

FLOOD RISK ASSESSMENT FOR HOLIDAY COTTAGE CONVERSION AT PADDOCK HOUSE, GOSBERTON

FINAL REPORT

ECL0341/seven22 ARCHITECTURE LTD

DATE OCTOBER 2020

ELLINGHAM CONSULTING LTD

Email: tim@ellinghamconsulting.co.uk

DISCLAIMER

This document has been prepared solely as a Flood Risk Assessment in support of a planning application for proposed holiday cottage conversion at Paddock House, Gosberton. "Ellingham Consulting Ltd" accepts no responsibility or liability whatsoever for any use made of this document other than by the client "Mr and Mrs Lewis" for the purposes it was originally commissioned and prepared. All comments and opinions made are based upon information available to "Ellingham Consulting Ltd" during the necessary investigative process, and the conclusions and recommendations, could therefore, differ in the event of material subsequently being found erroneous, incomplete or misleading. "Ellingham Consulting Ltd" therefore, accepts no liability should this prove to be the case.

CONTENTS

1.0 INTRODUCTION

2.0 SITE LOCATION AND DESCRIPTION

- 2.1 Site Location
- 2.2 Existing Site
- 2.3 Proposed Development
- 2.4 Local Development Documents
- 2.5 Available Flood Risk Information

3.0 FLOOD RISK VULNERABILITY

- 3.1 The Sequential and Exception Test
- 3.2 Vulnerability Classification
- 3.3 Application of the Sequential and Exception Test

4.0 SITE SPECIFIC FLOOD RISK

- 4.1 Local Flood Assets
- 4.2 Sources of Flooding
- 4.3 Probability of Flooding
- 4.4 Historic Flooding
- 4.5 Climate Change
- 4.6 Residual Risks

5.0 FLOOD RISK MITIGATION

- 5.1 Summary of Risks
- 5.2 Mitigation Measures

6.0 CONCLUSIONS AND RECOMMENDATIONS

ATTACHMENT 1 – Proposed Site Layout (Dwg 017 P01)

1.0 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 and Mrs Lewis in respect of a development that consists of the conversion of an outbuilding to form two holiday cottages at Paddock House, Gosberton.

A planning application for the proposed development is to be submitted by seven22 Architecture Ltd.

2.0 SITE LOCATION AND DESCRIPTION

2.1 Site Location

The site is located at Paddock House, Belnie Lane, Gosberton, Lincolnshire, PE11 4HN. The National Grid Reference of the site is 52558/33032.

The location of the site is shown in Figure 1.



Figure 1 – Location Plan (© OpenStreetMap contributors)

2.2 Existing Site

The site is a residential property on Belnie Lane. The site comprises the dwelling, garden, and several outbuildings. The site is triangular with Belnie Lane on the north eastern boundary. The subject of this application is an outbuilding to the south of the dwelling that provides garaging, ancillary and storage. The area of development is approximately 0.42 hectares.

Environment Agency LiDAR data shows that the site is flat with a typical ground level of +3.2m OD.

The site is in the Welland and Deepings Internal Drainage Board (IDB) District. Surface water at the site drains naturally through soakaway and hence to the IDB drain system. There are riparian drains on the southern and north eastern boundaries of the site. The nearest IDB drain is Hartfils Dyke approximately 200m south of the site.

The online British Geological Survey maps indicate that the site is likely to be underlain by Oxford Clay Formation mudstone. The bedrock is shown to be overlain with superficial deposits of clay and silt.

2.3 Proposed Development

The proposed development consists of the conversion of an outbuilding to form two holiday cottages. The holiday cottages will be 2 storeys with sleeping accommodation on the ground and first floor.

2.4 Local Development Documents

The South East Lincolnshire Local Plan 2011 – 2036, adopted in March 2019, is the Local Plan for the district. Policy 4: Approach to Flood Risk states the requirements for flood risk reduction.

