FLOOD RISK ASSESSMENT
FOR CHANGE OF USE AT
HERON COTTAGE, FROSTLEY GATE, HOLBEACH

FINAL REPORT

ECL0556a

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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 H & B J Management Ltd in respect of a development that consists of a change of use of land to form an extension to a caravan site at Heron Cottage, Frostley Gate, Holbeach.

A planning application for the proposed development has been submitted. This Flood Risk Assessment has been revised to address the comments provided by the Environment Agency in their letter of 4 October 2021.

2.0 SITE LOCATION AND DESCRIPTION

2.1 Site Location

The site is located on land adjacent to Heron Cottage Camping and Caravanning, Frostley Gate, Holbeach, Spalding, PE12 8SR. The National Grid Reference of the site is 53634/32038.

The location of the site is shown in Figure 1.



Figure 1 – Location Plan (© OpenStreetMap contributors)

2.2 Existing Site

The site is on the eastern side of Frostley Gate to the north of the existing caravan park. The site is agricultural land. The site area is approximately 0.5 hectares.

Environment Agency LiDAR data shows that the site is flat with ground levels within the site range between +2.0m OD and +2.2m OD.

The site is in the South Holland Internal Drainage Board (IDB) District. Surface water at the site would naturally drain through soakaway and hence to the IDB drain system. There is a riparian drain on the northern boundary of the site and the Little South Holland Drain, an IDB High Priority Watercourse, forms the southern boundary of the site.

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

2.3 Proposed Development

The proposed development consists of the change of use of agricultural land to form an extension to a caravan park. The proposed site layout is provided in Attachment 1.

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 Flood Zones

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 low risk of flooding from rivers or the sea (annual probability between 0.1% and 1%);
- the site has a very low risk of surface water flooding (annual probability of 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	The site is outside the area at risk

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 sites used for holiday or short-let caravans and camping 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 defended 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 Test and Exception Test

It is for the Local Planning Authority, taking advice from the Environment Agency as appropriate, to consider the Sequential Test.

Large parts of the South Holland district between the River Welland and River Nene lie within Flood Zone 2 or Flood Zone 3. The River Nene and River Welland have defences that provide protection during the 0.5% annual probability (1 in 200 chance each year) event and therefore the 'actual risk' of flooding at the site is low.

The SFRA states that as 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% annual probability fluvial and 0.5% annual probability tidal event including climate change. 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 plays a significant role in the local economy. 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 change of use 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 10.6km west of the tidal River Nene. The site is protected by the River Nene tidal defences between Wisbech and Sutton Bridge. The River Nene is 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 periodically.

There is an extensive local drainage network managed by South Holland IDB. There is an IDB High Priority Watercourse on the southern boundary of the site. The site and surrounding land are within the Little Holland catchment and drains to the Little South Holland Drain which discharges to the South Holland Main Drain at the Little Holland Pumping Station. The South Holland Main Drain discharges to the tidal River Nene at the Sutton Bridge Tidal Sluice.

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 South Holland Internal Drainage Board and the Environment Agency are generally good.

4.2 Sources of Flooding

The potential sources of flooding that have been identified during this assessment are:

- local blockages to the South Holland IDB drainage system;
- an event in the local drainage network greater that exceeds the standard of protection;
- failure of Little Holland Pumping Station;
- overtopping and/or breaching of the tidal River Nene.

4.3 Probability of Flooding

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

The standard of drainage provided by South Holland 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 South Holland IDB high priority watercourses incorporating a freeboard. This provides storage during events greater than 2% annual probability (1 in 50 chance each year).

The site benefits from defences on the River Nene that provide protection during a 0.5% annual probability (1 in 200 chance each year) tidal event and a 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 flood levels.

The River Nene tidal defences have been designed to include an allowance for climate change.

In summary the existing systems and defences are appropriate for the design life of the development (i.e., 100 years).

4.6 Residual Risk

There is a residual risk of flooding in the vicinity of the site should a breach of the tidal defences occur. The South East Lincolnshire SFRA includes maps demonstrating the residual peak depth in 2116. When climate change allowances are applied to the 1% annual probability (1 in 100 chance each year) fluvial event and 0.5% annual probability (1 in 100 chance each year) tidal event the site is not at risk during a breach. An extract from this map is shown in Figure 3 below.



Figure 3 – SFRA 2116 Residual Peak Depth Map

Due to the nature of the development it is necessary to consider the 0.1% annual probability (1 in 1000 chance each year) plus climate change hazard maps. These show that the site is at risk with depths up to 0.25m.

