

Open Report on behalf of Environment Agency

Report to:	Flood and Water Management Scrutiny Committee
Date:	26 November 2018
Subject:	Bulldog Bank

Summary:

In order to adapt to changing circumstances Shoreline Management Plans (SMPs) must be kept valid by updating them as necessary. There are various reasons which justify a change to an SMP, which includes 'a severe event has made an element of the existing SMP policy or action plan untenable'. This business justification is made in accordance with 'Strategic planning for flood and coastal risk management: Shoreline management plans-monitoring, change and reporting' Operational Instruction D12_34, and the change process chart from this Operational Instruction, is replicated in Appendix A.

Actions Required:

Members of the Flood and Water Management Scrutiny Committee are invited to consider and comment on the report and endorse the promoted approach outlined.

1. Background

In the tidal surge of December 2013, Bulldog bank, a 400m cross bank within a wide dune system, breached in five locations. The tidal surge was in excess of the 0.5% design tide and no residential or commercial buildings were flooded at this location as a result of these breaches. Bulldog Bank is shown within the Humber Estuary Coastal Authorities Group (HECAG) SMP in Policy Unit P Map.

Current situation

In early 2014 repairs to uplift known low spots within the dune system were completed, under the recovery package, to ensure continuity of design tidal defence standard to the wider flood cell, while the future justification of Bulldog Bank was explored. This work was undertaken within the designated site, under licence from Natural England.

As part of the evidence for the proposed works in 2017/18 Lincs Wildlife Trust were the client for the Gibraltar Point Coastal Wetland Adaptation Study, which was

conducted by HR Wallingford. This was produced with data from the EA and open source elevation data.

On receipt of the Study, it was reviewed by both NE and the EA, which enabled all parties to highlight any problem areas. This highlighted that more investigation was required to ensure a true reflection of any possible inundation was provided.

Meetings between the interested partners (LWT, NE, EA, LCC) were conducted to discuss the way forward and any additional works required. There was an agreement to delay the works and the change process for the SMP until further investigation was carried out on the extent of inundation and to provide evidence that no properties would be effected.

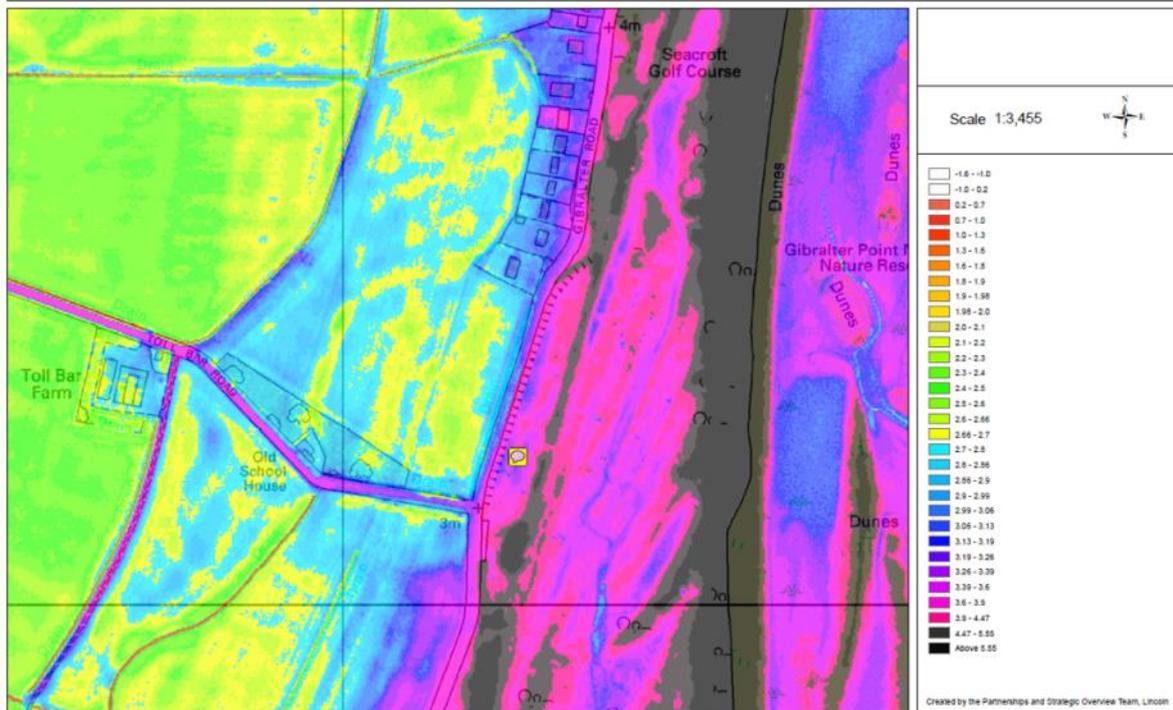
After further investigation was carried out, the following was concluded.

