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Lincolnshire COUNTY COUNCIL
*Working for a better future*

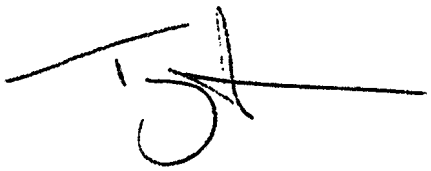
County Offices
Newland
Lincoln
LN1 1YL

28 August 2014

**Flood and Drainage Management Scrutiny Committee**

A meeting of the Flood and Drainage Management Scrutiny Committee will be held on **Friday, 5 September 2014 at 10.00 am in Committee Room One, County Offices, Newland, Lincoln LN1 1YL** for the transaction of the business set out on the attached Agenda.

Yours sincerely



Tony McArdle
Chief Executive

**Membership of the Flood and Drainage Management Scrutiny Committee**
**(11 Members of the Council and 7 Other Voting Members)**

Councillors C L Strange (Chairman), Mrs V C Ayling (Vice-Chairman), A M Austin, C J T H Brewis, A Bridges, M Brookes, R G Fairman, J R Marriott, C R Oxby, C Pain and R A Renshaw

Other Voting Members
District Councillors I G Fleetwood (West Lindsey District Council), D Jackson (City of Lincoln Council), R F Leggott (Boston Borough Council), Mrs F M Martin MBE (East Lindsey District Council), J Money (North Kesteven District Council), B Russell (South Kesteven District Council) and M D Seymour (South Holland District Council)

**FLOOD AND DRAINAGE MANAGEMENT SCRUTINY COMMITTEE AGENDA**
**FRIDAY, 5 SEPTEMBER 2014**

| Item | Title | Pages |
|---|---|---|
| 1 | **Apologies for Absence/Replacement Members** | |
| 2 | **Declarations of Members' Interests**<br>*(Councillors are reminded that there is no need to declare an interest if it has already been recorded on the register of disclosable pecuniary interests (DPIs) or notified to the Monitoring Officer in accordance with the regulations. However, Councillors declaring interests must state what the DPI is and accordingly not speak or vote on the item)* | |
| 3 | **Minutes of the previous meeting of the Environmental Scrutiny Committee held on 18 July 2014** | 5 - 10 |
| 4 | **Announcements by the Executive Councillor, Economic Development, Environment, Planning, Tourism and the Assistant Director (Environment, Planning & Customer Services)** | Verbal Report |
| 5 | **Section 19 Report - Coastal Surge Flood Event during 5, 6 & 7 December 2013**<br>*(A report by Mark Welsh, Flood, Water and Major Developments Manager, which summarises the flooding caused by the coastal surge of 5 December 2013 and draws upon reports by other Risk Management Authorities to produce the overarching Section 19 report)* | 11 - 176 |
| 6 | **Common Works Programme and Lincolnshire County Council Capital Schemes 2014-15**<br>*(A report by Mark Welsh, Flood, Water and Major Developments Manager and David Hickman, Environmental Services Team Leader (Strategy and Partnership),in connection with the latest position on the Common Works Programme for 2014-15, including the current programme for surface water management schemes)* | 177 - 182 |
| 7 | **The Flood Re-Insurance (Flood Re) Scheme - Regulations**<br>*(A report by Mark Welsh, Flood, Water and Major Developments Manager, in connection with the implications of the Government's Flood Reinsurance (Flood Re) Scheme and considers the consultation on the subsequent Regulations)* | 183 - 224 |
| 8 | **Louth and Horncastle Flood Alleviation Schemes - Verbal Update**<br>*(To receive a verbal update from Deborah Campbell of the Environment Agency on the Louth and Horncastle Flood Alleviation Schemes)* | Verbal Report |

**9** **Work Programme for the Flood and Drainage Management Scrutiny Committee** 225 - 228

*(A report by Louise Tyers, Scrutiny Officer, in connection with the current situation of the Committee's Work Programme)*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**Please note:** for more information about any of the following please contact the Democratic Services Officer responsible for servicing this meeting

- Business of the meeting
- Any special arrangements
- Copies of reports

Contact details set out above.

All papers for council meetings are available on: www.lincolnshire.gov.uk/committeerecords

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**FLOOD AND DRAINAGE MANAGEMENT SCRUTINY COMMITTEE**
**18 JULY 2014**

**PRESENT: COUNCILLOR C L STRANGE (CHAIRMAN)**

Councillors Mrs V C Ayling (Vice-Chairman), C J T H Brewis, M Brookes, R G Fairman, J R Marriott, Mrs M J Overton MBE, C R Oxby and R A Renshaw

District Councillors I G Fleetwood (West Lindsey District Council), R F Leggott (Boston Borough Council), Mrs F M Martin MBE (East Lindsey District Council), J Money (North Kesteven District Council) and M D Seymour (South Holland District Council)

External Agencies – Jonathan Glerum (Anglian Water), Robert Caudwell ((Anglian North Regional Flood and Coastal Committee)) and Andrew Barron (Environment Agency)

Councillors J P Churchill, C J Davie and A H Turner MBE JP, attended the meeting as observers

Officers in attendance:-

Steve Blagg (Democratic Services Officer), David Hickman (Environmental Services Team Leader (Strategy and Partnership), Andy Gutherson (Head of Planning), Louise Tyers (Scrutiny Officer) and Mark Welsh (Floods, Water and Major Developments Manager)

1 MARK OF RESPECT FOR THE AIRCRAFT VICTIMS IN UKRAINE ON 17 JULY 2014

The Committee stood in silence as a mark of respect for the Malaysian Airlines aircraft victims in the Ukraine on 17 July 2014.

2 APOLOGIES FOR ABSENCE/REPLACEMENT MEMBERS

Apologies for absence were received from County Councillors A Bridges and C Pain, District Councillors D Jackson (City of Lincoln) and B Russell (South Kesteven), Deborah Campbell (Environment Agency), Mike Dugher (Environment Agency), Sam Markillie (South Holland Internal Drainage Board) and David Sisson (Lindsey Marsh Internal Drainage Board).

The Chief Executive reported that having received notice under Regulation 13 of the Local Government (Committees and Political Groups) Regulations 1990, he had

appointed Councillor Mrs M J Overton MBE as a replacement member on the Committee in place of Councillor Mrs A M Austin, for this meeting only.

3 DECLARATIONS OF MEMBERS' INTERESTS

District Councillor J Money requested that a note should be made in the minutes that he and his wife owned the freehold of the land on Main Street, Scopwick detailed in the report (minute 59). His pecuniary interest had been registered with North Kesteven District Council and he would not speak or vote on this matter.

4 MINUTES OF THE PREVIOUS MEETING OF THE COMMITTEE HELD ON 1 MAY 2014

RESOLVED

That the minutes of the previous meeting of the Flood and Drainage Management Scrutiny Committee held on 1 May 2014, be agreed as a correct record and signed by the Chairman.

The Chairman took the opportunity to thank Boston Borough Council for hosting the meeting and the site visit for the Committee on 1 May 2014.

5 ANNOUNCEMENTS BY THE EXECUTIVE COUNCILLOR, ECONOMIC DEVELOPMENT, ENVIRONMENT, PLANNING, TOURISM AND THE ASSISTANT DIRECTOR (ENVIRONMENT, PLANNING & CUSTOMER SERVICES)

Councillor Colin Davie, Executive Councillor, Economic Development, Planning, Tourism, made two announcements:-.

1. Owen Paterson MP had been replaced by Elizabeth Truss MP as Secretary of State for the Environment, Food and Rural Affairs in the recent changes to the Cabinet announced by the Prime Minister. Councillor Davie paid tribute to the work done by Mr Paterson especially in supporting the dissemination of the flood partnership strategy in Lincolnshire, nationwide.

2. He read out a statement in connection with proposed solutions to overcome flooding and silting issues on the River Steeping at Burgh le Marsh. Consultations with the local community had taken and would continue to take place in connection with the proposals.

It was agreed that the statement and the press release in connection with the River Steeping would be emailed to the Committee.

The statement was welcomed by the Committee.

## 6 LOUTH AND HORNCASTLE FLOOD ALLEVIATION SCHEMES

The Committee received a progress report on implementing flood alleviation schemes for Louth and Horncastle.

With regard to Louth a consortium VBA from the Environment Agency's Water and Environment Management Framework had been appointed to design, plan and construct the flood defence scheme. The anticipated completion of the scheme was 2015.

With regard to Horncastle, tenders were being invited from framework suppliers to design, plan and build the flood defence scheme. A start on site was expected in March 2015. Work was on-going to provide Property Level Flood Protection to properties at risk of flooding from the River Waring but despite concerted efforts there were still many residents who had yet to accept the offer.

Councillor Fiona Martin MBE, the local District Member for Horncastle, welcomed progress of the Horncastle project and partnership working.

RESOLVED

That progress on the implementation of the flood defence schemes in Louth and Horncastle be noted.

## 7 INVESTIGATIONS UNDERTAKEN UNDER SECTION 19 OF THE FLOOD AND WATER MANAGEMENT ACT 2010

The Committee received a standing report on the position of all current Section 19 investigations in the county. Officers stated that since the last meeting of the Committee the "Estimated Timescale" had been added to the spreadsheet.

In connection with the two issues raised by the Committee, officers stated that the Environment Agency was investigating the flooding issues at Swaton where thirteen properties were at risk and two properties had been flooded. Officers had attended a recent meeting of Swaton Parish Council where the problems including funding had been explained.

In connection with flooding problems at Mark Avenue, Horncastle, discussions between Anglian Water and the Internal Drainage Board were ongoing about the cost and continued maintenance of the culvert for the new residential development. Anglian Water had agreed to continue to maintain the culvert and carry out monthly monitoring checks while the discussions were ongoing.

Officers' responses to the comments by the Committee, included:-

1. The County Council's duty to investigate flooding issues under Section 19 and to identify the appropriate agency to carry out the necessary work to address the problem was explained.

2. The criteria for funding of flood prevention schemes and the Common Works Programme was explained.
3. The timescale for the completion of works to address flooding in Horncastle which was outlined in a separate report at today's meeting (see minute 58), was explained.
4. The different procedures for dealing with foul and surface water from new developments was explained.

Following comments made by the Committee, officers stated that Anglian Water had a dedicated team examining all planning applications but they were was not a statutory consultee for planning applications. Executive Councillor Colin Davie thought that Anglian Water was consulted in connection with planning applications involving ten or more properties but agreed to pass on the Committee's views with Central Government that water utilities should be a statutory consultee on planning applications.

The Committee in supporting the comments made by Executive Councillor Colin Davie emphasised the importance of infrastructure and sustainability before any development took place. The Committee was informed that the Environmental Scrutiny Committee which immediately followed this Committee had an item on its agenda in connection with an "Infrastructure Statement".

RESOLVED

(1) That the report be noted.

(2) That the Committee be kept informed of progress on flood defence measures at Swaton and Mark Avenue, Horncastle.

(3) That Executive Councillor Colin Davie be requested to pass on the comments of the Committee in connection with water utilities being statutory consultees for all planning applications to the appropriate government department.

8 KEEBLE DRIVE, WASHINGBOROUGH - FLOOD RISK IMPROVEMENT SCHEME

The Committee received a presentation on the proposed flood risk improvement scheme in the Keeble Drive area of Washingborough. Officers outlined the history and geography of residential development in this area, stated that there had been significant flooding in the area in 2007 and funding to correct the problem had now been received from the flood management partnership and Central Government

Councillor R Oxby, the local Division Member for the area, stated that he had been aware of the problems in this area since 2007 and agreed to meet officers outside of the meeting to discuss the matter further.

Officers stated that the cost of the scheme was £790k with £230k coming from the flood management partnership and the remainder coming from Central Government.

RESOLVED

That the report be noted.

9 PILOTING OF JOINT ASSESSMENT OF FLOOD RISK

The Committee received a report on progress to date in exploring and developing a better joined-up approach to assessing the risk of flooding from all sources, the reasons for undertaking this work, next steps and the practical benefits for local communities and the Flood Risk and Drainage Management Partnership. Officers stated that while the science had improved in connection with prioritising coastal flooding surface flooding prioritisation still presented difficulties, although improvements were being made on all aspects of flooding risk.

It was proposed to adopt this approach in two pilot areas in the county which were not subject to flooding.There would be consultation with local communities on the proposals and a report providing more information would be brought back to a future meeting of the Committee.

Following a comment from the Committee officers stated that there was cross border consultation between the flood management partnership in Lincolnshire and neighbouring local authorities.

RESOLVED

That the report be noted and that the Committee receive further progress reports on this matter including a practical demonstration.

10 FLOOD AND DRAINAGE MANAGEMENT SCRUTINY WORK PROGRAMME

The Committee received a report in connection with its Work Programme.

RESOLVED

That the Committee's Work Programme be noted and updated accordingly subject to the deferment of "Partnership funding and the constraints Anglian Water work under as a regulated industry" from the meeting on 5 September to 4 December 2014.

The meeting closed at 11.20 am

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**Policy and Scrutiny**

**Open Report on behalf of Richard Wills, Executive Director for Environment and Economy**

| | |
|---|---|
| Report to: | **Flood and Drainage Management Scrutiny Committee** |
| Date: | **05 September 2014** |
| Subject: | **Section 19 Report - Coastal Surge Flood Event during 5, 6 & 7 December 2013** |

**Summary:**

The County Council as Lead Local Flood Authority (LLFA) has a statutory duty to carry out investigations into flooding from any source under Section 19 of the Flood and Water Management Act (FWMA). This report summarises the flooding caused by the coastal surge of 5 December 2013 and draws upon reports by other Risk Management Authorities to produce the overarching Section 19 report.

**Actions Required:**

The Committee are asked to consider and comment on the LLFA Investigation Report relating to the coastal surge flood event of 5, 6 & 7 December 2013.

## 1. Background

The Lincolnshire East Coast tidal inundation on the evening of 5 December 2013 was the worst experienced for over 60 years. A number of coastal communities, residential and commercial properties, and high grade agricultural land suffered from serious flooding. Lincolnshire County Council, as LLFA has a statutory duty to undertake flood investigations into flooding from any source under Section 19 of the FWMA Act 2010. The report at Appendix A has been compiled in conjunction with other Risk Management Authorities in the county and together with reports from the Lincolnshire Resilience Forum, the Environment Agency and Anglian Water, which are contained within it, gives an overview of the flooding and fulfils the statutory duty.

## 2. Conclusion

The Committee are asked to consider, comment and support the LLFA investigation report (including nested reports by partner organisations) relating to the coastal surge flood event of 5, 6 & 7 December 2013.

## 3. Consultation

### a) Policy Proofing Actions Required

n/a

## 4. Appendices

| These are listed below and attached at the back of the report | |
|---|---|
| Appendix A | Section 19 Investigation Report - Overview of coastal surge flood event during 5, 6 & 7 December 2013. |

## 5. Background Papers

No background papers within Section 100D of the Local Government Act 1972 were used in the preparation of this report.

This report was written by Mark Welsh, who can be contacted on 01522 782070 or mark.welsh@lincolnshire.gov.uk.

**Lincolnshire Flood Risk and Drainage Management Partnership Framework**


**Flooding in Boston**

# Section 19 Investigation Report

# Overview of coastal surge flood event during 5th, 6th & 7th December 2013

Lincolnshire COUNTY COUNCIL

**CONTENTS** **Page**

# 1 Introduction

The Lincolnshire East Coast tidal inundation on the evening of 5 December 2013 was the worst experienced for over 60 years. A number of coastal communities, residential and commercial properties, and high grade agricultural land suffered from serious flooding. Thankfully no lives were lost but many people were affected and put at risk. Figure 1-1 below shows the extent of coastal flood risk areas in Lincolnshire, within which the actual communities affected by this event are located. The locations of these communities are shown in Fig 8-1 and the numbers of properties and areas of land flooded are provided in Table 9-1 and Table 9-2 later in this report.

The flood event tested the Emergency Services, flood defence and drainage infrastructure, and the Lincolnshire Risk Management Authorities affected. As indicated below, Lincolnshire County Council, as Lead Local Flood Authority, has a statutory duty to undertake investigations into flooding and this report, together with reports from the Lincolnshire Resilience Forum and the Environment Agency (See section 15 Appendices), fulfils this duty.

***Flood and Water Management Act 2010 – states:***
***Section 19 - Local authorities: investigations***

*(1) On becoming aware of a flood in its area, a lead local flood authority must, to the extent that it considers it necessary or appropriate, investigate—*
*(a) which risk management authorities have relevant flood risk management functions, and*
*(b) whether each of those risk management authorities has exercised, or is proposing to exercise, those functions in response to the flood.*

*(2) Where an authority carries out an investigation under subsection (1) it must—*
*(a) publish the results of its investigation, and*
*(b) notify any relevant risk management authorities.*

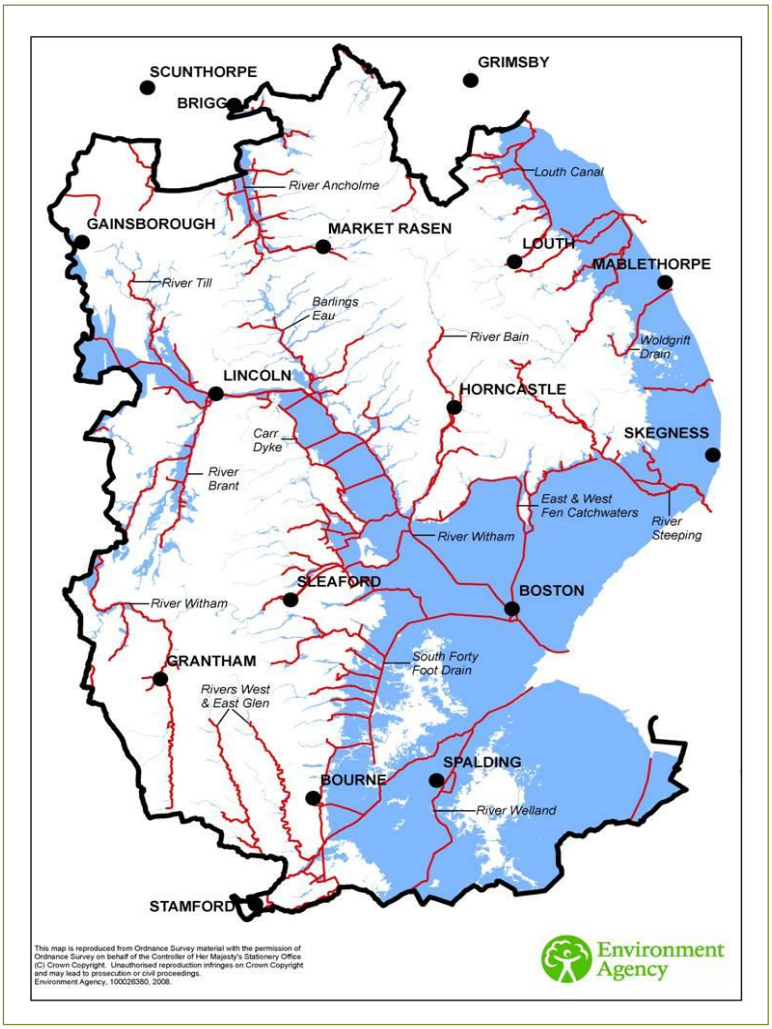



**Figure 1-1** – Map showing coastal and main river flood risk areas

# 2 Objective, Outcome & Method

**Objective:**

**Produce a Sec 19 Investigation Report providing a Lincolnshire partnership overview of the timeline, causes and impacts of the coastal flood event; including observations on need for further investigation and analysis where appropriate**

**Outcome required:**

**Consistent flood event information communicated and used across the Lincolnshire partnership and beyond**

Method:

The partnership approach indicated below was used to deliver this Section 19 Investigation Report:

- Provide an overview as shown in Fig 2-1.0 below and not get into detail or duplicate objectives of other reports or analysis, either ongoing or proposed in the future;
- Provide information on What happened, Where it happened, When it happened and Why (if this is obvious), by maximising the use of Partner investigations and reports;
- Collate appropriate evidence and facts relating to all areas impacted by flooding as provided in the Section 19 Risk Category & Indicator Thresholds (Duty to Investigate Guiding Principles Version 4.1) - see **Section 15 Appendices**;
- Partners to provide relevant reports and input relative to their roles and responsibilities, and consult internally as necessary;
- The delivery of the Section 19 Report is led by the Lead Local Flood Authority;
- However; the majority of partner input is from the Environment Agency with its responsibility for managing coastal flood risk, and the Local Resilience Forum with its statutory responsibility for emergency planning and response in Lincolnshire; and
- This Section 19 Report should be read in conjunction with the other published Partner Reports in **Section 15 Appendices**, and this report is NOT intended for sole use to determine or justify future work or activity.

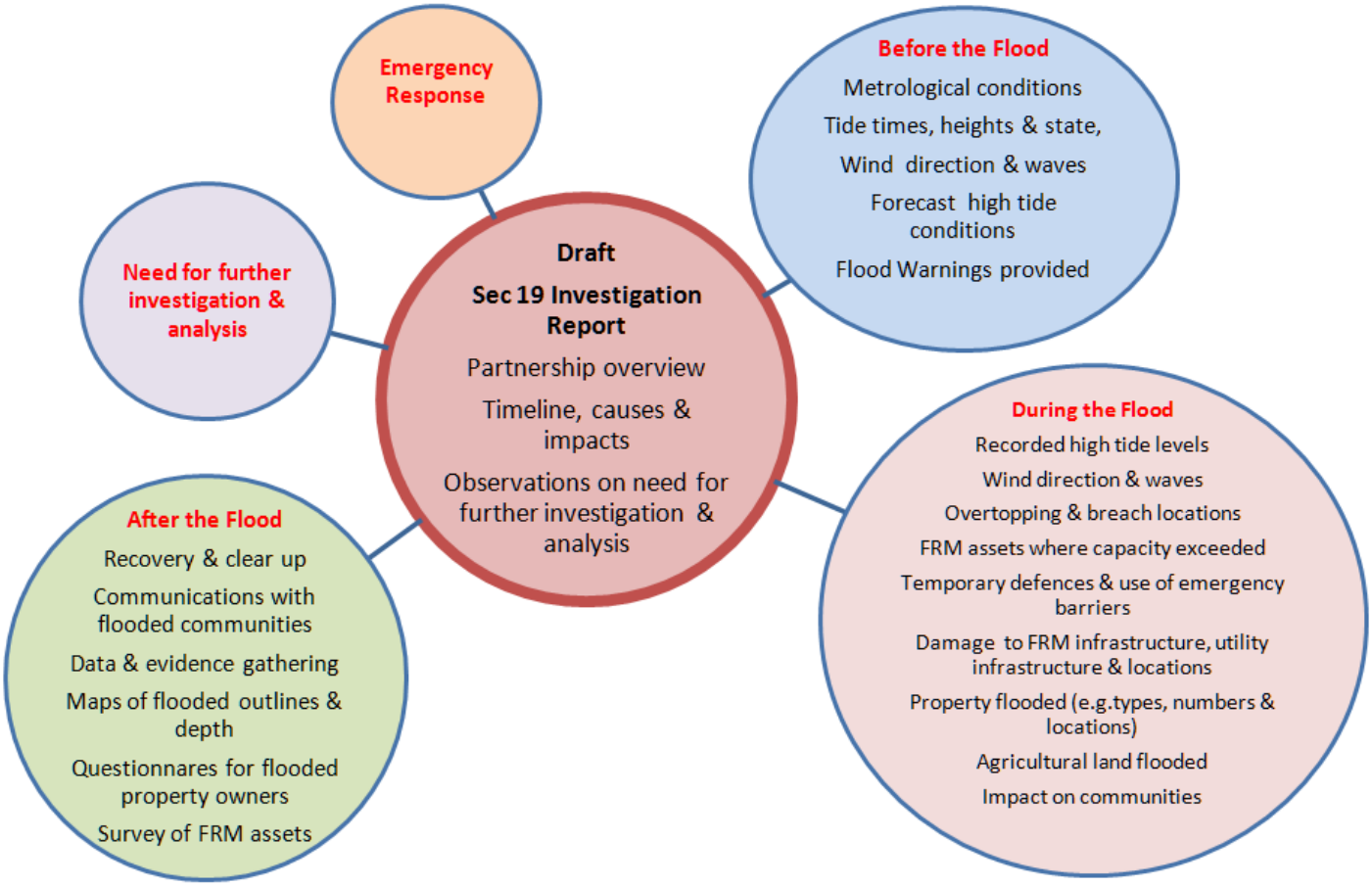



**Figure 2-1** - Outline scope of Section 19 Report (compendium of partner documents)

## 3 Structure of the Report

A conscious effort has been made to take an efficient partnership approach (shown in Section 6 below), to meeting the LLFA statutory obligation to carry out the Section 19 Investigation and so avoid duplication of effort and the risk of potential anomalies. This Section 19 Investigation Report draws mainly on evidence and information gathered by partners as part of their own initial investigations into the flood event and provided in specific notes and reports as indicated in Figure 3-1 below. The LRF Report, Environment Agency Report and Anglian Water Newsletter are provided in **Section 15 Appendices**.

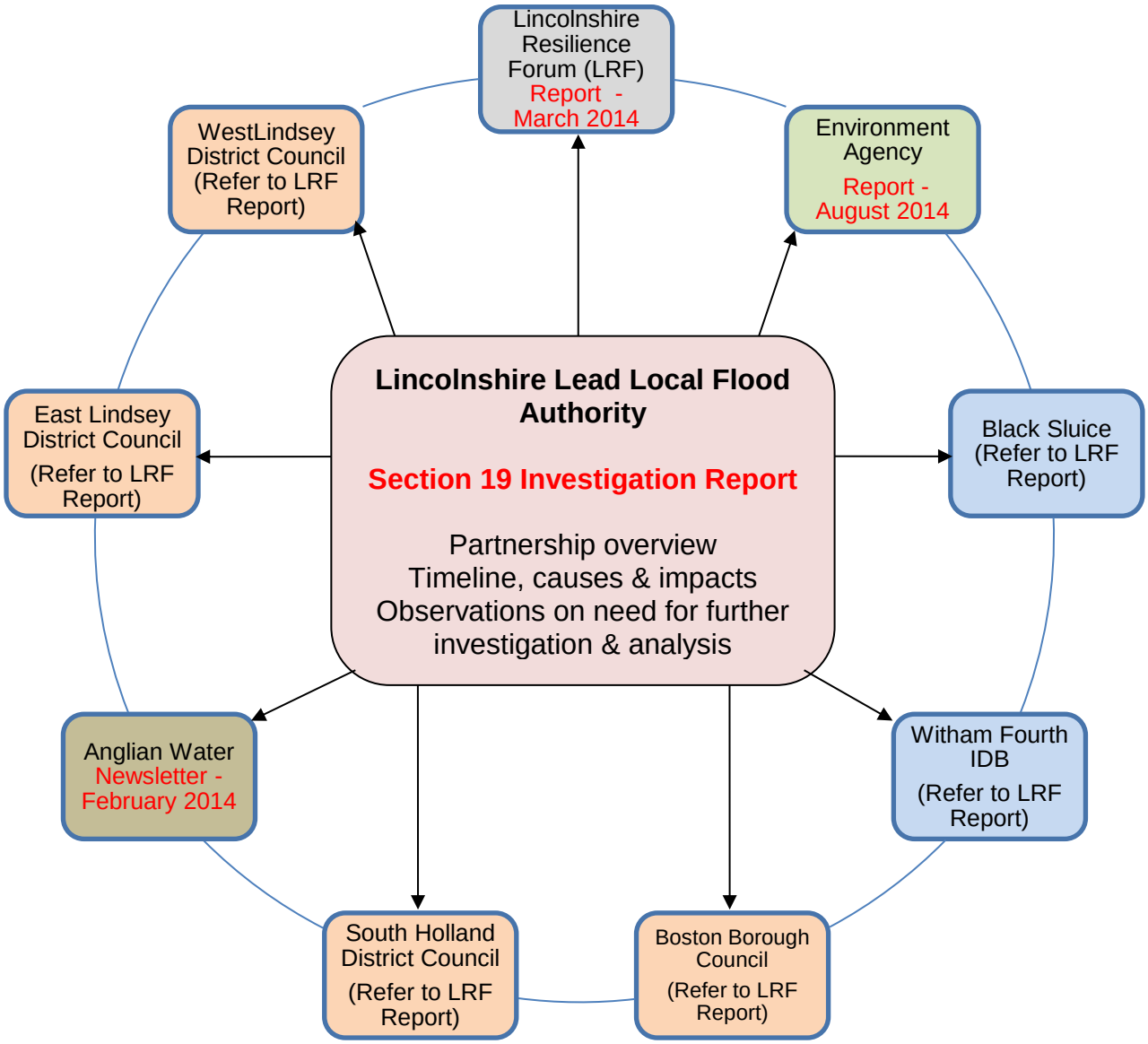



**Figure 3-1** - Partner Risk Management Authorities contributing to the Section 19 Report

# 4 Risk Management Authority Roles and Responsibilities

Table 4-1 below summarises the key responsibilities for the relevant Risk Management Authorities operating in Lincolnshire:

| Authority | Risk Management Functions |
|---|---|
| Environment Agency | • strategic overview for all forms of flooding<br>• development of National Strategy for Flood and Coastal Erosion Risk Management (FCERM) to cover all forms of flooding<br>• conversion of Regional Flood Defence Committees into Regional Flood and Coastal Committees with new remit to include coastal erosion issues<br>• powers to request information in connection with FCERM functions<br>• power to designate structures and features that affect flooding or coastal erosion<br>• duty to exercise FCERM consistently with the national and local strategies<br>• duty to report to Ministers on FCERM including implementation of the strategies<br>• statutory consultee to the sustainable drainage approving body on sustainable drainage<br>• responsibility for coastal flooding<br>• responsibility for fluvial flooding from main rivers<br>• duty to contribute to sustainable development in discharging their FCERM functions<br>• ability to issue levies to lead local flood authorities: levies can now also apply to coastal erosion issues as well as flooding<br>• duty to have regard to lead local flood authority scrutiny processes<br>• updated provisions for the regulation of reservoirs |
| County or Unitary Council<br><br>(Lead Local Flood Authority) | • development, maintenance, application and monitoring of Local Flood Risk Management (FRM) Strategy<br>• powers to request information in connection with FRM functions<br>• duty to investigate and publish reports on flooding incidents in its area (where appropriate or necessary) to identify which authorities have relevant FRM functions and what they have done or intend to do<br>• duty to maintain a register of assets which have a significant effect on flood risk, in the view of the lead local flood authority<br>• power to undertake works to manage flood risk from surface runoff or groundwater<br>• power to designate structures and features that affect flooding<br>• responsibilities as a Sustainable Drainage (SuDS) Approval Body (SAB) with responsibility for approval, adoption and maintenance of new sustainable drainage systems<br>• responsibility for consenting to third party works on ordinary watercourses that may affect water flow (where there is no Internal Drainage Board)<br>• duty to exercise FCERM functions consistently with the |

| | |
|---|---|
| | national and local strategies<br>• duty to contribute to sustainable development in exercising FCERM functions |
| Internal Drainage Board | • power to designate structures and features that affect flooding or coastal erosion<br>• duty to act consistently with local and national strategies<br>• duty to be have regard to lead local flood authority scrutiny processes<br>• ability to work in consortia with other Internal Drainage Boards<br>• statutory consultees to the sustainable drainage system approving body on sustainable drainage<br>• power to undertake works on ordinary watercourses flooding within their boundary and, with the Environment Agency's consent, the sea |
| District, Borough and City Councils | • power to designate structures and features that affect flooding or coastal erosion<br>• duty to act consistently with local and national strategies<br>• duty to have regard to lead local flood authority scrutiny processes<br>• power to undertake works on ordinary watercourses and, with the Environment Agency's consent, the sea |
| Water and Sewerage Company | • duty to have regard to national strategies and to have regard to local strategies<br>• duty to have regard to lead local flood authority scrutiny processes<br>• adoption of private sewers. |

**Table 4-1** - Key responsibilities of Risk Management Authorities

## 5 The Lincolnshire Local Resilience Forum (LRF)

The Lincolnshire Local Resilience Forum is the senior management group for the co-ordination of emergency planning within Lincolnshire. The Forum is made up of senior executives and policy makers from the principal organisations with responsibilities for emergency planning, emergency response and recovery under the Civil Contingencies Act. This includes many of the organisations represented on the Flood Risk and Drainage Management Partnership, as well as the Police, the Fire and Rescue Service, the NHS and other key partners.

Although the Local Resilience Forum covers the whole spectrum of emergency events, the potential impact of an event such as coastal flooding means that the Forum has a key role in the Flood Risk and Drainage Management Partnership to ensure that planning for major flooding events is fully aligned with the 'day-to-day' work of relevant operating authorities.

The Lincolnshire Local Resilience Forum have joint responsibility with the Environment Agency for triggering Severe Flood Warnings.

# 6 Lincolnshire Partnership Approach

Lincolnshire County Council, the Environment Agency, Internal Drainage Boards, District Councils and Water Companies form a partnership to implement a more co-ordinated approach to the way flood risk is managed in Lincolnshire. This involves close joint working to deliver flood protection and prevention schemes on the ground, as well as strategic co-operation to make sure that all relevant authorities are following common, agreed aims and objectives.

The partnership was developed during 2009 and was formally established in April 2010. Its members are:

- Lincolnshire County Council
- The Environment Agency (Anglian Region, Northern Area)
- The 14 Internal Drainage Boards operating in Lincolnshire
- The 7 District Councils in Lincolnshire
- The 2 Water and Sewerage Companies operating in Lincolnshire
- Natural England
- The Regional Flood & Coastal Committee (Anglian Region, Northern Area)
- The Lincolnshire Resilience Forum (authorities responsible for planning for and responding to emergencies of all kinds)

The Partnership is organised as shown in Figure 6-1 below to provide strategic co-ordination at a county level, as well as collaborative solutions to flooding and drainage issues at the local level.

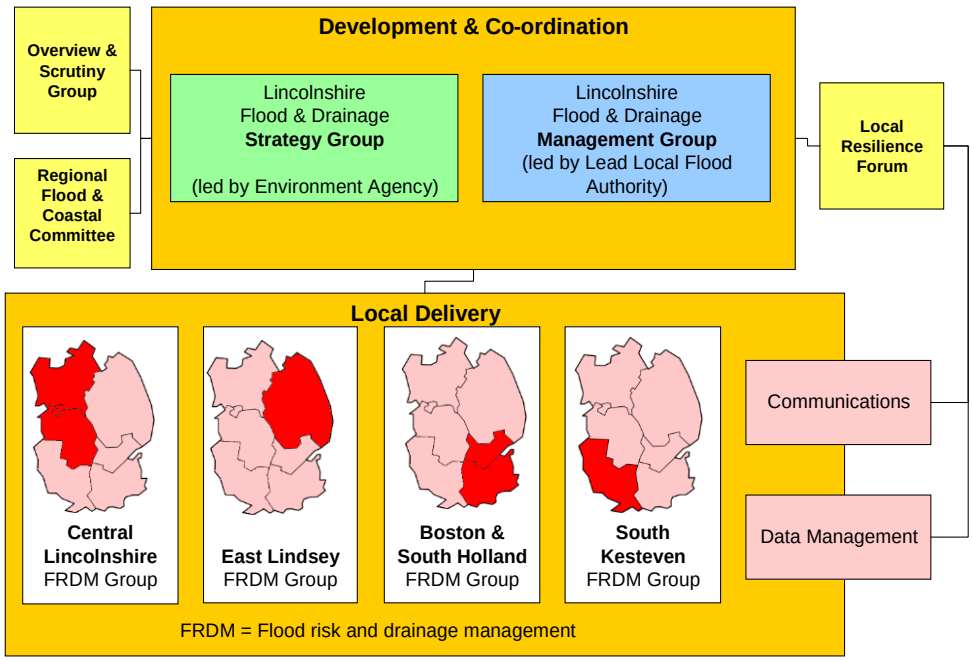
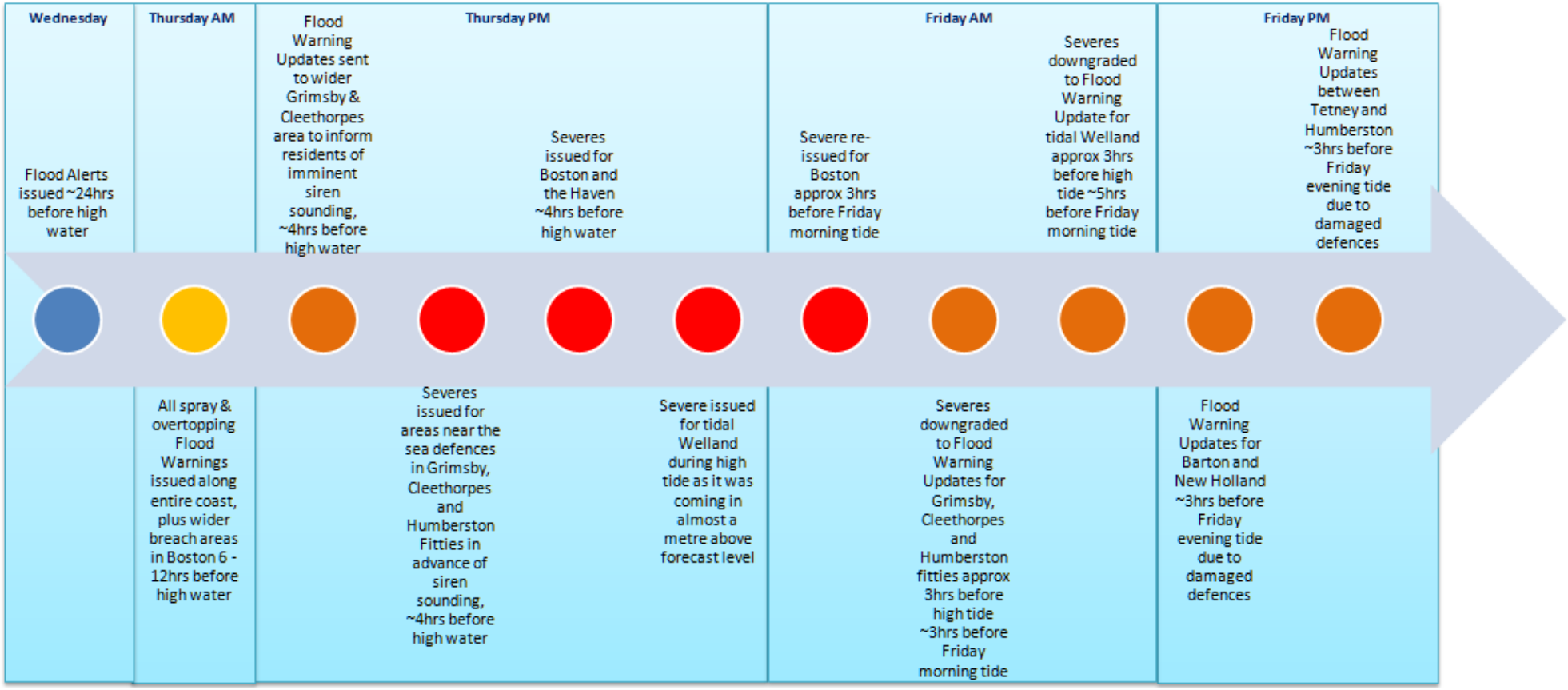



**Figure 6-1** - Organisational arrangements of the Lincolnshire Flood Risk and Drainage Management Partnership

# 7 Figure 7-1 Flood Warnings Timeline

High tide:

| Immingham | Boston | Fosdyke | West Lighthouse |
|---|---|---|---|
| 05/12/2013 18:45 | 05/12/2013 19:32 | 05/12/2013 19:30 | 05/12/2013 19:00 |
| 06/12/2013 07:15 | 06/12/2013 08:06 | 06/12/2013 08:15 | 06/12/2013 07:45 |
| 06/12/2013 20:08 | 06/12/2013 20:17 | 06/12/2013 20:45 | 06/12/2013 20:24 |



# 8 Locations Impacted by Flooding

Known locations impacted by flooding are shown in Figure 8-1 below:

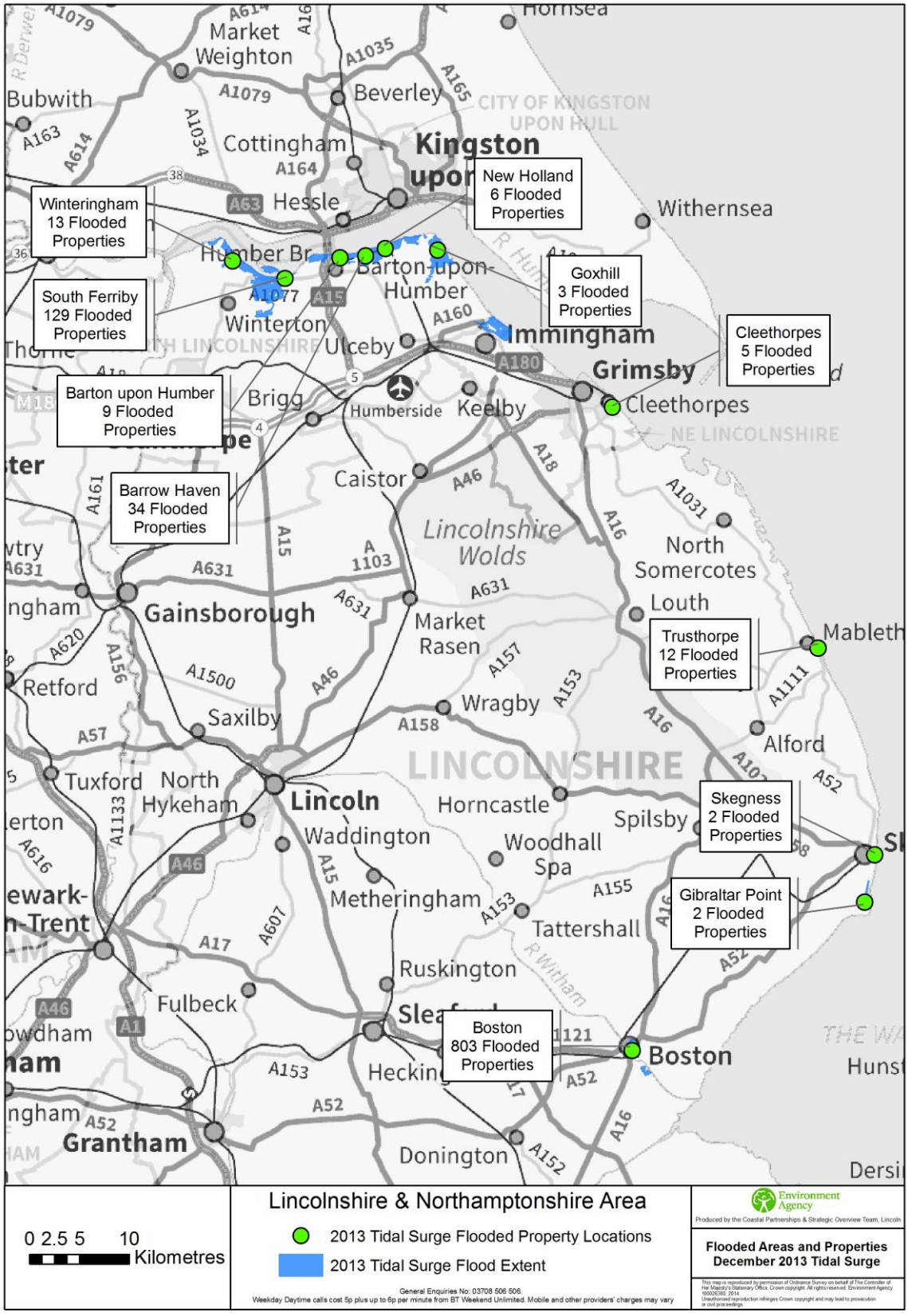



**Figure 8-1** – Map showing locations impacted by flooding

# 9 Flood Event Headlines Drawn from Partner Reports

The impacts of the resultant surge in Greater Lincolnshire (as shown in Table 9-1 below) included the overtopping of 18-20 km of flood defences, causing a large area of scour (*e.g.* Mablethorpe) and 4 breach locations at Boston Haven, Gibraltar Point (Bull Dog Bank), Tetney Marsh and Friskney, inundating an estimated 1,700 hectares of agricultural land.

A further 100+ industrial and commercial sites were damaged, including 'Boston Stump' and local infrastructure such as the access road to the Boston Landfill Site, Civic Amenity Site and County Council Waste Transfer Station. Approximately 90 metres of floodwall at Skegness (between the pier and lifeboat station) failed during the surge. Three of the five main pumps at Black Sluice Gate were damaged by flooding and are now inoperable, requiring a decision on the future of the pumping station.

Significant flooding occurred in the Skirbeck/York Street, and High Street/London Road, Central Park and Wyberton areas of Boston (River Haven). More 'localised' property flooding was also experienced in Sutton Road, Trusthorpe (East Lindsey) and Butterworth Road & East Ferry Road, Susworth (West Lindsey).

| Number | Impact |
|---|---|
| 702 | Residential properties flooded, the majority in Boston (where only 50% of households had flood insurance) and in Trusthorpe and Susworth |
| 118 | Businesses flooded in the county |
| 44 | Persons were rescued from flood waters |
| 2 | Pets were rescued from flood waters |
| 203 | Persons received assistance to evacuate |
| 350 | Tonnes of waste collected from flooded properties and safely disposed |
| 1,700 | Hectares of agricultural land inundated |
| £8.1million (est) | Damage to flood defences and infrastructure |

**Table 9-1** - Summary of flooding impacts

In addition:

Lincolnshire Wildlife Trust confirmed defence overtopping and flood damage to Gibraltar Point Visitor centre and Wash Study Centre. Preventive action at Donna Nook allowed seals to seek refuge on higher ground in dunes. Thankfully, seal mortalities appear to have been low. Also, some damage to fencing & sand dunes occurred between Saltfleetby and Theddlethorpe.
*(Some information above has been extracted from Lincolnshire's Tidal Surge Response & Recovery 'After Action' Report Lincolnshire Local Resilience Forum - March 2014)*

With regard to specific locations as shown above in Figure 8-1 the known flooding impacts on property is shown in Table 9-2 below:

| **Location** | **Residential property flooded** | **Commercial property flooded** | **Agricultural land inundated** |
|---|---|---|---|
| Boston | 688 | 115 (Wyberton/ Slippery Gowt included) | |
| Friskney (Jubilee Bank) | | | 200 ha |
| Trusthorpe | 12 | | |
| Skegness | | 2 | |
| Gibraltar Point | 1 | 1 | |
| Susworth | 1 | | |
| Tetney Marsh | | | 20 ha |
| Wrangle | | | 250 - 450 ha |
| TOTAL | 702 | 118 | 470 – 670ha |

**Table 9-2** –Known flooding impacts on property in spectific locations

# 10 Observations, Need for Further Investigation and/or Analysis

Actions and Recommendations contained within the LRF Report should be progressed as appropriate and at the earliest opportunity.

