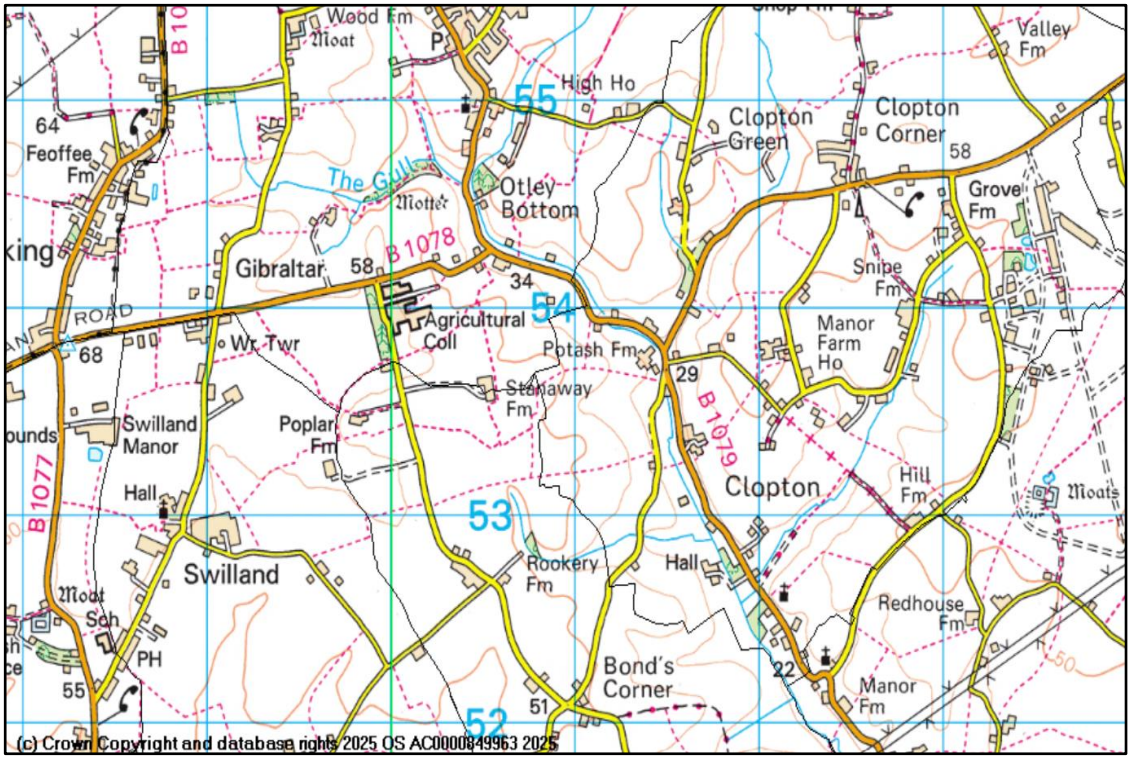
Section 19 Flood and Water Management Act 2010

Clopton Flood Investigation –

Storm Babet 2023



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RMA Review:		07/08/2025
Approved by:	Matt Hullis	18/08/2025
Date Published		18/08/2025
Date Report Closed		

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Executive Summary

Storm Babet caused significant disruption to communities across Suffolk between 18th - 21st October 2023. Clopton was a community that was impacted, with approximately seven properties suffering internal flooding as well as disruption to infrastructure and services. Suffolk County Council, as Lead Local Flood Authority, have therefore undertaken a Section 19 Flood Investigation. The resulting report will:

- highlight the probable causes of flooding
- identify options to reduce future flood risk and increase property resilience
- make recommendations for actions by relevant responsible organisations, landowners or homeowners.

Clopton is located in an area at risk of both fluvial and pluvial flooding and the nature of the surrounding topography and geology contributes to the susceptibility of the community to flooding. The low-lying nature of Clopton means that during high rainfall events, considerable overland flowpaths converge upstream and flow into the main river bringing floodwater in close proximity to properties in the village. The local geology and soils are susceptible to high run off, making a number of properties in the village vulnerable to flooding due to intense rainfall events.

Storm Babet delivered significant rainfall to the catchment, following a period of above average rainfall. The description of the flood events detailed in the report have been compiled using data submitted to Suffolk County Council, as well as information from Risk Management Authorities (e.g. Suffolk County Council Highways and Anglian Water) and the community.

A comprehensive summary is provided within the report, outlining the context of the event and the impact. A key finding is that Clopton was impacted by flooding due to the intensity of rainfall, which caused multiple surface water flow paths to overwhelm the capacity of watercourses, drainage infrastructure and inundate low lying areas of the village.

Short, medium and longer term recommendations have been published, and each have a potential role to improve resilience and reduce the risk of flooding to the village. For short term measures, key highlights include the implementation of community flood plans, utilising Property Flood Resilience (PFR) and continued maintenance of watercourses and drainage assets. For medium to longer term recommendations, there is emphasis on management of water from rural land and the creation of new natural flood management features, to help reduce flood risk within the catchment.

Justification for Investigation

Suffolk County Council, Lead Local Flood Authority (LLFA) has determined that in accordance with our criteria, it is considered necessary and appropriate to carry out an investigation into this flood event.

This is in accordance with Section 19 (1) of the Flood and Water Management Act 2010, and in accordance with Section 19 (2) of the Flood and Water Management Act 2010, to publish the results and notify the relevant risk management authorities (RMAs).

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*

Criteria for an investigation (as per Appendix D of the Suffolk Flood Risk Management Strategy):	
There was a risk to life because of flooding?	
Internal flooding of one property (domestic or business) has been experienced on more than one occasion?	
Internal flooding of five properties has been experienced during one single flood incident	✓
Where a major transport route was closed for more than 10 hours because of flooding	
Critical infrastructure was affected by flooding	
There is ambiguity surrounding the source or responsibility of a flood incident	

Understanding the flood context

1. What happened during Storm Babet

A succession of weather fronts between the 11th and 13th of October 2023 brought significant rainfall to the region. Readings indicate that between 30mm and 50mm of rain fell across Suffolk compared with an average of just less than 65mm across the whole month of October according to Met Office weather data (Met Office, 1991-2020). This significant rainfall occurred in a short space of time and resulted in saturated land and rivers reaching their capacity. Shortly after this, Storm Babet followed on the 18th to 21st of October 2023. The storm brought between 50 mm and 80 mm of rain to much of central and northern East Anglia, with some Suffolk weather stations recording the wettest October day on record.

The Environment Agency river level measuring stations indicated many flows close to or exceeding their highest on record, and the weather remained wetter than average for the rest of the month. October 2023 was the joint wettest on record in the east of England since 1871. During Storm Babet, Suffolk saw the heaviest rainfall across East Anglia causing significant flooding of roads and properties. The river systems rose rapidly across whole catchments due to the existing conditions, which was unusual as storms will often impact a small area and result in a steady progression of flood water downstream. A major incident was declared by the Suffolk Resilience Forum (SRF) in the afternoon of the 20th of October due to significant impacts on communities and disruption to the road and rail networks.

The following maps illustrate the extent to which the rainfall in the months preceding Storm Babet exceeded the average monthly rainfall for July to October in recent years in Suffolk.

