	Parcel 1	352	99.227	0.727	61.2	419.0355	0.0000	SURCHARGED
60 minute summer	Outfall_Parcel 1	206	97.605	0.032	7.1	0.0000	0.0000	OK
360 minute winter	Parcel 2	352	99.221	0.721	39.9	267.7516	0.0000	SURCHARGED
60 minute summer	Outfall_Parcel 2	208	97.525	0.025	5.0	0.0000	0.0000	OK
360 minute summer	Parcel 3	360	99.235	0.735	38.4	169.7693	0.0000	SURCHARGED
30 minute summer	Outfall_Parcel 3	155	97.523	0.023	3.0	0.0000	0.0000	OK
360 minute winter	Parcel 4	352	99.219	0.719	66.8	446.8286	0.0000	SURCHARGED
30 minute summer	Outfall_Parcel 4	51	97.542	0.042	8.6	0.0000	0.0000	OK
360 minute winter	Parcel 5	352	99.232	0.732	25.4	172.9316	0.0000	SURCHARGED
2880 minute summer	Outfall_Parcel 5	1620	97.605	0.031	3.1	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute winter	Parcel 1	5.000	Outfall_Parcel 1	7.1	1.986	0.045	0.0357	203.0
360 minute winter	Parcel 2	2.001	Outfall_Parcel 2	5.0	1.774	0.014	0.0282	141.4
360 minute summer	Parcel 3	2.002	Outfall_Parcel 3	3.0	1.206	0.012	0.0505	77.5
360 minute winter	Parcel 4	2.003	Outfall_Parcel 4	8.6	1.433	0.042	0.1800	246.8
360 minute winter	Parcel 5	2.004	Outfall_Parcel 5	3.1	0.974	0.040	0.1293	82.1

Results for 30 year +35% CC Critical Storm Duration. Lowest mass balance: 99.89%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	Parcel 1	472	99.549	1.049	64.8	604.2186	0.0000	SURCHARGED
30 minute summer	Outfall_Parcel 1	267	97.605	0.032	7.1	0.0000	0.0000	OK
360 minute winter	Parcel 2	352	99.542	1.042	53.9	386.5805	0.0000	SURCHARGED
30 minute summer	Outfall_Parcel 2	266	97.525	0.025	5.0	0.0000	0.0000	OK
360 minute winter	Parcel 3	352	99.541	1.041	33.7	240.6288	0.0000	SURCHARGED
15 minute winter	Outfall_Parcel 3	177	97.523	0.023	3.0	0.0000	0.0000	OK
360 minute winter	Parcel 4	352	99.542	1.042	90.2	647.3149	0.0000	SURCHARGED
120 minute summer	Outfall_Parcel 4	62	97.542	0.042	8.6	0.0000	0.0000	OK
360 minute winter	Parcel 5	352	99.538	1.038	34.3	245.2150	0.0000	SURCHARGED
15 minute summer	Outfall_Parcel 5	164	97.605	0.031	3.1	0.0000	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
480 minute winter	Parcel 1	5.000	Outfall_Parcel 1	7.1	1.986	0.045	0.0357	222.1
360 minute winter	Parcel 2	2.001	Outfall_Parcel 2	5.0	1.773	0.014	0.0281	132.5
360 minute winter	Parcel 3	2.002	Outfall_Parcel 3	3.0	1.207	0.012	0.0505	84.3
360 minute winter	Parcel 4	2.003	Outfall_Parcel 4	8.6	1.433	0.042	0.1800	223.9
360 minute winter	Parcel 5	2.004	Outfall_Parcel 5	3.1	0.974	0.040	0.1292	86.2

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.76%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	Parcel 1	472	99.484	0.984	61.3	566.6890	0.0000	SURCHARGED
30 minute summer	Outfall_Parcel 1	237	97.605	0.032	7.1	0.0000	0.0000	OK
360 minute winter	Parcel 2	352	99.476	0.976	50.9	362.3340	0.0000	SURCHARGED
15 minute summer	Outfall_Parcel 2	68	97.525	0.025	5.0	0.0000	0.0000	OK
360 minute winter	Parcel 3	352	99.475	0.975	31.8	225.4586	0.0000	SURCHARGED
15 minute summer	Outfall_Parcel 3	151	97.523	0.023	3.0	0.0000	0.0000	OK
360 minute winter	Parcel 4	352	99.476	0.976	85.2	606.0385	0.0000	SURCHARGED
15 minute summer	Outfall_Parcel 4	46	97.542	0.042	8.6	0.0000	0.0000	OK
360 minute winter	Parcel 5	352	99.474	0.974	32.4	229.9104	0.0000	SURCHARGED
15 minute winter	Outfall_Parcel 5	140	97.605	0.031	3.1	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
480 minute winter	Parcel 1	5.000	Outfall_Parcel 1	7.1	1.986	0.045	0.0357	218.8
360 minute winter	Parcel 2	2.001	Outfall_Parcel 2	5.0	1.774	0.014	0.0282	129.5
360 minute winter	Parcel 3	2.002	Outfall_Parcel 3	3.0	1.207	0.012	0.0505	82.2
360 minute winter	Parcel 4	2.003	Outfall_Parcel 4	8.6	1.432	0.042	0.1800	223.8
360 minute winter	Parcel 5	2.004	Outfall_Parcel 5	3.1	0.974	0.040	0.1292	84.1

