Section 19 Flood Investigation

Flooding 2020 Piccadilly Crescent, Kingsbury

Warwickshire County Council as Lead Local Flood Authority

Version	Date	Issued to
Version 1: Draft	27.10.21	Flood Risk Management Team
Version 2: Draft	09.11.21	Partners
Version 3 Draft	05.04.22	
Version 3.1 Final	28.11.22	

CONTENTS

1 EXECUTIVE SUMMARY

This report comprises of multiple flood events occurring within the Pit Hill area of Kingsbury during 2020, which have combined to have hit the threshold for formal investigation. Parts of Warwickshire experienced a period of heavy rainfall on the 18 February 2020 which fell onto ground already saturated from previous wet weather. The events of 14 17, and 18 June 2020 were characterised by isolated intense thunderstorms that brought significant accumulations of rainfall to pockets of the county. This resulted in internal property flooding to two residential bungalows in the Pit Hill area of Kingsbury. Internal property flooding was also experienced elsewhere in the county, but has not at this time met the threshold for formal investigation identified in Warwickshire County Councils (WCC) Local Flood Risk Management Strategy (LFRMS.

As required by Section 19 of the Flood & Water Management Act 2010, Warwickshire County Council as Lead Local Flood Authority (LLFA) has a duty to investigate flooding where the appropriate thresholds have been met. Our thresholds for investigation are outlined in our LFRMS and have triggered the requirement for this report at 1 location.

In the recovery phase that followed, WCC worked with the Borough Council and WCC Highways to identify affected residents, provide advice and guidance and undertake remedial works to the drainage infrastructure where required. Whilst considerable work has already taken place, some remedial works required are still ongoing.

2 INTRODUCTION

2.1 The requirement to undertake this report

Section 19 of the Flood & Water Management Act 2010 (FWMA) requires that the Lead Local Flood Authority (LLFA) undertake an investigation (to the extent that it considers it necessary or appropriate) upon becoming aware of flooding in its area.

The role of the LLFA in Warwickshire is carried out by the Flood Risk Management team at Warwickshire County Council (WCC).

The flood investigation must also determine the risk management authorities (RMAs) that have relevant flood risk management functions and whether each of those authorities have exercised or is proposing to exercise those functions in response to the flood. See Appendix I for the responsibilities of the various RMAs involved in this flood event.

Warwickshire County Council's Surface Water Management Plan (SWMP) identifies the thresholds that will apply when determining whether an investigation under Section 19 of the FWMA is required. These thresholds are as follows:

1. Flooding that poses a threat to the safety of the public or may directly result in serious injury or death
2. *Five or more residential properties internally flooded*
3. Two or more commercial properties internally flooded
4. One or more piece of critical infrastructure affected that impact on the wider area
5. Flooding that places vulnerable individuals or vulnerable communities at risk e.g. hospitals, care and nursing homes, schools, etc.
6. Where one or more residential properties have flooded internally from the same source on five or more occasions within the last five years

2.2 Scope of this report

This report summarises the completed and ongoing investigations carried out by risk management authorities into the flooding which occurred at Piccadilly Crescent, Kingsbury, during 2020.

This report does not obligate the LLFA or other risk management authorities into resolving the flooding issues investigated herein, nor is it possible for the LLFA to impose others to undertake any of the recommended actions.

2.3 Disclaimer

This report has been prepared as part of WCC's responsibilities under the FWMA. The findings of the report are based on a subjective assessment of the information available by those undertaking the investigation and therefore may not include all relevant information. As such it should not be considered as a definitive assessment of all factors that may have triggered or contributed to the flood event.

The opinions, conclusions and any recommendations in this report are based on assumptions made by WCC when preparing this report including reliance on information provided by others.

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3 WEATHER AND FLOOD INFORMATION

3.1 Weather and flood warnings

18 February 2020

Nationally an Amber warning for river flooding and Yellow warning for surface water were issued on the 18 February 2020, neither of which were in affect for Warwickshire but did encompass neighbouring authorities. The central region experienced 55mm of rainfall on average between the 12th to 18th February. This rainfall is above the long term average for the region and represent 182% of the long term average for the month of February up to the 18th February. The absence of a local gauge makes a definitive rainfall measurement for this area problematic.

