Flood Investigation Report

Thornborough Road, Coalville – 27 December 2017

Final Report

May 2020

To discuss this report, please contact the Flood Risk Management Team by email flooding@leics.gov.uk or by phone 01163 050 001

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EXECUTIVE SUMMARY

The flood event of 27 December 2017 resulted in internal damage to a residential property on Thornborough Road, Coalville. The flooding was the result of prolonged rainfall and the inability of the ground to absorb the surface water as it was already waterlogged. An obstructed connecting pipe in a trench running alongside the property was unable to capture the large volume of surface water which led to excess surface water flowing overland into the residential property.

Following the enactment of the Flood and Water Management Act (FWMA, 2010), Leicestershire County Council as an upper tier authority was designated as a Lead Local Flood Authority (LLFA).

Section 19 of the FWMA states that on becoming aware of a flooding incident within their area, the LLFA should investigate the event to an extent considered necessary or appropriate.

Leicestershire County Council has produced a LLFA policy which stipulates agreed criteria for undertaking Section 19 flood investigations in Leicestershire. The LLFA has deemed it necessary to carry out a formal investigation into the flood incident which occurred at Thornborough Road, Coalville on 27 December 2017, as the incident met the criteria.

This Flood Investigation Report has been produced by the Council fulfilling duties under the FWMA as the LLFA for Leicestershire.

1. PURPOSE OF THIS REPORT

1.1. SECTION 19 INVESTIGATIONS – DUTY TO INVESTIGATE

Under Section 19 of the Flood Water Management Act 2010 (FWMA), the County Council has duties to fulfil as a result of certain flooding events. The FWMA states that:

(1) On becoming aware of a flood in its area, a LLFA must, to the extent that it considers it necessary or appropriate, investigate:

a. *which RMAs have relevant flood risk management functions, and*
b. *whether each of those RMAs has exercised, or is proposing to exercise, those functions in response to a flood event.*

(2) Where an authority carries out an investigation under section 1 (above) it must:

- *publish the results of its investigation, and*
- *notify any relevant RMAs."*

This Report has been produced by the Council fulfilling duties under the FWMA as the LLFA for Leicestershire.

1.2. LEICESTERSHIRE COUNTY COUNCIL'S LOCALLY AGREED CRITERIA FOR FORMAL FLOOD INVESTIGATIONS

Leicestershire County Council from herein referred to as *"The Council",* identified local thresholds for formally investigating flood incidents across Leicestershire within the Local Flood Risk Management Strategy published in August 2015. This policy advises when a formal flood investigation should be undertaken, including where one or more of the following occurs as a result of a flooding incident:

- Loss of life or serious injury
- Critical infrastructure flooded or nearly flooded from unknown or multiple sources
- Internal property flooding from unknown or multiple sources

In the following circumstances, discretion may be used to investigate a flooding incident:

- A number of properties have been flooded or nearly flooded
- Other infrastructure flooded
- Repeated instances of flooding have occurred
- Investigation requested
- Risk to health (foul water)
- Environmental or ecologically important habitat has been affected
- The depth/area/velocity of flooding is a cause for concern.

1.3. FLOOD INVESTIGATION CRITERIA

A formal investigation into the flood incident at Thornborough Road, Coalville on 27 December 2017 was undertaken as the event triggered at least one of the locally agreed flooding characteristics or discretionary items as indicated below:

Mandatory Investigation	
Loss of life or serious injury	☐
Critical infrastructure flooded or nearly flooded from unknown or multiple sources	☐
Internal property flooding from unknown or multiple sources	☑
Discretionary Investigation	
A number of properties have been flooded or nearly flooded	☐
Other infrastructure flooded	☐
Repeated instances	☐
Investigation requested	☐
Risk to health (foul water)	☐
Environmental or ecologically important site affected	☐
Depth/area/velocity of flooding a cause for concern	☐

1.4. RISK MANAGEMENT AUTHORITIES (RMAS)

The following RMAs were identified as relevant to the flooding incident at Thornborough Road:

- Leicestershire County Council – Lead Local Flood Authority

2. BACKGROUND

2.1. LOCATION

The town of Coalville is situated approximately 20 km to the north-west of Leicester (Figure 1) and is located within the district of North West Leicestershire. Thornborough Road (the location of the flooding incident) is located to the north of Coalville (as annotated on Figure 1). The property affected by the flood event is located at the northern end of Thornborough Road, close to its junction with Church Lane.

