
Flood Risk Assessment

83 Bedford Road
Hitchin
SG5 2TY

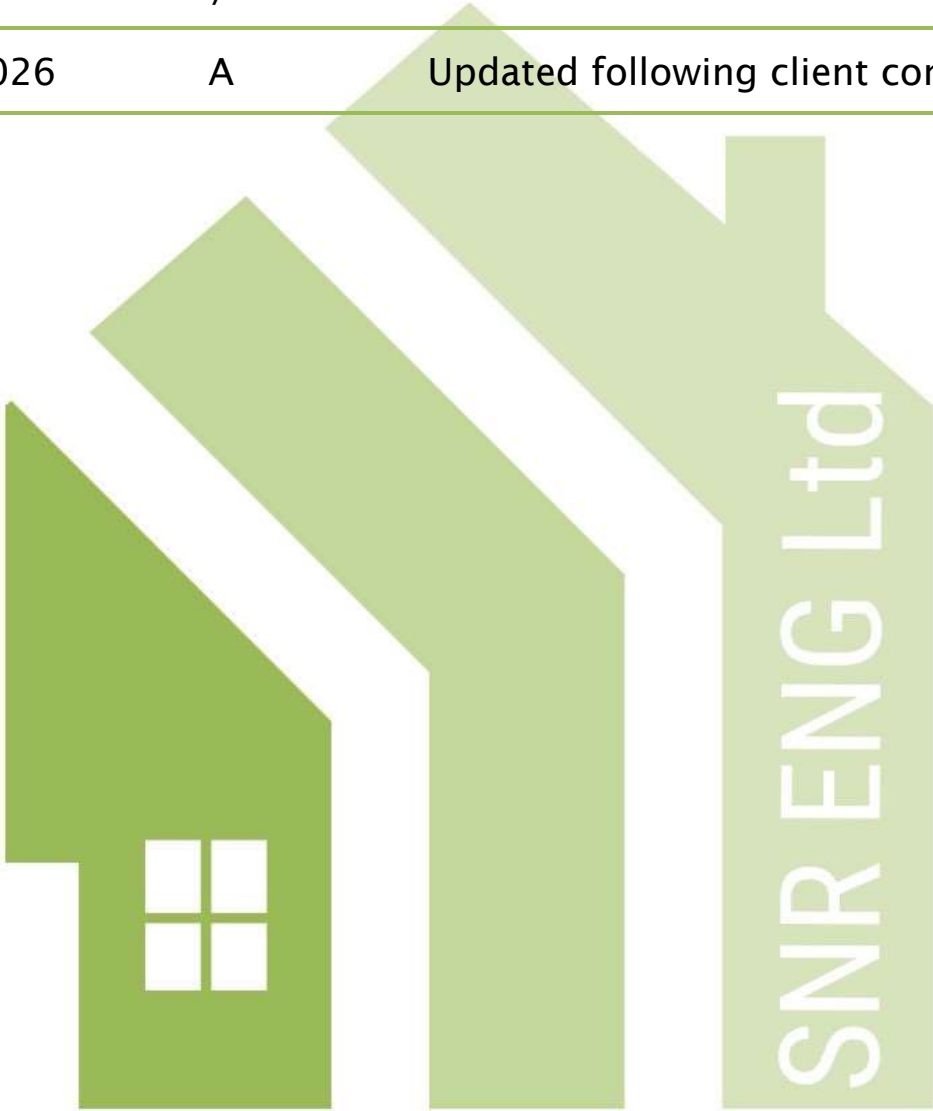


January 2026



Document Control

Date	Revision	Comments
January 2026	/	First issue.
February 2026	A	Updated following client comments.



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1.0 INTRODUCTION

Full planning permission is being sought for the demolition of the existing hotel building and the construction of 9no. new residential dwellings at 83 Bedford Road, Hitchin SG5 2TY.

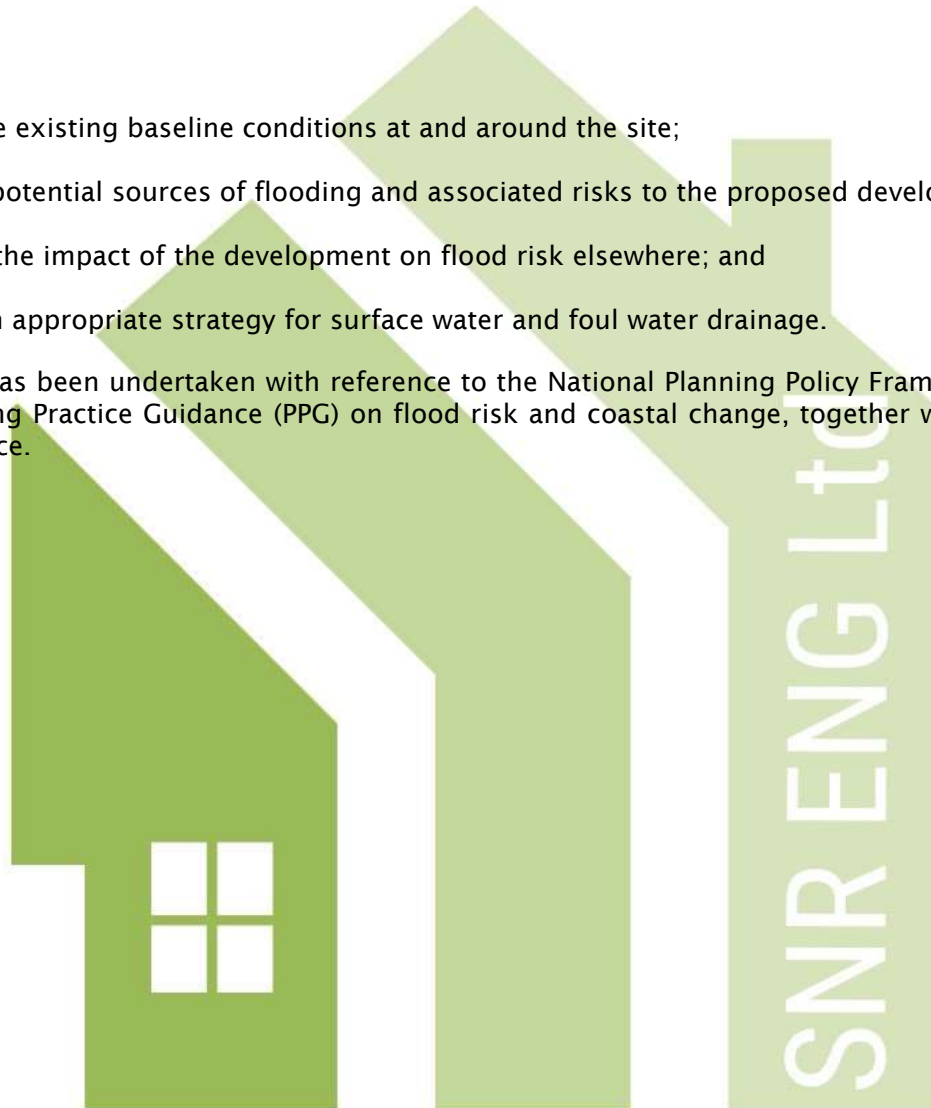
This Flood Risk Assessment (FRA) has been prepared to accompany the planning application and to consider the risk of flooding to and from the proposed development, together with any mitigation measures required to ensure the development will be safe for its lifetime and will not increase flood risk elsewhere.

1.1 Scope of the Assessment

This FRA:

- reviews the existing baseline conditions at and around the site;
- identifies potential sources of flooding and associated risks to the proposed development;
- considers the impact of the development on flood risk elsewhere; and
- outlines an appropriate strategy for surface water and foul water drainage.

