Burton in Kendal

Flood Investigation Report

Flood Events 12th September 2017 and 22nd November 2017

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
Draft	Colin Parkes	Doug Coyle	Angela Jones	August 2018
Published				

Executive Summary

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

This report details the flooding that occurred primarily in three locations within the community, The Square, Main Street, The Creamery; Main Street; and Neddy Hill Areas. 14 residential properties flooded across the village with a further 3 saved by active intervention by residents. The flooding experienced in Burton was a result of the extreme rainfall over a short period of time resulting in overland surface water flows from rural areas above the village, ground water and existing pipework/ culverts which were either overwhelmed or were under capacity due to damage or disrupted by utilities services.

Preliminary works after the 9th September meant that the flood damage from the 22nd November was much less. Never the less the same areas listed above were flooded.

Eleven actions have been recommended in this report to manage future flood risk in Burton. The actions will require the involvement of a number of organisations and the local community to reduce the risk of flooding in Burton in Kendal.

Any additional information that residents and others can provide to Cumbria County Council to help develop our understanding of the flooding is welcomed. A lot of information has already been provided, much of which has been used to inform this report. The scale of this report means that not every piece of information can be incorporated into the document. Any additional information should be provided to;

http://www.cumbria.gov.uk/planning-environment/flooding/floodriskassessment.asp

Contents

Introduction

Under Section 19 of the Flood and Water Management Act (2010) Cumbria County Council, as Lead Local Flood Authority (LLFA), has a statutory duty to produce Flood Investigation Reports for areas affected by flooding. Section 19 of the Flood and Water Management Act states:

(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.

This section of the Act leaves the determination of the extent of flood investigation to the LLFA. It is not practical or realistic for Cumbria County Council to carry out a detailed investigation into every flood incident that occurs in the County, but every incident, together with basic details will be recorded by the LLFA.

Only those with 5 or more properties/businesses involved will have investigations published.
An investigation will be carried out, and a report prepared and published by the LLFA when the flooding impacts meet the following criteria:

- where there is ambiguity surrounding the source or responsibility of flood incident,
- internal flooding of one property that has been experienced on more than one occasion,
- internal flooding of five properties has been experienced during one single flood incident and
- there is a risk to life as a result of flooding.

Scope of this Report

This Flood Investigation Report **is**:

- an investigation on the what, when, why, and how the flooding took place resulting from any flooding event and
- a means of identifying potential recommendations for actions to minimise the risk or impact of future flooding.

This Flood Investigation Report **does not**:

- interpret observations and measurements resulting from this flooding event. Interpretation will be undertaken as part of the subsequent reports,
- provide a complete description of what happens next.

The Flood Investigation Reports outline recommendations and actions that various organisations and authorities can do to minimise flood risk in affected areas. Once agreed, the reports can be used by communities and agencies as the basis for developing future plans to help make areas more resilient to flooding in the future.

For further information on the S19 process and associated documentation, please visit the County Council website at:

https://www.cumbria.gov.uk/planning-environment/flooding/investigations.asp

To provide feedback on the report please email **LFRM@cumbria.gov.uk**.

Event Background

Burton in Kendal is located in the south of Cumbria on the A6070 south of Junction 36 of the M6. Three main areas where flooding occurred were The Square, The Creamery both on Main Street and Neddy Hill/Tanpits Lane.

Flooded Locations

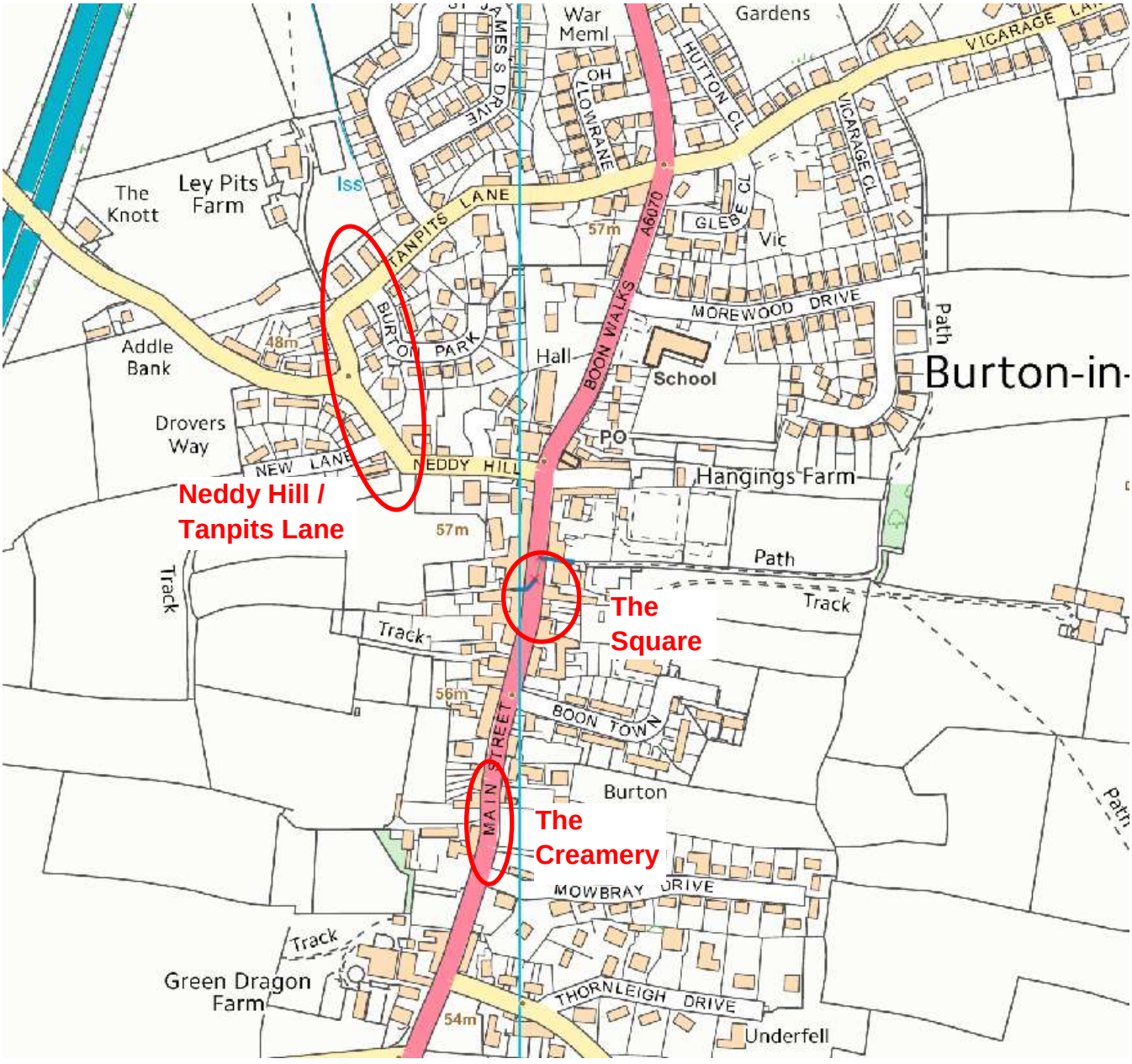


Figure 1: Main flood areas circled.

On 12th September 2017 12 properties were flooded internally at The Square, 1 property was flooded at The Creamery, and 1 property was flooded at Neddy Hill/Tanpits Lane (3 further properties here were saved by sandbagging by residents). On 22nd November 2017, 3 properties were flooded internally at The Square, 1 property was flooded at The Creamery, and 1 property was flooded at Neddy Hill/Tanpits Lane (3 further properties here were saved by sandbagging by residents).

Flood History

2004.
Few details recorded.

26th September 2012.
3 houses in Neddy Hill were flooded when a foul sewer collapsed during heavy rain and 1 property at Tanpits Lane was flooded.

5th December 2015.
12 houses in The Square and 4 houses in Neddy Hill/Tanpits Lane were flooded from Storm Desmond.

12th September 2017.
This is said to have been the most severe event in terms of depth.

24th September 2017
Few details recorded.

22nd November 2017.
2-3 houses had water ingress in The Square, with pumps and floodgates limiting the damage.

Investigation

This section provides details of the authorities who have contributed to this investigation, an analysis of flow routes and details of likely causes of flooding.

