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<b>PART B:</b>	<b>RECOMMENDATIONS TO COUNCIL</b>
<b>REPORT TO:</b>	<b>POLICY AND RESOURCES COMMITTEE</b>
<b>DATE:</b>	<b>6 DECEMBER 2012</b>
<b>REPORT OF THE:</b>	<b>CORPORATE DIRECTOR (s151) PAUL CRESSWELL</b>
<b>TITLE OF REPORT:</b>	<b>PICKERING FLOOD STORAGE PROPOSALS</b>
<b>WARDS AFFECTED:</b>	<b>PICKERING EAST, PICKERING WEST</b>

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## **EXECUTIVE SUMMARY**

### **1.0 PURPOSE OF REPORT**

- 1.1 This report updates members on the proposed flood storage measures and capital scheme to reduce the incidence and impact of flooding to Pickering and seeks approval for the Council to release the previously approved £950K for a Pickering Flood Storage Scheme to fund the new scheme outlined in the report.

### **2.0 RECOMMENDATION**

- 2.1 That Council is recommended to approve support for a funding contribution for the revised 'Pickering Flood Defence' scheme utilising the £950k designated in the Council's capital programme

### **3.0 REASON FOR RECOMMENDATION**

- 3.1 There is confidence within the EA that the proposed scheme is deliverable, it offers the required 1:25 year standard of protection to Pickering, is in-line with the requirements of the Reservoir Act, having been assessed by an appointed 'Panel Engineer'.
- 3.2 The scheme has now reached a sufficient level of detail such that a robust estimate of the work that would be required to take the project to construction and an estimate of the construction costs themselves has been made.
- 3.3 The scheme has strong public and Pickering Town Council support. Though it will not offer protection against a major flood event it still considerably reduces the levels of flood risk previously experienced by the town.
- 3.4 Although costs have yet to be agreed, discussions concerning the routine maintenance of the scheme have led to an agreement that Pickering Town Council will work with the EA to deliver grounds maintenance locally.

## 4.0 SIGNIFICANT RISKS

- 4.1 Uncertainty remains regarding both the extent of the funding gap and the potential to reduce the costs. However lack of certainty over funding by the Council could in itself stifle funding opportunities from coming forward.
- 4.2 The scheme will only protect to a 1:25 year standard. This means that it would not withstand an extreme 2007 type level flood. As such management of public expectations regarding what the scheme will actually deliver is critical.

## 5.0 POLICY CONTEXT AND CONSULTATION

- 5.1 **Council Aim 2:** To create the right conditions for economic success in Ryedale:
- To have economic structure and supporting infrastructure in place;
  - Opportunity for people; increasing wage and skill levels.

**Council Aim 3:** To have a high quality, clean and sustainable environment.

- Reducing CO<sub>2</sub> emissions from Council operations.
- Adaptation to Climate Change
- Improve the quality of our local environment

### **Transform Ryedale District Council**

- Building our capacity to deliver through collaboration and working in Partnership.

- 5.2 Consultation undertaken by the EA includes the following:

**North York Moors Railway:** A close working relationship between the EA and NYMR has been formed. The NYMR's positive approach has been critical to the successful development of the scheme to its current position. Agreements have been made around the realignment of the reservoir embankment closer to their tracks and over the standard of protection required for the tracks that run alongside the proposed reservoir (1:100yr) and in principal to the other areas of the design that impact on their structures, including embankment, tracks, crossings, etc. It has been agreed to continue to work closely with representatives of the NYMR as detailed design of the elements that interact with the railway are completed, this is specifically requested in relation to the erosion protection structure that will be integral to the tracks at the northern abutment of the reservoir spillway.

**Duchy of Lancaster:** A dialogue with the Duchy's agent, Smith Gore, has been ongoing over the period since May, covering operational requirements and primarily access and license agreements concerning the ground investigation. A formal proposal has yet to be made but having explained the proposed scheme to Smith Gore, initial contacts between the Duchy and their agent have been positive with the thoughts of the agent being that as the scale of the new proposals are less than those put forward previously that the Duchy would be agreeable to the revised scheme.

**Planning Authority:** Correspondence with NYCC and NYMNPAs has confirmed that the revised scheme should be dealt with as a full planning application and not as an amendment to the previous planning consent. They have also confirmed the need for re-screening the scope for any environmental assessment and added a number of requirements to be included in a future application.

