

Carisbrooke/Newport

Flood Investigation Report



Flood Investigation Report

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Executive Summary

This Flood Investigation Report has been compiled by the Isle of Wight Council as Lead Local Flood Authority (LLFA). As LLFA it has a duty to investigate significant flood events as defined under the Flood and Water Management Act 2010.

Upon becoming aware of a flooding event, which meets a set criteria deeming the event as 'significant', the Isle of Wight Council will consider whether an investigation should be carried out under the requirements of Section 19, sub section 3 of the Flood and Water Management Act 2010. This investigation will determine which risk management authorities have a responsibility for managing flooding at the identified flood site and will ensure that there is an appropriate response to the flood incident.

It was deemed necessary to undertake an investigation into the flooding incidents in the Carisbrooke/Newport area due to the extent of the incidents, properties being affected and the need for partnership agency intervention at the time of the events.

This report provides a summary of the extent and consequences of the flooding and actions undertaken or proposed by each of the identified authorities with a responsibility for flooding within the identified area. This includes information relating to options for improvement works or general maintenance carried out at n the area.

Whilst this report has sought to identify causes of flooding within this area and has made recommendations as to how the risk and / or impact of flooding may be reduced, this does not provide the Isle of Wight Council with the mandate or funding to implement any measures to reduce or remove the risk of flooding at this site.

Introduction

Requirement for Investigations

The Isle of Wight Council, within their role as Lead Local Flood Authority, have a responsibility to record and report flood incidents, as detailed in Section 19 of Part 3 of the Flood and Water Management Act 2010.

<p style="text-align: center;">Part 1 FLOOD AND COASTAL EROSION RISK MANAGEMENT</p> <p>3. Supplemental powers and duties Section 19: Local authorities: Investigations</p> <p>1) On becoming aware of a flood in its area, a lead local flood authority must, to the extent that it considers it necessary or appropriate, investigate –</p> <p>(a) which risk management authorities have relevant flood risk management functions, and</p> <p>(b) whether each of those risk management authorities has exercised, or is proposing to exercise, those functions in response to a flood.</p> <p>2) Where an authority carried out an investigation under subsection 1) it must –</p> <p>(a) publish the results of its investigations; and</p> <p>(b) notify and relevant risk management authorities</p>
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This report investigates the flooding incident in the Carisbrooke/Newport area as the impacts to people, property and infrastructure were deemed to trigger the need for an investigation.

This report aims to provide details of the flooding incident that occurred with a review of the roles and responsibilities of all risk management authorities having a responsibility for flooding at the identified site. It will also include an overview of any works undertaken or options proposed at the site in order to reduce the risk of flooding at the identified site.

Site location and description

Newport has the greatest density of watercourses of any town on the Island and they have flood risk



Figure 1: Carisbrooke Area

zones associated with them. There exists both tidal and fluvial flood risks in Newport. The tidal flood risk extends as far up the Medina Estuary as the bridge where the A3020 crosses the River Medina. Fluvial flood zones exist for the River Medina, Lukely Brook, Pan Stream and Gunville stream.

The area of Carisbrooke and Newport impacted by flood events is residential in character, with garden areas for individual properties differing depending upon the density of development.

Millers Lane and Carisbrooke are on the outskirts of Newport and are less dense in character and less urban in form than properties situated along Ceasars Road.

Lukely Brook itself is classified as main river and changes from an open watercourse flowing from agricultural land at Plaish, through mill ponds, fords and gardens into more restricted channels in the more urban parts of Newport.

Plaish Farm water meadows form a natural wetland on the outskirts of Carisbrooke and water flows into this area from the wider catchment of the chalk downs.