The assessment has been undertaken with reference to the National Planning Policy Framework (NPPF) and associated Planning Practice Guidance (PPG) on flood risk and coastal change, together with relevant local policy and guidance.



2.0 BASELINE CONDITIONS

2.1 Location and Setting

The site is located at the former The Firs Hotel, 83 Bedford Road, Hitchin SG5 2TY, within the administrative area of North Hertfordshire District Council and Hertfordshire County Council.

The site area is approximately 1,600m² (<0.2ha). It is currently occupied by an existing hotel building and associated hardstanding / parking areas. Vehicular and pedestrian access is taken from Bedford Road to the east.

The site is bounded by:

- Bedford Road and highway land to the east;
- residential properties and gardens situated off of Firs Close to the south;
- Union Path abuts the western boundary with residential properties and gardens situated off of Symonds Road opposite; and
- existing commercial / community land and buildings to the north.

A Site Location Plan is provided in **Appendix A**.

2.2 Topography

A detailed topographical survey has been undertaken for the site.

Ground levels across the site typically range between approximately 70.3mAOD and 70.8mAOD. Levels fall gently across the site, with local low points aligning with drainage features or local topography.

Local topography in the wider area generally falls toward the south and south-west, tying into the surrounding urban drainage network and overland flow paths observed on Environment Agency (EA) surface water mapping.

The topographical survey for the Site is included in **Appendix D**.

2.3 Ground Conditions

The application site is previously developed (brownfield) land comprising existing hotel building and associated hardstanding. The site has no open water features and is not within a mapped functional floodplain.

British Geological Survey (BGS) mapping identifies the superficial deposits as the Lowestoft Formation (Diamicton) overlying the Zig Zag Chalk Formation. The Lowestoft Formation comprises cohesive clayey and silty tills with low permeability, whilst the Chalk bedrock is classified as a Principal Aquifer. The superficial deposits are classified as a Secondary Aquifer (undifferentiated). No groundwater abstraction points are recorded within 500m and the site lies within the outer extent of a Source Protection Zone Total Catchment (SPZ3).

Soilscape mapping identifies the site as Soilscape 8 – slightly acid loamy and clayey soils with impeded drainage. These soils are described as:

- loamy and clayey in texture;

- having slightly impeded drainage; and
- typically draining to the stream network.

Such soils exhibit limited permeability and generate higher surface water runoff under development. Taken together, the BGS and Soilscape datasets indicate that conventional soakaway infiltration is unlikely to be feasible, supporting a drainage strategy based on attenuation with controlled discharge to the public sewer network.

2.4 Water Features and Drainage Infrastructure

There are no open watercourses or ordinary watercourses within or immediately adjacent to the site.

Utility records identify a 225mm public foul sewer within Bedford Road fronting the site with a surface water public sewer located approximately 40m south-east of the site boundary within Bedford Road. The diameter has not yet been confirmed but is presumed to be in the order of 150mm (maximum 225mm) based on downstream Anglian Water sewer records.

All new on-site drainage will remain private, with foul and surface water discharging to the public sewer network in Bedford Road via new S106 connections, subject to approval by the sewerage undertaker.

2.5 Proposed Development

The proposals comprise:

- demolition of the existing hotel building and removal of associated hardstanding;
- construction of 9no. new residential dwellings (Use Class C3), including associated private gardens and landscaped areas;
- provision of private off-street parking, a shared private access road; and
- installation of new foul and surface water drainage systems.

No basements are proposed and all habitable accommodation will be located at or above ground level.

The proposed site layout has been prepared by others and forms part of the planning submission.

The proposed site layout is provided in **Appendix C**.

3.0 BACKGROUND AND KEY DOCUMENTS

3.1 National Planning Policy and Guidance

This FRA has been undertaken with regard to the NPPF and PPG, which require that:

- new development is directed to areas of lowest flood risk where possible;
- development in areas at risk of flooding is made safe for its lifetime without increasing flood risk elsewhere; and
- opportunities are taken to reduce overall flood risk and incorporate sustainable drainage systems (SuDS).

3.2 Flood Zone and Vulnerability and Classifications

EA Flood Map for Planning indicates that the site lies wholly within Flood Zone 1 (land assessed as having a less than 0.1% annual probability of fluvial or tidal flooding).

The proposed use (dwellings) is classified as “More Vulnerable” in the PPG vulnerability classification. “More Vulnerable” development is appropriate in Flood Zone 1 without the need for the Exception Test.

Given the Flood Zone 1 status and previously developed brownfield nature of the site, the Sequential Test is considered satisfied.

3.3 Strategic Flood Risk Assessment (SFRA)

The North Hertfordshire District Council Strategic Flood Risk Assessment (SFRA) Update (2016) identifies surface water as a more significant source of flood risk within the district than fluvial flooding. The SFRA notes that recent flood events in North Hertfordshire have predominantly been associated with intense rainfall and surface water rather than river flooding.

Within Hitchin, the SFRA confirms that surface water mapping largely reflects modelled overland flow paths, whereas fluvial flood risk is comparatively minimal.

Development proposals are therefore expected to consider surface water exceedance routing and incorporate SuDS-based attenuation to ensure that surface water flood risk is not increased on-site or downstream.

The SFRA further notes that, for development sites in Flood Zone 1, the Sequential Test is considered to be satisfied in respect of fluvial flooding.

However, a sequential approach to surface water risk is expected to be applied within the Site, with mitigation measures secured at the application stage.

In accordance with the SFRA, this FRA includes a surface water drainage strategy which provides on-site attenuation, appropriate flow control and defined overland exceedance routing to ensure that there is no increase in flood risk elsewhere.

3.4 Sequential Test

The Sequential Test seeks to steer new development to areas with the lowest probability of flooding. The NPPF and Planning Practice Guidance confirm that the requirement for the Sequential Test is triggered

where development is proposed in Flood Zones 2 or 3, or where alternative sites at lower flood risk may reasonably be available.

The application site lies wholly within Flood Zone 1, which is the lowest probability flood zone, and constitutes previously developed (brownfield) land within the established built form of Hitchin. The site is not located within a strategic floodplain, does not act as functional flood storage, and is not identified for strategic flood management purposes.

The proposed development comprises More Vulnerable residential use (Class C3), which is appropriate in Flood Zone 1 without the need for the Exception Test. On this basis, and in accordance with the NPPF, the Sequential Test is considered to be passed.

It is acknowledged that the Environment Agency surface water mapping identifies a modelled overland flow route across part of the site during extreme rainfall events. Surface water hazard is not a determinant for the Sequential Test (which relates to fluvial and tidal flood zones); however, surface water risk has been assessed separately within this FRA and is capable of being safely mitigated through finished floor levels, on-site attenuation and defined overland exceedance routing without increasing flood risk elsewhere.

3.5 Local Policies and Guidance

The FRA and drainage strategy will accord with:

- Hertfordshire County Council, as Lead Local Flood Authority (LLFA), SuDS policies and guidance;
- North Hertfordshire District Council Local Plan policies relating to flood risk and sustainable drainage; and
- the requirement that developments manage surface water on-site, discharge at greenfield or betterment rates where practicable, and ensure safe overland exceedance routing.

3.6 Climate Change

For drainage design, climate change allowances will be incorporated by applying the LLFA-recommended uplift to rainfall intensity (currently in the order of 40% for residential development over a 100-year design life).