14 June 2020

No flood warning was issued nationally for this event, with the surface water risk characterised as having the potential for minor impacts and a low likelihood. Weather conditions were characterised as heavy and thundery showers with the potential for risk to escalate at short notice. The central region experienced 30mm of rainfall on average between the 10th to 16th June. This rainfall is below the long term average for the region for the preceding 6 months[1]. The absence of a local gauge makes a definitive rainfall measurement for this area problematic.

16 to 17 June 2020

A Yellow warning for surface water was issued detailing a low likelihood of surface water flooding with the potential for significant impacts. Weather conditions being characterised for this period as being slow moving and heavy thunderstorms, presenting a risk of significant surface water impacts. The central region experienced 34mm of rainfall on average between the 17th to 23rd June[2]. This rainfall is below the long term average for the region for the preceding 6 months. The absence of a local gauge makes a definitive rainfall measurement for this area problematic.

1

[1] Environment Agency, 2020, Weekly rainfall and river flow bulletin, Wednesday 10 to Tuesday 16 June

[2] Environment Agency, 2020, Weekly rainfall and river flow bulletin, Wednesday 17 to Tuesday 23 June

4 INVESTIGATION SUMMARY

4.1 Locations included in the investigation

The details in this investigation relate only to flooding experienced at Piccadilly Crescent, Kingsbury. No other location is believed to have met the threshold for formal investigation during this period.

