



# Flood Risk Assessment for Planning

## Prepared for:

Daniel Wankiewicz

**March 2023**

## Our reference:

92784-EtonCon-HdsckWdhs

## Location:

Hodsock Woodhouse

Hodsock

Worksop

S81 0TF



## Document Issue Record

**Project:** Flood Risk Assessment for Planning

**Client:** Daniel Wankiewicz

**Application:** Erection of a 2 Bedroom single storey garden annex building

**Location:** Hodsock Woodhouse, Worksop S81 0TF

**Our reference:** 92784-EtonCon-HdsckWdhs

**Version:** v1.0 170322

**Lead Consultant:** Ms Jackie Stone

**Authorisation:** Mr Edward Bouet

This report (including any enclosures and attachments) has been prepared for the exclusive use and benefit of the commissioning party and solely for the purpose for which it is provided. Unless we provide express prior written consent, no part of this report should be reproduced, distributed or communicated to any third party. We do not accept any liability if this report is used for an alternative purpose from which it is intended, nor to any third party in respect of this report. Any data and information provided by third parties and referred to herein has not been checked or verified by us unless otherwise expressly stated within this report. This report was checked and approved on the date it was issued and is therefore valid on this date. Understanding, circumstances, regulations and professional standards do change, which could subsequently affect the validity of this report.

Southpoint, Old Brighton Road, Gatwick, West Sussex, RH11 0PR

+44 (0) 1293 214 444

[www.unda.co.uk](http://www.unda.co.uk)

## Contents

1.	Key Facts .....	4
1.1	Flood Risk Posed: .....	4
1.2	Flood Risk Mitigation: .....	4
2.	Introduction.....	5
3.	Existing Situation .....	6
3.1	Site Usage: .....	6
3.2	Topography:.....	6
3.3	Geology and Soil:.....	6
4.	Development Proposal .....	9
5.	Assessment of Flood Risk .....	10
5.1	Flood Zones: .....	10
5.2	Fluvial (Ordinary watercourse / Tributary of the Carlton Beck):.....	11
5.2.1	Modelled flood levels and events:.....	12
5.2.2	Flood Defences: .....	12
5.2.3	Residual risk (breach or overtopping of flood defences): .....	12
5.2.4	Historical flood events: .....	13
5.3	Pluvial (Surface Water): .....	13
5.4	Groundwater: .....	14
5.5	Sewer Surcharge: .....	14
5.6	Other Sources:.....	15
6.	Flood Risk Management .....	17
6.1	Vulnerability to flooding:.....	17
6.2	EA Standing Advice: .....	17
6.3	Physical Design Measures:.....	17
6.4	Safe Escape and Flood Action Plan: .....	18
6.5	Flood Warning: .....	18
6.6	Flood Plan: .....	19
6.7	Off-Site Impacts:.....	20
6.7.1	Fluvial floodplain storage: .....	20
6.7.2	Surface Water Drainage:.....	21
7.	Sequential and Exception Test.....	22
8.	Discussion and Conclusions .....	23
	Appendix.....	25

# 1. Key Facts

## 1.1 Flood Risk Posed:

- The site is situated partially within Flood Zones 1, 2 and 3 when using the Environment Agency Flood Map for Planning (Rivers and Sea).
- Based on the plans provided, the location of the proposed annex is located entirely within Flood Zone 1, and entirely outside of the 1:100 year extent with allowance for climate change.
- The location of the proposed annex is also shown to be within an area with a “Very Low” risk of flooding from surface water.
- No records of flooding at the site previously have been provided.
- The risk posed to the site by groundwater and sewer surcharge flooding would appear to be low.

## 1.2 Flood Risk Mitigation:

- The proposed annex will be located entirely outside of Flood Zones 2 and 3, and entirely within Flood Zone 1.
- Flood proofing of the annex will be incorporated as appropriate.
- The applicant will register with the free Environment Agency Floodline Alert Direct service.

**Assuming accordance with these flood risk management measures, Unda Consulting Limited consider the proposed application to be suitable in flood risk terms.**

## 2. Introduction

Unda Consulting Limited have been appointed by Daniel Wankiewicz (hereinafter referred to as “the applicant”) to undertake a Flood Risk Assessment for the proposed development at Hodsock Woodhouse, Worksop S81 0TF hereinafter referred to as “the site”). The FRA has been undertaken in accordance with the National Planning Policy Framework (NPPF) and the associated technical guidance.

The purpose of the study is to support a planning application for the proposed development.

The site appears to be partially located within Flood Zones 1, 2 and 3 as defined by the Environment Agency (EA) on their Flood Map for Planning. Under the National Planning Policy Framework (NPPF), a FRA is required if a proposed development:

- includes building or engineering works in Flood Zone 2 or 3;
- includes building or engineering works on land classified by the Environment Agency as having critical drainage problem;
- changes the use of land or buildings in a location at risk of flooding from rivers or the sea, or with critical drainage problems;
- changes the use of land or buildings in a way that increases the flood vulnerability of the development where it may be subject to other sources of flooding;
- is larger than 1 hectare.

The assessment should demonstrate to the Local Planning Authority (LPA) and EA how flood risk will be managed now and over the development’s lifetime, taking climate change into account, and with regard to the vulnerability of its potential users.

- whether the proposed development is likely to be affected by current or future flooding from any source;
- whether it will increase flood risk elsewhere;
- whether the measures proposed to deal with these effects and risks are appropriate.

## 3. Existing Situation

### 3.1 Site Usage:

The existing site is occupied by an existing residential house. The site is understood to have lawful planning permission for residential use.

Existing plans are provided in the report Appendix.



Figure 1: Aerial photograph of site and surrounding area (Source: Google Earth)

### 3.2 Topography:

A topographic survey has been undertaken for part of the site in October 2022 by Eton Construction. Recorded ground topographic levels on site indicate there is a gradient on the site from 9.97m AOD to the north and 8.57m AOD to the south.

The topographic survey is provided in the report Appendix.

### 3.3 Geology and Soil:

The British Geological Survey (BGS) Map indicates that the bedrock underlying the site is Roxby Formation – Mudstone, Calcareous, with superficial deposits of Alluvium – Clay, Silt, Sand and Gravel.

The soil type taken from the UK Soil Observatory Website are relatively deep soils from Intermediate Limestone soil parent material, with a loam to silty loam soil texture.

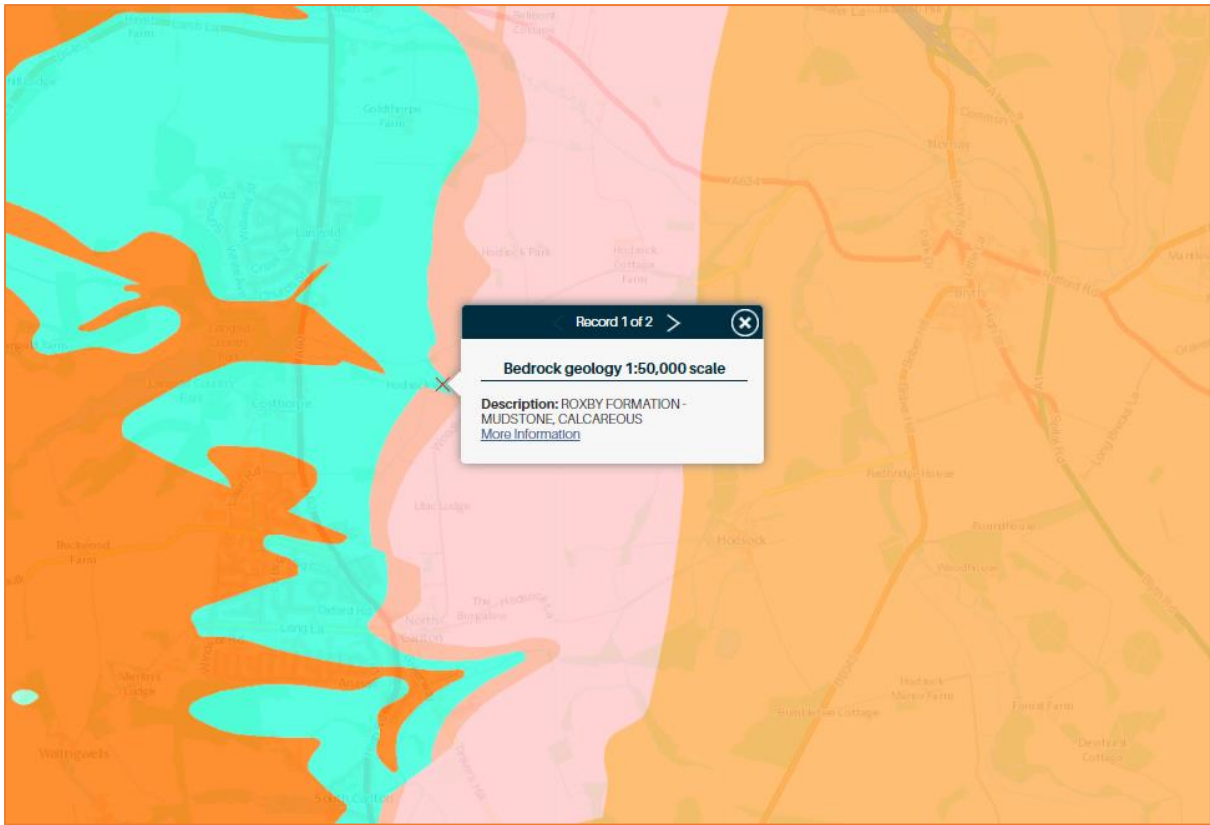


Figure 2: Local bedrock geology (Source: BGS)

