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FLOOD RISK ASSESSMENT FOR A RETROSPECTIVE PLANNING APPLICATION FOR A DEVELOPMENT OF 2 No. STATIC CARAVANS WITHIN THE CONFINES OF LAND TO THE NORTHEAST OF TRETTON MANOR FARM, LOWGATE, TYDD ST. MARY, WISBECH, CAMBRIDGESHIRE, PE13 7PD.

REVISED 18th FEBRUARY 2022.

(MAP REFFERENCE, TF 542920,317209)

THE DEVELOPMENT IS THAT OF PLACING 2 No. STATIC CARAVANS ON LAND WITHIN SJ STANBERRY & SONS LTD. COMMERCIAL HOLDING TO THE NORTHEAST OF TRETTON MANOR FARM.

TO BE IN ACCORD WITH SOUTHEAST LINCOLNSHIRE (SEL) FLOOD RISK STANDING ADVICE AND THE SEL STRATEGIC FLOOD RISK ASSESSMENT RECOMMENDATIONS. MARCH 2017.

Report prepared by:

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1.0 Introduction.

1.1 The site will be the subject of a Retrospective Planning Application by SJ Stanberry & Sons Ltd., Tretton Manor Barn, Lowgate, Tydd St Mary, PE13 5PD for 2 No. Static Caravans compliant with the Southeast Lincolnshire, Strategic Flood Risk Assessment March 2017 and Southeast Lincolnshire Local Plan Policy Matrix V4. The site is located adjacent an existing commercial development placed to the northeast of Tretton Manor Farm. Access to and from the site is to be off the southeast boundary access drive onto Lowgate Road, Tydd St. Mary, no problems are envisaged with both access and egress of the site. (Appendix 5/6/7)

1.2 The site is located to the south of Tydd St. Mary village adjacent the junction of Lowgate and Mayners dyke immediately north of the south of the B1165 highway. The Static Caravans are located adjacent the northeast boundary of the commercial holding, agricultural land is to the northwest, northeast, Lowgate Road to the southeast and Tretton Manor Farm to the southwest. (Appendix 5/6)

1.3 As required the site now must comply with the National Planning Policy Framework (NPPF), Section 10 "Meeting the Challenge of Climate Change, Flooding and Coastal Change" and Section 1, "Flood Risk", within the Technical Guidance to the NPPF document. A Flood Risk Assessment has been prepared to comply with the requirements of the NPPF, the South Holland District Council and the Environment Agency (EA) that the development is within such guidelines. (Appendix 7/8)

1.4 The Environment Agency has been contacted to gain their advice and information on points relating to the Flood Risk Assessment. The site is identified as being within Environment Agency Flood Zone 3a a passive flood zone protected to the 1 in 200year service level. The site is within the North Level Internal Drainage Board (NLIDB) District, a Boards Main Drain is identified as being to the south and west of the development site. (Appendix 1/2/3)

1.5 Contact has been made with the South Holland District Council (SHDC) Planning Department and information has been gained regarding the Southeast Lincolnshire Strategic Flood Risk Assessment document March 2017 commissioned by the SHDC. (Appendix 7)

1.6 Engineering Support Practice Ltd was appointed in September 2021 to undertake the Flood Risk Assessment for the site.

2.0 Location.

2.1 The development site is located within the adjacent commercially developed land with the static caravans being placed on the northeast boundary of the site. The site is currently an unutilised area of land within the commercial holding. (Appendix 5/6)

2.2 The site location and the extent of the area and the general development area are shown on the enclosed plans. (Appendix 5) Map Ref., TF 542920,317209.

2.3 The site is located within the North Level Internal Drainage Board District and is within the South Holland District Council Planning Area. It is shown to be within the indicative Environment Agency (EA) Flood Risk Zone 3a. passive protected flood plain a North Level IDB., Main Drain is located to the immediate west of the site with a further drain located to the south. (Appendix 2)

3.0 The Site, Sequential and Exception Tests.

3.1 The site is occupied by the two static caravans but was a vacant area of land within the commercial holding of SJ Stanberry & Sons Ltd. The site will be subject to a retrospective planning application for a proposed development of two static caravans to be located providing accommodation for employees. Access will be via the adjacent highway Lowgate Road.

3.2 The area of the development site is restricted to that as detailed on the enclosed plans and is bounded to the northeast & northwest by agricultural the southeast by Lowgate Road and the southwest by Tretton Manor Farm. The site area is of 0.025ha. (Appendix 5/6)

3.3 The proposed development site is as detailed on the enclosed plans (Appendix 6) photographs of the site are within the report. (Appendix 7)

3.4 The site is not within the bye-law distance of any South Holland Internal Drainage Board "Main Drain". (Appendix 3/4)

3.5 Sequential Test.

3.5.1 Whilst the site is within Flood Zone 3a it is considered that the proposal is not subject to the Sequential Test as the siting of the two static caravans is entirely related to the commercial site operations, to be sited elsewhere would be inappropriate.

3.5.2 A Design and Access statement has been compiled and offers support and reasoning as to why it is a requirement that the two static caravans should be essentially placed at the proposed location. The placing of such accommodation will provide the betterment detailed within the Design and Access Statement and therefore it is considered that in doing so the Sequential Test is passed in this instance. (Appendix 5)

3.6 Exception Test.

3.6.1 The development is that of locating 2 No. static caravans at the SJ Stanberry & Sons Ltd. commercial holding to provide accommodation for employees.

3.6.2 The Flood Zone 3a high probability, definition within Table 1: Flood Zones of the NPPF Technical Guidance document (Appendix 9) indicates that "More vulnerable uses should only be permitted in this zone if the Exception Test is passed" The proposed development is, within Table 2: Flood Risk vulnerability classification of the NPPF Technical Guidance document, one of the "More Vulnerable" type "bullet point 3" (Appendix 8)

3.7 To pass the Exception Test, NPPF Clause 102, states, (Appendix 7/8)

3.7.1. "It must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk, informed by a Strategic Flood Risk Assessment where one has been prepared."

3.7.2 A site specific flood risk assessment must demonstrate that the development will be safe for its lifetime, estimated to be ten years, considering the vulnerability of its user without increasing flood risk elsewhere and where possible will reduce flood risk overall.

3.8 This Flood Risk Assessment demonstrates that the development meets the requirement relating to the safety of the development for its lifetime and its users and does not increase flood risk elsewhere.

3.9 The development therefore complies with, NPPF Clause 102, and passes the Exception Test.

4.0 Existing flood alleviation measures.

4.1 The site is located within proximity to the Tydd St. Mary village settlement boundary and is within the South Holland District Council administrative area and the North Level Internal Drainage Board District (NLIDB) (Appendix 3/4/5/7)

4.2 NLIDB. "Main Drains" exists to the immediate southwest and southeast of the site and provides a general drainage service to the whole of the localised catchment. The development will not be within the Boards 9m. bye-law distance of the "Main Drain" water course. (Appendix 3/4)

4.3 The existing standard of drainage within the North Level IDB District can deal with the 1 in 100year fluvial event and confirmation of this has been noted on the IDB internet web site. (Appendix 3) Inspections of the appropriate watercourse indicate that a minimum of 0.9m free board is available within the Boards systems and is compatible with the Department of Environment Food and Rural Affairs target of services for agricultural land and residential areas.

4.4 The North Level IDB. maintains their "Main Drains" on an annual basis and when required improvements works are carried out to these watercourses to ensure that a high level of services is maintained. The site is therefore considered to be at a low risk of flooding from the Boards watercourses. The area is at a low risk of flooding from the Internal Drainage Board systems. (Appendix 3/4)

4.5 Those tidal defences which are provided by the Environment Agency i.e., those provided along the frontage of the Fluvial and Tidal River Nene are designed to cope with the 1 in 200year. (Appendix 2)

4.6 The current maintenance standard adopted by the Environment Agency for the tidal defences and those of the North Level IDB. for its "Main Drains" is such that it could be of high standard and meet with those requirements that would ensure that the level of service is retained and maintained into the future such that it is able to cope with climate change.

4.7 The site area is not served by Anglian Water Public Sewers and therefore it is the intention that the development will discharge effluent to a bespoke treatment plant and discharged to drainage field designed to BRE 365 standards. The surface water discharges are intended to be dealt with applying the Sustainable Urban Drainage Systems (SUDS) principles installation of water butts and soak aways, being utilised as required, in the hierarchal listings for Sustainable Urban Drainage Systems (SuDs) adoption and designed to BRE 365 standards. Should the application of BRE 365 infiltration testing prove that the efficiency of soakaways is inadequate an application to the NLIDB. for consent to discharge to an adjacent riparian water course. (Appendix 4/5/6)

5.0 Potential sources of flooding.

5.1 There are five potential sources of flooding which are identified as a result of this assessment.

a) Local failures or blockages of the Boards "Main Drains".

b) The 1 in 100year fluvial event being exceeded in the Internal Drainage Board Main Drain.

c) The 1 in 200year tidal event being exceeded which would cause overtopping or major failure of the Tidal Nene Defences.

d) Pluvial Flooding of the site.

e) Ground Water Flooding of the site.

5.2 The probability of flooding from source:

a) is low owing to the high maintenance standards being achieved and managed by the North Level IDB. The system which is used to service this area is one that has been maintained at a high standard over the past and thus this together with inspections applied to the Boards area enhances the protection provided. (Appendix 3)

b) Should the 1 in 100year fluvial event be exceeded the flood water would take up the available freeboard within the Boards watercourse and should this be exceeded flood water will extend into the lower agricultural land and therefore the maximum height which can be obtained at the Proposed Site would be below that of the adjacent site levels, therefore NPPF is adhered to. (Appendix 3/4)

c) The Tidal Defences protecting the area were improved following the 1978, Tidal Surge event and currently provide protection against the 1 in 200year tidal event. However, these defences are at such a height that they will not fully protect against climate change, overtopping at the year 2122. The development site being some 3.60 kilometres west from the main area of fluvial / tidal defence of the River Nene would be at a low risk of flooding from any such over topping which would occur over a small period during the tide cycle curve and be readily absorbed into the North Level Internal Drainage Board systems.
(Appendix 2/5)

c.1 Tidal Hazard mapping data has been acquired from the Environment Agency and is as follows:

Taking due regard of a breaching of defences in the year 2115 coincident with a 0.5% event (1 in 200year) provides factors for,

1. Max Hazard, Between 0.75 and 1.25 "Danger to some".

2. Max Depth, 0.00m. – 0.25m.

3. Max Velocity, 0.00m./s – 0.30m./s

Therefore, the appropriate mitigation measures if entirely based on the THM data would be to raise the finished ground floor level (FGFL) to 0.25m. above adjacent ground levels. However, to accord with the Southeast Lincolnshire Flood Risk Standing Advice the finished ground floor level would be set 1.0m above the adjacent ground level. As the proposed development is the placing of two static caravans with an expected life of ten years it is deemed appropriate that the FRGFL of the static caravans should be set 500mm. above the adjacent ground level. Additionally, the structures should be affixed to the ground utilising ground anchors. (Appendix 5)

d) Pluvial Flooding of the site is not expected owing to the topographical terrain falling generally away from the dwelling towards the agricultural lands' northeast and the riparian boundary drain.

e) Ground Water Flooding is not expected as again any discharge emanating from the ground will migrate to the lowest areas of the site, no artesian effects are evident on the existing land use profile with such levels reduced by the proximity of the NLIDB. Main drain.

5.3 To ensure protection from any future extreme rainfall events it is recommended that the Finished Floor Level (FFL) is placed 500mm. above the general site ground level. (Appendix 9)

5.4 The existing tidal defences together with the fluvial defences are such that providing maintenance of them remains to the current standard any event more than the protection standard would provide minimal over spilling and therefore since the over topping by the Tidal River would be of a small duration, it and that of the on-line storage would be available to absorb such impacts, it is considered that this would not adversely affect the site. (Appendix 1/2/3)

5.5 With regard to the Internal Drainage Board system again considerable protection is provided within the maintenance standard adhered to by the Board throughout its water courses.

6.0 Extent of known flooding.

6.1 It is understood that minor flooding of the surrounding land may have taken place during the 1953 tidal flood event when the tidal river were overtopped in reaches of the Tidal River Nene. There is however no evidence of any further flooding since that time as flood defences were improved following 1953. No flooding took place during the 1978 and 2013 tidal events and defences were again raised to a higher standard. Which today are considered to be appropriate to provide a 1 in 200year protection and duly protected the North Level IDB area at the time of the 5th December 2013 extreme tidal event. (Appendix 2/3)

6.2 Despite the heavy rain fall periods in 1978, 1998, 2000, 2008 and 2014 the area did not suffer flooding, but this is perhaps a reflection on the high level of service and maintenance provided by the IDB.

6.3 Therefore considering the fore mentioned situations it can be considered that the Environment Agency and the Internal Drainage Board systems currently meets and provides protection to this site to the 1 in 100year fluvial event scenario and the tidal defences provide protection to the 1 in 200year tidal event.

7.0 Probabilities and trends of flooding.

7.1 The probability of this development site flooding from the local Internal Drainage Boards system is low. It should also be noted that despite being placed within the Flood Zone 3a area on the Environment Agency flood risk map the site is protected by the Tidal Defences on the River Nene frontage and it is deemed that these defences provide the EA. quoted 1 in 200year tidal event protection. It should be noted that climate change and sea level rises will take place over the next 100 years however such over topping levels will not adversely affect the site because the over topping would be very small duration and contained within the existing protection systems in and around Sutton Bridge and Tydd Gote surrounding catchment and those provided by the IDB. (Appendix 2/8)

7.2 Taking due regard of the suggested figures for sea level rise in NPPF Technical Guidance document indicating a rise in the rate of change of increasing tide levels such that it is indicated that the 1 in 200year surge by the year 2122. May exceed +5.50m.AODN. Should this be the case it is almost certain that appropriate measures to improve the level of service to the developed areas of catchment adjacent the River Nene Sutton Bridge to Tydd Gote reach would be implemented and maintain the required standard of protection currently enjoyed. (Appendix 1/2)

7.3 The probability of the site flooding from the Tidal River Nene is technically remote because of the existing standard of defences which provide the 1 in 100 year tidal event level protection and are some 3.60km. to the east of the development site any such major failure or overtopping of defences because of the distance would offer little or no effect on water levels on the adjacent proposed site. (Appendix 5)

7.4 If under extreme conditions the level of fluvial flood water rose in the IDB's system this would not be of a sudden nature and it is probable that sufficient time would be available to take precautionary actions to limit the extent of the potential flood event. The placing of the FGFL. at 0.50m. above the adjacent ground level will provide mitigation against an extreme flood event. (Appendix 2)

7.5 It should be noted that the water levels of the drainage channels throughout the area will tend to rise because of the impacts of climate change however the existing system of defences together with the protection provided by the adjacent flood plains will provide mitigation.

8.0 Impacts of flooding.

8.1 It is considered that there are no significant impacts of flooding to be anticipated for the proposed site bearing in mind the protection provided by the Environment Agency and the North Level IDB. drainage systems. The development site is at a level which is above the 1 in 100year fluvial event and protected to the 1 in 200year level of service by the existing tidal defences.

8.2 To ensure protection against failure of the tidal defences and extreme rainfall events it is recommended that the Finished Ground Floor Level (FGFL) of the proposed development will be set 0.50m. above the adjacent ground level.

8.3 No increased flooding risk is expected because of the proposed development.

8.4 It is recommended that residents sign up to the "Direct Line Flood Warning Service" of the Environment Agency and consult with the South Holland District Council Emergency Planning Department to agree a Flood Emergency Preparedness Plan (FEPP) in preparation of any evacuation procedures that may be implemented during an extreme tidal event.

9.0. Residual Risks – Extreme Event.

9.1 Residual risk from extreme events to this site is low despite being in EA. Flood Zone 3a. The protection afforded by the Tidal Flood Defences of the River Nene and maintained by the Environment Agency are of such a high standard that it could be considered highly unlikely for a catastrophic failure to take place and adversely affect the development site. During an extreme event the current system of monitoring together with communication systems would provide warning to the development area of any likely flooding that would occur do to back flows in the Internal Drainage Boards Drainage system owing to inundations by tidal waters.

9.2 The protection afforded by the North Level IDB. is compliant with NPPF, it must be recognised however that this protection will be eroded owing to climate change, but due consideration must be given to the fact that the IDB. continue to monitor the situation. (Appendix 3/4/8)

9.3 Considering the climate change assessment, that there will be an increase in flows of 20% up to 2050 and beyond, it is still felt that no increase flood risk will occur on the development site.

9.4 Although within the Environment Agency Flood Zone 3a classification the site is as said to be at a medium to low risk of flooding due to the current standards of drainage and flood defence maintenance levels. The site is not located within a Tidal Functional Flood Plain and is protected to a 1 in 200year standard and therefore can be in a passive flood plain area it is also adjacent to the IDB. Main Drain which is maintained and held at to a high standard of service.

9.5 It is considered that there is no risk of flooding to adjoining properties because of this proposed development site. The surface water discharges being discharged into a Sustainable Urban Drainage System principled installation will reduce the pluvial flood risk to the site and surrounding properties.
(Appendix 9)

9.6 In the extreme event of a serious blockage of the watercourse downstream within the Internal Drainage Board system or the over topping of the tidal defences protection would be afforded by the existing flood storage which is within the existing system of the Boards main drains. Should major events occur it is expected that flood warnings given by the Environment Agency and the Internal Drainage Boards would be forthcoming and it would be expected that any occupancy during the period would take appropriate action as recommended by the South Holland District Council (SHDC) Emergency Action Plan. A Flood Emergency Preparedness Plan should be prepared and agreed with the Emergency Planning Department of the SHDC. to ensure guidance during notified flood emergency events. (Appendix 7)

9.7 It is recommended that the residents sign up to the Environment Agency "Direct Line Flood Warning Service" to ensure timely notification of any adverse flood risks.

10.0 Sustainable Urban Drainage (SUDS) and Water Framework Directive.

10.1 The South Holland District Council SFRA. requires that a sustainable method of dealing with surface water run-offs is adopted on site together with due consideration of the Water Framework Directives to ensure that the over- arching environmental issues are dealt with and that no dis-benefits are created by the proposed development. (Appendix 7/8/9)

10.2 The site being of a minor development size allows, subject to confirmation, the installation of soak aways to deal with surface water run-offs in a traditional SuDs methodology. The usage of such soak aways usage will be confirmed, when appropriate, using BRE 365 infiltrations test regulations for design purpose and combined with additional SuDs compliant requirements such as water butts and permeable surface access drives and highway. (Appendix 5)

10.3 Should BRE 365 infiltration testing of the sub soils indicate that soakaways may not be suitable approaches should be made for discharges of surface water be made to the adjacent riparian watercourse. (Appendix 9)

10.4 A bespoke effluent treatment plant and drainage field should be installed to accept the effluent discharge the system designed to meet the numbers of occupants and to BRE 365 standards, alternatively the discharges, subject to consent, may be directed to the riparian watercourse.

11.0 Conclusions and recommendations.

11.1 As a result of the assessment the following conclusions and recommendations have been reached.

11.2 The proposed development site being in Environment Agency Tidal Zone 3a. is not considered to be in a Functional Tidal Flood Plain, it is in the Passive Flood Plain protected by existing tidal defences to a 0.5% standard. Therefore, this development is allowable in this zone providing the "Sequential and Exception Tests" are passed as required in the National Planning Policy Framework document. (Appendix 2/7/8/9) However, the planning application is one of a retrospective nature for a placement of 2 No. Static Caravans on an existing commercial site to accommodate employees, with a limited life of ten years. It is suggested that the retrospective application is in accordance with the Southeast Lincolnshire Strategic Flood Risk assessment March 2017 Matrix V4. recommendations, because of this document it is considered that these items have been successfully complied with.

11.3 The site is located within the North Level Internal Drainage Board District and the standard of drainage provided at this site is suggested to be greater than 1 in 100year fluvial protection, thus complies with the 1 in 100 year NPPF compliant event and this accords with the DEFRA guide lines for urban development. The Board's watercourses have been designed to provide a freeboard (the distance between land level and the level of water in the watercourse) of 0.9m. above the water level of a 1 in 50year flood event to the lowest land levels in the district.

11.4 Attention is drawn to the predictions for sea level rise by the year 2122, which is the period over which the assessment must extend, this indicates that a surge tide of the 1 in 200year event type, by that date, could reach + 1.24m. above the historic reference level +6. 12m.AODN. of current day 1 in 200 year extreme tidal event, a level of +7. 36m.AODN. This is clearly beyond the capabilities of the current defences to provide protection to the developed area up to the 1 in 200year standard. It is therefore assumed that appropriate measures will be taken to ensure that the correct standard is retained for the area. (Appendix 8/9)

11.5 Tidal Hazard mapping data has been acquired from the Environment Agency and is as follows:

Taking due regard of a breaching of defences in the year 2115 coincident with a 0.5% event (1 in 200year) provides factors for,

1. Max Hazard, Between 0.75 and 1.25 "Danger to some".

2. Max Depth, 0.00m. – 0.25m.

3. Max Velocity, 0.00m./s – 0.30m./s

Therefore, the appropriate mitigation measures if entirely based on the THM data would be to raise the finished ground floor level (FGFL) to 0.25m. above adjacent ground levels. However, to accord with the Southeast Lincolnshire Flood Risk Standing Advice the finished ground floor level would be set 1.0m above the adjacent ground level. As the proposed development is the placing of two static caravans with an expected life of ten years it is deemed appropriate that the FGFL of the static caravans should be set 500mm. above the adjacent ground level. Additionally, the structures should be affixed to the ground utilising ground anchors. (Appendix 5)

11.6 The area is not served by Anglian Water Public Sewers and therefore it is the intention that the development will discharge effluent to a bespoke effluent treatment plant and drainage field designed to BRE 365 standards, alternatively a discharge consent acquired from the NLIDB. (Appendix 3/5/6)

11.7 The site being of a minor development size allows, subject to confirmation, the installation of soak aways to deal with surface water run-offs in a traditional SuDs methodology. The usage of such soak aways usage will be confirmed, when appropriate, using BRE 365 infiltrations test regulations for design purpose and combined with additional SuDs compliant requirements such as water butts and permeable surface access drives and highway. Alternatively consent to discharge to the adjacent riparian watercourse may be applied for. (Appendix 4/9)

11.8 To ensure full mitigation against extreme rainfall events and or extreme flood events the proposed finished floor levels (FFL) should be raised 0.50m. above the adjacent ground level. (Appendix 2)

11.9 It is also suggested that occupants be made aware of Emergency Procedures that reflect the importance of the safety of the public and be supplied with a Flood Emergency Preparedness Plan agreed with the South Holland District Council (SHDC) Emergency Planning Department to assist and direct residents' actions during a flood emergency event. It is felt that it would be appropriate for the owners to ensure that they are fully conversant with the Flood Warning Systems of the Environment Agency, the SHDC. "District Emergency Procedures" and to familiarize themselves with the location of the North Level IDB. Office, this will enable access to information on any Heavy Rainfall Events and or Flood Events increasing the risk of flooding to the development area. The residents / owner should register with the Environment Agency (EA) to receive the "Direct Line Flood Warnings" service to provide notification of extreme fluvial and tidal events.

