Cambridgeshire County Council

Flood Investigation Report

Location: Buckden

Flood Event: December 2020

Report Date: 25 April 2022

cambridgeshire.gov.uk

1 Introduction

1.1 Flood and Water Management Act 2010

Under Section 19 of the Flood and Water Management Act 2010 the County Council, as Lead Local Flood Authority (LLFA), investigates flood incidents that meet the threshold set out in the Cambridgeshire Flood Risk Management Strategy1. As part of this investigation:

The LLFA **will** identify and explain the likely cause(s) of flooding, identify which authorities have relevant flood risk management powers and responsibilities, and provide recommendations for each of those authorities.

The LLFA **cannot** resolve the flooding issues or provide designed solutions; or force authorities to undertake any of the recommended actions.

Flood and Water Management Act 2010: Section 19 – Local Authorities: Investigations

1. On becoming aware of a flood in its area, a lead local flood authority must, to the extent that it considers it necessary or appropriate, investigate –

   a) which risk management authorities have relevant flood risk management functions, and
   b) whether each of those risk management authorities has exercised, or is proposing to exercise, those functions in response to the flood.
2. Where an authority carries out an investigation under subsection (1) it must –

   a) publish the results of its investigation, and
   b) notify any relevant risk management authorities.

1.2 Flood Risk Management Authorities

The flood investigation reports have been produced in partnership with the relevant flood risk management authorities (RMA). RMAs are defined by the Flood and Water Management Act 2010. The RMAs have a duty to carry out flood risk management functions in a manner consistent with national and local strategies.

The RMAs and the sources of flooding for which they take the lead are listed in **Table 1**.

Table 1 Relevant Flood Risk Management Authorities that will take the lead in managing the risk from various sources of flooding.

Flood Sources	Environment Agency	Lead Local Flood Authority (LLFA)	City and District Council	Anglian Water	Highways Authority	Internal Drainage Boards
Watercourses						
Main River	✓					
Ordinary Watercourse		✓				✓
Awarded Watercourse			✓			
Surface Runoff						
Surface water		✓				
Surface water originating on the highway					✓	
Surface water sewer flooding from water company systems				✓		
Other						
Groundwater		✓				
Foul sewer flooding				✓		
Reservoirs	✓					
The sea	✓					

Riparian owners also have an important role to play. A riparian owner is a landowner with a watercourse running through or alongside their land. Riparian owners have responsibilities to maintain and allow the free flow of water through their land. Further information on riparian owner rights can be found on the Cambridgeshire County Council website.

