



Open Report on behalf of the Environment Agency

Report to:	Flood and Water Management Scrutiny Committee
Date:	21 February 2022
Subject:	Environment Agency Update

Summary:

This is an update to the Flood and Water Management Scrutiny Committee on Environment Agency activities in Lincolnshire, including progress on key capital schemes.

Recommendation(s):

The Flood and Water Management Scrutiny Committee is invited to consider and comment on this report.

1 Saltfleet to Gibraltar Point Beach Management

Start Date	April 2020
End Date	August 2021
Total project cost	£52,717,000
Partnership Funding required?	N
Total Partnership Funding	£0
Who is contributing?	Environment Agency
Households better protected	28,056

Background:

Beach re-nourishment scheme protecting approximately 20,000 houses, 35,000ha prime agricultural land and 30,000 static caravans as well as major tourism developments between Mablethorpe and Skegness.

Update since last meeting:

Following on from a successful nourishment campaign the team have been scoping projects under the additional works programme. This includes the design for sealing two walkthroughs at Winthorpe that run under the defence, repairs to the Environment Agency (EA) owned access track at Wolla Bank, repairs to the splash deck between Huttoft car terrace (north) to Sandilands and SI works on the beach at various locations to aid the Residual Life project (assessing the condition of the existing defence). Winthorpe construction works were completed at the end of November and the contractors are currently undertaking repairs to the track at Wolla Bank, the remaining projects are still in the design phase, but it is anticipated that these will be included this financial year.

2 Middle River Ancholme - catchment management

Start Date	March 2022
End Date	June 2025
Total project cost	£850,000
Partnership Funding required?	N
Total Partnership Funding	N/A
Who is contributing?	Environment Agency
Households better protected	88

Background:

This project aims to deliver the policies within the Ancholme Catchment Flood Management Plan (CFMP) and builds on previous River Ancholme strategy from early 2000s. Previous projects tried unsuccessfully to develop formal flood storage areas, but these were found to be unaffordable under the Partnership Funding policy.

This new approach aims to build a partnership with the landowners and Ancholme Internal Drainage Board (IDB) to develop a more affordable, sustainable and flood resilient approach. Including, by identify where water could be stored within the catchment and then utilising the existing drainage infrastructure more effectively.

This will mean apportioning the available economic benefits to justify a range of investments to existing Main River, surface water and land drainage networks, and potentially adjust the governance to some of the watercourses.

This collaboration will also involve the newly formed Ancholme Catchment Partnership and consider the need for water storage for both public/industry water supply and irrigation purposes.

The comprehensive approach will require a long development period with envisage phases of changes/improvements, that take opportunities of the emerging changes to

farming subsidies. The project complements the catchment modelling and forward planning being undertaken by Ancholme IDB.

Update since last meeting:

The Strategic Outline case has been drafted, but not yet approved. The approach is being developed in collaboration with Ancholme IDB and the Ancholme Catchment Partnership (led by Lincolnshire Wildlife Trust).

This collaborative approach allows a more holistic and sustainable approach to be implemented. Benefit apportionment work has been started to optimise the required investment by all Risk Management Authorities (RMAs). The aim remains to complete the outline business case around the end of 2023, with detailed design during 2024 and an initial programme of works up to 2027.

3 Wainfleet Flood Resilience Scheme

Start Date	June 2021
End Date	March 2023
Total project cost	£3,174,000
Partnership Funding required?	N
Total Partnership Funding	N/A
Who is contributing?	Environment Agency
Households better protected	47

Background:

In June 2019, two and a half times the month’s average rainfall fell in 3 days in the Steeping catchment. This led to overtopping of the defences and ultimately a breach in the right bank of the Wainfleet Relief Channel on 12 June 2019. 75 homes and businesses were flooded, as well as 2000 acres of agricultural land. In response to this the Steeping River Steering Group was set up and published a Catchment Action Plan which was recently refreshed and published in May 2021. This contains an action to increase the resilience of the raised defences, which protect the western side of Wainfleet against overtopping and the effects of climate change. This capital project seeks to deliver this action.

