Flood Risk Assessment

Site:
Ferndale Farm, Birds Drove, Surfleet, Spalding PE11 4BE

Applicant:
J A Tidswell Ltd.

Prepared by:
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Introduction

Origin Design Studio Ltd have been appointed by J A Tidswell Ltd to prepare a Flood Risk Assessment to accompany a planning application to South Holland District Council for a residential development.

The site is contained within a Flood Zone 3 and this is the basis upon which a Flood Risk Assessment is required. The approach to flood risk is set out in the National Planning Policy Framework (NPPF), refer to Appendix A with more local planning policy set out in the South East Lincolnshire Local Plan (SELLP), refer to Appendix B. This Flood Risk Assessment assesses the site in accordance with the policy requirements of the NPPF and the SELLP.

The Site

The site is located to the south of Bird's Drove in the Parish of Surfleet. The site is currently a farmyard with two agricultural buildings located on it. The northwestern building is constructed from blockwork and has a corrugated sheeted roof. The southeastern building is a steel framed metal clad building. The site is accessed immediately off Bird's Drove which bounds the north boundary of the site and which brings you into the centre of the yard. The site is bound to the west by an existing dwelling and to the east and south by agricultural fields. The proposed development is for the conversion of the northwestern building to form 1No. dwelling.



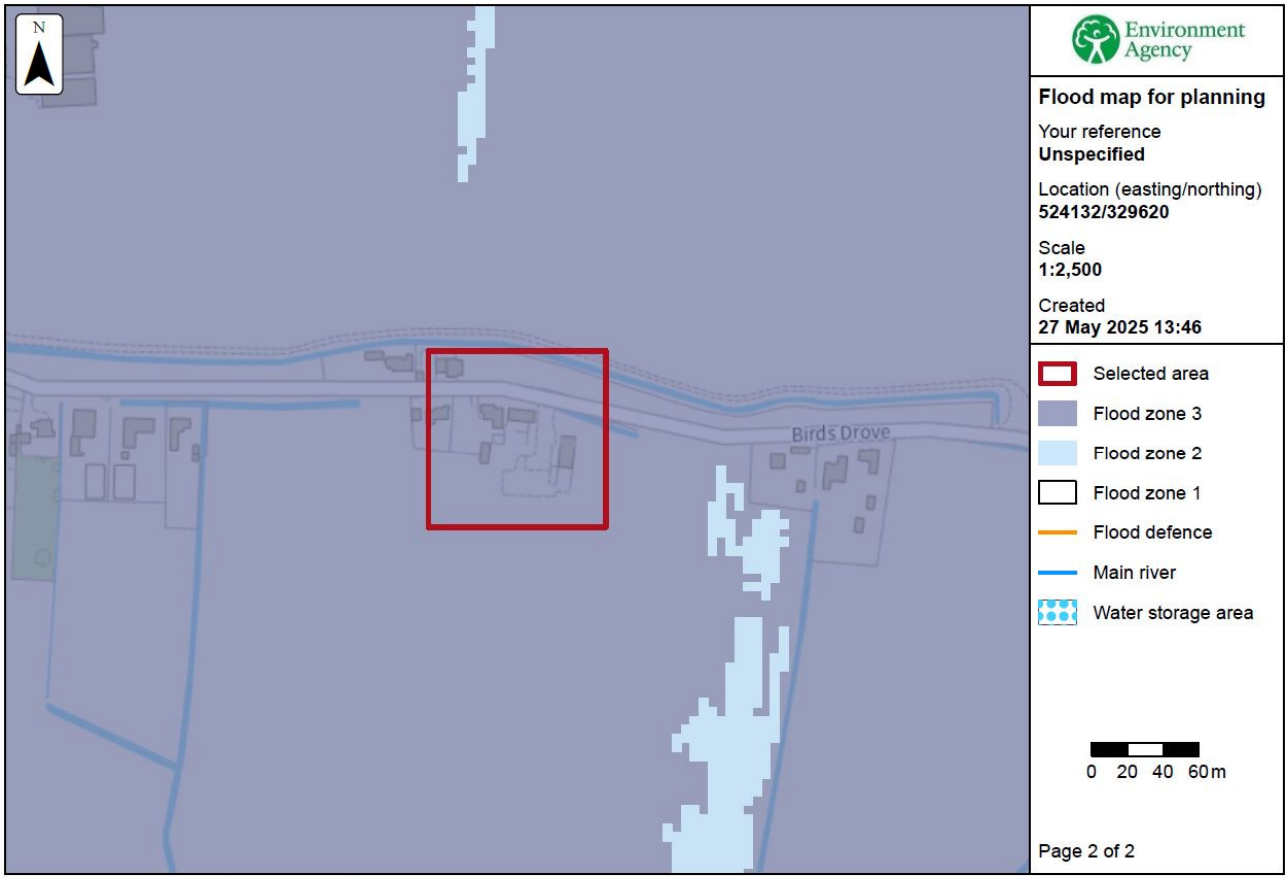
Figure 1 - Aerial Image of Site – Source Apple Maps

Findings

Risk of Flooding from River and Seas

Flood Zone

The site is contained wholly within a Flood Zone 3. Flood Zone 3 shows the area at risk of flooding for an undefended flood event with: a 1% or greater probability of flooding from rivers or 0.5% or greater probability of flooding from the sea.



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Figure 2 - Flood zone map (the site is marked with a red line).

Historic Flooding

The Environment Agency do not have any information about historical flooding on the site, refer to Appendix D.

Sequential & Exception Test

The proposed development is residential and will result in 1No. new build dwellings. Therefore, flood risk is considered on this basis.