Hydraulic modelling outputs for the current day design tide, that has a 0.5% chance of occurring in any one year, show that the Bulldog Bank dune does not benefit residential properties. Water is shown to be migrating across the tidal floodplain, to a greater extent when compared to the scenario prior to Bulldog Banks failure.

The topography shows that for the short duration of overtopping, the existing residential properties will not be impacted, as shown in Fig 1. It is anticipated that the local watercourses and arable land can accommodate these limited overland flows that are generated and it would be reasonable to have a proactive engagement plan in place for dissemination of information.

If further reassurances are required, then minor adjustments within the dunal system inside the golf course could be made to further limit the volumes of overtopping entering the tidal floodplain for this design tide scenario, which could be discussed with the golf club.

Bulldog Bank Elevation Mapping - created April 2018



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Case for Change

The policy direction for this area is to ensure continued protection against coastal flooding to the same standard as today. This amendment to Policy Unit P does not seek to amend this principle of continuation of protecting people and property.

The aspirations within the epochs for Policy Unit P remain valid, although it is the last epoch of 2055-2105 where realignment is mentioned to sustain other defences and compensate for potential deterioration of designated sites. The SMP could not foresee that Bulldog Bank would incur multiple failures during a large surge tide. This case for change seeks approval to duplicate the Managed Realignment option into Epoch 1 – present day to 2025, whilst retaining the principle to sustain flood risk to people and properties at current levels.

Business needs

The justification to repair Bulldog Bank has been examined. The economic and benefits assessment do not support the case for Flood Risk Grant in Aid, as there are no residential properties (Outcome Measure 2) at risk and a small area of golf course.

Initial costings suggest that the repair or replacement cost associated with Bulldog Bank would be between £70k and £350k, depending on the material source; extent of repair or replacement; and any constraints associated with working within a designated site of National and International importance.

Bulldog Bank is located within Gibraltar Point Site of Special Scientific Interest, Saltfleetby - Theddlethorpe Dunes & Gibraltar Point Special Areas of Conservation,

Gibraltar Point Ramsar (Wetland of International Importance under the Convention on Wetlands of International Importance, especially as waterfowl habitat) and Gibraltar Point Special Protection Area; in addition to being within these designations, it is also directly adjacent to The Greater Wash Potential Special Protection Area and The Wash & North Norfolk Coast Special Areas of Conservation. The freshwater habitat behind Bulldog Bank is already adapting to the saline intrusion. The designations of the wider site are focused on various dune types, coastal geomorphology and associated coastal flora and fauna.

Benefits

There are benefits to this approach to the restoration of brackish habitat within the dune slack, behind the line of Bulldog Bank, this occurs within a designated site and Natural England are a partner in making this case for change. This early adaptation may also reduce, to some small degree, the future SMP risks of coastal squeeze associated with the current Policy 'Hold the Line' in this designated site.

Mitigation of Risk

The low spots in the existing dune system were raised in 2014 to ensure continuity of flood risk reduction to the properties on Aylmer Avenue. Land at the end of the golf course was flooded in 2013 and did benefit from Bulldog Bank. The golf course is in discussion with Natural England about the construction of a new bank, which would fall within the designated site but on land owned by the golf course, where the golf course would be the sole beneficiary.

Hydraulic modelling has shown that a cross bank may be required in this area as sea levels rise; the SMP Policy Plan, as proposed, would support this future requirement as a further action to sustain current levels of flood risk into the future.

2. Options Considered

It was considered at the time:

a) Repair Bulldog Bank:

Cost Est. £70,000. Reconstruct bank to make repair to fill breach gaps. This option would utilise existing material 'on-site' from the redundant bank around the south of the borrow pits, provided Natural England were satisfied that this material was accessible and classified as suitable. Access to the site is difficult and new roadways to provide adequate egress for plant and machinery may have to be formed at additional cost, with required Natural England licences.

The bank would only be reinstated back to its original condition – i.e. it is likely to fail again due to the inadequacy of materials and width during a similar high tide event. There is also the possibility that failure would occur at other points along the bank adjacent to the repair locations.

This does not provide an 'engineered solution' and only utilises silt/sand material for reinstatement. Additionally the bank will be denuded for a period until suitable growth has taken hold leaving sections vulnerable to erosion.