As described in para 6.11 below, in order to maximise the benefits from the flood

storage area, small scale flood defences are required around the Hungate bridge area in addition to the planned storage reservoir. It is expected that these proposals will form a separate planning application to the council, although discussions with planners are ongoing and a final decision as to the preferred approach is yet to be made.

**Pickering Town Council:** Discussions have taken place with Pickering Town Council to explore the scope for them to contribute towards this aspect of maintenances. Though yet to be finalised the Town Council are very much in support of the realisation of a scheme and would look to work with the EA to facilitate the future maintenance of a scheme should it be delivered. Discussions with Pickering Town Council concerning the routine maintenance of the scheme have led to an agreement that the Council will work with the EA to deliver grounds maintenance locally, although the costs of this have yet to be agreed. The EA would retain responsibility for all requirements of the Reservoir Act and any large structural work/repairs

## REPORT

### 6.0 REPORT DETAILS

#### Background

6.1 On the 24 June 2010 this Committee considered proposals for bunded storage of flood water above Pickering. At Council on the 19 July 2010 members approved:

- (i) support for Pickering flood storage proposals for two bunds and a cross bund incorporating a 15 m<sup>3</sup>/s culvert in the Pickering Beck catchment area; and
- (ii) a maximum contribution of £800,000, to be included in the Councils Capital Programme for 2010/2011.

6.2 Subsequent to this at Council on the 10 March 2011 members approved:

- (i) a contribution of £950k, towards the Pickering Flood Storage Scheme as approved by Council on 19 July 2010 which represents an increase of £150k; and
- (ii) the increase be financed from a reduction in the Helmsley Sports capital provision.

6.3 The funding profile of the scheme at that time was as follows:

- Ryedale District Council - £950k
- Local Levy - £150k
- Environment Agency - £50k

6.4 As the scheme developed further, the requirements of the Reservoirs Act 1975, through an independent appointed Reservoir Engineer had to be considered. The Environment Agency had assessed the scheme as low risk under the Reservoirs Act, however the engineer, considering the impact in particular on Newbridge of failure of the bunds, and classed it as a Category A Reservoir (high risk), which would require a much higher design standard.

6.5 This assessment added c£2m to the overall costs, which made it unaffordable and unable to progress.

6.6 Subsequent to this a further £150k was secured from Defra to investigate the feasibility of smaller storage bunds on Pickering Beck. This considered a series of

small bunds (<10,000m<sup>3</sup>), below ground storage, channel restrictions, timber dams or other 'soft' measures. A members briefing took place on the 26 January 2012. This scheme had significant issues to be resolved including Landowner issues, SSSI and planning requirements, as well as the financial issues.

6.7 ARUP have been employed as consultants by the Environment Agency, using part of this funding, to evaluate the mini bunds option, plus a large single reservoir to provide 1 in 25 year protection for Pickering. Their findings indicate that:

- The small bunds were likely to be classed as 'reservoirs in cascade' under proposed revisions to the Reservoir Act (1975) linked to the Floods and Water Management Act (2010). This meant that construction of 'small' bunds would not remove the necessary engineering and associated costs of meeting the required safety standards as had been hoped and likely to cost above the current estimated finance available (assuming £950k from RDC). However, by utilising positive developments from the early stages of their investigations, a revised design has been proposed for a single large flood storage reservoir.

#### **Revised scheme – Large Single Reservoir Proposals**

6.8 Following discussions with North Yorkshire Moors Railway and based on updated LIDAR data (survey of the catchment area), a large single reservoir option is now thought possible which will deliver the required protection and provide protection against 1 in 25 year events as a minimum.

#### **Ground Investigation survey**

6.9 A comprehensive ground investigation has been undertaken to look at the variability and permeability of the local geology, the North York Moors Railway (NYMR) embankment and any seepage paths that may be present around the proposed reservoir embankment. The investigation also sought to establish the availability of locally sourced materials, the depth of bedrock and any sub-artesian water pressure.

The ground investigation has clarified the underground conditions of the site, allowing for necessary elements such as seepage cut-offs and settlement allowances to be incorporated into the design.