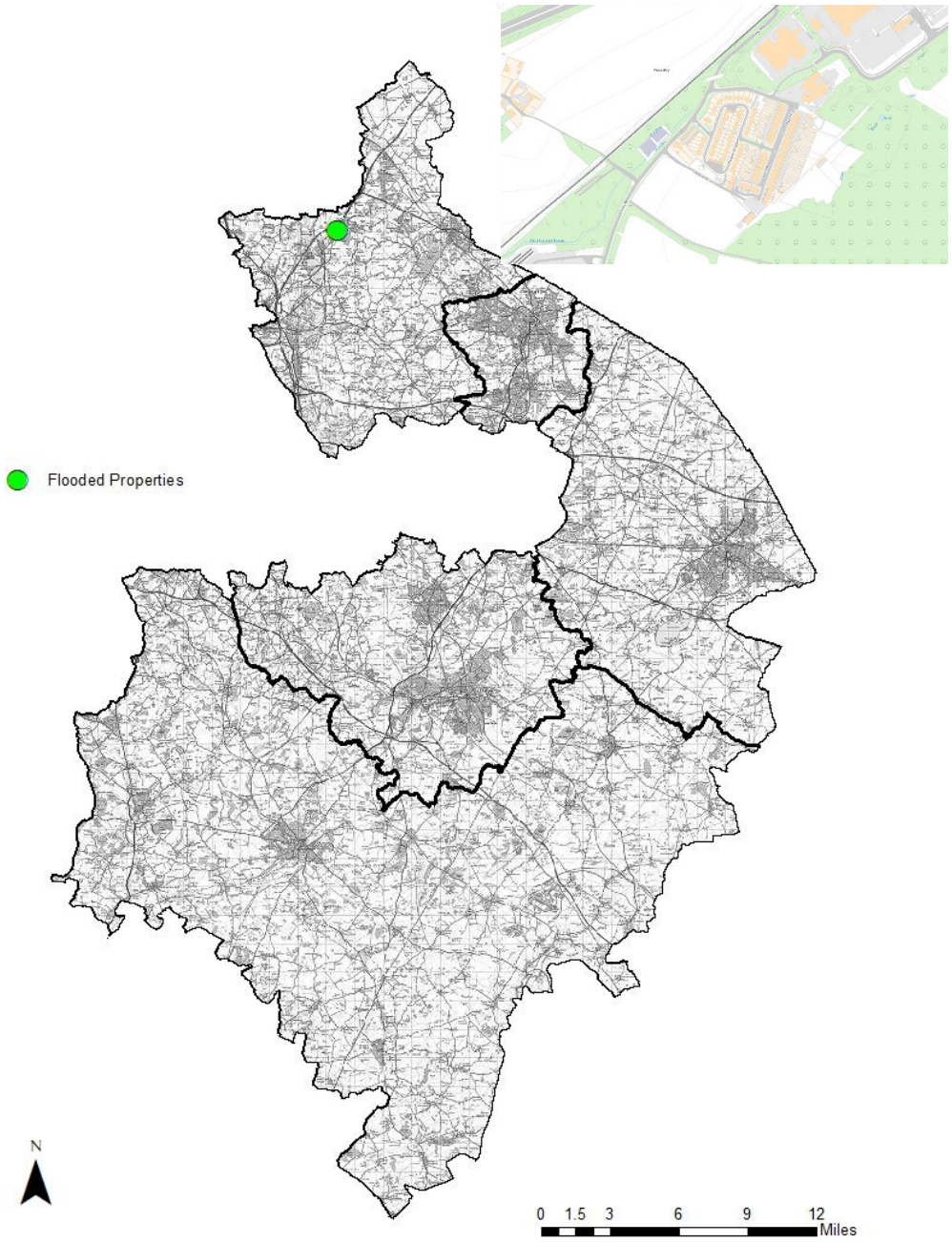


Figure 1: Map of Warwickshire and District/borough boundaries showing locations of investigation.

5 KEY CONCLUSIONS OF THE INVESTIGATION

5.1 Source of flooding

The flood impacts from the rain which fell in the Pit Hill area of Kingsbury across these events was characterised by short duration high intensity rainfall events. The events in June being driven thunderstorms. Given the isolated nature of these weather systems, widespread flooding was not experienced and no significant river response was observed.

Given the intensity of rainfall an amount of surface water flooding to gardens and low lying land would be expected. Internal flooding to residential dwellings has occurred due to restriction in the artificial drainage infrastructure (culverts/drains).

5.2 Gathering data for the investigation

In the immediate aftermath of the flood events, officers from WCC attended this location to provide advice and to better understand the flooding mechanisms. Additional specialist CCTV and jetting were procured through WCC's existing framework contracts, allowing for a more detailed interrogation of the subsurface drainage network.

5.3 Summary of investigations

The system at Piccadilly Crescent/Trinity Road has been surveyed jointly by Warwickshire County Council Highways and Flood Risk Management. Works have included jetting, undertaking a camera survey of the line and sonde surveys. A sonde is a self-contained transmitter, typically attached to a push rod or similar camera, which transmits a powerful radio signal. This allows the operator to establish the sonde's underground location using specialist detection equipment.

Warwickshire County Council Flood Risk Management are in communication with the riparian landowner of the watercourse and conversations are ongoing as to its maintenance. Presently no formal notice under the Act has been served on the landowner, as conveyance issues within this watercourse are not deemed to have been a factor in the flooding to which this report pertains.