This option is very unlikely to obtain funding as it appears that this does not protect any properties during the current day 0.5% design tide.

b) Replace Bulldog Bank:

Cost circa £300,000 Replace entire 450m of Bulldog bank with an engineered bank utilising an engineered core and re-profiled to a greater width for wave erosion protection.

This option would require the importation of materials onto site to form the bank. Natural England would need to be consulted and approve any scheme. It is unlikely that as the site is a SSSI that material from off site would conform to site requirements.

Difficulties with access and transportation as in option a. Replacement would provide an improved level of protection to part of the golf course. This option is very unlikely to obtain approval as it appears that this bank does not protect any properties and may be considered 'state aid'.

c) Move primary defence line to a strengthened Western dune

Recovery funded works are complete to fill low spots in existing dune system, with valley gap at Aylmer Avenue being raised to a minimum 5.6m OADN by utilising spare on site material. Access to carry out these works was easier as transportation was available along Gibraltar Road and Aylmer Avenue.

Future maintenance of the bank has been improved as it is easier to access for future repairs if this section were to be adopted in place of Bulldog Bank as primary sea bank protection.

This natural dune system is sheltered and has reasonable grass and vegetation cover. The northern end of this bank now forms a continuous line of defence. This option leaves the golf course to construct a new flood defence along the southern boundary of their land or increase the height of the existing dunes within the golf course.

d) Move primary tidal defence to the western sandbank and instigate revised flood warning thresholds

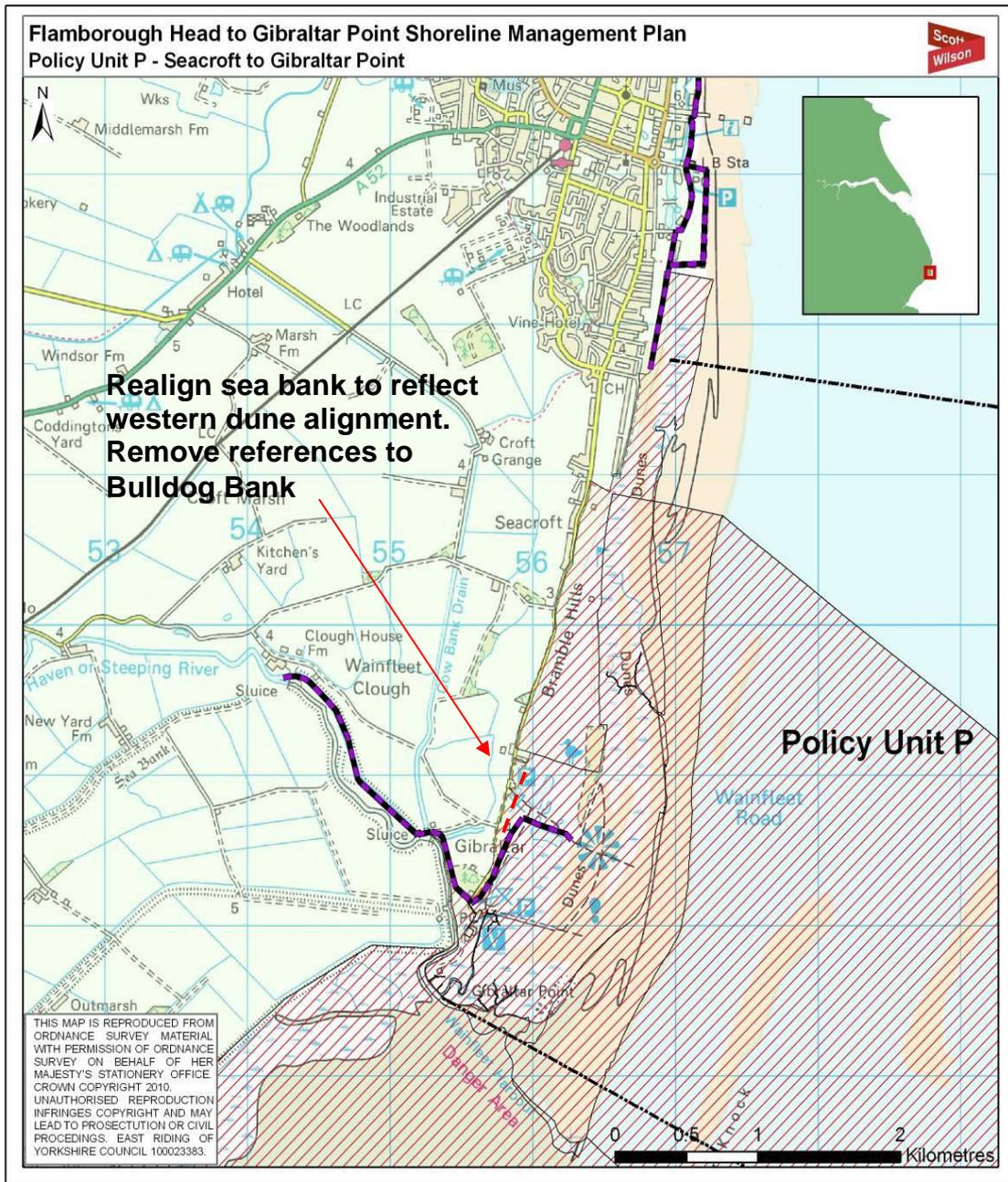
Cost £Minimal, primarily administration. As no properties thresholds are compromised by the 0.5% tide, with initial observations suggesting that property thresholds were some 500mm above the extreme tide on 5 December 2013. A Temporary Management/Warning Plan was put in place for the specific properties to ensure evacuation procedures robust during extreme high tide events.

