Flood Risk Assessment

Proposed erection of 2no bungalows

Land to the east of Forest Way, Holbeach.

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Contents

DOCUMENT HISTORY

ISSUE NO	COMMENTS	DATE
1	Planning	02.12.2025

1.0 Introduction

1.1 This Statement has been prepared to accompany a full planning application for the proposed erection of 2no bungalows at land to the east of Forest Way, Holbeach.

1.2 The Government has placed increasing priority on the need to take full account of the risks associated with flooding at all stages of the planning and development process. This course of action seeks to reduce the future damage to property and risk to life resulting from incidents of flooding. National Planning Policy does not prevent all development in flood risk areas, and this would be unsustainable and result in economic stagnation, depriving existing communities of much needed homes, services, employment opportunities etc. It is in the essential interests of the vitality of settlements and for the wider economic and social wellbeing of the community, that development opportunities are not unnecessarily constrained. Accordingly, the aims of this site-specific FRA will be as follows:

- Identify and address flood risk issues associated with the development.
- Assess if the project is likely to be affected by flooding from all relevant sources both now and in the future.
- Assess whether the project will increase the flood risk elsewhere.
- Demonstrate that the project is safe and where possible, reduces flood risk.
- Propose measures to deal with the identified effects and risks.

2.0 Existing Site

2.1 The existing site is located to the east of Forest Way in Holbeach within the recently completed Wignals Wood Development. The grid reference for the centre of the site is TF 34689 24489.

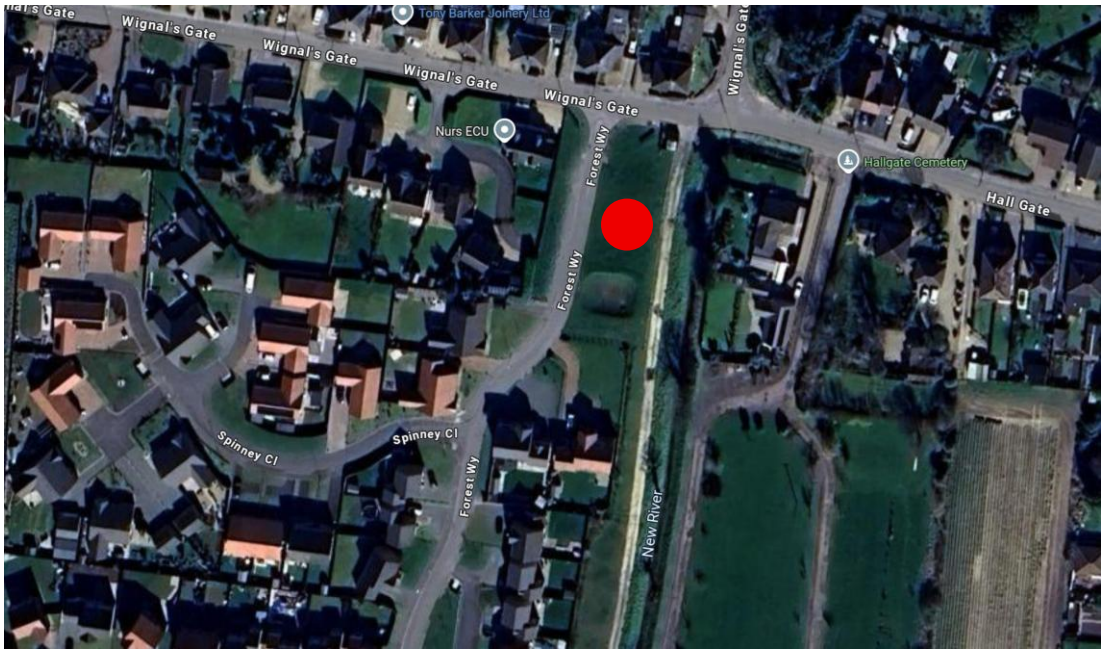

Figure 1 - Aerial photograph showing the location of the site (site shown by red dot)

2.2 The site is approximately 0.05 ha and currently comprises an area of kept grass which appears to be relatively flat. An attenuation pond is located to the south, an access track is located to the east, soft landscaping to the north and dwellings to the west on the opposite side of Forest Way.