6 APPENDIX A: LOCATION REPORT

Appendix A: Piccadilly Crescent, Pit Hill, Kingsbury

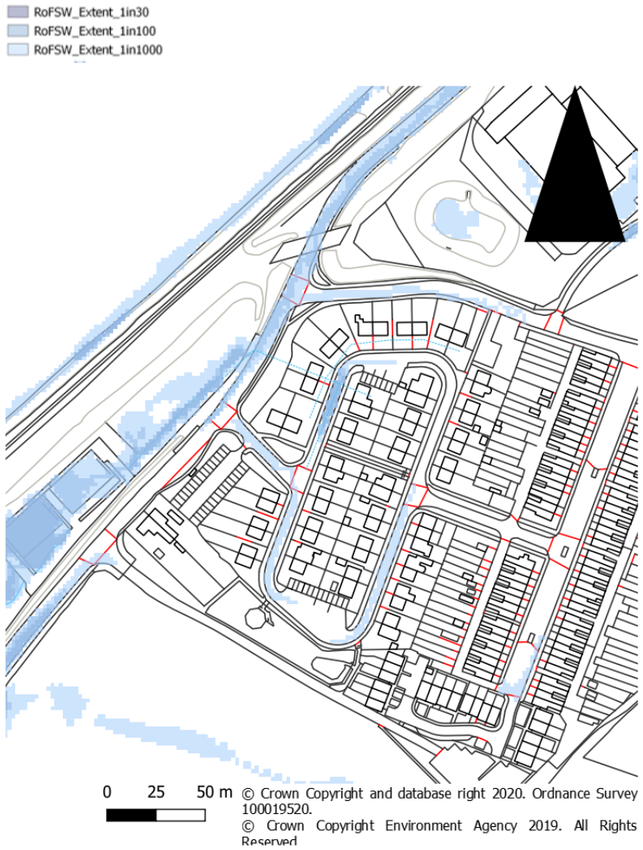
Piccadilly Crescent, Kingsbury

What was affected?

Residential properties internally flooded	2
Commercial properties internally flooded	0
Properties externally flooded	0

Source of flooding

Surface water	✓
Sewers	✗
Main river	✗
Ordinary watercourse	✗
Other	✓



Note that the Risk of Flooding from Surface Water (RoFSW) mapping shown above is a national-scale model indicating long-term risk. It does not include the effect of formal drainage systems nor does it identify the areas that flooded.

How does the existing system operate?

The settlement of Piccadilly is situated in North Warwickshire borough near to the county boundary with Staffordshire. Historically the area was settled to house miners from the nearby Kingsbury Colliery, with the houses on Piccadilly Crescent replacing previous prefabricated dwellings demolished in the early 1960's.

The land to the north, south and east sides of Piccadilly Crescent rises and drains towards the Thistlewood Brook. The properties are however elevated from the Trinity Road and sit at an elevation above the watercourse.

A formal piped drainage network drains both property and highway in Piccadilly crescent, the different branches of which converge in a chamber situated in the garden of number 35 before draining to the Thistlewood Brook located some 45 meters to the north west.

Surface water run-off from the surrounding land, highway and properties has entered the drainage network in Piccadilly Crescent which has become restricted and caused surcharge from the chamber located in one of the gardens. Given the landscaping of the front gardens and the fact they sit below the height of the highway, flows have then been funnelled towards the properties, finding entry though the front doors and open joints in the brickwork.

As the system has backed up, any additional flows unable to be captured by the highway gully network have built up on the highway and ultimately overtopped the curb towards the property.

Detailed CCTV investigations on the 150mm vitrified clay pipe draining Piccadilly Crescent to the Thistlewood Brook identified a significant hole in the pipework, as well as cracking and displaced joints. It is material from the hole/collapse in the pipework that is believed to be the primary source of blockage and resulted in the flooding of two properties. Although the SWS system collects surface water from more than one property, the system is not recognised as a STW sewer asset and therefore NWBC have paid for relining works to be carried out.

The Thistlewood Brook at this location is noted to have poor conveyance and is heavily silted. Given that the condition of this section of Ordinary Watercourse has been in poor condition for a considerable period, in which time the area has suffered from similar rainfall events, it is not felt that the watercourse condition has caused the property flooding. As the silt level in the channel restricts the outlet to the system from Piccadilly Crescent, there is the possibility that along with blockages in the pipework that this may have contributed to, or exacerbated the flooding, but is not the primary mechanism.

Is there a history of flooding in this location?