Developments need a sequential test when the development is in flood zone 2 or 3 and a sequential test hasn't already been done for a development of the type planned on the proposed site.

The purpose of the sequential test is to direct development to land of lower flood risk. The sequential test compares the proposed development site with other available sites to find out which has the lowest flood risk.

The residential use is classified as "more vulnerable" in accordance with Table 2 – Flood Risk Vulnerability Classification.

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

Key:

✓ Development is appropriate

✗ Development should not be permitted.

Figure 3 - Table 3 – Flood Risk Vulnerability and Flood Zone Compatibility (www.gov.uk)

In accordance with Table 3 where a site is located in a Flood Zone 3 with a vulnerability classification of “more vulnerable” development is considered to be compatible providing the exception test is satisfied. Therefore, the development will need to pass both a sequential test and exception test.

Site Levels

A topographical survey has not been undertaken, at this stage, to inform the development. Tehrefore design for mitigation will be specified above existing ground level.

Calculating the Flood Level

Where possible all habitable floors should be above the flood level. Where the accommodation is proposed to be two storeys the 1 in 100/200-year flood level plus climate change will be used to ensure habitable floors are above the flood level. In the case where a single storey building is proposed habitable floors should be above the 1 in 1000-year flood level plus climate change. In both cases a safe point of refuge can be established and therefore provide protection to the inhabitants of the building.

In this case it is proposed to create a 1No. two-storey dwelling. To determine the flood level the fluvial and tidal sources will be looked at to determine the worst case and an appropriate floor level.

Climate Change

Global warming is now recognised that it is likely to affect the frequency and severity of extreme events such as both tidal and fluvial flooding. The latest climate change allowances in the NPPF Guidance were published on the 19th February 2016 with the latest update being 27 May 2022. The site lies within the Anglian River Basin District and Welland Management Catchment and allowances for climate change should be made on the following basis.

For a worst-case scenario, the site shall be considered to be in a Flood Zone 3a and the use classification is 'more vulnerable' therefore Peak River flows use the higher central and upper end to assess a range of allowances.

The adjustments for peak flows can be seen in the table below. Under guidance of the Planning Practice Guidance for developments that are 'more vulnerable' in a flood zone 3 the central allowance shall be used for design. It will be tested for sensitivity using the upper allowance.

River basin district	Allowance category	Total potential change anticipated for the '2020s' (2015 to 2039)	Total potential change anticipated for the '2050s' (2040 to 2069)	Total potential change anticipated for the '2080s' (2070 to 2115)
Welland	Upper	22%	26%	53%
	Higher	10%	10%	28%
	Central	5%	4%	17%

Figure 4 - Table 1 peak river flow allowances by river basin district (use 1961 to 1990 baseline)

For tidal flooding, flood risk assessments are required to assess both the higher central and upper end allowances and the H++ scenario where applicable. The adjustments for tidal flood levels are shown in the table below.

River basin district	Allowance category	2000 to 2035 (mm)	2036 to 2065 (mm)	2066 to 2095 (mm)	2096 to 2035 (mm)	Cumulative rise 2000 to 2125 (metres)
Anglian	Higher Central	5.8 (203)	8.7 (261)	11.6 (348)	13 (390)	1.20
	Upper End	7 (245)	11.3 (339)	15.8 (474)	18.1 (453)	1.60

Figure 5 - Sea level allowances for each epoch in mm for each year (based on a 1981 to 2000 baseline)

Tidal Flood Sources

The site is at risk from tidal sources of flooding. The site is protected by earth embankments. These are in fair condition and reduce the risk of flooding (at the defence) to 1% chance of occurring in any year.

Tidal Flood Level

There is no hazard mapping available from the EA that allows for determination of a flood level on site. Data from the Environment Agency contained in Appendix D includes tidal levels for various events. These do not include allowances for climate change.

Without hazard mapping it is difficult to predict a flood level for the site. A crude method of breach analysis can be used to provide a flood level for the purposes of designing mitigation for the site and this has been conducted to provide a basis for setting the proposed floor level, refer to Appendix C.

The nearest location to the site where coastal flood levels have been calculated is Fosdyke Bridge. This has been set as the flood source with an adjustment for climate change. The worst-case level is taken from the 97.5% confidence bound level.

The breach analysis assumes the defences have been built as high as the flood level prior to the breach occurring. For simplicity flood routing is not considered, therefore the breach analysis assumes there are no obstructions between the flood source and the site that could protect the site from flooding. However, in reality the A16 is likely to provide barrier to flooding and create weirs in low spots and essentially provide a longer route to the site.

The 1 in 200-year flood level for the site plus climate change (1.2m) is used as the design event with the site tested for sensitivity for a cumulative increase of sea level of 1.6m. The 1 in 200-year flood level for the site plus climate change (1.2m) is +0.131m. The 1 in 200-year flood level for the site plus climate change (1.6m) is +0.139m.

It is considered that the resulting flood level results in a hazard rating of 0.6 which is defined as very low hazard based on the calculation contained in breach analysis, see Appendix D.

Fluvial Flood Sources

The site is at not at risk of fluvial flooding from main rivers.

Drainage Board Flood Sources

The site is located in the Welland and Deepings Internal Drainage Board maintained area. The nearest board-maintained drain is the Latham Lode Newbury Drain located to the north of Bird's Drove in the Risegate Eau Catchment area.