2.3 The Environment Agency flood map for planning identifies the site as being within Flood Zone 3a.

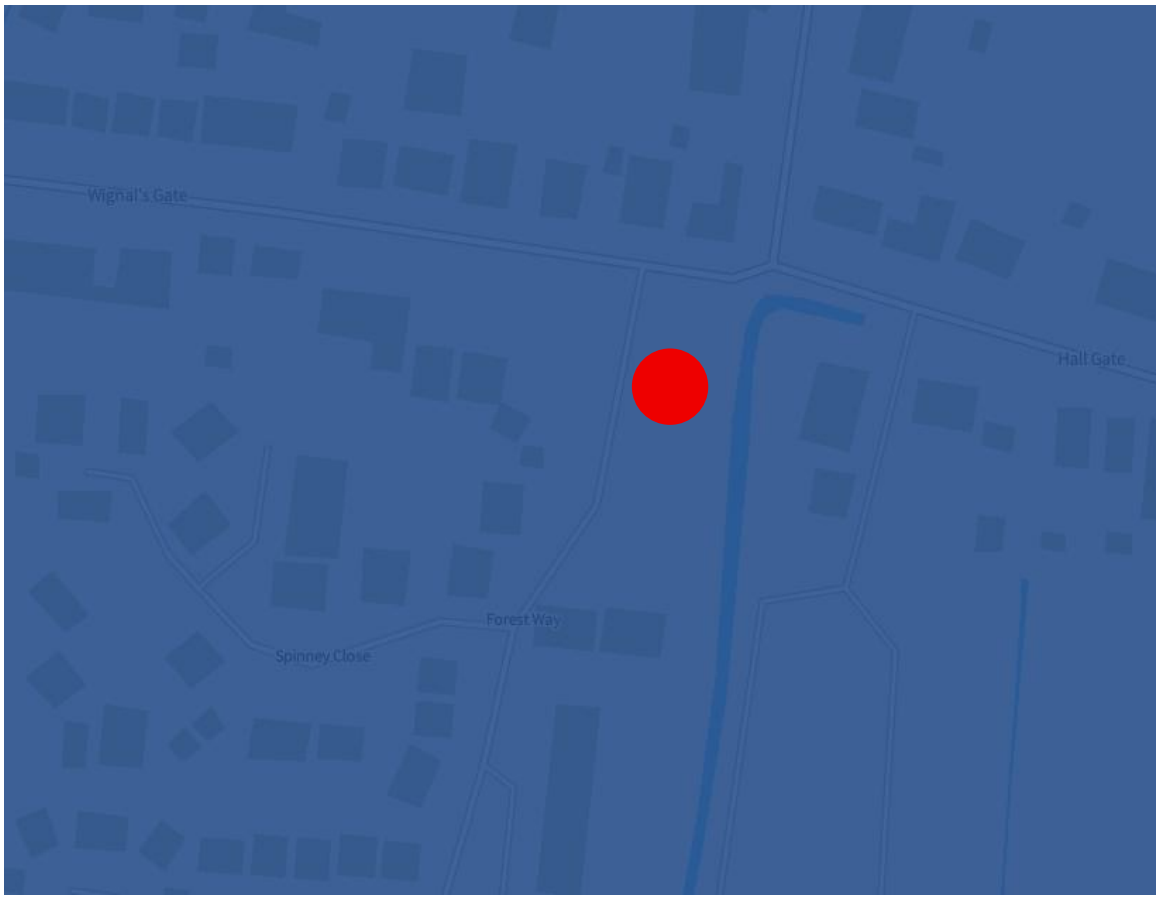

Figure 2 - Extract from Environment Agency Flood Map for Planning (site shown by red dot)

3.0 Proposed Scheme

3.1 The proposals involve the erection of 2no bungalows (1no pair of semi-detached). The dwellings will be located centrally within the site fronting north onto Wignals Gate. An area of private garden will be created to the rear of the property and the existing soft landscaping to the front will be retained. The dwellings will be served by a private driveway with parking in front of the properties.

3.2 Internally the dwellings will provide a double bedroom, lounge, kitchen, bathroom and a study. Externally the dwelling will have a traditional appearance with a central apex ridge, gable ends and balanced elevations. The dwellings will be finished in brick and tile with detailing to cills and the provision of a feature front porch.

Figure 3 - Proposed dwellings.

4.0 Assessment of Potential Sources of Flooding & Mitigation Measures

4.1 This section presents an assessment of Flood Risk to the development from

a) External sources; and

b) Potential of the proposed development to cause flood risk elsewhere.

TABLE 1: POSSIBLE FLOODING MECHANISMS		
Source	**Significant?**	**Comment**
Fluvial	Low	Distance from watercourse
Tidal/Coastal	Yes	If a breach of the defences occurred
Pluvial (drainage)	Low	On site run off.
Groundwater	No	Unlikely due to local drainage network
Overland flow	No	No higher ground adjacent to the site
Blockage	No	No culverts or bridges close to the site
Infrastructure failure	No	No major infrastructure has been identified
Rainfall ponding	No	No depressed areas which could encourage ponding.

a) Assessment of Flood Risk to Development from External Sources

4.2 Assessment of Flood Risk from Fluvial / Tidal Sources

4.2.1 The North Sea is located approximately 8.5 miles to the northeast of the application site; therefore, tidal flooding is considered to be a source of flood risk. The Hazard Maps provided by the Environment Agency show the hazard rating, depth and velocity of water for present day and future scenarios for a breach of the sea defences. These maps show that the site could be affected by tidal flooding from the North Sea if a breach of the sea defences occurred. A summary of the risks shown by the Hazard Maps is shown in Table 2. The existing tidal defences protecting the site consists of earth embankments on the River Nene which the Environment Agency have stated are in fair condition and reduce the risk of flooding to a 0.67% flooding event. Also earth embankments on the River Welland reduce the risk of flooding to a % flooding event.

TABLE 2: SUMMARY OF TIDAL HAZARD MAPS			
Breach Scenario	**Hazard Rating**	**Max Depth (m)**	**Max Velocity (m/s)**
Year 2115, 1 in 200 (0.5%)	Low	0 – 0.25	0 – 0.3
Year 2115, 1 in 1000 (0.1%)	Low	0 – 0.25	0 – 0.3

4.2.2 The proposed dwellings will be 1 storey in height and therefore the 0.1% 2115 (1 in 1000) hazard maps should be referred to.

4.3 Assessment of Flood Risk from Overland Flow (Pluvial)

4.3.1 The Environment Agency Surface Water Flood Map shows that the site is at a Low Risk of surface water flooding.

4.4 Assessment of Flood Risk from Ground Water

4.4.1 The area surrounding the site is not known to suffer from ground water problems.

4.5 Assessment of Flood Risk from Reservoirs

4.5.1 The Environment Agency reservoir map shows that the site is not at risk of reservoir flooding.

b) Potential of the Proposed Development to Cause Flood Risk Elsewhere

4.6 In order to mitigate flood risk posed from the site post development, adequate control measures have been considered for the site. The proposed development will increase the area of impermeable surface within the site. In accordance with recognised guidance, there is a hierarchy for the discharge of surface water from new developments. This should be as follows:

- Infiltration
- Water Course
- Public Sewer

4.7 British Geological Survey mapping indicates that the site lies entirely on mudstone and siltstone of the West Walton Formation. The West Walton Formations is described by the British Geological Survey as "*calcareous mudstone, silty mudstone and*

siltstone, with subordinate fine-grained sandstones and limestone or siltstone nodules".

4.8 The British Geology Survey mapping goes on to indicate that the site lies on superficial Tidal Flat Deposits comprising clay and silt.

4.9 It is therefore expected that infiltration drainage will not be feasible, but this should be explored through percolation testing. If this proves that infiltration drainage is not feasible then discharge at a safe rate to a local watercourse should be explored. If this is also not feasible then an agreement should be sought to discharge into the existing mains system at an agreed rate.

c) Mitigation Measures

4.10 The NPPF requires that a precautionary approach is adopted to ensure that development is safe and not exposed unnecessarily to flooding.

