8 June 2016 Flood in Lancashire

Flood & Water Management Act 2010

Section 19 Investigation – Covering Report

April 2022

Lancashire County Council

www.lancashire.gov.uk

Contents

Executive Summary

After a few preceding days of high temperatures, heavy rainfall fell on Lancashire during the afternoon of 8 June 2016 prior to 1500hrs. The most intense rainfall was experienced over the Lowerhouse area of Burnley although several other locations reported flooding to property during the same time-period.

Officers from Lancashire Fire and Rescue Service and Burnley Borough Council attended the Lowerhouse Lane area in response to telephone calls from residents, many of whom reported water 30-60 mm deep (1-2$^{1/2}$ inches) across the ground floor of their homes and/or standing water in garden areas. Roads and footways were also inundated in various locations, attended to by Lancashire County Council Highways teams, and surface water flooding was reported or observed in multiple other locations over the same brief period of time. Many locations had begun recovering before 1800hrs that evening.

Overall, 64 properties have been reported as flooding in this event of which 50 were homes that had been internally flooded (with water inside habitable rooms).

In the intense rainfall, rain fell faster than it could be collected and dispersed by local urban drainage networks. The existing drainage networks in the affected locations did not provide capacity to quickly accommodate the run-off from the intense rainfall events that night and this resulted in widespread surface water flooding of homes and roads.

Having assessed all the data and the information provided by the Risk Management Authorities involved, we conclude that this event could not have been foreseen at the time and there were no cost-effective large-scale flood defences which could have prevented the incident from happening.

The incident has reminded all involved of the ongoing potential for extreme rainfall events, which are becoming more likely to happen as the UK climate changes.

All public authorities with drainage responsibilities are reminded of the need for their systems to remain in the best possible working order to provide full capacity.

All assert owners are urged to consider the potential of flooding to their property, and to make whatever improvements they find reasonable to reduce the risk of flood water entering and damaging their properties (flood resistance), and also to consider adapting their properties to bounce back better if water does ingress (flood resilience).

SECTION 1 – INTRODUCTION AND PURPOSE OF THE REPORT

1.1 Flood & Water Management Act 2010 Duty

1.1.1 Lancashire County Council (LCC) as a Lead Local Flood Authority (LLFA) has a duty to investigate flooding in accordance with Section 19 of the Flood and Water Management Act 2010 (FWMA) as follows:

1.1.2 Section 19 states:

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.

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.

1.1.3 The terms 'risk management functions' and 'risk management authorities' are defined in Section 2.

1.2 Lancashire & Blackpool Local Flood Risk Management Strategy

In addition to the requirements of Section 19 of the FWMA, the Lancashire and Blackpool Local Flood Risk Management Strategy (LFRMS) sets out how flood risk should be managed locally.

SECTION 2 - DEFINITIONS AND RESPONSIBILITIES

2.1 Key Definitions

2.1.1 The Risk Management Authorities

2.1.1.1 The risk management authorities (RMAs) are identified in the FWMA as follows:

a. The Environment Agency,
b. The 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.

2.1.1.2 Each of these organisations has powers and duties under various legislation and regulations for the responsible management of natural water, flood risk and in some cases coastal erosion.

2.1.1.3 The FWMA requires all the RMAs to cooperate with other relevant authorities in the exercise of their flood and coastal erosion risk management functions.

2.1.1.4 In Lancashire, the RMAs support partnership working in the following ways:

- at operational levels by joint investigations and through the Making Space for Water meetings;
- at tactical level by sharing priorities and direction between organisational managers, and
- at strategic level by engaging with Councillors/Cabinet Members/Senior Managers.

2.1.1.5 Lancashire, Blackpool and Blackburn-with-Darwen are also represented on the North West Regional Flood and Coastal Committee where cross-boundary projects, resources and data are shared with Cumbria, Greater Manchester, Merseyside and Cheshire.

2.1.1.6 The village of Earby in Pendle District is a special case in that it lies within a river catchment that falls towards North Yorkshire, so its local Environment Agency services are supplied through the Yorkshire team. This gives the Lancashire partnership a direct connection to the Yorkshire Regional Flood & Coastal Committee. Earby also receives services from the Earby and Salterforth Internal Drainage Board (IDB), which replaces a number of the lead local flood authority functions.

