Lancashire County Council

21-23 August 2016 Flooding in Lancashire

Flood & Water Management Act 2010
Section 19 Investigation Report

December 2023

Contents

Executive Summary

Over the period from Friday 19 August to Tuesday 23 August 2016, summer storms impacted primarily on western areas of Lancashire with high winds and heavy downpours of rain which temporarily overwhelmed local drainage systems and caused extensive flooding of properties and highways.

From the records provided after the event by affected people and by Lancashire's flood risk management authorities, we have identified that 98 properties flooded during this event: 85 homes and 13 other properties including schools, businesses and farm property. Of the affected homes, 25 were flooded internally to at least one habitable room. There were also multiple instances of flooded highways which have not been included in this Section 19 report.

A report under Section 19 of the Flood & Water Management Act 2010 is required to document the investigations made into the localised flood events occurring in the period 21-23 August 2016 that have been reported to the Council either directly by our residents or their representatives, or via the flood risk management authorities if they received the first reports directly. This report is required to identify where further studies or works are needed, and by which risk management authority. Appendix A to this covering report provides that identification for the various affected localities.

The risk management authorities that had a role in this flooding incident were:

a) The Environment Agency;
b) Lancashire County Council as the lead local flood authority;
c) United Utilities plc as the water company; and
d) Lancashire County Council as the highway authority.

None of the flood risk management authorities have any outstanding studies or works to be completed. It is a key finding of this Section 19 investigation that the reported flooding was principally in built-up areas of Lancashire where the drainage systems were temporarily overwhelmed by the intensity of the rainfall. There are currently no widespread programmes of investment to increase the general capacity of such drainage systems.

It should be particularly noted that, through the endeavours of Churchtown Flood Action Group, a significant works project was completed in March 2019 to help manage flood risks in the village. This project illustrates how community-led investigations and actions can achieve locally-focussed improvements which aren't always available through the drainage authorities.

There are achievable and sustainable responses available for communities seeking improved protection from similar rainfall events should these occur in the future.

Depending on particular local circumstances responses might include any combination of the following suggestions:

- Improved drainage system maintenance regimes;
- Increased area of absorbent land within urbanised streets (for example more trees and shrubs, increased unpaved areas in highways, gardens & yards);
- Localised temporary road closures to reduce bow waves washing off streets onto private property;
- Improved protection against water-ingress at vulnerable properties;
- Improved 'warning and informing'-type communications to trigger appropriate action, temporary defences etc.
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Measures of these types can be very effective at more safely managing the peaks of an intense rainstorm, and at giving local people more control over the way they are affected in such weather conditions. All the flood risk management authorities are ready and willing to work with local community groups and with the Town and Parish Councils to identify and introduce measures appropriate for their local circumstances. We are all committed to finding better ways to make our offers more widely known about, and to helping people to access our teams for advice.

Any individuals who want to consider what they might do for themselves will find practical and realistic suggestions on the dedicated North West Flood Hub: thefloodhub.co.uk

Working with communities and working in partnership are key recommendations of the national flood risk management strategy and all the Lancashire Risk Management Authorities recognise the value and importance of the opportunities that arise through appropriate engagement with our communities.

SECTION 1 – INTRODUCTION AND PURPOSE OF THE REPORT

1.1 Flood & Water Management Act 2010 Duty

1.1.1 Lancashire County Council as a Lead Local Flood Authority has a duty to investigate flooding in accordance with Section 19 of the Flood and Water Management Act 2010 (the Act) 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 of this report.

1.2 Lancashire & Blackpool Local Flood Risk Management Strategy

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

1.2.2 This Strategy states that the Section 19 investigations will help to:

- Improve the understanding of flood risk by providing an invaluable tool for understanding the sources and mechanisms of flooding;
- Identify assets that have a flood risk management function, which may need to be designated; and
- Identify where additional works and studies are likely to be necessary, that the county council or other risk management authorities can integrate into their prioritised flood risk management plans.

