

## **Flood Risk Assessment on:**

Gun Hill Farm

Wells Road

Burnham Overy Staithe

Norfolk

RLC Ref: 161398

May 2017

Rev 01

Prepared for:

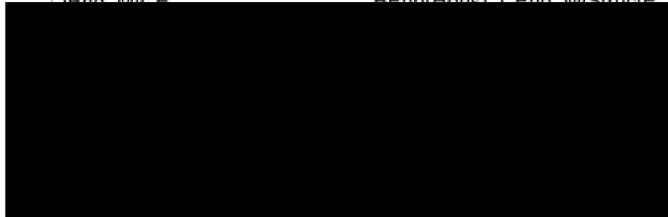
**Momentum Consulting Engineers**

Revision Schedule

RLC Ref. 161398

May 2017

Rev	Date	Details	Prepared by	Reviewed by
DRAFT	15 December 2016	Flood Risk Assessment	<b>Robert Coe</b> IEng, MICE Associate	<b>Mike Lloyd</b> BEng(Hons), CEng, MStructE Director
00	25 April 2017	Flood Risk Assessment	<b>Robert Coe</b> IEng, MICE Associate	<b>Mike Lloyd</b> BEng(Hons), CEng, MStructE Director
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# 1 Introduction and Client's Brief

- 1.1 Rossi Long Consulting has been instructed by Momentum Consulting Engineers to undertake a Flood Risk Assessment for the proposed development at Gun Hill Farm, Burnham Overy Staithe. The site is partially situated in Flood Zone 3a and a Flood Risk Assessment is required by the Local Planning Authority to accompany the planning application.
- 1.2 The development proposals comprise the refurbishment and extension of a Grade II Listed farmhouse and the conversion and change of use of an existing barn for ancillary residential purposes. Details are shown on the site plan drawing included in Appendix A.
- 1.3 The National Planning Policy Framework (NPPF) requires a Flood Risk Assessment to be undertaken for all development proposals that are situated in Flood Zones 2 & 3. This should identify and assess the risk of all forms of flooding to and from development and demonstrate how these flood risks will be managed so that the development remains safe throughout its lifetime, taking climate change into account.
- 1.4 This report is compiled with the benefit of desk study research and with reference to British Geological Survey data and consultation with the Environment Agency regarding flood levels.

## 2 Site Description

- 2.1 The site is located on the east side of Burnham Overy Staithe and north of Wells Road. The development comprises an existing farmhouse with outbuildings and gardens. The site area is 1.43 hectares and is located at Ordnance Survey grid reference TF 848 442.
- 2.2 Overy Marshes are located to the north of the site and are protected from tidal flooding from Holkham Bay by flood defences comprising earth embankments that are maintained by the Environment Agency. A location plan is shown below:



Location Plan

- 2.3 Site ground levels are falling to the north. At the Wells Road frontage the ground level is at about 9.75m AOD, falling to 3.51m AOD at the north site boundary. Ground levels around the existing farmhouse are in the range of 5.73 – 5.92m AOD. A site survey drawing is included in Appendix B.

## 3 Planning Policy and Flood Risk

3.1 The National Planning Policy Framework (NPPF) was published by the Department for Communities and Local Government in March 2012. It replaced a number of planning documents, including Planning Policy Statement 25: Development and Flood Risk. NPPF requires that flood risk is taken into account in the planning process, to avoid inappropriate development in areas at risk of flooding and to direct development away from areas at highest risk. The aim should be to steer new development towards Flood Zone 1.

3.2 Flood Zone 1 is a low probability zone that comprises land assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any year (< 0.1%).

Flood Zone 2 is a medium probability flood zone that comprises land assessed as having between a 1 in 200 and 1 in 1000 annual probability of river or sea flooding in any year (0.5% - 0.1%).

Flood Zone 3a is a high probability flood zone that comprises land assessed as having a 1 in 200 or greater annual probability of river or sea flooding in any year (> 0.5%).

Flood Zone 3b, the functional floodplain, comprises land where water has to flow or be stored in times of flood.

3.3 From Environment Agency flood zone mapping it is confirmed that the site is situated partially in Flood Zone 3a with other areas in Flood Zones 1 & 2.

3.4 There are no restrictions to the type of development permitted within Zone 1.

The NPPF permits certain types of developments within the other two higher probability zones, Zone 2 (medium) and Zone 3 (high), subject to the type of development and mitigation measures being put in place.

The NPPF "Flood Risk Vulnerability Classification" sets out these development types and categorises them as follows:

- a) Essential Infrastructure
- b) High Vulnerability
- c) More Vulnerable
- d) Less Vulnerable
- e) Water Compatible Development

'More vulnerable' development includes 'Buildings used for dwelling houses'. These proposals fall into this classification.

**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	✓	x	Exception Test required	✓
	Zone 3b functional floodplain	Exception Test required	✓	x	x	x

**Key:** ✓ Development is appropriate x Development should not be permitted

- 3.5 ‘More vulnerable’ development is appropriate in Flood Zones 1 & 2. For ‘more vulnerable’ development in Flood Zone 3 the Exception Test is required.

For the Exception Test to be passed:

- x 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; and
- x a site-specific Flood Risk Assessment must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

Both elements of the test will have to be passed for development to be allocated or permitted.

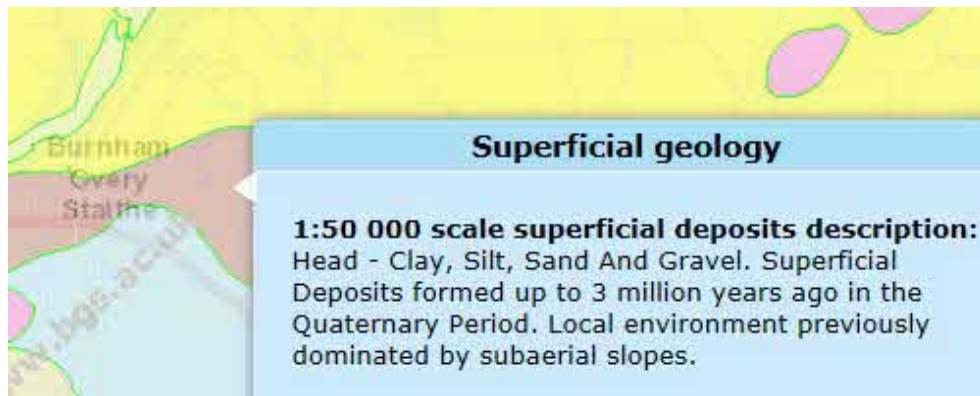
- 3.6 Properly prepared assessments of flood risk will inform the decision-making process at all stages of development planning. A Strategic Flood Risk Assessment is a study carried out by one or more local planning authorities to assess the risk to an area from flooding from all sources, now and in 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.



- 3.7 For site-specific Flood Risk Assessments the main study requirement is to identify the flood zone and vulnerability classification relevant to the proposed development, based on an assessment of current and future conditions. A site specific Flood Risk Assessment must demonstrate that the development will be safe for its lifetime, taking account of the vulnerability of its users without increasing flood risk elsewhere and, where possible, will reduce flood risk overall.

## 4 Ground Conditions and Hydrology

- 4.1 British Geological Survey (BGS) mapping shows that the site is situated on ground conditions comprising superficial deposits of Head – Clay, Silt, Sand and Gravel. The bedrock geology is Lewes Nodular and other Chalk Formations.

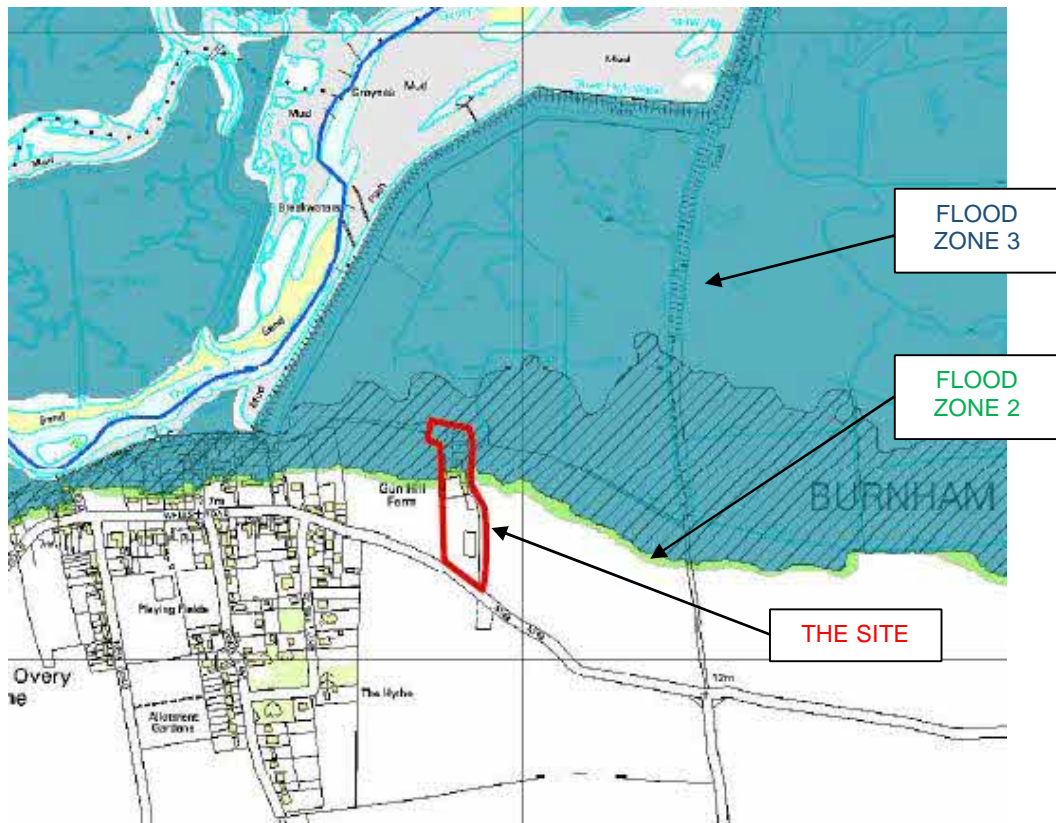


Geology Map

- 4.2 The ground conditions are confirmed from BGS records by an on-site borehole that recorded drift deposits to 7.62m depth with an 'at rest' groundwater depth of 8.4m. Details are included in Appendix C.
- 4.3 The Environment Agency website shows that the site is not situated within a Groundwater Source Protection Zone (SPZ).