Incidents triggering investigation

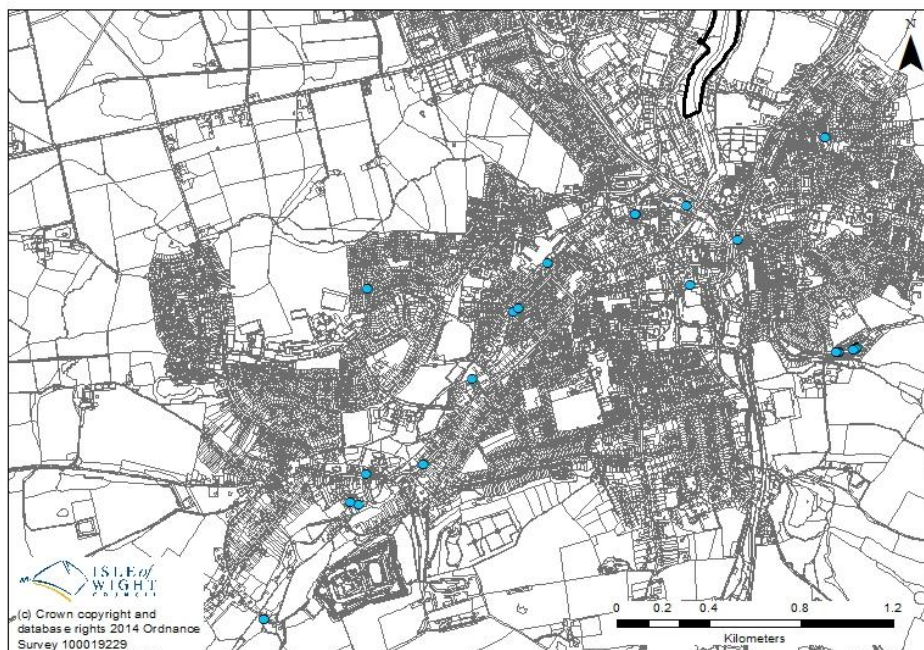


Figure 1: Affected Properties Carisbrooke/Newport

On 24th December 2013 flooding affected properties in Clatterford Shute, Carisbrooke; High Street, Carisbrooke; Castle Street, Carisbrooke; Carisbrooke Road, and Ceasars Road, Newport. IWF&RS attended flooding at 23 and 25 High Street Carisbrooke where the main pump was used for pumping out and main drains required unblocking.

IWF&RS also attended 21 Carisbrooke High Street on 14th February and provided flood prevention advice to the property owner but handed over the scene to Southern Water Services. During this event flooding in open areas was experienced but there is no record of internal flooding occurring.

Several properties suffered damage at ground floor level and have required repair.

The EA have gauging stations on the Lukely Brook and the River Medina and also provided data local to Carisbrooke in terms of rainfall in the 23-24/12/2013 as follows:

Table 2: Rainfall in the Carisbrooke area 23-24 December 2013

Date & time	Rainfall in mm
12:00 23/12/13 and 06:00 23/12/13	49mm
18:00 23/12/13 and 02:00 24/12/13	30mm
18:00 23/12/13 and 04:00 24/12/13	35mm
Total rainfall 23-24 December	74mm

The Environment Agency have confirmed that at 74mm, this is almost the monthly average rainfall for December received in one day.

Anecdotal evidence provided by local residents would suggest that late evening on 23rd the level of the pond at Carisbrooke Mill (when viewed from Millers Lane) was about 2 feet below garden levels, but that during the early hours of 23-24th December there was a “surge” of water along the watercourse, which not only raised the level of the pond but which also caused garden flooding, which had dissipated by the morning. There was a suggestion that the tributary to Lukely Brook at this point experienced a surge of water flowing along it as a result of water being released from a local farm pond which had been dammed by debris. It has not been possible to corroborate this event. The view of the EA with regard to the surge experienced is that the surge measured at the gauging station between Wellington Road and Recreation Ground Road matches the surge measured at both Carisbrooke and Shide and that the surge itself was a result of the sheer volume of water that fell during the extreme storm at this time.

This surge was experienced in Carisbrooke and along Lukely Brook, causing flooding in Ceasars Road where the water channel at the rear of properties is narrow. It is important to note that opening the floodgate at the Southern Water Pumping station will also impact upon the flow of water into the Brook at the rear of Ceasars Road.

The Parish Council have flood boards that are to be used at Castle Street ford, however it came to light during the investigation that at the time of the 24th December flooding event the flood boards were not in situ. There appears to be no formal agreement on who has the responsibility for inserting or removing the local flood boards, although it is understood that this is a role that the Parish Council has performed over a number of years.

During the 24th December events reports of debris in the overflows and at the weir at the Mill Pond Pump Station at Carisbrooke were reported.

Water levels in pond and at the Southern Water pumping station remained high throughout the period of the storms.