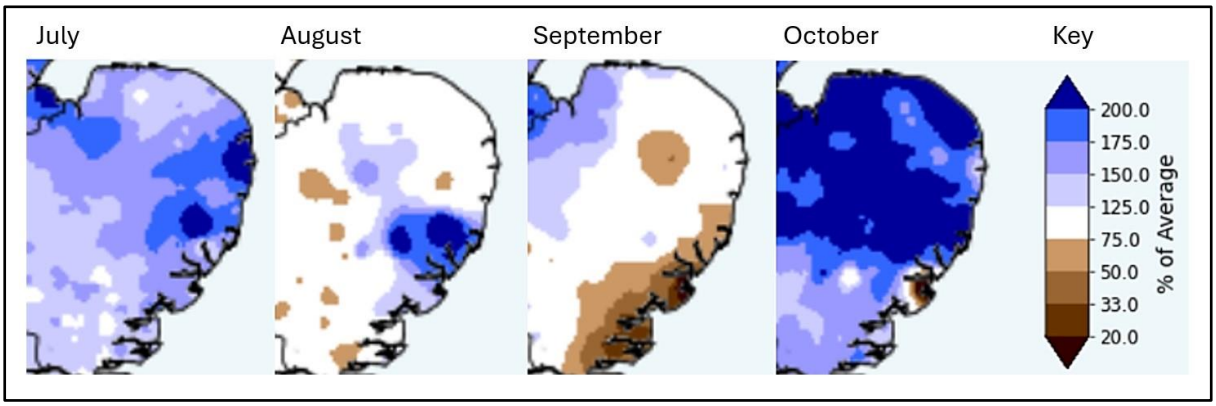

Figure 1. Average rainfall in East Anglia between July and October 2023 as a percentage of the historical average monthly rainfall

The following report acknowledges that October 2023, and in particular Storm Babet, was an extreme event and will assess the likely causes and impacts. The report will recommend measures to reduce the risk of flooding within the location, in line with best practice, ranging from large to small scale interventions and be targeted at a range of stakeholders. It should be noted that Storm Babet was a significant event, with a low probability of recurrence. The recommendations will provide advice about reducing flood risk; however, they should not be relied upon as a guaranteed failsafe to mitigate against all future flooding.

2. Location of flooding

Clopton is a small village, located south of Debenham and Framlingham and two kilometres north of Grundisburgh on the River Lark. The village itself is fairly dispersed and is surrounded by farmland. Clopton is in the local authority district of East Suffolk.

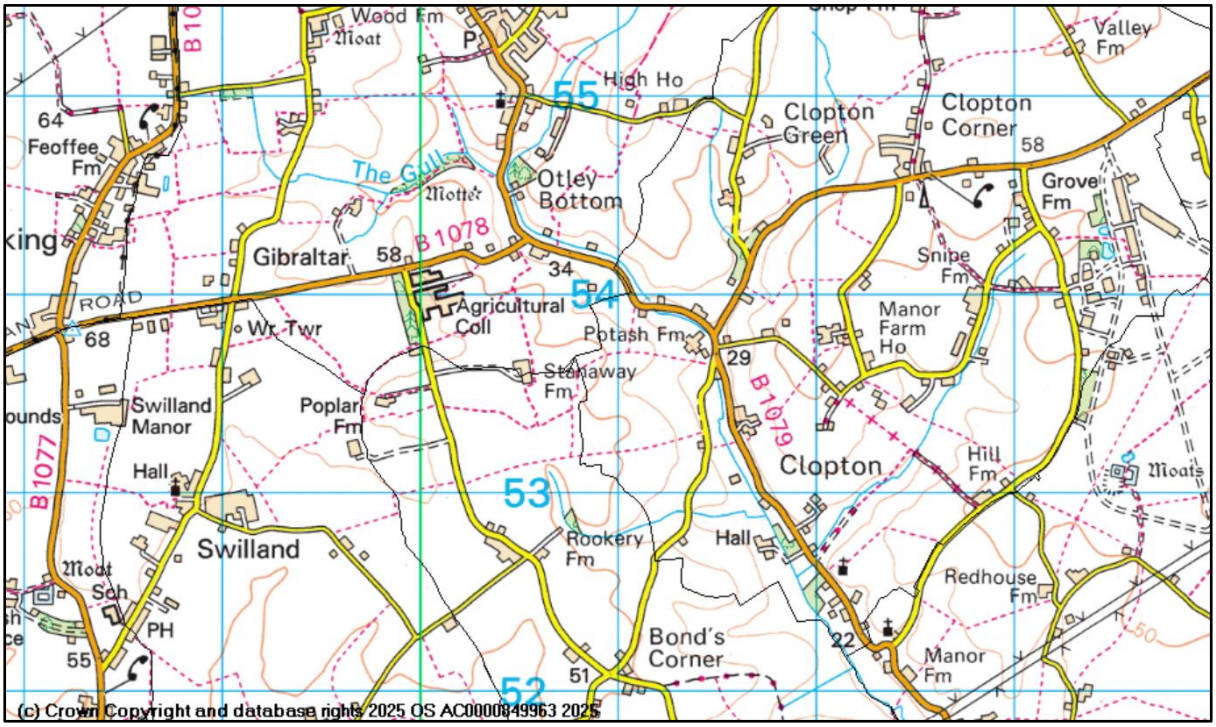

Figure 2. Investigation area map

The Environment Agency has permissive powers to carry out maintenance, improvement or construction work on main rivers to manage flood risk. The Internal Drainage Boards (IDBs) have similar permissive powers but instead relate to ordinary watercourses within their board area.

Lead Local Flood Authorities (LLFAs) and Internal Drainage Boards (IDBs) manage the flood risk from ordinary watercourses but responsibility for maintaining watercourses rests with the Riparian landowner, defined as those who have a river, stream or ditch which runs next to or through their land or property.

Figure. 3 below, shows the most significant watercourses in and around Clopton.

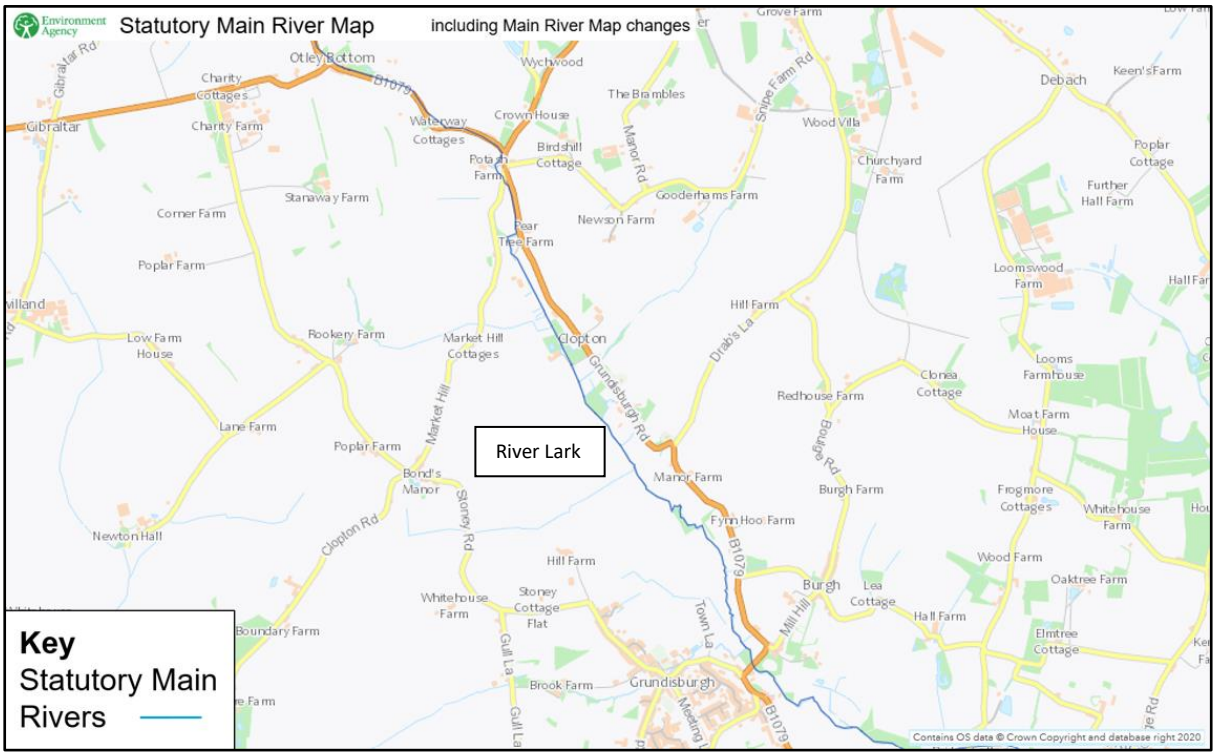

Figure 3. Location of statutory main river and ordinary watercourses

The East Suffolk Water Management Board (ESWMB) manages flood risk for the ordinary watercourses flowing into the River Lark in the area shown in Fig.4.