The Environment Agency are continuing to investigate the following 3 locations for further work / improvements as a result of the surge incident in December 2013.

**1. Skegness**

During the surge incident the existing stone wall at the rear of Skegness promenade between the Clock tower and Pier was effectively destroyed in a number of places by wave action upon the wall.

Discussions are currently under way with East Lindsey District Council to agree Partnership Funding for a permanent solution based on a structural and cosmetic split.

This work to construct a permanent flood wall will be undertaken as part of a local regeneration scheme in October following the end of summer holiday period to minimise disruption to tourists and local businesses.

Damage to the Flood wall

**2. Boston**

**Boston Combined Strategy**

We are currently preparing the Transport and Works Act Order, for submission to the Secretary of State for the Environment during autumn 2015. Subject to their approval, the programme for delivering a multi-functional tidal barrier (phase 3) is to commence construction on site during summer 2017, with a 2.5 year completion date.

The aim of 'The Boston Combined Strategy' (BCS) is to reduce tidal flood risk on The Haven for the town and wider communities, and provide waterways regeneration. The Strategy comprises five phases of work, as follows:-

1. New lock structure which facilitates navigation between the tidal Haven and South Forty Foot Drain (Black Sluice Lock). This work was completed March 2009

2. To improve the condition of Environment Agency assets within the Haven, through Boston town centre. This work was completed summer 2014.
3. Design and construct a multi-functional barrier within the Tidal River Haven with associated works: dual function for tidal surge and waterways regeneration.
4. Provision of new enhanced Waterways facilities like moorings along the waterfront
5. Raising of embankment levels downstream of barrier at an appropriate future time.

The Boston Barrier project seeks to reduce tidal flood risk on the Haven for the town and wider community from a 2% (1 in 50) chance in any one year today to 0.33% (1 in 300) chance in any one year over the 100 year lifetime of the strategy; providing an improved standard of tidal flood protection to over 15,000 residential properties and 900 commercial properties.

**Boston Community Engagement**

In the immediate aftermath of the flooding, the focus was on Boston with agencies in the town centre on the Friday and Saturday, visiting affected businesses and reassuring residents, particularly along Wormgate and Red Lion Street. Four events were quickly arranged for the following week through excellent partnership working with Boston Borough Council (BBC) who facilitated events at their council offices, Boston Market, Craft Market and Asda, giving people the opportunity to come and speak directly to the agencies. A further two days of leaflet dropping on 18/19 Dec informed people between White Horse Lane and St Ann's Lane, as temporary defences were put up ahead of the next spring tides.

At least 225 out of 921 new Flood Warnings Direct (FWD) registrations within the BBC area for December can be directly attributed to this initial engagement activity (this compares to 21 FWD registrations for the previous three months). Virtually all businesses on Wormgate, plus St Botolph's church, are now signed up, along with many in the main market place. Most are helping to promote FWD via leaflets left. Four people came forward as potential new flood wardens (none existed in the town itself previously). Links were made with local councillors, who expressed interest in disseminating flood plans and promoting FWD. There was good joint working with other partners too e.g. Asda and Lincolnshire Police, plus initial links made with local community groups e.g. U3A and Alzheimer's Society.

Key observations from engagement:

- Half (27) of people spoken to who flooded did not have a landline – implications here re Early Direct Warnings (EDW)
- Around 20% of people spoken to were Polish, but currently there are no plans to offer service in alternative languages

Analysis of the FWD registrations reveals that 63 out of the 921 registrations had foreign surnames – 21 Polish, 9 Lithuanian. A better understanding is needed of the different nationalities in Boston and, if known, whether they live in high flood risk areas and how many don't speak English at all. Work continues to establish existing channels used by LRF partners to communicate with these residents. It is believed this is a recognised challenge for the local authority.

Contact has been made with those councillors in wards directly affected by flooding – Central, Witham, Skirbeck, Pilgrim and North - to explore how they can be supported further and make their communities more resilient. This has led to opportunities to attend the Boston Community Forum, which in turn has led to additional contacts being made with existing community groups e.g. the Latvian community group 'Stronger Together' and Boston Christian Fellowship. These are being followed up.

A good example of this is Boston Mayflower Housing Association, who own 4,800 homes in BBC. They are helpfully carrying out a number of activities on our behalf to help promote flood resilience e.g.

- as most people pay their rent online, they are inserting an LRF coastal campaign link on this page, so that people can click to register for free flood warnings and to complete an interactive flood plan. This activity can be directly monitored
- lettings officers will encourage new tenants to register for flood warnings when they are shown around properties
- letting us know about community 'pop up' events that take place when they need to consult with residents, with a view to us attending

A meeting took place in January to discuss a localised community emergency and flood plan (CEFP) following an approach from the South Ward councillor to the Joint Emergency Management Service (JEMS). This plan could include flood wardens and the creation of localised networks to share information. It is envisaged that this could be used to provide a template/guidance to roll out to the remaining nine ward councillors within the town to help build resilience for the future. Further options will emerge through partnership working e.g. the Get Boston Back on its Feet group that was formed by the local community, with its own proactive website to share information, could have a wider role to play. They are currently already involved with carrying out recovery work in Boston, under the guidance of Boston Borough Council.

It is understood that through this recovery work, a number of individuals came forward who speak different languages. It is envisaged that these people (and others to be identified) could form a local network of 'community flood champions' that can cascade messages from FWD during expected flooding in the future e.g. by phone, or door-knocking. How this could work needs to be more comprehensively explored. It could be possible to identify people for each ward that can lead on raising awareness of flood risk that could 'buddy up' with those who speak different languages. This could then form part of the CEFP. Once the nature of support network emerges more clearly, appropriate training

e.g. workshops can then take place, as has been the case previously regarding flood wardens. This will help ensure that consistent messages are delivered and resilience can continue to be built in communities.

The first week of March saw the start of the council tax leaflet distribution in Boston. This included a flyer with photos of easy DIY steps people can take to reduce the impact of flooding on homes and it is in English, Polish, Russian and Portuguese. It has been produced by BBC with the support of partners.

Work continues to share information about repairs and the Boston Barrier with interested community groups and councillors in wards affected. The latest briefing note regarding reinstalling the temporary defences, ahead of the latest spring tides, did not cause any concern. Opportunities continue to be sought to share information with communities/groups e.g. Boston Food Bank and Central Ward Neighbourhood Meeting.

As part of our continued regular communications with the Borough of Boston communities we used the 'Boston Bulletin' to keep residents informed at every stage of the recovery process. We also, used an e-mail account where the public could find out more information and ask questions.


Boston Bulletin DAILY

Monday . February 17. 2014

Boston Bulletin DAILY is FREE. Spread the word. Tell your relatives, friends and neighbours to email emma.staff@boston.gov.uk so they can get their own personal copy Monday to Friday.

REPLACING DAMAGED FLOOD DEFENCES

Environment Agency workmen have begun demolishing defences in Boston damaged by flooding on December 5 in order to replace them.

A 26-metre section of flood wall is being rebuilt between Pulvertoft Lane and Whitehorse Lane because it was badly damaged during the tidal surge. The wall had settled by up to two metres in places, leading to it moving and cracking.

The Environment Agency did a structural inspection of the wall and decided that it was beyond repair and needed to be replaced. If a large amount of flood water came up against this wall before it could be replaced then it could have failed and increased the risk of flooding.

Old maps show that this location was originally a slipway for a ship building yard. When the wall was built, the ground was raised as part of the redevelopment in the area, but the tidal surge exposed issues with the condition of this made-up ground, so this section of wall has to be demolished and totally rebuilt. A machine with a pneumatic drill was in use last week to take the flood defence wall down.

The Environment Agency is keeping the temporary flood defences close by so that they can be put up again if they are needed to protect people and property from flooding before the repairs are finished.

When the repair work is completed, the wall will offer the same standard of protection as before the tidal surge. Repairs to the remainder of the damaged wall are currently being finalised and will happen as soon as possible.

• Help for flood victims – see page 2

A pneumatic drill hammers the damaged flood wall at Whitehorse Lane ready for rebuild.

The work is planned to be complete before the next set of high tides at the beginning of March.

Permanent repairs to a ten-metre stretch of damaged flood wall at Bath Gardens were completed before Christmas, and repairs to a 20-metre slip in the bank behind Bateman's Yard (previously the sweet factory) has been completed using more than 600 tonnes of stone on the bank to strengthen this area. Work is planned in early March to repair the flood wall on London Road.

If you have any questions about the works to repair defences then please email dominic.burton@environment-agency.gov.uk or call Dominic Burton on 07747 640883.

Want a job?

Get along to Boston College

New beginnings for the unemployed will be on offer at the Jobs Fair in the University Centre at Boston College from 10am to 3pm on Thursday, February 20.

The event, jointly organised by Job Centre Plus, Boston College and Boston Borough Council, will be supported by companies and organisations with vacancies to fill or able to offer help to the unemployed.

Taking part will be The Army, Avon, Boston College, Pinchpoint Homecare, JDM PCSO, Princes Trust, Lincolnshire Police, LBU, United Lincolnshire NHS Trust, Walnut Care and Work Based Learning Alliance (Apprenticeships).

Mon 9°C 5°C

Tue 8°C 3°C

What's On – pick of the day

Today – Awesome Abs – 30-minute belly blaster exercises. Pilgrim Hospital, Boston, 4.15pm. Tel: 07737 064 128.

Tomorrow – Boston Health Walks. Boston Library, County Hall, Market Place, 10am to noon and Acorn Day Centre, Horncastle Road, 1pm to 3pm (referred group only). For more information contact Fran Taylor on 07798 611 124 or email francis.taylor@boston.gov.uk.

## 3. Gibraltar Point – Bulldog Bank

There were no emergency works undertaken to fix the breach in the Bulldog bank however the Environment Agency is currently looking into the future of the Bulldog Bank sea defence and are currently reviewing the economic justification to fund its repair.

The published Shoreline Management Plan (SMP) for this frontage shows the

policy for this frontage, in the short to medium term, to be 'Hold the line' though this is subject to necessary funding and approvals.

If securing the funding for a repair is not achievable we will need to consider alternative options, which may include seeking contributions towards the repair of the bank or possibly re-alignment of the bank to an alternative location. We are aware Natural England have expressed a desire to setback the bank, allowing a more natural tidal creek system to form, and will continue to engage with them to agree the most appropriate way forward.

The Environment Agency will consult all interested parties, including Natural England, Local Authorities, the Lincolnshire Wildlife Trust and the local residents and businesses if there is a change from the agreed SMP policy.

Breach point in Bulldog Bank Sluice

Secondary Bank with Sluice

# 11 Summary of Discharge of Statutory Responsibilities Template

| | | |
|---|---|---|
| Name of Investigation | | Coastal surge flood event |
| Date of Incident | . | 5th, 6th & 7th December 2013 |
| Date Investigation Completed | . | 18th August 2014 |

Section 19 Paragraph 1 (a) which risk management authorities have relevant flood risk management functions:

Risk Management Authorities involved:

| | |
|---|---|
| ***Boston Borough Council*** | ***Environment Agency*** |
| ***Anglian Water*** | ***Black Sluice Internal Drainage Board*** |
| ***Witham Fourth Internal Drainage Board*** | ***East Lindsey District Council*** |
| ***South Holland District Council*** | ***West Lindsey District Council*** |

Section 19 Paragraph 1 (b) whether each of those risk management authorities has exercised, or is proposing to exercise, those functions in response to the flood

| | |
|---|---|
| ***Boston Borough Council*** **- functions exercised?** | **Yes** |
| ***Environment Agency*** **- functions exercised?** | **Yes** |
| ***Anglian Water*** **- functions exercised?** | **Yes** |
| ***Black Sluice Internal Drainage Board*** **- functions exercised?** | **Yes** |
| ***Witham Fourth Internal Drainage Board*** **- functions exercised?** | **Yes** |
| ***East Lindsey District Council*** **- functions exercised?** | **Yes** |
| ***South Holland District Council*** **- functions exercised?** | **Yes** |
| ***West Lindsey District Council*** **- functions exercised?** | **Yes** |

*Section 19 Paragraph (2) Where an authority carries out an investigation under subsection (1) it must—*

*(a) publish the results of its investigation, and*

*(b) notify any relevant risk management authorities*

| | | |
|---|---|---|
| (a) | Date results of investigation published | 5th September 2014 |
| (b) | Date of F&DG Management Group Meeting when relevant RMA notified of results of investigation | September 2014 |

# 12 Find out more

**Lincolnshire County Council**

This Report is available online at:

http://www.lincolnshire.gov.uk/residents/environment-and-planning/flood-risk-management/implementing-a-strategy-to-manage-flood-risk-countywide-and-locally/103045.article?tab=downloads

Hard copies are available on request. Postal enquiries should be sent to:

Joint Lincolnshire Flood Risk and Drainage Management Strategy
Lincolnshire County Council
Environmental Services
Witham Park House
Waterside South
Lincoln LN5 7JN

Email enquiries should be sent to sustainability@lincolnshire.gov.uk

For telephone enquiries please contact (01522) 552222

**Lincolnshire Local Resilience Forum**

Information is available at Lincolnshire Resilience Forum

Postal enquiries should be sent to:

Joint Emergency Management Service
Lincolnshire Fire & Rescue HQ
South Park Avenue
Lincoln
LN5 8EL

Email enquiries should be sent to lrf@lincoln.fire-uk.org

For telephone enquiries please contact (01522) 582220

**Environment Agency**

Information is available at Environment Agency

Postal enquiries should be sent to:

Environment Agency
Lincolnshire & Northamptonshire Area
Waterside House
Waterside North
Lincoln
LN2 5HA

Email enquiries should be sent to enquiries@environment-agency.gov.uk

For telephone enquiries please contact 03708 506 506

**Black Sluice Internal Drainage Board**

Information is available at Black Sluice Internal Drainage Board

Postal enquiries should be sent to:

Black Sluice Internal Drainage Board
Station Road
Swineshead
Boston
Lincolnshire
PE20 3PW

Email enquiries should be sent to mailbox@blacksluiceidb.gov.uk

For telephone enquiries please contact 01205 821440

**Witham Fourth Internal Drainage Board**

Information is available at Witham Fourth Internal Drainage Board

Postal enquiries should be sent to:

Witham Fourth Internal Drainage Board
47 Norfolk Street
Boston
Lincs
PE21 6PP

Email enquiries should be sent to drainage@w4idb.co.uk

For telephone enquiries please contact 01205 310088

**Boston Borough Council**

Information is available at Boston Borough Council

Postal enquiries should be sent to:

Boston Borough Council
Municipal Buildings
West Street
Boston
Lincolnshire
PE21 8QR

Email enquiries should be sent via the Boston Borough Council web site

For telephone enquiries please contact 01205 314315

**South Holland District Council**

Information is available at www.sholland.gov.uk

Postal enquiries should be sent to:

South Holland District Council
Council Offices
Priory Road
Spalding
PE11 2XE

Email enquiries should be sent to: info@sholland.gov.uk

For telephone enquiries please contact 01775 761161

**Anglian Water**

Information is available at Anglian Water

Postal enquiries should be sent to:

Anglian Water
Customer Services
PO Box 10642
Harlow
CM20 9HA

Email enquiries should be sent via the Anglian Water web site

For telephone enquiries please contact **08457 91 91 55**

**East Lindsey District Council**

Information is available at www.e-lindsey.gov.uk

Postal enquiries should be sent to:

East Lindsey District Council
Tedder Hall
Manby Park
Louth
Lincolnshire
LN11 8UP

Email enquiries should be sent to : customerservices@e-lindsey.gov.uk

For telephone enquiries please contact 01507 613940

**West Lindsey District Council**

Information is available at West Lindsey

Postal enquiries should be sent to:

West Lindsey District Council
Guildhall
Marshall's Yard
Gainsborough
Lincs
DN21 2NA

Email enquiries should be sent to : customer.services@west-lindsey.gov.uk

For telephone enquiries please contact 01427 676676

# 13 Glossary

| | |
|---|---|
| Assets | Structures, or a system of structures used to manage flood risk. |
| Catchments | An area that serves a river with rainwater. Every part of land where the rainfall drains to a single watercourse is in the same catchment. |
| Defences | A structure that is used to reduce the probability of floodwater or coastal erosion affecting a particular area (for example a raised embankment or sea wall) |
| Flood | The temporary covering by water of land not normally covered with water |
| Flood Risk Area | An area determined as having a significant risk of flooding in accordance with guidance published by Defra and Welsh Assembly Government. |
| Groundwater | Water which is below the surface of the ground and in direct contact with the ground or subsoil. |
| Local flood risk | Flood risk from sources other than main rivers, the sea and reservoirs, principally meaning surface runoff, groundwater and ordinary watercourses. |
| Main River | A watercourse shown as such on the Main River Map, and for which the Environment Agency has responsibilities and powers |
| Regulations | The Flood Risk Regulations 2009 |
| Resilience | The ability of the community, services, area or infrastructure to withstand the consequences of an incident. |
| Risk | Measures the significance of a potential event in terms of likelihood and impact. |
| Risk assessment | A structured and auditable process of identifying potentially significant events, assessing their likelihood and impacts, and then combining these to provide an overall |

| | |
|---|---|
| | assessment of risk, as a basis for further decisions and action. |
| Source | The origin of a hazard (e.g. heavy rainfall, strong winds, surge etc). |
| Surface runoff | Rainwater (including snow and other precipitation) which is on the surface of the ground (whether or not it is moving), and has not entered a watercourse, drainage system or public sewer. |

# 14 Abbreviations

| | |
|---|---|
| F&WM Act | Flood & Water Management Act 2010 |
| FMfSW | Flood Map for Surface Water |
| FR&DMG | Flood Risk & Drainage Management Group |
| IDB | Internal Drainage Board |
| LCC | Lincolnshire County Council |
| LFRMS | Local Flood Risk Management Strategy |
| LLFA | Lead Local Flood Authority |
| LRF | Local Resilience Forum |
| FWD | Flood Warnings Direct |
| EDW | Early Direct Warnings |
| CEFP | Community Emergency & Flood Plan |
| JEMS | Joint Emergency Management Service |
| BBC | Boston Borough Council |

# 15 Appendices

(a) Lincolnshire's Tidal Surge Response & Recovery 'After Action' Report Lincolnshire Local Resilience Forum - March 2014

(b) December 2013 East Coast Surge Incident Report - Environment Agency - August 2014

(c) East Coast Newsletter - Anglian Water

(d) Duty to Investigate Guiding Principles (Version 4.1)

## Photographs

Boston - Breach in sea defence at Slippery Gowt

Boston - Breach in sea defence at Slippery Gowt

Boston - Breach in sea defence at Slippery Gowt

Boston - Breach in sea defence at Slippery Gowt

Boston - Damage caused due to breach in sea defence at Slippery Gowt


Boston - Municipal Buildings

Boston Stump

Boston - overtopping of Witham Haven floodwall near Boston Stump

Boston - Church Lane


Boston - near Boston Stump

Boston


Boston

Boston


Boston

Friskney - Breach in private Sea Defence

Friskney - Breach in private Sea Defence

Trusthorpe - Sea pouring over top of sluice gate housing structure (also out of top of sea drain access shafts not shown)

Trusthorpe - Sluice gate housing structure


Trusthorpe - Sluice gate housing structure and access shaft structure

Skegness


Skegness

Skegness - seafront promenade

Gibraltar Point - flooding due to overtopping of sea defence

Gibraltar Point - flooding due to overtopping of sea defence

Susworth - Overtopping of steps on flood bank

Susworth - Overtopping of steps on flood bank

Susworth - Overtopping of steps on flood bank

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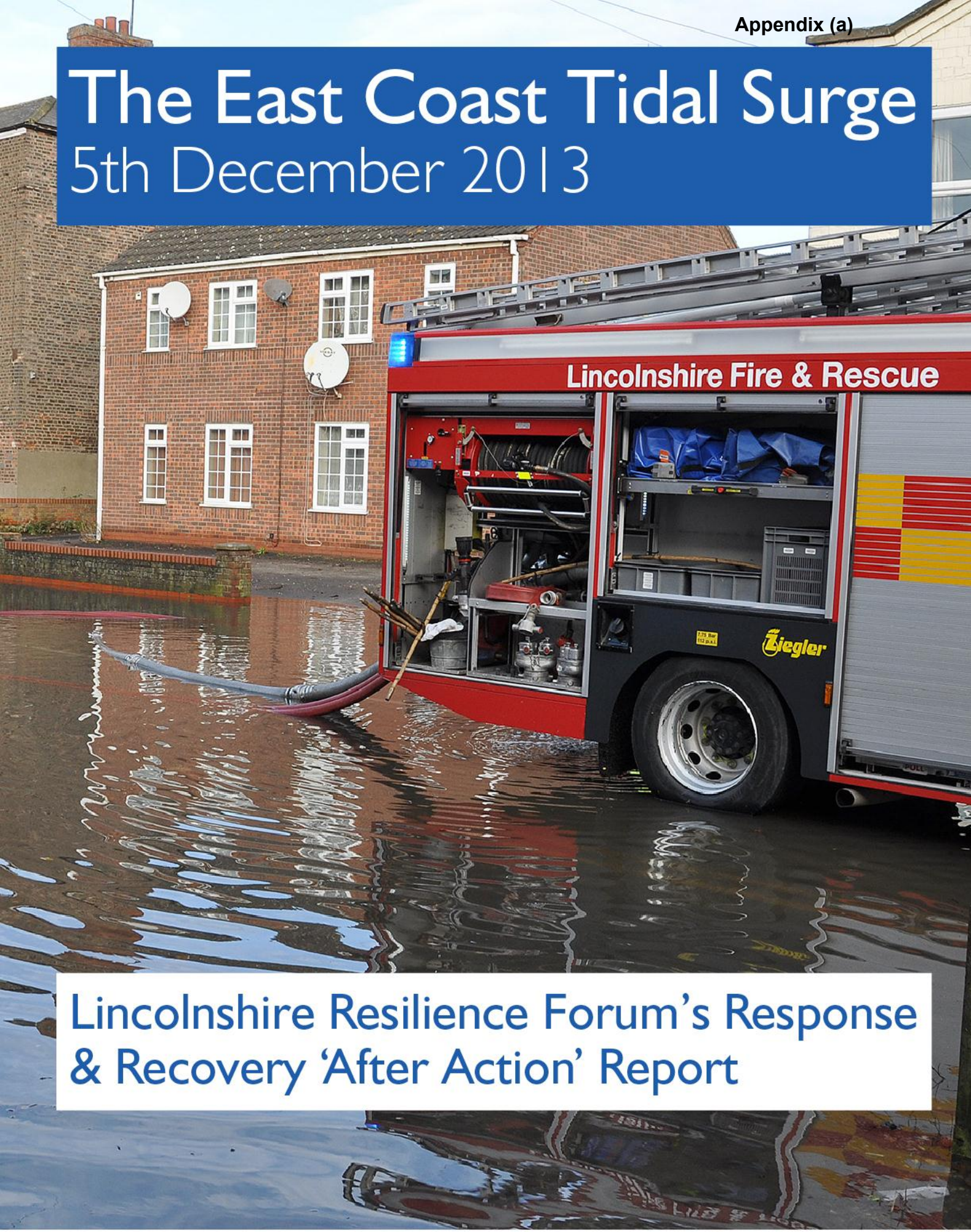
# The East Coast Tidal Surge
## 5th December 2013




# Lincolnshire Resilience Forum's Response & Recovery 'After Action' Report

Lincolnshire's Resilience Forum
PREPARING FOR EMERGENCIES



Lincolnshire COUNTY COUNCIL
Working for a better future

# Foreword

On Thursday 5th December 2013 a deepening pressure system combined with high astronomical tides and strong to gale force 'north westerly' winds to generate a coastal surge along the whole of the east coast of England, the largest surge since the 'great storm' of 1953.

Due to advances in surge forecasting, flood prediction and contingency planning at national, sub-national and local levels we were able to 'get ahead' of the storm. From Tuesday 3rd December partners began deploying one of the largest multi-agency emergency response and recovery operations ever conducted in Lincolnshire. This included the most significant evacuation operation in recent memory, the rescue of a number of people who became isolated by floodwaters, and work to ensure critical services were maintained and damaged infrastructure quickly repaired.

Thankfully there were only three (relatively minor) casualties as a result of the surge, but more than 720 residential and commercial properties were inundated from the resultant overtopping and breach of defences. I would like to pass on my sympathy and support to those whose households and businesses flooded. We continue to work to support a full community recovery, and I commend the work of colleagues at Boston Borough Council who have led this work.

In the circumstances this was a very good, forecast-led response and recovery effort. But we must recognise that we were lucky. The wind direction was predominantly 'off-shore' and less strong than in 1953, so there were less damaging wave conditions. We also did not experience the heavy rain and standing water to exacerbate conditions, as has happened during subsequent storms to hit the southwest of England throughout December and into early February 2014.

Because of these factors, and investments in sea defences, this was not for us an event on the scale of the 1953 storm, but it was a useful and timely reminder. Given the significance of the coastal flood risk it is important that the partnership identifies lessons from the operation and takes the necessary action to ensure we are best prepared in the future. I welcome this report and will work with partners to ensure all necessary steps are taken.

Finally, I would like to pass on my personal thanks to all of those who worked so hard to ensure we did all we could to minimise the impacts from the surge. From those in command of operations and partners who worked long and hard hours in various roles, including the voluntary sector, to the contingency planners who ensured we were as ready as we could be.

I reserve a special thanks to the many unsung heroes, members of the public who simply 'rolled up their sleeves' to help friends and neighbours, strangers, or their local community.

**Chief Constable Neil Rhodes**
Chair of the Lincolnshire Resilience Forum

# Contents

# Executive Summary

From early December through to February 2014 the UK experienced a spell of extreme weather as a series of major winter storms brought widespread impacts to the UK. This sequence of storms was caused by a powerful jet stream driving a succession of low-pressure systems across the Atlantic.
On Thursday 5th December 2013, the first of these deepening pressure systems combined with high astronomical tides and strong to gale force north westerly winds, to generate a coastal surge along the whole of the east coast of England, the largest surge since the 'great storm' of 1953.

The forecast likelihood of significant impacts to our coastline remained lower than in areas of the east coast to our north and south (largely due to the offshore winds) until much later when the threat increased, dramatically, as concerns of a higher surge developed. This presented us with challenges in delivering an appropriate, proportionate response against relatively low certainty of what would happen, and a much reduced time period.

Partners were also faced with the additional challenge of managing commitments to the Lincoln Christmas Market, which attracted an additional 200,000 visitors to the city over the same period, and a major power cut impacting most of Lincoln, including both the market and the County Emergency Centre (CEC) at the height of surge response operations on the 6th December.

In the end, impacts were largely consistent with flood predictions first made by the Environment Agency (EA) as early as the Wednesday. The response and subsequent flooding provided a significant test of partners' capabilities and capacity together with the resilience and preparedness of affected communities.

Between 18-20 km of flood defences overtopped, causing four breach locations. A number of buildings, including significant sites, were damaged, such as the historic St Botolph's Church ('Boston Stump') and Gibraltar Point Visitor Centre. An estimated 1,700 hectares of agricultural land was inundated, and £8.1m[1] worth of damage caused to infrastructure in the county. A total of 607[2] residential properties, the majority in Boston, plus a further 121 businesses were flooded. Approximately 350 tonnes of flood-contaminated waste was safely collected and disposed of in the days following the flooding.

**Identifying the lessons**

This report covers all aspects of the coordinated multi-agency response to, and recovery from, the coastal surge of 5th December through to February 2014 when the initial recovery phase came to an end. It will also cover on-going contingency arrangements during subsequent high tides over the New Year and early February, following concerns about compromised flood defences in Boston.

It presents a chronology of key events, the decisions made and the coordinated actions of partners, and an analysis of the event which together with partner debriefs, is used to identify both **'strengths'** in the way partners coordinated efforts, as well as **'areas for improvement'**.

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[1] Information from the Environment Agency

[2] Information accurate as of 10th March 2014

These are presented within five themes:

1. Early warning, threat assessment and contingency planning
2. Coordination at national, sub-national and local levels
3. Local multi-agency coordination of response and recovery
4. Achieving common objectives & response strategies
5. Achieving recovery objectives and initial community recovery

These will be used as the basis for an LRF Action Plan to ensure lessons are learned and, where necessary, procedures changed.

The report demonstrates we were **better protected** than ever before. By and large, the sea defences did their job having been severely tested protecting 103,000 homes and businesses, and 220,000 hectares of land. The drainage system in Boston worked well and, together with high volume pumping, dispersed all standing water within 48 hours enabling a quicker recovery.

We were certainly **better prepared** and were able to 'get ahead' of this storm through three key strategies:

- We pre-deployed sufficient staff and equipment to support the largest operation (including the ability to rescue people) conducted in recent decades creating two 'multi-agency surge task forces' in Boston and Louth. We are grateful for the efforts of all those involved, including colleagues from other counties who provided mutual aid and specialist support.
- Removing people from danger; ranging from timely public safety and flood warning messages to road closures and planning for the evacuation of up to 18,000 properties. In the end, within a very limited time, we achieved a safe assisted evacuation of 203 people from the properties at immediate risk. Many more self-evacuated without assistance.
- Protecting the infrastructure; including the ability to manage the flood defences and other assets, and threats to the Port of Boston, Boston Pilgrim Hospital and HMP North Sea Camp.

Households, businesses and key partners were **better informed**, with more than 30,300 properties receiving flood warnings from the EA, supported by the proactive use of social media for the first time during an emergency in the county, and a key role (unique to Lincolnshire) played by BBC Radio Lincolnshire who were embedded in the CEC. Most people followed the advice and warnings. However, too many did not, and were reckless with their own safety (and potentially that of responders) by insisting on visiting potential flood areas (a scene repeated throughout the UK).

Boston suffered the largest number of flooded residential properties. Community recovery was well led and structured by Boston Borough Council, supported by partners, with a clear focus on doing as much as possible to support those whose homes and businesses had flooded and getting the community back on its feet. As with the response phase, the recovery saw a great partnership effort. It was also pleasing to see members of the local community coming together to help in the immediate clear-up and longer-term support.

However, the report also shows that our capacity to respond to such wide-area emergencies depends on accessing mutual aid and national specialist assets, and also on improving the way we plan for and manage the welfare impacts of prolonged

deployments of responders in all roles (command and operational). It reinforces a need to invest in secure, web-based, information-sharing technology and improve communication of key information amongst partners, including those 'on the ground' and with the neighbouring EA Area.

Identifying and supporting those people who are, or who may become, vulnerable during such emergencies remains a priority for all partners. Working with a widening range of public and private health & social care providers, and with utility companies and social landlords, to target evacuation, welfare and medical support will be a continuing programme of work for the LRF.

Better ways of working with local community volunteers to properly integrate them into wider response and recovery activities are also required as is learning why people still ignore flood warnings and advice.

Finally, these findings are used to form the basis for recommendations to the LRF so lessons can be applied and procedures changed to continue to deliver effective coordination of multi-agency responses to, and recovery from, emergencies in Lincolnshire.


***Figure 1: In total, 71 severe flood warnings were issued in England & Wales with more than 160, 000 warning messages sent directly to homes and businesses***

# 1. Background

### The anatomy of a coastal surge

The greatest risk of coastal flooding comes from a combination of high tides, a tidal surge caused by low depression, strong 'north easterly' winds and high waves. Tidal surges of more than two metres in height are not uncommon but if they occur with higher astronomical tides and on-shore winds, they cause potentially dangerous sea conditions.

High tides and onshore winds and waves bring the risk of overtopping of the sea defences with some accumulations of seawater on land (particularly in low-lying areas), and flooding within tidal-locked rivers (such as the Trent, Witham, Haven and Nene). With severe overtopping there will be a significant risk of damage and breaches in the defences. Whilst it is possible to predict when these risk conditions might occur, it is not possible to predict precisely where along the Lincolnshire coast breaches in sea defences might occur (if at all).

### Forecasting a coastal surge, and predicting flood extent & impacts

The Flood Forecasting Centre (FFC), a working partnership between the Met Office and the EA, was established in the aftermath of the 2007 UK floods and brings together forecasters and hydrologists to improve the science of forecasting and flood prediction. Key to this partnership is the issuing to contingency planners and responders of the five-day Flood Guidance Statement (FGS) which provides a risk matrix based on comparison between the 'likelihood' of (any) flooding event and the potential 'impacts'.

The EA is responsible for local predictions of flood extent and impacts based on hazard mapping, assessments of local conditions and catchment and defence monitoring. The agency has completed a lot of work in recent years to develop flood hazard mapping for Lincolnshire showing flood depth, velocity and extent for both defence overtopping and defence breach (the latter based on modelling of breaches along the coastline) for 1:200yr and 1:1000yr incidents.

This mapping has been invaluable to contingency planners, both in visualising the threat and providing reference points (together with historic flood extent mapping) during incidents, and in assessing the potential impacts (*see below*).

**Reasonable worse-case scenario (multiple breaches of defences)**

| Vulnerable Profile | Local Infrastructure |
|---|---|
| 80,500 properties at risk | 6 fire/police/ambulance stations |
| 3 hospitals | 176km of road |
| 29 schools | 30 bridges |
| 32 care homes | 11.8km of rail |
| 1 prison | 6 major hazard sites |
| 20 fatalities | 32 electricity sub-stations |
| 300 casualties | 63 water pumping |
| 50,000 evacuees | 15 sewage works |

**Reasonable worse-case scenario (overtopping only)**

| 1:200 (0.5%) annual chance tide levels | 1:1000 (0.1%) annual chance tide levels |
|---|---|
| 4,383 residential properties at risk – of which approximately 900 are in high risk low lying areas where flooding from overtopping would be >0.5m | 9,129 residential properties at risk |
| 229 commercial premises | 431 commercial premises |
| 85 'socially vulnerable' premises | 122 'socially vulnerable' premises |
| **Total = 4,697 properties** | **Total = 9,682 properties** |

***Figure 2: planning assumptions for 'reasonable worse-case scenarios' for multiple breaches of defences and overtopping.***

## Dealing with uncertainties

Though potential tidal surges can be forecast up to five days in advance, the accuracy of forecasts and impacts up to 36-12 hours before high tide can be relatively low. The threat of coastal flooding typically will also have levels of uncertainty in:

- Forecasts of expected water levels, timelines, overtopping or defence breaches, and flood extent;
- Effectiveness of measures such as communication, traffic management and decision-making

Although preventive measures can reduce the probability of flooding, such measures cannot completely eliminate the risk. Evacuation has the potential to save lives, but it can be costly with respect to time, money and credibility. The success of evacuation depends on the combination of the 'available time' period (period between detection of threat and onset of flooding) and the 'required time' period (based on chosen strategies and local circumstances). There may simply be insufficient time to implement preventive evacuation, in which case it is essential to have a 'go to' strategy such as rescue and 'assistance in situ' for people who become isolated by floodwater. Either way, both strategies require the pre-deployment of considerable resources to ensure effective implementation.

## Planning for coastal flooding

As a 'tier one' risk to UK national security, coastal flooding provides a compelling backdrop to the challenges of coordinating effective resilience responses at local, sub-national and national levels. Much work has been undertaken in recent years to raise the profile of the coastal flood threat. Lincolnshire has been at the forefront of this work through effective contingency planning collaborations with colleagues from other coastal areas, lead Government departments, particularly Department for Environment, Food & Rural Affairs (DEFRA) and Department for Communities & Local Government (DCLG) and other national bodies such as the FFC and EA.

This led to two significant planning frameworks, both published during 2013, which shaped our response to the December surge:

'East Coast Flood Group Emergency Response Framework' (Jan 13): Sets out processes to coordinate three key strategies at national, sub-national and

local level of (i) pre-deployment of national specialist assets (such as flood rescue) and mutual aid, (ii) removing people from danger, and (iii) protecting critical infrastructure. The framework clarifies the linkages for national and local decision-making and prioritisation of asset deployments in support of East Coast LRFs. The ECFG framework also sets guidance for local contingency planning.

HM Government Coastal Flood Group; Interim Response & Recovery Guide (July 2013): The purpose of this guide is to provide an overview of the phased central Government response to a wide area coastal flood event (including associated trigger points), help build the capacity required to respond above that needed for lower impact flood events set out in the relevant plans of Local Resilience Forums, and to set out the role of Central Government in supporting the local operational response to, and recovery from, a wide area coastal flood.

**Forerunners to the surge**

Two 'severe weather' events happened during October 2013 that proved to be informative precursors to the surge, and helped shape our response:

1. **North Sea Storm Surge – 10th October 2013**[3]

   From the first forecasts of this event, there were no indications that severe disruption was possible along the east coast of England. The timings of the storm surge were outside the largest tides of the spring-neap cycle. The potential for a weather system to generate a coastal surge was identified by FFC as "**very low"**.

   A surge of approximately 1 metre was seen on 10th October 2013, with waves of up to 4 to 5 metres and near gale-force winds. However, even on the worst-case scenarios for the forecast, there were no signals of severe disruption.

   This contrasts with 1953, when a surge of greater than 2 metres with waves of up to 8 metres and storm force 10 to violent storm 11 winds delivered the devastating impacts when sea defences were weaker.

   The FFC assessment of overall flood risk on the actual day was **'Low'** and proved accurate. On this occasion, the LRF continued to monitor the situation but did not activate local plans.

2. **The 'St Jude Storm'; Severe Weather**[4];

   An unprecedented and early forecast of this deepening pressure storm over the Atlantic was made on 24th October (with expected landfall on 28th). The Met Office gave early indications of a **'Yellow Alert'** for both rain and strong winds over the Sunday evening into Monday morning, with strongest winds to the south. Structural damage and disruption to travel (especially during Monday 'rush-hour') were predicted.

[3] Based on Flood Forecasting Centre report dated 22.10.13

[4] Based on LRF debrief report

The threat was raised on the 25th and 26th to **'Amber Alert'** for strong winds (60-80mph) likely to impact on areas to the north including Lincolnshire, but the predicted track of the storm again shifted back towards the south of England as late as the Sunday (27th).

Due to the uncertainty in the forecast partners activated a precautionary response, coordinating activities from the CEC.

The storm passed lower to the south and little impact was experienced in Lincolnshire. Nonetheless, partners agreed the LRF responded in an appropriate and timely manner to the information available at the time, including the activation of the CEC. We used this event to improve partner communication when using remote technologies such as teleconferencing, and explored different ways of engaging with local authorities at district level.

# 2. Overview of the Coastal Surge of 5th December 2013 and its impacts

The storm of 5th December saw Scotland's rail network shut down, 100,000 homes without power, flight cancellations at Glasgow, Edinburgh and Aberdeen, fallen trees, traffic accidents and two fatalities. During the morning of the 5th concerns increased regarding coastal flooding mainly affecting eastern England due to a storm surge[5].

Several hundred homes were flooded on parts of the east coast of England (for example at Boston, Lincolnshire) and many thousands of residents were evacuated from vulnerable areas. At Hemsby (Norfolk) cliff erosion resulted in several properties collapsing into the sea, while in North Wales, Rhyl (Denbighshire) was badly affected by coastal flooding.

There was further stormy weather with heavy rain and strong winds on 26 to 27 December, and again around 30 to 31 December, the latter coinciding with high tides creating concerns about already weakened or compromised defences. Thankfully these tides did not coincide with surge conditions.

Overall the December and January storms resulted in around seven fatalities and 1,700 properties flooded across England.

### 5th to 6th December

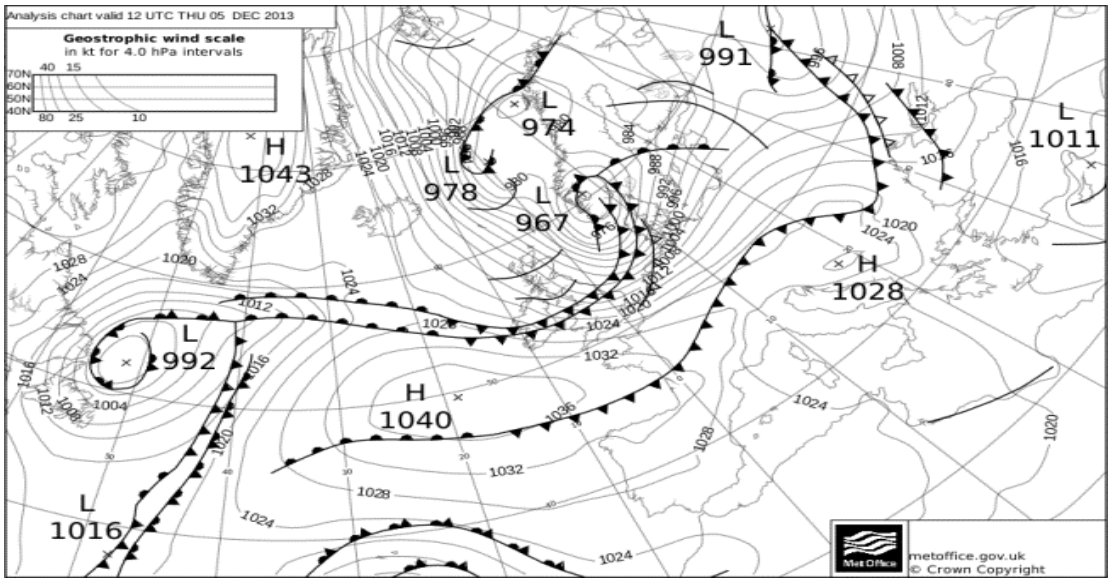



***Figure 3: Synoptic situation at 1200 UTC 5 December 2013, showing a deep area of low pressure to the north-east of the UK bringing strong winds to the north and east, with a storm surge affecting both North Sea coasts and the North Wales coast.***

The combination of low pressure and strong winds led to a significant storm surge affecting North Sea coasts, although the north coast of Wales was also affected. The surge was 2metres above predicted high water and coincided with high tide. Winds were 'north westerly', so the surge moved along the shore (as opposed to 'on-shore'). Winds gusted widely across Scotland with the mountain station at Aonach Mor recording a gust of 142 mph. Gusts also exceeded 69 mph along the North Sea.

[5] Information provided by Met Office

Surge predictions along the east coast were for levels at, or higher than, in 1953. The predicted (4.12.13) surge height for Immingham (Lincolnshire's nearest monitoring point) was **4.9 metres**. In actual fact (5.12.13) the **surge reached 5.2 metres**[6], 70cm **higher than in 1953**. The 'highest absolute levels' were experienced at King's Lynn (6.02 metres), and the highest surge was 3.02 metres at Sheerness, Kent.

**Predictions for Lincolnshire**

The EA Northern Area was first notified on Sunday 1st December that a surge could pass down the North Sea later in the week. There was low confidence on the size of the surge, but partners were informed on the Monday morning.

By Wednesday 4th December, confidence in the forecast had increased and during the morning of Thursday 5th December the EA issued Flood Warnings to advise people that flooding was expected and to take action. This escalated to the issuing of Severe Flood Warnings later that afternoon.

The issuing of tidal Flood Warnings is based on forecasts as opposed to *actual* tide levels. Ensemble forecasts provide an early indication, through computer models, of the range of likely water levels. It was not until the 4th December that the ensemble spread narrowed to provide reasonable confidence of warning thresholds being exceeded.

The deterministic forecast comes into play at tide -36 hours and generally provides a more robust assessment. This was also forecasting that we would reach the Flood Warning threshold. Of greatest significance in the forecasting timeline was the rise in deterministic forecast between midnight on Wednesday 4th (5.7m) and the 0500 forecast on Thursday 5th (5.9m). The increase was significant both in terms of actual rise in predicted levels but also in terms of potential impact given its critical proximity to the height of the defences at 6.0m.

Overall, the weather patterns at the time of the tidal surge were a result of the atmosphere being particularly chaotic. This was evident in the large range inherent within the ensemble forecast and the late shift in deterministic forecast.

**Impacts & consequences**

The impacts of the resultant surge in Greater Lincolnshire included the overtopping of 18-20 km of flood defences, causing a large area of scour (*e.g.* Mablethorpe) and 4 breach locations at Boston Haven, Gibraltar Point (Bull Dog Bank), Tetney Marsh and Friskney, inundating an estimated 1,700 hectares of agricultural land.

A further 100+ industrial and commercial sites were damaged, including 'Boston Stump' and local infrastructure such as the access road to the Boston Landfill Site, Civic Amenity Site and County Council Waste Transfer Station. Approximately 90 metres of floodwall at Skegness (between the pier and lifeboat station) failed during the surge. Three of the five main pumps at Black Sluice Gate were damaged by flooding and inoperable, requiring a decision on the future of the pumping station.

Significant flooding occurred in the Skirbeck/York Street (Maud Foster Drain), and High Street/London Road, Central Park and Wyberton areas of Boston (River

6 *e.g.* Total water level, including tide plus the surge

Haven). More 'localised' property flooding was also experienced in Sutton Road, Trusthorpe (East Lindsey) and Butterworth Road & East Ferry Road, Susworth (West Lindsey).

*Caption: The flooded Boston Stump.*
*Photo courtesy of the Boston Standard.*

In total:

- 607 residential properties flooded, the majority in Boston (where only 50% of households had flood insurance) and in Trusthorpe and Susworth
- 121 businesses flooded in the county
- 44 persons and 2 pets were rescued from flood waters
- 203 persons received assistance to evacuate
- 350 tonnes of waste was collected from flooded properties and safely disposed
- 1,700 hectares of agricultural land inundated
- Damage to the natural environment, especially at Gibraltar Point
- An estimated £8.1m worth of damage to flood defences and infrastructure

Lincolnshire Wildlife Trust confirmed defence overtopping and flood damage to Gibraltar Point Visitor centre and Wash Study Centre. Preventive action at Donna Nook allowed seals to seek refuge on higher ground in dunes. Thankfully, seal mortalities appear to have been low.

# 3. Chronology and operational responses (key events, decisions and actions)

**Early warning phase – Monday 2nd to Tuesday 3rd**

Monday 10.30am

FFC issued a '**Yellow**' Flood Guidance Statement (FGS)[7] indicating a ***"very low likelihood of significant coastal impacts on the east coast of England"*** as a result of *"gale force winds and large waves … later on Thursday and through Friday. If these combine with a large positive surge, significant coastal flooding could result. The likelihood … is currently very low, however there is the potential to increase the likelihood if confidence improves."*

Coincidentally, the LRF's East Coast Inundation Group (ECIG) was already meeting to discuss national and local planning & policy for coastal inundation. The EA, lead responder for coastal flooding, was able to provide timings and details of expected high tides for the Thursday and Friday (8pm and 8am respectively). At this point 'ensemble' forecast models indicated the potential for an east coast surge reaching 'flood alert'[8] threshold heights (EA Floodline Warning Direct system) for the Thursday, with the possibility of 'flood warning'[9] levels for Friday. More 'deterministic forecasts' were expected to be available from Wednesday 4th December.