#### **Hydrological and hydraulic modelling**

6.10 A comprehensive review of the hydrological and hydraulic modelling for the proposed scheme location and through Pickering itself has been completed. The aim of this work was to confirm the threshold flow for the onset of flooding in Pickering and to relate this back, through the assessment of design flows, hydrographs and the significance of additional inflows, to the allowable design pass-forward flow for the proposed reservoir.

6.11 It was established that by building small localised defences around the Hungate Bridge area and increasing pass forward flows from the reservoir to 14.5m<sup>3</sup>/s the required storage volume was limited to 76,000m<sup>3</sup>. This combination reduced the required storage to within that available at the reservoir site, whilst maintaining a 1 in 25 year standard of protection for Pickering and spillway length, height and slope along with that of the associated reservoir embankment have been set.

#### **Engineering design**

6.12 The engineering design of the proposed reservoir has been subject to detailed development, including refinement of the embankment alignment, hydraulic control, seepage cut-off, erosion protection and drainage requirements, informed by the ground investigation and hydraulic modelling mentioned above and consultation with key stakeholders including the North York Moors Railway. All of the design work has

been completed under the supervision of an appointed 'Construction Engineer', as required by the Reservoir Act 1975.

- 6.13 Environment impacts have been very much at the forefront of the process, with archaeological risks, tree loss and wider impacts shaping the alignment of the embankment, construction materials, proposed construction methods and programme timings. The scheme has no detrimental effect on the nearby North Yorkshire Moors Railway or impact on the SSSI upstream of the site, in addition less formal flood retention measures could be constructed upstream of the reservoir to increase the standard of protection.
- 6.14 There is confidence the proposed scheme offers the required 1:25 year standard of protection to Pickering, is in-line with the requirements of the Reservoir Act and has been assessed by an appointed 'Panel Engineer'. Following all of the development work outlined above, the scheme has now reached a sufficient level of detail such that a robust estimate of the outstanding work that would be required to take the project to construction and an estimate of the construction costs themselves can be made.

#### **Estimated Costs**

- 6.15 Estimated costs could be as high as £2.56m, however, there are opportunities to reduce this figure. These include:
- Value engineering the design during the detailed design stage
  - Utilising the EA's internal workforce to undertake the higher risk earth works element of the scheme construction.
  - Negotiation regarding the estimated sum for compensation for the landowner.
  - Potential for a major reduction in costs through negotiating a significantly reduced cost source of material for the construction of the embankment.

Taken together these areas of saving could reduce the capital cost of the scheme to between £1.8 and £2.0m. Expected capital contributions from partners equate to £1.5m following additional contributions from North Yorkshire County Council (£300K) and the Local Levy (£100K). The Partnership believes that, with a confirmed commitment from the council and NYCC, it is in a strong position to seek further funding sources to bridge the potential remaining gap and negotiations to this end are continuing.

#### **Maintenance Costs**

- 6.16 Over the 50 year life of the scheme the estimated maintenance costs will be approximately £14,000 per year on average. The maintenance regime will have two broad components.
- Firstly aspects that relate to meeting the ongoing requirements of the Reservoirs Act, such as inspections and periodic repairs to the structure. It is proposed for the EA to take on the responsibility of these aspects, with an estimated average annual cost £7,000
  - Secondly the routine maintenance of the scheme. This would include activities such as maintaining the channel vegetation upstream of the scheme, cutting the grass on the embankment and controlling vermin such as moles and rabbits. These activities are also estimated to cost approximately £7,000 per year.
- 6.17 Discussions with Pickering Town Council concerning the routine maintenance of the scheme have led to an agreement that the Council will work with the EA to deliver grounds maintenance locally, although the financial aspects of this have yet to be agreed. In addition to any large structural work the EA would retain responsibility for all requirements of the Reservoir Act.

## 7.0 IMPLICATIONS

7.1 The following implications have been identified:

- a) Financial  
Funding has been previously agreed and is available within the capital programme
- b) Legal  
There are no new legal issues arising from this report.
- c) Other  
There are no significant other implications arising out of this report.

**Author:** Phil Long Head of Environment, Streetscene, Facilities, ICT  
**Telephone No:** 01653 600666 ext: 461  
**E-Mail Address:** [phil.long@ryedale.gov.uk](mailto:phil.long@ryedale.gov.uk)

### **Background Papers:**

None.

### **Background Papers are available for inspection at:**

n/a