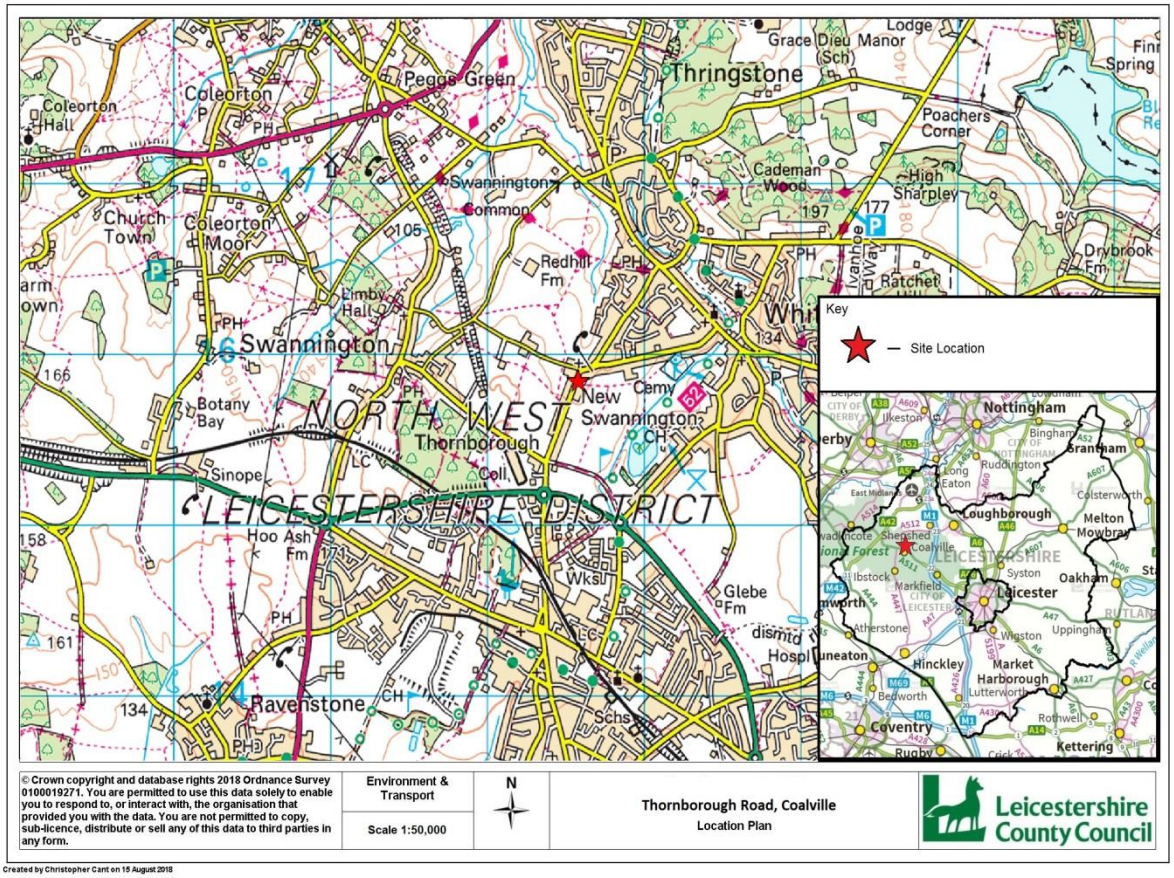


Figure 1: Location of Thornborough Road, Coalville

2.2. LOCAL DRAINAGE SYSTEM

A site inspection carried out by the Council on 5 January 2018 identified a small concrete trench running alongside the property affected by the flood event. Figure 2 illustrates the location of this drainage feature which comprises a 200mm wide channel running in a north west-south east orientation. A drain is located at one end of this trench (photograph 2, see later in the document) and this was found to be blocked. It is likely that the trench outfalls into a Severn Trent Water (STW) combined sewer located under the footway outside the property; STW have not confirmed this.