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.96%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	Parcel 1	472	99.999	1.499	88.9	863.7031	0.0000	FLOOD RISK
7200 minute summer	Outfall_Parcel 1	3660	97.605	0.032	7.1	0.0000	0.0000	OK
480 minute winter	Parcel 2	472	99.994	1.494	58.0	554.3889	0.0000	FLOOD RISK
5760 minute winter	Outfall_Parcel 2	3360	97.525	0.025	5.0	0.0000	0.0000	OK
480 minute winter	Parcel 3	472	99.991	1.491	36.2	344.5190	0.0000	FLOOD RISK
480 minute winter	Outfall_Parcel 3	472	97.524	0.024	3.2	0.0000	0.0000	OK
480 minute winter	Parcel 4	472	99.993	1.493	97.1	927.6146	0.0000	FLOOD RISK
240 minute summer	Outfall_Parcel 4	108	97.542	0.042	8.6	0.0000	0.0000	OK
480 minute winter	Parcel 5	472	99.985	1.485	36.9	350.7150	0.0000	FLOOD RISK
480 minute winter	Outfall_Parcel 5	472	97.606	0.031	3.3	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
480 minute winter	Parcel 1	5.000	Outfall_Parcel 1	7.1	1.986	0.045	0.0357	253.7
480 minute winter	Parcel 2	2.001	Outfall_Parcel 2	5.0	1.774	0.014	0.0282	180.3
480 minute winter	Parcel 3	2.002	Outfall_Parcel 3	3.2	1.222	0.013	0.0519	115.0
480 minute winter	Parcel 4	2.003	Outfall_Parcel 4	8.6	1.433	0.042	0.1800	303.7
480 minute winter	Parcel 5	2.004	Outfall_Parcel 5	3.3	0.984	0.041	0.1323	117.8

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELATED RICHARD JACKSON LTD, ARCHITECTS & SUB-CONTRACTORS DRAWINGS. IN THE CASE OF DISCREPANCIES BETWEEN DRAWINGS REFER TO R/JLT FOR CLARIFICATION.
2. TOPOGRAPHICAL SURVEYS UNDERTAKEN BY: SURVEY SOLUTIONS DRAWING NUMBER 69948BWLS-00 ISSUE DATE 10/10/2024.
3. THIS DRAWING IS BASED ON THE SITE LAYOUT PLAN PRODUCED BY CSA ENVIRONMENTAL DRAWING NUMBER CSA/7416/102.
5. THE CONTRACTOR SHALL, BEFORE COMMENCING THE WORKS, VERIFY ALL SITE AND SETTING OUT DIMENSIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TRUE AND PROPER SETTING OUT OF THE WORKS AND FOR THE CORRECTNESS OF THE POSITION, LEVELS, DIMENSIONS, AND ALIGNMENT OF ALL PARTS OF THE WORKS.

LEGEND

- 1500 MH
- EXISTING STORM WATER MANHOLE AND SEWER
- SWALE
- BLUE AND GREEN SUDS INFRASTRUCTURE (SWALES)
- FLOW DIRECTION
- RIVERSIDE WALKWAY

P03	03.03.26	UPDATED SITE PLAN	MB	JK
P02	03.02.26	UPDATED DRAWING IN LINE WITH LLFA COMMENTS AND UPDATED PARAMETER PLAN	JK	LJG
P01	10.10.25	PRELIMINARY ISSUE	JK	LJG
REV	DATE	DESCRIPTION	DRAWN	CHKD

REVISIONS

This drawing is to be read in conjunction with all other Engineer's drawings and all other project information. Any discrepancy between the Engineer's drawings and other project information is to be reported to the Engineer immediately.



Project

Land at Hornbrook Farm,
Horsham

Title

SuDS & Drainage Strategy

Client

Jaynic Properties Ltd

Richard Jackson
Engineering Consultants

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Scale	1:1000 @ A1	Drawn	JK	Date	03/10/25
Project Manager	LJG	Checked	LJG	Approved	LJG
Status	S2	Suitability Description	FOR INFORMATION	RJL Project No :	62726
project	62729	originator	RJL	zone	XX
		level	XX	type	DR
		role	C	number	1000
				revision	P03

