Southend-on-Sea Borough Council

Agenda Item No.

Supplementary Report for Corporate Director for Place
To
Place Scrutiny Committee
On
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Shoebury Common Flood Risk Management Scheme
SUPPLEMENTARY REPORT

Executive Councillor: Councillor John Lamb
A Part 1 Public Agenda Item

1. Purpose of Report

To advise Members of the submission by The Burges Estate Residents Association (BERA) of an alternative proposal for the Shoebury Common Flood Risk Management Scheme, and to provide technical, planning, environmental and financial assessments of that alternative proposal. The report is a supplementary report to the one previously circulated and has been prepared in order to provide members and the public with assurance that the proposal has been given appropriate consideration.

2. Recommendations

2.1 That Members:-

i) Note the assessments of the proposal contained in this report.

3. Background

3.1 Following the public consultation on the proposed Shoebury Common project, the Burges Estate Residents' Association wrote to the Council, expressing their concerns over the scheme and submitting their own proposals for dealing with flood risk at the common. Their letter is included as **Appendix 1** to this report.

3.2 The association's proposal was to raise the existing wall crest by 300mm, construct a fairly dense groyne field, consisting of 50m long groynes at 50m centres, recharge the beach, construct a rock groyne/breakwater on the foreshore at the east end of the frontage and raise the level of the launching ramp at the extreme east end of the site to the wall crest level. The raising of the wall by 300mm would tie in to existing wall levels at approximately the location of the yacht club slipway, so this would mark the western extent of the project.

3.3 An outline drawing has been prepared to present these proposals and it is included as **Appendix 2**.

3.4 As can be seen in Paragraph 4.0 of the substantive report a Project Appraisal Report is required by the Environment Agency for projects for which their financial support would be required. Paragraph 4.1 of the substantive report sets out the considerations that need to be taken into account in order to establish a preferred option.

3.5 Officers are of the view that in reaching the conclusion to pursue an option for an embankment scheme the Council's technical advisers, Black & Veatch, would have considered options that included offshore structures and would have discounted them because of the likely environmental impacts on the Special Protection Area. It is an important part of the design process that all potential options are considered and it is this iterative process that ultimately results in a preferred option.

3.6 However, in order to reassure members and local residents that the BERA proposal has been given appropriate consideration the drawing referred to in Appendix 2 has been issued to Black & Veatch (B&V) for their assessment of its technical, environmental and financial impacts and to Natural England (NE) to provide an initial assessment of its impact on the designated foreshore and its acceptability in ecological terms.

4. Scheme Development

4.1 To develop the scheme proposed by BERA, the following design processes will be necessary:-

- Determine the performance of the rock structure in modifying the wave climate propagating onto the shoreline. Iteratively modify the proportions and location of the structure to optimise performance.

- Determine the level of beach recharge required to fulfil the wave control function in combination with the groynes.

- Determine the combined capability of the rock structure and timber groyne field to retain beach material to the profile required to limit wave heights reaching the shoreline. Iteratively modify the geometry of the structures to optimise performance.

- Assess the wall crest level required until the expiry of the design life to provide the required Standard of Protection (SoP) against overtopping of the defence system. Assess the capability of the existing structures to support the additional loadings (self-weight and wave impact) imposed as a consequence of raising the crest.

- Assess the required proportions of the above structures and features to provide a range of SoP's in order that the costs and benefits of this range may be compared and optimised and a preferred version of the scheme developed.

- Detail design of all aspects of the preferred version.

5. Scheme Assessment

B&V's technical and environmental assessment of the proposals is provided as **Appendix 3**, together with their cost estimate. Their assessment highlights the following issues:-

5.1 The existing front wall will have to be raised at the end of its useful life, and therefore probably reconstructed in view of the shortcomings of its foundations. This will then impede sea views from the promenade.

5.2 The construction of the groyne field will require the temporary relocation of about 10 - 20 beach huts in front of the wall. Others may be potentially damaged through vibration from the necessary piling works. There is no guarantee that the relocated structures will survive the necessary double handling.

5.3 The rock breakwater would have to be about 300m long to achieve its function of controlling the inshore wave climate. Therefore, its footprint in the protected area would be extensive, as would the area of mud flats lost to the built up beaches. Although it would act beneficially for the beaches to its west, to the east they would be starved of sediment presently drifting eastwards, and so may require ongoing maintenance and/or recharge to prevent undermining of the defence wall around the Old Ranges.

5.4 The project would have large impacts on present seascape character due to the dense groyne field and rock breakwater.

5.5 The entire foreshore area, upon which the project would be built, is a heavily protected area for environmental purposes. Of particular relevance is its designation under EU regulations as a Special Protection Area (SPA), which places it under the surveillance of NE. They have a duty to ensure that it is protected from incursions which would have an adverse impact on the integrity of the site. There is a complex appraisal system in place, but the net result in regard to this proposal is probably that NE would raise a planning objection because of potential adverse impact, which may not be removed because there are clear alternatives to constructing on the foreshore. The Environment Agency (EA) would neither consent to the works as a statutory planning consultee, nor approve the project for funding, in the face of such an objection from NE.