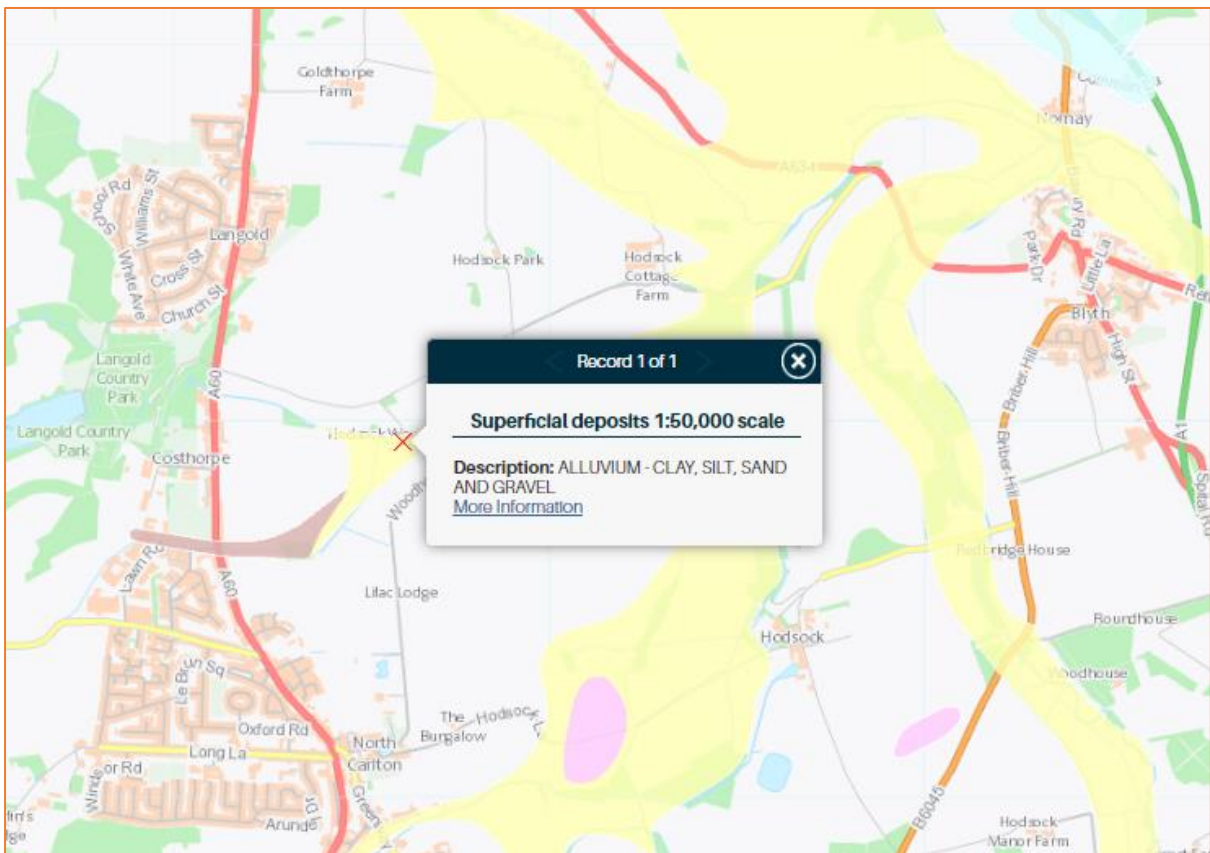


Figure 3: Superficial deposits geology (Source: BGS)



Figure 4: Local soil types (Source: UKSO)



## 4. Development Proposal

The proposed application is for the erection of a 2 Bedroom single storey garden annex building. Proposed plans can be found in the report Appendix.

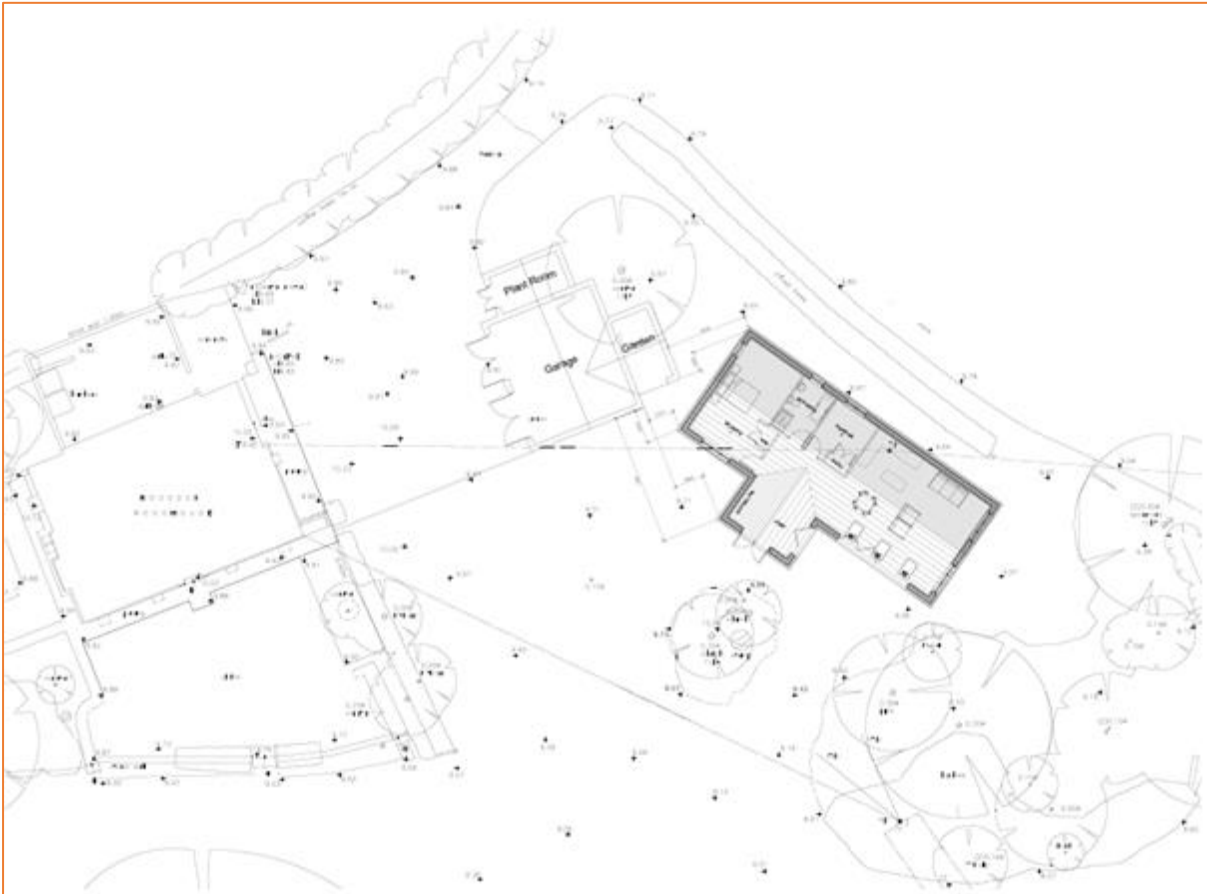


Figure 5: Proposed site plan (Source: Eton Construction)

## 5. Assessment of Flood Risk

### 5.1 Flood Zones:

Within planning, Flood Zones refer to the probability of river and sea flooding, ignoring the presence of defences. They are shown on the Environment Agency's Flood Map for Planning (Rivers and Sea), available on the Environment Agency's website.

Flood Zone	Definition
Zone 1 <b>Low Probability</b>	Land having a less than 1 in 1,000 annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map – all land outside Zones 2 and 3)
Zone 2 <b>Medium Probability</b>	Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or Land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding. (Land shown in light blue on the Flood Map)
Zone 3a <b>High Probability</b>	Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding. (Land shown in dark blue on the Flood Map)
Zone 3b <b>The Functional Floodplain</b>	This zone comprises land where water has to flow or be stored in times of flood. Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map)

Table 1: Flood Zones

The Flood Zones shown on the Environment Agency's Flood Map for Planning (Rivers and Sea) do not take account of the possible impacts of climate change and consequent changes in the future probability of flooding.

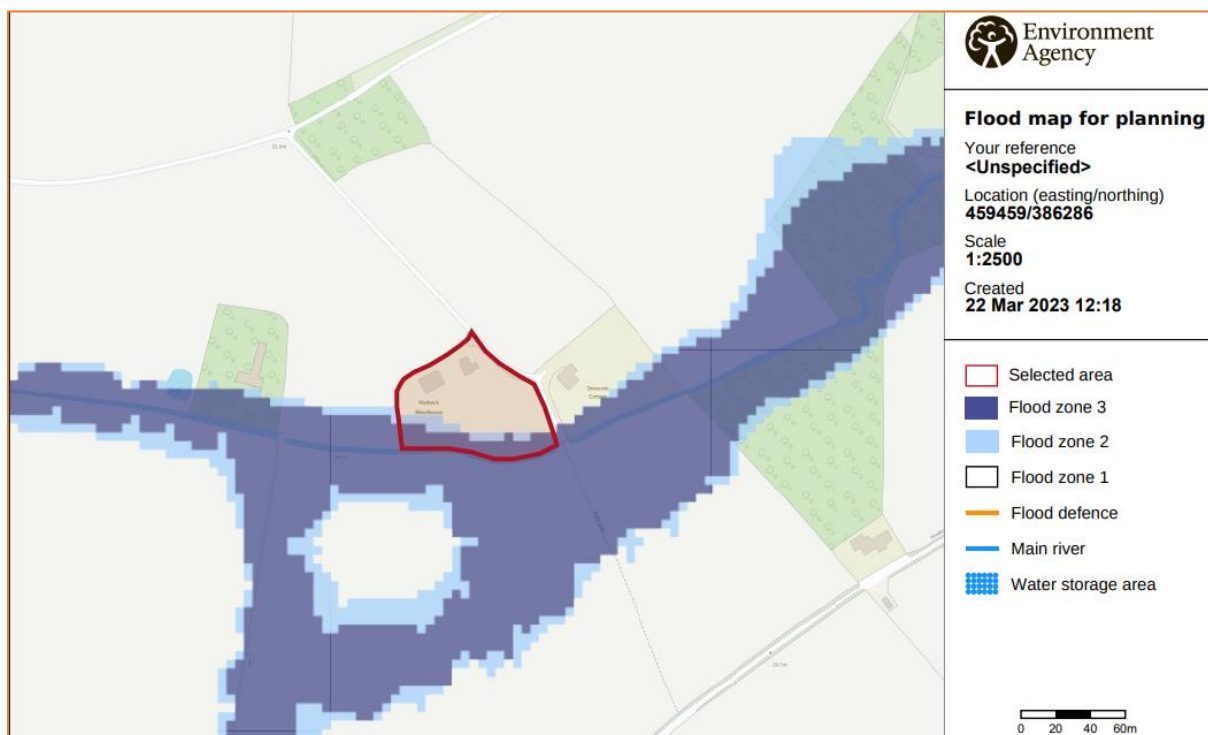


Figure 6: Environment Agency Flood Map for Planning (Rivers and Sea) (Source: EA)