The proposed drainage system and attenuation will be sized for at least the 1 in 100-year event plus 40% climate change allowance, with allowance for safe routing of exceedance events beyond this standard.

The design lifetime for the proposed residential development is 100 years in accordance with NPPF and PPG guidance. Climate change allowances have been applied on this basis.

4.0 GEOLOGY & HYDROGEOLOGY

4.1 British Geological Survey (BGS)

BGS mapping identifies the superficial deposits as the Lowestoft Formation (Diamicton) overlying the Zig Zag Chalk Formation. The Lowestoft Formation comprises cohesive clayey and silty tills with low permeability. The superficial deposits are classified as a Secondary Aquifer (undifferentiated) and the Chalk bedrock as a Principal Aquifer.

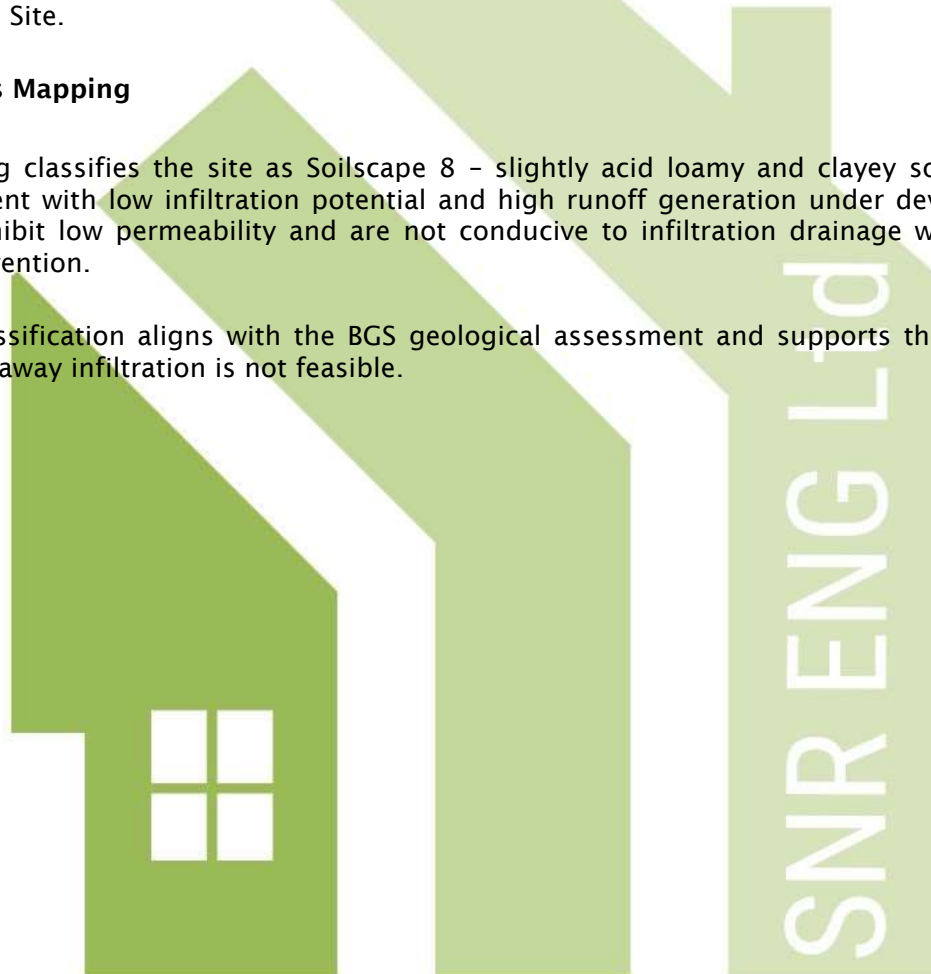
The site lies within the outer extent of a Source Protection Zone Total Catchment (SPZ3), approximately 61m south-west of the Site. No SPZ1 or SPZ2 designations apply and no potable abstractions are recorded within 500m. Groundwater flood risk at the site is mapped as negligible to low. No basements are proposed and groundwater does not represent a constraint to finished floor levels.

Given the cohesive superficial deposits and SPZ3 designation, infiltration-based SuDS are considered unsuitable for this Site.

4.2 Soilscape Mapping

Soilscape mapping classifies the site as Soilscape 8 – slightly acid loamy and clayey soils with impeded drainage, consistent with low infiltration potential and high runoff generation under development. These soils typically exhibit low permeability and are not conducive to infiltration drainage without significant engineering intervention.

The Soilscape classification aligns with the BGS geological assessment and supports the conclusion that conventional soakaway infiltration is not feasible.



5.0 FLOOD RISK

In accordance with the NPPF and Planning Practice Guidance (PPG), disposal of surface water has been considered in the following hierarchical order:

1. infiltration to ground;
2. discharge to watercourse;
3. discharge to surface water sewer or highway drain; and
4. discharge to combined sewer.

For this Site, infiltration is not considered feasible due to the cohesive superficial deposits and Soilscape 8 classification (Sections 2.3 and 4.0) and the absence of any nearby open watercourses. The proposed drainage strategy therefore utilises attenuation with controlled discharge to the public sewer network in Bedford Road, via a new Section 106 connection.

5.1 History of Flooding at the Site

No records of historical fluvial flooding affecting the site have been identified. There are known surface water flow routes in the local area but no specific records of historic property flooding at the site have been noted at this stage.

5.2 Potential Sources of Flooding

Potential sources of flooding considered in this FRA include:

- fluvial (river) flooding;
- pluvial (surface water run-off);
- groundwater;
- sewers and drains;
- reservoirs and other artificial sources.

5.2.1 Fluvial Flooding

Fluvial flooding occurs when rivers or watercourses exceed the capacity of their channels and floodplains.

The EA Flood Map for Planning confirms that the site is wholly within Flood Zone 1, well away from any Main River. No ordinary watercourses are present within or in the immediate vicinity of the site.

Accordingly, the risk of fluvial flooding to the site is considered to be low.

Environment Agency Flood Map for Planning outputs are included in **Appendix B**.

5.2.2 Surface Water (Pluvial) Flooding

Surface water flooding occurs when intense rainfall is unable to infiltrate into the ground or enter the drainage system, resulting in water ponding or flowing overland.

EA "Flood map for planning – surface water" mapping identifies:

- parts of the site, predominantly along the western side, as being at risk of surface water flooding during the 1 in 100-year event; and
- a larger part of the site as at risk during the 1 in 1000-year event, indicating an overland flow route crossing the plot broadly in a north-south orientation.

The EA “Check your long-term flood risk” mapping similarly indicates that the site has a variable risk from surface water (ranging from “low” to “high” in places) over the long term, reflecting the modelled flow route.

It is recognised that EA surface water mapping is deliberately conservative and does not explicitly account for:

- detailed site levels;
- the influence of existing or proposed drainage infrastructure; or
- the beneficial effect of highway drainage and local sewer capacity.

However, the presence of a mapped surface water route is a material constraint that must be managed by the development.

Mitigation will be provided as follows:

- Finished Floor Levels (FFLs) of all affected dwellings will be set a minimum of 300mm above adjacent external ground levels and above predicted surface water levels, ensuring internal areas remain dry in a 1 in 100-year plus 40% climate change event.
- Site levels and external works will be designed such that exceedance flows are directed along defined overland routes through streets / parking areas and towards Bedford Road and Firs Close, rather than toward dwelling thresholds or neighbouring properties.
- The drainage strategy will include on-site attenuation and controlled discharge to the public sewer network, thereby reducing peak surface water run-off rates compared with the existing hardstanding-dominated site.