Promoted approach

On the basis of the above:

- Option D was instigated on a short term basis until option C is agreed through this change process.
- Options A and B were neither economically viable nor environmentally acceptable.
- Recovery grant was optimised to undertake the filling of low spots along the wide Western dune as the most immediate and cost beneficial option to accord with Recovery Grant principles.
- The promoted approach does not impact on delivery of SMP Actions P1 and P2.
- It is **recommended that option C** be used to update the HECAG SMP Policy Unit

Future look of Policy Unit P: Seacroft to Gibraltar Point



Key: Policy (for full details see relevant policy statement)

Short Term (present day to 2025)	Medium Term (2025 to 2055)	Long Term (2055 to 2105)
Hold the Line (P4)	Hold the Line (P4)	Hold the Line or Managed Realignment (P4)

The policies for the long term are conditional. They depend on the results of monitoring and research into climate change, shoreline response and the role of defences.

Legend

- Current defences(EA maintained)
- Policy Unit boundaries
- Scheduled Monuments
- Environment Agency Tidal Flood Zone 3
- Internationally Designated Sites

3. Appendices

These are listed below and attached at the back of the report	
Appendix A	Change Process Chart

4. 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 on behalf of Deborah Campbell, who can be contacted via 03708 506 506 or deborah.campbell@environment-agency.gov.uk

Coastal Group receives change proposal. Change Managers discuss and agree change category (minor, moderate or major)

Major changes:
Changes to a policy, or epoch in which a policy is to be implemented, or changes to the action plan that are likely to result in this;
Changes to the action plan that are likely to significantly impact on SMP implementation, such as significant new schemes and studies, or significant changes to existing ones;
Mapping corrections that affect the number of properties protected from flooding or erosion;
Changes impacting an internationally designated site, e.g. SAC, SPA, Ramsar.

Moderate changes:
Textual or mapping corrections where the context of the SMP is affected;
Changes, additions or deletions in the action plan that may impact on SMP implementation but do not change an SMP policy option. These might include changes to the timescale or priority of an action, a new study or study/scheme already proposed.
Changes potentially impacting a nationally designated site, e.g. SSSI, NNR, AONB, SAM.

Minor changes:
Textual and mapping corrections with no effect on context or outcomes of the SMP;
Changes within organisations that may have a bearing on SMP implementation.

Change Manager group considers who will be interested in this change and informs relevant stakeholders. Consultation process invites stakeholders to comment on change – i.e. to support, reject or amend. Further work to investigate the change proposal is done if required**. RFCC and relevant local authority officers/members informed.

Change Managers organise changes.

Unless otherwise agreed with Natural England, SEA and HRA are reviewed where international designation is potentially affected. Appropriate AA and IROPI procedures are followed as required by Natural England and WFD requirements are satisfied**.

** This process may have been carried out as part of the Strategy or scheme that instigated the change to the SMP.

Change Managers collate stakeholder feedback and the results of any supporting work, and agree change proposal. Environment Agency Area FCRM Manager / Coastal Manager will moderate disputes.

Change Managers submit agreed proposal to Coastal Group for agreement. Coastal Group agrees, rejects or agrees with amendments (these may require further work or consultation). Local authority officer/member approvals obtained as appropriate.

Coastal Group submits change proposal to RFCC for approval.

Environment Agency approves at the appropriate level. Change recorded on Change Monitor spreadsheet, GIS and NCERM. Change published on SMP website no longer than 1 month after agreement. Change implemented.

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