APPENDIX 1

Environment Agency

ben.hornigold@btinternet.com

Our ref: CCN-2021-232886

Date: 22/09/2021

Dear Ben

Provision of Flood Risk Information for Lowgate, Tydd St Mary.

Thank you for your request to use our flood risk information for the above site. The information 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 risk, such as consequence of a breach in 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.

1. Flood Map

The attached map includes the current Flood Map for your area. The Flood Map indicates the area at risk of flooding, **assuming no flood defences exist**, for a flood 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 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, 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 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 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. Historic Flood Event 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 site.

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

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 0.67% (1 in 150) 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.
The attached maps show the maximum values of flood depth, velocity and hazard rating (danger to people) resulting from breaching of the defences at specific locations for the scenarios below. For some locations the breach mapping also includes flooding from overtopping if this is expected in that scenario. The location of modelled tidal breaches is shown on a separate attached map.

5.3.1 Tidal Hazard Mapping - Breaches

- Year 2115 0.5% (1 in 200) chance
- Year 2115 0.1% (1 in 1000) chance

Your site is not affected by breaching of the tidal defences for the present day (2006) scenarios.

5.3.2 Tidal Hazard Mapping – Overtopping

Your site is not affected by overtopping of the defences for the present day (2006) and climate change (2115) scenarios.

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 February 2016. 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

8. Other Flood Risk Management Authorities

The information provided with this letter relates to flood risk from main river or the sea. 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 Frederic Stuhldreer using the email address below.

Yours sincerely,

FS

Ceres House, Searby Road, Lincoln, LN2 4DW
Customer services line: 03708 506 506
Email: enquiries@environment-agency.gov.uk
www.gov.uk/environment-agency

Calls to 03 numbers cost the same as calls to standard geographic (ie numbers beginning with 01 or 02)

for Alastair Windler
Welland and Nene Partnerships and Strategic Overview Team Leader
e-mail PSOWN@environment-agency.gov.uk

Enc.
Flood Map
Tidal Level Data Sheets - Map and Tables
Tidal Breach Points – Locations Map
Hazard Mapping – Breaching

APPENDIX 2

Environment Agency

Flood map for planning

Your reference	Location (easting/northing)	Created
LOWGATE	**542920/317209**	**27 Sep 2021 15:47**

Your selected location is in flood zone 3, an area with a high probability of flooding.

This means:

- you must complete a flood risk assessment for development in this area
- you should follow the Environment Agency's standing advice for carrying out a flood risk assessment (see www.gov.uk/guidance/flood-risk-assessment-standing-advice)

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2021 OS 100024198. https://flood-map-for-planning.service.gov.uk/os-terms



Environment Agency

Flood map for planning

Your reference
LOWGATE

Location (easting/northing)
542920/317209

Scale
1:2500

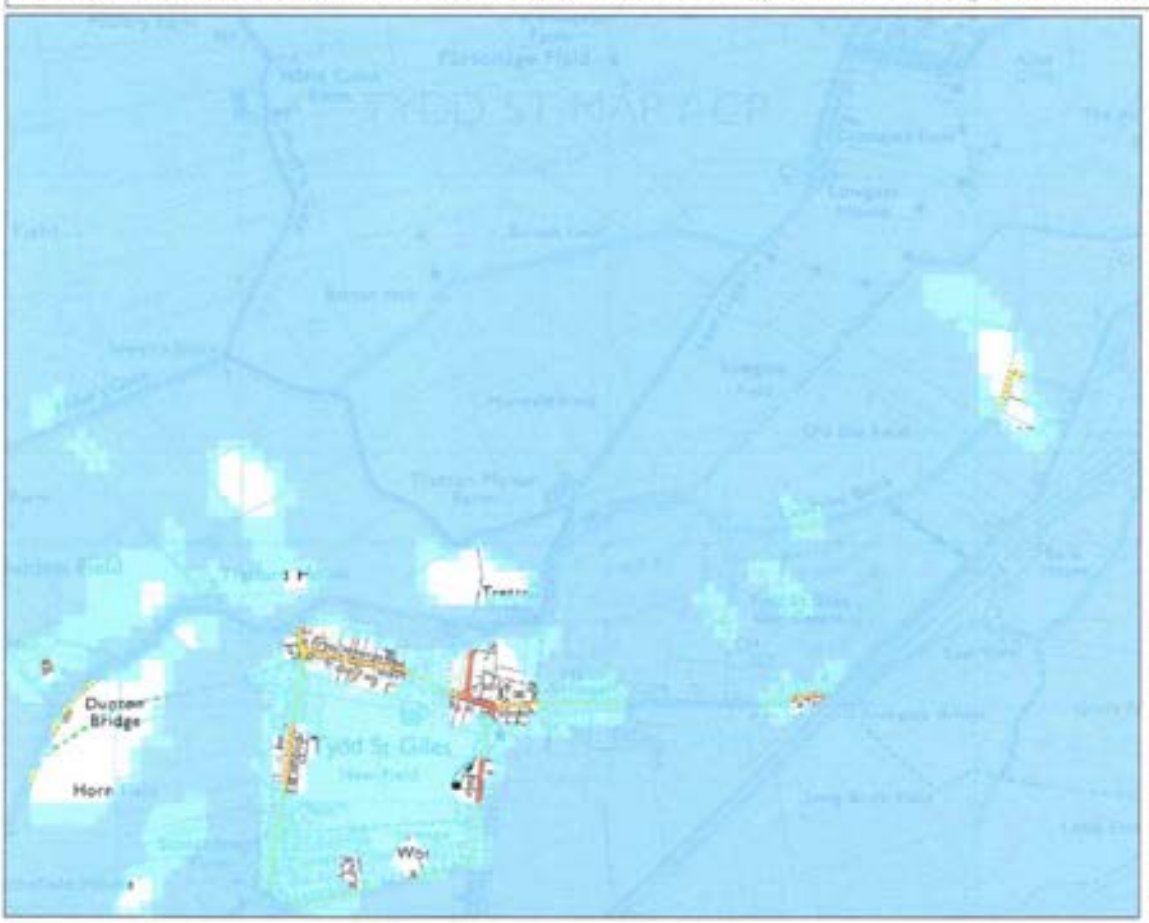
Created
27 Sep 2021 15:47

- Selected point
- Flood zone 3
- Flood zone 3: areas benefitting from flood defences
- Flood zone 2
- Flood zone 1
- Flood defence
- Main river
- Flood storage area

0 20 40 60m

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Flood Map centred on TF 42901 17206 - created September 2021 [Ref: CCN-2021-232886]



Environment Agency

Scale 1:10,000

N

Legend

- Main River
- Raised Defences
- Flood Storage Areas
- Area at Risk of Flooding from Rivers or The Sea
- Extreme Flood Outline

Dark blue shows the area that could be affected by flooding either from rivers or the sea, if there were no flood defences. This area could be flooded:

- from the sea by a flood that has a 0.5% (1 in 200) or greater chance of happening each year.
- or from a river by a flood that has a 1% (1 in 100) or greater chance of happening each year.

Light blue 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.

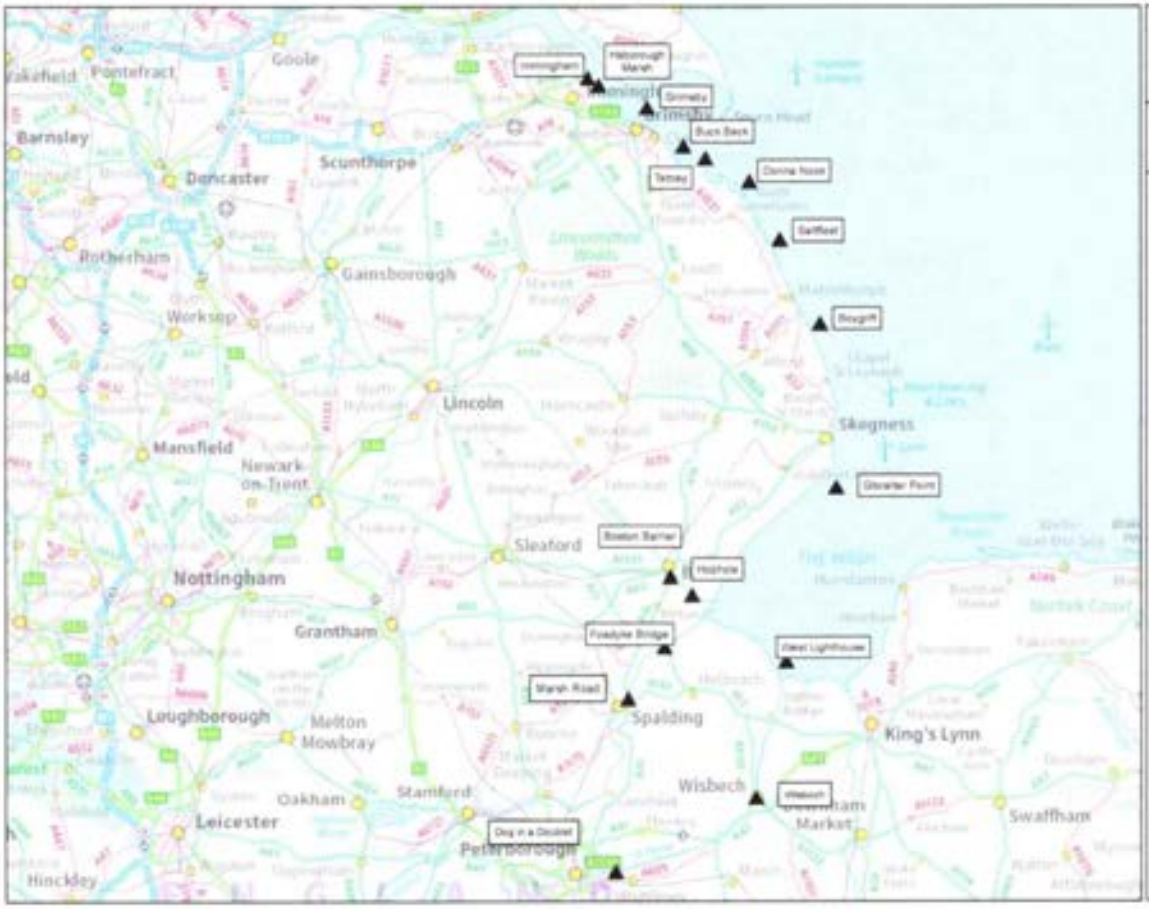
These two colours show the extent of the natural floodplain if there were no flood defences or certain other manmade structures and channel improvements. Sites outside the two extents, but behind raised defences, may be affected by flooding if the defences are overtopped or fail.

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

▲ East Coast and Wash

See seperate 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

Environment Agency

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	417825	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	5.18	4.90	5.03	5.38	4.94	5.10	5.51	5.11	5.34	5.97
3898	Grimsby	529095	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	5.68
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	3.79	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	358181	4.16	4.17	4.20	4.51	4.56	4.67	4.78	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	342652	4.93	4.94	4.98	5.41	5.48	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	6.08	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	5.76	5.56	5.68	5.96	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

Customer services line: 03708 506 506
Calls to 03 numbers cost the same as calls to standard geographic numbers
(i.e. numbers beginning with 01 or 02)

Email: enquiries@environment-agency.gov.uk
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:

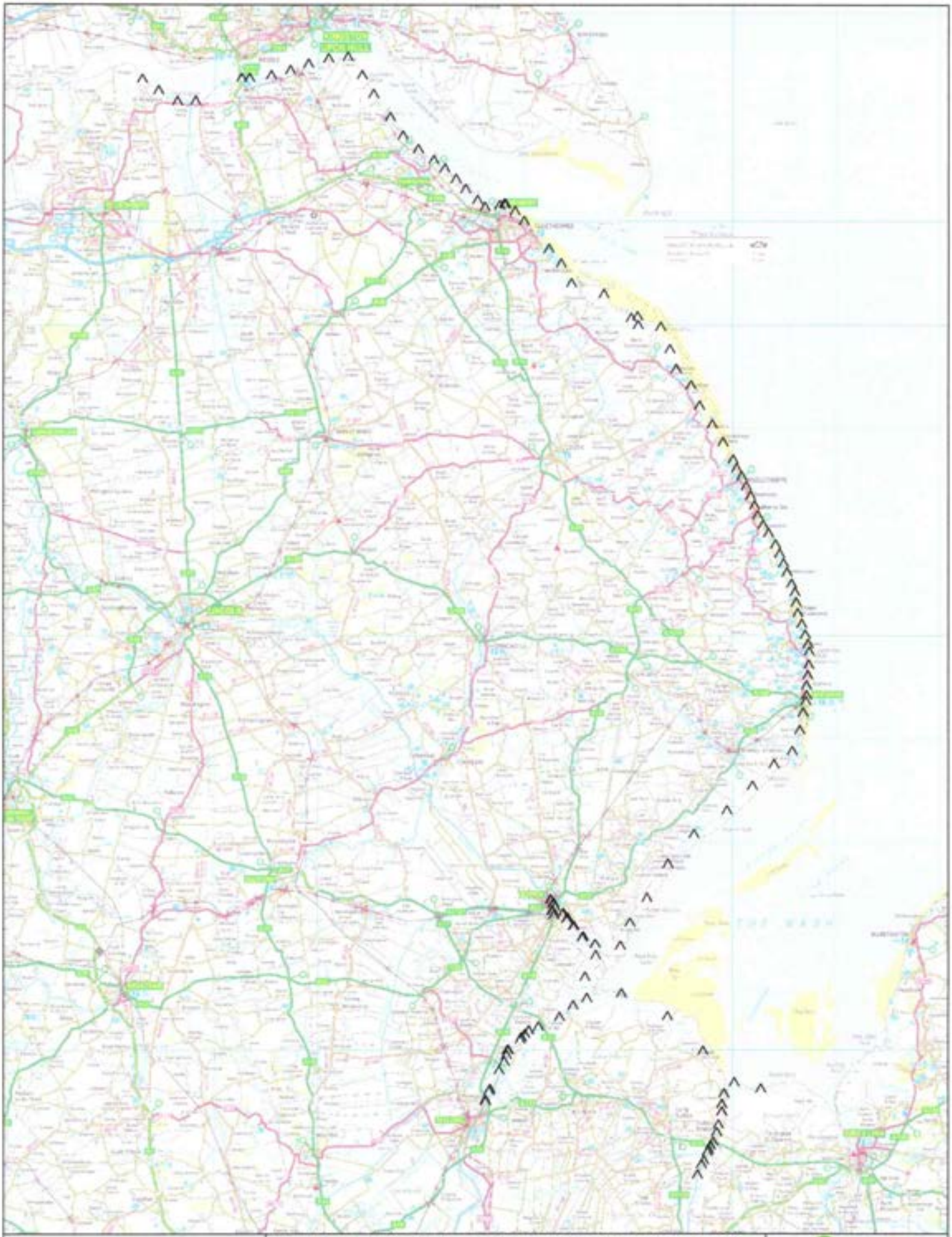
- The base date for the data is 2006.
- The levels are still water levels. Depending on the use of the data it may be necessary to consider wave heights and / or joint probability analysis of water level and other variables.
- Levels for other annual chance probabilities are available if required.
-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

The following notes apply to Grand Sluice:

- The data is based on CFB 2018 data for Boston Barrier site, capped at 5.3mAOD to reflect use of the barrier.
- 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

Customer services line: 03708 506 506
Calls to 03 numbers cost the same as calls to standard geographic numbers
(i.e. numbers beginning with 01 or 02).

Email: enquiries@environment-agency.gov.uk
www.gov.uk/environment-agency



^ Modelled Breach Locations

0 3.5 7 14 Kilometres

This map indicates the location of where we have modelled the consequence of breaches in the defences along the coastline and tidal rivers. We have mapped the 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.

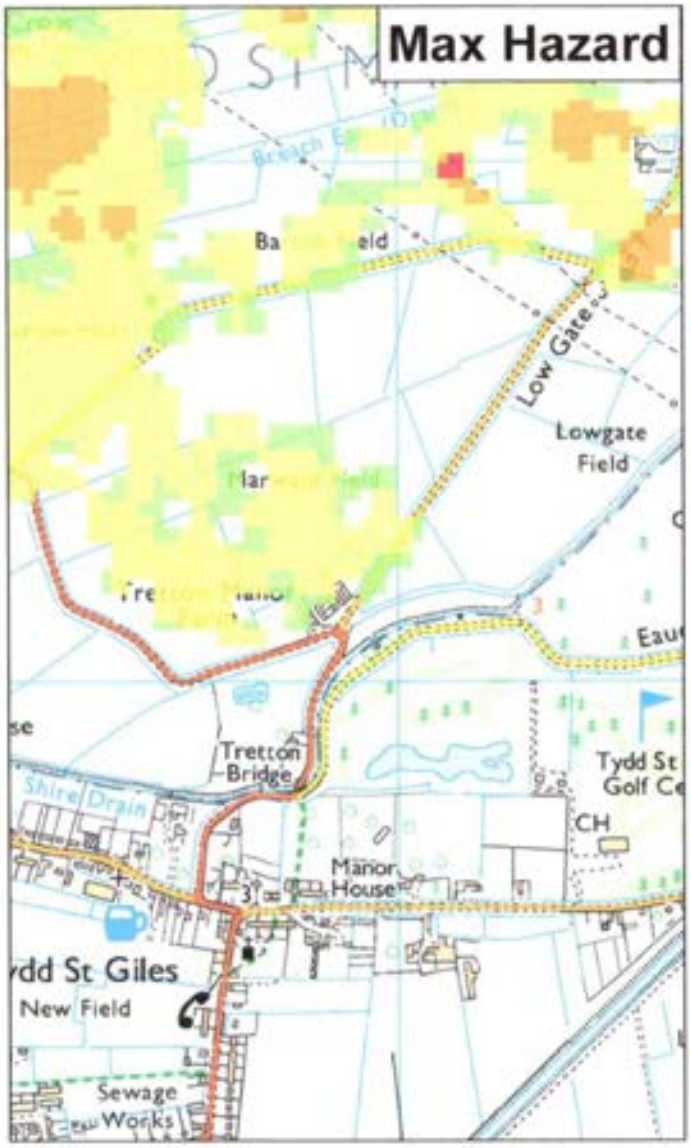
Please contact the Environment Agency for information on how these maps are used in the management of flood risk.

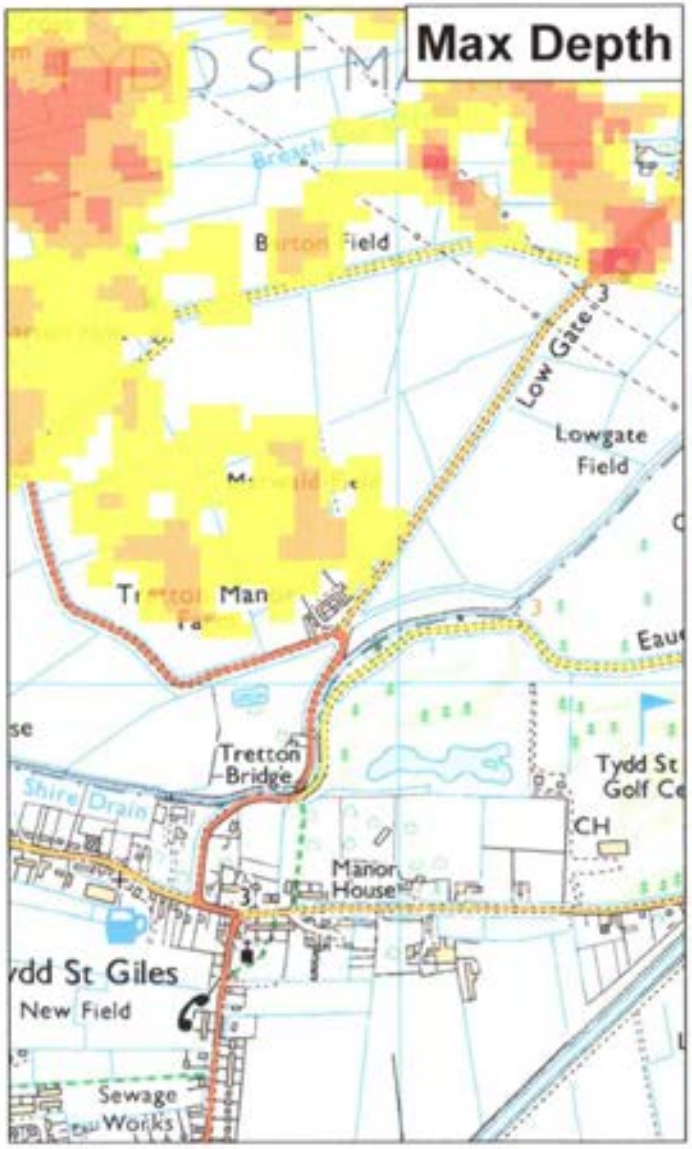
General Enquiries tel: 03708 506 506
Weekday daytime calls cost 5p plus up to 6ppm from BT Weekend Unlimited. Mobile and other providers charges may vary.