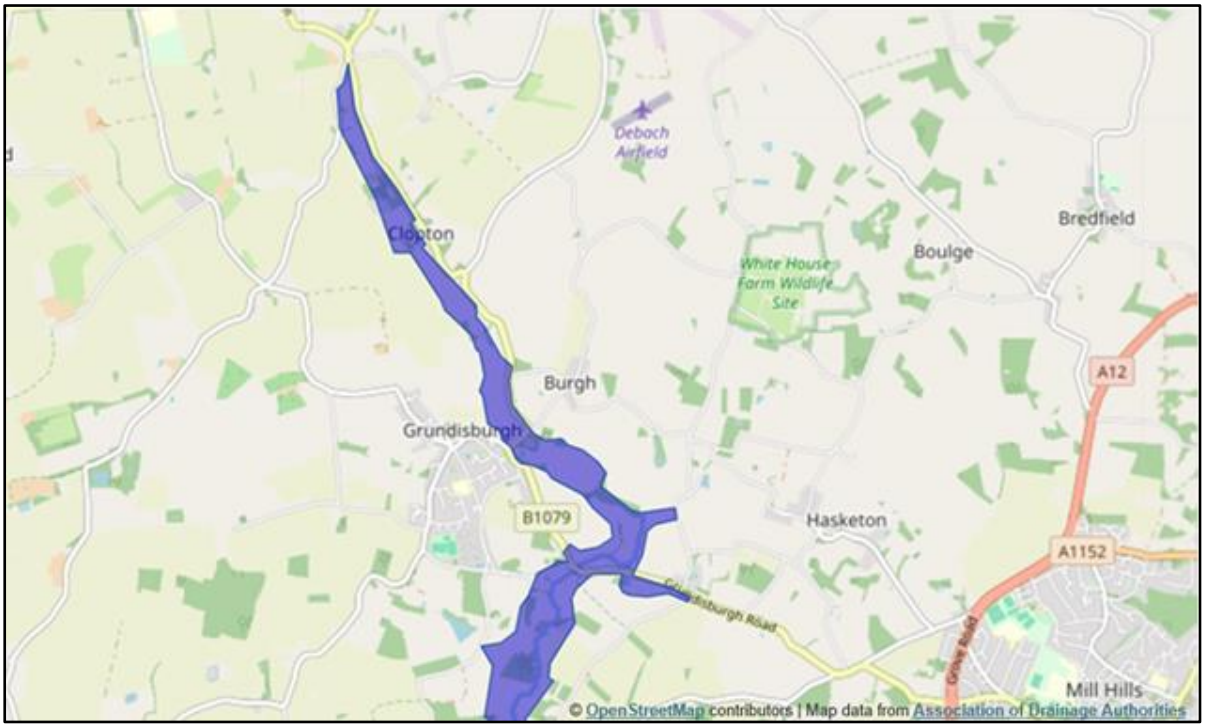

Figure 4. Area of East Suffolk Water Management Board responsibility for flood risk in ordinary watercourses

On the 20th of October 2023, Storm Babet resulted in significant rainfall in Suffolk on top of an already wetter than average October. This caused internal flooding to properties, residential and commercial, across the county from various sources. Clopton was impacted, with approximately 7 properties reporting internal flooding. Flood water was described as coming from multiple sources including surface water runoff from surrounding fields and highways (pluvial) and the overtopping of local watercourses (fluvial).

For the purposes of this investigation the areas affected by flooding have been separated into two distinct locations (see Figure 4). The locations are as follows:

1. Otley Road and Grundisburgh Road
2. Clopton Commercial Park

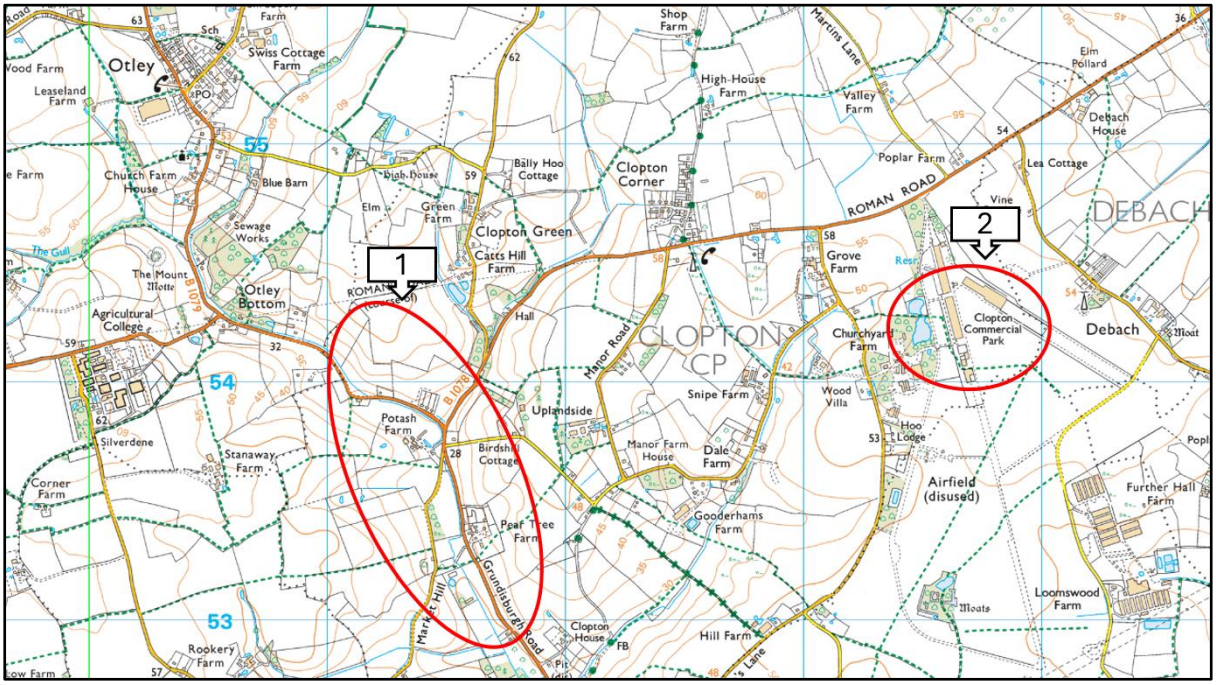

Figure 5. Clopton investigation area map with locations

3. Records of any historical flooding

A review of Suffolk County Council's highway reporting tool, Environment Agency and Anglian Water records, indicate that parts of Clopton have been impacted by flooding in the past. There are no historical records of flooding in this location.

4. Predicted Flood Risk

Several areas of Clopton are at risk of flooding from pluvial and fluvial sources.