## 5 Flood Risk Sources

- 5.1 The site is situated in all three flood zones (Flood Zones 1, 2 & 3), as shown on Environment Agency flood zone mapping below. Flood Zone 3a is a high probability flood zone and comprises land assessed as having a 1 in 200 or greater annual probability of river or sea flooding in any year (> 0.5%). The principal flood risk to the site is from tidal inundation from the North Sea coastline:



Flood Zone Map

The north end of the site is situated in Flood Zone 3 floodplain with rising ground to the south in Zone 1. This is a 'defended' floodplain protected from sea flooding by coastal embankments. The flood risk to the site is therefore a residual risk from some form of flood defence failure.

5.2 The Environment Agency has published flood levels for the North Sea coastline as follows:

LOCATION	1 in 200 year (0.5%)	1 in 1000 year (0.1%)
Node 4056	4.99m AOD	5.39m AOD

Flood defence levels for the North Sea coastline have been provided as follows:



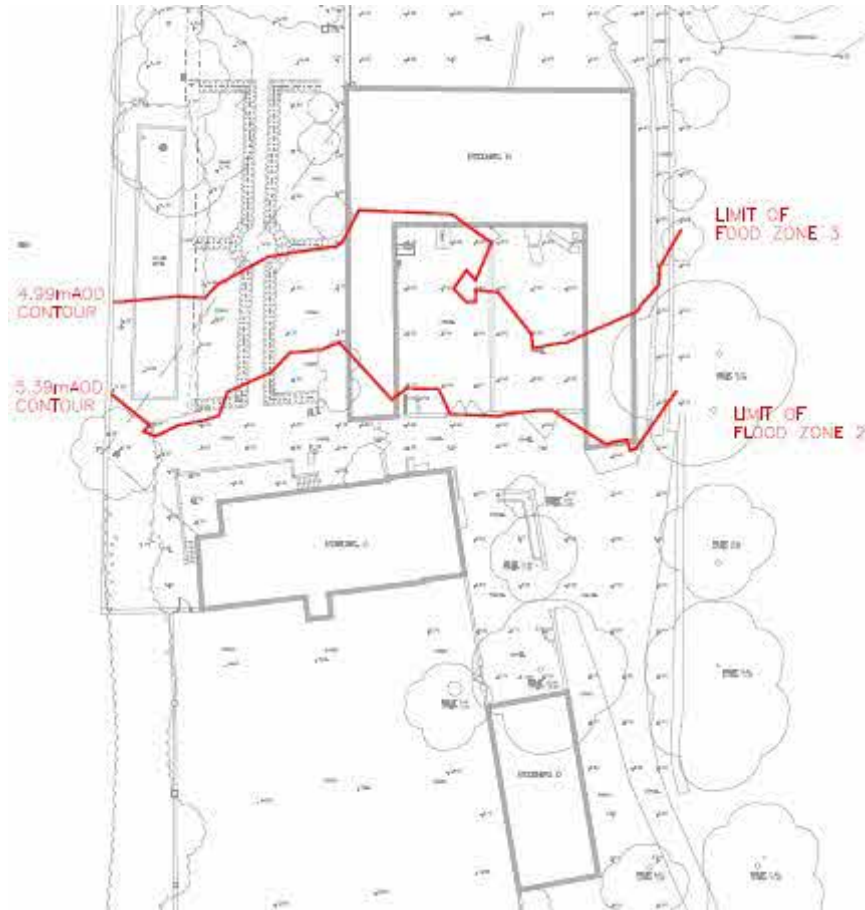
#### Defence Information

Asset Reference	Maintainer	Bank	Asset Type	Asset Description	Standard of Protection (%)	Overall Condition Grade	Crest Level
184407	EA	N/A	High Ground	High Ground			
185772	EA	N/A	High Ground	High Ground			
8599	EA	N/A	Embankment	Earth Floodbank	0.1	2	5.61
8601	private	N/A	Embankment	Earth Floodbank	Unknown	Unknown	Unknown
6662	EA	N/A	Embankment	Earth Floodbank	0.33	3	5.1
8600	EA	N/A	Embankment	Earth Floodbank	20	2	4.19
8602	local authority	N/A	Embankment	Timber Sea Wall	Unknown	Unknown	Unknown
8603	EA	N/A	Embankment	Floodbank with	0.1	4	5.38
157463	EA	N/A	Embankment	Earth Floodbank	0.2	3	5.21
8350	EA	N/A	Embankment	Raised Access Track	100	4	3.48
157464	EA	N/A	Embankment	Earth Floodbank	0.1	3	5.5
8349	private	N/A	Embankment	Redundant	N/A	N/A	N/A
318157	EA	N/A	Outfall	Outfall	N/A	N/A	N/A
188806	EA	N/A	Outfall	Outfall	N/A	N/A	N/A
189505	EA	N/A	Outfall	Outfall	N/A	N/A	N/A

#### Key to Overall Condition Grades

Grade	Rating	Description
1	Very Good	Cosmetic Defects that will have no effect on performance.
2	Good	Minor defects that will not reduce the overall performance of the asset.
3	Fair	Defects that could reduce performance of the asset
4	Poor	Defects that would significantly reduce the performance of the asset. Further investigation.
5	Very Poor	Severe defects resulting in complete performance failure.

- 5.3 Flood defence crest levels are in the range of 3.48 – 5.61m AOD and during a 1 in 200 year flood event overtopping of the defences would occur, leading to inland flooding. Inland flood levels are not available but, assuming total inundation up to the stated flood level, the survey extract below indicates the impact on the site:

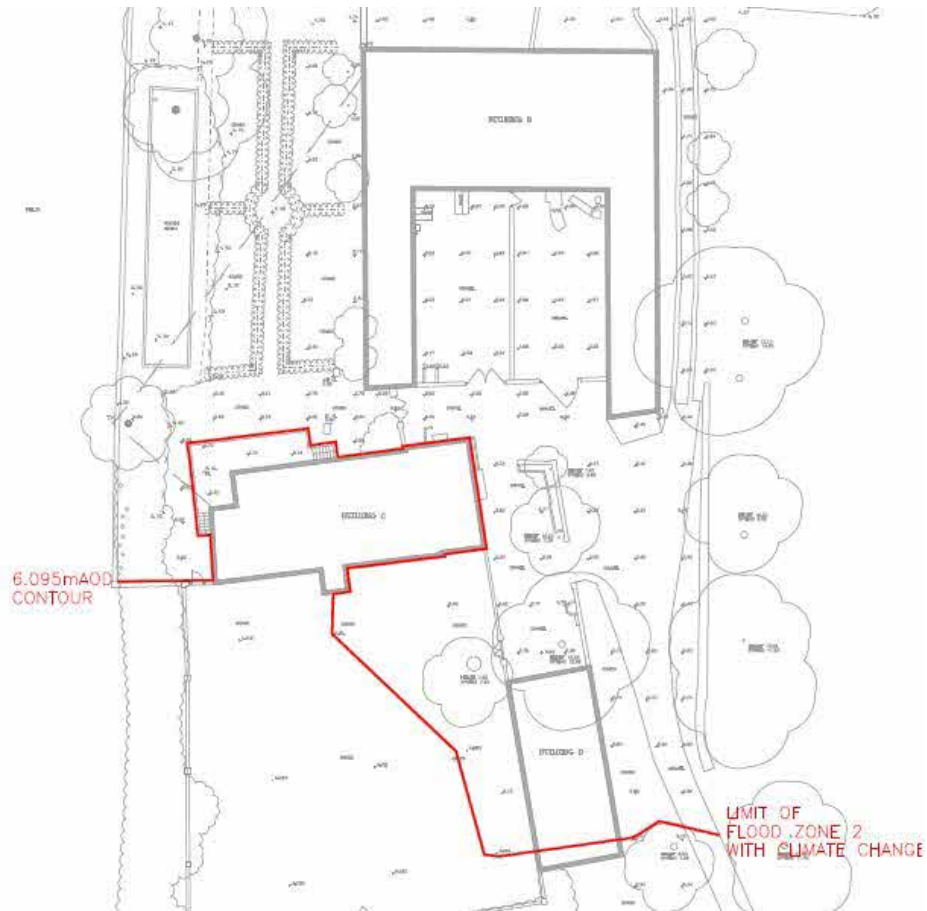


Flooding would occur around Building B (the barn) but not as far as Building C (the farmhouse). The survey extract confirms that the farmhouse is currently situated in Flood Zone 1. The barn however is located in Flood Zone 3.