Environment Agency

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	September 2021	Scenario year	2115	Scenario Annual Chance	0.5% (1 in 200)	CCN Number	CCN-2021-232886

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

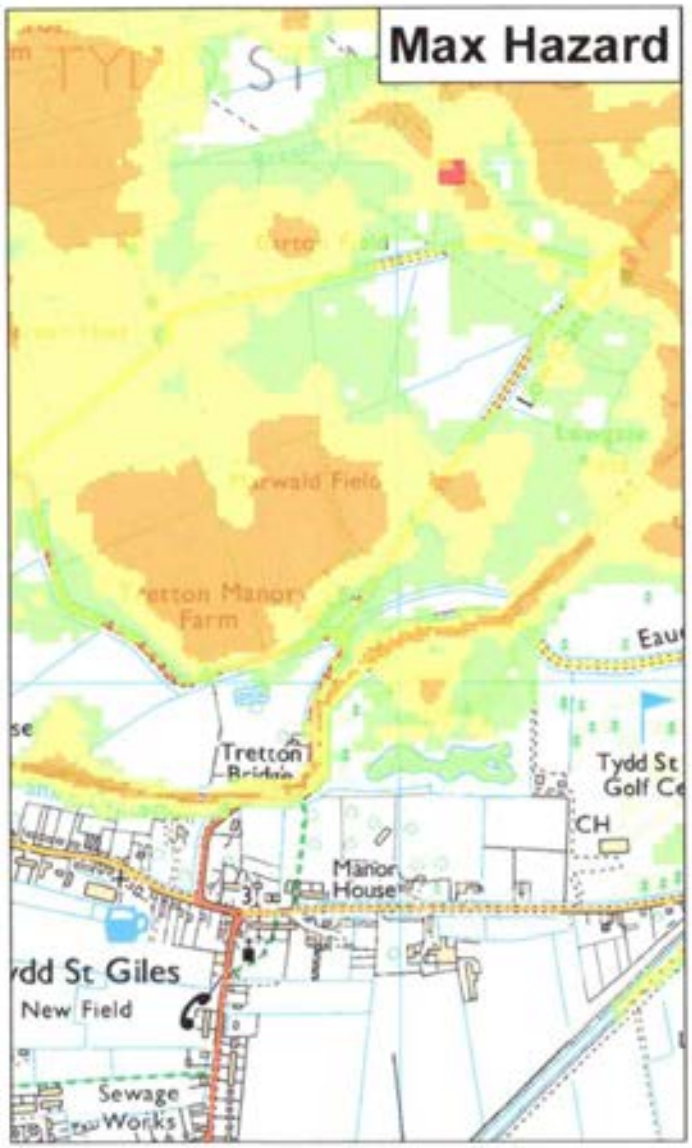
Map Centred on TF 42901 17206

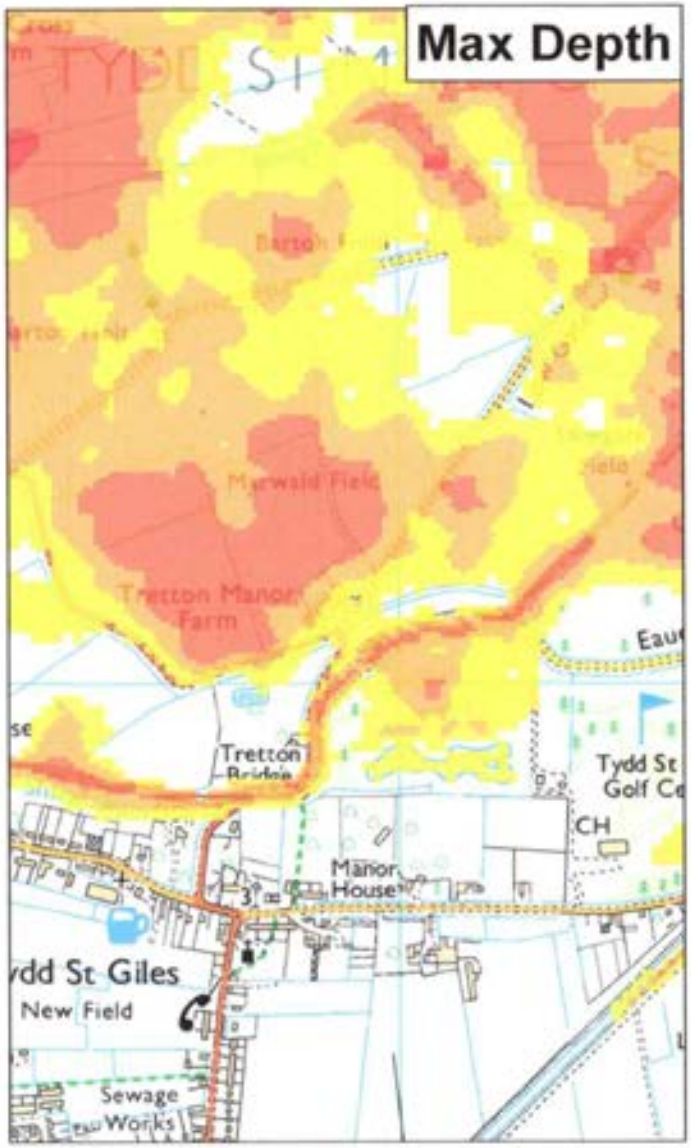
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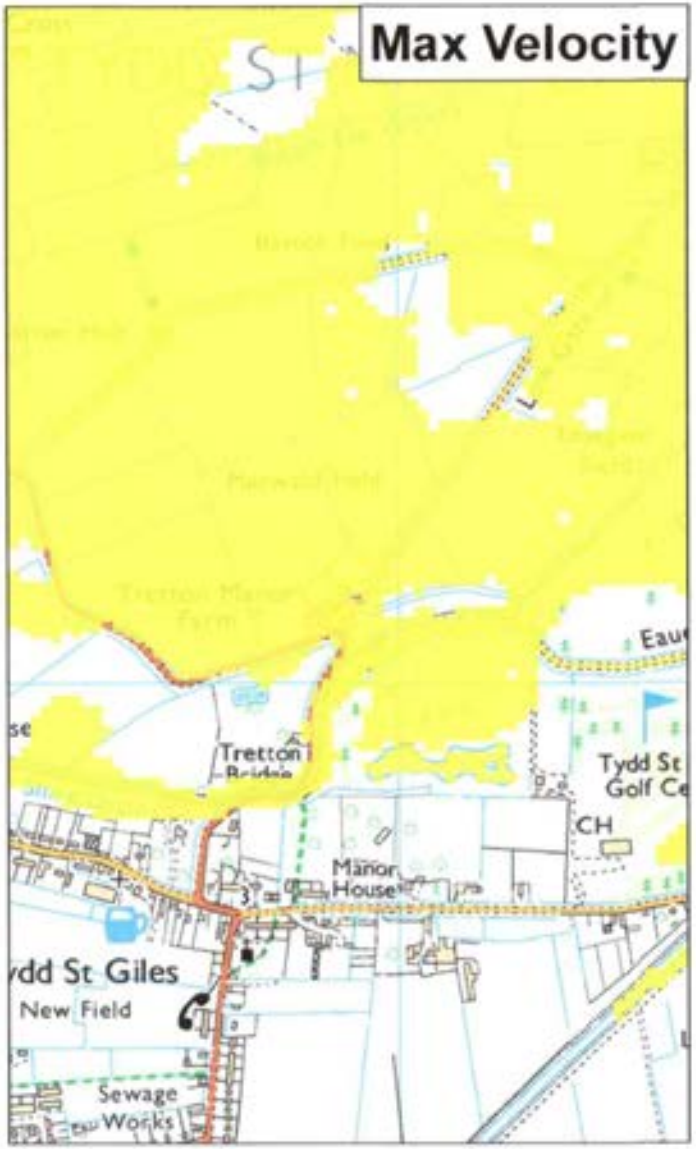

Tretton Manor Farm
3
Tretton


Tretton Manor Farm
Tretton
3


Tretton Manor Farm
Tretton
3







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

Max Hazard (Flood Risk to People : FD2320)	Max Depth (m)	Max Velocity (m/s)
Less than 0.75 (Low Hazard)	0 - 0.25	0 - 0.3
Between 0.75 and 1.25 (Danger for Some)	0.25 - 0.50	0.3 - 1.0
Between 1.25 and 2.0 (Danger for Most)	0.50 - 1.0	1.0 - 1.5
Greater than 2.0 (Danger for All)	1.0 - 1.6	1.5 - 2.5
	1.6 +	2.5 +

Date Printed	September 2021	Scenario year	2115	Scenario Annual Chance	0.1% (1 in 1000)	CCN Number	CCN-2021-232886

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.

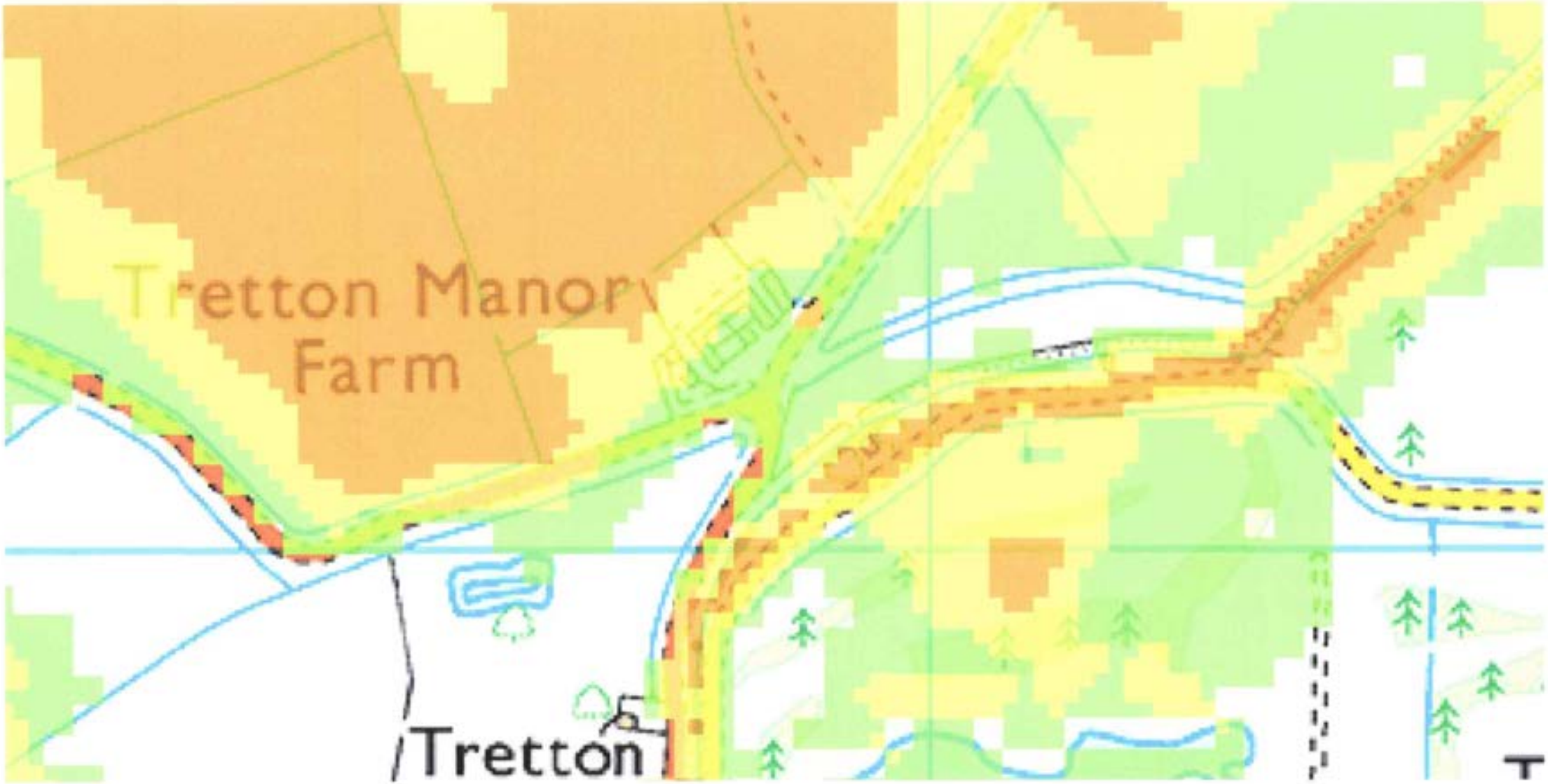
General Enquiries No. 03708 506 506. Weekday Daytime calls cost 5p plus up to 6p per minute from BT Weekend Unlimited. Mobile and other providers' charges may vary.

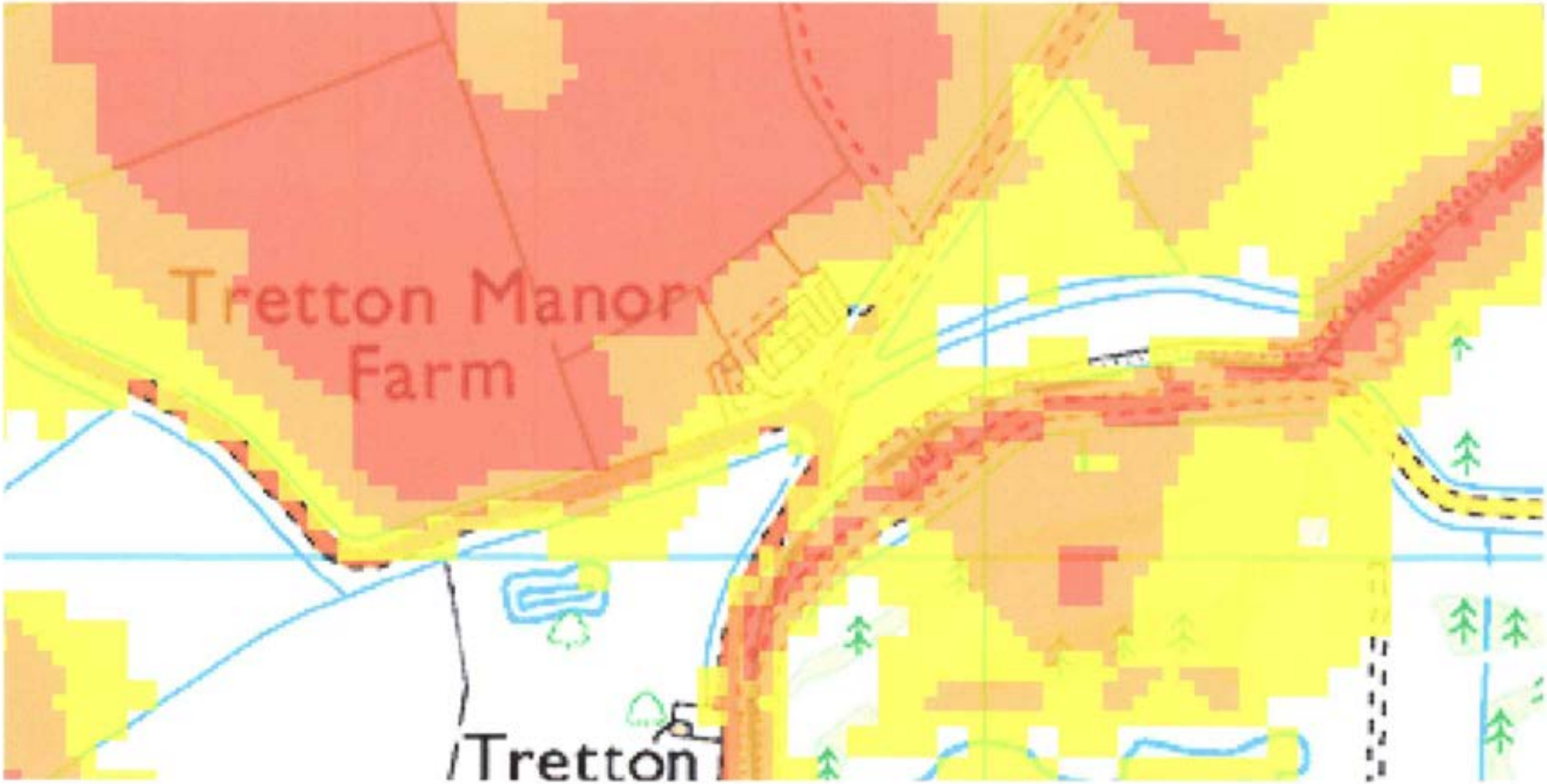
Environment Agency

Lincolnshire and Northamptonshire Tidal Breaching Hazard Mapping

Map Centred on TF 42901 17206

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Tretton Manor Farm
Tretton


Tretton Manor
Farm
Tretton


Tretton Manor
Farm
Tretton

APPENDIX 3

North Level District Internal Drainage Board

MENU

0

District map



EMERGENCY CONTACTS

Paul Sharman

Chief Executive

Mob: 07730309872

Jon Stubley

Operations Engineer

Mob: 07894684274

Nick Day

Works Supervisor

Mob: 07834869229

FIND US

North Level IDB,
Station Road,
Thorney,
Peterborough PE6 0QE
Monday to Friday



The office is open between

8.30am and 4.30pm

- See Map (http://www.northlevelidb.org/about/find-us/)

GENERAL ENQUIRIES

Tel: 01733 270333

Audit Enquiries

Littlejohn LLP - 020 7516 2200

INFORMATION

- Links (http://www.northlevelidb.org/about/links/)
- Data protection Policy (http://www.northlevelidb.org/about/gdpr-data-protection-policy/)
- Privacy notice (http://www.northlevelidb.org/about/gdpr-data-protection-policy/)

Designed by Chadwick Design (https://www.chadswebstudio.co.uk).

APPENDIX 4

Policies

Please click on the link below to download the specific Policy. If you have any queries regarding our Policies, please contact the office.

- Risk Management Policy (http://www.northlevelidb.org/wp-content/uploads/bsk-pdf-manager/2021/08/30.-Risk-Management-Policy-and-Strategy.pdf)
- Fraud and Corruption Policy (http://www.northlevelidb.org/wp-content/uploads/bsk-pdf-manager/2021/08/17.-Fraud-and-Corruption-Policy.pdf)
- Anti Bribery Policy (http://www.northlevelidb.org/wp-content/uploads/bsk-pdf-manager/2021/08/2.-Anti-Bribery-Policy.pdf)
- Risk Register (http://www.northlevelidb.org/wp-content/uploads/bsk-pdf-manager/2021/08/31.-Risk-Register.pdf)
- Health and Safety Policy (http://www.northlevelidb.org/wp-content/uploads/bsk-pdf-manager/2021/08/19.-Health-Safety-Policy.pdf)
- Computer Use Policy (http://www.northlevelidb.org/wp-content/uploads/bsk-pdf-manager/2021/08/4.-Computer-Use-Internet-Policy.pdf)
- Scheme of Delegation (http://www.northlevelidb.org/wp-content/uploads/bsk-pdf-manager/2021/08/32.-Scheme-of-Delegation.pdf)
- Investment Strategy (http://www.northlevelidb.org/wp-content/uploads/bsk-pdf-manager/2021/08/21.-Investment-Strategy.pdf)
- Conservation Policy (http://www.northlevelidb.org/wp-content/uploads/bsk-pdf-manager/2021/08/5.-Conservation-Policy-2011.pdf)
- Whistle Blowing Policy (http://www.northlevelidb.org/wp-content/uploads/bsk-pdf-manager/2021/08/36.-Whistle-Blowing-Policy.pdf)
- Pension Data Retention Policy (http://www.northlevelidb.org/wp-content/uploads/bsk-pdf-manager/2021/08/25.-Pension-Data-Retention-Policy-2019.pdf)
- Corporate Procurement Policy (http://www.northlevelidb.org/wp-content/uploads/bsk-pdf-manager/2021/08/6.-Corporate-Procurement-Policy.pdf)
- Gifts and Hospitality Policy (http://www.northlevelidb.org/wp-content/uploads/bsk-pdf-manager/2021/08/37.-Gifts-and-Hospitality-Policy.pdf)
- Planning Policy (http://www.northlevelidb.org/wp-content/uploads/bsk-pdf-manager/2021/08/26.-Planning-Policy.pdf)
- Employee Code of Conduct (http://www.northlevelidb.org/wp-content/uploads/bsk-pdf-manager/2021/08/12.-Employees-Code-of-Conduct.pdf)
- Lone Working Policy (http://www.northlevelidb.org/wp-content/uploads/bsk-pdf-manager/2021/08/41.-Lone-Working-Policy.pdf)
- Proceedings and Standing Orders (http://www.northlevelidb.org/wp-content/uploads/bsk-pdf-manager/2021/08/27.-Proceedings-and-Standing-Orders.pdf)
- Financial Regulations (http://www.northlevelidb.org/wp-content/uploads/bsk-pdf-manager/2021/08/15.-Financial-Regulations.pdf)
- Complaints Procedure (http://www.northlevelidb.org/wp-content/uploads/bsk-pdf-manager/2021/08/3.-Complaints-Procedure.pdf)

Policies (http://www.northlevelidb.org/resources/strategic-plan-2013/)

Consent forms (http://www.northlevelidb.org/resources/application-for-consent-forms/)

Finance (http://www.northlevelidb.org/resources/finance/)

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APPENDIX 5

SOUTH HOLLAND DISTRICT COUNCIL

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Wisbech
PE13 5PD

Council Offices
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Spalding
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PE11 2XE

Admin 01775 764723
DC Officers 01775 764703
facsimile 01775 762937

planningadvice@sholland.gov.uk
www.sholland.gov.uk

17th August 2021

Dear Sirs

TOWN AND COUNTRY PLANNING ACT 1990
FULL PLANNING PERMISSION

Reference:	**H21-0869-21**
Proposal:	**Siting of 2 static caravans - retrospective**
Location:	**Tretton Manor Barns Lowgate Tydd St Mary Spalding**
Applicant:	**Mr S Stanberry**

INVALID APPLICATION

I am writing with reference to your recently submitted application and advise you that the application cannot be registered because it is currently considered to be invalid.

