



Flood Risk Assessment for Planning

November 2021

Our reference:

91143-FairhomeGrp-HighSt

Prepared for:

Fairhome Property Investments Ltd

Location:

1-3 High Street

Haverhill

CB9 8AA



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Project: Flood Risk Assessment for Planning

Client: Fairhome Property Investments Ltd

Application: Change of use from commercial, business and service (class e) to dwelling houses (class c3), and part conversion of retail unit to five apartments with one retail unit remaining (no increase in built footprint)

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1. Key Facts

1.1 Flood Risk Posed:

- The site is situated predominantly within Flood Zone 2 when using the Environment Agency Flood Map for Planning (Rivers and Sea).
- Modelled flood levels and flood extents have been requested from the EA.
- The risk would appear to be predominantly fluvial. The Stour Brook is located approximately 55m to the north east of the site.
- The site is shown to be entirely outside of the modelled 1:100 year flood extent, but predominantly within the modelled 1:1000 year extent.
- Comparison of the modelled 1:1000 year flood level with topographic site levels shows that the site is between up to 0.17m below the 1:1000 year flood level, and up to 0.03m above the 1:1000 year flood level.
- The site is shown to be entirely outside of the modelled 1:100 year + 35% climate change flood extent.
- No historic records of flooding at the site have been provided.
- The EA Risk of Flooding from Surface Water Map suggests that the site lies predominantly in an area of “Low” risk of flooding from surface water. The High Street / Market Hill to the front (south) of the site is shown to be at “High” risk of flooding from surface water.

1.2 Flood Risk Mitigation:

- The proposal is for the change of use and conversion of the existing building and there will be no change to the floor levels post development.
- Flood proofing of the building will be incorporated as appropriate.
- A flood warning and evacuation plan will be implemented post development.
- 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 Fairhome Property Investments Ltd (hereinafter referred to as “the applicant”) to undertake a Flood Risk Assessment for the proposed development at 1-3 High Street, Haverhill, CB9 8AA 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 located predominantly within Flood Zone 2 when using the Environment Agency Flood Map for Planning (Rivers and Sea). 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 proposed application is for the Change of use from commercial, business and service (class e) to dwelling houses (class c3), and part conversion of retail unit to five apartments with one retail unit remaining (no increase in built footprint).

The existing site is occupied by a commercial unit at ground floor level (previously Argos).

Existing site plans are provided in the report Appendix.

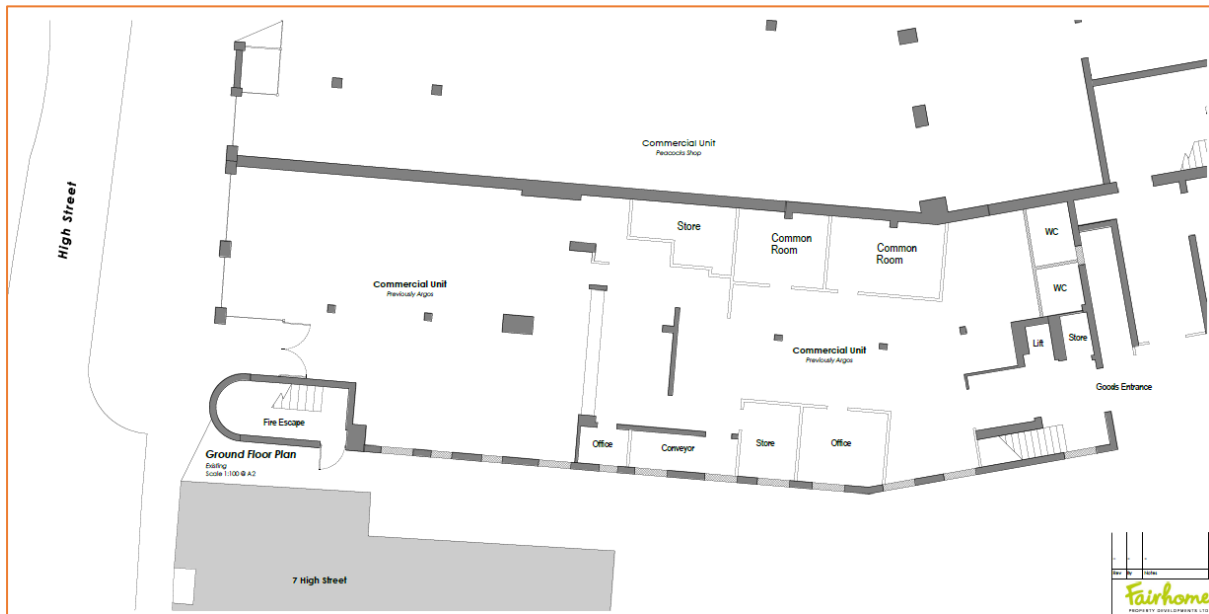


Figure 1: Site Location Plan (Source: Philip S. Ryley & Co)

3.2 Geography:

The Stour Brook is located approximately 55m to the north east of the site.



Figure 2: Aerial photograph of site and surrounding area (Source: Google Earth)

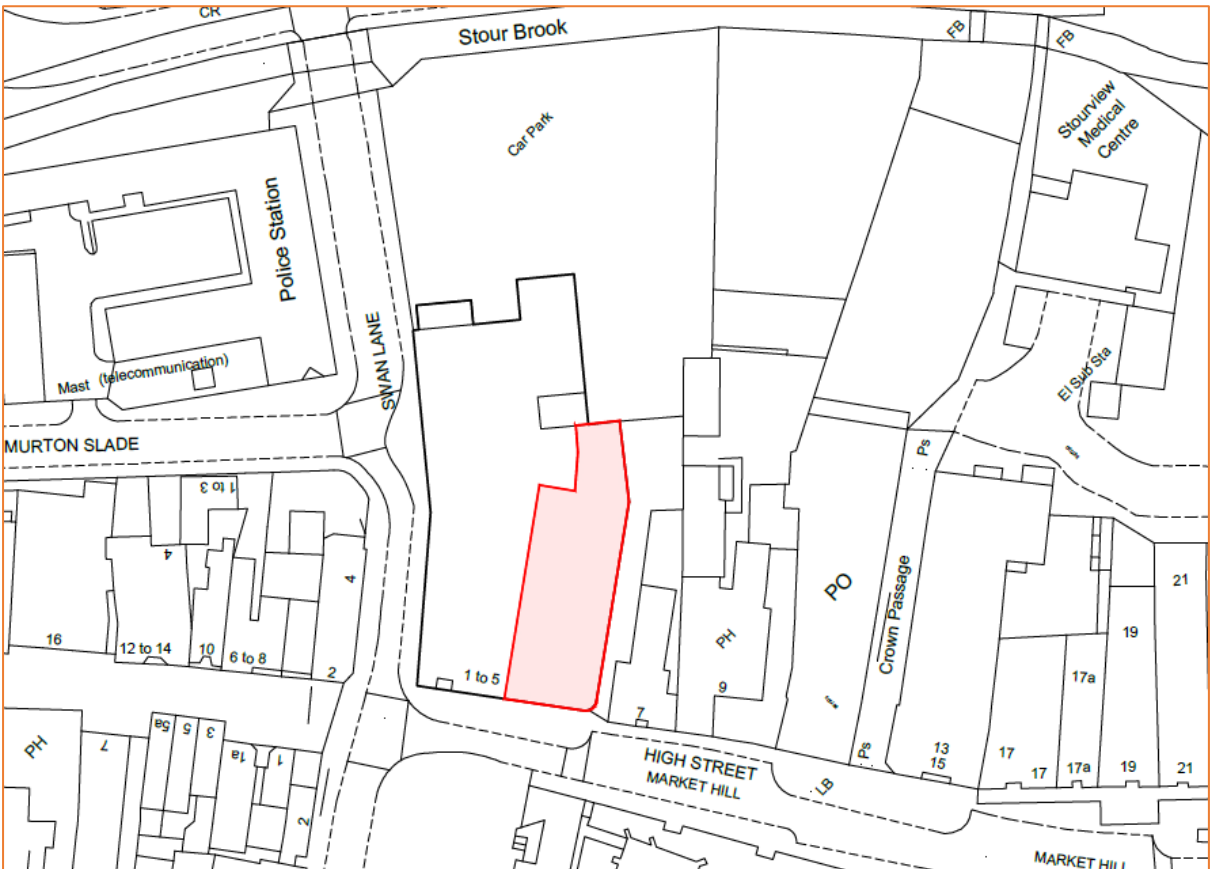


Figure 3: Site Location Plan (Source: Fairhome Property Developments Ltd)

3.3 Topography:

Environment Agency LiDAR has been used to assess the topography across the site and wider area. Light Detection and Ranging (LIDAR) is an airborne mapping technique, which uses a laser to measure the distance between the aircraft and the ground surface. Up to 100,000 measurements per second are made of the ground, allowing highly detailed terrain models to be generated at high spatial resolutions. The EA's LIDAR data archive contains digital elevation data derived from surveys carried out by the EA's specialist remote sensing team. Accurate elevation data is available for over 70% of England. The LiDAR technique records an elevation accurate to +0.3m every 2m. This dataset is derived from a combination of the full dataset which has been merged and re-sampled to give the best possible coverage. The dataset can be supplied as a Digital Surface Model (DSM) produced from the signal returned to the LIDAR (which includes heights of objects, such as vehicles, buildings and vegetation, as well as the terrain surface) or as a Digital Terrain Model (DTM) produced by removing objects from the Digital Surface Model. 1.0m horizontal resolution DTM LiDAR data has been used for the purposes of this study.