Appendix I

Greenfield Runoff Rates

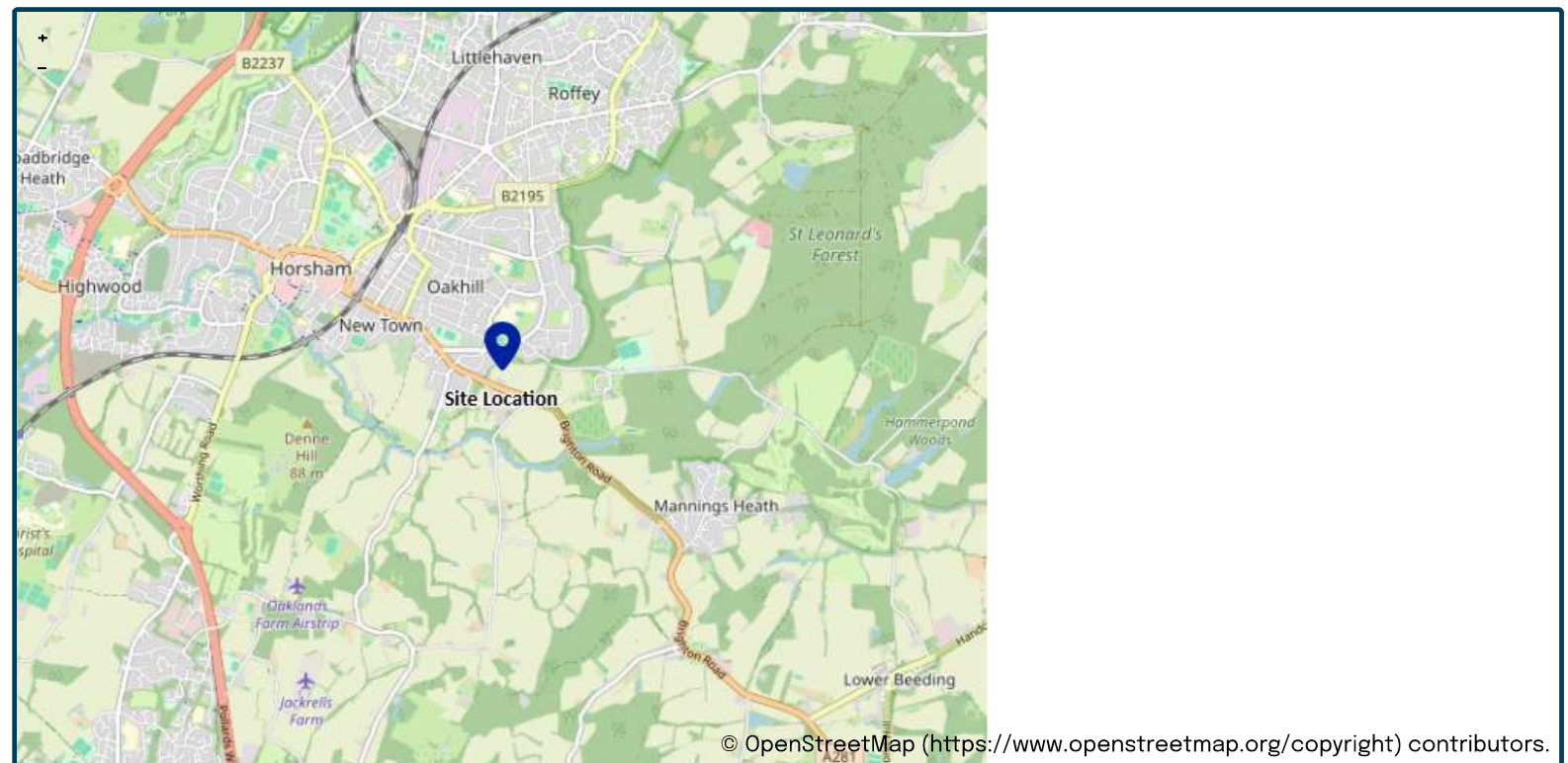
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). 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	02/02/2026
Calculated by	Jerome Klein
Reference	62726
Model version	2.2.2

Location

Site name	Hornbrook Farm
Site location	Horsham



Site easting (British National Grid)	518753
Site northing (British National Grid)	129651

Site details

Total site area (ha)	9.2445	ha
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Greenfield runoff

Method

Method	FEH statistical (2025)
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FEH statistical (2025)

	<u>My value</u>	<u>Map value</u>
SAAR9120 (mm)	816	mm
BFIHOST19scaled	0.562	
QMed-QBar conversion	1.136	1.136
QMed (l/s)	28.5	l/s
QBar (FEH statistical 2025) (l/s)	32.4	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	FEH statistical (2025)	
Flow rate 1 year (l/s)	27.5	l/s
Flow rate 2 year (l/s)	28.5	l/s
Flow rate 10 years (l/s)	52.4	l/s
Flow rate 30 years (l/s)	74.5	l/s
Flow rate 100 years (l/s)	103.3	l/s
Flow rate 200 years (l/s)	121.1	l/s

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

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.2.2) developed by HR Wallingford and available at [uksuds.com](https://www.uksuds.com) (<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 J

Horsham District Council SuDS Proforma

Title: SITE SPECIFIC FLOOD RISK ASSESSMENT
Project: LAND AT HORN BROOK FARM, HORSHAM
Client: Jaynic Properties Ltd and Hornbrook Developments LLP
Project No.: 62726

Surface Water Drainage Statement

In order to provide the required information on surface water drainage from the proposed development this pro-forma must be completed in full and be submitted with any planning application which seeks permission for 'major' development. This information contained in this form will be used by West Sussex County Council in its role as Lead Local Flood Authority and 'statutory consultee' on SuDs for all 'major' planning applications. The pro-forma is supported by the [Defra/EA Guidance on Rainfall Runoff Management](#) and can be completed using freely available tools including [SuDS Tools](#). The pro-forma should be considered alongside other supporting SuDS Guidance, but focuses on ensuring flood risk is not made worse elsewhere. The SuDS solution must operate effectively for as long as the development exists. This pro-forma is based upon current industry standard practice.