We will require the following before the application can be progressed:

Please outline the site boundary in red on the 1:2500 site location plan.

Please provide photographs of the caravans.

The site falls within Flood Zone 3, therefore a site specific Flood Risk Assessment is required.

It would also be useful to have a little background information/supporting information relating to the proposal.

Please return a copy of this letter with your reply to enable us to deal with the application without further delay. The application will remain on hold until we are in receipt of the above information. If returning information by email, please email planningadvice@sholland.gov.uk and include a copy of this invalidation letter in your response.

If your application is invalid because of an outstanding fee you can pay in the following ways, please quote H21-0869-21 when making your payment:

Online by visiting www.sholland.gov.uk/payments and selecting Pay Online
Over the phone by calling 01775 764723

If you have any queries regarding the contents of this correspondence please contact our administration

team on 01775 764723 quoting the above reference number.

Yours faithfully



South Holland District Council
Planning Department

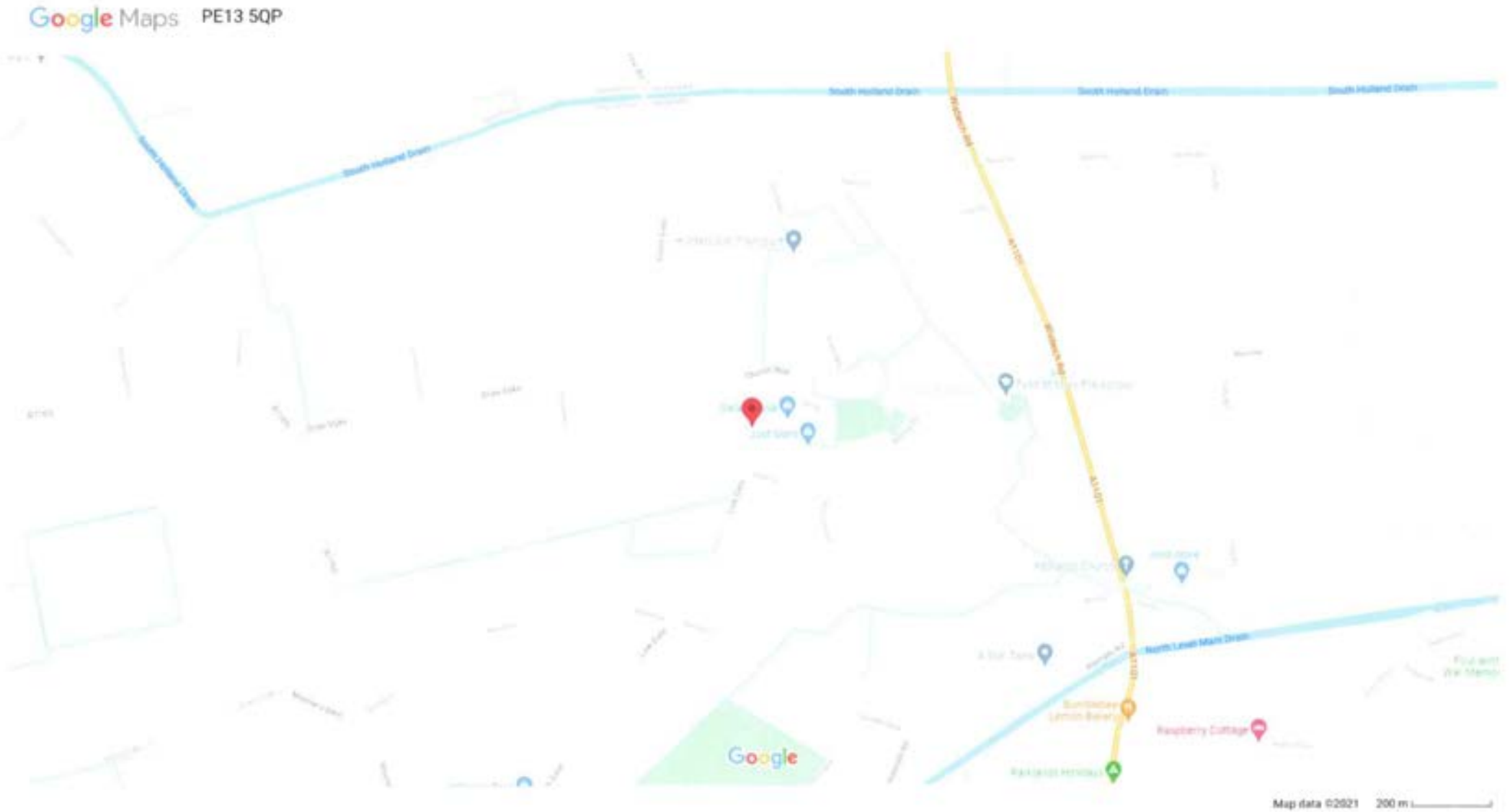
Cookies on Check your long term flood risk

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STANBERRY & SONS LTD, TRETTON MANOR BARN, LOWGATE, TYDD ST. MARY, WISBECH, PE13 5PD

Rivers and sea risk	**Low risk** Low risk means that each year this area has a chance of flooding of between 0.1% and 1%.
Surface water risk	**Very low risk** Very low risk means that each year this area has a chance of flooding of less than 0.1%. Lead local flood authorities (LLFA) manage the risk from surface water flooding and may hold more detailed information. Your LLFA is **Lincolnshire**.
Reservoir risk	There is no risk of reservoir flooding
Groundwater risk	No risk of groundwater flooding


Google Maps
PE13 5QP
South Holland Drain
A1101
Raspberry Cottage
North Level Main Drain
Google
Map data ©2021
200 m



PE13 5QP

Low Gate
Tydd St Mary
Wisbech
Postcode

Sunny · 28°C
12:39 PM

Directions Save Nearby Send to your phone Share



SITE PLAN 1:500



LOCATION PLAN 1:1250





PARTIAL ELEVATION 1:50

PETER HUMPHREY
ASSOCIATES

STEVE STANBERRY

SITING OF 2 STATIC CARAVANS - RETRO

TRETTON MANOR BARN
LONGGATE
TYDD ST MARY
WISBECH
PE13 0PD

SITE PLAN

6482/SK01	A1	FEB 2021



LOCATION PLAN 1:1250



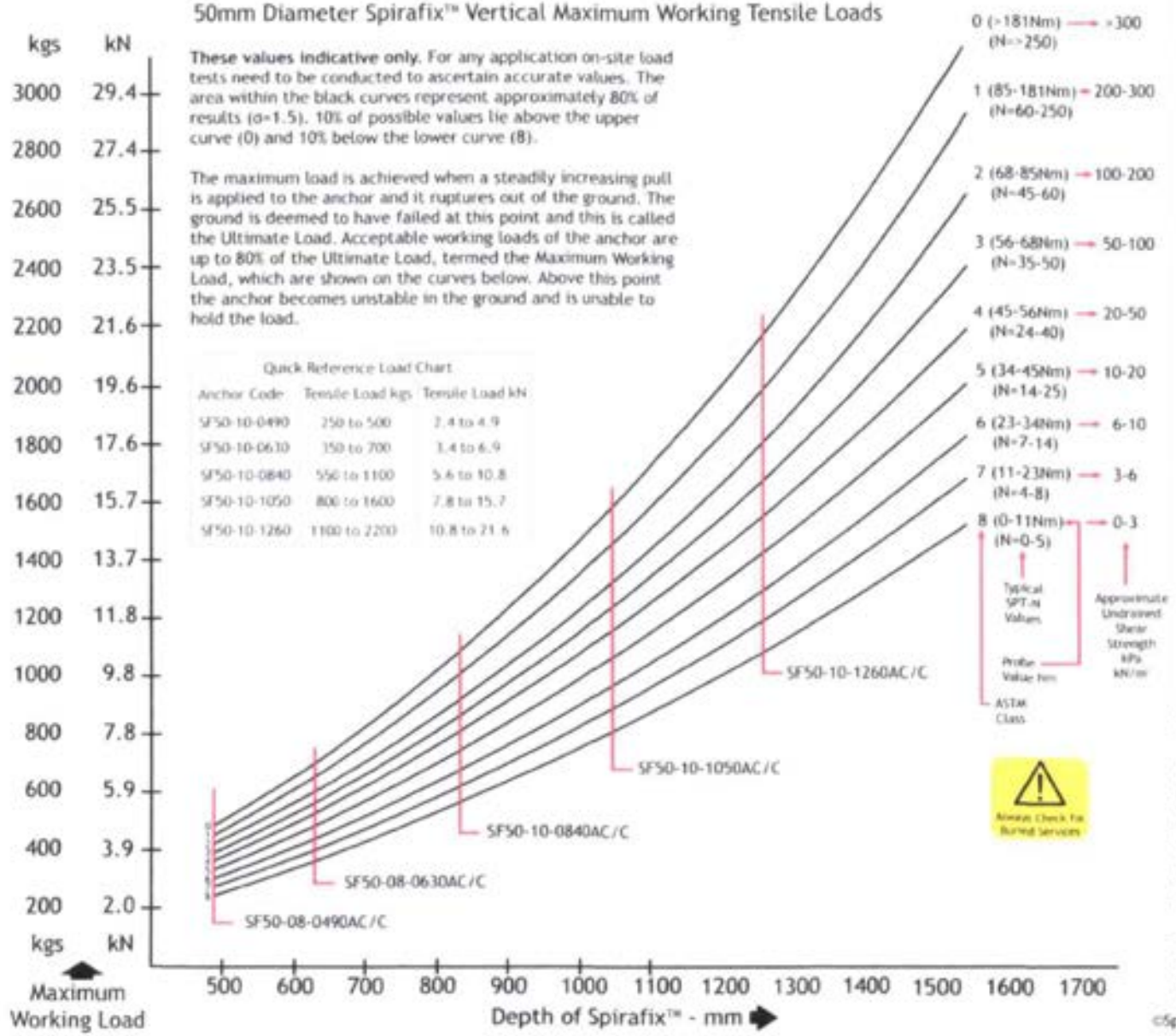

Static Caravan 1
Static Caravan 2
Porch

50mm Spirafix™ Ground Anchor Load Chart

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Newport NP10 9EJ United Kingdom
Tel: +44 (0)1633 890910 Website: www.spirafix.com

Designed & Manufactured In Britain

50mm Diameter Spirafix™ Vertical Maximum Working Tensile Loads



These values indicative only. For any application on-site load tests need to be conducted to ascertain accurate values. The area within the black curves represent approximately 80% of results (σ=1.5). 10% of possible values lie above the upper curve (0) and 10% below the lower curve (8).

The maximum load is achieved when a steadily increasing pull is applied to the anchor and it ruptures out of the ground. The ground is deemed to have failed at this point and this is called the Ultimate Load. Acceptable working loads of the anchor are up to 80% of the Ultimate Load, termed the Maximum Working Load, which are shown on the curves below. Above this point the anchor becomes unstable in the ground and is unable to hold the load.

Quick Reference Load Chart

Anchor Code	Tensile Load kgs	Tensile Load kN
SF50-10-0490	250 to 500	2.4 to 4.9
SF50-10-0630	350 to 700	3.4 to 6.9
SF50-10-0840	550 to 1100	5.4 to 10.8
SF50-10-1050	800 to 1600	7.8 to 15.7
SF50-10-1260	1100 to 2200	10.8 to 21.6

Soil Classification

Basic Soil Type	Sub Group	Compaction/ Strength	SPT-N	ASTM Class
Sands	Sand	Very Loose	0-3	8
		Loose	3-8	5
		Compact	8-30	3
		Cemented	30-58	1
	Sandy Clay/ Sandy Silt	Soft	3-8	5
		Firm	8-30	3
		Stiff	30-58	1
Silts	Silts	Very Soft	7-14	6
		Soft	14-25	5
		Firm	25-60	4
	Silty Clay	Soft	7-14	6
		Firm	14-25	5
		Stiff	25-60	4
Clays	Clay	Very Soft	0-5	8
		Soft	4-8	7
		Firm	7-14	6
		Stiff	14-25	5
		Very Stiff	35-60	3
		Hard	>60	1
Peats	Organic Clay Silt or Sand	Firm	0-5	8
	Peat	Spongy	0-5	8
		Plastic	0-5	8
Chalks	Very Weak		0-25	6
	Weak		25-100	2
	Moderately Weak		100-250	1
	Moderately strong to very strong		>250	0

Notes:

The above classifications are outlined in BS 5930 with the exception of chalk and the "Sands" and "Clays" sections have been expanded. Also chalk is not covered in the ASTM classification, but for the purposes of predicting loads it has been assigned values. The range of pull out loads in strong chalks can be considerably higher than shown on the chart and field tests need to be carried out to obtain accurate values.

The Standard Penetration Test (SPT) N values quoted above are in accordance with BS1377:1990 Part9, ASTM Standard D1586-84 and AS 1289.6.3.1-1993

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PETER HUMPHREY
ASSOCIATES

Design & Access Statement

Application: Proposed Siting of 2 static caravans - retrospective

Address: Tretton Manor Barn, Lowgate, Tydd St Mary, Wisbech, PE13 5PD



Introduction

The following design and access statement has been produced to ensure that a high-quality development is produced in accordance with the guidelines laid down in the government design advice, and more importantly that the proposal respects the local context that it will integrate with.

The applicant has owned the site for a number of years and operates a business (S J Stanberry & Sons Limited) from there.

This full planning application is for the siting of 2 static caravans retrospectively for the use of essential employees that are required on site to manage the business.

The applicant currently resides in the property at Tretton Manor Barn, but has retired from actively running the business and spends continuous amounts of time away from this address.

There was a previous application made by the applicant which was refused as dwellings- this application seeks approval for the functional need of the siting of these caravans as an essential need for the business operations.

This retrospective application is for the siting of two static caravans on the applicant's property to house essential employees to his business.
The applicant is now retired. His son (who the applicant relies on to be on site to handle business operations and security) and his family is the occupant of one of these caravans.
The other occupant is also an essential employee who needs to be on site at various unsociable hours so needs to live as close to the site as possible, due to the loading/unloading of vehicles at early hours of the morning.

Design & Appearance
The site where the static caravans are located are to the rear (northeast) where the surrounding site boundaries are densely landscaped as existing, ensuring that the proposal is low impact on the local area and nearby dwelling.
No landscaping will be removed.

This existing landscaping will ensure minimal noise/disturbance from the proposal.
The existing landscaping is approximately 5 metres high to the north and adequately shields the static caravans (approx. 3 metres high) from the surrounding fields.
The nearest dwelling to the north is approximately 0.7 miles away along Lowgate – rendering visibility or noise pollution to neighbours non-existent.
Care has also been taken to acquire caravans of neutral and natural colour to blend in with its countryside setting.
The static caravans are not visible from the road or neighbouring properties to the north.
Therefore, it is considered that this proposal has no impact on the intrinsic rural character of the countryside.



Access, Parking & layout
The site has an existing concrete access off Lowgate, which serves the commercial site and continues around to provide access to the proposed static caravans.

There is parking space enough for two vehicles per static caravan.

As the accommodation is essential employees of the site, this proposal will decrease traffic on the road as there is no need for off site employees to commute to the site.

The static caravans are situated in the corner of the site, which is separate to the commercial area, giving the occupants a degree of privacy. The dense landscaping to the north and west also contributes to this.

Accommodation, Facilities and Services
This application seeks approval for 2 static caravans.
The application is for year round occupancy by employees of the business. **The applicant would be more than happy to place an occupancy condition on this.**

Both occupants of the caravans have their own vehicles, however, the village of Tydd St Giles is less than a 10 min walk away with access to typical village shops and services and also bus stops with routes making the towns of Wisbech and Kings Lynn accessible.

Hard and soft landscaping
All boundaries will remain as existing and is densely landscaped. The proposed static caravan site is currently fenced off from neighbouring fields and is in a separate corner to the commercial activity of the site.
The existing landscaping is approximately 5 metres high to the north and adequately shields the static caravans (approx. 3 metres high) from the surrounding fields.

Waste management

Both static caravans have Recycling and General Waste bins are managed by the applicant, waste collected by local authority. (shown on site plan)

Drainage
Surface water discharge – the site being of a minor development size allows, subject to confirmation, the installation of soakaways to deal with surface water run-offs in a traditional SuDs methodology. The usage of such soakaways will be confirmed, when appropriate, using BRE 365 infiltrations test regulations for design purpose and combined with additional SuDs compliant requirements such as water butts and permeable surface access drives and highway.

Foul water drainage – Bio Tank situated on site.

Flood Risk Assessment
See specialist report submitted with original application.

Sequential Test

Whilst the site is within Flood Zone 3a, it is considered that the proposal is not subject to the sequential test as the siting of the two static caravans is entirely related to the commercial site operations, to be sited elsewhere would be inappropriate.
However:

- Most of the land surrounding Tydd St Mary is Flood Zone 3;
- Therefore an alternative site close by would also be in Flood Zone 3.
- The caravans are attached to the needs of the operations of the business on site with the Applicant's son having oversight of the business from his caravan and therefore it is not practical for it to be based at a separate location.

- The site and the surrounding area is flat so there is no opportunity to position the proposed site on higher land;
- The proposed site is currently unused by the business and has no other practical use.
- The probability of the site flooding from any Environmental Agency system is less than 1% annual probability (1 in 100 chance each year) because of the standards of the existing flood defences, therefore the actual risk of flooding at the site is low; and
- On the basis of the above the site is considered to pass the Sequential Test.

Conclusion

This retrospective application is for the siting of two static caravans on the applicant's property to house essential employees to his business.
There is a clear functional need for these employees to be housed on site, to aid the running of the business as the applicant is now retired.
It would not be practical or appropriate for these caravans to be sited elsewhere so this statement seeks the approval for this application from South Holland District Council.

APPENDIX 6




ENGLAND





APPENDIX 7

South East Lincolnshire Strategic Flood Risk Assessment March 2017



South East Lincolnshire
Joint Strategic Planning Committee

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1.1. Introduction

1.1.1 The South East Lincolnshire Joint Planning Unit (SELJPU) area lies to the west and south-west of the Wash estuary. The low-lying nature of the area makes it vulnerable to flooding from both rivers and the sea. The main watercourses, such as the River Witham, River Welland, River Nene and connected drainage channels have tidal influences. The area is protected from flooding by an extensive network of raised engineered defences, which provide varying standards of defence. Climate change, particularly associated with the predicted effects on sea level rise, brings an increased likelihood of flooding that could be a danger to life affecting whole settlements. Such an extreme consequence would come about as a result of the highest tides (predicted to be common in 100 years time) coupled with storm surge conditions causing major breaches in coastal/tidal defences. Even a minor flood event has the potential to inundate valuable farmland with saline water and impact productivity for many years.

1.1.2 The Environment Agency's Flood Map shows that almost the whole of the Borough of Boston and a large part of the South Holland District are at a high probability of flooding. Approx 85% of Boston lies within the floodplain (84% in Flood Zone 3 'high probability', 1% in Flood Zone 2 ' medium probability') resulting in 26,503 residential and 1,212 commercial properties being at risk. Approximately 74% of South Holland lies within the floodplain (68% in Flood Zone 3, 6% in Flood Zone 2) resulting in 29,922 residential and 1,296 commercial properties being at risk.

1.2. National Planning Requirements

1.2.1 Government guidance, contained in the National Planning Policy Framework (NPPF) and the National Planning Practice Guidance (NPPG) advises that a Strategic Flood Risk Assessment (SFRA) should be carried out by one or more local planning authorities to assess the risk to an area from flooding from all sources, now and in the future, taking account of the impacts of climate change, and to assess the impact that land use changes and development in the area will have on flood risk.

1.3. South East Lincolnshire SFRA

1.3.1 This report contains the SFRA carried out by the South East Lincolnshire Joint Planning Unit (SELJPU). It is accompanied by mapping which shows the variation in flood risk for land within the SELJPU area.

1.3.2 The assessment has been undertaken to ensure there is consistent evidence base against which the SELJPU can inform its Local Plan and Development Management decisions.

1.3.3 The previous Boston Borough Council SFRA was completed in October 2010. South Holland District Council's SFRA was completed in January 2010.

1.3.4 This report supersedes these existing documents and provides the latest and best available information on flood risk.

1.3.5 The report contains information to cover the two levels of assessment recommended by the National Planning Practice Guidance (NPPG), i.e. Level 1 and Level 2 assessments.

1.3.6 The Level 1 assessment is present in the form of the Environment Agency's Flood Map, Flood Map for Surface Water and Reservoir Flood Map. These maps identify the potential extent of flooding from tidal, fluvial, surface water and reservoirs (further detail on these maps is contained in the relevant sections below).

1.3.7 The Level 2 assessment is present in the form of hazard mapping, which classifies flood risk as Low Hazard and Danger to Some/Most/All based upon the modelling of factors including

the potential depths of flooding, the velocity of flood flows and the presence of water borne debris.