In addition, the proposed site layout has incorporated a sequential approach to surface water risk within the plot. The dwellings most closely intersecting the mapped overland flow route (Plots 1–5) have been aligned with the established building lines of the residential properties to the south and the commercial building to the north, thereby avoiding protrusion of built form into the predicted flow path. This design approach maintains continuity of the existing overland flow corridor along the western side of the Site and reduces the potential for obstruction, deflection or ponding of surface water during exceedance events.

With these measures in place, and subject to detailed design, the residual risk of surface water flooding to the proposed dwellings is considered to be low and manageable.

Environment Agency surface water flood mapping outputs are also included in **Appendix B**.

5.2.3 Groundwater Flooding

Groundwater flooding generally occurs in low-lying areas over permeable aquifers where the water table rises to or above ground level following prolonged rainfall.

The Soilscape 8 classification identifies slightly acid loamy and clayey soils with impeded drainage rather than highly permeable aquifer material. There are no mapped groundwater Source Protection Zones covering the site.

No specific records of groundwater flooding in the immediate vicinity of the site have been identified.

No basements are proposed. Foundations and below-ground services will be at typical residential depths only. Should local perched groundwater be encountered during construction, standard engineering controls can be adopted.

On this basis, the risk of flooding from groundwater is considered to be low.

5.2.4 Flooding from Sewers and Drains

Sewer flooding can occur when public sewers or private drains become overloaded during intense rainfall events or become blocked.

Utility records identify a 225mm public foul sewer within Bedford Road fronting the site with a surface water public sewer located approximately 40m south-east of the site boundary within Bedford Road. The diameter has not yet been confirmed but is presumed to be in the order of 150mm (maximum 225mm) based on downstream Anglian Water sewer records.

Under extreme events beyond the design standard, exceedance from the on-site drainage system will be routed via carefully graded external areas and hardstanding towards Bedford Road / Firs Close and the wider highway drainage network, rather than towards properties.

There are no known records of historic sewer flooding at the site. With appropriate design of the on-site system and controlled discharges to the public sewer, the risk of flooding from sewers and drains is considered to be low.

5.2.5 Flooding from Reservoirs and Other Artificial Sources

EA reservoir flood mapping does not identify the site as being at risk from controlled reservoirs.

There are no canals, large artificial lakes or other major artificial water bodies in the vicinity of the site that might pose a flood risk.

The risk of flooding from reservoirs and other artificial sources is therefore considered to be very low.

6.0 DRAINAGE

A separate detailed drainage strategy will be prepared at the next design stage. For the purposes of this FRA, the intended approach is summarised below.

6.1 Surface Water Drainage Assessment

Given the cohesive superficial geology and Soilscape 8 classification, infiltration drainage via soakaways is not considered feasible. Surface water will therefore be attenuated within private land and discharged to the public sewer network in Bedford Road via a new Section 106 connection. All drainage within the Site boundary will remain private. Subject to undertaker confirmation, the surface water sewer within Bedford Road provides a viable receptor for controlled surface water discharge via a new S106 connection.

Greenfield runoff rates have been estimated for the 0.160ha site using the HR Wallingford Greenfield Runoff Estimation Tool (FEH Statistical 2025 method). The calculated QMed for the site is 0.04l/s with a corresponding QBar of 0.05l/s and a 1 in 100-year runoff rate in the order of 0.20l/s.

A copy of the Greenfield Runoff Rate Estimation is included in **Appendix E**.

In accordance with national and local SuDS policy, the post-development discharge rate will be set as close to Greenfield as reasonably practicable. However, the theoretical Greenfield rates for a 0.160ha site are below practical discharge control limits and cannot be directly implemented, for the following reasons:

1. Theoretical rates of 0.04–0.05l/s fall below the minimum controllable flow using conventional flow control devices and present a heightened blockage risk.
2. Achieving such rates would require orifice diameters below circa 20mm, which are specifically discouraged by sewerage undertakers.
3. Sewerage undertakers typically do not accept new connections below approximately 1.0l/s for operational and maintenance reasons.
4. The existing site comprises a substantial proportion of impermeable hardstanding, and therefore restricting discharge below the existing runoff regime will deliver a net betterment.

Accordingly, the proposed development will utilise attenuation within private land and discharge to the public sewer network at a restricted rate in the order of **1.0l/s**, being the lowest viable and undertaker-acceptable rate whilst remaining materially aligned with Greenfield performance for a site of this scale.

A Pre-Development Enquiry is to be submitted to Anglian Water in order to confirm the allowable peak discharge rate, available capacity within the receiving surface water sewer and any developer requirements associated with the S106 application.

Attenuation storage will be sized for at least the 1 in 100-year storm plus 40% climate change allowance, with exceedance safely routed overland toward Union Path along the western boundary.

6.2 Proposed Surface Water Drainage System

The proposed surface water drainage system will comprise on-site attenuation within private land and controlled discharge to the public sewer network in Bedford Road. The following principles will be adopted at detailed design stage:

- roof water will be conveyed to the private drainage system and, where feasible, routed via SuDS features such as permeable paving;

- private drives and parking areas will utilise permeable paving to provide source control, water quality treatment and additional sub-base storage;
- geocellular or oversized pipe attenuation will be provided to accommodate storm events up to the 1 in 100-year return period plus 40% climate change allowance;
- a flow control device will be provided to restrict discharge to a rate in the order of 1.0l/s, as set out in Section 6.1; and
- surface water will be discharged to the public sewer network in Bedford Road via a new Section 106 connection, subject to agreement with the sewerage undertaker.

Design of the system will ensure that exceedance events above the 1 in 100-year plus 40% climate change standard are safely routed overland within the Site and directed toward Bedford Road and Firs Close without increasing flood risk to neighbouring properties.

6.3 Finished Floor Levels (FFL) and Existing Ground Level Comparison

Table 1 – Finished Floor Levels (FFL) and Existing Ground Level Comparison

Plot	Existing Ground Level (mAOD)	Proposed FFL (mAOD)	Difference (mm)
1	70.440	70.750	+310
2	70.400	70.750	+350
3	70.390	70.750	+360
4	70.380	70.750	+370
5	70.420	70.750	+330
6*	70.500	70.650	+150
7*	70.500	70.650	+150
8*	70.470	70.650	+180
9*	70.530	70.650	+120

*plots are not affected by surface water flooding.

The table above demonstrates a minimum freeboard of 310mm above the adjacent ground level for all affected plots and a minimum freeboard of 120mm above the adjacent ground level for all unaffected plots. The proposed finished floor levels ensure dry access/egress and on-plot protection in the design storm event with exceedance routed toward Union Path along the western boundary.

6.4 Proposed Foul Water Drainage System

Foul flows from the 9no. dwellings will be conveyed via a new private foul drainage network and discharge to the existing 225mm public foul sewer in Bedford Road.

Connection will be via a new S106 foul sewer connection, subject to consent from the sewerage undertaker. Confirmation of sewer capacity will be sought from Anglian Water at detailed design stage via either a Pre-Development Enquiry or as part of the S106 application process.

All on-site foul drainage will remain private and will be designed in accordance with the current Building Regulations and relevant standards.

6.5 Maintenance and Adoption

All SuDS components including permeable paving, private drainage, attenuation and the flow control device will remain under private ownership. These components will be maintained for the lifetime of the development in accordance with a future Operation & Maintenance Plan to be secured via planning condition. No adoption by Hertfordshire County Council as LLFA or Anglian Water is sought at this stage.

Maintenance activities will be undertaken in accordance with manufacturer guidance and CIRIA SuDS Manual (C753).

