Southend-on-Sea City Council

Flood Investigation Report

Rayleigh Road and Glenwood Avenue, Leigh-on-Sea

Floods of 20th October 2021 and 20th February 2022

March 2023

1. VERSION CONTROL

Issue	Date	Details	Prepared By	Reviewed By	Approved By
0.1	21/02/2022	First draft for internal review	Jane Brockman Engineering Technician	Tom Palmer Senior Engineer	Jo Matthews Principal Engineer
0.2	08/12/2022	Updated document first draft for internal review	Tom Palmer Senior Engineer	Jo Matthews Principal Engineer	Jo Matthews Principal Engineer
0.3	14/12/2022	Draft version for stakeholder comment	Tom Palmer Senior Engineer	Jo Matthews Principal Engineer	Jo Matthews Principal Engineer
1.0	29/03/2023	Final version	Tom Palmer Senior Engineer	Jo Matthews Principal Engineer	Neil Hoskins Head of Civil Engineering

This Section 19 Flood Investigation Report has been prepared by Southend-on-Sea City Council Civil Engineering Team.

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2. INTRODUCTION

Southend-on-Sea City Council (SCC) is a Lead Local Flood Authority (LLFA) under the Flood and Water Management Act 2010 (The Act). The Act gives LLFA's a responsibility to undertake an investigation of flooding under Section 19, where deemed appropriate[1]:

Flood and Water Management Act Section 19

(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.

Southend-on-Sea City Council has adopted the following threshold criteria to determine when a Section 19 Flood Investigation Report will be completed:

- Internal property flooding of 5 or more properties in a single event

OR

- Internal property flooding of one property on more than one occasion

AND

- Ambiguity surrounding the source and/or responsibility of the flooding

This Section 19 report has been completed due to repeated internal property flooding at the location and the complex nature of the processes and drainage ownership involved.

The findings of this report are based on the information available to SCC at the time of preparing the report and may be subject to change should additional information become available. SCC expressly disclaim responsibility for any error in or omission from this report. SCC does not accept any liability for the use of this report or its contents by any third party.

[1] Flood and Water Management Act 2010, Section 19: https://www.legislation.gov.uk/ukpga/2010/29/section/19

3. SITE INFORMATION

3.1 Site Location

Site Location: 619 and 625 Rayleigh Road, Leigh-on-Sea
Postcode: SS9 5HR
Grid Reference: (582715, 189480)

The location subject to this flood investigation constitutes the immediate area surrounding the junction of Glenwood Avenue and Rayleigh Road, Southend-on-Sea. The impacted properties fall within the City of Southend-on-Sea but lie within 20m of the boundary between Southend-on-Sea and Essex County Council (ECC).

The study area is located at approximately 35m AOD (above ordnance datum) and within a localised valley. The surrounding land slopes from east to west with the ground to both the north and south being higher than the site. Ground levels to the east of the site reach 65m AOD with the ground to the north reaching 50m AOD and 70m AOD to the south.

Rayleigh Road and Glenwood Avenue are located on the edge of the urbanised area of Southend-on-Sea with development to the north, east and south. Land immediately to the east primarily constitutes farmland and sporadic residential properties with the denser residential development of Rayleigh 400m from the site. Figure 3.1 shows the site location within Southend-on-Sea with the Southend-Essex border shown in purple.