2.1.2 The Risk Management Functions

2.1.2.1 The RMAs have responsibility for flood risk management functions as defined under Section 4 (2) of the FWMA:

(a) a function under this Part,
(b) a function under section 159 or 160 of the Water Resources Act 1991,
(c) a flood defence function within the meaning of section 221 of that Act,
(d) a function under the Land Drainage Act 1991,
(e) a function under section 100, 101, 110 or 339 of the Highways Act 1980, and
(f) any other function, under an enactment, specified for the purposes of this section by order made by the Minister.

2.1.3 Riparian Landowners

2.1.3.1 The legal term 'riparian' is applied to landowners who own land adjoining or containing a river or watercourse. They have certain rights to use the water flowing across their land for their own purposes, and in regard to flood risk management they also have a number of responsibilities, including the following:

- to maintain the bed and banks of the watercourse, and also the trees and shrubs growing on the banks
- to clear any debris, even if it did not originate from their land. This debris may be natural or man-made
- to keep any structures within their ownership clear of debris. These structures include culverts, trash screens, weirs and mill gates

2.1.3.2 If riparian landowners do not fulfil their responsibilities, they may face enforcement action taken by the relevant RMA.

2.1.4 Interconnections between responsibilities

2.1.4.1 Public sewers in Lancashire are principally the responsibility of United Utilities plc or Yorkshire Water plc. Copies of the record maps indicating the location of public sewers in Lancashire are held in the water companies head offices. These companies also keep records of pumping stations and any water treatment works which form part of the public sewage system.

2.1.4.2 Private drainage systems are the responsibility of each owner whose property it drains. Where more than one property uses a private pipe, responsibility is normally shared proportionately. The private system comprises all the pipes up to the point of connection with a public sewer (this can include the entire system where connected to a septic tank, cesspool or soakaway). Formal records indicating the location of private drainage systems are not held by any RMA. The deeds of a property may include details.

2.1.4.3 The highway surface water drainage of all adopted public roads, other than trunk roads or motorways, is the responsibility of LCC as the local highway authority, including roadside drainage gullies and certain roadside ditches. Drainage from trunk roads and motorways is the responsibility of National Highways (formerly Highways England). Drainage of private unadopted roads is normally the responsibility of private property owners who make use of or adjoin the road.

2.1.4.4 Land drainage comprises systems of rivers, watercourses, ditches, culverts, pipes, lakes and ponds intended to drain water resulting from rainfall and flows from underground sources. Typically, the primary responsibility for maintaining responsible flows in land drainage systems lies with the riparian owner or owners, with the LLFA, Environment Agency, IDB or local councils holding enforcement powers to use if the landowner/s default in their duties.

2.1.4.5 All drainage systems eventually discharge into the sea as the lowest possible point for water to collect. In Lancashire, this is at Morecambe Bay or the Irish Sea directly.

2.1.4.6 All drainage networks are formed from combinations of these systems to overcome historic demands of efficiency, simplicity and convenience. For example, a highway gully may well connect to a length of highway drainage pipe before connecting to a private ditch, or a public surface water sewer, or directly to a main river. The original reasoning for these arrangements may now be forgotten or inappropriate for current needs, but the physical interconnection of drainage systems means that it is often impossible to tell just from looking at flood water exactly where the barrier to flow arises and therefore exactly which organisation may need to take remedial action.

2.1.4.7 It is therefore vital for the RMAs to share information and collaborate during investigations and that they are allocated to the appropriate organisation to lead.

2.2 Key Functions of the RMAs

2.2.1 Environment Agency

The flood risk management responsibilities of the Environment Agency include the following:

a. strategic overview for all forms of flooding;
b. provision of a National Strategy for Flood and Coastal Erosion Risk Management (FCERM) to cover all forms of flooding;
c. a power to request information from third parties in connection with flood risk management duties. Risk management authorities have a duty to co-operate with the Environment Agency in the provision of such information;
d. a duty to co-operate with other relevant authorities in the exercise of flood risk management functions, which may include the sharing of information with other relevant authorities;
e. a duty to have regard to Local Flood Risk Management Strategies;
f. a duty to be subject to scrutiny from lead local flood authorities' democratic processes;
g. responsibility for managing coastal flooding;
h. responsibility for managing fluvial flooding from main rivers;
i. updated provisions for the regulation of reservoirs;
j. permissive powers to carry out maintenance work on main rivers under Section 165 of the Water Resources Act 1991;
k. the provision of flood forecasting and warning services;

l. the provision of flood maps;
m. the provision of flood related information and advice;
n. investment in flood defences, supplemented through partnership funding where appropriate;
o. a power to take enforcement action where flow in a main river has been impeded and may cause a flood risk.

