

ANGUS COUNCIL

INFRASTRUCTURE SERVICES COMMITTEE

03 MARCH 2009

CARNOUSTIE (BARRY BURN) FLOOD PREVENTION SCHEME INVESTIGATIONS AND ASSOCIATED PROPOSED WORKS

REPORT BY THE DIRECTOR OF INFRASTRUCTURE SERVICES

ABSTRACT This report seeks homologation of the Head of Roads' decision to undertake investigations and works within the 2008/09 financial year and outlines proposals for further investigations and remedial works at the Barry Burn Flood Prevention Scheme in Carnoustie. It also seeks the Committee's approval to allocate funding for the same, following the flooding incident which occurred in mid-August 2008.

1 RECOMMENDATION

1.1 It is recommended that the Committee agree to:

- (i) homologate the implementation of investigations and remedial works as outlined in item 3.2 below at an estimated cost of £60,000 by the end of this 2008/09 financial year;
- (ii) approve the proposals for next financial year, 2009/10, as outlined in item 3.3 of the report at an initial cost estimated to be in the region of £40,000.

2 INTRODUCTION

2.1 Following significant flooding which occurred within Carnoustie in February 1977, a flood prevention scheme (FPS) was commissioned by the then Tayside Regional Council along both banks of the Barry Burn within the town. The scheme was constructed during the 1980s and was designed to defend against a repeat flood of the 1977 magnitude, estimated at the time of design as being a 1 in 100 year return period event [such an event is that calculated to have a probability of 1 in 100 (0.1%) of occurring once in any single year].

2.2 In May 2004, as part of the Scottish Executive Scottish Flood Defence Asset Database (SFDAD) project, which assessed the condition of 72 formally promoted, fluvial schemes within Scotland, the consultant engineer, JBA Consulting reassessed the Carnoustie (Barry Burn) 1979 Flood Prevention Scheme. Their draft report, issued in March 2005, concluded that the scheme offered a slightly lower standard of defence than that estimated at the time of design. Angus Council subsequently undertook works to raise the embankments to their current standard, following approval by the Infrastructure Services Committee of the Director of Roads' recommendations in the "Carnoustie (Barry Burn) Flood Prevention Scheme Remedial Works" report (Report No. 528/05) at the 28 April 2005 Committee meeting, as recommended in JBA Consulting's report. The flood embankments (levees) were raised so as to provide a minimum standard of protection, equivalent at the time of study, to a 200 year return period with an average of 400 mm allowed for freeboard (the height of the embankments above the anticipated top flood water level within the channel).

- 2.3 Angus Council had also raised concerns over the increasing sedimentation along the reach of the Barry Burn running within the town of Carnoustie and the problems it may be causing for the Flood Prevention Scheme (FPS). After discussion with SEPA, the Council instructed a geomorphological assessment which was carried out by JBA Consulting in April 2008. This showed that up to 400mm of silt had been deposited at sensitive locations over that reach. The most sensitive locations were found to be immediately upstream of the railway bridge and immediately downstream of MacDonald Smith Drive.
- 2.4 Observed flow levels during recent floods on 13/08/08 reinforced the views contained within JBA Consulting's report that excessive sediment and vegetation growth significantly hamper the FPS in reducing its capacity to accommodate the flood flows, thus reducing the standard of protection that the FPS would provide. Further investigations into the sediment issue and possible remedial works are therefore required to ensure the required standard of protection.