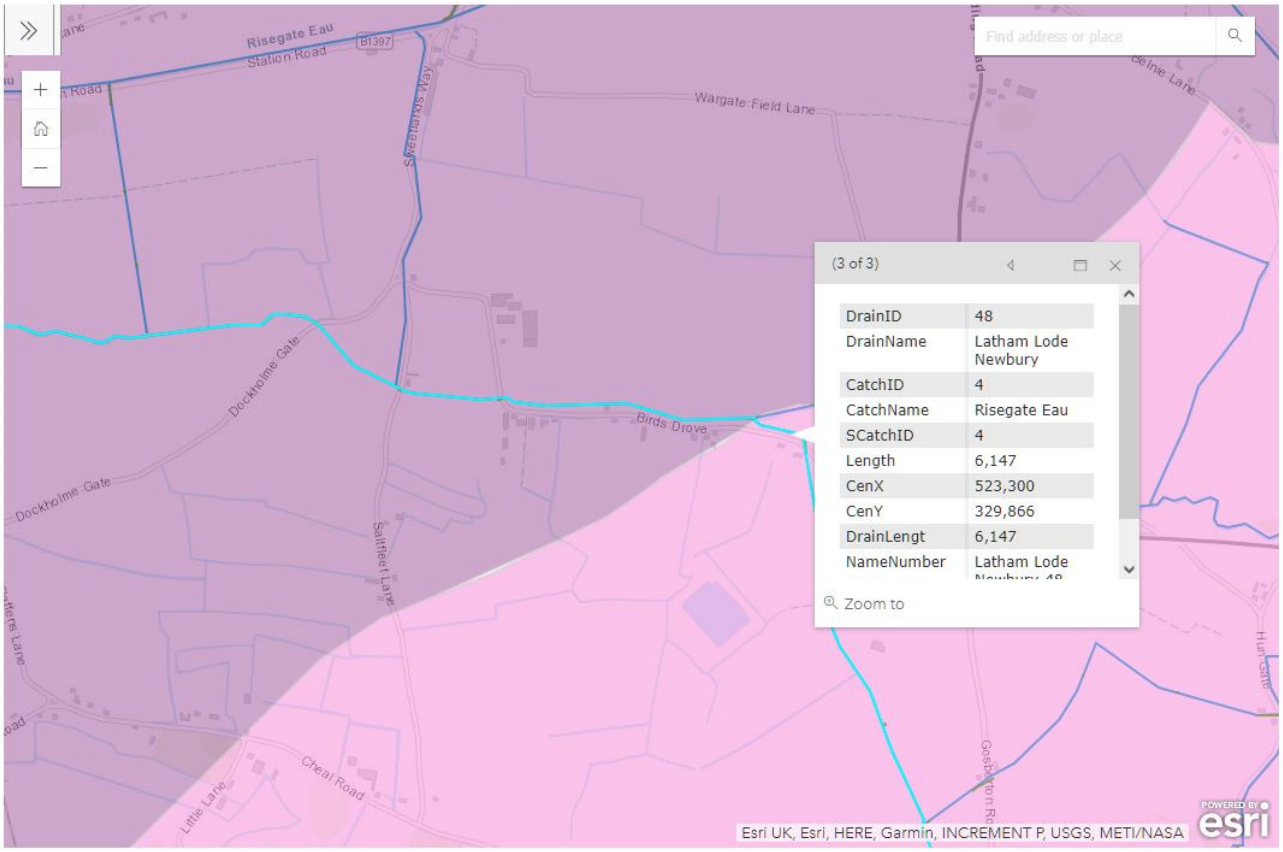


Figure 6 - Board Maintained Drains Near To Site

It is not considered the drain will cause a greater flood level onsite that that established through the tidal flood level.

Risk of Flooding from Surface Water

The risk of flooding from surface water is very low. The following map shows the Environment Agency's Risk of Flooding from Surface Water map for the 1 in 1000 year flood event:



Figure 7 - Surface Water Flood Map (www.gov.uk)

The site does not suffer from surface water flooding. No further action is required.

Risk of Flooding from Reservoirs

There is no risk of flooding from reservoirs when there is no flooding from rivers or when there is flooding from rivers. The following map shows this on the Environment Agency's Risk of Flooding from Reservoirs map:

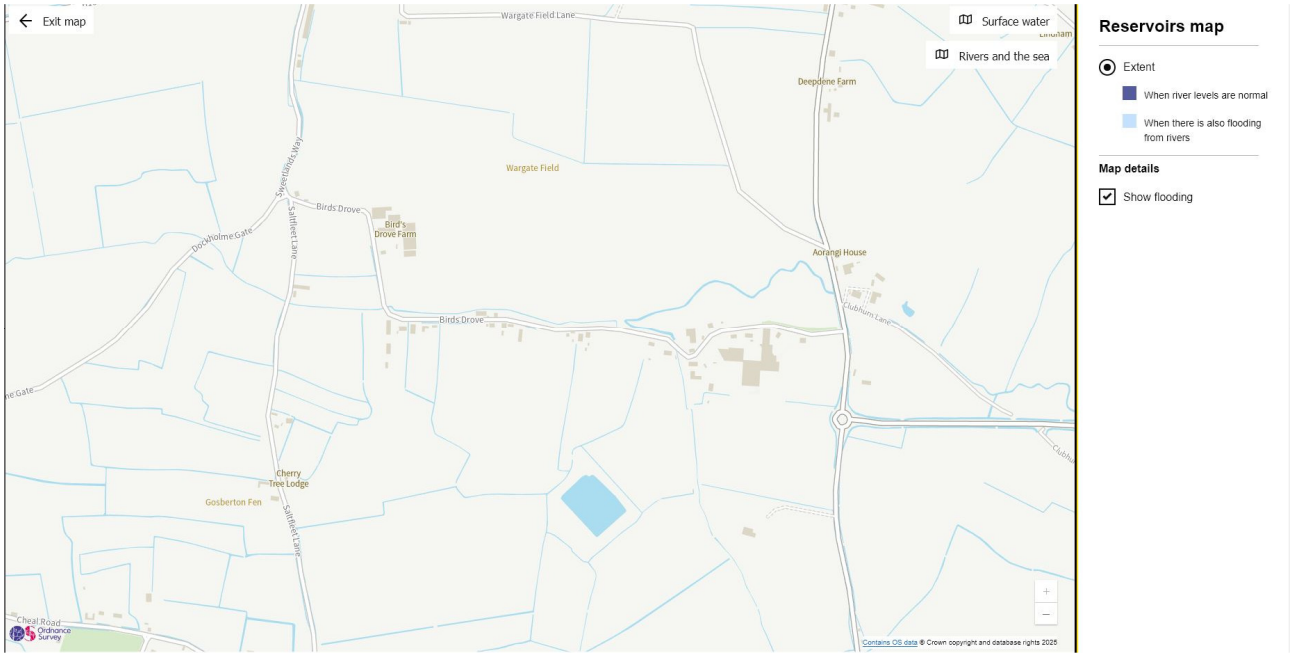


Figure 8 - Reservoir Flood Map (www.gov.uk)

No further action is required.

Risk of Flooding from Sewers

There are no known public surface water and foul water sewers that currently exist on the site that are known to suffer from sewer surcharging. All new infrastructures to service the dwelling shall be appropriately designed to the relevant standards to ensure failures do not present a problem.

Safe Access & Egress

The proposed ground floor level will be above the predicted worse case flood level and provide a safe refuge. It is not known whether Bird's Drove will be passable.

Setting the floor level

Standing advice requires finished floor levels (FFL) should be a minimum of whichever is higher of 300mm above the:

- Average ground level of the site
- Adjacent road level to the building
- Estimated river or sea flood level

In this case it is proposed that the minimum FFL should be set above the predicted flood level with sufficient freeboard above the predicted 1 in 200-year flood level plus climate change for the site (+0.131m), which equates to a minimum floor level of +0.3m above existing ground level utilising standing advice.

The Standing Advice Matrix provides the following advice for low hazard flooding. Refer to the following document for information on flood resilience and resistance techniques to be included: 'Improving Flood Performance of New Buildings - Flood Resilient Construction' (DCLG 2007). FFL must be set 300mm above ground level for two storey proposals. Single storey proposals must set FFLs above the 0.1% event breach depth in the 2115 scenario.

Conclusion

The proposed development is for 1No. two-storey dwellings. The site is contained wholly within a Flood Zone 3.

The site is at risk from tidal flooding. The site is protected by adequate tidal flood defences which are maintained by the Environment Agency. There is a residual risk of breaching of these defences, and this has the potential to impact the site.

The residential use falls within "more vulnerable" uses of land in Table 2 Flood Risk Vulnerability Classification and Table 3 shows that developments of this nature are appropriate in flood zone 3 subject to passing the Sequential and Exception Test.

In this case the proposed scheme is for a change of use. Therefore, it is considered that the scheme passes both Sequential and Exception Test. However, the development should be made as safe as possible.

The predicted tidal flood depth for the worst-case design event (1 in 200-year plus climate change) for the site is +0.25m above existing ground level. Therefore, minimum floor level of +0.3m above existing ground level is proposed.

At the detailed design stage of the development advice contained in “Improving the Flood Performance of New Buildings - Flood Resilient Construction” should be followed.

Further to this the property will register to Floodline to receive advance warning of potential flooding.

New foul and surface water drains will be designed to the relevant standards.

Appendices

Appendix A – National Planning Policy Framework

PLANNING AND FLOOD RISK

170. Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.

171. Strategic policies should be informed by a strategic flood risk assessment, and should manage flood risk from all sources. They should consider cumulative impacts in, or affecting, local areas susceptible to flooding, and take account of advice from the Environment Agency and other relevant flood risk management authorities, such as lead local flood authorities and internal drainage boards.

172. All plans should apply a sequential, risk-based approach to the location of development–taking into account the current and future impacts of climate change[49] Except for applications for the repowering of existing wind turbines, a proposed wind energy development involving one or more turbines should not be considered acceptable unless itis in an area identified as suitable for wind energy development in the development plan; and, following consultation, it can be demonstrated that the planning impacts identified by the affected local community have been fully addressed and the proposal has their backing so as to avoid, where possible, flood risk to people and property. They should do this, and manage any residual risk, by:

    a) applying the sequential test and then, if necessary, the exception test as set out below;
    b) safeguarding land from development that is required, or likely to be required, for current or future flood management;
    c) using opportunities provided by new development to reduce the causes and impacts of flooding (where appropriate through the use of natural flood management techniques); and
    d) where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to relocate development, including housing, to more sustainable locations.

173. A sequential risk-based approach should also be taken to individual applications in areas known to be at risk now or in future from any form of flooding, by following the steps set out below.

174. Within this context the aim of the sequential test is to steer new development to areas with the lowest risk of flooding from any source. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding. The strategic flood risk assessment will provide the basis for applying this test.

175. The sequential test should be used in areas known to be at risk now or in the future from any form of flooding, except in situations where a site-specific flood risk assessment demonstrates that no built development within the site boundary, including access or escape routes, land raising or other potentially vulnerable elements, would be located on an area that would be at risk of flooding from any source, now and in the future (having regard to potential changes in flood risk).