2.2.2 Lancashire County Council

2.2.2.1 LCC has a dual risk management role, in its capacity as both highway authority and LLFA.

2.2.2.2 The County Council as the LLFA has a number of duties and powers, in addition to the duty to investigate flooding set out above. These include:

a. a duty to develop, maintain, apply, monitor and consult on an LFRMS for its area (copy available from the LCC website www.lancashire.gov.uk);
b. a duty to develop and maintain a register of structures or features which might impact on flood risk, including ownership and condition (the Flood Risk Asset Register is available on the LCC website www.lancashire.gov.uk);
c. the management of the consenting process for works that are likely to affect the flow characteristics of ordinary watercourses (Land Drainage Consent – guidance available on the LCC website www.lancashire.gov.uk);
d. a power to undertake works for managing flood risk from surface run-off or groundwater;
e. a power to request information from third parties in connection with flood risk management duties. RMAs have a duty to co-operate with the LLFA in the provision of such information;
f. a power to designate structures and features that affect flooding or coastal erosion.
g. a power to take enforcement action where there is an obstruction to an ordinary watercourse that may cause a flood risk.

2.2.2.3 LCC as the local highway authority has a duty under the Highways Act 1980 to maintain highways that are maintainable at public expense. This includes responsibility for highway drainage, as well as for the condition and safety for users of all highway assets including roads, footways, bridges and culverts, street lighting and traffic signals.

2.2.2.4 As the local highway authority, LCC has a duty to co-operate with other relevant authorities in the exercise of flood risk management functions, which may include the sharing of information with other relevant authorities

2.2.2.4 LCC also has private responsibilities for land drainage where it is a landowner.

2.2.3 City and Borough Councils

2.2.3.1 The flood risk management responsibilities of City and Borough councils include the following:

a. a power to designate structures and features that affect flooding or coastal erosion;
b. a duty to exercise their flood risk management functions in a manner consistent with local and national strategies, and to have regard to those strategies in their other functions;
c. a duty to be subject to scrutiny from LLFAs democratic processes;
d. a power to do works on ordinary watercourses
e. a duty to co-operate with other relevant authorities in the exercise of flood risk management functions, which may include the sharing of information with other relevant authorities.
f. a power to take enforcement action where there is an obstruction to an ordinary watercourse that may cause a flood risk.

2.2.3.2 City and Borough Councils have a number of wider functions and roles that can be relevant to flood risk management and response. These include local planning, housing, environmental health and community engagement activity, as well as private responsibilities for land drainage where they are a landowner.

2.2.4 Internal Drainage Board

2.2.4.1 An Internal Drainage Board (IDB) is a local public authority established in areas of special drainage need in England and Wales. IDBs have permissive powers to manage water levels within their respective drainage districts. IDBs undertake works to reduce flood risk to people and property and manage water levels to meet local needs.

2.2.4.2 The expenses of an IDB are predominantly funded by the local beneficiaries of the water level management work they provide. Each IDB sets a budget for its planned work in the forthcoming year and any investments it needs to make for future projects.

2.2.4.3 More information about IDBs can be found from the Association of Drainage Authorities (www.ada.org.uk).

2.2.4.4 For clarity, Earby and Salterforth IDB was not involved in the flooding event of 8 June 2016.

2.2.5 Water Companies

The flood risk management responsibilities of water companies (in Lancashire: United Utilities plc and Yorkshire Water plc) include the following:

a. a duty as sewage undertakers under Section 94 of the Water Industry Act 1991, to provide & maintain sewers for the drainage of buildings and associated paved areas within property boundaries;
b. responsibility as sewerage undertakers for lateral drains and public sewers, the latter being defined as a conduit, normally a pipe that is vested in a Water and Sewerage Company, or predecessor, that drains two or more properties and

conveys foul, surface water or combined sewage from one point to another point and discharges via a positive outfall;

c. responsibility for any flooding which is directly caused by its assets – i.e. its water or sewerage pipes;
d. a duty to be subject to scrutiny from lead local flood authorities' democratic processes;
e. a requirement to exercise flood risk management functions in a manner consistent with the national strategy and guidance and have regard to the local strategies and guidance;
f. a duty to co-operate with other relevant authorities in the exercise of flood risk management functions, which may include the sharing of information with other relevant authorities.