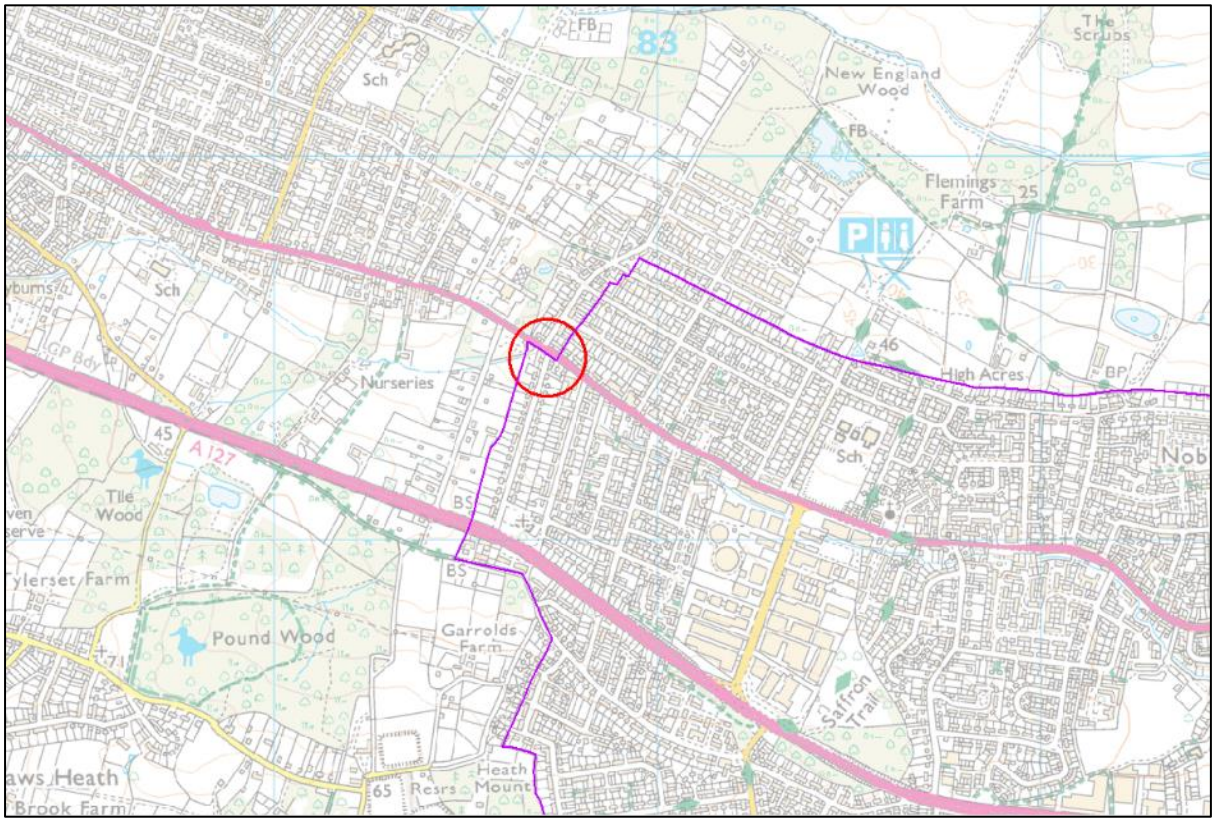

Figure 3.1: Site location within the City of Southend-on-Sea

3.2 Existing Drainage

Highway drainage exists within Glenwood Avenue, Rayleigh Road and surrounding residential roads. Drains exist at 20-50m intervals on all residential roads, with one each side of the road, in line with design standards. All were observed to be clear during an inspection undertaken on 4th November 2021.

A main river, the Eastwood Brook runs through the middle of the area from West to east and passes through a 1500mm diameter culvert between Glenwood Avenue and Grovewood Avenue. This was observed to be free flowing and clear of any silt and debris obstructions during the inspection.

A sloped trash screen exists at the upstream end of the culvert where it joins the open section of channel to collect debris and reduce the risk of blockages. This was observed to be clear during the site inspection.

Figure 3.2 shows the recorded drainage in the vicinity of the site. It should be noted that no foul systems or highway drainage lateral pipes are shown. Only road gullies relevant to the problems location are detailed.

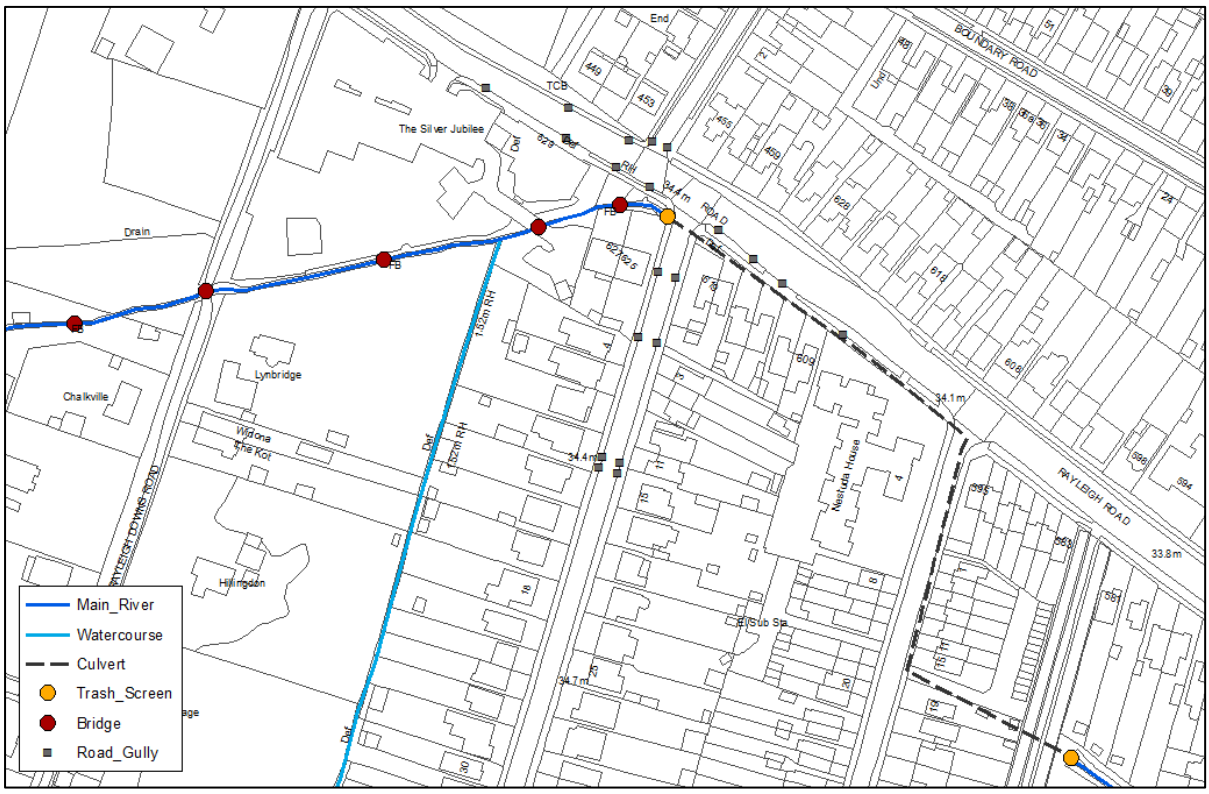

Figure 3.2: Observed and recorded drainage in the investigation area

The ownership and maintenance responsibilities for the drainage at the site lies with multiple landowners and risk management authorities:

Highway Drainage: Responsibility of the Highway Authority, either Southend-on-Sea City Council or Essex County Council.

Main Rivers: Responsibility of the adjacent riparian landowner with enforcement and other relevant powers lying with the Environment Agency.
Surface Water Sewers: Responsibility of Anglian Water. This includes the piped section of main river and trash screen at the upstream end.
Surface Water Flooding: Strategic responsibility of the Lead Local Flood Authority (LLFA) which is SCC or ECC.

3.3 Flood Risk

National mapping showing the risks from surface water flooding is produced by the Environment Agency and visible online. Figure 3.3 below shows the risks of flooding to the study area. Risks are divided into the following bands:

High: The extent of flooding that is predicted to occur from a rainfall event that happens on average once every 30 years.
Medium: The extent of flooding that will occur from a rainfall event that happens on average between once every 100 and once every 1000 years.
Low: The extent of flooding that is predicted to occur from a rainfall event that happens on average once every 1000 years or more.

It should be noted that all information shown by this mapping is a general indicator of a flood risk area and it is not suitable for identifying whether an individual property will flood.

Figure 3.3: Environment Agency Surface Water Flood Risk Map[2] with the site location shown by the red circle

[2] Environment Agency Long Term Flood Risk (surface water) online mapping: https://www.gov.uk/check-long-term-flood-risk

4. FLOOD HISTORY

Significant flooding occurred in August 2013 in the Eastwood Brook area and SCC commissioned URS to undertake a Section 19 flood investigation report. This identified two main areas of flooding, one of which constitutes the Glenwood Avenue area, and a total of 55 properties experienced internal flooding across the study area. The report determined the cause of the flooding in this area to be due to a combination of fluvial flooding (exceedance of channel capacity) and surface water flooding, along with blockages to the trash screen adjacent to Glenwood Avenue and failures to pumping systems at Rayleigh Weir, further upstream on the Eastwood Brook.

Rainfall events are quantified based on the probability of their occurrence within a given year, termed the Annual Exceedance Probability (AEP). A rainfall event that on average occurs once per year (1 in 1 event) has a 100% AEP, with a storm that has a change of occurring on average once every 100 years (1 in 100 event) having a 1% AEP.
It was estimated the August 2013 flood event had a return period between 3.3% AEP (1 in 30) and 2% AEP (1 in 50).

Further instances of flooding occurred to the study area in July and September 2014 which caused localised surfaced water flooding to roads and lower lying areas. Records show no properties were internally flooded within the study area.

As a localised low point surrounded by many roads and other developed areas the study area is at an increased risk of localised surface water flooding following heavy or persistent rainfall. Table 3.1 below outlines known more significant flooding events that have affected the area subject to this investigation.

Location	Date	Details	Report Source
Eastwood Brook area	24th August 2013	Internal flooding to multiple properties, including 619 Rayleigh Road	SCC Section 19 Report and EA records
619 Rayleigh Road	2013 (unknown date)	Internal property flooding	Resident
Glenwood Avenue, Grovewood Avenue and Rayleigh Road area	July 2014	Surface water flooding to local roads	SCC records
Glenwood Avenue, Grovewood Avenue and Rayleigh Road area	September 2014	Surface water flooding to local roads	SCC records
619 Rayleigh Road	20 July 2019	Garden flooded to depth of approximately 50mm	Resident
619 Rayleigh Road	October 2021	Property flooded internally up to 100mm and up to 400mm in garage	Resident
625 Rayleigh Road	October 2021	Garden flooded to depth of approximately 250mm	Resident
617, 619 and 625 Rayleigh Road	February 2022	Internal property flooding between 40mm and 100mm	Residents

Table 3.1: Historic flooding information

5. SUMMARY OF FLOODING EVENTS

5.1 October 2021

Following heavy rain on the evening of 20 October 2021 flooding commenced to 619 Rayleigh Road at approximately 22:00 with water entering the house at around 23:00. Water levels reached approximately 400mm in the garage and approximately 100mm in the house and persisted for 2-3 hours, receding by 02:00 on the 21st October.

The property at 625 had extensive flooding of approximately 250mm depth in the garden with no internal flooding occurring to the property. No other flooding was recorded or reported regarding other properties in the immediate area.

Public Sewer Services attended to check and clear the Anglian Water trash screen quickly during the event due to regular blockages occurring from pine cones and other debris from nearby trees.

