# FLOOD RISK ASSESSMENT

PROPOSED CHANGE OF USE OF BARN TO RESIDENTIAL USE, DAVENPORT FARM, NORTH DROVE HELPRINGHAM SLEAFORD NG34 OBS



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## FLOOD RISK ASSESSMENT FOR PROPOSED CHANGE OF USE OF AGRICULTURAL BARN TO RESIDENTIAL USE, DAVENPORT FARM, NORTH DROVE, HELPRINGHAM, SLEAFORD, NG34 OBS

## **INTRODUCTION**

The Government has placed increasing priority on the need to take full account of the risk associated with flooding at all stages of the planning and development process. This seeks to reduce the future damage to property and the risk to life from incidents of flooding. Their expectations relating to flooding are contained in the National Planning Policy Framework, November 2023, (NPPF), which identifies how the issue of flooding is dealt with in the drafting of planning policy and the consideration of planning applications by avoiding inappropriate development in areas at risk from flooding and to direct development away from areas at highest risk.

The NPPF provides that development in areas at risk of flooding should be avoided and seeks to direct development away from areas at highest risk. There is a sequential, risk-based approach to the location of development avoiding where possible, flood risk to people and property managing any residual risk and taking account of the impacts of climate change.

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## **APPLICATION SITE**

The proposed site is located at Davenport Farm, North Drove, Helpringham, Sleaford, NG34 0BS, within the administrative area of North Kesteven District Council. The National Grid Reference is TF16615 38806 42671. **Plan 1** 

This flood risk assessment has been prepared for an application under Prior notification Part 3 Class Q for *a* change of use of a building and any land within its curtilage from a use as an agricultural building to a use falling within Class C3 (dwelling houses) of the Schedule to the Use Classes Order, to provide a residential dwelling. The Site would be classed as Non-Major Development applying the National Planning Policy Guidance (NPPG) as the site is to be developed for less than10 dwellings.

The National Planning Policy Framework Guidance NPPG defines three levels of flood risk depending upon the annual probability of fluvial flooding occurring.

Zone 1 – Low Probability (<0.1%)

Zone 2 – Medium Probability (0.1 – 1.0%)

Zone 3 – High Probability (>1.0%)

The proposed development site is shown mainly to be just within Flood Zone 2 Medium Probability' as detailed on the Environment Agency's Flood Zone Maps **without defences**, and as defined in Table 1 of NPPG.

#### **Table 1: Flood Zones Definition**

Flood Zone 2- High Probability
<b>Definition.</b> This zone comprises land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding $(1\% - 0.1\%)$ , or between a 1 in 200 and 1 in 1,000 annual
probability of sea flooding (0.5% – 0.1%) in any year.
Essential infrastructure and the water-compatible, less vulnerable and more vulnerable uses, as set out in table 2, are appropriate in this zone. The highly vulnerable uses are only appropriate in this zone if the Exception Test is passed.
Flood risk assessment requirements. All development proposals in this zone should be accompanied by a flood risk assessment.
<b>Policy aims.</b> In this zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area through the layout and form of the development, and the appropriate application of sustainable drainage systems.

Applying the Flood Risk Vulnerability Classification in Table 2 of NPPG, the existing use for agriculture is classified as "Less Vulnerable" the proposed residential use for the building is classified as "More Vulnerable," Table 1 of NPPG states that such uses are permitted in this zone, subject to the exceptions test.

Та	Table 2: Flood Risk Vulnerability Classification							
	More V	ulnerable						
	•	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 caravan and camping, subject to a specific warning and Evacuation Plan.						

#### Site Levels

Lidar 2m DTM data to Ordnance Datum Newlyn, reveals that the site is generally flat land levels around the proposed site are circa 2.72mODN. North Drove is at a level 2.77mODN, which would act as a barrier to prevent flood waters migrating further south-west, the floodplain between North Drove and Helpringham Eau land levels are much lower at circa 1.78mODN.



## **DRAINAGE AUTHORITIES**

#### Environment Agency

The Environment Agency has permissive powers for reducing the risk of flooding from designated main rivers and from the sea.