For clarity, Yorkshire Water plc was not involved in the Lancashire flooding event of 8 June 2016.

2.3 Civil Contingencies Responsibilities

The RMAs listed above (with the exception of the IDBs) have additional responsibilities under the Civil Contingencies Act 2004, which provides the statutory basis for dealing with a response to flooding in emergency situations. These include flood preparedness planning and flood response.

SECTION 3 – METHODOLOGY AND INTERPRETATION OF THE SECTION 19 DUTY

3.1 This covering report provides a commentary on the flooding events of 8 June 2016. It based on reports made to the LLFA by individual people and their representatives (including councillors and Food Action Groups), and reports made by the Risk Management Authorities (RMAs).

3.2 Appendix A records the many individual communities affected by flooding that day, the nature of the flooding where that can be confidently expressed, the RMAs with duties relating to that flooding mechanism, any work known to have been done to mitigate the risk of that type of event happening again, and any investigations or works for RMAs still to complete.

3.3 Appendix B records the individual streets on which various flooding incidents have been reported at the time of publication of this report.

SECTION 4 – THE WEATHER EVENT

4.1 The warm weather that occurred three days prior to Wednesday 8 June 2016 contributed to the flooding event that occurred in Lancashire.

4.2 On Sunday 5 June 2016, the Met Office records show that the immediate east coast experienced strong sunshine and light winds, and the afternoon warmth gave rise to some isolated thundery showers, mainly in north-west England.

4.3 The bulk of the U.K. experienced sunshine on Monday 6 June 2016; however, cloud formed across parts of northern England, with some scattered heavy and thundery downpours breaking out through the afternoon and evening. North-west England experienced the highest temperatures.

4.4 The high temperatures continued throughout the night, with temperatures holding up around the mid-teens Celsius. On Tuesday 7 June 2016, the temperatures in the north-west remained higher than average, causing scattered, often heavy and thundery showers to develop.

4.5 Lancashire experienced heavy downpours during the afternoon of 8 June 2016 prior to 1500 hrs.

4.6 The most intense rainfall was experienced over the Lowerhouse area of Burnley, where residents experienced their first flooding event for 36 years. Several other locations reported flooding to property during the same afternoon.

4.7 There was no loss of gas or electrical supply in Lowerhouse, although telephone landlines were out of action for a period of time, during which affected people were dependant on mobile telephones. There was substantial but short-lived impact to local roads and footways.

4.8 Officers from Lancashire Fire and Rescue Service and Burnley Borough Council attended the Lowerhouse Lane area in response to telephone calls from residents. 18 properties on this lane were flooded, many of whom reported water 30-60 mm deep across the ground floor of their homes and/or standing water in garden areas.

4.9 Roads and footways were also inundated in various locations, with surface water flooding being reported or observed in many other locations over the same brief period of time. Lancashire County Council Highways teams attended the affected areas, and many locations had begun recovering before 1800hrs that evening.

4.10 Other affected places in Lancashire were:

- Cliviger (Burnley)
- Glasson Dock (Lancaster)
- Colne, Earby and Laneshaw Bridge (Pendle)
- Chatburn and Rimmington (Ribble Valley)
- Rawtenstall (Rossendale).

4.11 Overall, 64 properties have been reported as flooding in this event of which 50 were homes internally flooded with water inside habitable rooms.

SECTION 5 – RESPONSE TO THE FLOODING

5.1 On Wednesday 8 of June 2016 at 1519hrs, the Lancashire Fire and Rescue Service attended the Lowerhouse Lane area and requested assistance from Burnley Borough Council which arrived shortly after. It was noted that residents appreciated the prompt response of the council.

Fig.1 – Flooded garden 2 hours after rainfall rear Lowerhouse Fold.

5.2 Burnley Borough Council members along with local contractor Urbaser provided sandbags.

5.3 Drainage networks interconnect in sometimes complicated ways for historic reasons. Partnership working and joint investigations between the RMAs are essential to identify the appropriate options in all communities and to deliver flood risk management improvements.