5.2 February 2022

On the morning of the 22nd of February 2022 heavy and intense rainfall occurred at around 07:00 which it is reported lasted for roughly 30 minutes. Water levels within Eastwood Brook rose quickly and overtopped the channel causing internal flooding to 617, 619 and 624 Rayleigh Road to depths between 40mm and 100mm. Water levels had dropped and left properties by 09:00.

There are no reports of other properties internally flooding in the area, nor of flooding occurring from local drainage systems or other sources.

Public Sewer Services had attended to inspect and clear the trash screen that morning and it was reported that a significant amount of debris was observed to be present but this was not removed due to the personnel attending experiencing site access difficulties.

6. OCTOBER 2021 EVENT CAUSES AND MECHANISMS

6.1 Rainfall

On the day of the flooding incident a slow moving storm passed from west to east across the south of England. Isolated showers occurred throughout the day though the timings and total rainfall volumes are not significant enough to have caused notably higher baseflows within Eastwood Brook or to have resulted in any loss of capacity within piped drainage systems.

In the evening of the 20th October very heavy and intense rainfall occurred affecting the wider South Essex area causing multiple instances of flooding across the boroughs of Southend, Castle Point and Basildon.

Table 6.1 below details the recorded rainfall volumes at three rain gauges in close proximity to the investigation area. Total rainfall volumes are provided with higher than usual rainfall rates highlighted.

Time Period (20-21st October 2021)	Rain Gauge Recorded Rainfall (mm)		
	Rayleigh (2km)	Hullbridge (5km)	Benfleet Barrier (5km)
9:00 – 9:59 pm	4.6	4.0	6.2
10:00 – 10:59 pm	**24.5**	**14.0**	**30.4**
11:00 - 11:59 pm	9.0	7.2	6.6
12:00 – 12:59 am	4.5	3.4	4.4
1:00 – 1:59 am	5.5	5.6	8.0
2:00 – 2:59 am	0.9	0.6	1.6
Total (6hrs)	**49.0**	**34.8**	**57.2**

Table 6.1: Rainfall data from the closest gauges in the vicinity of the investigation area[3]. Distances from the investigation site are shown in brackets.

The above rainfall totals and intensities can be used to determine the AEP of the storm. Using these it can be determined that the rainfall event causing the flooding on the 20th and 21st of October equates to being between a 5% AEP (1 in 20 year) and 3.3% AEP (1 in 30 year) event.

6.2 Flood Mechanisms

Rainfall data gathered indicates that the volumes on the day of the flood event where very high compared to averages for the time of year. Reports also suggest that there was a short period of very high intensity rainfall between 22:00 and 23:00 which compounded the problem. Whilst this was not picked up by local rain gauges due to the frequency data is reported at, multiple reports of intense rainfall causing flooding problems across the city at this exact time were received by SCC.

Hydrological data gathered by the Environment Agency showed that water levels within Eastwood Brook were slightly higher than the average and expected ranges for the time of year, indicating previous rainfall and levels of water within drainage systems was not the primary cause of the flooding, but was likely to have been a contributing factor.

Prior to the flood event the area experienced several storms with increased rainfall and winds. Combined with the time of year and trees shedding leaves this resulted in an increased volume of vegetated debris becoming dislodged, and combined with localised rainfall, ending up in drainage systems and watercourse channels.

[3] Gaugemap online rain gauge data: https://www.gaugemap.co.uk/#

Based on the above data and evidence received from local residents the flooding is most likely to have occurred due to the result of high rainfall volumes compounded by localised, intense rainfall and some debris blockages within the Eastwood Brook.

A map showing the flood routes and extents is shown in Figure 6.1.