5.0 FLOOD RISK MITIGATION

5.1 Summary of Risks

The probability of this development flooding from localised drainage systems is low. Failure of Little Holland Pumping Station could lead to an increased level of risk at the site.

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, it is not anticipated that the site would flood.

The SFRA considers the residual risk associated with overtopping and a breach in the defences in 2116. During the 0.1% annual probability (1 in 1000 chance each year) plus climate change event the hazard maps show that the site is at risk with depths up to 0.25m.

The proposed arrangement increases the impermeable area and therefore there will be an increased volume of surface water that has the potential to increase flood risk.

5.2 Mitigation Measures

Based upon the information available during the preparation of this flood risk assessment it is recommended that:

- the floor level of the caravans should be a minimum of 0.3m above general ground level;
- the caravans are secured using ground anchors; and
- the risks are mitigated by the use of flood warning and a Flood Warning and Evacuation Plan.

It should be noted that the proposed caravans have a floor level approximately 0.6m above ground level.

The developer should ensure that the operator of the site is 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 operator of the site should register with the Floodline Direct Warnings Service to receive any future flood warnings.

During an extreme event it is anticipated that sufficient time would be available to take precautionary actions to limit the potential impact of flooding. A Flood Warning and Evacuation Plan is provided in Attachment 2.

Should there be a failure of Little Holland 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 utilising temporary pumping equipment.

It is recommended that surface water run-off is managed so that stormwater from the site will not affect any adjoining properties or increase the flood risk elsewhere.

6.0 CONCLUSIONS

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

- The proposed development consists of the change of use of agricultural land to form an extension to a caravan park at Heron Cottage Camping and Caravanning, Frostley Gate, Holbeach, Spalding.

- The proposed development is in Flood Zone 3. The site benefits from defences on the tidal River Nene that provide protection during the 0.5% annual probability (1 in 200 chance each year) tidal event including an allowance for climate change. The site is not at risk during a breach of the tidal defences.

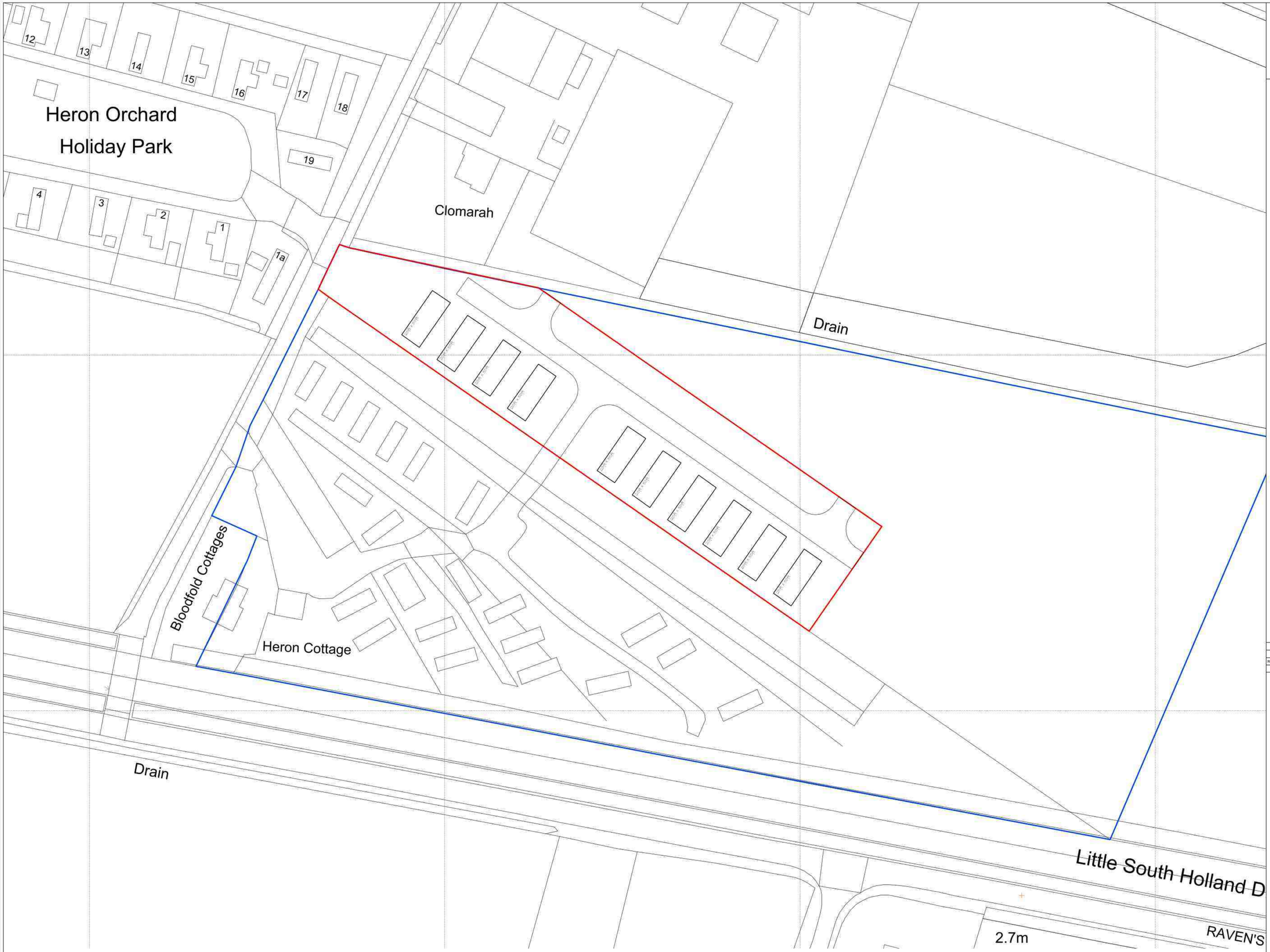
- The site is located within an Internal Drainage Board catchment with a minimum standard of drainage of 2% annual probability (1 in 50 chance each year) which accords with DEFRA guidelines for rural development. The risk of flooding is lowered further due to the South Holland IDB high priority watercourses 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 caravans have a floor level 0.3m above general ground levels, the caravans are secured by anchors and the Flood Warning and Evacuation Plan is followed.