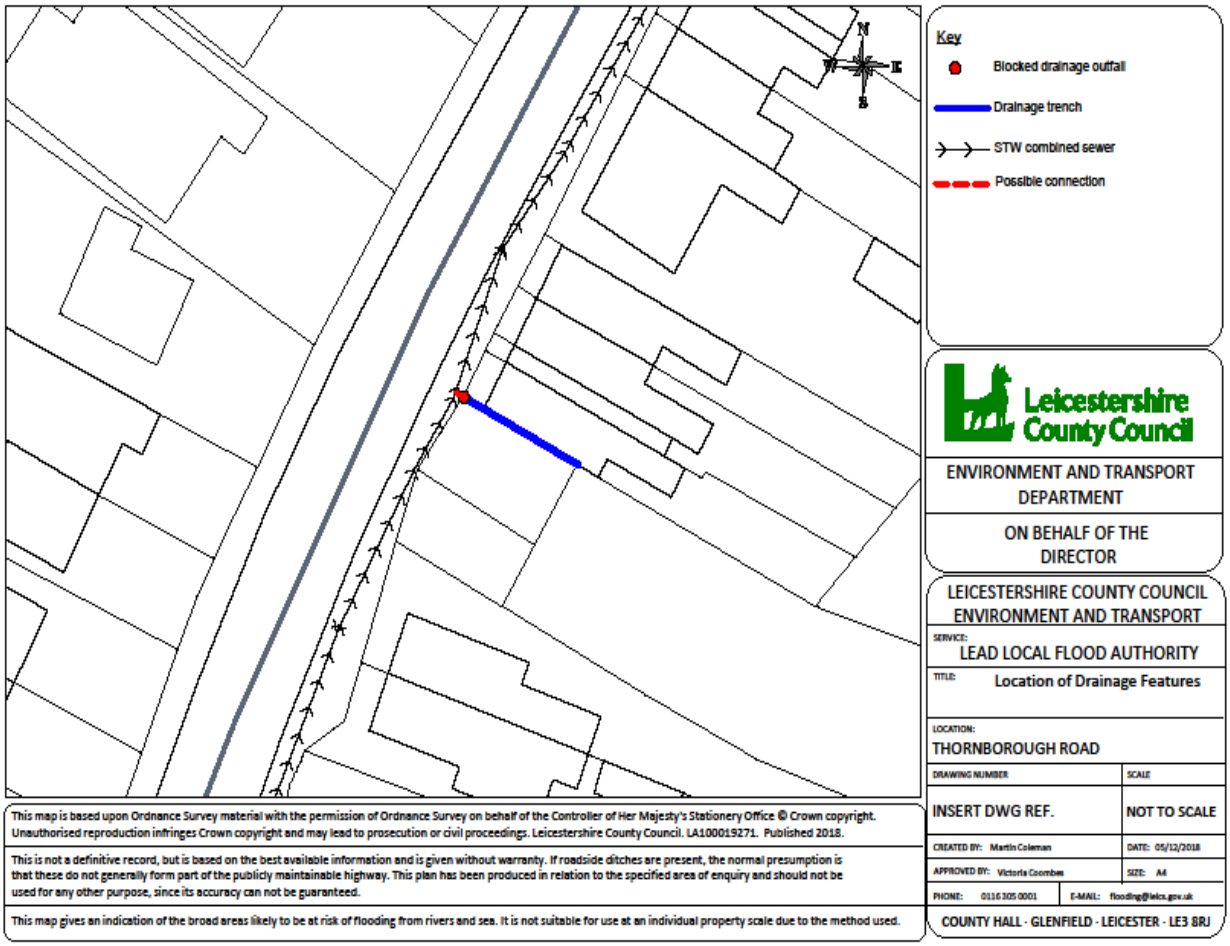


Figure 2: Location of drainage features

No other ordinary watercourses, drainage channels and culverts have been identified as part of this investigation.

2.3. HISTORICAL FLOOD INFORMATION

Prior to the event of the 27 December 2017, the County Council had received one report of flooding immediately to the south-west of the site:

- 2016-INC-137: Thornborough Road, Coalville (15 June 2016).
  Flooding of the highway during prolonged rainfall event. Surface water is believed to have accumulated at a low point in the highway. No internal property flooding occurred.

3. THE FLOODING INCIDENT- 27 DECEMBER 2017

The majority of the information supporting the description of the flooding incident is based on anecdotal evidence of the residents who were present at a site visit held on the 5 January 2018.