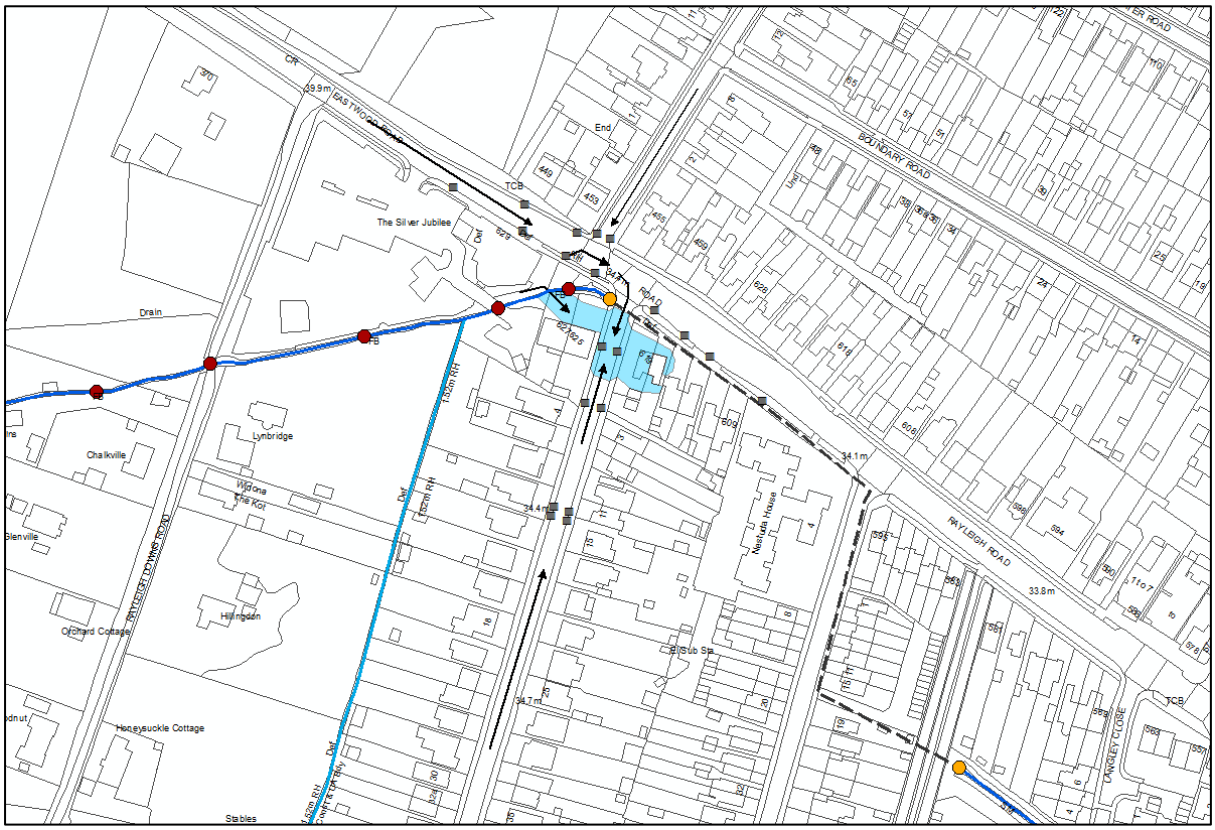

Figure 6.1: Map showing the flood extent and recorded flood flow routes

6.3 Identified Issues

Table 6.2 below outlines all of the factors relevant to the flooding along with how significant this factor was in the event. It should be noted that this table has been completed based on all of the information available at the time of writing this report and subsequent information or evidence may influence the factors listed or their relative impact.

Aspect	Details	Likelihood	Impact
Rainfall volume and intensity	The amount of rainfall that the area received over the 6 hour period of the evening of the 20th of October was significant, as was the intensity of the rainfall that occurred between 10 and 11pm. The return period of this event is at the limit of highway drainage design standards (3.3% AEP) and as such many drainage systems were overwhelmed. This volume of rainfall also resulted in high flows in the Eastwood Brook, which	**High**	**High**

Aspect	Details	Likelihood	Impact
	combined with potential debris and obstructions causing the channel to overtop		
Obstructions to Eastwood Brook and trash screen	Evidence suggests that there may have been debris obstructions to the trash screen and/or bridges within Eastwood Brook upstream of the study area that contributed to the channel overtopping. It should be noted that the AW trash screen was cleared quickly during the event. Due to lack of evidence the specific role of this factor in the flood event cannot be fully quantified	**High**	Medium
Trash screen	It was observed that the trash screen constitutes a single sloped grille with a bar spacing of roughly 100mm. The design could be changed to further minimise the risk of blockages and reduce the requirement for maintenance during heavy rainfall events	Medium	Medium
Eastwood Brook	Whilst clear at the time of inspection the above issues with blockages indicate material entering the channel further up may be an issue	**High**	Medium
Highway drains (pipework blockages)	It was reported that water was surcharging from a gully on Rayleigh Road, indicating a potential blockage in the drainage system. This will both prevent surface water entering, contributing to the flooding and also add additional water to the flood area that otherwise would have drained away through pipework	Low	Medium
Highway drains (gully blockages)	During the autumn months highway drainage is more prone to blockages from falling leaves, twigs and other debris. Reports suggest that this was not a significant factor in causing the flood event and no evidence was found of debris blockages during the site inspection however the potential for debris to have created localised blockages or restrictions during the flood event is possible	Low	Low
Highway drains (number)	The lack of gullies in the immediate vicinity of the flooding resulted in water not being able to drain away quickly enough. It should be noted that the rainfall volume exceeded the 3.3% AEP design drainage rates and that water drained away quickly once the rainfall subsided, indicating the pipework to be clear and the flooding due to the volume of rainfall	**High**	Medium
Surface water sewers	Water backing up and overtopping within Eastwood Brook may be linked to restrictions with the surface water sewer system that connects the open sections of Eastwood Brook. This could not be confirmed by the site inspection	Low	Low
Guidance and Support	Residents called the SCC switchboard to raise awareness of the issue and request guidance and support. SCC have no out of office hours number which resulted in confusion and wasted time receiving necessary information. Veolia and Marlborough, who are subcontracted to SCC for various drainage cleansing	**High**	Medium

Aspect	Details	Likelihood	Impact
	aspects do have out of hours numbers but there was a lack of clarity as to their services and where these numbers can be found		

Table 6.2: Summary of factors identified as contributing to the flood incident and their impact on the event

6.4 Event Responses

After the flood, incident recovery activities including the inspection and cleansing of highway drainage by SCC. The table below details the inspections and cleansing completed including the actions undertaken or scheduled to be completed in response to the defects found.