1. Site Details

Site	Hornbrook Farm, Horsham
Address & post code or LPA reference	Hornbrook Farm, Horsham, RH13 6QA
Grid reference	TQ 18895 29776
Is the existing site developed or Greenfield?	Greenfield
Total Site Area served by drainage system (excluding open space) (Ha)*	9.23
Topographical survey plan showing existing site layout, site levels and drainage system	Provided

* The Greenfield runoff off rate from the development which is to be used for assessing the requirements for limiting discharge flow rates and attenuation storage from a site should be calculated for the area that forms the drainage network for the site whatever size of site and type of drainage technique. Please refer to the Rainfall Runoff Management document or CIRIA manual for detail on this.

2. Impermeable Area

	Existing	Proposed	Difference (Proposed-Existing)	Notes for developers & Local Authorities
Impermeable area (ha) (areas to be shown on a plan)	0	4.85	4.85	If the proposed amount of impermeable surface is greater, then runoff rates and volumes will increase. Section 6 must be filled in. If proposed permeability is equal or less than existing, then section 6 can be skipped & section 7 filled in.
Drainage Method (infiltration/sewer/watercourse)	Greenfield	Discharge into watercourse	N/A	If different from the existing, please fill in section 3. If existing drainage is by infiltration and the proposed is not, discharge volumes may increase. Fill in section 6.

PPG Paragraph 080

3. Proposing to Discharge Surface Water via

	Yes	No	Evidence that this is possible	Notes for developers & Local Authorities
Existing and proposed Causeway Flow calculations	Yes		Provided in FRA	Please provide Causeway Flow calculations of existing and proposed run-off rates and volumes in accordance with a recognised methodology or the results of a full infiltration test (see line below) if infiltration is proposed.
Infiltration		No	Infiltration testing to be provided	e.g. soakage tests. Section 6 (infiltration) must be filled in if infiltration is proposed.
To watercourse	Yes		Layout plan provided	e.g. Is there a watercourse nearby? Please provide details of any watercourse to which the site drains including cross-sections of any adjacent water courses for appropriate distance upstream and downstream of the discharge point (as agreed with the LLFA and/or EA)
To surface water sewer		No		Confirmation from sewer provider that sufficient capacity exists for this connection.
Combination of above		No		e.g. part infiltration part discharge to sewer or watercourse. Provide evidence above.
Has the drainage proposal had regard to the SuDS hierarchy?	yes			Evidence must be provided to demonstrate that the proposed Sustainable Drainage proposal has had regard to the SuDS hierarchy.
Layout plan showing where the sustainable drainage infrastructure will be located on site.	Yes		Drainage plan provided	Please provide plan reference numbers showing the details of the site layout showing where the sustainable drainage infrastructure will be located on the site. If the development is to be constructed in phases this should be shown on a separate plan and confirmation should be provided that the sustainable drainage proposal for each phase can be constructed and can operate independently and is not reliant on any later phase of development.

Technical Standards S2 and S3

4. Peak Discharge Rates – This is the maximum flow rate at which surface water runoff leaves the site during a particular storm event.

	Existing Rates (l/s)	Proposed Rates (l/s)	Difference (l/s) (Proposed-Existing)	Notes for developers & Local Authorities
Greenfield QBAR	NA	N/A	N/A	Mean annual Greenfield peak flow - QBAR is approx. 1 in 2 storm events. Use that figure in Section 7a.
1 in 1	27.5	27.5	0	Proposed discharge rates (with mitigation) should be no greater than existing rates for all corresponding storm events. e.g. discharging all flow from site at the existing 1 in 100 event increases flood risk during smaller events.
1 in 30	74.5	27.5	47	
1in 100	103.3	27.5	75.8	
1 in 100 plus climate change	N/A	27.5	na	To mitigate for climate change the proposed 1 in 100 +CC must be no greater than the existing 1 in 100 runoff rate. If not, flood risk increases under climate change should be added to the peak rainfall intensity. EA Guidance - Flood Risk Assessments: Climate Change Allowances (Published Feb 2016) https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

Technical Standards S4 to S9

5. Calculate discharge volumes –The total volume of water leaving the development site for a particular rainfall event. Introducing new impermeable surfaces increases surface water runoff and may increase flood risk outside the development.

	Existing Volume (m³)	Proposed Volume (m³)	Difference (m³) (Proposed-Existing)	Notes for developers & Local Authorities
1 in 1	217	835.5		Proposed discharge volumes (without mitigation) should be no greater than existing volumes for all corresponding storm events. Any increase in volume increases flood risk elsewhere. Where volumes are increased section 6 must be filled in.
1 in 30	681	1868.5		
1in 100	1002	2381.9		
1 in 100 plus climate change		3454.6		To mitigate for climate change the volume discharge from site must be no greater than the existing 1 in 100 storm event. If not, flood risk increases under climate change.