3.1. INFORMATION PRIOR TO THE EVENT

In the days prior to the flood incident on 27 December 2017 catchments located within central England had been subject to prolonged rainfall and snowfall onto the ground, indicating that the ground was already highly saturated.

A ‘yellow’ severe weather warning of ‘rain and snow’ had been issued by the Metrological (MET) Office for Leicestershire for 27-28 December 2017.

On Tuesday 26 December 2017, the day before the flooding incident, the Council and other RMAs received weather warnings from the Flood Forecasting Centre (FFC). The FFC is a partnership between the Environment Agency and the Met Office combining meteorology and hydrology expertise. The following flood guidance was received:

‘Heavy rain and some snow through Tuesday and into Wednesday. There is a ‘medium’ likelihood of surface water flooding which could cause localised flooding of land and roads, affect individual properties and disrupt travel and key sites in flood plans’.

As only a ‘yellow’ flood guidance statement was issued, this meant that LLR Prepared (the emergency response unit for the Council) were on standby but it was impossible to know where and at what time these flooding impacts would occur. There are no flood warden schemes in the area etc. and so no emergency action plans existed. Therefore no emergency actions/preparation such as checking the status of local watercourses, gullies, culverts etc. and warning the public was known to have been conducted.

3.2. DESCRIPTION OF THE EVENT - 27 DECEMBER 2017

The main impacts of the event took place on 27 December 2017 and only one residential property suffered internal flooding.

Resident accounts on the day of the incident indicate that surface water was flowing from fields located to the east of the property and then accumulating in a natural grassy hollow beside the garden of the property (photograph 1). Having reached the property, the water entered the ground floor. The water then spread throughout the ground floor.

Photograph 1: Water accumulated in the natural hollow

Residents reported that the water was dark brown and silty, which suggests that the source of water was surface run-off from neighbouring fields.

3.3. AFTER THE EVENT

Anecdotal evidence collected after the event suggests that excess water from the fields would be conveyed by a small concrete trench running alongside the property and into a private trench (figure 2) which is likely connected to the STW combined sewer located within the footway outside the property. It was also observed that the property was at a natural low point to the surrounding topography.

It was observed during the site visit held on 5 January 2018 that the connecting pipe at the end of the trench appeared to be blocked (photograph 2) and was therefore unable to convey water flow.

Photograph 2: Blocked connecting pipe at the end of the trench

It was also observed that there was narrow gap between the side of the property and the trench (photograph 3). This may have allowed the water to enter the property.

Photograph 3: Gap between the trench and the property

Following the flood event, the County Council analysed available flood mapping and other data to help understand the flooding event of 27 December 2017.

Figure 3 shows the flood risk from surface water flood map. This country wide Environment Agency generated mapping recreates where water would fall during certain rainfall events based on land height.

This flood mapping closely replicates the surface water flooding that was observed on 27 December 2017. Accumulations are shown to occur immediately to the front of, behind and to either side of the property affected by the flooding event. These accumulations would naturally flow from the higher land to the east and south of the property and towards the property itself, which is at a lower elevation. There is then potential for the water to enter the property through any openings in the property.