The site is located partially within Flood Zone 1 (Low Probability), which means it is defined as land having a less than 1 in 1,000 annual probability of river and sea flooding, Flood Zone 2 (Medium Probability), which means it is defined as land having between a 1 in 100 and 1 in 1,000 annual probability of river and sea flooding and Flood Zone 3 (High Probability), which means it is defined as land having at least a 1:100 annual probability of fluvial flooding.

Closer inspection of the EA Flood Zones at the site shows that the proposed annex is located is located entirely within Flood Zone 1, with a less than 1 in 1,000 annual probability of river flooding.

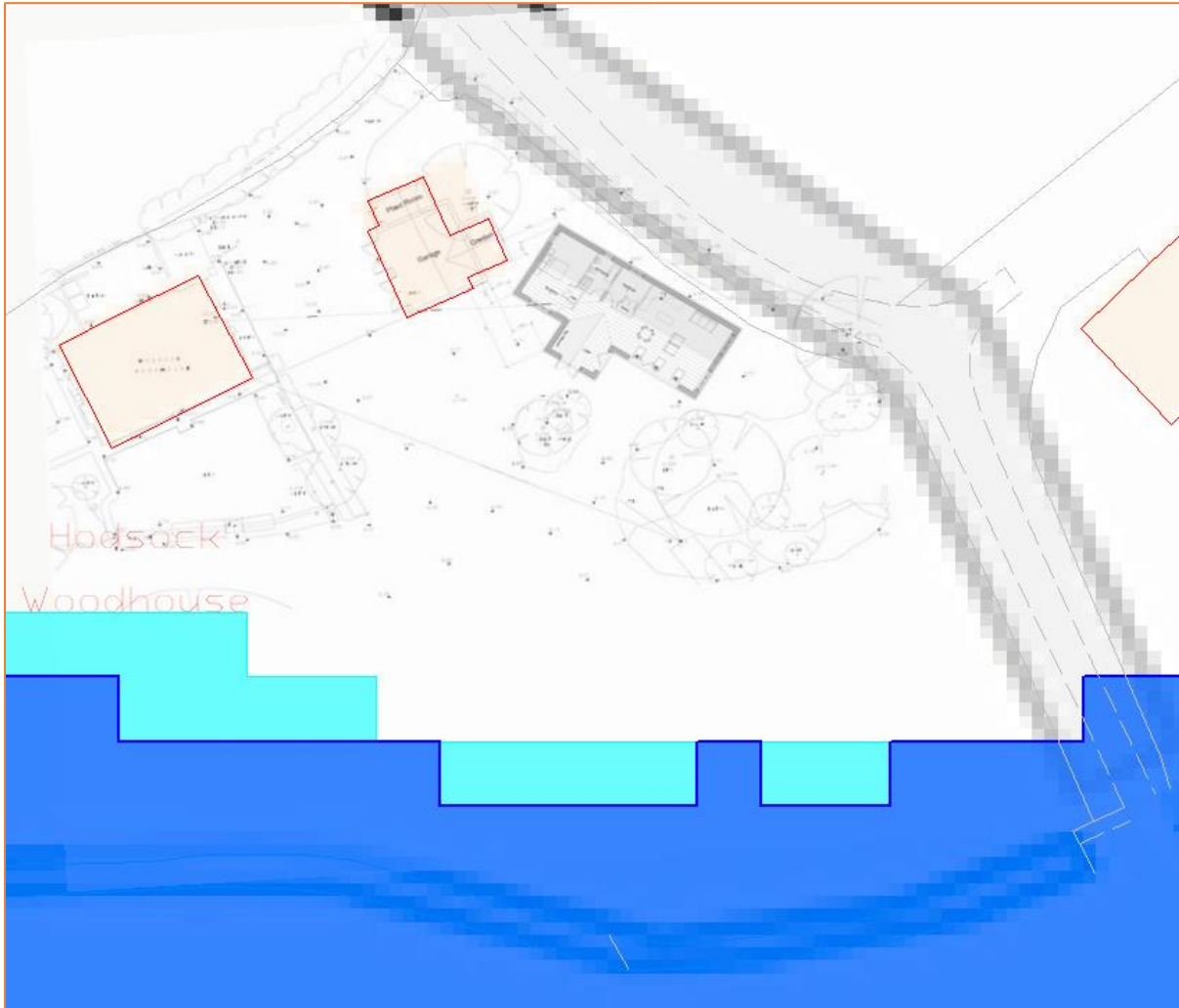


Figure 7: Environment Agency Flood Zone 2 (light blue) and Flood Zone 3 (darker blue) outlines overlain onto OS MasterMap and the proposed site plan (Source: EA, OS, Eton Construction)

The risk would appear to be predominantly fluvial and originate from the ordinary watercourse / tributary of the Carlton Beck which borders the southern boundary of the site. This ordinary watercourse it not classified as an EA 'Main River' in this reach.

## 5.2 Fluvial (Ordinary watercourse / Tributary of the Carlton Beck):

The unnamed watercourse borders the southern boundary of the site and is a natural open channel which flows in an easterly direction and forms part of the River Idle catchment.

### **5.2.1 Modelled flood levels and events:**

Product 4 modelled flood levels and extents have been requested from the Environment Agency for use within this report.

However, this area is covered by national generalised modelling which is only suitable for Flood Zone extent visualisation, not levels or depths data. This modelling was developed to produce undefended fluvial flood extents for 1% and 0.1% AEP events, to update the Flood Zones. This JFlow data is not considered suitable for the development of a Flood Risk Assessment in general.

The location of the proposed annex is shown to be entirely outside of the maximum 1:100 year and 1:1000 year extents.

No modelled flood levels or flows are available from the aforementioned JFLOW generalised national scale modelling.

According to the Bassetlaw District Council Strategic Flood Risk Assessment (SFRA) Final Report January 2019 the climate change mapping in the SFRA uses the results from the existing Environment Agency hydraulic models (100-year +20%) and where no hydraulic models exist, Flood Zone 2 has been used as a conservative indication.

As such, the 1:1000 year JFLOW extent will be used as an analogue for the 1:100 year event with an allowance for climate change. As such, the location of the proposed annex is entirely outside of the 1:100 year extent with allowance for climate change.

### **5.2.2 Flood Defences:**

A flood defence or EA Asset is any man-made or natural feature – such as a raised defence, retaining structure, channel, pumping station or culvert – that performs a flood defence or land drainage function.

The EA has confirmed that there are no formal flood defences or flood alleviation works identified in the area.

### **5.2.3 Residual risk (breach or overtopping of flood defences):**

Breaching of flood defences can cause rapid inundation of areas behind flood defences as flow in the river channel discharges through the breach. A breach can occur with little or no warning, although they are much more likely to concur with extreme river levels or tides when the stresses on flood defences are highest. Flood water flowing through a breach will normally discharge at a high velocity, rapidly filling up the areas behind the defences, resulting in significant damage to buildings and a high risk of loss of life. Breaches are most likely to occur in soft defences such as earth embankments although poorly maintained hard defences can also be a potential source of breach.

Overtopping of flood defences occurs when water levels exceed the protection level of raised flood defences. The worst case occurs when the fluvial or tidal levels exceed the defence level as this can lead to prolonged flooding. Less severe overtopping can occur when flood levels are below defence levels, but wave action causes cyclic overtopping, with intermittent discharge over the crest level of the defence. Flood defences are commonly designed with a freeboard to provide protection against overtopping from waves. The risk from overtopping due to exceedance of the flood defence level is much more significant than the risk posed by wave overtopping. Exceedance

of the flood defence level can lead to prolonged and rapid flooding with properties immediately behind the defences at highest risk.

The site is not shown to benefit to any significant degree from the presence of flood defences.

#### **5.2.4 Historical flood events:**

The Environment Agency confirm that they hold no records of historical flood events at the site.

### **5.3 Pluvial (Surface Water):**

Pluvial (surface water) flooding happens when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead.

In 2013 the EA, working with Lead Local Flood Authorities (LLFAs), produced an updated Flood Map for Surface Water. It is considered to represent a significant improvement on the previous surface water flood maps available, both in terms of method and representation of the risk of flooding. The modelling techniques and data used are considerably improved, and also incorporated locally produced mapping where this is available to represent features best modelled at a local scale.