A coastal flooding seminar in the Humber, arranged by the UK East Coast Flood Group (ECFG) was cancelled to allow responders to concentrate on the developing situation. Offline discussions with both DEFRA (lead Government Department for flooding) and DCLG Resilience Emergencies Division (RED), confirmed the appropriateness of continuing to monitor the forecast and arrangements for national coordination.

5.30pm

DCLG RED, in line with UK Government Coastal Flooding Response & Recovery guidelines, issued a calling notice for all east coast LRFs (from Northumbria to Kent) to participate in a 'precautionary response co-ordinating group' teleconference at 1pm on Tuesday 3rd December to *'discuss the risk of significant impacts following a tidal surge along the east coast'.*

Tuesday 10.30am

The FGS issued at **10.30am** on Tuesday 3rd December reaffirmed the forecast and ***'low overall risk'.*** An email alert was sent to all LRF partners notifying them of the current levels of monitoring and participation in the DCLG teleconference of the LRF Chair (Chief Constable), Head of the Joint Emergency Management Service (JEMS) and Assistant Chief Fire Officer (representing the LRF deputy Chair).

[7] All responding agencies and partners in Lincolnshire receive FGS either directly or by 'automatic forward-rule' via the Joint Emergency Management Service (JEMS)

[8] Flood Alert – 'flooding is possible, be prepared'

[9] Flood Warning – 'flooding is expected, immediate action required'

1pm Met Office issued a **'Yellow Alert'**[10] for ***"strong west to north-westerly winds on Thursday*** *… in northern halves of Derbyshire & Nottinghamshire, together with all of Lincolnshire lying north of The Wash".* (Note; westerly to north westerly winds are 'off-shore' in Lincolnshire).

The DCLG teleconference (also at 1pm) received updated information from both FFC and Met Office, which helped to develop a common understanding of the current assessment amongst coastal responders. DCLG confirmed communication and liaison arrangements, and encouraged LRFs to consider previous experiences of *"significant impacts of previous floods despite the overall risk being low".* All east coast LRFs confirmed they had alerted partners and were continuing to monitor the FGS and forecasts, with most indicating that a worsening of the forecast, and in particular an increase to 'Amber' FGS, would determine the point at which responses would be activated. All agreed the significance of the next FGS due on 4th December.

2pm A **'precautionary Strategic Coordinating Group (SCG)'** of core partners and lead responders comprising: Police, Fire & Rescue Service (FRS), Environment Agency (EA), County Council (LCC) and the three coastal District/Borough Councils of East Lindsey (ELDC), Boston (Boston BC) and South Holland (SHDC) was briefed by the Head of JEMS. The EA informed the group the situation was *"(the wind) … generally improving"* but raised *"concern about pre-identified flood defence seepage in Boston"*.

The impacts, both on and from the Lincoln Christmas Market (Thursday 5th to Sunday 8th) were discussed, especially pre-existing multi-agency commitments for both command & control and event safety.

## 2. Threat assessment & preparation phase; Wednesday 4th to Thursday 5th

Wed 7.30am FGS remained **'Yellow' (low risk) for Lincolnshire**, but now indicated **'Amber'** risk to the coastal areas to our north (Northumbria to Humber) and immediately to our south (North Norfolk) indicating *"a medium likelihood of significant coastal impacts along the whole of the north-east of England and on the north coast of Norfolk on Thursday and Friday, giving a medium overall flood risk. Elsewhere for coastal parts of … eastern England* (*e.g.* including Lincolnshire) *there is a LOW overall flood risk".*

The FGS also, for the first time, indicated a *"**very low likelihood** of significant impacts for the lower tidal reaches of the **River Trent** in Nottinghamshire".*

The variation in threat levels along the coast appeared to be due to wind direction with parts of the north-east and north Norfolk coastlines being more exposed than Lincolnshire's to 'north to north-westerly' winds. This presented the LRF with a difficult decision, especially given the absence

[10] Met Office Severe Weather Warnings system; Yellow Alert – 'be aware', Amber Alert – 'be prepared', Red Alert – 'take action'

of any specific overtopping or breach of defences threats, and the reducing timeframe for coordinated planning (the remaining 'available time' compared with the 'required time' to achieve certain responses such as preventive evacuation), possible late shifts in forecasting and the additional impacts on the Lincoln Christmas Market from high winds.

Following consultation between Police, FRS, LCC leads and Head of JEMS, it was agreed the LRF should *anticipate* 'Amber' FGS for Lincolnshire and proceed to plan 'flexible and dynamic responses, proportionate to the threat' which appeared to centre on Boston, with potential for spray overtopping along the rest of the coastline. A number of common objectives were agreed and a 'working strategy' established in line with national and local coastal flood contingency planning which emphasised:

- The pre-deployment of assets (including preservation of assets at risk from flooding)
- Removing people from danger (ranging from public safety messaging to evacuation if required)
- Protecting the infrastructure and essential services

Contingency planning meetings were held during the day to develop the working strategy and create multi-agency response **'surge task forces'** (consisting predominantly of Police, FRS flood rescue and pumping teams, East Midlands Ambulance Service, and County Council Highways teams) to provide a flexible response to any developing threats. A full 'precautionary SCG' meeting was arranged.

Western Power and Anglian Water deployed additional measures to protect critical local infrastructure in 'at risk' areas. Contingencies were discussed in relation to Boston Pilgrim Hospital, the Waste Disposal Plant in Boston, the Black Sluice Pumping Station and impacts on shipping in and out of the Port of Boston. Contact was also made via Lincolnshire Wildlife Trust, with the Gibraltar Point Visitor Centre & the Seal Sanctuary at Donna Nook in regards to public visitors. Network Rail also fed in information about potential route restrictions planned by train operating companies.

12.45pm **Met Office** upgraded its weather warning to '**Amber Alert'** of ***"medium likelihood of medium impacts"*** from the intensifying low pressure expecting to move eastwards. Winds were assessed to be *"strong enough to cause structural damage"* with particular vulnerabilities including *"stalls set up for Christmas markets and along the coast"*.

1pm DCLG RED held a second **multi-SCG response coordinating group** teleconference which confirmed most LRFs had now activated planning responses, including Norfolk who were considering precautionary evacuations (on the basis of their 'Amber' FGS and local threat assessment). DCLG undertook to liaise with other Government Departments, and to coordinate media and 'top lines' briefings to ensure consistency of public messaging.

2pm Lincolnshire held its first **full precautionary SCG** meeting. A police chair was agreed and partners received a full threat assessment from the EA.

The (favourable) north to north-westerly winds, surge and tides were likely to create conditions for 'overtopping and spray' along the open coastline close to the thresholds for issuing 'flood warnings' but not assessed to generate particular threat. A 'positive' (prolonged) surge pushing up the tidal River Haven was predicted to reach heights of 5.72 metres. Current defence levels in Boston are 6 metres.

High tides were due at 8pm on Thursday 5th and 8am on Friday 6th December.

The EA confirmed contractors had been monitoring defences in Boston and had deployed additional measures to strengthen a 45-metre stretch in St Anne's Lane. Comparisons were made with flooding in the same area of Boston during 1978. The EA continued to be concerned about potential 'seepage' through both the ground and defences in Boston where **approximately 500 properties could be at risk**. The issuing of 'Flood Alerts' ('be aware') was discussed, with agreement that the SCG would be consulted re timing.

A potential 'worse-case scenario' of higher than predicted surge levels and significant breach to defences (based on 1978 flooding extents and simulated breach modelling already available) was used to identify a further 18,000 properties that might be 'at risk' in Boston. This allowed contingency planners to also consider escalation planning.

6pm **'Flood Alert'** issued for *'tidal flooding of area near the Lincolnshire coastline'*

The **precautionary SCG** activated multi-agency coordinated response structures with continued contingency planning, escalation processes, and arrangements to open the **County Emergency Centre (CEC)** at 8am on the morning of December 5th with appropriate command support functions commensurate with the current threat. A police chair for the **Tactical Coordinating Group (TCG)** was identified.

Earlier activation of the CEC and overnight planning options were discussed but decided against, however contingency planners were already tasked with identifying vulnerable premises & assets, and 'known' vulnerable people based on the flood warning zones in Boston identified by the EA, and in case evacuation became a necessary option. Western Power Distribution (WPD) used this information to take proactive steps to defend some of its local assets and prepare engineers.

Thursday 5.30am EA's Area Strategic Manager notified Head of JEMS that the 7.30am FGS would raise the threat for Lincolnshire to **'Amber'** following a worsening in the forecast scenario in the county for later in the day and at high tide that evening. As a result military liaison in the CEC was requested, and the LRF's memorandum of understanding with the voluntary sector activated (enabling the co-ordination of voluntary sector responses in the county in support of emergency services).

6am EA Area & Catchment Flood Incident Room opened. Patrols close the coastal floodgates in preparation for high tides.

7.30am FGS raised the level to **'Amber'** for the **whole of the north east coast**

**of England including Lincolnshire,** and also extending to Essex on Thursday, and to include Kent for Friday, giving a *"highest overall flood risk* (of) ***medium*** *… There is a* ***medium likelihood of significant coastal flooding impacts*** *along much of the east coast of England today and all of the coast tomorrow"*

The statement reiterated there was *"****very low likelihood of significant*** *impacts from coastal flooding along the lower reaches of the* ***River Trent in Nottinghamshire*** *today."*

8am Full **SCG** meets, and receives the updated briefing on threat from EA confirming Boston remained the focus for the high tide periods. The SCG authorised detailed evacuation planning to commence and the creation of 3 multi-agency 'surge task forces' – one at Boston, one at Louth (to respond to any developments along the coastline) and, if achievable, one in reserve[11].

8.50am **Flood Warnings** ('be prepared') issued by EA to 30,300 properties, including waterside properties between Town Bridge and Haven Bridge, Grand Sluice and the Docks in Boston, plus surrounding areas to north, east and south) and selected areas 'near to sea defences' from Gibraltar Point to Sutton Bridge.

9am The first full meeting of the **Tactical Coordination Group (TCG)** identified 'forward' bases of operations for the multi-agency 'surge task force', extended the command support functions to support evacuation planning and any health/social impacts. A 'battle rhythm' (pace of planning meetings and reporting) was established for the remainder of the day.

FRS, Police and EMAS 'Bronze' commanders tasked with creating multi-agency risk assessments for all staff deployed to risk areas. FRS Bronze nominated to take the 'coordinating lead' for the surge task force.

*Caption: (L-R) Sharon Edwards from BBC Radio Lincolnshire with Lincolnshire Police's Gold Commander Detective Superintendant Sean West*

[11] A 3rd 'reserve' task force was not achieved.

Command support structures extended to include operations cell, intelligence cell, evacuation cell, warning & informing cell (with BBC Radio Lincolnshire and Lincs FM 'embedded' in the CEC from this time), and later, Health, Social Care & Education cell.

Black Sluice IDB activated their Emergency Flood Response Plan and made arrangements for staffing overnight and pumping equipment, *etc*.

## 1. Impact phase: Thursday 5th to Friday 6th

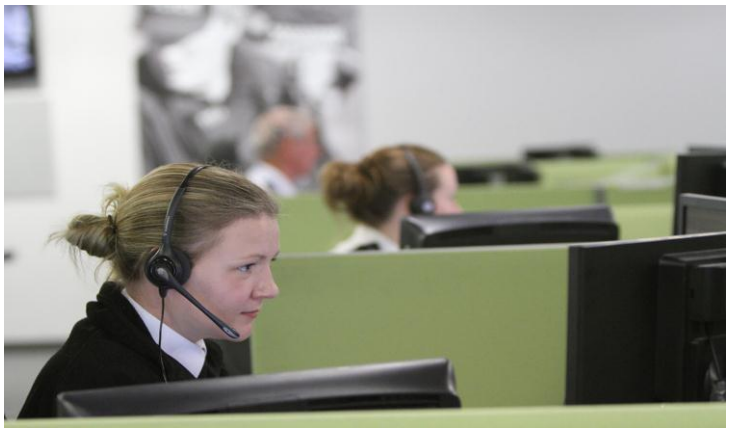
Thursday 10am — All LRF partners (including those not directly affected) in the county updated on the situation and informed the CEC now in operation.

10.30am — FGS repeated the **'Amber'** threat level for Lincolnshire, but raised the threat to Norfolk, Suffolk and Essex to **'Red' (Highest Risk).**

Also at 10.30am, the TCG confirmed evacuation planning based on 3 scenarios i) 'most likely' affecting 600 properties, ii) 'potential breach' affecting 6,000 and iii) 'worse case scenario' 38,000 properties with an assumption that 15% of affected households may require assistance / alternative accommodation. An evacuation hub and forward base of operations to be established at the Princess Royal Sports Arena (PRSA) in Boston. FRS confirmed they had sufficient flood rescue boat teams capability at this time to complete 240 rescues an hour. Water pumping assistance was requested from the Internal Drainage Boards (IDB), and the voluntary sector (represented by the British Red Cross) confirmed availability to support evacuation.

NHS partners completed a scoping exercise to identify premises potentially at risk, and GPs and pharmacies are informed of situation.

11am — Northern Power Grid declares an organisation 'Major Incident' as a consequence of significant network damage caused by gale force winds across the region (particularly north east, Yorkshire and north Lincolnshire).



*Caption: Lincolnshire Police's control room starts to get reports from the public of weather related incidents*

Lincolnshire Police record eight weather/wind related incidents in Lincoln and West Lindsey area in quick succession, and continue to receive a high volume of weather related calls throughout the day.

The second SCG of the day received an update on the common operating picture (COP) and discussed resource requirements and safety considerations for public and responders. At 11.05am the SCG declared **'emergency',** as defined by the Civil Contingencies Act, due to the potential impacts on communities and the environment.

Tactical response planning aimed at achieving the objectives set by SCG continued throughout the morning and afternoon, particularly prioritising the potential for evacuation of up to 600 properties. Key infrastructure assets (*e.g.* electricity sub-stations, water pumping, *etc*) and known vulnerable people continued to be identified within possible affected areas. Both Lincolnshire Police (traffic management, evacuation support and public safety) and FRS (flood rescue and high volume pumping) activated mutual aid and 'specialist asset' requests in line with national guidelines.

Procurement Lincolnshire support was requested to help with logistical planning for an anticipated evacuation operation. Early school closures were requested in order to facilitate the extra transport required for evacuation. Self-evacuation of vulnerable premises (including relocation of some vulnerable elderly residents to care homes) initiated. Port of Boston confirmed the cancellation of shipping movements on The Haven during the evening high tide period (6-9pm). Boston BC make a clear policy decision not to deploy sandbags.

ELDC send filled sandbags to strategic locations along the coast, stored on vehicles for rapid deployment.

11.30am Military Liaison Officer tasked with scoping the potential use of Prince William of Gloucester (PWOG) Barracks as an additional large-scale evacuation centre for the higher planning scenarios.

12noon East Midlands Ambulance Service (EMAS) activate 'REAP 4' (Resource Escalatory Action Plan), and deploy Hazardous Area Response Team (HART) to join the multi-agency 'surge task force' at Boston.

ELDC make arrangements to maintain staffing levels and extended operating times throughout 5th & 6th. They deploy empty sandbags to Skegness and Mablethorpe.

1pm DCLG RED teleconference confirmed higher than previously predicted surge levels now forecast. Most LRFs now in impact phase of response. Immediate decision to grant a request for Military Assistance to Civil Authorities (MACA) to access MOD facilities (PWOG) to support evacuation in Lincolnshire.

County Council Highways teams begin dealing with reports throughout afternoon of fallen trees in various areas of the county (including Sutton St James, Long Sutton, Spalding, Pinchbeck, Whaplode, Glenside North, Holbeach).

Second multi-agency 'surge task force' established at Louth. Lincolnshire Police deploy mutual aid from east midlands forces (5 x mobile Beat Duty Units each consisting of 25 staff – 3 deployed to Boston and 2 to Louth).

1.30pm Evacuation of known vulnerable people in predicted flood zone in Boston begins.

2pm Neighbouring LRFs (Northamptonshire, Leicestershire and Nottinghamshire) alerted to developing situation and *potential* for evacuation support in line with pre-planned regional ('worse-case scenario') mass evacuation arrangements. Evacuation centres in Melton Mowbray and Rutland placed on 'stand-by'.

2.30pm FGS raises the threat level for Lincolnshire (and North Lincolnshire on the South Humber) to **'Red' (Highest Risk)** – ***"the coastal flood risk is now high (Red) for Lincolnshire****, East Anglia and Essex coast later today and into tomorrow".*

3.10pm The EA issue **'Severe Flood Warnings'** to 12,300 properties in Boston and surrounding areas, including Wyberton, and Gibraltar Point to Freiston Shore.

**Boston multi-agency 'surge task force'** now established at PRSA. Police deployments consisting of 1 x BDU (later supplemented by mutual aid including Nottinghamshire police's Underwater Search Unit consisting of 13 staff and boat); FRS deployed 6 x type B flood rescue boat teams plus support rafts, 7 x fire appliances and personnel to Boston; EMAS deploy a HART to Boston.

FRS also deploys 2 x type B boat flood rescue teams, plus support rafts to Louth.

3.30pm 'Strategic' (large scale) evacuation centres at PGL Caythorpe and Prince William of Gloucester Barracks, Grantham, plus an evacuation processing hub at Princess Royal Sports Arena, Boston opened. Meridian Centre, Louth, also opened for any evacuees from the East Lindsey coastline.
Large scale transport operation in place. Procurement operation begins to source support equipment, bedding and food. Mutual aid received from Northants County Council ref evacuation centre management at PWOG.

4pm 35,000 properties to north of Lincolnshire without power.

5pm Lincolnshire Police report further rise in calls from members of public seeking advice re evacuation, and offers of assistance.

County Council Highways re-deploying teams for potential sandbag and gulley emptying operations.

5.15pm Northumbria LRF reports (via DCLG) water levels peaked at 20cm above predicted levels at high tide.

5.30pm West Lindsey District Council (WLDC) monitoring the EA Midlands Area information indicating potential flooding from tidal River Trent, and deploy sandbags for community use at East Ferry. Hull Flood Barrier in

operation. *This information is not shared with the SCG by the EA Midlands.*

5.45pm EA advising partners to prepare for possible breaches to defences in Boston at the point of high tide due to higher than expected surge heights being experienced in areas to our north. Forward multi-agency 'Bronze' relocated to Kirton Fire Station (outside the widest risk area). Evacuation process fully under-way.

Boston Pilgrim Hospital takes decision to cancel elective and outpatient activity for the 6th, holds mutual aid discussion with Nottinghamshire Trusts ref potential relocation of patients, and continues to work on evacuation planning (including 'vertical' evacuation and alternative power supply).

EA confirms forecasts for the following morning's high tide (6th) will be lower than today.

6pm Lincolnshire Community Health Services (LCHS) deploys GPs to support evacuation at PGL, Caythorpe. At 6.30pm consultation between Health partners leads to a lifting of a temporary divert of ambulances approaching Boston Pilgrim Hospital.

Police start to receive a number of reports from officers and public re flooding impacts along the coast, starting in Skegness (*e.g.* flood extending up to the Clock Tower). Deployments to Skegness, Mablethorpe, and Chapel St Leonards to assist with road closures, any evacuations and warning & informing. (Airwave Solutions report communication systems capacity issues in Boston due to 'radio traffic' - later reaches 100% capacity at 6.25pm).

Police re-deployed to Skegness seafront where members of public ignore requests to stay away creating safety concerns.

6.10pm FRS receives first call re flooding on Church Street, Boston and continues to experience a dramatic rise in calls, which lasts for 3 hours. FRS (supported by EMAS HART) effecting a number of rescues and assistance to residents who become isolated by floodwater.

*"There was a real spirit of community: the Police, EMAS and other agencies all worked well together. Although we couldn't magically fix everything, just an arm over someone's shoulder or a hand to hold – a little bit of comfort – made all the difference."*

*Firefighter Tom Patrick, Lincolnshire Fire and Rescue*

6.15pm Boston 'surge task force' joint Bronze relocates to Fen Road Depot due to flood threat to Boston Fire station.

Temporary alternative evacuation centre established at Stickney following re-routing of evacuees due to flooding in Boston – good support from local community in providing food, blankets, *etc.* (some of these

evacuees were later found alternative accommodation in Boston rather than going on to PGL).

6.50pm Police receive more than 50 flood-related incident calls in addition to 'on ground' incidents already being dealt with by officers. All available mutual aid and local (Lincolnshire) resources now fully deployed in Boston.

7.15pm Humber LRF colleagues report higher than predicted surge levels.

As high tide approaches, public messaging encourages people in 'at risk' area to seek a 'place of safety' (including vertical evacuation). Responders on the ground to make operational risk assessments in respect of community and responder safety.

Police report unable to get to some addresses due to depth and velocity of floodwater (FRS boat rescue teams assisting).

7.32pm First critical **high tide** at Boston.


Significant flooding in residential waterside properties in Boston reported by Boston BC (monitored by CCTV). Water entering business premises on Slippery Gowt Lane (*not known by responders at this time*).

Police Gold authorises deployment of National Police Air Service (NPAS helicopter) to provide overhead visual intelligence of flood extent (deploys by 8.30pm having picked up Police Search Advisor).

WLDC receives reports of flooding to roads in Susworth, East Ferry and Wildsworth (passable with care). Later report of flooding to single property at Susworth (elderly occupants) and local resources despatched to assist. It becomes apparent the EA had been 'door-knocking' in these areas without the knowledge of local authorities.

8.10pm FRS requests national mutual aid for additional 5 x type B flood rescue boat teams and High Volume Pumping (HVP) for resilience and coverage overnight and into 6th. Surge Task Force at Louth stands down.

*"We were working flat out. The crews were out and the police need our help. It was difficult, but everyone was extremely professional and kept a cool head."*

*Watch Command Support Nick Morris, Lincolnshire Fire and Rescue*

8.30pm Between 8pm and 9pm, a sudden and unexpected rise in the Black Sluice Internal Drainage dyke system noted, with IDB staff noting rise in water levels at the Wyberton Marsh Pumping Station indicating a potential breach of tidal banks.

9pm Approximately 220 evacuees requiring assistance being transported from Princess Royal Sports Arena to PGL and PWOG. Only 1 casualty (asthma attack) known at this stage. Impacts on water pumping stations (not critical), road closures. FRS deploying pumping operation in Fen Road area.

9.15pm FGS extends the 'Red' Alert to *"include North Yorkshire and East Riding of Yorkshire and continues to be* ***high (red) for Lincolnshire****, East Anglia and Essex coast this evening and into Friday".* (The overall risk to River Trent remains **'very low'**).

9.30pm Impacts extensive but in line with original threat assessment from EA. Priority for responders set as searching flood affected areas for 'at risk' occupants and providing continuing assistance where required. Overnight resourcing of operation and monitoring of potential for freezing conditions. Two IDB high volume pumps deployed to Boston, but unable to operate due to insufficient hose lengths and couplings.

10pm FRS provides HVP assistance to WPD to help protect Mount Bridge Primary Electricity sub-station.

11pm Overnight staffing in CEC, at the evacuation centres and on the ground continue operations and monitoring the situation / assessing impacts from the flooding. Meridian Centre (ELDC) stood-down as no coastal evacuations required.

Operational staffing rotation on ground (initial mutual aid released to be replaced by further incoming support from neighbouring counties). Continuous impact assessments completed overnight and in advance of next high tide. Police prepare for house-to-house visits to establish flood extent and assess needs.

Friday 2am-6am Impact assessments continue to be collated. Several areas in Boston adjacent to river flooded mainly due to overtopping (water level at 6.1m). Damage sustained to the top 50cm of a 10 metres low floodwall. At this time approx. 350 properties estimated to have flooded.

*Caption: River Haven burst its banks flooding the neighbouring streets.*
*Image courtesy of Boston Standard.*


*Caption: River Haven burst its banks flooding the neighbouring streets.*
*Image courtesy of Boston Standard.*

No power losses reported, flood threat to Boston Pilgrim Hospital receded, but concerns re the road bridge over River Haven leads to closure during morning rush hour coinciding with next high tide (8am). Evacuees at PWOG now being moved to PGL as a single, consolidated centre. No public health issues reported at this time.

5am FRS deploying 5 x type B flood rescue teams, plus rafts, 1 x HVP and a further 8 fire appliances and personnel to Boston throughout Friday 6th.


*Caption: One of Lincolnshire Fire and Rescue's appliances removing floodwater in Boston*

SCG meets to discuss overnight situation reports and planning for high tide at 8am. Discussions with DCLG re value of aerial reconnaissance to impact assessments. Discussion also held ref planning the transition from 'response' into 'recovery'. Confirmed that Boston BC would lead the community recovery with priorities being the pumping away of floodwater, re-opening of the Waste Disposal Site, clear-up and assistance in 'drying-out' of homes. Agreed that Boston would be assisted by county council, ELDC, SHDC, and supported by JEMS.

7am FGS confirms on-going high **'Red'** risk for today for the majority of the east coast of England and a developing coastal flood risk to North Wales.

7.30am Second critical **high tide.**

8am ELDC deploys housing teams to all coastal areas to complete assessments of flooding and damage.

9am First local recovery meeting held at Boston BC between council and police to discuss impacts and way forward.

10am Prince William of Gloucester Barracks (PWOG), Grantham confirmed closed for evacuation purposes and returned to normal use.

Transport support provided to evacuees at PGL wishing to either view the flood damage and/or return to their homes, with a continuing offer from PGL to support displaced residents for a further 24 hours if required. Alternative medium term housing provision planning in support of Boston BC.

Second NPAS helicopter over-flight confirms floodwaters are receding.

10.15am Total assisted evacuees confirmed as 263 (all from Boston area) with 40 vulnerable persons being relocated into care homes for immediate care and support. Casualties (not serious) confirmed at 3 people, all from the previous evening and including a firefighter. Power failures reported to have affected approximately 322 properties. Flooding also confirmed

between Huttoft and Mablethorpe.

12noon EA assessment identified 40m breach of defences at Slippery Gowt affected Boston Landfill Site, Civic Amenity Site and Lincolnshire County Council Waste Transfer Station. An Acoustic Radio Controlled Boat was used to map the extent of damage. Estimated 500 acres of agricultural land (prime sprout growing) flooded due to 2 breaches at privately owned Jubilee Bank, near Gibraltar Point.

DCLG teleconference updated on Lincolnshire situation. Weather improving throughout the day. Clear the surge had been higher than predicted in areas to the north of the county, **but not as high in Lincolnshire**. Effective mutual aid arrangements in place between national power companies (although noted that we had not been as badly affected as other areas suffering widespread power loss).

1pm FGS maintained Lincolnshire at **high 'Red' levels**, but notable that areas to the north reducing down to 'Yellow' levels.

1.30pm As the SCG was meeting to progress planning for the transition toward recovery efforts at Boston, concerns raised by EA in respect of an apparent breach of River Haven and secondary defences at Wyberton Marsh (same area as the waste management site), possibly further compromised by shipping movements which had restarted after initial high tides. This could present a risk at the next high tide at 8pm. A total of 1,800 residential properties identified as potentially 'at risk'. Decision taken to refocus resources and effort on this developing situation and a further evacuation operation if required. An offer of military assistance to repair breach to be examined.

3.30pm Further threat assessments completed and Military Aid to Civil Authorities (MACA) suggested at 3.58pm for helicopter support to help deliver temporary repair to secondary defence breach in advance of high tide.

FGS now showed Lincolnshire and south of Humber Bank as **medium 'Amber' risk** – with every other east coast county to our north and our south at 'Yellow' risk. Rationale for this difference explained as; ***"some defences still require inspection and others remain damaged following recent severe weather and therefore severe flooding remains possible".***

5pm Police assist in collection of aggregate for repairs to breach at Wyberton and in warning & informing residents in area.

5.20pm A failure of the feed from National Grid into a local bulk supply point led to a power cut affecting **95,000 properties** across a wide area of Lincoln (particularly city centre and to the south of the city) and which lasted for approx. 40 minutes. This power loss affected both the **Christmas Market** and also the **County Emergency Centre** (although alternative power supply provided as part of CEC business continuity planning minimised disruption, and market stall generators provided sufficient lighting to ensure a basic safety level). This was immediately followed by a fire alarm leading to the temporary evacuation of the CEC, but again with minimum disruption to response planning.

5.30pm The offer of military aid and specific threat assessment for the Wyberton breach were revisited by SCG Chair and EA and a decision made to confirm the request for MOD assistance to attempt a secondary defence repair in order to contain flooding and minimise risk to life. Clarity on flood extent in event of water reaching the secondary defence discussed and a limited precautionary evacuation operation requested by SCG as it became clear disruption to residents may be very localised and possibly contained.

6pm 20 evacuees from Boston seeking alternative accommodation support had returned to PGL after home inspections. Overnight hotel accommodation found for all and liaison with Boston BC reference longer-term arrangements.

ELDC confirms that 9 properties flooded in Trusthorpe (no assistance required from partners, residents self evacuated to a local pub) and assesses floodwater damage to be limited to between Trusthorpe and Mablethorpe.

High tide passes without causing any further significant flooding at Wyberton or elsewhere.

8.30pm Shipping resumed. MOD helicopter re-tasked. IDBs and EMAS stood down. All evacuees relocated from PGL and the last of the evacuation centres closes at 10pm. Arrangements made with Boston BC and health partners re 'self-presenters' requiring assistance overnight.

9pm **Severe Flood Warnings** removed.

10pm **SCG** informed by EA they are beginning to 'downgrade' their flood warnings/alerts and confirm weather improving. A total of 20 residents evacuated as a precaution from the Wyberton area now safely back in their homes. Health & Social care services report no specific additional pressures. Impact phase appears to be coming to an end.

10.30pm **SCG** declares the 'Emergency' response phase to be completed. Due to welfare impacts on operational and command support resources, arrangements to complete overnight situational reporting, and formal handover from response to recovery phase to take place in morning.

12mn The CEC was formally closed.

**Response handover to recovery, and community impact assessment phase; Saturday 7th to Monday 9th December.**

Saturday 10am Final **SCG** meeting confirms no overnight remaining threats. No further evacuees 'self-presenting' for assistance. Immediate repairs to damaged defences underway and pumping operation to remove standing water will continue today. Continuing speed restrictions at high tides being managed by Port of Boston.

ELDC confirms Meridian Centre not required for evacuation, but housing support being provided for small number of households. Damage confirmed to seafront and kiosks in Skegness, but no further assistance required.

SCG chair confirmed the environment to be essentially 'safe' and transfer of command to recovery chair agreed. Transfer of operational response information, continuing multi-agency assistance and recovery command support from JEMS agreed. SCG formally stands down.

10.30am FGS provides '**Yellow' risks to Lincolnshire** and north Norfolk (only) – ***"Low likelihood of significant coastal impacts – due to known and potential damage to flood defences"***

Saturday to Sunday Community impact and flood extent assessments conducted over the Saturday and Sunday, with a focus on public health messages and identifying any vulnerable residents in need of assistance and making contact with residents who may have self-evacuated or remained in situ. Additional resources provided for extensive door-to-door enquiries provided by Police, FRS and British Red Cross in support of Boston BC staff. ELDC and SHDC continuing to provide local authority mutual aid and waste collection operation mounted.

Contact made with local community volunteers and a self-help Facebook group 'Get Boston Back on its Feet' in an attempt to coordinate community self-recovery support activities. Translation service and interpreters used as affected community has high numbers of residents where English not first language.


*Caption: Aftermath of the flooding in Boston*

Recovery objectives and structure for **Recovery Coordination Group (RCG)** agreed with Deputy Chief Executive (RCG Chair). Recovery priorities set as;

- Repairs to defences and infrastructure
- Safe disposal of contaminated waste from properties
- Alternative accommodation provision, where required
- Work with residents and insurers to assist in reoccupation
- Understanding community and business recovery needs
- Delivery of health and social care support
- Maintain communication with affected communities

## 2. Recovery phase – Monday 9th December 2013 to Tuesday 4th February 2014

Monday 9th Dec

First full RCG meeting held at Boston BC, with advisors and recovery cell chairs.

Situation update; EA confirmed 2 defence failures in Boston, a garden wall collapse and the erosion of defences at the Slippery Gowt Lane (Wyberton) and action to repair underway prior to next series of high tides (due over Christmas period).

More than 700 properties had been visited over the weekend and to date 400 were confirmed as having been flooded – although it was apparent this figure was likely to increase in coming days as more people returned to flooded homes.

Recovery Cell updates were received as follows:

**Community resilience** – a questionnaire to establish extent of flooding and assistance required, and a 'needs' rating system designed over the weekend was working well and helping prioritise support. Boston BC also engages a well-known community flood consultant to help identify community support and needs.

**Health, Social Care & Education** – Director of Public Health confirmed no public health impacts, service disruptions or safeguarding issues resulting from the flooding. Several schools had closed on Friday (some damage caused) but only Boston Grammar remained closed. Proactive use of media and leaflets to provide hygiene advice to residents.

**Waste & Environment** – local arrangements with SHDC for diversion of waste and limited access to waste disposal site due to damage to access road and flooding. Priority for County Council to get the disposal site operational as soon as practicable to assist the clear-up operations. Impacts of insurance loss adjustor requirements likely to lead to delays in residents' ability to dispose factored into planning. Collection vehicles and waste skips deployed into affected areas. More than 300 'white goods' already collected for disposal. Mechanical sweep of Boston Grammar playground arranged to eliminate contamination.

**Housing** – work with Housing Associations to relocate flood-affected families, clear advice to residents re disposal procedures of insured contents and identification of non-insured households. Some residents and evacuees initially wanting to stay in homes, understandably finding situation intolerable and seeking assistance. Support processes in place.

**Finance** – HM Government's Bellwin Scheme for cost recovery discussed.

RCG Chair sets a daily meeting schedule for recovery cells to report on progress.

2pm EA Area & Catchment Flood Incident Room closed

Week one Key Recovery Issues:

- EA completing threat assessments for next high tides (18th Dec)
- Assessing the damage to the natural environment becomes an additional recovery priority
- GPs identified as the most appropriate way of meeting any psychological support. British Red Cross (BRC) Fire Support teams have also been on the ground in affected areas
- Waste collection operating daily with more than 100 tonnes of waste already disposed of
- County Council confirms repairs to the waste disposal site access road will begin on 11th December and site reopening on 17th
- Highways complete safety inspections of all infrastructure (manhole covers, *etc*), minor repairs to kerbs and gulley cleansing
- 250 properties required safety checks following power failures, with 100 properties requiring repairs (completed)
- Re-housing support and assessment of needs continuing in collaboration with Housing Associations and residents
- Assistance received from Association of British Insurers
- Comprehensive guidance provided to households in respect of hygiene, disposal of insured goods, competent 'gas safe' and electricians lists provided and advice reference drying out and health management
- Homelessness prevention payments and financial support offered
- Voluntary donation (goods) collection point established and run by volunteers at Zion Methodist Church, Boston
- Community concerns focused on the timescales for completion of a proposed Boston Barrier (flood defence)

10th Dec Lincolnshire Wildlife Trust confirmed defence overtopping and flood damage to Gibraltar Point Visitor centre and Wash Study Centre. Preventive action at Donna Nook allowed seals to seek refuge on higher ground in dunes. Seal mortalities appear to have been low.

12th Dec First debrief of coastal surge completed by East Coast Flood Group. Support for establishment by DCLG of a multi-LRF Recovery Coordinating Group to ensure key issues identified to lead Government departments.

13th Dec Confirmation of flood damage within IDB areas:

- Breach of sea defences at North Fritties (north of Tetney Haven)
- Inundation of Saltfleet Pumping Station
- Trusthorpe Point and A52 flooding
- Burgh Sluice (near Gibraltar Point) flood walls overtopped causing damage to compound
- Overtopping along coastline at numerous points in Witham 4th

District and a major breach of a private sea defence at Friskney
- Minor breaches at Springfields Sluice and at the Fosdyke Pub. Level of water reached just 6 inches away from Sutton Bridge Dock.

EA also confirms approx. 90 metre of floodwall at Skegness (between pier and lifeboat station) failed during surge events. Three of the five main pumps at Black Sluice Gate (and EA asset) damaged by flooding and inoperable, requiring a longer term decision re future of the pumping station.

17th Dec LRF partners receive a briefing update on Boston recovery progress and East Coast debrief learning points.

18th Dec DCLG hosts first multi-LRF recovery coordination conference call and receives comprehensive briefing from Boston BC and County Council re flood impacts:
- By this time 529 residential properties known to have flooded
- Estimated 50% were uninsured
- 114 families in need of alternative accommodation
- 300 tonnes of waste collected
- No public health issues
- Significant damage to natural environment (including Gibraltar Point and Wildlife Trust properties) plus large acreage of agricultural land inundated

Clear that Boston had the largest number of properties affected by flooding from the December surge events.

18th Dec EA identifies concerns reference potential compromise of flood defence at Gibraltar Point and in the White Horse Lane area of Boston and update on plans to deploy temporary, demountable flood defences at the site. JEMS takes lead in preparing contingency plans (including evacuation) for the next high tide period.

19th Dec DCLG confirms the 'Bellwin scheme of emergency financial assistance to local authorities' will be made available for affected authorities.

20th Dec LRF holds a series of 'hot' debriefs to capture 'lessons learned'.

23rd Dec Director of Public Health reports that enhanced monitoring by Public Health England has not revealed any increases on communicable or diarrhoeal diseases in affected communities.

28th Dec DCLG writes to Local Authority Chief Executives reference preparedness for next period of high tides (including 'out of hours' arrangements).

2015 As progress is made on recovery objectives, RCG Chair sets a weekly meeting schedule for recovery cells.

Key recovery issues during first weeks of the New Year:
- Further media work to reinforce messages about waste disposal and insurance adjustor requirements
- Resources (including local volunteers) for revisits to affected

properties as part of on-going assessment of needs
- Flood investigation arrangements (role of the county council)
- Reporting arrangements for local authority scrutiny committee processes
- Cost recovery via the Bellwin Scheme

3rd Jan — FGS issued on 3.1.14 and on 4.1.14 gives **'Yellow' alert for Lincolnshire** and Humber Bank based on weaknesses to defences in Boston (and Humber South bank). ***"There is also a low likelihood of significant impacts from tidal flooding around the south bank of the Humber and Boston in Lincolnshire where defences have previously been damaged."***

EA lowers threshold and issues 'flood alerts' for the White Horse Lane area of Boston. Partners concerned about confusion in public messaging about the 'alert'.

4th Jan — High tides pass without further incident.

8th Jan — EA identifies additional weaknesses in defence between Black Sluice Gate and Boston Stump (later confirmed to be a stretch of banking beneath defences at Jakeman's Slippage).

14th Jan — DCLG multi-LRF recovery coordination teleconference held for affected local authorities. Main items discussed include impacts on households, businesses, infrastructure damage (particularly flood defences) and funding.

15th Jan — LRF partners provided with briefing and updates on progress of Recovery and flood threat to elsewhere in UK.

28th Jan — LRF threat assessment conference call to discuss the high tides for 31st Jan – 3rd Feb. Partners agreed the risk was low but pre-existing contingency planning and monitoring of forecast in place.

**Flood Investigation (under Flood & Water Management Act)** commences.
Arrangements made for **Recovery de-brief (10.2.14)**

4th Feb — RCG meets and formal agreement to stand-down formal LRF Recovery coordination processes as RCG Chair and all cells confirm remaining objectives can be achieved through 'normal' business processes.

10th Feb — Recovery De-brief held at Boston BC offices.

**End of the LRF multi-agency coordinated response & recovery to the surge of December 2013.**

# 4. Multi-agency coordination of the response & recovery in Lincolnshire

Analysis of the above chronology, and of partner debriefs and operational reports, has been used to identify the key **'strengths'**, as well as **'areas for improvement'**,

in the way partners coordinated efforts during this emergency. These are now presented within five themes:

**Theme 1;** **'**Early warning', threat assessment and contingency planning
**Theme 2;** National, sub-national and local coordination
**Theme 3;** Local multi-agency coordination of response & recovery
**Theme 4;** Achieving common objectives & response strategies
**Theme 5;** Recovery

## Theme 1: 'Early warning', threat assessment and contingency planning

To understand how the response to the threat of a coastal surge in December 2013 was triggered, it is important to understand the definitions of 'likelihood' and 'impacts' used within the Flood Guidance Statement (FGS) risk matrix;

| **Likelihood bands;** | **Impacts bands;** |
|---|---|
| Very low (<20% certainty) | Minimal |
| Low (20-40% certainty) | Minor |
| Medium (40-60% certainty) | Significant* |
| High (60% certainty, or greater) | Severe |

**'*Significant impacts'* are defined as 'flooding affecting properties and parts of communities, damage to buildings/structures is possible, danger to life due to fast flowing/deep water/wave overtopping and inundation, disruption to key sites identified in flood plans and to travel is expected'

The combination of likelihood and impacts provides an overall flood risk rating of 'Very Low', 'Low', 'Medium' and 'High' (see *figure* * below).

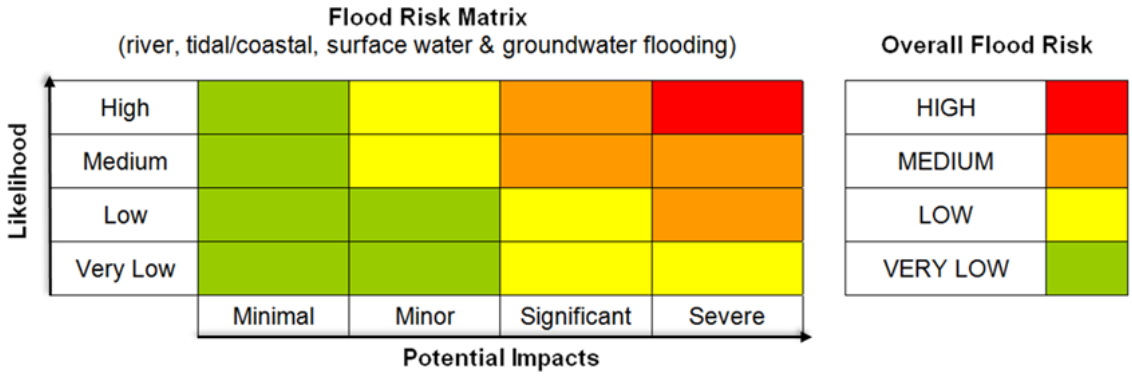


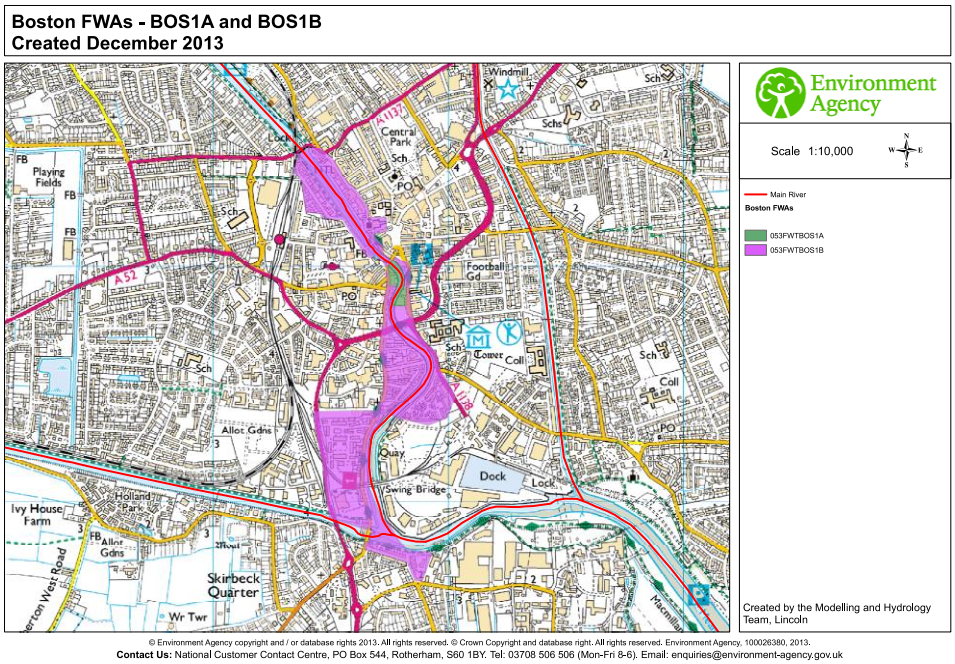

***Figure 5: Flood risk matrix used within the FGS to provide and 'overall flood risk'***

In Lincolnshire, for the period **up to 12 hours before the surge hit** our coastline at high tide (8pm on Thursday 5th December), the FGS overall flood risk assessment remained '**Low'** (Yellow) combining 'low' (*e.g.* <20-40%) likelihood of 'significant' impacts. Just 12 hours before the surge hit the overall risk assessment suddenly increased through **'Medium'** ('Amber' *e.g.* 40-60%) at 7.30am to **'High'** ('Red' *e.g.* >60%) at 2.30pm. In effect, this meant we only reached a reasonable level degree of certainty **12 hours** before the surge.

In comparison, areas to our north (Humber) and south (Norfolk) received **'Medium'** overall assessments (40-60% likelihood) at 7.30am on Wednesday 4th, a full **36 hours before the surge**.

Earliest assessments from the EA were for wave over-topping and spray. The initial concern on the Wednesday for Boston remained around the lower probability of breaching of the defences. The possibility of significant overtopping became more likely and the risk of breaches increased during Thursday 5th December.

The risk was concentrated on 2 flood warning areas referred to as 'Boston1A' (waterside properties between Town Bridge & Haven Bridge) and 'Boston 1B' (Wider waterside properties between Grand Sluice and the Docks). In total, these areas consisted of approx. 770 properties, 60% of which were registered to receive the EA's automated flood alerts, flood warnings and severe flood warnings. The EA also shared flood extent maps from historical flooding in the same area in 1978. As can be seen from the maps below, the actual flooding closely matched these two identified areas.



