

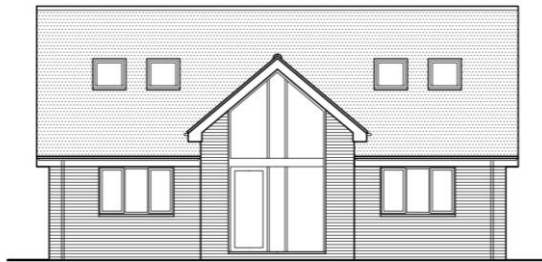
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FLOOD RISK ANALYSIS

FOR PROPOSED NEW DWELLING

REAR OF 60 PETERBOROUGH ROAD, CROWLAND



SOUTH EAST

UK Gov -Flood risk assessments: applying for planning permission

For all development covered by this standing advice, your FRA should include:

- your site address
- a description of your development
- the estimated flood level for your development, taking into account the impacts of climate change over its lifetime
- details of the finished floor levels
- details of your flood resistance and resilience plans
- any supporting plans and drawings
- any other information the relevant standing advice tells you to include

INTRODUCTION

This Flood Risk Assessment has been prepared in accordance with National Planning Policy Framework (NPPF) and supporting planning practice guidance (PPG) on Flood Risk and Coastal Change. In areas at risk of flooding or for sites of 1 hectare or more, developers are required to undertake a site-specific Flood Risk Assessment to accompany an application for planning permission.

This Flood Risk Assessment has been produced on behalf of Mr. Collins in respect of a development that consists of one residential dwelling to the rear of 60 Peterborough Road, Crowland.

An outline planning application for the proposed development has been submitted.

SITE LOCATION AND DESCRIPTION

Site Location The site is located on land South East of 60 Peterborough Road, Crowland, Lincolnshire, PE6 0BB.



The site is on the Eastern side of Peterborough Road fronting onto James Road, within the curtilage of 60 Peterborough Road. The area of development is approximately 340 square metres with existing levels on the site indicated on Drawing 24. 3575. 07 with ground levels between +0.79m OD and +0.94m OD.

Windfall sites such as this make a significant contribution to housing supply in the SHDC area over 20% of the total (on average) most years.

The site is in the North Level Internal Drainage Board (IDB) district.