7.0 SUMMARY AND CONCLUSION

This FRA has been prepared in support of a planning application for the demolition of the existing hotel building and construction of 9no. new dwellings at 83 Bedford Road, Hitchin SG5 2TY.

Key findings are:

- The site lies wholly within Flood Zone 1 and is therefore at low risk of fluvial flooding.
- Safe, dry access and egress will be available via Bedford Road and Firs Close in all design storm events.
- EA surface water mapping identifies an overland flow route crossing the western part of the site during the 1 in 100-year and 1 in 1000-year events. This represents the principal flood risk to be managed by the development.
- Through appropriate design of the development layout, finished floor levels, external levels and designated overland exceedance routes, surface water can be safely managed on-site and directed away from the proposed dwellings and neighbouring properties.
- Ground conditions (Soilscape 8 – slightly acid loamy and clayey soils with impeded drainage) indicate that infiltration drainage and conventional soakaways are not feasible.
- All new drainage on the site will be private, with foul flows discharging to the existing 225mm foul sewer in Bedford Road and surface water discharging at a restricted rate to the surface water public sewer network via new S106 connections, subject to the agreement of the sewerage undertaker.
- The proposed surface water drainage strategy will incorporate attenuation for at least the 1 in 100-year plus 40% climate change event and will limit discharge rates such that peak run-off does not exceed existing conditions and is likely to be reduced.
- The development will provide a betterment to existing surface water runoff from the previously developed site.

Subject to detailed drainage design in accordance with the principles set out in this FRA, it is concluded that:

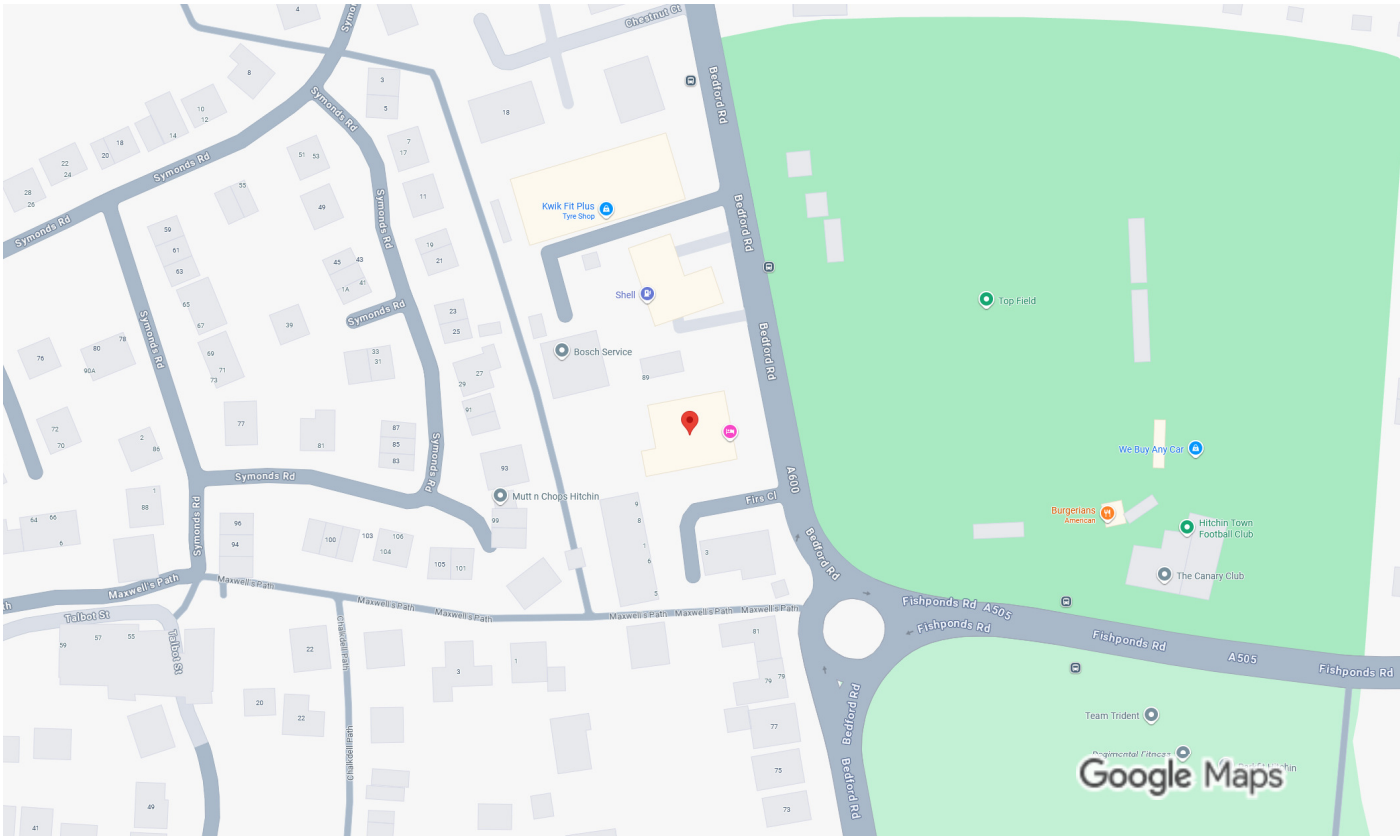
- the proposed development can be made safe for its lifetime with respect to flood risk;
- it will not increase flood risk elsewhere; and
- opportunities will be taken to manage and, where practicable, reduce surface water flood risk compared with the existing situation.

Accordingly, the proposals are considered acceptable in flood risk and drainage terms.

