

**Lead Local Flood Authority**  
**Section 19 (Flood and Water Management Act**  
**2010)**  
**Flood Investigation Report**

**Report Title:**

Queen Street,  
Stradbroke,  
Suffolk

**Report Reference:** FW2021-0016

	<b>Name</b>	<b>Date</b>
<b>Lead Officer:</b>	Ellie Beecroft	
<b>Created by:</b>	Ellie Beecroft	March 2021
<b>Checked by:</b>	Simon Curl	March 2021
<b>RMA Review:</b>	Suffolk Highways	April 2021
<b>Approved by:</b>	Matt Hullis	19/04/2021
<b>Date Published</b>		19/04/2021

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

**2.0 Reference/s:** FW2021-0016

**2.1 Location:** Queen Street, Stradbroke, Suffolk, IP21 5HH

**2.2 Flood Event Date:** 23<sup>rd</sup> December 2020

**2.3 Reported to SCC Date:** 4<sup>th</sup> January 2021.

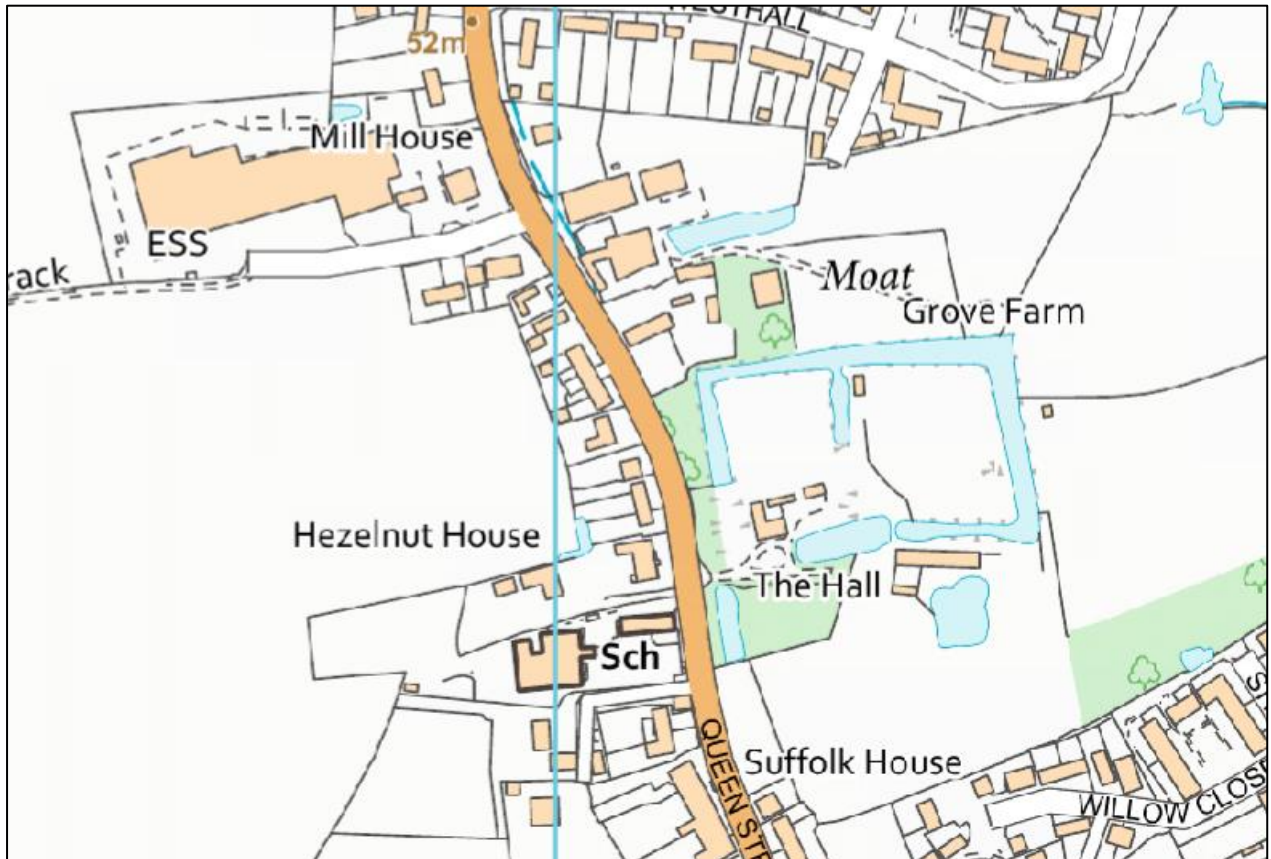
- The above date refers to when internal property flooding was reported. Flooding on the carriageway has previously been reported but had not triggered a S19 investigation.