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

2.5 Available Flood Risk Information

The site is located within Flood Zone 3, an area with a high probability of flooding, of the Environment Agency Flood Maps for Planning as shown in Figure 2.

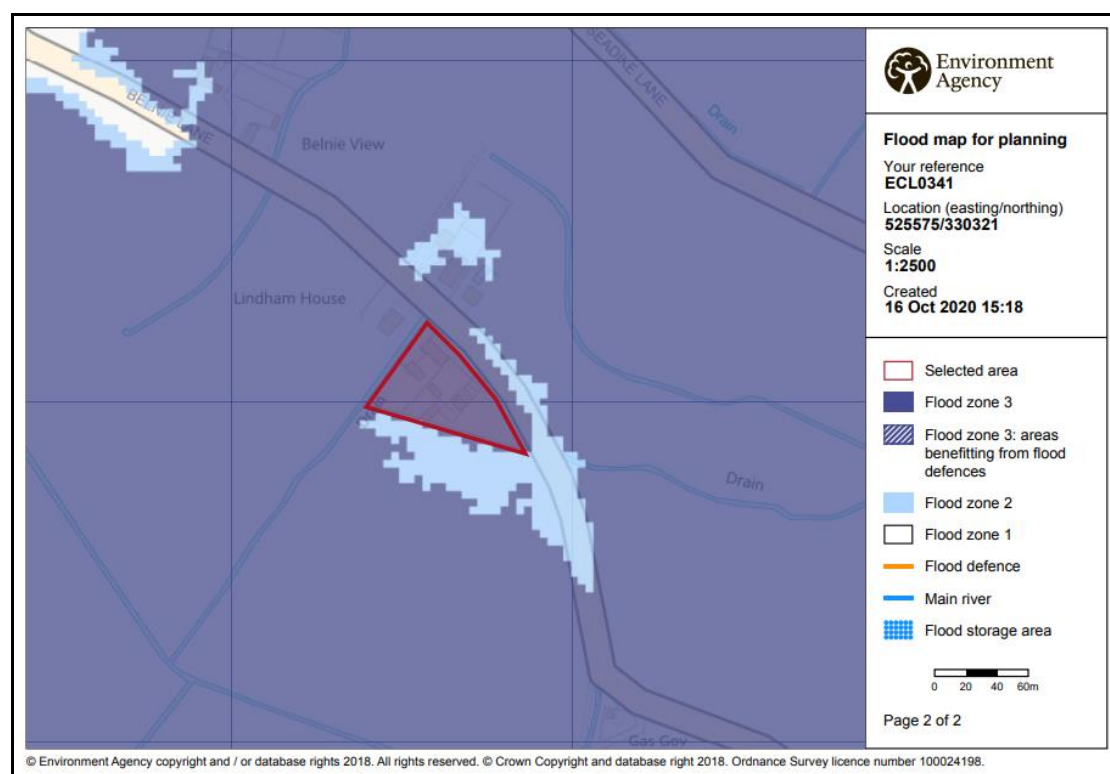


Figure 2 – Environment Agency Flood Map for Planning

The Environment Agency Long Term Flood Risk maps show that:

- the site has a medium risk of flooding (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 not within an area at risk of reservoir flooding.

Table 1 shows the level of risk at the site within the South East Lincolnshire SFRA.

SFRA Map	Present Day	2116
Residual Flood Hazard Map for the 1% fluvial and 0.5% tidal event	The site is outside the 'Low Hazard' area	The site is outside the 'Low Hazard' area
Residual Peak Depth Map for the 1% fluvial and 0.5% tidal	The site is outside the area at risk during a breach	The site is outside the area at risk during a breach

Table 1 – Flood Risk within SFRA Maps

3.0 FLOOD RISK VULNERABILITY

3.1 The Sequential 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'.

Table 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.

3.3 Application of the Sequential and Exception Test

The Sequential Test and Exception Test are required to be applied by the Local Planning Authority.