Topographic site levels are shown to range between approximately 65.50m AOD to 65.70m AOD.

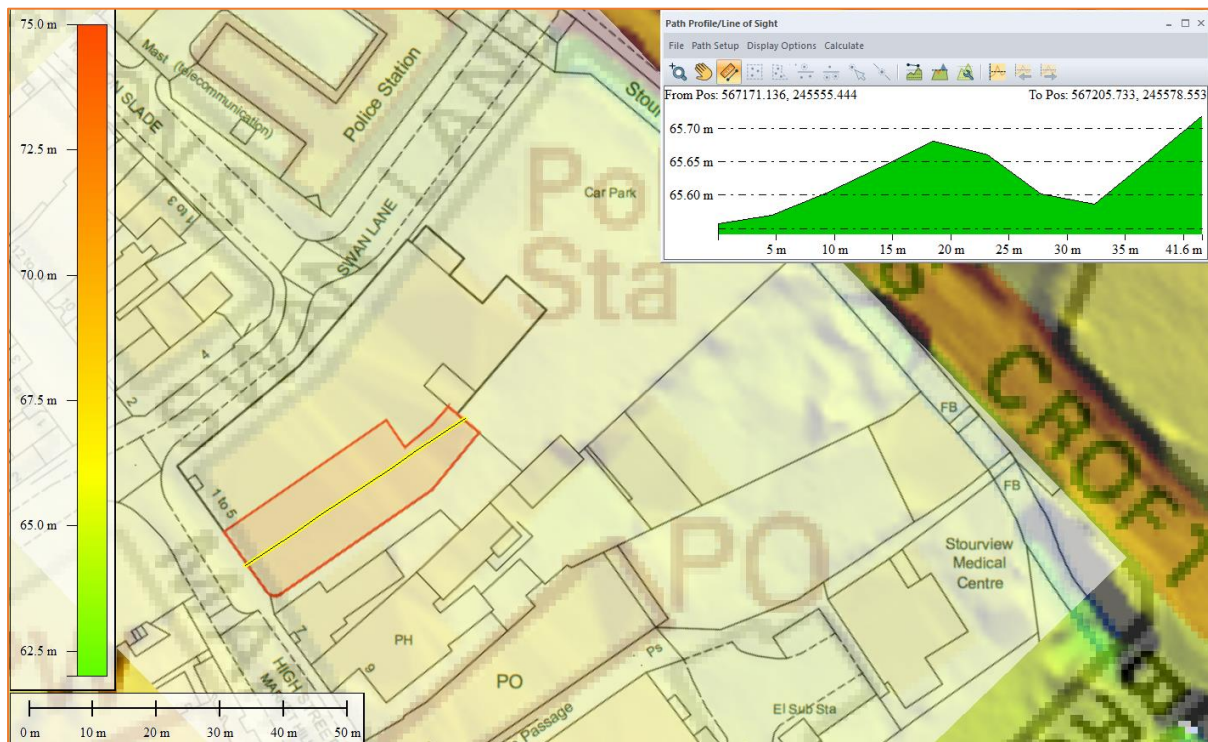


Figure 4: EA 1m LiDAR DTM showing topographic levels across the site. Site location plan overlain. Transect inset runs from southwest to northeast (Source: EA 1m LiDAR)

3.4 Geology and Soil:

The British Geological Survey (BGS) Map indicates that the bedrock underlying the site is Lewes Nodular Chalk Formation and Seaford Chalk Formation (Undifferentiated) - Chalk.

The British Geological Survey (BGS) Map indicates the superficial deposits underlying the site are River Terrace Deposits (Undifferentiated) - Sand and Gravel.

Data taken from the UK Soil Observatory website shows relatively deep soils from River Terrace Sand / Gravel soil parent material. The soil texture is shown to be sandy loam.

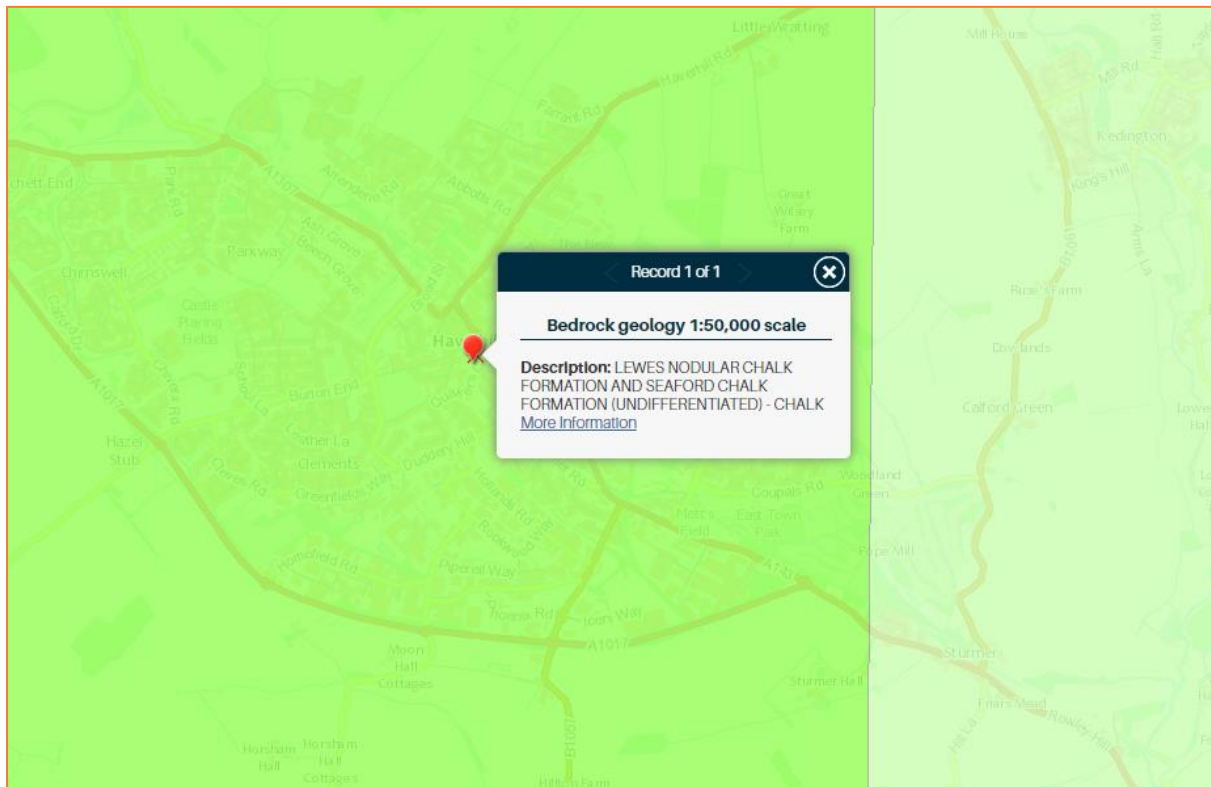


Figure 5: Local bedrock geology (Source: BGS)

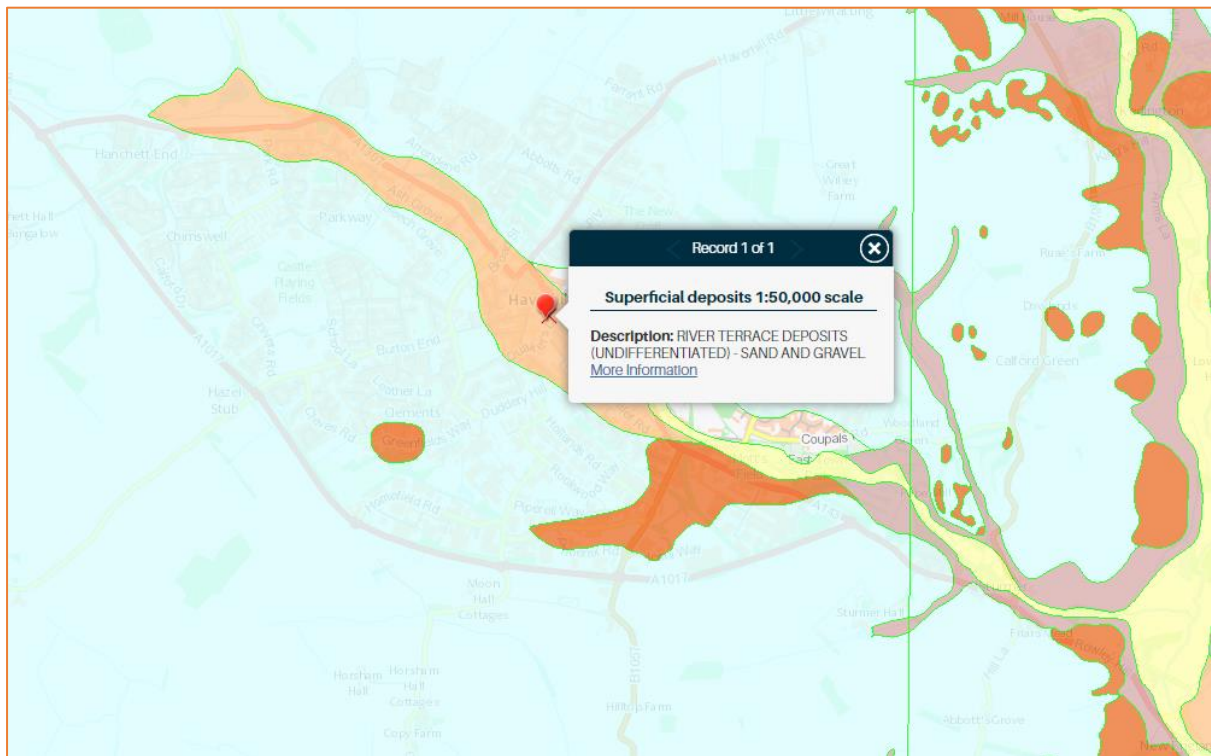


Figure 6: Superficial deposits geology (Source: BGS)