Update since last meeting:

The project team is working to finalise the Strategic Outline Case (SOC) by the end of February 2022. A scope of work to undertake an assessment of the economic benefits in the catchment is being finalised, this will support the apportionment of benefits for other schemes to be delivered by other RMAs. Initial discussions have been held with Lindsey Marsh Drainage Board to consider the options available for increasing the resilience of the defences. Further engagement on this will also be held with other Steering Group partners and the community in due course.

In addition to the capital scheme development, phase 2 of the dredging programme has commenced on the Wainfleet Relief Channel. Works have also been completed to replace the tidal doors at the Borough Sluice Outfall near Gibraltar Point.

4 Humber – Donna Nook

Start Date	July 2005
End Date	June 2019
Total project cost	£9,914,000
Partnership Funding required?	N
Total Partnership Funding	N/A
Who is contributing?	Environment Agency
Households better protected	1

Background:

Donna Nook is a managed realignment site on the outer south of the Humber Estuary which has opened up 106ha of land to tidal inundation and the adaptation of the site to intertidal habitat. The project reduces the risk of flooding to communities, businesses and agricultural land in the area and has helped reproduce valuable intertidal habitats to account for direct and indirect losses in the Humber Estuary. The realignment provides many local benefits, including improved tidal defences from Saltfleet to Tetney that protect almost 1200 properties and over 13,000ha of agricultural land.

Update since last meeting:

The Environment Agency has now completed all outstanding construction activities at the site and demobilised for the last time. The Little Tern Islands are now managed by the Environment Agency’s Mablethorpe Field Team and works to clear the scrub off the islands have been completed.

We continue to progress this year’s monitoring activities and anticipate receipt of the comparison reports against the 2018 pre-breach data by the end of this financial year. This work is essential in understanding the realignment site’s performance in compensating for lost habitat in the Outer South Humber Estuary and in assessing Water Framework Directive requirements.

5 Saltfleet to Gibraltar Point Enhancing Lincolnshire Coast

Start Date	August 2020
End Date	August 2035
Total project cost	£98,750,000
Partnership Funding required?	N
Total Partnership Funding	N/A
Who is contributing?	Environment Agency
Households better protected	0

Background:

Enhancing Lincolnshire Coast project would be a significant investment from government and therefore needs to deliver the maximum returns for all partners and stakeholders, by 'doing the project right' and 'doing the right project'. Enhancing the Lincolnshire Coast project will be the phase of works that follows on from the nourishment, which is currently proposed until around 2040, and will evidence and deliver transformation of flood risk management infrastructure of the East Coast of Lincolnshire.

Update since last meeting:

A Collaborative Agreement has now been signed by the University of Lincoln, Lincolnshire County Council and Environment Agency. It is hoped that East Lindsey District Council will sign up to this Collaborate Agreement shortly. The first deliverable through this agreement will be a Climate Change Risk Assessment (CCRA) for the East Lindsey coast. This CCRA will be used to evidence and inform partners next steps including their local ambitions, with their associated necessary commitments, as we work together to achieve a sustainable future through resilient communities on the coast.

6 Boston Barrage/Barrier Works

Start Date	May 2014
End Date	July 2022
Total project cost	£148,494,844
Partnership Funding required?	N
Total Partnership Funding	N/A
Who is contributing?	Environment Agency
Households better protected	14,256

Background:

The Boston Barrier scheme, once finished, will provide better protection to over 14,000 properties against tidal flooding and is deemed a 'National Priority Project' within the Environment Agency's Six Year Programme

Update since last meeting:

The North Bank quayside flood wall is now complete and in service. Construction work on elements of floodwall around the port wet dock and the approaches to Maud Foster Sluice to the east of the port are ongoing, along with final design work for the new Port of Boston Wet Dock gates structures. Contractors Bam Nuttall & Mott MacDonald Joint Venture (BMM JV) will next close the wet dock entrance to facilitate construction of these structures which will replace the existing ones overtopped considerably during the 2013 tidal surge.

The successful operation of the barrier for a surge tide in late 2021 is being reviewed to learn lessons and ensure that the assets and operating procedures are robust. We are also working with PoB staff to ensure that the future operating rules for the Wet Dock assets are mutually suitable and well documented.

Once installed and fully operational, the gates will better protect a further 524 properties from tidal flooding bringing the total homes and businesses in Boston being better protected by the scheme to more than 14,000.