Rainfall Event

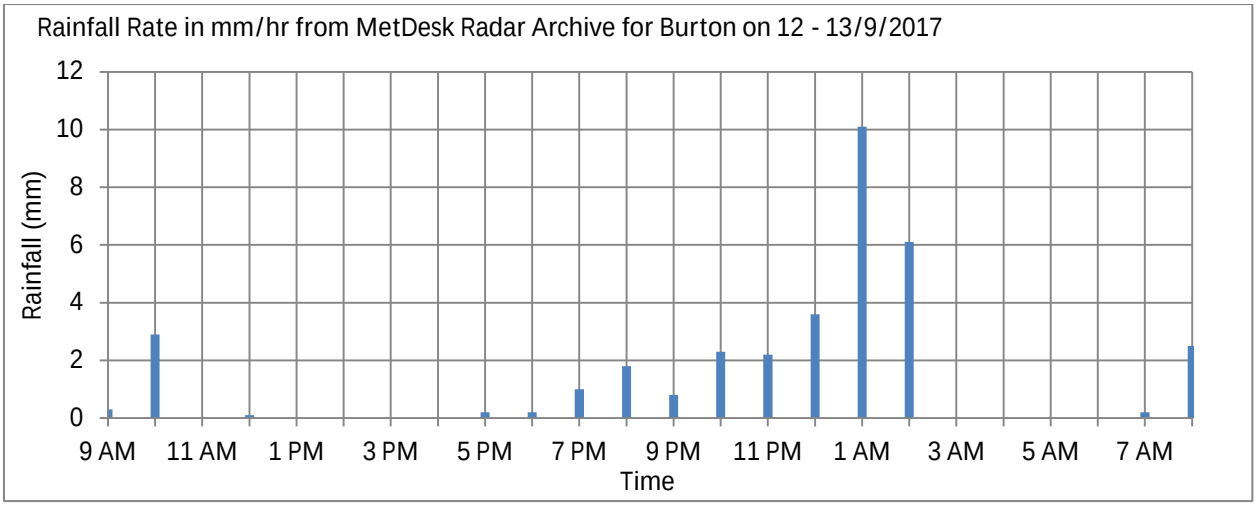


Figure 2: Analysis of radar information suggests 34mm rainfall in 24 hours at Burton.

On 12th September the storm began at 8:30pm peaking at around 12:30am and finished at about 2am the following morning

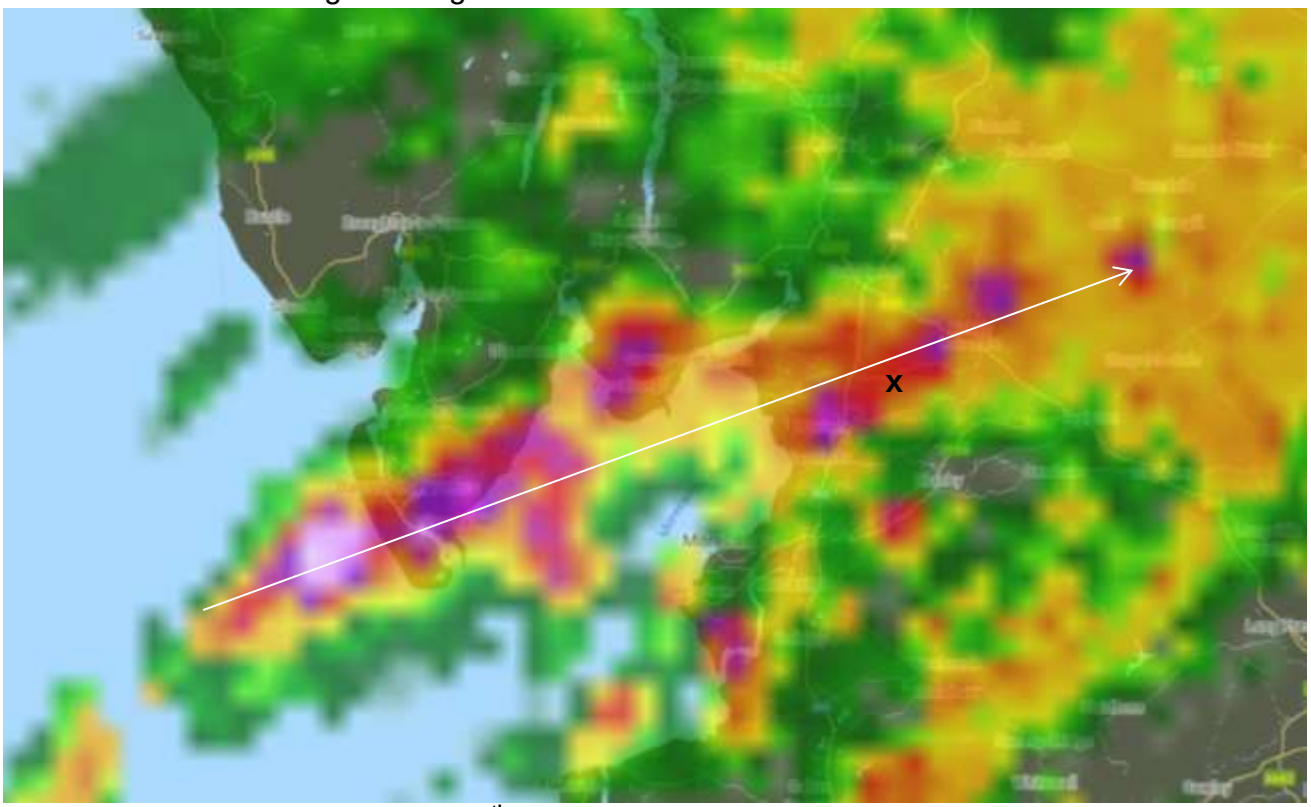


Figure 3: Radar imagery at 00:45am 13th September 2017. General track of weather indicated by arrow.

34mm fell between 9am on 12/9/2017 and 9am on 13/9/2017. 10mm fell in just one hour at 1am (on average 10mm rainfall across 24hours occurs around twice per month across North West England and Wales). The nearest available gauge at Bolton le Sands confirmed 34mm in 24 hours.

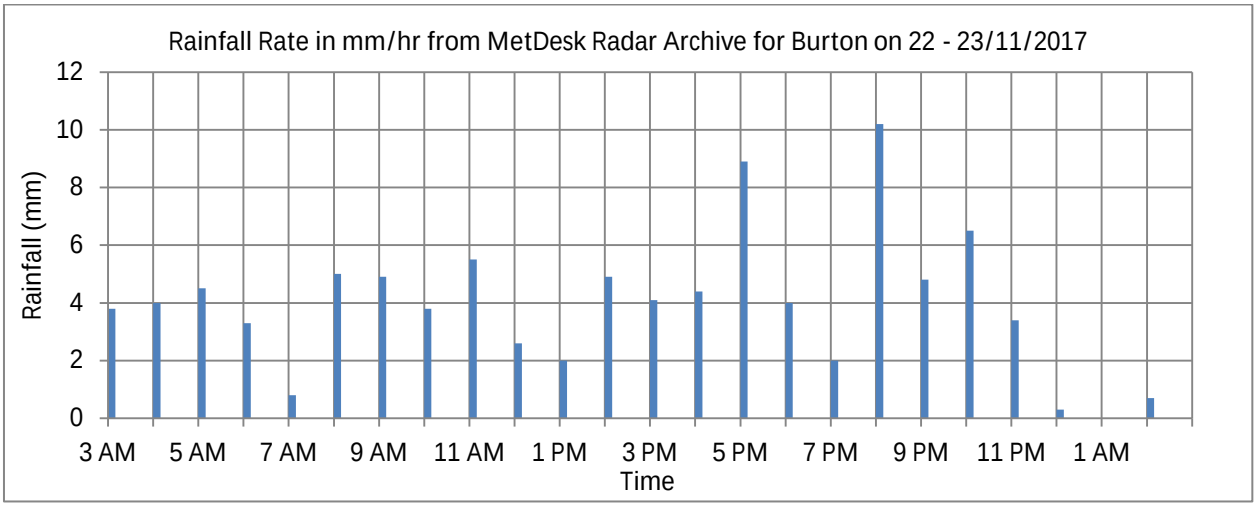


Figure 5: Analysis of radar information 94mm rainfall in 24 hours at Burton.

On 21st November the Met Office had issued a yellow warning of heavy and persistent rain with many places expected to see 25-50mm of rainfall during 22-23 November. Radar analysis for Burton showed over 90mm between 4am on 22nd and 4am on 23rd.