6. Calculate attenuation storage – In order to minimise the negative impact on flood risk resulting from increased volumes runoff from the proposed development, storage must be provided.

		Notes for developers & Local Authorities
Storage volume required to retain discharge rates as existing (m ³)	3121	Volume of water to attenuate on site if discharging at existing rates. Can't be used where discharge volumes are increasing
Where will the storage be provided on site?	TBC	

7. How is Storm Water stored on site?

Storage is required for the additional volume from site but also for holding back water to slow down the rate from the site. This is known as attenuation storage and long term storage. The intention is to not discharge that volume into the watercourses so as not to increase flood risk elsewhere.

			Notes for developers & Local Authorities
Infiltration	State the Site's Geology/drift material overlaying)	Tunbridge Wells Sand and Sandstone	Avoid infiltrating in made ground.
	Does the site have a high ground water table? Yes/No?	Yes	If yes, please provide details of the site's hydrology.
	Is the site within a known Source Protection Zones (SPZ)? Yes/No?	No	Infiltration rates are highly variable and refer to Environment Agency website to identify and source protection zones (SPZ)
	Are infiltration rates suitable?	Potentially (subject to infiltration tests)	Infiltration rates should be no lower than 1x10 ⁻⁶ m/s.
	Is the site contaminated? If yes, consider advice from others on whether infiltration can happen.	Unclear	Water should not be infiltrated through land that is contaminated. The Environment Agency may provide bespoke advice in planning consultations for contaminated sites that should be considered.
	State the distance between a proposed infiltration device base and the ground water (GW) level	N/A	Need 1m (min) between the base of the infiltration device & the water table to protect Groundwater quality & ensure GW doesn't enter infiltration devices. Avoid infiltration where this isn't possible.
	Were infiltration rates obtained by desk study or infiltration test?	No	Infiltration rates can be estimated from desk studies at most stages of the planning system if a back-up attenuation scheme is provided.
Is infiltration feasible?	Yes/No?	No	If infiltration is not feasible how will the additional volume be stored?. The applicant should then consider the following options in the next section.

7a. Storage requirements

Where infiltration is not possible, then the developer must confirm that either of the two options below will be implemented for dealing with the amount of water that needs to be stored on site.

Option 1 Simple – Store both the additional volume and attenuation volume in order to make a final discharge from site at **QBAR**. This is preferred if no infiltration can be made on site. This very simply satisfies the runoff rates and volume criteria.

Option 2 Complex – If some of the additional volume of water can be infiltrated back into the ground, the remainder can be discharged at a very low rate of 2 l/sec/hectare. A combined storage calculation using the partial permissible rate of 2 l/sec/hectare and the attenuation rate used to slow the runoff from site.

		Notes for developers & Local Authorities
Please confirm what option has been chosen and how much storage is required on site.	N/A	The developer at this stage should understand the site characteristics and be able to explain what the storage requirements are on site and how it will be achieved.

8. Additional Consideration to comply with the Technical Standards and PPG

		Notes for developers & Local Authorities
Which Drainage Systems measures have been used?	N/A	SUDS can be adapted for most situations even where infiltration isn't feasible e.g. impermeable liners beneath some SUDS devices allows treatment but not infiltration. See CIRIA SUDS Manual C753.
How will exceedance events be catered on site without increasing flood risks (both on site and outside the development)?	N/A	Safely: not causing property flooding or posing a hazard to site users i.e. no deeper than 300mm on roads/footpaths
How are rates being restricted?	Vortex flow control device	Hydrobrakes to be used where rates are between 2l/s to 5l/s. Orifices not be used below 5l/s as the pipes may block. Pipes with flows < 2l/s are prone to blockage.
Drainage during construction period	This will be managed by a construction surface water management Plan to mitigate the impacts of pollution and discharge control during construction	Provide details of how drainage will be managed during the construction period including any necessary connections, impacts, diversions and erosion control.
Key Drainage components / Features	NA	Which component if blocked (even partial) will lead to flooding?

Technical Standards S10 to S12

9. Management and Maintenance of SuDs

Details are required to be provided of the management and maintenance plan for the SUD, including for the individual plots in perpetuity.