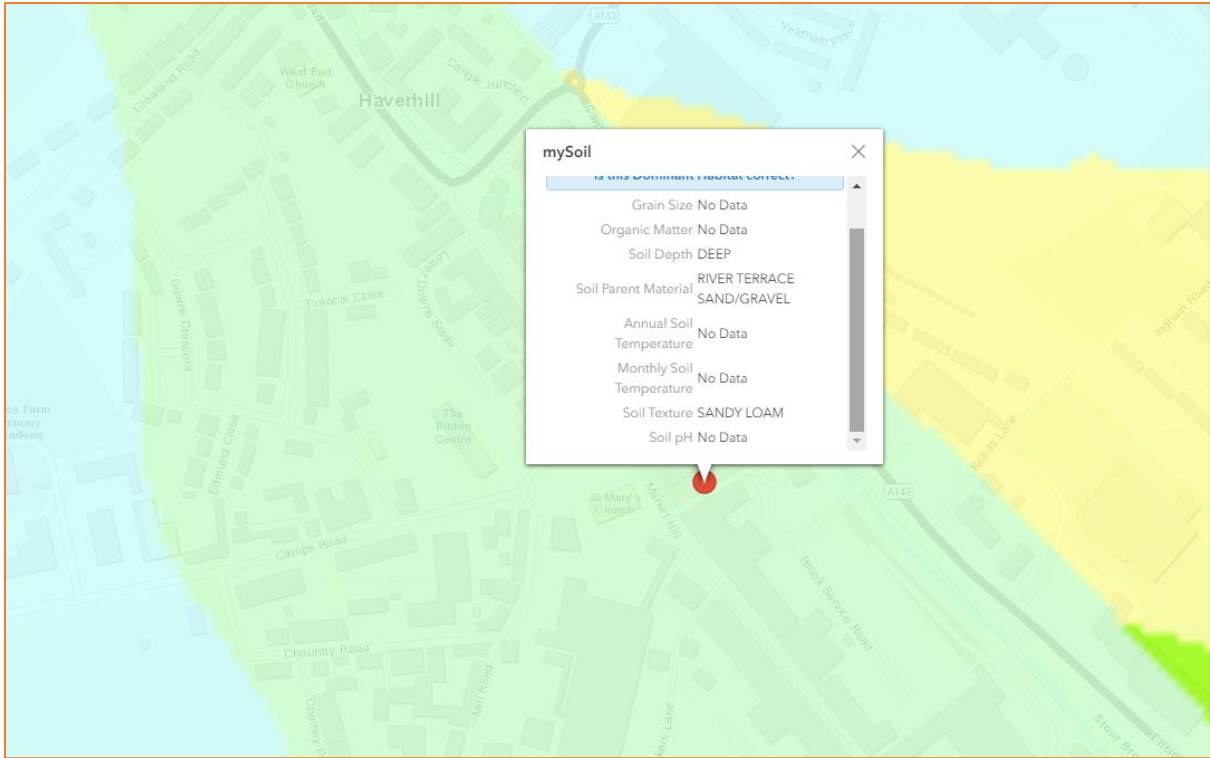


Figure 7: Local soil types (Source: UKSO)

4. Development Proposal

The proposed application is for the Change of use from commercial, business and service (class e) to dwelling houses (class c3), and part conversion of retail unit to five apartments with one retail unit remaining (no increase in built footprint).

Proposed plans can be found in the report Appendix.



Figure 8: Proposed development plan (Source: Fairhome Property Developments Ltd).

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 Low Probability	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 Medium Probability	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 High Probability	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 The Functional Floodplain	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.

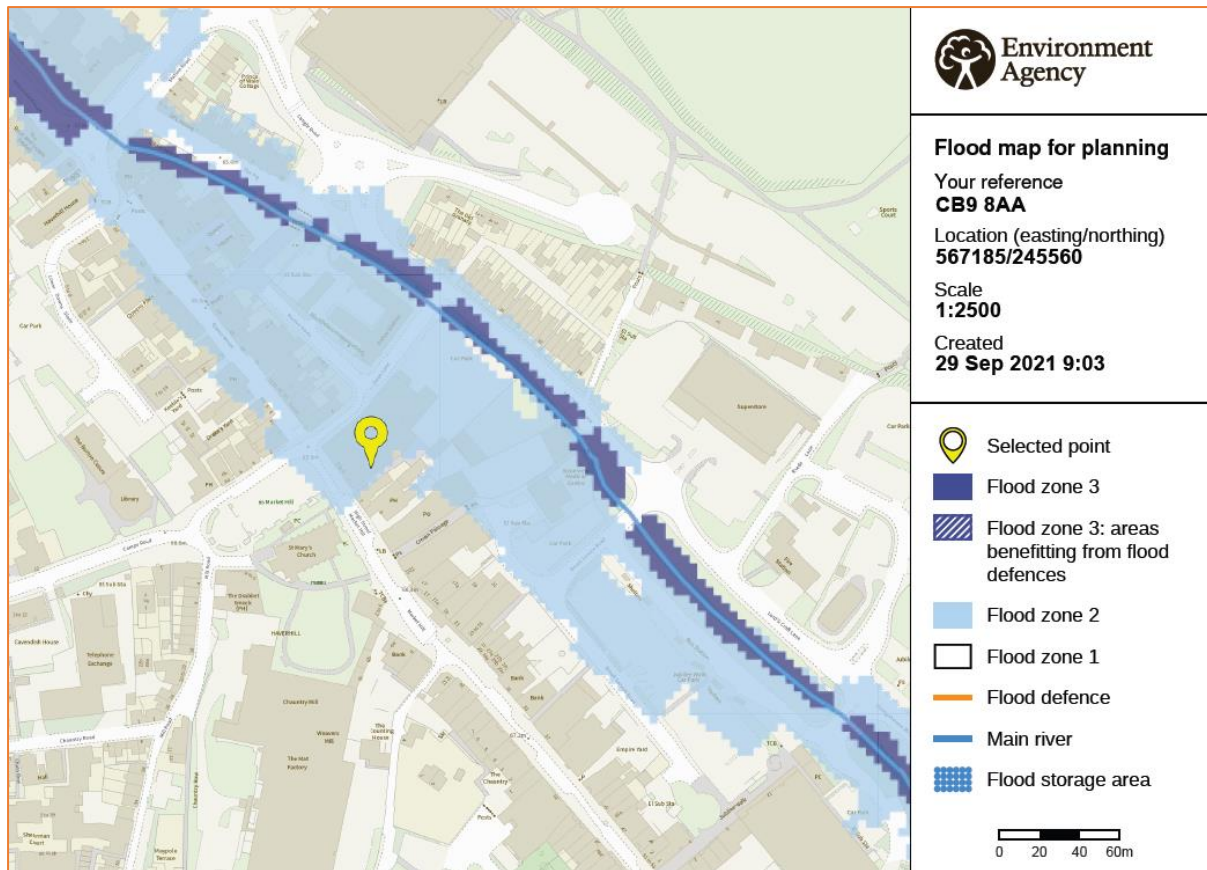


Figure 9: Environment Agency Flood Map for Planning (Rivers and Sea) (Source: EA)

The site is situated predominantly within Flood Zone 2 when using the Environment Agency Flood Map for Planning.

The risk would appear to be predominantly fluvial. The Stour Brook is located approximately 55m to the north east of the site.

5.2 Fluvial (Stour Brook):

The Stour Brook is a river that starts northwest of the town of Haverhill, Suffolk just over the Cambridgeshire border in the parish of West Wickham. After leaving Haverhill, it quickly joins the River Stour by the village of Wixoe, Essex

5.2.1 Modelled flood levels and events:

Modelled flood data has been requested from the EA for use within this report. The EA has provided modelled flood levels and flood extents from the Sturmer Model (JBA Consulting, 2020).