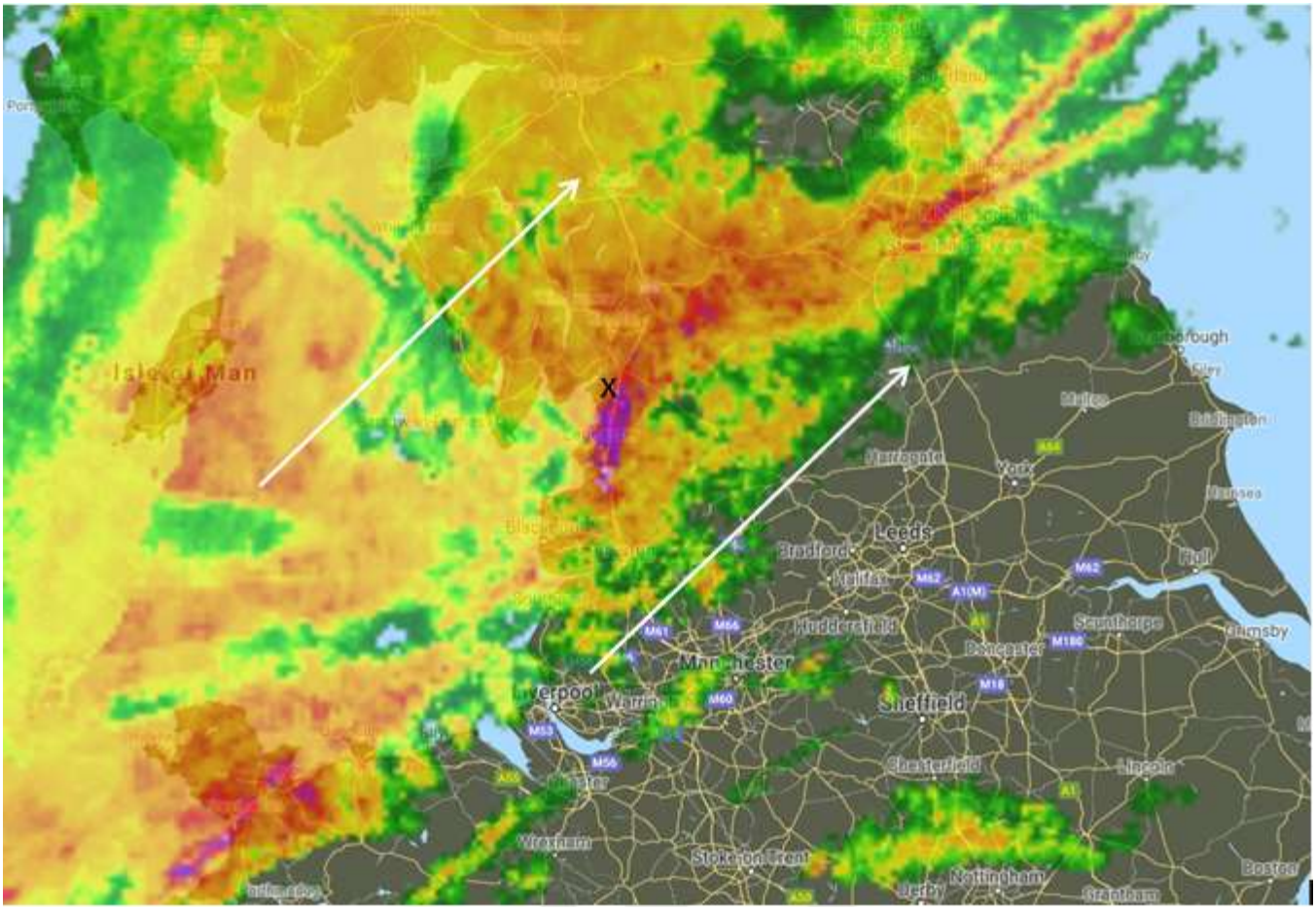


Figure 4: Radar imagery at 19:45 on 22nd November 2017. General track of weather indicated by arrows.

Comparison of events				
Event	24hr rainfall	Long Term monthly Average	%	Peak Rain in 1hr
12th Sept 2017	34mm	109mm	31	10mm
22nd Nov 2017	94mm	122mm	77	10mm
5th Dec 2015	112mm	130mm	86	7mm

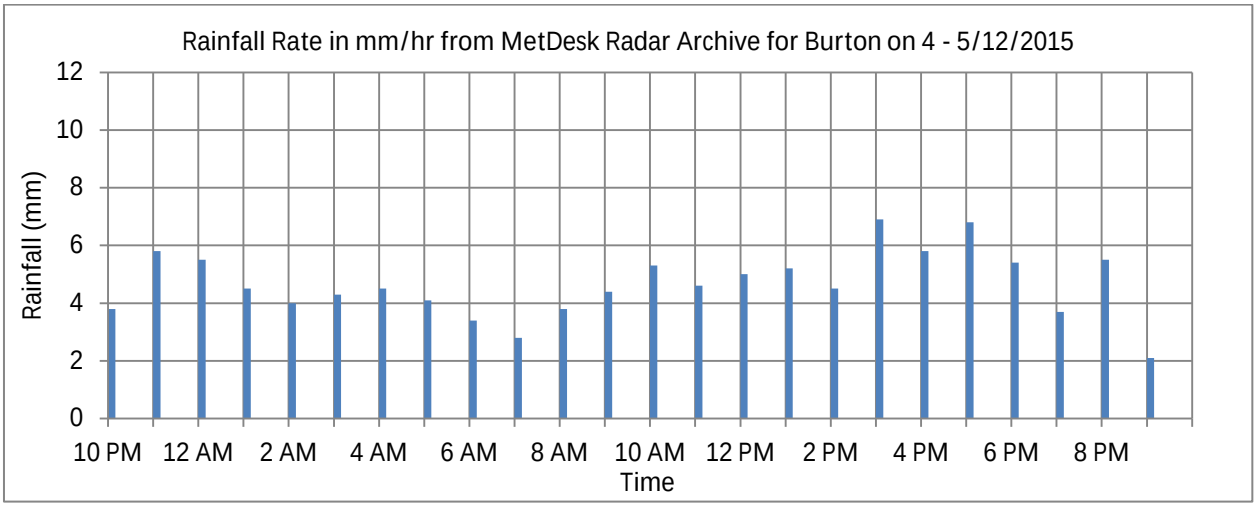


Figure 5: "Storm Desmond" radar information suggests 112mm rainfall in 24 hours at Burton during

Sources of Flooding, Flood Flow Routes

The Square, Main Street

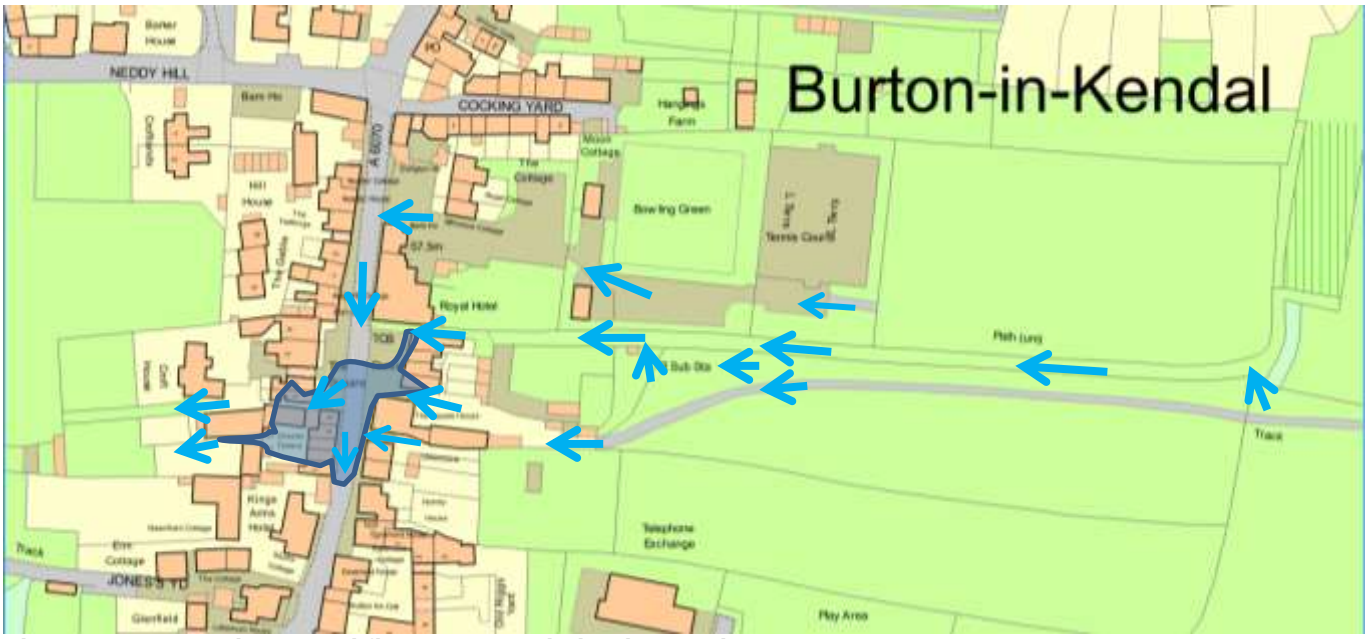


Figure 6: Seen and reported flow routes culminating at The Square.

Figure 7 (left): Farm land above Main Street from the crest.
Figure 8 (right): Post Office Lane/Boon Town Lane path leading to gully on top of culverted watercourse.

Excess surface water flowed down from the squeeze style at the top of the Post Office Lane/Boon Town Lane path like a waterfall. Photographs show that the footpath is heavily scoured indicating significant flow. There appears to be a capacity issue for the pipe work under the path and poor interception form the surrounding land to the piped system. Fig 8 shows water passing the gull rather than being collected over the top of it.

Properties on the east side of the square flooded by groundwater coming through the cellars. The cellars are designed with weep holes to let the groundwater into the cellars and a floor level drain to allow water to pass through. The cellar drains are below the level of the culvert so the cellars are thought to discharge to soakaways at the front of the properties although the destination remains unproven. The weep holes are said to have been spouting out like a fountain. Flooding in these cellars was 0.3m deep.