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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

***Figures 6: Map showing the flood warning areas in Boston (1A and 1B)***

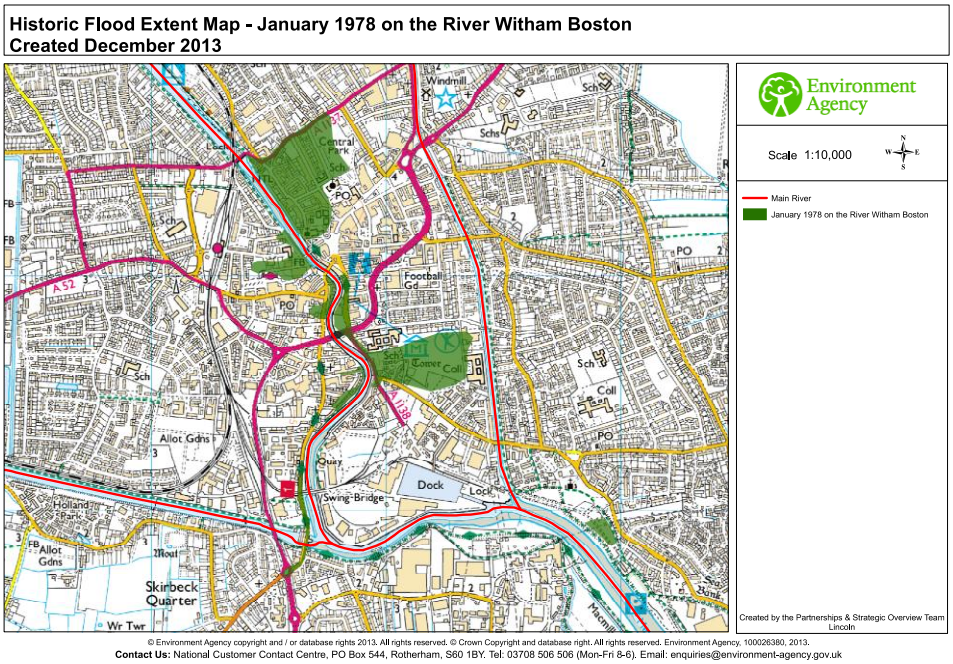


***Figure 7: Map showing historical flooding in the same area from 1978.***

For the remainder of the coastline the EA was confident in surge height levels and assessed a limited risk of overtopping. This information would prove vital in prioritising response actions – especially preventive evacuation. Based on these predictions the LRF was able to deploy its main efforts in Boston, but also maintained a more flexible reserve 'surge task force' approach for the East Lindsey area.

This mapping also allowed partners to pre-identify vulnerable premises and assets (care facilities and other infrastructure) and known vulnerable people in order to prioritise action to protect those assets and prioritise evacuation.

A less effective threat assessment process was followed in respect of a potential risk of secondary flooding from a breach in defences (believed to have occurred on 5th but not immediately identified) at Wyberton, due to conflicting impact assessments from risk management authorities. As can be seen from the chronology, this threat created a major diversion of partner resources and efforts, to the cost of recovery planning, during the afternoon and evening of the 6th December.

A combination of factors contributed, mainly the failure to fully assess all available intelligence (including information from the ground), in particular comparisons of predicted high tide heights and likely flood extents with the previous evenings' breach impacts. Protecting public safety was prioritised by TCG Chair, reinforced by SCG and a precautionary evacuation and defence repairs authorised.

| **Strengths & Areas for Improvement – Early Warning, *etc*** |
|---|
| • **Strengths:** extensive flood hazard mapping and threat assessments completed by the EA – both before and during the event (including overtopping and breach modelling) – and the relative accuracy of the EA's predictions<br><br>• **Strengths:** completion of timely partnership advisory conferences and pre- |

planning during the 'early warning' and 'pre-planning' phases

- **Strengths:** flexibility and proportionality of the response, reflecting a late developing threat level
- **Strengths:** partnership maximised the 'available' time by responding early, including the decision to anticipate an 'Amber' FGS well beforehand
- **Area for Improvement:** Common understanding of the 'likelihood' and 'impacts' definitions within the FGS
- **Area for improvement:** compatibility of EA hazard maps with LCC GIS system used in CEC
- **Area for improvement:** ability to share GIS mapping beyond the CEC
- **Area for improvement:** reaching consensus amongst risk management authorities on impact assessments through better use of 'on the ground' intelligence / local knowledge / subject matter experts

## Theme 2: National, sub-national and local co-ordination

DCLG Resilience Emergency Division's (RED) decision to call an early precautionary 'multi-SCG' teleconference call on Tuesday 3rd ensured effective *communication* of resilience responses at national, sub-national and local levels. It facilitated the interpretation of the FGS, and helped to develop a common understanding of the situation. As the threat developed it allowed LRFs to share their preparations and led to dynamic updates as the surge travelled down the east coast, with each LRF able to update those to the south of its height and early impacts.

In Lincolnshire it also enabled an instant decision from the MOD to support access to Prince William of Gloucester barracks as a strategic evacuation centre. This process might otherwise have taken much longer, slowing down planning. Both the 'multi-SCG' coordination process and permission to scope the use of MOD facilities for evacuation purposes, proved the value of recently published Govt. Coastal Flood Response & Recovery guidance.

There was also clear consistency amongst East Coast Flood Group LRFs in how they activated and managed responses to the coastal surge, including specific trigger points based on the FGS. Most followed the planning principles set in the East Coast Flood Framework, and this gave the overall response a sense of coherency. There was consensus as to the need for a secure web-based information-sharing platform (similar to the US 'web-based EOD') to allow responders to share sensitive information and operational updates.

Coordination and communication with neighbouring inland LRFs (with whom we have mass evacuation alliances), and with bodies such as Highways Agency and Utilities was more problematical, made difficult by the pressures on planning and command resources in the CEC, and the absence of a common information-sharing platform (as mentioned above).

A lack of cross boundary communication meant we were not focused on the threat and developing flooding from the tidal Trent, which crosses a number of county boundaries and local authority borders, including West Lindsey in Lincolnshire. The EA Midlands Area is responsible for the Trent, but we were not invited to participate in any partner advisory teleconferences or updates meaning we were unaware of an EA 'door-knocking' operation, or the flooding that affected 4 households in Susworth, until after the event.

We believe the original concept for DCLG 'multi-SCG' *coordination* based on pre-established geographical clusters, and the physical presence of a Government Liaison Officer (GLO) within the SCG, may have greatly assisted us in communication with those neighbours / agencies on whom we rely for support.

The establishment of similar DCLG coordination processes for the recovery ('multi-RCGs') was also welcomed by the LRF. Although we would have preferred this to start a week earlier, these teleconferences again allowed us to get a sense of the scale of impacts, and areas of common concern with other affected LRFs in respect of support to communities, business and the impacts on infrastructure. Again this allowed for effective sharing of information by Recovery Chairs, and in some part (together with other wide area flooding events elsewhere in the UK in the following weeks), led to the release of additional central funds to help local authorities and partners with the recovery effort. This eventually included the relaxation of Bellwin Scheme grant rates and thresholds, which was particularly welcomed by Boston Borough Council.

A number of Category 1 Responders and Utility Companies (water & power) operate on a much wider 'footprint' and will always be stretched by such wider-area emergencies. However, as a result of lessons learned from recent exercises, the cooperation from all NHS Health partners (including EMAS), Anglian Water and Western Power Distribution was effective, with appropriate representation at strategic and tactical meetings.

**Strengths & Areas for Improvement – National, sub-national coordination, *etc***

- **Strength:** DCLG 'multi-SCG' and 'multi-RCG' coordination processes
- **Strength:** Government Coastal Flood Group interim response and recovery guidance
- **Strength:** Strategic and tactical representation and communication from/with Health partners and Utilities with a wider 'footprint' than Lincolnshire
- **Area for Improvement:** Effective coordination between EA Midlands & Northern Regions in relation to communicating flood threats from the River Trent to affected LRFs
- **Area for Improvement:** Consideration of geographical 'clusters' for DCLG 'multi-SCG' coordination, and/or the physical presence of a nominated GLO
- **Area for improvement:** Timely dissemination of 'top lines' briefings (the LRF did not receive any of the earlier TLBs)

## Theme 3: Local multi-agency coordination (including activation, facilities, mutual aid and welfare, *etc*)

The coincidental meeting of the LRF's East Coast inundation Group on the day the FGS first identified a potential surge, reflects well on the LRF's preparations and planning for the coastal flooding risk. The early warning, on-going monitoring of the threat, and activation of precautionary (and then full) coordination structures allowed us to 'get ahead' of the storm and maximise the time available to us, a key principle of our contingency planning.

Participation of the LRF Chair and Secretariat in the first DCLG teleconference, and subsequent chief officer consultation with FRS, County Council, EA and the three coastal district/borough councils, ensured the partnership agreed a command structure and set a 'working strategy' for contingency planners from the earliest point. This led on to the activation of agreed coordination structures at strategic and tactical levels with appropriate command support at the County Emergency Centre (CEC) based at Fire & Rescue Headquarters in Lincoln.

The response in Lincolnshire was entirely based on the East Coast Flood Group Response & Recovery Framework.

The initial planning and mobilisation of command support functions reflected a relatively low and localised threat to Boston, but the *anticipation* of the FGS for Lincolnshire increasing to 'Amber' allowed for an early escalation in the response. A handover from contingency planning to tactical phase took place on the evening of 4th December. This included discussions on whether to open the CEC overnight, with TCG chair reluctantly accepting advice against doing so, based mainly on proportionality and welfare arguments. Reassurance was provided that work to identify vulnerable people and vulnerable assets had been tasked.

Escalation became necessary on the 5th when at 5.30am the EA notified the Head of JEMS of a significant increase in the threat. Military liaison and voluntary sector coordination was immediately activated, and tactical planning and command support functions were strengthened. However partners, in hindsight, feel earlier mobilisation (even if just an earlier than planned start time) would have improved our response, especially evacuation planning.

The purpose of the Strategic Coordination Group (SCG) was to take overall responsibility for the multi-agency management of an emergency and establish the policy and strategic framework within which lower tier command and coordinating groups will work. In recent years, the LRF has invested in partner relationship building through training and exercising, including Exercises Watermark (an 'award winning' coastal flooding exercise), Georgiana (major transport accident) and Lazarus (a coastal flood recovery exercise, conducted just one month before the surge). The value of strong relationships between partners at all levels, the 'socialisation' of response & recovery processes through regular training and exercising, and the colocation of SCG, TCG and all command support functions in the CEC remain key strengths of Lincolnshire's Resilience Forum.

Lessons learned from exercises and the response to St Jude storm were applied during this response and recovery, including the better articulation of objectives and critical decision-making, and representation from non-county based organisations, all

supported by better use of technology, teleconference protocols and comprehensive audio recording of all SCG meetings.

Coordination between local providers, Public Health, Public Health England and NHS England, appears to have worked well following on-going work to define roles and responsibilities. This included initial representation by senior managers from Clinical Commissioning Group (CCG), EMAS and Public Health during the early phases with wider, national coordination and reporting through NHS England. As the threat increased a health command support cell (later combined, as 'good practice' as a 'health & social care' cell) provided scoping of threats to NHS premises, identification of vulnerable people, deployment of GPs to the evacuation centres, and dynamic problem solving (*e.g*. business continuity planning for flooding to Boston Pilgrim Hospital and A&E, and liaison with Police re allowing access through cordons to staff and ambulances). PHE supported the response and recovery through proactive public health messages and monitoring of health effects through routine surveillance.

An early decision for the three coastal districts' strategic and tactical representatives to operate remotely from the CEC minimised the impact on their own resilience and allowed them to remain within affected communities. Mutual aid amongst the districts, including from unaffected inland districts, was managed by local agreement by Boston BC. Mostly, these arrangements appear to have worked well with offers of support and good cooperation between waste management and customer contact services. But there were also examples of poor communication flow causing frustration for Boston BC (at a tactical level) and for inland districts desirous of situation updates or clarity re mutual aid arrangements. Again, a secure web-based information-sharing platform and extended telephone & video-conferencing facilities within the TCG are required to resolve these issues.

This was a particular problem for West Lindsey who, although they had received the LRF notifications and activated their own incident team, felt they experienced a lack of communication from the bordering EA Area (Midlands) and with the CEC.

The SCG was very well led and generally well resourced, with good participation from all relevant responders. Clear strategic 'common objectives' were set and managed throughout the response, and the declaration of an 'Emergency' was appropriately made at 11.05am on the 5th, when the probable impacts of the surge became clear. Observations have been made (both during debriefs and previous exercises) as to the potential value of selecting Chairs for both SCG and TCG meetings who are not also their own organisational 'Gold' commander.

The 'command support functions' (specific thematic cells appropriate to each emergency) and the role of 'command support manager' (CSM) continue to perform well. However, this event more than any previous exercise, has demonstrated the need for the lead command support roles (TCG Chair, CSM and Cell Chairs) to focus on ensuring effective communication within the CEC, and the development of the Common Operating Picture (COP). Command support cell members felt the CSM should not be abstracted to brief SCG (this can be done by TCG chair alone), and that a regular 'CEC' briefing slot would ensure more coherent implementation of SCG decisions. This point was well illustrated by an apparent delay in initiating the decision made to evacuate 'at risk' areas in Boston on Thursday afternoon. A specific 'one-off' whole-room announcement was required to resolve confusion about whether the order had been given.

The failure to display a shared 'live incident log' (normally arranged, maintained and displayed within the CEC) was commented upon by most partners. This was an

oversight at the activation phase, compounded by pressures on JEMS and Business Support staffing.

Better appreciation of the cultural differences and operating styles of emergency and non-emergency services should be a 'learning outcome' for future training and exercising for command support functions. A broader understanding of the purpose of the more dynamic 'bird table' meetings (attended by TCG and Cell Chairs) and specific Cell Chair training needs, were identified by partners in debriefs. Ensuring effective communication within the CEC and between the various cells remains a challenge. A number of partners commented on a tendency by Police to take unilateral action and not always consult with other subject matter experts.

The County Council's GIS mapping system was used throughout the response (and recovery), allowing partners to interrogate the various infrastructure layers for 'at risk' areas (based on EA flood warning zones) including site specific risk information, bridges, utility assets, and also vulnerable premises such as care homes. As the event unfolded attempts were made to capture the flooding extent, road closures and key deployments (including the helicopter landing site) and to generate the COP. Post event, GIS mapping from geo-coding was also used to analyse the impacts from the flood and used extensively during the recovery phase.

The mapping facility is vital and needs further development by the partnership. In particular, direct access to EA hazard mapping, improvements to vulnerable people data compatibility and rotation of qualified staff. A secure mechanism to share mapping with operational resources is also critical. However, there are significant technology issues to overcome first (*e.g.* data format and security and storage capacity).

Probably the most common learning point raised by almost all partners was the welfare & resilience of staff in all roles (CEC and operational) throughout the emergency. For a variety of reasons, the most common of which was individual dedication, responders worked incredibly hard but also over extended hours, some exceeding safe working periods. All partners will be asked to urgently review their call-out, welfare monitoring and rotation arrangements.

This may require further negotiations amongst local authorities in particular in respect of mutual aid (especially at 'command' levels) and contractual issues. In addition, JEMS will explore options for welfare & refreshment breaks to be taken off-site, and for a formal 'booking-in' process in the CEC which will remind strategic leads and staff of relevant 'duty of care' issues.

**Strengths & Areas for Improvement – Local co-ordination, *etc***

- **Strength:** Local partner relationships and familiarity of LRF processes through training & exercising
- **Strength:** The early activation of an effective LRF response, maximising the time available to achieve clear strategic objectives set by a well-led SCG
- **Strength:** The ability of partners to cope with this event at the same time as the Lincoln Christmas Market
- **Strength:** East Coast Flood Group Response & Recovery Framework and

local Coastal Flood planning

- **Strength:** Effective escalation of coordination early on 5th December leading to the clear and timely declaration of an 'emergency', (as defined by the CCA[12]).
- **Strength:** The Memorandum of Understanding (MOU) between the LRF and Voluntary Sector for effective coordination during emergencies
- **Strength:** The ability to collocate all multi-agency coordination functions, and general facilities at, the CEC (including effective business continuity arrangements tested during the power cut)
- **Areas for Improvement:** Welfare and 'duty of care' of all responders, including rotation of shifts (at all levels)
- **Areas for Improvement:** For all future wide-area or coastal flooding events, consider including representation of all local authorities at SCG to ensure effective communication and coordination of mutual aid
- **Area for Improvement:** Secure web-based information-sharing platform for all partners (including GIS mapping), and extending teleconference facilities in TCG to improve partnership communication and coordination
- **Area for improvement:** Better understanding of the cultural differences, and operating styles of emergency and non-emergency services should be a 'learning outcome' for future training and exercising of the CSM and command support functions.
- **Area for improvement**: Interoperability and multi-agency Bronze (operational) training (already identified during Exercise Georgiana).

## Theme 4: Achieving common objectives & response strategies

A central issue for the partnership is whether we achieved the common objectives set for the multi-agency coordinated response, and the effectiveness of three pre-planned strategies in doing so.

From the 'precautionary phase', the SCG agreed a number of objectives for the response:

- Save and protect human life
- Minimise human suffering
- Protect health & safety of responding personnel
- Provide public & businesses with warnings, advice & information (with an emphasis on diverse language needs within affected communities)
- Maintain critical activities and infrastructure
- Work effectively as a partnership
- Facilitate recovery (if required)

[12] Civil Contingencies Act, 2004

- Protection of property

As a result of pre-planning at national and local levels for East Coast flooding, three key strategies designed to achieve these objectives were implemented:

- Pre-deployment of assets
- Removing people from danger
- Protecting the infrastructure and essential services

We were **better protected** than we've ever been. By and large the sea defences did their job, having been severely tested, protecting 103,000 homes and businesses, and 220,200 hectares of land from flooding. Until the LLFA flood investigation is complete, it is difficult to say whether any more could have been done to protect or mitigate flood impacts on the 720+ households and businesses that did suffer flooding. A clear and early policy decision taken by Boston BC not to deploy sandbags to homes in Boston was supported by partners as working against the priority objectives of evacuation.

We were certainly **better prepared** and were able to 'get ahead' of this storm through three key strategies:

- We pre-deployed sufficient responders and equipment to support the largest operation (including the ability to rescue people) conducted in recent decades. This included the 'multi-agency surge task forces' – flexible response model for all severe weather.
- Removing people from danger. This ranged from timely public safety and flood warning messages, to road closures and the potential evacuation of up to 18,000 properties. In the end, and within a very limited time 'available', we achieved a safe preventive evacuation of 203 people within the properties at immediate risk from flooding in Boston and elsewhere. The emergency evacuation operation, based on two 'super' rest centres, gave us the capacity for >2,000 evacuees, with neighbouring counties on stand-by to assist with further numbers had that been necessary. Considerable investment in our flood rescue capability increased our ability to deploy sufficient teams to both task forces, supplemented through agreed national asset coordination. As per local agreement, FRS took the lead in coordinating flood rescue operations. These operations were effective in removing people from flooded properties.
- Protecting the infrastructure, including the ability to manage the flood defences and other assets important to the way we manage flood risk, to secure utilities, and threats to the Port of Boston, Boston Pilgrim Hospital and HMP North Sea Camp. We also had to deal with a major power cut at the height of the response operations impacting on both the CEC and Lincoln Christmas Market.

Households, businesses and key partners were **better informed**, with more than 30,300 receiving flood warnings direct from the EA (includes 60% of affected areas of Boston), supported by the proactive use of social media[13] (used proactively for the first time during an emergency in the county) and a key role (unique to Lincolnshire) played by BBC Radio Lincolnshire who were embedded in the County Emergency

[13] There were 9,687 unique visitors to the LRF webpages (hosted on LCC's website) during 5th and 6th December 2013. This compares with previous total visits between 1st Jan and 30th September 2013 equalling 4,760. It is believed partners directly reached 26,000 twitter accounts during the surge events, with LCC Facebook page also receiving 500 'likes'.

Centre (working with the 'warning & informing' command support cell). During this emergency we also welcomed a local community radio station LincsFM into the CEC. Translation services and interpreters were used to communicate key messages to residents whose first language is not English (a significant issue in the 'at risk' areas).

Most people followed the advice and warnings. However, too many did not, and were reckless with their own safety (and potentially that of responders) by insisting on visiting potential flood areas (a scene repeated throughout the UK).

**Evacuation operations:**

A total of 203 residents from 78 households within the flood warning areas were registered as receiving assistance during the evacuation operation. Evacuees came from a wide range of single occupancy and multiple occupancy households, the highest occupancy level being 9 people from the same address. This represents 13.5% of the 577 residential properties that flooded, roughly matching initial planning assumptions that 15% of affected households would require assistance. Reports suggest 44 people and 2 pets were rescued from flooded areas in the immediate aftermath of the flooding.

Numerous people self-evacuated. We do not know at this point how many additional people remained 'in-situ', although there is anecdotal evidence that some people ignored the flood warnings. We believe there would be value in follow-up research to establish these additional figures before being able to fully assess the effectiveness of the warning & informing and evacuation operations.

The emergency evacuation operation was well managed through the Evacuation and Health & Social Care command support cells, assisted by LCC Procurement and Transport Officers and the Voluntary Sector. An effective transport operation, supported by early closure of some schools and a good response from local transport companies, released sufficient coaches and taxis. A total of 30 coaches were available over the two days to support evacuation and shuttle operations.

An initial evacuation hub (assessment centre) established at Boston's Princess Royal Sports Arena (PRSA), supported by two large-scale evacuation centres at Caythorpe Court (PGL), and Prince William of Gloucester Barracks (Grantham) provided excellent facilities and sufficient capacity for the operation, initially scoped for 600 evacuees. In accordance with national agreement with MOD, the barracks were identified as a 'last resort' option and closed as soon as it became clear evacuee numbers would not be excessive. In hindsight, planners questioned whether it might be better to use one centre as a primary site, whilst preparing a secondary site as 'stand-by'.

The mobilisation of GPs and volunteers to assist with medical needs, evacuee registration and welfare support worked well, as did our procurement arrangements which quickly sourced sufficient bedding, clothing, food and even extra toilet facilities. In these times of constraint where we no longer have the luxury of stockpiling equipment to support such operations, this was a vital first test of a developing 'emergency procurement framework' managed by Lincolnshire County Council.

This also links into effective and early contact with care providers by Adult Care Contract management team ensured suitable arrangements at residential care homes and domiciliary care (including moving people in care needing specialist

equipment to an alternative location where 10 intermediate care beds were available).

Pleasingly, responders have also reported on positive experiences with help from members of the public and local businesses at the PRSA evacuation hub at Boston, and a temporary evacuation centre established at Stickney to support evacuees with specific medication support needs. This ranged from people giving up their bookings at PRSA, to schools and ASDA donating food, and a local vendor offering to cook for free. The PRSA centre eventually closed on the Thursday evening when the potential for wider flooding impacting on safe access became clear.

Liaison between the evacuation cell in the CEC and both PGL and PWOG worked well, with the sites adopting a 'can do' approach to most of the challenges thrown at them. Staff at both PGL and PWOG reported positive experiences working with responders and volunteers. However, due to resourcing difficulties and a lack of local agreement, a single senior emergency planning officer from JEMS attempted to manage across both sites assisted by other team members, a resource deployed by South Kesteven District Council, and colleagues from Northamptonshire. Together with some confusion and duplication within the evacuee registration and tracking processes, these are policy issues we must address as a matter of urgency.

LCC will work with PGL to understand future opportunities to use the site as an evacuation centre. As a commercial operation, they have expressed a clear preference for their own staff to manage evacuees, with liaison and support offered through a smaller number of responders. Given the nature of the site this makes absolute sense and reduces the burden on responding agencies.

Evacuees were also well supported with transportation to view their flooded homes on the Friday, with on-going support and alternative accommodation being provided where requested (again the Procurement team worked well with Boston BC to ensure everyone evacuated had either returned to their homes by choice, or had been provided with alternative accommodation, mainly hotel based, by the end of Friday 6th).

Supporting vulnerable people is dependent upon good information sharing and clear advice to responders engaged in evacuation warning 'door knocking' as to how assistance, where required, can be provided.

Planners were able to access data from some health and social care sources and, to a more limited degree, from utility companies. However, there are still gaps in our ability to support vulnerable people through other data holders, such as social housing providers & housing associations, and home care providers. Whilst there is evidence of good support for evacuees, both in leaving the area and at the evacuation centres, this should be balanced by feedback from some individuals who felt they were left to their own devices. The evacuation process debrief also identified the need to clarify access to prescribed drug treatment and mental health service support within generic evacuation centres.

**Strengths & Areas for Improvement – Achieving objectives**

- **Strength:** The LRF proved its ability to coordinate a multi-agency response to a coastal surge (largest risk to Lincolnshire) designed to meet a defined set of common objectives

- **Strength:** The 3 x pre-planned key strategies for East Coast Flooding were also proved
- **Strength:** The concept of multi-agency task forces able to deploy flexibly to developing scenarios worked well, and provides a good model for any severe weather emergency
- **Strength:** Investment in flood rescue boat capability and coordinating role of FRS
- **Strength:** mutual aid arrangements amongst emergency and non-emergency service partners, especially specialist national assets such as flood rescue and police BDUs, and local authority arrangements at district level
- **Strength:** Evacuation and Health & Social Care command support cells worked well
- **Strength:** Emergency evacuation operation worked well;
- **Strength:** LCC 'emergency procurement framework'
- **Area for Improvement:** Failure to prevent sightseer's / effective cordons / more proactive approach to safety
- **Area for improvement:** Support offered to VP/elderly who needed help to evacuate
- **Area for improvement:** Evacuation centre management responsibilities (including PGL preference for using own staffing and managers) and communications / coordination between responders and volunteers – and back to CEC
- **Area for improvement:** Provision of mental health support at evacuation centres needs clarifying

## Theme 5: Recovery

In line with established guidance, the SCG started to consider initial community recovery as early as 7am on the morning of Friday 6th once it was confirmed the morning's high tide would be lower than the previous evening, and would be led by Boston Borough Council. However recovery planning was deflected by the threat of secondary flooding from the Wyberton breach.

By the time this threat had been dealt with the decision was made to declare the emergency over, stand down the command support cells, and close the CEC at midnight. Although the SCG reconvened the next morning to complete the formal hand-over at 10am, the command support cells were not required to reconvene or complete a formal handover of information collated during response. This was a mistake. A better handover of information collated during response and required for recovery would have improved Boston's ability to complete initial 'impact assessments'.

The most urgent challenge for recovery was the assessment of critical structures, in particular flood defences, and affected areas (completed by LCC Highways on the Friday), immediate clean up and salvage, and completion of detailed analysis of flooded areas and identification of flooded properties. Police planners created very effective street survey and (post event) 'door knocking' operation, including occupant questionnaires. These were critical to establishing priorities for immediate assistance to affected households (and later, businesses). The operation was well supported by additional staff from Police, FRS and British Red Cross (BRC).

Thankfully, problems with standing water were minimised by what appears to have been effective drainage, and by localised pumping operations by FRS. However, the flooding created an immediate challenge of waste management, compounded by the damage caused by flooding to the town's only waste disposal site at Wyberton (included a collapsed access road). This was eventually resolved by a combination of effective mutual aid amongst local authorities and expedited repairs to the site, which was operational again within 7 days.

Most importantly, the recovery operation remained flexible and appropriate to Boston BC's operational style, and remained proportionate and appropriate to community needs.

Offers of help from the general public were overwhelming in terms of on-site attendance and donations. A lack of understanding by some, and no agreed structure to manage the convergent volunteers became a challenge in itself. The local authority is tasked with co-ordinating the volunteer effort during recovery and the British Red Cross supported the Council and emergency services. However development of a local authority structure/process/guide to improve clarity and give direction should be drafted and referenced in the LRF Memorandum of Understanding with the Voluntary Sector where appropriate.

Throughout the recovery operation, threats emerged to defences compromised by the early December surge at Slippery Gowt Lane, White Horse Lane and Jakeman's Slippage in Boston – and additionally at Gibraltar Point. These were assessed and then managed by the EA, supported by contingency planners who prepared emergency plans in the event of further flooding. This included ensuring appropriate staffing arrangements over Bank Holiday and high tide periods. All subsequent high tides passed without further incident and the actions taken by the EA to strengthen weakened defences worked well.

As with the SCG, the Recovery Coordinating Group (RCG) was well led individually by the Deputy Chief Executive and Boston BC. It was well structured and supported by partners with a clear focus on doing as much as possible to support those whose homes and businesses had flooded and getting the community back on its feet. This has been the most significant recovery operation in the county, which was fortuitously preceded by the testing of LRF Recovery Plans through Exercise Lazarus, and credit should go to the JEMS recovery lead. The recovery objectives, structures and reporting processes were clearly established by Monday 9th December. By 4th February 2014, sufficient progress had been made in achieving the recovery objectives that partners agreed the formal LRF coordination could come to an end, with remaining support to affected communities delivered by Boston BC.

**Strengths & Areas for Improvement - Recovery**

- **Strengths:** Work recently completed on LRF recovery planning, including Exercise Lazarus
- **Strengths:** A very effective and well-led Recovery Coordination Group (RCG) based at Boston Borough Council, supported by all partners delivering clear recovery objectives, proportionate to the needs of affected communities
- **Strengths:** Effective contingency planning for emerging threats as a result of compromised flood defences
- **Strengths:** Positive relations between Boston BC, JEMS staff and other partners quickly overcame tensions created by a less effective handover from response
- **Area for Improvement:** Transition from response to recovery phase, and in particular the collation of response data management required for impact assessments
- **Area for improvement:** The management and coordination of 'convergent' or 'emergent' volunteers (including social media community support groups)
- **Area for improvement:** The effectiveness of the LRF MOU with the Voluntary Sector for the recovery phase

# 5. Conclusions and recommendations

A year that started with events to mark the 60th anniversary of the 'Great Storm' of 1953 and ended with the largest coastal surge faced by partners since that date, demonstrates the value of recent contingency planning and collaborations at local, sub-national and national levels.

Due to advances in forecasting and flood prediction we were able to 'get ahead' of the storm, deploying one of the biggest multi-agency emergency response and recovery operations we have ever conducted in Lincolnshire. The subsequent flooding provided a significant test of our capabilities and capacity, and of the preparedness of affected communities. Partners must ensure we retain sufficient resilience in the county to respond to this, our most significant community risk.

We will always face a degree of uncertainty with this type of severe weather event, which demonstrates the need for further discussions about how to portray and understand this uncertainty in the context of response decision-making. It is not possible to completely defend against the power of nature. For these reasons it is vital we continuously evolve our contingency planning and apply the lessons we learn from such tests as presented in December.

It also demonstrates the need for ongoing investment in protection from flooding and vulnerability reduction. The LRF must continue its contribution to national response developments and to the county's Drainage & Flood Risk Strategy group to help influence this agenda.

Overall this was a good, forecast-led, response and recovery effort. But, we were lucky. The wind direction was predominantly 'off-shore' and less strong than in 1953, so there were less damaging wave conditions. We also did not experience the heavy rain to exacerbate conditions as has happened during subsequent storms to hit the south west of England throughout December and into early February 2014. Due to these factors, and investments in defences, this was not an event on the scale of 1953 but nonetheless, a valuable and timely reminder for contingency planners and responders.

We will now consider how best to consult on our findings and ensure lessons learned are applied, including making any necessary changes required to local coordination frameworks and policy.

David Powell
Head of the Joint Emergency Management Service
Lincolnshire County Council

March 2014

## Recommendations:

1. Partners must ensure we retain sufficient capacity to deliver the capability to respond to this, our most significant, community risk.

2. The LRF should continue work with flood risk authorities to secure on-going investment in protection from flooding and vulnerability reduction.

3. The LRF should, together with colleagues from the ECFG, review the 'trigger points' for activating multi-agency responses to tidal surge threats.

4. The LRF should contribute to any review by DCLG of the multi-response SCG coordination arrangements.

5. The LRF should identify an accessible and secure web-based information-sharing platform for all partners to use during response and recovery, improve access to CCTV, and extend teleconference and audio recording facilities to TCG meetings.

6. LCC and EA should ensure flood hazard maps are available for 'live use' in the CEC, preferably in formats that are compatible with GIS systems used to create a COP.

7. The LRF should ensure effective liaison and communication with the EA in relation to 'cross border' flood threats from the River Trent

8. The LRF should extend the current Joint Emergency Services Interoperability Project (JESIP) and national decision model training to include non-emergency services.

9. Improve appreciation of the cultural differences and operating styles of emergency and non-emergency services (as a specific 'learning outcome' for future training and exercising).

10. The LRF should examine the benefits of selecting dedicated SCG/TCG meeting 'Chairs' (*e.g.* individuals not also performing organisation role of 'Gold' command).

11. All non-emergency partners should ensure the resilience of command, operational resources and services (including more effective mutual aid arrangements where appropriate).

12. LRF training & exercising group should expedite 'Command Support' training (to include training for command support cell chairs).

13. The welfare, 'duty of care' and shift rotation should be the specific responsibility of each responder organisation's lead 'Gold' supported by JEMS (in the CEC).

14. JEMS to explore the provision of welfare & refreshment breaks to be taken away from the CEC.

15. LRF and LLFA should expedite work to assess the High Volume Pumping capacity in the county.

16. Local authorities and BRC should clarify responsibility for the management and coordination of 'convergent' or 'emergent' volunteers.

17. The LRF should cooperate with DEFRA's convergent volunteer project (includes a proposed Boston case study).

18. LCC should review the effectiveness of the LRF MOU with the Voluntary Sector for the recovery phase of emergencies.

19. JEMS should expedite the identification of a cadre of appropriate evacuation centre managers, clarify roles and responsibilities, and complete emergency evacuation centre training.

20. JEMS should design a single evacuation registration and tracking form, available in different languages, in line with national guidance.

21. JEMS should create a single countywide Flood Victim Impact Assessment questionnaire based on learning from Boston recovery process.

22. Creation of a countywide Flood Victim Pack containing all appropriate post flooding advice (*e.g.* hygiene, disposal of contaminated goods, insurance & loss adjusting, clarification for households re electric safety checks and responsibilities, housing and financial support).

23. The LRF should consider funding for research to ascertain actions of people receiving flood warnings (*e.g.* how many self-evacuated, how many ignored warnings and reasons why).

24. Partners should work together to enhance the sharing of data to identify known vulnerable people, and improve the support available to assist such persons who may need additional help during evacuation.

# References

## Planning frameworks

East Coast Flood Group Emergency Response Framework, published January 2013:

HM Government Coastal Flood Group; Interim Response & Recovery Guide, published July 2013:

## Organisation operational reports

NHS England

Environment Agency

Lincolnshire County Council

Voluntary Sector report (submitted by British Red Cross)

Lincolnshire Fire & Rescue Service

Lincolnshire Police

Lincolnshire Internal Drainage Boards

East Lindsey District Council

Boston Borough Council

West Lindsey District Council

## Operational debrief reports

East Coast Flood Group debrief (12.12.13)

West Lindsey District Council debrief – (17.12.13)

Strategic Coordination Group debrief (20.12.13)

Command Support & Tactical debrief (20.12.13)

Evacuation process debrief (24.1.14)

Boston Recovery debrief (10.2.14)

# Glossary

| | |
|---|---|
| BDU | Beat Deployment Unit |
| BRC | British Red Cross |
| CEC | County Emergency Centre |
| COP | Common Operating Picture |
| CSM | Command Support Officer |
| DCLG | Department for Communities & Local Government |
| DEFRA | Department for Environment, Food & Rural Affairs |
| EA | Environment Agency |
| ECFG | East Coast Flood Group (England) |
| ECIG | East Coast Inundation Group (Lincolnshire) |
| ELDC | East Lindsey District Council |
| EMAS | East Midlands Ambulance Service |
| FFC | Flood Forecasting Centre |
| FGS | Flood Guidance Statement |
| FRS | Fire & Rescue Service |
| FWD | Flood Warning Direct |
| HVP | High Volume Pumping |
| IDB | Internal Drainage Board |
| JEMS | Joint Emergency Management Service |
| LCC | Lincolnshire County Council |
| LCHS | Lincolnshire Community Health Service |
| LRF | Local Resilience Forum |
| MACA | Military Assistance to Civil Authorities |
| MOD | Ministry of Defence |
| NPAS | National Police Air Service |
| PGL | Parents Get Lost |
| PHE | Public Health England |
| PRSA | Princess Royal Sports Arena |
| PWOG | Prince William of Gloucester (barracks) |
| SCG | Strategic Coordinating Group |
| SHDC | South Holland District Council |
| RCG | Recovery Coordinating Group |
| TCG | Tactical Coordinating Group |
| WLDC | West Lindsey District Council |
| WPD | Western Power Distribution |

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# Appendix (b) Section 19
# December 2013 East Coast Surge


Boston flooding – photo taken by Lincolnshire Fire & Rescue December 2013

August 2014
Environment Agency

# Contents

# 1. Executive Summary

On 5 December 2013, we saw the most serious tidal surge in over 60 years, with the highest water levels recorded on the Lincolnshire coast. In total, 2,400 properties were affected along the east coast of England, with 819 in the Lincolnshire Lead Local Flood Authority area. In Boston, 803 properties were affected, the other locations were Trusthorpe, Skegness and Gibraltar Point.

The incident occurred during a high spring tide period which, when combined with a surge peaking at approximately 2 metres, resulted in numerous communities at risk of flooding from the sea. The flood was between a 1 in 400 to 600 year annual exceedance for The Haven at Boston.

The surge was forecast in advance - on Sunday 1 December, 5 days before the incident, there were signals that a large surge could affect the east coast. This provided valuable time to implement pre-prepared plans and procedures. As confidence in the forecast increased, tailored actions and services were initiated, such as the provision of a Flood Advisory Service for our professional partners and the public.

The Environment Agency worked well with partners in the lead up, response and recovery phases of this incident.

It is important to recognise the performance of our defences. The extreme weather impacted the 345km of coastal and tidal assets in the Lincolnshire and Northamptonshire Area causing damage at numerous locations notably Boston. Over 99.98% of our defences held and protected communities at risk of flooding.

# 2. Purpose of document

This document was produced by the Environment Agency to be appended to the ‘Section 19 Investigation Report - Overview of coastal surge flood event during 5th, 6th & 7th December 2013’.

# 3. Extent of flooding

This section details the extent of the flooding and the associated impacts. Figure 1 below demonstrates the distribution of the flooded properties along the East Coast showing that the South Humber Bank and Boston were locations that were significantly affected.

Figure 1 – Properties flooded during December 2013 in Lincolnshire and Northamptonshire Area

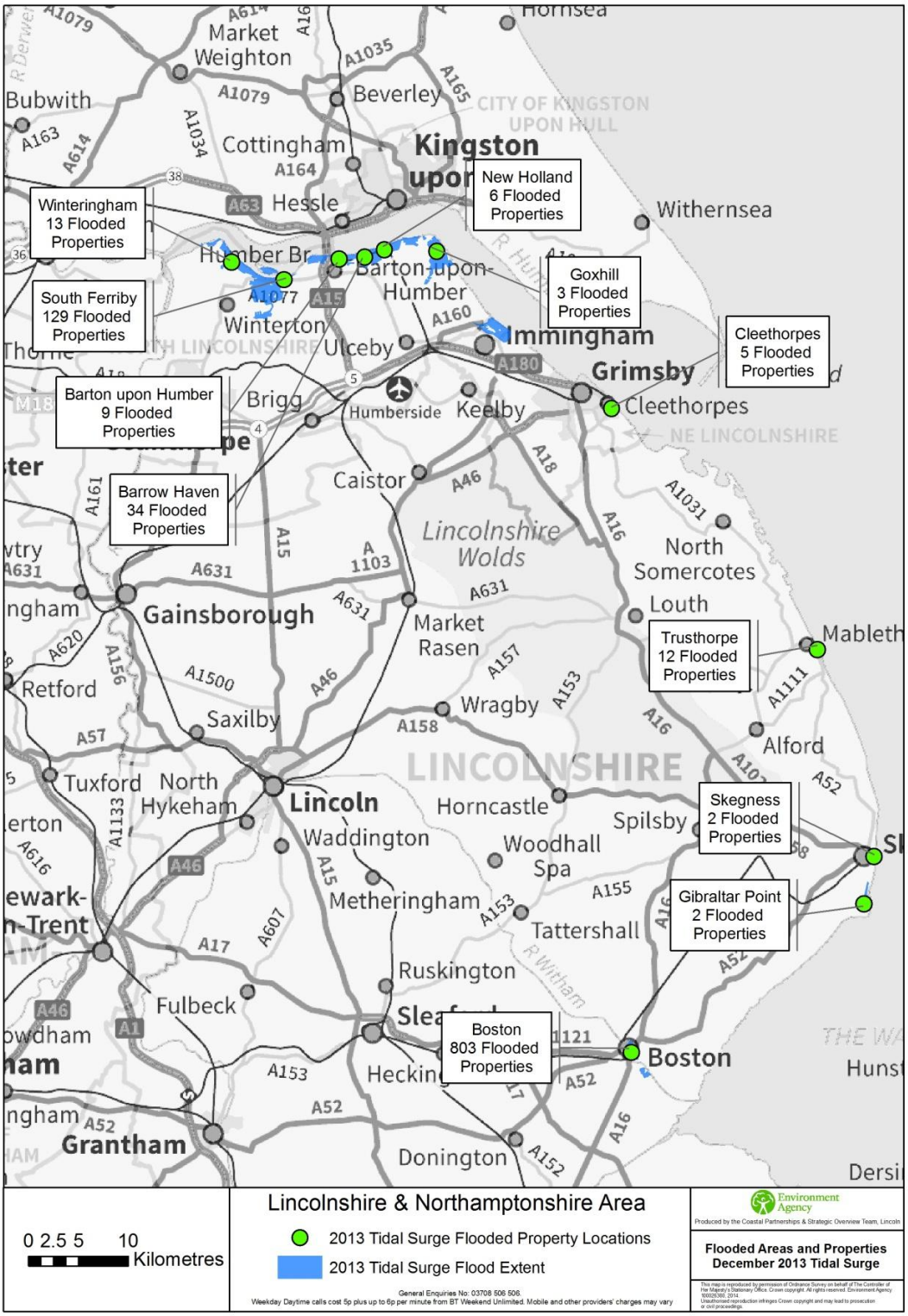


Table 1 Known impacts in the Lincolnshire LLFA area

| | Residential property flooded | Commercial property flooded | Agricultural land inundated (ha) |
|---|---|---|---|
| Lincolnshire Coast | | | |
| Breach at Tetney Marsh | 0 | 0 | 20 |
| North Cotes | 0 | 0 | 0 |
| Mablethorpe | 0 | 0 | 0 |
| Trusthorpe | 12 | 0 | 0 |
| Skegness | 0 | 2 | 0 |
| Gibraltar Point | 1 | 1 | 0 |
| The Wash | | | |
| Boston | 688 | 115 | 0 |
| Friskney (Jubilee Bank) | 0 | 0 | 200 |
| **Total** | **701** | **118** | **220** |

The following sections have been divided into 2 coastline reaches and provide more detail of the extent and impact of flooding

## 3.2 Lincolnshire Coast

Sea defences between Saltfleet and Gibraltar Point reduce the risk of flooding to 23,000 homes, 35,000 hectares of farmland, Europe's largest concentration of caravans and regionally important tourism. A large area of land behind the defences is below sea level.

The main defence mechanisms along the Lincolnshire coastal frontage are a combination of dunes, sea walls and beach re-nourishment which has been the agreed preferred option of managing coastal flood risk in Lincolnshire since 1994. The beach re-nourishment scheme, the Lincshore project, reduces flood risk along the 20 km of Lincolnshire coastline from Mablethorpe to Skegness by annual beach nourishment. The main concern is the lowering of beaches over the central 20km long section of the frontage due to the shortfall in sediment supply. The sandy beaches are underlain by clay, critical to the stability of the sea wall. While clay erodes less than sand, it cannot be replaced, so avoiding beach erosion and abrasion of the clay is critical to the long-term sustainability of the defences. Lower beach levels, associated with high surge tide levels, also make the seawalls more susceptible to wave attack and resultant overtopping.

Flood protection provided by the current defences equates to a 1 in 200 year standard of protection (or 0.5% annual chance of flooding).

The overall impacts along this part of the coast were not significant in terms of damage to property, however coastal defences were damaged. The dune system north of Mablethorpe was eroded significantly by the surge with approximately 55,000$m^3$of material lost.

The following sections detail the key locations where properties and / or assets were affected by the incident:



## 3.2.1 Breach at Tetney Marsh

Tetney Marsh lies south of the village of Humberston and the Thorpe Park caravan park and adjacent Fitties chalet park. The flood plain contains 188 residential properties, 12 commercial properties, an oil storage depot and an Anglian Water Waste Water Sewage Works.

Defences (maintenance and recent capital investment)
The tidal defences across the 3km Tetney Marshes frontage consist of a 2.5m high earth embankment with an extensive saltmarsh and accreting foreshore. Frequent maintenance is undertaken at an annual cost of approximately £2500/km.

Damage to defences
The initial surge on 5 December 2013 damaged the earth embankment and as a result of the high tide on Friday morning a breach occurred. The banks consist of local materials, mostly sand and estuary alluvium.

The eroded material from the breach was washed into the adjacent local Internal Drainage Board system at the rear of the bank. From here most of the flood water ran southwards into the Louth Canal, upstream of Tetney Haven sluice. This led to short-term and localised flooding to approximately 20 hectares of arable land, together with raised water levels in the ditch network through the caravan park. This dissipated within a few hours. The threshold of the breach was slightly below the saltmarsh foreshore and within the normal tidal range of spring tides.

Breach at Tetney Marshes.

### 3.2.2 North Cotes

North Cotes is a small village at the very southern part of the mouth of the Humber, south of Cleethorpes. It has a population of 703 and forms part of a string of marsh villages across the extensive coastal flood plain.

Defences (maintenance and recent capital investment)
The tidal defences between Tetney Haven and Grainthorpe Haven consist of large earth embankments up to 3.5m high. The accreting foreshore consists of established saltmarsh and very wide inter-tidal beaches.

Since 2012 much of this frontage has had the tidal defences strengthened and raised to 6.0m AOD, using locally sourced material. This was undertaken to raise the standard of protection to a 1 in 200 standard of protection (or 0.5% annual chance of flooding), with an allowance for predicted sea level rise.

Properties affected and damage to defences
While no properties or agricultural land were affected, the defences were damaged over a length of 400m. The majority of the damage occurred to the sandy areas along the seaward face of the defence embankment up to a maximum depth of 0.6m. It was evident the damage was limited to the areas of embankment where there was a narrower saltmarsh across the foreshore.

Damage to seaward face of embankment, primarily occurring up to the original crest level.

Where overtopping had occurred due to wave action, there was a limited amount of scour to the landward face.