5.4 Flood Risk Assessments are required to consider the flood risk to a development for the lifetime of the development. For residential use this is usually taken as 100 years and the NPPF includes recommended contingency allowances for net sea level rise for the next century. The modelled flood levels including allowance for climate change are:

LOCATION	1 in 200 year (0.5%)	1 in 1000 year (0.1%)
Node 4056	6.095m AOD	6.495m AOD

The effect of climate change flood levels on the development is illustrated on the plan shown below:



- 5.5 When climate change allowances are considered, flooding to a level of 6.095m AOD would lead to internal flooding of the barn but the farmhouse floor level 6.15m AOD would not be affected.

It is an Environment Agency requirement that, wherever possible, new development has finished floor levels set 300mm above the 1 in 200 year flood level including an allowance for climate change. The 1 in 200 year event is referred to as the 'design' flood event. The project is however for refurbishment and conversion / extension of existing premises with one new ancillary residential annex. The Planning Practice Guidance (PPG) paragraph 060 states that flood resilient construction may be appropriate in some instances where an existing building is to be changed and it can be demonstrated that no other measure is practicable. From Environment Agency guidance on finished floor levels included in their Flood Risk Assessment Factsheet (June 2015 v.2), where the Local Planning Authority agree that this cannot be achieved due to other planning constraints, floor levels should be set as high as possible and also that flood resilience / resistance measures are considered, where appropriate, up to the 'design' flood level. The Borough Council of King's Lynn & West Norfolk has published design guidance for properties at risk of flooding that includes advice on flood resilience measures that can be incorporated.

The farmhouse building is already above the 1 in 200 plus climate change flood level and is an existing residential dwelling. For a Grade II Listed building it would not be practical to consider raising the floor level to be 300mm above the design flood level, and no change is therefore proposed.

For the cart shed conversion the existing floor level of 5.75 – 5.89m AOD is below the flood level of 6.095 AOD and, for practical purposes, a maximum finished floor level of 6.00m AOD is proposed. The proposed ancillary residential annex, situated to the south of the cart shed conversion, will also have a finished floor level of 6.00m AOD but this has been located in the safest part of the site in Flood Zone 1. Shallow internal flooding of both buildings is prevented by the higher ground levels around the buildings towards the south.

The proposals include an east wing extension between the farmhouse and the cart shed conversion, and a floor level of 5.85m AOD is proposed for the dining area and 6.00m AOD for the entrance hall and bootroom. It would not be practical to raise these floor levels to 6.095m AOD and flood resistance and resilience measures will be incorporated into the design to reduce the risk of internal flooding occurring and aid recovery should an extreme flood event occur.

The rear entrance of the east wing extension will be provided with the facility to fit a temporary flood barrier to prevent floodwater entering the building. Flood resilience measures in accordance with the Communities and Local Government document 'Improving the Flood Performance of New Buildings' will be incorporated. Suggested measures that can be incorporated in the designs include:

- x No ground floor sleeping accommodation;
- x Safe refuge;
- x Raising sockets and switches above extreme flood levels.

For the proposed west extension to the farmhouse, a floor level of 6.00m AOD is proposed for practical purposes to adjust to existing levels.

For the barn conversion it will not be practical to raise existing floor levels above the design flood level of 6.095m AOD. Existing floor levels are in the range of 4.68 – 5.35m AOD and, as a practical minimum, a level of 5.30m AOD is proposed. Flood resilience measures will be incorporated in the design. No sleeping accommodation is proposed within the conversion.

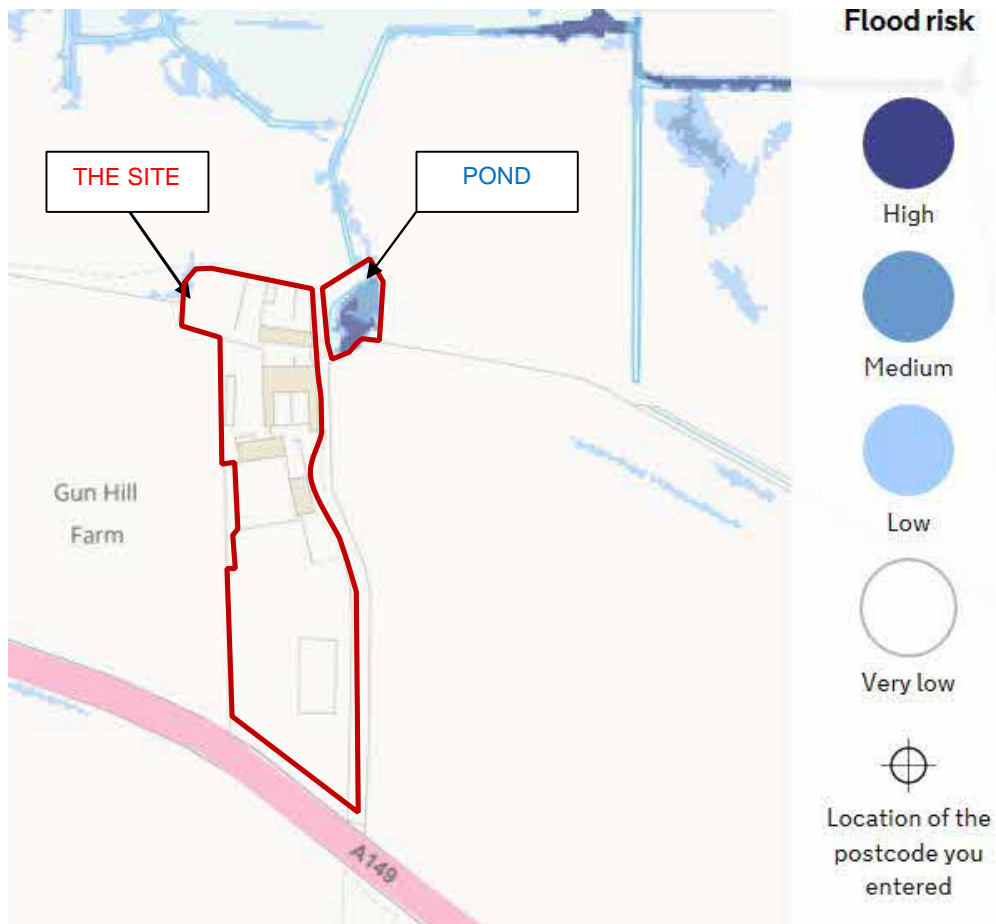
For the farmhouse and its extensions, and the barn conversion, an escape to higher level is available in the buildings that is above the 'extreme' 1 in 1000 flood level with climate change of 6.495m AOD.

Occupiers should register with the Environment Agency Automated Flood Warning System. For coastal flooding between 6 – 12 hours is available in advance of any flood occurring and this allows occupiers time to plan any evacuation of the premises if advised to do so.

Pre-planning consultation has been undertaken with the Environment Agency regarding the development proposals. They have confirmed in their letter of 09 March 2017 that they would not object to a planning application as long as the draft Flood Risk Assessment was updated to include a Flood Response Plan. This has been included in Appendix D. A copy of the Environment Agency letter is included in Appendix E.

- 5.6 Groundwater flooding occurs when water levels in the ground rise above surface elevations. From BGS records groundwater was encountered at a depth of 7.62m in an on-site borehole. The ground conditions and topography are such that the risk of flooding from groundwater is generally low.
- 5.7 Surface water flooding occurs when intense rainfall is unable to soak into the ground or enter drainage systems. The Environment Agency publishes mapping showing the risk of flooding from surface water. The mapping shows that the site is generally at 'Very Low' risk of flooding. 'Very Low' means that each year the area has a chance of flooding of < 1 in 1000 (0.1%) – see overleaf:





Extract from Surface Water Flooding Map

- 5.8 There are no surface water sewers in the vicinity of the site. The risk of flooding from this source is low.
- 5.9 From our review of Ordnance Survey mapping of the site and the surrounding area, our assessment is that there are no significant flood risks to the site from reservoirs, canals or other artificial sources. This is confirmed by reference to Environment Agency online mapping.