Large parts of the South Holland district close to the River Welland lie within Flood Zone 3. As such opportunities to undertake the development at an alternative site within Flood Zone 1 are limited. At this location it is not possible to position the development on higher ground within the proposed site.

The SFRA states that it is necessary to use the refined flood risk information (hazard and depth maps) to assist with the application of the sequential test. The refined flood risk information contained within the SFRA demonstrates the site is not at risk during the 1% fluvial event and 0.5% tidal event. The site therefore has a low probability of flooding and 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 South East Lincolnshire Local Plan recognises that tourism is an important part of the local economy. Policy 9: Promoting a Stronger Visitor Economy identifies that tourist facilities can offer benefits to local communities directly through employment, and indirectly, such as by supporting local food producers, local shops,

pubs, and restaurants. The proposed holiday cottages will therefore provide a wider sustainability benefit.

Section 5 of this Flood Risk Assessment describes the flood mitigation measures and the management of the residual risks, demonstrating that this development will be safe and not increase flood risk elsewhere. The development is considered to pass the Exception Test.

4.0 SITE SPECIFIC FLOOD RISK

4.1 Local Flood Assets

The site is 2.8km north west of the tidal River Welland downstream of Spalding. The River Glen, a tributary of the River Welland, is 1.7km to the south of the site. The defences on the River Welland and the River Glen are the responsibility of the Environment Agency.

There is a long-term strategy for the maintenance of the Environment Agency defences which is reviewed and updated every 5 years.

There is an extensive local drainage network managed by Welland and Deepings IDB. There is an IDB maintained watercourse, Hartfils Dyke, 200m south of the site. The site and the surrounding land drains to the Risegate Eau which is 1km north of the site at its closest. The catchment drains in an easterly direction to Risegate Eau Pumping Station which discharges to the tidal River Welland.

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 Welland and Deepings IDB and the Environment Agency are generally good.

4.2 Sources of Flooding

The potential sources of flooding identified during this assessment are:

- local blockages to the Welland and Deepings IDB main drain system;
- an event in the local drainage network greater that exceeds that standard of protection;
- failure of Risegate Eau Pumping Station;
- overtopping and / or breaching of the River Glen defences; and
- overtopping and / or breaching of the River Welland tidal defences.

4.3 Probability of Flooding

The probability of flooding associated with blockages in the Welland and Deepings IDB drainage system is low due to the maintenance standards achieved and managed by the IDB.

The standard of drainage provided by Welland and Deepings IDB is assessed at 2% annual probability (1 in 50 chance each year), compatible with the Department of the Environment, Food and Rural Affairs (DEFRA) target level of service for rural drainage and flood defence works. The risk associated with flooding due to events

greater than 2% annual probability (1 in 50 chance each year) is lowered due to the Welland and Deepings IDB main drains incorporating a freeboard. This provides storage during events greater than 2% annual probability (1 in 50 chance each year).

The River Welland tidal defences provide protection during the 0.5% annual probability (1 in 200 chance each year) tidal event. The River Glen has defences that provide protection during the 1% annual probability (1 in 100 chance each year) fluvial event.

4.4 Historic Flooding

During the preparation of this assessment, no evidence was discovered of the site being flooded.

4.5 Climate Change

Climate change is likely to impact the site through increased rainfall intensity and duration affecting the local drainage network and increased tide levels.

The River Welland tidal defences provide protection during the 0.5% annual probability (1 in 200 chance each year) event inclusive of the effects of climate change. The estimated tide level during this event is +7.13m OD and typical defence levels are more than +7.5m OD. In summary the existing systems and defences are appropriate for the design life of the development (i.e. 100 years).

4.6 Residual Risks

The South East Lincolnshire SFRA includes maps demonstrating the impact of climate change in 2116. The Residual Peak Depth maps within the SFRA show that when the climate change allowances are applied to the 1% annual probability fluvial (1 in 100 chance each year) and the 0.5% annual probability tidal (1 in 200 chance each year) event the site is not at risk.

The residual risk to the site is during an event that exceeds the standard of protection provided by the defences.