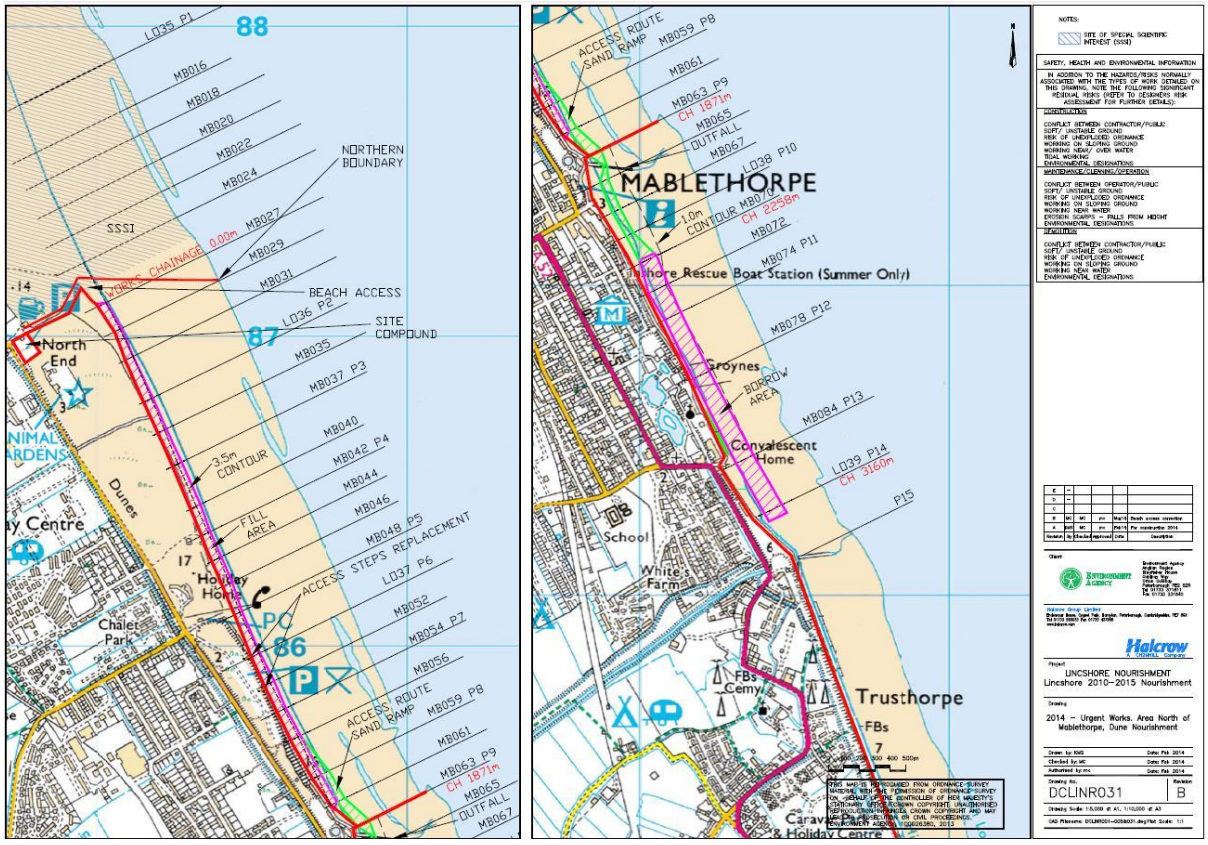
### 3.2.3 Mablethorpe

Mablethorpe is a small seaside town with a population of 11,700. The town hosts many small caravan parks making tourism one of the largest industries.

Properties affected and damage to defences
There were no properties affected by flooding, however the dune system north of Mablethorpe suffered considerable erosion.

Current estimates of beach losses are 55,000m$^3$ between transects MB027 and MB063 (see detailed plan on page 8). This volume is based on differences from the newly formed beach profile to approximately 100m seawards, over a shoreline length of approximately 2,250m.

Detailed plan of sand dune erosion area on the left and area used to borrow sand for the re-nourishment on the right.




Dunes to north of Mablethorpe- considerable amount of dune system washed away. The remains of the old fence lines can still be seen.

## 3.2.4 Trusthorpe

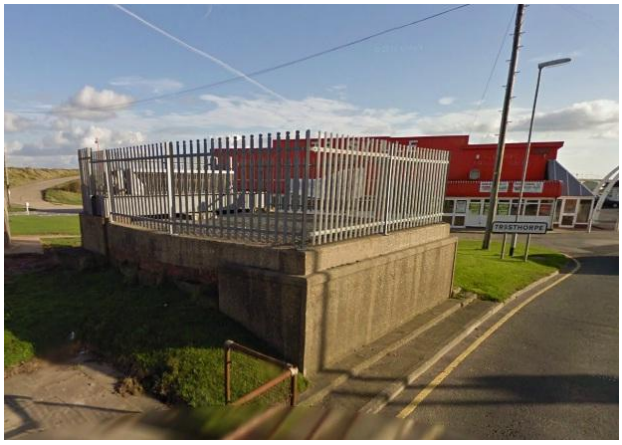
Trusthorpe is a small village in the East Lindsey District of Lincolnshire. It is situated 2 miles (3.2km) south from Mablethorpe and 12 miles (19km) north from Skegness.

<u>Properties affected and damages to defences</u>

12 properties were affected by flooding in Trusthorpe. Water travelled up the surface water outfall through the non-return flap valve. The differential in water height

resulted in a large volume of water spilling out of the chamber into the surrounding area behind the defences – see photos below.

Overtopping of IDB structure behind Environment Agency defence. Looking south east across Seaholme road.



IDB chamber – photo Google

### 3.2.5 Skegness

Skegness is a seaside town and civil parish in the East Lindsey district of Lincolnshire. It is located 43 miles (69km) east of the city of Lincoln and has a resident population of 18,910. The resort is one of the better known seaside resorts in the United Kingdom.

Properties affected and damages to defences

The bowling alley and laser quest were flooded with up to 0.9m of sea water. The main pier remained open, however the bowling alley and laser quest fully reopened in July 2014.

During the surge, the existing stone wall at the rear of Skegness promenade, between the clock tower and pier, collapsed in a number of places by wave action upon the wall.

Photographs taken on 6 December by East Lindsey District Council

## 3.2.6 Gibraltar Point – Bulldog Bank

Gibraltar Point National Nature Reserve is an area of approximately 4.3 $km^2$ (1.7sqmi) in Lincolnshire.

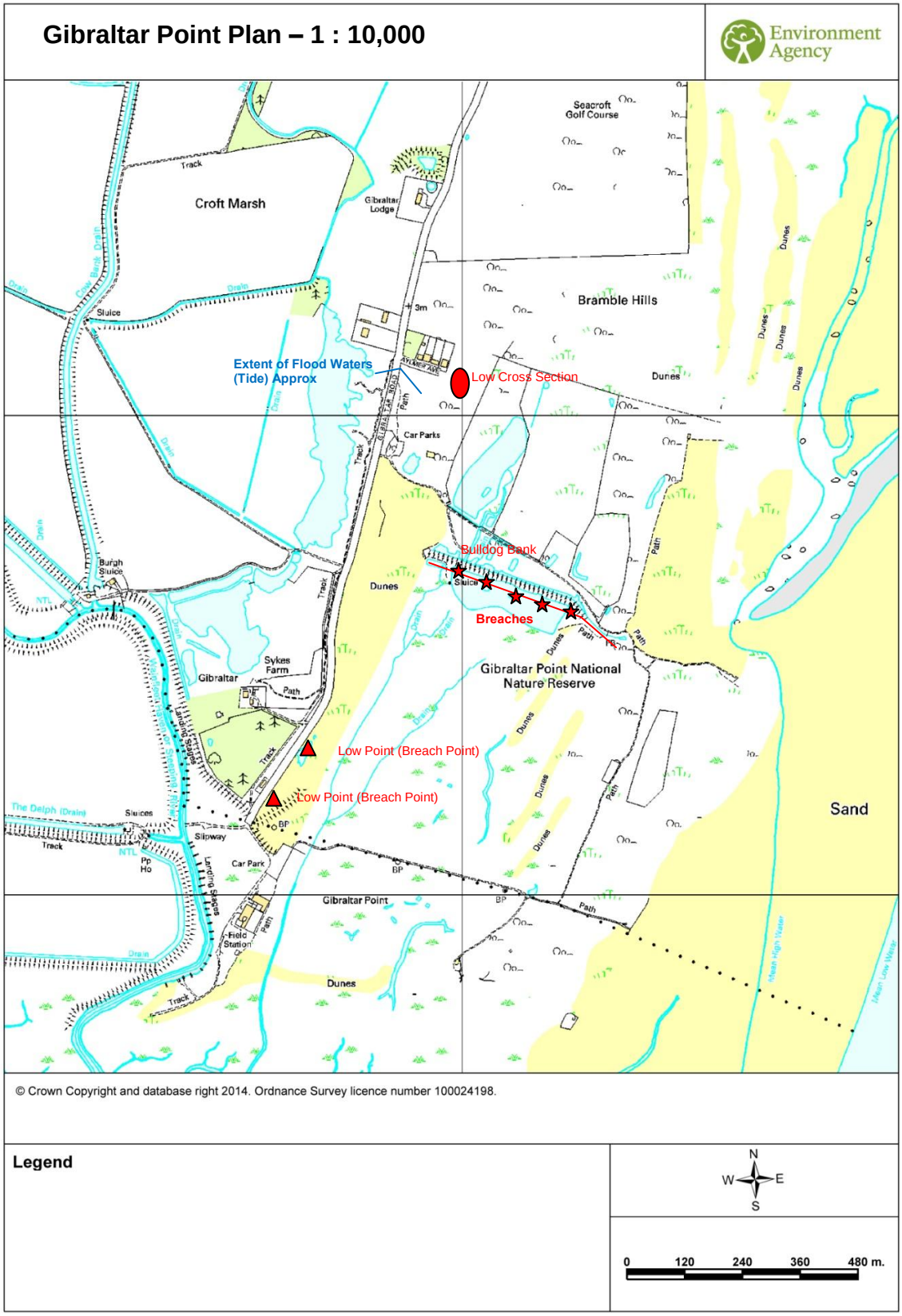
The reserve is owned by Lincolnshire County Council and East Lindsey District Council and is administered by the Lincolnshire Wildlife Trust. The reserve comprises 2 parallel ridges of sand dunes—the east dunes and the west dunes—separated by approximately half a kilometre of salt marsh; and an area on the seaward side with further salt marsh and sand, shingle and muddy beaches. The reserve extends for approximately 3 miles (5 km) along the coast, from the southern end of Skegness to the northern corner of The Wash (Gibraltar Point itself is at the southernmost tip, and marks the point where the North Sea coast turns southwest towards Boston). A golf course occupies much of the west dunes (the inland side) at

the Skegness end of the area. Gibraltar Point is an area of coastal deposition—at the end of the 18th century the west dunes were by the shore, but they are now a kilometre inland.

The reserve's importance is recognised by its various designations:
SSSI (Site of Special Scientific Interest);
NNR (National Nature Reserve);
Ramsar wetland site (wetland of international importance);
SPA (Special Protection Area).

Properties affected and damages to defences
Gibraltar Point Coastal Reserve – Lincolnshire Wildlife Trust Reserve, cafe flooded and sea water entered reserve.

Bulldog Bank:
On 5 December, the water level came over the primary tidal defence, Bulldog Bank, which runs east to west across the Lincolnshire Wildlife Trust site at Gibraltar Point. This bank separates the freshwater part of the site on the north from the saline marshland side to the south (see site layout on page 12). The flood waters inundated the visitor centre and the attached annex property, occupied by the Wildlife Warden. These properties are located on the tidal side of the flood defences. There are a number of other properties on the inland side of the defences that could be affected by the flood waters. Access routes to houses became inundated and parts of the golf course to the north of the wildlife reserve suffered from flooding.


Gibraltar Point Plan – 1 : 10,000
Environment Agency
Seacroft Golf Course
Croft Marsh
Track
Gibraltar Lodge
Bramble Hills
Sluice
+3m
Extent of Flood Waters (Tide) Approx
Low Cross Section
Dunes
Car Parks
Bulldog Bank
Breaches
Burgh Sluice
Sykes Farm
Gibraltar
Path
Gibraltar Point National Nature Reserve
Low Point (Breach Point)
Low Point (Breach Point)
Sand
The Delph (Drain)
Sluices
Slipway
Car Park
Gibraltar Point
Field Station
Mean High Water
Mean Low Water
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Legend
N
W
E
S
0
120
240
360
480 m.

The flood waters encroached (see plan above) into the nature reserve (marshland) area and began to overtop Bulldog Bank sea defence. This caused erosion across the top of the bank and subsequent breaches occurring.

This inundated the freshwater section of the nature reserve causing saline damage to the area. The water continued northwards to the east of Gibraltar Road onto Seacroft Golf Course, flooding the fairways and greens between the raised/landscaped banks towards the Club House.

The tidal waters also flowed through a number of low points of the sand bank alongside Gibraltar Road towards the southern end (near Sykes Farm). The flow of flood water then traversed along Gibraltar Road northwards, mainly along the highway as this is at a lower level and the roadside dykes. The water also spread out westwards behind Sykes Farm (lower land). The extent of the flooding northwards along the road was to the junction of Aylmer Avenue and to the high point in Gibraltar Road.

As far as we are aware, no properties to the north of the visitor centre (sea defence bank) were flooded, however access was cut off for a short period due to flooding of the highway (one property owner had to be rescued).

The Wildlife Trust Visitor Centre was flooded along with the annexed warden's property, however these were on the tidal side of the defences and therefore did not have any sea bank protection.

Additionally the water seeped under the flood barrier across the road at the visitor centre car park entrance.

Bulldog Bank breach – Photo Taken by C J Helicopters

## 3.3 The Wash

The Wash is a large coastal inlet, with a surface area around 615 $km^2$, which opens out in to the North Sea. It has 4 tidal rivers, the Witham, Welland, Nene and Great Ouse, which all drain into The Wash.

Raised earth embankments separate The Wash from the coastal floodplain. These flood defences provide protection to a significant area of low-lying high quality agricultural land (grade 1 & 2) and a number of coastal settlements, which include Boston, Spalding, Holbeach, Long Sutton, Sutton Bridge, King's Lynn and Hunstanton.

The edge of The Wash is characterised by salt marsh and mud flat. This relatively high foreshore plays an essential role as a natural flood defence by absorbing incoming wave energy and therefore reducing wave attack on the sea banks.

The main strategic sea defences around The Wash did not breach with the exception of 1 privately owned and maintained frontline (non-strategic) known locally as Jubilee Bank, which breached in 2 locations, flooding 200 hectares of land.

Defences
Most of the raised flood defences in The Wash are grassed earth embankments, known as sea banks. The large expanse natural salt marsh and mud flat in front of these earth embankments absorbs wave attack and forms part of the overall sea defence in reducing coastal erosion, protecting the low-lying floodplain area behind the sea banks.

At a number of places behind these main frontline defences, the remnants of secondary and tertiary lines of defences exist in the form of old sea banks. These old banks provide evidence of the stages of land claim that have been carried out over many centuries. Most of which have no formal flood defence status.

The following sections detail the key locations where properties and / or assets were affected by the incident:



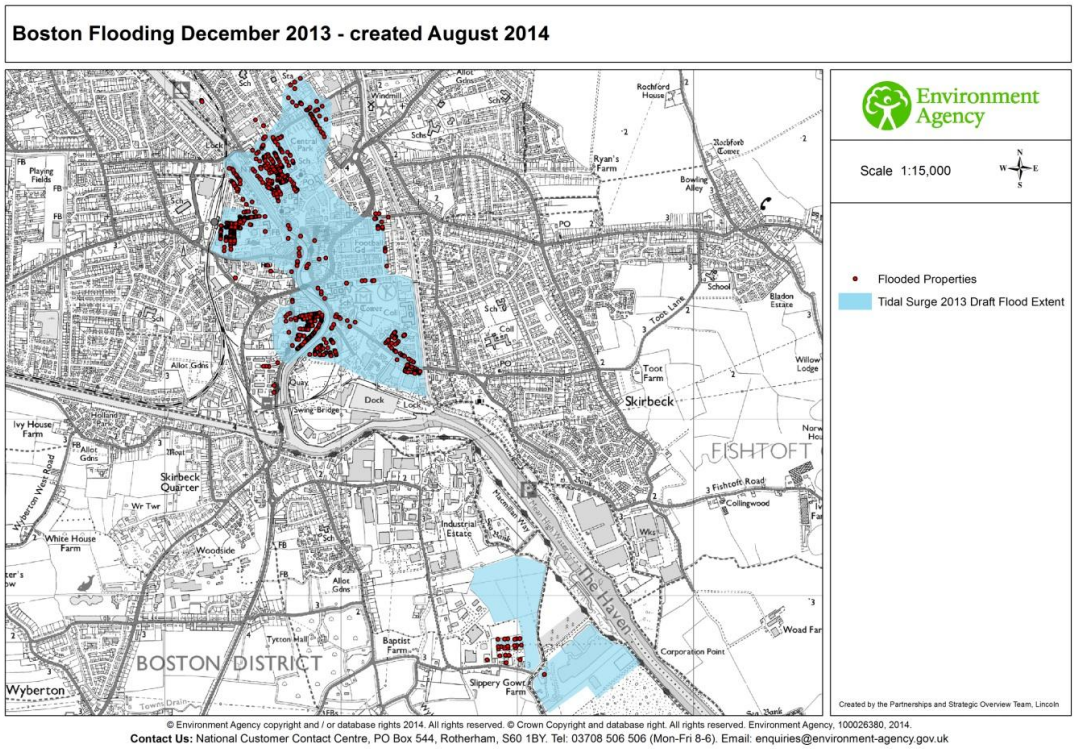
## 3.3.1 The Haven - Boston

The market town of Boston lies within the River Witham catchment on the tidal reach called The Haven. It is 10 km inland of The Wash, in the heart of the low lying fens, much of which is at or below mean high water spring tide levels. Boston Borough has a population of around 65,000 and has a higher number of properties at significant risk of flooding than any other local authority area in England and Wales (around 25,000, approximately two thirds of the Borough's properties).

Defences (maintenance and recent capital investment)
The tidal defences from The Wash are raised earth embankments ranging between 6.20m - 6.70m AOD and offer a 1 in 200 standard of protection (or 0.5% annual chance of flooding). The tidal defences through the town consist of masonry brickwork, sheet piles with some earth embankments at around 6.0m AOD offering a 1 in 50 standard of protection (or 2% annual chance of flooding).

Properties affected

Within the Boston area, 803 properties were affected by flooding - 688 residential properties and 115 commercial properties

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On the evening of 5 December 2013, at approximately 6.30pm, water levels exceeded 5m in the Haven and the positive pressure on the flood defences resulted in seepage at various locations through the town between Black Sluice Pumping Station and Grand Sluice. As the tide continued to rise above 6m, around 7pm, the majority of the flood defences throughout the town over-topped and continued to do so until levels started to recede an hour later. The large volume of water resulting from seeping and over topping of defences inundated the areas shown in the flood extent map above.

In total 803 properties were affected by flooding including Boston College, Boston Grammar School, leisure centre, bus station, Boston Stump (pictured on page 16) and Black Sluice Pumping Station.


The walls of The Stump (right hand picture) recorded the height of the 1953 flood. The water marks from the December surge are well above these.


Boston, Lincolnshire – 6 December 2013

Boston flooding – photo taken by Lincolnshire Fire & Rescue

James Street, Boston

Skirbeck Road, Boston - photo taken by Lincolnshire F&R

## Damages to defences

The surge damaged the defences in the St Ann's and White Horse Lane area of the town, Bath Gardens, Slippery Gowt, the Black Sluice Pumping Station wall and Jakeman's Slip.

St Ann's / White Horse

This section of The Haven has an existing sheet piled wall to retain the channel, this was in the process of being replaced with a new line being driven directly in front of the existing line. The height of the retaining wall is approx 4.80m AOD, with a landward flood wall set back from the retaining wall, at a height of 6.00m AOD, (height of flood wall above ground is approximately 1.00m). A grassed earth bank rises up to the base of the flood wall. As the tide reached a maximum height of 6.08m AOD, the pressure from the tide initially forced water through the grassed embankment through and around the flood wall foundations, the defences were eventually overtopped leading to properties being flooded.

Bath Gardens

The tidal surge on 5 December 2013 exceeded defence heights at its peak through the town, leading to major defence seepage and overtopping. This lead to a partial collapse of a 10m section of a flood defence brick wall structure at Bath Gardens. This contributed to the flooding of properties on the left bank.

Slippery Gowt

Slippery Gowt is a locally known area located immediately downstream of Boston on the right hand bank.

The primary defence is an earth embankment first built in the 1930's. The Boston Barrier Scheme had identified that improvement works were required.

During the surge, the primary defence line (earth embankment) was breached to a width of 30m to 40m, flooding the landfill lagoons behind. Flood waters overtopped at a couple of low spots and through an open culvert in the old sea bank. This flooded neighbouring farmland and properties, mainly commercial, on the Haven Business Park off Marsh Lane.

Slippery Gowt - picture taken on 6 December 2013.

Black Sluice Pumping Station wall

The tidal surge on 5 December 2013 exceeded defence heights at its peak through the town leading to major defence seepage and overtopping of the wall running along London Road in front of the Pumping Station.

Flood water filled up the basement and first floor submerging 5 diesel pumps and the main control cabinet. This caused temporary loss of the electricity supply and damage to the diesel pumps and gearing.

Jakeman's Slip

Bank slippage - Boston

This area, just downstream of Grand Sluice on the left bank of The Haven did not show signs of movement following the 5 December tidal surge. The first signs of movement followed the New Year high tide

Roads

A number of major roads were flooded resulting in them being closed during the evening of 5 December. By the morning flood waters had receded and the Highways Agency were able to inspect the road surface for damage.

Port of Boston

There were a number of locations throughout the town where defences, including the port frontage, were lower than the maximum tide level. As a result the port suffered widespread flooding with depths ranging between 0.3m and 0.5m depending on ground levels. We have no further information on impacts to the port following the tidal surge.

## 3.3.2 Friskney - Jubilee Bank

Defences (maintenance and recent capital investment)

There are 3 lines of sea defence along this section of The Wash frontage. There is a former landward 1800's bank, in front of that there is a 1947 strategic sea defence line, which the Environment Agency maintain and in front of that there is a 1977 private earth embankment line knownas 'Jubilee Bank'. Jubilee Bank runs from Horseshoe Point in a north easterly direction along the Wrangle Flats.

The approved Shoreline Management Plan for The Wash sets out the policy on how defences should be managed over the plan period with private owners permitted to manage private defences with no public investment.

Properties affected and damages to defences

The tidal surge on 5 December 2013 caused the 1977 private line to breach in 2 separate locations (approx breach width 30-40m each) resulting in approximately 200 ha (500 acres) of grade 1 farmland being inundated in the flood cell between the

strategic 1947 line and the private 1977 Jubilee Bank line. The landowner used 1 tonne filled bags to provide a temporary defence line to prevent further sea water from entering the site. Due to land levels the water was unable to fully drain away by gravity and required pumping out. The picture below was taken on 6 December 2013, and highlights the extent of the impact.

# 4. Recovery

Following the major east coast surge on the 5 December 2013, a Recovery Manager was appointed at both the Regional and Area offices to co-ordinate activities. Considerable damage had been done to numerous defences along the coast and priority actions were underway from an early stage.

Total Environment Agency spend for Lincolnshire LRF following the tidal surge was £8.1M, split as follows:

- Boston £2.9M (13/14 £1.8M and 14/15 £1.1M)
- Lincolnshire East Coast and Wash £5.2M (13/14 £3.4M and 14/15 £1.8M)

## 4.1 Lincolnshire Coast

### 4.1.1 Emergency and urgent repair works

Tetney Marsh breach

The repair of this breach was a priority as the bank reduced flood risk to 188 residential and 12 commercial properties, an oil storage depot and an Anglian Water Waste Water Sewage Works.

As a precautionary measure ahead of the predicted tides on 15 December, a small earth bund, within the breach, was constructed on 14 December to give some protection in the event that there was another tidal surge. Work to affect a full repair started on 16 December and was completed on 23 December in time for predicted high tides around New Year.

The repair work involved the transportation of approximately 3000 tonnes of material by road and then to site by tracked dumper along 2km of existing raised flood bank to the breach. The work was undertaken using a local Environment Agency Framework.

Breach on morning 06.12.13

Tetney Marsh breach repairs – 20.12.13

The total cost of the repair work was £145,000.

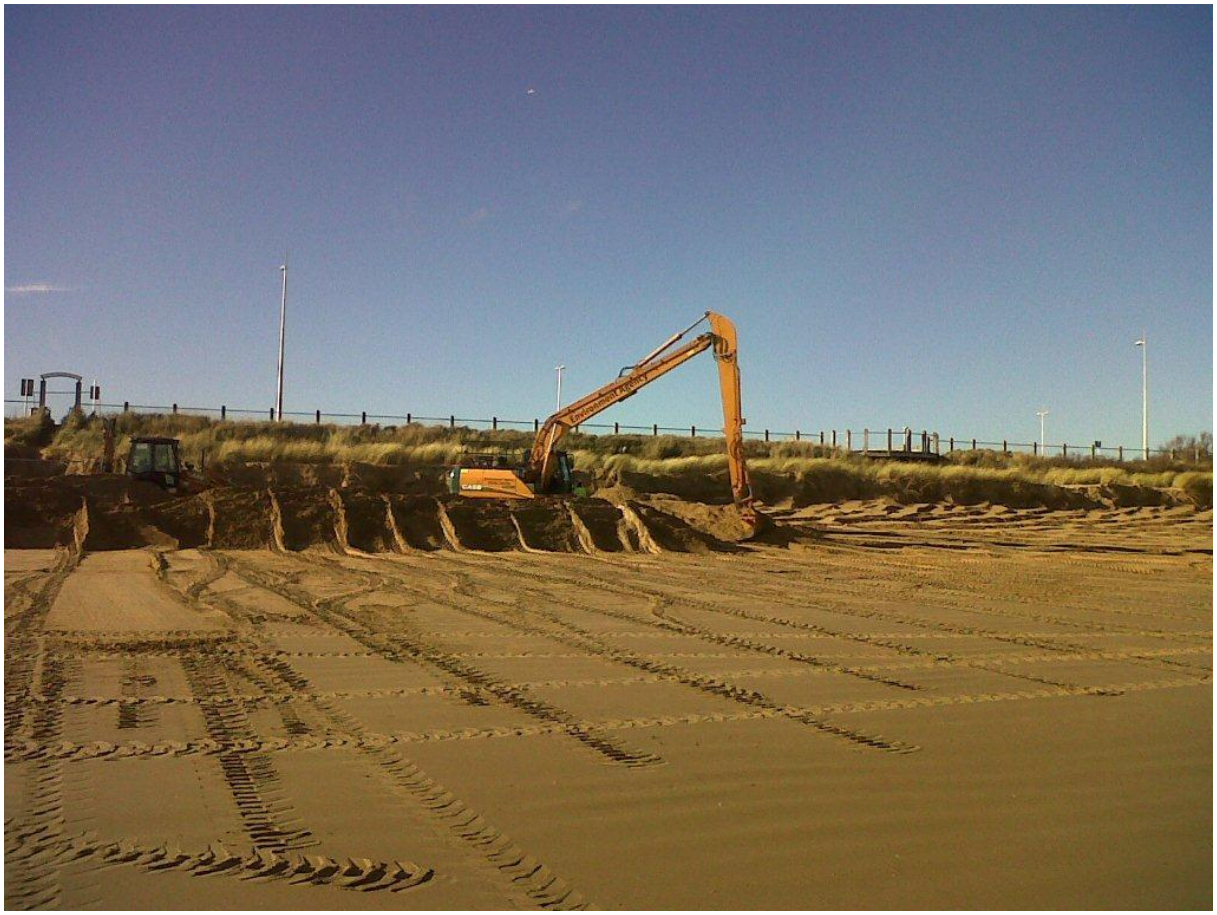
North Cotes

Limited repair works completed by Birse in Feb 2014

We carried out initial repairs to this damaged section to ensure that the residual flood risk remains low. A further programme of works to complete a full repair will begin in August with an estimated cost of £110k.

Mablethorpe

On the 6 December, the Environment Agency's emergency work force was on site to reinforce the areas most of risk, in particular the north end of Mablethorpe North Car Park and dune system (see photo below).



Following significant sand dune erosion north of Mablethorpe after the storm surge, emergency beach recharge and dune management has been undertaken to maintain the beach/dune system between Mablethorpe outfall and the southern limits of designated conservation sites. The works were completed in April 2014.

Mablethorpe emergency works

Mablethorpe emergency works

The emergency works consisted of replacing 55,000m$^3$ of material that was lost. £4.05 million was allocated to repair the damages in this area caused by the surge.

Skegness

During the surge incident the existing stone wall at the rear of Skegness promenade between the Clock tower and Pier was effectively destroyed in a number of places by wave action upon the wall.

Temporary defences were put in place by the Environment Agency's emergency work force to prevent further flooding in the short-term. Discussions are currently under way with East Lindsey District Council to agree Partnership Funding for a permanent solution.

This work to construct a permanent flood wall will be undertaken as part of a local regeneration scheme in October.

Damage to the flood wall

## 4.1.2 Residual flood risk measures

This section provides detail on the areas where works were not deemed as emergency but were required in order to re-instate the standard of protection.

The coastline between Mablethorpe and Skegness.

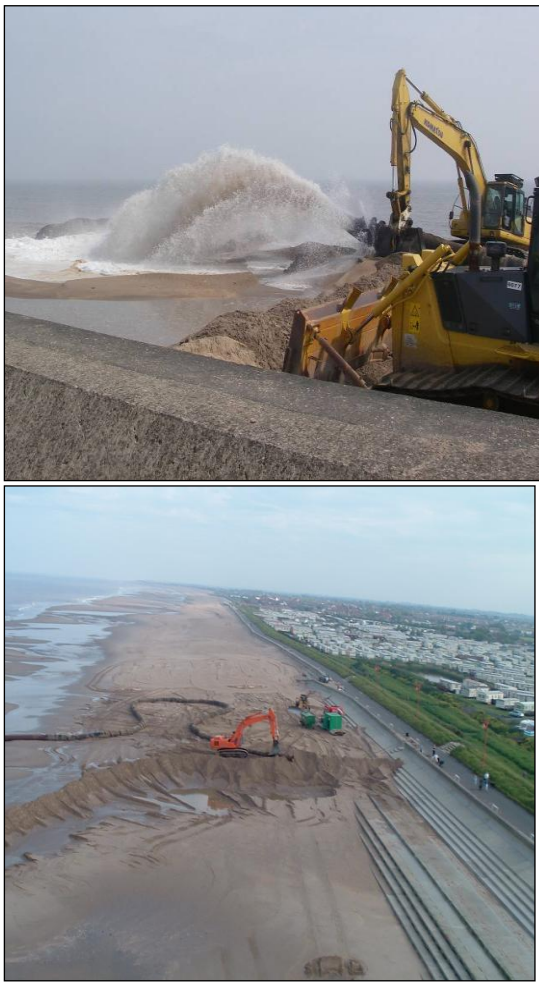
The annual beach nourishment campaign (Lincshore) ran between April and June 2014, replenishing the material lost over the last year. Over a 20 km stretch, there were 6 areas being re-nourished in this year's campaign:

- Area 1 – Mablethorpe, Trusthorpe and Sutton on Sea
- Area 2 – Boygrift
- Area 3 – Huttoft and Moggs Eye
- Area 4 – Wolla Bank and Chapel Six Marshes

- Area 5 – Trunch Lane
- Area 6 – Ingoldmells

Below is a map of these areas.
The estimated quantity of materials required to nourish all areas is 520,000m$^3$

LOCATION PLAN
(Scale: 1:5,000 at A1, 1:10,000 at A3)


Photos of the beach re-nourishment


Before nourishment works in early 1990's


Following re-nourishment works -2009

The present campaign, between 2010 and 2014, cost £36m (approx £7m/year).

Gibraltar Point – Bulldog Bank

This area was not identified as a priority for emergency works.

The Environment Agency is currently looking into the future of the Bulldog Bank sea defence. The published Shoreline Management Plan (SMP) shows the policy for this frontage, in the short to medium term, to be 'Hold the line' subject to funding and approvals.

If we are unable to secure funding for a repair we will need to consider alternative options. This may include seeking contributions towards the repair of the bank or re-alignment. We are aware Natural England has expressed a desire to set back the bank, allowing a more natural tidal creek system to form. We will continue to engage with them to agree the most appropriate way forward.

We will consult all interested parties, including Natural England, local councils, the Lincolnshire Wildlife Trust and the local residents and businesses if there is a change from the agreed SMP policy.

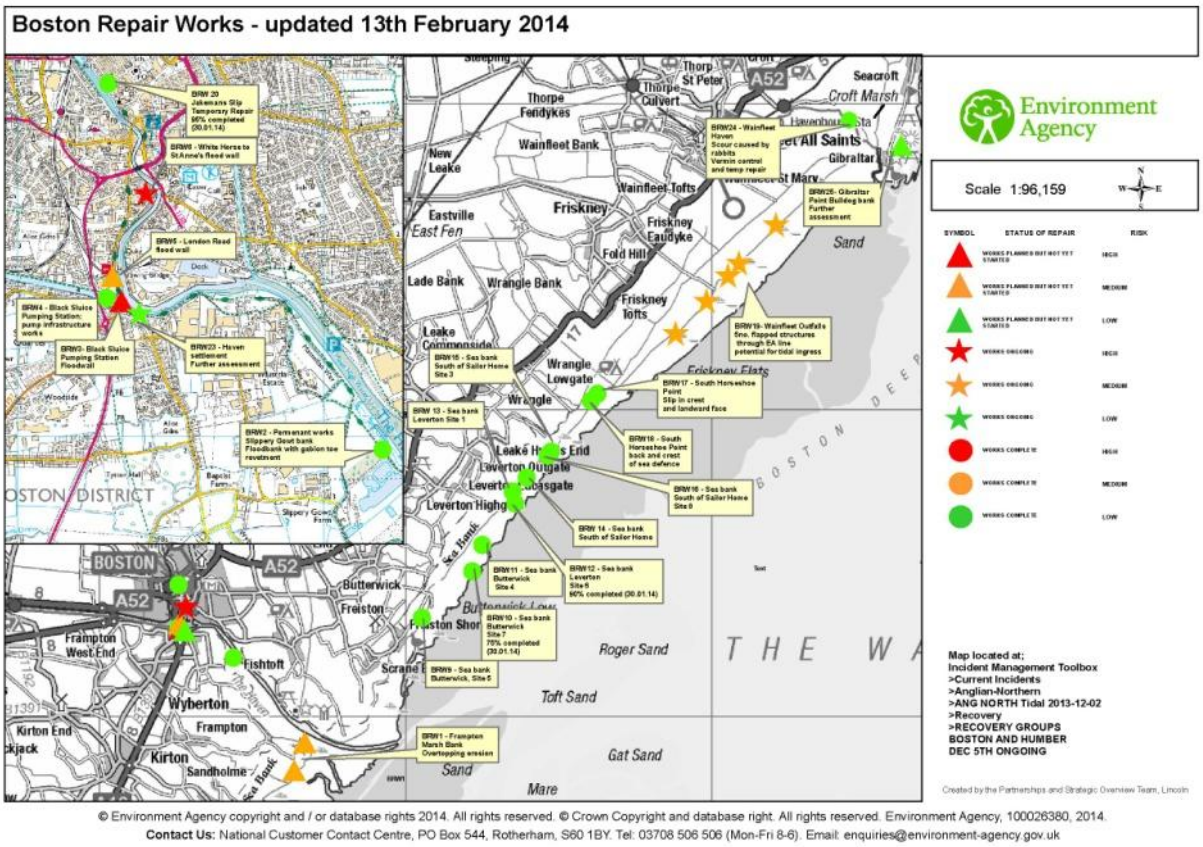
Breach point in Bulldog Bank Sluice

Secondary bank with sluice

## 4.2 The Wash

### 4.2.1 Emergency and urgent repair works

We produced a map for all sites within the Boston area and Wash frontages that were affected by the tidal surge. All sites were inspected immediately after 5 December and a priority order for repairs was identified.

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Flood Warning thresholds were adjusted and remained in place until April 2014, when the flood defences were fully repaired. We maintained a constant dialogue with partners at the Recovery Group chaired by Boston Borough Council and provided them with ongoing assessments of flood risk.

We are currently preparing the Transport and Works Act Order for the Boston Barrier Scheme. We will submit this to the Secretary of State for the Environment during autumn 2015. Subject to approval, we plan to start construction on site during summer 2017. The barrier will take to 2.5 years to complete.

<u>Slippery Gowt</u>
Following the 40m wide breach at Slippery Gowt, an immediate temporary repair was completed during December to secure the defence. We used 300 tonnes of stone with 3m sheet piles driven along the front face. The contractor worked 14 hour days, using floodlights to allow them to work in darkness, to ensure the works were completed as quickly as possible (cost to date £140K). A permanent repair to improve defence stability will be undertaken in October and November 2014.


Bath Gardens (South Terrace)


The tidal surge led to partial failure of a 10m section of a brick flood wall at Bath Gardens. Sand bags were used, not only to temporarily secure the opening, but also afterwards to protect the new brickwork against subsequent New Year high tides (cost to date £130K).

Black Sluice Pumping Station

The tidal surge caused seepage and overtopping of the wall running along London Road in front of the pumping station. As an immediate precautionary measure to stabilise the wall and to prevent further seepage on subsequent predicted high tides, we used large sand bags with polythene sheeting along the back face. Following a structural survey the sand bags remained in place until the wall was fully repaired, at the end of March 2014.

Flood water entered the pumping station and filled up the basement and first floor submerging 5 diesel pumps and the main control cabinet. This caused temporary loss of the electricity supply and saline intrusion to the diesel pumps and gearing. While the pumps could have been repaired over time, a decision was taken with partners (the Black Sluice Strategy had already identified the number of pumps required to operate the catchment could be reduced) to only recover 2 of the pumps. These were back in full working order by the end of December 2013 (cost to date £300K).

Jakeman's Slip

This area, just downstream of Grand Sluice on the left bank of The Haven started to show signs of movement following the New Year high tide and required 300 tonne of stone to be placed along the toe of the bank to prevent further slippage. This work was completed by the end of March 2014.


Area between St Ann's Wharf and White Horse Lane (including Oxford Street and Pulvertoft Lane)

Due to the impact of the high tide levels along this section of The Haven, movement of the flood wall was evident in a number of locations and a structural survey was undertaken. The flood wall was repaired along Oxford Street with a new 30m flood wall constructed at White Horse Lane. During these repair works, 1 tonne polythene sand bags were used to support and protect the existing structures from further damage during the New Year high tides. Whilst the new wall was being constructed, demountable defences were put in place to reduce the immediate risk of flooding to 150 properties in the White Horse Lane area in Boston (cost to date £1.3M).

Demountable defences, White Horse Lane

White Horse Lane

Jubilee Bank

The 2 separate breaches (each approx 30-40m wide) in the Jubilee Bank were not repaired as the land owners have decided to construct a new earth embankment (approx 300m) diagonally across the bottom corner. The work to secure their land will be completed by autumn 2014 (cost unknown).

Wash Frontages

During the event, the frontage did experience some overtopping in a number of isolated locations, mainly resulting in crest and rear-face soil erosion. These have all been repaired to their original condition.

## 4.2.2 Residual flood risk measures

Boston Combined Strategy (approved 2008)

The aim of The Boston Combined Strategy (BCS) is to reduce tidal flood risk on The Haven for the town and wider communities, and provide waterways regeneration. The strategy comprises 5 phases of work, as follows:-

1. New lock structure which facilitates navigation between the tidal Haven and South Forty Foot Drain (Black Sluice Lock). This work was completed March 2009
2. To improve the condition of Environment Agency assets within the Haven, through Boston town centre. This work was completed summer 2014.
3. Design and construct a multi-functional barrier within the Tidal River Haven with associated works: dual function for tidal surge and waterways regeneration.
4. Provision of new enhanced waterways facilities such as moorings, along the waterfront
5. Raising embankment levels downstream of barrier at an appropriate future time.

The Boston Combined Strategy seeks to reduce tidal flood risk on The Haven for the town and wider community from a 1 in 50 standard of protection (or 2% annual chance of flooding) to a 1 in 300 standard of protection (0.33% annual chance of flooding) over the 100 year lifetime of the strategy; providing an improved standard of tidal flood protection to over 15,000 residential properties and 900 commercial properties.

The Wash

The Wash Banks performance review, completed 2010, did not identify assets requiring immediate attention, with the exception of an area south of Horseshoe Point where bank-raising was required. This work has been identified within our Medium Term Plan for completion.

## 4.4 Community engagement activity

In the immediate aftermath of the flooding, the focus was on Boston, with staff in the town centre visiting affected businesses and reassuring residents on the Friday and Saturday, particularly along Wormgate and Red Lion Street. Four events were quickly arranged for the following week through our existing partnership working with Boston Borough Council (BBC), Boston Market, Craft Market and Asda, giving people the opportunity to come and speak directly to officers. A further two days of leaflet dropping on 18/19 Dec meant we could talk to people between White Horse Lane and St Ann's Lane, as temporary defences were put up ahead of the next spring tides.

At least 225 out of 921 new Floodline Warnings Direct (FWD) registrations within the BBC area for December can be directly attributed to this initial engagement activity. Virtually all businesses on Wormgate, and St Botolph's church, are now signed up, along with many in the main market place. Most are also helping to promote FWD via leaflets. 4 people came forward as potential new flood wardens (none existed in the town itself previously). Links were made with local councillors, who expressed interest in disseminating flood plans and promoting FWD. There was collaboration with other partners too e.g. Asda and Lincolnshire Police, plus initial links made with local community groups e.g. U3A and Alzheimer's Society.

Contact has been made with those councillors in wards directly affected by flooding – Central, Witham, Skirbeck, Pilgrim and North - to explore how they can be supported further and make their communities more resilient. This has led to opportunities to attend the Boston Community Forum, which in turn has led to additional contacts being made with existing community groups e.g. the Latvian community group 'Stronger Together' and Boston Christian Fellowship.

The Boston Mayflower Housing Association, who own 4,800 homes in Boston Borough is carrying out a number of activities on our behalf to help promote flood resilience

A meeting took place in January to discuss a localised community emergency and flood plan (CEFP) following an approach from the South Ward councillor to the Joint Emergency Management Service (JEMS). This plan could include flood wardens and the creation of localised networks to share information. It is envisaged that this could be used to provide a template/guidance to roll out to the remaining nine ward councillors within the town to help build resilience for the future.

We identified the issue of communication with non-English speaking parts of the community. It is envisaged that these communities could form a local network of 'flood champions' that could cascade messages from FWD during expected flooding in the future e.g. by phone, or door-knocking. It could be possible to identify people for each

ward who can lead on raising awareness of flood risk and who could ‘buddy up’ with those who speak different languages. This could then form part of the CEFP.

The council tax leaflet in Boston included a flyer with photos of easy DIY steps people can take to reduce the impact of flooding on homes and it is in English, Polish, Russian and Portuguese. It has been produced by BBC with the support of partners.

Work continues to share information about flood risk and the Boston Barrier with interested community groups and councillors in wards affected

# EAST COAST TIDAL SURGE

Business Resilience update 01 – February

It's fair to say that 2013 gave us our fair share of extreme weather that tested our response and recovery plans. During the early part of the year we had snow and temperatures that hardly reached above freezing. Then following a fairly calm Spring and a warm Summer, our region has faced storm after storm that continue to challenge our resilience.

Most recently we braced ourselves for possible flooding as a result of high tides and strong winds. Luckily the storms didn't affect our operations in any major way. It is a great testament to the planning and preparation we do for such events that we dealt with this with only minor disruption.

**A huge thank you goes out to everyone involved in our response to what was the biggest coastal tidal surge for over 60 years.**

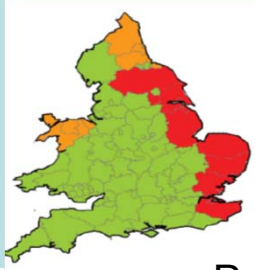
**What happened?** The surge was caused by the combination of the high, spring tide, a tidal surge and strong winds.

**Spring tides -** Spring tides are quite normal and happen twice a month. A spring tide alone will not normally cause flooding. A tidal surge occurs as a result of low pressure systems which cause sea levels to swell in addition to the high tide. Strong winds also dictate the height of waves and the direction it pushes the waves down the North Sea.

**High tides -** On 5 December, low pressure and strong winds combined with spring tides, raising the sea level by an additional 1.60 metres above the predicted high tide. The high tides reached Grimsby at about 19:00 on 5 December and moved down the coast to Wells (20:00), Great Yarmouth (22:00), Felixstowe (01:00 and Tilbury at 03:00.

The main areas affected in our region were the South Humber Bank, Boston and the North Norfolk Coast.

**In total 38 water recycling assets were affected.**



## OUR STRENGTHS

**Pre-planning and exercises really paid off**
Planning and preparation for this type of incident was excellent. As events unfolded people knew what to expect and understood their role in our response. It was great to see all the training and exercising coming to life.

**The willingness of our staff**
The coordination and willingness of our staff from across the business to provide support was unprecedented. Thanks to everyone involved.

**The coordination of the recovery worked well**
Although we've learnt that the recovery phase must start much sooner, the coordination of the recovery in the following weeks worked well and continues today.

Teams from Maintenance, Treatment, Operational Capital, the Energy Team, RES, Scientific and the OMC all played their part. It is important that we capture what we did ready for future events.

## WHAT WE LEARNT

**Communication with field teams**
Although first-hand involvement with conference calls for all operational managers was seen as a success, we must improve how they themselves are managed and how key messages are effectively communicated to those involved. We are looking at phonecast options for future wide-scale incidents.

**Engagement with multi agency partners**
The way we communicate with our representatives at multi agency command groups can be improved; *"Silver envoys struggled with gaining correct and timely information"*

## WHAT NEXT?

The Business Resilience team has coordinated an internal debrief and plan to attend operational team meetings in the key areas affected over the coming months.

The team has also been in regular contact with our multi-agency partners in Humberside, Lincolnshire, Norfolk, Suffolk and Essex.

A report including the positive learning points has been produced. The Business Resilience Hawk pages will be kept up to date with all the latest information and progress against the lessons identified.

If you would like any more information, or have any questions please contact the Business Resilience Team.

# EAST COAST TIDAL SURGE

FEBRUARY 2014

## IN PICTURES...




## THE HEROES

Our response to the East Coast tidal surge flooding was a real team effort, especially across Maintenance, Operational Capital, Treatment and the OMC who have been involved throughout.

The Kings Lynn Maintenance team, including Barry Grant, working alongside Ian Spriggs and Jamie Thurley in Operational Capital were instrumental in responding to the pumping stations affected on the North Norfolk Coast. Along with contractor support from Bloom and Wake and Graham Rinttol.

John Jennings, Roy Drinkall and our contractors Jacobs worked tirelessly to recover North Ferry WRC after it was flooded.

Sorry if you were involved but not listed. In truth there are too many people to name everyone. Rest assured your efforts have been recognised and appreciated.

## GOLD AND SILVER ENVOYS

Pete Holland, Paul Naylor, Tim Blackmore, Rob Kelly, Andy Brown and David Mann were all deployed to multi agency coordinating groups to represent Anglian Water. These groups are vital in getting real-time information to and from partners on the ground. Thank you for your support. The Multi-Agency Support Group was meeting throughout the event to share information about the situation regionally - critical in a regional event such as this.

## NORTH FERRY WATER RECYCLING CENTRE

North Ferry WRC was one of the worst affected sites on the South Humber Bank. The flood water was three foot high in some areas across the site which took several days to subside. The first step to recovery was to clear the site of debris left behind by the flood waters. Portable heaters were used to dry out panels and we then completed a full site survey to understand the extent of the damage.