7 Lower Witham Flood Resilience Project

Start Date	April 2022
End Date	March 2027
Total project cost	£161,405,601
Partnership Funding required?	N
Total Partnership Funding	N/A
Who is contributing?	Environment Agency
Households better protected	8,171

Background:

In 1997 the Lower Witham Strategy recommended reinforcement of key embankments whilst allowing some areas to flood, in order to relieve the pressure on the system. Since then, 30km embankments have been reinforced, but repeated high flows have damaged more. Storage options have not been implemented, due to availability of suitable sites and difficulties in meeting HM Treasury funding rules of the time.

The works in the 2000s included the creation of Fiskerton Nature Reserve, as environmental mitigation. Now these types of works are seen as offering a real alternative to hard defences, providing room for flood water as well as having a lower carbon

footprint and enhancing the local environment. Flooding in 2019 has again highlighted the need to update the long-term plan to manage flood risk in the area.

With revised partnership funding rules, allowing more projects to proceed, and a new interest from landowners in providing public goods such as flood storage, it is hoped that the original vision can now be realised.

The Lower Witham is one of six river catchments within the East of England Fens that will come together under the Future Fens: Flood Risk Management programme. This work will contribute towards the ambitions for Climate Resilient Places within the National Flood & Coastal Erosion Risk Management Strategy where there is a specific measure focussed on the Fens.

It is anticipated that a significant capital investment programme will start on the ground in 2025, and in the meantime the Environment Agency's operational teams will continue to maintain and manage the flood risk assets where resources allow.

Update since last meeting:

Channel surveys of the Lower Witham main rivers and IDB pumping stations commenced on 4 January 2022. They are due to complete April 2022. Data is being collated and supplied by the EA to Arup. An inception meeting is planned for early February 2022.

8 Gibraltar Point to Freiston Shore System Sustain Project

Start Date	April 2021
End Date	March 2024
Total project cost	£1,734,000
Partnership Funding required?	N
Total Partnership Funding	£0
Who is contributing?	Environment Agency
Households better protected	2,018

Background:

The project looks at sustaining the primary line of defence of the Wash Frontage from Gibraltar Point to Freiston Shore. This project will look to repair the embankment and sustain the whole line back to its nominal standard of protection and service.

Update since last meeting:

The Strategic Outline Case [SOC] has been completed and awaiting sign off. The Scope of Works have been finalised following a review of the whole frontage, with works been broken into sections to allow focused cost analysis to be carried out. Following approval of

the SOC our framework suppliers will be engaged to begin design, costing and preparation of the Outline Business Case (OBC).

9 Lincoln Washlands control panels

Start Date	April 2019
End Date	March 2021
Total project cost	£2,137,777
Partnership Funding required?	Y
Total Partnership Funding	£60,000
Who is contributing?	Environment Agency, Upper Witham IDB
Households better protected	1,969

Background:

No background information received.

Update since last meeting:

The works are complete and commissioned. Training of the Lincoln Washlands operations team and other incident roles is largely complete.

10 Lincoln Defences

Start Date	June 2018
End Date	March 2022
Total project cost	£6,548,000
Partnership Funding required?	N
Total Partnership Funding	N/A
Who is contributing?	Environment Agency
Households better protected	1,842

Background:

Lincoln is located in a limestone ridge, through which the River Witham flows. A complex system of channels runs through the city, managed by several water level management structures. Key river channels within the City of Lincoln include the River Brant, the Fosdyke Canal, the Sincil Dyke, Boultham Catchwater and Great Gowts Drain. The City of Lincoln has suffered flooding on numerous occasions, most notably in 1947 and 1958.

Water levels are controlled by three sluices (namely Great Gowt Sluice, Stamp End Sluice and Bargate Sluice). The Lincoln Washlands and a system of linear flood defences comprising walls and embankments works in conjunction with the sluices to protect Lincoln from fluvial flooding.

Flood defence assets are generally in good condition; however, a section of the defences along the Foss Bank was reported to be leaking through cracks / joints in the flood wall. Surveys carried out in 2017 also highlighted the fact that sections of the walls along the River Witham need repair work.

The electric components of the three sluices are near the end of their mechanical and electrical life and are unreliable. Good status of the defences is crucial to maintain the existing Standard of Protection in Lincoln and avoid flooding even in relatively moderate flood events.