## 6 Conclusions and Recommendations

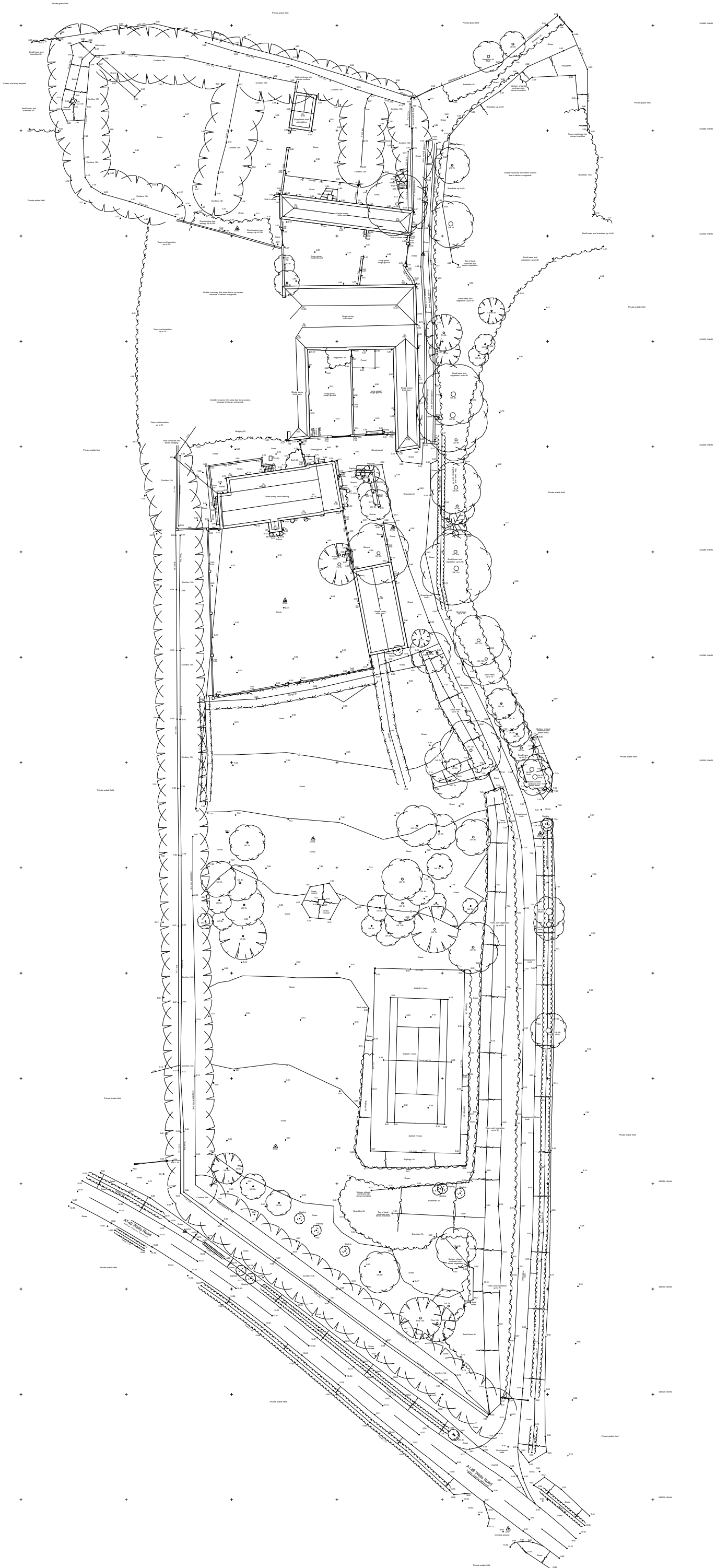
- 6.1 The development proposals comprise the refurbishment and extensions to a Grade II Listed farmhouse and the conversion and change of use of an existing barn for ancillary residential purposes.
- 6.2 The site is partially situated in Flood Zone 3a, which is a high probability flood zone; however, this is a defended flood zone and the risk of tidal flooding is greatly reduced by the existing coastal flood defences. When the residual risk of flood defence failure is considered, Environment Agency data shows that defence overtopping will occur for both the current and future predicted tidal flood levels when climate change allowances are added for the lifetime of the development.
- 6.3 The existing farmhouse is above the predicted 1 in 200 year flood level with climate change; however, it is not practical for the building conversions and extensions to have floor levels at the same level. Floor levels are set as high as practically possible and flood resistance and resilience measures are to be incorporated in the designs. All dwellings shall have an escape to a higher level within the dwelling in the event of an extreme emergency.
- 6.4 The occupiers should register with the Environment Agency Automated Flood Warning System that gives up to 12 hours early warning of potential flooding in the area. A Flood Response Plan has been prepared for the development that provides advice and actions required in an emergency.

## 7 Appendices

## Appendix A – Proposal Plan



## Appendix B – Site Survey Drawing



SCALE 1:750 at A3  
16107 Gun Hill - Site Survey

## Appendix C – BGS Borehole Record





**Borehole results** ✕

**TF84SW57 — MARSH FARM OVERY STAITHE**  
584900,344300 Depth: 7.6m.

[Scan available](#)  
[View online](#)

TF84SW58



British Geological Survey

NATURAL ENVIRONMENT RESEARCH COUNCIL

BGS ID: 511579 : BGS Reference: TF84SW57

British National Grid (27700) : 584900,344300

[Report an issue with this borehole](#)

130/107 Marsh Farm, Overy Staithe, Burnham Overy **TF84/8A,B**

(a) (Sealed). Surface +2 $\frac{1}{2}$ . Shaft 25. R.W.L. +2. Handpump. Before 1941.

(b) Surface +3 $\frac{1}{2}$ . Shaft. R.W.L. +6 $\frac{1}{2}$ . Before 1941.

Yield 1,500 g.p.d. Handpump. 1947.

(b) ↑ Pleist. Drift	} ...	...	31	31
? Uck				

Estimated classification

p.p. M.J. Colv  
Nov. 1968

(a) Pleist. Drift	} No strata details	25	25
? Uck			

**8A/TF 8490 4430**

**B/TF 8493 4412**

## Appendix D – Flood Response Plan



## **FLOOD RESPONSE PLAN**

**GUN HILL FARM  
WELLS ROAD  
BURNHAM OVERY STAITHE  
PE31 8JJ**

**REV 1**

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## **Revision Schedule**

<b>Revision Ref</b>	<b>Reviewed By</b>	<b>Date</b>
0	Planning Application	April 2017
1	Evacuation Route shown	May 2017

**The occupier is responsible for this plan and any revisions**

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## 1.0 Introduction

This plan has been prepared for the occupiers of Gun Hill Farm, Wells Road, Burnham Overy Staithe.

The development is situated in a flood risk area, being sited close to the North Norfolk Coast. The risk of serious flooding is greatly reduced by the flood defences that protect the area from flooding. A risk remains however, should these defences be breached or overtopped by an extreme flood event.

Although the threat from this type of flooding is rare, the occupiers must be prepared to react should a flood alert be given for the area.

It is not envisaged that evacuation will normally be required **during** a flood event, as any flooding will coincide with an extreme tide and sufficient warning should be available to enable the dwelling to be evacuated **prior** to the potential flood event.

However, consideration should also be given to the safety of any people who are unable to vacate the dwelling at the appropriate time.

This plan should be reviewed and updated where necessary, normally every 3 years or following a flood event or as flood warnings or circumstances change.

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## **2.0 Flood Risk Generally**

The principal flood risk source is the North Sea coastline that is situated immediately to the north of the site. The flood defences provide protection to the site and the risk of tidal flooding is greatly reduced. However, in extreme events up to the 1 in 1000 year flood event, the defences could be overtopped leading to inland flooding that would inundate low lying areas up to the open sea flood level.

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## 3.0 Environment Agency Flood Warning Service

The Environment Agency provides a flood warning service throughout England and Wales in areas at risk of flooding from rivers or the sea.

Using the latest available technology staff monitor rainfall, river levels and sea conditions 24 hours a day and use this information to forecast the possibility of flooding. If flooding is forecast, they issue warnings using a set of three different warning types.

The occupier will register with the Environment Agency's 'Flood Warnings Direct' Service. Register online at [www.gov.uk/floods](http://www.gov.uk/floods) or:

**Call Floodline on – 0345 988 1188**

### **THE FLOOD WARNING AREA IS 'NORTH NORFOLK COAST AT WELLS'**

The occupier will provide a contact number to Floodline to receive flood warnings when they are issued.

This is a free, 24 hour service that sends automated flood warnings by telephone, SMS text, email, fax or pager. The occupier will decide upon the most appropriate method.

Three codes are used for flood warnings. They can be issued in any order, usually ending with 'WARNINGS NO LONGER IN FORCE'.



**Flood Alert** – This means “**Flooding is possible. Be prepared.**” The Environment Agency issues Flood Alerts for specific locations that are at risk of flooding.

It will indicate that flooding is possible and that people should make some low impact preparations (e.g. move small valuable items upstairs, check travel plans, etc.) and remain vigilant.





**Flood Warning** – This means that “**Flooding is expected. Immediate action required.**” Flood Warnings are generally targeted at specific communities that are at risk from flooding. Some Flood Warnings may apply to stretches of coast and river.

It will indicate that flooding is expected and that people should take more direct impact actions, e.g. move belongings upstairs, install flood protection products, etc.



**Severe Flood Warning** – This means “**Severe Flooding. Danger to life.**” Anyone who receives a Flood Warning will receive a Severe Flood Warning if conditions are met.

It will be used in extreme circumstances to tell people that flooding is posing significant risk to life or significant disruption to communities which could also cause risk to life.

Depending on the circumstances it would indicate that people should evacuate the area or take shelter within safe buildings.

**Warnings no longer in force:** The Environment Agency issues a message to tell people that the flood threat has passed and includes useful advice on what to do next.

The Severe Flood Warning stage is to warn people of a significant risk to life or significant disruption to communities and encourage them to take action to protect themselves and follow the advice of the emergency services. Significant risk to life means that death or serious injury is a likely risk for people in the area, rather than just a possible risk, as is always present with flooding.