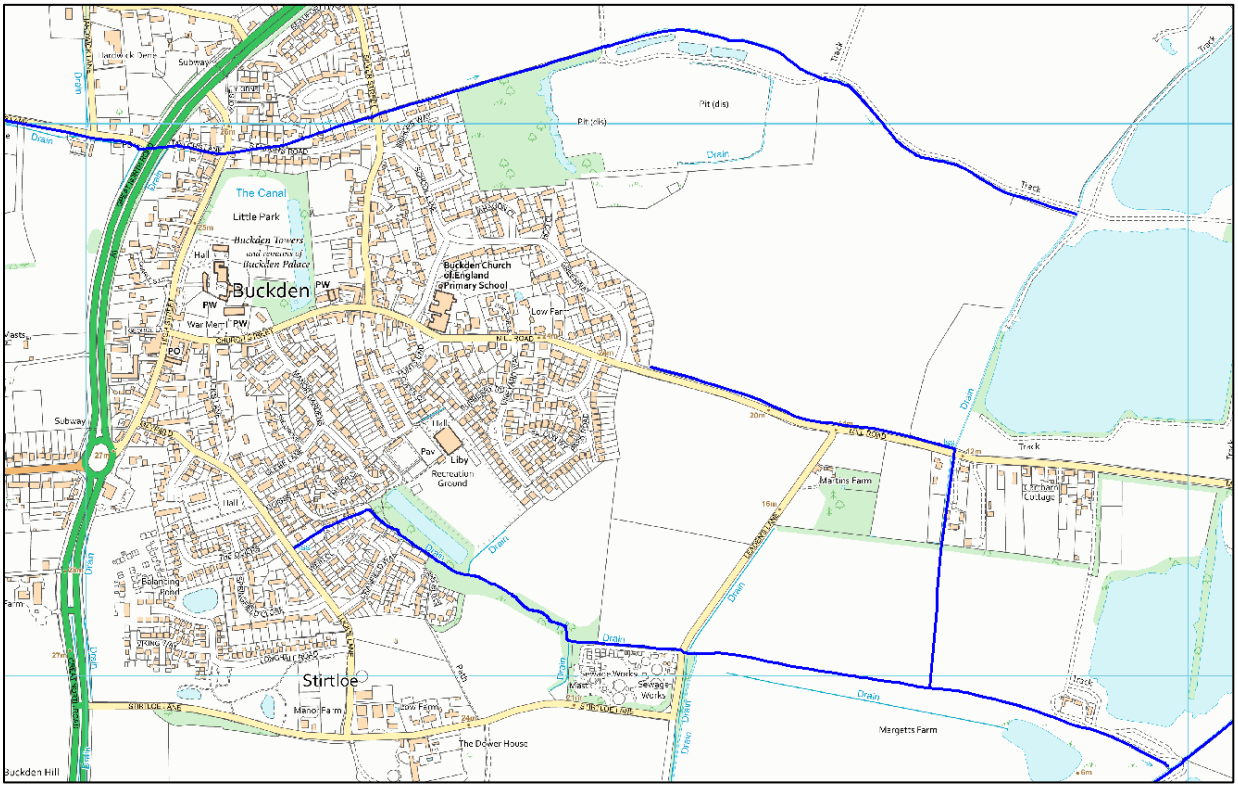
2 Flood Incident, Extent Impact

2.1 Introduction

Buckden is situated adjacent to the A1 between the junctions for Brampton to the north and St Neots to the south. The village lies between two significant bodies of water, Grafham Water reservoir approximately 2km to the west, and Buckden Marina approximately 1.5km to the east.

A series of ordinary watercourses pass through and nearby the town conveying water toward the Marina and the River Great Ouse approximately 2.5km east of Buckden. Those passing through the town do so via culverts located beneath the highway and through the curtilage of some properties. The most significant ordinary watercourses impacting on the flood risk to Buckden are shown in **Figure 1**. These main watercourses are classified as 'awarded watercourses' that we understand Huntingdonshire District Council has responsibility to maintain.

Figure 1 significant Ordinary Watercourses in Buckden



Significant areas of Buckden are at risk from surface water flooding (see **Figure 2**) and it is understood the village has previously experienced flooding in 1998 and August 2020.

Figure 2 Surface water flood risk map



2.2 December 2020 Flood Event

Flooding occurred on 23 December 2020 due to a significant rainfall event on to an already saturated catchment, in and upstream of Buckden which put great pressure on the drainage systems.

December was a very wet month with a total average rainfall of 108mm. This is 195% of the Long-Term Average across East Anglia as a whole, and 228% of the Long-Term Average for the rainfall catchment including Buckden[1] (see **Figure 3** below).

On 23/24 December 2020 a storm duration of 17 hours was recorded. Between 28.7mm and 53.2mm of rainfall was recorded for this storm, based on the available data[2]. Comparing this to the long-term average for the area for the month of December (55mm) it can be demonstrated that a significant amount of rain fell was seen in this location in less than 24 hours.