3 DETAILS

- 3.1 A number of recommendations have been made following the flooding incident in mid August 2008 and are detailed in the "Report on Flooding Incident at Carnoustie on 13/08/08 Prepared for the Local Elected Members of Angus Council", Draft 2 ("Draft 2" report) a copy of which has been placed in the Members' lounge. These have been split into two categories: the first category, called Short-Term Measures, being a series of measures which may be carried out relatively quickly; and the second category, called Longer Term Measures, being a series of measures that would require considerable further investigation, a significant amount of work to be undertaken and which, as a result, are likely to take a relatively long time to conduct and for a potentially high capital cost (Note: the sedimentation issue forms part of these Longer Term Measures). The identified short term measures are currently in hand. The implementation of the recommended Longer Term Measures, including the financial implications, a number of which are dependent on the outcome of the short-term investigation measures, will be considered at a later date, and as necessary and appropriate, will be the subject of future Committee reporting.
- 3.2 The short term measures which are intended to be carried out this financial year (Short-term Measures in "Draft 2" report), comprise:
- i) to carry out a CCTV survey at the culvert from the Waterybutts Ditch to the Barry Burn;
 - ii) to fit a non return/reflux valve at the Waterybutts Ditch junction;
 - iii) to carry out dredging of the Barry Burn. It has now been agreed with SEPA to dredge 290m and carry out 700m sediment removal (i.e. for one half of the channel transversely) on the burn. While this work has now been instructed, the SEPA licensing process has proved much more time consuming and expensive to procure than was originally anticipated;
 - iv) to investigate allowing water to backflow through the existing culvert into the field northwest of the MacDonald Smith Drive road bridge;

- v) to investigate whether the curtilage drainage of the properties prone to flooding on the south side of MacDonald Smith Drive is connected to the surface water drainage system which connects to the pumping station in Harris Road and advise the respective residents accordingly; and
- vi) to investigate taking down the levee protecting the field on the south side of Waterybutts Ditch and west of MacDonald Smith Drive, to allow it to flood before flooding would occur in the residential area.

The above measures, i - vi were identified as being required to be undertaken as soon as possible and accordingly the Head of Roads has instructed that these measures be implemented.

3.3 The remainder of the short term measures, mentioned in the "Draft 2" report are planned to be carried out next financial year (i.e. 2009 – 2010), and these comprise:

- vii) to ensure a system for monitoring the stage (water level) of the Barry Burn is in place, whereby a patrol team will monitor the condition of the levee during high stage (high water level) events;
- viii) to review the emergency maintenance access routes and arrangements to ensure that all parts of the levee are accessible in an emergency, particularly the levee between the MacDonald Smith Drive road bridge and the footbridge. Actions would then be planned to ensure that all lengths of the levees will be accessible for emergency repair works and the findings of this review could then be incorporated into the recommended Emergency Flood Plan for the Barry Burn, as per item 1 of the Longer Term Measures ("Draft 2" report);
- ix) to ascertain the predicted peak stage of the burn from the existing hydraulic model of the burn for the peak 1 in 25 year flood event and compare this with the actual recorded peak stage for this flood. Should the predicted burn stage be significantly lower than the actual observed peak stage, it is recommended that the return period of the flood event be verified by carrying out the more thorough flood study recommended in Longer Term Measures, item 3 ("Draft 2" report);
- x) to request a report from the Meteorological Office stating the storm rainfall return period for the night of 12 – 13/08/08. Should the Met Office report find that the rainfall return period is significantly shorter than that which is expected for the storm in question (i.e. approximately 1 in 25 year return period) it is again recommended that the return period of the flood event be verified as recommended in item 3 of the Longer Term Measures ("Draft 2" report);
- xi) to consider carrying out any remedial works which are identified from this year's investigation to allow water to backflow through the existing culvert into the field northwest of the MacDonald Smith Drive road bridge, in consultation with the affected landowner (see item 3.2 v. above);
- xii) to consider removal of sections of the existing levee protecting the potato field from flooding on the south side of Waterybutts Ditch, in consultation with the landowner, in order to improve the level of flood protection to the housing opposite. This is dependent on the outcome of this year's investigation into the benefit of so doing (see item 3.2 vi. above);

- xiii) to provide advice to homeowners whose properties have been affected by seepage (i.e. those on the south side of the Barry Burn) on how to improve the resilience of these properties to seepage flooding;
- xiv) to investigate utilising the low lying playing fields to the northeast of the footbridge over the Barry Burn as a floodwater storage area, and then devise and implement a proposal to do the same, should it be found feasible to do so;
- xv) to ensure that Waterybutts Ditch is included in the annual watercourse inspection regime and that any debris found in the reach adjacent to the houses prone to flooding will be promptly cleared;
- xvi) to ensure that the length of levee identified as being prone to significant seepage should be the subject of regular annual inspection and inspection after high flows in the Barry Burn for any signs of instability or damage;
- xvii) to arrange for Scottish Water's drainage plans to be uploaded onto the Council's GIS and be updated as necessary in conjunction with Scottish Water; and
- xviii) to request SEPA to deliver its Floodline Information Packs to all addresses whose properties or accesses were affected in the recent flooding incident in Carnoustie (August '08).

