Joint Position Statement

Report Relating to Incidents of Flooding within the Dollar Catchment

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Scottish Water
Always serving Scotland

Clackmannanshire Council

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1. Introduction

1.1. Background

The village of Dollar has encountered historical incidents of flooding at various locations within the catchment, the most recent events occurring in July and August 2012. Since these most recent incidents, representatives of Scottish Water (SW) and Clackmannanshire Council (CC) have carried out preliminary investigations into the circumstances contributing to the flooding events.

Three locations within the catchment have been identified as being the principal areas impacted by the recent flooding incidents, namely, Princes Crescent, The Ness (Upper) and The Ness (Lower).

This report aims to summarise the preliminary investigations undertaken to date following the flooding events, the initial findings of these investigations and proposals for further investigation and mitigation work to reduce the risk of flooding incidents occurring in future.

1.2. Existing Drainage System

The village of Dollar is currently served by a mixture of separate and combined drainage systems. A separate system is one in which the foul and surface water drainage discharges are collected in individual pipelines, whereas a combined drainage system incorporates both foul and surface water drainage in a single pipeline. It is generally encountered that older drainage systems are based on the principle of combined drainage and more modern drainage systems are based on a separate design.

In terms of responsibility for drainage infrastructure, SW general responsibility is associated with the foul and surface water discharges from domestic and business properties and CC general responsibility is associated with surface water drainage from the public road network. CC also has a responsibility for watercourse maintenance as defined by the Flood Risk Management Scotland Act 2009.

2. Preliminary Investigations into Flooding Events

2.1. Princes Crescent

Investigations to date indicate that surface water can gather and accumulate in the road adjacent to house nos. 7 and 9, from where the flow builds up and ultimately drains in a Southerly direction through the boundary of these properties towards Tarmangie Drive. The principal impact of flooding to date at this location has been to the external grounds of the properties, driveways, gardens and attached garages.

It is unknown at this stage if this surface water flooding is associated with inadequate capacity of the surface water drainage network and / or with undue over land surface water flow being generated in the catchment to the North of the village, and subsequently flowing over the local hard standing and road network.

CC, in agreement with SW, arranged for the removal of a restrictive structure at a key surface water system outfall to the Kelly Burn in 2010. SW also carried out some minor alterations to the surface water drainage network downstream of the properties affected in Princes Crescent in September 2011, however, these capacity improvements did not prevent the subsequent flooding events from occurring in July and August 2012.

In addition to gully cleaning and street sweeping following the main flood event on 6th August 2012, CC has been investigating the potential flood drivers within the contributing catchment area above the housing. As a result CC will continue to encourage all necessary intervention works by third parties to improve the attenuation and safe direction of surface water flows in the area. CC has also recently completed works on the Upper Hillfoots Road above the housing area to restore and improve carriageway drainage systems and have also installed constructed means to direct overland flows on the carriageway surface towards the Kelly Burn glen.

2.2. The Ness (Upper & Lower)

Investigations to date indicate that flooding incidents in these areas have been associated with surcharging of the foul and combined drainage sewers serving these localities. Principal impact of flooding events has been internal property flooding in addition to external flooding of driveways and gardens.

Visits to house owners impacted by the flooding events have been carried out by members of the SW flood investigation team to acquire and collate the available local knowledge on the mechanisms of the flooding events and the impact which these had on the properties affected.

The intensity / duration characteristics of the storm events at the time of the reported flooding incidents have also been collated from Met Office records to establish the severity of the storm events prevalent at the times the flooding occurred. Initial findings indicate that the internal flooding of the properties in The Ness (Upper) area were associated with extreme storm weather conditions, whereas the properties in The Ness (Lower) area were associated by less severe storm conditions.

3. Future Investigations and Proposals

3.1. Princes Crescent

In agreement with CC, SW is currently investigating the installation of a flow monitoring device in the surface water sewer in the Princes Crescent locality. The purpose of this device is to monitor the level of flow in the surface water sewer to confirm whether this sewer is surcharging under storm weather events. This will assist to clarify the mechanism resulting in the flooding in this locality, i.e. whether the flood water is being generated from the surface water sewer, from over land flow or a combination of both these potential sources.

Additional investigation into the catchment areas contributing to the surface water sewers at this location by dye testing will also be undertaken to establish and confirm the connectivity of all the foul and surface water drainage in the area, which will assist in identifying potential options for any flood mitigation work which may be proposed.

3.2. The Ness (Upper)

It is proposed to install non return valves (NRVs) on the drainage discharge connections from house nos. 84, 86, 88 and 90 The Ness. The aim of these NRVs is to prevent the back flow of any surcharge encountered in the main collector foul sewer, thereby preventing any flow from this sewer from surcharging into the properties connected to the sewer.

The dedicated surface water sewers and outfalls to the watercourse in this area are also to be checked to determine any existing issues which may be impacting on their performance and to assess any available options for diverting additional surface water

drainage to these sewers which could potentially relieve surcharging from the foul sewer system.

It is not currently proposed to include any of the properties in this area on the internal flooding category of SW's 'Properties at Risk of Flooding Register', due to the extreme storm events recorded at the time of the flooding events, as stated in clause 2.2 above. (NB: Refer to Appendix 2 of this report for a statement on the management of SW's 'Properties at Risk of Flooding Register' and the associated mechanisms for promoting identified flood relief schemes).

