

Newbiggin House Farm, Near Waberthwaite Flood Investigation Report 32



Flood Event 30/8/2012

Version	Undertaken by	Reviewed by	Approved by	Date
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Published

Executive Summary

Cumbria County Council as Lead Local Flood Authority has prepared this report with the assistance of other Flood Risk Management Authorities under Section 19 of the Flood and Water Management Act 2010.

The report identifies that Newbiggin House Farm suffered from flooding on 30th August 2012. The main cause of the flood event is surface water flooding from the fields behind the house on fairly flat ground due to sustained rainfall on to saturated ground. A contributory factor is that the surface water may have been unable to escape due to blocked / lack of positive drainage and high tide.

Seven actions have been identified in the report which would minimise the risk of future flooding. These actions are aimed at improving the existing drainage system. Some of the actions have already been completed at the time of publication of this report.

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Event background

This section describes the flood incident and identifies the properties affected.

Flooding Incident

Newbiggin House Farm is on low lying, fairly flat land, adjacent to the River Esk estuary, as shown in Figure 1, below. Whitrow Beck, a tributary of the Esk, runs past the front of the farm to the north. A much smaller stream runs down the side of the farm on the west. This unnamed stream takes water from the fields behind the farm to the south, the source of the run-off that flooded the property.

Newbiggin House Farm, Newbiggin, Waberthwaite, Cumbria, LA19 5YQ.
309536, 494054



Figure 1: Location of Newbiggin House Farm.

The flooding occurred in the early hours of 30/8/2012. It was located at the rear of the house and flooded some internal areas.

No flood water entered the house from the front of the property, possibly because sandbags were deployed around the front door.

Flooding also occurred at the rear of the property during the afternoon of Wednesday 17th October 2012 but did not enter the house.

No problems were reported at the adjacent property downstream, which is Newbiggin Farm.

Prior to the 30/8/12 event, Copeland Borough Council had attended on 3/8/12 to investigate a previous flood event, thought to have been 22/6/12. Water had stood in the yard since that date and was still under around 200mm of water

Water ran off the field, behind Newbiggin House Farm, into the yard. The police attended during the event. The property was flooded and the resident was offered alternative accommodation.

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Investigation

Rainfall Event

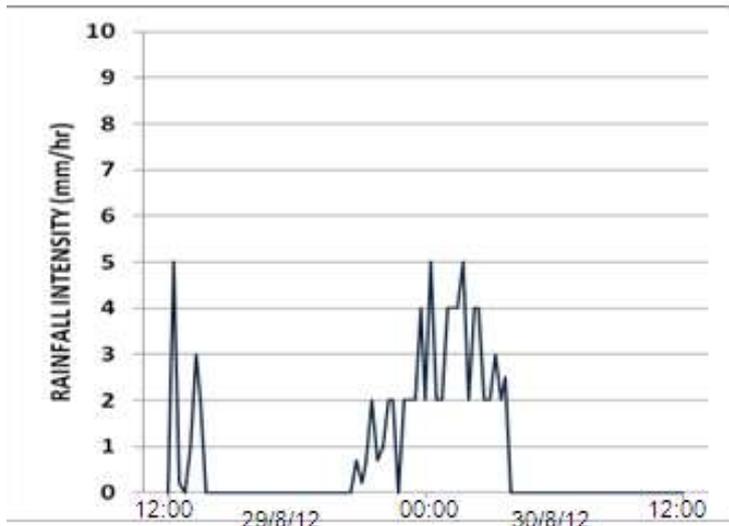


Figure 2. Storm intensity at Newbiggin Farm from 12pm 29/8/12 to 12pm 30/8/12

No rain gauge data is available and the following has been calculated from radar data. Peak rainfall at Waberthwaite was about 6mm/hr and occurred at about 1:30am. The rain started at 8:40pm and finished at 3:50am with 17.2mm falling in that period. This rainfall is not particularly unusual and suggests that the property could suffer frequent flooding. Waberthwaite was at the southern edge of the storm that tracked over Copeland that night and so did not receive the same rainfall recorded at other locations.