- The development passes the Sequential Test and Exception Test and is therefore suitable for the proposed location.

ATTACHMENT 1

SITE BLOCK PLAN
(Dwg 1470-0004-01)



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Legend

- Site Boundary
- Other land under ownership of applicant

Rev	Description	By	CB	Date

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Client: H & B J Management Ltd

Project: Heron Cottage

Title: Site Block Plan

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Scale Bar 1:1,500 @ A1

0m 25m 50m 100m

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ATTACHMENT 2

FLOOD WARNING AND EVACUATION PLAN

Flood Warning and Evacuation Plan for:
Heron Cottage Camping and Caravanning, Frostley Gate, Holbeach, Spalding, PE12 8SR. The development consists of the change of use of agricultural land to form an extension to a caravan park and the National Grid Reference of the site is 53634/32038.

Flood Risk and Flood Warning Area	
This development is in an area at risk of flooding. The site is in Flood Zone 3 of the Environment Agency Flood Map for Planning and in the "Low Hazard" hazard area of the South East Lincolnshire Strategic Flood Risk Assessment. The site is protected by flood defences however is at risk if the existing defences were overtopped or breached.	
You should be signed up to receive free notifications from the Environment Agency's flood warning service Floodline	
This flood warning area is called:	"Far extent of Tidal Flooding from the Wash and Tidal Estuaries"
To sign up or get latest flood information call **0345 988 1188** or online www.gov.uk/flood	

Categories of Flood Warning	
There are three categories of flood warning.	
Flood Alert	Flooding is possible. Be prepared.
Flood Warning	Flooding is expected. Immediate action required.
Sever Flood Warning	Severe flooding. Danger to life.

If a flood warning is received take the following action:

- Listen to local radio for latest information – Radio Lincolnshire 94.9
- Charge mobile phones in case you need to evacuate.
- Know how to turn off your gas, electricity and water.
- Pack a "flood kit" in case you need to leave. Include phone numbers, insurance documents, bankcards and personal items.
- Install any property level flood protection e.g. flood boards or gates.
- Listen to the emergency services – if you are asked to evacuate or a severe flood warning is issued, evacuate without delay.

If evacuation is required, then take the following actions:
Relocate to higher ground taking a safe route to avoid any flooding. The best route from this property is:
Evacuation from the development should be in a westerly direction along B1165 (Raven's Bank) to Moulton Chapel. The area to the west of the site is not at risk during a breach and Moutlton Chapel is in Flood Zone 1.
• Before evacuating make premises secure and take valuables with you • Tell friends and family where you are going • Avoid contact with flood water and wash your hands regularly • Do not return until the emergency services say it is safe to do so

Useful contacts:
Floodline – for latest flood information call **0345 988 1188** or www.gov.uk/flood
Lincolnshire Prepared – for information on how floods are responded to in Lincolnshire and how to prepare for evacuation www.lincolnshire.gov.uk/lincolnshire-prepared