The Flood Map for Surface Water assesses flooding scenarios as a result of rainfall with the following chance of occurring in any given year (annual probability of flooding is shown in brackets):

- High: Greater than or equal to 3.3% (1 in 30) chance in any given year (3.3%)
- Medium: Less than 3.3% (1 in 30) but greater than or equal to 1% (1 in 100) chance in any given year
- Low: Less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1,000) chance in any given year
- Very Low: Less than 0.1% (1 in 1,000) chance in any given year

The mapping below shows the Risk of Flooding from Surface Water centred on the postcode. Please note that the EA do not consider this information suitable to be used to identify the risk to individual properties or sites. It is useful to raise awareness in areas which may be at risk and may require additional investigation.

The EA Risk of Flooding from Surface Water Map suggests that the site lies in an area of "Very Low" to "High" risk of flooding from surface water.

The location of the proposed annex however is shown to be within an area with a "Very Low" risk of flooding from surface water.

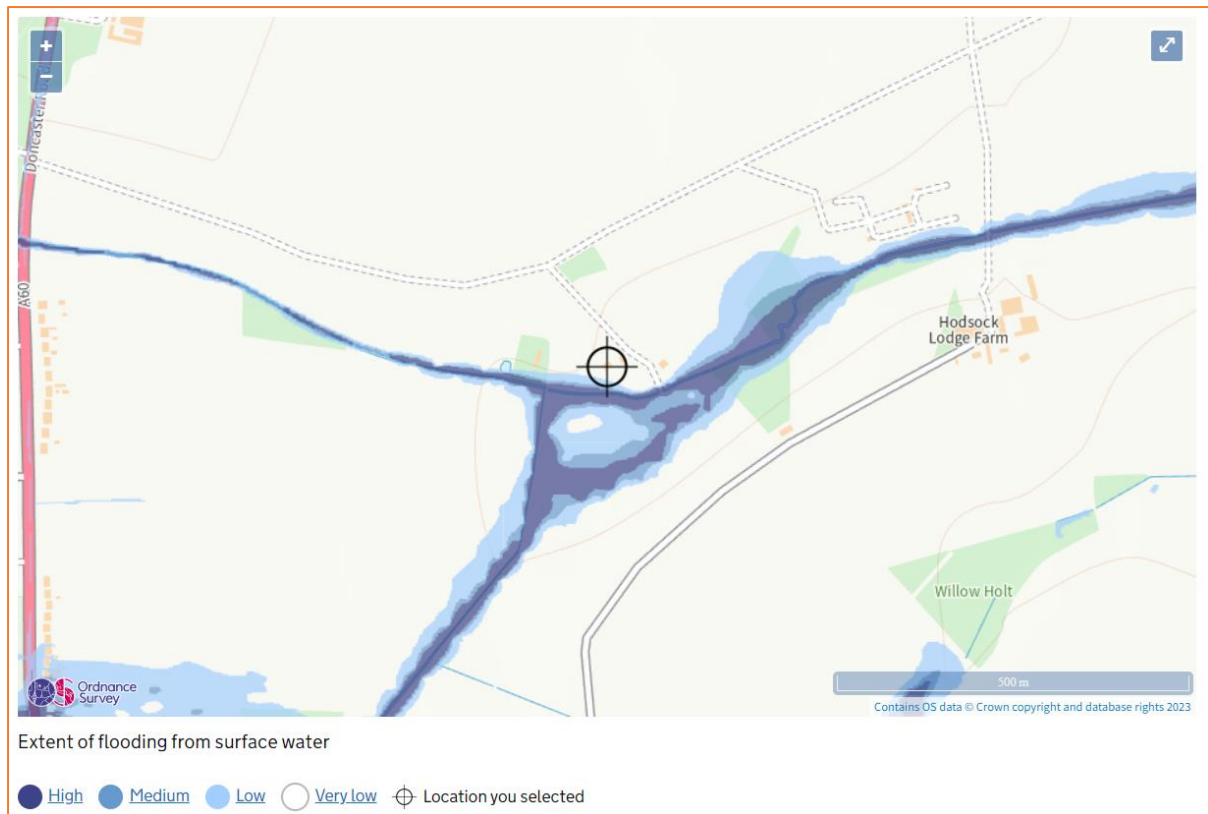


Figure 8: Extract from Environment Agency Surface Water Flood Map centred on the postcode (Source: EA)

## 5.4 Groundwater:

Groundwater flooding occurs as a result of water rising up from the underlying rocks or from water flowing from abnormal springs. This tends to occur after much longer periods of sustained high rainfall. Higher rainfall means more water will infiltrate into the ground and cause the water table to rise above normal levels. Groundwater tends to flow from areas where the ground level is high, to areas where the ground level is low. In low-lying areas the water table is usually at shallower depths anyway, but during very wet periods, with all the additional groundwater flowing towards these areas, the water table can rise up to the surface causing groundwater flooding.

Groundwater flooding is most likely to occur in low-lying areas underlain by permeable rocks (aquifers). These may be extensive, regional aquifers, such as chalk or sandstone, or may be localised sands or river gravels in valley bottoms underlain by less permeable rocks. Groundwater flooding takes longer to dissipate because groundwater moves much more slowly than surface water and will take time to flow away underground.

No records of groundwater flooding at the site previously have been provided.

## 5.5 Sewer Surcharge:

Sewer flooding occurs when the sewer network cannot cope with the volume of water that is entering it. It is often experienced during times of heavy rainfall when large amounts of surface

water overwhelm the sewer network causing flooding. Temporary problems such as blockages, siltation, collapses and equipment or operational failures can also result in sewer flooding.

All Water Companies have a statutory obligation to maintain a register of properties/areas which have reported records of flooding from the public sewerage system, and this is shown on the DG5 Flood Register. This includes records of flooding from foul sewers, combined sewers and surface water sewers which are deemed to be public and therefore maintained by the Water Company. The DG5 register records of flood incidents resulting in both internal property flooding and external flooding incidents. Once a property is identified on the DG5 register, water companies can typically put funding in place to address the issues and hence enable the property to be removed from the register. It should be noted that flooding from land drainage, highway drainage, rivers/watercourses and private sewers is not recorded within the register.

No information has been provided to suggest that the site or surrounding area is susceptible to sewer surcharge flooding.

## 5.6 Other Sources:

Reservoirs with an impounded volume in excess of 25,000 cubic metres (measured above natural ground level) are governed by the Reservoirs Act and are listed on a register held by the Environment Agency. The site lies inside the maximum inundation extent on the EA Reservoir Inundation Map. The EA also advise on their website that reservoir flooding is extremely unlikely. There has been no loss of life in the UK from reservoir flooding since 1925. All major reservoirs have to be inspected by specialist dam and reservoir Engineers. In accordance with the Reservoirs Act 1975 in England, these inspections are monitored and enforced by the EA themselves. The risk to the site from reservoir flooding is therefore minimal and is far lower than that relating to the potential for fluvial / tidal flooding to occur. The Environment Agency Reservoir Flood Map illustrated below, illustrates the largest area that might be flooded if the storage area were to fail and release the water it is designed to hold during a flood event.

Records of flooding from reservoirs and canals are erratic as there is no requirement for the Environment Agency to provide information on historic flooding from canals and raised reservoirs on plans. In particular, the NPPF does not require flood risk from canals and raised reservoirs to be shown on the Environment Agency flood zones.

Overflows from canals can be common as they are often fed by land drainage, and often do not have controlled overflow spillways. Occasionally, major bank breaches also occur, leading to rapid and deep flooding of adjacent land.

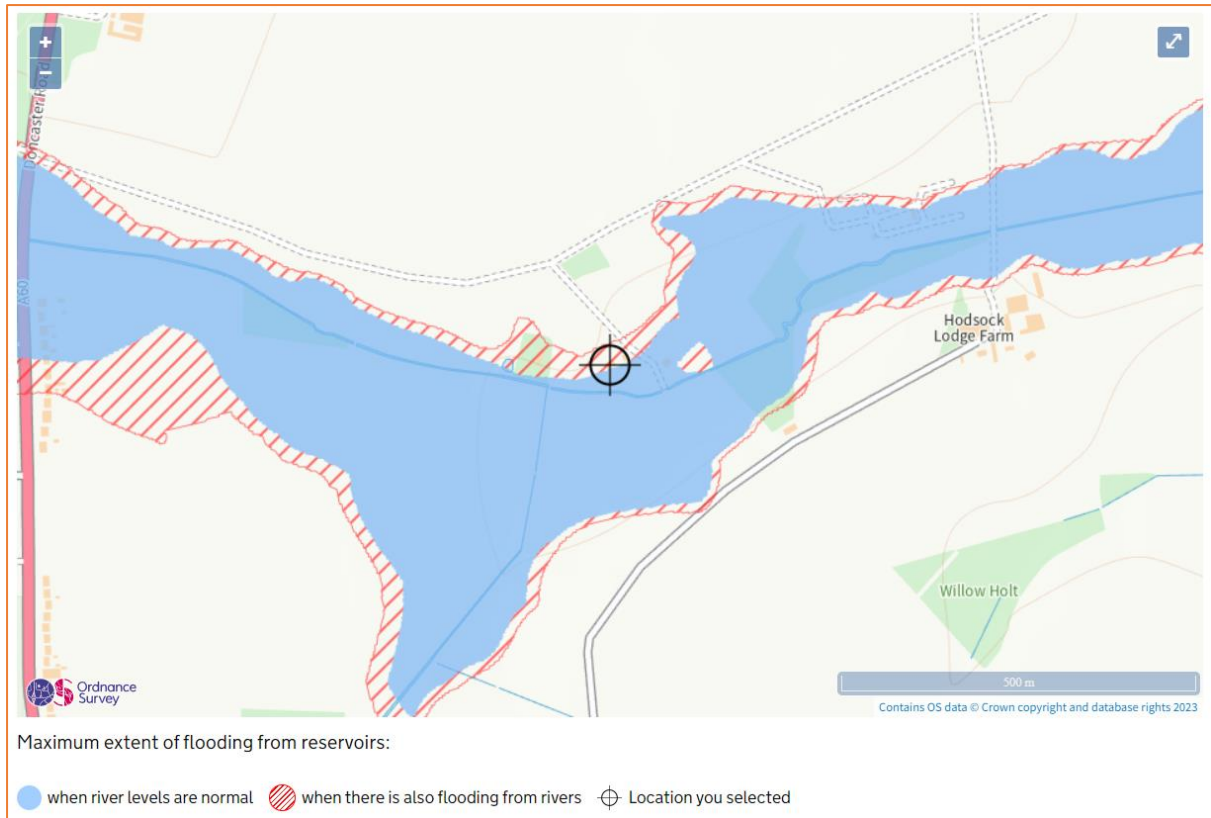


Figure 9: Maximum extent of flooding from reservoirs (Source: EA)



## 6. Flood Risk Management

### 6.1 Vulnerability to flooding:

The NPPF classifies property usage by vulnerability to flooding.