The following potential sources of flooding affecting the development site have been identified as:

- South Forty Foot Drain (Fluvial)
- Helpringham Eau (Fluvial)
- Helpringham South Beck (Fluvial)

The flood zone maps indicate that the area would be flooded without flood defences.). The Flood Map indicates the area at risk of flooding, **assuming no flood defences exist**, for a flood event with a 0.5% chance of occurring in any year for flooding from the sea, or a 1% chance of occurring for fluvial (river) flooding. It also shows the extent of the Extreme Flood Outline which represents the extent of a flood event with a 0.1% chance of occurring in any year, or the highest recorded historic extent if greater. In some locations, such as around the fens and the large coastal floodplains there are many kilometres of raised flood defences. To meet the requirements of the National Planning Policy Framework, these defences are removed in their entirety to produce the Flood Map for Planning (Rivers and Sea). The map therefore shows the full extent of areas that would be at risk of flooding if no defences existed, and water could spread out across the floodplain.

#### Flood Zones

These maps show that the site is considered at risk from fluvial flooding as it is all located within an area zoned as Flood Zone 2. The maps indicate that the area would be flooded without flood defences, which are in place, (with an annual probability of more than 0.5% i.e., return frequency of less than 1 in 200 years for tidal flooding or more



Flood Map for Planning (Source EA)

#### **Risk of Flooding from Rivers & Sea**



Risk of Flooding from Rivers and Sea Map (Source EA)

The Risk of flooding from Rivers and Sea shows that the site is at low risk. **Low risk** means that each year this area has a chance of flooding of between 0.1% and 1.0%. This takes into account the effect of any flood defences

in the area. These defences reduce but do not completely stop the chance of flooding as they can be overtopped or fail.

#### Schemes in the Area

There are no ongoing capital projects to reduce or sustain the current flood risk to this site.

#### **Tidal Flooding**

The site would not be subject to any tidal flooding.

#### Fluvial Flood Risk

With there being no risk of tidal flooding affecting the site the main risk would be from fluvial sources.

The fluvial levels flow for these node points are taken from the South Forty Foot Drain Model (2018) and are. the most up-to-date currently available. The Environment Agency aims to review their models on a regular basis.



When analysing the above data, it is considered that the nearest watercourse to the site is Helpringham Eau, with the 0.1% plus climate change level at node HE101500 being 3.30mODN and for the other two rivers being at a lower and further away they have been discounted.

#### Datasheet [Ref; CCN-2023-337908]

Model Name: South Forty Foot

#### Fluvial Flood Levels (mODN)

The fluvial flood levels for the model nodes shown on the attached map are set out in the table below. They are measured in metres above Ordnance Datum Newlyn (mODN).

			Annual Exceedance Probability - Maximum Water Levels (mODN)										
Node Label	Easting	Northing	50% (1 in 2)	20% (1 in 5)	10% (1 in 10)	5% (1 in 20)	2% (1 in 50)	1.33% (1 in 75)	1% (1 in 100)	1% (1 in 100) inc 20% Climate Change	0.5% (1 in 200)	0.1% (1 in 1000)	0.1% (1 in 1000) inc 20% Climate Change
HE100500	517682	338687	2.18	2.61	2.75	2.89	3.05	3.08	3.09	3.11	3.11	3.14	3.15
HE101500	516938	339341	2.18	2.63	2.83	2.97	3.17	3.21	3.22	3.24	3.24	3.29	3.30
HE102500	516176	339989	2.19	2.71	2.93	3.07	3.33	3.36	3.37	3.40	3.40	3.47	3.48
HS100500	517188	337033	2.18	2.62	2.77	2.90	3.04	3.07	3.08	3.10	3.10	3.13	3.13
HS102000	515954	337857	2.19	2.63	2.77	2.90	3.04	3.07	3.08	3.10	3.10	3.13	3.13
HS103000	515115	338420	2.19	2.63	2.77	2.90	3.04	3.07	3.08	3.10	3.10	3.13	3.14
SF116000	518519	339455	2.17	2.59	2.68	2.83	2.98	3.01	3.02	3.04	3.04	3.07	3.08
SF117500	517911	338085	2.18	2.61	2.75	2.89	3.03	3.07	3.08	3.10	3.10	3.12	3.13
SF118500u	517677	337084	2.18	2.62	2.76	2.89	3.04	3.07	3.08	3.10	3.10	3.12	3.13

#### Fluvial Flood Flows (m<sup>s</sup>/s)

The fluvial flood flows for the model nodes shown on the attached map are set out in the table below. They are measured in metres cubed per second (m<sup>a</sup>/s).