History of flooding

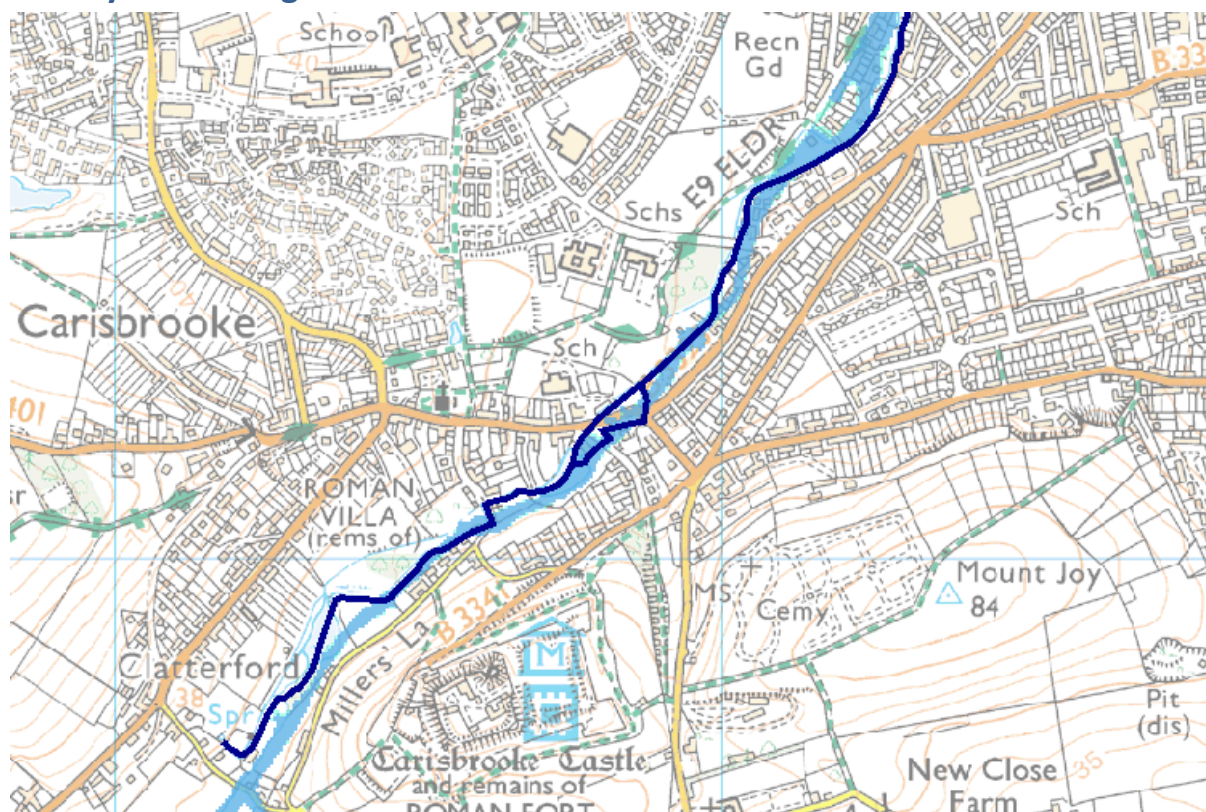


Figure 2: EA Flood Zone for the Carisbrooke area

There is limited data on historical flooding events however anecdotal evidence suggests that at times of heavy rainfall water from Castle Street runs down Castle Street towards the ford and at times accumulates in the road.

The area around the Lukely Brook main river is shown to be at risk from river and sea flooding on the Environment Agency's flood risk maps. The EA undertake a 6 monthly inspection of the area to identify any actions that are needed in terms of debris etc.

The Isle of Wight Autumn 2000 Flood Investigation study found that although parts of Newport are in the Medina and Lukely Brook floodplains, only St Cross Mill was reported as flooding due to high river levels. Through Newport, channel improvement works designed in the 1960s were sufficient to prevent more extensive flooding, although the standard of protection will diminish over time. However it is known that the Caesars Road/Old Westminster Lane area as suffered from significant flooding events in the past. Work by the EA identified up to 29 properties at risk along a 300m stretch. It is understood that without works to this stretch of the brook that the incidents of flooding could occur during a 1 in 5 year flooding event (a 20% chance in any year).

The EA has considered various remediation options and allocated £30,000 FDGiA during 2011/12, however the EA's medium term plan delayed any potential project until 2016/17 and the various options do not score well under Defra's relevant partnership funding guidelines.

Catchment Flood Management Plan

The river Medina can flood for a number of reasons and is responsive to rainfall and affected by tide locking.