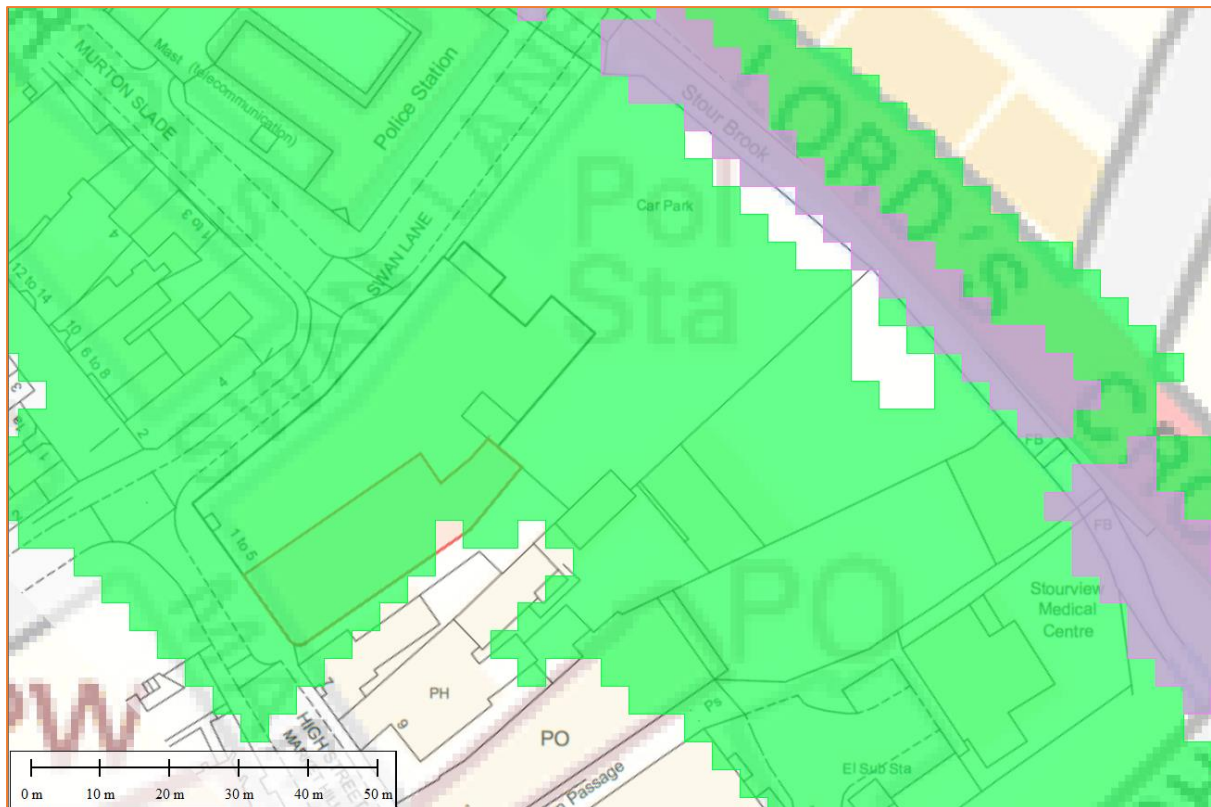


Figure 10: Modelled undefended 1:100 year (pink) and 1:1000 year (green) flood extents (Source: EA)

The site is shown to be entirely outside of the modelled 1:100 year flood extent, but predominantly within the modelled 1:1000 year extent.

The maximum on-site flood level for the 1:1000 year event is shown to be 65.67mAOD. Comparison of this modelled flood level with topographic site levels (65.50mAOD to 65.70mAOD) shows that the site is between up to 0.17m below the 1:1000 year flood level, and up to 0.03m above the 1:1000 year flood level.

The site is located within Flood Zone 2, and is classified as “less vulnerable” commercial and “more vulnerable” residential. The Flood Risk Assessments: climate change allowances guidance – updated October 2021, states that the Central climate change allowance should be applied. The site falls within the Combined Essex Management Catchment, where the Central climate change allowance for the 2080’s is a 25% increase in river flows.

As such, the most suitable modelled flood data provided in the Sturmer modelling is a 35% increase in flows, and as such this will be used for this assessment.

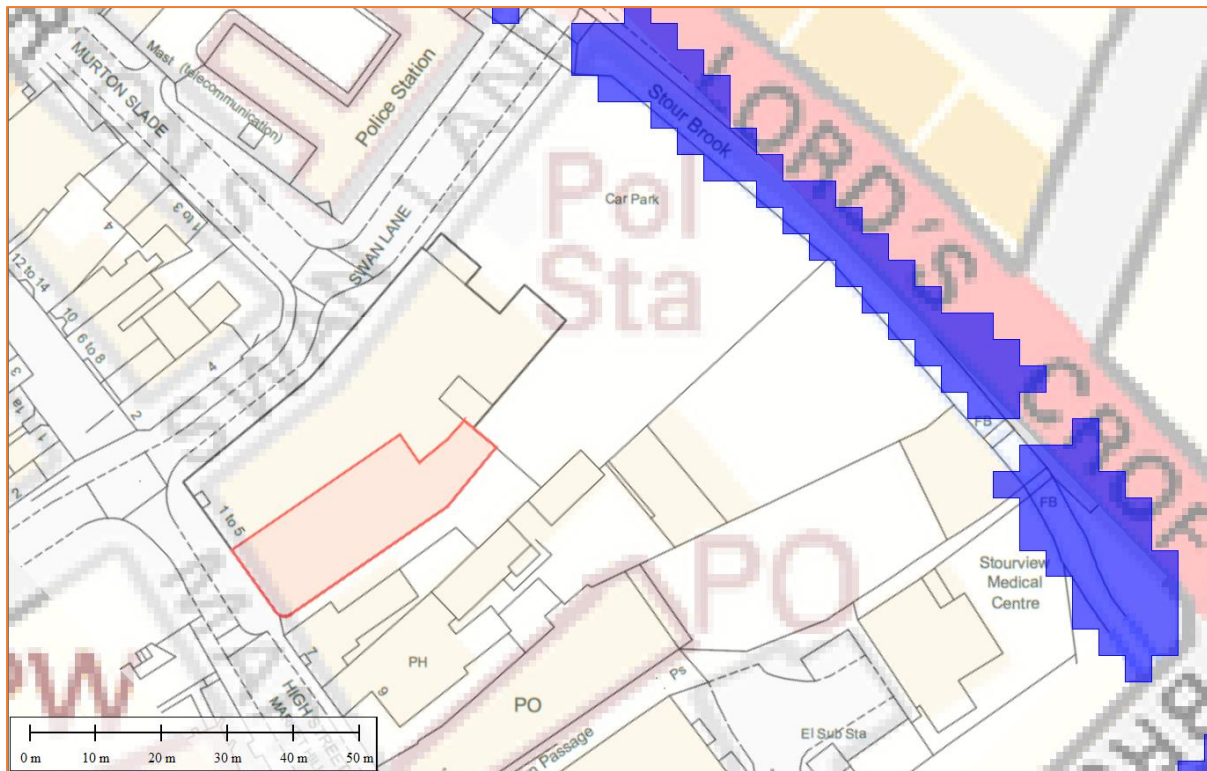


Figure 11: Modelled 1:100 year + 35% climate change flood extent (Source: EA)

The site is shown to be entirely outside of the modelled 1:100 year + 35% climate change flood extent.

5.2.2 Flood Storage Areas:

Flood Storage Areas are areas that act as a balancing reservoir, storage basin or balancing pond. Their purpose is to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel. It may also delay the timing of a flood peak so that its volume is discharged over a longer time interval. Flood storage areas do not completely remove the chance of flooding and can be overtopped or fail in extreme weather conditions.

According to Environment Agency data, there are no Flood Storage Areas located in close proximity to the site.

5.2.3 Functional Floodplain:

A Functional Floodplain (Flood Zone 3b) is defined as a land where water has to flow or be stored in times of flood. A Flood Zone 3b is where only water-compatible development and essential infrastructure is recommended.

The site is not shown to be within Flood Zone 3b.

5.2.4 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 Stour Brook is shown to benefit from flood defences to the 1:100 year standard in this reach, with the condition recorded as "Good".

5.2.5 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.

Flood defences may defend the site from direct inundation to the 1:100 year standard. It should be noted that the site is also shown to be entirely outside of the modelled undefended 1:100 year flood extent. The site may still be at risk of exceedance (overtopping) of the flood defences in place.

5.2.6 Historical flood events:

The EA has provided no records of historic flooding at the site previously. No records of flooding at the site previously are shown in the SFRA.