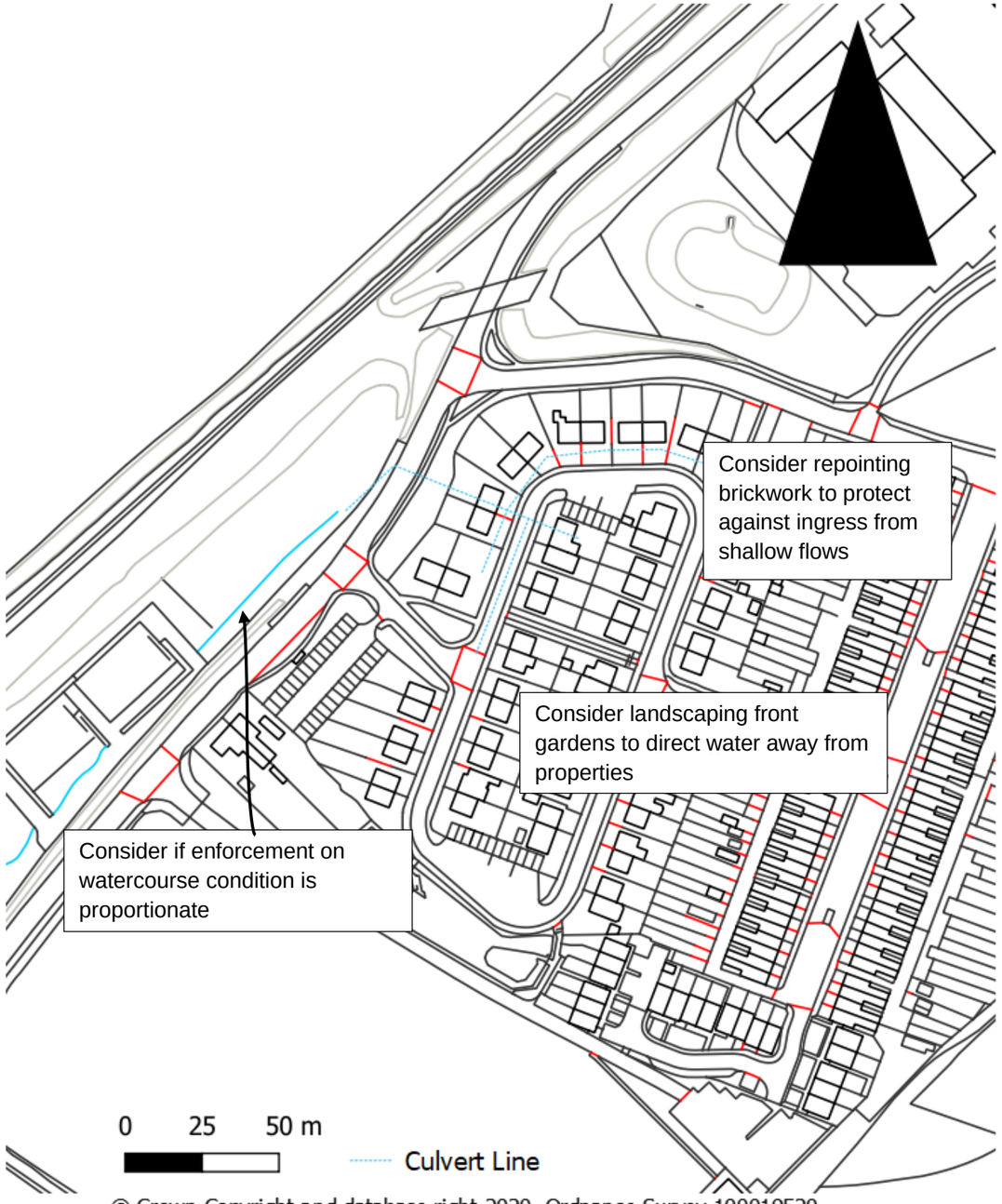
- There are no known reports of property flooding on Piccadilly Crescent prior to 2020.
- There have been historic issues of highway flooding and surcharge from gullies and manholes on Trinity Road at this location. Additional survey works were procured on the Trinity Road to investigate these issues as part of this investigation and are being continued by WCC Highways.

Piccadilly Crescent, Kingsbury

What actions are being taken?