Appendix A

Site Location Plan





Map data ©2026 20 m



83 Bedford Rd
Building

- Directions
- Save
- Nearby
- Send to phone
- Share

83 Bedford Rd, Hitchin SG5 2TY

Photos

Appendix B

EA Flood Mapping



Get a boundary report

Add

Datasets

☒ Flood zones 2 and 3

☐ Surface water

☐ None

Climate change

☐ Present day

☒ 2070 to 2125

Map features

☐ Water storage

☐ Flood defence

☐ Main Rivers



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

Search

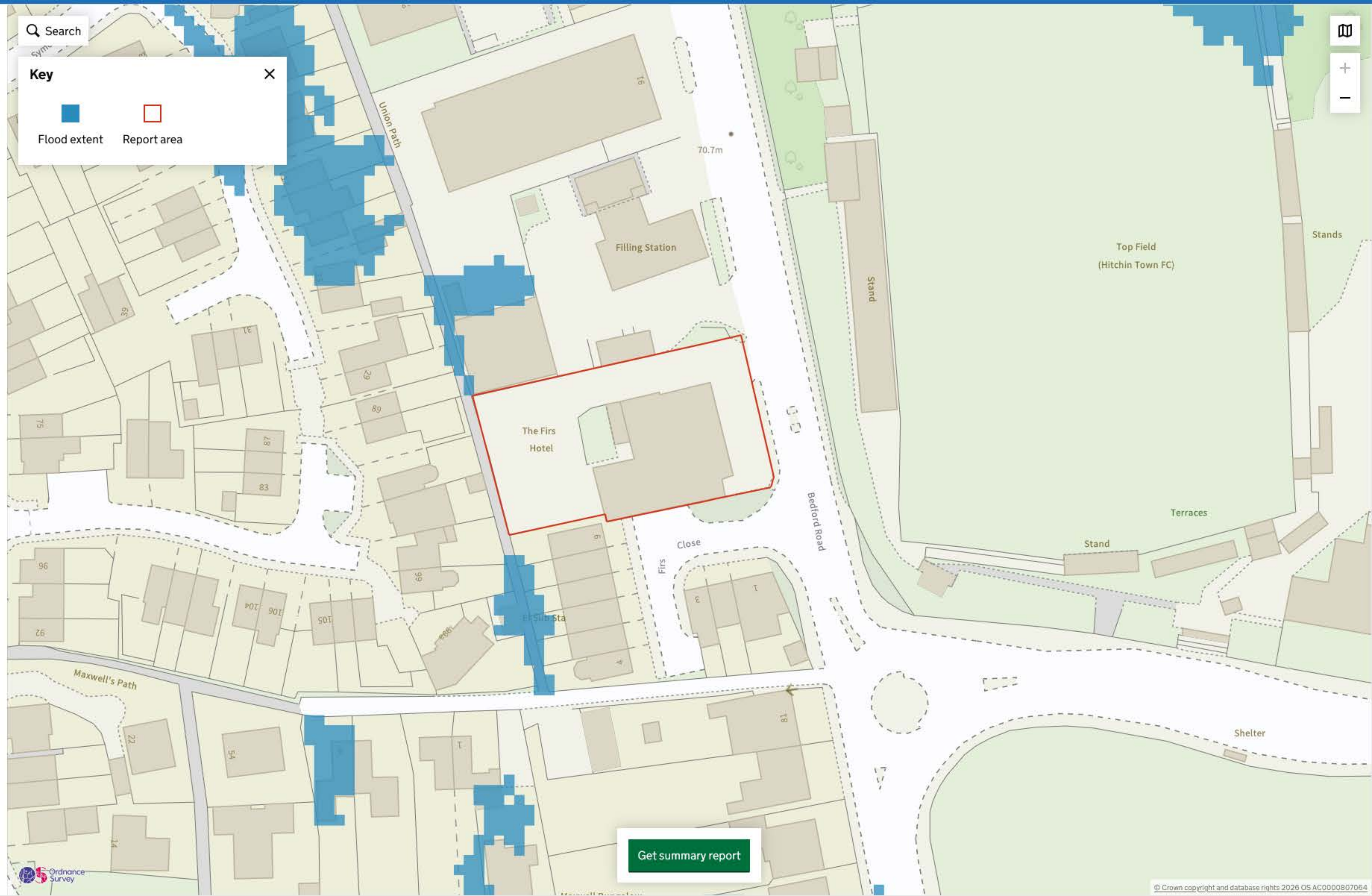
Key



Flood extent



Report area



Get summary report