4.11 The following mitigation measures shall be incorporated into the development:

- Finished Floor Levels to be a minimum of 300mm above Wignals Gate carriageway level;
- Flood Resilient Construction incorporated up to 300mm above Finished Floor Levels;
- It is recommended, if it is not already, that the site is registered with the Environment Agency's 'Warnings Direct' flood warning system. The Agency provides this flood warning system in England and Wales and supports the public taking action to prepare and respond when these warnings are issued. The warnings are provided for flooding from rivers and the sea but not for localised flash flooding that cannot be predicted, for example from blocked or overloaded sewers or local groundwater flooding. The Agency issues warnings through media on TV and radio weather bulletins and on its website (www.environemnetagency.gov.uk/floodline). In areas of particular risk, the Agency can send a warning message direct to people at home or work by telephone, fax or pager using an Automatic Voice Messaging (AVM) system.

5.0 Conclusion

5.1 The following conclusions, in relation to the questions posed at the start of this document are as follows:

5.2 ***Identify and address flood risk issues associated with the proposed development;***
The potential sources of flood risk have been discussed within this report. It has been established that tidal and surface water flooding are the dominant source of risk in the area.

5.3 ***Assess if the project is likely to be affected by flooding from all relevant sources both now and in the future;***
The Flood Maps show that the site is within the Low Hazard zone during a 0.1% (2115) Breach event, as well as being at Low Risk of surface water flooding.

5.4 ***Assess whether the project will increase the flood risk elsewhere;***
The proposed development will increase the sites impermeable area, however, the relevant hierarchy shall by followed to safely discharge surface water.

5.5 ***Demonstrate the project is safe and where possible reduces flood risk overall and proposes measure to deal with the identified effects and risks;***
The finished floor level of the dwellings are to be set a minimum of 300mm above Wignals Gate carriageway level and flood resilient construction is to be incorporated to a minimum of 300mm above finished floor levels.

5.6 This report demonstrates the proposed development is compliant with the requirements of the National Planning Policy Framework, and it is considered that planning permission should not be refused on flood risk grounds.

Appendix A: Flood Data

East Coast and Wash - 2018 Coastal Flood Boundary [CFB] Dataset
Key Node Points

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

East Coast and Wash: Immingham to the West Lighthouse

2018 Coastal Flood Boundary Extreme Sea Levels

CFB Ref	Location	Easting	Northing	Annual Chance (1 in x) of Tide Level in metres ODN																	
				1			10			50			100			200			300			1000		
				Confidence Bound			Confidence Bound			Confidence Bound			Confidence Bound			Confidence Bound			Confidence Bound			Confidence Bound		
				2.5%	50%	97.5%	2.5%	50%	97.5%	2.5%	50%	97.5%	2.5%	50%	97.5%	2.5%	50%	97.5%	2.5%	50%	97.5%	2.5%	50%	97.5%
3888	**Immingham**	520440	417625	4.16	4.17	4.19	4.50	4.53	4.62	4.73	4.80	5.00	4.83	4.93	5.19	4.93	5.06	5.41	4.98	5.14	5.55	5.15	5.38	6.01
3890	**Haborough Marsh**	522100	416512	4.14	4.15	4.17	4.48	4.51	4.60	4.70	4.77	4.97	4.80	4.90	5.16	4.90	5.03	5.38	4.94	5.10	5.51	5.11	5.34	5.97
3898	**Grimsby**	529295	413162	3.98	3.99	4.01	4.31	4.34	4.43	4.53	4.60	4.80	4.61	4.71	4.97	4.71	4.84	5.19	4.74	4.90	5.31	4.88	5.11	5.74
3906	**Buck Beck**	534709	407369	3.87	3.88	3.90	4.19	4.23	4.31	4.41	4.50	4.68	4.50	4.61	4.86	4.61	4.75	5.10	4.64	4.82	5.22	4.80	5.05	5.66
3910	**Tetney**	538035	405537	3.85	3.86	3.89	4.17	4.22	4.30	4.40	4.50	4.67	4.49	4.61	4.86	4.60	4.75	5.10	4.63	4.82	5.21	4.80	5.06	5.66
3918	**Donna Nook**	544641	401997	3.82	3.83	3.86	4.14	4.19	4.27	4.38	4.48	4.65	4.47	4.60	4.85	4.58	4.74	5.10	4.63	4.82	5.22	4.81	5.08	5.68
3928	**Saltfleet**	549131	393360	3.78	3.79	3.82	4.11	4.16	4.26	4.36	4.46	4.64	4.47	4.59	4.86	4.57	4.74	5.11	4.63	4.83	5.25	4.83	5.11	5.74
3942	**Boygrift**	555131	380860	3.72	3.74	3.77	4.06	4.11	4.22	4.33	4.43	4.65	4.43	4.57	4.87	4.56	4.73	5.13	4.62	4.83	5.28	4.85	5.15	5.82
3968	**Gibraltar Point**	557652	356181	4.16	4.17	4.20	4.51	4.56	4.67	4.76	4.85	5.08	4.85	4.97	5.27	4.94	5.10	5.49	4.99	5.18	5.63	5.14	5.41	6.09
3992_14	**Hobhole**	535990	340116	4.96	4.97	5.01	5.40	5.44	5.56	5.66	5.76	5.98	5.78	5.90	6.20	5.88	6.04	6.44	5.92	6.11	6.57	6.03	6.31	6.99
	Grand Sluice*	532366	344510	4.93	4.94	4.98	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
3992_9	**Boston Barrier**	532754	342852	4.93	4.94	4.98	5.41	5.45	5.57	5.73	5.83	6.05	5.85	5.97	6.27	5.93	6.09	6.49	5.94	6.13	6.59	5.98	6.26	6.94
3992_5	**Fosdyke Bridge**	531886	332234	4.87	4.88	4.92	5.31	5.35	5.47	5.58	5.68	5.90	5.71	5.83	6.13	5.82	5.98	6.38	5.87	6.06	6.52	6.01	6.29	6.97
4008	**West Lighthouse**	550094	329971	4.87	4.88	4.91	5.21	5.26	5.37	5.46	5.56	5.78	5.56	5.68	5.98	5.66	5.82	6.21	5.71	5.90	6.35	5.86	6.14	6.81
-	**Marsh Road**	525988	324065	-	5.04	-	-	5.44	-	-	5.73	-	-	5.85	-	-	5.98	-	-	-	-	-	-	-
-	**Wisbech**	546110	309940	-	4.83	-	-	5.25	-	-	5.53	-	-	5.66	-	-	5.78	-	-	-	-	-	-	-
-	**Dog-in-a-Doublet**	527200	299287	-	3.67	-	-	4.00	-	-	4.22	-	-	4.32	-	-	4.42	-	-	-	-	-	-	-