The Lukely Brook flows through a modified channel and historic development has meant that the channel has narrowed in places. The Channel is inspected and cleared twice a year by Environment Agency teams and during the winter the trash screens at Westminster Mill and Town Mill are cleared twice a week. In addition the EA have to regularly clear assorted garden and household waste washed onto the trash screens. EA advice in their leaflet “Living on the Edge” makes it clear that “Riparian owners have a responsibility to keep watercourses clear from debris. Do not use riverbanks to dispose of garden or other waste, or store it where it could be washed into the river. This includes grass cuttings, which pollute the water as well as increasing flood risk.”

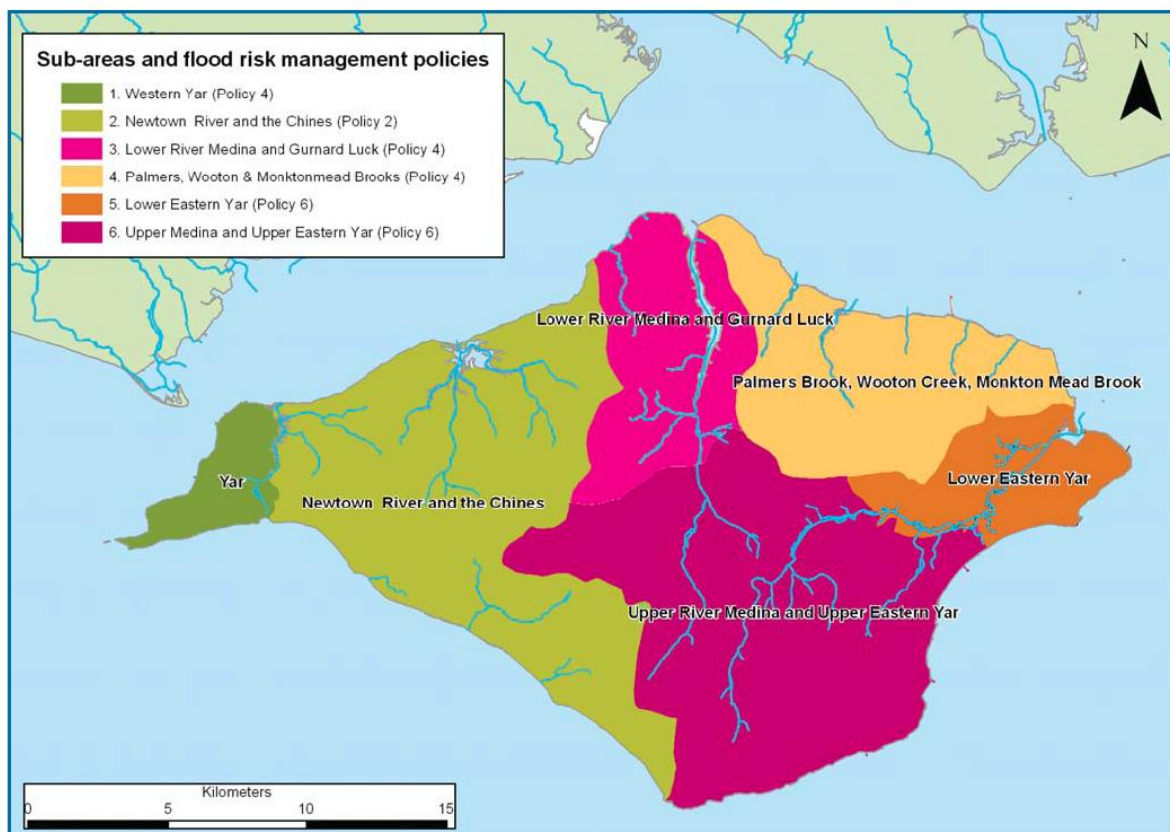


Figure 3: Catchment Flood Management Plan sub-areas

The EA have investigated a number of options to improve the flow of water behind Caesars Road, unfortunately however the cost of work is high and under existing government funding rules does not attract public funds. The EA will however continue to remove blockages that pose a flood risk.

In terms of responsibility the banks of the brook are within the control of adjoining householders. The EA has permissive powers under the Water Resources Act 1991 but no duty to intervene. It was not involved in the construction of the channel in this location and has never undertaken maintenance of it. Public meetings took place in September 2006 to consider various options for the channel, but since that date no decisions have been taken relating to the options due to a funding gap. However, in preparing this report the EA have confirmed that they would wish to support eh LLFA co-ordinating a solution.

Policy 3 sets out he approach to flood risk within the CFMP.