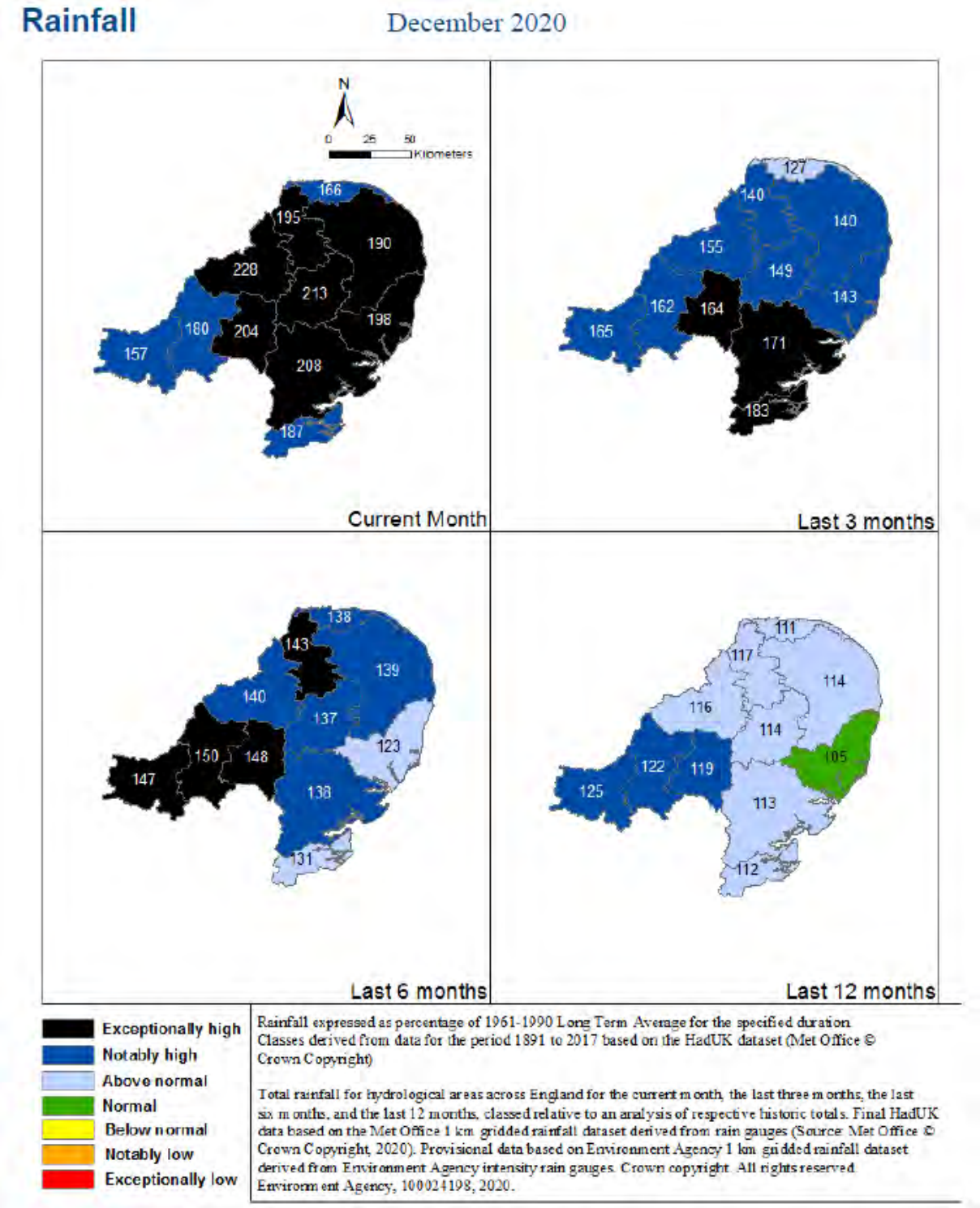
December followed a very wet autumn, with the rainfall between October and December 2020 being 154% of the long-term average for East Anglia as a whole, and 155% of the long-term average for the rainfall catchment including Buckden[3] (see **Figure 3** below).

The prolonged period of higher-than-average rainfall resulted in a high water-table and saturated ground conditions with a Soil Moisture Deficit of only 3mm (average) across East Anglia at the end of December[4] (By way of reference, the long-term average Soil Moisture Deficit for this location for December is c.22.2mm[5]).

Surface water drainage systems were unable to convey surface water effectively. This led to excess surface water flowing over ground, following local topography. The affected properties are in areas deemed to be at risk of surface water flooding due to the localised topography.