Significant disruption to communities means that people may be without essential services which could result in harm to their health, or people are put at risk by the extent of flooding and the inability of emergency services and the authorities to cope with it. Significant disruption to communities will often be a result of flooding being widespread.

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## 4.0 Preparation

There are three aspects of preparation, being:

- 1) AWARE of when flooding might occur.
- 2) EQUIPPED to deal with the threat if remaining in the property.
- 3) FAMILIAR with this plan and the action to take.

### 4.1 Awareness

There are several sources of information on possible flood events in addition to the Environment Agency Flood Warnings Direct Service:

- x Local radio and television stations will broadcast warnings and are an important source of information.
- x Police and local volunteer Emergency Co-ordinators may also give direct warnings.

Be prepared – identify a safe location with family or friends outside the flood zone before any flood alerts are issued.

King's Lynn & West Norfolk Borough Council may designate Rest Centres for those who do not have an alternative refuge. Further advice is given in the Flood Warning Information 2016-17 document included in Appendix A.

### 4.2 Equipment

Prepare an emergency flood kit containing the following suggested list of items:

- x Copies of insurance documents
- x Torch with spare batteries or wind-up
- x Radio, battery or wind-up
- x Warm waterproof clothing and blankets
- x First Aid Kit with essential medicines
- x Bottled water and high energy food snacks
- x Flood Response Plan including a list of important contacts
- x Wash kit and toiletries
- x Food and cages for pets

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## 4.3 Familiarisation

It is important that you are familiar and comfortable with this plan and its contents:

- x Consider practising your evacuation the way you might practise leaving the house in case of fire.
- x Prepare a check list of important contacts, location of key service cut-off points and actions.  
A Personal Flood Plan template is included in Appendix B.
- x Become familiar with the safest route from the property to any Local Evacuation Centre or to family or friends outside the flood zone.
- x Get to know your local volunteer Emergency Coordinator.

---

## 4.4 Your Useful Contact Numbers

### **Fill this out and keep it with your flood kit**

*Don't forget to charge up your mobile phone!*

Environment Agency Floodline	0345 988 1188
Quickdial number (you will receive this in the phone/text message you receive with the EA flood warning)	
Local Authority emergency helpline	
Insurance 24-hour number and policy number	
Local radio for news alerts & weather updates	
Who can help? Family / neighbours / carer	
Work phone numbers	
School / Nursery	
Local police station	
Vet / kennel / cattery	
Gas supplier and meter number	
Electricity supplier and meter number	
Water supplier and meter number	
Electrician	
Plumber	
Builder	

---

## 5.0 During a Flood Alert

### 5.1 If you receive a warning

- x Stay Calm – tune in to BBC Radio Norfolk.
- x Check at what time the flooding is expected – you will receive 6–12 hours warning in advance of tidal flooding.
- x Tell your neighbours (especially if they are elderly or may be vulnerable).
- x Fasten your outer doors and fix any flood protection devices.
- x Switch off gas and electricity before the property is flooded. Do not touch if the electrics are already wet.
- x If advised to do so, move to your Evacuation Centre or other safe place (friends, relatives, etc.) If it is not possible to evacuate, move upstairs to a safe refuge.
- x Take food, clothes, blankets, candles / torches with you.
- x Fill bath and buckets with water in case mains supply is shut off.
- x Drinking water should be stored in clean containers.
- x Try to move valuable objects to a place of safety or protect them by placing in sealed plastic bags.
- x Remember any pets (food, litter tray and cage).
- x Take essential medicines, infant care items, personal documents / identification for each member of the family.

**If you are advised to evacuate then do so. Ignoring such a warning could put the safety of your family or those who come to your rescue in danger.**

### 5.2 On-site Refuge

*If the worst happens and people remain on the site when flooding occurs, then on-site refuge above the expected flood level is available at first floor level. You should take a flood kit to the refuge to support a short-term stay.*

*NB: An on-site safe refuge is an absolute last resort and evacuation before a flood is the preferred response.*

---

## 5.3 Broadcast Warnings

- x Announcements will be made on radio and television.
- x BBC Radio Norfolk will carry full details.
- x Tune into: 104.4MHz FM.
- x In addition the police and local volunteer Emergency Coordinators may give more direct warnings.

**Only call the Emergency Services if it is absolutely vital as they will be busy.**

## 5.4 Returning Home

Any flooding that occurs will have occurred due to overtopping or breach failure of the coastal defences. As tidal levels fall, the defences may prevent some floodwater returning to the sea and shallow flooding could continue for many hours until drainage systems are able to clear the backlog.

**Do not return to your home until advised that it is safe to do so by the emergency services.**

However, on returning home, check that utilities such as gas, water and electricity are operating correctly as these services may have been affected by flooding elsewhere. Public Health England advice regarding any required clean-up is included in Appendix C.

---

## 6.0 Dangers of Floodwater

### REMEMBER!

- x Don't walk through flowing water – Currents can be deceptive and shallow fast moving water can knock you off your feet!
- x Don't swim through fast flowing water – You may get swept away or struck by an object in the water!
- x If you have to walk in standing water, use a pole or stick to ensure that you do not step into deep water, open manholes or ditches!
- x Don't drive through a flooded area – You may not be able to see abrupt drop-offs and only half a metre of floodwater can carry a car away!
- x Avoid contact with floodwater – It may be contaminated with sewage, oil, chemicals or other substances!

---

## **Appendix A – Flood Warning Information 2016-2017**





# Flood Warning Information 2016-17

**Emergency Planning Team, Environment & Planning**

Borough Council of King's Lynn & West Norfolk, King's Court, Chapel Street, King's Lynn, Norfolk PE30 1EX

Tel: (01553) 616200 Fax: (01553) 691663

Email: [emergency.planning@west-norfolk.gov.uk](mailto:emergency.planning@west-norfolk.gov.uk)

[www.west-norfolk.gov.uk](http://www.west-norfolk.gov.uk)

## Introduction

Tidal flooding may occur in some low-lying coastal and river areas when certain bad weather conditions and/or high tides coincide. This is more likely from August through the winter months to April, although it could occur at any time.

Sea defences are in place in West Norfolk but extreme conditions may cause these to be damaged or over topped.

If flooding does occur it may be only for a few hours or it may last a lot longer. In extreme situations you maybe asked to leave your property and evacuate to a safe area.

## Flood risks in West Norfolk

The main risk from tidal flooding is to the coast at Hunstanton, Heacham and Snettisham, the town of King's Lynn, West Lynn and the tidal river between Denver and King's Lynn. The risk also extends eastwards along the coastal sea frontage from Hunstanton to Burnham Overy. Other areas are also at risk across the Fens.

In major flood events embankments are put under severe pressure and some overtopping and breaching is possible. If this happens the Environment Agency will issue flood warnings accordingly and a multi-agency emergency response will take place.

In addition to the areas at risk detailed, severe weather may result in localised flood events from surface run-off, in rural and urban areas or blocked culverts, drains and ditches.

## Make an Emergency Box

An Emergency Box is where you hold something that you can keep - such as vital personal information ie passport, insurance documents and items ie torch and medication that might be useful in an emergency. The box should be small enough to carry and be stored in a safe/secure place that everyone in your family can find.

## How can I contact people?

History has shown that the telephone system may be overloaded particularly mobile phone networks. Calls should be kept short, as the emergency services need the lines for communication. If warnings are issued a pre-

arranged meeting point may be beneficial. The meeting point may need to be away from home in a safe area, especially where access may have been restricted.

## Bungalow and basements in higher flood risk areas

If you live in either a bungalow, a basement or ground floor flat try to make arrangements in advance to shelter with neighbours who have 'upstairs' accommodation.

Leave a message with neighbours or other persons to say where you have gone.

## When you receive a flood warning

- Try to stay calm
- Tell your neighbours, especially the elderly or infirm.
- Fasten your outer doors and position your flood boards, and any other flood protection products.
- Use a radio (battery portable or wind up) and continue to listen in to local news updates.
- Try to move your most valuable objects to a place of safety as quickly as possible, or protect them by tying them into plastic bags.
- Switch off gas and electricity.
- Move upstairs if possible
- Take valuables upstairs, if possible
- Keep food, bottled water, medicines, clothes, blankets, torches and candles with you.
- Fill bath, buckets and other receptacles with water, for washing in case the main supply has to be shut off. Drinking water should be stored in clean bottles or other suitable covered containers for immediate use.
- Remember pets: have a pet carrier, some food and keep pets with you if you have to leave.

## If you are flooded in your accommodation

If flooding occurs before you have had time to leave, get people above the water level and keep as dry as possible. **Stay where you are and wait for the emergency services to come to you.** Hang a large sheet out of a visible window to attract attention.

## Hygiene in case of flooding

Protect your health and that of your household

by carefully observing basic personal hygiene rules. Always wash hands in clean water before touching food and if in doubt about any food, throw it out. Keep a supply of fresh water available in case mains supply is affected. Keep drinking water in closed containers or bottles for immediate use.

It is particularly important that you do not use any contaminated foodstuffs. Utensils that have been in flood water should be cleaned and boiled (metal utensils for 2 minutes minimum; wood and pottery utensils for 10 minutes minimum) before use.

### Calling emergency services

You can help by not calling the Police or other emergency services unless it is absolutely vital.

### Insurance cover

If you are advised that you should evacuate, the Borough Council cannot be held responsible for your property and contents during your absence, and although the Police will try to prevent looting, you should secure your home in the best possible manner.

