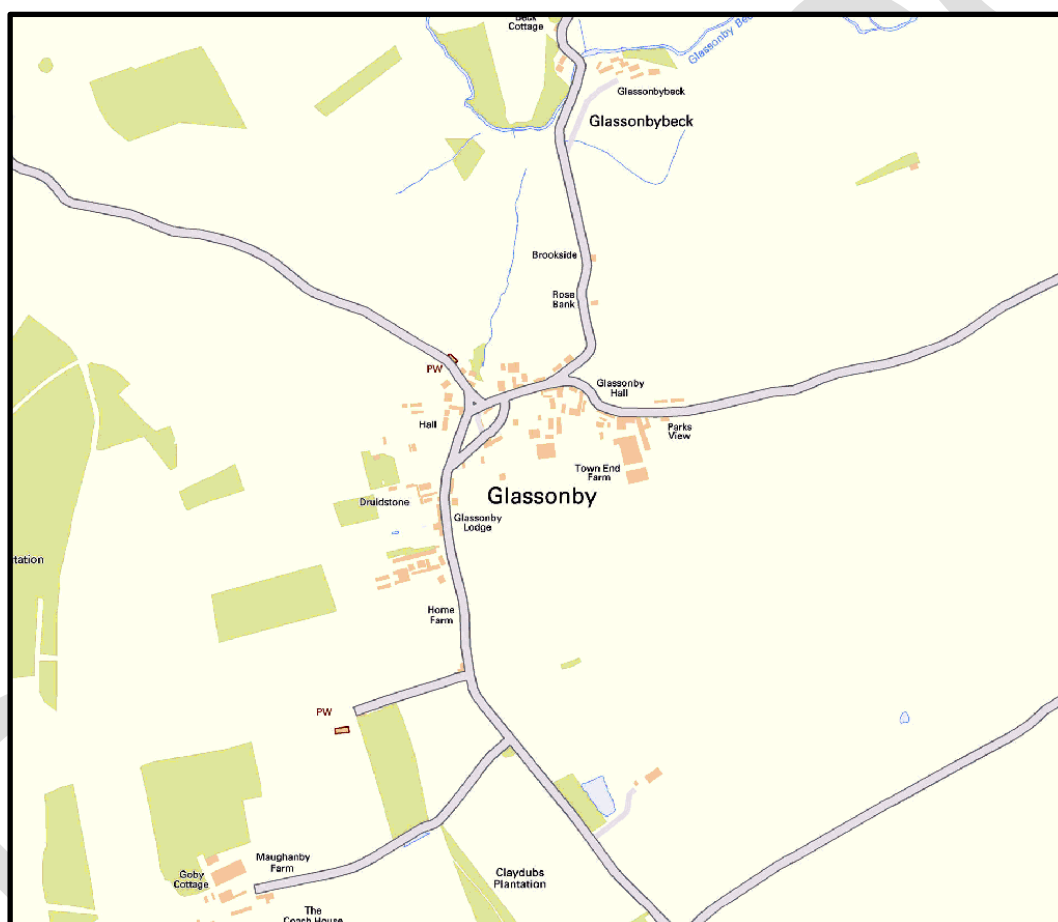


# Glassonby

## Flood Investigation Report No 64



Flood Event 28<sup>th</sup> June 2012

This flood investigation report has been produced by Cumbria County Council as a Lead Local Flood Authority under Section 19 of the Flood and Water Management Act 2010.

Version	Undertaken by	Reviewed by	Approved by	Date
Preliminary	Helen Renyard	Anthony Lane		3 <sup>rd</sup> June 2013
Draft	Helen Renyard	Anthony Lane		5th June 2013
Published	Helen Renyard	Anthony Lane	Doug Coyle	26 <sup>th</sup> March 2014

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# Executive Summary

Cumbria County Council (CCC) as Lead Local Flood Authority (LLFA) has prepared this report with the assistance of other Flood Risk Management Authorities (RMA) as it considers necessary to do so under Section 19 of the Flood and Water Management Act 2010.

CCC received reports of 6 properties flooding internally and reports of 3 properties affected by external flooding following the rainfall event on 28<sup>th</sup> June 2012.

The flooding was caused by a short duration high intensity summer storm that occurred around the Glassonby area which caused flooding to properties by either surface water runoff or exceedance of a watercourse.

A number of works have been carried out since the flooding by residents protecting their own properties including CCC Highways installing gullies and associated drainage systems. The MSFW group will continue to monitor flood risk and record any future flooding.