[1] East Anglia Water Situation Report (December 2020) Environment Agency
[2] Meniscus
[3] East Anglia Water Situation Report (December 2020) Environment Agency
[4] East Anglia Water Situation Report (December 2020) Environment Agency
[5] The LTA SMD is derived from MORECS data, owned by the Met Office

Figure 3 2020 Rainfall for East Anglia (as a percentage of Long Term Average)[6]



[6] East Anglia Water Situation Report (December 2020) Environment Agency

2.3 Area-wide Summary

15 flood reports were received by the LLFA for Buckden for 23 December 2020.

Eight properties were reported by the community as having flooded internally across the following locations:

- Taylors Lane
- High Street

Seven further reports were received from properties who experienced flooding to gardens, garages and outbuildings. In addition to the above locations, external flood reports were received for:

- Mill Road
- Mill Yard
- Manor Gardens
- Greenway

Street	Internal/External	Known number of properties with internal property flooding
Taylors Lane	Internal External - gardens	3
High Street	Internal External – gardens	5
Mill Road	External - gardens	0
Mill Yard	External - gardens	0
Manor Gardens	External - gardens	0
Greenway	External – gardens	0
	Total	8

Reported flood locations, as received by the LLFA directly from the community, were supported by communication with the Parish Council and District Council, who highlighted corresponding areas of flooding (see **Table 3**).

This communication suggests significantly more widespread flooding than was reported to the LLFA directly.

Table 3 Flooding Locations reported by Parish Council and District Council

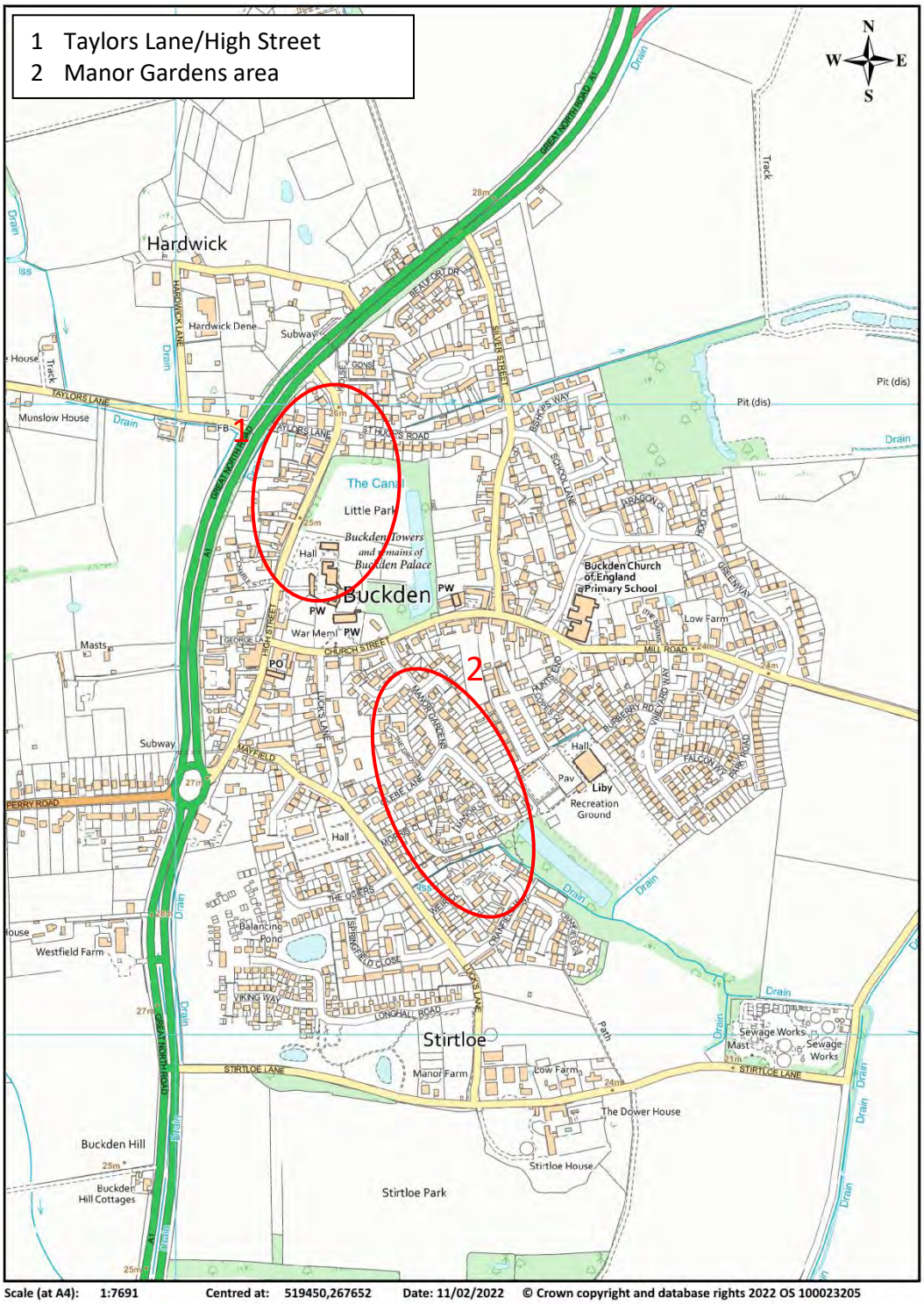
Street	Properties reported to have flooded by Parish Council
Taylors Lane	Internal - c.8 properties
High Street	Internal - c.11 properties
Church Street	Internal – drains surcharging
Perry Road	Gardens and outbuildings - c. 4 properties
Manor Gardens	Properties experienced external flooding
Hunts End	Properties experienced external flooding
Mill Road	Properties experienced external flooding
St Hughs Road	Properties experienced external flooding
Buckden Marina	Flood resilient properties lost access and egress
Recreation Ground	Flooding to amenity land
Lucks Lane Estate	Attenuation pond – high water level
	Total: c.23 properties