1.3.8 The hazard mapping covers the whole of the Boston Borough Council area (please note that the component maps for the hazard in Boston, i.e. depth and velocity, are only available for those areas where tidal risk is dominant). In the South Holland area, the hazard map covers Spalding, Pinchbeck, Surfleet, Crowland and Sutton Bridge.

1.3.9 Development in areas beyond the Level 2 SFRA boundaries (and the fluvially dominant areas of Boston) and within a Flood Zone will need to undertake their own assessment, relative to the scale and nature of the proposed development, to inform appropriate mitigation consistent with the appended Standing Advice.

1.3.10 This document has been prepared in consultation with the Environment Agency, and Lincolnshire County Council in its role as Lead Local Flood Authority. It brings together information from these organisations, as well as the Internal Drainage Boards.

1.3.11 The Local Authorities and the Environment Agency have agreed a framework of flood risk mitigation requirements for development proposals according to different levels of risk (standing advice - see section 10 below). This sets a level of safety over the lifetime of the development where development in areas at risk is deemed appropriate and necessary to meet local need. The Local Authorities will use the relevant parts of the standing advice to ensure a consistent approach to flood mitigation is applied and to ensure development in high hazard areas is made safe as required by the NPPF. The standing advice also gives a clear indication of where mitigation will need to be incorporated into development proposals, which will enable developers to design in these elements and include in any viability appraisal from the outset.

1.4. Guidance on using this SFRA

1.4.1 The information within this SFRA is being used to refine information on river and sea flooding shown on the Environment Agency's Flood Map for Planning. The information is being used by the SELJPU to:

- Determine the variations in risk from all sources of flooding;
- Inform the Sustainability Appraisal of the Local Plan so that flood risk can be fully taken into account when considering allocation options and in the preparation of plan policies;
- Apply the Sequential Test, and where necessary, the Exception Test when determining land use allocations;
- Assist with site-specific flood risk assessments;
- Determine the acceptability of flood risk in relation to emergency planning capability; and
- Consider opportunities to reduce flood risk to existing communities and development through better management of surface water, provision for conveyance and of storage of flood water.

1.4.2 The SFRA is divided into sections, which contain a variety of information such as flood maps, guidance and advice. Please note that this SFRA does not seek to duplicate advice and guidance already contained in other planning documents. Therefore, it should be read in conjunction with government guidance on flood risk, currently contained in the NPPF and the NPPG.

2. Flood Map for Planning (Rivers and Sea)

2.1.1 The Environment Agency's Flood Map for Planning shows areas across England that could be affected by flooding from rivers or the sea in the current day. It also shows flood

defences and the areas that benefit from them. The Flood Map is available online from the Environment Agency's web site, and it has been designed to raise awareness among the public, local authorities and other organisations of the likelihood of flooding. It aims to encourage people living and working in areas prone to flooding to find out more and take appropriate action.

2.1.2 The Flood Map shows the extent of Flood Zones, areas also known as flood plains, which could be affected by flooding from rivers and the sea.

2.1.3 These Flood Zones are defined in the Government's NPPG. They ignore the presence of existing flood defences, since defences can be 'overtopped' if a flood occurs which is higher than the defences are designed to withstand. Defences can even fail in extreme events.

2.1.4 Flood Zone 1 shows areas with the lowest probability of flooding from rivers and the sea, where the chance of flooding in any one year is less than 0.1% (i.e. 1 in 1000).

2.1.5 Flood Zone 2 shows the area between Zone 1 and Zone 3. This represents an area with the chance of flooding in any one year between 0.1% and 1% fluvial or 0.5% tidal (i.e. between a 1 in 1000 and either a 1 in 100 fluvial or a 1 in 200 tidal chance). The outer edge of this zone is referred to as the 'Extreme Flood Outline' (EFO).

2.1.6 Flood Zone 3 shows areas with the highest probability of flooding. The chance of flooding in any one year is greater than or equal to 1% (i.e. a 1 in 100 chance) for river flooding and greater or equal to 0.5% (i.e. a 1 in 200 chance) for coastal and tidal flooding.

2.1.7 The Environment Agency Flood Map should be used by Local Planning Authorities to inform planning decisions, and the Flood Zones are the starting point for applying the Sequential Test. For further information, please refer to Chapter 8 of this SFRA.

2.1.8 Flood Zones are also used to identify when a developer needs to carry out a Flood Risk Assessment.

2.1.9 A Flood Risk Assessment or Flood Risk Statement may also be required for development at risk of flooding from local sources of flooding. This is discussed in further detail in Section 5 on Local Sources of Flooding.

3. Fluvial and Tidal Hazard Mapping

3.1.1 This SFRA contains hazard mapping for the parts of the South East Lincolnshire study area, which incorporates both Fluvial and Tidal flood events for Boston, Spalding, Sutton Bridge, Pinchbeck, Crowland and Surfleet (see Appendix A).

3.1.2 The hazard mapping includes modelled flooding consequences resulting from both overtopping and breaching of flood defences.

3.1.3 The failure (or breaching) of flood defences is likely to cause rapid inundation of areas behind flood defences as flow in the river channel or from the sea discharges through the breach. A breach can happen with little or no warning, although they are much more likely to occur when there are extreme tides or river levels and the stresses on flood defences are highest. Flood water flowing through a breach will normally discharge at a high velocity, rapidly filling up the areas behind the defences, resulting in significant damage to buildings and a high risk of loss of life.

3.1.4 The crest (height) of the defences used in all modelling scenarios was based on present defence heights. Each breach was simulated individually. The width of the breach was dependent on the type and location of the defence.

3.1.5 The probability of a breach event is extremely difficult to determine, although overtopping will promote breaching. The modelling therefore only assesses the consequence of breaches; the assessment of the probability of a breach occurring is not required. Also, national planning guidance requires those proposing development in flood risk areas to ensure development and its future users are safe from the harmful effects of flooding therefore

appropriate mitigation against potential impacts will be required (i.e. the consequences of defence failure).

3.1.6 Overtopping of flood defences occurs when water levels exceed the height of the defence. The worst case occurs when the fluvial or tidal levels are above the defence level as this can lead to rapid inundation and prolonged flooding. Less severe overtopping can occur when flood levels are below defence levels, but wave action causes wave overtopping. Flood defences are commonly designed with a degree of freeboard to provide protection against overtopping from some waves.

3.1.7 Two scenarios were modelled: the 1 in 200 (0.5%) and 1 in 1000 (0.1%). This was undertaken for the 'present' day (2006 baseline) and 2115 (the year to which the final Defra sea level allowances related and allows for a lifetime of development).

3.1.8 The definition of flood hazard used in this hazard mapping follows the definition used by Defra and the Environment Agency which is translated in 'Flood Risk Assessment Guidance for New Development Phase 2, R&D Technical Report FD2320/TR2'. The classification is split into four categories, defined by the depth and velocity of flood waters and the related ability of people to evacuate the area once a flood occurs. Please refer to the table below for further information on flood hazard.

Table 13.1 Danger to people for different combinations of depth and velocity

Velocity (m/s)	Depth of flooding (m)											
	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.80	1.00	1.50	2.00	2.50
0.00												
0.10												
0.25												
0.50												
1.00												
1.50												
2.00												
2.50												
3.00												
3.50												
4.00												
4.50												
5.00												

Key:
- Danger for some
- Danger for most
- Danger for all

(Source Table 13.1 of FD2320/TR2)

3.1.9 In addition to the areas of danger, there is also an area classified as low hazard (shown in green) on the hazard mapping. This area represents the outer extent of where flood water would reach during the breach or overtopping scenario, but should not pose a hazard to people. This represents the white boxes shown above in Table 13.1, where depths could be between 0.05m and 0.3m.

4. Fluvial and Tidal Depth Mapping

4.1.1 The hazard mapping shows the consequences should a breach or overtopping of existing defences occur. The results show the likely flood depths, velocities and overall hazard to a proposed site.

4.1.2 In particular, where hazard mapping indicates a proposed site will be inundated, the minimum finished floor levels of any development should be informed by the flood depth

maps arising from the applicable scenario (see Section 11 - Climate Change Allowances for Planning).

4.1.3 The Environment Agency and the Local Planning Authorities have agreed standing advice that applies to planning applications within the area covered by the Level 2 SFRA. This standing advice outlines how the flood depth maps (where available - see paragraph 1.3.8 above) should be used to inform adequate flood risk mitigation measures, along with further information on the correct scenarios to consider for each development type.

4.1.4 Please see Chapter 9 of this SFRA for further guidance on the Exception Test and flood risk mitigation requirements.

4.1.5 The Depth Maps can be found in Appendix B.

5. Local Sources of Flooding

5.1. General

5.1.1 The Environment Agency is responsible for managing the risk of flooding from main rivers, reservoirs, estuaries and the sea.

5.1.2 Lead Local Flood Authorities are responsible for managing the risk of flooding from local sources: surface water, groundwater and ordinary watercourses. Local sources of flooding are considered in more detail in this Section.

5.1.3 Internal Drainage Boards are responsible for managing the risk of flooding within their Drainage Districts.

5.2. Surface Water Flooding

5.2.1 The NPPF requires that the risk from all sources of flooding is considered and that priority is given to the use of sustainable drainage systems. The NPPG advises that SFRAs should identify areas at risk from surface water flooding and drainage issues taking account of the surface water flood risk map published by the Environment Agency and any other available evidence, such as local flood risk management strategies. It should also identify the types of measures which may be appropriate to manage them, taking account of location, site opportunities, constraints and geology. Lead Local Flood Authorities provide expert advice to planning authorities on the management of surface water for planning.

5.2.2 The Environment Agency's Flood Maps for Surface Water give an indication of the broad areas likely to be at risk of surface water flooding. However, THEY ARE NOT SUITABLE FOR IDENTIFYING WHETHER AN INDIVIDUAL PROPERTY WILL FLOOD.

5.2.3 This is because the modelling only gives an indication of broad areas at risk, and because the Environment Agency does not hold information on floor levels, construction characteristics or designs of properties. It would need this and other detailed information to be able to say whether flooding of certain depth would enter into an individual property and cause damage.

5.2.4 These maps may be suitable for identifying where properties are in areas at risk of flooding for locations where surface water flooding is strongly influenced by topography.

5.2.5 In 2010 the Flood and Water Management Act defined 'surface runoff'.

5.2.6 Generally, the type of flooding shown by the Flood Map for Surface Water fits with the definition in the Act and shows:

- The flooding that takes place from the 'surface runoff' generated by rainwater (including snow and other precipitation) which:
  (a) is on the surface of the ground (whether or not it is moving), and
  (b) has not yet entered a watercourse, drainage system or public sewer.

5.2.7 The Flood Map for Surface Water will pick out natural drainage channels, rivers, low areas in floodplains, and flow paths between buildings, but it will only indicate flooding caused by local rainfall.

5.2.8 It does not show flooding that occurs from overflowing watercourses, drainage systems or public sewers caused by catchment-wide rainfall events or river flow.

5.2.9 The Flood Map for Surface Water shows areas where surface water would be expected to flow or pond. There are four categories of risk:

- High - the chance of flooding in any year is greater than 3.3% (1 in 30);
- Medium - the chance of flooding in any year is 3.3% (1 in 30) or less but greater than 1% (1 in 100);
- Low - the chance of flooding each year is 1% (1 in 100) or less but greater than 0.1% (1 in 1000);
- Very low - the chance of flooding each year is 0.1% (1 in 1000) or less.

However, users must note that this is the chance of this rainfall, and not of the resulting flood extent occurring. Consequently, it only provides a general indication of areas which may be more likely to suffer from surface water flooding in these rainfall probabilities.

5.2.10 The Flood Map for Surface Water shows predictions of flooded areas but does not show whether individual properties will be affected by surface water flooding or have been affected in the past. The Flood Map for Surface Water should not be used to predict if individual properties will flood.

5.2.11 Developers are strongly advised to use local knowledge in conjunction with records held by Local Authorities and other partners (for example, of drainage systems and historic surface water flooding records) to assess and understand the suitability of the Flood Map for Surface Water as an indicator for surface water flooding in a proposed development area.

5.2.12 The Flood Map for Surface Water is available on the Environment Agency's website

5.2.13 A Flood Risk Assessment or Flood Risk Statement will be required in support of a planning application if a site lies within an area shown to be at risk of flooding on the Flood Map for Surface Water.

5.3. Groundwater Flooding

5.3.1 "Groundwater" means all water which is below the surface of the ground and in direct contact with the ground or subsoil. Periods of abnormally high rainfall can result in groundwater flooding of basements and the emergence of groundwater at the ground level, causing damage to property and infrastructure.

5.3.2 The British Geological Survey (BGS) have prepared a map showing the degree of susceptibility to groundwater flooding. The BGS should be contacted for more detailed site specific information on susceptibility to groundwater flooding whilst preparing a Flood Risk Assessment or Flood Risk Statement.

5.3.3 The Lead Local Flood Authority will need to be consulted on any proposed development in an area at risk of groundwater flooding.

5.4. Flooding from Other Local Sources

5.4.1 Flooding may also occur as a result of out of bank flows from ordinary watercourses. The flood risk from ordinary watercourses with a catchment greater than 3km² in Lincolnshire is identified on the Environment Agency's Flood Map for Planning. The flood extents shown on the flood map for planning are indicative only and may not represent the full extent of flooding. A site specific Flood Risk Assessment will therefore be required to assess the flood risk for any potential development site located in Flood Zones 2 or 3 of an ordinary watercourse.

5.4.2 In addition to the above requirement, the Lead Local Flood Authority will also require a site specific Flood Risk Assessment to be carried out if the site lies within 10m of an ordinary watercourse.

6. Functional Floodplain

6.1.1 The NPPG advises that Flood Zone 3b, Functional Floodplain, should be identified by Local Planning Authorities in Strategic Flood Risk Assessments.

6.1.2 Functional Floodplain should not be defined solely on rigid probability parameters. However, it is generally defined as land which would naturally flood with a 5% (1 in 20) chance in any one year or greater, or is designed to flood (such as a flood attenuation scheme).

6.1.3 Functional Floodplain is a very important planning tool in making space for flood waters when flooding occurs. The SELJPU's approach is to direct development away from these areas informed by the Environment Agency's flood risk management plans and shoreline management plans and local flood risk management strategies produced by Lincolnshire County Council (the Lead Local Flood Authority).

6.1.4 Within South Holland District, the functional floodplain comprises of the designated flood storage areas of the Crowland and Cowbit Washes and the Surfleet Reservoir (please also refer to section 7 below regarding reservoir flooding).

6.1.5 There is currently no Functional Floodplain in the Boston Borough.

6.1.6 The NPPG advises at Table 3 that only Water Compatible development is appropriate in the Functional Floodplain.

6.1.7 Essential Infrastructure that has to be there and has passed the Exception Test may also be permitted providing it is designed and constructed to:

- remain operational and safe for users in times of flood;
- result in no net loss of floodplain storage;
- not impede water flows and not increase flood risk elsewhere.

7. Reservoir Flooding

7.1.1 The NPPG requires those proposing developments to assess the risk from all forms of flooding. The failure of a reservoir is one form of flooding that has the potential to cause catastrophic damage due to the sudden release of large volumes of water. The local planning authority has to evaluate the potential damage to buildings or loss of life in the event of dam failure, compared to other risks, when considering development downstream of a reservoir.

7.1.2 There are two flood storage reservoirs within the district of South Holland, namely Surfleet Reservoir, and the Crowland and Cowbit Washes. The latter is designated as a large raised reservoirs under the Reservoirs Act 1975.

7.1.3 The Reservoirs Act 1975 applies to all large raised reservoirs in England. Large raised reservoirs are those reservoirs capable of holding 25,000m³ or more of water above natural ground level.

7.1.4 The following sections provide some advice on what to consider in the two most common scenarios: development of a new reservoir and development downstream of or adjacent to an existing raised reservoir.

7.2. Development of a new reservoir

7.2.1 Anyone proposing the development of a new reservoir that will have an above ground capacity of 25,000m³ or more must consider the potential flood risk downstream of the new reservoir, in the event of dam failure leading to an uncontrolled release of water.

7.2.2 Developers will also need to provide the Environment Agency's Reservoir Safety Team with a notice of their intention under Section 21 of the Reservoirs Act, not less than 28 days before work on-site is due to start.

7.2.3 Applicants will also need to appoint a qualified civil engineer ('construction engineer') under Section 6 of the Reservoirs Act to design and supervise the construction work. Details of suitably qualified engineers can be found here It is recommended that developers complete a dam breach analysis and reservoir flood map, although this is not a requirement of the Reservoirs Act.

7.3. Development downstream of or adjacent to an existing reservoir

7.3.1 Reservoir flood maps for large raised reservoir can be found here

7.3.2 An assessment of the risk of inundation from the reservoir must be submitted in support of any planning application (this will normally include the need for breach analysis). This should include not only the risks posed to the development but also if the development within the reservoir's flood extent could change its risk designation to high-risk.

7.3.3 Given the potential legal and cost implications of development downstream of a 'not high-risk' reservoir, it is also recommended that applicants notify the reservoir owner of the planning application.

7.4. Surfleet Reservoir

7.4.1 The Surfleet Reservoir lies immediately upstream of the Surfleet outfall on the River Glen and is classified as Flood Zone 3b Functional Floodplain. This zone comprises land where water has to flow or be stored at times of flood. The reservoir contains approximately 50 properties, which were originally built as holiday chalets and intended for temporary occupancy only. Over the years these chalets changed hands, have been renovated and replaced, often with new owners being unaware of the risks involved. Many are now occupied all year round as permanent dwellings. Historic data records several flooding incidences, most recent events occurring in 1980, 2002, 2009 and January 2013.

7.4.2 National planning policy requires local planning authorities to adopt proactive strategies to mitigation and adapt to climate change, taking full account of flood risk. Where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term they should seek opportunities to facilitate the relocation of development, including housing, to more sustainable locations. Due to the increased likelihood of flood events occurring in this area and the need to protect property and life, it is a recommendation of this SFRA that further development in this location is not supported and opportunities to relocate existing properties outside of the functional floodplain are explored.

8. Sequential Test

8.1.1 The NPPF requires Local Plans to apply a sequential, risk-based approach to the location of development to avoid where possible flood risk to people and property. The Strategic Flood Risk Assessment provides the basis for applying this test. The general approach is designed to ensure that areas at little or no risk of flooding from any source are developed in preference to areas at higher risk. The aim is to keep development out of medium and high flood risk areas (Flood Zones 2 and 3) and areas affected by other sources of flooding where possible.

8.1.2 The refined information in this SFRA (i.e. the hazard mapping) incorporates the consideration of climate change and should be used when carrying out a sequential assessment. Some areas that are shown not to be at risk in the undefended scenario (i.e.

the Flood Zones) may be at risk in the defended climate change scenario (i.e. the 2115 hazard mapping).

8.1.3 Where no reasonably available sites in Flood Zone 1 exist then Local Planning Authorities should consider the availability of sites in Flood Zone 2. Only where there are no reasonably available sites in Flood Zones 1 or 2 should the suitability of sites in Flood Zone 3a be considered.

8.1.4 However, as mentioned in the Introduction above, the majority of the Boston Borough area and large parts of the South Holland district lie within Flood Zone 3. For this reason, and for the reason outlined in 8.1.2 above, it is therefore necessary to use the refined flood risk information (Hazard and Depth maps) to assist with the application of the Sequential Test.

8.2. Local Plan Sequential Test

8.2.1 The South East Lincolnshire Joint Planning Unit has used the mapping outputs contained in this Strategic Flood Risk Assessment to apply the Sequential Test.

8.2.2 The sites contained in the Strategic Housing Land Availability Assessment (SHLAA) for each settlement were assessed in terms of their suitability, availability and achievability to accommodate housing. Sites concluded to be developable and deliverable were then ordered in terms of which Flood Zone they were in.

8.2.3 As many of the settlements, and therefore potential housing sites, are entirely or largely within Flood Zone 3, it was necessary to then consider which flood hazard category they were in. The Breach Hazard Map for the 2115 scenario was used for this assessment (as the NPPG requires residential development lifetime to be considered for a minimum 100 years).

8.2.4 Where there were sites within a settlement in the same hazard category, it was necessary to use the information on flood depth (again in the 2115 breach scenario) to choose the most sequentially preferable. The Flood Zone, hazard and depth categories are recorded in the SHLAA.

8.3. Sequential Test for Planning Applications

8.3.1 The NPPF requires those proposing development in a location which is vulnerable to flood risk to present evidence to demonstrate that there are no other locations at a lower risk of flooding that could be suitable to accommodate the proposal. In line with this requirement, the Local Planning Authority will expect planning applications to be supported by evidence to demonstrate that the Sequential Test can be passed. Guidance on the application of the Sequential Test is available in the NPPF.

8.3.2 The NPPF advocates that the Sequential Test should be applied to all forms of development in medium and high risk areas (Flood Zones 2 or 3), other than sites which have been allocated in the Local Plan or for applications for minor development or 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).

8.3.3 Minor Development is defined as:

- Minor non–residential extensions: Industrial/Commercial/Leisure etc. extensions with a footprint less than 250m² (where subsequent 250m² extensions are proposed a Sequential Test will be required).
- Alterations: development that does not increase the size of buildings e.g. alterations to external appearance.
- 'Householder' development: e.g. sheds, garages, games rooms etc. within the curtilage of the existing dwelling in addition to physical extensions to the existing dwelling itself. This definition EXCLUDES any proposed development that would create a separate dwelling within the curtilage of the existing dwelling e.g. subdivision of houses into flats.