Post development, the site will remain “more vulnerable”, as the application is for construction of a new residential annex.

Accordingly, it is considered that the vulnerability of the site as a whole will be increased post development (introduction of a new residential annex).

### 6.2 EA Standing Advice:

The EA Standing Advice guidance is for domestic extensions and non-domestic extensions where the additional footprint created by the development does not exceed 250m<sup>2</sup>. It should not be applied if an additional dwelling is being created, e.g. a self-contained annex or additional commercial unit.

### 6.3 Physical Design Measures:

Based on the plans provided, the location of the proposed annex is located entirely within Flood Zone 1, and entirely outside of the 1:100 year extent with allowance for climate change. The location of the proposed annex is also shown to be within an area with a “Very Low” risk of flooding from surface water.

To help protect against flooding during extreme events, the applicant has agreed to implement flood resistant design measures into the proposal, in consultation with the Local Authority building control department. These measures can include the following:

- Solid (concrete) ground floor;
- Waterproof screed used on floors;
- Closed-cell foam used in wall cavities;
- Waterproof ground floor internal render;
- Exterior ventilation outlets, utility points and air bricks fitted with removable waterproof covers;
- Plumbing insulation of closed-cell design;
- Non-return valves fitted to all drain and sewer outlets;
- Manhole covers secured;
- Anti-syphon fitted to all toilets;
- Kitchen units of solid, water resistant material;
- Use of MDF carpentry (i.e. skirting, architrave, built-in storage) avoided at ground floor level.

## 6.4 Safe Escape and Flood Action Plan:

The NPPF requires a route of safe escape for all residents and users to be provided from new residential properties in Flood Zone 3. Safe escape is usually defined as being through slow moving flood water no deeper than 25cm.

The site is partially situated within Flood Zones 1, 2 and 3 when using the Environment Agency Flood Map for Planning (Rivers and Sea).

The proposed annex is located entirely outside of Flood Zones 2 and 3.

Based on the plans provided, the location of the proposed annex is located entirely within Flood Zone 1, and entirely outside of the 1:100 year extent with allowance for climate change. The location of the proposed annex is also shown to be within an area with a "Very Low" risk of flooding from surface water.

The access driveway and road to the north of the site is also shown to be within Flood Zone 1.

Accordingly, dry "safe escape" can be provided from the site to an area entirely within Flood Zone 1 as per the technical requirements of the NPPF.

## 6.5 Flood Warning:

The EA is responsible for issuing flood warnings. Flood warnings are issued to the emergency services and local authorities. Both private individuals and organisations can sign-up to receive warnings via phone, text or email. This system of receiving warnings is currently voluntary.

Advice regarding severe flood warnings will generally be given during weather forecasts on local radio and TV. In the case of extreme events, warnings can also be disseminated via door to door visits by the police or locally appointed flood wardens.

The EA issue flood warnings/alerts to specific areas when flooding is expected. It is recommended that the applicant registers online with the free Environment Agency Floodline Warnings/Alert Direct service at [www.gov.uk/sign-up-for-flood-warnings](http://www.gov.uk/sign-up-for-flood-warnings) to receive flood warnings by phone, text or email.

The flood warning service has three types of warnings that will help you prepare for flooding and take action:




Flood Warning	Flood Alert	Flood Warning	Severe Flood Warning
			
<b>What it means?</b>	Flooding is possible. Be prepared.	Flooding is expected. Immediate action required.	Severe flooding. Danger to life.
<b>When it's used?</b>	Two hours to two days in advance of flooding.	Half an hour to one day in advance of flooding.	When flooding poses a significant threat to life.
<b>What to do?</b>	Be prepared to act on your flood plan.  Prepare a flood kit of essential items.  Monitor local water levels and the flood forecast on our website.	Move family, pets and valuables to a safe place.  Turn off gas, electricity and water supplies if safe to do so.  Put flood protection equipment in place.	Stay in a safe place with a means of escape.  Be ready should you need to evacuate from your home.  Co-operate with the emergency services.  Call 999 if you are in immediate danger.

Table 2: EA Flood Warning Service

## 6.6 Flood Plan:

It is recommended that the applicant and future owners, occupiers and Landlords of the property prepare a flood plan to protect life and property during a flood event:

### Before a flood:

- Prepare and keep a list of all your important contacts to hand or save them on your mobile phone.
- Think about what items you can move now and what you would want to move to safety during a flood.
- Know how to turn off electricity and water supplies to the site.
- Prepare a flood kit of essential items and keep it handy. It can include copies of important documents, a torch, a battery-powered or wind-up radio, blankets and warm clothing, waterproofs, rubber gloves and a first aid kit including all essential medication.

### During a flood:

- Activate the evacuation plan and evacuate the site.
- Remove cars from the site if there is sufficient warning and the water levels are not rising rapidly.
- Switch off water and electricity for the site.
- Tune into your local radio station on a battery or wind-up radio.
- Listen to the advice of the emergency service and evacuate if told to do so.

- Avoid walking or driving through flood water. Six inches of fast-flowing water can knock over an adult and two feet of water can move a car.

**After a flood:**

- If you have flooded, contact your insurance company as soon as possible.
- Take photographs and videos of your damaged property as a record for your insurance company.
- If you don't have insurance, contact your local authority for information on grants and charities that may help you.
- Flood water can contain sewage, chemicals and animal waste. Always wear waterproof outerwear, including gloves, wellington boots and a face mask.
- Have your electrics and water checked by qualified engineers before switching them back on.

**6.7 Off-Site Impacts:****6.7.1 Fluvial floodplain storage:**

The NPPF requires that where development is proposed in undefended areas of floodplain, which lie outside of the functional floodplain, the implications of ground raising operations for flood risk elsewhere needs to be considered. Raising existing ground levels may reduce the capacity of the floodplain to accommodate floodwater and increase the risk of flooding by either increasing the depth of flooding to existing properties at risk or by extending the floodplain to cover properties normally outside of the floodplain. Flood storage capacity can be maintained by lowering ground levels either within the curtilage of the development or elsewhere in the floodplain, in order to maintain at least the same volume of flood storage capacity within the floodplain.

In undefended tidal areas, raising ground levels is unlikely to impact on maximum tidal levels so the provision of compensatory storage should not be necessary.

For development in a defended flood risk area, the impact on residual flood risk to other properties needs to be considered. New development behind flood defences can increase the residual risk of flooding if the flood defences are breached or overtopped by changing the conveyance of the flow paths or by displacing flood water elsewhere. If the potential impact on residual risk is unacceptable then mitigation should be provided.

The site is partially situated within Flood Zones 2 and 3 when using the Environment Agency Flood Map for Planning (Rivers and Sea). The proposed annex is located entirely outside of Flood Zone 2 and 3.

Based on the plans provided, the location of the proposed annex is located entirely within Flood Zone 1, and entirely outside of the 1:100 year extent with allowance for climate change. The location of the proposed annex is also shown to be within an area with a "Very Low" risk of flooding from surface water.

### 6.7.2 Surface Water Drainage:

The development will utilise Sustainable Urban Drainage (SuDs) design in accordance with the NPPF for Planning Applications hierarchy as follows:

1. Store rainwater for later use;
2. Infiltration techniques;
3. Attenuate rainwater by storing in tanks for gradual release;
4. Discharge rainwater direct into watercourse;
5. Discharge rainwater into surface water sewer;
6. Discharge rainwater into a combined sewer;
7. Attenuation of rainwater in ponds or open water features with controlled discharge into the local watercourse.

All surface water runoff generated by the proposed development up to 1:100 year rainfall event (plus climate change) will be stored on site, prior to being discharged.

Due to the scale of the development, a full Surface Water Drainage Strategy is not required at this stage of planning. The proposed application will utilise the existing drainage arrangements on site.

## 7. Sequential and Exception Test

The Sequential Test aims to ensure that development does not take place in areas at high risk of flooding when appropriate areas of lower risk are reasonably available.

The site is situated partially within Flood Zones 1, 2 and 3 when using the Environment Agency Flood Map for Planning (Rivers and Sea).

Post development, the site will remain “more vulnerable”, as the application is for the construction of a single storey garden annex.

Based on the plans provided, the proposed annex is located entirely within Flood Zone 1.

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
<b>Zone 1</b>	✓	✓	✓	✓	✓
<b>Zone 2</b>	✓	Exception Test required	✓	✓	✓
<b>Zone 3a</b>	Exception Test required	✗	Exception Test required	✓	✓
<b>Zone 3b</b>	Exception Test required	✗	✗	✗	✓

Table 3: Flood risk vulnerability and flood zone ‘compatibility’

Using the table above, the proposed application is considered to be suitable within Flood Zones 1, 2 and 3a, subject to passing the Sequential and Exception Tests.