# Event Background

This section describes the location of the flood incident and identifies the properties that were flooded.

## Flooding Incident

Glassonby is located approximately 11km to the north east of Penrith and approximately 4.5km to the west of the Pennines. Glassonby is a small village with properties mainly situated along the roads leading into the village which include the C3008, C3022 and the U3086. The topography surrounding the village is fairly steep with ground falling towards the north of the village where Glassonby Beck is located 470m from the main village area.

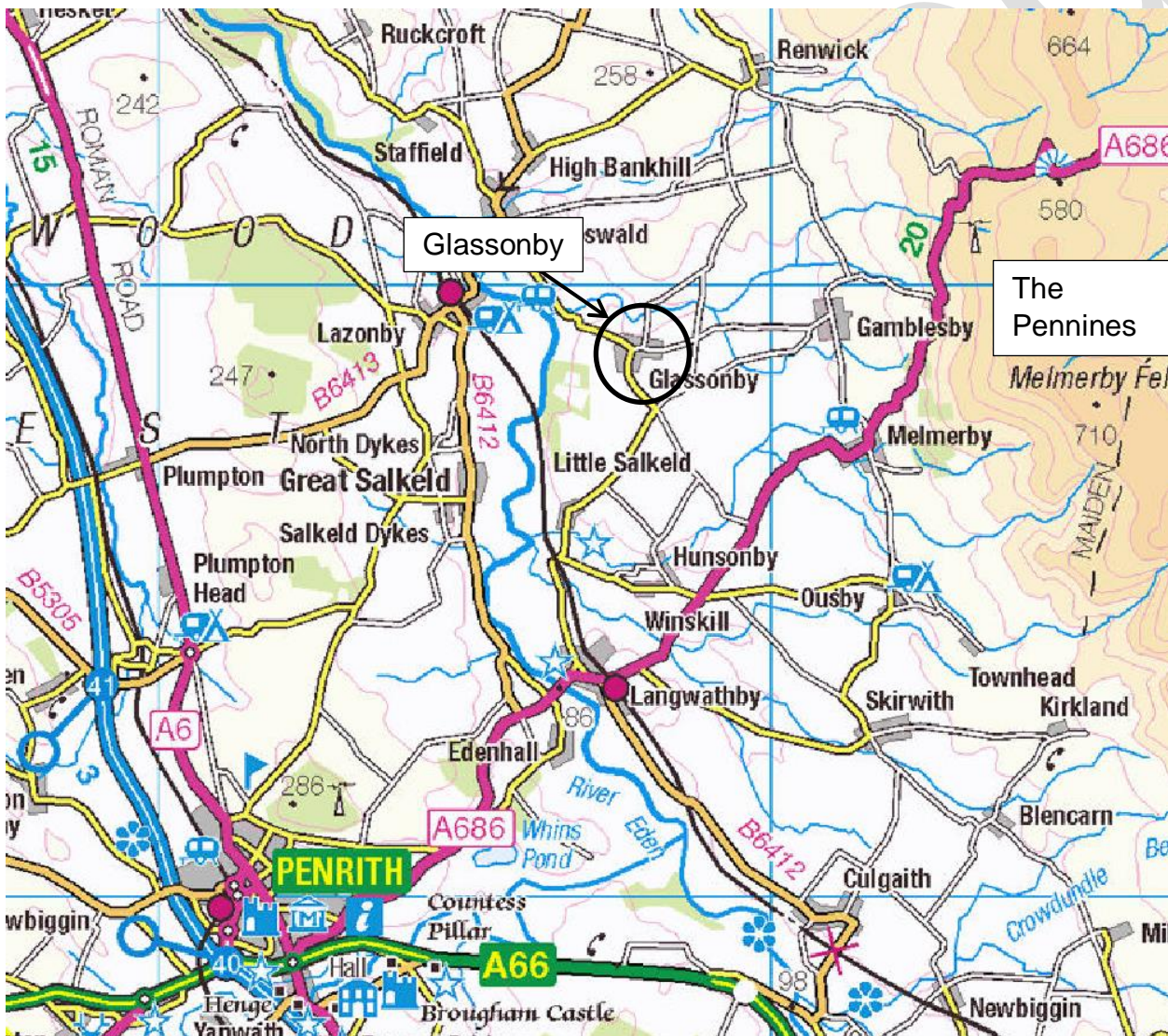
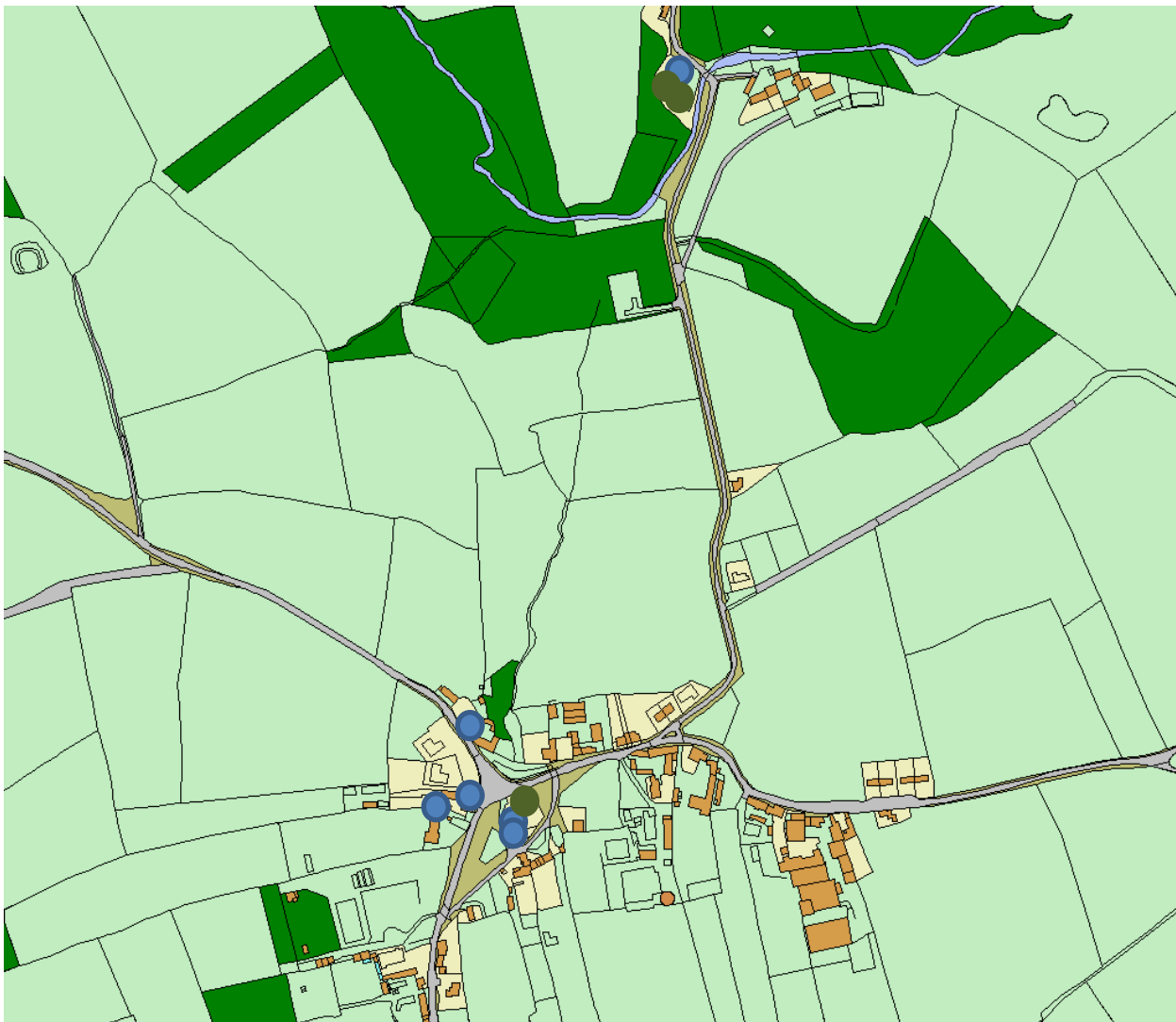