Figure 9: Cellar drain leading to manhole with a deeper drainage outlet which is below the level of the culvert so it is thought to lead to a soakaway.

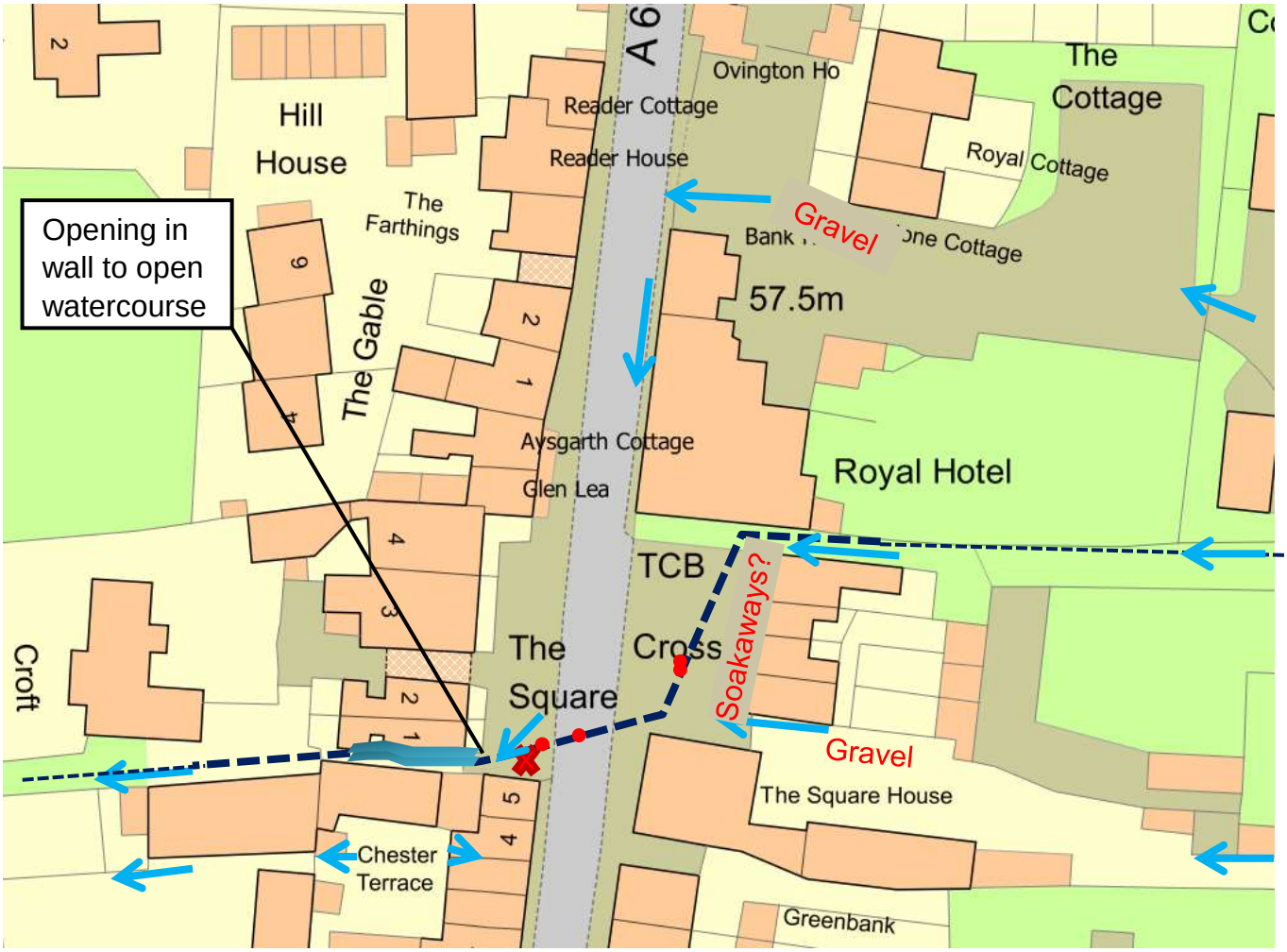


Figure 10. Culverts shown in dotted black line.

30m length of Main Street was flooded and the road gullies were not taking the flow away. The Square House had received cellar flooding but only flooded into the living areas of the house because of bow waves caused by traffic driving through the flooded road.

The road gullies discharge into the culverted watercourse under the square which had a number of problems. It was restricted by a grout like deposit set in layers making a smooth

pipe shaped deposit on the inside of the pipe. Similar deposits were found throughout the village which may indicate that this could be a feature of the local limestone geology. Services were found within the culvert under the square at three locations (gas pipe, a combined sewer, and two electricity cables) restricting flow. The culvert had also collapsed under The Square but this was repaired as soon as it was known.

Figure 11 (left): A grout like deposit was found to be lining the inside of the culvert pipes.
Figure 12 (right): A gas pipe crossing within the culvert barrel in The Square.

Figure 13: The combined sewer under Main Street crosses the culvert within the culvert barrel taking up approximately the bottom 150mm of the 450mm x 450mm culvert cross section.

Figure 14 (right): Electricity cables in exposed culvert on 1/11/2017. Hole in the wall dropping onto the watercourse is visible behind barrier.

On the West side of the square the flood water flowed down steps and into cellars. The flood depth was up to 0.3m (a foot) deep. The water flowed through a gateway into Chester Terrace courtyard and flowed into the houses to a depth of 1.5m.

At the downstream side of the square there is an opening in the wall which allows surface water to flow through including the discharge of the main culvert below the discharge point. All flows reaching this outlet point freely flowed away into the drainage system behind the Croft.

Figure 15 Hole in the wall dropping onto the watercourse.

Figure 16: Charted route by highways in 2002 of drainage from The Square to Neddy Hill.

Above is the route tracked by highways and an area of drainage that requires more investigation.

Neddy Hill/Tanpits Lane

Figur 17 Neddy Hill and Tanpits Lane flooded areas

The increase in surface water from the storms and the restrictions within the culvert through the Neddy Hill led to backflow out of the highway gullies which are connected to it. The road is higher than the gardens of Barker Terrace but no runoff from the road can enter the gardens because of flood barriers installed after a previous near miss flood events.

However, No 2, 3, and 4 Barker Terrace still flooded from backflows within the combined sewerage system which has at least 1 road gully connected to, household yard gullies and possibly infiltration from the damaged surface water culvert in the road. The residents of Barker Terrace have since carried out work to raise their yard gullies above the critical level to prevent exceedance by this route.

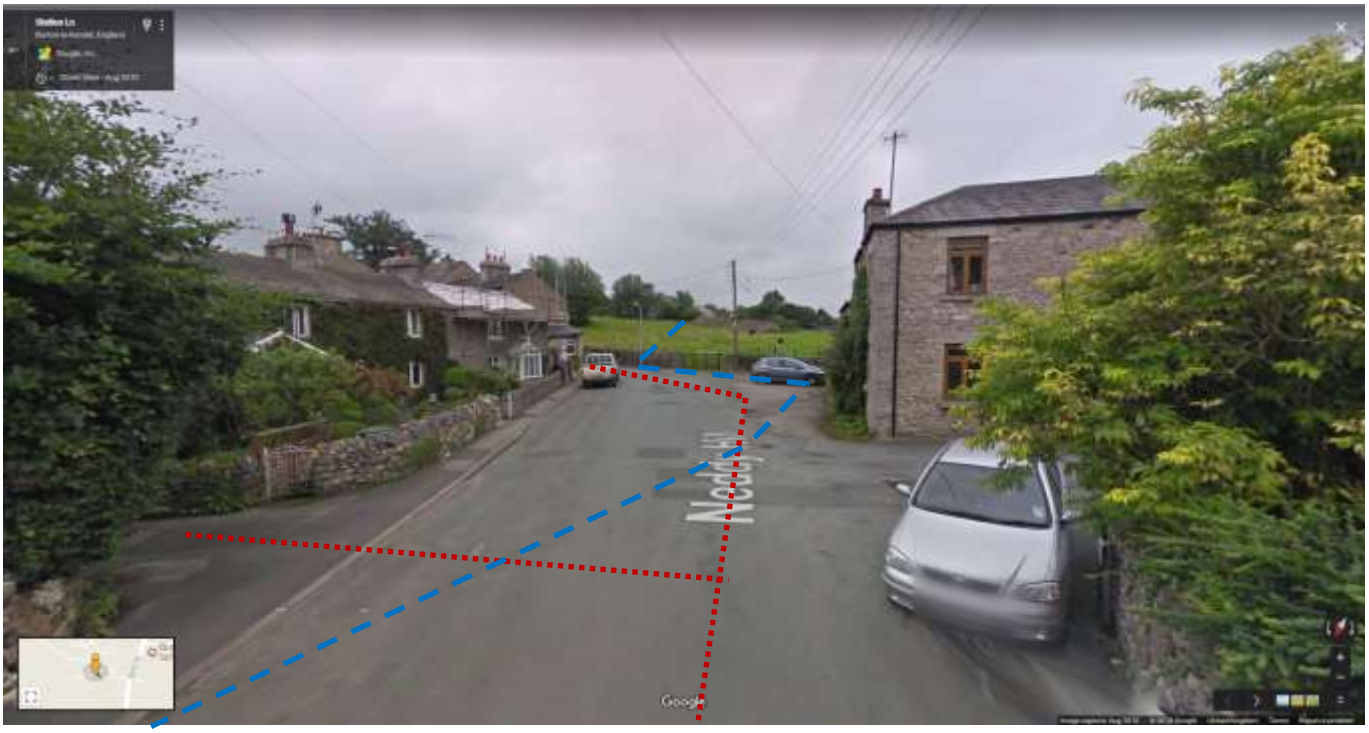


Figure 18: Barker Terrace on left with indicative line of culvert shown in blue and combined sewer in red.