Authority	Date	Details	Actions
AW	20/10/2021	Trash screen check during event	Screen checked and cleared to remove any debris. As of Winter 2022 monitoring equipment is being installed upstream of the screen to allow clearance works to be more efficient
SCC	04/11/2021	Site visit to gather information from affected residents and inspect drainage	No issues identified with drainage, maintenance regime to be checked. Section 19 Report commenced
SCC	November 2021	Eastwood Brook Flood Scheme	Details surrounding the flood event fed into wider project investigating the viability of delivering flood alleviation measures in the Eastwood Brook catchment. As of Winter 2022 modelling and economic analysis of possible options benefitting the study area has been completed. Optioneering and detailed design will be commencing in 2023/2024
SCC	December 2021	Consideration for drainage improvement works	Budget secured to deliver drainage improvement works across Southend, location added to list for consideration of receipt of a supergully to help improve highway drainage immediately adjacent to affected properties. As of Winter 2022 designs have been finalised and works are currently being programmed

Table 6.3: Flood response activities undertaken by relevant risk management authorities

7. FEBRUARY 2022 EVENT CAUSES AND MECHANISMS

7.1 Rainfall

Anecdotal reports indicated that there was incredibly intense and heavy rainfall for 15-30 minutes immediately before the flooding occurred. Levels recorded by nearby gauge stations show that there was up to 9mm between 07:00 and 08:00 though this was the only rainfall all day apart from a minimal amount between 05:00 and 06:00 (Table 7.1).

Unfortunately, the intensity of the rainfall at 07:00 was not fully captured by the gauging stations available and the total amount that occurred during this hour is around the levels expected for February. It should also be noted that similar intensity and daily rainfall totals occurred on the 15th and 24th of February and 1st March with no reported flooding issues.

Time Period (20th February 2022)	Rain Gauge Recorded Rainfall (mm)		
	Rayleigh (2km)	Hullbridge (5km)	Benfleet Barrier (5km)
4:00 – 4:59 pm	0.0	0.0	0.0
5:00 – 5:59 pm	0.3	0.3	0.2
6:00 - 6:59 pm	0.0	0.0	0.0
7:00 – 7:59 am	8.2	9.0	2.4
8:00 – 8:59 am	0.0	0.0	0.0
Total (5hrs)	**8.5**	**9.3**	**2.6**

Table 7.1: Rainfall data from the closest gauges in the vicinity of the investigation area[4]. Distances from the investigation site are shown in brackets.

The above rainfall totals and intensities can be used to determine the AEP of the storm. Using these it can be determined that the rainfall event causing the flooding on the 20th of February equates to being more frequent than a 50% AEP (1 in 2 year) event.

7.2 Flood Mechanisms

Rainfall data gathered indicates that the rainfall volumes on the day of the flood event and those leading up to it were not significant and within expected ranges for the time of year. Whilst intensities were likely to be localised and high this suggests that the total amount of rainfall was not the primary cause of the flooding.

Hydrological data gathered by the Environment Agency showed that water levels within Eastwood Brook were all within average and expected ranges for the time of year, indicating

[4] Gaugemap online rain gauge data: https://www.gaugemap.co.uk/#

previous rainfall and levels of water within drainage systems was also not a primary cause of the flooding.

Prior to the flood event the UK experienced three named storms within a week, all of which brought very high winds with the highest ever gust speed in the UK recorded as part of storm Eunice[5]. These high winds and gusty conditions resulted in an increased amount of vegetation material and other debris becoming dislodged, and combined with localised rainfall, ending up in drainage systems and watercourse channels.

Based on the above data and evidence received from local residents the flooding is most likely to have occurred due to the result of localised, intense rainfall and a significant blockage within the Eastwood Brook caused the flooding.

A map showing the flood routes and extents is shown in Figure 7.1.