- **2 December** – A temporary panel was fitted to operate the final effluent pumps.
- **16 December** - The Environment Agency visited site to see the damage and understand the challenges we'd face with getting the site back up and running again.
- **18 December** - We switched the power back on.
- **23 December** - Telemetry was restored.
- **30 December** - The site was reseeded.


Watch the CCTV footage of North Ferry WRC flooding here: AW_HH_US_BSY\Publish\ELECTRONIC DOCUMENT CONTROL LIBRARY\Waste Water LDC\Lincs\Compliance Action Plans\North ferry footage.zip

# LINCOLNSHIRE FLOOD RISK AND DRAINAGE MANAGEMENT PARTNERSHIP

# Guiding Principles Note 1 (interim)

# Duty to Investigate a Flood

***Flood and Water Management Act 2010***

***Section 19 - Local authorities: investigations***

*(1) On becoming aware of a flood in its area, a lead local flood authority must, to the extent that it considers it necessary or appropriate, investigate—*
*(a) which risk management authorities have relevant flood risk management functions, and*
*(b) whether each of those risk management authorities has exercised, or is proposing to exercise, those functions in response to the flood.*

*(2) Where an authority carries out an investigation under subsection (1) it must—*
*(a) publish the results of its investigation, and*
*(b) notify any relevant risk management authorities.*

**Purpose of this document:**

**To provide the Partnership with "interim" criteria to assist the LLFA in deciding when to formally investigate a flood.**

**Contents:** **Page**



**Prepared by:**
**Stewart Powers and Mervyn Pettifor**

## Overview of what is "necessary and appropriate"

The process for instigating "necessary or appropriate" flood investigation, as defined by Section 19 of the Flood and Water Management Act 2010, needs to be clear and uncomplicated. It is not appropriate or necessary to investigate everything. The process for deciding what to investigate therefore needs to be pragmatic.

In this context, necessary or appropriate may be determined by history (ie number of times previously occurred or frequency), scale (eg area, number of properties and/or people affected) and/or consequence (people displaced/stranded or danger to health etc).

The risk categories and indicators proposed are in accordance with those used in the Lincolnshire PFRA Appendix D: Local flood risk area vulnerability indicators template.

**Human life category**

The overriding criteria for deciding to investigate any flood must be risk to life in any risk category in Table 1 below.

**Social risk category (residential property):** The approach to residential properties representing the Social category should be considered in terms of type of property, depth of flooding and in some circumstances, duration. If only the garden of a property is flooded and no flood waters enter the living area, then the need to investigate the flood would not necessarily be considered "necessary or appropriate". There is evidence that a property could incur flood damage if water levels rise to within 300mm of finished floor level but this might be difficult to identify. A property situated close to a watercourse, such as a mill building, would expect to flood regularly and possibly not considered "necessary or appropriate" to investigate unless flooding causes a risk to life. How many properties which have internally flooded, before being considered to be necessary or appropriate, could be a contentious issue but, for this guidance, it has been decided that investigations would be necessary and appropriate for all residential properties flooded internally.

**Critical Services risk category (hospitals, health centres, care homes etc, power/water services):** By definition, the Critical Services category seems to be an obvious indicator to be included in full as described in Appendix D of the Lincolnshire PFRA, although there are some sites such as day nurseries and village halls which are not necessarily critical in all situations. To enable a pragmatic decision making process, all critical services or installations flooded internally or inaccessible due to a flood should be investigated.

**Economic risk category (business premises, agricultural land, roads etc):** There are elements within the Economic category, which would clearly have an impact on a local community, or potentially wider community, if unable to function because of flooding. These would include supermarkets, railways and railway stations, motorways and main roads also impacting on bus services. However, if a minor road is the only access to a small community and is impassable to a flood for an extended period then this could seriously impact on the community's ability to function. There are some businesses which can also be at the heart of a small community and the loss of their services, through flooding, can disrupt community life. For example investigation of flooding to manufacturing premises is likely to have an impact on the community and therefore internal flooding would be considered as "necessary and appropriate" to investigate. Whilst productive agricultural land begins to become waterlogged if water rises above 600mm below the surface, only prolonged surface flooding is proposed as appropriate for these investigations.

**Environment risk category (Special Protection Areas, RAMSAR sites, Sites of Special Scientific Interest etc):** It is more difficult to determine what is "necessary or appropriate" because for many environmental sites, the consequences of flooding could be positive or negative. Some habitats depend on seasonal flooding, although prolonged, deep, fast flowing or unusually extensive flooding might cause some damage. Flooding by polluted/contaminated water might also increase damage. A schedule of the consequences of flooding to the various designated environmental sites in Lincolnshire is being prepared, in conjunction with the relevant partners. For further advice contact your area highways manager.

**Heritage Sites risk category:** The Environmental risk category approach is also being adopted in the context of heritage sites. For further information contact http://www.english-heritage.org.uk/professional/protection/process/national-heritage-list-for-england/

**Communicating the Investigation Reports**

In order to comply with Part 2(1) of Section 19, the results of the investigations will be published the on the LLFA website.

Notification to Risk Management Authorities, in accordance with Part 2(2), will be through the Flood Risk and Drainage Groups at their regular meetings.

**Table 1** The following impact criteria **should be considered** in deciding when to investigate a flood:

| Risk Category and Indicator | Impact Criteria |
|---|---|
| **Human Life** | |
| Risk to loss of life | **ANY RISK TO LOSS OF LIFE** |
| **Social** | |
| Residential Property | **One or more properties flooded internally** above ground floor level and/or below ground level where used as basement living accommodation. |
| **Critical Services/Installations and Vulnerable Persons** | |
| Hospitals<br>Health Centres/Clinics/Surgeries<br>Pharmacies<br>Schools/Colleges<br>Day Nurseries<br>Care/Nursing Homes<br>Village & Town Halls/Rest Feeding Centres<br>Police, Ambulance, Fire & Rescue Stations | **One or more properties flooded internally** above ground floor level and/or below ground level where used as basement living accommodation or for the provision of critical services; **and/or**<br><br>**One or more properties rendered inoperable**, due to the access to the premises being impassable. |
| Power Services:<br>(Electricity Stations/sub stations, Gas Stations)<br>Water Services:<br>Sewage Treatment Works & Sewerage Pumping Stations<br>Water Treatment Works & Pumping Stations | **One or more flooded critical installations**, resulting in a loss of service impacting on the local community or causing pollution to internal premises. |
| **Economic** | |
| Shops/ supermarkets<br>Manufacturing premises<br>Offices | **One or more properties flooded internally** above ground floor level and/or below ground level where used as basement operating space. |
| Agricultural land grade 3 & above | **At least 2 ha flooded for more than 2 days.** |
| Motorways, main roads, minor roads<br>Bus services/depots | Any section of a **national category 3 road or above made impassable** due to flooding; and/or flooding to a minor road cutting off effective access to a village, hamlet or blocking a designated bus route. |
| Railways/railway stations | **Flooding adversely impacting on normal timetables or cutting off a rail link** |
| **Environment** | |
| Special Protection Areas (SPAs)<br>Special Areas of Conservation (SACs)<br>RAMSAR Sites<br>BAP Habitats<br>Special Sites of Scientific Interest (SSSIs)<br>Number of designated Local Nature Sites | The consequences of flooding could be positive or negative and a schedule of consequences of flooding to individual sites is being prepared. For further advice contact your area highways manager. |
| **Cultural Heritage** | |
| Number of World Heritage Sites<br>Number of Listed Buildings<br>Scheduled monuments<br>Registered parks & gardens | A schedule of consequences of flooding to individual sites is being prepared. For further advice contact: http://www.english-heritage.org.uk/professional/protection/process/national-heritage-list-for-england/ |
| **Other** | |
| MPs letter | Upon receipt of a formal letter from a Member of Parliament |

## Appendix 1 Roles and Responsibilities of Risk Management Authorities

The Department for Environment Flood and Rural Affairs (Defra) and the Welsh Assembly Government determine policy and are responsible for the management of flood risk at a government level. Implementation of the policy and delivery and operational activities are mainly shared between the Environment Agency (EA), local authorities and Internal Drainage Boards (IDBs).

Further information can be found on: http://www.defra.gov.uk/environment/

### Environment Agency (EA)

The Environment Agency has the role of implementing government policy on flood risk, and has a strategic overview of coastal erosion and flooding from all sources.

The EA has responsibilities for their flood defences and powers and duties relating to the drainage, maintenance and operations of the main rivers. Its overall aim is to reduce the risk of flooding from main rivers and the sea. The EA has the duty to produce flood risk maps and issue flood warnings.

The EA develops a number of management plans to understand the threat of flooding, and plan for the sustainable management of those risks over the long-term. It is also a statutory consultee to the development planning process and certain planning applications that affect its interests.

Further information can be found on:

http://www.environment-agency.gov.uk/homeandleisure/floods/default.aspx

### Lead Local Flood Authority (LLFA)

The Lead Local Flood Authority has a lead role and responsibility for local flood risk management in respect of surface water, groundwater and ordinary watercourses.

Further information can be found on:

http://www.lincolnshire.gov.uk/residents/environment-and-planning/flood-risk-management/the-lead-local-flood-authority/103754.article

### Local authorities

Generally local authorities work in conjunction with the EA and the LLFA in respect of managing local flood risk from all sources. They do however; have surface water assets within their ownership and jurisdiction which are maintained and improved.

Local authorities coordinate local resilience and emergency planning in their area, including response to and recovery from major flood emergencies.

Maritime local authorities (ie Boston Borough Council, East Lindsey DC, South Holland DC) also have responsibilities to manage coastal erosion in partnership with the EA. They have the powers to maintain and improve ordinary watercourses and flood defences..

For further information contact the specific borough/district council.

### Internal Drainage Boards

Where present, Internal Drainage Boards (IDBs) are responsible for maintenance, improvement and operation of drainage systems and regulation of watercourses within the internal drainage district, apart from the main rivers. Their main role is the close management of water levels – in watercourses or underground (groundwater) – for the purpose of reducing the risk from flooding and for sustaining all land uses and the environment.*(ADA – Vision for IDBs in England & Wales, September 2010).*
Further information can be found on:
http://www.ada.org.uk/

**Sewerage undertakers**

Sewerage undertakers are responsible for maintaining the public sewage systems, including sewers carrying surface water away from impermeable surfaces.

In flood conditions, the sewer systems can often become overloaded with a mixture of floodwater and sewage leading to overflow and flooding. Sewerage undertakers are responsible for the removal of surface water from impermeable surfaces through the sewer system. Where there is frequent and severe sewer flooding, sewerage undertakers are required to address this through their capital investment plans which are regulated by Ofwat

To prevent further flooding, water and sewer companies have a responsibility to: monitor the levels; prevent overloading sewer systems; maintain and repair pipes as necessary.

Further information can be found on:
http://www.anglianwater.co.uk/
http://www.stwater.co.uk/

**Riparian owners**

Riparian owners/ householders are responsible for maintaining private assets and these are usually minor drains, ditches, watercourses, pipes, culverts and bridges.

For further information download Environment Agency publication 'Living on the Edge':
http://publications.environment-agency.gov.uk/dispay.php?name=GEHO0407BMFL-E-E

## Appendix 2.1 LLFA Process Diagram to Assist the Instigation of a Flood Investigation

On becoming aware of a flood the officer should use the template below for guidance. The flow chart in Appendix 2.2 will in determining if an investigation is necessary or appropriate.

**Diagram 1 of 6**

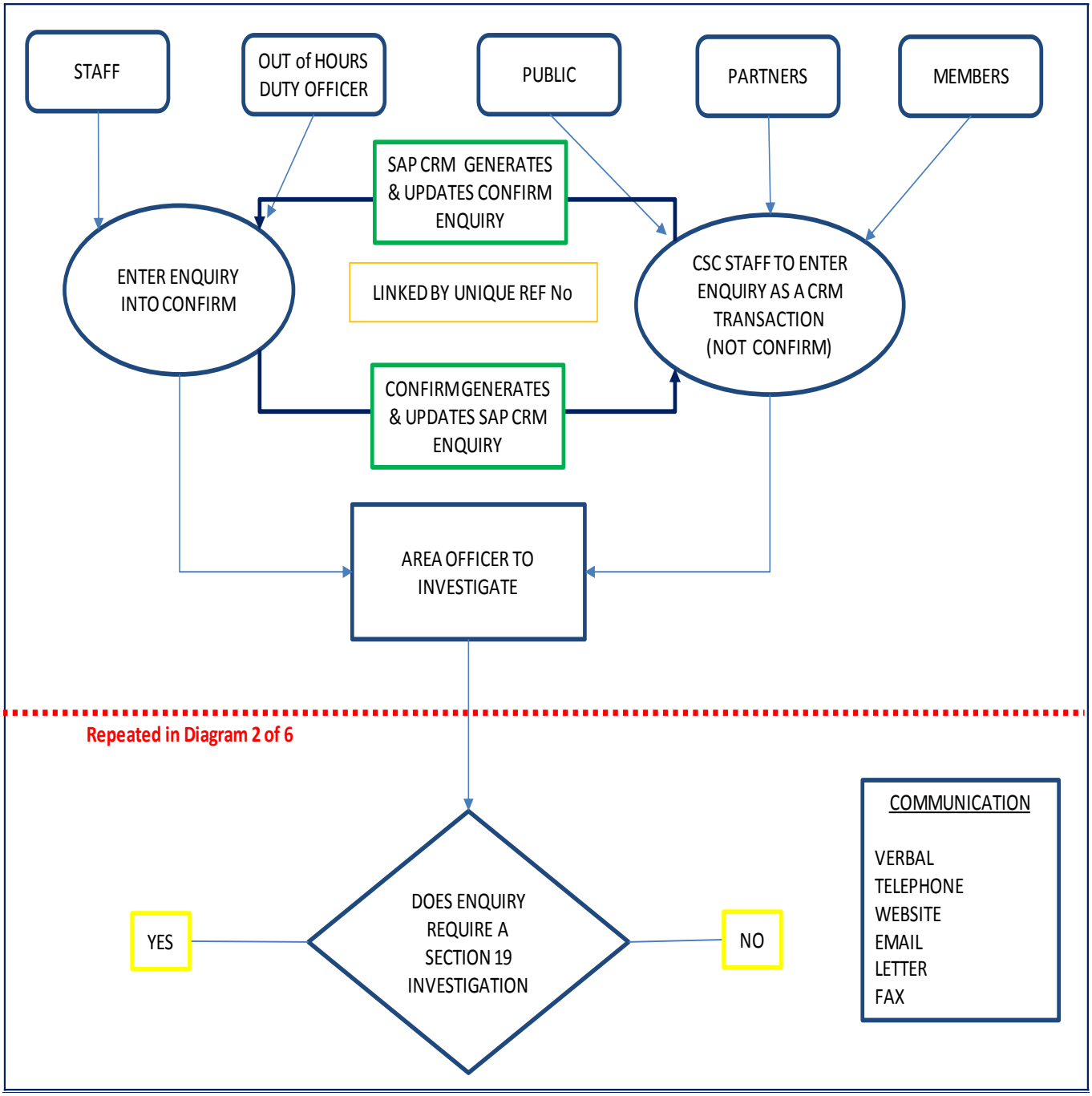


**Diagram 2 of 6**

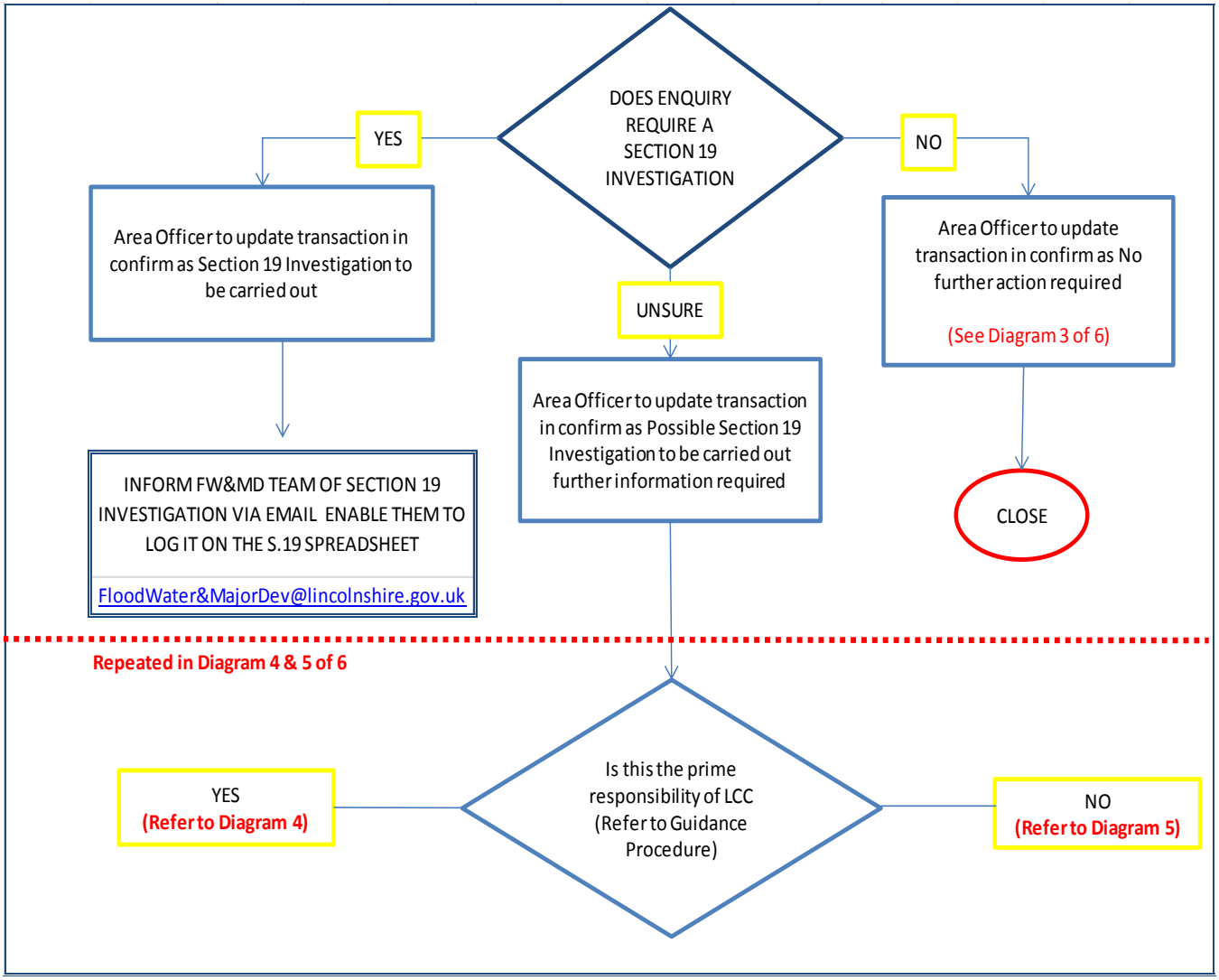
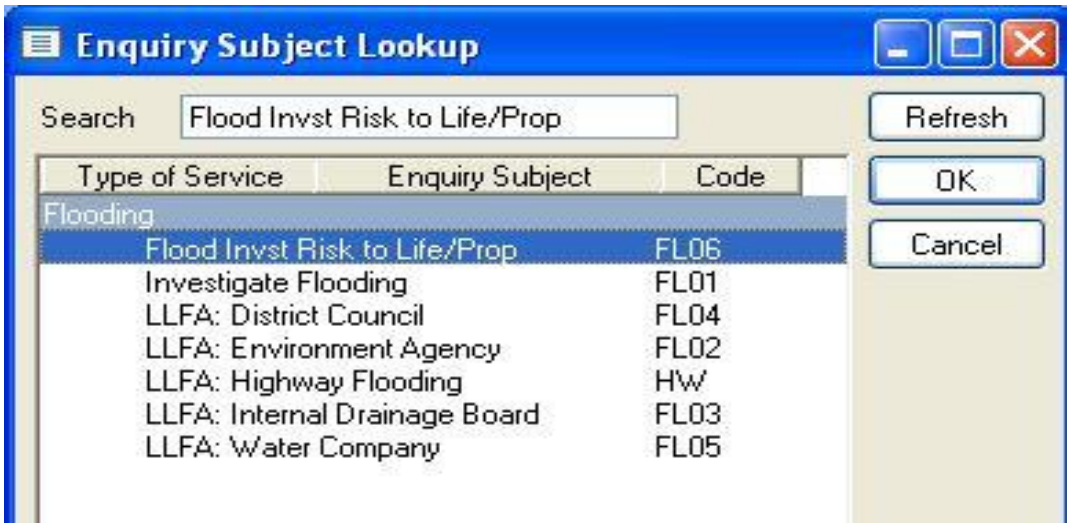



**Diagram 3 of 6**



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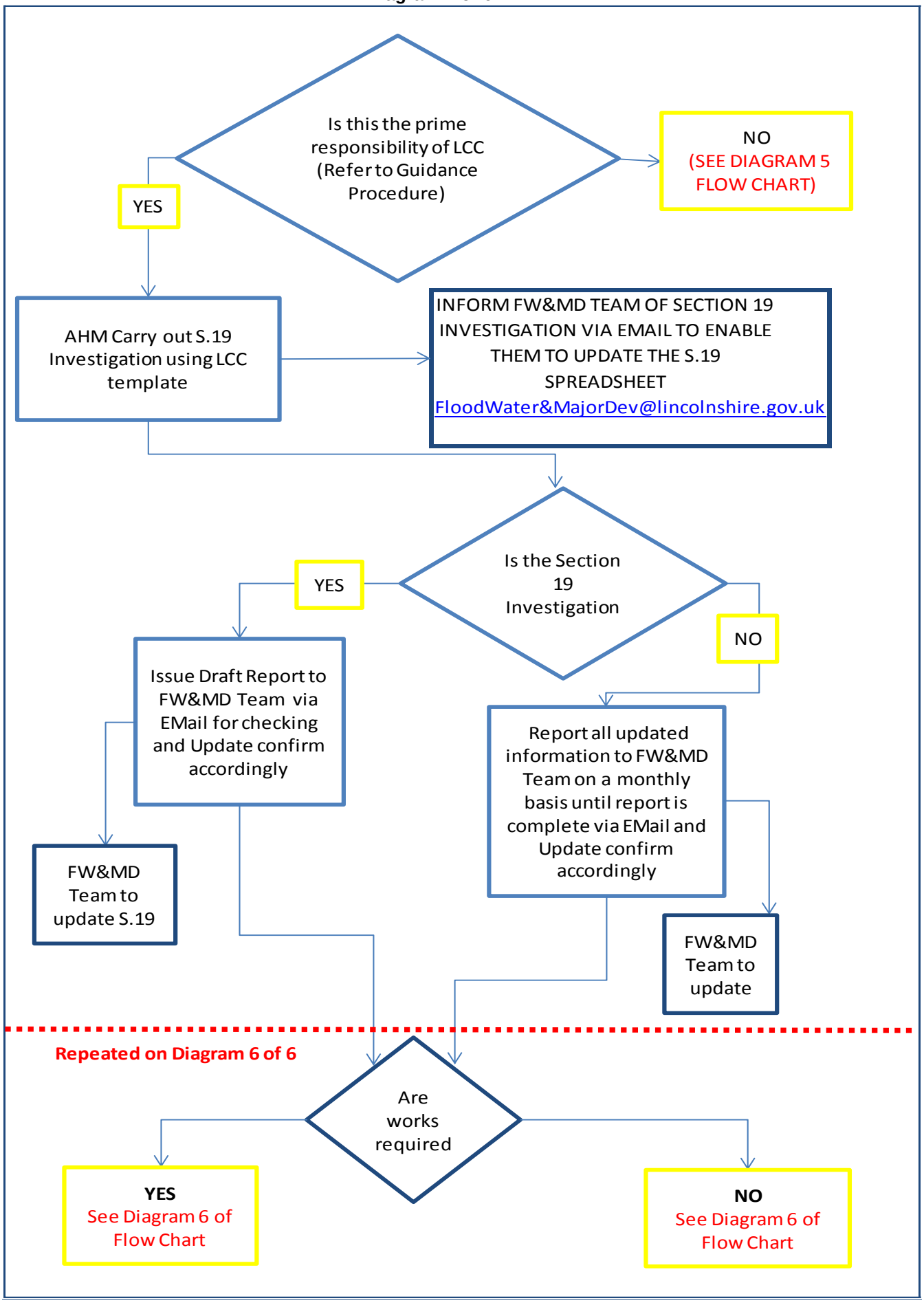
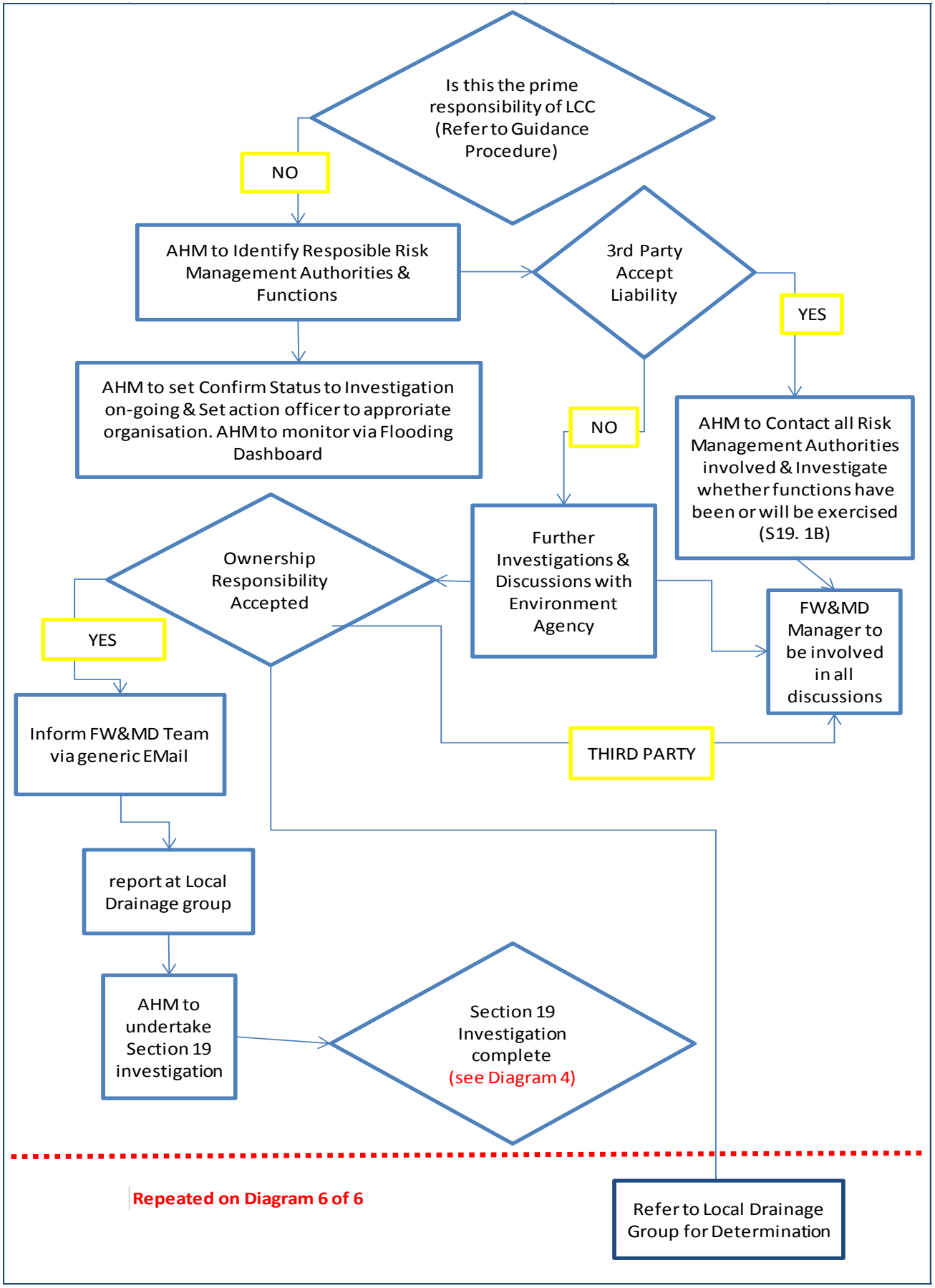
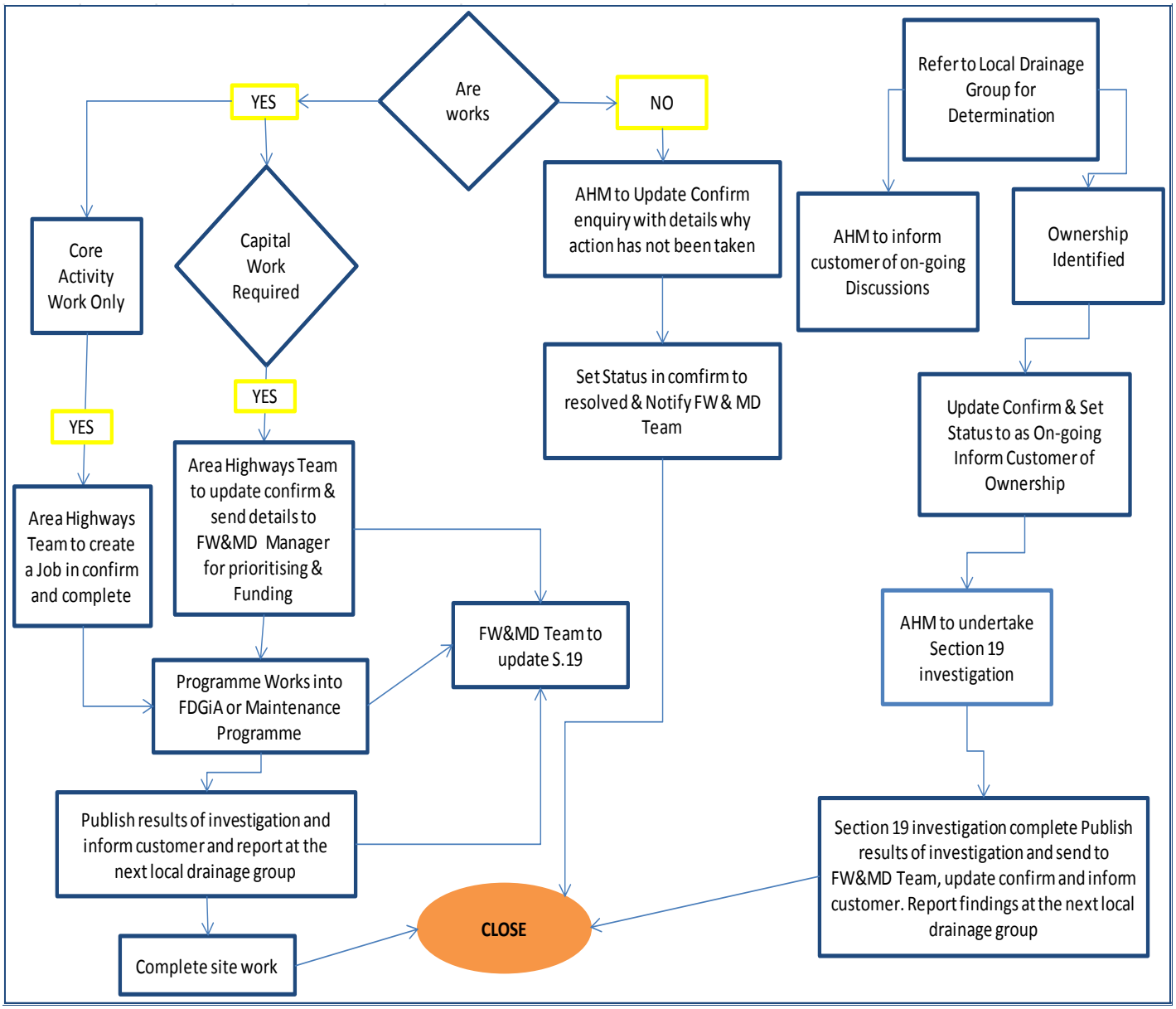


**Diagram 5 of 6**



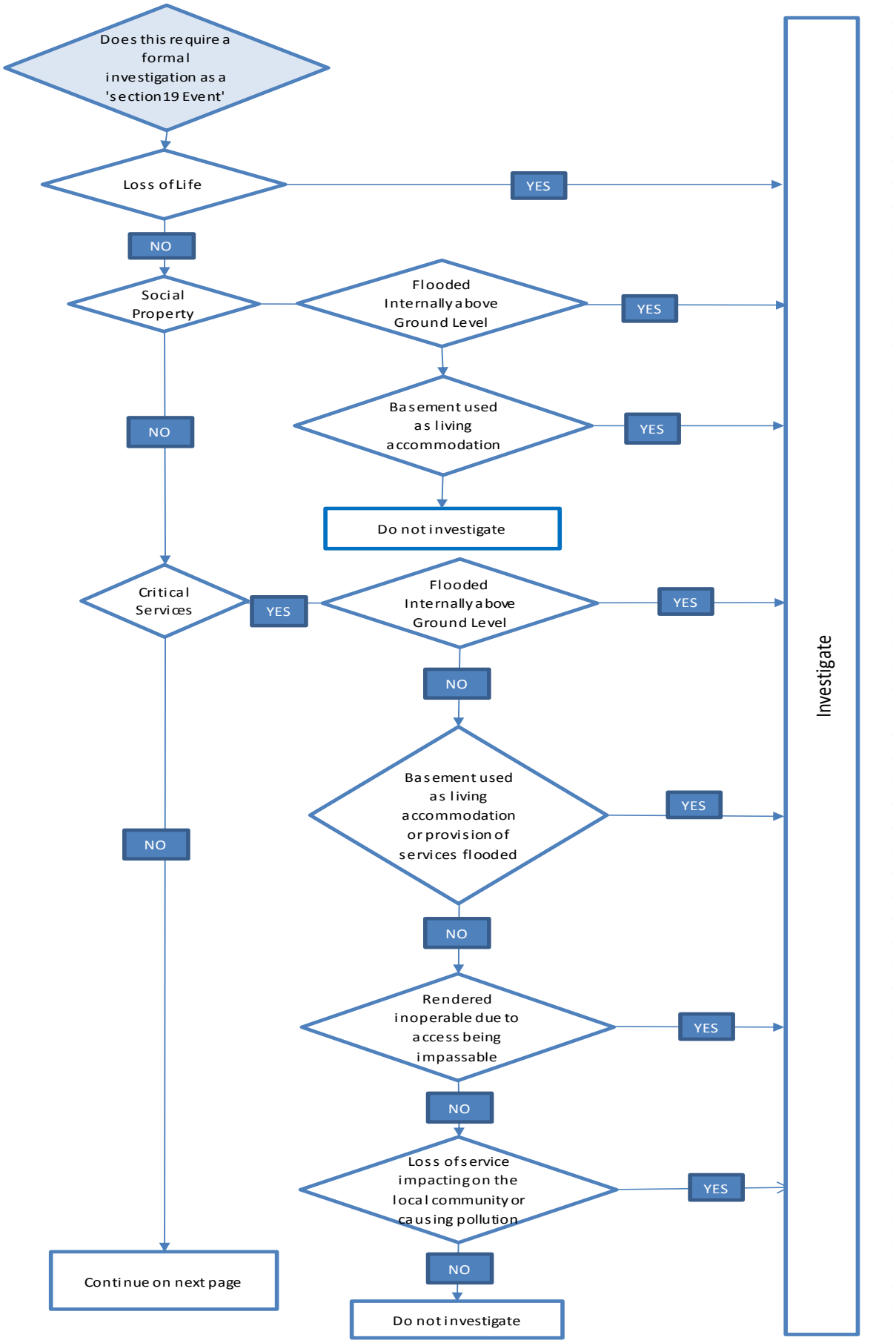
**APPENDIX (d)**

**Diagram 6 of 6**

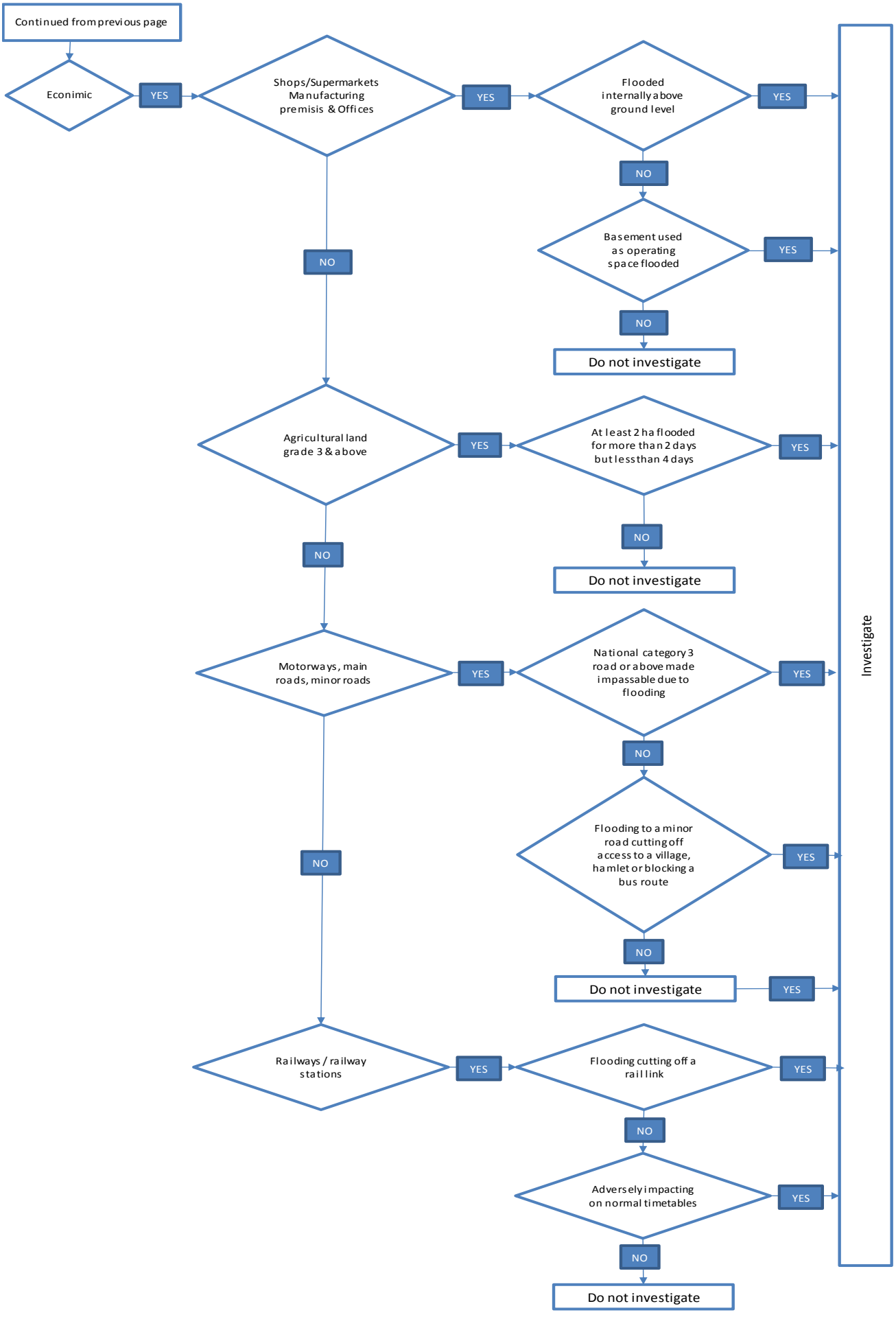


## Appendix 2.2 Flow Chart to Assist in Determining if an Investigation is Necessary or Appropriate

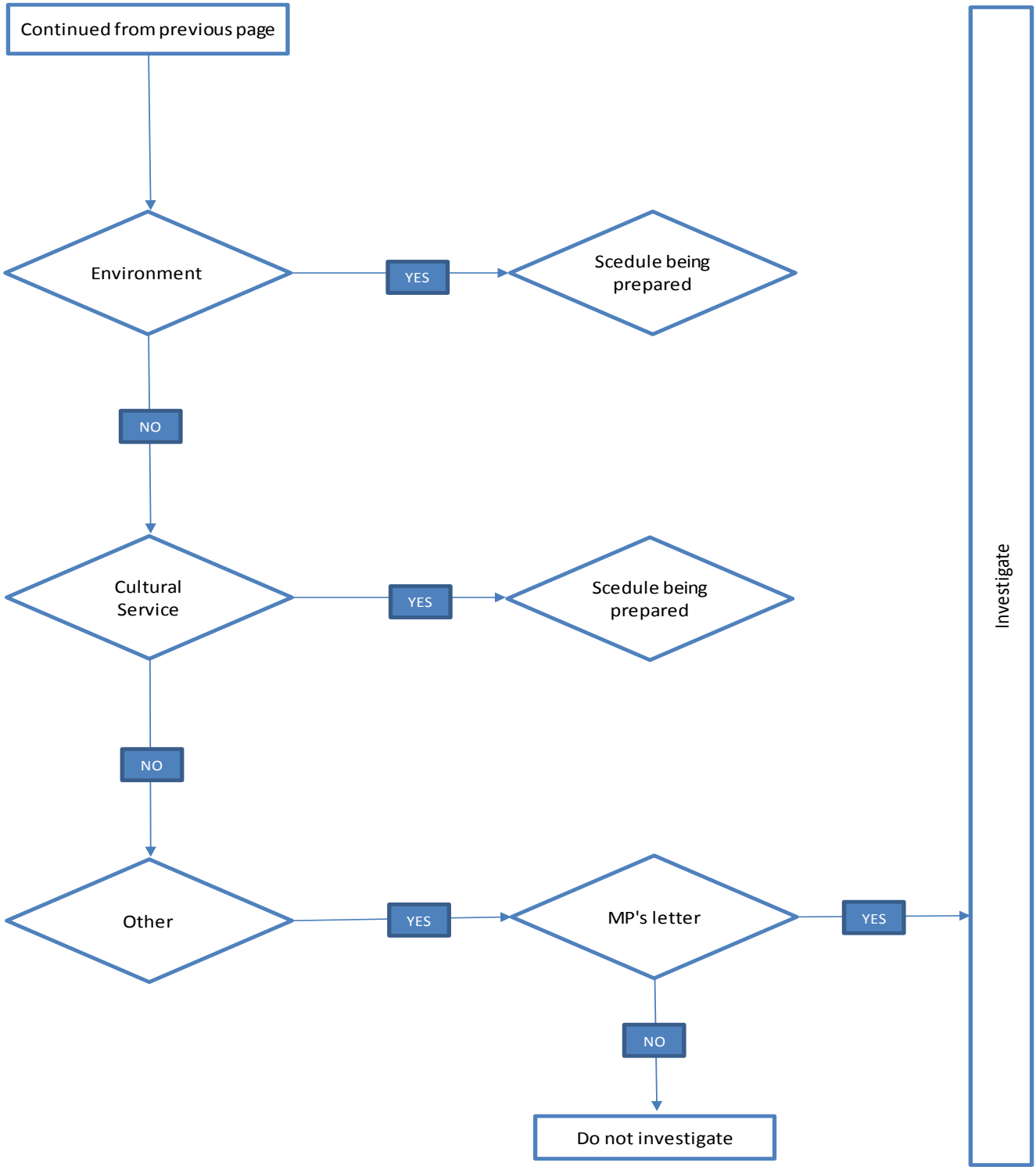
Refer to Appendix 2.3 for more detail on severity and options

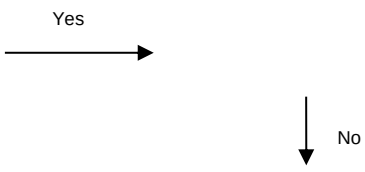


**APPENDIX (d)**


Continued from previous page
Econimic
YES
Shops/Supermarkets Manufacturing premisis & Offices
YES
Flooded internally above ground level
YES
NO
Basement used as operating space flooded
YES
NO
Do not investigate
NO
Agricultural land grade 3 & above
YES
At least 2 ha flooded for more than 2 days but less than 4 days
YES
NO
Do not investigate
NO
Motorways, main roads, minor roads
YES
National category 3 road or above made impassable due to flooding
YES
NO
Flooding to a minor road cutting off access to a village, hamlet or blocking a bus route
YES
NO
Do not investigate
YES
NO
Railways / railway stations
YES
Flooding cutting off a rail link
YES
NO
Adversely impacting on normal timetables
YES
NO
Do not investigate
Investigate

**APPENDIX (d)**


Continued from previous page
Environment
YES
Scedule being prepared
NO
Cultural Service
YES
Scedule being prepared
NO
Other
YES
MP's letter
YES
NO
Do not investigate
Investigate


Yes
No

## Appendix 2.3 Severity of Flooding and Options for Investigating Under Section 19

### 2.3.1. Investigating Flooding Causing Loss of Human Life

| Impact | Flood Level | Severity | Benefits | Consequences |
|---|---|---|---|---|
| Loss of Human Life. | All floods | Very High | All flooding causing loss of human life would be recorded and investigated, | None |

### 2.3.2. Social Risk (Residential) Property Flooding

| Property type | Flood Level | Severity | Benefits | Consequences |
|---|---|---|---|---|
| All residential property type including gardens, basements. | Up to within 300mm of finished floor level or above | Low Severity ------> | All flooding would be recorded and investigated, Flooding preventing access to property identified. | Not necessarily impacting on community as a whole<br>System overload as everything is included such as:<br>Minor flooding, puddles or waterlogging to gardens<br>Basements used for storage below water table not properly sealed<br>Not generally possible to identify flooding below floor level.<br>Not generally necessary or appropriate |
| One or more residential properties including basements used as living accommodation excluding but gardens and access. | flooded internally above ground floor level and/or below ground level where used as basement living accommodation | | All property likely to be damaged by flooding investigated. | Not necessarily impacting on community as a whole.<br>Flooding causing access/egress to be interrupted not recorded.<br>Basement flooding not easily identified |
| One or more residential properties including basements used as living accommodation excluding but gardens and access with | flooded internally above ground floor level and/or below ground level where used as basement living accommodation | <------ High Severity | Only property with a recent flood history and likely to be damaged by flooding investigated.<br>Flood prevention measures potentially justified | Not necessarily impacting on community as a whole.<br>Flooding causing access/egress to be interrupted not recorded.<br>Basement flooding not easily identified<br>A property situated close to a watercourse, such as |

| | | | | |
|---|---|---|---|---|
| recent flood history. | | | | a mill building, would expect to flood regularly and possibly not considered “necessary or appropriate” to investigate |
| At least 5 residential properties flooded | flooded internally above ground floor level | | Significant flooding affecting a community as a whole investigated.<br>Flood prevention measures likely to be justified | Small community flooding might be excluded |

### 2.3.3. Critical Services Property Flooding

| Property type | Flood Level | Severity | Benefits | Consequences |
|---|---|---|---|---|
| All critical services property as identified in Appendix D of the Lincolnshire PRFA | One or more properties flooded internally above ground floor level and/or below ground level where used as basement living accommodation or for the provision of critical services; and/or<br>One or more properties rendered inoperable, due to the access to the premises being impassable.<br>One or more flooded critical installations, resulting in a loss of service impacting on the local community or causing pollution to internal premises. | Low Severity ------> | Flooding of all properties defined as critical services in the Lincolnshire PRFA investigated.<br>Properties benefitting small communities included | |
| Only properties having a major impact on the wider community included (ie hospitals, health centres, clinics, surgeries; care/nursing homes; police, fire, ambulance stations; and/or power/water | One or more properties flooded internally above ground floor level and/or below ground level where used as basement living accommodation or for the provision of critical services; and/or<br>One or more properties rendered inoperable, due to the access to the premises being | <------ High Severity | Flooding to properties critical in all circumstances or significantly impacting on the whole community is investigated | Properties benefitting small communities not included<br>Sites designated as rest/feeding centres potentially not available in major flood events |

| | | | | |
|---|---|---|---|---|
| services sites | impassable.<br><br>One or more flooded critical installations, resulting in a loss of service impacting on the local community or causing pollution to internal premises. | | | |

### 2.3.4. Economic Category Flooding

#### 2.3.4.1 Flooding to Business Properties

| Property type | Flood Level | Severity | Benefits | Consequences |
|---|---|---|---|---|
| Shops/ supermarkets<br>Manufacturing premises<br>Offices | One or more properties flooded internally above ground floor level and/or below ground level where used as basement operating space.<br><br>One or more properties rendered inoperable, due to the access to the premises being impassable. | Low Severity ------> | Properties benefitting small communities included | |
| Shops/ supermarkets<br>Manufacturing premises<br>Offices with an operating floor area in excess of 4000sq m or employs over 50 employees | One or more properties flooded internally above ground floor level and/or below ground level where used as basement operating space.<br><br>One or more properties rendered inoperable, due to the access to the premises being impassable. | | Only business premises impacting on wider community included | Properties benefitting small communities excluded |
| Two or more Shops/ supermarkets<br>Manufacturing premises<br>Offices in excess of 4000sq m or 50 employees | Two or more properties flooded internally above ground floor level and/or below ground level where used as basement operating space.<br><br>Two or more properties rendered inoperable, due to the access to the premises being | <------ High Severity | Only business premises impacting on larger communities (towns+) included | Properties benefitting small and medium sized communities excluded |

| | | | | |
|---|---|---|---|---|
| | impassable. | | | |

### 2.3.4.2. Flooding to Agricultural Land (for definitions see Appendix 2.4)

| Property type | Flood Level | Frequency | Severity | Benefits | Consequences |
|---|---|---|---|---|---|
| Agricultural land grade 3 & above | Summer or winter flooding for up to 4 days or waterlogged for in excess of 4 days | occasionally | Low Severity ----> | Most productive land included | Risk of excessive investigations required<br><br>No area defined for de-minimus |
| Agricultural land grade 3 & above | Summer flooding for up to 4 days | occasionally | | Most productive land included<br><br>Covers land affected during most productive period | Risk of excessive investigations required<br><br>No area defined for de-minimus |
| Agricultural land grade 3 & above | At least 2ha flooded for up to 4 days | occasionally | | | Excludes small areas of land which could be profitable. |
| Agricultural land grade 3 & above | At least 2ha flooded for more than 2 but less than 4 days | rare | <---- High Severity | Pragmatic approach to wide variation of options | Could exclude productive land flooded for medium duration and therefore crop damage |
| Agricultural land grade 2 & above | At least 2ha flooded for more than 4 days. | rare | | | Excludes productive grade 3 land |

**Note**: To be reviewed as part of ongoing work on flood risk assessment, which incorporates agricultural land.

### 2.3.4.3. Flooding to Motorways, main roads, minor roads Bus services/depots (for definitions, see Appendix 2.5)

| Property type | Flood Level | Severity | Benefits | Consequences |
|---|---|---|---|---|
| Any section of a classified road | Made impassable due to flooding; and/or flooding to a minor road cutting off effective access to a village, hamlet or blocking a designated bus route | Low Severity ----->  <-----  High Severity | Covers accessibility of small communities at all times | Risk of excessive investigations required<br><br>Minor roads flooded for short duration having little impact on any community |
| Any section of a national category 3 road or above | Made impassable due to flooding; and/or flooding to a minor road cutting off effective access to a village, hamlet or blocking a designated bus route for more than 8 hours. | | Only includes significant disruption to access to communities | Access to individual isolated properties excluded |
| Any section of a national category 2 road or above | Made impassable due to flooding cutting off effective access to a community for more than 12 hours. | | Restricts investigations to serious flood incidents | Access to villages and hamlets excluded, likely significant impact on large numbers of communities |

### 2.3.4.4 Flooding of Railway/Railway Stations

| Property type | Flood Level | Benefits | Consequences |
|---|---|---|---|
| Any section of a commercial railway/railway station | Flooding adversely impacting on normal timetables or cutting off a rail link | Identifies any disruption to a community | Excludes private railways and model railways |

### 2.3.5 Flooding to Environmental Sites

| Property type | Flood Level | Severity | Benefits | Consequences |
|---|---|---|---|---|
| Special protection Areas (SPAs)<br>Special Areas of Conservation (SACs)<br>RAMSAR Sites<br>BAP Habitats<br>Special Sites of Scientific Interest (SSSIs)<br>Number of designated Local Nature Sites | The consequences of flooding could be positive or negative and a schedule of consequences of flooding to individual sites is being prepared. | **To be determined** | **When the schedule has been prepared, only adverse flooding will be investigated** | To be identified |

### 2.3.6. Flooding to Cultural Heritage Sites

| Property type | Flood Level | Severity | Benefits | Consequences |
|---|---|---|---|---|
| Number of World Heritage Sites<br>Number of Listed Buildings<br>Scheduled monuments<br>Registered parks & gardens | A schedule of consequences of flooding to individual sites is being prepared. | To be determined | When the schedule has been prepared, only adverse flooding will be investigated | To be identified |

## Appendix 2.4 Description of the Grades and Subgrades of Agricultural Land (Defra Guidance October 1988)

The most productive and flexible land falls into Grades 1 and 2 and Subgrade 3a and collectively comprises about one-third of the agricultural land in England and Wales. About half the land is of moderate quality in Subgrade 3b or poor quality in Grade 4. Although less significant on a national scale such land can be locally valuable to agriculture and the rural economy where poorer farmland predominates. The remainder is very poor quality land in Grade 5, which mostly occurs in the uplands.