8.3.4 Subdivision of Dwellings: Although the subdivision of a house into flats is specifically excluded from the definition of minor development, where no significant external alternations are required, it would be viewed as a Change of Use application. Change of Use applications are excluded from the Sequential Test as clarified above. So, the conversion of a barn into a dwelling or the subdivision of a dwelling into two or more dwellings does not require a Sequential Test as long as it does not involve significant external alterations/extensions. Development Management officers will provide specific advice on whether or not a development falls within this category.

8.3.5 Replacement dwellings: Where an individual proposes to redevelop their property in an existing flood risk area the consideration of alternative sites is not likely to be a realistic option. In such instances, the Sequential Test should include a statement as to why there is no alternative available to them to develop. This simple statement will satisfy the Sequential Test provided that they:

1) Do not increase the number of bedrooms; and

2) Do not increase the number of dwellings in an area of flood risk (i.e. through the replacement of a single dwelling with an apartment block); and

3) Do not significantly increase the floor area of the building (i.e. beyond 40% of the original).

8.3.6 In order to carry out a Sequential Test it is necessary to define the geographical area in which a search for alternative sites at a lower risk of flooding will be undertaken. The search area for the test should be the whole of the Council area unless the functional requirements of the development justify a reduced search area. For example, if there is a need for a doctor's surgery to serve a particular catchment area then it may be appropriate to reduce the search area to that catchment. Equally, in some circumstances it may be appropriate to expand the search area beyond the district boundary. For example the location of an oil refinery serving the whole country should be determined on a countrywide basis. The Sequential Test evidence should define the search area and include a summary of the functional requirements of the development in justification of the area chosen. Housing developments will generally need to consider reasonably available alternative sites across the whole of the Council area unless they are intended to meet a specifically identified need e.g. the need for affordable housing in a particular settlement.

8.3.7 It is also necessary to identify the sources of reasonably available sites. This can be done through existing evidence basis such as the Local Plan, the SHLAA, the Employment Land Review and the Town Centre and Retail Capacity Study.

8.3.8 Reasonably available sites should NOT be discounted on the following grounds:-

- They are not owned by the developer.
- They are larger than the proposed site (a series of smaller sites accommodating an equivalent quantum may also be considered);
- They do not offer sustainability benefits equivalent to the proposed site;
- They have an extant planning permission but development has not begun.

8.3.9 For the reasons outline in 8.1.2 and 8.1.4 above, the Flood Map will not provide information that is refined enough to carry out a meaningful Sequential Test due to the extent of Flood Zone 3 in this area. Therefore the hazard map and depth maps should be used (in that order) to refine the information on flood risk to the site and potential alternative sites.

8.3.10 Evidence should be presented to clearly show the name and location of the reasonably available site options being compared to the application site, together with the hazard and depth classification of the sites.

8.3.11 The evidence should include reasons as to why you may or may not conclude that the site is a reasonable alternative to the application site.

8.3.12 On receipt of this evidence it is for the Local Planning Authority, taking advice from the Environment Agency as appropriate, to consider whether or not the Sequential Test is passed.

8.3.13 In order to avoid unnecessary expense, it is strongly recommended that applicants discuss the likelihood of their proposal passing the Sequential Test with the Planning Authority's Development Management Team before formulating and submitting their application.

9. Exception Test

9.1.1 The Exception Test provides a method of managing flood risk for developments of certain flood risk vulnerability while still allowing necessary development to occur.

9.1.2 The Exception Test should be applied only after the Sequential Test has been undertaken and in the circumstances set out in Table 3 of the NPPG, i.e. when 'more vulnerable' development and 'essential infrastructure' cannot be located in Flood Zones 1 and 2 and when 'highly vulnerable' development cannot be located in Flood Zone 1.

9.1.3 Essentially, the two parts to the Test require proposed development to show that a) it will provide wider sustainability benefits to the community that outweigh flood risk, and b) that it will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall.

9.1.4 For Part a), consideration of the wider sustainability issues draws on the criteria for assessing the effects of the South East Lincolnshire Local Plan Documents (defined in the Sustainability Appraisal Scoping Report). This document provides the most localised criteria for considering wider sustainability issues within South East Lincolnshire and a useful template for considering each Strategic Site within 'Part a' of the Exception Test.

9.1.5 With particular reference to Part b), there are a range of factors to be considered when determining whether or not a development is 'safe'. However, the minimum mitigation measures required for each flood hazard zone can be found in the standing advice matrix at Appendix C.

9.1.6 All planning applications for development on windfall sites will need to meet the requirements of the Exception Test where applicable, and this should be demonstrated in a Site Specific Flood Risk Assessment.

10. Mitigation/Standing Advice

10.1.1 The Environment Agency and the Local Planning Authorities have produced local flood risk standing advice in the form of a matrix. This document has been prepared to assist in the interpretation of the Strategic Flood Risk Assessment for individual developments, whilst also providing pre-application advice. This matrix forms part of the Strategic Flood Risk Assessment and is contained in Appendix C.

10.1.2 Please note that single storey proposals will be expected to incorporate mitigation for the extreme 1 in 1000 (0.1%) scenario.

10.1.3 The Environment Agency has also produced basic guidance, aimed at developers and applicants on how to complete a Flood Risk Assessment.

10.1.4 Developers are also advised to refer to the DCLG document 'Improving the flood performance of new buildings: flood resilient construction'. This document aims to provide guidance to developers and designers on how to improve the resilience of new properties in low or residual flood risk areas by the use of suitable materials and construction details. These approaches are appropriate for areas where the probability of flooding is low (e.g. Flood Zone 1) or areas where flood risk management or mitigation measures have been put in place.

11. Climate Change Allowances for Planning

11.1.1 The NPPF explains the key role of planning in ensuring new development is resilient to the impacts of climate change. Local Planning Authorities must adopt strategies to mitigate and adapt to climate change, taking full account of flood risk and coastal change. Local Plans need to take account of climate change over the longer term and for residential development this is considered to be a minimum of 100 years, unless there is specific justification for considering a short period.

11.1.2 The lifetime of a non-residential development depends on the characteristics of that development. Developers will be expected to justify why they have adopted a given lifetime for the development in their site-specific flood risk assessment. Generally commercial development is considered against 75 years, unless otherwise agreed with the planning authority. The adopted lifetime should be agreed with the relevant Development Management Case Officer.

11.1.3 The impact of climate change needs to be taken into account in a realistic way and developers, the Local Planning Authorities and the Environment Agency will need to agree what allowances are acceptable for particular proposals.

11.1.4 The Environment Agency has published guidance to assist with assessing the impacts of climate change in site-specific flood risk assessment. The guidance includes recommended contingency allowances for net sea level rise and peak rainfall intensity, peak river flow, offshore wind speed and wave height. Developers are requested to use this guidance when undertaking a site-specific flood risk assessment.

11.1.5 Please note when using this guidance, you will need to refer to the peak river flow allowances for the Anglian River Basin District.

12. Site Specific Flood Risk Assessment

12.1.1 The NPPF requires that a site-specific Flood Risk Assessment (FRA) should accompany all planning applications for development proposals of 1 ha or greater in Flood Zone 1 and all proposals for new development located in Flood Zones 2 and 3.

12.1.2 The FRA should identify and assess the risks of all forms of flooding to and from the development and should demonstrate how these risks will be managed, taking climate change into account.

12.1.3 For major developments in all Flood Zones, the FRA should identify opportunities to reduce the probability and consequences of flooding.

12.1.4 A FRA will also be required where the proposals (including change of use to a more vulnerable flood risk vulnerability classification) may be affected by other sources of flooding or where the Environment Agency, Internal Drainage Board or other bodies have indicated there may be drainage problems.

12.1.5 Any Site Specific FRA will be expected to incorporate the relevant minimum mitigation measures found in the standing advice matrix.

13. Emergency Planning and Evacuation

13.1. Are flood warning and evacuation plans needed?

13.1.1 The National Planning Practice Guidance advises one of the considerations to ensure that any new development is safe, including where there is a residual risk of flooding, is whether adequate flood warnings would be available to people using the development. A flood warning and evacuation plan is a requirement for sites at risk of flooding used for holiday or

short-let caravans and camping and are important at any site that has transient occupants (e.g. hostels and hotels).

13.2. What are the important considerations for flood warning and evacuation plans?

13.2.1 The National Planning Practice Guidance advises flood warning and evacuation plans will need to take account of the likely impacts of climate change, e.g. increased water depths and the impact on how people can be evacuated. In consultation with the authority's emergency planning staff, the local planning authority will need to ensure that evacuation plans are suitable through appropriate planning conditions or planning agreements.

13.2.2 In advising the local planning authority, the emergency services are unlikely to regard developments that increase the scale of any rescue that might be required as being safe. Even with defences in place, if the probability of inundation is high, safe access and egress should be maintained for the lifetime of the development. The practicality of safe evacuation from an area will depend on:

- the type of flood risk present, and the extent to which advance warning can be given in a flood event;
- the number of people that would require evacuation from the area potentially at risk;
- the adequacy of both evacuation routes and identified places that people could be evacuated to (and taking into account the length of time that the evacuation may need to last), and;
- sufficiently detailed and up to date evacuation plans being in place for the locality that address these and related issues.

13.2.3 Lincolnshire County Council has prepared an evacuation plan for East Coast Flooding which includes signed evacuation routes.

13.3. Who should be consulted on emergency planning issues and in relation to reservoirs?

13.3.1 There are two flood storage reservoirs within the district of South Holland, namely Surfleet Reservoir, and the Crowland and Cowbit Washes. The latter is designated as large raised reservoirs under the Reservoirs Act 1975.

13.3.2 The National Planning Practice Guidance advises local planning authorities to consult with their emergency planning officers as early as possible during the preparation of Local Plans, and also regarding any planning applications which have implications for emergency planning. Where issues affecting emergency services are identified it may be relevant to contact the local resilience forum – multi-agency partnerships made up of representatives from local public services which prepare for local incidents and catastrophic emergencies. Or in some cases, it may be appropriate for the local planning authority to consult the emergency services on specific emergency planning issues related to new developments.

13.3.3 Local planning authorities are also advised to consult with the owners/operators of raised reservoirs, to establish constraints upon safe development.

14. Sustainable Drainage

14.1.1 Surface water flood risk on site should be managed using sustainable drainage systems such as swales, filter drains, bio retention basins, permeable paving, rain gardens, green roofs, etc. Sustainable drainage systems (SuDS) should be designed to control surface water runoff as close to where it falls as possible and mimic the natural catchment process. The design should aim to reduce runoff by integrating stormwater controls throughout the site in small discrete units rather than using large flow attenuation and flow control structures.

14.1.2 SuDS provide opportunities to:

- reduce surface water run-off;
- encourage natural groundwater recharge;
- reduce pollution;
- enhance amenity and biodiversity.

14.1.3 The National Planning Practice Guidance requires sustainable drainage systems to be provided for all proposed major development, unless demonstrated to be inappropriate, and states that priority must be given to the use of sustainable drainage systems in areas at risk of flooding. All developments, regardless of scale and constraints, should seek to incorporate sustainable drainage.

14.1.4 Good SuDS design involves:

- managing surface runoff at its source where it is reasonably practicable to do so;
- managing surface runoff on the surface where it is reasonably practicable to do so;
- using public space where it serves more than one property and is reasonably practicable to do so;
- being cost-effective to operate and maintain over the life of the development;
- taking account of the likely impacts of climate change and changes in impermeable area over the design life of the development where it is reasonably practicable to do so.

14.1.5 Generally, the aim should be to discharge surface water runoff as high up the following hierarchy of drainage options as reasonably practicable:

- into the ground (infiltration);
- to a surface water body;
- to a surface water sewer, highway drain, or another drainage system;
- to a combined sewer.

14.1.6 SuDS design is an integrated process and must be considered early in the design process at the master planning stage. The runoff from properties and highways should be integrated and appropriate treatment stages applied. Flows should be managed in sequential sub-catchments (a management train) as close to the source as possible.

14.1.7 The minimum standards for SuDS are set out in the non-statutory Technical Guidance for Sustainable Drainage Systems.

14.1.8 Surface water management schemes should be designed to provide multiple benefits, contributing to the enhanced amenity of developed areas, providing wildlife habitats and opportunities for biodiversity enhancement, as well as providing flood risk management function.

14.1.9 Clear arrangements must be in place for the on-going maintenance and/or adoption of the proposed drainage system for the lifetime of the development. These arrangements must be approved at the planning or reserved matters stage for all major development.

15. Appendices

- Appendix A: Fluvial and Tidal Hazard Mapping
- Appendix B: Fluvial and Tidal Depth Mapping
- Appendix C: Standing Advice

Planning Policy

This section contains information on current and emerging planning policy for the South Holland district. It also contains advice on how to use the South East Lincolnshire Strategic Flood Risk Assessment (March 2017) and on applying the Sequential Test for Flood Risk to planning applications.

South East Lincolnshire Local Plan

We have produced a new Local Plan jointly with Boston Borough Council and Lincolnshire County Council.

The plan was submitted to the Secretary of State on 23 June 2017 and underwent an examination in public. The plan identifies land and allocates sites for different types of development such as housing and employment, in order to meet the area's needs, as well as identifying those areas of land which must be protected from development - perhaps because of their historic or environmental importance. It also covers a wide range of other planning related matters in the form of policies, against which planning applications can be judged.

The Plan was adopted on 8 March 2019. More information can be found on the South East Lincolnshire Local Plan website (opens new window).

South East Lincolnshire Strategic Flood Risk Assessment

The South East Lincolnshire Strategic Flood Risk Assessment (SFRA) (March 2017) is used to undertake the Sequential Test for flood risk in South Holland. Advice on how the Sequential Test should be applied for planning applications can be found on pages 12 and 13 of the strategic flood risk assessment report (revised December 2017).

- Strategic Flood Risk Assessment Report (including guidance on applying the Sequential Test for planning applications) (5.97MB) (opens new window)

For information on the type and extent of flood risk mitigation that may be required for a development to be deemed acceptable, please select the link titled 'Appendix C' on the South East Lincolnshire Local Plan website (opens new window).

The SFRA hazard and depth mapping can be accessed via the links below. For the purposes of the Sequential Test, the 21 (1 in 1) percent fluvial, 0.5 percent tidal mapping should be used for both hazard and depth.

- Strategic Flood Risk Assessment hazard mapping (opens new window)
- Strategic Flood Risk Assessment depth mapping (opens new window)

South East Lincolnshire
Standing Advice Matrix
Draft - v4

	A	B	C	D	E	F	G	H
1	Glossary/Key							
2	**Please refer to the National Planning Practice Guidance (Table 3) for advice on when the Sequential and Exception Tests are applicable**	Environment Agency Environmental Permitting Regime distance - any works within 9m of Tidal Main River, or 8m of tidal defences, including underlying or control of flow of any main or stream.	Danger to ALL (Hazard Rating >2)	Danger to MOST (Hazard Rating 1.25 - 2)	Danger to SOME (Hazard Rating 0.75 - 1.25)	Low Hazard (Hazard Rating 0 - 0.75)	Flood Zone 3	Flood Zone 2
3	**Water Compatible** (excluding development that includes essential ancillary sleeping or residential accommodation)	Consult EA	Appropriate Mitigation	Appropriate Mitigation	Appropriate Mitigation	Appropriate Mitigation	No Comment	No Comment
4	**Major & Non-major* 'Less Vulnerable'** uses, e.g. commercial/industrial development	Consult EA	Consult EA	Appropriate Mitigation	Appropriate Mitigation	No Comment	No Comment	No Comment
5	Tidal Risk Scenario advice only New short let **Camping and Caravan Sites** (incl. log cabins & chalets) - subject to flood warning and evacuation plan	Consult EA	Appropriate Mitigation	Appropriate Mitigation	Appropriate Mitigation	Appropriate Mitigation	Appropriate Mitigation	Appropriate Mitigation
6	Fluvial Risk Scenario advice only New short let **Camping and Caravan Sites** (incl. log cabins & chalets) - subject to flood warning and evacuation plan	Consult EA	EA **OBJECTS** to the principle of development due to risk to life	EA **OBJECTS** to the principle of development due to risk to life	Appropriate Mitigation	Appropriate Mitigation	Appropriate Mitigation	Appropriate Mitigation
7	**Change of Use** - Less Vulnerable to More Vulnerable or within More Vulnerable category, involving increase in risk to people - *please see note for other categories & exclusions*	Consult EA	Consult EA	Consult EA	Appropriate mitigation	Appropriate mitigation	No Comment	No Comment
8	**Non-major* More Vulnerable** uses, including residential development & residential holiday accom. (less than 10 dwellings/units or less than 0.5ha in size) except short let caravan sites - see A5 & A6 above	Consult EA	Consult EA	Appropriate Mitigation	Appropriate Mitigation	Appropriate Mitigation	No Comment	No Comment
9	**Major* 'More Vulnerable'** uses including residential development & residential holiday accom (not including camping/caravan sites) greater than 10 dwellings/units or 0.5ha in size	Consult EA	Consult EA	Consult EA	Consult EA	Consult EA	Consult EA	No Comment
10	**Essential Infrastructure**	Consult EA	Consult EA	Consult EA	Consult EA	Consult EA	Consult EA	No Comment
11	**Highly Vulnerable'** uses, e.g. caravans, mobile homes and park homes intended for permanent residential use - With the Exception of buildings and infrastructure explicitly for use in emergencies (which should be referred to the EA for bespoke advice)	Consult EA	**Object - Contrary to NPPF**	**Object - Contrary to NPPF**	**Object - Contrary to NPPF**	**Object - Contrary to NPPF**	**Object - Contrary to NPPF**	Consult EA
12	**definition taken from T&CP Direction 2009*							

South East Lincolnshire
Standing Advice Matrix
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Cell: A1

Note: NPPF - National Planning Policy Framework
NPPG - National Planning Practice Guidance
ST - National Planning Policy Framework Flood Risk Sequential Test
ET - National Planning Policy Framework Flood Risk Exception Test
EA - Environment Agency
SEL - South East Lincolnshire (incorporating Boston Borough Council & South Holland District Council)
SFRA - South East Lincolnshire Strategic Flood Risk Assessment
LPA - Local Planning Authority (Boston Borough Council/South Holland District Council as applicable)
LLFA - Lead Local Flood Authority (Lincolnshire County Council)
PD - Permitted Development
FFL - Finished Floor Level
GF - Ground Floor
ROY Zones - Red, Orange, Yellow Hazard Zones (Danger to All, Most & Some)
< - Less than
> - Greater than
NB: The advice in this matrix relates to flood risk from fluvial and tidal sources only. Applicants will need to discuss flooding from other sources with the relevant flood risk management authority.

The LPA is reminded that the advice contained in this matrix relates to flood resistance/resilience to built development. The LPA will still need to be satisfied with regard to the safety of people (including those with restricted mobility), the ability of such people to reach places of safety including safe refuges within buildings and the ability of the emergency services to access such buildings to rescue and evacuate those people, having regard to the Hazard Zone within which development proposals lie.

Cell: C2

Note: This category includes potential flood depths of between 0.3m to <2.5m, and potential velocities of 0 to 5m/s.

Cell: D2

Note: This category includes potential flood depths of between 0.2m to 2.0m, and potential velocities of 0 to 5m/s.

Cell: E2

Note: This category includes potential flood depths of between 0.05m to 0.5m, and potential velocities of 0 to 5m/s.

Cell: F2

Note: This category includes potential flood depths of between 0.5m to 0.25m, and potential velocities of 0 to 4m/s.

Cell: G2

Note: This is the area comprising of land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year. This does not consider the presence of defences.

Please note that this column relates to land within FZ3 that does not lie within any hazard zone. If the land lies within a hazard zone, please refer to the advice under the relevant hazard rating column.

Cell: H2

Note: This is the area comprising of land assessed as having between a 1 in 100 and a 1 in 1000 annual probability of river flooding (1% - 0.1%) or between a 1 in 200 and a 1 in 1000 annual probability of flooding from the sea (0.5% - 0.1%) in any year. This does not consider the presence of defences.

Please note that this column relates to land within FZ2 that does not lie within any hazard zone. If the land lies within a hazard zone, please refer to the advice under the relevant hazard rating column.

Cell: B3

Note: Under the terms of the Environmental Permitting Regulations 2016, any proposed works or structures in, under, over or within 8 metres measured horizontally from the foot of any bank on the landward side, or where there is no bank, within 8 metres measured horizontally from the top edge of the batter enclosing a main river or within 16m of a tidal defence structure may need to obtain a permit from, or register an exemption with, the Environment Agency. The applicant is requested to contact the Environment Agency's Flood and Coastal Risk Management team on 03708 506 506 for further information. Please note that an Environment Agency permit/exemption may be required irrespective of any Town and Country Planning Act approvals/permissions.

The Environment Agency may also request the removal of some Permitted Development rights in this location.

Cell: C3

Note:

The Environment Agency recommends that the LPA checks the proposed development will operate under flood conditions (i.e. essential electrical equipment), and that appropriate mitigation measures/flood resilience techniques have been incorporated into the development. We recommend that essential equipment is set above the 0.1% breach event depth in the climate change (2115) scenario.

Please 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).

The Environment Agency OBJECTS to proposals, which include ground floor ancillary sleeping accommodation as an adequate standard of safety will not be achievable within the predicted flood depths as shown in the Strategic Flood Risk Assessment/Hazard Mapping.