It is important to seek the best possible insurance cover for your home and its contents. Check your existing policies and obtain any extra cover needed - it is too late after a flood.

Discuss any claims with authorised assessors only, from recognised insurance companies.

### Rest and reception centres

If you are required to evacuate your premises when a flood warning has been given and you have not been able to make arrangements to go to other accommodation, the Local Authority will organise the opening of reception & rest centres as necessary.

Please do not go to the rest centres unless you are advised to by the emergency services.

### If you are evacuated from your accommodation.

#### Medication

If you are taking any medication, please remember to keep it with you at all times. If you are evacuated, it will not be readily available at the reception centre.

#### Pets

Keep pets with you, and have a suitable pet carrier available in case you need to transport them.

You may take pets with you to the reception centre but any uncaged animals must be kept in a vehicle, or designated compound.

Try and arrange a "pet buddy" to look after your pets outside of the affected area.

#### Bedding and comfort items

If your stay in the rest centre is likely to be prolonged, take a small amount of bedding and food with you, for example a duvet, and crisps, biscuits, chocolate bars. Don't forget nappies for small children.

#### Financial help

Where there is urgent and immediate need, and help is not available from any other source, the Department of Work and Pensions may be able to help you with:

- cash for food and fuel during the first days of an emergency.
- payments to help replace clothing, household utensils and other essentials.
- payments to people unable to attend work as a result of flooding.

N.B. Any such payments may have to be refunded later - ask when applying.

If other sources of financial aid become available, details will be publicised on the radio and in the press.

## Higher Tides at King's Lynn 2016/17

These are the tides predicted to be over 4.1m in height (Ordnance Datum Newlyn) Tidal predictions for King's Lynn have been computed by the National Oceanography Centre: copyright reserved. (Times are adjusted for BST)

Date	Time (24hr)	Height (m)
<b>2016</b>		
20 Aug	08:23	4.3
21 Aug	09:03	4.4
22 Aug	09:43	4.3
17 Sept	07:19	4.3
18 Sept	08:00	4.6
18 Sept	20:33	4.2
19 Sept	08:41	4.7
19 Sept	21:12	4.2
20 Sept	09:23	4.5
21 Sept	10:07	4.2
16 Oct	06:52	4.4
16 Oct	19:28	4.2
17 Oct	07:36	4.6
17 Oct	20:09	4.3
18 Oct	08:20	4.7
18 Oct	20:50	4.3
19 Oct	09:05	4.5
20 Oct	09:52	4.1
14 Nov	05:27	4.2
14 Nov	18:04	4.1
15 Nov	06:15	4.5
15 Nov	18:47	4.3
16 Nov	07:03	4.5
16 Nov	19:30	4.3
17 Nov	07:51	4.4
17 Nov	20:13	4.1
14 Dec	06:01	4.1
14 Dec	18:30	4.1
15 Dec	06:52	4.2
15 Dec	19:14	4.2
16 Dec	07:42	4.1
16 Dec	19:57	4.1

Date	Time (24hr)	Height (m)
<b>2017</b>		
14 Jan	19:42	4.2
12 Feb	19:24	4.1
28 Feb	19:42	4.2
01 March	20:19	4.2
28 March	19:40	4.1
29 March	20:19	4.3
30 March	21:00	4.4
31 March	21:42	4.2
26 April	19:14	4.1
27 April	19:58	4.4
28 April	20:44	4.4
29 April	21:30	4.2
26 May	19:42	4.2
27 May	20:32	4.2
26 June	08:41	4.1
25 July	08:25	4.2
26 July	09:08	4.2
22 Aug	07:26	4.1
23 Aug	08:06	4.3
24 Aug	08:46	4.3
25 Aug	09:24	4.1
08 Sept	08:24	4.2
09 Sept	09:00	4.2
21 Sept	07:45	4.2
22 Sept	08:22	4.2
06 Oct	07:21	4.1
07 Oct	07:58	4.3
08 Oct	08:37	4.4
09 Oct	09:18	4.3
04 Nov	05:52	4.1
05 Nov	06:34	4.3
05 Nov	19:04	4.1

Date	Time (24hr)	Height (m)
06 Nov	07:18	4.4
06 Nov	19:45	4.1
07 Nov	08:03	4.3
04 Dec	06:15	4.2
04 Dec	18:45	4.1
05 Dec	07:04	4.3
05 Dec	19:28	4.2
06 Dec	07:54	4.2

Note the predicted times and dates of high tides. Be aware that high water may occur at other times, for example, during adverse weather conditions, especially Northerly gales and storms.

Full Tide tables may be purchased in stationery outlets.

Note that some tide tables quote height in Chart Datum. This is 3.03m higher than those on here.

# WEST NORFOLK FLOOD WARNING AREAS

## Environment Agency Flood Warning Service

The Environment Agency issues specific warnings for flooding from most major rivers and the sea in West Norfolk.

### How to find out about flood warnings

If there is a risk that your property may be affected by river and/or coastal flooding the Environment Agency will make every effort to provide advance warning. BUT it is your responsibility to take the appropriate steps to protect yourself and your property.

You can sign up to Floodline Warnings direct online at [www.gov.uk/flood](http://www.gov.uk/flood) or by dialling 0345 988 1188. Messages can be sent to you via telephone, mobile phone, fax, text or email.

Flood warnings will be broadcast on many local radio stations. The warnings will identify the specific areas affected. If you are concerned that weather conditions may cause flooding, you should listen to:

- BBC Radio Norfolk
- 104.4 FM 855 & 873 MW
- KLFM 96.7 FM

During major flood events, regional television will also broadcast flood warning information.

### Public Safety

People are advised to listen to local radio stations at times of heightened flood risk for more information and not to contact the emergency services for non emergency matters.

If a decision is made that people need to evacuate their homes or premises and go to a safer location eg to relatives or friends out of the affected area, information will be provided via

local radio as to the best routes to take and any transport arrangements in place. The location and opening times of any rest centres in use and any other public safety messages will also be broadcast.

### What can I do to be prepared for flooding?

Flood protection products can be fitted to your home or business in advance of any flood event. They can help to minimise the damage caused by flood water. Many can be fitted by a competent DIY person or local trades person.

Further information about suitable products can be found on the National Flood Forum website at [www.floodforum.org.uk](http://www.floodforum.org.uk)

For those that still wish to use sandbags they can be purchased from local DIY and builders merchants. However sandbags on their own are not effective against stopping the ingress of floodwater to properties.

Keep sentimental or important items upstairs - (photographs, insurance documents)

Be aware of the flood risk and high tide information for your area

Do help any of your neighbours who are elderly or infirm to prepare and respond.

### Local Sea Defence Funding

In the Heacham, Snettisham & South Hunstanton areas local contributions are required to maintain the existing sea defences. If you want to find out more about contributing please visit [www.west-norfolk.gov.uk/seadefencesfunding](http://www.west-norfolk.gov.uk/seadefencesfunding)

If you are in any doubt as to whether you are in a flood risk area, contact the Environment Agency on 0345 988 1188 or visit the website [www.gov.uk/flood](http://www.gov.uk/flood)

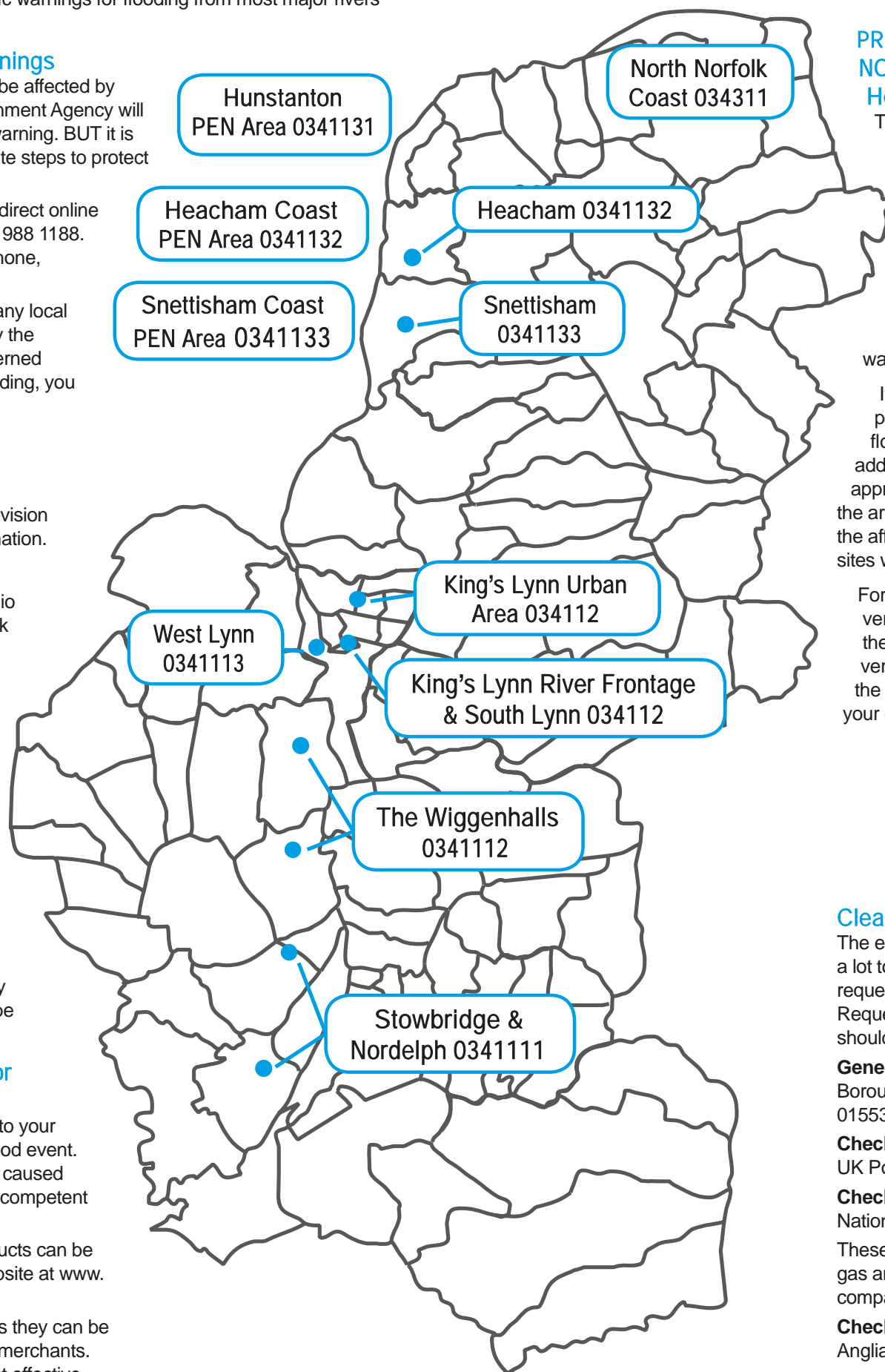
Details about how to be prepared for flooding & other emergencies can be found at [www.norfolkprepared.gov.uk](http://www.norfolkprepared.gov.uk)