5.4 Appendix A to this report records the various experiences in different communities affected by flooding during this rainfall event. This log identifies the following information:

- District Council area;
- Settlement/locality where flooding was reported;
- Number of properties known to be affected by flooding;
- Our assessment of the primary flooding mechanism/s in that locality;
- Which flood Risk Management Authorities have had a role in managing the flood risks identified;
- What has been done as a consequence of receiving the flooding reports from local people, and/or what more is required at the date of publication.

5.5 Appendix B to this report records the names of the streets reported to the county council, where property is known to have flooded during this event. Whilst it is good practice to record all types of property flooded including homes, gardens/outbuildings, community assets/public highways and other private property including schools, offices and business-premises, in this event the reports received all related to homes and to highways.

5.6 Of particular note is the response by LCC Highways and Flood Risk Management teams, to the devastating flooding around Lowerhouse Lane including Lowerhouse Fold and Thornhill Street, where multiple houses were flooded at the same time. After the flooding event, a full investigation of local drainage systems identified a culvert carrying a watercourse from industrial units at Empire Business Park, across the nearby cricket ground then under Lowerhouse Lane to its outfall into Green Brook.

5.7 This culvert was found to be dysfunctional in a number of locations, which had led to water coming out of the pipe and running across the ground, flooding properties. Correcting these defects has restored capacity and functionality to the culvert and has generated a number of useful records which can be referred to if local landowners need to carry out further maintenance in the future.

SECTION 6 – NEXT STEPS

6.1 Where appropriate, the RMAs' options for further action are identified in Appendix A as part of the record of the way the RMAs responded to this flooding event.

6.2 In any future events of this nature, the LLFA will endeavour to make meaningful contact with the relevant housing associations and district councils, in order to establish a more complete picture of the extent and impact of flooding and to enable future access to appropriate funding support.

6.3 All RMAs are urged to evaluate the impact that climate change is having and will continue to have on their drainage assets in future years, and make decisions on how they will respond. Proven options for managing peak rainfall intensity include:

- Improved maintenance of capacity in all drainage systems;
- Increased permeable areas, particularly in urban and other paved environments to minimise speed and volume of run-off;
- Increased attenuation, so excess storm water can be safely stored and released gradually into drainage systems as the weather system passes away;
- Increased tree and shrub planting as these features can absorb more rainwater than grass

6.4 Similar measures on private property can also be very effective at managing the peaks of an intense rainstorm, and at giving local people more control over the way they are affected in such weather conditions.

6.5 Working with communities and working in partnership are key recommendations of the national and Lancashire flood risk management strategies. The Lancashire RMAs are all committed to finding better ways to make this advice more widely known and understood, and to helping people to access advice in particular through the Flood Hub website: www.thefloodhub.co.uk, a resource provided by all the North West region's RMAs working in partnership.

SECTION 7 – SUMMARY AND CONCLUSIONS

7.1 The rainfall event of 6 June 2016 was extreme enough to overwhelm natural and man-made drainage networks across some locations of Lancashire, with particularly damaging flooding across Burnley and Lancaster districts.

7.2 The adverse effects of this event were exacerbated in the Lowerhouse area of Burnley by defects in a historic culverted watercourse.

7.3 There are many damaging effects of intense rainfall in urban areas, including:

- Traffic driving at speed through standing water in the road, creating bow waves washing off streets onto private property;
- Vehicles abandoned in the flooded roads, impeding access for emergency vehicles;
- Water-ingress at low-lying properties.

7.4 Flash flooding will be a more frequent occurrence in UK and Lancashire summers, because climate change is generating warm air more frequently and at higher temperatures than have been the norm, absorbing significantly more moisture and releasing it extremely quickly over small areas of land in thunderstorm conditions. Rainfall events of this nature are difficult to predict in advance, and there can be no assurance of early warnings for very local areas.

7.5 All parties – public authorities, business establishments and private individuals - are urged to consider the risks to their assets, property and activities of future flash flooding, and make appropriate adaptations to minimise the impact these severe events can have on them. These adaptations should include maintenance regimes to ensure that full capacity remains in historic drainage systems.

7.6 There is a wealth of information and advice available for householders and landowners interested in managing their own flood risks (see thefloodhub.co.uk).