				Annual Exceedance Probability - Maximum Flows (m <sup>3</sup> /s)									
Node Label	Easting	Northing	50% (1 in 2)	20% (1 in 5)	10% (1 in 10)	5% (1 in 20)	2% (1 in 50)	1.33% (1 in 75)	1% (1 in 100)	1% (1 in 100) inc 20% Climate Change	0.5% (1 in 200)	0.1% (1 in 1000)	0.1% (1 in 1000) inc 20% Climate Change
HE100500	517682	338687	8.70	13.11	16.41	18.46	25.87	26.41	26.66	27.22	27.20	29.59	30.03
HE101500	516938	339341	8.98	13.52	16.33	18.32	25.73	26.29	26.64	27.41	27.34	29.48	29.98
HE102500	516176	339989	9.19	13.84	16.41	18.20	25.66	26.46	26.85	27.56	27.48	29.46	30.09
HS100500	517188	337033	0.81	0.96	1.03	0.98	1.02	1.01	1.03	1.11	1.07	1.22	1.21
HS102000	515954	337857	0.59	0.69	0.74	0.69	0.78	0.87	0.90	0.98	0.96	1.05	1.11
HS103000	515115	338420	0.43	0.55	0.76	0.78	0.79	0.83	0.84	0.90	0.90	1.05	1.13
SF116000	518519	339455	18.27	31.68	37.14	39.23	41.47	42.12	42.47	44.45	43.84	44.69	43.84
SF117500	517911	338085	11.73	20.46	23.65	24.99	25.54	25.56	25.19	24.44	24.41	24.32	25.03
SF118500u	517677	337084	11.15	20.37	24.19	25.55	26.19	26.20	25.83	24.97	24.95	25.50	26.20

The above results have a climate change increase of 20% added to the peak river flows whereas the updated guidance (20 July 2021) the Central allowance (21%) should be used for More Vulnerable uses in flood zone 3a should be added for developments in Anglian RBD/ Witham management catchment. The 1% difference will have a negligible effect on the flood level at the site as the difference between the 0.1% and the 0.1% cc level is only 0.01m.

#### **Helpringham Eau**

The Helpringham Eau is the nearest fluvial river which could affect the site, from a breach to the flood defences. It lies some 560m north-east of the site. The crest level of the earth embankment is 3.77mODN, land levels at the bottom of the embankment are 2.30mODN.

#### Simple Breach Analysis.

Given the scale and nature of the proposed development it is considered that additional hydraulic modelling is not appropriate to determine the breach level at the site. Using the Simple Breach Tool, for the 1 in 1000-year event (Central) Helpringham Eau flood level with climate change for Node HE101500 is 3.30mODN,

Reference (number, site name etc.):	Davenport Farm
Date:	08/01/2024
Model:	South Forty Foot drain 2016
In-channel node:	HE101500

Management Catchment	Witham
Time Horizon	2080's
AEP Scenario	1000

Extrapolated Water Levels at Node HE101500	
Central Scenario	3.30

Ground Level / Floodplain information					
At breach	2.3				
Floodplain Type	Unconfined				
General Floodplain Level	2.13				

Defence Type	Fluvial River - Earth Bank
Breach Width	40
Distance to site	560

	Central	
Depth at site	0.11	metres
Velocity at site	0.55	m/s
Hazard value at Site	0.61	
Hazard rating at Site	Low	
Generalised FLOOD LEVEL	2.24	mODN
FLOOR LEVEL REQUIRED (inc. 0.3m freeboard)	2.54	mODN



Floodplain Plan from Site to Helpringham Eau

#### **Floor Levels**

The minimum mitigation measures required for developments that do have ground floor sleeping shall be determined by the flood depths arising from the 2115 0.1% breach scenario. Any proposals that do not include ground floor sleeping can be informed by flood depths arising from the 2115 1.0% breach scenario.

The 0.1% with climate change breach flood level at Node HE101500 is calculated to be 2.24mODN

The finished floor Level FFL of any new dwellings shall be informed by the flood depths.

The Environment Agency Standing Advice Flood Risk Mitigation Policy to ensure 'safe' development. requirements for FFL state:

• Depths of 0 – 250mm the FFL to be set 300mm above the predicted flood level.