SECTION 2 - DEFINITIONS AND RESPONSIBILITIES

2.1 Key Definitions

2.1.1 The Risk Management Authorities

2.1.1.1 The risk management authorities are identified in the Act 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 Act requires all the flood risk management authorities 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 flood risk management authorities 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, which replaces a number of the lead local flood authority functions.

2.1.2 The Risk Management Functions

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

(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 risk management authorities.

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 it is connected to a septic tank, cesspool or soakaway). Formal records indicating the location of private drainage systems are not held by any of the risk management authorities. The deeds of a property may include these 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 the county council as the local highway authority, including roadside drainage gullies and certain roadside ditches. Drainage from trunk roads and motorways is the responsibility of 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 flows in land

drainage systems lies with the riparian owner or owners. The lead local flood authority, Environment Agency, internal drainage board and/or local councils hold 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 risk management authorities to share information and collaborate during investigations and that they are allocated to the appropriate organisation to lead.

2.2 Key Functions of the Flood Risk Management Authorities

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 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 The county council has a dual risk management role, in its capacity as both highway authority and lead local flood authority.

2.2.2.2 The lead local flood authority 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 a local flood risk management strategy for its area (copy available from the county council's 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 county council's 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 county council's 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. Flood risk management authorities have a duty to co-operate with the lead local flood authority 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 The county council 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 local highway authority, the county council 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 The county council also has private responsibilities for land drainage where it is a land owner.

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 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 land owner.

2.2.4 Internal Drainage Board

2.2.4.1 An internal drainage board is a local public authority established in areas of special drainage need in England and Wales. Internal drainage boards have permissive powers to manage water levels within their respective drainage districts. They 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 internal drainage board are predominantly funded by the local beneficiaries of the water level management work they provide. Each board 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 internal drainage boards can be found from the Association of Drainage Authorities (www.ada.org.uk).

2.2.4.4 The Earby and Salterforth internal drainage board covers part of Lancashire affected by the flooding event to which this report refers. This board has recently entered a collaborative partnership with other boards to access resources and expertise which may be available to contribute to the Section 19 investigation process.

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.

2.3 Civil Contingencies Responsibilities

The flood risk management authorities listed above (with the exception of the internal drainage board) 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 - Interpretation of the Section 19 Duty

3.1 This covering report records the flooding events of the period from Sunday 21 August to Tuesday 23 August 2016.

3.2 Although the individual impacts of the weather that evening were distributed across a large area of the county, the council has interpreted these as one flooding event for the purposes of the Section 19 investigation. Localised site inspections have been carried out by the risk management authorities with differing levels of detail subject to local circumstances.

3.3 Appendix A records the communities affected by flooding during this period, and the nature of the flooding where that can be confidently expressed. It also identifies the risk management authorities with functions relating to each 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 risk management authorities still to complete.

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

3.5 The individual risk management authorities will be able to provide further details of their specific investigations and any further works arising if required; our Section 19 report does not include these further details.

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

SECTION 4 – THE WEATHER EVENT

4.1 On Friday 19 August 2016, the Met Office issued a weather warning for an area of deep, low pressure tacking across the northern United Kingdom, expected to affect parts of Cumbria and West Lancashire with high winds (40-60mph) expected between 0200hrs and 2100hrs on Saturday 20 August. The warning advised that winds would be accompanied by occasional blustery showers which were expected to turn heavy at times.

4.2 This event had the characteristics of a 'summer downpour': very heavy rainfall after a period of hot, dry weather.

4.3 Between Friday 19 and Tuesday 23 August, heavy rain reached Lancashire on a number of occasions. The Environment Agency later identified the week from Wednesday 17 to Tuesday 23 August 2016 as 'the wettest week of the year so far' for North West England, amounting to 99% of the long-term average ('LTA' in the abstract below at Figure 1) for the whole month.