176. Applications for some minor development and changes of use[62] should also not be subject to the sequential test, nor the exception test set out below, but should still meet the requirements for site-specific flood risk assessments set out in footnote 63.

177. Having applied the sequential test, if it is not possible for development to be located in areas with a lower risk of flooding (taking into account wider sustainable development objectives), the exception test may have to be applied. The need for the exception test will depend on the potential vulnerability of the site and of the development proposed, in line with the Flood Risk Vulnerability Classification set out in Annex 3.

178. The application of the exception test should be informed by a strategic or site-specific flood risk assessment, depending on whether it is being applied during plan production or at the application stage. For the exception test to be passed it should be demonstrated that:

    a) the development would provide wider sustainability benefits to the community that outweigh the flood risk; and
    b) the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

179. Both elements of the exception test should be satisfied for development to be allocated or permitted.

180. Where planning applications come forward on sites allocated in the development plan through the sequential test, applicants need not apply the sequential test again. However, the exception test may need to be reapplied if relevant aspects of the proposal had not been considered when the test was applied at the plan-making stage, or if more recent information about existing or potential flood risk should be taken into account.

181. When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment[63]. Development should only be allowed in areas at risk of

[62] This includes householder development, small non-residential extensions (with a footprint of less than 250m2) and changes of use; except for changes of use to a caravan, camping or chalet site, or to a mobile home or park home site, where the sequential and exception tests should be applied as appropriate.

[63] A site-specific flood risk assessment should be provided for all development in Flood Zones 2 and 3. In Flood Zone 1, an assessment should accompany all proposals involving: sites of 1 hectare or more; land which has been identified by the Environment Agency as having critical drainage problems; land identified in a strategic flood risk assessment as being at increased flood risk in future; or land that may be subject to other sources of flooding, where its development would introduce a more vulnerable use.

flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that:

a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;
b) the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;
c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;
d) any residual risk can be safely managed; and
e) safe access and escape routes are included where appropriate, as part of an agreed emergency plan.

182. Applications which could affect drainage on or around the site should incorporate sustainable drainage systems to control flow rates and reduce volumes of runoff, and which are proportionate to the nature and scale of the proposal. These should provide multifunctional benefits wherever possible, through facilitating improvements in water quality and biodiversity, as well as benefits for amenity. Sustainable drainage systems provided as part of proposals for major development should:

a) take account of advice from the lead local flood authority;
b) have appropriate proposed minimum operational standards; and
c) have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development;

Appendix B – South East Lincolnshire Local Plan

POLICY 4: APPROACH TO FLOOD RISK

Development proposed within an area at risk of flooding (Flood Zones 2 and 3 of the Environment Agency's flood map or at risk during a breach or overtopping scenario as shown on the flood hazard and depths maps in the Strategic Flood Risk Assessment) will be permitted, where:

1. It can be demonstrated that there are no other sites available at a lower risk of flooding (i.e. that the sequential test is passed). The sequential test will be based on a Borough or District wide search area of alternative sites within the defined settlement boundaries, unless local circumstances relating to the catchment area for the development justify a reduced search area, i.e. there is a specific need for the development in that location. The sequential test is not required for sites allocated in the Local Plan, minor development1or change of use (except for a change of use to a caravan, camping or chalet site, or to a mobile home or park home site).
2. It can be demonstrated that essential infrastructure in FZ3a & FZ3b, highly vulnerable development in FZ2 and more vulnerable development in FZ3 provide wider sustainability benefits to the community that outweigh flood risk.
3. The application is supported with a site-specific flood risk assessment, covering risk from all sources of flooding including the impacts of climate change and which:
    a) demonstrate that the vulnerability of the proposed use is compatible with the flood zone;
    b) identify the relevant predicted flood risk (breach/overtopping) level, and mitigation measures that demonstrate how the development will be made safe and that occupants will be protected from flooding from any source;
    c) propose appropriate flood resistance and resilience measures (following the guidance outlined in the Strategic Flood Risk Assessment), maximising the use of passive resistance measures (measures that do not require human intervention to be deployed), to ensure the development maintains an appropriate level of safety for its lifetime;
    d) include appropriate flood warning and evacuation procedures where necessary (referring to the County's evacuation routes plan), which have been undertaken in consultation with the authority's emergency planning staff;
    e) incorporates the use of Sustainable Drainage Systems (SuDS) (unless it is demonstrated that this is not technically feasible) and confirms how these will be maintained/managed for the lifetime of development (surface water connections to the public sewerage network will only be permitted in exceptional circumstances where it is demonstrated that there are no feasible alternatives);
    f) demonstrates that the proposal will not increase risk elsewhere and that opportunities through layout, form of development and green infrastructure have been considered as a way of providing flood betterment and reducing flood risk overall;
    g) demonstrates that adequate foul water treatment and disposal already exists or can be provided in time to serve the development;
    h) ensures suitable access is safeguarded for the maintenance of water resources, drainage and flood risk management infrastructure.

Development in all flood zones, and development over 1 hectare in size in Flood Zone 1, will need to demonstrate that surface water from the development can be managed and will not increase the risk of flooding to third parties.

Change of use of existing buildings will be supported providing they do not pose an increase in risk to people. Change of use that would result in self-contained ground floor residential accommodation in areas of hazard rating 'danger for some', 'danger for most' and 'danger for all' will not be supported. In these areas unrestricted access to a habitable room above the flood level and an emergency evacuation plan will be required.