3.3. The Ness (Lower)

It is proposed to install non return valves (NRVs) on the drainage discharge connections from house nos. 10, 12 and 14 The Ness as per the reason for the properties listed in clause 3.2 above. In addition, further flood risk mitigation work is to be carried out for no. 14 by replacing air vents on the external walls of the property and some landscaping work to assist in the escape of any flood water which may accumulate at this location in future.

It is currently proposed to include no. 14 The Ness on the internal flooding category of the SW's 'Properties at Risk of Flooding Register', due to the occurrence of internal flooding at this property during a storm event which didn't register under an extreme condition classification.

4. Summary

Following completion of the additional investigations described under clause 3 above, it is expected that the additional information gathered will assist in clarifying the critical causal factors resulting in the flooding events in the Dollar catchment which, in turn, then permits the identification of options for mitigation work to reduce the risk of flooding events occurring in future. It should be noted that it is a key requirement to accurately identify the cause(s) of all flooding events to allow mitigation work to be accurately devised which can address any deficiencies identified. Further information on the progress of these stages of the investigation work will be provided as this becomes available.

A necessary working tool in the preparation of optioneering for flood relief schemes is the preparation of a drainage area plan (DAP) computer model of the drainage network for any area impacted by flooding. This DAP model can be used for optioneering potential flood relief schemes which also assists in the cost estimate of identified options. Accordingly, a DAP model would have to be prepared for the Dollar catchment, incorporating both the surface water and combined drainage network, to allow the optioneering studies to progress.

Appendix 1 of this report contains a log of the actions as discussed in this report and Appendix 2 contains a Position Statement relating to SW's management of the 'Properties at Risk of Flooding Register' and associated funding of flood relief schemes.

Appendix 1

Action Log

Ref	Description	Action Owner
1	Install surface water drainage flow monitor in Princes Crescent	SW
2	Investigate connectivity of the foul and surface water drainage in the Princes Crescent area	SW
3	Investigate, identify and continue to encourage intervention works by third parties to mitigate against potential drivers of flood risk in the contributing catchment	CC
4	Install NRVs on the drainage discharge connections from house nos. 84, 86, 88 and 90 The Ness (Subject to agreement by all house owners)	SW
5	Check dedicated surface water sewers and outfalls to the watercourse in The Ness locality	SW / CC
6	Install NRVs on the drainage discharge connections from house nos. 10, 12 and 14 The Ness (Subject to agreement by all house owners)	SW
7	Carry out additional flood risk mitigation work for no. 14 The Ness	SW

Appendix 2

Scottish Water
Properties at Risk of Flooding Register
Position Statement

Scottish Water is currently engaged in a capital expenditure programme to deliver a number of improvements to the wastewater infrastructure, including addressing areas of hydraulic incapacity of the drainage network. One aspect of this programme is the removal of properties from the 'Properties at Risk of Flooding Register'. This register is owned and managed by Scottish Water and has been prepared from available information on flooding locations, due to hydraulic incapacity of the sewerage network, from the former North, East and West of Scotland Water Authorities. This register is continually being updated as more information on properties susceptible to flooding is received and collated.

There are currently in excess of 300 properties on this register throughout Scotland and Scottish Water has a business objective of removing these properties from the register by implementing flood relief schemes. Accordingly, a business system has been developed to prioritise schemes to allow a programme of work to be prepared which can be accommodated within the allocated financial budget and available resources. This prioritisation system is based principally on the nature of the flooding, i.e. whether properties are affected internally (within and / or beneath the living space area) or externally (gardens, driveways etc.) and the number of properties affected within a particular flooding location. Only properties which are included in the register can be considered for capital investment and a number of flood relief schemes selected from the register are currently ongoing throughout Scotland.

For any flood relief scheme which is promoted, optioneering is required to devise possible solutions to resolve the problem and an associated cost of these options would also be prepared. This is currently a key performance indicator for Scottish Water and is a high profile issue with the Scottish Executive and Local Authorities. Therefore, it is expected that capital finance will continue to be allocated to resolving this issue in the coming years.

With regard to properties impacted by external flooding and also flooding on roadways, footpaths, open spaces etc., Scottish Water does not have any funding allocated to resolving these particular flooding issues in the current investment period which runs from 2010 to 2015. However, an application is being prepared for a funding request for the next investment period (to run from 2015 to 2020) to address external flooding locations. Again, as per the internal property flooding register, a prioritisation process will be applied as the basis for which flood alleviation schemes will be promoted.

It cannot be confirmed at this time when a flood alleviation scheme may be able to be promoted for a specific location as this will depend principally on the future budget allocated to Scottish Water for this investment need. Currently, there is a financial limit to the approval of individual flood relief projects, therefore, all such schemes will also have to fall within approved funding limits. However, Scottish Water personnel will be able to keep you updated regarding this matter as more confirmed proposals on the national programme of work are developed.

I trust the above assists to clarify Scottish Water's commitment to working towards resolving ongoing flooding problems, however, it is also important to set expectations in terms of our current investment objectives. In the interim, Scottish Water will continue to appropriately maintain our network, provide any necessary clean ups following flooding events, and ensure that all such events are recorded for future planning purposes