No.	Action	Responsible authority	Progress
1	Establish ownership of the 150mm VC network draining Piccadilly Crescent.	WCC LLFA	Complete
2	Ensure that highway cyclic gully cleansing is scheduled at an appropriate interval on Piccadilly Crescent.	WCC Highways	Ongoing
3	Ensure that the 150mm VC system is maintained in a suitable state of repair. *Continuous liner installed between Piccadilly Crescent and Trinity Road, funded by NWBC.*	WCC LLFA NWBC WCC Highways	Complete
4	Cleanse watercourse to allow free flow of water in Thistlewood Brook	Landowner	Ongoing
5	Installation of new chamber with grated cover to mitigate against backup from ordinary watercourse	WCC Highways	Complete

What are the future opportunities that may reduce flood risk here?



7 APPENDIX B – GLOSSARY OF TERMS

Critical infrastructure	Infrastructure which is considered vital or indispensable to society, the economy, public health or the environment, and where the failure or destruction would have large impact. Examples include hospitals, communications, electricity sub-stations, water treatment works, transport infrastructure and reservoirs.
Department for Environment, Food and Rural Affairs (Defra)	The government department responsible for policy and regulations on environmental, food and rural issues. This includes all aspects of flood risk management.
Environment Agency (EA)	See Appendix C.
External flooding	Flooding of areas of property that are not under the definition of internal flooding. Examples include gardens, driveways, parking areas and outbuildings such as sheds and garages.
Flood Risk Management (FRM)	FRM aims to reduce the likelihood and/or the impact of floods. This typically includes the following elements: prevention, protection, preparedness, response and recovery. In the context of this report, FRM also refers to the team at WCC which undertakes the LLFA role.
Exceedance flows	Excess surface water flow that occurs when the capacity of the drainage system is exceeded.
Flood and Water Management Act 2010 (FWMA)	Legislation which came into effect in April 2010. The Act takes forward a number of recommendations from the Pitt Review into the 2007 floods and placed new responsibilities on the Environment Agency, local authorities and property developers (amongst others) to manage the risk of flooding.
Internal flooding	Flooding of habitable living or business areas of a property. This does not include gardens and outbuildings such as sheds, garages etc. and not normally basements and porches.
Lead Local Flood Authority (LLFA)	See Appendix C.
Main River	Watercourses designated as 'main' are generally the larger arterial watercourses, as shown on the Statutory Main Rivers Map. The Environment Agency has permissive powers, but not a duty, to carry out maintenance, improvement or construction work on designated main rivers.
Ministry of Housing, Communities and Local Government (MHCLG)	The government department which sets policy on local government, housing, urban regeneration, planning and fire and rescue. They provide funding to and agree expenditure plans for Local Authorities.
National Flood Forum (NFF)	A charity to help, support and represent people at risk of flooding.
Ordinary watercourse	A watercourse that is not a designated Main River. On ordinary watercourses the LLFA (or Internal Drainage Board if relevant) have permissive powers, but not a

	duty, to carry out maintenance, improvement or construction work.
Pluvial or surface water flooding	Caused by rainfall exceeding the capacity of the ground or drainage system and occurs due to water ponding on or flowing over the ground surface before it reaches a drain or watercourse.
Property Flood Resilience (PFR) measures	Measures that are designed to keep flood water out of properties and businesses, and could include flood barriers and doors, non-return valves and airbrick covers. Sometimes also known as Property Level Resilience (PLR).
Resilient network	Approximately 16% of the total WCC maintained highway network. The resilient network is given priority during severe weather to minimise any impact on economic activity and access to key services.
Riparian landowners	Someone who owns land or property adjacent to a watercourse. Under common law, a riparian owner has a duty to maintain the watercourse and allow flow to pass through freely.
Risk management authority (RMA)	An authority which is defined as such in the Flood & Water Management Act 2010. Such authorities have powers that they can use to carry out their flood and coastal erosion risk management responsibilities. See Appendix I for a summary of these responsibilities.
Risk of Flooding from Surface Water map (RoFSW)	National-scale long-term risk mapping on gov.uk website showing the areas of England at risk of flooding from surface water. Extent, velocity and depth information is available for a range of flood probabilities.
Section 19 Flood Investigation	An investigation of a flood event by the Lead Local Flood Authority under Section 19 of the Flood and Water Management Act 2010.
Severn Trent Water (ST)	See Appendix C.
Sonde	An instrument probe that automatically transmits information about its surroundings from an inaccessible location, such as underground or underwater.
Warwickshire County Council (WCC)	See Appendix C.