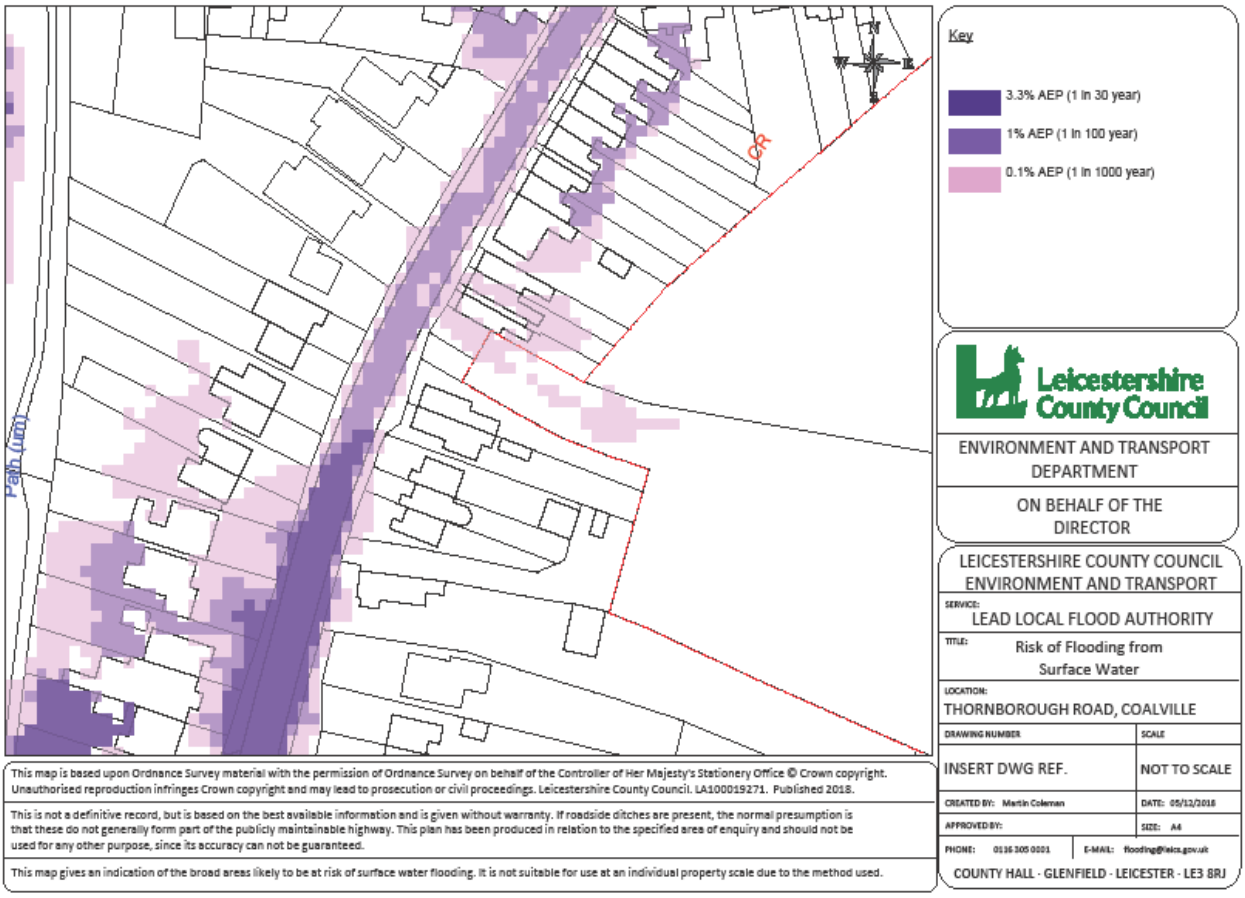
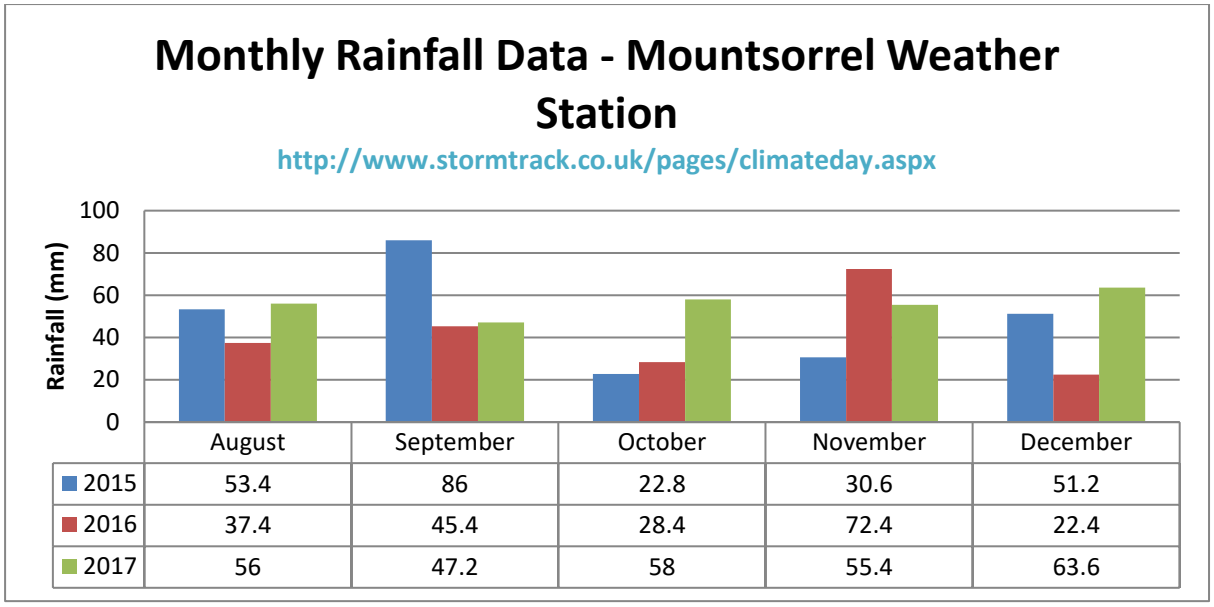