How is the entire drainage system to be maintained in perpetuity?	The final designed and installed drainage will be managed by a company employed by the client/landowner. Details to be provided by the client/landowner	Clear details of the maintenance proposals of all elements of the proposed drainage system must be provided to show that all parts of SuDs are effective and robust. Provide a management plan to describe the SUDS scheme and set out the management objectives for the site. It should consider how the SuDs will perform and develop over time anticipating any additional maintenance tasks to ensure the system continues to perform as designed. — Specification notes that describe how work is to be undertaken and the materials to be used. — A maintenance schedule describes what work is to be done and when it is to be done using frequency and performance requirements as appropriate. — A site plan showing maintenance areas, control points and outfalls. Responsibility for the management and maintenance of each element of the SUDS scheme will also need to be detailed within the Management Plan. Where open water is involved please provide a health and safety plan within the management plan.
Please confirm the owners/adopters of the entire drainage systems throughout the development. Please list all the owners.	Not yet known. To be provided by the client/landowner	If these are multiple owners then a drawing illustrating exactly what features will be within each owner's remit must be submitted with this Proforma. Please give details of each feature and how it will be managed in accordance with the details in the management plan.
Please provide details demonstrating that any third party agreements required using land outside the application site have been secured.	NA	

The above form should be completed using evidence from information which should be appended to this form. The information being submitted should be proportionate to the site conditions, flood risks and magnitude of development. It should serve as a summary of the drainage proposals and should clearly show that the proposed discharge rate and volume as a result of development will not be increasing. Where there is an increase in discharge rate or volume, then the relevant section of this form must be completed with clear evidence demonstrating how the requirements will be met.

This form is completed using factual information and can be used as a summary of the surface water drainage strategy on this site.

Form Completed By...Jerome Klein.....

Qualification of person responsible for signing off this pro-forma Senior Civil Engineer.....

Company.....Richard Jackson Limited.....

On behalf of (Client's details) Jaynic.....

Date:.....04.02.26.....

Appendix K

LLFA Pre-application Response Letter

Title: SITE SPECIFIC FLOOD RISK ASSESSMENT
Project: LAND AT HORNBROOK FARM, HORSHAM
Client: Jaynic Properties Ltd and Hornbrook Developments LLP
Project No.: 62726

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



Rachael
Jaynic Properties Ltd
The Epicentre
Withersfield
Haverhill
Suffolk
CB9 7LR

BY EMAIL ONLY

21st November 2025

Dear Rachael,

LLFA / PLAN / PREAPP / 25 / 006 – Land off Hornbrook Farm, Horsham

WSCC Flood Risk Management Team Level 2 Pre-Application Advice has been sought for a 10.44 ha site in Horsham, Horsham District. The application will be for outline permission for up to 190 houses, therefore the level of advice reflects the application type. The site is allocated in Reg 19 Horsham local Plan 2019-2031 (HOR1).

Following a meeting on 31st October 2025, we have the following initial comments to make:

As the infiltration testing has demonstrated that for the majority of the site, low infiltration rates due to the geology type, it is proposed to discharge surface water into Horn Brook at greenfield runoff rate. For Parcel 5, infiltration may be viable, therefore at reserved matters we would expect this to be further investigated (this is something we are happy to condition). In areas where infiltration is a viable method of draining that area, we would expect infiltration to be used. This follows the SuDS Hierarchy and the National Standards for SuDS (NSfS), therefore is acceptable. It is noted that the groundwater levels are high in some trial hole locations (0.53 mbgl), which shall be considered at detailed design stage.

As this is an outline application, we'd suggest calculating the greenfield runoff rate for the entire development that could drain into the proposed surface water drainage system. Then for each catchment, calculating a pro-rata rate to determine required attenuation from each catchment.

It is proposed to manage the surface water using rain gardens, rainwater harvesting, swales and permeable paving. We are supportive of the use of open SuDS features, as this follows the National Standards for SuDS. Appropriate easements for the swale will need to be considered, as this could have impacts on the parameter plan.

In principle, we support the use of the swale as both a conveyance and attenuation feature. It is noted that check dams will be required due to the topography of the site. It appears that the swale is very close to the riverside walk, therefore water depths in the swale should be carefully considered from a health and safety

perspective. In addition, any roads crossing swales will need to be considered as the masterplan progresses.

7.14 mentions LLFA guidance, however we do not currently have detailed guidance released, therefore it is unclear what this refers to. We expect applicants to follow the National Standards for SuDS. When it is released it will be located here:

[Sustainable drainage systems](#)

It is stated that the watercourse is managed by WSCC. To clarify, we are not the riparian owner of this watercourse, as we do not own any land in this area. Instead, the landowner is responsible to the mid-point of Horn Brook. If the headwall is flush with the bank, and therefore not obstructing the flow of the watercourse, Ordinary Watercourse Consent will not be required. Further details on when OWC is required can be found here: [Ordinary watercourse land drainage consent](#) (In particular the document titled Ordinary Watercourse Consent Fee Structure).

As this will be an outline application, the drainage strategy should demonstrate a high-level description on how it is suggested the NSfS are followed at reserved matters.

FEH22 rainfall, Cv value 1 and 10% urban creep all follow local requirements. Depending on the modelling software being used the Additional Storage/MADD Factor will need to be 0.

Currently, the areas used in the calculations do not match the developable areas in Table 2.

There is an ordinary watercourse along the southern boundary of the site. Horn Brook has Flood Zone 3 areas along it. The current masterplan shows that there is no built development within this area, therefore the sequential approach is being used. For any detailed discussions about development in Flood Zones, the Environment Agency or LPA should be contacted. There is some ponding near Horn Brook, but no overland flow paths. There is an additional stretch of watercourse along the eastern boundary of the site (Doomsday Lane), although the route of the outfall to the south of the red line is not known. This will need to be investigated, in case there are unknown surface water sewers/culverted watercourses beneath the site. There are also suggestions in the topographical survey of a highway ditch along Brighton Road.