The existing ground floor is already at a minimum of 2,60mODN which is above the predicted flood level with 300mm freeboard of 2.54mODN.

Therefore, it is considered the proposals would comply the aims of the NPPF para.159.

#### **BLACK SLUICE IINTERNAL DRAINAGE BOARD**

The site lies within the Black Sluice Internal Drainage Board's Catchment Area No 16. The Board's nearest watercourse close to the site is Drain No 4, North Drove Drian, which is located on the opposite side of North Drove...



Extract from Black Sluice IDB Drainage Map

The Board's prior written consent will be required for any of the following works:

- No person without the previous consent of the Board shall erect any building or structure, whether. temporary or permanent, or plant any tree, shrub, willow or other similar growth within 9 metres of the landward toe of the bank where there is an embankment or wall or within 9 metres of the top of the batter where there is no embankment or wall, or where the watercourse is enclosed within 9 metres of the enclosing structure.
- No person shall, without the previous consent of the Board, for any purpose, by means of any channel, siphon, pipeline or sluice or by any other means whatsoever, introduce any water into the District or, whether directly or indirectly, increase the flow or volume of water in any watercourse in the District.
- The erection or alteration of any mill dam, weir or other like obstruction to the flow, or erection or alteration of any culvert within the channel of a riparian watercourse.

### FLOODING FROM OTHER SOURCES

Flooding is a natural process and can happen at any time from sources other than watercourses and the sea.

Flooding from land can occur from intense rainfall, often over short duration of time that is unable to soak
into the ground or enter the drainage system. However, with the natural topographic nature of the ground
being flat, with no high ground around the site this will not cause any rapid inundation of the site and is likely
only lead to local ponding of shallow depth and low velocity. It is concluded that flooding from this source is
limited to minor isolated cases and is not of strategic significance as regards to flood risk.

- Groundwater flooding occurs when groundwater levels increase sufficiently for the water table to intersect the ground surface. Groundwater flooding can occur in a variety of geological settings including valleys, in areas underlain by chalk, and in river valleys with thick deposits of alluvium and river gravels. The area is not known to suffer from any groundwater problems.
- Flooding from sewers can occur from overloading from heavy rainfall caused by blockages or having inadequate capacity. There are no sewers in the vicinity of the site.
- Non-natural or artificial sources of flooding such as reservoirs, lakes, or canals where water is stored above natural ground level could cause flooding if the structure fails or is over topped. There are no known sources within the vicinity of the site.

## MODELLED FLOOD EXTENTS

The proposed site is not shown to be affected from any scenario for both the Modelled Flood Extents (with defences) or the Modelled Flood Extents Climate Change (with defences) for the South Forty Foot Drain Model2016. **Map 3 and Map 4** 

## **RESIDUAL RISKS**

There is always a possibility of a flood more than that allowed for which might conceivably cause some flooding to the properties. However, such an event would have a very low probability and the risk of flooding to the property would be extremely small. It is therefore considered that the residual risks associated with flooding are not significant.

## SURFACE WATER FLOODING

The majority of the proposed development site is shown on the Low-Risk scenario Surface Water flood maps not to be affected from flooding for the 1 in 1000-year event.

The maps for surface water and revised maps for river and sea flooding define the risk as High, Medium, Low and Very Low. The chance of flooding for the area defined in any given year is shown below:

- **High:** greater than 1 in 30 (3.3%).
- Medium: between 1 in 100 (1%) and 1 in 30 (3.3%).
- Low: between 1 in 1000 (0.1%) and 1 in 100 (1%).
- Very Low: less than 1 in 1000 (0.1%)

Unlike the fluvial mapping, which is based on a detailed hydraulic model, this mapping is based purely on applying rainfall to a digital terrain model. As such this mapping serves to represent a worst-case scenario which may well overstate the actual probability of flooding in this area with low depressions shown to be affected.

There is a caveat contained in the Environment Agency "What is the Risk of Flooding from Surface Water Map

Report version 2.0, April 2019, as to the use of these maps, which states that:- "the map does not contain sufficient information for it to be used to determine flood risk to individual properties, but it does give you an indication of whether your area may be affected by surface water flooding and to what extent."