Figure 3: Surface water flood mapping for Thornborough Road, Coalville

Slightly above average rainfall was experienced in the East Midlands during Autumn/Winter 2017 with approx. 64 mm rainfall being recorded at a nearby weather station at Mountsorrel in December 2017. According to MET Office data, the average rainfall for December was recorded as being 40mm-60mm between 1981-2010.

Figure 4 below depicts the monthly rainfall recorded at the Mountsorrel weather station between August and December 2015-2017.



	August	September	October	November	December
2015	53.4	86	22.8	30.6	51.2
2016	37.4	45.4	28.4	72.4	22.4
2017	56	47.2	58	55.4	63.6

Figure 4: Annual rainfall data August-December 2015-2017

Figure 4 above shows that rainfall during December 2017 was higher than the rainfall recorded in the same month for the previous two years and significantly higher than 2016. This increase in rainfall throughout December could have contributed to the saturation of the ground, thus reducing the ground's ability to absorb water during the flood event of 27 December 2017.

4. SUMMARY OF IMPACTS AND FINDINGS

Ordinary Watercourse	Main River	Surface Water	Groundwater	Public Sewer	Canal	Land Drainage	Highway Drainage
☐	☐	☑	☐	☐	☐	☐	☐

Summary of flood sources

Residential	Business	Other Buildings	Roads	Critical Infrastructure
1	0	0	0	0

Receptors impacted (number)

According to the MET Office a 'yellow' severe weather warning had been issued. Apart from the flooding of the highway in June 2016, as mentioned above, the County Council holds no other records of historic internal flooding in this location.

The result of the combination of factors described below was the ingress of storm flood water to the property on Thornborough Road on 27 December 2017:

- The location of the affected property in a natural low point on Thornborough Road.
- The inability of the ground to absorb more water following previous rainfall and snowfall.
- A blocked outfall in a trench running alongside the property prevented surface water from entering a private drain.
- A narrow gap between the trench and the side of the property would likely allow the ingress of water.

5. RESPONSIBILITIES

5.1. RIPARIAN LANDOWNERS OF WATERCOURSES

As detailed within the Environment Agency document 'Living on the Edge', riparian landowners have certain rights and responsibilities including:

- They must maintain the bed and banks of their watercourse, and also the trees and shrubs growing on the banks;
- They must clear any debris, even if it did not originate from their land. This debris may be natural or man-made;
- They must keep any structures that they own clear of debris. These structures include (but are not limited to) culverts, trash screens, weirs and mill gates.

All riparian owners have the same rights and responsibilities. These responsibilities include the requirement to "keep any structures, such as culverts, trash screens, weirs and mill gates clear of debris". However, "a landowner has no duty in common law to improve the drainage capacity of watercourse he/she owns."

A full explanation of the rights and responsibilities of riparian ownership are given online at: https://www.gov.uk/guidance/owning-a-watercourse

5.2. INDIVIDUAL HOMEOWNERS

Local residents and tenants 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; signing up to Flood Warning Direct (if available), nominating a community flood warden, producing a community flood plan, implementing property level protection and moving valuable items to higher ground. More permanent measures are also possible such as; installing floodgates, raising electrical sockets, and fitting non-return valves on pipes.

5.3. LLFA (LEICESTERSHIRE COUNTY COUNCIL)

The Council has a range of statutory duties under the FWMA, 2010 as the LLFA and has the responsibility to coordinate the management of local flood risk across Leicestershire.

As stated previously, the Council as the LLFA has a duty to investigate flood incidents under Section 19 of the FWMA. Publication of this report is the conclusion of that process.