There is some historic flooding recorded outside the red line boundary along Horn Brook. We'd suggest this should be considered in the FRA.

All watercourses/ditches within the red line must be retained, with a 3m maintenance easement from the top of both banks required. This can also help with BNG requirements (this is outside of our remit but we are aware BNG pushes for a buffer to watercourses). These must be clearly shown on drawings, to ensure that as the application progresses, easements are retained.

With regards to Sequential Tests, this is a Local Planning Authority matter. To assist them, it is suggested the proposed masterplan is overlaid with the Flood Zones and Surface Water Flood Risk mapping, to demonstrate how the sequential approach has been used.

The effects of climate change on surface water flood risk need to be considered. It is suggested to use the HDC SFRA, which should cover it while we await the EA's release of surface water plus climate change modelling that is appropriate for use for planning purposes.

It is noted that 4.5 says that residential development is 'Less Vulnerable', however Annex 3 of the NPPF states that buildings used for dwelling houses (residential development) is 'More Vulnerable'.

It is noted that 40% Additional Flow has been added in the Design Settings. We'd suggest this should be 0, with climate change and urban creep added in the Simulation Settings.

When preparing for submission to the LPA, we recommend using the [SuDS Proforma](#) (Please note this hasn't been updated since the updated NSfS – if it is updated before the application is submitted I'll let you know).

We expect to see the following at outline application stage:

- Drainage layout showing labelled attenuation features and any proposed outfall locations. This should include any required easements, as this could have impacts on the parameter plan.
- Catchment plan to demonstrate natural catchments within the site are being followed.
- Evidence that the hierarchy has been followed.
- Quick storage estimates and runoff rates for the attenuation requirements
- We support proposals to follow the National Standards for SuDS. For an outline application, it needs to be demonstrated that Standard 1 (Run-off destinations/hierarchy) has been followed there is a viable method of draining the site. It also needs to be demonstrated that 1% AEP plus climate change event can be managed on site, without increasing flood risk elsewhere (Standard 3 (Management of Extreme Rainfall and Flooding)). This is because this is the Standard which affects the parameter plan the most significantly, therefore it must be demonstrated at outline stage that there is enough space for the required attenuation.
- For Standards 2, 4, 5, 6 and 7, a high-level overview of the use of multi-functional SuDS and who it is thought will be responsible for the maintenance of the SuDS and ordinary watercourses (under riparian ownership) within the red line boundary is required. This is because the application is outline – we will condition the detailed information.

The application will need to be in accordance with:

- NPPF
- PPG Flood risk and coastal change

- [National standards for sustainable drainage systems \(SuDS\)](#) (July 2025)
- Strategic Policy 10: Flooding and Strategic Policy HA10: Horsham Housing Allocations in Reg 19 HDC Local Plan

We are happy to review any amended documents prior to formal submission to the LPA.