5.0 FLOOD RISK MITIGATION

5.1 Summary of Risks

The probability of this development flooding from localised drainage systems is low. Failure of Risegate Eau Pumping Station due to mechanical breakdown or the power supply being disrupted would increase this risk.

The probability of the site flooding from any Environment Agency system is less than 1% annual probability (1 in 100 chance each year) because of the standards of the existing flood defences. Over time there will be a gradual increase in risk to the site due to climate change. During the design life of the development the site is not at risk.

Any increase in impermeable area associated with the development is minimal so there is no potential that flood risk is increased elsewhere due to surface water.

5.2 Mitigation Measures

The site has a low 'actual risk' of flooding. The recommended mitigation against the remote risk of flooding has considered the maximum height to which floor levels can be raised. The development utilises an existing building and therefore floor raising is constrained by the buildings height and the existing doors and windows. It is proposed that the floor level is raised 0.2m above surrounding ground levels and that there is 0.3m of flood resilient construction above finished floor level.

The developer should ensure that the users of the holiday cottages are sufficiently aware of the risk of flooding, and the standard of the existing defences. The Environment Agency provides a Flood Warning Service which includes Flood Warning Codes and uses direct warning methods where the risks and impacts of flooding are high.

In addition to direct and indirect flood warnings, the Environment Agency operates a 24 hour a day Floodline Service providing advice and information on flooding. The users of the holiday cottages should register with the Floodline Direct Warnings Service to receive any future flood warnings.

Should there be a failure of Risegate Eau Pumping Station and conditions were such to put properties and land at risk of flooding, the IDB would take emergency action to maintain the drainage level of service by utilising temporary pumping equipment.

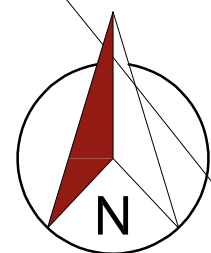
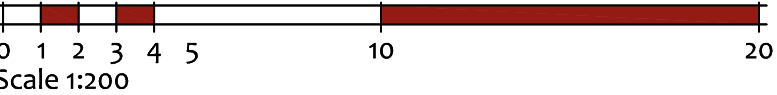
6.0 CONCLUSIONS AND RECOMMENDATIONS

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

- The proposed development consists of the conversion of an outbuilding to form two holiday cottages.
- The proposed development is at risk from the River Welland and protected during the 1% annual probability (1 in 100 chance each year) fluvial event and 0.5% annual probability (1 in 200 chance each year) tidal event. During the design life of the development the site would not be at risk in the event of a breach of the tidal defences.
- The site is located within an Internal Drainage Board catchment with a minimum standard of drainage of 2% annual probability (1 in 50 chance each year) which accords with DEFRA guidelines for rural development. The risk of flooding is lowered further due to the Welland and Deepings IDB main drains incorporating a significant freeboard. This provides storage during events greater than 2% annual probability (1 in 50 chance each year).
- It is recommended that the floor level is 0.2m above ground level with 0.3m of flood resilient construction above finished floor level.
- The development passes the Sequential Test and Exception Test and is therefore suitable for the proposed location.

ATTACHMENT 1

PROPOSED SITE LAYOUT (DWG 017 P01)



seven22
ARCHITECTURE LTD

22 SHORE VIEW, PETERBOROUGH
CAMBRIDGESHIRE, PE7 8FS
E.info@seven22.co.uk ~ T.07799 585277

PROJECT EXTENSION TO FORM 2 HOLIDAY LETS PADDOCK HOUSE BELNIE LANE SPALDING PE11 4HN	CLIENT Mr & Mrs LEWIS PADDOCK HOUSE BELNIE LANE SPALDING PE11 4HN
--	--

TITLE
PROPOSED SITE LAYOUT

DRAWING No.
017 P01

SCALE 1:100 @ A1 1:200 @ A3	DATE SEPT 2020	REV
--------------------------------	-------------------	-----