The LLFA also has a responsibility to maintain a register of drainage assets which are considered to provide a significant role in the mitigation of flood risk (as detailed within Section 21 of the FWMA). The register must contain a record detailing each structure or feature including ownership and state of repair. As the LLFA the Council look for

support and information from other agencies that are designated as RMAs to ensure any assets which could potentially have a significant effect on flood risk are recorded on the asset register.

As the LLFA, the Council has permissive enforcement powers related to ordinary watercourses within private ownership. The duty to maintain the ordinary watercourse on private land however rests with the relevant riparian landowner.

6. AGREED ACTIONS

THE PRIVATE RIPARIAN LANDOWNER

The owner of the property affected by the flooding incident was made aware of the points outlined in '5.1' and '5.2' in the 'Responsibilities' section of this report regarding the maintenance of the concrete trench and outfall alongside their property to ensure that the property at risk of flooding is protected.

LEAD LOCAL FLOOD AUTHORITY – LEICESTERSHIRE COUNTY COUNCIL

The Council has agreed the following action:

- To consider adding the asset to the Council's Flood Risk Asset Register if considered appropriate.

6. SOURCES OF INFORMATION

The following documents, reports, records or sources of information have contributed to this report and are available on request:

Examples below:

- Meeting with resident on 5 January 2018
- Met Office statements and warnings
- Flood Forecasting Centre warnings
- Mountsorrel weather station data
- Severn Trent Water sewer map

7. STATUS OF REPORT AND DISCLAIMER

This report has been prepared pursuant to the Council's statutory responsibility, under the FWMA, to investigate flood incidents in its area. The statutory duty to investigate is not absolute or exhaustive. Under Section 19 of FWMA, the Council's statutory responsibility is limited to conducting investigations only to the extent the Council deems it necessary.

Where the Council deems it necessary to conduct an investigation, it is required to address two questions under 19(1) of the FWMA. Firstly, the Council is required to identify relevant "Risk Management Authorities"[1]. Secondly the Council is required to investigate whether the Risk Management Authorities have exercised, or are proposing to exercise, flood risk management functions set out under Section 4 of FWMA.

The relevant flood risk management authorities identified by the Council are defined at Section 1.4 of the body of this report. The flood risk management functions which the Risk Management Authorities are proposing are described at Section 6 of the body of this report.

Beyond discharging the specific statutory responsibilities under Section 19(1) of FWMA, the intended purpose of this report is solely as a resource to assist Risk Management Authorities and stakeholders to better understand the relevant flooding incident and to mitigate risks going forward.

Although the Council has commented upon contextual issues related to the flood event, it is not the purpose of this report to determine any private rights arising from the flood event.

Nor is the purpose of this report to reach conclusions as to whether any Risk Management Authority or other stakeholder *(e.g. private land owners, public bodies or government agencies)* has breached any duty of care *(whether statutory or common law)* that they may have held.

The Council has, in good faith, sought to locate and collate relevant primary and secondary evidence to prepare this report. However, the Council accepts no responsibility for assumptions or statements made on the basis of evidence which incomplete, inaccurate or both. As such, this report should not be considered as a definitive assessment of all factors that may have triggered or contributed to the flood event.

The Council expressly disclaims responsibility for any error, omission or negligent misstatement in this report to the fullest extent permissible in law.

[1] *As defined by Section 6(13) of FWMA*

Further the Council does not accept any liability for the use of this report or its contents by any third party. Where any party wishes to assert any rights or cause of action related to the flooding event they are requested to rely on their own investigations.

Glossary

Acronyms / Term	Definition
AEP	Annual Exceedance Probability
AW	Anglian Water
EA	Environment Agency
FWMA	Flood and Water Management Act 2010
IDB	Internal Drainage Board
LCC	Leicestershire County Council
LDA	Land Drainage Act 1991
LiDAR	Light Detection and Ranging
LLFA	Lead Local Flood Authority
Main River	Those watercourses for which the Environment Agency is the relevant RMA
Ordinary watercourse	Any watercourse that is not a Main River, and the LLFA, District / Borough Council or IDB is not the relevant RMA
RMA's	Risk Management Authorities
STW	Severn Trent Water
The Council	Leicestershire County Council
uFMfSW	updated Flood Map for Surface water
WRA	Water Resources Act 1991