Caravans, mobile homes and park homes intended for permanent residential use will not be permitted in areas at risk of flooding. Caravan, chalet, log cabin, camping and touring sites at risk of fluvial flooding where there is a 'danger for most' and 'danger for all' will not be permitted. Occupancy of caravan, chalet, log cabin, camping and touring sites at risk of tidal flooding will not be permitted to open between 1st November in any one year and the 14th March in the succeeding year.

No development will be permitted within a 50m buffer from the toe of the raised Witham Haven Banks (flood defences), as shown on the indicative Plan contained in Appendix 10, to allow access for construction and maintenance.

Flood risk management infrastructure shall be provided at the strategic level, where development opportunities allow, to reduce the hazard and probability of flooding.

Appendix C – Breach Analysis

1 in 200-year flood event + 1.2m sea level rise for climate change

Defence Crest Levels (h1)	7.58	m
Average Ground Level behind defences (h2)	2	m
1 in 200 year flood level plus climate change (h3)	7.58	m
Assumed length of breach (B)	40	m
Max head over breach (h)	5.58	m
Peak flow (Q) = $1.7xBxh^{3/2}$	896.3	m^3s^{-1}

Peak flow (Q)	896.3	m^3s^{-1}
Assuming Energy Grad (S)	0.001	-
Assume % obstructions to flow	0	-
Assuming mannings (n)	0.03	-

	Scenario					
	1	2	3	4	5	6
Distance from breach	0	1000	2500	5000	8000	10000
Perimeter of Flood Wave (Assumed Channel Width)	40	3182	7895	15750	25176.0	31460
Effective perimeter (P)	40	3182	7895	15750	25176.0	31460
Normal Depth y = $((Qn/(b \times S^{0.50}))^{0.6}$	6.259	0.453	0.263	0.174	0.131	0.115

Time to Reach Development

Distance from breach above plus 1.0m	1	1001	2501	5001	8001	10001
Perimeter of Flood Wave (Assumed Channel Width)	43.1	3185.1	7898.1	15753.1	25179.1	31463.1
Normal Depth y = $(Qn/(bxS^{0.5}))^{0.6}$	5.981	0.453	0.263	0.174	0.131	0.115
Volume in Additional 1.0m	258.1	1442.1	2073.8	2733.4	3297.4	3604.7
Speed to cover additional 1.0m (m/s)	3.47	0.62	0.43	0.33	0.27	0.25
Average time to reach radius (secs)	-	1449.5	5207.8	13725.7	26490.6	36198.9
Average time to reach radius (mins)	-	24.2	86.8	228.8	441.5	603.3

1 in 200-year flood event + 1.6m sea level rise for climate change

Defence Crest Levels (h1)	7.98	m
Average Ground Level behind defences (h2)	2	m
1 in 200 year flood level plus climate change (h3)	7.98	m
Assumed length of breach (B)	40	m
Max head over breach (h)	5.98	m
Peak flow (Q) = $1.7xBxh^{3/2}$	994.4	m^3s^{-1}

Peak flow (Q)	994.4	m^3s^{-1}
Assuming Energy Grad (S)	0.001	-
Assume % obstructions to flow	0	-
Assuming mannings (n)	0.03	-

	Scenario					
	1	2	3	4	5	6
Distance from breach	0	1000	2500	5000	8000	10000
Perimeter of Flood Wave (Assumed Channel Width)	40	3182	7895	15750	25176.0	31460
Effective perimeter (P)	40	3182	7895	15750	25176.0	31460
Normal Depth y = $((Qn/(b \times S^{0.50}))^{0.6}$	6.662	0.482	0.280	0.185	0.139	0.122

Time to Reach Development

Distance from breach above plus 1.0m	1	1001	2501	5001	8001	10001
Perimeter of Flood Wave (Assumed Channel Width)	43.1	3185.1	7898.1	15753.1	25179.1	31463.1
Normal Depth y = $(Qn/(bxS^{0.5}))^{0.6}$	6.366	0.482	0.279	0.185	0.139	0.122
Volume in Additional 1.0m	274.6	1534.8	2207.1	2909.1	3509.3	3836.5
Speed to cover additional 1.0m (m/s)	3.62	0.65	0.45	0.34	0.28	0.26
Average time to reach radius (secs)	-	1390.5	4995.9	13167.2	25412.7	34726.0
Average time to reach radius (mins)	-	23.2	83.3	219.5	423.5	578.8

Hazard Rating for 1 in 200 year plus 1.2m climate change

The hazard rating, (HR), is calculated as;

HR = d x (v+n) + DF

• d = depth of flooding.

• v = velocity

• n = constant of 0.5

• DF = debris factor = 0.5 where d <= 0.25m and 1.0 where d > 0.25m.

Velocity = 0.27 m/s

Depth = 0.131 m

HR = 0.60 which is low. (i.e. <0.75)

Flood risk from a breach is low. Therefore, design mitigation on the basis of EA standing advice for coastal flooding.

Appendix D – Environment Agency Flood Data

Michael Orridge
michael@origindesignstudio.co.uk

Our ref: EIR2025/10991
Your ref: J2141
Date: 9 June 2025

Dear Michael,

Flood Risk Information for land south of Birds Drove, Gosberton

The flood risk information for the above site is set out below and attached. It is important you read any contextual notes on the maps provided.

If you are preparing a Flood Risk Assessment (FRA) for this site, please note this information may not be sufficient by itself to produce an adequate FRA to demonstrate the development is safe over its lifetime. Additional information may be required to carry out an appropriate assessment of all risks, such as the consequences of a breach in the flood defences.