Based on the plans provided, the proposed annex is located entirely within Flood Zone 1.

## 8. Discussion and Conclusions

Unda Consulting Limited have been appointed by Daniel Wankiewicz (hereinafter referred to as “the applicant”) to undertake a Flood Risk Assessment for the proposed development Hodsock Woodhouse, Worksop S81 0TF. The FRA has been undertaken in accordance with the National Planning Policy Framework (NPPF) and the associated technical guidance.

The purpose of the study is to support a planning application for the proposed development.

Post development, the site will remain “more vulnerable”, as the application is for construction of a new residential annex.

The site is located partially within Flood Zones 1 and 2 (Low and Medium probability), which means it is defined as land having between a 1 in 100 and 1 in 1,000, and a less than 1 in 1,000 annual probability of river flooding.

Closer inspection of the EA Flood Zones at the site shows that the proposed annex is located entirely within Flood Zone 1, with a less than 1 in 1,000 annual probability of river flooding.

Product 4 modelled flood levels and extents have been requested from the Environment Agency for use within this report.

The EA has also confirmed that the Fluvial Flood Zones 2 and Flood Zones 3 for the area of the site have been produced from their National Generalised Model JFLOW. The location of the proposed annex is shown to be entirely outside of the maximum 1:100 year and 1:1000 year extents.

According to the Bassetlaw District Council Strategic Flood Risk Assessment (SFRA) Final Report January 2019 the climate change mapping in the SFRA uses the results from the existing Environment Agency hydraulic models (100-year +20%) and where no hydraulic models exist, Flood Zone 2 has been used as a conservative indication.

As such, the 1:1000 year JFLOW extent will be used as an analogue for the 1:100 year event with an allowance for climate change. As such, the location of the proposed annex is entirely outside of the 1:100 year extent with allowance for climate change.

The EA has confirmed that following examination of their records of historic flooding, they have no record of flooding in the area.

No further information has been provided to suggest that the site is susceptible to groundwater or sewer surcharge flooding.

The EA Risk of Flooding from Surface Water Map suggests that the site lies in an area of “Very Low” to “Medium” risk of flooding from surface water.

The location of the proposed annex however is shown to be within an area with a “Very Low” risk of flooding from surface water.

Based on the plans provided, the location of the proposed annex is located entirely within Flood Zone 1, and entirely outside of the 1:100 year extent with allowance for climate change. The location of the proposed annex is also shown to be within an area with a “Very Low” risk of flooding from surface water.

The access driveway and road to the north of the site is also shown to be within Flood Zone 1.

Accordingly, dry "safe escape" can be provided from the site to an area entirely within Flood Zone 1 as per the technical requirements of the NPPF.

The access driveway and road to the north of the site is also shown to be within Flood Zone 1.

Accordingly, dry "safe escape" can be provided from the site to an area entirely within Flood Zone 1 as per the technical requirements of the NPPF.

The applicant has confirmed that:

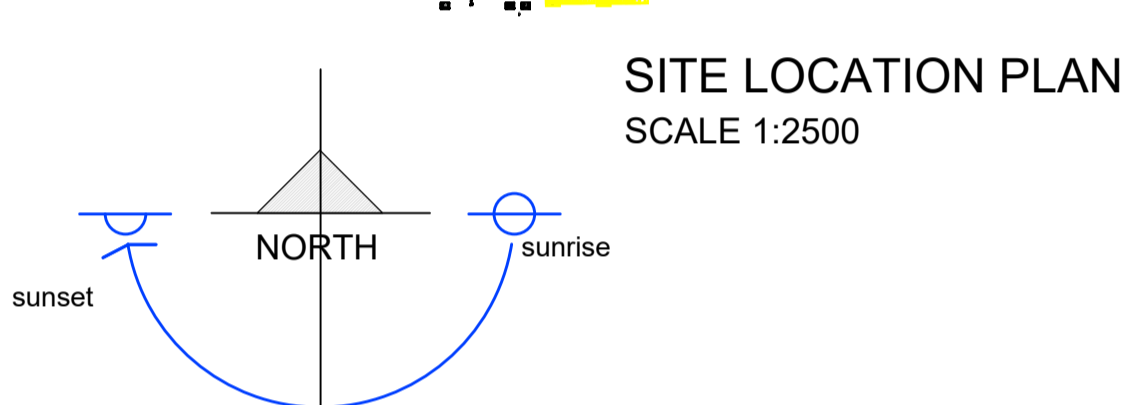
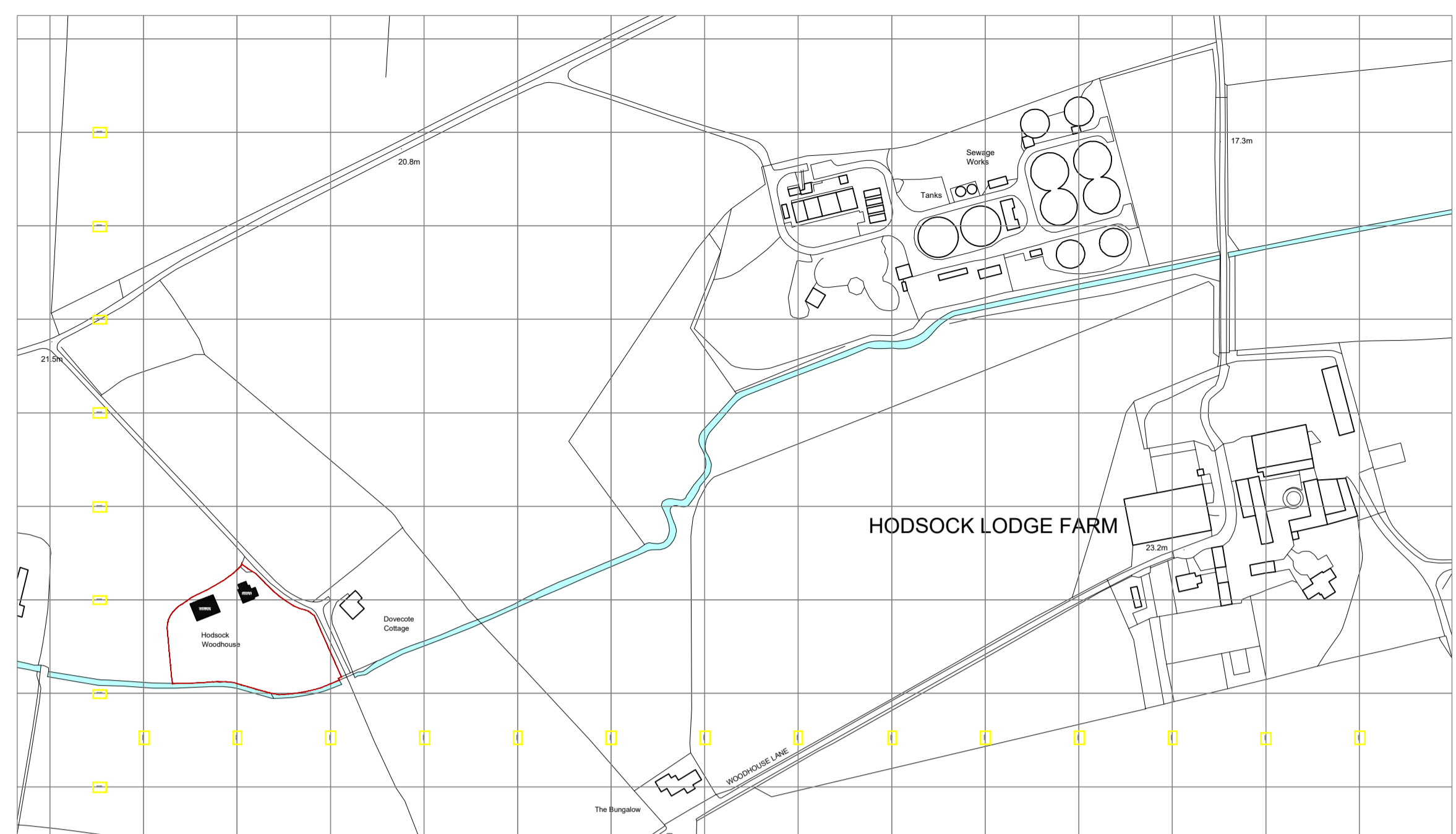
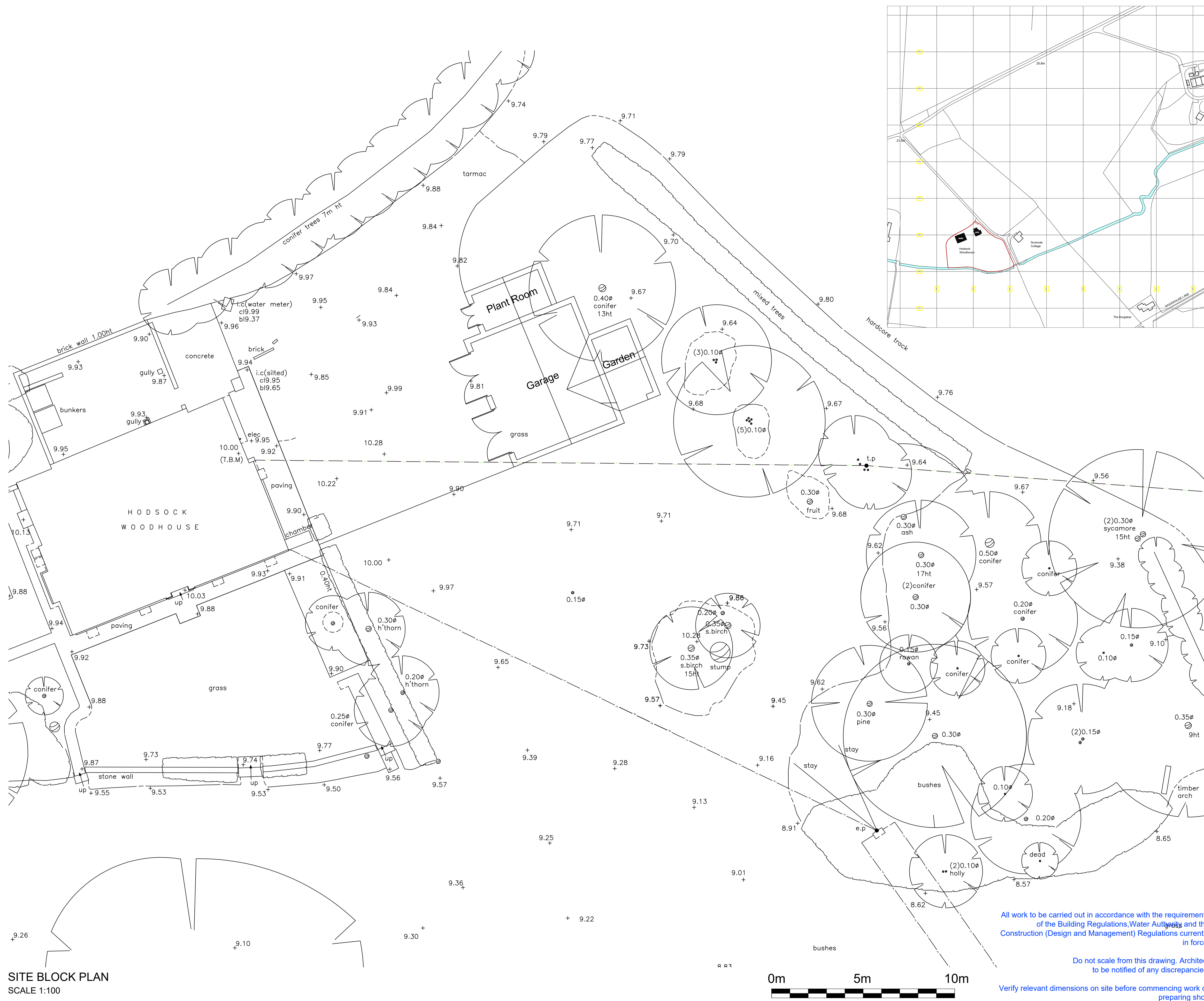
- The proposed annex will be located entirely outside of Flood Zones 2 and 3, and entirely within Flood Zone 1.
- Flood proofing of the annex will be incorporated as appropriate.
- The applicant will register with the free Environment Agency Floodline Alert Direct service.