Likely Causes of Flooding

Drainage System

In the yard of Newbiggin House Farm there appears to be little drainage to serve the area. The drainage system takes the water off the roofs of the buildings and there are gullies within other impermeable areas. The gullies that exist within the property boundary were heavily silted and appeared to have been blocked. The resident reports that since the flooding he has appointed a drainage contractor to look at his system and clear it with drain rods.

Outside Newbiggin House Farm there is one highway drain which is the responsibility of Cumbria County Council as Highway Authority. The gully was full of silt and is located where it is vulnerable to regular blockage.

A plan of the layout of the highway system found is shown on Figure 3. The drainage from the yard discharges to the small stream which connects to the highway drainage. The drainage system also takes septic tanks from adjacent properties, through which it passes, and then it crosses the road and discharges into the watercourse. The system will most likely be classed as a watercourse where the stream joins it and therefore be the responsibility of the riparian landowners. The riparian owners are the owner of Newbiggin Farm next door for most of its length and Cumbria County Council as Highways Authority where it passes under the road.

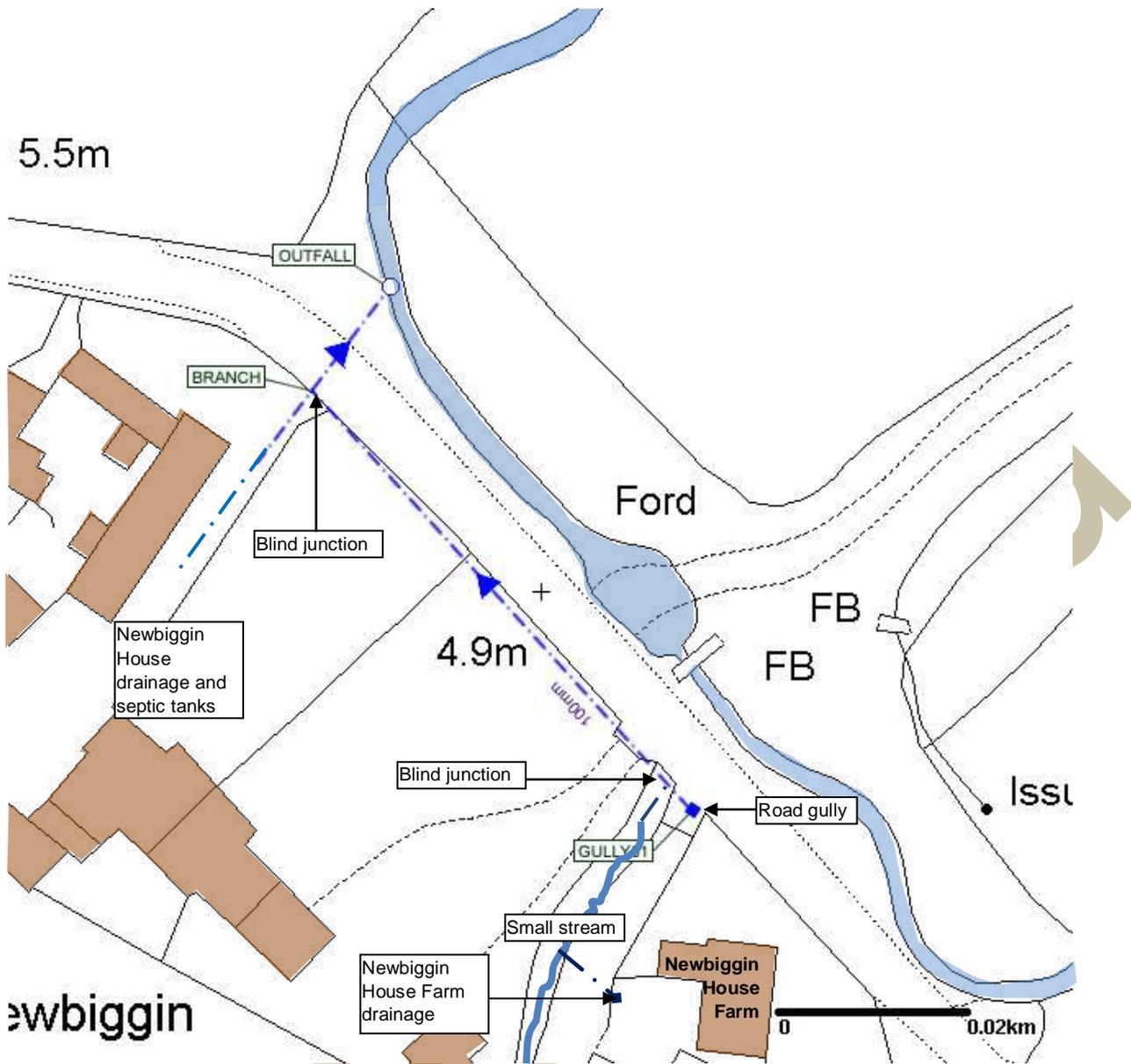


Figure 3. Drainage Layout at Newbiggin House.

The jetting and CCTV survey of the system, starting at the road gully, was carried out on Tuesday 23/10/12. The gully had no inlet and one outlet and which was full of debris. The outfall into Whitrow Beck was very difficult to locate but was discovered 80m away where the beck turns away from the road. This outfall was also blocked by sediment. The jetter went downstream from the gully to the blind junction and upstream from the outfall past the blind junction in front of Newbiggin House.

The camera had a restricted view after only 5m from the road gully and only managed to get 12m downstream from the gully in total. It was prevented from going further by debris in the pipe and the pipe condition. The location of the junction with the small stream could not be identified. Problems in the pipe upstream of where the stream connects will be Highways Authority responsibility. There is likelihood that the pipe is in a similar poor condition further downstream where it is riparian responsibility.

Tidal

The property is in EA Flood Zone 3 because of the potential for tidal flooding. This location commonly suffers from tidal flooding and may have been the cause of this flood event. This does not fit with the account given by the resident that the water came from the field behind his property although a high tide would not have helped water to discharge into the beck. The outfall of the drainage system is largely below the beck surface and if the tide was high enough the head may prevent, or slow, water flowing out of the pipe.