We aim to review our information on a regular basis, so if you are using this data more than twelve months from the date of this letter, please contact us again to check it is still valid.

Please read the letter in full as the information covered has been updated in **April 2025.**

1. Flood Map for Planning

The attached map includes the current Flood Map for Planning for your area. The map indicates the Area at Risk of Flooding (Flood Zone 3) and the Extreme Flood Outline (Flood Zone 2) **assuming no flood defences exist.**

The Area at Risk of Flooding shows the land that could be impacted from a flood with a 0.5% or greater chance of occurring in any year for flooding from the sea, or a 1% or greater chance of occurring in any year for fluvial (river) flooding.

The Extreme Flood Outline shows the land that could be impacted from a flood which has between a 1% and 0.1% chance of occurring in any year for fluvial (river) flooding, or between a 0.5% and 0.1% annual probability of sea flooding, or the highest recorded historic extent if greater.

In some locations, such as around the fens and the large coastal floodplains, showing the area at risk of flooding assuming no defences may give a slightly misleading picture in that if there were no flood defences, water would spread out across these large floodplains. This flooding could cover large areas of land but to relatively shallow depths and could leave pockets of locally slightly higher land as isolated dry islands. It is important to understand the actual risk of the flooding to these dry islands, particularly in the event of defence failure.

The Flood Map for Planning also shows the location of formal raised flood defences and flood storage reservoirs. It represents areas at risk of flooding for present day only and does not take account of climate change.

The Flood Map for Planning only indicates the extent and likelihood of flooding from rivers or the sea. It should also be remembered flooding may occur from other sources such as surface water sewers, road drainage, etc.

2. Recorded Flood Outlines

With regards to the history of flooding I can advise we do not have any records of flooding in this area. It is possible recent flooding may have occurred which we are currently investigating, therefore this information may be subject to change.

It is possible other flooding may have occurred which other risk management authorities, such as the Lead Local Flood Authority (ie top tier council) or Internal Drainage Board (where they exist) have responsibility.

3. Schemes in the area

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

4. Fluvial Flood Risk Information

This site is not considered to be at risk of flooding from main rivers.

The site may be at risk from local ordinary watercourses for which other risk management authorities, such as the Lead Local Flood Authority (ie top tier council) or Internal Drainage Board (where they exist) have responsibility.

5. Tidal Flood Risk Information

This site is considered to be at risk from tidal flooding.

5.1 Tidal Defence Information

The existing tidal defences protecting this site consist of earth embankments.

They are in fair condition and reduce the risk of flooding (at the defence) to a 1% (1 in 100) chance of occurring in any year. We inspect these defences routinely to ensure potential defects are identified.
Refer to paragraph 3 for details of any ongoing capital projects to reduce the flood risk to this site.

5.2 Tidal Flood Levels

The attached data sheets show our current best estimate for extreme tide levels.

Please read the information notes on the data sheets.

5.3 Tidal Hazard Mapping

For certain locations we have carried out modelling to map the maximum values of flood depth, velocity and hazard rating (danger to people) resulting from overtopping and / or breaching of defences at specific locations for a number of scenarios.

At present this information is available along the full coastal / tidal floodplain, except the tidal Witham Haven in Boston (upstream of Hobhole) where only breaching and not overtopping has been modelled and the tidal River Welland upstream of Fosdyke Bridge where neither breaching nor overtopping are available.

The number of locations we have this information for is expected to increase in time.

At present this site is not covered by any Environment Agency hazard mapping.

Detailed Hazard Mapping is available within the 2017 Update of South Holland Strategic Flood Risk Assessment. This can be downloaded via the following link: http://www.southeastlincslocalplan.org/water/

6. Development Planning

If you would like local guidance on preparing a flood risk assessment for a planning application, please contact our Sustainable Places team at LNplanning@environment-agency.gov.uk. It will help if you mention this data request and attach your site location plan.

We provide free preliminary advice; additional/detailed advice, review of draft FRAs and meetings are chargeable at a rate set to cover our costs, currently £100 (plus VAT) per hour of staff time. Further details are available on our website at https://www.gov.uk/guidance/developers-get-environmental-advice-on-your-planning-proposals.

General advice on flood risk assessment for planning applications can be found on GOV.UK at https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications

Climate change will increase flood risk due to overtopping of defences. Please note, unless specified otherwise, the climate change data included has an allowance for 20% increase in flow. Updated guidance on how climate change could affect flood risk to new development - 'Flood risk assessments: climate change allowances' was published on GOV.UK in **July 2021**. The appropriate updated climate change allowance should be applied in a Flood Risk Assessment.

You should also consult the Strategic Flood Risk Assessment produced by your local planning authority.

7. Data Licence and Other Supporting Information

We respond to requests for recorded information we hold under the Freedom of Information Act 2000 (FOIA) and the associated Environmental Information Regulations 2004 (EIR).

This information is provided in accordance with the Open Government Licence which can be found here: http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/

Further information on flood risk can be found on the GOV.UK website at:
https://www.gov.uk/browse/environment-countryside/flooding-extreme-weather

Rights of appeal

If you are not satisfied with our decision, you can contact us within two calendar months to ask for the decision to be reviewed. We will then conduct an internal review of our response to your request and give you our decision in writing within 40 working days.

If you are not satisfied with the outcome of the internal review, you can then make an appeal to the Information Commissioner Office, the statutory regulator for EIR and the Freedom of Information Act 2002. The address is: Information Commissioner's Office, Wycliffe House, Water Lane, Wilmslow, Cheshire. SK9 5AF.