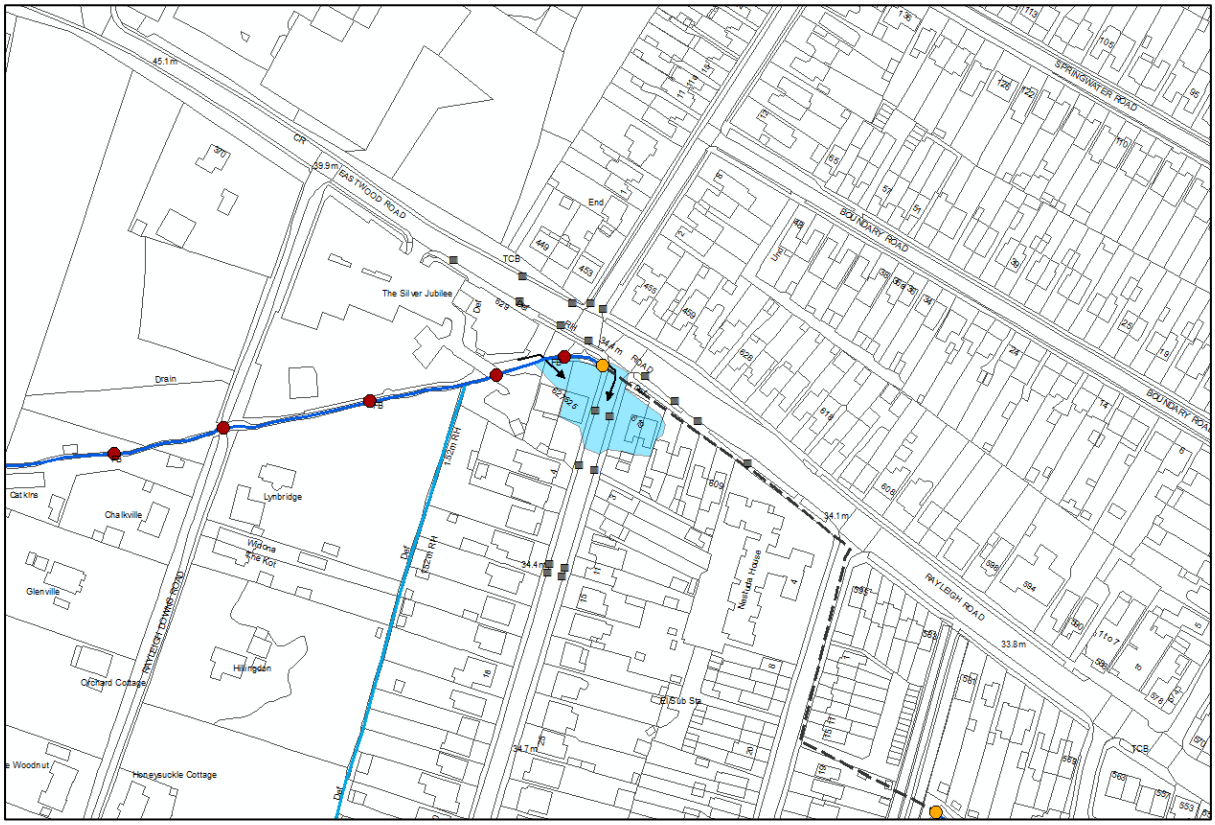

Figure 7.1: Map showing the flood extent and recorded flood flow routes

[5] Met Office storms report: https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/uk-past-events/interesting/2022/2022_02_storms_dudley_eunice_franklin.pdf

7.3 Identified Issues

Table 7.2 below outlines all of the factors relevant to the flooding along with how significant this factor was in the event. It should be noted that this table has been completed based on all of the information available at the time of writing this report and subsequent information or evidence may influence the factors listed or their relative impact.

Aspect	Details	Likelihood	Impact
Rainfall volume and intensity	The amount of rainfall that the area received preceding the flood event were within the average ranges expected for the time of year. Anecdotal evidence indicates that there was a period of intense rainfall though this was not captured by rain gauges	Medium	Low
Obstructions to Eastwood Brook and trash screen	Anecdotal evidence indicates that a significant amount of debris was present in the Eastwood Brook and blinded the trash screen. It is reported that attempts were made to clear this but full access could not be achieved	**High**	**High**
Trash screen	It was observed that the trash screen constitutes a single sloped grille with a bar spacing of roughly 100mm. The design could be changed to further minimise the risk of blockages and reduce the requirement for maintenance during heavy rainfall events	Medium	**High**
Eastwood Brook	Whilst clear at the time of inspection the above issues with blockages indicate material entering the channel further upstream was a factor	Medium	Medium
Highway drains (pipework blockages)	No reports were received of surcharging gullies or other infrastructure issues that suggests blocked pipes or capacity may have contributed	Low	Low
Highway drains (gully blockages)	It was reported that some localised flooding occurred from the surrounding roads, though this was of lower levels and only affected localised highway low points. Inspections of the area identified no visible issues with highway drainage condition	Medium	Low
Highway drains (number)	The low number of gullies in the immediate vicinity of the flooding contributed to water not being able to drain away quickly enough. As the rainfall rates arriving during the majority of the event were within the 3.3% AEP design standards for highway drainage water drained away well once the localised high period subsided	Medium	Low
Surface water sewers	No reports were received suggesting restrictions with the local surface water sewer system during this event	Low	Low

Table 7.2: Summary of factors identified as contributing to the flood incident and their impact on the event

7.4 Event Responses

After the flood, incident recovery activities including the inspection and cleansing of highway drainage by SCC. Table 7.3 below details the inspections and cleansing completed including the actions undertaken or scheduled to be completed in response to the defects found.