Two key risk areas were identified, where **internal** flooding occurred. These correspond with flood reports made directly to the LLFA and reports from Parish and District Councils (see **Figure 5**.)

In the following section these have been grouped by:

1. Taylors Lane/High Street
2. High Street South

Figure 5 Location of flood incidents



Note: The above map is indicative and does not represent the true extent of flooding.

3 Key Flooded Areas

3.1 Details

3.1.1 Taylors Lane/High Street

Surface water flooding occurred in this area when watercourses throughout Buckden exceeded channel capacity. Additionally Anglian Water assets were overwhelmed by flood water entering their sewers causing foul water systems to backup. The northern underpass, beneath the A1 was flooded and the road flooded between Buckden Marina and the level crossing, cutting off an exit from the village. The A1 also experienced flooding and was impassable for some hours. Surface water flooding occurred.

Location	What has been flooded	Did you have to leave your house/premises due to the flood/water?
Taylors Lane	Properties internally up to a depth of 60cm Gardens up to a depth of 91cm	6 residents reported having to leave their properties for longer than 1 month
High Street	Properties internally up to a depth of 60cm	1 resident reported having to leave their property for up to 1 year, 1 for 6-9 months and a further 3 residents reported having to leave their property for longer than 1 month

3.1.2 Manor Gardens Area

Surface water flooding occurred in this area with significant water flow to Manor Gardens and Glebe Road.

Location	What has been flooded	Did you have to leave your house/premises due to the flood/water?
Manor Gardens	Properties internally up to a depth of 15cm Gardens up to a depth of 30cm	No reports of residents needing to leave their properties
Church Street	Properties flooded internally due to drains surcharging	No reports of residents needing to leave their properties