**Assuming accordance with these flood risk management measures, Unda Consulting Limited consider the proposed application to be suitable in flood risk terms.**



## Appendix

- Existing and proposed Plans and drawings.
- Environment Agency Flood Map for planning.



SITE LOCATION PLAN  
SCALE 1:2500



SITE LOCATION PLAN  
SCALE 1:1250

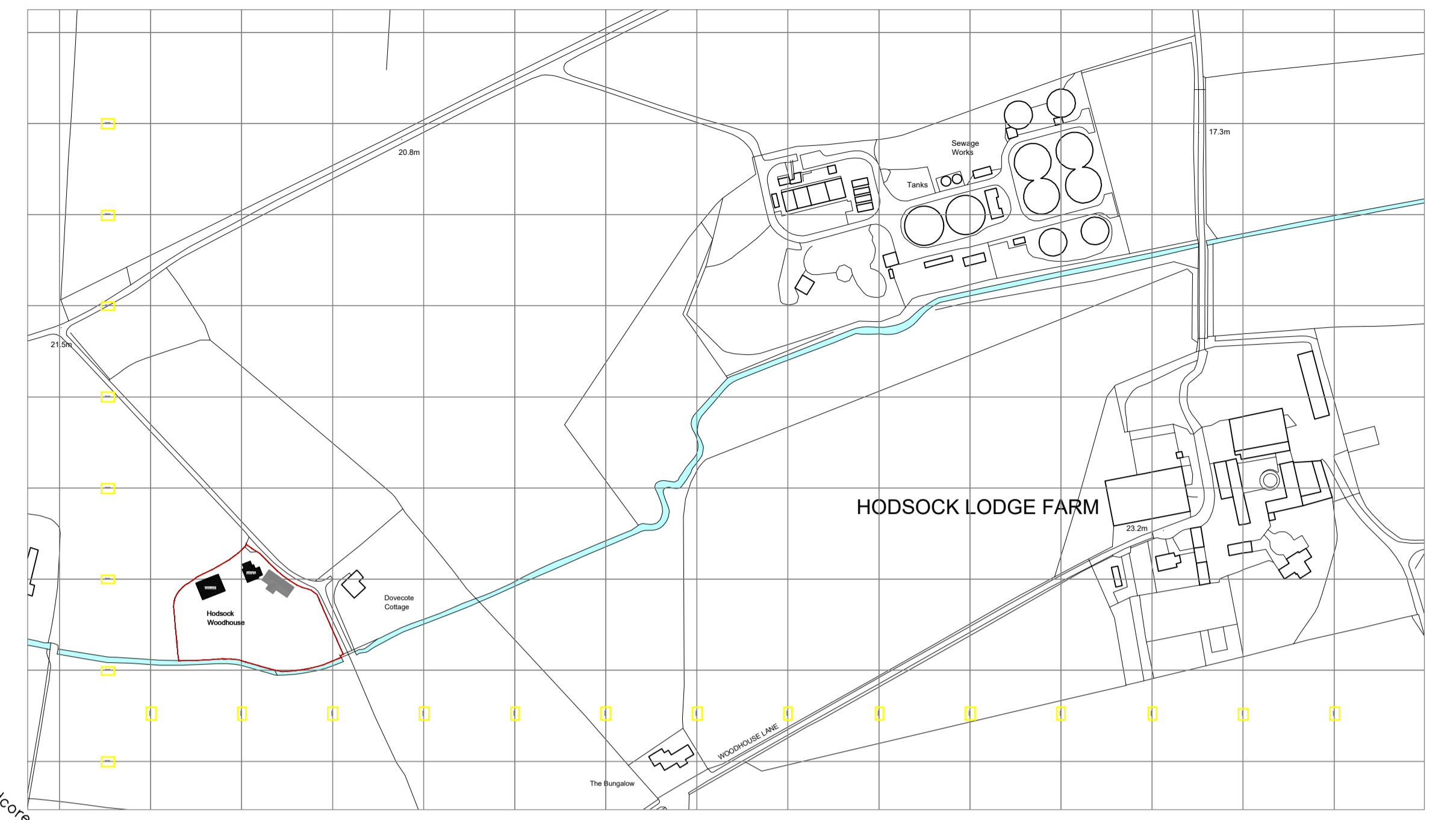
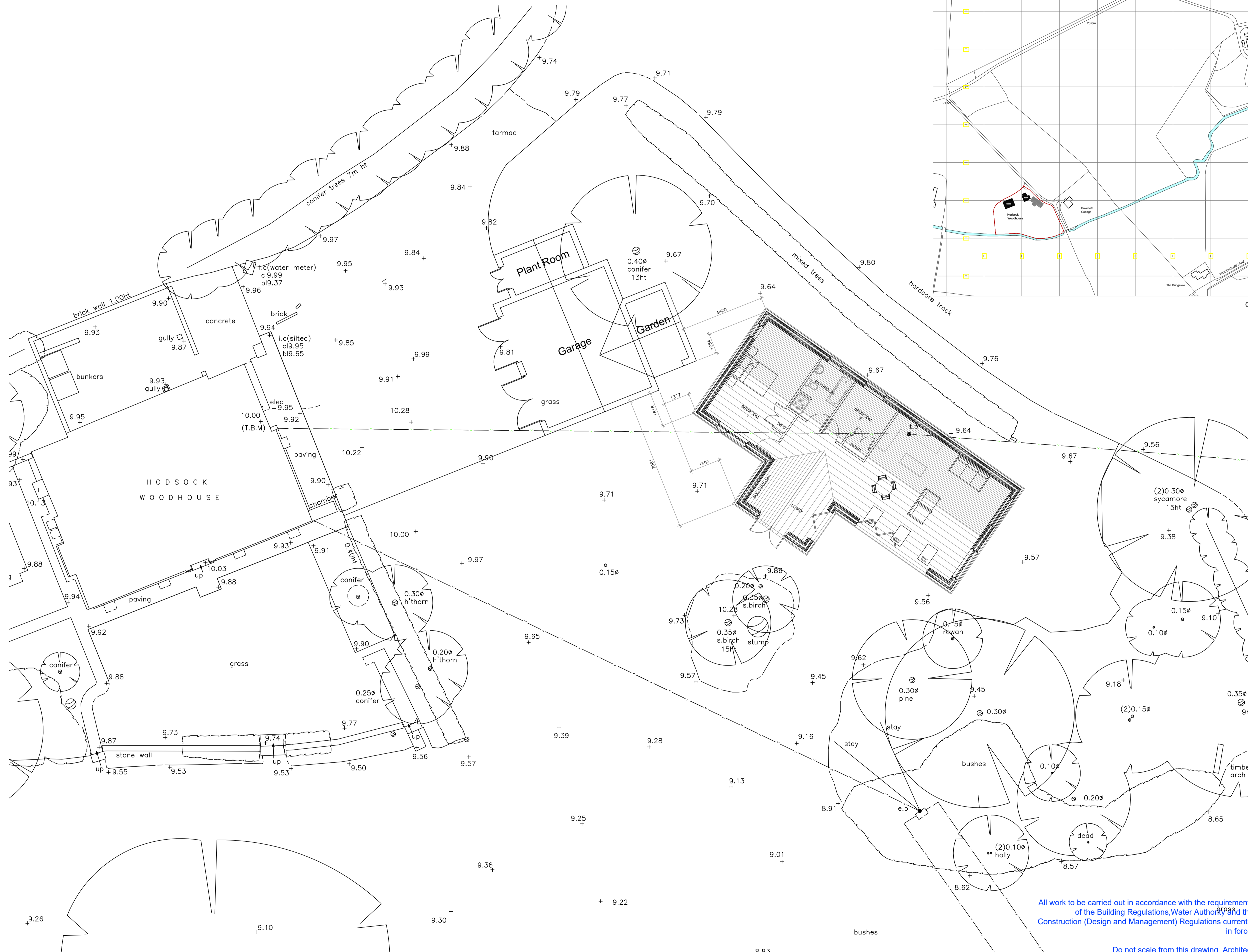
SITE BLOCK PLAN  
SCALE 1:100

All work to be carried out in accordance with the requirements of the Building Regulations, Water Authorities and the Construction (Design and Management) Regulations currently in force.