Figure 1: Location Plan.

CCC have received reports indicating that 6 properties were flooded internally during the flooding on 28<sup>th</sup> June 2012 with 3 further properties being flooded externally to either driveways or gardens.



The following plan indicates the locations of the flooded properties.



**Figure 2: Internally flooded properties indicated by blue dots / Externally flooded properties indicated by green dots**

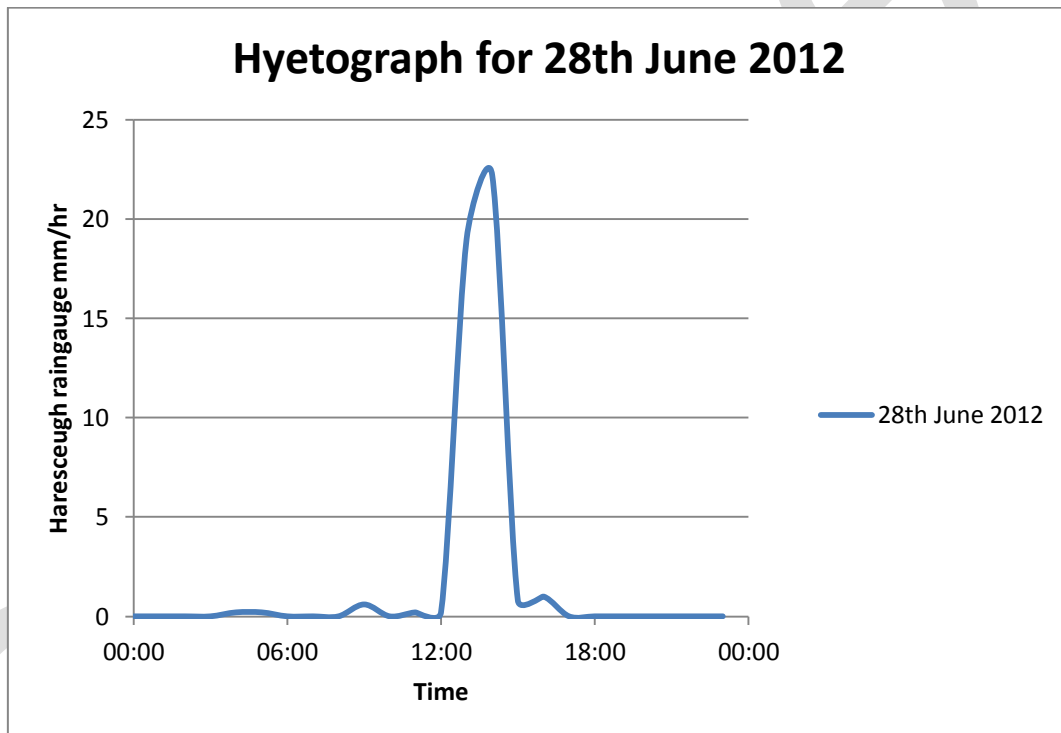
# Investigation

This section provides details of the RMAs who have contributed to this investigation, information on the rainfall event, an analysis of flow routes and details of likely causes of flooding. Also included are details of any previous flooding history in the area.

Much of the information in this report has been gathered with assistance from Glassonby Parish Council. CCC Highways have also worked with the community to try to resolve some of the flooding issues.

## Rainfall Event

The Environment Agency (EA) has a rain gauge located at Haresceugh Castle which is located approximately 4.8km from Glassonby. The rainfall information obtained from the EA is illustrated in the following hyetograph.



**Figure 3: Rainfall Hyetograph**

The radar information shown on the following page indicates the rainfall intensities experienced during the rainfall event on 28<sup>th</sup> June 2013. The rain gauge recorded a rainfall total of approximately 23mm/hr at the peak of the event and the radar information indicated that intensities of 40-50mm were experienced for short periods of time during the event. The rainfall experienced during the 28<sup>th</sup> June 2012 was of a short duration very intense event that is more common during the summer time.