See next page for notes

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www.gov.uk/environment-agency

East Coast and Wash: Immingham to the West Lighthouse

2018 Coastal Flood Boundary Extreme Sea Levels

NOTES:

The following notes apply to all CFB sites (ie all on table excluding Marsh Road, Wisbech, Dog-in-a-Doublet)

- The base date for the data is 2017.
- The levels are still water levels. Depending on the use of the data it may be necessary to consider wave heights and / or joint probability analysis of water level and other variables.
- Levels for other annual chance probabilities are available if required.
- For additional information relating to the 2018 Coastal Flood Boundary Extreme Sea Levels or to access the full dataset for the above sites or intermediate locations refer to the Defra Metadata Catalogue at https://deframetadata.com/geonetwork/srv/eng/catalog.search#/metadata/84a5c7c0-d465-11e4-b0bd-f0def148f590

The following notes apply to all Marsh Road, Wisbech, Dog-in-a-Doublet

- The base date for the data is 2006
- The levels are still water levels. Depending on the use of the data it may be necessary to consider wave heights and / or joint probability analysis of water level and other variables.
- Levels for other annual chance probabilities are available if required.
- These levels will be updated as their respective tidal river models are updated.

The following notes apply to Grand Sluice

- Grand Sluice remains the tidal limit for the River Witham.
- The data is based on CFB 2018 data for Boston Barrier site, capped at 5.3mAOD to reflect use of the barrier which raises for tides above this level.
- The base date for the data is 2017
- The levels are still water levels. Depending on the use of the data it may be necessary to consider wave heights and / or joint probability analysis of water level and other variables.
- For additional information relating to the 2018 Coastal Flood Boundary Extreme Sea Levels or to access the full dataset for the above sites or intermediate locations refer to the Defra Metadata Catalogue at https://deframetadata.com/geonetwork/srv/eng/catalog.search#/metadata/84a5c7c0-d465-11e4-b0bd-f0def148f590

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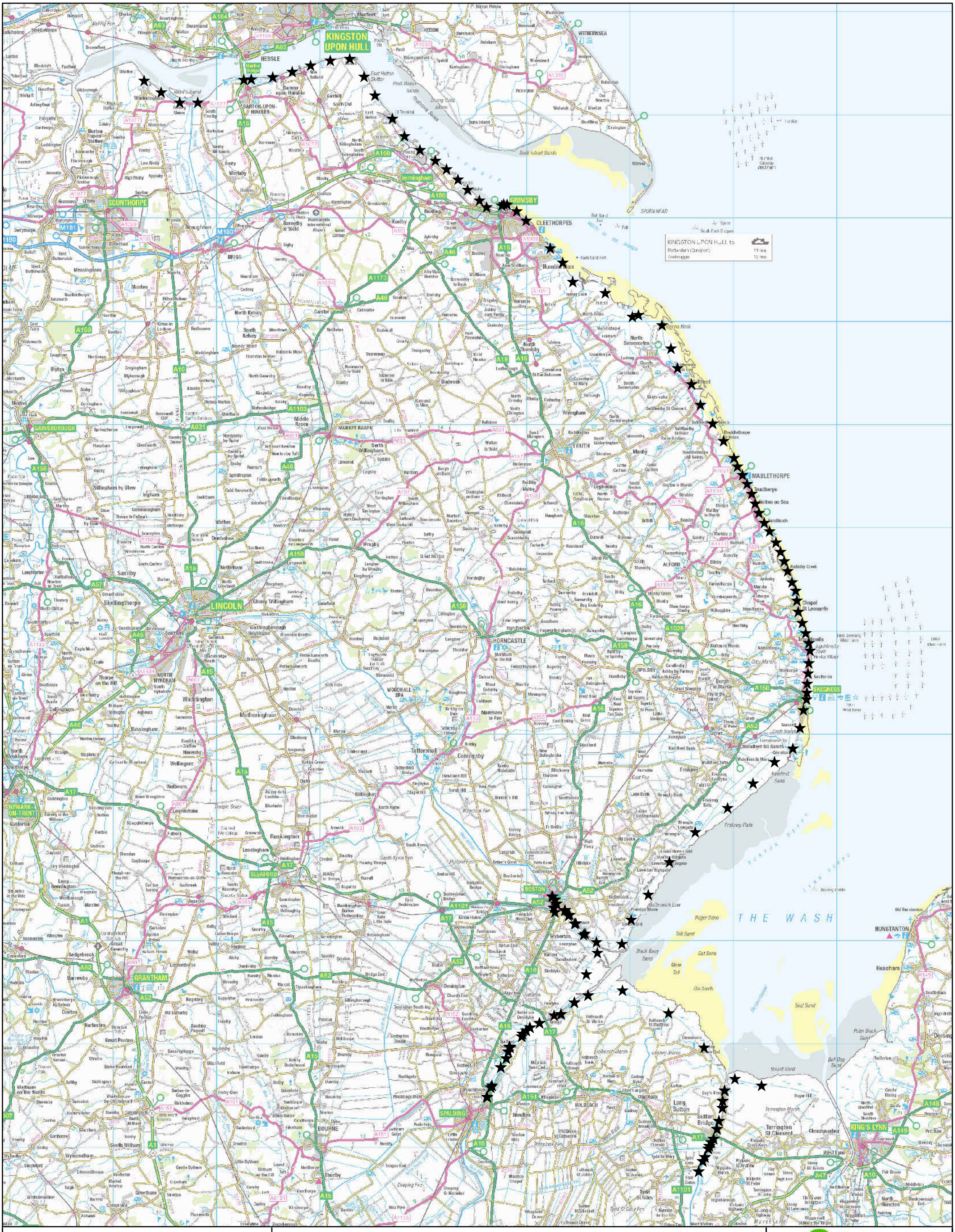


★ **Modelled Breach Locations**

0 3.5 7 14 Kilometers

This map idicates the location of where we have modelled the consequence of breaches in the defences along the coastline and tidal rivers. We have mapped the maximum values of Hazard Rating (Danger to People), Depth and Velocity.

We have not assumed that all breaches occur at the same time, but have modelled each breach individually and overlaid the results to find the maximum values.