Marina developments sometimes pose particular issues and we recommend direct consultation with the Environment Agency on such development for bespoke advice

Cell: D3
Note: The Environment Agency recommends that the LPA checks the proposed development will operate under flood conditions (i.e. essential electrical equipment), and that appropriate mitigation measures/flood resilience techniques have been incorporated into the development. We recommend that essential equipment is set above the 0.1% breach event depth in the climate change (2115) scenario

Please 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)

The Environment Agency OBJECTS to proposals, which include ground floor ancillary sleeping accommodation as an adequate standard of safety will not be achievable within the predicted flood depths as shown in the Strategic Flood Risk Assessment/Hazard Mapping

Marina developments sometimes pose particular issues and we recommend direct consultation with the Environment Agency on such development for bespoke advice

Cell: E3
Note: The Environment Agency recommends that the LPA checks the proposed development will operate under flood conditions (i.e. essential electrical equipment), and that appropriate mitigation measures/flood resilience techniques have been incorporated into the development. We recommend that essential equipment is set above the 0.1% breach event depth in the climate change (2115) scenario

Please 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)

Marina developments sometimes pose particular issues and we recommend direct consultation with the Environment Agency on such development for bespoke advice

Cell: F3
Note: The Environment Agency recommends that the LPA checks the proposal will operate under flood conditions (i.e. essential electrical equipment), and that appropriate mitigation measures/flood resilience techniques have been incorporated into the development

Please 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)

Cell: D4
Note: Under the terms of the Environmental Permitting Regulations 2016, any proposed works or structures in, under, over or within 8 metres measured horizontally from the foot of any bank on the landward side, or where there is no bank, within 8 metres measured horizontally from the top edge of the batter enclosing a main river or within 16m of a tidal defence structure may need to obtain a permit from, or register an exemption with, the Environment Agency. The applicant is requested to contact the Environment Agency's Flood and Coastal Risk Management team on 03708 506 506 for further information. Please note that an Environment Agency permit/exemption may be required irrespective of any Town and Country Planning Act approvals/permissions

Cell: C4
Note: The proposal must be referred to the Environment Agency with a supporting Flood Risk Assessment, which contains evidence to justify the chosen finished floor level. This should be raised as high as practicable (minimum 300mm above the existing ground level)

The Flood Risk Assessment should also include confirmation that appropriate mitigation measures/flood resilience techniques have been incorporated into the development

Please 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)

Single storey buildings should be built with FFLs above the flood level (refer to the relevant 2115 1% fluvial or 0.5% tidal Max Depth Map). If this is not practicable an area of safe refuge will need to be provided or an appropriate flood warning and evacuation plan will need to be submitted to and approved by the LPA

It is recommended that proposals are referred to the Environment Agency at the pre-application stage in the process

Cell: D4
Note: The Environment Agency recommends that the following mitigation is incorporated into the development

The finished floor levels should be raised as high as practicable (minimum 300mm above the existing ground level). The Environment Agency recommends that appropriate mitigation measures/flood resilience techniques are incorporated into the development. Please 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)

Single storey buildings should be built with FFLs above the predicted flood depth (refer to the relevant 2115 1% fluvial or 0.5% tidal Max Depth Map). If this is not practicable an area of safe refuge will need to be provided or an appropriate flood warning and evacuation plan will need to demonstrate how this risk will be managed. It is the responsibility of the Local Planning Authority to determine the adequacy of the plan

Cell: E4
Note: The Environment Agency recommends that the following mitigation is incorporated into the development

The finished floor levels should be raised as high as practicable (minimum 300mm above the existing ground level). The Environment Agency recommends that appropriate mitigation measures/flood resilience techniques are incorporated into the development. See 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).

Single storey buildings should be built with FFLs above the predicted flood depth (refer to the relevant 2115 1% fluvial or 0.5% tidal Max Depth Map). If this is not practicable an area of safe refuge should be provided or an appropriate flood warning and evacuation plan will need to demonstrate how this risk will be managed. It is the responsibility of the Local Planning Authority to determine the adequacy of the plan.

Cell: B5
Note: Under the terms of the Environmental Permitting Regulations 2010, any proposed works or structures in, under, over or within 8 metres measured horizontally from the foot of any bank on the landward side, or where there is no bank, within 8 metres measured horizontally from the top edge of the batter enclosing a main river or within 16m of a tidal defence structure may need to obtain a permit from, or register an exemption with, the Environment Agency. The applicant is requested to contact the Environment Agency's Flood and Coastal Risk Management team on 03708 506 506 for further information. Please note that an Environment Agency permit/exemption may be required irrespective of any Town and Country Planning Act approvals/permissions.

Cell: C5
Note:
The NPPG requires that proposals for holiday or short let caravans and camping sites are accompanied by a flood warning and evacuation plan, undertaken and agreed in consultation with the LPA's Emergency Planning Officer.

It is recommended that static caravans are secured to the ground using an adequate mechanism such as chains and ground anchors and the finished floor level set at a minimum 300mm above ground level.

The Environment Agency requires the imposition of the following condition:

CONDITION: No caravans/chalets/log cabins on the site shall be occupied between 1 November (or the following Sunday, if half terms extends into November) in any one year and 14 March in the succeeding year.

REASON: To reduce the impact of flooding.

If the application is for occupancy outside of these dates, please refer the application to the Environment Agency, together with the FRA, for site specific assessment of the risks and bespoke advice.

Cell: D5
Note: The NPPG requires that proposals for holiday or short let caravans and camping sites are accompanied by a flood warning and evacuation plan, undertaken and agreed in consultation with the LPA's Emergency Planning Officer.

It is recommended that static caravans are secured to the ground using an adequate mechanism such as chains and ground anchors and the finished floor level set at a minimum 300mm above ground level.

The Environment Agency requires the imposition of the following condition:

CONDITION: No caravans/chalets/log cabins on the site shall be occupied between 1 November (or the following Sunday, if half terms extends into November) in any one year and 14 March in the succeeding year.

REASON: To reduce the impact of flooding.

If the application is for occupancy outside of these dates, please refer the application to the Environment Agency, together with the FRA, for site specific assessment of the risks and bespoke advice.

Cell: E5
Note:
The NPPG requires that proposals for holiday or short let caravans and camping sites are accompanied by a flood warning and evacuation plan, undertaken and agreed in consultation with the LPA's Emergency Planning Officer.

It is recommended that static caravans are secured to the ground using an adequate mechanism such as chains and ground anchors and the finished floor level set at a minimum 300mm above ground level.

The Environment Agency requires the imposition of the following condition:

CONDITION: No caravans/chalets/log cabins on the site shall be occupied between 1 November (or the following Sunday, if half terms extends into November) in any one year and 14 March in the succeeding year.

REASON: To reduce the impact of flooding.

If the application is for occupancy outside of these dates, please refer the application to the Environment Agency, together with the FRA, for site specific assessment of the risks and bespoke advice.

Cell: F5
Note:
The NPPG requires that proposals for holiday or short let caravans and camping sites are accompanied by a flood warning and evacuation plan, undertaken and agreed in consultation with the LPA's Emergency Planning Officer.

It is recommended that static caravans are secured to the ground using an adequate mechanism such as chains and ground anchors and the finished floor level set at a minimum 300mm above ground level

Cell: G5
Note:
The NPPG requires that proposals for holiday or short let caravans and camping sites are accompanied by a flood warning and evacuation plan, undertaken and agreed in consultation with the LPA's Emergency Planning Officer

It is recommended that static caravans are secured to the ground using an adequate mechanism such as chains and ground anchors and the finished floor level set at a minimum 300mm above ground level

Cell: H5
Note: The NPPG requires that proposals for holiday or short let caravans and camping sites are accompanied by a flood warning and evacuation plan, undertaken and agreed in consultation with the LPA's Emergency Planning Officer

It is recommended that static caravans are secured to the ground using an adequate mechanism such as chains and ground anchors and the finished floor level set at a minimum 300mm above ground level

Cell: D6
Note: Under the terms of the Environmental Permitting Regulations 2016, any proposed works or structures in, under, over or within 8 metres measured horizontally from the foot of any bank on the landward side, or where there is no bank, within 8 metres measured horizontally from the top edge of the batter enclosing a main river or within 16m of a tidal defence structure may need to obtain a permit from, or register an exemption with, the Environment Agency. The applicant is requested to contact the Environment Agency's Flood and Coastal Risk Management team on 03708 506 506 for further information. Please note that an Environment Agency permit/exemption may be required irrespective of any Town and Country Planning Act approvals/permissions

Cell: C6
Note: The Environment Agency OBJECTS to new short let camping and caravan sites (incl. log cabins & chalets) in this hazard area as it is not possible to mitigate against the depths and/or velocity of flooding that could be experienced in this hazard category, which present a danger to all

Cell: D6
Note: The Environment Agency OBJECTS to new short let camping and caravan sites (incl. log cabins & chalets) in this hazard area as it is not possible to mitigate against the depths and/or velocity of flooding that could be experienced in this hazard category, which present a danger to most

Cell: E6
Note: The NPPG requires that proposals for holiday or short let caravans and camping sites are accompanied by a flood warning and evacuation plan, undertaken and agreed in consultation with the LPA's Emergency Planning Officer

It is recommended that static caravans are secured to the ground using an adequate mechanism such as chains and ground anchors and the finished floor level set at a minimum 300mm above ground level

Cell: F6
Note: The NPPG requires that proposals for holiday or short let caravans and camping sites are accompanied by a flood warning and evacuation plan, undertaken and agreed in consultation with the LPA's Emergency Planning Officer

It is recommended that static caravans are secured to the ground using an adequate mechanism such as chains and ground anchors and the finished floor level set at a minimum 300mm above ground level

Cell: G6
Note: The NPPG requires that proposals for holiday or short let caravans and camping sites are accompanied by a flood warning and evacuation plan, undertaken and agreed in consultation with the LPA's Emergency Planning Officer

It is recommended that static caravans are secured to the ground using an adequate mechanism such as chains and ground anchors and the finished floor level set at a minimum 300mm above ground level

Cell: H6
Note: The NPPG requires that proposals for holiday or short let caravans and camping sites are accompanied by a flood warning and evacuation plan, undertaken and agreed in consultation with the LPA's Emergency Planning Officer

It is recommended that static caravans are secured to the ground using an adequate mechanism such as chains and ground anchors and the finished floor level set at a minimum 300mm above ground level

Cell: A7
Note: Please note change of use of land to caravan/camping sites are excluded from this category - see cells A5&A6 above for advice

The EA makes 'no comments' to the following change of use applications (see NPPG Table 2 for Vulnerability Classification)

Water Compatible to Water Compatible
Less Vulnerable use to Less Vulnerable use
More Vulnerable use to Less Vulnerable use
More Vulnerable use to More Vulnerable use - where there is no increase in risk to people (if this is not clear, please refer to the EA for bespoke advice)

All other change of use applications within the 'Danger to All' and 'Danger to Most' categories should be referred to the EA with a site specific FRA to obtain bespoke advice.

Cell: B7
Note: Under the terms of the Environmental Permitting Regulations 2016, any proposed works or structures in, under, over or within 8 metres measured horizontally from the foot of any bank on the landward side, or where there is no bank, within 8 metres measured horizontally from the top edge of the batter enclosing a main river or within 16m of a tidal defence structure may need to obtain a permit from, or register an exemption with, the Environment Agency. The applicant is requested to contact the Environment Agency's Flood and Coastal Risk Management team on 03708 506 506 for further information. Please note that an Environment Agency permit/exemption may be required irrespective of any Town and Country Planning Act approvals/permissions.

The Environment Agency may also request the removal of some Permitted Development rights in this location.

Cell: C7
Note:
The proposal should be referred to the Environment Agency with a supporting Flood Risk Assessment which demonstrates that the proposal will be safe for its lifetime.

The Environment Agency is likely to object to proposals including ground floor habitable accommodation.

The FRA should aim to identify mitigation measures in line with those required for new build development of the same type, as far as this is practicable.

Cell: D7
Note: The proposal should be referred to the Environment Agency with a supporting Flood Risk Assessment which demonstrates that the proposal will be safe for its lifetime.

The Environment Agency is likely to object to proposals including ground floor habitable accommodation.

The FRA should aim to identify mitigation measures in line with those required for new build development of the same type, as far as this is practicable.

Cell: E7
Note: The Environment Agency recommends that the proposal is accompanied by a Flood Risk Assessment which confirms that appropriate mitigation measures/flood resilience techniques have been incorporated into the development up to the predicted flood level (see Max Depth Map for 2115 scenario).

Please 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).

The FRA should aim to identify mitigation measures in line with those required for new build development of the same type, as far as this is practicable.

The Environment Agency OBJECTS to proposals which include self contained ground floor residential accommodation as an adequate standard of safety will not be achievable within the predicted flood depths as shown in the Strategic Flood Risk Assessment/Hazard Mapping. You may wish to refer applications that include self contained ground flood residential accommodation to us for a bespoke response.

Cell: F7
Note: The Environment Agency recommends that the proposal is accompanied by a Flood Risk Assessment which confirms that appropriate mitigation measures/flood resilience techniques have been incorporated into the development up to the predicted flood level (see Max Depth Map for 2115 scenario).

Please 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).

The FRA should aim to identify mitigation measures in line with those required for new build development of the same type, as far as this is practicable.

Cell: A8
Note: Housing proposals will need to pass the flood risk Sequential Test as outlined in the NPPF & NPPG. To do this applicants will need to demonstrate that there is an identified need for the housing, which is not being met by those sites allocated in the Local Plan.

It is recommended that applicants discuss this with the relevant Planning Officer to ascertain the likelihood of the proposal passing the ST prior to working up a detailed planning application. In the event that the proposal passes the ST, an accompanying Flood Risk Assessment will also need to demonstrate that the proposal can be made safe for its lifetime, referring to the mitigation advice contained in this matrix.

Cell: B8

Note: Under the terms of the Environmental Permitting Regulations 2016, any proposed works or structures in, under, over or within 8 metres measured horizontally from the foot of any bank on the landward side, or where there is no bank, within 8 metres measured horizontally from the top edge of the batter enclosing a main river or within 16m of a tidal defence structure may need to obtain a permit from, or register an exemption with, the Environment Agency. The applicant is requested to contact the Environment Agency's Flood and Coastal Risk Management team on 03708 506 506 for further information. Please note that an Environment Agency permit/exemption may be required irrespective of any Town and Country Planning Act approvals/permissions.

The Environment Agency may also request the removal of some Permitted Development rights at this location.

Cell: C8
Note: The Environment Agency requires direct consultation on proposals in this hazard zone. The NPPF requires that proposals are accompanied by a Flood Risk Assessment which contains evidence that appropriate mitigation measures/flood resilience techniques have been incorporated into the development.

The applicant is advised to 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).

Finished floor levels (FFL) should be informed by the predicted flood depth maps (refer to the relevant 2115 1% fluvial or 0.5% tidal Max Depth Map) and set as required below (single storey proposals must use the 0.1% event, 2115 scenario, for setting FFLs):

depths of >1.6m
It is unlikely that mitigation measures would prevent flood water from entering the building at ground floor level. Therefore, proposals must have a minimum of 2 storeys with no ground floor habitable accommodation. The first floor living accommodation must be above the highest predicted flood depth. *

depths of 1.1.6m
Proposals must have a minimum of 2 storeys, with FFL set a minimum of 1m above existing ground level, flood resilient construction to a height 300mm above the predicted flood depth, and demountable defences to 600mm above FFL.

depths 0.5 - 1m
FFL must be set 1m above ground level, with flood resilient construction to a height of 300mm above the predicted flood depth.

depths of 0.25 - 0.5
FFL must be set 500mm above ground level, with flood resilient construction to a height 300mm above the predicted flood depth.

depths 0 - 0.25
FFL must be set 300mm above ground level.

* Where there is to be no ground floor habitable accommodation, the Environment Agency requires the imposition of the following conditions in order to ensure this space is not subsequently developed:

CONDITION
The ground floor[s] of the [property][properties][plot nos. *] hereby approved shall be used as [garage][WC][utility][bath/shower room] only and as annotated on approved drawings. *** and for no other habitable accommodation.

REASON
In accordance with the details of the application and to ensure that there is no sleeping or vulnerable living accommodation on the ground floor, in order to protect the inhabitants of the property from the risk of flooding in accordance with the NPPF.

CONDITION
Notwithstanding the provisions of the Town and Country Planning (General Permitted Development) Order 1995 (or any order revoking and re-enacting that Order with or without modification), no extensions to provide additional habitable/living accommodation shall be erected [other than those expressly authorised by this permission].

REASON
To reduce the risk and impact of flooding.

Cell: D8
Note: The NPPF requires that proposals are accompanied by a Flood Risk Assessment which contains evidence that appropriate mitigation measures/flood resilience techniques have been incorporated into the development.

Finished floor levels (FFL) should be informed by the predicted flood depth maps (refer to the relevant 2115 1% fluvial or 0.5% tidal Max Depth Map) and set as required below (single storey proposals must use the 0.1% event, 2115 scenario, for setting FFLs):

depths of >1.6m
It is unlikely that mitigation measures would prevent flood water from entering the building at ground floor level. Therefore, proposals must have a minimum of 2 storeys with no ground floor habitable accommodation. The first floor living accommodation must be above the highest predicted flood depth. *

depths of 1.1.6m
Proposals must have a minimum of 2 storeys, with FFL set a minimum of 1m above existing ground level, flood resilient construction to a height 300mm above the predicted flood depth, and demountable defences to 600mm above FFL.

depths 0.5 - 1m
FFL must be set 1m above ground level, with flood resilient construction to a height of 300mm above the predicted flood depth.

depths of 0.25 - 0.5
FFL must be set 500mm above ground level, with flood resilient construction to a height 300mm above the predicted flood depth.

depths 0 - 0.25

FFL must be set 300mm above ground level

* Where there is to be no ground floor habitable accommodation, the Environment Agency requires the imposition of the following conditions in order to ensure this space is not subsequently developed

CONDITION
The ground floor[s] of the [property][properties][plot nos. *] hereby approved shall be used as [garage][WC][utility][bath/shower room] only and as annotated on approved drawings *** and for no other habitable accommodation

REASON
In accordance with the details of the application and to ensure that there is no sleeping or vulnerable living accommodation on the ground floor, in order to protect the inhabitants of the property from the risk of flooding in accordance with the NPPF

CONDITION
Notwithstanding the provision of the Town and Country Planning (General Permitted Development) Order 1995 (or any order revoking and re-enacting that Order with or without modification), no extensions to provide additional habitable/living accommodation shall be erected [other than those expressly authorised by this permission]

REASON
To reduce the risk and impact of flooding

The applicant is advised to 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)

Cell: E8
Note: The NPPF requires that proposals are accompanied by a Flood Risk Assessment which contains evidence that appropriate mitigation measures/flood resilience techniques have been incorporated into the development

Finished floor levels (FFL) should be informed by the predicted flood depth maps (refer to the relevant 2115 1% fluvial or 0.5% tidal Max Depth Map) and set as required below (single storey proposals must use the 0.1% event 2115 scenario for setting FFL):

depths of 0.25 - 0.5
FFL must be set 500mm above ground level, with flood resilient construction to a height 300mm above the predicted flood depth

depths 0 - 0.25
FFL must be set 300mm above ground level

The applicant is advised to 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)

Cell: F8
Note: The NPPF requires that the proposal is accompanied by a Flood Risk Assessment which contains evidence that appropriate mitigation measures/flood resilience techniques have been incorporated into the development

Please 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

Cell: A9
Note: Housing proposals will need to pass the flood risk Sequential Test as outlined in the NPPF & NPPG. To do this applicants will need to demonstrate that there is an identified need for the housing, which is not being met by those sites allocated in the Local Plan

It is recommended that applicants discuss this with the relevant Planning Officer to ascertain the likelihood of the proposal passing the ST prior to working up a detailed planning application. In the event that the proposal passes the ST, an accompanying Flood Risk Assessment will also need to demonstrate that the proposal can be made 'safe' for its lifetime, referring to the mitigation advice contained in this matrix

Cell: B9
Note: Under the terms of the Environmental Permitting Regulations 2016, any proposed works or structures in, under, over or within 8 metres measured horizontally from the foot of any bank on the landward side, or where there is no bank, within 8 metres measured horizontally from the top edge of the batter enclosing a main river or within 16m of a tidal defence structure may need to obtain a permit from, or register an exemption with, the Environment Agency. The applicant is requested to contact the Environment Agency's Flood and Coastal Risk Management team on 03708 506 506 for further information. Please note that an Environment Agency permit/exemption may be required irrespective of any Town and Country Planning Act approvals/permissions

The Environment Agency may also request the removal of some Permitted Development rights in this location

Cell: C9
Note: The Environment Agency requires direct consultation on proposals in this hazard zone. The NPPF requires that proposals are accompanied by a Flood Risk Assessment which contains evidence that appropriate mitigation measures/flood resilience techniques have been incorporated into the development. The Environment Agency also wishes to be consulted on the Sequential Test evidence. Applicants will need to demonstrate that housing proposals are required to meet an identified local housing need

The applicant is advised to 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)

Finished floor levels (FFL) should be informed by the predicted flood depth maps (refer to the relevant 2115 1% fluvial or 0.5% tidal Max Depth Map) and set as required below (single storey proposals must use the 0.1% event 2115 scenario for setting FFLs):

depths of >1.6m
It is unlikely that mitigation measures would prevent flood water from entering the building at ground floor level. Therefore, proposals must have a minimum of 2 storeys with no ground floor habitable accommodation. The first floor living accommodation must be above the

APPENDIX 8



Technical Guidance to the National Planning Policy Framework

March 2012
Department for Communities and Local Government

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Introduction

1. This document provides additional guidance to local planning authorities to ensure the effective implementation of the planning policy set out in the National Planning Policy Framework on development in areas at risk of flooding and in relation to mineral extraction. This guidance retains key elements of Planning Policy Statement 25 and of the existing minerals policy statements and minerals planning guidance notes which are considered necessary and helpful in relation to these policy areas. The retention of this guidance is an interim measure pending a wider review of guidance to support planning policy.