5.6 There could be further objection from EA on the grounds that changes to the nearshore bathymetry could impede their duty under the Water Framework Directive to ensure improving water quality in the Lower Thames generally.

5.7 Beach recharge would be very expensive due to the width and flatness of the foreshore mudflats, which requires very heavy resources to be employed, with additional mobilisation cost implications.

5.8 These foreshore characteristics will also make the construction of the breakwater difficult and expensive.

5.9 High level cost estimates of the construction phase amount to £9,300,000.

5.10 Natural England's response to the proposal is detailed at **Appendix 4**.

NE comments that the Council's preferred option would not be likely to result in any significant effects on the Benfleet and Southend SSSI, SPA and Ramsar site and, consequently, that Natural England has no objection to the proposed scheme.

With regards to the BERA alternative NE advises that the alternative scheme would be likely to result in a significant effect and suggests that if the option was pursued additional information is required.

They go on to state:

"However, if the appropriate assessment was unable to conclude that there would not be an adverse effect on the integrity of the European site, then it would only be possible to proceed with this 'alternative scheme' if there are no alternatives and it can be shown that there are imperative reasons of over-riding public interest (IROPI) for proceeding. As the intended purpose of the scheme is to provide increased flood protection to the public and their property, Natural England would not be likely to challenge the IROPI case. However, the fact that an alternative is available (in the form of the preferred option) would appear to preclude the adoption of this scheme."

Conclusions

Technically, although not without challenges, the project could be designed to deliver the flood risk improvements required. However, environmental considerations relating to the strongly protected foreshore area would probably lead to insurmountable difficulties in gaining planning permission. Costs are also expected to be approximately double those of the preferred option.

It is important to note that it will be necessary to secure a planning permission for the council's preferred option or indeed any other option or that this will involve a statutory consultation process.

7. In addition to the alternative scheme proposed by BERA they also raised a number of other concerns which it is worth briefly responding to.

7.1 Many of the Association's concerns appear to be predicated on the belief that the Council intends to abandon the existing wall, promenade and beach at Shoebury Common. The project appraisal document submitted to EA includes a commitment to continuing maintenance of the existing wall, including reconstruction at the end of its useful life. Effectively, the Council would be splitting the flood defence and erosion protection functions of the existing wall by its proposal, but both are given the necessary weight. By building a set-back wall, while continuing to maintain the existing defence, occasional flooding of the promenade would be allowed but the propagation of flood water any further inland would be prevented.

7.2 Wherever possible, the Council seeks to use natural processes as the most sustainable way of managing flood and erosion risk. The natural processes along the majority of the Southend frontage are tending to erode the coastline. Conversely, at Shoeburyness, the net effect of localised long shore drift is typically beneficial, in that material from the west will generally accrete on the

beach and provide protection to the seawall. However, this process cannot be guaranteed and beach levels will always be subject to natural variation. In addition, due to the limited amount of beach material in the local system, any naturally occurring benefit at Shoeburyness will only be possible at the expense of material in the west, which will result in reduced protection elsewhere along the frontage. If the existing line of defence is to continue to be held along the whole frontage, hard engineering will continue to be required to resist these erosional pressures.

7.3 The Council's long term strategy for the coastline does involve the periodic recharge of beach material at several strategic locations along the frontage. As a consequence of this net increase of sediment in the local coastal system, the beach levels in Shoeburyness are likely to benefit, as much of this new material will gradually move towards Shoebury as a result of the natural long shore drift.

7.4 The letter states that BERA believe the Council's proposals are a breach of its "duties" to comply with a list of objectives. This list is recognised as a modified form of some of the principles which guided the development of the regional Essex and South Suffolk Shoreline Management Plan, under the leadership of the EA. With regard to this list it should be remembered that these are guiding principles, rather than duties:-

7.4.1 "Hold the Line", in the strategic context used in the EA's documents, is a policy contrasting with "do nothing" (self-explanatory) or "managed retreat", which is a scenario under which existing defences are abandoned in favour of a new inland alignment. The defences are breached and the coastline allowed retreating or responding naturally. "Hold the line" does not necessarily mean maintaining precisely the same location, provided the management intent is not to substantially re-align the defences.

7.4.2 "The dynamic interaction" of land and sea is a reference to the natural coastline's ability to retreat or advance under natural pressures. This is prevented by hard defences. In response to the concern that BERA raises in respect of these principles, the following observations are made:-

- It is a leading feature of the EA scheme development process that flood and erosion risk management is balanced with the assets and benefits which it intends to protect. The EA have not raised any objection to the Council's preferred option on the basis of this or any other of the principles.

- Opportunities to work with natural processes are always sought, but it has to be recognised that they are severely restricted on a system of defences which depend on hard engineering.

- The project does not limit support for community development; in fact it provides considerable protection to it. Any enhancement of the standard of flood protection will impact in some way on access to the beach or promenade.

- The Council does not accept that the proposed works would, in reality, impact on the heritage, cultural and economic aspects of the environment of Shoebury Common.

Appendices

Appendix 1 Original letter received from the Burges Estate Residents Association

Appendix 2 Sketch of the proposed project as issued to B&V and NE

Appendix 3 Black & Veatch's Technical, Environmental and Financial assessment

Appendix 4 Response from Natural England