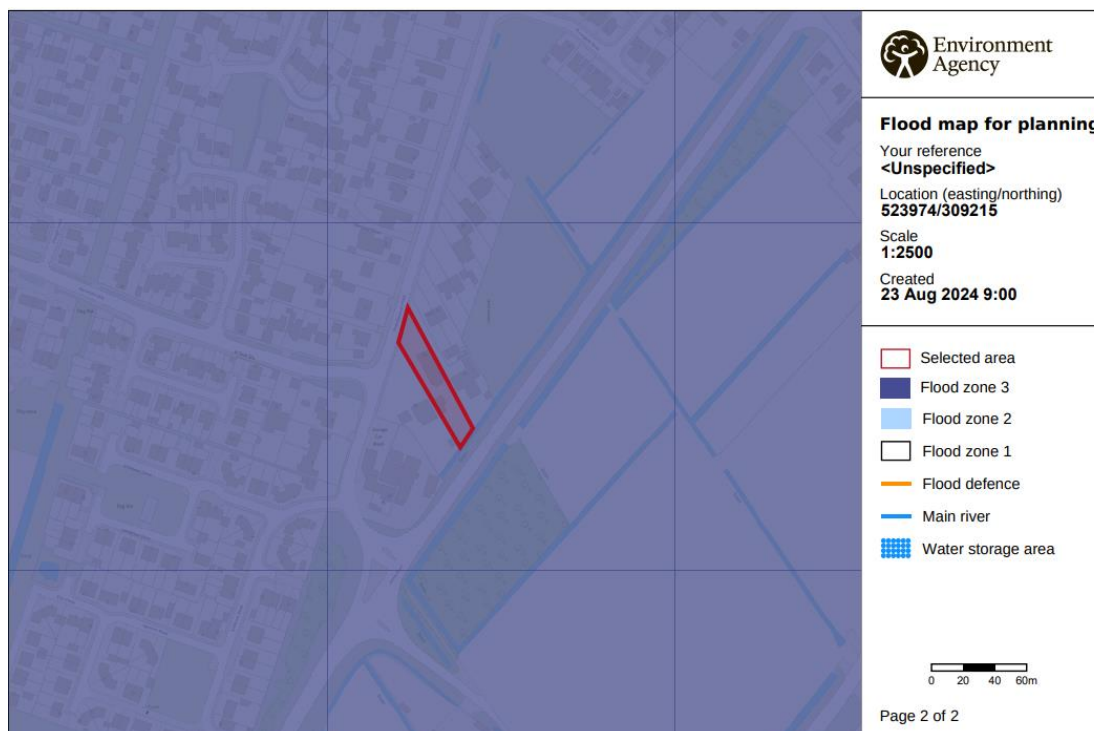
FLOOD RISK

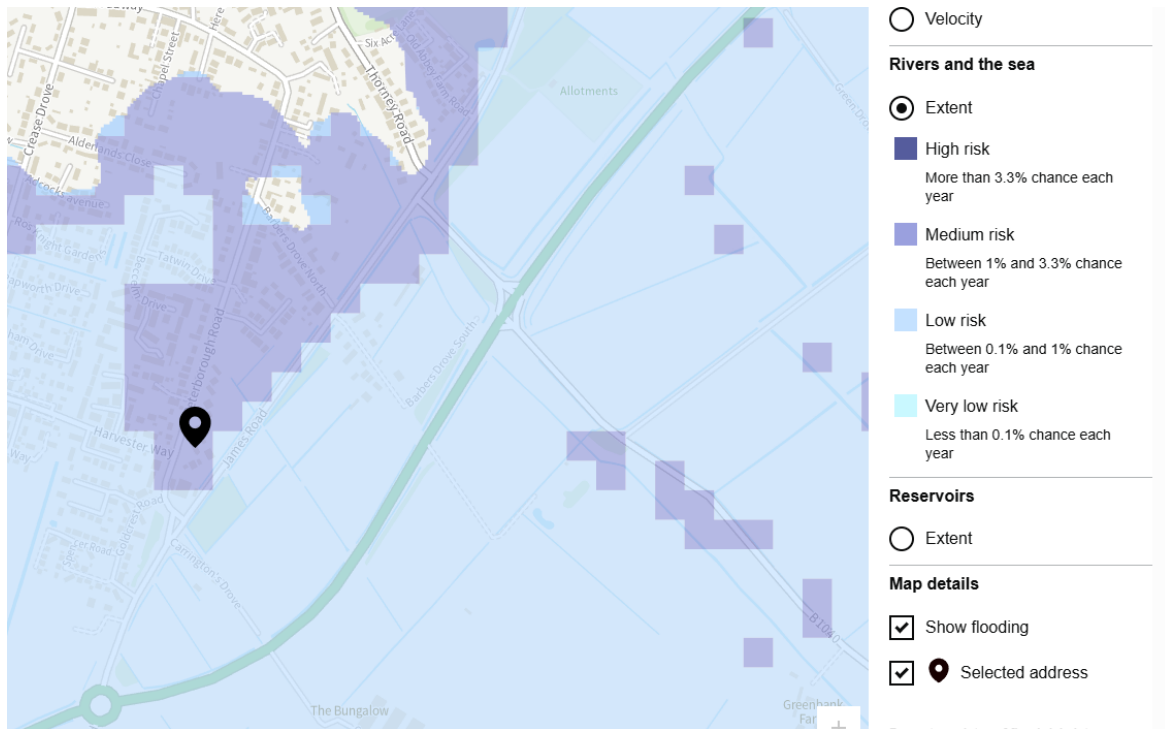
The proposed development consists of one dwelling with 2 storeys.