Risk of flooding From Surface Water Map (Source EA)

## SEQUENTIAL APPROACH

When applying the sequential approach for flood risk in accordance NPPF the site of the development would fall into Flood Zone 2 (Medium Probability) as the site is shown to be within the tidal/fluvial flood plain as shown on the Environment Agency's Flood Map without defences in place.

The Environment Agency categorise land into one of three Flood Zones.

- Flood Zone 1 is land outside the 0.1% floodplain (with a chance of flooding of less than 0.1% chance in any given year)
- Flood Zone 2 is land that falls between the 1 in 100-year extent and the 1 in 1000-year extent (a chance of flooding between 1% and 0.1% in any given year)
- Flood Zone 3a is land which falls within the 1 in 100-year flood extent (has a 1% chance of a flood occurring in any given year).

Applying the Flood Risk Vulnerability Classification in Table 2 of NPPG, the proposed change of use to residential use is classified as, "More Vulnerable" with Table 1 of NPPG stating that such uses are appropriate in this zone (as summarised in Table 3 NPPG)

Flood Risk		Essential	Water	Highly	More	Less
Classification		Innastructure	Compatible	vuinerable	vuinerable	vuinerable
	Flood Zone 1	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
	Flood			Exception		
one	Zone 2	$\checkmark$	$\checkmark$	Test Required	$\checkmark$	$\checkmark$
р	Flood	Exception			Exception	
00	Zone	Test		54	Test	
Ē	3a	Required	V	×	Required	v
	Flood	Exception				
	Zone 3b	Test				
	Functional	Required	$\checkmark$	×	×	×
	Floodplain					

#### Table 3: Flood Risk Vulnerability and Flood Zone 'Compatibility'

NPPF Guidance Paragraphs 159 - 173 requires development within high areas of flood risk be determined using a sequential risk-based approach to the location of development to avoid where possible flood risk to people and property and manage any residual risk, taking account the impacts of climate change.

The aim of the Sequential Test is to steer new development to areas with the lowest probability of flooding. The NPPF states that development should not be permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower probability of flooding. It is important to note that the Sequential Test does not specifically mean that sites such as this cannot be developed, rather that sites at less risk should be developed first. Para168 of the NPPF states that applications for some minor development and changes of use should not be subject to the sequential or exception tests but should still meet the requirements for site-specific flood risk assessments.

### **CLIMATE CHANGE**

Global warming is now recognised that it is likely to affect the frequency and severity of extreme events for both tidal and fluvial flooding. The Climate change allowances in the NPPF Guidance was updated on the 20<sup>th</sup> of July 2021. For flood risk assessments use the Management Catchment Climate Changes for the peak river flow map. Management catchments are sub-catchments of River Basin Districts.

#### **Peak River Flow Allowances**

The site is located within the Witham Management Catchment within the Anglian River Basin District, for sites within Flood Zone 2 or 3a and for "More Vulnerable" land uses, the Central allowances figures, in the Table below, should be used.

Peak River flow allowances within the Management Catchment Allowances										
River Basin District	Allowance	Total potential	Total potential	Total potential						
/Management	category	change anticipated	change anticipated	change anticipated						
Catchment		for 2020s <sup>2</sup> . (2015 to2039)	for 2050s <sup>2</sup> . (2040 to2069)	for 2080s <sup>2</sup> . (2070 to2115)						
	Upper End	27%	32%	57%						
Anglian/ Witham	Higher Central	14%	15%	32%						
	Central	9%	8%	21%						

The effect of global warming on peak rainfall allowances is given in Table 1.

#### **Table 1 Peak Rainfall Intensity**

Table 1 Peak rainfall intensity allowance in small and urban catchments (1961 to 1990 baseline)							
Applies across all of England	Total potential change anticipated for 2010 to 2039	Total potential change anticipated for 2040 to 2059	Total potential change anticipated for 2060 to 2115				
Upper End	10%	20%	40%				
Central	5%	10%	20%				

The annual sea rise due to climate change is given in NPPF and the recommended contingency allowances are stated in Table 2.