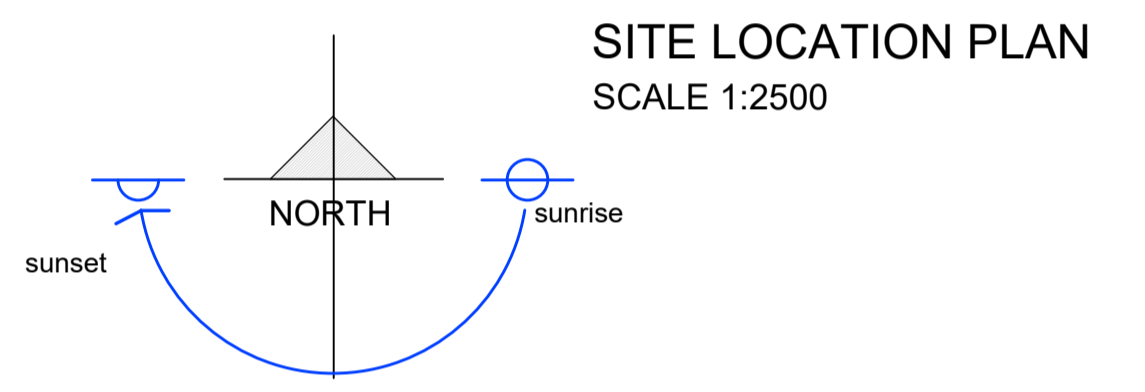
Do not scale from this drawing. Architect to be notified of any discrepancies.

Verify relevant dimensions on site before commencing work or preparing shop drawings.

A 1:2500 Site Location Plan added to planning comments		MW	17.03.23
Rev.	Description:	By:	Date:
Drawing Status : PLANNING			
 79A WELLGATE, ROTHERHAM, S60 2LZ Tel: 01709 365 964 Website: www.etonconstruction.com			
Project:		Proposed Garden Annex at Hodsock Woodhouse, Langold	
Drawing:		Existing Site Block & Location Plans	
Client:		Dan & Beth	
COPYRIGHT - This drawing is subject to copyright and cannot be reproduced without the permission of the Company.			
Scales:	1:100 1:1250 @A1	Date:	20.10.22
Drawing Number:	EC-53- 01	Revision:	A
Drawn by:		MW	



Ordnance Survey, (c) Crown Copyright 2023. All rights reserved. Licence number 100022432

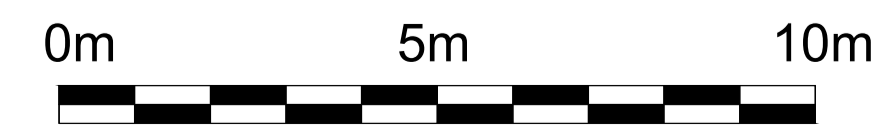


**SITE LOCATION PLAN**  
SCALE 1:2500



**SITE LOCATION PLAN**  
SCALE 1:1250

**SITE BLOCK PLAN**  
SCALE 1:100



All work to be carried out in accordance with the requirements of the Building Regulations, Water Authority and the Construction (Design and Management) Regulations currently in force.

Do not scale from this drawing. Architect to be notified of any discrepancies.

Verify relevant dimensions on site before commencing work or preparing shop drawings.

Rev.	Description:	By:	Date:
A	1:2500 Site Location Plan and Dimensions added to planning comments	MW	17.03.23

Drawing Status: **PLANNING**

**EETON CONSTRUCTION**  
79A WELLGATE, ROTHERHAM, S60 2LZ  
Tel: 01709 365 964  
Website: www.etonconstruction.com

Project: Proposed Garden Annex at Hodsock Woodhouse, Langold

Drawing: Proposed Site Block & Location Plans

Client: Dan & Beth

Copyright - This drawing is subject to copyright and cannot be reproduced without the permission of the Company.	
Scales:	Date:
1:100 1:1250 @A1	20.10.22
Drawing Number:	Revision:
EC-53- 05	A
Drawn by:	MW

# Flood map for planning

Your reference  
<Unspecified>

Location (easting/northing)  
459458/386287

Created  
20 Mar 2023 9:01

**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 [www.gov.uk/guidance/flood-risk-assessment-standing-advice](http://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 2022 OS 100024198. <https://flood-map-for-planning.service.gov.uk/os-terms>

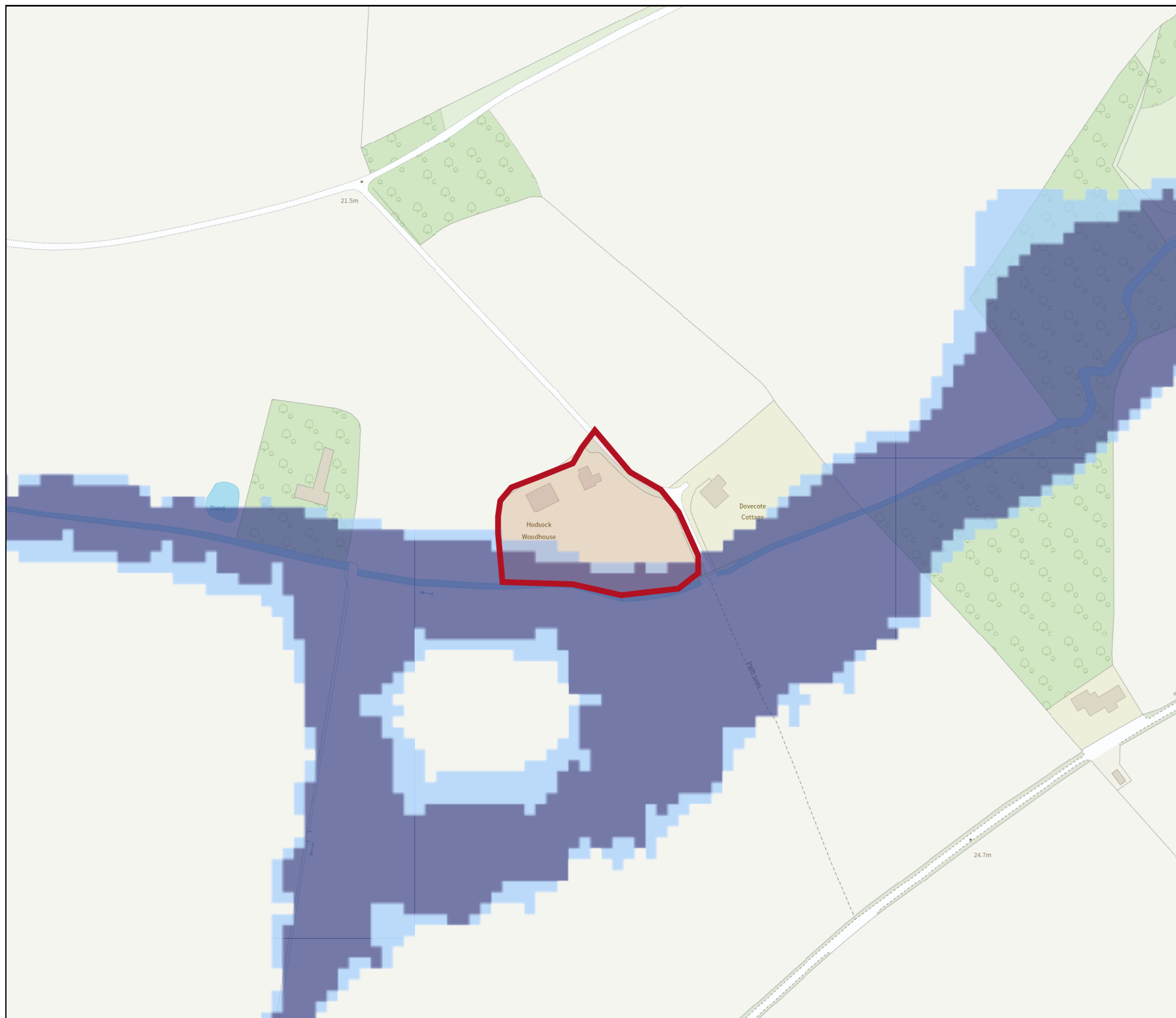
## Flood map for planning

Your reference  
<Unspecified>

Location (easting/northing)  
**459458/386287**

Scale  
**1:2500**

Created  
**20 Mar 2023 9:01**



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

0 20 40 60m