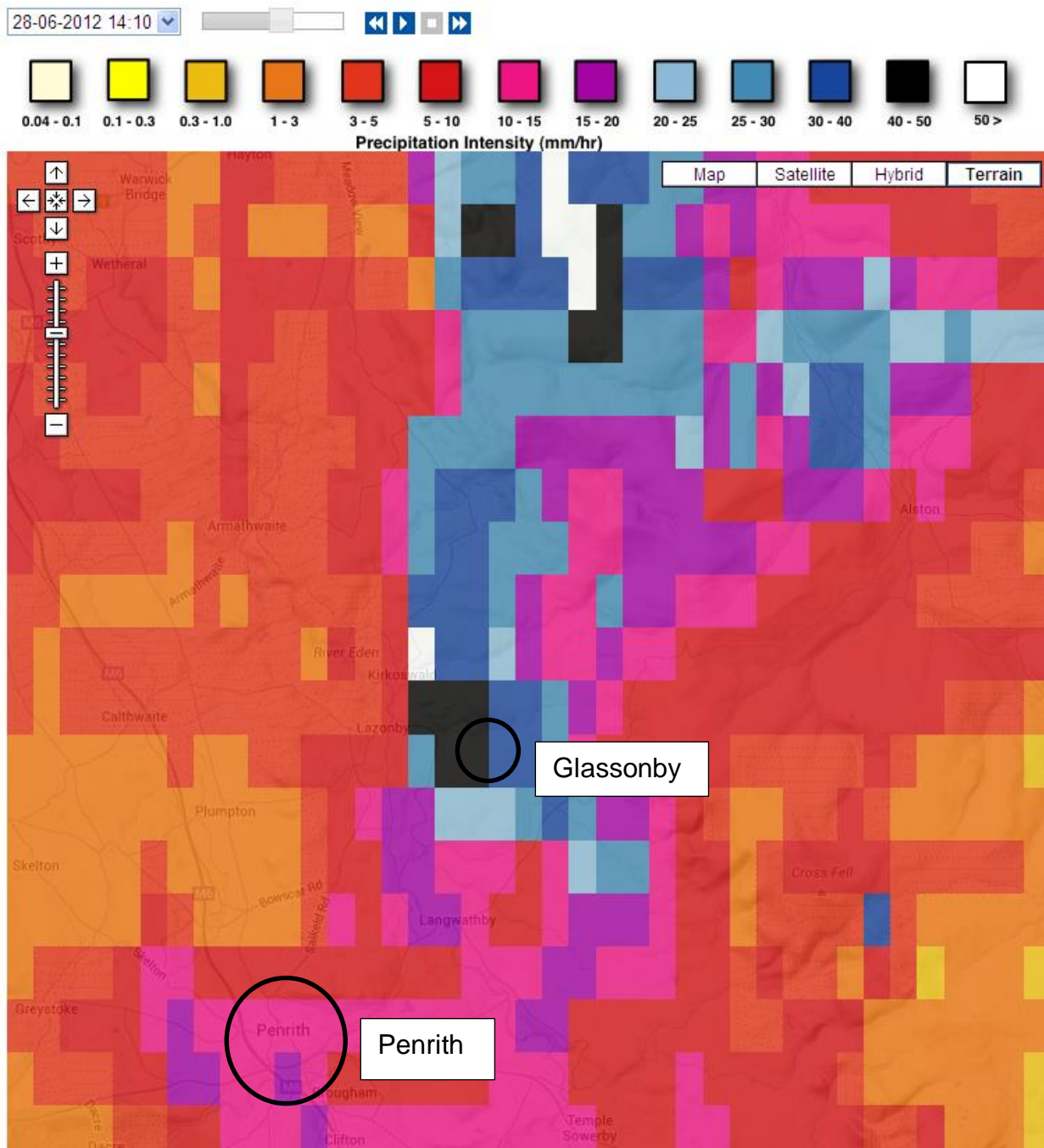