Update since last meeting:

The construction phase for this project is complete, with some final pieces of tarmacking remaining to do and some "snagging".

11 Boston Haven Banks (downstream of barrier)

Start Date	January 2017
End Date	March 2021
Total project cost	£6,240,439
Partnership Funding required?	Y
Total Partnership Funding	£700,000
Who is contributing?	Environment Agency, Lincolnshire County Council
Households better protected	913

Background:

A number of low spots exist along the Haven banks downstream of the proposed Barrier location. To keep pace with sea level rise and maintain the required standard of protection for Boston, these low spots and works to raise earth embankments to 6.50m AOD are required.

Programme of works to be undertaken over the current 6-year Medium Term Plan (MTP) in conjunction with the Barrier scheme, as described in the various phases of the Boston Combined Strategy.

Through partnership working with Lincolnshire County Council, this project has secured £1M of European funding. To ensure we deliver this project within the European timeframe we are aligning with the Boston Barrier project programme to utilise a more efficient delivery route through a design and build contract.

Update since last meeting:

Boston Haven Banks – works were completed in Autumn 2021 and the footpath was re-opened. We are currently in the defect period with a few snags still to resolve, mostly around grass coverage on the banks which has not been ideal. A review will be carried out in spring to assess the lack of grass growth, which has been caused by a combination of bad timing with sowing/works taking place, and some of the works' site being a popular public right of way.

The Environment Agency are planning on taking on the maintenance in 2022.

Works have included replanting and propagating of the rare Boston Horsetail plant and the project has worked well with the Boston Borough Council and helped accommodate improvements to the Pilgrims Memorial.

12 Boston Upstream Tidal System Sustain Project

Start Date	February 2021
End Date	September 2022
Total project cost	£4,774,791
Partnership Funding required?	N
Total Partnership Funding	N/A
Who is contributing?	Environment Agency
Households better protected	900

Background:

The geographical scope of the project is along the Witham Haven between the Boston Barrier and Grand Sluice (Grand Sluice refurb. being excluded). The objective of this commission is to sustain a revised standard of service of 5.5m AOD, improve the management of flood risk assets in the town of Boston and reduce the risk of an asset failure.

We are undertaking the following:

1. Review of the data: a desktop study of the existing asset data
2. Screening of the data and assessment of the robustness/ usability of data
3. Undertake gap analysis of existing data
4. Provide a report with recommendations, for asset inspection or further surveys as and if required to allow for the SOC to be written including options and costings
5. Prepare a plan for the next stage of the asset inspections. Provide programme, number of people and durations. 6. The next stage - surveys will be added under a separate instruction before SOC stage.

Update since last meeting:

The project team is exploring ways of achieving an interim approval to enable Ground Investigation (GI) work to progress in advance of completing the Strategic Outline Case (SOC). The GI work will inform SoC and future work.

13 River Slea Flood Resilience Project

Start Date	March 2022
End Date	October 2026
Total project cost	£3,660,976
Partnership Funding required?	N
Total Partnership Funding	N/A
Who is contributing?	Environment Agency
Households better protected	582

Background:

This project covers the River Slea main river which runs through the town of Sleaford to Cobblers Lock. In the east of the town the river splits to follow the Sleas Navigation channel to the north and the original course of the Old River Sleas to the south. The navigation follows the contours of the land, dropping the river level from around 13m above sea level in Sleaford, to around 3.5m above sea level via a series of historical locks (not all of which are operational). The Old River Sleas follows a more natural course through the Sleas valley before joining back with the navigation again at Cobblers Lock.

As a river heavily influenced by groundwater flows the Sleas can suffer from low flows at times making abstractions for drinking water and irrigation a challenge. A flow augmentation scheme supports water levels in the river during dry periods.

Through the town itself, a series of movable structures maintain a water level for aesthetic reasons, although these do interfere with natural river processes, are a barrier to fish and eel migration and increase flood risk, which is why they have to open during high flows. These structures now require significant investment. Structures along the old navigation channel are also in a state of disrepair. With government funding to the EA dependent upon evidenced reductions in flood risk, securing sufficient funding to repair/replace assets with no flood risk benefit, is not possible.

