
BELLWIN 2

Report by Depute Chief Executive - Place

EXECUTIVE COMMITTEE

19 April 2016

1 PURPOSE AND SUMMARY

- 1.1 This report provides the Executive Committee with an update on the extent of damage caused by recent winter storms and the measures being taken and required to rectify this damage in a timely fashion that fits with the Governments Bellwin Scheme.**
- 1.2 This report is a follow-up to the report taken to Executive Committee on 16 February 2016 following the major flooding events caused by storms Desmond, Frank and other flooding in 2015/16.
- 1.3 The report outlines the work that has been done to date in responding to the initial aftermath of storm damage and actions taken to date.
- 1.4 Critically, the report also outlines the extent of remedial works that still need to be undertaken and the measures that will be required to support completion of these works within the Bellwin timeframe.
- 1.5 The report also provides a technical opinion on the merits of localised river gravel removal and dredging as measures to alleviate flooding risks.
- 1.6 It is also important to note that under the Bellwin Scheme the Local Authority (LA) has to meet the first portion of costs equivalent to 0.2% of the LA's total net revenue budget. In the case of Scottish Borders Council (SBC), this equates to £508k that will have to be met from reserves with the Bellwin Scheme picking up all eligible costs beyond this level.

2 RECOMMENDATIONS

- 2.1 It is recommended that the Executive Committee:-**
 - (a) Notes the extent and costs of works undertaken to date in response to the three major flooding weather events;**
 - (b) Notes the scale and extent of works that remain to be done to re-instate a wide range of damaged Borders infrastructure;**
 - (c) Notes the progress made to date on remedial works under the Bellwin Scheme;**
 - (d) Notes the recommendations made with regard to river gravel removal and dredging;**

- (e) Agrees to advance £150k of capital from the Hawick Flood Relief project into 2016/17 to deal with repairs to the Hawick Post Office boundary wall repairs;**
- (f) Notes the list of Short Term measures recommended for implementation in Hawick.**

3 SBC STORM RESPONSE

- 3.1 Each of the storms, Desmond (6 December 2015), Frank (31 December 2015), flooding on 27 January 2016 (following an unnamed storm) and Gertrude (29 January 2016) created very visible high profile flooding emergencies in towns such as Hawick, Peebles and Jedburgh which required a high level co-ordinated response led by the Council's Emergency Planning teams. Considerable damage was done in each of these towns and the surrounding area which will require extensive repair efforts and costs.
- 3.2 These storms have also caused widespread but less publicised damage to the infrastructure of the Scottish Borders which also requires to be addressed, including damage to:
- Buildings
 - Bridges
 - Embankments
 - roads including potholes and edge damage
 - drainage channels
 - culverts
 - signs
- 3.3 Work has been ongoing since storm Desmond in December 2015 to address these repairs on a prioritised basis using the resources of Infrastructure and Asset Management, Neighbourhood Roads and SBc Contracts. Having now undertaken most of these inspections, it is clear the scale of the damage is extensive.
- 3.4 On this basis and due to the fact that the Council is dealing with multiple extreme weather events in quick succession, Officers have determined that the works cannot reasonably be completed in the stipulated 2 month post-event period. A key factor in delaying some of these works is that environmental partners Scottish Environment Protection Agency (SEPA) and in some cases Scottish Natural Heritage (SNH) will only allow major river works on the Tweed system to take place between May and September. Accordingly, Officers have asked the Scottish Government for a further extension of the works completion date and helpfully the Scottish Government has agreed to extend this to 30 June 2016 for general road and infrastructure repairs and until 30 September for work on river embankments and bridges.
- 3.5 A special schedule of works has been prepared in which Neighbourhood Services Roads and SBc Contracts are very engaged. Where appropriate, some use will also be made of sub-contractors and plant hires to support the timely completion of works. Officers are, however, seeking to have as much of this work as possible done in-house by the Council's own staff.
- 3.6 **Progress with Bellwin Works:** In order to meet the Bellwin timescales, the majority of Asset and Neighbourhood staff are currently working on this activity, supported by external consultants and contractors in this sphere of work.

As the Bellwin works continues to remain the priority, Elected Members may have noticed that requests and responses are being delayed as a result of what Officers are trying to deal with. The ongoing support and understanding of Elected Members is essential as Officers continue to concentrate efforts on Bellwin works. This may have an adverse impact on the timescales for responding to non Bellwin related works.

To date some 300+ individually identified remedial works have now been designed, prioritised and programmed to be completed by the end of June deadline. The exception to this remains bridge and major embankment repair works which due to their potential impact on aquatic ecology are required to be completed between May and the end of September deadline.

