

ANGUS COUNCIL

COMMUNITIES COMMITTEE – 30 SEPTEMBER 2014

EDZELL FLOODING

REPORT BY HEAD OF TECHNICAL AND PROPERTY SERVICES

ABSTRACT

This report describes the findings of the flood risk assessment for Edzell in light of the flooding event in December 2012 and presents options for the delivery of intervention measures to manage flood risk and reduce the impact of future flooding on properties in Edzell.

1. RECOMMENDATIONS

1.1 It is recommended that the Committee:

- (i) notes the findings of the Flood Risk Assessment as detailed;
- (ii) agrees that the option for increasing the capacity of the Dunlappie Road culvert is progressed and implemented subject to land agreements, as detailed;
- (iii) agrees that the option for increasing the use of property level protection is implemented, as detailed; and
- (iv) agrees that the options for upstream measures to the Wishop Burn and a western bypass solution to discharge to the West Water be developed for future consideration, as detailed.

2. ALIGNMENT TO THE ANGUS COMMUNITY PLAN/SINGLE OUTCOME AGREEMENT/COPORATE PLAN

This report contributes to the following local outcome(s) contained within the Angus Community Plan and Single Outcome Agreement 2013-2016:

- Our communities are prosperous and fair;
- Our communities are safe and strong;
- Our communities are sustainable; and
- Our natural and built environment is protected and enjoyed.

3. BACKGROUND

3.1 Reference is made to Item 4(ii)(h) of the minute of meeting of Angus Council of 27 March 2014.

3.2 At the above meeting, it was approved that a flood risk assessment and intervention measures (as detailed in Report 120/14, reference Item 18 of the minute of meeting of Communities Committee of 4 March 2014) be submitted to the relevant committee as soon as practicable.

4. CURRENT POSITION

4.1 A flood risk assessment (FRA) is presented in **Appendix 1** of this report.

4.2 This FRA has been undertaken by council engineers who have utilised consultants for some specialist input. The FRA describes the complex processes that contribute to flood risk in

Edzell, which includes flooding from the flow along the Wishop Burn and from pluvial flooding from direct rainfall on the area which cannot drain via the burn.

- 4.3 The FRA has been extended to include an appraisal of the options to manage flood risk in Edzell and possible intervention measures to reduce the impact and the number of properties at risk of future flooding. The options to manage flood risk in Edzell and possible intervention measures from the FRA provide differing levels of protection from the flood mechanisms and those recommended for consideration are summarised in section 5 of this report.

5. OPTIONS

- 5.1 The following intervention measures are potential options:

- (i) **Increasing the capacity of the Dunlappie Road culvert by providing a bypass channel.** This would alleviate the flood risk to the road and properties from the Wishop Burn at Dunlappie Road, which represents 25% of the estimated damages to properties and those at greatest flood risk. This proposal would require construction works on a site tightly constrained by residential dwellings necessitating the demolition and rebuilding of garages to the south of Dunlappie Road and The Drive. The downstream effects on this option on Edzell Golf Club and neighbouring properties would be managed. The construction cost for the culvert option would be £200,000, with an overall cost of around £220,000 including staff costs. Land agreements would also be required to allow for the demolition and rebuilding of garages. It is considered that this option could be implemented in late 2014-15/early 2015-16.
- (ii) **A second phase of property level protection scheme.** The importance of the use of property level protection has been highlighted within the range of actions in the developing draft Flood Risk Management Strategy for Angus and all across Scotland. Such measures are an active commitment from landowners and businesses to protect their own properties with support from the council as the Flood Risk Authority. This is also a physical form of community resilience planning, which should continue to be developed for Edzell. A first phase of property level protection products, which were subsidised by the council, has been completed. It is considered that a second phase of property level protection be developed to assist residents and businesses to provide their own protection. This would afford increased protection to the whole of Edzell and reduce the cost of damages from flooding. There are opportunities for further phases of property level protection to be explored with the community representatives, for example the Edzell Flood Group, with the available support of the Scottish Flood Forum. The council expenditure on this option would include staff costs but will be more dependent on whether a subsidised scheme is used. The cost of a subsidised scheme would be in the order of £30,000. This option can be implemented in 2014/15.
- (iii) **Lower level intervention measures upstream of Dunlappie Road and Lethnot Road** to provide a greater level and area of protection from the other flood mechanisms (indicative 50% of flood damages avoided). This would cost a further £220,000 including staff costs. It is considered that the earliest that this option could be implemented would be into 2015/16. This would expand the number of properties with enhanced protection.
- (iv) **Western bypass solution to discharge to the West Water.** This would afford a greater level and area of protection from fluvial (river) flooding from the Wishop Burn, and free up capacity for the existing burn to cope better with surface water flooding. This option would therefore negate some of the benefits of the Dunlappie Road culvert option and those of the upstream measures detailed above. The route is under a single land ownership, could be constructed using shallow excavations and channel, but is approximately 1,600m in length and would require planning approval. The construction cost for the western bypass would be approximately £660,000, with an overall cost estimate of around £720,000 including staff costs. Delivery timescale is dependent on land acquisition/agreement, and planning and SEPA approvals. It is considered that the earliest that this option could be implemented would be 2015/16.
- (v) **Eastern pipe solution to the River South Esk** - Report No 120/14 to Communities Committee on 4 March 2014 detailed the solution offered by DLB Scotland Ltd to provide a pipe taking water from the Wishop Burn to the River South Esk. This report set out the

potential comparable costs to the council, noting that to provide sufficient protection a secondary pipe was necessary, at a cost of £1,085,000.

5.2 It is feasible to combine the options to increase the area and level of protection provided. A summary of the level of protection from the main flooding mechanisms is presented in Table 1 below (reference should be made to the cost benefit analysis summary in Appendix 3 of the FRA).

Table 1 – Summary comparison of the proposed options

Options	Forecast Level of Protection (indicative return period)		Cost (including staff cost)	Benefit/Cost Ratio
	River (Fluvial)	Surface Water (Pluvial)		
<i>Do nothing</i>	Low (<1:10)	Low (<1:10)		
<i>Dunlappie Road Culvert</i>	High (1:200) (Localised)	Medium (>1:30-1:100) (Localised)	£220,000	1.22
<i>Dunlappie Road Culvert + Upstream Measures</i>	High (1:200) (Localised) Medium (>1:30-1:100) (Combined)	Medium (>1:30-1:100) (Combined)	£440,000	1.38
<i>Western Bypass</i>	High (>1:200)	Low (Indirect) (<1:30)	£720,000	1.49
<i>Dunlappie Road Culvert + Western Bypass</i>	High (>1:200) (Combined)	Medium (>1:30-1:100) (Combined)	£940,000	1.42
<i>Property Level Protection</i>	Low-Medium (1:10-1:30) (Combined)	Low-Medium (1:10-1:30) (Combined)	£30,000	>1
<i>Eastern Bypass</i>	High (>1:200)	Low (Indirect) (<1:30)	£1,085,000	1.19

5.3 All of the above options presented offer a benefit-cost ratio of greater than 1, and therefore merit further consideration.

5.4 It is proposed that of the measures described above, the options detailed in paragraphs 5.1(i) and (ii) are progressed further at this time. This will allow the uncertainty with the land agreements that would be required to implement each of these measures to be investigated in detail. The timing of the implementation phase would be dependent on the land agreements. It is therefore considered that the earliest works would commence would be at the end of 2014/15 and into 2015/16.

5.5 In summary, the scale of the implementation of the above preferred options, as detailed are:

- £220,000 for Dunlappie Road culvert only;
- Up to £30,000 for second phase of property level protection scheme;

This would afford a low-medium level of protection to the more frequent surface water flooding events across Edzell and a locally high level of protection in the Dunlappie Road area. This would also afford a low-medium level of protection to river flooding across Edzell and a locally medium level of protection in the Dunlappie Road area.