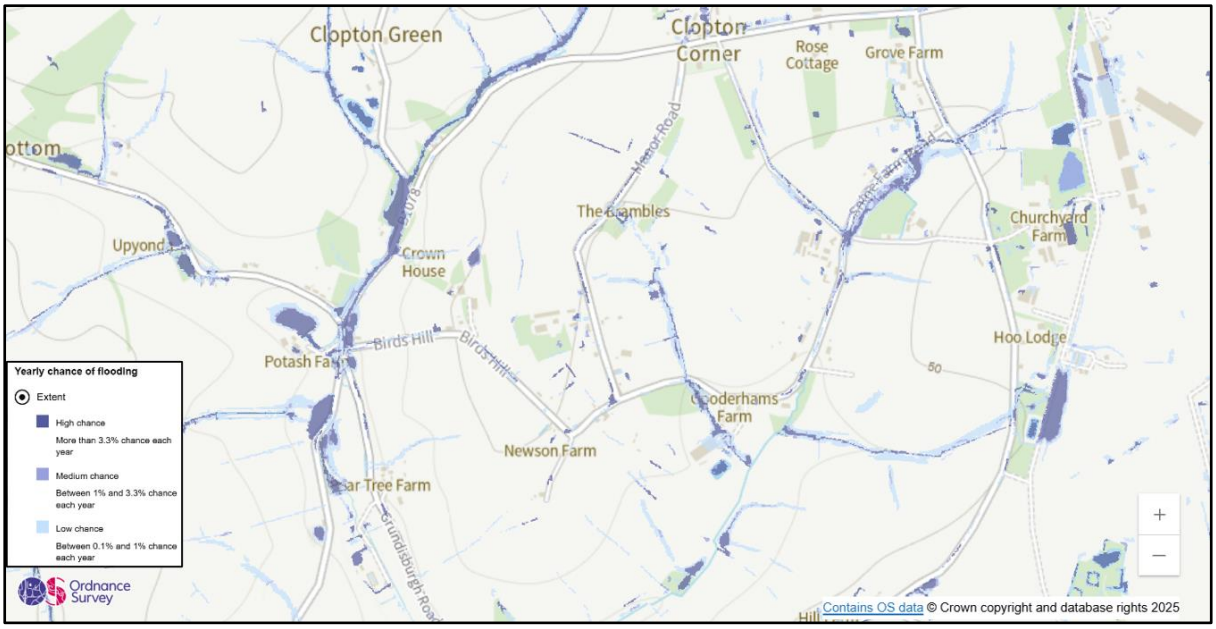

Figure 6. Predicted flood risk from surface water

Figure 5 highlights the predicted pluvial (surface water run-off from surrounding land and highways) flood risk in Clopton and the surrounding area, with multiple flow paths from the north travelling south into the river Lark. Several surface water flow paths also come from the fields to the west into the Lark.

There is a high chance of surface water flooding on sections of Otley Road and Grundisburgh Road. Properties at these locations are shown to be at a low to medium yearly chance of surface water flooding. Both of these areas were affected by flooding during Storm Babet.

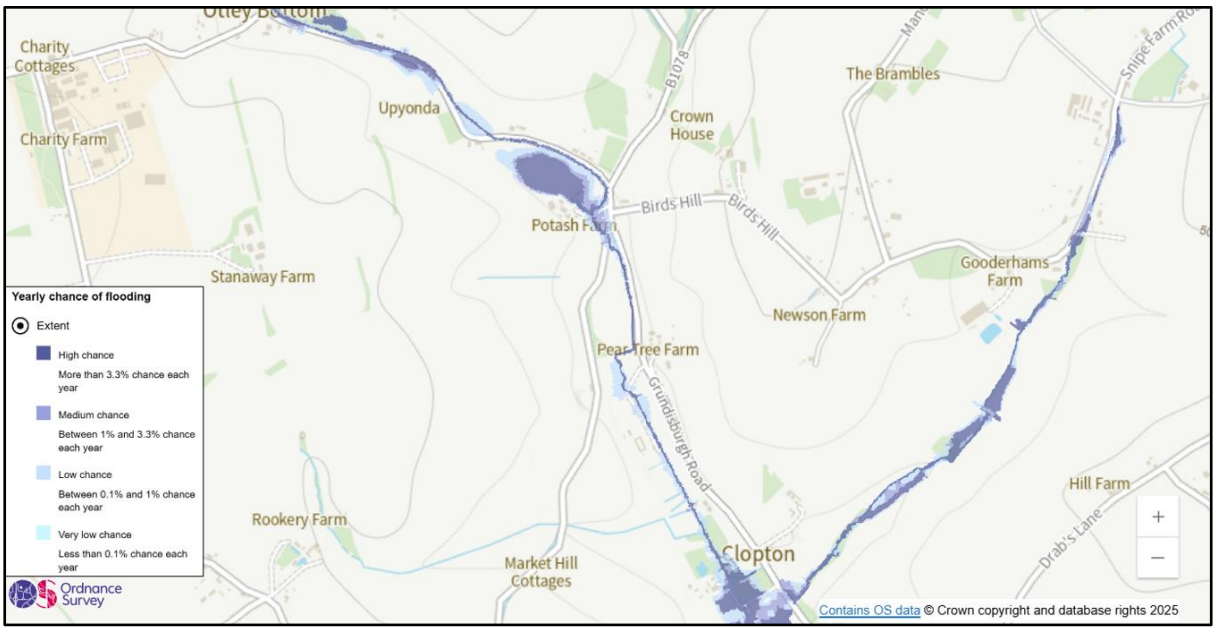

Figure 7. Predicted flood risk from rivers and sea

Figure 6 shows the predicted fluvial (from designated main river and ordinary watercourses) flood risk in Clopton. The fluvial flood risk in Clopton is predominantly associated with the river Lark flowing through the village and an ordinary watercourse feeding into the Lark from the northeast.

There is a high chance of fluvial flooding on sections of Otley Road and a low to medium chance on parts of Grundisburgh Road and Market Hill. These areas were all affected by flooding during Storm Babet.

5. Catchment characteristics

The village of Clopton is situated in the valley of the river Lark. The village is surrounded by higher ground to the north, east and west. A number of ordinary watercourses flow from the surrounding higher ground, through the village and into the Lark, travelling south.

The low-lying nature of Clopton means that during high rainfall events, considerable overland flow paths converge and travel through Clopton, ultimately causing floodwater in be in close proximity to many properties in the village. Overwhelmed drainage infrastructure may also frequently be observed during these intense rainfall events.