The South East Lincolnshire Level 1 and Level 2 Strategic Flood Risk Assessment (SFRA) was prepared in June 2017. The Joint Lincolnshire Flood Risk and Drainage Management Strategy has been prepared by Lincolnshire County Council as the Lead Local Flood Authority.

The purpose of the Strategy is to increase the safety of people across Lincolnshire by reducing the number of people at risk of flooding, increasing the resilience of local communities, and reducing the impact of flooding.

An extract from the Environment Agency Flood Map for Planning is shown below. The site is located within Flood Zone 3, an area with a high probability of flooding.





Environment Agency Long Term Flood Risk

The Environment Agency Long Term Flood Risk maps show that:

- the site has a medium risk of flooding from rivers or the sea (annual probability between 1% and 3.3%);
- the site has a very low risk of surface water flooding (annual probability less than 0.1%); and
- the site is within an area at risk of reservoir flooding when river levels are normal. SFRA Map Present Day 2116 Residual Flood Hazard Map for the 1% fluvial and 0.5% tidal event. The site is in the 'Danger for Most' area. The site is in the 'Danger for Most' area. Residual Peak Depth Map for the 1% fluvial and 0.5% tidal event. The peak flood depth is between 0.25m and 0.5m. The peak flood depth is between 0.5m and 1.0m.

SEQUENTIAL TEST AND EXCEPTION TEST

The NPPF requires the application of a Sequential Test to ensure that new development is in areas with the lowest probability of flooding. The Exception Test is a method to demonstrate and help ensure that flood risk to people and property will be managed, while allowing necessary development to go ahead in situations where suitable sites at lower risk of flooding are not available.

3.2 Vulnerability Classification Table 2 of the PPG Flood Risk and Coastal Change categorises different types of uses and development according to their vulnerability to flood risk. The proposed development is covered by the description of buildings used for dwellings and is classified as 'More Vulnerable'. Annex 3 of the PPG Flood Risk and Coastal Change sets out Flood Risk Vulnerability and flood zone 'compatibility'. The site is in Flood Zone 3 and the development is 'More Vulnerable' therefore it is necessary to complete the Exception Test. PPG Flood Risk and Coastal Change defines that the lifetime of the development in terms of flood risk and coastal change is 100 years.

Annex 3: Flood risk vulnerability classification

More vulnerable

- Hospitals
- Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels.
- Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels.
- Non-residential uses for health services, nurseries and educational establishments.
- Landfill* and sites used for waste management facilities for hazardous waste.
- Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.

Application of the Sequential Test and Exception Test It is for the Local Planning Authority, using the evidence provided and taking advice from the Environment Agency as appropriate, to consider whether an application passes the Sequential Test. Large parts of the South Holland district between the River Welland and River Nene lie within Flood Zone 3. As such the opportunities to undertake the development at an alternative site with a lower flood risk are limited. The River Welland has defences that provide protection during the 0.5% annual probability (1 in 200 chance each year) event including climate change. The site therefore has a low probability of flooding.

The District Council's 5-year Housing Land Supply Assessment dated March 2023 identifies numerous large sites within the settlement of Crowland. Two of the sites off Crease Drove and Harvester Way are to provide 200 new homes and construction is well under way.

Based upon the information within the SFRA these two sites have a similar level of flood risk because they are in Flood Zone 3 and at each development part of the site is at risk of a breach with potential depths between 0.5m and 1.0m. As such it is reasonable to conclude that there are few available sites within Crowland that offer a lower level of flood risk and therefore the development is considered to pass the Sequential Test.

The Exception Test requires consideration of the wider sustainability benefits of a development and that the development would be safe and residual risks managed.

The Local Plan has a target of a net increase of over 11,000 new dwellings in South Holland over the 25-year local plan period to 2035. The Plan considers this new housing is required to ensure the sustainability of the Local Plan area. The proposed development will contribute to this target. As stated previously, windfall sites such as this make a significant contribution to housing supply in the SHDC area, over 20% of the total (on average) most years.