Yours sincerely,

Eleanor Read

Eleanor.read@westsussex.gov.uk

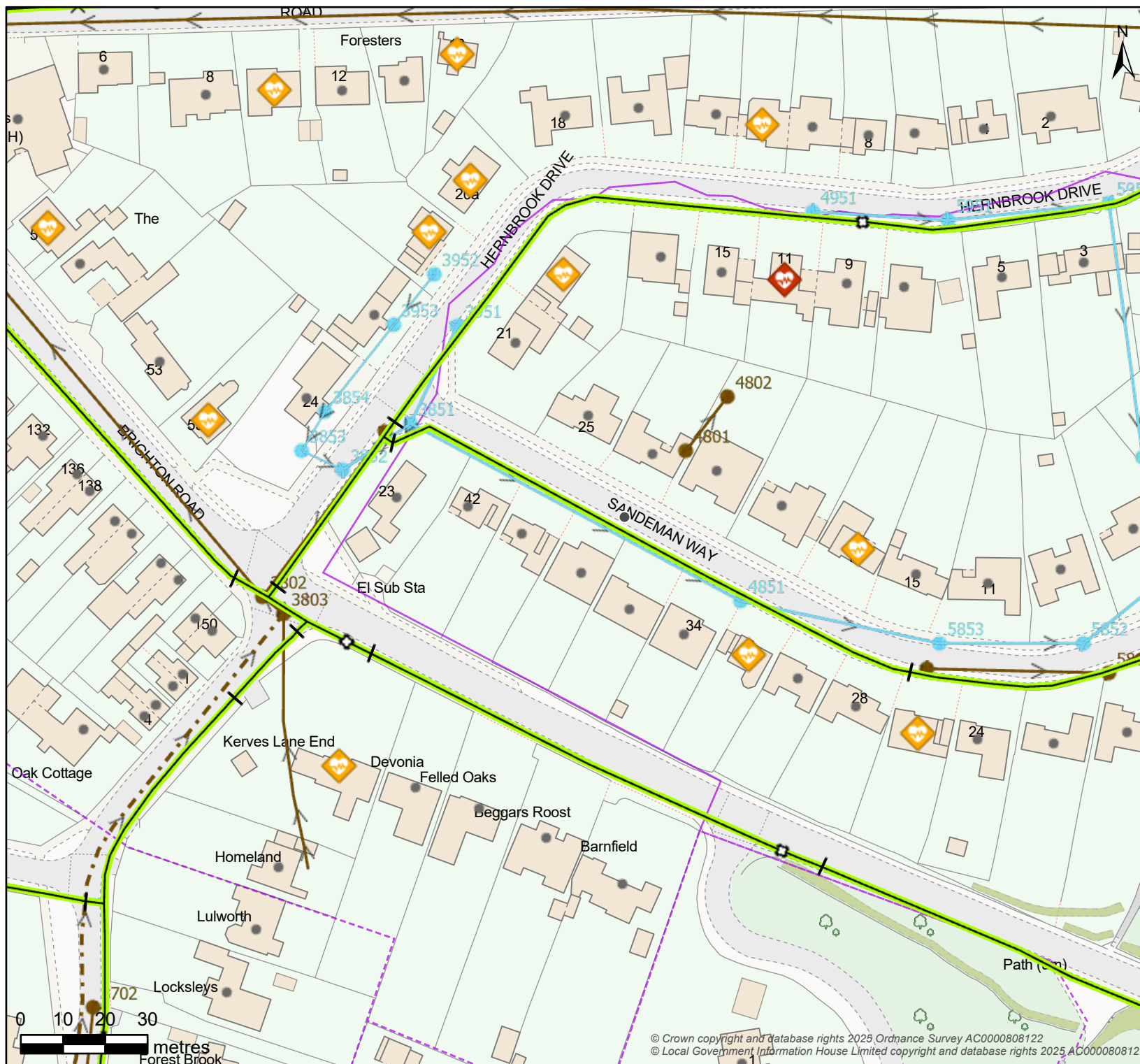
Flood Risk Management Team

Documents reviewed:

Site Specific Flood Risk Assessment by Richard Jackson Engineering Consultants,
14th October 2025, Issue 01

Appendix L

Southern Water Foul Water Connection Point



Map Title: Land at Hornbrook Farm Horsham

Printed By: Danielle.Tamplin

Date Printed: 11/04/2025

Map Scale: 1250

The information provided is believed to be correct but is provided on an 'as is' basis and without any warranty or condition express or implied, statutory or otherwise as to its quality or fitness for purpose. Actual positions of assets should always be determined on site.



Appendix M

Preliminary Drainage Management/Maintenance Plan

Title: SITE SPECIFIC FLOOD RISK ASSESSMENT
Project: LAND AT HORN BROOK FARM, HORSHAM
Client: Jaynic Properties Ltd and Hornbrook Developments LLP
Project No.: 62726

SUDS Feature	Regular Maintenance Activity	Frequency	Occasional Maintenance Activity	Frequency	Responsibility
Pipes and Manholes	- Visual inspection to check for debris and blockages. - Clean inlets and outlets	Monthly or as required	- Cleaning/jetting to remove sediment build-up - Remove litter and debris - Check for pipework degradation and structural condition	Annually or as required	Owner/Maintenance company
Gullies	Visual inspection to check for debris and blockages	Monthly or as required	- Cleaning/jetting to remove sediment build-up - Remove litter and debris - Check for pipework degradation and structural condition	Annually or as required	Owner/Maintenance company
Control Structures	Inspect control structures for blockages to inlets/outlets and remove blockage if found	Monthly or as required	Maintenance in accordance with manufacturers recommendations	Annually or as required	Owner/Maintenance Company
Permeable Paving and attenuation structures	- Visual Inspection - Regular checks for organic debris - Monitor for standing water after heavy or sustained periods of rainfall - Clean inlets/outlets, manholes, silt pit and associated pipework to attenuation structure	Monthly or as required	- Remove debris and sweep away from surface - Remove organic growth from between joints - Clean clogged joints if ponding occur using a mechanical sweeper or vacuum to remove any detritus. Remediate joints with similar jointing sand to the original.	Annually or as required	Owner/Maintenance Company
Headwalls & outlet	Visual inspection to ensure outlets are free from debris and blockages		- Inspect for signs of erosion around the base and repair as necessary. - Check outlets for blockages and remove any build-up - Prune vegetation and trim any trees to prevent obstruction of water flow	Annually or as required	Owner/Maintenance Company

NOTE:

All maintenance activities must be documented to ensure the long-term functionality of the drainage system. This is to be recorded on the construction & inspection drainage checklist provided or similar version developed by the owner/maintenance company. Health & safety must always be paramount if access arrangement to one or more of these structures is required during the maintenance process. Only qualified and competent persons are to undertake such tasks if required.

Title: PRELIMINARY DRAINAGE MAINTENANCE / MANAGEMENT PLAN
 Project: Hornbrook Farm
 Client: Jaynic Properties Ltd & Hornbrook Developments LLP
 Project No.: 62726



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