Our modelling only considers the consequences of a breach, it does not make any assumption about the likelihood of a breach occurring. Our defences generally provide a good standard of flood defence but a risk of breaching remains.

Please contact the Environment Agency for information on how these maps are used in the management of flood risk.

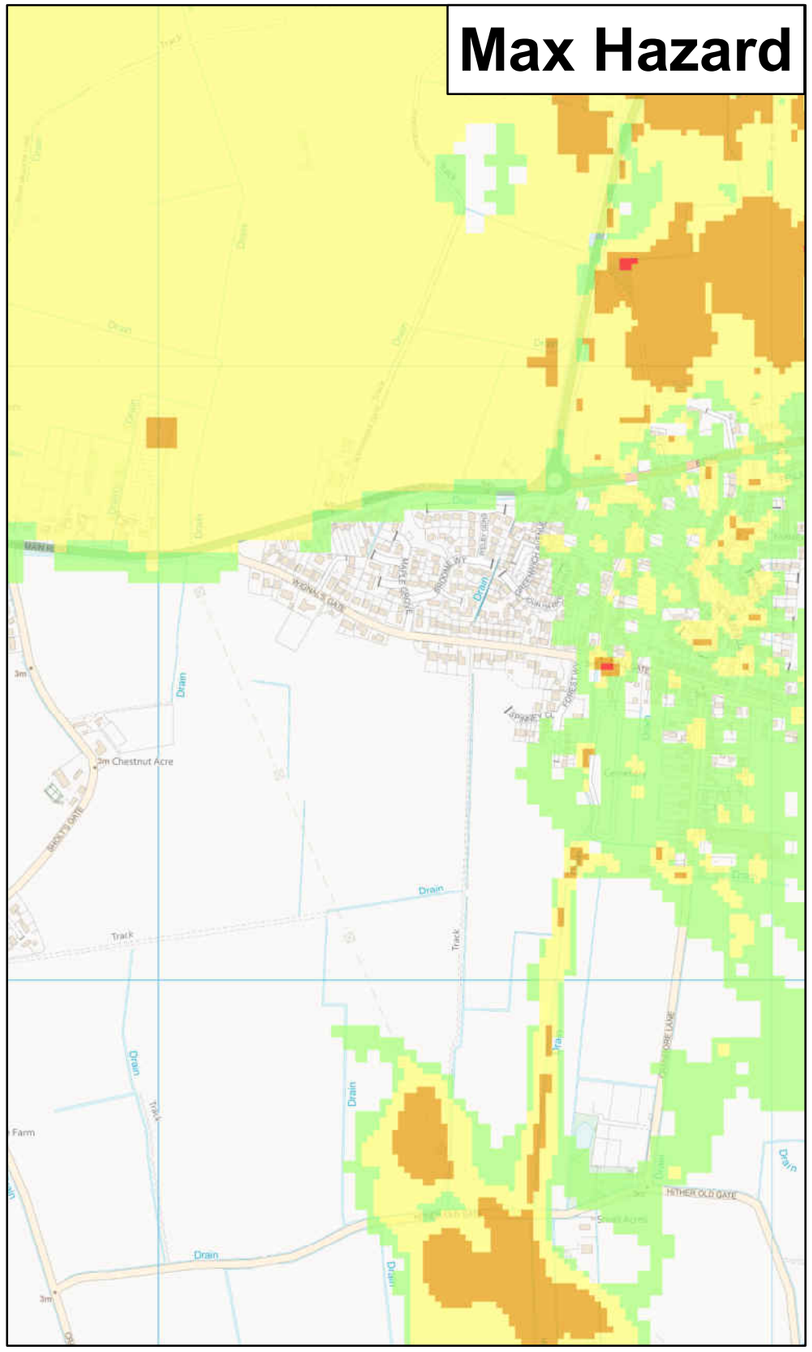
General Enquiries No: 03708 506 506.
Weekday calls cost 5p plus up to 6ppm from BT Weekend Unlimited. Mobile and other providers charges may vary.