→ Policy 3

Areas of low to moderate flood risk where we are generally managing existing flood risk effectively

This policy will tend to be applied where the risks are currently appropriately managed and where the risk of flooding is not expected to increase significantly in the future. However, we keep our approach under review, looking for improvements and responding to new challenges or information as they emerge. We may review our approach to managing flood defences and other flood risk management actions, to ensure that we are managing efficiently and taking the best approach to managing flood risk in the longer term.

At the Southern Water Pumping station, the floodgate was installed to maintain the water level of the pond and not to mitigate flood risk. The concrete slipway that bypasses the floodgate is the principle storm feature and was designed with a 1 in 30 year rainfall event in mind (as is most highway drainage). The events experienced during this period were in excess of 1 in 200 year. Without constant manipulation of the floodgate the spillway has served its purpose since installation and there have been no recorded flooding incidents until this winter.

The water treatment works itself hosts 3 boreholes into chalk from which water is pumped and sent to Southern Water reservoirs. No surface water abstraction occurs and the only responsibility that Southern Water have with regard to the water flow through the pond is that of riparian ownership. At the peak times of the storm events in December there were issues with the Treatment Plan at Sandown and Carisbrooke which was also flooded and Southern Water were in danger of losing water supply for the Island as a result, therefore activity of Southern Water staff was prioritised to ensuring that the Sandown Plant was maintained. Staff were prioritised to work at Sandown to ensure that water supply across the Island was not lost and this impacted upon the availability of Southern Water staff at other points on the Island. – Although we were still able to respond to the flooding in Carisbrooke in this instance.

Following the flooding, Southern Water installed a sensor at the pumping station which triggers an alarm with regard to water level. The sensor detects the height of the water via a sound signal that calculated water depth and sends information to Southern Water main operations centre. The sensor was installed to firstly provide a response should levels in the pond reach a dangerous level and secondly to provide data on pond levels so that Southern Water can understand the impact of floodgate movements. This has subsequently alarmed but our response found a floating log to be the trigger of the alarm.

Management of the watercourses is the responsibility of every individual who has land that runs up to the banks of a watercourse and part of that responsibility is ensuring that watercourses are free of debris. This is an issue for the whole of the Island.

Roles and responsibilities

- The IW Council is responsible for highway drainage, which is managed for council by Island Roads under the Isle of Wight Highways PFI Contract. In addition, under the Emergency and Reactive Response section of the PFI contract Island Roads provide 24/7 emergency assistance in accordance with their Flood Management Plan.
- Island Roads are responsible for a defined Project Network which is made up of assets such as public roads, footways, verges, gullies, street furniture etc. The ford structures at Clatterford and Castle Street are Project Network assets and as such need to be maintained

to the standards set out in the PFI contract. In addition, where the council is also landowner, the council has riparian landowner rights to maintain flows of water through watercourses (which includes ditches).

- The Environment Agency are responsible for main river and coastal related matters. They provide a 24 hour response to incidents, so if anyone notices debris or a blockage that is likely to cause flooding or any form of pollution it can be reported.
- Southern Water services foul drainage and operate the local pumping station at Carisbrooke. The pond to the rear of the Eight Bells Public House is on land within the ownership of Southern Water.
- Residents are riparian landowners. Where an individual owns land that has a watercourse running through it or owns land that adjoins a watercourse it is the responsibility of that landowner to maintain the flow of water through the watercourse. In addition where riparian landowners are affected by main rivers they can undertake works to keep water flow clear, with permission from the EA. Lukely Brook is classified as main river. The riparian owner has no duty to maintain the defences along the main river at Lukely Brook or to remove trees and other structures on the bank that could fall into the watercourse. However if a defence collapses, the riparian owner has responsibility to remove the material from the watercourse.

Actions carried out following flooding

The council can confirm that Island Roads are responsible for maintenance and repair of the fords at Clatterford and Castle Street, and since the incidents of flooding Island Roads have examined the structures associated with the fords and are planning maintenance of them. The IW Council have provided both Island Roads and the Environment Agency, who also have to approve works to structures affecting main rivers, with all commentary with regard to the fords provided by local residents to inform the works that are being planned.

The Isle of Wight Council has requested Island Roads check and CCTV the culvert that runs under the bottom of Cedar Hill. The culvert was inspected by the Island Roads structures team on Thursday 19th June. As you can see from the figure below the shallow and wide culvert is largely clear. There is



Figure 4: Cedar Hill Culvert

a small amount of rubble present on the left side. The far end is difficult to access as it is in private ownership but Island Roads believe that vertical objects present may relate to scaffolding just beyond the structure. This is beyond the IR area of responsibility and would be the riparian owner's responsibility.