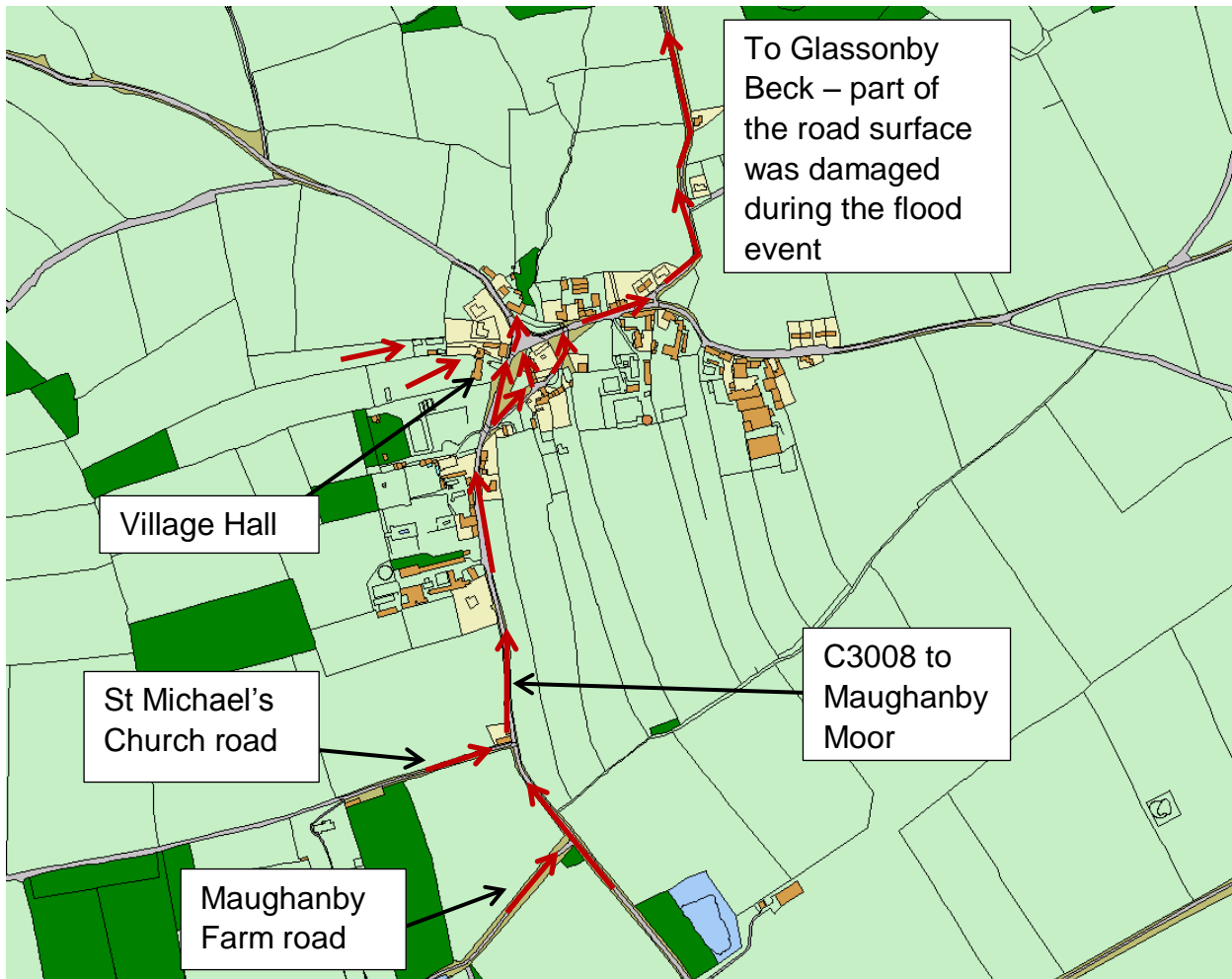