Tel: 0303 123 1113 (local rate) or 01625 545 745 (national rate) | Fax: 01625 524 510
Email: casework@ico.org.uk | Website: www.ico.org.uk

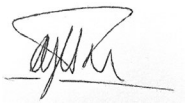
8. Other Flood Risk Management Authorities

The information provided with this letter relates to flood risk from main river or the sea. The Flood Map for Surface Water can be viewed at https://www.gov.uk/check-long-term-flood-risk

Additional information may be available from other risk management authorities, such as the Lead Local Flood Authority (ie top tier council) or Internal Drainage Board (where they exist).

I hope we have correctly interpreted your request. If you have any queries or would like to discuss the content of this letter further please contact Alexander Tan using the email address below and quoting our EIR reference number above.

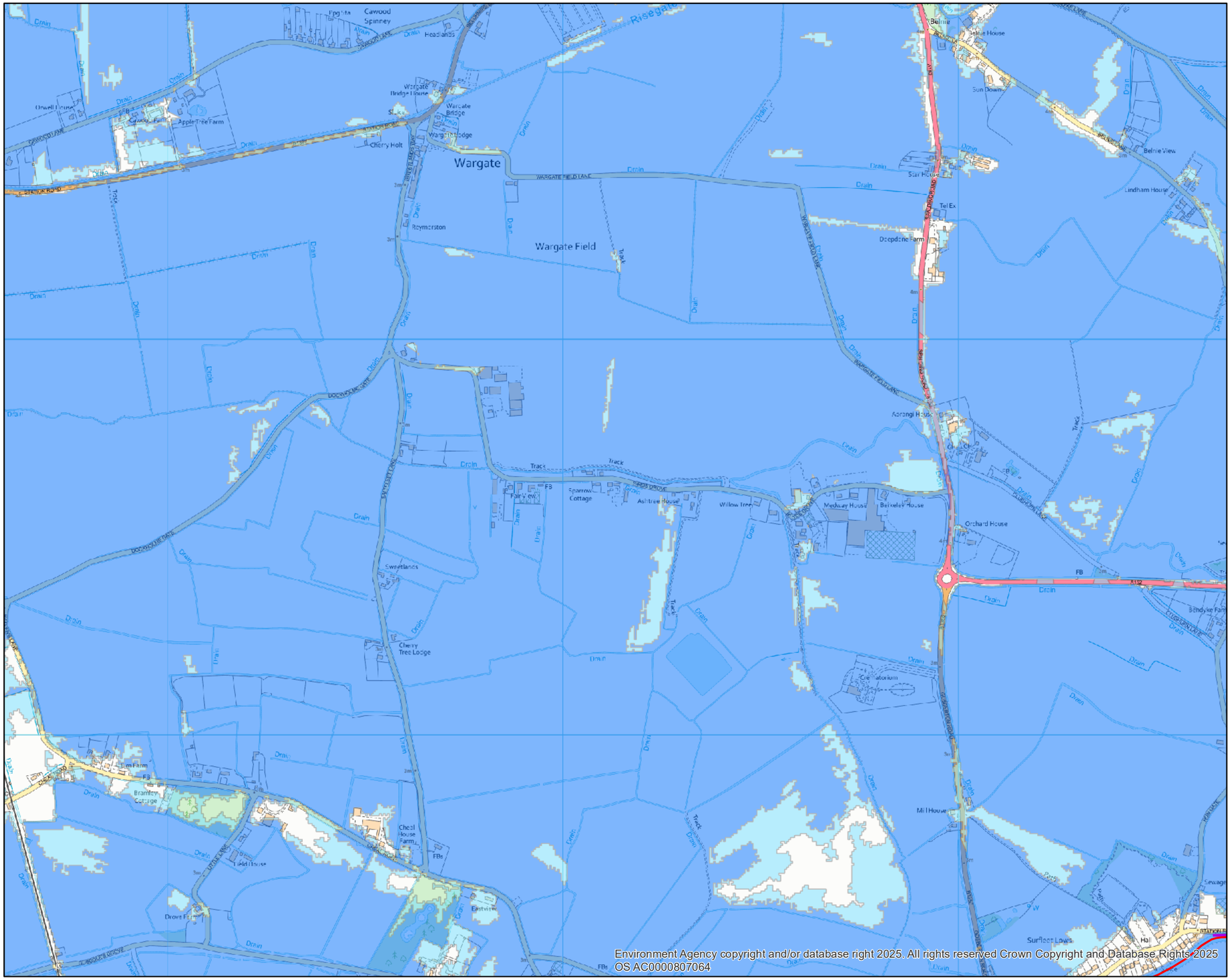
Yours sincerely,



for John O'Neill
Welland and Nene Partnerships and Strategic Overview Team Leader
e-mail PSOWN@environment-agency.gov.uk

Enc.
Flood Map for Planning
Tidal Level Data Sheets - Map and Tables

Flood Map centred on TF 24132 29619 - created June 2025 [Ref: EIR2025/10991]



Environment Agency

Scale 1:10,000

N

Legend

- Main Rivers
- Raised Defences
- Flood Storage Areas

Flood Zones 2 and 3 Rivers and Sea Flood Zone

- Flood Zone 2
- Flood Zone 3

Created by the Partnerships and Strategic Overview Team, Kettering

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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 - 2018 Coastal Flood Boundary [CFB] Dataset
Key Node Points



Environment Agency

Scale 1:550,000

N
W E
S

▲ East Coast and Wash

See separate data sheet for predicted flood levels

Created by the Partnerships and Strategic Overview Team, Lincoln

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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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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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