Geographic regions	Latest Week: 17 to 23 Aug 2016	Latest month to date: Aug 2016		Last month: Jul 2016		Last 3 months: May 2016 to Jul 2016		Last 6 months: Feb 2016 to Jul 2016		Last 12 months: Aug 2015 to Jul 2016	
	Total (mm)	Total (mm)	% LTA	Total (mm)	% LTA	Total (mm)	% LTA	Total (mm)	% LTA	Total (mm)	% LTA
north-west	63	103	99	104	126	280	120	602	128	1,589	137

Figure 1 - Abstract from Met Office rainfall summary

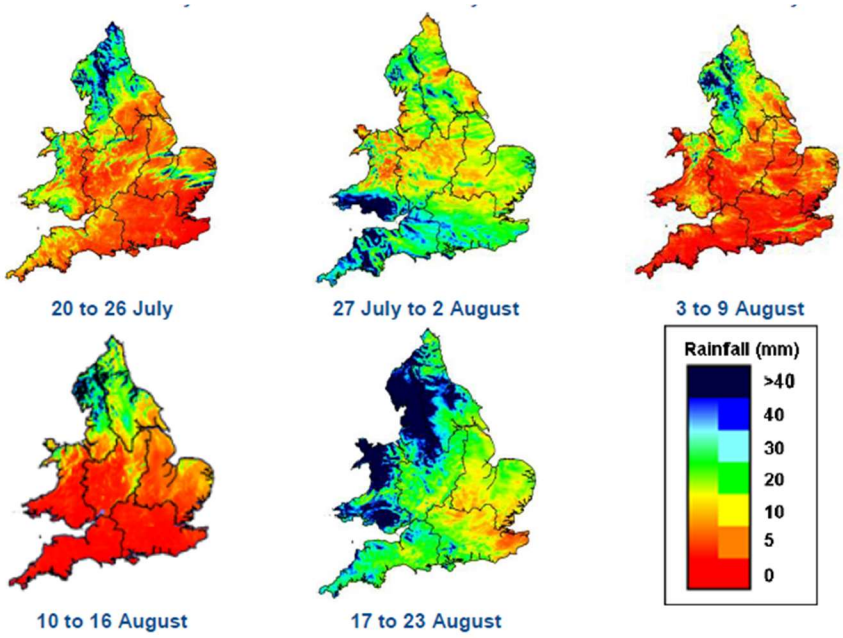

Figure 2 – Weekly precipitation across England and Wales July – August 2016

SECTION 5 – RESPONSE TO THE FLOODING

5.1 For Lancashire's most westerly districts, flooding was the most demanding highway defect attended to by the county council's emergency call-out teams between Sunday 21 and Tuesday 23 August 2016, with incidents recorded at Scorton and Churchtown in Wyre district and various other individual locations around the county.