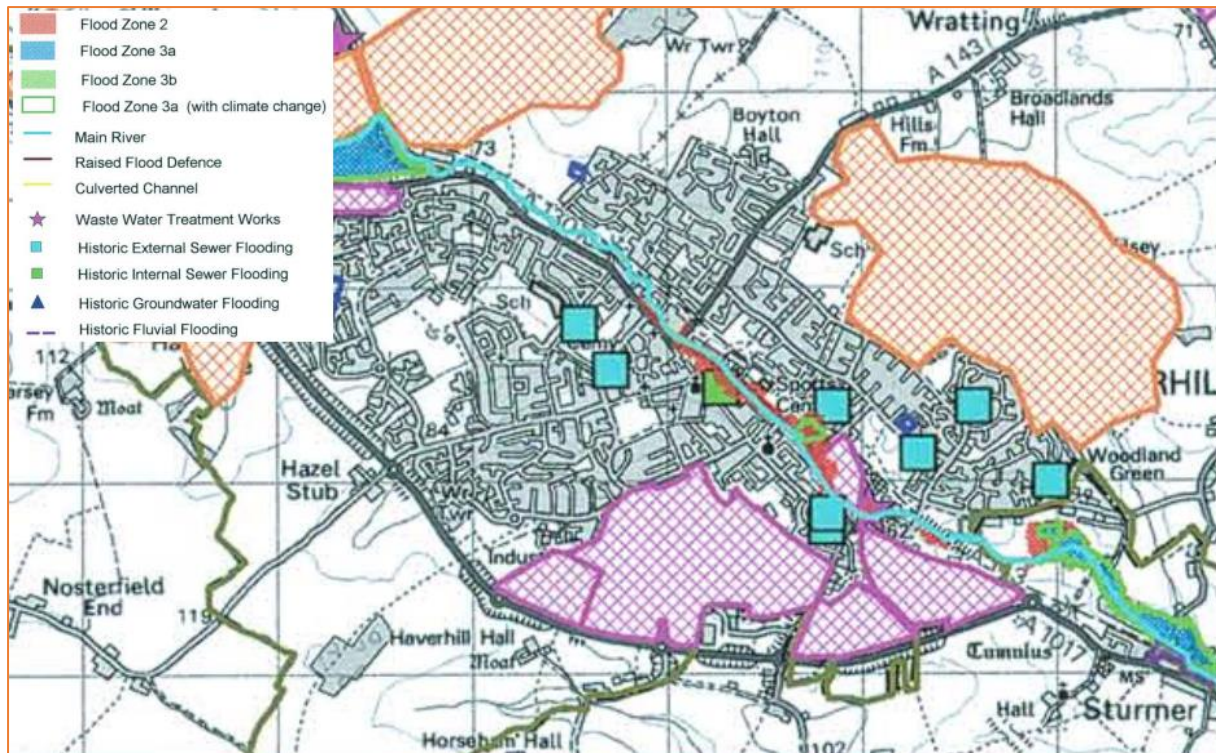


Figure 12: Haverhill Flood Map (Source: Forest Heath District Council and St Edmundsbury Borough Council SFRA)

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):

- 1:30 (3.3%)
- 1:100 (1%)
- 1:1000 (0.1%)

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 predominantly in an area of “Low” risk of flooding from surface water. The High Street / Market Hill to the front (south) of the site is show to be at “High” risk of flooding from surface water.



Figure 13: Extract from Environment Agency Surface Water Flood Map (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 have been provided to suggest that the site has flooded from groundwater sources previously.

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.

In the SFRA there is a record of historic internal sewer flooding shown in the vicinity of the site. No records of sewer flooding at the site previously have been provided.

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 within 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.

No records of flooding of the site flooding previously from reservoir flooding have been provided.

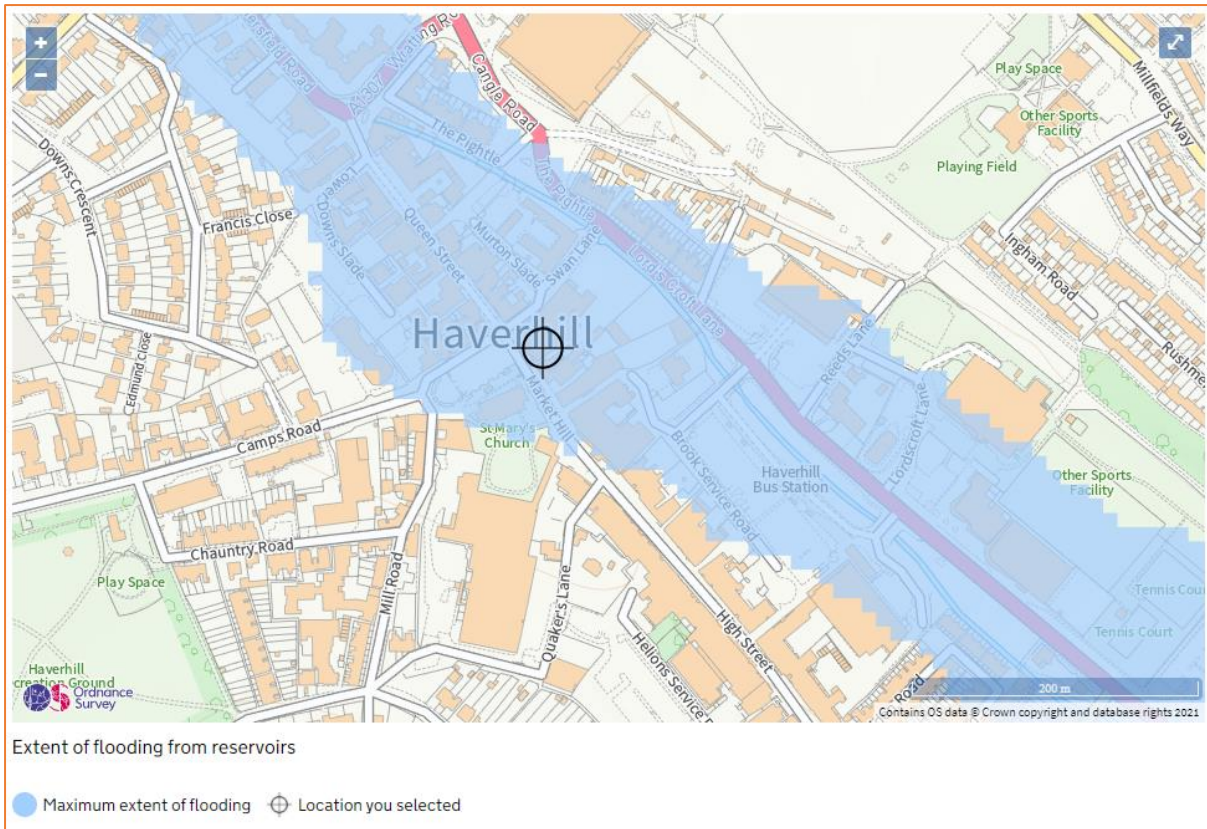


Figure 14: Extract from Environment Agency Reservoir Flood Map (Source: EA)

6. Flood Risk Management

6.1 Vulnerability to flooding:

The NPPF classifies property usage by vulnerability to flooding.

The existing site is commercial throughout which is classified as “less vulnerable”.

Post development, the site will become both “less vulnerable” (commercial) and “more vulnerable” (residential).

Accordingly, it is considered that the vulnerability of the site as a whole will be increased post development.

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 250m². It should not be applied if an additional dwelling is being created, e.g. a self-contained annexe or additional commercial unit.

6.3 Physical Design Measures:

The proposal is for the change of use and conversion of the existing building. As such, there will be no change to the floor levels.

The site is shown to be entirely outside of the modelled 1:100 year + 35% climate change flood extent.

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:

- Waterproof screed used on ground floor;
- Closed-cell foam used in wall cavities;
- Waterproof internal render at ground floor level;
- 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;
- New kitchen units of solid, water resistant material;
- Use of MDF carpentry (i.e. skirting, architrave, built-in storage) avoided at ground floor level;
- New wiring or electrical circuit run from ceiling, with raised sockets at ground floor level.

The applicant should also consider the use of demountable flood defence barriers to defend ground level doorways and low windows.

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 situated predominantly within Flood Zone 2 when using the Environment Agency Flood Map for Planning (Rivers and Sea).

Safe escape can be provided entirely outside of the modelled 1:100 year plus climate change flood extent. Site users should exit the site to the High Street / Market Hill and travel east along Market Hill. This route is entirely outside of Flood Zone 3 (and outside of the modelled 1:100 year plus climate change flood extent, and it outside of Flood Zone 2 (and the modelled 1:1000 year flood extent) approximately 5m from the site.

As such, an entirely dry escape route can be provided from the site during the design 1:100 year plus climate change flood event.

Residents and users should follow the warning and evacuation procedure detailed in the following section.

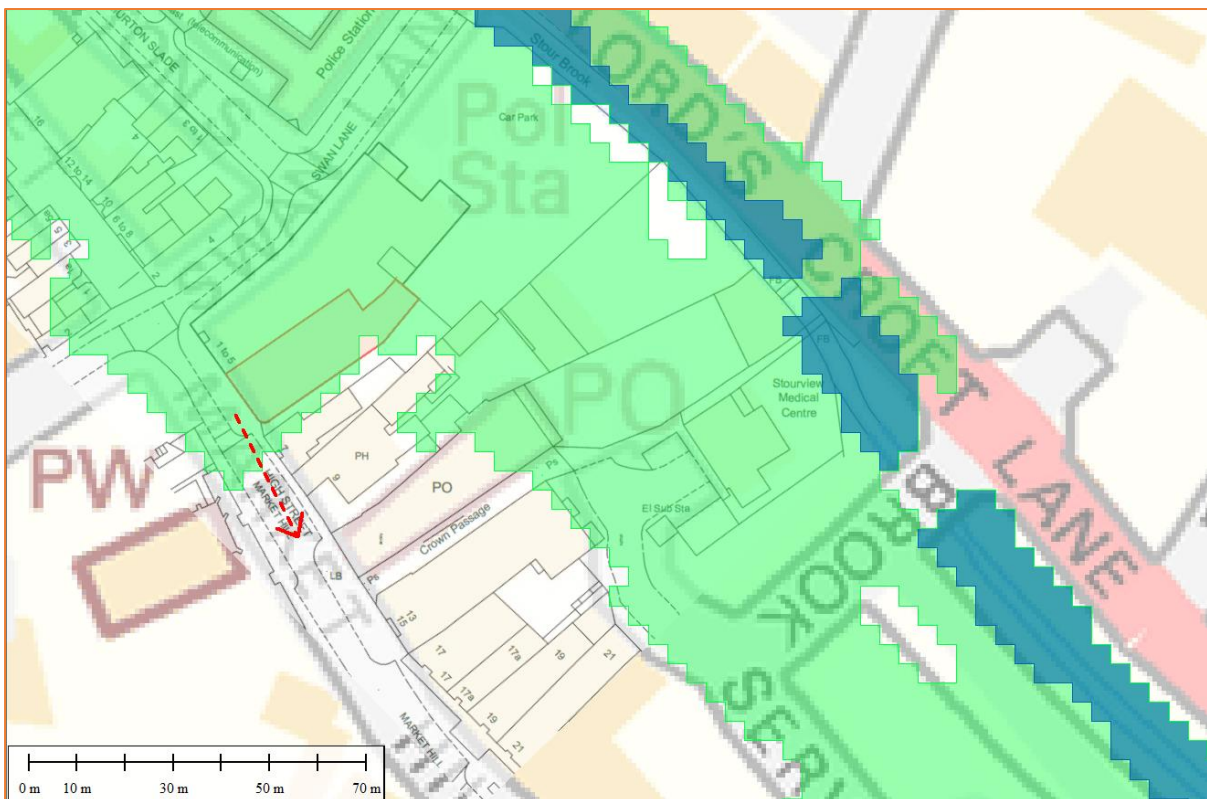


Figure 15: Proposed escape route shown by red dashed line. Modelled 1:100 year + 35% climate change flood extent shown in blue, modelled 1:1000 year flood extent shown in green (Source: EA)

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 to receive flood warnings by phone, text or email.