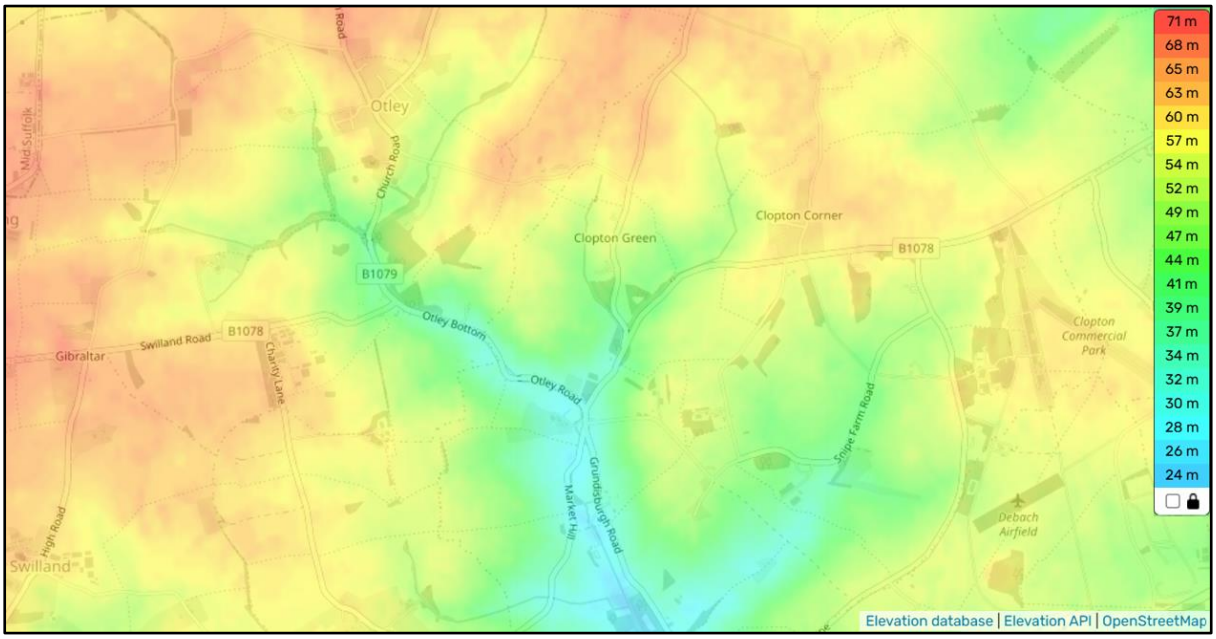

Figure 8. Clopton and surrounding topography (TessaDEM as cited in topographic-map.com)

Figure 7 shows the topography surrounding Clopton with gradient changes across the wider area. Clopton village is situated a low lying part of the catchment, with some of the lowest points in Clopton being along Otley Road, Grundisburgh Road and Market Hill. These locations were identified as being some of the worst affected areas during Storm Babet.

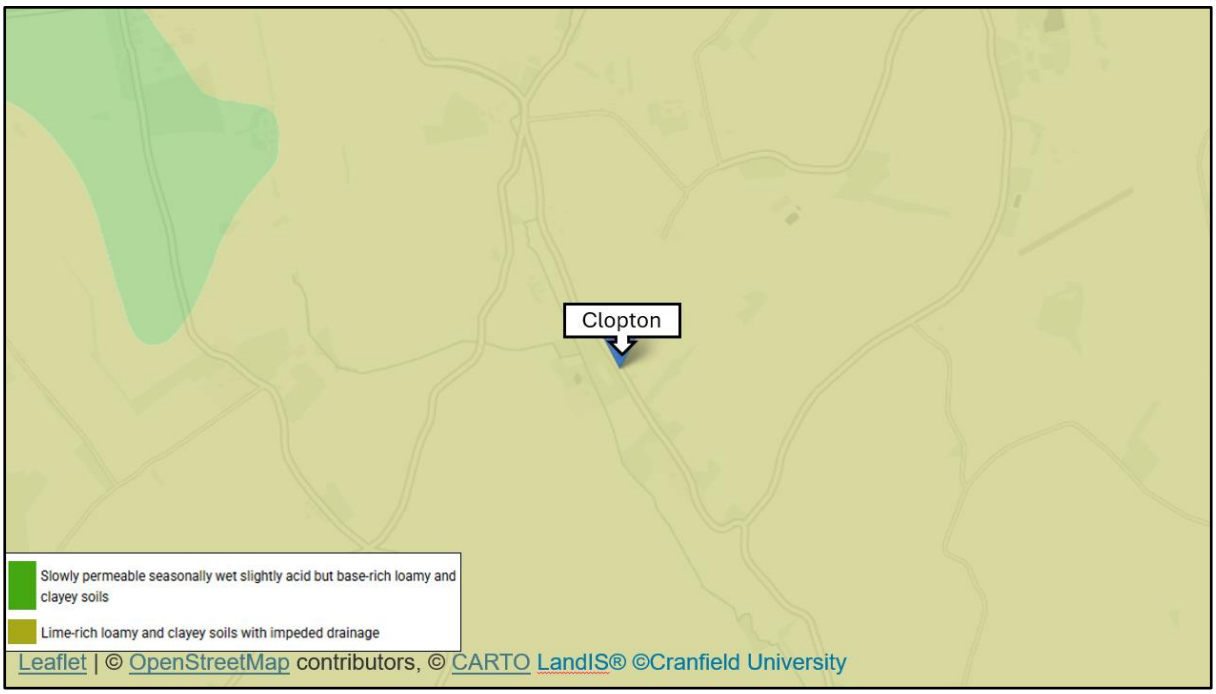

Figure 9. Soil map (LandIS Soilscapes)

The soils of the higher ground surrounding Clopton are uniformly loamy and clayey with impeded drainage, meaning that water permeates more slowly and surface water runoff can be greater.

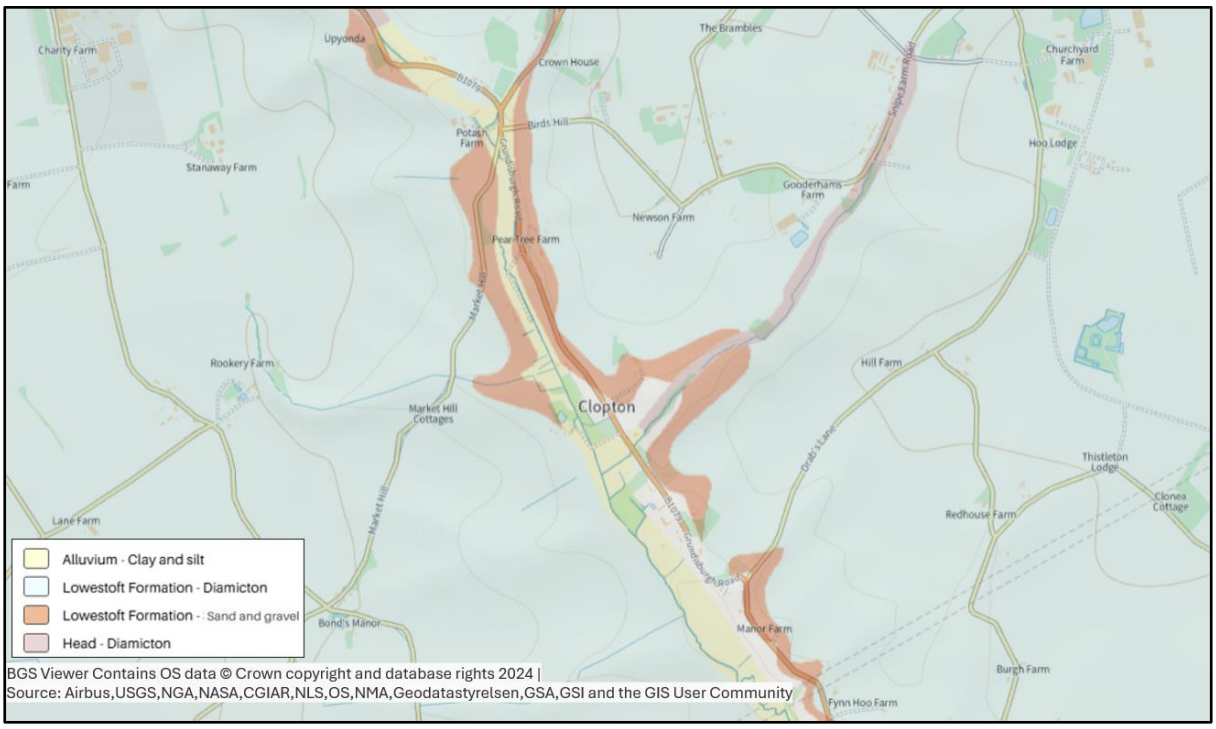

Figure 10. Superficial Geology (BGS Viewer)

Lowestoft Formation 'Diamicton' surrounds Clopton which is described by the British geological survey as a diverse mixture of clay, sand, gravel, and boulders varying widely in size and shape. This generally has a low permeability, meaning water will tend to flow off it before it can be infiltrated.