**Grade 1 - excellent quality agricultural land**
Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly includes top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality.

**Grade 2 - very good quality agricultural land**
Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.

**Grade 3 - good to moderate quality agricultural land**
Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.

**Subgrade 3a - good quality agricultural land**
Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.

**Subgrade 3b - moderate quality agricultural land**
Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.

**Grade 4 - poor quality agricultural land**
Land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

**Grade 5 - very poor quality agricultural land**
Land with very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

**Table 1 Grade according to flood risk in summer**

| Grade/ Subgrade | | Flood limits frequency | duration |
|---|---|---|---|
| 1 | | very rare | short |
| 2 | | rare | short |
| 3a | | very rare | medium or long |
| | or | rare | medium |
| | or | occasional | short |
| 3b | | rare | long |
| | or | occasional | medium |
| 4 | | occasional | long |
| | or | frequent | short or medium |
| 5 | | frequent | long |

**Table 2 Grade according to flood risk in winter**

| Grade/ Subgrade | | Flood limits frequency | duration |
|---|---|---|---|
| 1 | | rare | short |
| 2 | | rare | medium |
| | or | occasional | short |
| 3a | | rare | long |
| | or | occasional | medium |
| | or | frequent | short |
| 3b | | occasional | long |
| | or | frequent | medium |
| 4 | | frequent | long |

The terms used in Tables 2 and 3 are defined as follows:

Season summer - mid March to mid November
winter - mid November to mid March

Duration short - not more than 2 days (48 hours)
medium - more than 2 but not more than 4 days
long - more than 4 days

Frequency very rare - not more than once in 15 years
rare - once in 10 to once in 14 years
occasional - once in 3 to once in 9 years
frequent - more than once in 3 years

**Appendix 2.5 National Standard Road Categories**

**Category 2 - Strategic Route**
Trunk and some Principal "A" roads between Primary Destinations.

Routes for fast moving long distance traffic with little frontage access or pedestrian traffic. Speed limits are usually in excess of 40 mph and there are few junctions. Pedestrian crossings are either segregated or controlled and parked vehicles are generally prohibited.

**Category 3a - Main Distributor**
Major Urban Network and Inter-Primary Links. Short-medium distance traffic.

Routes between Strategic routes and linking urban centres to the strategic network with limited frontage access. In Urban areas speed limits are usually 40 mph or less, parking is restricted at peak times and there are positive measures for pedestrian
safety.

**Category 3b - Secondary Distributor**
Classified Road (B and C class) and unclassified urban bus routes carrying local traffic with frontage access and frequent junctions.

In rural areas these roads link the larger villages and HGV generators to the Strategic and Main DistributorNetwork. In built areas these roads have 30 mph speed limits and very high levels of pedestrian activity with some crossing facilities including zebra crossings. On-street parking is generally unrestricted except for safety reasons.

**Category 4a - Link Roads**
Roads linking between the Main and Secondary Distributor Network with frontage access and frequent junctions.

In rural areas these roads link the smaller villages to the distributor roads. They are of varying width and not always capable of carrying two way traffic. In urban areas they are residential or industrial interconnecting roads with 30 mph speed limits random pedestrian movements and uncontrolled parking.

**Category 4b – Local Access Road**
Roads serving limited numbers of properties carrying only access traffic.

In rural areas these roads serve small settlements and provide access to individual properties and land. They are often only single lane width and unsuitable for HGVs. In urban areas they are often residential loop roads or cul-de-sacs.

**Appendix 3 Generic Investigation Template for Fluvial and Surface Water Flooding (Coastal Template to follow)**

Lincolnshire County Council Flood Investigation Report for:

Site Name & Location……..…

Date Flooding Occurred……

| | |
|---|---|
| Date report of flooding received | ...../...../..... |
| Name & job title of person assessing if an investigation is necessary/appropriate | ..... |
| Date assessed as necessary/appropriate for investigation | ...../...../..... |
| Date referred to relevant RMA | ...../...../..... |
| Name and job title of person completing investigation | ..... |
| Date report completed | ...../...../..... |
| Date of Local F&DG Management Group Meeting when relevant RMA notified | ...../...../..... |
| Date Investigation Report was included on Section 19 Spreadsheet on to the LCC Webpage (FW&MD Team) | ...../...../..... |

## Executive Summary

# 1. Introduction

## 1.1. LLFA Investigation

*Explain reason for investigating.*

## 1.2. Site Location

*Describe the site with map.*

## 1.3. Drainage System

*Describe the local drainage system.*

## 2. Flooding History

### 2.1. Previous Flood Incidents

*Identify any known floods affecting the site or area.*

### 2.2. Flood Incident ..... 201?

*Describe the flood being investigated; including any damage caused (include photo's wherever possible).*

### 2.3. Rainfall Analysis

*Identify the rainfall event during the incident (usually available from the Environment Agency).*

## 3. Possible Causes

### 3.1. Culvert Conditions

*Details and condition any relevant culvert at the time of the incident (include photo's wherever possible).*

### 3.2. Open Watercourse Conditions

*Details and condition any relevant watercourse at the time of the incident (include photo's wherever possible).*

### 3.3. Access Structures

*Details and condition any relevant access structure(s) at the time of the incident (include photo's wherever possible).*

### 3.4. System at Capacity

*Identify possible options for remedial action (include photo's wherever possible).*

## 4. Rights and Responsibilities

### 4.1. Lead Local Flood Authority

| |
|---|
| *Explain specific role and responsibility for this particular incident.* |

### 4.2. Environment Agency

| |
|---|
| *Explain specific role and responsibility for this particular incident.* |

### 4.3. .....District Council

| |
|---|
| *Explain specific role and responsibility for this particular incident.* |

### 4.4. Internal Drainage Board

| |
|---|
| *Explain specific role and responsibility, if any, for this particular incident.* |

### 4.5 Highways Authority

| |
|---|
| *Explain specific role and responsibility, if any, for this particular incident.* |

## 4.6. Water Company

*Explain specific rights and responsibility for this particular incident.*

## 4.7. Riparian Landowners

*Explain specific rights and responsibility for this particular incident.*

## 4.8. Residents

*Explain specific rights and responsibility for this particular incident.*

## 5. Permissive Powers of RMAs

*Explain what specific permissive powers the LLFA, EA, relevant Local authioritya or IDB could use in promoting a solution to this particular problem.*

## 6. ..... Flood Alleviation Scheme

*Explain any flood alleviation scheme proposed, ongoing or recently completed which could impact on this incident (include photo's wherever possible).Include any works on site (e.g. temporary works)*

## 7. Conclusion

## 8. Recommendations

## Abbreviations/Acronyms

*Clarify any Abbreviations/Acronyms used in the report.*

## Useful Links and Contacts

*Identify relevant links and contacts.*

## Appendix 4 Summary of Discharge of Statutory Responsibilities Template

Name of Investigation ……..

CSC Transaction Ref No. .....

Date Investigation Completed . ...../...../.....

Section 19 Paragraph 1 (a) which risk management authorities have relevant flood risk management functions:

Risk Management Authorities involved:

.....

.....

.....

.....

Section 19 Paragraph 1 (b) whether each of those risk management authorities has exercised, or is proposing to exercise, those functions in response to the flood

*Name of Risk management Authority* - functions exercised? Yes/no

*Name of Risk management Authority* - functions exercised? Yes/no

*Name of Risk management Authority* - functions exercised? Yes/no

*Name of Risk management Authority* - functions exercised? Yes/no

*Section 19 Paragraph (2) Where an authority carries out an investigation under subsection (1) it must—*

*(a) publish the results of its investigation, and*
*(b) notify any relevant risk management authorities*

(a) Date results of investigation published on Spreadsheet ...../...../.....

(b) Date of F&DG Management Group Meeting when relevant RMA notified of results of investigation

...../...../.....

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Lincolnshire COUNTY COUNCIL
Working for a better future

**Policy and Scrutiny**

| **Open Report on behalf of Richard Wills, Executive Director for Environment & Economy** |
|---|

| | |
|---|---|
| Report to: | **Flood Risk and Drainage Management Scrutiny** |
| Date: | **05 September 2014** |
| Subject: | **Common Works Programme and Lincolnshire County Council Capital Schemes 2014-15** |

**Summary:**

The report provides the Committee with the latest position on the Common Works Programme for 2014-15, including the current programme for surface water management schemes.

**Actions Required:**

To consider actions in progress to deliver the current programme of works to manage local flood risk.

## 1. Background

The Joint Lincolnshire Flood Risk and Drainage Management Strategy is delivered through a Common Works Programme, which encompasses the full range of work undertaken by flood risk management authorities across Lincolnshire. The Common Works Programme is fully updated annually, but is also sufficiently flexible to accommodate changes as opportunities and circumstances change throughout the year.

In line with the Lincolnshire Flood Risk and Drainage Management Partnership's policy of maintaining the greatest possible public openness, the Common Works Programme for 2014-15 is published on Lincolnshire County Council's website. It distinguishes between 'core' activities, which are those that Risk Management Authorities undertake in the normal course of their duties, and 'joint' activities which are those where two or more authorities have come together to deliver a solution.

A 'core' activity, for example, might be the regular maintenance and repairs carried out on watercourses by the Environment Agency or Internal Drainage Boards. In contrast, joint activities would include schemes such as the fluvial flood relief schemes at Louth and Horncastle. While management of main rivers is an

operational responsibility for the Environment Agency, the need for funding from partners to ensure the work takes place makes it part of the joint programme.
This principle means that partners are not precluded from assisting each other in delivering 'core' works should the need for co-operation arise, and should the priority of the activity require such additional support.

For this reason, while the County Council's responsibility for surface water flood risk (among other matters), falls within the 'core' section of the Common Works Programme, the Council has developed a programme of such works in consultation with its partners and with an eye to opportunities for joint working. Government funding is obtained through the Environment Agency Flood Defence Grant in Aid (FDGiA) process, with schemes being assessed on a cost benefit basis with the County Council making contributions and delivering the schemes.

A business case was submitted in December last year identifying a spend profile over the three years 2013/14 to 2015/16 requiring contributions from the County Council totalling £1.7M. An overall capital allocation of £1.3M was approved for the 2014/15 and 2015/16 financial years with £400K identified to be provided from the 2013/14 revenue budget.

The Environment Agency's FDGiA process is a complex process requiring Project Appraisal Board approval before final scheme allocations are approved. The annual spend profile also has to be aligned with the Environment Agency's Medium Term Plan (MTP), which is approved each year (in January) by the Regional Flood and Coastal Committee (RFCC). Consequently the programme of Lead Local Flood Authority works has to be adapted. It should also be noted that some schemes intentionally span financial years.

**Conclusion**

The attached Appendix A identifies the latest projected spend profile for this financial year and the programme of surface water schemes that are planned. In total this represents £1,359,337 of the Council's capital funding as contributions towards the identified schemes. It is important to note, however, that details of the programme may change should there be changes to the MTP as a result of further investigation work and the FDGiA approval process.

**3. Consultation**

**a) Policy Proofing Actions Required**

None required

**4. Appendices**

| These are listed below and attached at the back of the report | |
|---|---|
| Appendix A | LCC Latest programme of local flood risk management works for 2014-15 |

**5. Background Papers**

No background papers within Section 100D of the Local Government Act 1972 were used in the preparation of this report.

This report was written by Mark Welsh & David Hickman, who can be contacted on 01522 782070 or mark.welsh@lincolnshire.gov.uk or david.hickman@lincolnshire.gov.uk

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# LCC Latest Programme of Local Flood Risk Management Works for 2014-15

| Scheme title | Investigation & feasibility | Work carried out on site | Current est number of properties at risk of internal flooding | Est overall scheme cost £0,000 | Est overall LCC total contribution £0,000 | Est overall scheme spend in 2014/15 £0,000 | Est FDGiA & other contribution in 2014/15 £0,000 | Est LCC contribution in 2014/15 £0,000 |
|---|---|---|---|---|---|---|---|---|
| Sturton by Stow | # | | 6 | 43,000 | 8,000 | 3,000 | 0 | 3,000 |
| Walcott - High Street & The Drift | | # | 10 | 260,000 | 209,000 | 209,000 | 0 | 209,000 |
| Washingborough - Keeble Drive | | # | 40 | 740,000 | 555,200 | 694,000 | 138,800 | 555,200 |
| Crowland | # | # | TBA | 68,000 | 34,000 | 30,000 | 0 | 30,000 |
| Boston - Marsh Lane | # | # | TBA | 80,000 | 40,000 | 25,000 | 0 | 25,000 |
| Lincoln- Bunkers Hill | # | | 3 | 98,000 | 43,000 | 5,000 | 2,200 | 2,800 |
| Digby | # | | 20 | 173,000 | 50,000 | 30,000 | 20,000 | 10,000 |
| Heighington- Fen Lane | # | # | 5 | 84,000 | 64,000 | 64,000 | 8,000 | 56,000 |
| Newton Nr Haceby | # | # | 7 | 150,000 | 105,000 | 130,000 | 39,000 | 91,000 |
| Ruskington | # | | 12 | 100,000 | 50,000 | 20,000 | 0 | 20,000 |
| Horncastle | # | | 26 | 300,000 | 100,000 | 47,000 | 29,986 | 17,014 |
| Kirkby on Bain | # | | 13 | 130,000 | 65,000 | 20,000 | 10,000 | 10,000 |
| Lincoln - Stamp End | # | # | 82 | 750,000 | 162,000 | 340,000 | 259,080 | 80,920 |
| Holbeach - Langwith Gardens | # | # | 40 | 230,000 | 138,000 | 180,000 | 72,000 | 108,000 |
| Morton (near Bourne) -Station Road | # | # | 16 | 80,000 | 54,000 | 61,000 | 7,015 | 53,985 |
| Cherry Willingham - Sycamore Close | # | # | 6 | 95,000 | 57,000 | 72,000 | 22,032 | 49,968 |
| Spalding - Acacia Av | # | | 19 | 200,000 | 70,000 | 107,000 | 69,550 | 37,450 |
| | | | | | | | | |
| **17 SCHEMES TOTAL** | | | **305** | **3,581,000** | **1,804,200** | **2,037,000** | **677,663** | **1,359,337** |

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Lincolnshire COUNTY COUNCIL
Working for a better future

**Policy and Scrutiny**

| **Open Report on behalf of Richard Wills, Executive Director for Environment and Economy** | |
|---|---|
| Report to: | **Flood Risk and Drainage Management Scrutiny** |
| Date: | **05 September 2014** |
| Subject: | **The Flood Reinsurance (Flood Re) Scheme - Regulations** |

**Summary:**

This report outlines the implications of the Government's Flood Reinsurance (Flood Re) Scheme and considers the consultation on the subsequent Regulations.

**Actions Required:**

To consider and comment on the consultation for the Flood Re Regulations.

## 1. Background

The home insurance market in the UK is peculiar in the extent to which private insurance cover for floods is widely available as a standard peril covered by general home insurance without direct Government involvement in the market (either through public insurance or ex-post compensation). This is largely the result of a succession of agreements between Government and the insurance industry since the 1960s, following a series of major flood events.

Through these agreements, the insurance industry broadly agreed to make flood cover a widely available part of household insurance, in return for an undertaking from Government to provide adequate investment in flood management.

Under the current "Statement of Principles" agreement between the Government and the Association of British Insurers (ABI), members of the ABI are required to make insurance cover for flooding available to some, but not all, properties in areas of significant flood risk. The Statement of Principles does not control or limit the price that insurers can charge, but it is accepted that in practice the insurance industry (limited to members of the ABI) provides flood cover for all. This implies a measure of cross-subsidy from those of lesser risk to those at greater risk, keeping premiums at a relatively reasonable level, even for those at very significant risk.

The Statement of Principles is due to expire, and the Government has been exploring a longer-term replacement.

***Flood Re – Consultation***

In July 2013 the Government consulted on provisions it intended to make through the Water Act (known as Flood Re) to ensure that **domestic** property insurance continues to be widely available and affordable in areas of flood risk in the UK.
This reflects the understanding that households in flood risk areas are more likely than in the past to be charged a premium that relates to their risk of making a claim, due to improvements in predicting the risk of flooding (e.g. better modelling and improved flood maps - including surface water) and the expiry of the Statement of Principles. This makes it possible for insurers to increasingly differentiate properties (and therefore premiums) based on flood risk.

The Government believes that in the long term this will help build greater awareness of flood risk, and encourage steps to be taken to reduce the risk of flooding, but that in the shorter term many households might struggle to afford ongoing cover.

As a result, Government has consulted on a transitional (up to 25 years) Flood Reinsurance (Flood Re) scheme which aims to set up a not-for-profit reinsurance body. It is proposed that the reinsurance body will be run and managed by the insurance industry and funded through a levy on insurers, intending to replicate the level of cross subsidy that currently exists in the market. The scheme is intended to effectively limit the cost of flood insurance for properties at the highest risk (around 1-2% of domestic households), with the level of premiums varying accordingly to Council Tax band.

***The Flood Re Regulations – Consultation***

The legislation for the Flood Re Scheme received Royal Assent on 14 May 2014 through the Water Act 2014 and the Government is now consulting on the detailed secondary legislation (Regulations) necessary to implement the scheme, which it intends will come into effect on 6 April 2015.

The consultation document is included as Appendix A, and the regulations at Appendix B. The main aims of the regulations are to (a) promote the availability and affordability of flood insurance for household premises while minimising the cost of doing so and (b) manage over the period of operation of the scheme, the transition to risk-reflective pricing of flood insurance for household premises.

The Regulations include:

- Establishing Flood Re as an autonomous body (regulated by Government), and overseen by a 'Scheme Administrator' to collect a levy from all relevant insurers in order to purchase re-insurance for policies 'ceded' to Flood Re.

- The upper limit to the premiums that the Scheme Administrator can charge insurers to purchase flood reinsurance are detailed below:

| Council Tax Valuation Band | Combined Policy | Buildings only Policy | Contents only Policy |
|---|---|---|---|
| A | £210 | £132 | £ 78 |
| B | £210 | £132 | £ 78 |
| C | £246 | £148 | £ 98 |
| D | £276 | £168 | £108 |
| E | £330 | £199 | £131 |
| F | £408 | £260 | £148 |
| G | £540 | £334 | £206 |

Notwithstanding the requirements below the amounts are subject to increases relative to the Consumer Price Index.

- The requirement for the Scheme Administrator to publish, within 3 months, a 'transition plan' for managing the transition to "risk-reflective" pricing of flood insurance and setting out how this will be achieved. The plan must be updated regularly and at least every 5 years.

- The requirement for the Scheme Administrator to provide information to insurers regarding how prices might change, as a result of transitional arrangements in a format which can be passed to policyholders, in order to raise awareness and help households prepare for free market pricing and reduce their vulnerability to flooding.

- For the insurers to maintain a direct relationship with their customers, with policyholders paying premiums and making claims directly to them. However, if an insurer calculates that the flood risk element of the policy will cost more than the premium threshold, they can cede the flood risk part of the policy to Flood Re.

- For the insurance companies to inform the policyholder that their property is reinsured via Flood Re including providing information on how customers can find out about their level of flood risk; a pre-requisite for better flood risk management at property level.

**2. Conclusion**

The Committee are asked to consider and comment on the consultation for the Flood Re Scheme Regulations which closes on 16 September 2014.

**3. Consultation**

**a) Policy Proofing Actions Required**

n/a

## 4. Appendices

| These are listed below and attached at the back of the report | |
|---|---|
| Appendix A | The Flood Reinsurance Scheme - Regulations Consultation July 2014 |
| Appendix B | 1. The Flood Reinsurance Scheme Funding and Administration Regulations 2015<br>2. The Flood Reinsurance Scheme Administrator Designation Regulations 2015<br>3. The Flood Reinsurance Scheme Designation Regulations 2015 |

## 5. Background Papers

No background papers within Section 100D of the Local Government Act 1972 were used in the preparation of this report.

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www.gov.uk/defra

Department
for Environment
Food & Rural Affairs

# The Flood Reinsurance Scheme – Regulations

## July 2014

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# Part A: Background

## Consultation purpose and scope

1. The UK Government (the Government) announced in June 2013 that it was taking forward the Flood Reinsurance Scheme (Flood Re) as the preferred approach to addressing the availability and affordability of flood insurance. We have taken powers in the Water Act 2014 ("the Act") allowing for the introduction of Flood Re.[1] This consultation seeks views on the regulations the Government is introducing to enable the insurance industry to implement Flood Re next year.

2. As set out in the Memorandum of Understanding between the insurance industry and the Government, Flood Re will be established by the insurance industry as a not-for-profit entity, owned and managed by the industry. [2] Flood Re will be operationally independent from Government.

3. The Act sets the legal framework and parameters within which Flood Re will operate and the broad scope of the regulation making powers. The proposed regulations will cover its funding, administration and designate the Flood Re Scheme and Administrator. This consultation seeks views on the approach taken in these regulations. A short guide on Flood Re is also included alongside this consultation document. Our aim is to ensure that domestic property insurance continues to be widely available and affordable in areas of flood risk without placing unsustainable costs on wider policyholders or the taxpayer as part of a gradual transition towards more risk-reflective prices. As set out in the Act, Flood Re will:

   *(a) promote the availability and affordability of flood insurance for household premises while minimising the costs of doing so, and*

   *(b)manage, over the period of operation of the scheme, the transition to risk-reflective pricing of flood insurance for household premises.*

4. The Act also provides powers to introduce the Flood Insurance Obligation (the Obligation). Whilst, at this stage, we are not consulting on regulations for this part of the Act, we retain the ability to use these powers to introduce the Obligation should Flood Re prove unworkable or not deliver Government's policy goals or pricing in an open market proves unacceptable.

5. This consultation is being conducted by the UK Government. Financial services including insurance are reserved matters; the territorial extent of this consultation covers the UK insurance market and is therefore UK-wide in scope. Details on how to respond to this consultation are provided in **Part D**.

[1] The Water Act 2014: http://www.legislation.gov.uk/ukpga/2014/21/section/64/enacted

[2] Flood Re: Memorandum Of Understanding: https://consult.defra.gov.uk/flooding/floodinsurance/supporting_documents/20130626%20Flood%20Insurance%20MOU%20June%202013%20unprotected.pdf

# Previous public engagement and Parliamentary scrutiny

6. The Government consulted in the summer of 2013 on its preferred approach for ensuring that domestic property insurance continues to be widely available and affordable in areas of flood risk.[3] An Impact Assessment produced at the time set out the costs and benefits of a range of options, including the preferred option. We consulted widely, including holding several workshops which were well attended by a broad range of representatives. We received 149 formal responses to the consultation. There was widespread support for Flood Re, which is both the Government and industry's preferred option.

7. A draft of the flood insurance clauses, for inclusion in the Act, was made available for comment in September 2013, alongside a commentary setting out the policy intention for each clause. [4] An updated Impact Assessment and a summary of the responses to both consultations were published in November 2013.[5] Full clauses were added to the Act during its Committee stage in the House of Commons.

8. During the passage of the Act through Parliament, a number of amendments were made to the flood insurance clauses.[6] Many of these were minor and technical amendments. However, the Government also responded to concerns raised in both Houses by introducing a new requirement for Flood Re to make information about the Scheme available to householders that are reinsured via Flood Re (via their insurers). This includes how customers can find out about their level of flood risk; a key pre-requisite for better flood risk management at property level.

9. The Delegated Powers Committee also recommended that all of the regulations establishing Flood Re should be subject to the affirmative Parliamentary scrutiny procedure, which requires a debate and vote before regulations are made and in the event that they are amended in the future. Amendments were made to the flood insurance clauses to reflect this.

10. The Government committed to setting out further details of Flood Re in regulations including on review and transition, financial governance (particularly on the additional levy or contributions from insurers), and some definitions. Details of the Act's passage through Parliament can be found on the Parliament website.[7] The Act received Royal Assent in May 2014.

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[3] Government's consultation in summer 2013, "Securing the future availability and affordability of home insurance in areas of flood risk": https://consult.defra.gov.uk/flooding/floodinsurance

[4] Government's informal consultation on the flood insurance draft clauses: https://www.gov.uk/government/consultations/draft-flood-insurance-legislation

[5] Government's response to the two consultations: https://www.gov.uk/government/consultations/insurance-in-areas-of-flood-risk

[6] A briefing note setting out the key changes that were made to the Water Bill during its passage through the House of Lords: http://www.parliament.uk/briefing-papers/SN06876/water-bill-201314-lords-amendments The section on Flood Re starts on page 9.

[7] Water Act 2014: Parliamentary Stages http://services.parliament.uk/bills/2013-14/water/stages.html

# Part B: The Legislation

11. This section of the consultation should be read in conjunction with the draft regulations. For brevity, the draft regulations are referred to as regulations throughout. For clarity, the consultation is set out thematically, rather than following the regulations in order. Questions are set out in various sections below where there are particular issues of interest or outstanding technical and policy issues that need to be addressed. General comments on all of the regulations and the approach set out would also be welcome.

## Scheme Administration

12. This section sets out how the Scheme Administration section of the regulations is intended to work (regulations 16 to 24).

**Relationship between Flood Re, Government and Parliament**

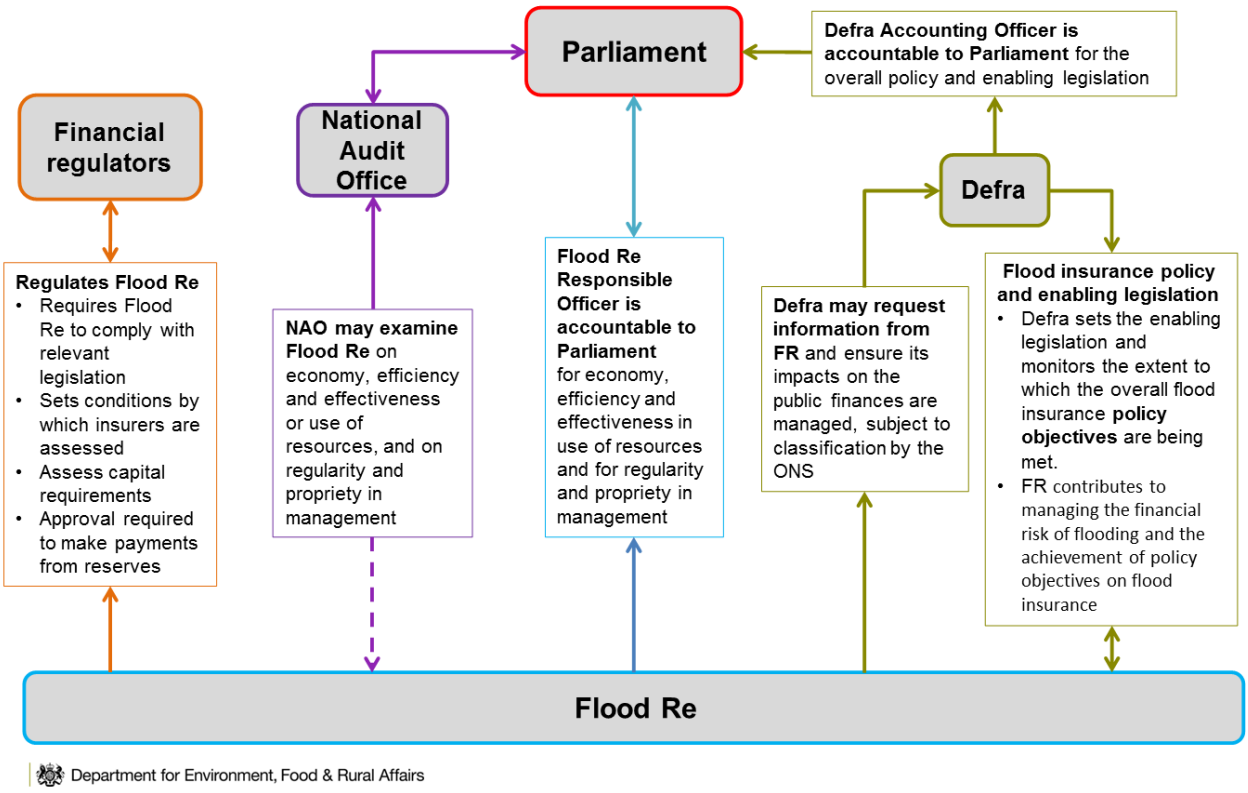
13. Flood Re will, as far as possible, be treated as an autonomous body with operational independence from the Government. This is reflected in the way the relationship between the Government and Parliament is presented in the regulations.

14. The Office of National Statistics (ONS) will assess the classification of the levies the Flood Re Scheme Administrator raises and the type of body the Scheme Administrator is (e.g. whether it is a public or private body and, if the former, whether it is a public corporation), once it is established. However, given the strong expectation that at least the primary levy will be considered a tax and therefore, that the Scheme Administrator will be managing public funds, we are setting in regulations certain arrangements that provide the Scheme Administrator with clear expectations of what an appropriate approach to managing public money means and the standards by which Parliament may wish to hold the Scheme Administrator to account. Flood Re also needs to obtain authorisation from the Prudential Regulation Authority (PRA) and Financial Conduct Authority before it is able to operate in the UK. Further details are set out below in the section "*Authorisation by financial regulators*".

15. The Government will retain responsibility for general policy matters relating to flood insurance, with Defra being the lead Department and accountable to Parliament for this. The Scheme Administrator, through the Responsible Officer, will be accountable to Parliament for the operation of the Flood Re Scheme. This approach was set out in the previous consultation and during the Act's passage through Parliament.

16. Regulation 16 will require the Scheme Administrator to consider value for money in discharging its functions by requiring it to take into account economy, efficiency and effectiveness in its management of the Scheme and to take into account propriety and regularity in the Scheme's operation. Regulation 16(b) will require the Scheme Administrator to take into account the need to act in the public interest when discharging its functions. We are not proposing to define these terms in the regulations because we think that it is sufficient to rely on natural meanings of these terms and precedent from Parliament's expectations on the management of public money. The regulation mirrors the powers provided in Section 67(2) of the Act.

## Relationship between Flood Re, Government and Parliament




## The Role of the Responsible Officer (Regulations 19 and 20)

17. Regulation 20 provides for the Scheme Administrator to be directly accountable to Parliament for the ongoing operations of the Flood Re Scheme; this is done through the appointment of a Responsible Officer, a role that broadly mirrors the Accounting Officer responsibilities as set out in *Managing Public Money.*[8] The Responsible Officer will be directly accountable to Parliament for the stewardship of the Scheme and the management of its finances. They will also be responsible for laying the Scheme's audited annual accounts and annual report before Parliament and accountable for managing and responding to any reports made by the National Audit Office (NAO).

18. Parliament will be able to call on the Responsible Officer and look into the management of the Scheme should they deem it necessary or in the public interest. Parliamentary Committees may also wish to assess the management of the Scheme. We have not provided for this in the regulations because the Committees have the ability to call the Responsible Officer to account without a specific power being necessary. The duties we are placing on the Responsible Officer in these regulations reflect the powers set out in section 67(6) of the Act.

[8] Managing Public Money: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/212123/Managing_Public_Money_AA_v2_-_chapters_annex_web.pdf

19. It is important that the Responsible Officer is a person with appropriate seniority and responsibility. Regulation 19 therefore requires the Chief Executive Officer (CEO) to be designated as the Responsible Officer, or, in the absence of the CEO, the officer acting as the CEO. This will ensure that there is always somebody designated as holding this office.

**The Role of the National Audit Office**

20. The NAO, through the office of the Comptroller and Auditor General, has been given powers to examine the administration of public money on value for money grounds and propriety and regularity in the operation of the Flood Re Scheme (as set out in regulation 21), should the Comptroller and Auditor General consider this is necessary. Regulation 22 includes provision to allow the NAO access at all reasonable times to any documents relating to Flood Re which are necessary for the purposes of carrying out those investigations.

21. Regulation 22 also sets out that, should the NAO examine Flood Re's administration, it must lay its report before Parliament, specifically in the House of Commons, which reflects the NAO's established practice for laying reports in Parliament. Together, the powers afforded the NAO closely mirror the powers provided by the Act (section 67(5)(f) and (g)) and reflect the NAO's powers in their own legislation.[9]

    **Question 1:**
    **The proposed regulations will ensure that the Responsible Officer is directly accountable to Parliament for Flood Re's operation, and set out specific duties for the Responsible Officer. Do you agree these duties are sufficient (Y/N)?**

    **Question 2:**
    **We are not defining economy, efficiency and effectiveness, propriety and regularity or the public interest in the regulations; we believe their natural meanings are clear. Do you agree with this approach (Y/N)? If you think that these terms need defining, either in legislation or elsewhere, what factors should be considered in their interpretation?**

**Accounting for Flood Re's finances**

22. As it is expected that at least some of Flood Re's funding will be classed by the ONS as public funds, regulation 23 provides the Government with powers to monitor the Scheme's impact on public expenditure. This is necessary to ensure the Government has the ability to monitor and understand any potential impacts Flood Re may have on public expenditure. Details as to what information will be provided and how regularly, will be agreed with the Scheme Administrator and set out in corporate documentation. We do not believe it necessary to seek information other than that necessary for Government accounting.

[9] The National Audit Act 1983: http://www.legislation.gov.uk/ukpga/1983/44/contents

23. As provided by section 67(5) of the Act, regulation 17 specifies certain limits on Flood Re's cash flow. The strong expectation is that Flood Re will be making use of public funds and the intention here is to ensure that the Scheme Administrator manages these funds prudently.

24. In particular, this regulation will include a provision (currently at 17(d)) prohibiting Flood Re from adding more than £100 million to public sector net borrowing in any given financial year. We are working with Flood Re, trade bodies and the PRA to determine the extent to which this could result in potential unintended consequences for Flood Re as an authorised insurer in exceptional circumstances; and to consider what options, if any are available to the Scheme Administrator to address these, consistent with also providing sufficient protection for the public purse.

25. In addition, there are a small number of targeted financial governance arrangements aimed at limiting the amount the Scheme Administrator is able to borrow, and ensuring that it will not be able to use or transfer assets other than for the purposes of the Flood Re Scheme; for its administration; and other incidental purposes. The aim of these arrangements is to limit Flood Re's impact on the public finances, so that it can operate independently as an industry run and managed body. The consent of HM Treasury will be required under section 66(1) of the Act, to make the funding elements of the regulations.

**Authorisation by financial regulators**

26. Since 2001, financial services in the UK, including insurance companies, have been subject to the Financial Services and Markets Act 2000 (FSMA) and no person may effect or carry out insurance in the UK without authorisation and the relevant permission to do so.[10]

27. As the Scheme Administrator will be carrying out insurance related activities in the UK, it will need to seek authorisation to do so from the Prudential Regulation Authority (PRA) which is part of the Bank of England. Consent from the Financial Conduct Authority (FCA) is required as part of this authorisation. This will be required in addition to the regulations we are proposing.

28. The FCA seeks to ensure that consumers are treated fairly in their dealing with insurers, whereas the PRA's main objectives are to ensure the safety and soundness of firms and ensure that policyholders have an appropriate degree of protection.

29. In applying to the PRA for authorisation, the Scheme Administrator will need to demonstrate that it meets the respective minimum requirements of both regulators (known as Threshold Conditions) on an ongoing basis in order to be permitted to carry on regulated insurance activities. In addition to ensuring basic requirements such as its legal status are met, the authorisation process includes an assessment of whether the Scheme Administrator has appropriate financial and non-financial resources in place and is capable of being effectively supervised.

[10] Financial Services and Markets Act 2000: http://www.legislation.gov.uk/ukpga/2000/8/contents

30. The PRA and FCA will also assess the skills and experience of key members of senior management, including the CEO, as to their suitability to perform certain roles in managing an insurance firm such as Flood Re. Formal approval from the PRA and/or the FCA (depending on the role) is required before an individual can undertake the role for which approval is sought.

31. Once authorised, the Scheme Administrator will be subject to ongoing supervision by the PRA and FCA. The Scheme Administrator will also be subject to wider regulations such as The Companies Act 2006. As safeguards on the financial management and conduct of the Scheme Administrator are already set in existing financial legislation, we do not need to introduce regulations specific to Flood Re.

32. Flood Re is accordingly engaged in discussions with the financial services regulators in relation to its authorisation.

**Transition and transition plan, including the provision of information on Flood Re and flood risk**

33. Flood Re is designed to operate for up to 25 years. As set out in section 67(2)(d) of the Act, the Scheme Administrator will need to manage the transition to risk-reflective pricing of flood insurance for household premises, this is set by regulation 18(1). The transition plan will need to address the phasing out of the benefits of the Scheme over the lifetime of the Scheme.

34. Regulation 18(2) sets out that the Scheme Administrator must produce a plan for managing this transition to risk-reflective pricing of flood insurance. The Scheme Administrator will be best placed to develop transitional arrangements in keeping with the industry run and led nature of the Scheme, and using industry expertise. The Scheme Administrator will be required by the regulation to publish this transition plan on its website, within 3 months of the regulations coming into force, setting out how this will be achieved.

35. Regulation 18(3) provides clarity as to what the transition plan should contain, that is:

    - Information about the steps the Scheme Administrator will take to manage transition to risk-reflective prices for flood insurance
    - and general information about the estimated impact this might have on the amount of the levy Flood Re requires and the level it sets for reinsurance premiums for policies ceded to the Scheme.

36. Under regulation 18(4), the Scheme Administrator will have a duty to update the transition plan on a regular basis, and at least every 5 years, to ensure that the industry and public have access to accurate information about how the price of flood insurance and benefits given by Flood Re might change over the 25 year period.

37. To ensure that households in Flood Re are aware of these price changes, regulation 24 sets out that the Scheme Administrator's responsibilities will include the provision of general information to relevant insurers on Flood Re, Flood Re's transition plan and on how policy holders can obtain information about their flood risk (and how this can be managed), in a format that can be passed on to customers. This will help to raise awareness and help households prepare for free-market pricing by taking steps to reduce their vulnerability to floods and the impact of floods on their properties. As the Scheme Administrator will not have a direct relationship with customers who have purchased flood insurance, this regulation requires them to provide information to insurers who can then pass it onto their customers. This requirement on the Scheme Administrator reflects the powers set out in section 67(4) of the Act.

**Question 3:**
**Do you think that the publication of a transition plan and provision of information to insurers is appropriate for making insurers and those at highest risk of flooding aware of the transitional nature of Flood Re? If not, what other approach could help householders and insurers understand the transitional nature of the Scheme and help them prepare for the transition to risk reflective prices?**

# Funding and Finances

38. This section covers how Flood Re will be funded, including the governance arrangements required for the Scheme Administrator to manage public money. As with the arrangements for the reporting of information above, these are dependent on the eventual ONS classification; however we expect that the primary levy will be classed as a tax and the regulations are based on this assumption.

39. Flood Re will need to operate within boundaries set by these regulations as set out in more detail below. These regulations will place a duty for the Flood Re Administrator, in conjunction with the Secretary of State, to review the primary levy and premium thresholds at least every five years. Any changes to the amount of the levy or premium thresholds will need to be set in legislation and should bring about the transition to risk-reflective pricing over the duration of the Scheme, in line with Flood Re's purpose. In addition, regulation 26 will require the Scheme Administrator to review its financial model between these reviews, should this be needed.

**The Flood Re Scheme funding mechanism**

40. The Scheme Administrator will collect a primary levy from all relevant insurers in order to formalise the existing cross-subsidy present in the market. Regulation 5 requires all relevant insurers issuing domestic household insurance in the UK to pay a levy which will be collected on a quarterly basis. In line with the Memorandum of Understanding reached between Government and the ABI in 2013, regulation 5 also sets the total annual levy at £180 million for the first five years after which it will be reviewed at least every five years (see paragraph 50 below). The formulae for how each insurer's proportion of the annual levy will be calculated is outlined in more detail in paragraph 43 below.

41. As set out in the previous consultation, the Scheme Administrator will purchase reinsurance to cover insurance liabilities (the risk associated with ceded policies). Should the directors of Flood Re consider it appropriate for the prudent management of the Flood Re Scheme, regulations 10 and 11 provide Flood Re with the ability to call additional amounts from all relevant insurers, using the same calculation as for the primary levy. These additional amounts may be called as contributions (of up to a total of £100 million in any one year), or as a levy (which has no annual limit and can be called upon if insurers choose not to pay contributions), based on a mechanism set out by the Scheme Administrator. As set out during the Water Act's passage through Parliament, this £100 million limit is needed to manage Flood Re's impact on the public finances.

42. To safeguard public finances, regulations 12 and 17(c) ensure that funds collected either through the primary levy or through additional calls for funding may only be used for the purposes of the Flood Re Scheme and the administration of the Scheme, including the potential repayment of contributions and other incidental purposes. As set out during the passage of the Water Act through Parliament, nothing in these regulations prevents Flood Re from making these repayments, as and when it might be appropriate to do so.