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

Search

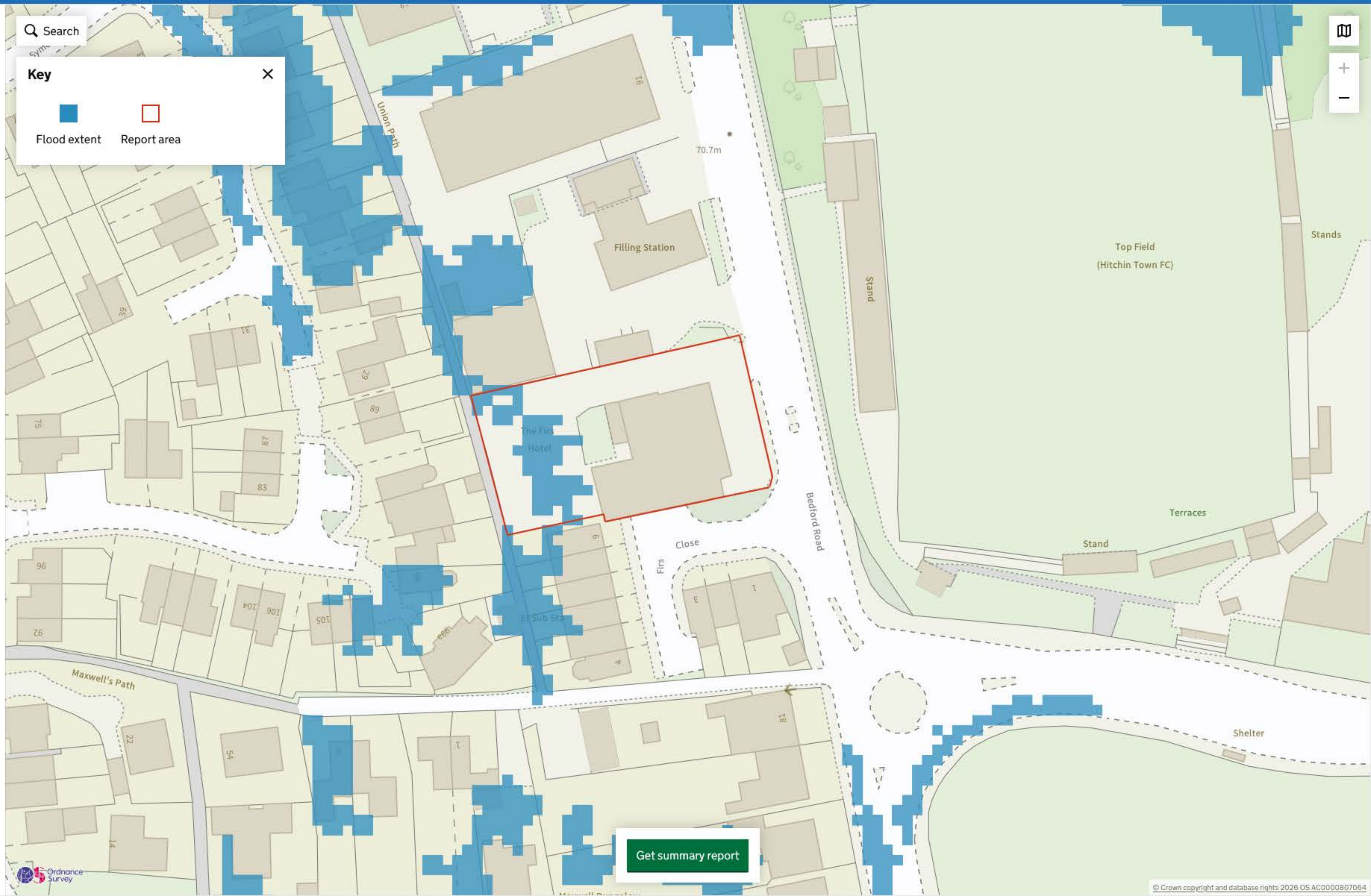
Key



Flood extent



Report area



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

Search

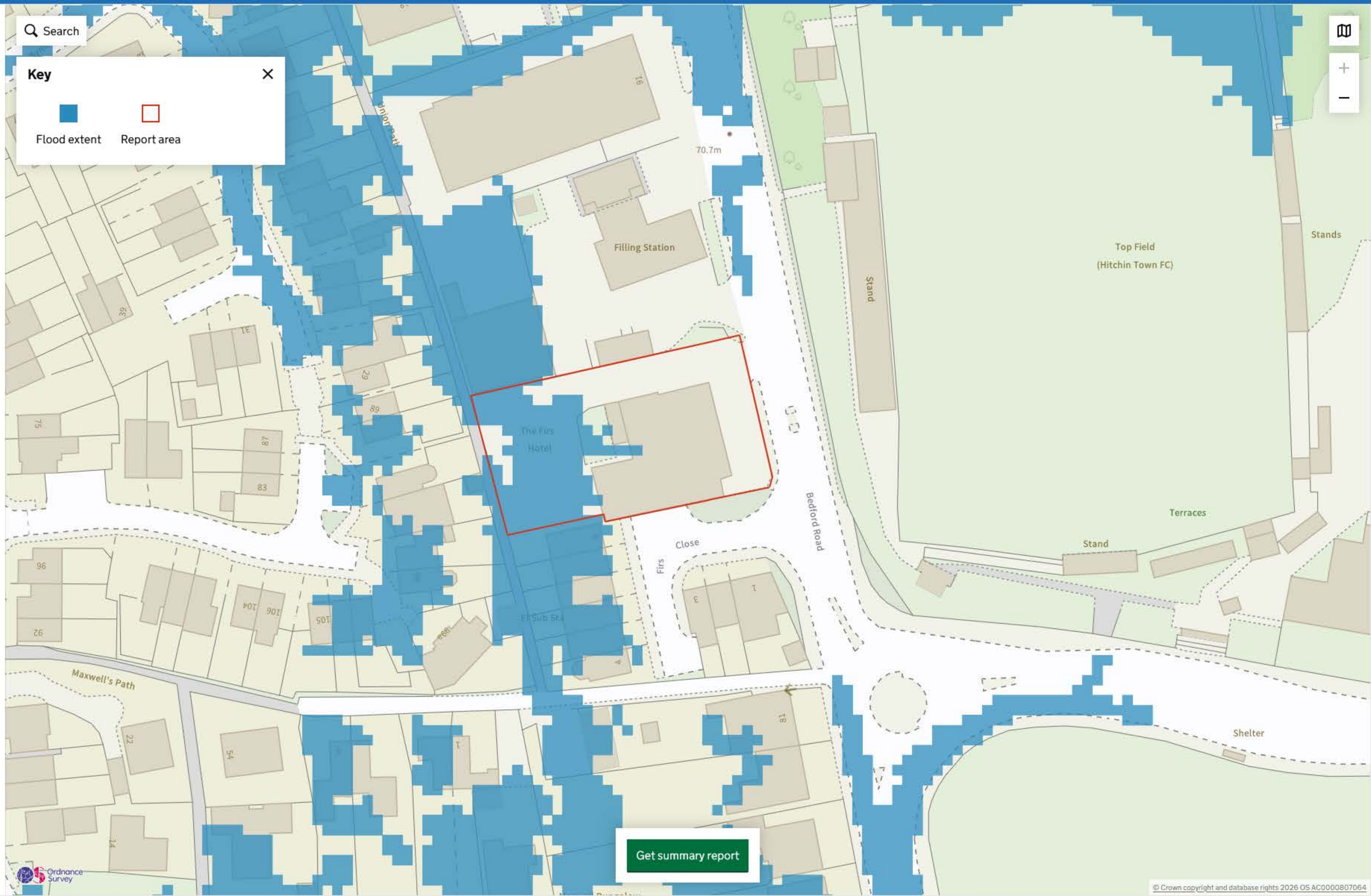
Key



Flood extent



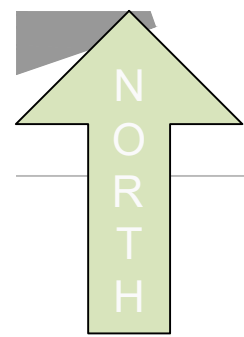
Report area



Appendix C

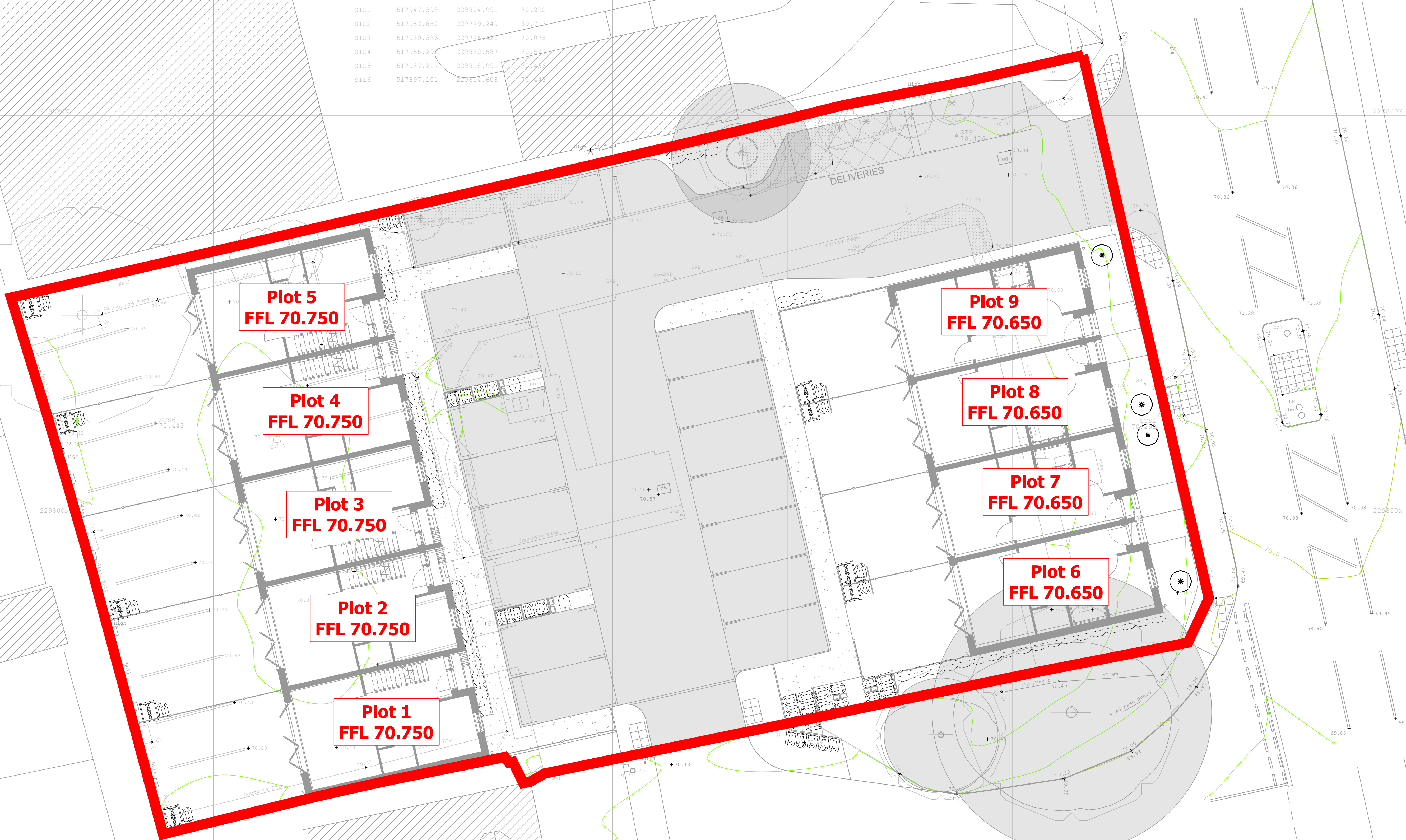
Site Layout





- Notes
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REV	DESCRIPTION	DATE	BY	AUTH



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Civil Engineering Design | Utilities Design Consultancy