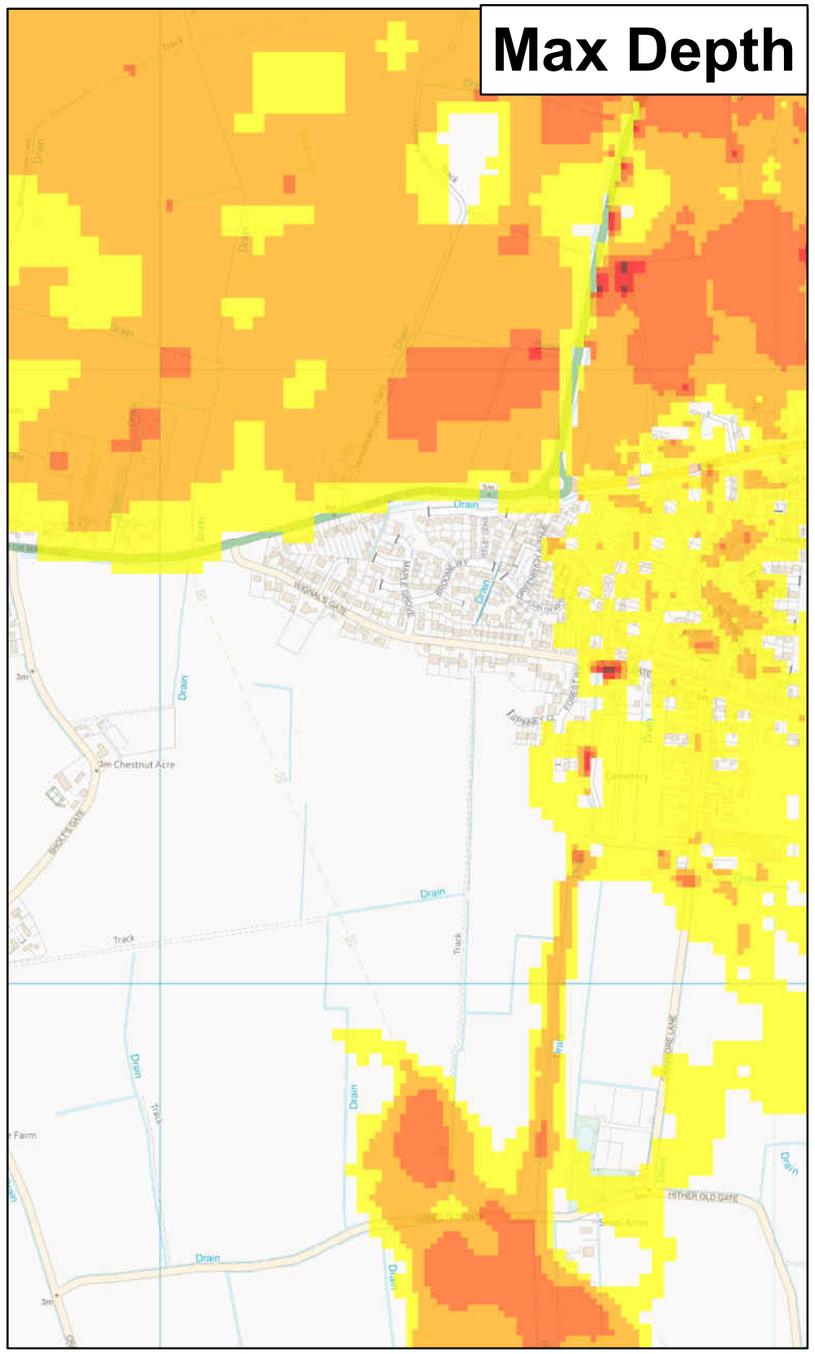
Environment Agency

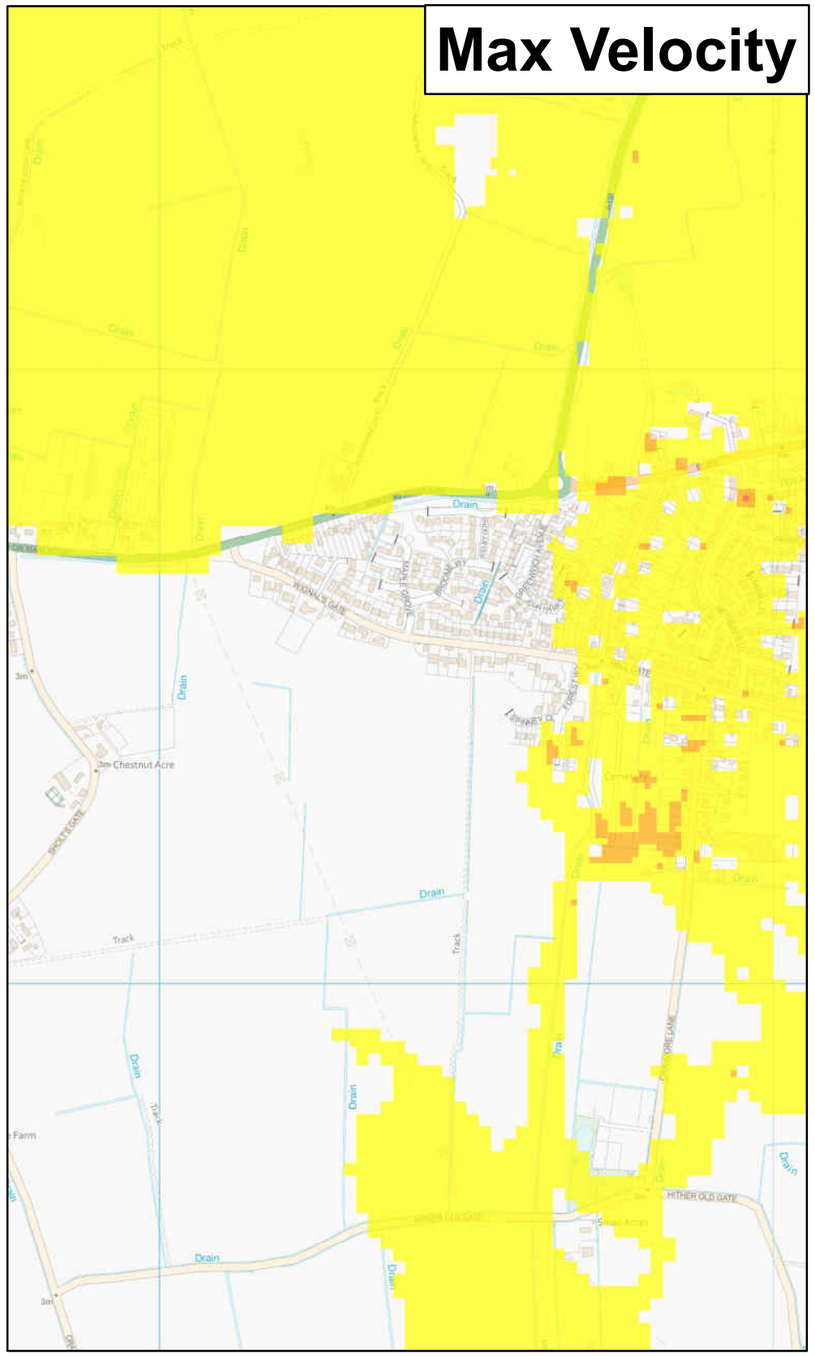
Produced by the Partnership and Strategic Overview Team, Lincoln
General Enquiries No: 03708 506 506

Northern Area Tidal Hazard Mapping

Location of Modelled Breaches







★ **Modelled Breach Locations** - see also the accompanying plan "Location of Modelled Breaches"

Max Hazard
(Flood Risk to People : FD2320)

- Less than 0.75 (Low Hazard)
- Between 0.75 and 1.25 (Danger for Some)
- Between 1.25 and 2.0 (Danger for Most)
- Greater than 2.0 (Danger for All)

Max Depth (m)

- 0 - 0.25
- 0.25 - 0.50
- 0.50 - 1.0
- 1.0 - 1.6
- 1.6 +

Max Velocity (m/s)

- 0 - 0.3
- 0.3 - 1.0
- 1.0 - 1.5
- 1.5 - 2.5
- 2.5 +

Date Printed	March 2024	**Scenario year**	2115	**Scenario Annual Chance**	0.5% (1 in 200)	**CCN Number**	CCN-2024-348534

This map shows the level of flood hazard to people (called a hazard rating) if our flood defences are breached at certain locations, for a range of scenarios. The hazard rating depends on the depth and velocity of floodwater, and maximum values of these are also mapped.