The type of work repairs are:

- Permanent patching & overlay screeds
- Stabilisation works to embankments
- Road edge repairs
- Blocked and damaged culverts
- Clearing offlets, and
- Structures inc. walls, bridges flood bank

As at 21 March, approximately 45% of the programme has been completed, with costs currently of £1.6M. The programme is weather dependant and will be updated on a regular basis.

- 3.7 **Localised Gravel Removal:** Removal of gravel in localised areas can in some instances be used to manage flood risk but evidence indicates that localised gravel removal has very little impact on reducing flood levels.

Localised gravel removal can be used to manage the effects a river has on erosion of river banking and river banking structures. This could be the case when essential infrastructure could potentially be damaged or fail due to erosion. Gravel removal could be considered as part of a combination of measures to resolve such issues.

Changing river dynamics after large and even small flood events change how and where gravel has been deposited and removed.

It should be noted that without sufficient evidence or investigation the removal of gravel at one location could have an adverse effect at another location.

Dredging is not a cost that could be claimed within the Bellwin Scheme.

- 3.8 **Dredging of Gravel from Watercourses:** Enquiries have been received from a number of areas on the dredging of watercourses and the following explains the Council's position in relation to this. The Council has computerised models and previous experience to draw on in forming a view as to the likely effectiveness of water course dredging.

While dredging appears a straight forward solution to flooding, evidence indicates that it does not work on large rivers moving at pace, such as many of the Borders rivers.

During a flood event when a river is fast flowing, the water will move material downstream and deposit in any deeper dredged sections, filling the section back to its original level very quickly.

Water storage capacity created by the dredged river channel is thereby very quickly lost. Officers by way of example modelled removal of around 200,000 tonnes of gravel – the equivalent of 10,000 lorry loads – from a section of river. It is calculated that the river bed level may return to its original level within two years. The cost of this work would be around £1.5 million. This is modelled on the River Teviot through Hawick.

The Council is fortunate that we have one of the most advanced hydraulic models in Scotland built for Hawick. This allows us to look in detail at the best options available to manage flood risk. In this instance, analysis shows that dredging or localised removal of gravel in Hawick does not substantially reduce flood risk.

Unfortunately, we do not have this level of technical data available for our other Border Towns and cannot do the same level of analysis as done for Hawick. However, over time through the strategic approach to managing flood risk, will see our data sets increase allowing decision making on our flood risk management functions to be fully informed.

It is important to note that any individuals, communities, or organisations minded to undertake dredging or localised gravel removal will be required to follow the same regulatory legislation as local authorities. SEPA are the environmental regulatory body for any engineering works to be carried out on watercourses and would require sufficient evidence to support any such applications for dredging.

- 3.9 **Case Studies :(1)** The Bowmont Water was dredged approximately 1m below natural bed levels. After one bank full flood event (that occurred one month after the dredging operations) enough sediment was transported to raise the bed level by approximately one metre back to natural bed levels. The bank full flood event is expected to occur approximately once a year (see Figures 26-28).



Figure 26: Bowmont Water channel dredged 05 August 2009 approx 1m below natural bed level.



Figure 27: Bowmont Water 04 September 2009 bank full flow.



Figure 28: Bowmont Water 14 September 2009 after one bank full flow event bed level has risen (approx 1m) and returned to natural bed levels.

(2) Modelling on the Liddle Water at Newcastleton (*Halcrow 2005 technical note Newcastleton flood study commissioned by Scottish Borders Council*) showed that removing gravel did not have a significant effect in high flow events that were likely to result in flooding of built property (water level would reduce by less than 1cm in a one in 200 year event).

Modelling on the River Slitrig and the River Teviot (*Halcrow 2005 technical note Hawick flood study commissioned by Scottish Borders Council*) showed that removing gravel had a greater effect in lower return periods on the River Teviot and that removing half of the existing sediment deposit may reduce water levels by 18cm during a one in five year flood event. However, on the River Slitrig it was shown that during the one in 200 year flood event removing gravel did not have a significant effect on water levels (see Figures 29-30).



Fig 29



Fig 30

3.10 Officers are therefore of the view that removal of gravel and dredging of watercourses is not sustainable unless there is clear evidence that removal of the gravel will deliver long term benefits and reduce the impact of flooding upon adjacent properties. In terms of requests to remove gravel and dredge rivers, the position is clear in that localised gravel removal and dredging of large, fast flowing rivers - in an attempt to reduce flood risk - **is ineffective, uneconomic and unsustainable.**