Fluvial

Another possibility is that the floodwater came from the west as the small beck which runs alongside the footpath burst its banks.

Flooding History

Flooding occurs at Newbiggin Farmhouse but the source is usually from Whitrow Beck at the front of the property. The 30/8/12 event differed from this as the flooding was surface water from the rear. It is unclear how frequently the property floods from this mechanism but the nature of the rainfall suggests that it must also be a fairly frequent event.

Recommended Actions

Action by	Recommended Action	How
County Highways	CCTV survey and jetting	COMPLETED – partially successful 23/10/12.
Riparian Owner	Clearing the beck of gravel and silt at the outfall to the system.	This would be an on-going maintenance responsibility which would fall on a riparian owner who would need to be identified.
LLFA	Identify riparian owner of Whitrow Beck at the outfall location.	
LLFA / CBC	Identify the location of the outfall and connections of the small stream alongside footpath.	Dye testing / digging / CCTV
Cumbria County Council Rights of Way / Land Owner	Improve maintenance of existing drainage alongside footpath.	Installation of catch pit manhole at the blind connection to the drainage system.
Land Owner / County Highways	Drainage from Newbiggin House Farm could be connected to the road gully. Flood risk could be reduced by creating an outfall to Whitrow Beck closer to the house rather than implementing improvements to the existing system	Installation of a new outfall to be created where the beck is much closer to Newbiggin House Farm to receive the drainage from this property and the highway gully.
Land Owner	Drainage improvements in property of Newbiggin House Farm.	Improve drainage collection mechanisms and extent of drainage in Newbiggin House Farm. Regular maintenance.

Next Steps

Cumbria County Council (CCC) as the LLFA will continue to ensure that any actions identified within the actions table of this report are appropriately taken forward by each Risk Management Authority and land owners identified. Actions are likely to be prioritised through the Making Space for Water process and monitored through regular meetings of the group. Details of the MSfWG members and a summary of related processes are detailed in Appendix 3.

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Appendices

Appendix 1: Summary of residents feedback to draft report

Report issued to resident on 2nd July 2013 and no comment was received.