The applicant has agreed to subscribe to the EA's flood warning service. The site lies within the Stour Brook from Haverhill to Sturmer flood warning area (quickdial code 313602).

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
			
What it means?	Flooding is possible. Be prepared.	Flooding is expected. Immediate action required.	Severe flooding. Danger to life.
When it's used?	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.
What to do?	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 properties 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 situated predominantly within Flood Zone 2, when using the Environment Agency Flood Map for Planning (Rivers and Sea). The site is entirely outside of the modelled 1:100 year flood level with allowance for climate change, therefore post development there will be no loss of fluvial floodplain storage.

The proposal is for the change of use and conversion of the existing building, therefore there will no increase in built footprint post development.

6.7.2 Surface Water Drainage:

The development will utilise Sustainable drainage systems (SuDS) design in accordance with the NPPF for Planning Applications and the drainage 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;

However, based on the development plans provided, the proposal is for the conversion of the existing building and does not incorporate any external alterations to the built footprint. As such, there will be no change in the impermeable coverage post development and therefore no change in the surface water runoff generation from the site.

There will be no change to the existing on-site drainage system.

A full Surface Water Drainage Strategy should not be required at this stage of the application.

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 predominantly within Flood Zone 2 when using the Environment Agency Flood Map for Planning (Rivers and Sea).

Post development, the site will become both “less vulnerable” (commercial) and “more vulnerable” (residential) throughout.

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a	Exception Test required	✗	Exception Test required	✓	✓
Zone 3b	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 Zone 2. The Sequential and Exception Tests do not need to be applied to minor developments and changes of use. The proposed application is for the change of use of the existing building.

8. Discussion and Conclusions

Unda Consulting Limited have been appointed by Fairhome Property Investments Ltd (hereinafter referred to as "the applicant") to undertake a Flood Risk Assessment for the proposed development 1-3 High Street, Haverhill, CB9 8AA. 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 proposed application is for the Change of use from commercial, business and service (class e) to dwelling houses (class c3), and part conversion of retail unit to five apartments with one retail unit remaining (no increase in built footprint).

The proposed application is for the Change of use from commercial, business and service (class e) to dwelling houses (class c3), and part conversion of retail unit to five apartments with one retail unit remaining (no increase in built footprint).

The existing site is occupied by a commercial unit at ground floor level (previously Argos).

The site is situated predominantly within Flood Zone 2 when using the Environment Agency Flood Map for Planning (Rivers and Sea).

The risk would appear to be predominantly fluvial. The Stour Brook is located approximately 55m to the north east of the site.

Modelled flood data has been requested from the EA for use within this report. The EA has provided modelled flood levels and flood extents from the Sturmer Model (JBA Consulting, 2020). The site is shown to be entirely outside of the modelled 1:100 year flood extent, but predominantly within the modelled 1:1000 year extent.

The maximum on-site flood level for the 1:1000 year event is shown to be 65.67mAOD. Comparison of this modelled flood level with topographic site levels (65.50mAOD to 65.70mAOD) shows that the site is between up to 0.17m below the 1:1000 year flood level, and up to 0.03m above the 1:1000 year flood level.

The site is located within Flood Zone 2, and is classified as "less vulnerable" commercial and "more vulnerable" residential. The Flood Risk Assessments: climate change allowances guidance – updated October 2021, states that the Central climate change allowance should be applied. The site falls within the Combined Essex Management Catchment, where the Central climate change allowance for the 2080's is a 25% increase in river flows.

As such, the most suitable modelled flood data provided in the Sturmer modelling is a 35% increase in flows, and as such this will be used for this assessment.

The site is shown to be entirely outside of the modelled 1:100 year + 35% climate change flood extent

The EA has provided no records of historic flooding at the site previously. No records of flooding at the site previously are shown in the SFRA.

In the SFRA there is a record of historic internal sewer flooding shown in the vicinity of the site. No records of sewer flooding at the site previously have been provided.

The EA Risk of Flooding from Surface Water Map suggests that the site lies predominantly in an area of "Low" risk of flooding from surface water. The High Street / Market Hill to the front (south) of the site is show to be at "High" risk of flooding from surface water.

Safe escape can be provided entirely outside of the modelled 1:100 year plus climate change flood extent. Site users should exit the site to the High Street / Market Hill and travel east along Market Hill. This route is entirely outside of Flood Zone 3 (and outside of the modelled 1:100 year plus climate change flood extent, and it outside of Flood Zone 2 (and the modelled 1:1000 year flood extent) approximately 5m from the site.

As such, an entirely dry escape route can be provided from the site during the design 1:100 year plus climate change flood event.

The applicant has confirmed that:

- The proposal is for the change of use and conversion of the existing building and there will be no change to the floor levels post development.
- Flood proofing of the building will be incorporated as appropriate.
- A flood warning and evacuation plan will be implemented post development.
- The applicant will register with the free Environment Agency Floodline Alert Direct service.

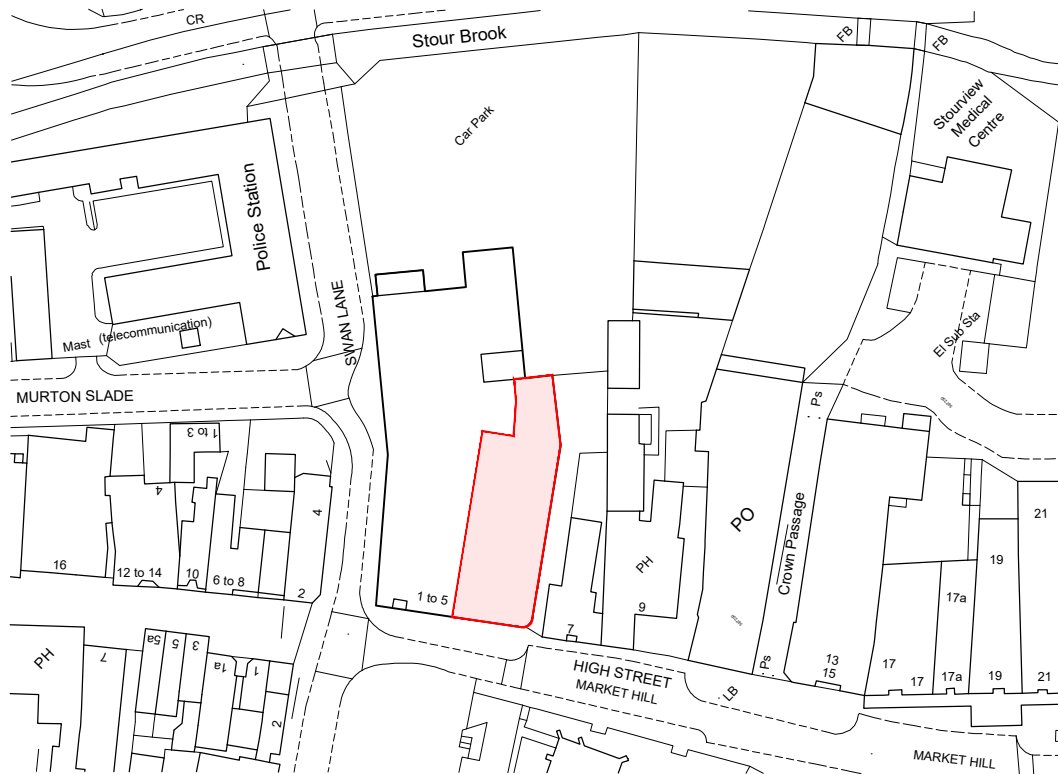
Assuming accordance with these flood risk management measures, Unda Consulting Limited consider the proposed application to be suitable in flood risk terms.

Appendix

- Existing and Proposed Plans.
- Environment Agency Flood Data response email.