The watercourse continues northwards in a piped culvert under the gardens through to Burton Park where it drops onto another significant flow of water coming from the east. It then comes to an unusual double gully arrangement on Tanpits Lane outside The Tannery at the location indicated below.

Figure 19: Photo of the flooding on Tanpits Lane outside The Tannery. Location of double gully arrangement on culvert is indicated by red arrow.

The two gullies share a chamber and the culvert comes in from the side rather than the straight through route. Connections come in from other gullies on Tanpits Lane and nearby roof drainage.

Figure 20: Photo of double gully arrangement on Tanpits Lane.

With all these drainage routes converging here this is a key location and the main line pipe size does increase from 225mm to 300mm diameter. The watercourse continues under the wall from the double gully arrangement and emerges in an open channel for a short while before dropping back into a culvert in the field behind the Tannery.

Water flooded out of a manhole under the greenhouse at the downstream end of The Tannery garden which suggests that there may be a further restriction downstream.

The Creamery, Main Street

Surface water runoff from saturated ground above the area. Unlike The Square, there is no culvert to convey runoff east to west across Main Street in this area of the town so all surface runoff runs down side roads and alleyways converging on the lowest part of the road which is at The Creamery.

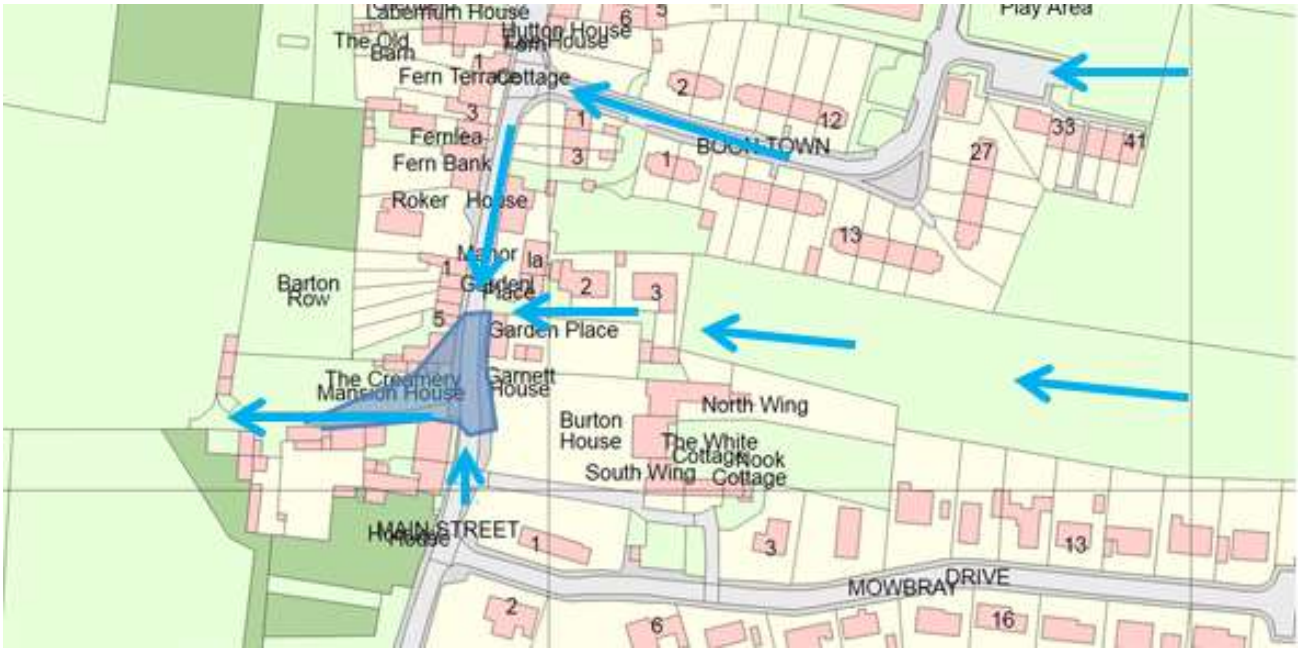


Figure 21: Reported flow routes and flooding at The Creamery

Road drainage is only designed to deal with rain water falling onto the road surface It is not designed to drain fields. Consequently, road drainage is frequently overwhelmed by much more water than it is intended to convey.

Figure 22: Flooding on Main Street outside The Creamery

Figure 23: Below ground drainage serving Main Street near The Creamery.

There are five road gullies in the vicinity of The Creamery which all come together at one manhole which outfalls by a 150mm pipe to what used to be an old stone drain which has recently been replaced by Highways with a 225mm pipe. The pipes outfalls into a holding tank at the bottom of the track between The Creamery and the Mansion House. The holding tank has a 150mm diameter outlet set at a higher level than the 225mm inlet which discharges to the open field beyond where there is a soakaway as there is no known continuation of the drainage system. The field frequently floods and the flood water in the field has been observed to rise out of the ground, rather than flowing over the surface, which would correlate with a large input of water beneath the ground surface from a soakaway.

Figure 24: Flooding in field behind The Creamery on 18/6/2017.

Recommended Actions

The following table details recommended actions for various organisations and members of the public to consider using the Cumbria Floods Partnerships 5 Themes: Community Resilience, Upstream Management, Strengthening Defences, Maintenance, and Internal Drainage Boards (IDB's). Some of these recommendations may have already been carried out and or are ongoing.

Cumbria Flood Partnership Theme	Action by	Recommended Action	Timescale
Maintenance	CCC Highways	Repairs to all culverts affected by utilities.	Major repairs to culvert have been completed. Recent surveys are currently under review (July 2018).
	Utilities Companies	Divert services outside of culvert barrel.	ENWL - Complete. Cadent Gas – Aug 2018 UU – Under review
	Riparian owners including CCC Highways where applicable	Annual maintenance of culverts.	Ongoing
	Riparian owners	Investigate where cellar drainage is going at East side of The Square and repair/renew if necessary.	Ongoing
	United Utilities	Investigate whether there is a restriction in the combined sewer at Neddy Hill and/or whether a non return valve should be fitted.	Ongoing.
Upstream Management	Landowners / LLFA / NE / Lune Rivers Trust	Slow the flow, natural flood management project on fields above Burton.	2018-21
Community Resilience	Residents	Investigate property level protection for affected homes (flood doors, concrete floors etc).	Ongoing.
	Owners	Look to use bound surfacing material instead of gravel on drives and car parks above Main Street.	Ongoing

Strengthening Defences	LLFA and Highways	Bid to central government for funding to reduce the risk of flooding to the area with partnership support from highways and UU.	Bid submitted July 2018.
	CCC Highways / Landowner	Consider upgrades to drainage system around The Creamery.	Ongoing
	CCC Highways / Riparian owner	Investigate replacement or lining of all damaged culverts under adopted roads.	Ongoing