## Floodline

Floodline is an Environment Agency telephone service, where you can listen to recorded flood warning information or speak to an operator for general information and advice, 24 hours a day.

Just dial **0345 988 1188** using your Floodline Quick Dial Code on the map below

At the prompt select 1 and then you can use your Quick Dial Code to access the information:



## PRECAUTIONARY EVACUATION NOTICE (PEN) - Coast at Snettisham, Heacham and Hunstanton

There are a large number of caravans and properties that lie between the flood embankments on the north west Norfolk coast at Snettisham, Heacham and Hunstanton. If evacuation is required then a great deal of time is needed to complete this task safely. Because of this emergency responders have worked together to put in place specific flood warning evacuation procedures in the area.

If the Environment Agency issue a precautionary evacuation notice (PEN) flood warning for these areas, then additional warning signs will be displayed approaching the area and roads leading to the area will be closed. Responders will visit the affected properties in the area and caravan sites will carry out their own site evacuations.

Forecasting along this part of the coast is very complex and because of the nature of the defences in the area flooding can occur very quickly. It is important that you follow the instructions given and take action for your own safety.

## Clearing up

The emergency services will obviously have a lot to do, so it will help if you keep initial requests to those that are absolutely essential. Requests for assistance when clearing up should be made as follows:-

### General Information

Borough Council - Tel No. 01553 616200 or 01553 616601 out of hours

### Checking electrical wiring:

UK Power Networks - Tel No. 0800 7838838

### Checking suspect gas supplies:

National Grid - Tel No. 0800 111999

These numbers should be used even when gas and electricity are supplied by different companies.

### Checking suspect water supplies:

Anglian Water - Tel No. 08457 145 145 (24 hrs)

## Other useful telephone numbers

### Flood Warnings - Environment Agency Floodline

0345 988 11 88

### Environment Agency Incident Line eg pollution

03708 506 506

### Blocked road gullies and surface water flooding

Norfolk County Council - 0344 800 8020

### Welfare Services

Norfolk County Council, Adult and Children Social Services - 0344 800 8020

### Financial Aid

Department of Work and Pensions  
Under 60 - 0800 055 6688  
Over 60 - 0800 991 234

### Sewage problems

Anglian Water Services 08457 145 145

### Help with evacuation

Police 101 or if an emergency 999

### Help with flooded property

Norfolk Fire & Rescue Service if an emergency 999



**FLOOD ALERT**

FLOODING IS POSSIBLE. BE PREPARED.



**FLOOD WARNING**

FLOODING IS EXPECTED. IMMEDIATE ACTION REQUIRED.



**SEVERE FLOOD WARNING**

SEVERE FLOODING. DANGER TO LIFE



---

## **Appendix B – Personal Flood Plan**

# Personal flood plan

Name



**Are you signed up to receive flood warnings?**  
If not call Floodline on 0345 988 1188 to see if your area receives free flood warnings.

**Let us know** when you've completed your flood plan by calling Floodline on **0345 988 1188**. This will help us learn more about how people are preparing for flooding.

General contact list	Company name	Contact name	Telephone
Floodline	Environment Agency		0345 988 1188
Electricity provider			
Gas provider			
Water company			
Telephone provider			
Insurance company and policy number			
Local council			
Local radio station			
Travel/weather info			

## Key locations

Service cut-off	Description of location
Electricity	
Gas	
Water	

## Who can help/who can you help?

Relationship	Name	Contact details	How can they/you help?
Relative			
Friend or neighbour			

Be prepared for flooding. Act now

# Personal flood plan

## What can I do NOW?



Put important documents out of flood risk and protect in polythene

Look at the best way of stopping floodwater entering your property

Find out where you can get sandbags

Identify what you would need to take with you if you had to leave your home

Check your insurance covers you for flooding

Make a flood plan and prepare a flood kit

Identify who can help you/ who you can help

Understand the flood warning codes

### What can you do if a flood is expected in your area?

Actions	Location
<b>Home</b> <ul style="list-style-type: none"> <li>● Move furniture and electrical items to safety</li> <li>● Put flood boards, polythene and sandbags in place</li> <li>● Make a list now of what you can move away from the risk</li> <li>● Turn off electricity, water and gas supplies</li> <li>● Roll up carpets and rugs</li> <li>● Unless you have time to remove them hang curtains over rods</li> <li>● Move sentimental items to safety</li> <li>● Put important documents in polythene bags and move to safety</li> </ul>	
<b>Garden and outside</b> <ul style="list-style-type: none"> <li>● Move your car out of the flood risk area</li> <li>● Move any large or loose items or weigh them down</li> </ul>	
<b>Business</b> <ul style="list-style-type: none"> <li>● Move important documents, computers and stock</li> <li>● Alert staff and request their help</li> <li>● Farmers move animals and livestock to safety</li> </ul>	
<b>Evacuation - Prepare a flood kit in advance</b> <ul style="list-style-type: none"> <li>● Inform your family or friends that you may need to leave your home</li> <li>● Get your flood kit together and include a torch, warm and waterproof clothing, water, food, medication, toys for children and pets, rubber gloves and wellingtons</li> </ul>	

There are a range of flood protection products on the market to help you protect your property from flood damage. A directory of these is available from the **National Flood Forum** at [www.bluepages.org.uk](http://www.bluepages.org.uk)

Be prepared for flooding. Act now



---

## **Appendix C – Public Health England Advice**



## Floods –how to clean up your home safely

This leaflet provides important health advice and some basic precautions to keep you and your family safe while cleaning up your flooded home. Further general advice is available at [www.gov.uk/phe](http://www.gov.uk/phe).

Do not overdo it when cleaning up, and remember that tiredness, difficulty sleeping and anxiety are normal in these circumstances.

### Starting off

- talk to your insurance company and follow their advice
- wear rubber boots, waterproof gloves and an apron to clean up. If cleaning causes a lot of water to splash from scrubbing, hosing or pressure-washing, wear a standard face mask, such as those sold by DIY stores. Goggles offer added protection and they can be reused after thorough washing
- remember to wash your hands thoroughly after each clean-up session. Keep open cuts or sores clean and use waterproof plasters to prevent them being exposed to floodwater
- take care with electrics and gas: Do not turn on gas or electrics if they may have got wet. Only turn them on when they have been checked by a qualified technician

### How and what to clean

- wash clothes used for cleaning on a separate cycle from your other clothes
- clean all hard surfaces (eg walls, floors) with hot water and detergent
- clean and disinfect work surfaces, plates, pans, cutlery, chopping boards etc. before using them with food. If you have a working dishwasher, this is a more efficient way to clean and sanitise smaller items. Discard wooden chopping boards and wooden spoons if contaminated by floodwater
- wash soft items (eg clothing, bedding and children's toys) on a 60°C cycle with detergent. If you suspect problems with your drainage system, it is recommended that a launderette be used for washing large quantities of clothes and linens until your waste-water system has been checked

## Drying out

- ensure good ventilation if using portable indoor heating appliances to dry out indoor spaces. Do not use petrol or diesel generators or other similar fuel-driven equipment indoors: the exhaust gases contain carbon monoxide, which can kill
- heating, dehumidifiers and good ventilation can also help dry out your home
- if you have gas or oil central heating and it has been checked by an engineer, turn it on. Keep the thermostat between 20°C to 22°C for steady drying
- if you have air bricks to any under floor spaces, ensure that these are unblocked to give cross ventilation to these areas. As floorboards and walls continue to dry out, any loose material and dust resulting from this should be vacuumed up on a regular basis
- when you can, remove dirty water and silt from the property including the space under the ground floor if you have wooden floors. This space may need pumping out
- mould should disappear as your home dries out but if it persists, contact a specialist cleaner
- place rubbish in hard bins or in rubbish bags
- dispose of dead rodents and pests in a plastic bag, wearing rubber gloves

## Your local health services

Anyone with concerns for their health should contact their GP for advice, or call NHS 111. If you want to check that your scheduled appointment is unaffected (eg GP, outpatient, inpatient at local hospital), use the usual local telephone numbers for your health services. NHS Choices is also a good source of local health service information [www.nhs.uk/service-search](http://www.nhs.uk/service-search)

The latest alerts and general flooding advice are provided by the Environment Agency [www.environment-agency.gov.uk](http://www.environment-agency.gov.uk) and Floodline (0345 988 1188 or 0845 988 1188).