Flood risk

2. As set out in the National Planning Policy Framework, inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere. For these purposes:

   - "areas at risk of flooding" means land within Flood Zones 2 and 3; or land within Flood Zone 1 which has critical drainage problems and which has been notified to the local planning authority by the Environment Agency;

   - "flood risk" means risk from all sources of flooding - including from rivers and the sea, directly from rainfall on the ground surface and rising groundwater, overwhelmed sewers and drainage systems, and from reservoirs, canals and lakes and other artificial sources.

The Sequential and Exception Tests

3. As set out in the National Planning Policy Framework, the aim of the Sequential Test is to steer new development to areas with the lowest probability of flooding. The flood zones (see table 1) are the starting point for this sequential approach. Zones 2 and 3 are shown on the flood map[1] with Flood Zone 1 being all the land falling outside Zones 2 and 3. These flood zones refer to the probability of sea and river flooding only, ignoring the presence of existing defences.

4. Strategic Flood Risk Assessments (see paragraphs 7-8) refine information on the probability of flooding, taking other sources of flooding and the impacts of climate change (see paragraphs 11-15) into account. They provide the basis for applying the Sequential Test, on the basis of the flood zones in table 1. Where table 1

[1] To access the flood map, see the Environment Agency's website at: http://www.environment-agency.gov.uk/homeandleisure/floods/default.aspx

indicates the need to apply the Exception Test (as set out in the National Planning Policy Framework), the scope of a Strategic Flood Risk Assessment will be widened to consider the impact of the flood risk management infrastructure on the frequency, impact, speed of onset, depth and velocity of flooding within the flood zones considering a range of flood risk management maintenance scenarios. Where a Strategic Flood Risk Assessment is not available, the Sequential Test will be based on the Environment Agency flood zones.

5. The overall aim should be to steer new development to Flood Zone 1. Where there are no reasonably available sites in Flood Zone 1, local planning authorities allocating land in local plans or determining planning applications for development at any particular location should take into account the flood risk vulnerability of land uses (see table 2) and consider reasonably available sites in Flood Zone 2, applying the Exception Test if required (see table 3). Only where there are no reasonably available sites in Flood Zones 1 or 2 should the suitability of sites in Flood Zone 3 be considered, taking into account the flood risk vulnerability of land uses and applying the Exception Test if required.

Table 1: Flood zones

(Note: These flood zones refer to the probability of river and sea flooding, ignoring the presence of defences)

Zone 1 - low probability

Definition

This zone comprises land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding (<0.1%).

Appropriate uses

All uses of land are appropriate in this zone.

Flood risk assessment requirements

For development proposals on sites comprising one hectare or above the vulnerability to flooding from other sources as well as from river and sea flooding, and the potential to increase flood risk elsewhere through the addition of hard surfaces and the effect of the new development on surface water run-off, should be incorporated in a flood risk assessment. This need only be brief unless the factors above or other local considerations require particular attention.

Policy aims

In this zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area and beyond through the layout and form of the development, and the appropriate application of sustainable drainage systems[2].

[2] Sustainable drainage systems cover the whole range of sustainable approaches to surface drainage management. They are designed to control surface water run off close to where it falls and mimic natural drainage as closely as possible.

Zone 2 - medium probability

Definition
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.

Appropriate uses
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.

Policy aims
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.

Zone 3a - high probability

Definition
This zone comprises land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.

Appropriate uses
The water-compatible and less vulnerable uses of land (table 2) are appropriate in this zone. The highly vulnerable uses should not be permitted in this zone.

The more vulnerable uses and essential infrastructure should only be permitted in this zone if the Exception Test is passed. Essential infrastructure permitted in this zone should be designed and constructed to remain operational and safe for users in times of flood.

Flood risk assessment requirements
All development proposals in this zone should be accompanied by a flood risk assessment.

Policy aims
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;

- relocate existing development to land in zones with a lower probability of flooding; and
- create space for flooding to occur by restoring functional floodplain and flood flow pathways and by identifying, allocating and safeguarding open space for flood storage.

Zone 3b - the functional floodplain

Definition

This zone comprises land where water *has* to flow or be stored in times of flood.

Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. But land which would flood with an annual probability of 1 in 20 (5%) or greater in any year, or is designed to flood in an extreme (0.1%) flood, should provide a starting point for consideration and discussions to identify the functional floodplain.

Appropriate uses

Only the water-compatible uses and the essential infrastructure listed in table 2 that has to be there should be permitted in this zone. It should be designed and constructed to:

- remain operational and safe for users in times of flood;
- result in no net loss of floodplain storage;
- not impede water flows; and
- not increase flood risk elsewhere.

Essential infrastructure in this zone should pass the Exception Test.

Flood risk assessment requirements

All development proposals in this zone should be accompanied by a flood risk assessment.

Policy aims

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;
- relocate existing development to land with a lower probability of flooding.

Table 2: Flood risk vulnerability classification

Essential infrastructure • Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk. • Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood. • Wind turbines.
Highly vulnerable • Police stations, ambulance stations and fire stations and command centres and telecommunications installations required to be operational during flooding. • Emergency dispersal points. • Basement dwellings. • Caravans, mobile homes and park homes intended for permanent residential use[3]. • Installations requiring hazardous substances consent[4]. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as "essential infrastructure")[5].
More vulnerable • 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[6]. • Sites used for holiday or short-let caravans and camping, *subject to a specific warning and evacuation plan.*[7]
Less vulnerable • Police, ambulance and fire stations which are *not* required to be operational during flooding. • Buildings used for shops, financial, professional and other services,

[3] For any proposal involving a change of use of land to a caravan, camping or chalet site, or to a mobile home site or park home site, the Sequential and Exception Tests should be applied.
[4] See Circular 04/00: *Planning controls for hazardous substances* (paragraph 18) at: www.communities.gov.uk/publications/planningandbuilding/circularplanningcontrols
[5] In considering any development proposal for such an installation, local planning authorities should have regard to planning policy on pollution in the National Planning Policy Framework.
[6] For definition, see *Planning for Sustainable Waste Management: Companion Guide to Planning Policy Statement 10* at www.communities.gov.uk/publications/planningandbuilding/planningsustainable
[7] See footnote 3.

restaurants and cafes, hot food takeaways, offices, general industry, storage and distribution, non–residential institutions not included in "more vulnerable", and assembly and leisure. • Land and buildings used for agriculture and forestry. • Waste treatment (except landfill and hazardous waste facilities). • Minerals working and processing (except for sand and gravel working). • Water treatment works which do *not* need to remain operational during times of flood. • Sewage treatment works (if adequate measures to control pollution and manage sewage during flooding events are in place).
Water-compatible development • Flood control infrastructure. • Water transmission infrastructure and pumping stations. • Sewage transmission infrastructure and pumping stations. • Sand and gravel working. • Docks, marinas and wharves. • Navigation facilities. • Ministry of Defence defence installations. • Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location. • Water-based recreation (excluding sleeping accommodation). • Lifeguard and coastguard stations. • Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms. • Essential ancillary sleeping or residential accommodation for staff required by uses in this category, *subject to a specific warning and evacuation plan*.

Notes to table 2:

a. This classification is based partly on Department for Environment, Food and Rural Affairs and Environment Agency research on *Flood Risks to People* (*FD2321/TR2*)[8] and also on the need of some uses to keep functioning during flooding.

b. Buildings that combine a mixture of uses should be placed into the higher of the relevant classes of flood risk sensitivity. Developments that allow uses to be distributed over the site may fall within several classes of flood risk sensitivity.

c. The impact of a flood on the particular uses identified within this flood risk vulnerability classification will vary within each vulnerability class. Therefore, the flood risk management infrastructure and other risk mitigation measures needed to ensure the development is safe may differ between uses within a particular vulnerability classification.

[8] See website for further details.
www.defra.gov.uk/science/Project_Data/DocumentLibrary/FD2320_3364_TRP.pdf

Table 3: Flood risk vulnerability and flood zone 'compatibility'

Flood risk vulnerability classification (see table 2)		Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Flood zone (see table 1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test required	✓	✓
	Zone 3a	Exception Test required	✓	×	Exception Test required	✓
	Zone 3b functional floodplain	Exception Test required	✓	×	×	×

Key: ✓ Development is appropriate.
× Development should not be permitted.

Notes to table 3:
This table does not show:
a. the application of the Sequential Test which guides development to Flood Zone 1 first, then Zone 2, and then Zone 3;
b. flood risk assessment requirements; or
c. the policy aims for each flood zone.

Flood risk assessment

6. Properly prepared assessments of flood risk will inform the decision-making process at all stages of development planning. A Strategic Flood Risk Assessment is a study carried out by one or more local planning authorities to assess the risk to an area from flooding from all sources, now and in the future, taking account of the impacts of climate change, and to assess the impact that changes or development in the area will have on flood risk. It may also identify, particularly at more local levels, how to manage those changes to ensure that flood risk is not increased. A site-specific flood risk assessment is carried out by, or on behalf of, a developer to assess the risk to a development site and demonstrate how flood risk from all sources of flooding to the development itself and flood risk to others will be managed now, and taking climate change into account. There should be iteration between the different levels of flood risk assessment.

Strategic Flood Risk Assessment

7. As set out in the National Planning Policy Framework, Local Plans should be supported by Strategic Flood Risk Assessment. The Strategic Flood Risk Assessment should be prepared in consultation with the Environment Agency,

local planning authorities' own functions of emergency response and drainage authority under the Land Drainage Act 1991, and where appropriate, internal drainage boards. Initially the Strategic Flood Risk Assessment will be used to refine information on the areas that may flood, taking into account other sources of flooding and the impacts of climate change, in addition to the information on the flood map. Local planning authorities should use the Strategic Flood Risk Assessment to inform their knowledge of flooding, refine the information on the flood map and determine the variations in flood risk from all sources of flooding across and from their area. These should form the basis for preparing appropriate policies for flood risk management for these areas. The Strategic Flood Risk Assessment should be used to inform the sustainability appraisal (incorporating the Strategic Environmental Assessment Directive) of local development documents, and will provide the basis from which to apply the Sequential Test and Exception Test in the development allocation and development control process.

8. Where local planning authorities have been unable to allocate all proposed development and infrastructure in accordance with the Sequential Test, taking account of the flood vulnerability category of the intended use, it will be necessary to increase the scope of the Strategic Flood Risk Assessment to provide the information necessary for application of the Exception Test. This should, additionally, consider the beneficial effects of flood risk management infrastructure in generally reducing the extent and severity of flooding when compared to the flood zones on the flood map. The increased scope of the Strategic Flood Risk Assessment will enable the production of mapping showing flood outlines for different probabilities, impact, speed of onset, depth and velocity variance of flooding taking account of the presence and likely performance of flood risk management infrastructure.

Site-specific flood risk assessment

9. As set out in the National Planning Policy Framework, local planning authorities should only consider development in flood risk areas appropriate where informed by a site-specific flood risk assessment[9]. This should identify and assess the risks of all forms of flooding to and from the development and demonstrate how these flood risks will be managed so that the development remains safe throughout its lifetime, taking climate change into account. Those proposing developments should take advice from the emergency services when producing an evacuation plan for the development as part of the flood risk assessment.

[9] The Environment Agency provides 'standing advice' on flood risk – see the Agency's website at: http://www.environment-agency.gov.uk/research/planning/82584.aspx . Applicants for planning permission will find this advice helpful when preparing a site-specific flood risk assessment for, and before designing, a lower risk development (and for ensuring extensions or alterations are designed and constructed to conform to any flood protection already incorporated in the property and include flood resilience measures in the design). The Agency also provides standing advice to enable local planning authorities to clearly identify the type of planning applications on which they should consult the Agency, and to make decisions on low risk applications where flood risk is an issue, without directly consulting the Agency for an individual response.

10. Minor developments[10] are unlikely to raise significant flood risk issues unless they would:

- have an adverse effect on a watercourse, floodplain or its flood defences;
- would impede access to flood defence and management facilities; or
- where the cumulative impact of such developments would have a significant effect on local flood storage capacity or flood flows.

Taking climate change into account

11. Global sea level will continue to rise, depending on greenhouse gas emissions and the sensitivity of the climate system. The relative sea level rise in England also depends on the local vertical movement of the land, which is generally falling in the south-east and rising in the north and west. In preparing a Strategic Flood Risk Assessment or a site-specific flood risk assessment, the allowances for the rates of relative sea level rise shown in table 4 should be used as a starting point for considering flooding from the sea, along with the sensitivity ranges for wave height and wind speed in table 5.

Table 4: Recommended contingency allowances for net sea level rises

	Net sea level rise (mm per year) relative to 1990			
	1990 to 2025	**2025 to 2055**	**2055 to 2085**	**2085 to 2115**
East of England, east midlands, London, south-east England (south of Flamborough Head)	4.0	8.5	12.0	15.0
South-west England	3.5	8.0	11.5	14.5
North-west England, north-east England (north of Flamborough Head)	2.5	7.0	10.0	13.0

Notes to table 4:

a. For deriving sea levels up to 2025, the 4mm per year, 3mm per year and 2.5mm per year rates (covering the three geographical groups respectively), should be applied back to the 1990 base sea level year. From 2026 to 2055, the increase in sea level in this period is derived by adding the number of years on from 2025 (to 2055), multiplied by the respective rate shown in the table. Subsequent time periods 2056 to 2085 and 2086 to 2115 are treated similarly.

[10] Minor development means:
- Minor non-residential extensions: industrial/commercial/leisure etc. extensions with a footprint less than 250sqm.
- Alterations: development that does not increase the size of buildings e.g. alterations to external appearance.
- Householder development: e.g. sheds, garages, games rooms etc. within the curtilage of the existing dwelling in addition to physical extensions to the existing dwelling itself. This definition excludes any proposed development that would create a separate dwelling within the curtilage of the existing dwelling e.g. subdivision of houses into flats.

APPENDIX 9

Sustainable drainage systems

Sustainable drainage systems (SuDS) are designed to manage stormwater locally (as close its source as possible), to mimic natural drainage and encourage its infiltration, attenuation and passive treatment.

SuDS are designed to both manage the flood and pollution risks resulting from urban runoff and to contribute wherever possible to environmental enhancement and place making. With this in mind, the multi-functionality and multiple benefits of SuDS should always be considered.

Key Principles

SuDS essentially operate through infiltration where possible and attenuation combined with slow conveyance. Many SuDS solutions employ a combination of infiltration and attenuation. Situations where infiltration is not an option, for example because of the soil type or contamination, tend to favour attenuation type SuDS.

Good SuDS design should follow the SuDS philosophy, which calls for the inclusion of a number of key principles:

1. A management train – using a number of SuDS components in series and characterising areas into land use and drainage type
2. Source control – managing runoff as close as possible to where it falls as rain
3. Managing water on the surface – wherever possible, runoff should be managed on the surface
4. Early and effective engagement – consider the use of SuDS at the earliest stages of site selection and design.

Good practice with attenuation and slow conveyance type SuDS is to use 'soft engineered' surface features rather than underground storage and to align the conveyance train with exceedence flood routing.

When SuDS are used in new developments with highways or retrofitted in existing developed areas where there is also highway drainage, the highway drainage arrangements will generally be a key theme which shapes the form of the SuDS. This is because highway run-off often forms a high percentage of the total run-off from developed areas and is also the surface water element that contains the highest level of pollutants.

Benefits of SuDS

Sustainable drainage systems (SuDS) mimic natural drainage processes to reduce the effect on the quality and quantity of run-off from developments and provide amenity and biodiversity benefits. When specifying SuDS, early consideration of potential benefits and opportunities will help deliver the best results.

The benefits of SuDS include:

- flood risk management – reducing the risk of flooding from development
- water quality management – reducing the impact of diffuse pollution
- improving amenity and biodiversity – the integration of green infrastructure with SuDS solutions can help to create habitat, recreational and biodiversity areas
- water resources – SuDS can help to recharge groundwater supplies and capture rainwater for re-use purposes
- community benefits – attractive, well designed public open space that incorporate SuDS can help to create better communities through social cohesion and quality of life improvements
- recreation – multi-purpose SuDS components can not only manage surface water, but also act as sports/play areas
- education – SuDS in schools provide a fantastic learning opportunity whilst also providing additional recreational space
- enabling development – SuDS can help to free up capacity in already established drainage networks, and the provision of SuDS can often be a prerequisite of planning permission.

Recent revisions to planning policy and the National Planning Policy Framework recognise the role that well-designed SuDS have in managing surface water.

More about the benefits of SuDS and their application [http://www.susdrain.org] – Susdrain website

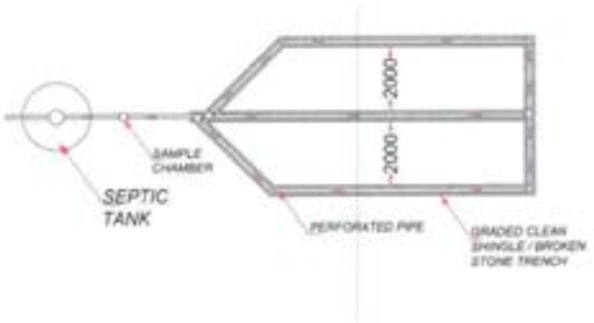
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Sizing a septic drainage field

Working out what size your septic drainage field should be can be difficult, but not any more with this simple guide! Work out how to carry out a percolation test and the do's and don'ts of drainage fields.

Septic drainage fields perform the treatment of effluent waste from a septic tank and are a very important part of a septic tank system; it's extremely important they're installed correctly in line with Building Regulation guidelines for good performance as well as legislative and environmental compliance.

What is a septic drainage field?



Septic drainage fields, sometimes referred to as septic drain fields, leach fields or foul water soakaways, are subsurface wastewater treatment facilities which are used to remove contaminants and impurities from the effluent that emerges from a septic tank. It usually consists of an arrangement of trenches, which contain perforated pipes and gravel, sited beneath a soft landscaped area such as a lawn.

As well as the septic tank, the septic drain field and any other connecting pipework make up the septic system. The septic tank only performs around 45% of the treatment work, the rest of the work is performed by the drain field; which is why it is so important to make sure it is designed correctly prior to installation.

The guidelines for the design of drainage fields can be found in Building Regulations Part H for England, which also applies to building work carried out on excepted energy buildings in Wales.

For Scotland and Northern Ireland drainage fields should conform to BS 6297, the code of practice for the design and installation of drainage fields for use in wastewater treatment. Seek advice for **SEPA's guidelines for indirect sewage discharges to groundwater (https://www.sepa.org.uk/media/152688/wat_rm_04.pdf)**, regulatory method WAT-RM-04, and **building standards guidance (https://www.gov.scot/policies/building-standards/)** from the Scottish Government. For Northern Ireland see **Technical Booklet N (https://www.finance-ni.gov.uk/publications/technical-booklet-n)** for guidance.

Key facts and rules

- Septic tanks can only discharge to the ground via a drainage field. Discharge to a watercourse is not permitted.
- Drainage fields can only be used where the soil conditions are suitable.
- Site tests are required to determine if the soil on site in suitable.
- Drainage fields must be a minimum of 10m from a watercourse, 50m from a water abstraction point and 15m from a building.
- They should also be sufficiently far away enough from any other drainage fields, mounds or soakaways so that the soakage capacity of the ground is not exceeded. Discharges in a flood risk area should also be avoided.
- Before you start work on any septic drain fields **you must not be in an Environment Agency Groundwater Source Protection Zone**. This is to protect abstracted drinking water.

"That's all well and good but how do you go about installing one?" Fear not we've got you covered here with an **installation guide for drainage fields. (https://www.jdpipes.co.uk/knowledge/sewage-treatment/septic-drainage-field-installation-guide.html)**

How to determine the size of your septic drain field?

The size of the field can vary depending on the soil percolation rate, which is an essential test you must carry out before installing a septic tank. The better your percolation test results, the smaller the drainage field will need to be.
The size is also dependant on how many occupants and bedrooms the property has.

Your drainage field should be set out in a continuous loop fed for an inspection chamber. Once you have your percolation test results to work out the floor area which your drainage filed should cover you can use the below calculation;

$$A_t = P \times V_p \times 0.25$$

Explained

A_t is the floor area, and the answer you're trying to reach.

P is the population (number of people) which the septic tank will serve — how many occupants there are in the home/building.

V_p is the percolation value (secs/mm) which is the result you get by carrying out the percolation test, described below.

Percolation Test

A percolation test determines the rate of infiltration into the ground by measuring how long it takes water to drop in a saturated hole dug in soil; therefore, determining the suitability of the soil.
Ground which is prone to waterlogging and flooding will not be suitable as the wastewater would not drain efficiently enough and may sit on the surface untreated.

Ground which drains too quickly which, in most cases is sandy soils, is not suitable either as the effluent could drain too quickly and still be contaminated.

Test method from Building Regulations Part H

A 300mm square should be excavated to a depth of 300mm below the invert level of the effluent distribution pipe. Measurements vary where deep drains and deep excavations are necessary; please refer to the Building Regulations Part H2, 1.34.

1. Fill the 300mm square section of the hole to a depth of at least 300mm with water and leave overnight to seep away.
2. The next day, refill the test section with water to a depth of at least 300mm and record in seconds the time it takes for the water to seep away from 75% to 25%. The divide this time by 150; the answer you get gives you the average time in seconds it takes for the water to drop 1mm.
3. The above test should be carried out at least 3 times with at least two trial holes and then the average figure for all tests should be taken. The tests should not be taken in any abnormal weather conditions.

Drainage field disposal should only be used when percolation test indicates the average values of between 12 and 100. The minimum value assures the untreated effluent cannot percolate too rapidly into the groundwater and the higher value assures effective treatment is likely to take place.

See **Building Regulations Part H2 (https://www.gov.uk/government/publications/drainage-and-waste-disposal-approved-document-h)**, sections 1.26 to 1.44, for more information or contact JDP technical support for advice.

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APPENDIX 10

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