Figure 4: Radar information indicating rainfall intensities during 28<sup>th</sup> June 2012



# Map of Flow Routes

## Flow routes within Glassonby Village



**Figure 3: Flow routes through the village on 28<sup>th</sup> May 2013.**

Much of the surface water flow entering the village has been reported as channelled along the C3008 from the Maughanby Moor direction. There are no positive drainage systems along the C3008 or from either the St Michael's Church road or the Maughanby Farm road which causes any rainwater falling on the highway to flow along the highway towards Glassonby. The following photographs show the road profile above the village.

The intense rainfall on these roads would flow down into the village where the drainage systems were overwhelmed. In some places the surface water drainage systems receive both highway surface water and roof water and it is unlikely that these systems were designed to receive flows from a rainfall event with intensities of 40-50mm of rainfall.



This photograph shows that there is a slope towards Glassonby village and that there is no positive drainage available

Photograph 1: C3008 looking away from the village



Surface water will run from the side road and flow towards Glassonby

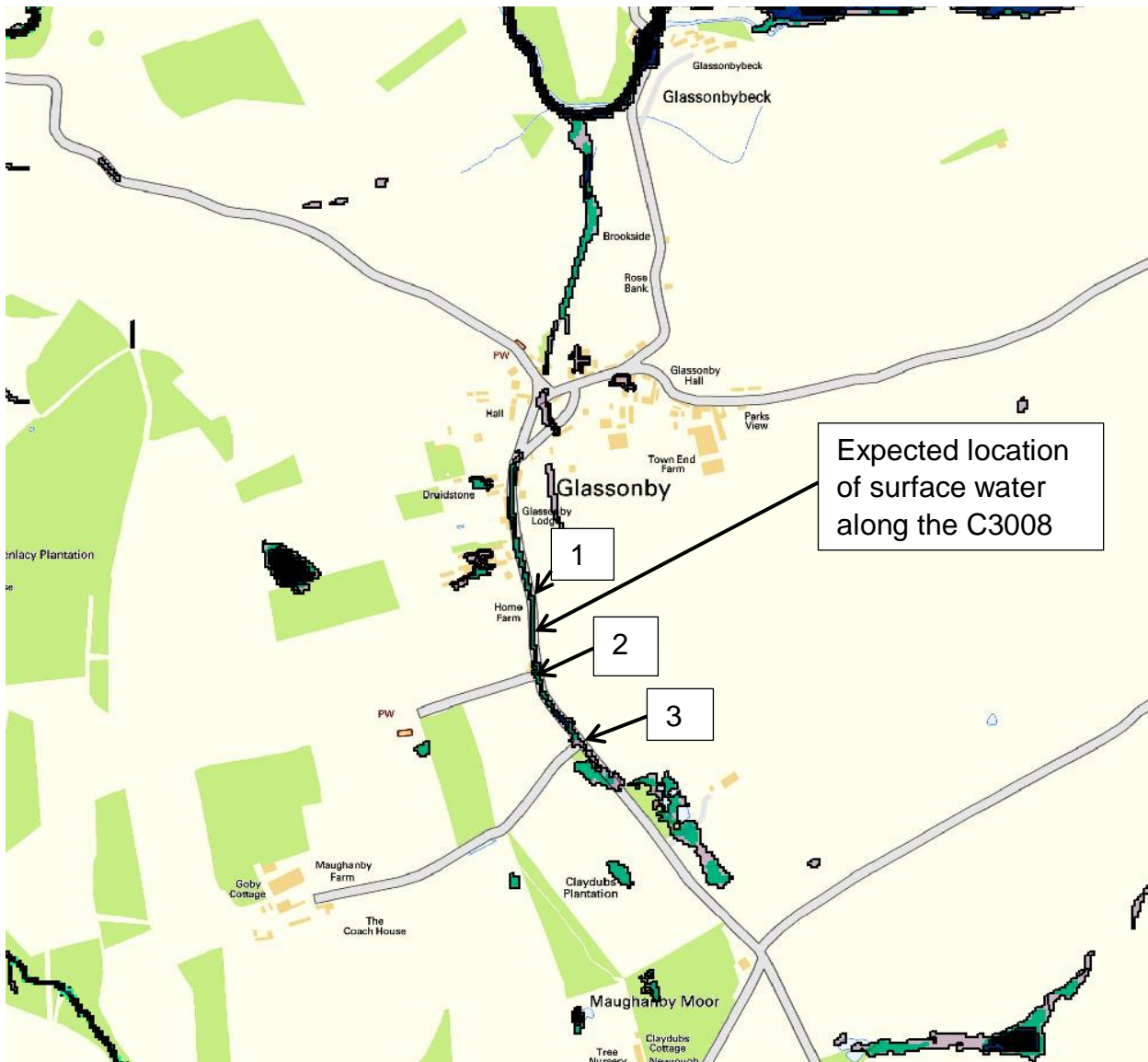
Photograph 2: U3093 towards Adlingham Church



Again surface water will run along the surface of the road towards Glassonby

Photograph 3: Road towards Maughanby Farm

The Flood Maps of Surface Water also indicates this is likely to be the case as shown on the following plan.



**Figure 4: Plan indicating surface water taken from Flood Maps of Surface Water and location of photographs 1-3.**

A secondary source of flooding was from fields behind the village hall which caused surface water flooding to 1 property. It is understood that the fields behind had been used to keep horses which may have led to the ground being compacted which contributed to the flash flooding incident. Since the flooding the owners of the property affected by the surface water from behind the village hall has taken action to ensure that surface water does not enter their property again.

A further property in Glassonby village was flooded by the intense rainfall falling onto their concrete path at the rear of their property. This is the only time flooding has occurred and the owners have since carried out works to prevent flooding in the future.

### Flooding at Glassonby Beck

A cottage at Glassonby Beck was flooding internally by the overtopping of Glassonby Beck. The cottage is located on the fringe of the 1:100 flood outlines as indicated in the plan in figure 7. It is understood that the event on 28<sup>th</sup> June 2012 caused some erosion to the watercourse bank outside the cottages. Photograph 4 shows the erosion caused during the event. It is understood that previously a higher bank and hedging were located in this area and would have offered some protection to the cottages in this area. Glassonby Beck is classified as an ordinary watercourse and as such if the landowner would like to repair the erosion they should contact CCC's LFRM team on the contact details provided in Appendix 3 for further information on how to proceed with the work.



**Figure 7: Indicative 1:100 year river level event at Glassonby Beck**





**Photograph 4: Erosion on Glassonby Beck**

## Likely Causes of Flooding

The very intense rainfall experienced on the 28<sup>th</sup> of June 2012 was the most significant factor in the flooding to properties within the village of Glassonby and at Glassonby Beck. The amount of rainfall generated by the event caused excessive surface water flows which overwhelmed the existing drainage systems in the village and caused Glassonby Beck to burst its banks. Although there were reports of some blocked gullies in the village during the event it is likely that even if they had been clear some flooding would still have occurred.