Update since last meeting:

Work has begun on the hydrology method, hydraulic modelling, environmental and engagement plans for the project with the aim of options testing, identifying potential site constraints, issues, benefits and stakeholders. The Environment Agency has been invited to join a River Sleas Partnership by North Kesteven District Council, who have also asked the Sleas Navigation Trust and Anglian Water. This is seen as crucial to finding a way

forward for a climate resilient, sustainable, low carbon future for the river that could be a real asset to the town and for the visitor economy.

14 NFM - Swaton Flood Resilience Scheme

Start Date	April 2018
End Date	March 2021
Total project cost	£965,000
Partnership Funding required?	N
Total Partnership Funding	N/A
Who is contributing?	Environment Agency
Households better protected	24

Background:

Natural Flood Management R&D Scheme in the Swaton Eau catchment of the South Forty Foot Drain. Addressing regular flooding to the villages of Swaton, Threekingham and Spanby, where a conventional engineered flood scheme is not viable.

Update since last meeting:

The legal agreement has been issued to the Crown and project team awaiting signatures ready to start construction on the Manor and Grove Farm.

15 Crowland and Cowbit Washes (Welland Flood Banks) Refurbishment

Start Date	October 2021
End Date	March 2026
Total project cost	£6,670,965
Partnership Funding required?	N
Total Partnership Funding	N/A
Who is contributing?	Environment Agency
Households better protected	663

Background:

The Crowland and Cowbit Washes (the Washes) are not performing as anticipated. The Cradge bank for the Crowland and Cowbit Washes needs refurbishment along with inlet syphons. The current focus of the study is to understand the area that benefits from the Washes. The Washes have not been utilised in recent years and the Welland system has been significantly altered since their construction. This project aims to provide a better representation of flood risk associated with the operation (or non-operation) of the Washes through modelling and mapping. We need to better understand how the Washes function, which communities' benefit from their existence, and whether any improvements can be made to utilise them more effectively and reduce flood risk. We also

need to better understand the implications of failure to store water in the Washes to define the benefit area. The number of properties currently benefitting is estimated at 663.

It is intended that this evidence base will be used in conjunction with that derived for Maxey Cut Banks to support development of an Initial Assessment that supports a strategic approach to continue maintain the standard of protection for Lower Welland catchment in line with the Welland CFMP recommendations.

Update since last meeting:

Initial climate change runs have identified that the hydraulic model has limitations that were not anticipated. Whilst the Washes are well represented now, the impacts of changing operation cannot be measured in other locations. Model improvements are being scoped to ensure that Maxey Cut levels can be understood in more detail to facilitate combining projects ahead of refresh next year.

16 FCERM in the Fens (L&N)

Start Date	August 2019
End Date	April 2021
Total project cost	£300,000
Partnership Funding required?	N
Total Partnership Funding	N/A
Who is contributing?	Environment Agency
Households better protected	0

Background:

Flood Risk Management (FRM) within Fenland and Lowland catchments is a key activity for Risk Management Authorities (RMAs) within the Environment Agency’s Lincolnshire & Northamptonshire Area (LNA). This project will inform the evidence base used for LNA to deliver on the National FCERM objective:

“By 2025 the Environment Agency will work with farmers, land managers, internal drainage boards and other partners to develop a long term, adaptive plan for managing future flood risk in the Fens.”

The project will be split into three separate strands of work:

- Production of a Guide to Sustainable Flood Risk Management in Fenland and Lowland catchments;
- Beneficiary Mapping including supply chain vulnerability;
- Carbon baselining of current flood risk management activities in Lincolnshire and Northamptonshire Fenland and Lowlands.

Update since last meeting:

Jacobs held a start-up meeting on 3 November 2021. Data is being collated and supplied to Jacobs by the EA to allow the study to progress. Work has started on reviewing data received and conducting searches for data held externally to the EA. A business case update report is being prepared to allow the inclusion of further elements in the project such as supply chain and critical infrastructure vulnerability, heritage and landscape aspects of the Fens and interpretation of carbon baselining work.

17 Conclusion

Members are asked to note the progress of various key capital schemes reported throughout this document.

18 Consultation**a) Risks and Impact Analysis**

N/A

19 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 Morgan Wray, Flood Risk Manager at Environment Agency, who can be contacted on morgan.wray@environment-agency.gov.uk.