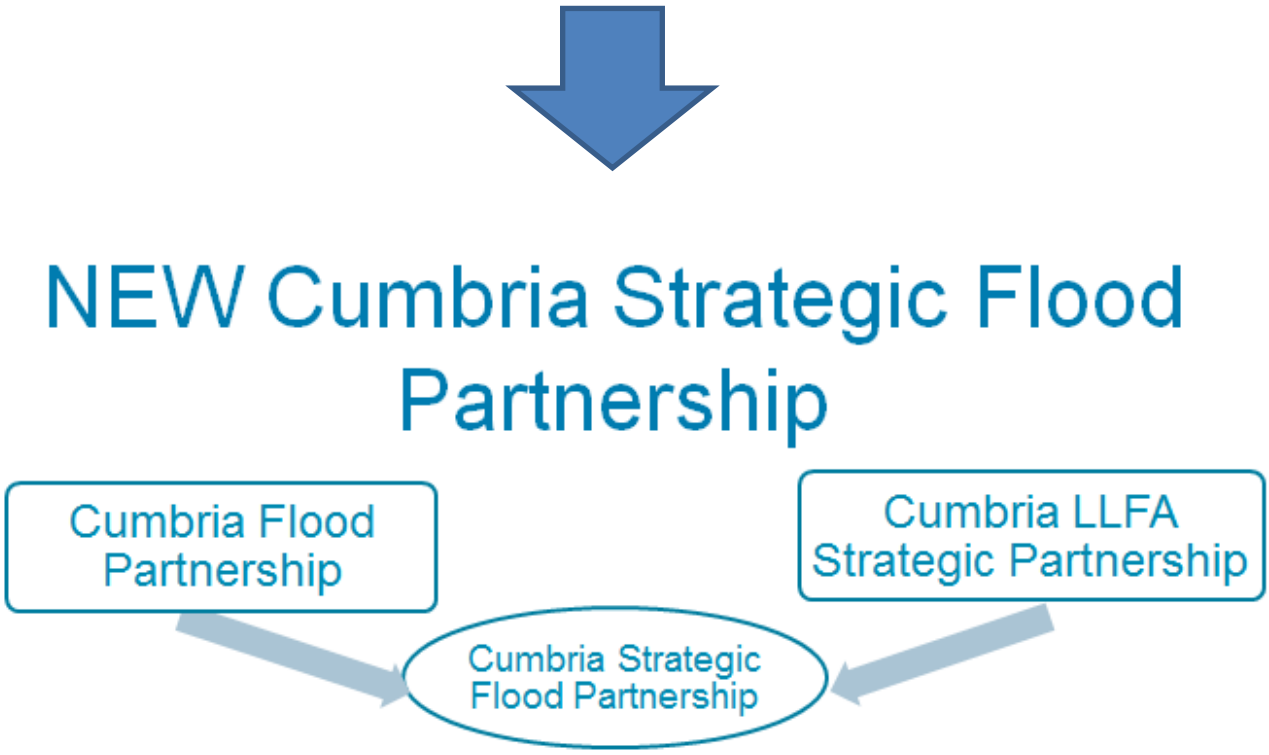
* The Cumbria Local Resilience Forum includes emergency services, Local Authorities, Cumbria County Council, Environment Agency, Maritime Coastguard Agency and health agencies along with voluntary and private agencies. Under the Civil Contingencies Act (2004) every part of the United Kingdom is required to establish a resilience forum.

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 – Community & Catchment Action Plan

The Cumbria Floods Partnership has brought together a wide range of community representatives and stakeholders from a variety of sectors to plan and take action to reduce flood risk. The Cumbria Floods Partnership, led by the Environment Agency, is producing a 25 year flood action plan for the Cumbrian catchments worst affected by the December 2015 flooding, including Carlisle. The plan will consider options to reduce flood risk across the whole length of a river catchment including upstream land management, strengthening flood defences, reviewing maintenance of banks and channels, considering water level management boards and increasing property resilience. The Cumbria Floods Partnership structure below details how these 5 themes are being delivered in the Flood Action plans which will be completed in July.

The diagrams below helps demonstrate how the two partnerships have now come together:



Defra 25 Year Environment Plan
Cumbria Flood Action Plan
Local Flood Risk Management Strategy

2016 – Cumbria Pioneer

DEFRA 25 Year Environment Plan and vision

New and innovative ways of working

Making best use of resources

Working at Catchment scale through engagement and commitment

Place based decision making within DEFRA vision

Lead – Jez Westgarth, Environment Agency

January 2016 - Cumbria Flood Partnership

Created following December 2015 floods

Local knowledge and expertise

Integrated catchment management

Community focus

25 year Cumbria Flood Action Plan

Lead– Rory Stewart MP, Environment Agency and 3 Catchment Directors

2013 – LLFA Cumbria Strategic Partnership

Flood and Water Management Act (2010)

Professional partnership providing strategic leadership for flood risk management

Reporting to RFCC

Coordination and cooperation between Risk Management Authorities (RMA's)