3.1 Actions

RMA	Action	Status
LLFA	Met with some residents and relevant parties (where Covid-19 lockdown restrictions allowed) and undertook walkover of locations to inspect general topography and relevant features	Completed – January and February 2021
	Identify potential measures for consideration as part of a project for flood alleviation in collaboration with National Highways and Huntingdonshire District Council	Discussions have started towards identifying relevant locations and measures for consideration for flood alleviation initiatives
	Meet regularly with representatives of Buckden Parish Council and flooding sub-group	Continuing
National Highways	Work with the community and the LLFA towards further alleviating the risk of flooding at Buckden from the underpass and contributions from the A1	Discussions on this have started with a view to identifying suitable measures and locations.
Highway Authority	Arrange the cleansing of all accessible surface water drainage gullies at flooded locations	Planned – by end of 2023
	Installation of improvements to Highway surface water drainage at High Street, Buckden	Completed April 2022
District Council	Continue to work with the LLFA and the community towards riparian maintenance and awarded watercourse maintenance obligations	This will be an on-going initiative
Anglian Water	Surveying and maintaining their systems at Buckden and potentially contributing to an initiative that provides flood alleviation benefit at Buckden. It is anticipated that any such initiative would in turn reduce contributions to Anglian Water's systems and infrastructure at Buckden	The maintenance element of this will be an on-going initiative. The proposal to identify measures and locations that could provide flood alleviation benefits is at a very early stage of establishing feasibility in the first instance.
Property Owners or tenants living next to a watercourse	Work with the LLFA and Huntingdonshire District Council towards making residents aware of riparian maintenance obligations and flood preparedness.	This will be an on-going initiative according as occupation of relevant properties changes.

Please Note: The actions undertaken as part of this flood investigation do not preclude the risk of the area flooding in the future. If you live in an area that is at a risk of flooding, Cambridgeshire County Council would encourage you undertake the actions highlighted in the 'Further Actions' section below.

4 Further Actions

Recommendations are for each party to assess in terms of their statutory or legal obligation, resource implications, priority, and cost-benefit analysis of undertaking the recommended further action.

4.1 Environment Agency

The Environment Agency has a strategic overview of all sources of flooding and coastal erosion under the Flood & Water Management Act 2010. This means that they act in a strategic capacity and to provide strategic leadership for the management of flooding and coastal change from all sources, including development and application of the National Flood and Coastal Risk Management Strategy.

Other activities undertaken by the Environment Agency in relation to its strategic overview role include:

- providing an overview of the current and future risks from all sources of flooding and coastal erosion
- advising government on the management of risks from all sources of flooding and coastal change, including the impacts on people, businesses, infrastructure, and the environment, as well as the future investment needs
- providing data and evidence – through risk mapping, modelling and assessment – to help inform the decisions made by risk management authorities at a range of spatial scales
- providing advice and guidance on improving information sharing and collaboration between risk management authorities and between the owners of flood and coastal defences
- facilitating effective partnerships in local places where there is local support that partnership working will help to reduce risk from flooding and coastal change
- providing evidence and advice to inform risk management authorities, planning authorities and national infrastructure providers on how they can plan and adapt to all sources of flooding and coastal change in the face of a changing climate
- providing advice to risk management authorities on how investments to manage flooding and coastal change projects can deliver integrated nature-based solutions that protect and enhance the environment
- providing advice on the skills risk management authorities need to effectively address flooding and coastal change
- coordinating risk management authority investments in managing all sources of flooding and coastal change through regional programmes, which are approved by regional flood and coastal committees
- administering national grants and local levies to support the delivery of regional programmes, with the consent of regional flood and coastal committees.

As a statutory consultee to the planning process consider relevant flood risk assessments submitted with planning applications.

4.2 Lead Local Flood Authority

The LLFA will work with riparian owners, district council, town council and local groups, reminding them of their legal responsibilities for drainage and watercourse maintenance, and the benefits of maintaining ordinary watercourses.

The LLFA will consider objectively any flood risk assessments submitted as part of any future large-scale development at these locations.

4.3 Highways Authorities

The routine cleansing of highways gullies across Cambridgeshire should be prioritised as part of a risk-based approach to highway drainage maintenance.

4.4 Anglian Water

Anglian Water will investigate the resilience of existing Anglian Water structures in this area, with consideration to the impact of surface and groundwater ingress to the sewerage system.

Anglian Water is developing a long-term strategic plan for the region. The Drainage and Wastewater Management Plan (DWMP), which intends to extend and maintain a robust and resilient drainage and wastewater system, is due to be published in June 2022. Anglian Water will continue to collaborate with stakeholders on the development of the DWMP.

4.5 Local Planning Authorities

Local planning authorities should ensure development does not increase flood risk, from any source.