The older brick culvert at the far end (the concrete slab roof section is a later improvement) is slightly narrower and could possibly contribute to a funnelling of the flow in extreme conditions which Island Roads believe may be further exacerbated by narrowing of the water course further downstream. In its current state Island Roads are satisfied that no immediate action is required.

Southern Water have visited with local residents (upon request) and have put in place a regime of daily checking of overflows and water levels. This includes managing release of the water in the pond through the floodgate in an appropriate manner. In addition the following have been undertaken/confirmed:

- I. The Mill Pond at the rear of the Eight Bells public house is within the ownership of Southern Water. Queries have been raised with Southern water with regard to the management of the water levels in the pond and they have confirmed that although no abstraction from Lukely Brook itself occurs at the pumping station, the amount of water in the pond directly affects the amount and quality of groundwater that is abstracted from the boreholes at the pumping station. In particular, if the pond level is too low, they experience turbid water at the pumping station which in turn is more difficult to effectively treat. Southern Water policy is not to dredging or de-silt the pond because of the risk of harming the most important source of borehole water on the Island that supplies 1/3 of the population.
- II. The floodgate at the pumping station was designed to set the level of the pond to assist with the issue discussed in point iii above and act as a drain down mechanism rather than an emergency flood mitigation option – although Southern Water recognise that it can help with the latter.
- III. Completion of the gantry which has allowed access for southern water staff to clear the grill and weir.
- IV. Southern Water had considered the issue of providing a local emergency contact number and whilst this may be a possibility, the way in which this worked needed further consideration to ensure that people calling any local number had calls properly logged and given a reference number so that they could be tracked. Investigation has concluded that it is not practical to put in place a system that would simply be replicating the existing emergency number (0845 278 0845). This needs to be managed centrally so that Southern Water can prioritise accordingly and understand high risk areas through their control room.
- V. A member of staff inspects the levels and weir every day and if necessary a technician will operate the weir and clear the grills.

Recommendations and Future Actions

Upstream Carisbrooke Section of the Lukely Brook:

1. Southern Water to ensure that longer term actions for the maintenance of the pond are included on Southern Water risk register and monitored.
2. Further investigation of the impact of movement of the floodgates needs to be undertaken.
3. A debris management regime needs to be in place at the weir and grill to ensure that both are kept clear of debris.
4. The Council, in liaison with Island Roads should review the location of sandbag collection points across the Island.
5. Island Roads undertake consultation with local residents on maintenance and repair schemes for the fords and ford structures in the area prior to any works commencing.
6. Liaison between the PFI contract management team and Island Roads to agree an autumn culvert clearing and cleaning programme.
7. The IW Council should continue to liaise with local town and parish councils to ensure that the role and responsibilities of riparian owners are fully understood. This could include a winter alert for local communities via press and radio; information provision and action against landowners who have impeded the flow of a watercourse or who need to clear watercourses.
8. IW Council to liaise with the Parish Council to fully understand who actions the insertion and removal of the flood boards and to agree how this should operate in the future.
9. The Isle of Wight Council to discuss with the owners of Plaish Farm and the Environment Agency and Natural England the potential for the water-meadows to operate more effectively as a water storage mechanism, holding water back from the more restricted water course and Lukely Brook.

Table 3: Indicative costs of actions included within the Carisbrooke/Newport Flood Investigation Report

Action Number	Indicative cost	Budget/funding
1. Ford maintenance	tbc	PFI contract
1. Culvert/gully cleaning	tbc	PFI contract

The section of Lukely Brook downstream of Old Westminster Lane (Caesars Road area):

10. The IW Council should continue to liaise with local town and parish councils to ensure that the role and responsibilities of riparian owners are fully understood. This could include a

winter alert for local communities via press and radio; information provision and action against landowners who have impeded the flow of a watercourse or who need to clear watercourses.

11. The IW Council to work with the EA to further explore options and costs of potential schemes for this section of the brook.
12. The IW Council to consider hosting a public meeting for the most affected residential properties to ensure that homeowners understand their role as riparian owners and the role of the EA to inform preparation of a joint IW Council/EA strategy for the brook.

Table 4: Indicative costs of actions included within the Carisbrooke/Newport Flood Investigation Report

Action Number	Indicative cost	Budget/funding
11 Engineered solutions	tbc	FDGiA+ partnership funding/Local Levy, Capital bid