**Question 4:**
**Do you agree that the funding arrangements in the regulations (including regulation 17 above) achieve the right balance between operational freedom; certainty for insurers; and accountability for the handling of public money (Y/N)?**

**Calculating payments for relevant insurers**

43. The amount of the primary levy and any further calls for funding, by way of additional levy or contribution, will be calculated for each relevant insurer by the Scheme Administrator, in proportion to each relevant insurer's share of the home insurance market. The formula for this calculation is set out in regulation 5 and 11(c). This formula uses a definition of "Home Insurance" as the basis for the Gross Written Premium on which the levy is calculated and is set out in section 3 (Definitions) below.

44. To enable the Scheme Administrator to calculate the levy amounts, regulation 9 requires each relevant insurer to, within 30 days of being formally asked, provide the Administrator with information required to calculate the levy, including the Gross Written Premium (GWP) of home insurance policies issued in the UK in the previous calendar year. This amount of GWP currently includes commissions (for further details please see the definitions set out in the regulations). Each insurer's share of the domestic market would then be calculated based on their percentage share of the UK GWP for the previous calendar year.

45. Should a relevant insurer fail to provide the information required within the timeframe outlined in regulation 9, or, if, for example, should a new entrant not be able to make this information available, regulation 6 enables the Scheme Administrator, for the purposes of calculating the levy for that relevant insurer, to estimate their Gross Written Premium for that year.

**Question 5:**
**Are there any practical difficulties with the approach of using Gross Written Premium and "Home Insurance" to calculate the levy for "relevant insurers" (Y/N)?**

**Question 6:**
**Do you think that the approach for estimating GWP for insurers who fail to provide this information within the timeframe is fair (Y/N)?**

**Question 7:**
**If no to either of the previous two questions, what changes to this approach should be considered and why?**

**Failure to pay (civil debt recovery)**

46. Should relevant insurers fail to pay either levy after 30 days following a request, regulation 13 provides for the Scheme Administrator to recover the amount through the courts as a civil debt.

**Premium Thresholds**

47. The upper limit to the premiums that the Scheme Administrator will charge insurers to purchase reinsurance will be set for the first five years of the Scheme. These premium thresholds (the amount relevant insurers will pay for reinsurance and previously

referred to as eligibility thresholds) will be set based on an individual property's Council Tax (valuation) band within England, Wales and Scotland, and the relevant equivalent valuation bands in Northern Ireland. From April 2016 these prices will be uprated on an annual basis by the Consumer Price Index for the previous financial year. It is the Government's intention that the savings associated with the effective limit on premiums will be passed on by insurers to policy holders. As such it is not expected that commissions should be payable on these amounts. This expectation will not be set out in regulations, but is part of the 2013 Memorandum of Understanding.

48. The premium thresholds for the Scheme are set in regulation 14 and the accompanying tables in the Schedule.

49. Should policy holders feel that the cost of their insurance policy does not reflect their policy's eligibility to be ceded to Flood Re, they should query this with their insurers and shop around for the best price. If they do not feel that their query/complaint has been treated fairly and they would like to pursue the matter, they can contact the Financial Ombudsman Service, which offers a free dispute resolution service for people who wish to complain about how their insurance company has treated them.

**Review of Flood Re transitional funding and financial model**

50. Regulation 25 provides for the amount of the primary levy and the reinsurance premium thresholds to be reviewed every five years, or sooner if required, by the Flood Re Administrator. The Scheme Administrator, 12 months prior to the end of the review period, must provide to the Secretary of State a report which outlines the proposed changes to the levy and premium thresholds and the evidence which supports this, in line with Flood Re's published transition plan. The Secretary of State has the ability to commission an independent actuarial review of the recommendations of the report should this be required.

51. Any proposed changes to the level of the levy or premium thresholds will need to be agreed by the Secretary of State (in consultation with relevant Departments), and will be made by affirmative regulations, meaning Parliament will have the opportunity to debate them. The Scheme Administrator must then re-publish the transition plan in light of any changes. This requirement is set out in regulation 18(4) and (5).

**Question 8:**
**Do you agree with the approach as set out, of a regular review of the primary levy and premium thresholds (at least every five years or sooner as required (Y/N)? If no, what changes to this approach should we consider?**

52. To provide Government with assurance that Flood Re remains financially sound, Regulation 26 requires the Flood Re Administrator to evaluate the financial model which underpins Flood Re, should the total amount collected by Flood Re as contributions exceed £100 million at any given time. The Flood Re Administrator must provide to the Secretary of State a report which sets out the conclusions of this evaluation and makes recommendations on any action to take.

# Definitions

53. We have defined various terms for the purposes of the regulations and for the purposes of the Act. These are set out in regulations 2 and 3. Details of the key definitions are provided below.

54. The regulations define "flood" broadly for the purposes of sections 64 to 69 of the Act. The definition of "flood" links to the meaning of "flood insurance", which is defined in section 64(5) of the Act, as insurance in respect of risks arising from a flood. Further detail, which may be needed for underwriting purposes, could be set out in the Scheme Document. **Box 1** below sets out potential parameters of a more detailed definition for the Scheme Document, which the regulations could cross refer to.

55. The Secretary of State will designate the scheme, through 'The Flood Reinsurance Scheme Designation Regulations 2015'. [11] Once designated, the Scheme Document cannot be amended. Should the FR Scheme Administrator wish to amend the Scheme Document, then the Secretary of State would need to revoke the original designation regulations and make new designation regulations designating the new amended Scheme.

56. If a "relevant insurer" issues "home insurance", as defined in the regulations, then that insurer will be required to pay levies under regulation 5, and any additional amounts under regulation 10. "Home insurance" is defined to cover any "dwelling" (as defined) that is covered by an eligible insurance policy.

57. "Household premises" defines those properties which will be eligible to be reinsured under Flood Re. It is based on the definition of "home insurance" and applies further conditions. The regulations set out the definitions of "household premises" and "home insurance" by cross-referring to specific sections of the Scheme Document. This is necessary because of the complexity of the definitions, which need to reflect the way insurers treat domestic and commercial policies in underwriting terms. **Box 2** and **Box 3** below set out the definitions as we envisage they will be set out in the Scheme Document. For further details on how they will be implemented by the industry in practice, see the "Flood Re Scope Note". [12]

58. We would welcome views on the definition of "relevant insurer" (the term 'insurer' having already been defined in the Act), to ensure it includes all those organisations that should be required to pay the levies and contributions to the Flood Re Scheme, without unduly penalising overseas insurers. This is also relevant in relation to the definition of "gross written premium" and "home insurance" which form the basis for the calculation of the levies and contributions.

[11] For more on the Scheme Document please see the **Designation section** below.
[12] Water Bill: Part 4 - Flood Insurance Scope of Flood Re: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/292353/water-bill-flood-insurance-scope-flood-re.pdf

59. The terms “buildings only policy”, “contents”, and “combined policy” are underwriting terms which have been defined for the purposes of the Scheme. However, in setting specific definitions, we would want to avoid any wider implications for the home insurance market of defining these terms, given the extent of variation in practice between individual insurers.

**Question 9:**
**Do you agree that these are the right definitions for the purposes of the Scheme (Y/N)? If not what changes would you suggest?**

**Question 10:**
**Do you agree it is necessary to provide more detail on the definition of flood in the Scheme Document (Y/N)? If not, please give details of what should be changed on the approach taken for “flood”?**

**Question 11:**
**Do you agree that definitions for “buildings only policy”, “contents” and “combined policy” are needed (Y/N)? If not, please explain why not.**

**Box 1: Potential parameters for the term "flood" for Scheme Document**

(1) "Flood" as currently defined in the draft regulations, means water from any source external to the property which enters the property at or below ground level:

and

(b) does so with a volume, weight or force which is substantial and abnormal.

"Flood" includes water which enters the property above ground level as outlined in (b), where part of the body of such water is at ground level, including as a wave rising from ground level or via a main, drain, sewer or pipe which is wholly or partly connected or adjacent to the property and is wholly or partly at or below ground level at the point nearest to the property.

(2) The following descriptions of water do not constitute a flood –

(a) rain water which enters the building before falling to ground level; and

(b) water escaping from a main, drain, sewer, pipe or other thing inside the building, unless such escape was solely the consequence of a flood as defined in (1)

(3) In cases where the ground level of the domestic property concerned is below sea level, references in this regulation (except in paragraph (2)(a) above) to ground level are to be taken as references to sea level.

**Box 2: Definition of "household premises"**

*"**Household premises"*** is defined as "*a dwelling which is covered by a **home insurance policy** and that meets the criteria set out in BB of the Scheme:*

*The criteria set out in section BB of the scheme*, are as follows:

*The criteria for household premises are:*

1. *Properties in Council Tax Band A-G (or equivalent valuation band)*
2. *Added to the Council Tax valuation list (or equivalent)[1] before 1 January 2009.*

*Only household premises are eligible to be reinsured under the FR Scheme.*

**Box 3: Definitions of "dwelling" and "home insurance".**

**Definition of "Dwelling"**

The definition of dwelling provides a very broad description of the type of properties which may be covered by home insurance policies in the UK (should they fit the criteria set out in the scheme).

**"Dwelling"** means any land and building in the United Kingdom that is held by the occupier for private, domestic and residential use (whether or not with others), including a house or other single dwelling*;* and any property which forms part of, or is enjoyed with, the dwelling.

**Definition of Home "insurance"**

An insurer who is liable to pay the levy or any additional amounts by way of levy or contribution is called a "relevant insurer".

In order to fall within the definition of relevant insurer, an insurer must effect (or provide) "home insurance".

***"home insurance"*** is defined in the Interpretation provisions set out in regulation 2, and means a contract of insurance covering any risk of damage, loss or destruction to the whole or part of a dwelling and its contents, and which meets the criteria set out in [AA] of the Scheme.

*The criteria set out in section AA of the scheme*, are as follows:

Either:

1. *An insurance policy covering the contents of a **dwelling** which is purchased individually in the name of an individual or in trust for an individual.*

*And/or:*

1. *An insurance policy covering the structure of a **dwelling** including fixtures and fittings, swimming pools, permanently fixed hot tubs, tennis courts, patios, terraces, service tanks, drains, septic tanks, pipes and cables, central heating fuel storage tanks, driveways, footpaths, garden walls, hedges, gates and fences*; *provided the following additional conditions are all met:*
    a. *The property is used for residential purposes,*
    b. *The property is insured on an individual basis,*
    c. *The property must be owned on a freehold or commonhold basis. If the property is owned on a leasehold basis, either the terms of the lease must specify that each dwelling purchases its own buildings insurance; or the property must:*
        i. *include no more than three separate residential units,*
        ii. *be insured by the freeholder, or by an owner of a share of the freehold, and*
        iii. *the freeholder or owner of a share of freehold must live in one of the residential units of the building."*
    d. *The holder of the policy, or their immediate family, must live in the property, or the property must be unoccupied (properties that are rented out are not in scope).*

# Designation

60. This section covers The Flood Reinsurance Scheme Designation Regulations 2015 & The Flood Reinsurance Scheme Administrator Designation Regulations 2015.

61. The Act provides the Secretary of State with the powers to designate the Flood Re Scheme and its Administrator, which is the purpose of these regulations. They will also be subject to the affirmative procedure in Parliament.

62. Before the regulations are laid for debate, the Secretary of State will need to determine the suitability of the Scheme and its Administrator for meeting the policy objectives (as set out in Flood Re's purpose in **Part A**) as well as that it is constitutionally fit for purpose and can look after any public funds to the required standard. The Secretary of State will also take advice on the probability that the Scheme will be authorised by the financial services regulators and approved by the European Commission for the purposes of State Aid.

63. A key document in the designation process will be the Scheme document, setting out the scope and purpose of the Flood Re Scheme. This will set out how the Scheme will work, taking account of the Flood Re regulations. The document will be developed by Flood Re and provided to the Secretary of State for designation.

64. We expect the Scheme document to include those elements set out in **Box 4**. It is expected that the Scheme will set out the eligibility criteria for the payment of the levy and for those policies that may be ceded by the Scheme which will be consistent with the approach we have described in section 3 on Definitions above. The document may also cover wider issues, but this is for industry to decide.

65. We will also designate the Scheme Administrator who will manage the Scheme. In order to do this the Administrator will need to have been incorporated under the Companies Act 2006 and have commenced the authorisation process required by financial regulators.

**Question 12:**
**Government expects the Scheme to cover all of the areas set out in Box 4. Do you believe the Scheme should cover any other areas (Y/N)? If so, what would you wish to see?**

**Box 4: The Flood Re Scheme**

The Scheme Document should set out the parameters within which Flood Re operates. That is:

i. **Scheme Purpose**: The provision of reinsurance to relevant insurers (whose policies are eligible for the Scheme), in order to promote the availability and affordability of flood insurance for household premises while minimising the costs of doing so and managing, over the period of its operation, the transition to risk reflective pricing of flood insurance for household premises. This should be consistent with what is set by the Act.

ii. **Scheme Scope**: this should set out what policies are eligible for the Scheme and may set out further detail on the definition of flood for underwriting purposes. Those policies that are for properties in Council Tax Band H (and the equivalent in Devolved Administrations), and those built after 1 January 2009 will not be eligible. Only policies for domestic properties will be eligible for the Scheme. Further information is provided in the "Definitions" section of this consultation.

iii. **How Flood Re will work in practice**. This should cover the technical process for the collection of the levy, ceding policies to the Scheme and the paying of claims. It will explain how the requirements set by the regulations will work in practice. It should also cover restrictions on excesses that insurers can set on polices that have been ceded to the Scheme. This will be within £250-£500 as set out in the Memorandum of Understanding.

iv. **Flood Re's limits of liability** which are not greater than the equivalent of a 1 in 200 loss scenario. The 1 in 200 level is the minimum level up to which insurers are required to hold capital under European law. To put this in perspective, a 1 in 200 loss scenario is comparable to six times worse than the 2007 floods. There is no Government liability for Flood Re

v. **How Flood Re's governance will work in practice**, providing detail on how the Scheme will be managed, including its approach to corporate governance and accountability and linking to more detailed information provided by Flood Re's corporate documents. This section of the Scheme should reflect the requirements set by regulations 16, 17, 19 and 20.

vi. It should detail how the Scheme will **provide information** to insurers on flood risk and the nature of the Scheme as required by regulation 25 (and set out in the Scheme Administration section of this consultation).

# Part C: Impact Assessment

66. The revised Impact Assessment published alongside this consultation document sets out an updated analysis of Flood Re. For analysis of other options considered please see the earlier Impact Assessment issued in November 2013.

67. The main changes from the previous Impact Assessments include:

    a. A new estimate facilitated by the industry of the number of households being covered by Flood Re. The number of households that industry expects to be covered under Flood Re has changed from 500,000 to 356,000. This new estimate is based on a more robust sample of 218,000 households, in comparison with the previous estimate which was based on a sample of 36,000 households.

    b. A more robust estimate of the likely overall liability of the pool. A leading risk model provider estimates this risk to be around £121m whereas in the previous impact assessment it was £192m as obtained from a single sample of risk reflective prices.

68. Both of these factors lead to changes to our previous estimates which merits a revision of the Impact Assessment.

69. We continue to believe that Flood Re provides the best option for meeting the wider public interest in securing the availability and affordability of home insurance in areas of high flood risk. It will reduce the uncertainty facing individuals and communities in areas of high flood risk and the wider social and economic impacts that uncertainty could have, for instance on the housing market. However, the value for money calculation included in the impact assessment shows that the quantifiable costs are greater than its estimated benefits. As a result, and as we set out in the passage of the Act through Parliament, a Ministerial Direction will be required.

# Part D: Tell us what you think

## Who will be interested in responding?

This is a public consultation and it is open to anyone with an interest to provide comments. The consultation should be of particular interest to people living in areas of flood risk, local authorities, insurance industry representative bodies, individual insurers and brokers, the property sector, mortgage lenders and those with an interest in flood risk management including flood risk mapping and modelling service providers and flood protection product manufacturers. It also has wider relevance for taxpayers and the general public. The proposed regulations will apply to the United Kingdom.

## Having your say

If you wish to respond, please submit your comments by **16 September 2014**

You can respond in one of three ways:

- Online by completing the questionnaire at https://consult.defra.gov.uk/flooding/floodreinsurancescheme/
- Email to: floodinsurance@defra.gsi.gov.uk
- Post to:

  Flood Insurance Team
  Department for Environment, Food and Rural Affairs
  3rd Floor, Nobel House
  17 Smith Square
  SW1P 3JR

Our preferred method is online because it is the fastest and most cost-effective way for us to collate and analyse responses.

Unless you specifically request your response to be treated confidentially, responses may be made publicly available.

# Consultation Questions

**Question 1:**
The proposed regulations will ensure that the Responsible Officer is directly accountable to Parliament for Flood Re's operation, and set out specific duties for the Responsible Officer. Do you agree these duties are sufficient (Y/N)?

**Question 2:**
We are not defining economy, efficiency and effectiveness, propriety and regularity or the public interest in the regulations; we believe their natural meanings are clear. Do you agree with this approach (Y/N)? If you think that these terms need defining, either in legislation or elsewhere, what factors should be considered in their interpretation?

**Question 3:**
Do you think that the publication of a transition plan and provision of information to insurers is appropriate for making insurers and those at highest risk of flooding aware of the transitional nature of Flood Re? If not, what other approach could help householders and insurers understand the transitional nature of the Scheme and help them prepare for the transition to risk reflective prices?

**Question 4:**
Do you agree that the funding arrangements in the regulations (including regulation 17 above) achieve the right balance between operational freedom; certainty for insurers; and accountability for the handling of public money (Y/N)?

**Question 5:**
Are there any practical difficulties with the approach of using Gross Written Premium and "Home Insurance" to calculate the levy for "relevant insurers" (Y/N)?

**Question 6:**
Do you think that the approach for estimating GWP for insurers who fail to provide this information within the timeframe is fair (Y/N)?

**Question 7:**
If no to either of the previous two questions, what changes to this approach should be considered and why?

**Question 8:**
Do you agree with the approach as set out, of a regular review of the primary levy and premium thresholds (at least every five years or sooner as required (Y/N)? If no, what changes to this approach should we consider?

**Question 9:**
Do you agree that these are the right definitions for the purposes of the Scheme (Y/N)? If not what changes would you suggest?

**Question 10:**
Do you agree it is necessary to provide more detail on the definition of flood in the Scheme Document (Y/N)? If not, please give details of what should be changed on the approach taken for "flood"?

**Question 11:**
Do you agree that definitions for “buildings only policy”, “contents” and “combined policy” are needed (Y/N)? If not, please explain why not.

**Question 12:**
Government expects the Scheme to cover all of the areas set out in **Box 4**. Do you believe the Scheme should cover any other areas (Y/N)? If so, what would you wish to see?

*Draft Regulations laid before Parliament under section *** of the Water Act 2014, for approval by resolution of each House of Parliament.*

STATUTORY INSTRUMENTS

# 2015 No.

# [INSURANCE]

# The Flood Reinsurance Scheme Funding and Administration Regulations 2015

| | |
|---|---|
| *Made - - - -* | *** |
| *Coming into force - -* | *** |

The Secretary of State, with the consent of the Treasury, in exercise of the powers conferred by sections 64(3), 66(1), (3) and (4), 67(1) to (7), 67(9) and 82(3) and (5) of the Water Act 2014(**a**) ("the Act"), makes the following Regulations.

The Secretary of State has consulted such persons as the Secretary of State thinks appropriate in accordance with section 82(4) of the Act.

A draft of these Regulations has been laid before and approved by a resolution of each House of Parliament pursuant to section 84(6) of the Act.

**Citation and commencement**

**1.** These Regulations may be cited as the Flood Reinsurance Scheme Funding and Administration Regulations 2015 and come into force on 6th April 2015.

**Interpretation**

**2.** In these Regulations—

"the Act" means the Water Act 2014;

"buildings only policy" means an insurance policy covering the structure of a dwelling including fixtures and fittings, swimming pools, permanently fixed hot tubs, tennis courts, patios, terraces, service tanks, drains, septic tanks, pipes and cables, central heating fuel storage tanks, driveways, footpaths, garden walls, hedges, gates and fences;

"combined policy" means an insurance policy which comprises a buildings only policy and a contents only policy;

"consumer prices index" means the all items consumer prices index published by the Statistics Board or, if that index is not published for a relevant month, any substituted index or index figures published by the Statistics Board;

(**a**) c.21

"contents" may include household goods and personal possessions including valuables (except fine art), clothes, sports equipment and bicycles, camping equipment, money, satellite dishes, aerials and other articles, unless otherwise insured, for which the policyholder is responsible or that belong to the policyholder, domestic staff who live in the dwelling or guests, except paying guests;

"contents only policy" means an insurance policy covering the contents of a dwelling;

"dwelling" means any land and building in the United Kingdom that is held by the occupier for private, domestic and residential use (whether or not with others), including a house or other single dwelling; and any property which forms part of, or is enjoyed with, the dwelling;

"financial year" means a period of 12 months ending on the 31st March;

"the FR Scheme administrator" means the body designated by the Flood Reinsurance Scheme Administrator Designation Regulations 2015;

"the FR Scheme" means the scheme designated as the Flood Reinsurance Scheme by the Flood Reinsurance Scheme Designation Regulations 2015;

"gross written premium" means the amount paid or payable by, or on behalf of, policyholders for home insurance in the United Kingdom, in sterling, before the deduction of any amount including any commission by any party but excluding insurance premium tax;

"home insurance" means a contract of insurance effected in the UK covering any risk of damage to, or loss or destruction of, either or both of the whole or part of a dwelling and its contents, and which meets the criteria set out in [AA] of the Scheme;

"preceding calendar year", in relation to a financial year, means the year ending on 31st December immediately preceding the period of the financial year.

**Definitions in the Act**

**3.** For the purposes of Part 4 of the Act, "relevant insurer" means an insurer(**a**) who as at any date within the period beginning 6th April 2015 and ending 31st March 2016 ("the period") or during any subsequent financial year—

(a) is authorised to effect and carry out home insurance, or has been authorised at any time during the period of 12 months immediately preceding the first day of the period or the financial year; or

(b) is a member of the Society (within the meaning of the Lloyd's Act 1982) and, as such a member—

(i) effected or was party to any agreement to effect any contract of home insurance in the UK at any time during the period of 12 months immediately preceding the first day of the period or the financial year; or

(ii) effects or is party to any agreement to effect any contract of home insurance in the UK during the period or the financial year.

**4.** For the purposes of sections 64 to 69 of the Act—

"flood" means water, from any source external to a property, which enters that property at or below ground level;

"household premises" means a dwelling which is covered by a home insurance policy and meets the criteria set out in [BB] of the FR Scheme.

**Payment of the Levy**

**5.**—(1) A relevant insurer must pay to the FR Scheme administrator a levy each financial year calculated in accordance with the following formula—

(**a**) For the definition of insurer see section 82(1) of the Act.

$$TL \times \frac{X}{Y}$$

(2) For the purposes of the formula in regulation 5(1)—

For the period 6th April 2015 to 31st March 2016, "TL" means the total levy of £180 million;

For each of the following 4 financial years, "TL" means the total levy of £180 million;

"X" means the relevant insurer's gross written premium for the preceding calendar year unless regulation 6 applies; and

"Y" means the sum of all relevant insurers' "X" for the preceding calendar year.

**6.** If a relevant insurer fails to provide the information in regulation 9 within the required period, "X" is the amount considered by the FR Scheme administrator to be a reasonable estimate of the gross written premium of the relevant insurer.

**7.** For the financial year commencing on the 1st April 2015, the levy under regulation 5 is due on the [6th April 2015] and shall be payable quarterly by each relevant insurer no later than 30 days following a request in writing by the FR Scheme administrator.

**8.** For each subsequent financial year, the levy under regulation 5 is due on the 1st April of that subsequent year and shall be payable quarterly by each relevant insurer no later than 30 days following a request in writing by the FR Scheme administrator.

**Provision of information by relevant insurers**

**9.** A relevant insurer must provide to the FR Scheme administrator within 30 days of a written request, information relating to the total of the gross written premium of home insurance policies effected by it in the preceding calendar year.

**Payment of additional levy or contributions**

**10.**—(1) A relevant insurer must pay by levy or contribution any additional amount as may be requested by the FR Scheme administrator from time to time in accordance with the FR Scheme.

(2) When making a request for any additional amount under regulation 10(1), the FR Scheme administrator must comply with the circumstances set out in regulation 11.

**Circumstances for payment of additional levy or contribution**

**11.**—(1) The circumstances referred to in regulation 10(2) are that—

(a) the total additional amount requested from all relevant insurers at any one time must not be more than the amount that the FR Scheme administrator considers appropriate for the prudent management of the FR Scheme;

(b) the FR Scheme administrator must notify the Secretary of State within 30 days of the request, the amount requested and the reasons for the request:

(c) the amount requested from a relevant insurer shall be calculated in accordance with the following formula—

$$TAA \times \frac{X}{Y}$$

(2) For the purposes of the formula in regulation 11(1)—

'TAA' means the total additional amount requested by the FR Scheme administrator in accordance with regulation 10 at any one time; and

'X' and 'Y' have the same meaning as in regulation 5.

**Application of levy or contributions collected**

**12.** The FR Scheme administrator must use the levy collected under regulation 5, and any additional levy or contributions collected under the regulation 10 for the following purposes only–

(a) the purposes of the FR Scheme; and

(b) the administration of the FR Scheme.

**Recovery of amounts due as a civil debt**

**13.** The FR Scheme administrator may recover as a civil debt any levy under regulation 5 or additional amount under regulation 10 that remains unpaid 30 days after the date of the request in writing.

**FR Scheme reinsurance premium thresholds**

**14.**—(1) The FR Scheme administrator in the financial year commencing on 1st April 2015 shall charge a relevant insurer for reinsurance premiums in respect of the flood risk element of a combined policy, a buildings only policy or a contents only policy, for household premises, no more than the amount specified for each such policy corresponding with the relevant valuation band as set out in Table 1 in the Schedule:

(a) in the second column of the table for a combined policy;

(b) in the third column of the table for a buildings only policy; or

(c) in the fourth column of the table for a contents only policy,

where the relevant household premises being insured is located in England, Wales or Scotland.

(2) The FR Scheme administrator in the financial year commencing on 1st April 2015 shall charge a relevant insurer for reinsurance premiums in respect of the flood risk element of a combined policy, a buildings cover policy or a contents cover policy, for household premises, no more than the amount specified for each such policy corresponding with the relevant Flood Re category as set out in Table 2 in the Schedule:

(a) in the second column of the table for a combined policy;

(b) in the third column of the table for a buildings only policy; or

(c) in the fourth column of the table for a contents only policy,

where the relevant household premises being insured is located in Northern Ireland.

(3) For the purposes of regulation 14(1);

(a) 'relevant valuation band' for properties in England shall be the same as those set out in section 5(2) of the Local Government Finance Act 1992(**a**).

(b) 'relevant valuation band' for properties in Wales shall be the same as those set out in section 5(3) of the Local Government Finance Act 1992.

(c) 'relevant valuation band' for properties in Scotland shall be the same as those set out in section 74(2) of the Local Government Finance Act 1992.

(4) For the purposes of regulation 14(2) Flood Re categories are set out in the table below—

| *Values of Properties at 1st January 2005* | *Flood Re Category* |
|---|---|
| Values not exceeding £72,500 | 1 |
| Values exceeding £72,500 but not exceeding £92,500 | 2 |
| Values exceeding £92,500 but not exceeding £125,000 | 3 |
| Values exceeding £125,000 but not exceeding £160,000 | 4 |
| Values exceeding £160,000 but not exceeding £205,000 | 5 |

(**a**) 1992 c.14.

| | |
|---|---|
| Values exceeding £205,000 but not exceeding £260,000 | 6 |
| Values exceeding £260,000 but not exceeding £450,000 | 7 |
| Values exceeding £450,000 | 8 |

**Calculation of reinsurance premium thresholds**

**15.**—(1) For the financial year commencing on or after 1st April 2016, and each subsequent financial year, the amounts set out in Table 1 and Table 2 in the Schedule for the reinsurance premium thresholds will be adjusted in accordance with the following formula—

$$A \times CP$$

with the resulting figure being stated to two decimal places and rounded to the nearest penny.

(2) In paragraph (1)—

"A" is the amount of the reinsurance premium threshold in the preceding financial year; and

"CP" is the percentage increase or decrease in the consumer prices index for the immediately preceding calendar year.

**Exercise of the FR Scheme administrator's functions**

**16.** The FR Scheme administrator must have regard to the following in discharging its functions—

(a) the need to ensure economy, efficiency and effectiveness in the discharge of those functions,

(b) the need to act in the public interest, and

(c) the need to ensure propriety and regularity in the operation of the FR Scheme.

**Restrictions on the exercise of the FR Scheme administrator's functions**

**17.** —(1) In discharging its functions, the FR Scheme administrator must comply with the following conditions—

(a) there shall be a limit on the borrowed amount of £5 million;

(b) the FR Scheme administrator must not borrow from a relevant insurer;

(c) the FR Scheme administrator must not use, or transfer, any assets relating to the FR Scheme, other than for the purposes and the administration of the FR Scheme;

(d) [in the event that the FR Scheme causes an increase in public sector net borrowing, such increase must not exceed £100 million in any financial year.]

(2) For the purposes of regulation 17(1)(a), "borrowed amount" means "the aggregate amount outstanding at the end of the financial year in respect of any sums borrowed by the FR Scheme administrator".

(3) For the purposes of regulation 17(1)(c), "purposes" includes purposes incidental to the FR Scheme.

**Transition to risk reflective pricing of flood insurance**

**18.**—(1) The FR Scheme administrator must have regard to the need to manage, over the period of operation of the FR Scheme, the transition to risk-reflective pricing of flood insurance for household premises.

(2) The FR Scheme administrator must produce and publish a plan for achieving the transition referred to in regulation 18(1) (to be known as the transition plan) within 3 months of these regulations coming into force.

(3) The transition plan may contain the following—

(a) the steps which the FR Scheme administrator will take to manage the transition referred to in regulation 18(1) over the period of operation of the FR Scheme;

(b) general information about the estimated impact of those steps on the amount of the levy and the reinsurance premium thresholds payable under regulation 14 over the period of operation of the FR Scheme;

(c) any other general information relating to the transition plan which the FR Scheme administrator may decide to publish.

(4) The FR Scheme administrator must update and publish the transition plan at regular intervals and at least every 5 years.

(5) The FR Scheme administrator must publish the transition plan and any subsequent updated transition plan by placing it on its website.

**The Responsible Officer**

**19.** The FR Scheme administrator must designate the person who acts as its Chief Executive Officer as the responsible officer of the FR Scheme.

**20.** The responsible officer has the following responsibilities in relation to the FR Scheme—

(a) accountability to Parliament for the stewardship of the FR Scheme, including management of its finances;

(b) accountability to Parliament for the economy, efficiency and effectiveness with which the FR Scheme uses resources in discharging its functions;

(c) accountability to Parliament for propriety and regularity in the operation of the FR Scheme;

(d) accountability to Parliament for any reports laid under regulation 22; and

(e) the laying of a copy of the audited statement of accounts of the FR Scheme and the annual report of its auditor before the House of Commons, no later than 3 months after the end of the financial year to which those accounts and annual report apply.

**Powers of the Comptroller and Auditor General**

**21.** The Comptroller and Auditor General may carry out examinations into—

(a) the economy, efficiency and effectiveness with which the FR Scheme administrator has used resources in discharging its functions, and

(b) propriety and regularity in the operation of the FR Scheme.

**22.**—(1) For the purposes of carrying out an examination under regulation 21, the Comptroller and Auditor General shall have a right of access, at all reasonable times, to all such documents relating to the FR Scheme as may be reasonably required.

(2) The Comptroller and Auditor General shall be entitled to require from any person who holds or has control of any such document such information and explanation as are reasonably necessary in relation to any of those documents.

(3) The Comptroller and Auditor General shall lay any reports on any examinations carried out under regulation 21 before the House of Commons.

**Provision of information by the FR Scheme administrator**

**23.** If, and in so far as, the FR Scheme impacts on public accounts, the FR Scheme administrator must provide to the Secretary of State any information in relation to the FR Scheme which the Secretary of State requires for the purposes of government accounting.

**Provision of information to relevant insurers**

**24.** The FR Scheme administrator must provide, by [xx date] of each year, the following information to relevant insurers who have issued insurance policies that are reinsured under the FR Scheme, so that a relevant insurer may supply the information to holders of those policies—

(a) general information about how to find out about the levels of flood risk to which an area in which household premises are situated is subject and general information about how to find out about how any flood risk may be managed;

(b) general information about the FR Scheme; and

(c) general information about the estimated impact of the transition referred to in regulation 18(1) on the cost of those insurance policies.

**Review**

**25.**—(1) Not less than 12 months before the end of the review period or on request by the Secretary of State whichever is the sooner, the FR Scheme administrator must—

(a) produce a report reviewing the scheme and setting out possible combinations of the levy under regulation 5 and the reinsurance premium thresholds under regulation 14, in light of the transitional arrangements as outlined in the published transition plan and all other relevant evidence; and

(b) send a copy of this report, including any recommendations, to the Secretary of State.

(2) The report must in particular set out an assessment of the levy under regulation 5 and the reinsurance premium thresholds under regulation 14 proposed for the following 5 year period; including the actuarial evidence which underpins this assessment.

(3) In considering whether to amend these Regulations the Secretary of State must consider any recommendations made in a report referred to in regulation 25(1)(a).

(4) The FR Scheme administrator must provide to the Secretary of State any information requested by Secretary of State to enable the Secretary of State to carry out an actuarial review of the recommendations in the report.

(5) In this regulation, "review period" means the period of 5 years ending 5th April 2020 and each successive period of 5 years.

**26.**—(1) If the total net additional amount by way of contribution requested by the FR Scheme administrator exceeds £100million at any time the FR Scheme administrator must—

(a) evaluate the circumstances and reasons that led to each request for additional amounts; and

(b) set out the detail of this evaluation in a report to the Secretary of State and make recommendations (including but not limited to, any suggested changes to the level of reinsurance premium thresholds or the levy).

(2) In considering whether to amend these regulations the Secretary of State must consider the recommendations in the report referred to in regulation 26(1)(b).

# SCHEDULE

Regulation 14

## Reinsurance Premium Thresholds

**Table 1**

**Household premises in England, Wales and Scotland**

| *Valuation Band* | *Combined Policy* | *Buildings only policy* | *Content only policy* |
|---|---|---|---|
| A | £210 | £132 | £78 |

| | | | |
|---|---|---|---|
| B | £210 | £132 | £78 |
| C | £246 | £148 | £98 |
| D | £276 | £168 | £108 |
| E | £330 | £199 | £131 |
| F | £408 | £260 | £148 |
| G | £540 | £334 | £206 |

**Table 2**

**Household premises in Northern Ireland**

| *Flood Re category* | *Combined Policy* | *Buildings only policy* | *Contents only policy* |
|---|---|---|---|
| 1 | £210 | £132 | £78 |
| 2 | £210 | £132 | £78 |
| 3 | £246 | £148 | £98 |
| 4 | £276 | £168 | £108 |
| 5 | £330 | £199 | £131 |
| 6 | £408 | £260 | £148 |
| 7 | £540 | £334 | £206 |

We consent

*Name*
*Name*
Two of the Lords Commissioners of Her Majesty's Treasury

Date

*Name*
Address
Parliamentary Under Secretary of State
Date
Department

**EXPLANATORY NOTE**

*(This note is not part of the Regulations)*

The Water Act 2014**(a)** ("the Act") contains new arrangements designed to promote the availability and affordability of home insurance in areas of high flood risk.

These Regulations set out the funding arrangements for the FR Scheme and the administrative requirements for the running of the FR Scheme by the FR Scheme administrator. The FR Scheme and the FR Scheme administrator have been designated by the Secretary of State.

Regulations 3 and 4 define the terms 'relevant insurer', 'household premises' and 'flood' for the purposes of the Act. Regulations 5 to 8 set out that the levy from relevant insurers in each of the first 5 years will be £180million and how the FR Scheme administrator will calculate the levy due from each relevant insurer. The levy will become due at the beginning of each financial year and is payable quarterly.

Regulation 9 requires relevant insurers to provide information on their gross written premium in the previous year so that the levy can be calculated.

**(a)** c.21.

Regulations 10 to 12 require relevant insurers to pay additional levy or contribution if requested by the FR Scheme administrator, set out the conditions the FR Scheme administrator must adhere to when making a request for additional levy or contribution and the formula to be used in calculating how much each relevant insurer must pay. Regulation 13 provides for unpaid levy payable under regulation 5 or unpaid additional levy payable under regulation 10 to be collected as a civil debt.

Regulation 14 and the tables in the Schedule, set out the maximum (the thresholds) the FR Scheme administrator may charge relevant insurers for reinsurance premium in respect of the flood risk element of an insurance policy. Regulation 15 provides for those thresholds to be adjusted each year in line with the change in value of the consumer prices index.

Regulation 16 requires the FR Scheme administrator to consider the need to ensure economy, efficiency and effectiveness when discharging its functions. The FR Scheme administrator must also consider the need to act in the public interest and the need to ensure propriety and regularity in the operation of the FR Scheme.

Regulation 17 set out various restrictions on the FR Scheme administrator when it is discharging its functions.

Section 64(2)(b) of the Act provides that one of the purposes of the FR Scheme is to manage, over the period of operation of the Scheme, the transition to risk reflective pricing of flood insurance for household premises. Regulation 18 requires the FR Scheme administrator to have regard to the need to manage the transition to risk reflective pricing. Regulation 18 also places a requirement on the FR Scheme administrator to produce and publish a transition plan, and sets out some of the matters which may be dealt with in the plan. The FR Scheme administrator must update the transition plan at least every 5 years. The FR Scheme administrator must publish the plan (and any updated transition plan) on its website.

Regulation 19 requires the FR Scheme administrator to appoint the person acting as its Chief Executive Officer as its responsible officer. Regulation 20 sets out the responsibilities of the responsible officer in relation to the FR Scheme.

Regulations 21 and 22 provide powers for the Comptroller and Auditor General to carry out examinations into the economy, efficiency and effectiveness with which the FR Scheme administrator has used its resources, and also to carry out examinations into the propriety and regularity in the operation of the FR Scheme. Regulation 22 provides powers of access to necessary documentation for these examinations, as well as requiring those with custody of such documentation to provide information and explanation as reasonably required.

Regulation 23 requires the FR Scheme administrator to provide any information which the Secretary of State may require for the purposes of government accounting. This requirement will apply should the FR Scheme impact on government accounts.

Regulation 24 places requirements on the FR Scheme administrator to provide general information on certain matters to relevant insurers, who may then supply that information to holders of insurance policies which are reinsured under the FR Scheme.

Regulation 25 sets out arrangements for the review of the FR Scheme by the FR Scheme administrator, which must take place not less than 12 months before the end of the review period (which is 5 years from the coming into force of these Regulations). The FR Scheme administrator must produce a report and provide a copy to the Secretary of State. Regulation 25 also places a requirement on the FR Scheme administrator to provide any information which the Secretary of State may require to carry out an actuarial review of the recommendations in the report provided by the FR Scheme administrator.

Regulation 26 sets out what the FR Scheme administrator is required to do if the total amount of funds which are called by the FR Scheme administrator from relevant insurers exceeds £100 million at any one time. The FR Scheme administrator must evaluate the circumstances which led to the calling of each individual instance of the contribution and report to the Secretary of State on

the evaluation. When considering whether to amend these Regulations, the Secretary of State must consider the recommendations provided in any such report.

*Draft Regulations laid before Parliament under section 84(6) of the Water Act 2014, for approval by resolution of each House of Parliament.*

D R A F T  S T A T U T O R Y  I N S T R U M E N T S

# 2015 No.

# [INSURANCE]

# The Flood Reinsurance Scheme Administrator Designation Regulations 2015

| | |
|---|---|
| *Made - - - -* | *** |
| *Coming into force - -* | *6th April 2015* |

The Secretary of State, in exercise of the powers conferred by section 65(1) and (2) of the Water Act 2014(**a**), makes the following Regulations.

A draft of these Regulations has been laid before and approved by a resolution of each House of Parliament pursuant to section 84(6) of that Act.

**Citation and commencement**

**1.** These Regulations may be cited as the Flood Reinsurance Scheme Administrator Designation Regulations 2015 and come into force on 6th April 2015.

**Designation of the Flood Reinsurance Scheme administrator**

**2.** [*** Limited] (registered number ***) is designated as the Flood Reinsurance Scheme administrator for the purposes of section 65(1) of the Water Act 2014.

*Name*
Parliamentary Under Secretary of State
Date Department for Environment, Food and Rural Affairs

(**a**) 2014 c.21.

**EXPLANATORY NOTE**

*(This note is not part of the Regulations)*

These Regulations designate [company name][insert company number] as the Flood Reinsurance Scheme administrator ("FR Scheme administrator") for the purposes of section 65 of Part 4 (flood insurance) of the Water Act 2014 (c. 21). Part 4 of the Water Act provides for the establishment in the United Kingdom of a Flood Reinsurance Scheme.

The FR Scheme administrator is to administer the Flood Reinsurance Scheme designated by Regulations made by the Secretary of State under powers conferred by section 64(1)(b) of the Water Act 2014.

*Draft Regulations laid before Parliament under section 84(6) of the Water Act 2014, for approval by resolution of each House of Parliament.*

D R A F T  S T A T U T O R Y  I N S T R U M E N T S

# 2015 No.

# [INSURANCE]

# The Flood Reinsurance Scheme Designation Regulations 2015

| | |
|---|---|
| *Made - - - -* | *** |
| *Coming into force - -* | *6th April 2015* |

The Secretary of State, in exercise of the powers conferred by section 64(1)(b) of the Water Act 2014(**a**), makes the following Regulations.

A draft of these Regulations has been laid before and approved by each House of Parliament pursuant to section 84(6) of that Act.

**Citation and commencement**

**1.** These regulations may be cited as the Flood Reinsurance Scheme Designation Regulations 2015 and come into force on 6th April 2015.

**Designation of the Flood Reinsurance Scheme**

**2.** The [*** Scheme] dated [**] and produced by [**] is designated as the Flood Reinsurance Scheme for the purposes of Part 4 of the Water Act 2014.

*Name*
Address — Parliamentary Under Secretary of State
Date — Department for Environment, Food and Rural Affairs

(**a**) 2014 c.21.

**EXPLANATORY NOTE**

*(This note is not part of the Regulations)*

These Regulations designate [ ] as the Flood Reinsurance Scheme for the purposes of the Water Act 2014 (c.21), Part 4 (flood insurance).

Section 64 of that Act provides that the Flood Reinsurance Scheme is a scheme established for the purpose of providing reinsurance to relevant insurers in respect of such risks arising from a flood as are identified by the scheme. A copy of the Scheme can be found at [link***].

Lincolnshire COUNTY COUNCIL
Working for a better future

**Policy and Scrutiny**

| **Open Report on behalf of Richard Wills, Director responsible for Democratic Services** | |
|---|---|
| Report to: | **Flood and Drainage Management Scrutiny Committee** |
| Date: | **5 September 2014** |
| Subject: | **Flood and Drainage Management Scrutiny Committee Work Programme** |

**Summary:**

This report enables the Flood and Drainage Management Scrutiny Committee to consider its Work Programme for the coming year.

**Actions Required:**

To consider and comment on the work programme as set out in Appendix A to this report.

## 1. Background

At every meeting of the Committee, Members will be invited to consider their future Work Programme and to agree on items to be included.

Work Programme Definitions

Set out below are the definitions used to describe the types of scrutiny, relating to the items on the Work Programme:

Performance Scrutiny - The Committee is scrutinising periodic performance, issue specific performance or external inspection reports.

Policy Development - The Committee is involved in the development of policy, usually at an early stage, where a range of options are being considered.

Consultation - The Committee is responding to (or making arrangements to) respond to a consultation, either formally or informally. This includes pre-consultation engagement.

Status Report - The Committee is considering a topic for the first time where a specific issue has been raised or members wish to gain a greater understanding.

Update Report - The Committee is scrutinising an item following earlier consideration.

Scrutiny Review Activity - This includes discussion on possible scrutiny review items; finalising the scoping for the review; monitoring or interim reports; approval of the final report; and the response to the report.

## 2. Conclusion

To consider and comment on the Work Programme.

## 3. Consultation

### a) Policy Proofing Actions Required

Not applicable.

## 4. Appendices

| These are listed below and attached at the back of the report | |
|---|---|
| Appendix A | Flood and Drainage Management Scrutiny Committee Work Programme |

## 5. Background Papers

No background papers within Section 100D of the Local Government Act 1972 were used in the preparation of this report.

This report was written by Louise Tyers, who can be contacted on 01522 552102 or louise.tyers@lincolnshire.gov.uk.

**APPENDIX A**

# Flood and Drainage Management Scrutiny Committee

Chairman: Councillor Lewis Strange
Vice Chairman: Councillor Victoria Ayling

| *Thursday 4 December 2014 10.00am* | | |
|---|---|---|
| **Item** | **Contributor** | **Purpose** |
| Investigations held under Section 19 of the Flood and Water Management Act 2010 | Mark Welsh, Flood and Water and Major Developments Manager | Update Report |
| Partnership Funding and the Constraints Anglian Water work under as a regulated industry | Jonathan Glerum, Anglian Water | Status Report |
| Flood Risk Management Plan | David Hickman, Strategic Partnership Manager | Update Report |
| Local Prioritisation Methodology | Mark Welsh, Flood and Water and Major Developments Manager | Status Report |
| Louth and Horncastle Flood Alleviation Schemes Update | Andrew Barron, Environment Agency | Update Report |
| Parliamentary Environment Select Committee Report on the Winter Floods 2013/14 and Government Response | TBC | Status Report |

| *Friday 27 February 2015 10.00am* | | |
|---|---|---|
| **Item** | **Contributor** | **Purpose** |
| Investigations held under Section 19 of the Flood and Water Management Act 2010 | Mark Welsh, Flood and Water and Major Developments Manager | Update Report |
| Louth and Horncastle Flood Alleviation Schemes Update | Andrew Barron, Environment Agency | Update Report |

| *Thursday 14 May 2015 10.00am* | | |
|---|---|---|
| **Item** | **Contributor** | **Purpose** |
| Investigations held under Section 19 of the Flood and Water Management Act 2010 | Mark Welsh, Flood and Water and Major Developments Manager | Update Report |
| Louth and Horncastle Flood Alleviation Schemes Update | Andrew Barron, Environment Agency | Update Report |

**To be scheduled:**

- Revised LRF Recovery Plan
- SUDS Update
- Donna Nook

**For more information about the work of this Committee please contact Louise Tyers, Scrutiny Officer on 01522 552102 or by e-mail at louise.tyers@lincolnshire.gov.uk**