The map is based on computer modelling of simulated breaches at specific locations. Each breach has been modelled individually and the results combined to create this map. Multiple breaches, other combinations of breaches, different sized tidal surges or flood flows may all give different results.

The map only considers the consequences of a breach, it does not make any assumption about the likelihood of a breach occurring. The likelihood of a breach occurring will depend on a number of different factors, including the construction and condition of the defences in the area. A breach is less likely where defences are of a good standard, but a risk of breaching remains.

General Enquiries No: 03708 506 506. Weekday Daytime calls cost 5p plus up to 6p per minute from BT Weekend Unlimited. Mobile and other providers' charges may vary

Environment Agency

Lincolnshire and Northamptonshire Tidal Breaching Hazard Mapping

Map Centred on TF 34404 24497

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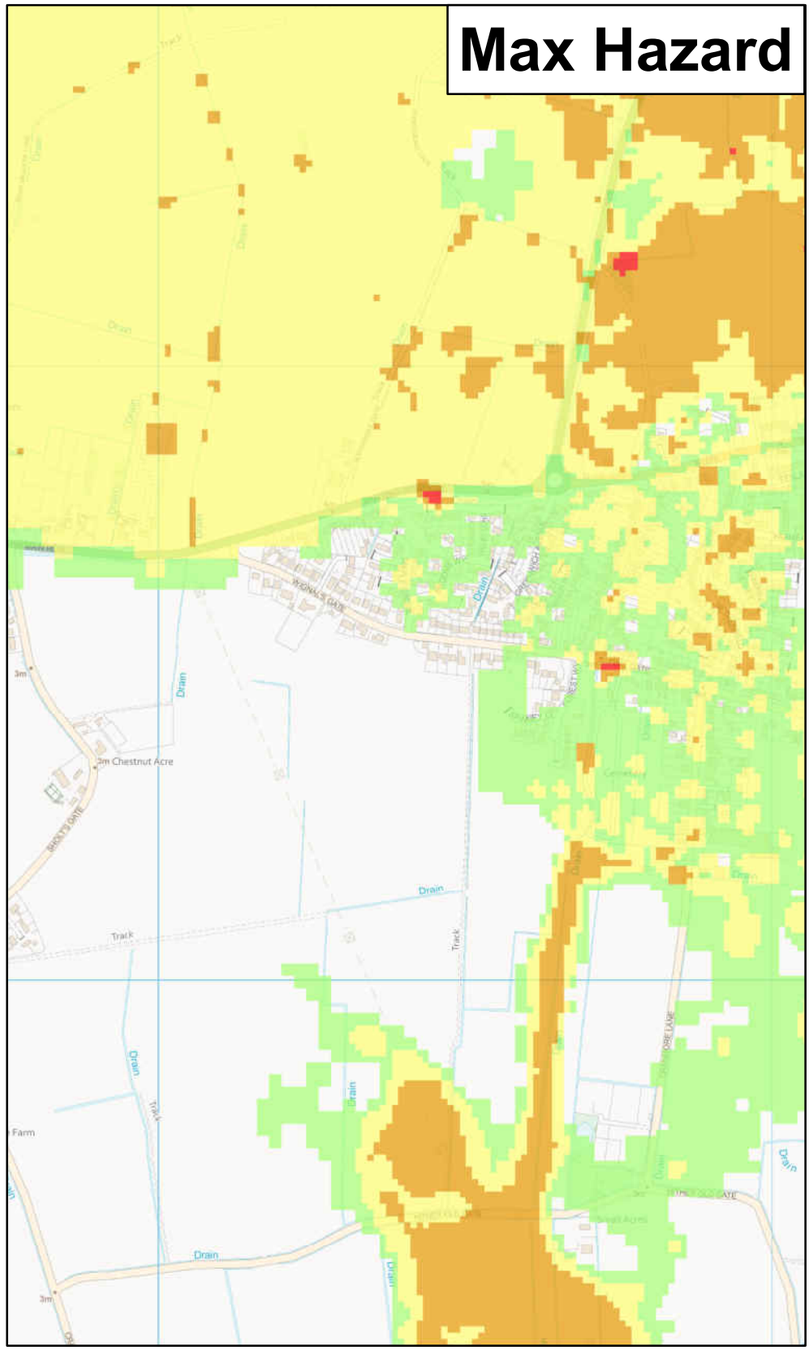