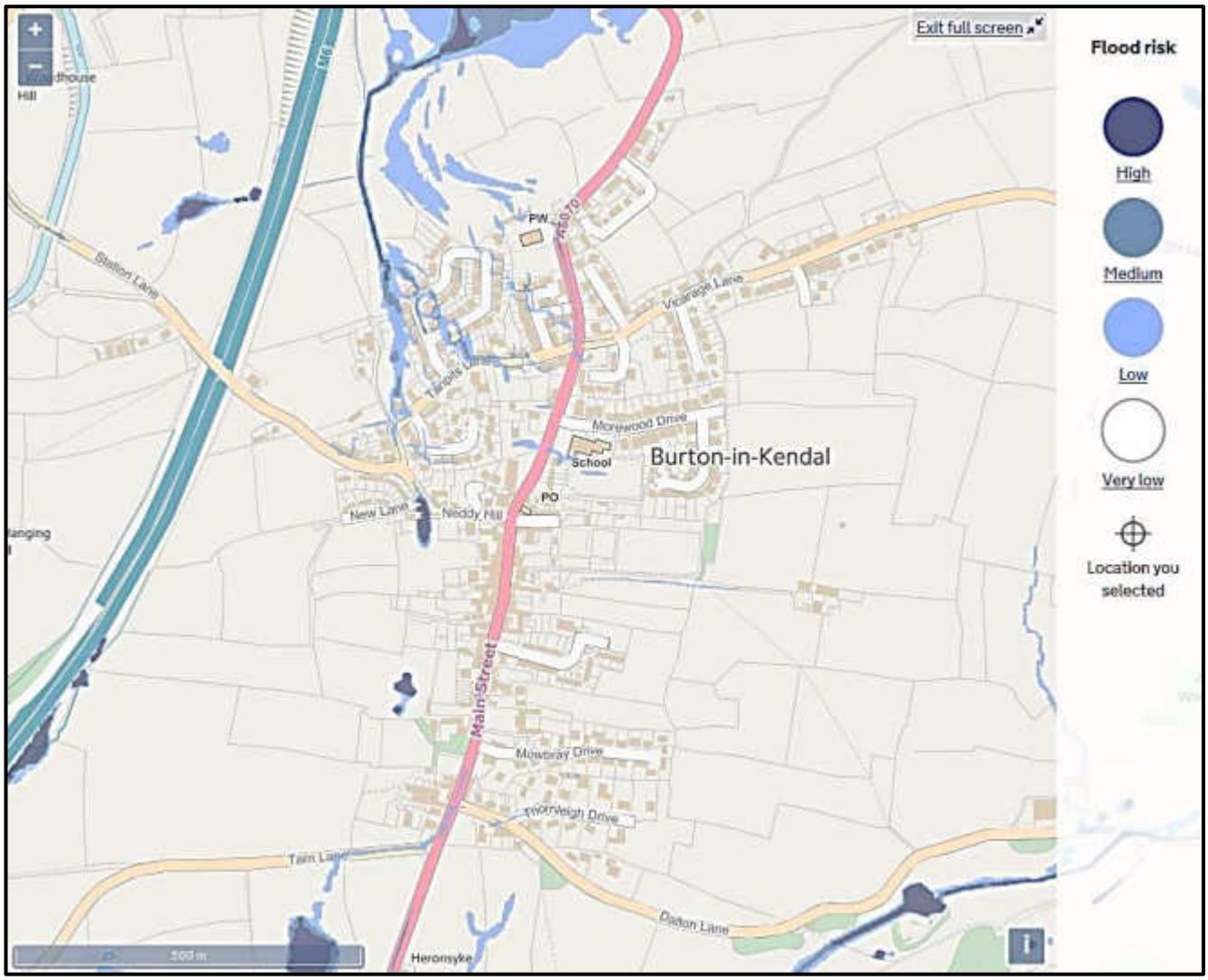
Lead – CCC as LLFA

Communities

Communities working together across Cumbria

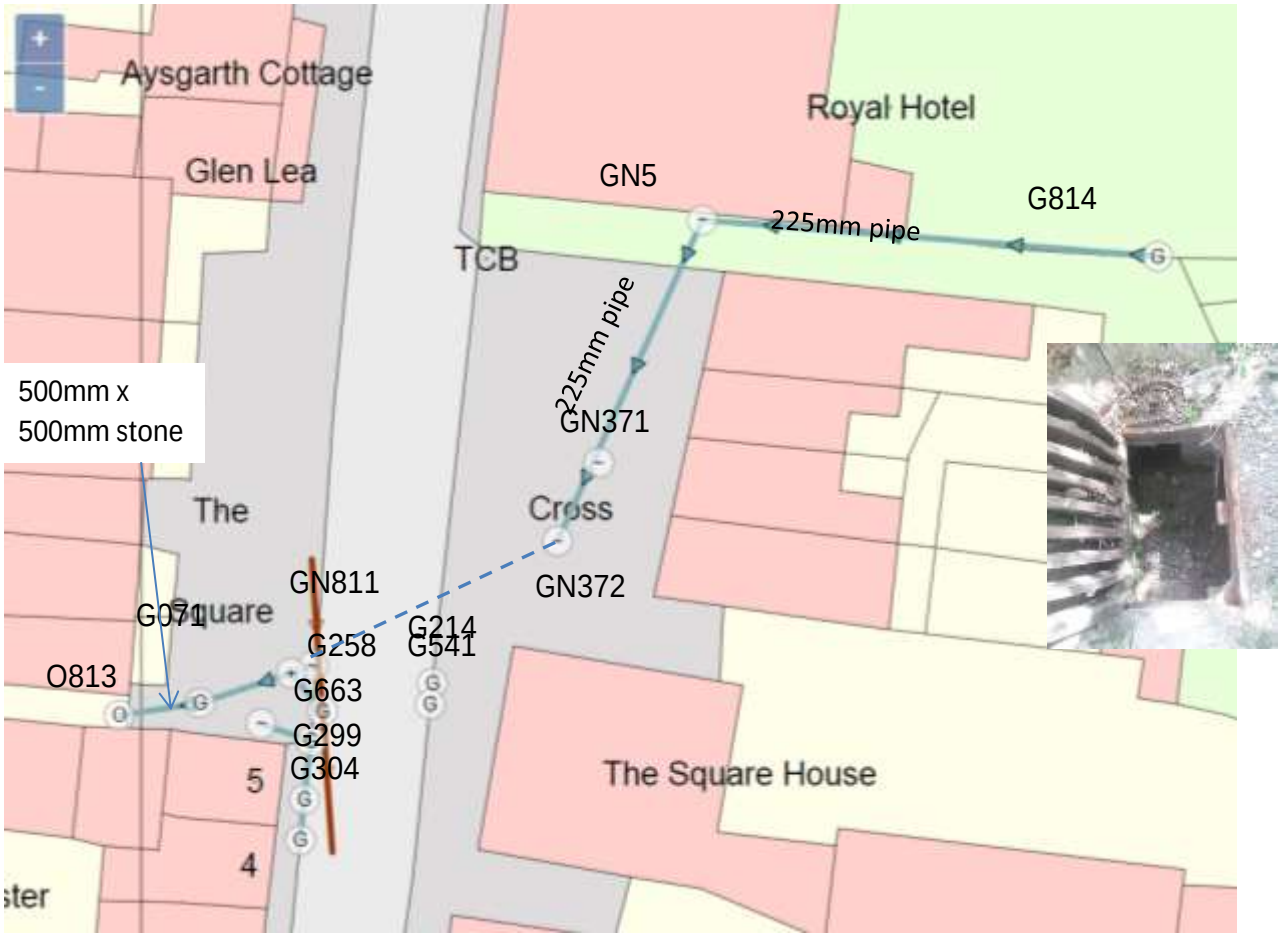
Appendices

Appendix 1: Risk of Surface water flooding Map from Environment Agency



Appendix 2: The Square to Neddy Hill and Tanpits Lane Drainage investigations

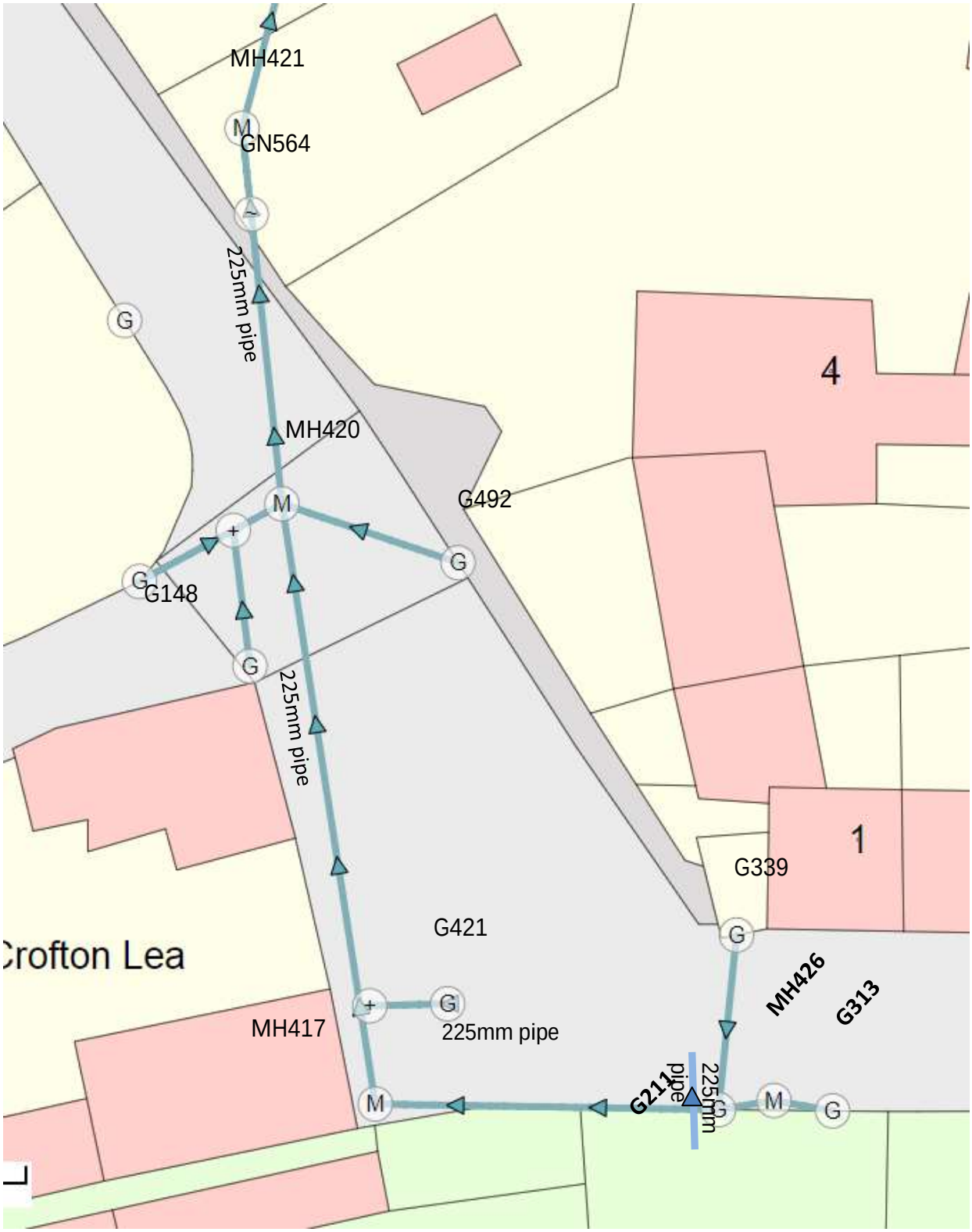
The Square Main Street



Asset	Comment	Work Done
Gully 814	Outflow is by 225mm dia clay pipe	
Ghost Node 815	This is the dig in the alley at the side of the Royal Hotel. Obstruction was physically attached to the pipe. 225mm dia pipe size was continuously reduced by what seems to be grout set in layers clinging to the inside of the pipe making a smooth pipe shaped deposit on the inside. High powered jetting broke it off and pulled most back	Cleared
Ghost Node 371	There is a gas pipe crossing within the barrel. Which has been marked up on the surface for removal by Cadent Gas.	
Ghost Node 372	Something bulging in from the top and deposits on the bottom which the camera can't get past.	It is intended to dig in here and resume the survey and create a manhole for future access
Gullies 214 and 541	These drop onto the culvert with a blind connection. Unable to use these to complete survey	

Asset	Comment	Work Done
Ghost node 811	A pipe crosses the base of the culvert under this location. It is probably the combined sewer and takes up about 30%-50% of the cross sectional area. Culvert appears to be clear beyond the intruding pipe	
Gully 258	Cleaned and connects to culvert by 150mm dia pipe	
Gullies 663, 299, 304	These were cleaned. They connect to each other by 100mm dia pipe and drop onto the culvert by a 150mm dia pipe.	
Gully 071	Drops straight on to stone culvert.	
Stone Culvert 500 x 500	This is where the electricity cables were within the culvert barrel which has been corrected by ENWL. Culvert is very irregular but no restriction to flow.	