5.6 Progressing development of options for upstream measures to Dunlappie Road culvert and a western bypass, detailed in paragraphs 5.1(iii) and (iv) respectively, would increase the levels of protection from both river and surface water flooding, and increase the area afforded protection. It is not envisaged that both these additional options would be implemented.

5.7 It is therefore considered that the options proposed in this report for implementation and further development at the end of 2014/15 and into 2015/16 are affordable.

5.8 For comparison with the construction cost of the 'eastern' bypass pipes to the River North Esk (see Report 120/14) of £1,085,000, should the western bypass solution be implemented in

addition to the Dunlappie Road culvert and property level protection, the implementation costs would be in the order of £920,000.

- 5.9 It is proposed that Information Reports are brought up to this committee to update on the detailed development of these options and the delivery of implementation actions.

6. FINANCIAL IMPLICATIONS

- 6.1 The financial considerations and benefit cost analysis used in reaching the recommendations are detailed in the FRA. These considerations are in general accordance with best practice methodology (reference the Multi-coloured Handbook and UK Treasury Guidance) and allow the relative priority and benefits accrued from the options to be appraised consistently and in a fair and transparent manner.

- 6.2 As reported previously, provision of £100,000 has been made within Roads budgets for localised intervention measures over 2013-14 and 2014-15. This provision was to include localised intervention measures, which have relatively high benefit-cost ratios, such as community resilience planning, property level protection and further improvements to road drainage. £50,000 of this budget remains available for intervention measures in 2014-15.

- 6.3 In addition to the above, a 100% carry forward request for £200,000 was approved to fund measures to mitigate flooding in Edzell (report 270/14, Appendix C refers). This results in a total available budget for future intervention actions of £250,000. The 2013/18 Financial Plan (report 372/14 refers) includes provision for £200,000 profiled over 2014/15 (£50,000) and 2015/16 (£150,000) with a further £50,000 of revenue funding available in 2014/15. The total available is therefore £100,000 in 2014/15 and £150,000 in 2015/16.

- 6.4 Based on the available budget of £250,000, the options to implement a second phase of property level protection and increasing the capacity of the Dunlappie Road culvert by providing a bypass channel are affordable.

- 6.5 It is considered that the staff costs for the further development of the options for upstream measures to Dunlappie Road culvert and western bypass can be contained within available Roads budgets. However, should a further increase the level of protection from flooding be recommended, additional funding would need to be identified to implement the preferred additional option, which would be subject to future reports to this committee.

7. RISKS

- 7.1 The construction costs given in this report are based on the stage of development of the works proposed. These are considered to be accurate at this stage, are based on commercial rates for similar activities, and will be reviewed as detailed designs are progressed and prior to implementation.

- 7.2 The other risks associated with this report are detailed in the report.

8. HUMAN RIGHTS IMPLICATIONS

- 8.1 The progression of flood protection work has potential implications for property owners and for occupiers in terms of alleged interference with privacy, home or family life (Article 8) and peaceful enjoyment of their possessions (First Protocol, Article 1). However, it is considered that any actual or apprehended infringement of such Convention Rights is justified in the public interest and in accordance with the council's duty to carry out works to reduce the likelihood of flooding of land.

9. EQUALITIES IMPLICATIONS

- 9.1 The issues dealt with in this report have been the subject of consideration from an equalities perspective. An equalities impact assessment has been undertaken.

10. CONCLUSION

- 10.1 On the basis of the information in this report, it is recommended that the series of options appraised as an extension of flood risk assessment for Edzell are developed to a detailed stage so as to allow for early implementation of affordable intervention actions to reduce flooding in Edzell.

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NOTE: The background papers, as defined by Section 50D of the Local Government (Scotland) Act 1973 (other than any containing confidential or exempt information) which were relied on to any material extent in preparing the above report are:

- Report No 120/14 - Edzell Flooding - Communities Committee – 4 March 2014
- Report No 270/14 - 2013/14 Financial Outturn And Draft Accounts Update - Angus Council – 19 June 2014

[Appendix](#)