#### Table 2 Peak Sea Level Rise

Table 2 Peak Sea level allowance for each epoch in (mm) per year with cumulative sea level rise foreach epoch in brackets (use 1981to 2000 baseline)									
Area of England) (Use River Basin	Allowance	2000 to 2035	2036 to 2065	2066 to 2095	2096 to 2125	Cumulative Rise 2000 to 2125 (m)			
Anglian	Higher Central	5.8 (203mm)	8.7 (261mm)	11.6 (348mm)	13 (390mm)	1.20m			
Anglian	Upper End	7 (245mm)	11.3 (339mm)	15.8 (474mm)	18.1 (543mm)	1.6m			

## **DRAINAGE STRATEGY**

#### Surface Water Drainage

Applications for developments where the proposals will result in the increase the amount of surface water run-off require that an appropriate drainage strategy to be undertaken to ensure that the surface water discharge mimics the existing pre-development regime.

As the building will not be extended and thus surface water run-off from the development's roof area will remain unchanged. It is proposed that the surface water run-off from the roof of the development will utilise the existing outlets which discharge to a soakaway this has served the existing building for many years without causing any problems, the existing drains will be inspected cleaned out and renewed if necessary.

The proposed parking areas and access road will be constructed with permeable materials or they already exist.

#### Foul Drainage

Foul drainage from the properties will be collected in underground pipes in accordance with The Building Regulations and to be connected to a package treatment unit.

As foul water from the development is to be discharged via a package or bio-treatment unit, with the final discharge is to a watercourse, then the Black Sluice Internal Drainage Board's prior written consent is required and a discharge fee will be payable.

As there is a positive drainage system capable of receiving flows from the development there is no likely impact on neighbouring property.

## FLOOD RESILIENCE CONSTRUCTION

Any impact of damage to the properties can be foreseen and mitigated against by relatively simple design and construction techniques. There are two forms of flood protection works: -

- Flood-resistance or proofing works- these try to reduce the amount of water entering a building.
- Flood-resilient works: these reduce the amount of damage caused by water entering the building.

The proposed development will have the following resilient measures incorporated in the construction in accordance with "Improving the flood performance of new buildings" CLG (2007).

- The existing ground floor level for the living accommodation is above the predicted flood level following a breach to the Helpringham Eau.
- The ground floor to be constructed with a solid concrete floor with no voids beneath and no low-level wall vents. FFL to remain same as the existing.
- Avoid the use of mineral fibre insulation to the ground floor and use a rigid closed cell material as these retain integrity and have low moisture take-up.
- Where possible, all service entries should be sealed (e.g., with expanding foam or similar closed cell material). Closed cell insulation should be used for pipes which are below the predicted flood level.
- Use standard gypsum plasterboard as a sacrificial material fixed horizontally for easy removal and replacement.
- Water, electricity, and gas meters: should be located above the predicted flood level. Electrical services: electrical sockets, heating systems: boiler units and ancillary devices should be installed at least 500mm above the ground floor level to minimise damage to electrical services Electric ring mains should be installed at high level with drops to ground floor sockets and switches.
- The site is in an area that is capable of receiving flood warnings from the Environment Agency Floodline Warning Direct system. It is recommended that the property Owner contact the Environment Agency's Floodline on 0345 988 1188 to register the property to receive advance warning of flooding by telephone, mobile, fax, SMS text, email or pager. The Environment Agency aim to issue a 'severe flood warning' approximately 2 hours before existing defences are overtopped.

### **CONCLUSION**

- The site does have the protection of flood defences which are well maintained by the Environment Agency.
- The site for the site is shown to be within Flood Zone 2 'Medium Probability' as detailed on the Environment Agency's Flood Zone Maps without defences.
- The existing ground floor level for the living accommodation is above the predicted flood level following a breach to the Helpringham Eau.
- Any impact of damage to the property can be foreseen and mitigated against by relatively simple design and construction techniques. They will be constructed using materials which are flood resilient construction as outlined in the report.
- Flooding from other sources is unlikely to affect the site.
- No obvious constraints have been identified that may impact the proposed development and the type of mitigation measures that can be used to reduce the flood risk, there is no increase in the flood risk to others.
- It is therefore concluded that the proposed development can be constructed, safely and sustainably, to meet the requirements of the North Kesteven District Council Development Plan Policies, and the National Planning Policy Framework.







## Modelled Flood Extents (with defences) Model: South Forty Foot 2016 [CCN-2023-337908]



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Map 2

## Modelled Flood Extents with Climate Change (with defences) Model: South Forty Foot 2016 [CCN-2023-337908]



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