



Norfolk County Council

Flood Investigation Report

Report Title:
South Norfolk
Long Stratton
Glebe Close

Report Reference: 000140

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Report Status: Approved Report

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Contents

1.	Reason for Flood Investigation	3
2.	Location of flooding incident	3
3.	Flood Incident as reported	3
4	Desk Study	3
5	Summary of site investigation and information received	4
6	Summary of impacts	4
7	Investigation findings	4
8	Recommendations	6
9	Disclaimer	6
10	Annotated Map	8

Flood Investigation Report

1. Reason for Flood Investigation

It was deemed necessary to complete a formal investigation into the flood incident at Glebe Close, Long Stratton, which occurred on 9 March 2013 as;

- a) There is ambiguity surrounding the source and responsibility of the flood incident.
- b) Records indicate that flooding of a similar nature has occurred on 1 other occasion over the 6 months prior to this event and that water has covered the flooding location for prolonged periods.
- c) The flood event provides evidence for a greater future risk to property and the community.

This met Norfolk County Council's threshold for triggering the undertaking of a formal flood investigation.

2. Location of flooding incident

- 1.1 Long Stratton is located approximately 18km South-West of Norwich. Glebe Close is situated South-West of Long Stratton. The area of reported flooding is adjacent to a field to the south of Glebe Close.

3. Flood Incident as reported

- 3.1 The flood incident at Glebe Close was reported on Saturday 9 March 2013 to Norfolk County Council. This was referred to and received by the Flood and Water Management Team on Monday 11 March. The enquiry stated that external flooding to a residential property had occurred on multiple occasions.

4 Desk Study

- 4.1 The location of the flooding:
 - Is in the River Tas catchment.
 - Is sited within an area of geology likely to have low rates of infiltration. From West to East there is a decreasing suitability for ground infiltration.
 - The flood site lies within an area shown to be vulnerable to surface water flooding and a significant over land flow path is apparent to the East of the site, this runs North to South.
 - The site is not within 2.5km of a registered rain gauge and no known flow data exists for the local drainage system.
 - Information taken from Anglian Water records shows that surface water sewers at the flood site are independent of the

land drainage surface water drainage system.

5 Summary of site investigation and information received

- 5.1 Site visits were undertaken by Norfolk County Council at Glebe Close on 13 February 2013, 21 February 2013 and 12 March 2013.
- 5.2 Please see the annotated Map attached to this report summarising the information received by third parties and through on-site investigations.

6 Summary of impacts

- 6.1 Information relating to the impacts experienced at the flood location are detailed below; *(Please see Annex 6 within the PFRA Annexes to the final guidance for the classification of property types to be used in filling in the section below).*

Risk to life: None

Internal Flooding: None

External Flooding: Yes

Critical services: None

Priority Gritting Routes: None

Obstruction of Access: None

7 Investigation findings

7.1 What caused the flooding?

- 7.1.1 The flooding at Glebe Close was experienced due to a number of factors;
- Limited capacity in the downstream pipe network (i.e. pipe diameter).
 - Heavy rainfall was experienced across Norfolk causing many low capacity systems to be exceeded.
 - Snow melt and a frozen saturated landscape exacerbated the event.
 - A large area of surface run-off was directed to the ditch network which has limited capacity to convey flows.
 - Strong likelihood that pre-existing drainage serving the site has been segmented at the point of development of

the residential properties.

See annotated map for more detail.

7.2 Who has responsibilities to manage the cause(s) of the flood?

7.2.1 With reference to the above factors, responsibility to manage the causes of the flood are identified below;

- Riparian owners are responsible for the culverted watercourse and the drainage ditches within the field and the downstream pipe network.
- The owners affected by the flooding need to protect their property with flood prevention techniques to divert the flow away from their property.

7.3 What was their response in relation to the cause of the flood?

7.3.1 The affected residents who experienced the flooding have undertaken a number of works to their property including building a wall to protect against future surface water flooding from the adjacent watercourse.

7.3.2 Norfolk County Council as Lead Local Flood Authority;

- Encouraged the affected parties to ensure self protection of their properties to ensure flood resilience in the future.

7.3.3 In addition, South Norfolk District Council in response to previous flooding at this location in 2003, carried out the following;

- Investigations and identified works to be carried out.
- A new inspection chamber was constructed in the verge in St Mary's Road.
- In liaison with the landowner and tenant farmer re-profiling of the corner ditch channel was carried out to increase storage capacity and the banks raised and stabilised with concrete bagging to provide enhanced flood protection.
- Following this work, the status of the watercourse as a Critical Ordinary Watercourse was revoked by the Environment Agency.
- As a Critical Ordinary Watercourse, South Norfolk were responsible for inspection annually as determined by the EA and enforcement of maintenance as necessary.
- South Norfolk District Council advised the landowner in writing that maintenance of the watercourse remained with the landowner.