Notes

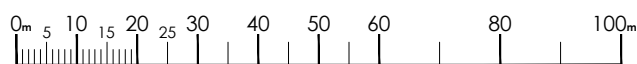
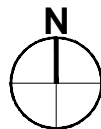
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Location Plan

Scale 1:1250 @ A1

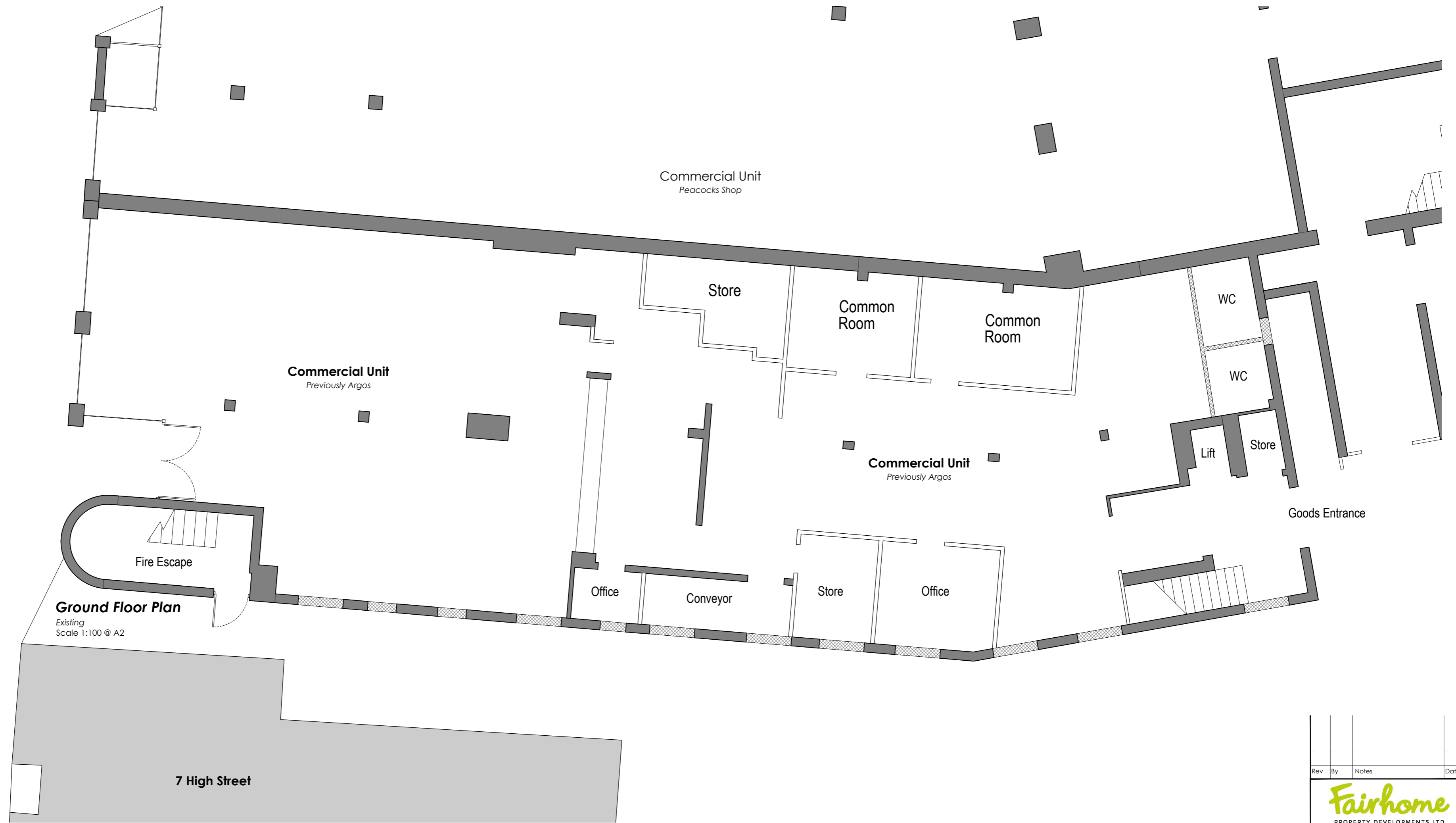


Scale 1:1250

Rev	By	Notes	Date
 Fairhome PROPERTY DEVELOPMENTS LTD <small>Fairhome Group, Quays Reach, 16 Carolina Way, Manchester, M50 2ZY T: 0330 3909500 W: www.fairhomegroup.co.uk</small>			
Project 1-3 High Street, Haverhill, St Edmundsury CB9 8AA			
Title Location Plan			
Drawn By TS Checked -- Approved -- Date August 2021 Paper Size A4			
DWG Number FP28675-A-001		Revision PL1	

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Ground Floor Plan
Existing
Scale 1:100 @ A2



Rev	By	Notes	Date

Fairhome
PROPERTY DEVELOPMENTS LTD
Fairhome Group, Quay Reach, 14 Carolina Way, Manchester, M50 2YJ
T: 0330 390500
W: www.fairhomegroup.co.uk

Project
1-3 High Street, Haverhill,
St Edmundsury CB9 8AA

Title
Ground Floor Plan
Existing

Drawn By TS
Checked ..
Approved ..

Date August 2021
Paper Size A2

DWG Number FP28675-A-002 **Revision** PL1

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Ground Floor Plan
Proposed
Scale 1:200 @ A2

Development granted in planning application ref. 17/2539/FUL

Rev	By	Notes	Date

Fairhome
PROPERTY DEVELOPMENTS LTD
Fairhome Group, Quays Reach, 14 Carolina Way, Manchester, M50 2JY
T: 0330 390500
W: www.fairhomegroup.co.uk

Project
1-3 High Street, Haverhill,
St Edmundsury CB9 8AA

Title
Ground Floor Plan
Proposed

Drawn By TS

Checked ..

Approved ..

Date August 2021

Paper Size A2

DWG Number FP28675-A-003 **Revision** PL1



Our ref: EAn/2021/235355
Date: 13/10/2021

Dear Jackie,

Enquiry regarding Product 4 for Haverhill, Suffolk.

Thank you for your enquiry which was received on 29 September 2021.

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

Please note that we have recently changed our process for responding to modelled data requests, please read the information within this letter for further details.

Your request for a Product 4 falls under the exemption in provision 6(1)(a) and (b) of the Environmental Information Regulations 2004 (EIR) which states that

‘.....6.—(1) Where an applicant requests that the information be made available in a particular form or format, a public authority shall make it so available, unless—

(a) it is reasonable for it to make the information available in another form or format; or

(b) the information is already publicly available and easily accessible to the applicant in another form or format.....’

On this occasion we are not providing the information in the Product 4 format for the following reasons:

- Complying with the preference would incur a significant cost, which the public authority [The Environment Agency] cannot pass on to the requester;
- Providing shapefiles used to create a Product 4 allows us to make the information available at a lower cost; and
- The impact on the available resources of the public authority [The Environment Agency], of supplying shapefiles used to create a Product 4, is therefore much less.

About the Model used

Model: Sturmer

Date: 2020

Consultant: JBA Consulting

<https://ea.sharefile.com/d-sa163d69def64851bec5fa2d306d4364>

East Anglia Area

Ipswich Office, Icen House, Cobham Road, Ipswich, Suffolk, IP3 9JD

General Enquiries: 03708 506506

Email: enquiries@environment-agency.gov.uk

Website: <https://www.gov.uk/government/organisations/environment-agency>

The shape files we have provided have all the data required used to create a product 4. Therefore site specific data is included, as all levels and flood extent outlines have been provided for the flood risk model nearest to your site. Please use the free software 'QGIS' to open and view the shapefiles and the Quick Map services for base maps. By navigating to your site (e.g. using the site grid reference) you will be able to extract flood risk levels from the model that are relevant to your site.

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

Product 4 data is derived from the shapefiles supplied above and the following open data sources;

Flood Zone 3 <https://data.gov.uk/dataset/flood-map-for-planning-rivers-and-sea-flood-zone-3>

Flood Zone 2 <https://data.gov.uk/dataset/flood-map-for-planning-rivers-and-sea-flood-zone-2>

Historic Flood Map <https://data.gov.uk/dataset/historic-flood-map1>

Please note, that the Flood Map for Planning is available to view and export maps for your site at: <https://flood-map-for-planning.service.gov.uk/>

Please note that our historic flood event maps may not be comprehensive. We would therefore advise that you make further enquiries locally with specific reference to flooding at your location. You should consider contacting the relevant Local Planning Authority and/or water/sewerage undertaker for the area.

Please be aware that flooding can come from different sources. Examples of these are:

- from rivers or the sea
- surface water (i.e. rainwater flowing over or accumulating on the ground before it is able to enter rivers or the drainage system)
- overflowing or backing up of sewer or drainage systems which have been overwhelmed
- groundwater rising up from underground aquifers

Currently the Environment Agency can only supply flood risk data relating to the chance of flooding from rivers or the sea.

Areas Benefiting from Flood Defences

Areas benefiting from flood defences are defined as those areas which benefit from formal flood defences specifically in the event of flooding from rivers with a 1% (1 in 100) chance in any given year, or flooding from the sea with a 0.5% (1 in 200) chance in any given year.

If the defences were not there, these areas would be flooded. An area of land may benefit from the presence of a flood defence even if the defence has overtopped, if the presence of the defence means that the flood water does not extend as far as it would if the defence were not there.

East Anglia Area

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General Enquiries: 03708 506506

Email: enquiries@environment-agency.gov.uk

Website: <https://www.gov.uk/government/organisations/environment-agency>

Flood Risk Assessment Checklist

If you are planning on using this data within a Flood Risk Assessment, we recommend that you take the time to fill in the attached FRA checklist, and to read the attachments which contain information relevant to the area that interests you.