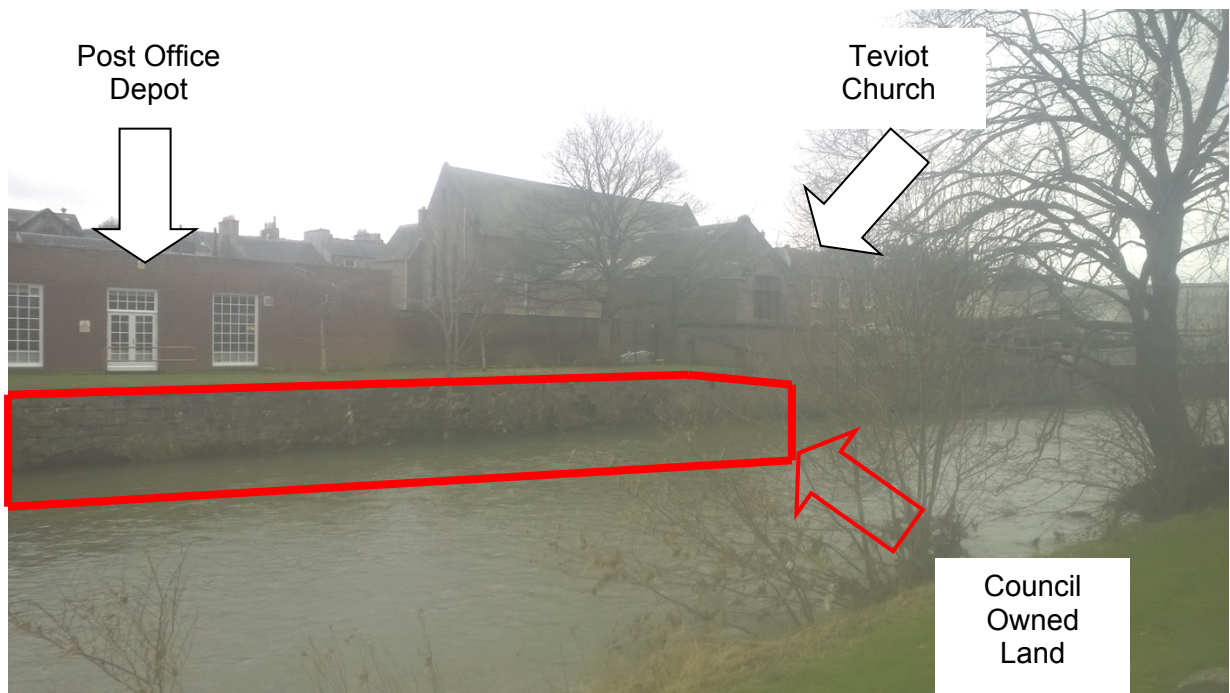
4 SHORT TERM MEASURES FOR HAWICK

- 4.1 Hawick Flood Protection Project is part of a three phase strategy for the protection of the community and assets in Hawick. The three phases are:
1. Short term measures to increase the level of protection to 1 in 10 year.
 2. Hawick Flood Protection Project to deliver direct 1 in 75 year defences within the town.
 3. Long term upstream storage to increase the level of protection created by the phase two direct defences.
- 4.2 As the Hawick Flood Protection project is still in the early stages of development prior to obtaining Scottish Government funding, the 1 in 75 year protection of the town is not programmed to be complete until 2022.
- 4.3 With the recent events in Hawick at the end of 2015 and start of 2016 it highlighted that the town is exposed for the next seven years and there is public pressure to provide some improvements in the town prior to the main flood protection being hopefully delivered by 2022.
- 4.4 Officers have reviewed the original list of phase one short term measures that had been previously commenced in the town. This list was updated with feedback from the community, involved in community support during and after the events, who were able to identify how the flood water breached the banks and identify weak points in the existing 1 in 10 defences. All of this information was analysed to identify any additional areas that could be improved to protect business and residential areas and provide a benefit to cost analysis.
- 4.5 The community have been putting pressure on Elected Members, MSP's and SEPA to have the water course through the town dredged to provide greater capacity in the water channels. The analysis in Section 4 of this report provides evidence of why dredging or gravel removal is not a solution for the issues in Hawick. However, if gravel removal was deemed to be an acceptable way forward for the Council then Officers have identified some key areas to be targeted.
- 4.6 This analysis has resulted in the table provided in Annex 1 showing the priority list for the short term measures in Hawick. This has been split into four categories:
1. Works that fall within Bellwin
 2. Priority 1- Based on Benefit Analysis
 3. Community Priority 1
 4. Priority Emergency works - that should to be undertaken
- 4.7 There are other works identified on the spreadsheet but due to the either the cost of the works and the levels of properties protected they do not provide a sufficient level of Benefit to Cost ratio to be included in the Priority 1 works.

4.8 In summary, the spreadsheet proposes the following actions:

1. Six items identified by this analysis will be added to the Bellwin works (we can only include repair and re-instatement works in Bellwin not enhancement).
2. Based on a benefit analysis of current level of protection, cost for implementing improvements and number of properties protected the Priority 1 items should be considered for Capital funding (£77,535.98).

4.9 The item identified as Priority Emergency Works is highlighting the area of land owned by the Council to the rear of the Post Office depot accessed from St George's Lane.