8 Recommendations

- 8.1 The recommendations highlighted below are referenced against the factors detailed above and should not be considered in isolation.
- 8.1.1 Residents need to be made aware of their riparian responsibilities and appropriate measures they could take to protect their property without prejudicing the rights and responsibilities of adjoining property holders. Norfolk County Council as Lead Local Flood Authority will communicate with relevant residents.
- 8.1.2 Norfolk County Council as Lead Local Flood Authority will work with riparian owners and risk management authorities to;
- a) Identify the potential for increasing attenuation and or reducing flow of the upstream drainage system
 - b) Identify the appropriate level of maintenance of the watercourses upstream of the flooding
 - c) To confirm, where possible, the existence of any downstream connections to a wider drainage network.
- 8.1.3 Norfolk County Council will work with the Environment Agency to identify the possibility of securing funding to mitigate flood risk in this community where it is necessary beyond the individual property level protection. This recommendation will be subject to priorities and availability of resources.
- 8.1.4 Residents could seek further guidance and advice from the Upper Tribunal (Lands Chamber) (formally Agricultural Lands Tribunal) who may be able to enforce against those riparian owners who are required to maintain their watercourse and seek appropriate costs.

9 Disclaimer

Although every effort as been taken to ensure the accuracy of the information contained within the pages of the report, we cannot guarantee that the contents will always be current, accurate or complete.

This report has been prepared as part of Norfolk County Council's responsibilities under 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 may not include all relevant information. As such it should not be considered as a definitive assessment of all factors that may have triggered or contributed to the flood event.

The opinions, conclusions and any recommendations in this Report are based on assumptions made by Norfolk 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.

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Annotated Map

Flood Investigation Report: Glebe Close

It should be noted that the order in which these are listed does not reflect the significance of the issue and may require more detailed analysis or surveying to ascertain their level of influence over the incidents experienced at this location.

A A large field is adjacent to the affected property of which the aspect falls towards the property. This field forms part of a much wider catchment.

B This overland flow from the field also flows into the ditch from the south to the north.

C In addition there is a field land drainage system which discharges into the ditch.

D This map shows the ditch to continue into the property (marked red), however a site visit found that the ditch stopped at the boundary to this property. It is not known whether the ditch has been culverted to one of the inspection chambers in Flowerpot Lane.

E There is an outfall for the field ditch which flows into a culverted watercourse. The outfall pipe and the ditch (see point B) could not cope with the rainfall event in the frozen conditions within the field and the ditch overtopped leading to the flooding of the garden. The property owner took action to dig a channel to try and divert the flow from their property and brought in a pump to pump the water out on to the highway to keep the water out of the property.

F The culverted watercourse is riparian responsibility is known to change to a smaller diameter pipe. Whilst the condition of the outfall pipe is unknown it is likely to have operational and structural inadequacies and did not have the capacity to deal with the event.

G An investigation by South Norfolk Council in 2003 identified a culvert running through properties in St Mary's Road and Rectory Close. There is potential for the system to connect to a wider drainage system but there is no location specific evidence to confirm this.



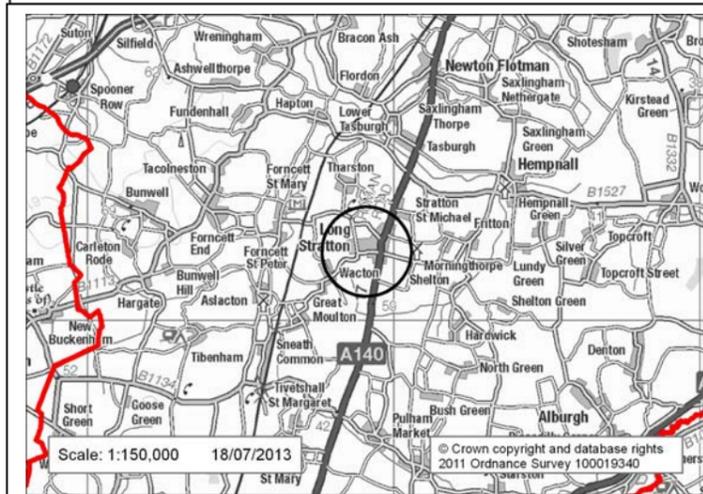
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Glebe Close
Long Stratton



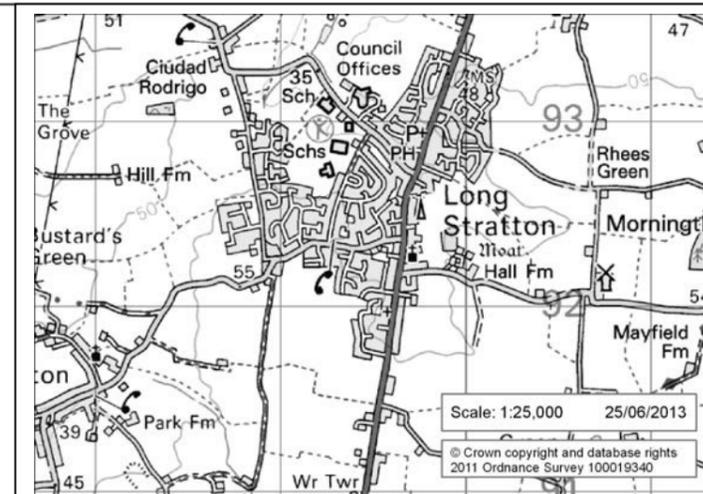
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Legend

- Parish Boundaries
- District Boundaries



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