PROJECT
**83 BEDFORD ROAD,
HITCHIN SG5 2TY**

TITLE
**PROPOSED FINISHED FLOOR
LEVELS PLAN**

DRAWN	APPROVED	SCALE	DATE
RAK	RAK	1:100 @ A0	JAN '26

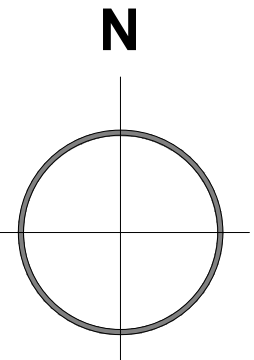
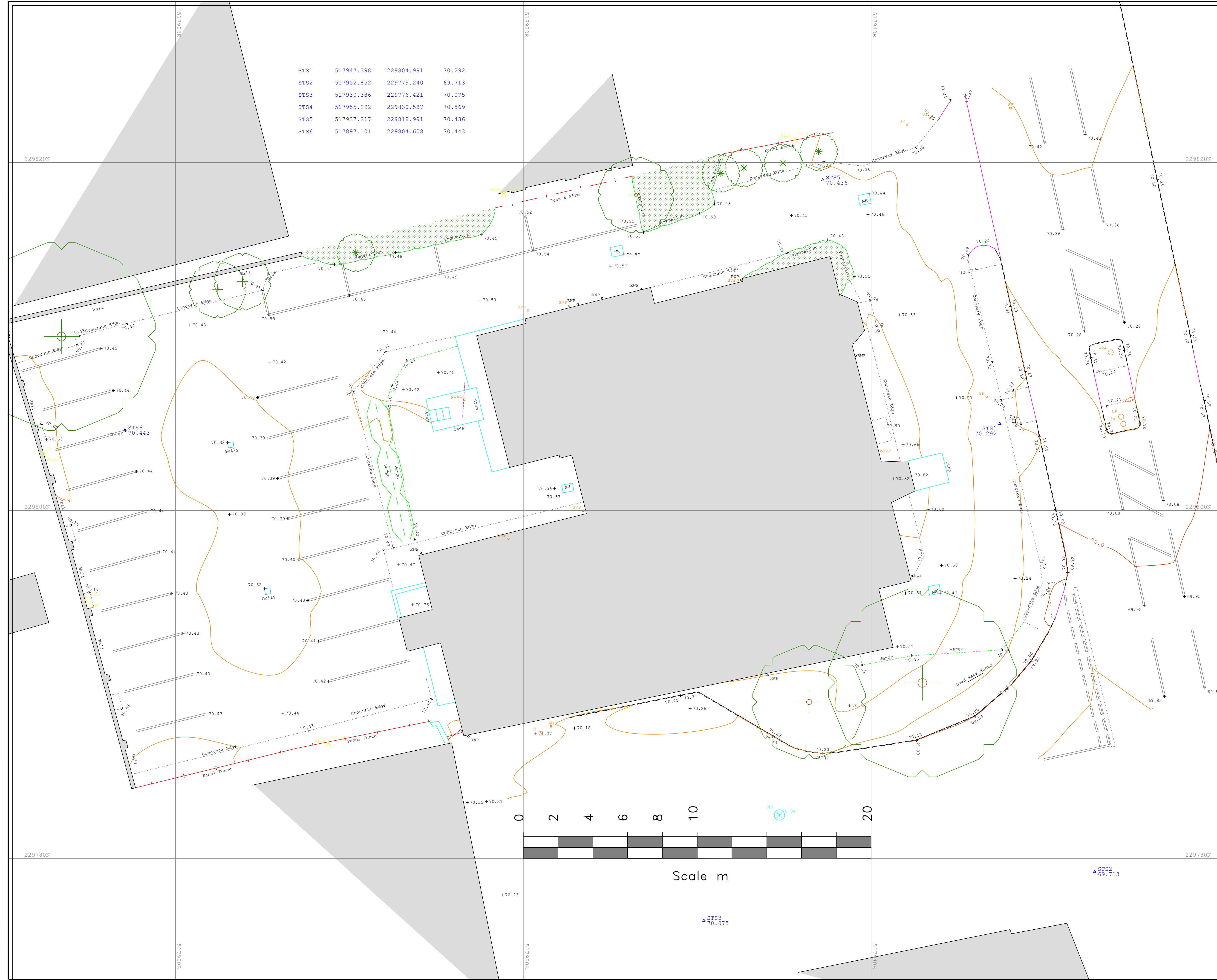
PROJECT NO.	DRAWING NO.	REV
2601023	100	1

FOR PLANNING

Appendix D

Topographical Survey





Notes :

This plan should only be used for its original purpose.
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if supplied to any other party other than the original
client.

All dimensions / levels should be checked on site prior
to design and construction.

Drainage information (where applicable) has been
visually inspected from the surface and should be
treated as approximate only.

Tree information (where applicable) has been
surveyed from ground level and therefore should be
treated as approximate only.

Contours are drawn at 0.2m intervals

The survey has been fixed to GPS OSGB 1936 using
the active GPS network.

Legend:

Building Canopy / Overhang	Trig	Trig Pillar
Buildings / walls	Ridge	Ridge Level
Kerb line	Eave	Eave Level
Concrete edge	DPC	Dpc Level
Centre Line	FL	Floor Level
Barrier	SoL	SoL Level
Hedge	TBo	Control Box
Security Fence	LP	Lamp Post
Panel Fence	SP	Sign Post
Open Fence	Post	Flag Staff
Overhead Powerline	FS	Gas Marker
Chambers	Mks	Electric Post
Survey Station & Name	EP	Telegraph Post
Bench Mark	TP	Pipe Invert
Temporary Bench Mark	GU	Gully
Tree / Sapling	RP	Rodding Point
Area Of Undergrowth	BT	Bus Cover
Gate	CO	Cover Unknown
IC	EC	Electricity Cover
Cover level	FH	Fire Hydrant
Invert level	GAS	Gas Cover
Pipe Invert (diameter)	SV	Stop Valve
Gully	TV	Tv Cover
Back Gully	WM	Water Meter
Manhole	BB	Bellisha Beacon
	BS	Bus Stop
	ER	Earthing Rod
	Box	Post Box
	MS	Mile Stone
	TL	Traffic Light
	GV	Gas Valve
	pgs	Peg



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Project
**SEABROOK ARCHITECTS
THE FIRS HOTEL**

Drawing
**TOPOGRAPHIC
SITE SURVEY**

Scales 1:100	Drawn/Paper Size SF/A1
Survey Date 19/08/2024	Drawing No 24259-24-01
DO NOT SCALE	
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Appendix E

Greenfield Runoff Rate Estimation



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	19/01/2026
Calculated by	SNR ENG Ltd
Reference	2601023
Model version	2.2.2

Location

Site name	83 Bedford Road
Site location	Hitchin



Site easting (British National Grid)	517928
Site northing (British National Grid)	229799

Site details

Total site area (ha)	0.1600	ha
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Greenfield runoff

Method

Method	FEH statistical (2025)
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FEH statistical (2025)

	My value		Map value
SAAR9120 (mm)	642		mm
BFIHOST19scaled	0.932		
QMed-QBar conversion	1.124		1.124
QMed (l/s)	0.04	l/s	
QBar (FEH statistical 2025) (l/s)	0.05	l/s	

Growth curve factors

	My value		Map value
Hydrological region	5		5
1 year growth factor	0.87		
2 year growth factor	0.89		
10 year growth factor	1.65		
30 year growth factor	2.45		
100 year growth factor	3.56		
200 year growth factor	4.21		

Results

Method	FEH statistical (2025)	
Flow rate 1 year (l/s)	0.04	l/s
Flow rate 2 year (l/s)	0.04	l/s
Flow rate 10 years (l/s)	0.1	l/s
Flow rate 30 years (l/s)	0.1	l/s
Flow rate 100 years (l/s)	0.2	l/s
Flow rate 200 years (l/s)	0.2	l/s

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

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.2.2) 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.