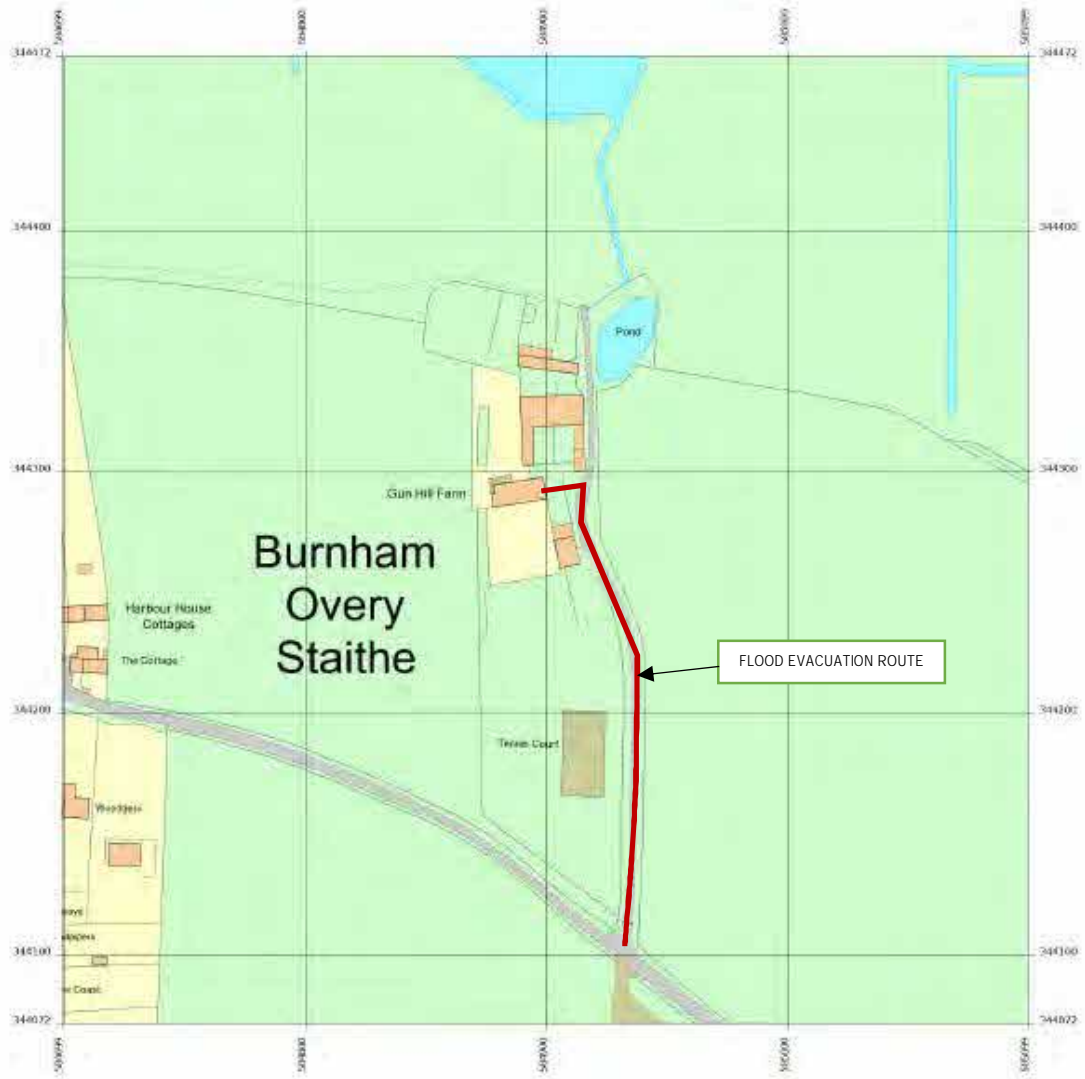
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February 2014

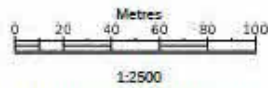
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## Appendix D – Evacuation Route



Produced 05 May 2016 from the Ordnance Survey MasterMap (Topography) Database and incorporating surveyed revision available at this date.

The representation of a road, track or path is no evidence of a right of way. The representation of features as lines is no evidence of a property boundary.



Gun Hill Farm, Wells Rd, Burnham  
Overy Staithe, King S Lynn  
PE31 8JJ

Supplied by: Stanfords 05 May 2016  
Licence: © Crown Copyright and  
database rights 2016 OS100035409  
Order Licence Reference: OI993183  
Centre coordinates: 584899 344272

## FLOOD EVACUATION PLAN

## Appendix E – Environment Agency Letter

Geraldine Ng  
Lighthouse Studios  
89a (Unit C002) Shacklewell Lane  
London  
Hackney  
E8 2EB

**Our ref:** PAC/CAMBED/00207  
AC/2016/125295/02-L01

**Date:** 9 March 2017

Dear Ms Ng

### **REVIEW OF FLOOD RISK ASSESSMENT (FRA) GUN HILL FARM, BURNHAM OVERY STAITHE PE31 8JJ**

We have reviewed your Flood Risk Assessment (FRA) referenced 161398 and dated December 2016. This review was carried out as part of the agreed programme of work (ref: PAC/CAMBED/00207).

In summary, we would not object to a planning application, as long as the FRA was updated to include a Flood Response Plan to the acceptance of the Local Planning Authority (LPA). This is to mitigate for the unsafe access and egress in the event of a tidal flood event.

#### **Finished Floor Levels**

The proposed barn conversion would potentially flood internally by 0.62m depth in the 0.5% (1 in 200) annual probability with climate change flood event and would therefore be unsafe for the occupants.

The Planning Practice Guidance (PPG) paragraph 060 states that flood resilient construction may be appropriate 'in some instances where the use of an existing building is to be changed and it can be demonstrated that no other measure is practicable'. Therefore, as it has been demonstrated that it is not practical to raise floor level any further, the LPA will need to accept the flood risk to the future occupants and consider the proposed floor levels and risk of internal flooding to be acceptable and safe for the proposed residential change of use.

#### **Flood Response Plan**

The site/access route would be flooded to unsafe depths in the 0.5% (1 in 200) annual probability with climate change flood event. The FRA only states that the occupiers should sign up to receive flood warnings but does not include details of a Flood Response Plan to adequately mitigate this. Consequently, there would be an unacceptable risk to the health and safety of the occupants in a flood event. The FRA should be revised to include a Flood Response Plan, or details of what a plan will contain, to enable the LPA and their emergency planner to determine whether the proposed plan is sufficient to manage and mitigate the flood risk to the occupants.

### **Actual Risk**

As the FRA details, the site lies at actual risk of flooding in the current day and future 0.5% (1 in 200) annual probability flood event, as the flood defences to the west of the site are below the current 0.5% (1 in 200) annual probability flood level. Therefore, the proposed new residential development and occupants should be safe in the event of a flood.

### **OTHER COMMENTS**

#### **Contamination**

The site is located above a Principal Aquifer. However, we do not consider this proposal to be High Risk. Therefore, we would not be provide detailed site-specific advice or comments with regards to land contamination issues for this site. The developer should address risks to controlled waters from contamination at the site, following the requirements of the National Planning Policy Framework and the Environment Agency Guiding Principles for Land Contamination, which can be found here: <https://www.gov.uk/government/publications/managing-and-reducing-land-contamination>

#### **Infiltration Sustainable Drainage Systems (SuDS)**

The water environment is potentially vulnerable and there is an increased potential for pollution from inappropriately located and/or designed infiltration (SuDS). We consider any infiltration (SuDS) greater than 2.0 m below ground level to be a deep system and are generally not acceptable. All infiltration SuDS require a minimum of 1.2 m clearance between the base of infiltration SuDS and peak seasonal groundwater levels. All need to meet the criteria in our Groundwater Protection: Principles and Practice (GP3) position statements G1 to G13 which can be found here:

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/297347/LIT\\_7660\\_9a3742.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/297347/LIT_7660_9a3742.pdf). In addition, they must not be constructed in ground affected by contamination.

#### **Site of Special Scientific Interest (SSSI)**

The site is adjacent to a SSSI.

Should you wish to discuss any of the points raised in this response please do not hesitate to contact our project manager Neville Benn, who can be contacted on 0203 0251906 and [neville.benn@environment-agency.gov.uk](mailto:neville.benn@environment-agency.gov.uk)

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Awarded to Cambridgeshire and Bedfordshire Area