With reference to the flood mitigation measures and the management of the residual risks, this development will be safe and not increase flood risk elsewhere. The development is considered to pass the Exception Test

Table 2: Flood risk vulnerability and flood zone ‘incompatibility’

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 †	X	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	X	X	X	✓ *

Key:

✓ Exception test is not required

X Development should not be permitted

SITE SPECIFIC FLOOD RISK

The site is 1.5km South East of the River Welland. Crowland Washes provides floodplain storage for the River Welland. The village of Crowland is protected from the River Welland by the Corporation Bank approximately 900m North West of the site.

There is a long-term strategy for the maintenance of the Environment Agency defences which is reviewed and updated periodically. There is an extensive local drainage network managed by North Level Internal Drainage Board. There nearest IDB Main Drain discharges to the New South Eau and then into the North Level main Drain.

The North Level Main Drain outfalls to the River Nene via Tydd Pumping Station. During the operation and maintenance of its pumping stations, associated structures, and channel systems, the IDB seeks to maintain a general standard capable of providing flood protection to its district.

A routine maintenance programme is in place to ensure that the Boards assets are commensurate with the standard of protection that is sought. Current maintenance standards of the North Level Internal Drainage Board and the Environment Agency are generally good.

The probability of this site flooding from localised drainage systems is very low because of the existing standards of drainage within the IDB system.

The probability of the site flooding with water from any main river system or from the arterial drainage system is less than 0.5% because of the standards of the existing flood defence systems and the location of the site.

If under very extreme events, levels of floodwater from main river or arterial systems rose to such an extent that the site was affected, the situation would not be sudden. It is highly probable that sufficient time would be available to take precautionary actions to limit the extent and potential impacts of flooding.

The water levels in the drainage channels and main river systems will tend to rise as a result of the impacts of climate change. However, the existing systems and defences are such that the standard of protection to the site will be appropriate for the design life of the development (100 years). Finished floor levels will be 1.0m above the finished floor level of 60 Peterborough Road with a further 300mm of flood resilient construction above finished floor level..

The site is located some 1.00km distance from the main river flood embankments and any overtopping or breaching of the defences is considered to have little effect on the development site. The majority of the site is shown in a Low Hazard or Danger for Some Hazard Zone of the South East Lincs. Strategic Flood Risk Assessment.

HISTORIC FLOODING

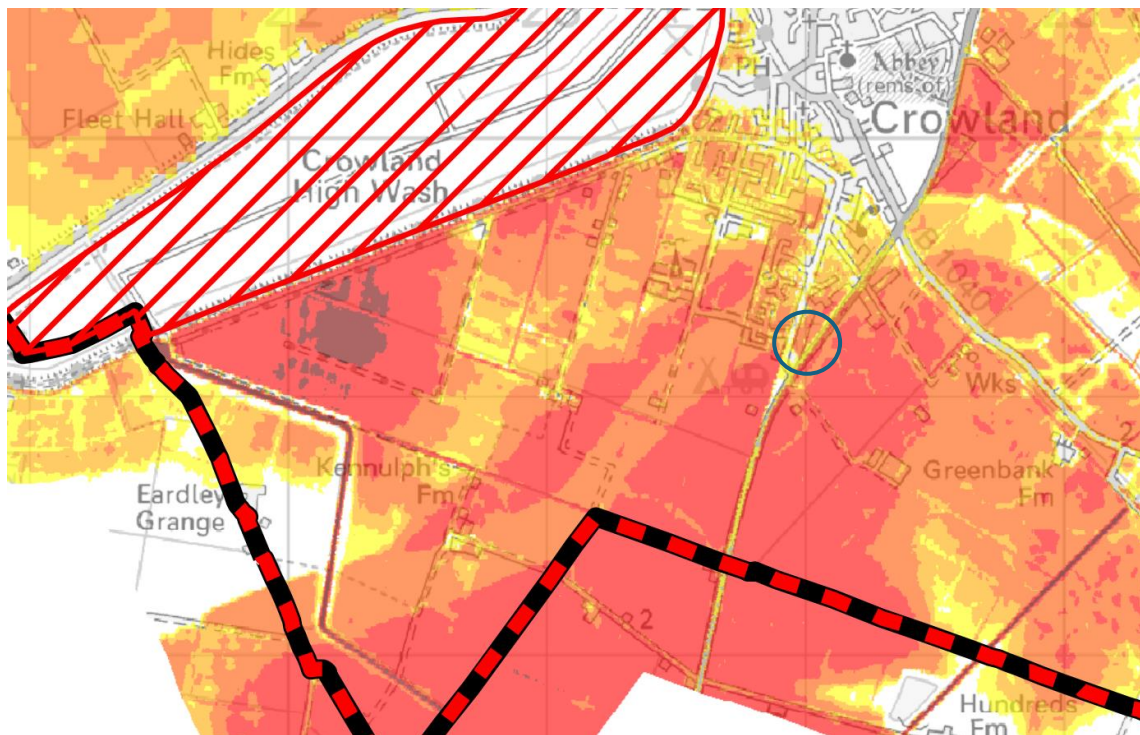
No evidence has come to light of the site previously being flooded.