The low-lying nature of much of Clopton, with ordinary watercourses and surface water flow paths merging into the river Lark, together with the low permeability of the surrounding soils, make it susceptible to flooding in extreme rainfall events.

Flooding Source(s), Pathway(s) & Receptor(s)

Storm Babet was an extreme event which came at a time when Suffolk had experienced a significant amount of rainfall in the preceding week.

Data from surrounding Environment Agency rain gauges indicates that a significant volume of rain was experienced during Storm Babet. The nearest rainfall gauge to Clopton is at Woodbridge, where 51.4mm of rainfall was recorded on 20 October 2023, with 40.2mm recorded between 5.45am and 14.45.

The Environment Agency issue two types of warning when flooding is possible from a main river. These are:

1. Flood Alert – Flooding is possible. Be prepared. - usually issued between 2 and 12 hours before flooding.
2. Flood Warning - Flooding is expected. Immediate action required – usually issued 30 minutes to 2 hours before flooding.

The Flood Alert area for The Rivers Deben and Lark, extends from its upstream limit north of Otley Bottom, and covers an area at risk of flooding from the main River Lark. This Flood Alert was issued on 18th October 2023 at 22:12pm and remained in force until it was removed on 24th October 2023.

The Flood Warning Area for The River Lark from Clopton to Martlesham does not extend as far upstream as the associated flood alert area, with an upstream limit adjacent to the B1078/B1079 junction, close to where our issuing gauging station is located. This Flood Warning was issued on 20th October 2023 at 10:14am,and remined in force until it's removal on 24th October 2023.The description of the flood events described below will discuss the probable sources of flooding, the observed flow paths through the community and the receptors which have been affected. The term 'floodwater' may be used to describe both fluvial (water from a watercourse) and pluvial (surface water run-off) flooding. This section has been prepared using reports submitted to Suffolk County Council via the online Highways Reporting Tool and information gathered by Risk Management Authorities (RMAs) and the community.

Detailed descriptions of each investigation area can be found in the following section.

1. Otley Road and Grundisburgh Road

Following heavy rainfall on the morning of 20 October, high water levels flowed through the watercourses and surface water flow paths above Clopton and into the river Lark. Water levels exceeded the capacity of the river channel in multiple locations and flowed across land and onto the highway (see Figure 10). The rainfall added to the floodwater pooling extensively in several places on the highway.

During the storm the existing highway drainage assets on Otley Road were overwhelmed by the sheer amount of floodwater. It is likely the water had nowhere to drain to, as the river Lark into which the gullies drain, was so high above the outfalls and flooding out of bank itself.

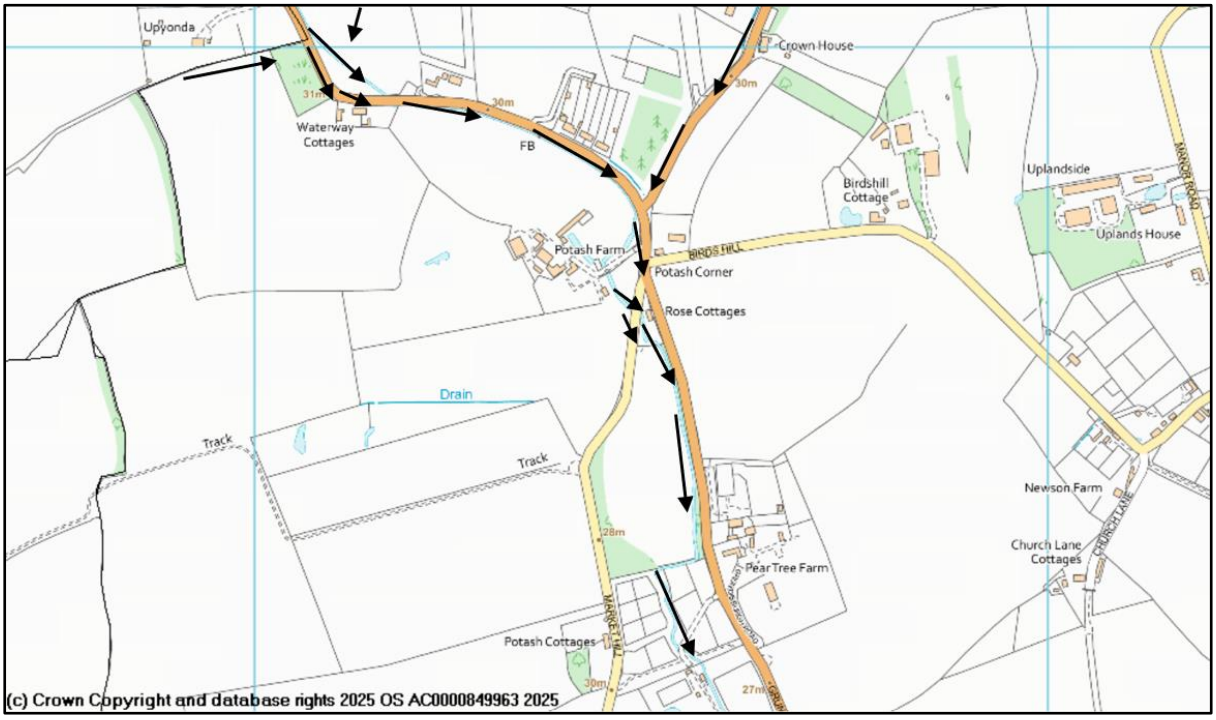

Figure 11. Approximate flood water flow routes along Otley Road and Grundisburgh Road

The highway drainage assets in this area were recorded as being operational prior to Storm Babet. After the storm the majority of the highway gullies were blocked with silt and debris before they were cleansed again by Suffolk Highways. It appears likely that large amounts of silt and sediment had been transported off the surrounding fields onto the highway by the surface water flows seen during Storm Babet.

Properties were flooded directly from the highway as they are situated lower than the road level. The floodwater flowed towards the properties and pooled around the houses. The problem was exacerbated by traffic attempting to drive through the floodwater at speed, causing bow waves to be directed towards the properties. Localised flood mitigation measures and sandbags were dislodged and swept away increasing the severity of the issue. Residents reported that the road drains were unable to cope with the volume of water and that drainage along this stretch of road has been inadequate for a prolonged period with persistent highway flooding problems even in much less rainfall events.

The flooding on Otley Road was widespread, affecting homes, gardens and outbuildings. The road became completely impassable with some areas submerged

in very deep floodwater. The impact continued into the next day with further internal flooding from the rear of the property when the drains that outfall into the river Lark backed up and flooded the garden and inside the property again.