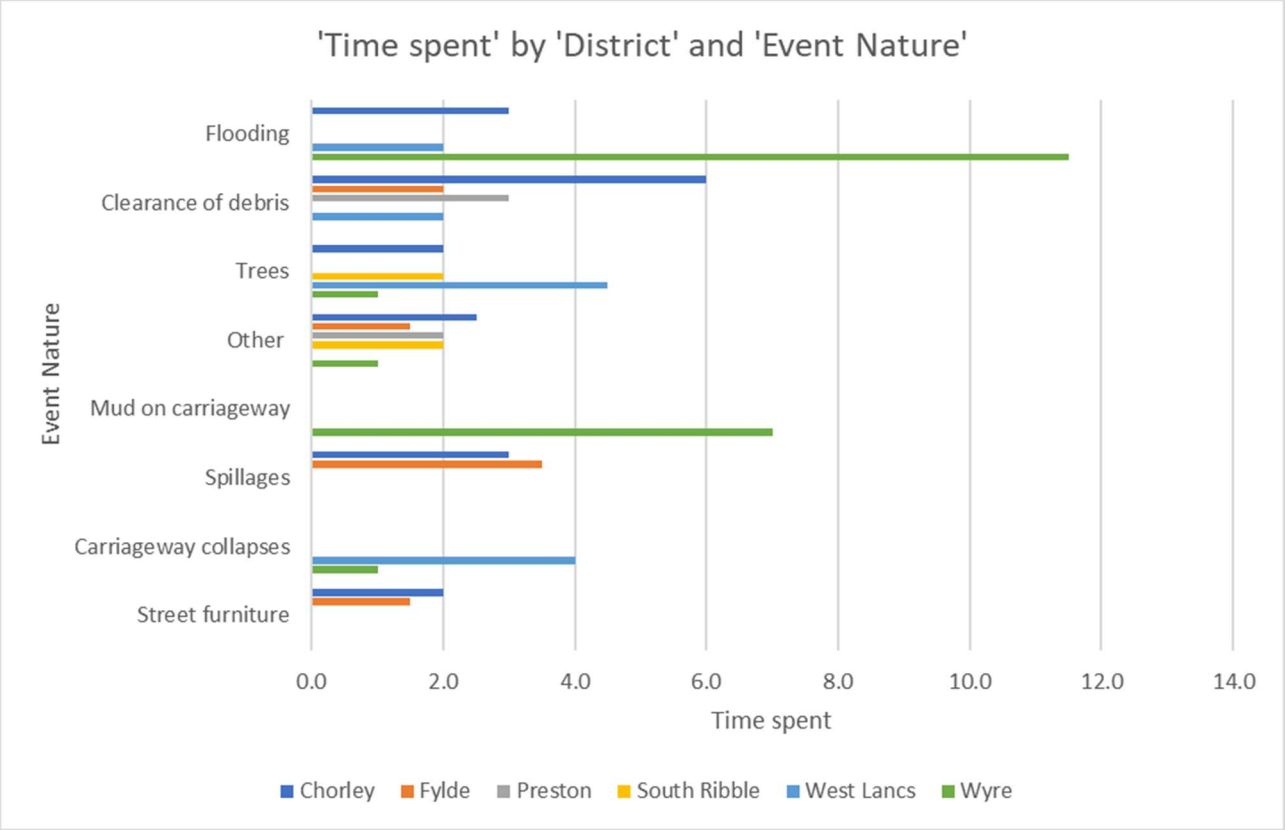

Figure 3: Out-of-hours response to highway defects 17-24 August 2016

5.2 The Environment Agency's Preston Incident Room was open throughout the event with incident staff monitoring the situation. 3 tidal flood alerts, 8 fluvial flood alerts, and 16 flood warnings were issued across Lancashire. 2 flood alerts and 7 flood warnings were issued on the River Wyre.

5.3 Storm modelling available to the Environment Agency predicted on Saturday 20 August that the Garstang and Catterall basins might have been required, and landowners were alerted. However, with improving weather conditions, neither was actually required that day.

5.4 In response to the continued heavy downpours, the Environment Agency activated the Garstang flood basin at 0530hrs on Monday 22 August, and the Catterall flood basin at 0945hrs on the same morning. The Garstang basin reached full capacity at 1530hrs that afternoon, although River Wyre water levels were still rising until 1630hrs meaning that the rainfall event caused the river flows to exceed the capacity of the Garstang basin. The Catterall basin reached full capacity at 2200hrs.

Figure 4 – excess water on A6 at Kirkland Bridge

5.5 Flooding at Churchtown from the River Wyre was caused primarily by the river overtopping its banks upstream of Kirkland bridge (carrying the A6 over the river, illustrated in Figure 4 above). River banks were also overtopped at Scorton and Catterall.

5.6 United Utilities plc's operational response teams were kept equally busy over the weekend, reporting a particular problem in the Hambleton/Stalmine area of Wyre district where surface water sewers failed to operate as normal due to excessive water levels associated with high water levels in all rivers and watercourses.

5.7 Appendix A to this report records the various experiences in different communities affected by flooding during this rainfall event. It 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.

5.8 Appendix B records the names of the streets reported to the county council, where property is known to have flooded during this event. It is considered 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.