CLIMATE CHANGE

Climate change is likely to impact the site through increased rainfall intensity and duration affecting the local drainage network and increased flood levels. The Corporation Bank provides protection against the 1% annual probability (1 in 100 chance each year) event including climate change.

There is a residual risk of flooding at the site should a breach occur. The South East Lincolnshire SFRA includes maps demonstrating the impact of a breach in 2116. These show that when the climate change allowances are applied to the combination of a 1% annual probability (1 in 100 chance each year) fluvial event and a 0.5% annual probability (1 in 200 chance each year) tidal event the site is at risk with depths between 0.5m and 1.0m.

An extract from this map is shown below.



ResidualPeakDepthDistrict-PresentDay

1%Fluvial/0.5%TidalEventProbability

Map Legend

Peak Depth

0m - 0.25m



0.25m - 0.5m



0.5m - 1m



1m - 2m



2m +



Functional Floodplain



South Holland District Boundary



FLOOD RISK MITIGATION

Based upon the information available during the preparation of this flood risk assessment, to mitigate against the remote risk of flooding it is recommended that the finished floor level of the dwelling is 1.0m above surrounding ground level and there is 0.3m of flood resilient construction above finished floor level.

The risk of flooding is lowered as the proposed dwelling has 2 storeys with all sleeping accommodation on the first floor. The developer should ensure that the eventual occupier of the dwelling is sufficiently aware of the risk of flooding, and the standard of the existing defences.

The Environment Agency operates a flood warning system for properties at risk of flooding to enable householders to protect life or take actions to manage the effect of flooding on property. Floodline Warnings Service is a national system run by the Environment Agency for broadcasting flooding warnings. The occupiers of the dwelling should register to receive flood warnings.

Should there be a failure of Tydd Pumping Station and conditions were such to put properties and land at risk of flooding, the Internal Drainage Board would take emergency action to maintain the drainage level of service by using temporary pumping equipment.

CONCLUSIONS

As a result of the assessment, the following conclusions have been reached.

- The development passes the Sequential Test and Exception Test and is therefore suitable for the proposed location.
- The site is in Flood Zone 3. The Corporation Bank provides protection against the 1% annual probability (1 in 100 chance each year) event including climate change in the River Welland. During the life of the development, a flood depth between 0.5m and 1.0m could occur at the site should there be a breach of the Corporation Bank.
- The site is located within an Internal Drainage Board catchment and through the operation and maintenance of the pumping stations and the channel system the Board seek to maintain a general standard capable to providing flood protection to agricultural land and developed areas of 1 in 20 and 1 in 100 years, respectively.
- It is recommended that the floor level of the dwelling is 1.0m above surrounding ground level and there is 0.3m of flood resilient construction above finished floor level. The current existing finished floor level of the existing bungalow at No. 60 is 10.35m. The finished floor level of the proposed dwelling will therefore be set at 11.35m.