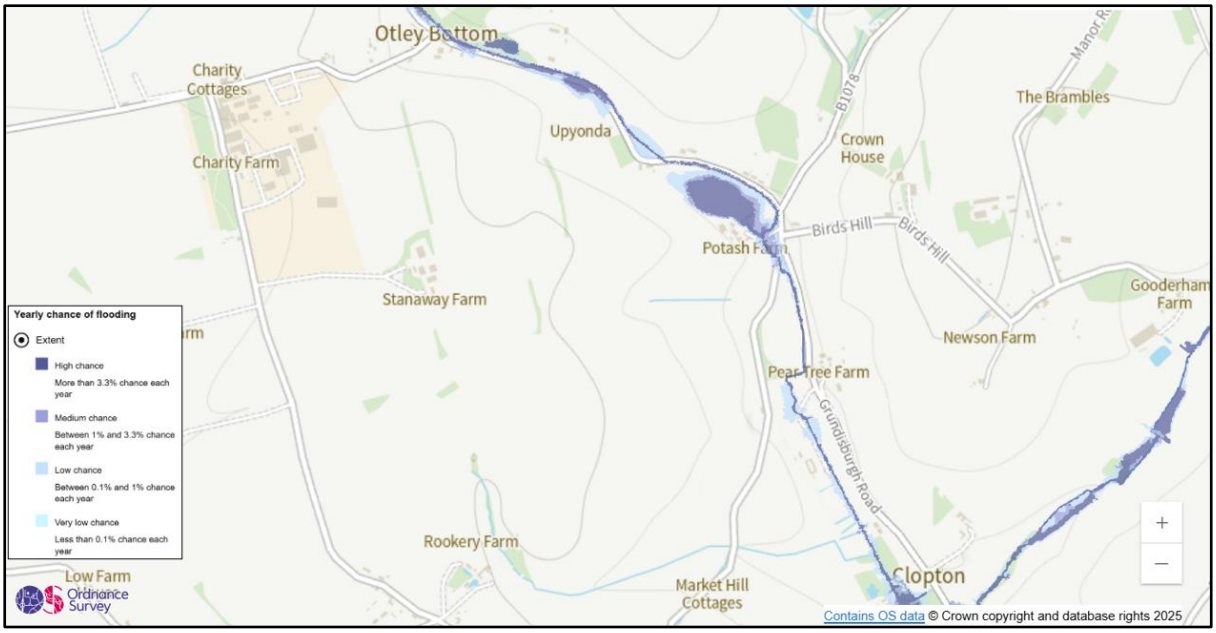

Figure 12. Fluvial flood risk on Otley Road and Grundisburgh Road

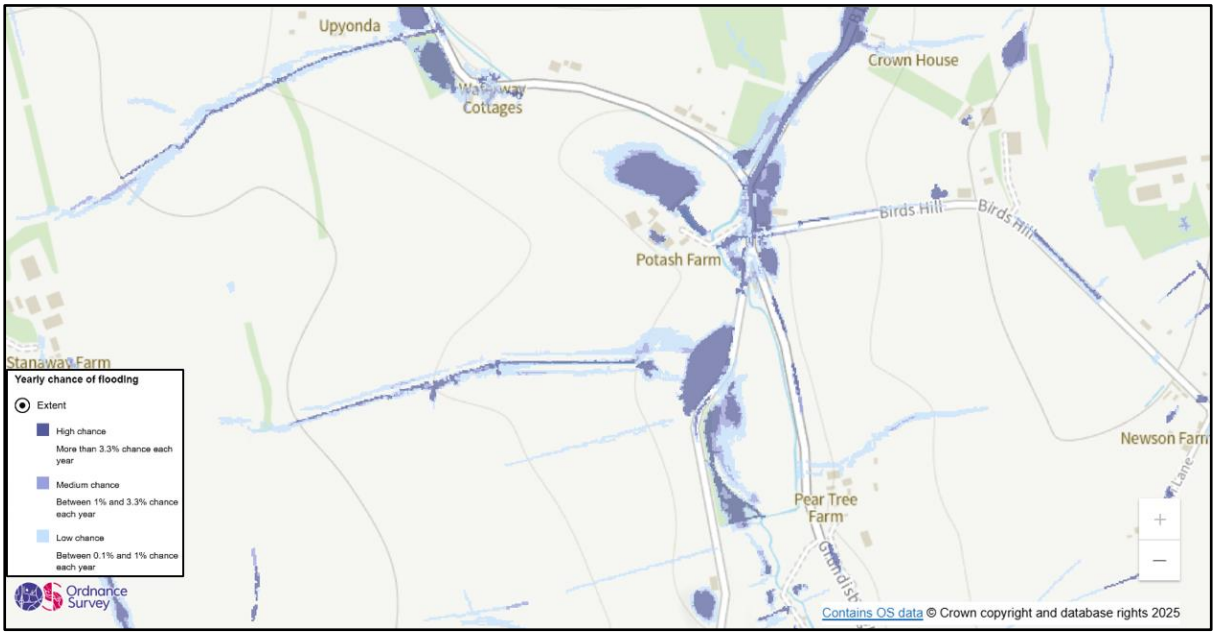

Figure 13. Surface water flood risk on Otley Road and Grundisburgh Road

On Grundisburgh Road properties and businesses were flooded directly from the overwhelmed river Lark and surface water runoff from the road. Once the river overtopped towards the properties the floodwater rose approximately 2ft within 30 minutes. Water entered the properties in this location by midday and levels did not

start to drop until 4pm. There was a gradual decrease in water level inside the properties but a faster rate of decline was seen outside.

Residents have described how the main river channel had been poorly maintained leading up to the storm, with overgrown vegetation and silt build up. This may have reduced the capacity in places and exacerbated the flooding experienced, however the scale of the storm event meant flooding in this location was probable.

The Environment Agency has permissive powers to undertake maintenance, improvement, or construction works on main rivers where it supports flood risk management and environmental protection. The location is not an area the Environment Agency currently undertake routine maintenance. A review if the current River Lark flood risk modelling indicates that an increase in vegetation has limited impact on flood risk, the greatest restriction on conveyance in this area is due to the bridge culverts rather than vegetation growth. Therefore, this would not be a location the Environment Agency would undertake maintenance routine maintenance activities. Where the Environment Agency is unable to justify exercising its permissive powers, the responsibility remains that of the riparian landowner.

The flooding extents observed in the Otley Road and Grundisburgh Road areas of Clopton during Storm Babet were very similar and possibly even greater than the national fluvial and pluvial (surface water) flood risk mapping suggest (see Figures 11 & 12).

In Summary:

- During Storm Babet high water levels flowed down watercourses and surface water flow paths into the river Lark. River levels exceeded the capacity of the channel in multiple locations and flowed across land and onto the highway.
- Drainage assets on Otley Road were overwhelmed by the sheer amount of floodwater.
- Properties were flooded directly from the highway. Floodwater flowed towards the properties as they are situated lower than the road level.
- The problem was exacerbated by traffic attempting to drive through the floodwater causing bow waves towards the properties.
- On Grundisburgh Road properties and businesses were flooded directly from the overwhelmed river Lark as the channel capacity was exceeded.
- Poor maintenance of the river channel prior to Storm Babet may have contributed to the extent of the flooding.

LLFA recommended action(s):

- Residents to install Property Flood Resilience (PFR).
- Riparian landowners to carry out appropriate watercourse maintenance to reduce flood risk as necessary as per their riparian responsibilities.

- Riparian Landowner to undertake in channel maintenance of the river Lark through Clopton is required.
- Explore potential NFM projects to 'slow the flow' and attenuate water on overland flow paths north and northwest of Otley Road and Grundisburgh Road, E.g. leaky dams, woody debris installation, restoration of watercourses, storage ponds, wetland areas.
- Clopton Parish Council to investigate utilising the Community Self Help scheme to be able to set out flood warning signage on the highway.
- Suffolk Highways to investigate the potential blocked / broken highway drainage assets on Otley Road following reports of blocked and / or damaged drains.
- Suffolk Highways to ensure the completion of highway drainage asset cyclic maintenance on Otley Road, Grundisburgh Road and Market Hill.
- Report any observed blockages below road bridges on Otley Road and Market Hill on the Suffolk Highways Online Reporting Tool.

2. Clopton Commercial Park

The intense rainfall during Storm Babet caused pluvial flooding on Clopton Commercial Park. Surface water runoff from the road caused internal flooding to one of the commercial units which interrupted the business for 3 days.