**2.4 Investigation Commencement Date:** 1<sup>st</sup> March 2021

- 6<sup>th</sup> January 2021 - Flood & Water Technician initial investigation.
- 1<sup>st</sup> March 2021 – Formal Section 19 Investigation commenced.

**2.5 Criteria for investigation:**

<b>Criteria for an investigation (as per Appendix D of the Suffolk Flood Risk Management Strategy):</b>	<b>✓/X</b>
There was a risk to life as a result of flooding?	
<b>Internal flooding of one property (domestic or business) has been experienced on more than one occasion?</b>	<b>✓</b>
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 as a result of flooding	
Critical infrastructure was affected by flooding	
<b>There is ambiguity surrounding the source or responsibility of a flood incident</b>	<b>✓</b>



*(Investigation area map)*

- 2.6 OS Grid Reference: 623059, 274233**
- 2.7 Extent of flooding:** Single property flooding internally on multiple occasions resulting in damage to property.
- 2.8 Effect of flooding:** Water rising through flooring of ground floor living room. Damage isolated to single room which is lower than surrounding rooms. Approximately 2 inches of water and no smell.
- 2.9 History:** 20<sup>th</sup> December 2019 and 23<sup>rd</sup> December 2020 – Both events caused similar internal damage to property.
- 2.10 Flooding Source:** Groundwater/perched water table
- *A perched water table is the presence of water above the regional water table. It is caused by an impermeable layer situated above the water table but below the land surface.*
- 2.11 Likely causes:**

- Significant rainfall event following a prolonged period of wet weather has caused a perched water table and associated groundwater flooding.
- Although unlikely to be the sole cause of the internal flooding, restrictions in the existing highway drainage network under Queen Street may be contributing the saturation of surrounding soils as water is unable to drain effectively following a high-level rainfall event.

## **2.12 Additional Information:**

- Environment Agency rainfall and borehole data.
  - Nearest rain gauge (Stradbroke) recorded 42.8mm of rainfall over 24hour period (23<sup>rd</sup> December 2020).
  - Borehole data shows fluctuation in groundwater levels throughout December.
- Flood Risk Assessment (FRA) completed as part of an active planning application and British Geological Survey (BGS) borehole data within vicinity of affected area:
  - BGS borehole records show the presence of Boulder Clay to a depth of 70 ft below topsoil.
  - Exploratory trial holes, completed as part of the FRA (November 2020) reportedly encountered water and has been considered to be caused by a perched water table rather than groundwater.
- Highway drainage issues have been experienced over recent years resulting in flooding to the carriageway, footpath and neighbouring driveways.
  - Highway drainage comprises of multiple guillies and kerb offlets and a culvert pipe under the carriageway which drains an open watercourse.
  - An investigation undertaken by Suffolk Highways in 2018 indicated a possible collapse within the culvert pipe under Queen Street.
  - An open watercourse adjacent to Queen Street (western side of carriageway) may connect into a highway drainage gully. The watercourse and inlet is reported to frequently overtop and water flows overland along the carriageway, further contributing to the highway flooding.
- Sections of Queen Street are within an area identified at being at risk from surface water flooding during the 1:30 and 1:100 pluvial event.
- The room which experienced flooding is lower than ground level outside of the property.

## **3.0 Risk Management Authority with Relevant Flood Risk Function**

- Suffolk County Council

## **3.1 Functions:**

- Suffolk County Council (Lead Local Flood Authority)

- Suffolk County Council (Public highway maintenance & asset owner)

#### 4.0 Recommendations:

- Homeowner(s) to explore the addition of flood resilience measures to their property i.e property level resilience (PLR).
- Suffolk County Council highways authority to investigate, maintain and potentially improve highway drainage in effected area:
  - Inspect and clear existing highway drainage in effected area (gully, kerb offlets and inlet and outlet of pipes).
  - Investigate and replace collapsed culvert pipe under Queen Street.
  - Consider upscaling of culvert pipe under Queen Street.
  - Consider additional highway drainage to intercept overland flows in effected area.

#### 4.1 Recommended Actions:

Action	Responsible Authority	Timescale for response	Latest Progress Update for Actions
Advise residents of Property Level Resilience measures.	SCC Lead Local Flood Authority.	1 month	
Investigate and maintain existing highway drainage in effected area.	SCC Highways Authority.	Complete	11 <sup>th</sup> March 2021 – Highway gullies and kerb offlets jetted and cleansed to outfall. Elements of highway infrastructure (culvert) requires further investigation.
Investigate and potentially improve highway drainage within effected area.	SCC Highways Authority.	1 year	Repair/Replacement of damaged highway infrastructure (culvert) added to 2021/2022 Planned Works Programme.  Improvements to existing highway drainage to be discussed as part of above works.