We would like to stress the importance of filling in the Flood Risk Assessment check list, and providing up-to-date and correct data. The data will be checked against our records when we review the Flood Risk Assessment in our role as statutory consultee.

It is important that you provide a map in section 2 of the FRA checklist (See Appendix A), including the highest and most representative flood levels for your site. We recommend using a number of nodes that provide a fair representation of the modelled data across your site. For example, if it is a small extension (< 250 square metres) then approximately 5-10 nodes would be sufficient. For larger sites, approximately 10 to 20 nodes would be appropriate.

Please contact our Sustainable Places team at planning.ipswich@environment-agency.gov.uk if you have any further enquiries regarding the planning process and Flood Risk Assessments.

If you have any further queries regarding how to use the above data please contact the Partnership and Strategic Overview (PSO) team directly at: PSOENS@environment-agency.gov.uk.

If you have a new enquiry or would like us to review the information we have provided under the Freedom of Information Act 2000 and Environmental Information Regulations 2004 please contact us within two months by email at Enquiries_EastAnglia@environment-agency.gov.uk

Kind Regards

Phoebe Atkins

Flood & Coastal Risk Management Officer

PSO Essex, Norfolk and Suffolk
East Anglia Area

East Anglia Area

Ipswich Office, Icen House, Cobham Road, Ipswich, Suffolk, IP3 9JD

General Enquiries: 03708 506506

Email: enquiries@environment-agency.gov.uk

Website: <https://www.gov.uk/government/organisations/environment-agency>

Jackie Stone
 Unda
jackie.stone@unda.co.uk

Our ref EAn/2021/235355
Your ref 91143
Date 28 October 2021

Dear Jackie

Enquiry regarding Products 4, 5, 6, 7 & 8 for 1 - 3 High Street Haverhill Suffolk CB9 8AA

Thank you for your enquiry of 29 September 2021.

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

In response to your enquiry, please see the attached letter and documents.

If you have any comments regarding the attached letter please contact our Partnership & Strategic Overview team directly by email at PSOENS@environment-agency.gov.uk

Please also see attached defence information.

Additional Asset Management Data and Information can be found online using this link: <https://environment.data.gov.uk/asset-management/index.html>

A copy of the Flood Risk Assessment (FRA) advisory note is attached to my email.

Please read the Open Government Licence: www.nationalarchives.gov.uk/doc/open-government-licence/version/3/ which explains the permitted use of the defence information we have provided.

The Product 5, 6 & 7 information we hold has been uploaded to our sharefile system and can be accessed for 30 days using these links:

Product 5 - <https://ea.sharefile.com/d-sa163d69fdef64851bec5fa2d306d4364>

Product 6 & 7 - <https://ea.sharefile.com/d-s9de56fae44244e138e6da03de6ac692f>

Name	Products 5, 6 and 7
Description	Report, Model output data and Calibrated and Verified Model Input Data for Sturmer Model 2020, JBA Consulting
Licence	The following information is not available under the Open Government Licence but we may be able to license it to you under the Environment Agency Conditional Licence Environment Agency Conditional Licence : However, you MUST first check the supporting information and the above link to determine if the conditions on use are suitable for your purposes. If they aren't, this information is not provided with a licence for use, and the data is provided for read right only.

East Anglia Area

Ipswich Office, Icen House, Cobham Road, Ipswich, Suffolk, IP3 9JD
 Bampton Office, Bromholme Lane, Bampton, Huntingdon, PE28 4NE
 General Enquiries: 03708 506506
 Email: enquiries@environment-agency.gov.uk
 Website: <https://www.gov.uk/government/organisations/environment-agency>

Conditions	<p>1.0 You may use the Information for your internal or personal purposes and may only sublicense others to use it if you do so under a written licence which includes the terms of these conditions and the agreement and in particular may not allow any period of use longer than the period licensed to you.</p> <p>2.0 Notwithstanding the fact that the standard wording of the Environment Agency Conditional Licence indicates that it is perpetual, this Licence has a limited duration of 5 years at the end of which it will terminate automatically without notice.</p> <p>3.0 We have restricted use of the Information as a result of legal restrictions placed upon us to protect the rights or confidentiality of others. In this instance it is because of third party data. If you contact us in writing (this includes email) we will, as far as confidentiality rules allow, provide you with details including, if available, how you might seek permission from a third party to extend your use rights.</p> <p>4.1 The Information may contain some data that we believe is within the definition of “personal data” under the Data Protection Act 1998 but we consider that we will not be in breach of the Act if we disclose it to you with conditions set out in this condition and the conditions above. This personal data comprises names of individuals or commentary relating to property that may be owned by an individual or commentary relating to the activities of an individual.</p> <p>4.2 Under the Act a person who holds and uses or passes to others personal data is responsible for any compliance with the Act and so we have no option but to warn you that this means you have responsibility to check that you are compliant with the Act in respect of this personal data.</p> <p>5.0 The location of public water supply abstraction sources must not be published to a resolution more detailed than 1km². Information about the operation of flood assets should not be published.</p> <p>6.1 Where we have supplied model data which may include model inputs or outputs you agree to supply to the Environment Agency copies of any assessments/studies and related outputs, modifications or derivatives created pursuant to the supply to you of the Information, all of which are hereinafter referred to as “the Data”.</p> <p>6.2 You agree, in the public interest to grant to the Environment Agency a perpetual royalty free non-exclusive licence to use the Data or any part thereof for its internal purposes or to use it in any way as part of Environment Agency derivative products which it supplies free of charge to others such as incorporation into the Environment Agency's Open Data mapping products.</p>
Information Warnings	Please be aware that model data is not raw, factual or measured but comprises of estimations or modelled results based on the data available to us.
Attribution	<p>Contains Environment Agency information © Environment Agency and/or database rights.</p> <p>May contain Ordnance Survey data © Crown copyright 2017 Ordnance Survey 100024198.</p>

East Anglia Area

Ipswich Office, Icen House, Cobham Road, Ipswich, Suffolk, IP3 9JD

Brampton Office, Bromholme Lane, Brampton, Huntingdon, PE28 4NE

General Enquiries: 03708 506506

Email: enquiries@environment-agency.gov.uk

Website: <https://www.gov.uk/government/organisations/environment-agency>

We deal with requests for information under the Freedom of Information Act 2000 and the Environmental Information Regulations 2004 (EIR). The Act requires that we respond to requests by advising you whether or not information is held, and if so by providing you with that information.

EIR Regulation 3(2) states that information is held if it is in our possession and has been produced or received by us, or it is held by another person on our behalf at the time the request is received.

Information not held by us

In this case, the Product 8 information you have requested is not held by the Environment Agency, and we are therefore refusing your request on the grounds that there is no information we can provide.

Where a request is for environmental information, the Regulations allow us to refuse to disclose it if the exception at EIR Regulation 12(4)(a) applies. The regulation states that a public authority may refuse to disclose environmental information to the extent that it does not hold that information when an applicant's request is received.

It is not possible for us to conduct a public interest balancing test because the reason for non-disclosure is that the information is not held.

Information held by suffolk County Council

We believe that the information you have requested may be held by Suffolk County Council. If you wish us to pass on your request please let me know. If you would rather approach that body yourself, the contacts details are:

Suffolk County Council
<https://contact.suffolk.gov.uk/>

Rights of appeal

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

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

Information Commissioner's Office
Wycliffe House
Water Lane
Wilmslow
Cheshire
SK9 5AF
Tel: 0303 123 1113
Website: <http://ico.org.uk>

East Anglia Area

Ipswich Office, Icen House, Cobham Road, Ipswich, Suffolk, IP3 9JD
Brampton Office, Bromholme Lane, Brampton, Huntingdon, PE28 4NE
General Enquiries: 03708 506506
Email: enquiries@environment-agency.gov.uk
Website: <https://www.gov.uk/government/organisations/environment-agency>

Data Available Online

Many of our flood datasets are available online:

- Flood Map For Planning ([Flood Zone 2](#), [Flood Zone 3](#), [Flood Storage Areas](#), [Flood Defences](#), [Areas Benefiting from Defences](#).)
- [Risk of Flooding from Rivers and Sea](#)
- [Historic Flood Map](#)
- [Current Flood Warnings](#)

What's In Your BackYard (WIYBY) is no longer available.

Most of the data is still available via other sharing services such as [DATA.GOV.UK](#), [MAGIC map](#) and new [GOV.UK digital services](#). Where the datasets are no longer available as maps, you will be able to download and use within specialist applications.

To find out all the services the Environment Agency have available, please click [here](#).

For any other enquiries please send your request to us at:
Enquiries_EastAnglia@environment-agency.gov.uk.

Additional information

Please be aware that we now charge for planning advice provided to developers, agents and landowners. If you would like advice to inform a future planning application for this site then please complete our <https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion> and email it to our Sustainable Places team. planning.ipswich@environment-agency.gov.uk. They will initially provide you with a free response identifying the following:

- the environmental constraints affecting the proposal;
- the environmental issues raised by the proposal;
- the information we need for the subsequent planning application to address the issues identified and demonstrate an acceptable development;
- any required environmental permits.

If you require any further information from them (for example, a meeting or the detailed review of a technical document) they will need to set up a charging agreement. Further information can be found on our [website](#).

Please get in touch if you have any further queries or contact us within two months if you'd like us to review the information we have sent.

Yours sincerely

Teresa Chapman

Teresa Chapman
Customers and Engagement Officer

Direct dial: 02030 255472

East Anglia Area

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