Figure 14. Surface water flood risk on Clopton Commercial Park

The majority of this area is shown as being at low chance of surface water flooding on the national flood risk maps (see Figure 13) however, there are isolated pockets of high yearly chance of flooding. It is assumed the flooding at this location was due to the high volume of rainfall over a relatively short period of time falling on area of hardstanding and overwhelming drainage infrastructure.

LLFA recommended action(s):

- Residents / business owners to install Property Flood Resilience (PFR).

Risk Management Authorities, Non Risk Management Authority and flood risk function(s)

The following section acknowledges both RMA's and Non-RMA's relevant to the location and provide an overview of their flood risk functions. The table has been compiled from information collated as part of the investigation. It is not exhaustive and it should be acknowledged additional organisations and groups may be active within the community.

Risk Management Authority	**Relevant Flood Risk Function(s)**
Suffolk County Council	Lead local Flood Authority (LLFA), Highways Authority & Asset Owner
The Environment Agency (EA)	Lead organisation for providing flood risk management under its permissive powers and issuing warnings of flooding from main river
Anglian Water	Asset owner supplying water and water recycling services
Internal Drainage Board (IDB)	Supervising land drainage and flood defence works on ordinary watercourses
East Suffolk District Council	Local Planning Authority (LPA) & Asset Owner
Non-Risk Management Authority	**Relevant Flood Risk Function(s)**
Private Landowners	Riparian responsibilities and management of water from land or watercourses
Private Homeowners	Improving flood resilience to property and some riparian responsibilities if adjacent to watercourses.
Clopton Parish Council	Manage flood risk at a community level, prepare and produce flood action plans and maintain watercourses where present on land they own

Action(s) completed to date:

The following section acknowledges actions that RMA's and Non-RMAs have implemented or are currently in progress since Storm Babet and prior to publishing of this report.

Action	Risk Management Authority	Progress
Offer of Property Flood Resilience (PFR) measures to the properties that flooded during Storms Babet	Suffolk County Council Lead Local Flood Authority	Application window now closed. Installation of PFR measures on approved applications has been extended to December 2025.
Ensure riparian landowner responsibilities are understood with regard to watercourse management.	Suffolk County Council Lead Local Flood Authority	SCC published "Flood Smart Living" online and hard copy guide to increasing flood resilience for residents, landowners and communities, December 2024
Understand the annual event probability of the rainfall & river flow across the region	The Environment Agency (EA)	Complete. Details of the report can be found on the SCC website or at the following https://www.suffolk.gov.uk/roads-and-transport/flooding-and-drainage/storm-babet
Repair of out fall and cleansing of highway drainage assets	Suffolk Highways	Repairs to the outfall at Rose Cottage was completed in July 2025. Cleansing of assets on Market Hill completed in July 2025.

LLFA Recommended Action(s):

The following section provides a range of flood mitigation measures that could be implemented to reduce the risk of flooding in Clopton. They have been derived from data and evidence collated as part of the report and have been included having been considered realistic in their implementation. The implementation of actions falls to the responsible party. Progress on the action will be monitored by Suffolk County Council, but it should be acknowledged that the council has limited powers to enforce the implementation of recommended actions.

Action	Responsible Party	Timescale for response	Latest Progress Update for Actions
Short Term Actions (e.g. standard maintenance activity and initial investigation of options that can be undertaken with limited need for forward planning)			
Establish a Community Emergency Plan that includes plans to manage future flood events – Liaison with Suffolk Joint Emergency Planning Unit.	Clopton Parish Council	6 months	
Residents to consider installing Property Flood Resilience (PFR) measures to property to reduce damage caused by flooding.	SCC LLFA / Residents	N/A	DEFRA PFR Grant has now closed for new applications. Installation of PFR measures on approved applications has been extended to December 2025. Further information on PFR measures can be found within SCC published "Flood Smart Living" handbook. There is currently no active PFR schemes being managed by the LLFA in Suffolk.
Riparian landowners to carry out appropriate watercourse maintenance to reduce flood risk as necessary as per their riparian responsibilities	Riparian landowners	N/A	Further information on Riparian Ownership can be found within SCC published "Flood Smart Living" handbook. Guidance on both ordinary watercourse and main river is included.

(See Appendix A).			
Investigate utilising the Community Self Help scheme to be able to set out flood warning signage on the highway.	Clopton Parish Council / Suffolk Highways	6 -12 months	Further information ca be found at the following https://www.suffolk.gov.uk/roads-and-transport/highway-maintenance/community-self-help-scheme
Suffolk Highways to ensure the completion of highway drainage asset cyclic maintenance on Otley Road and Grundisburgh Road and Market Hill.	Suffolk Highways	Annually	Routine cleansing of the gullies will be completed in line with the set cycles (annual or biennial). Extra jetting of kerb off lets on Market Hill was undertaken in July 2025. Targeting jetting in other location is being investigated.
Report any observed blockages below road bridges on Otley Road and Market Hill on the Suffolk Highways Online Reporting Tool.	Landowners, General Public	N/A	
Medium Term Actions (e.g. longer planning timescales and potential need to source funding but potential for greater impact)			
Explore potential NFM measures which aim to attenuate water and 'slow the flow' on overland flow paths in the upper catchments north and northwest of Clopton e.g. storage ponds, wetland areas, leaky dams, woody debris installation and restoration of watercourses.	Landowners, supported by relevant authority, resource dependant (SCC LLFA, EA)	12 - 24 months	

Suffolk Highways to investigate the potential blocked / broken highway drainage assets on Otley Road following reports of blocked and / or damaged drains.	Suffolk Highways	12 - 24 months	
Investigate opportunities to update development plan policy in Neighbourhood Plans or any potential Joint Local Plan site allocation(s) which identify risks and opportunities to mitigate flood risk issues as development comes forward.	Local Planning Authority, SCC LLFA	12 months+	
Long Term actions (significantly longer timescale and budget required with potentially greater positive impact)			
Installation of NFM features within upper catchments to attenuate and slow flood water if investigation works suggest it is viable.	Landowners, supported by relevant authority, resource dependant (SCC LLFA, EA)	TBC	
Deliver improvements, if investigation works suggest it is beneficial and viable, on Otley Road, to highway drainage network to manage surface water	Suffolk Highways	TBC	

flow (as set out in the medium term action).			

Approval

This report will be reviewed and updated every 6 months until actions are marked as complete.

Reviewer	Date of Review

Disclaimer

This report has been prepared and published as part of Suffolk County Council's responsibilities under Section 19 of the Flood and Water Management Act 2010. It is intended to provide context and information to support the delivery of the local flood risk management strategy and should not be used for any other purpose.

The findings of the report are based on a subjective assessment of the information available by those undertaking the investigation and therefore while all reasonable efforts have been made to gather and verify such information 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. Should there be additional information available to develop the report, please email to floodinvestigations@suffolk.gov.uk

The opinions, conclusions and recommendations in this Report are based on assumptions made by Suffolk County Council when preparing this report, including, but not limited to those key assumptions noted in the Report, including reliance on information provided by third parties.

Suffolk County Council expressly disclaims responsibility for any error in, or omission from, this report arising from or in connection with any of the assumptions being incorrect.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the time of preparation and Suffolk County Council expressly disclaims responsibility for any error in, or omission from this report arising from or in connection with those opinions, conclusions, and any recommendations.

The implications for producing Flood Investigation Reports and any consequences of blight have been considered. The process of gaining insurance for a property and/or purchasing/selling a property and any flooding issues identified are considered a separate and legally binding process placed upon property owners and this is independent of and does not relate to Suffolk County Council highlighting flooding to properties at a street level. Property owners and prospective purchasers or occupiers of property are advised to seek and rely on their own surveys and reports regarding any specific risk to any identified area of land.

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Appendix A - Indicative locations for NFM and watercourse maintenance