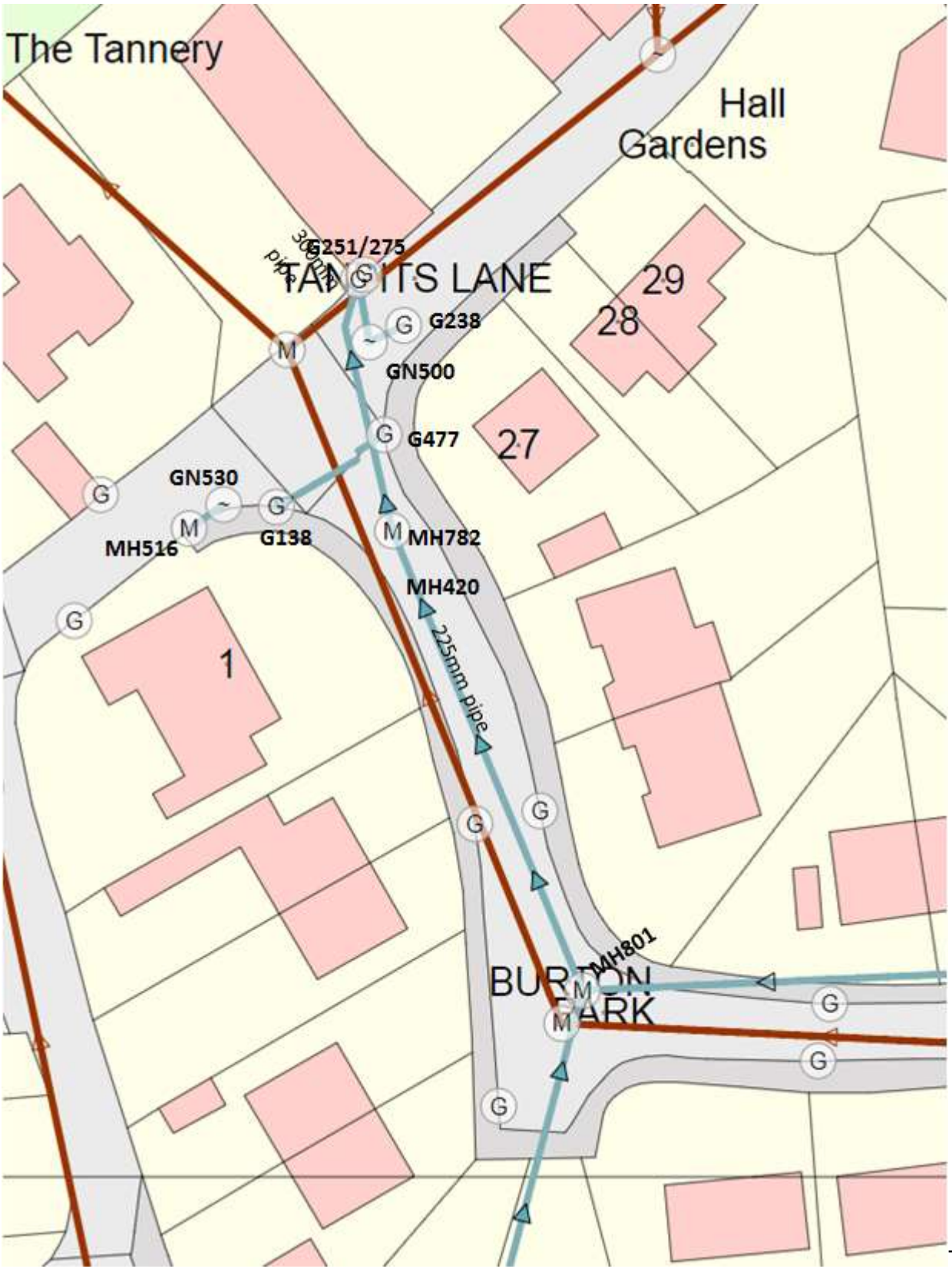
Neddy Hill



Asset	Comment	Work Done
Gully 313	Connects to manhole 426 by 150mm pipe	
Manhole 426	In and out by 150mm pipe.	

Asset	Comment	Work Done
Gully 339	Unable to survey without traffic management on blind bend. They jetted upstream to it from across the road.	
Gully 211	Is on top of the culvert The main inlet is the culvert coming from the field. 2 x 150mm dia connections from gullies. Out is a plastic 225mm dia pipe which is relatively newly laid	
Manhole 417	Inlet is plastic 225mm dia pipe. Outlet is 225mm dia clay pipe. MH417 to MH 420 is very fractured and distorted and needs replaced.	Repairs are needed on this pipe
Gully 421	Outlet is 150mm dia clay pipe. Blind connection to culvert	
Gullies 148 and 138	Connect to each other at blind connection and then on to MH420.	
Gully 492	Connects to MH420. Plaster/grout recorded in pipe but able to flow.	
Manhole 420	Has the 225mm dia culvert coming in. 2 x connections from gullies by 150mm dia pipes and goes out as 225mm dia culvert	
Ghost Node 564	Buried chamber. Camera can't cross	
Manhole 421	225mm dia inlet. Outlet is 225mm dia pipe but quickly changes to stone box culvert. Condition is too rough and irregular to continue survey. The channel was dye tested from MH421, drops onto surface line via high level pipe in MH801this still needs to be surveyed as safety equipment needed for man hole access to high level pipe to survey upstream.	

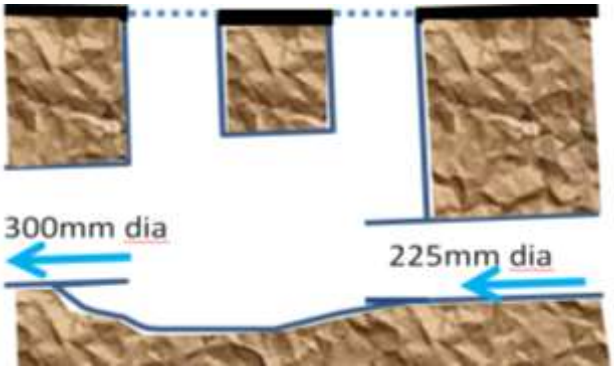
Tarnpits Lane



This

Asset	Comment	Work Done
Manhole 801	This manhole is recorded as a UU asset and on 20/7/2018 the UU line was flowing and the Neddy Hill culvert was dry. When it was dye tested with water from the tank at MH421 it all appeared here. The Neddy Hill connection is secondary in this manhole though with the main line being the UU asset.	
Manhole 782	This is recorded as a UU asset and is the end of their line. They must view it as a watercourse from here onwards.There is grout in the base as has been found throughout Burton.An intruding connection prevents progress with the camera at 9m downstream. Dye testing proves the connection to the double gully 251/275	
Gullies 138 and 477	Connect onto culvert. Connections can be seen from main line but unable to CCTV from gullies because they are on a trap	
Manhole 516 – Ghost Node 530	CCTV survey abandoned due to silt in line	
Gully 238	Out by 150mm dia clay pipe dropping into a stone culvert (not the Neddy Hill culvert). Goes to GN500 where there is mass debris preventing further survey work	
Ghost Node 500	This was initially assumed to be the Neddy Hill culvert as it would be a straight through route pointing directly at the outlet but it is not from Neddy Hill and its source is unknown. Survey was abandoned 3m upstream of the double gully because of silt levels at ghost node 500. It has slate roof and mass debris unable to get any further.It could be that this is the original route of the Neddy Hill culvert which has been abandoned and rerouted at an unknown point in history	
Double gully 251/275	The Neddy Hill culvert comes in as a 225mm dia pipe on the left hand side (looking downstream) rather than what looks to be the main connection straight through the double gully. The connection is as good as blind because it is about 0.5m offset from the double gully and can't be reached. One of the inlets has an invert level 140mm below the invert level of the outlet.	

Double gully 251/275



Appendix 3: Summary of feedback from flood forum

Source of water

The footpath next to Royal Hotel (Boon Town Lane/Post Office Lane) becomes a watercourse in heavy rainfall conditions. A squeeze style up the path becomes a waterfall. Intense flows have scoured out the path and deposited rubble.

The land doesn't absorb water – farmer has never seen the land so sodden.

Cellar flooding

Water ingress to cellars on east side of The Square which are designed as wet cellars with a floor level drain 2m below ground level that no longer copes with the flows due to blockages downstream. Water backed up into the cellars and mud was deposited. Residents believe that this drain outfalls into the culvert.

Cellars on west side of square was by surface runoff pouring in from The Square. Very deep water was reported in the cellars on this side of The Square.

Drainage issues

Collapsed culvert and blocked drains were reported. There were questions about whether the drainage system had sufficient capacity.

Numerous people reported that a drain in the Royal car park collapsed and was tarmacked over 15 years ago. The water pours off this land as a sheet now. Development is planned for this land.

Flooding was said to have been made worse by gravel washed off nearby paths and driveways.

Appendix 4: Glossary

Acronyms

EA	Environment Agency
CCC	Cumbria County Council
UU	United Utilities
LLFA	Lead Local Flood Authority
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

Appendix 5: Summary of Relevant Legislation and Flood Risk Management Authorities

The Flood Risk 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
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.

Appendix 6: Useful contacts and links

Cumbria County Council (Local Flood Risk Management):
lfrm@cumbria.gov.uk, www.cumbria.gov.uk, tel: 01228 221330

Cumbria County Council (Highways):
highways@cumbria.gov.uk, www.cumbria.gov.uk, tel: 0845 609 6609
Out of hours emergencies should be reported via the Police on 101

Insert Neighbourhood forum contact details

United Utilities: www.unitedutilities.com, tel: 0845 746 2200

South Lakeland District Council: customer.services@southlakeland.gov.uk, tel: 01539 733 333

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

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.

আপনি যদি এই তথ্য আপনার নিজের ভাষায় পেতে চান তাহলে অনুগ্রহ করে **01228 606060** নম্বরে টেলিফোন করুন।

如果您希望通过母语了解此信息，
请致电 **01228 606060**

Jeigu norėtumėte gauti šią informaciją savo kalba, skambinkite telefonu 01228 606060

W celu uzyskania informacji w Państwa języku proszę zatelefonować pod numer 01228 606060

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