5.9 Because many incidents related to standing water on the public highway which disappeared quickly once the rainfall ended and water levels returned to normal in rivers and ordinary watercourses, in this Section 19 investigation we have only taken account of highway flooding where it directly relates to the reports we received of flooding to properties.

5.10 Following the particularly challenging experiences of the village in December 2015 and August 2016, Churchtown Flood Action Group formed in 2016 and pursued a local flood risk management scheme with support from the local risk management authorities, which was completed in March 2019. The case study is documented on the Flood Hub website here: Churchtown Flood Action Group case study (thefloodhub.co.uk) and appended to this report at Appendix C. A bund was built across multiple land-holdings, to divert excess water that might otherwise overflow from the confluence of the Rivers Wyre and Brock around the pinch-point under Kirkland Bridge on the A6 (upriver from the village). This bund now provides additional protection for homes on The Avenue and The Green, which were previously directly in line for the excess flows along the highway.

SECTION 6 – NEXT STEPS

6.1 Where appropriate, the flood risk management authorities' options for further action are identified in Appendix A as part of our report into the way they each responded to this flooding event.

6.2 There are no programmes for any of the Lancashire risk management authorities to invest in up-scaling their drainage networks to provide additional capacity for rainfall events of this nature.

6.3 Depending on particular local circumstances, appropriate activity includes any combination of the following suggestions:

- Improved drainage system maintenance regimes including better-targeted maintenance activities;
- Creating increased areas of absorbent land within urbanised streets (for example more trees and shrubs, increased unpaved areas in highways, gardens, drives & yards);
- Establishing temporary road closures to reduce bow waves washing off streets onto private property;
- Installing improved protection against water-ingress at vulnerable properties;
- Extending the current 'warning and informing'-type communications to trigger appropriate local action, deployment of temporary defences etc.

6.4 Measures of these types can 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. All the risk management authorities are ready and willing to work with local community groups and Town and Parish Councils to identify and introduce measures appropriate for their local circumstances.

6.5 Any individuals who want to consider what they might do for themselves will find practical suggestions on the dedicated website: the Flood Hub: thefloodhub.co.uk

6.6 Working with communities and working in partnership are key recommendations of the emerging national flood risk management strategy. Lancashire's flood risk management authorities are all committed to finding better ways to make our offers more widely known about, and to helping people to access our teams for advice.

SECTION 7 – SUMMARY AND CONCLUSIONS

7.1 The rainfall event of 21-23 August 2016 was extreme enough in some locations of Lancashire to overwhelm local drainage networks. Whilst it was not the most damaging event in recent years, it occurred closely after the widespread damage caused by the repeated extreme flooding in Lancashire during December 2015. Affected people were extremely concerned for their own safety and for the damage that occurred to their homes and belongings.

7.2 Given that flood risk will always be present in a large county area such as Lancashire, it is important that the county council, as lead local flood authority, records the experiences arising from this and all notable flood events, ensuring they are captured and used alongside technical information to identify and deliver improvements and advice to affected people.

7.3 This report identifies that it would be unrealistic for anyone to expect a substantial investment to increase the capacity of their local drainage systems, as there is currently no such investment available and no plans to start new programmes of that type.

7.4 The report also identifies that it is realistic to look into better ways of managing flood risk within community areas, enabling local people to have more control of the way their homes and localities might be best protected through an intense rainfall event so that they might recover most swiftly afterwards.

7.5 Such work is generally delivered during the day-to-day activities of the risk management authorities, when progress on local initiatives can be shared with local communities through existing communication channels. This work and the wider responsibilities of the county as lead local flood authority are overseen by the Lancashire Strategic Partnership and, more widely, by the Regional Flood and Coastal Committee.

7.6 It is hoped that the suggestions made in this report will be developed locally to improve the flood resilience of the affected areas. From the experiences during and after this flood incident, the county council together with partner organisations are developing an improved understanding of the way our incident response, community engagement and data collection activities are interlinked. This is informing our development of improved procedures to respond to future flooding events to further improve the flood knowledge and response in the county.