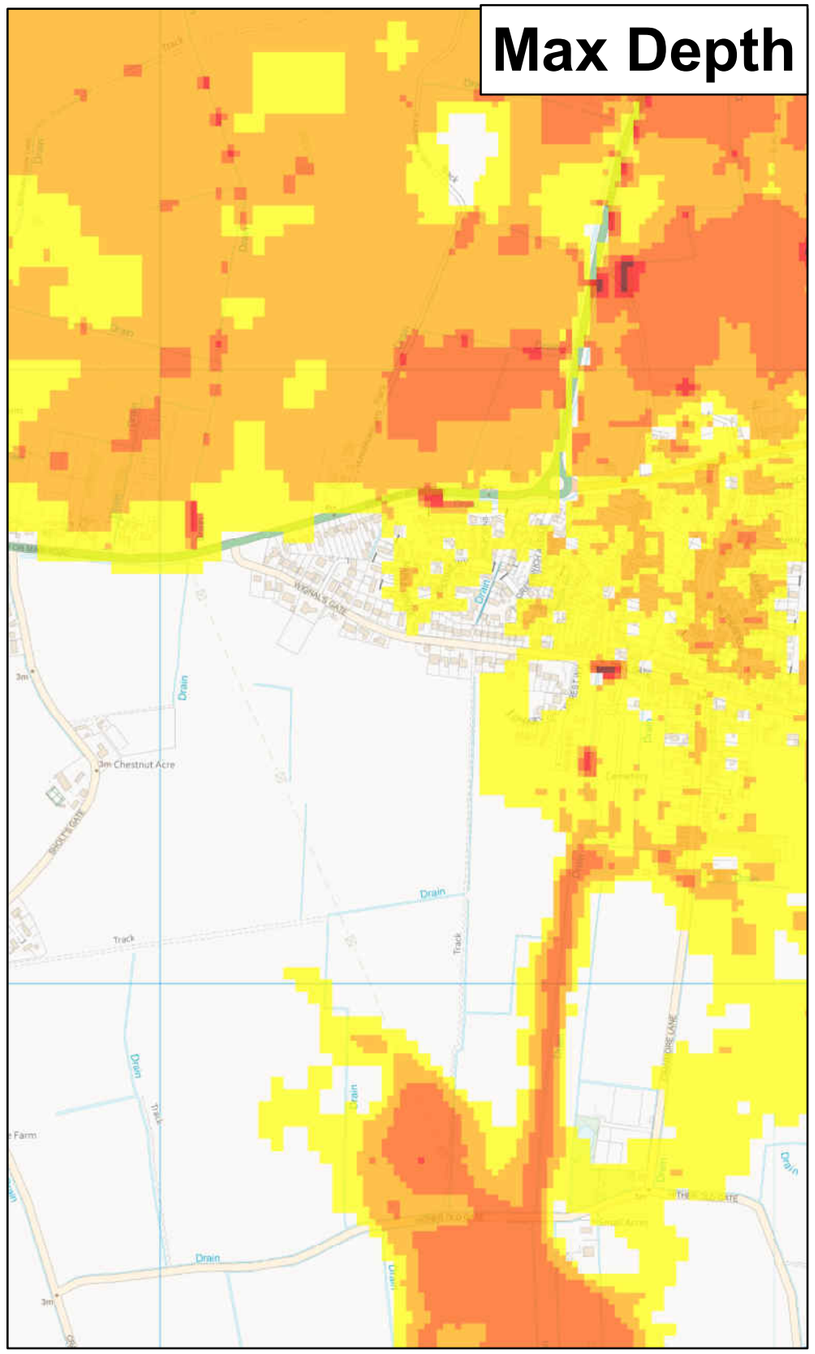

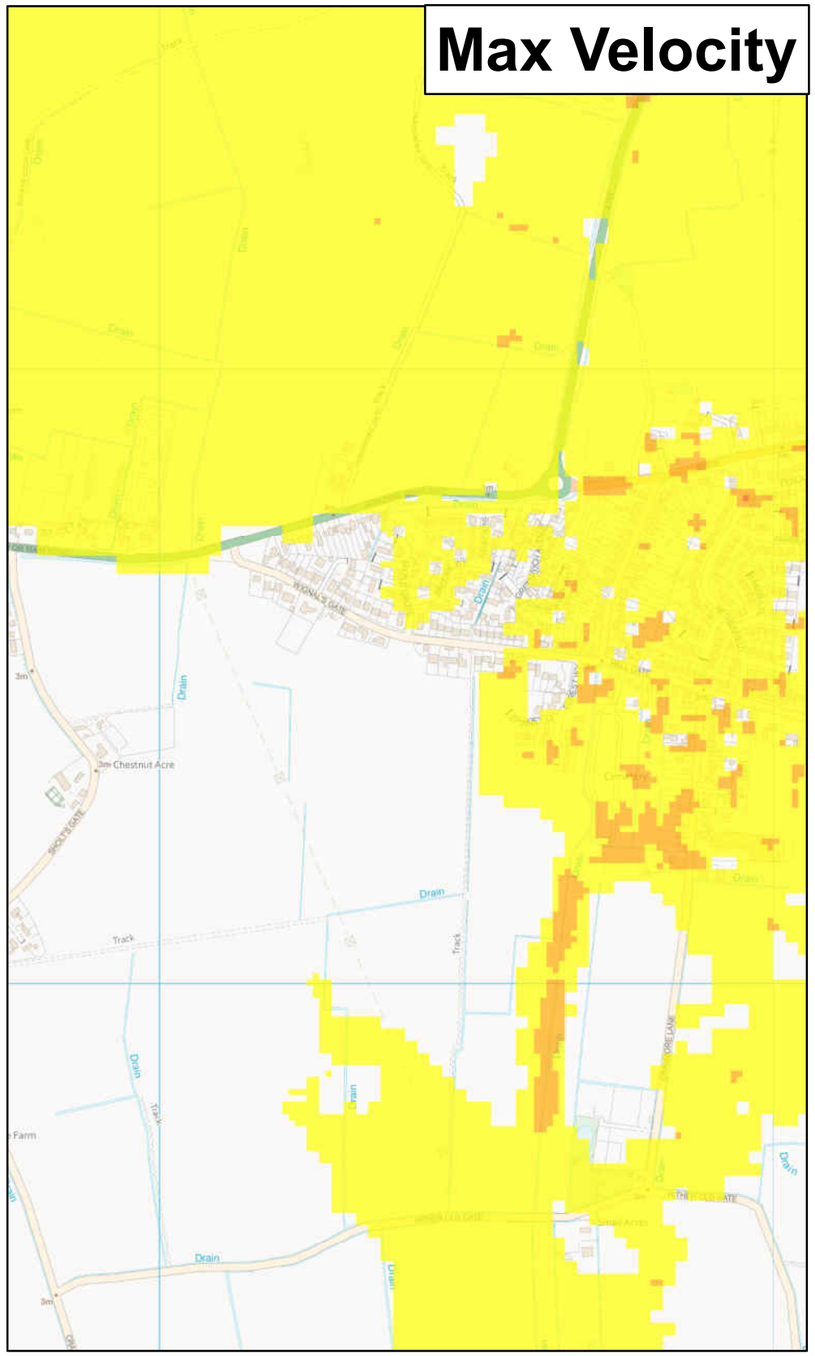

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(Flood Risk to People : FD2320)

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- Between 1.25 and 2.0 (Danger for Most)
- Greater than 2.0 (Danger for All)

Max Depth (m)

- 0 - 0.25
- 0.25 - 0.50
- 0.50 - 1.0
- 1.0 - 1.6
- 1.6 +

Max Velocity (m/s)

- 0 - 0.3
- 0.3 - 1.0
- 1.0 - 1.5
- 1.5 - 2.5
- 2.5 +

Date Printed	March 2024	Scenario year	2115	Scenario Annual Chance	0.1% (1 in 1000)	CCN Number	CCN-2024-348534

This map shows the level of flood hazard to people (called a hazard rating) if our flood defences are breached at certain locations, for a range of scenarios. The hazard rating depends on the depth and velocity of floodwater, and maximum values of these are also mapped.

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Environment Agency

Lincolnshire and Northamptonshire Tidal Breaching Hazard Mapping

Map Centred on TF 34404 24497

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