Views from Common Haugh Car Park



- 4.10 As shown in the above photo, the grassed area between the River Teviot and the Post Office depot wall is owned and maintained by the Council. Unfortunately, the retaining wall supporting this area and the surrounding properties, including buildings associated with Teviot Church and the Post Office, is in a poor state of repair.
- 4.11 As part of the Hawick Flood Protection Project the structural integrity of this wall has been assessed and it is on the limits of collapse and it will be gaining additional support from the tree routes in the grassed area.
- 4.12 The deterioration of this wall cannot be attributed to any of the recent flood events, as the wall was in a poor state prior to December 2015 and the recent events have just made the matter worse. Therefore, there is no substantiation for including the repair of this wall in the Bellwin Claim.
- 4.13 If this wall was to collapse then there is a risk to the Post Office depot buildings, although they are set back by a couple of metres from the wall. However, the buildings associated with the Teviot Church closely abut the wall and any collapse would likely undermine the foundations of the building.
- 4.14 The proposed cost for repairing this wall, looking to incorporate the repair into the future Hawick Flood Protection Project would be £150k. If a collapse was to happen it may well be covered by the Council's Public Liability Insurance, with an excess of £75k to be paid by the Authority (it may not be covered without an appropriate inspection and remediation scheme being in place), but allowing that to happen would have the following consequences:
- Any claim of a potential magnitude of more than £100k would affect future premiums on the Council's insurance;
 - There will be significant negative public relations generated by a Council owned wall failure, in a community already frustrated by a perceived lack of action by this Authority. This could affect the progress of the Order process of the Hawick Flood Protection Project;
 - This is a risk that a wall failure affecting either of the buildings highlighted above could put at risk public safety.
- 4.15 The Project Team did look at other measures to repair the wall, but due to the structural analysis identifying that the wall needs a full replacement there is no other cost effective option. It is recommended that the required repairs be funded by advancing £150k of capital from the Hawick Flood Protection Project from 2018/19 into 2016/17 to deal promptly with these repairs.
- 4.16 Finally, there is strong public opinion that the removal of gravel will benefit the flood risk in the town. However, there is no evidence to support a long term benefit from gravel removal in the Teviot. If work is to be undertaken by a third party, in a controlled manner, the Community priority 1 estimate that the cost of this work will be in the region of £165k. This cost has been built up on a worst case scenario and there is an opportunity to half these costs if a contractor can find a use for the gravel rather than the assumption of sending to tip. Gravel extraction can be undertaken by third parties with permission from SEPA and other regulatory bodies.

5 IMPLICATIONS

5.1 Financial

Scottish Borders Council will be liable for the first £508k of works undertaken in relation to these works which will have to be met from existing reserves.

£150k of capital to be advanced from the Hawick Flood Protection Project from 2018/19 to 2016/17 for the Hawick Post Office boundary wall repairs.

The Hawick Flood Protection Project has not yet secured the significant Scottish Government funding required to progress the project to construction phase. There is a risk that if this funding cannot be secured or that it does not include previously secured costs that the Council has to fully fund the £150k capital works.

The Capital & Revenue Plans were approved in February, there is no allocation for short term measures identified and therefore at this point there is no funding available to take these works forward.

5.2 Risk and Mitigations

The Bellwin Scheme has specific guidelines and definitions of what constitutes eligible and ineligible expenditure. Whilst every effort will be made to ensure that only eligible expenditure is included within the Council's claim the final decision on cost eligibility will rest with the Council's External Auditors and the Scottish Government.

5.3 Equalities

It is anticipated there will be no adverse impact due to race, disability, gender, age, sexual orientation or religion/belief arising from the proposals contained in this report.

5.4 Acting Sustainably

Many of the measures and remedial works proposed are designed to rectify and avoid environmental damage within the Scottish Borders and remedial measures will be undertaken in cooperation with SEPA & SNH.

5.5 Carbon Management

No effect on carbon emissions are anticipated from the recommendations of this report.

5.6 Rural Proofing

It is anticipated there will be no adverse impact on the rural area from the proposals contained in this report.

5.7 Changes to Scheme of Administration or Scheme of Delegation

No changes to either the Scheme of Administration or the Scheme of Delegation is required as a result of this report.

6 CONSULTATION

- 6.1 The Chief Financial Officer, the Monitoring Officer, the Chief Legal Officer, the Chief Officer Audit and Risk, the Chief Officer HR and the Clerk to the Council have been consulted and any comments received been incorporated into the final report.

- 6.2 The Depute Chief Executives, Service Directors and their relevant staff have been involved in and agreed the compilation of the budgetary control statements appended.

Approved by

Philip Barr

Depute Chief Executive – Place

Signature

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Background Papers: Nil

Previous Minute Reference: N/A

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