## Flooding History

Residents of Glassonby have reported that internal flooding to some of the properties has been experienced in 1989, 1998 and 2005. CCC's Highways have carried out works in the past to remedy the problems but more recent resurfacing works have partially removed the efficiency of the original highway works.



# Recommended Actions

Action by	Recommended Action	How
CCC Highways	Remove debris from gully pots and routinely clean gullies.	Gullies on adopted highways regularly cleaned and included as part of a routine cleaning programme. COMPLETE OR ONGOING
CCC Highways	Repair damaged carriageway following flooding	Carry out patching works at various locations in Glassonby COMPLETE
Residents	Continue to report any flooding issues or blocked gullies to the appropriate authorities	Use the contact details at the rear of this report to report any issues to the relevant authorities
CCC LFRM	Investigate through the Making Space For Water process if the community is eligible for funding to help alleviate flooding through various funding avenues.	Look at possible solutions and where funding to implement these may be available from.
CCC Highways	Install additional gullies and re-profile road to capture surface water along C3008 (Maughanby Road)	Phase 1 of works programmed in 2013/14. COMPLETE Further works to be programmed in future years subject to funding availability.

Residents and property owners who are aware that they are at risk of flooding should take action to ensure that they and their properties are protected. Community resilience is important in providing information and support to each other if flooding is anticipated. Actions taken can include laying sandbags and moving valuable items to higher ground, to more permanent measures such as installing floodgates, raising electrical sockets and fitting non-return valves on pipes. Anyone affected by flooding should try to document as much information about the incident as possible.

## Next Steps

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 identified. Actions will continue to be prioritised through the Making Space for Water process and monitored through regular meetings of the group. Details of the MSfWG members and summary of related processes are detailed in Appendix 2.

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# Appendices

## Appendix 1: Glossary

### Acronyms

EA	Environment Agency
CCC	Cumbria County Council
UU	United Utilities
LLFA	Lead Local Flood Authority
RMA	Risk Management Authorities
LFRM	Local Flood Risk Management
MSfWG	Making Space for Water Group
FAG	Flood Action Group
FWMA	Flood and Water Management Act 2010
LDA	Land Drainage Act 1991
WRA	Water Resources Act 1991

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## Appendix 2: Summary of Relevant Legislation and Flood Risk Management Authorities

The Flood Regulations 1999 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
<b>RIVERS</b>					
Main river					
Ordinary watercourse					
<b>SURFACE RUNOFF</b>					
Surface water					
Surface water on the highway					
<b>OTHER</b>					
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.



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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 3: Useful contacts and links

**Cumbria County Council (Local Flood Risk Management):**  
[lfrm@cumbria.gov.uk](mailto:lfrm@cumbria.gov.uk), [www.cumbria.gov.uk](http://www.cumbria.gov.uk), tel: 01228 211300

**Cumbria County Council (Highways):**  
[highways@cumbria.gov.uk](mailto:highways@cumbria.gov.uk), [www.cumbria.gov.uk](http://www.cumbria.gov.uk), tel: 0845 609 6609

**Cumbria County Council (Neighbourhood forum):**  
[Jeff.tweddle@cumbria.gov.uk](mailto:Jeff.tweddle@cumbria.gov.uk), [www.cumbria.gov.uk](http://www.cumbria.gov.uk), tel: 01768 812661

**United Utilities:** [www.unitedutilities.co.uk](http://www.unitedutilities.co.uk), tel: 0845 746 2200

**Eden District Council:**  
[www.eden.gov.uk](http://www.eden.gov.uk), tel: 01768 817817

**Environment Agency:**  
[www.environment-agency.gov.uk](http://www.environment-agency.gov.uk), tel: 03708 506 506  
**Floodline:** 0845 988 1188 (24 hour service) or Type talk 0845 602 6340

**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>

## Appendix 4: Summary of feedback to draft report

The following information has been received either at the Flood Forum held on 6<sup>th</sup> June 2013, or forwarded after from various members of the community which can include residents, the Parish Council and members of the MSFW group.

- Information from CCC Highways on drainage systems and new works.
- Video footage of 28<sup>th</sup> June 2012 event.
- Details regarding Glassonby Beck watercourse flooding.

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## Translation services

If you require this document in another format (e.g. CD, audio cassette, Braille or large type) or in another language, please telephone 01228 606060.

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