8 APPENDIX C – RISK MANAGEMENT AUTHORITIES

Risk Management Authorities (RMAs) have defined roles and responsibilities with regards to flood risk management, as defined within the Flood and Water Management Act 2010.

All RMAs under the Flood and Water Management Act (2010) have a responsibility to cooperate and coordinate with regards to their flood risk management functions, including raising awareness of flood risk and the sharing of information.

The section below outlines the key roles and responsibilities of the RMAs relevant to this Section 19 flood investigation.

8.1 Environment Agency

The Environment Agency (EA) is responsible for taking a strategic overview of the management of all sources of flooding and coastal erosion in England and Wales. They have prepared strategic plans which set out how to manage risk, provide evidence (for example, their online flood maps), and provide advice to the Government.

They provide support to the other RMAs through the development of risk management skills and provide a framework to support local delivery. The EA also has operational responsibility for managing the risk of coastal erosion and flooding from main rivers, reservoirs and the sea. Main Rivers are defined through an agreed map which is updated annually. These tend to be the larger rivers in the country.

The EA are category 1 responders regarding flood risk (Civil Contingencies Act 2004). They are required to warn and inform of flood risk.

8.2 Water and sewerage companies

Severn Trent Water (STW) holds responsibility for managing risks of flooding from water supply and sewerage within the majority of Warwickshire. Thames Water have a small area of responsibility in the south of the county.

Water and sewerage companies (WaSCs) as category 2 responders to national emergencies placing on them duties to share information with other responders in an appropriate manner. They are also responsible for managing risks associated with assets or processes that may cause or be affected by flooding.

Relevant actions include the inspection, maintenance, repair and any works to their water and sewerage assets which typically includes pipes, manholes, attenuation tanks or other infrastructure such as pumping stations.

8.3 Warwickshire County Council as Lead Local Flood Authority

Lead Local Flood Authorities (LLFA) have the lead operational role in managing the risk of flooding from surface water and groundwater.

Flood risk management functions include (but are not limited to); the provision of a Local Flood Risk Management Strategy (LFRMS) and Surface Water Management

Plan, designation and maintenance of a register of structures or features that have a significant effect on flood risk, consenting and enforcement works on Ordinary Watercourses, undertaking works to mitigate surface water and groundwater flooding and undertaking Section 19 investigations.

The LLFA are a statutory consultee on major planning applications for surface water drainage. By working with developers and local planning authorities, the LLFA role is to ensure that runoff arising from major development sites is appropriately managed to avoid increasing flood risk.

8.4 Warwickshire County Council as Highway Authority

WCC also has responsibilities as a Highways Authority which may relate to flooding. Highway authorities are responsible for providing and managing highway drainage which may include provision of roadside drains/ditches and must ensure that road projects do not increase flood risk.

The Highways Authority has a duty under the Highways Act 1980 to maintain existing highways drainage. They also have powers to improve drainage systems but no duty to do so.

Highway drainage systems are designed to take highway surface water. Highway drainage systems are not designed as “storm drains”, and do not have the capacity for the level of rainfall from an extreme flash flood.

8.5 District and Borough Councils

District and Borough Councils can carry out flood risk management works on ordinary watercourses. Through the planning processes, they control development in their area, ensuring that flood risks are effectively managed. This includes the development of plans and strategies to limit or mitigate development in flood risk areas.

Within Warwickshire there are 5 district/borough councils: Stratford-on-Avon District Council, Warwick District Council, Rugby Borough Council, Nuneaton and Bedworth Borough Council, North Warwickshire Borough Council.

8.6 Landowners

Landowners have riparian responsibilities under the Flood and Water Management Act (2010) to maintain and undertake any necessary works on assets on their land (with consent from the relevant RMA) which may have an effect on flood risk including watercourses and drainage assets.

Further information on riparian responsibilities is available on www.gov.uk/guidance/owningawatercourse