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Appendix 2: Glossary

Acronyms

EA	Environment Agency
CCC	Cumbria County Council
CBC	Copeland Borough Council
LLFA	Lead Local Flood Authority
LFRM	Local Flood Risk Management

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Appendix 3: Summary of Relevant Legislation and Flood Risk Management Authorities

The Flood Risk Regulations 2009 and the Flood and Water Management Act 2010 (the Act) have established Cumbria County Council (CCC) as the Lead Local Flood Authority (LLFA) for Cumbria. This has placed various responsibilities on CCC including Section 19 of the Act which states:

Section 19

(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—

- (a) which risk management authorities have relevant flood risk management functions, and
- (b) whether each of those risk management authorities has exercised, or is proposing to exercise, those functions in response to the flood.

(2) Where an authority carries out an investigation under subsection (1) it must—

- (a) publish the results of its investigation, and
- (b) notify any relevant risk management authorities.

A ‘Risk Management Authority’ (RMA) means:

- (a) the Environment Agency,
- (b) a lead local flood authority,
- (c) a district council for an area for which there is no unitary authority,
- (d) an internal drainage board,
- (e) a water company, and
- (f) a highway authority.

The table below summarises the relevant Risk Management Authority and details the various local source of flooding that they will take a lead on.

Flood Source	Environment Agency	Lead Local Flood Authority	District Council	Water Company	Highway Authority
RIVERS					
Main river					
Ordinary watercourse					
SURFACE RUNOFF					
Surface water					
Surface water on the highway					
OTHER					
Sewer flooding					
The sea					
Groundwater					
Reservoirs					

The following information provides a summary of each Risk Management Authority's roles and responsibilities in relation to flood reporting and investigation.

Government – Defra develop national policies to form the basis of the Environment Agency's and Cumbria County Council's work relating to flood risk.

Environment Agency has a strategic overview of all sources of flooding and coastal erosion as defined in the Act. As part of its role concerning flood investigations this requires providing evidence and advice to support other risk management authorities. The EA also collates and reviews assessments, maps and plans for local flood risk management (normally undertaken by LLFA).

Lead Local Flood Authorities (LLFAs) – Cumbria County Council is the LLFA for Cumbria. Part of their role requires them to investigate significant local flooding incidents and publish the results of such investigations. LLFAs have a duty to determine which risk management authority has relevant powers to investigate flood incidents to help understand how they happened, and whether those authorities have or intend to exercise their powers. LLFAs work in partnership with communities and flood risk management authorities to maximise knowledge of flood risk to all involved. This function is carried out at CCC by the Local Flood Risk Management Team.

District and Borough Councils – These organisations perform a significant amount of work relating to flood risk management including providing advice to communities and gathering information on flooding.

Water and Sewerage Companies manage the risk of flooding to water supply and sewerage facilities and the risk to others from the failure of their infrastructure. They make sure their systems have the appropriate level of resilience to flooding and where frequent and severe flooding occurs they are required to address this through their capital investment plans. It should also be noted that following the Transfer of Private Sewers Regulations 2011 water and sewerage companies are responsible for a larger number of sewers than prior to the regulation.

Highway Authorities have the lead responsibility for providing and managing highway drainage and certain roadside ditches that they have created under the Highways Act 1980. The owners of land adjoining a highway also have a common-law duty to maintain ditches to prevent them causing a nuisance to road users.