Authority	Date	Details	Actions
AW	20/02/2022	Trash screen check during event	Screen checked and cleared to remove any debris. As of Spring 2023 monitoring equipment has now being installed upstream of the screen to allow clearance works to be more efficient
SCC	23/02/2022	Site visit to inspect local drainage	No issues identified with drainage, maintenance regime to be checked. Section 19 Report update commenced
SCC, EA and AW	March 2022	Meeting to discuss flooding issues	AW investigating updates to trash screen structure and maintenance regime. EA reported no high flows with Eastwood Brook. SCC to update s19 Report
SCC	November 2021	Eastwood Brook Flood Scheme	Details surrounding the flood event fed into wider project investigating the viability of delivering flood alleviation measures in the Eastwood Brook catchment. As of Spring 2023 modelling and economic analysis of possible options benefitting the study area has been completed with optioneering and detailed design just commenced
SCC	December 2021	Consideration for drainage improvement works	Budget secured to deliver drainage improvement works across Southend, location added to list for consideration of receipt of a supergully to help improve highway drainage immediately adjacent to affected properties. As of Spring 2023 designs have been finalised and works are currently being programmed

Table 7.3: Flood response activities undertaken by relevant risk management authorities

8. RECOMMENDATIONS

Table 8.1 outlines the recommended actions to be taken based on the findings of this Section 19 report and their current status at time of publication.

Recommendation	Responsible Authority	Status / Next Steps
Approach ECC Highways regarding reported gully issues on Rayleigh Road	ECC (Highway Department)	Ongoing at time of report
Consider Supergully/drainage improvement works	SCC	At time of report designs have been finalised and works are currently being scheduled, will likely commence after April 2023
Consider gully cleansing, jetting and CCTV survey, though evidence suggests pipework is clear	SCC	As no issues of blockages were indicated jetting will be undertaken as per the ongoing maintenance regime with ad-hoc to be considered when heavy rainfall is predicted
Improve flood awareness via promotion of website and distribution of riparian landowner leaflets	SCC and ECC	SCC have updated their riparian leaflets and distributed to the area. A joint ditch clearance event will be held with ECC in Spring 2023 to clear the channel behind Glenwood Avenue and raise awareness
Improve links to social media to promote riparian ownership etc	SCC and ECC	Ongoing at time of report. A joint event with ECC to clear the ditch behind Glenwood Avenue and raise awareness will be held in Spring 2023
Investigate lack of out of hours contact at SCC	SCC	Improvements to publicising the available out of hours numbers and details of services provided is ongoing at the time of the report
Investigate guidance on trimming trees next to Main River	EA	The EA are currently updating their guidance regarding this and will undertake engagment in the local area once finalised
Consider potential changes to trash screen	AW	AW have investigated making changes to the screen and determined it is fit for purpose. Monitoring equipment is currently being installed in the area to ensure cleansing is undertaken at more appropriate times
Area to be considered as part of wider Eastwood Brook flood scheme project	SCC	Modelling and initial investigations have been completed and determined that viable and cost beneficial options exist for this area. Detailed design, optioneering and planning has now been commenced
Residents to consider installing measures to reduce flood risk or protect their property, such as flood barriers	Residents	Ongoing, advice provided as required

Table 8.1: Section 19 report recommendations

9. APPENDICES

Appendix 1: Photos from incident on 20 October 2021

Photo 1 – No. 619

Photo 2 – No. 619 Garage

Photo 3 – No. 625 Garden

Photo 4 – No. 625 Doorway

Appendix 2: Photos from site visit on 4th November 2021

Photo 5 – Road gully outside no. 619

Photo 6 – Eastwood Brook at corner of Glenwood Avenue

Photo 7 – Eastwood Brook trash screen at corner of Glenwood Avenue

Photo 8 – Rayleigh Avenue – flow reported down here towards Glenwood Avenue

Photo 9 – Rayleigh Road

Photo 10 – Rayleigh Road junction with Glenwood Avenue

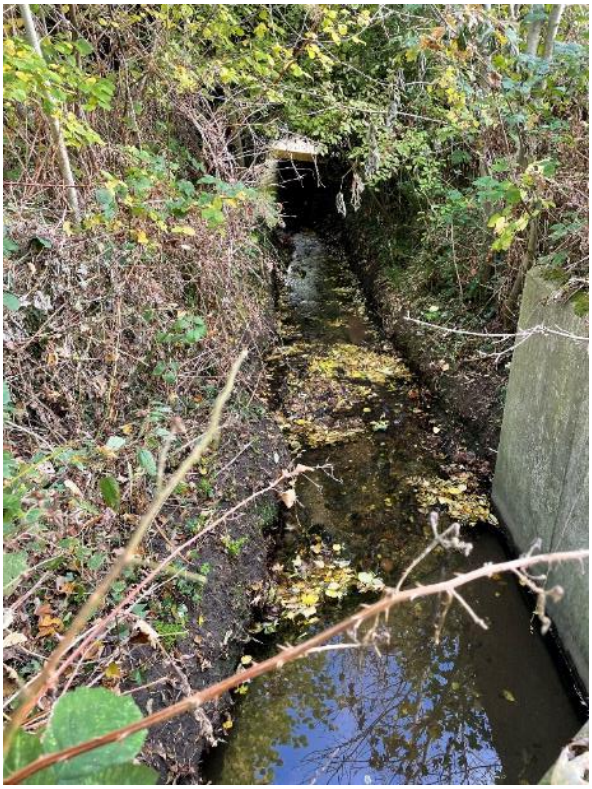

Photo 11 – Eastwood Brook behind Miller & Carter restaurant

Photo 12 – Glenwood Avenue towards Rayleigh Road