In particular, proposed works vii, viii, ix, x, xv, xvi and xviii are proposed to be carried out prior to the end of next summer. The rest of the proposed works are proposed to be carried out by the end of the next financial year (09/10).

- 3.4 Consideration also requires to be given to longer term interventions to improve the FPS and the potential for emergency services to respond to a flooding incident. In summary, these involve: developing an Emergency Operational Flood Plan for the FPS, a multifunction flood warning system and flood storage areas; improving the urban drainage arrangements, the flood protection of specific areas of housing potentially prone to flooding, the FPS maintenance regime (including the construction of a de-siltation pond upstream of the FPS to reduce the amount of sediment removal required along the FPS reach) and maintenance access arrangements; and developing a catchment management plan in conjunction with other stakeholders to reduce the potential for flooding and the wash-off of sediment. Further details of these are set out in the "Draft 2" report (available in the Members' lounge).

4 FINANCIAL IMPLICATIONS

- 4.1 The cost of the short-term measures being carried out within this 2008/09 financial year, as detailed in item 3.2 above, including additional Council staff time, is estimated to be £60,000 which can be met from the existing provision in the Roads Revenue account for flood prevention together with slippage in the Roads capital allocation for 08/09 for those elements which are of a capital nature.
- 4.2 The cost of the works and investigations proposed to be carried out within the 2009/10 financial year, as detailed in item 3.3 above, including staff time, is estimated to be £40,000 and can be met from the flood prevention allocation in the Roads revenue budget together with the block allocation for river flood alleviation in the capital plan in financial year 2009/10.

- 4.3 As indicated in item 3.1 above the financial implications of possible longer term solutions depend on further investigations and studies and cannot be estimated at present. Details of these costs will be presented to Committee in due course.

5 HUMAN RIGHTS IMPLICATIONS

- 5.1 The following articles of the European Convention on Human Rights are relevant to this report: The right to respect for private and family life, home and correspondence (Article 8) and peaceful enjoyment of property (Article 1 of the First Protocol).
- 5.2 Whilst flooding incidents have an impact upon individuals' home, life and property rights, the proposals in this report do not result in any infringement by the Council of those Convention rights. Rather, they seek to allocate the Council's resources towards protecting communities (and individuals' Convention rights) from flooding insofar as those resources permit.

6 EQUALITIES IMPLICATIONS

- 6.1 The issues dealt with in this Report have been the subject of consideration from an equalities perspective (as required by legislation). An equalities impact assessment is not required.

7 SINGLE OUTCOME AGREEMENT

- 7.1 This report contributes to the following local outcomes contained within the Single Outcome Agreement for Angus.

10. We live in well-designed, sustainable places where we are able to access the amenities and services we need

- Good quality housing is available throughout Angus.
- Crisis response for homeless households is provided.

12. We value and enjoy our built and natural environment and protect it and enhance it for future generations

- The importance and benefits to society of the environment is recognised.

8 CONSULTATION

- 8.1 The Chief Executive, Director of Corporate Services, Head of Finance and Head of Law and Administration were consulted in the preparation of this report.

9 CONCLUSION

- 9.1 In order to improve confidence in the level of flood protection provided by the Carnoustie (Barry Burn) Flood Prevention Scheme, a number of "Short-term Measures" have been identified to be undertaken within the 2008 – 2010 financial years. It is estimated that the cost of these investigations and remedial works will be of the order of £100,000 to be split into £60,000 in the 2008/09 financial year and £40,000 in the following 2009/10 financial year. It is therefore recommended that the Committee agree to homologate this year's expenditure and approve next year's expenditure so that these measures can be carried out expeditiously. It is likely that the work described will result in the identification and costing of further work being required into the future, which once identified will be the subject of future reporting.

ERIC S LOWSON
DIRECTOR OF INFRASTRUCTURE SERVICES

NOTE:

No background papers, as defined by Section 50D of the Local Government (Scotland) Act 1973 (other than any containing confidential or exempt information) were relied on to any material extent in preparing the above Report.

Roads/JS/GK/PP
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