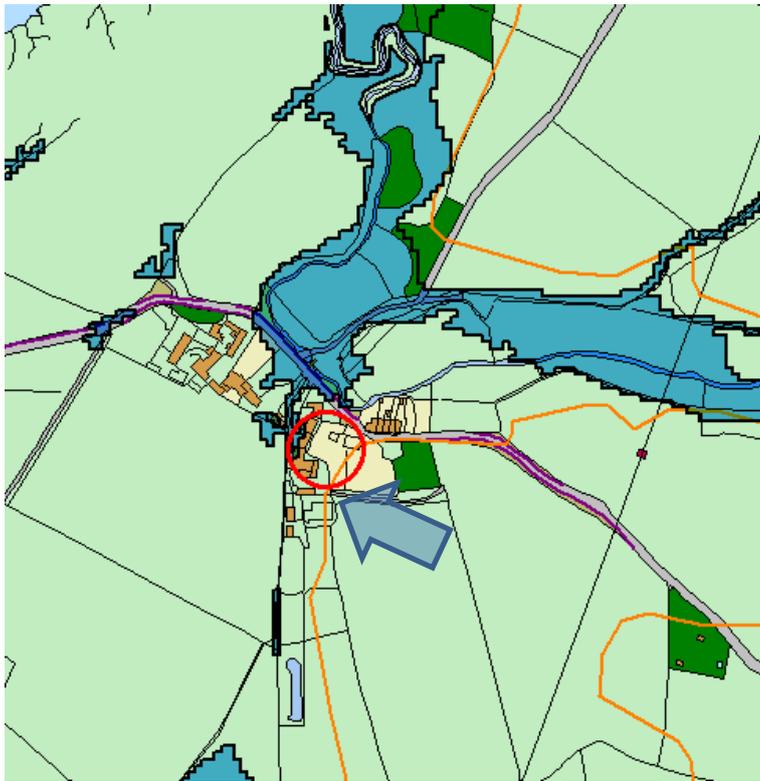
Flood risk in Cumbria is managed through the Making Space for Water process which involves the cooperation and regular meeting of the Environment Agency, United Utilities, District/Borough Councils and CCC's Highway and LFRM Teams to develop processes and schemes to minimise flood risk. The MSfWGs meet approximately 4 times per year to cooperate and work together to improve the flood risk in the vulnerable areas identified in this report by completing the recommended actions. CCC as LLFA has a responsibility to oversee the delivery of these actions.

Where minor works or quick win schemes can be identified, these will be prioritised and subject to available funding and resources will be carried out as soon as possible. Any major works requiring capital investment will be considered through the Environment Agency's Medium Term Plan or a partners own capital investment process.

Flood Action Groups are usually formed by local residents who wish to work together to resolve flooding in their area. The FAGs are often supported by either CCC or the EA and provide a useful mechanism for residents to forward information to the MSfWG.

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Appendix 4: Surface Water at Newbiggin House Farm



The property is on fairly flat ground with the field behind only slightly higher. The plan on the left shows where surface water is expected to flood in a 1 in 200 year rainfall event (0.5% chance of occurring in any year). Newbiggin House Farm falls into this zone but it is not expected to flood from the 1 in 30 year (3.33% chance) rainfall event.

The orange line is the 10m AOD contour and looking at the topography there is only a very small catchment that would be expected to flow through the yard. A generous estimate would be a catchment of 6800m² mostly flowing from the land to the east of the property. Much of this catchment is within the farm curtilage which includes buildings covering an area of 4400m².

Figure 4. Expected surface water flooding (blue shading) and direction of flow (blue arrow) at Newbiggin House Farm (red circle)

Appendix 5: Useful contacts and links

To report flooding: Incident hotline tel: 0800 80 70 60 (24hrs)

Floodline: tel. 0845 988 1188

Cumbria County Council (Local Flood Risk Management):

lfrm@cumbria.gov.uk, www.cumbria.gov.uk, tel: 01228 221330

Cumbria County Council Neighbourhood Forum: tel: 01946 505022

cumbria.gov.uk/sayit

Cumbria County Council (Highways):

highways@cumbria.gov.uk, www.cumbria.gov.uk, tel: 0845 609 6609

United Utilities: tel: 0845 746 2200

Copeland Borough Council

info@copeland.gov.uk, www.copeland.gov.uk, tel: 0845 054 8600

Flood and Water Management Act 2010:

<http://www.legislation.gov.uk/ukpga/2010/29/contents>

Water Resources Act 1991:

<http://www.legislation.gov.uk/all?title=water%20resources%20act>

Land Drainage Act:

<http://www.legislation.gov.uk/all?title=land%20drainage%20act>

Highways Act 1980:

<http://www.legislation.gov.uk/all?title=highways%20act>

EA – ‘Living on the Edge’ a guide to the rights and responsibilities of riverside occupation:

<http://www.environment-agency.gov.uk/homeandleisure/floods/31626.aspx>

EA – ‘Prepare your property for flooding’ how to reduce flood damage including flood protection products and services:

<http://www.environment-agency.gov.uk/homeandleisure/floods/31644.aspx>

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