4.6 Huntingdonshire District Council

The District Council and emergency planners will work with residents to implement a Local Flood Plan.

4.7 Developers

Developers should work with local planning authorities to ensure development does not increase flood risk, from any source.

4.8 Town and Parish Councils / Flood Groups

Emergency planners recommend that all town and parish councils prepare and regularly update a response plan to enact in times of emergency (including flooding). The plans should aim to

make use of local knowledge, skills and resources that can provide localised assistance in an emergency to compliment what organisations like the police and fire services can provide. This can help to address issues such as where the best location is for a local rest centre.

The Parish Council will set up a programme of annual maintenance to the watercourse, where they are the riparian owner and assist other residents with riparian responsibilities where necessary.

4.9 Property Owners and Tenants Living Next to a Watercourse

Residents (owners and tenants) who have drainage ditches running through or along their property boundaries should make themselves familiar with the responsibilities they have as riparian owners to ensure they are not increasing flood risk to their communities. Please see the riparian owner factsheet on Cambridgeshire County Council's website.

4.10 Residents

A great many areas of Cambridgeshire are at risk of flooding from heavy rainfall and other sources. Please check your risk of flooding from surface water, rivers and other sources using these maps https://flood-warning-information.service.gov.uk/long-term-flood-risk

Residents at risk of flooding should take the time to prepare a personal flood plan, an Environment Agency template can be found on the following website: https://www.gov.uk/government/publications/personal-flood-plan

It is the responsibility of the homeowner to protect their property from flooding. Residents can get advice on protecting their property from flooding from the following organisations:

- National Flood Forum**:** http://www.nationalfloodforum.org.uk/ 01299 403055
- Know your flood risk: http://www.knowyourfloodrisk.co.uk/flood-advice-guidance 0844 844 9966

More than half of sewer blockages that cause flooding and pollution incidents, are caused by fat, oil, grease (FOG) and unflushable items being placed down sinks and toilets. Anglian Water have a campaign known as Keep it Clear, which promotes good use of the public sewerage system. By working together with communities in high risk areas, residents have been able to reduce blockages by an average of more than 50%. More information on Keep it Clear can be found at http://keep-it-clear.co.uk

4.10.1 Reporting

Future flood incidents from all sources should be reported via the County Council's Flood Reporting portal to better inform future investigations under Section 19 of the Flood and Water Management Act 2010.

Cambridgeshire highways issues should be reported via the County Council's Highways Flooding portal. Or telephone 0345 045 5212. Customers will receive a reference number, which they can then quote in any future correspondence.
Flooding from Main Rivers should be reported to the Environment Agency incident hotline 0800 807060.

Flooding from Anglian Water surface water drains or foul sewers, or where flooding is preventing the proper function of toilets, showers etc. should be reported to the Anglian Water 24-hour helpline - 03457 145 145. Customers will receive a reference number, which they can then quote in any future correspondence.

5 Conclusion

Flooding occurred in Buckden on the 23rd December 2020 as a result of a prolonged period of higher-than-average rainfall across the Autumn of 2020 followed by intense rainfall. Rapid runoff caused significant overland surface water flooding and flooding from drainage systems which exceeded capacity, as described in the above sections.

Several actions have been taken and are still to be taken in Buckden, to help with the maintenance of drainage systems, in particular highway drainage improvements, and upholding of riparian maintenance responsibilities for ordinary watercourses, both open and piped. The installation of highway surface water drainage improvements commenced in February 2022 for a period of 11 weeks. Further improvements and flood alleviation potential is being considered and assessed, as to its feasibility, further upstream of Taylor's Lane, Buckden in consultation and collaboration with National Highways, Anglian Water and Huntingdonshire District Council.

The Risk Management Authorities will continue to work together on any appropriate projects to reduce the causes of flooding in Buckden

The LLFA will offer its support and guidance on any Land Drainage Consent applications as is their statutory duty.

The LLFA are aware that some actions are ongoing and will continue to liaise with the relevant landowners.

6 Glossary

Please see standard flood risk glossary on the **Flooding and Flood Investigation** webpage where this report is available.