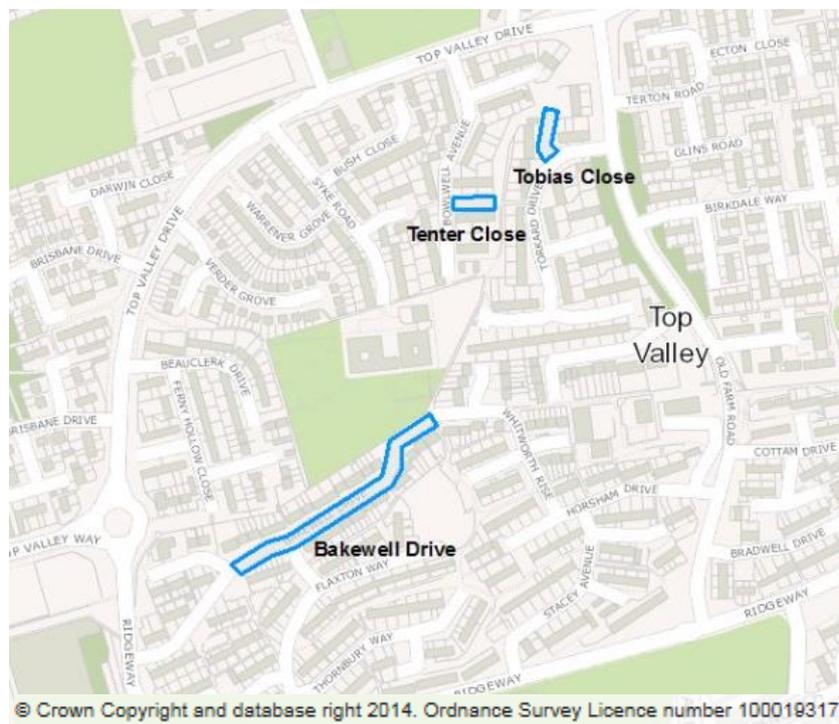


# Nottingham City Council

## Flood Investigation Report:

Prepared under Section 19 of the Water Management Act 2010

Bakewell Drive, Tobias Close & Tenter Close, Top Valley, Nottingham, on 23<sup>rd</sup> July 2013



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## **FLOOD INVESTIGATION REPORT SUMMARY**

Nottingham City Council is a Lead Local Flood Authority (LLFA) under the Flood and Water Management Act (2010).

Section 19 of the Act states that on becoming aware of a flood the LLFA must, where appropriate, investigate which Risk Management Authorities have relevant flood risk management functions and whether they have exercised, or are proposing to exercise, those functions in response to the flood.

A number of thunderstorms passed over the City on 22nd and 23rd July 2013. On the evening of 23rd July 2013 an intense storm passed over the north of Nottingham causing over 100 residential properties to flood across the City. A total of 31 properties suffered internal flooding in the Bakewell Drive, Tobias Close and Tenter Close area of Top Valley.

This Flood Investigation Report has been completed by the City Council in consultation with relevant Risk Management Authorities. The report summarises the formal investigation that has been undertaken, including any factors that contributed to the causes and impacts of the flood event and describes all roles and responsibilities and future actions.

## 1 INTRODUCTION

### 1.1 What is a Formal Flood Investigation?

Flooding has a devastating impact that affects people, property, businesses, the environment and transport. There are many different sources of flooding including rivers, sewers, surface water and groundwater and there are a number of Authorities and organisations involved in managing the risk of flooding from these different sources. Flooding can be caused by a complex interaction of different sources that can be difficult to resolve, particularly in urban areas.

Nottingham City Council is a Lead Local Flood Authority (LLFA) under the Flood and Water Management Act (2010). In recognition of the complex nature of flooding and the number of different Authorities that can be involved, Section 19 of the Act places a duty on the City Council to investigate the causes of flood events in their area, as appropriate. The legislative requirements of Section 19 are included below.

#### **Flood and Water Management Act (2010) – 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.

This report has been prepared in response to this legislative requirement.

### 1.2 Which Authorities are involved?

The Flood and Water Management Act (2010) identifies organisations that have flood risk management responsibilities as 'Risk Management Authorities'. Table 1 shows the key responsibilities of Risk Management Authorities that operate in the Nottingham City area.

Due to the number of different organisations involved, the City Council is responsible for leading on flood investigations and works in partnership with relevant Risk Management Authorities. Through leading the investigation, the City Council will identify which Risk

Management Authorities have flood risk management functions in relation to the flood event and what actions they propose to take, if any, to reduce flood risk in the future.

**Table 1: Risk Management Authorities in Nottingham City Council's administrative area.**

Risk Management Authority	Flood Risk Management Functions
<b>Lead Local Flood Authority &amp; Highway Authority: Nottingham City Council</b>	<ul style="list-style-type: none"> <li>• River (fluvial) flooding from minor watercourses ('Ordinary Watercourses')</li> <li>• Surface water (pluvial) flooding</li> <li>• Groundwater flooding</li> <li>• Provision and maintenance of highway drains and road gullies</li> </ul>
<b>Water and Sewerage Company: Severn Trent Water</b>	<ul style="list-style-type: none"> <li>• Providing effectual drainage</li> <li>• Maintaining adopted public sewerage network</li> </ul>
<b>Environment Agency</b>	<ul style="list-style-type: none"> <li>• River (fluvial) flooding from large watercourses ('Main Rivers')</li> <li>• Flooding from the Sea and estuaries</li> <li>• Reservoir flooding</li> </ul>

### 1.3 When are Formal Flood Investigations undertaken?

The City Council has developed thresholds and triggers for when a formal investigation will be undertaken following a flood event. The thresholds relevant to this Flood Investigation Report are summarised below:

#### **Nottingham City Council Thresholds for Initiating Flood Investigations**

For a residential dwelling such as houses or flats including Nottingham City Homes properties a Section 19 flood investigation shall be carried out where:

- internal (over the doorstep) flooding affects five or more properties and the properties are either in close proximity or the flooding is hydraulically linked.

The flood event on 23<sup>rd</sup> July 2013 caused the internal flooding of 25 properties on Bakewell Drive, four properties on Tobias Close and two on Tenter Close. This Flood Investigation Report

has been compiled because the number of properties that experienced internal flooding exceeds the thresholds that have been set by the City Council.

## 2 DESCRIPTION OF THE LOCAL AREA

### 2.1 Location of the flooding incident and the local area

Bakewell Drive, Tobias Close and Tenter Close are located approximately 6km north-west of Nottingham City Centre in the area of Top Valley. This is predominately a residential area with Westglade Primary School and playing fields adjacent to properties on the north side of Bakewell Drive (Figure 1).

As shown by the colour shading in the elevation map (Figure 1), Bakewell Drive runs along the bottom of a natural valley with higher ground to the north, east and south. Tobias Close and Tenter Close are situated higher up the valley that ultimately drains down to Bakewell Drive at the valley bottom. Ground levels fall from approximately 96 metres Above Ordnance Datum (mAOD) to the east off Old Farm Road to approximately 64 mAOD on Bakewell Drive, where the valley continues to fall in the direction of the River Leen to the west.

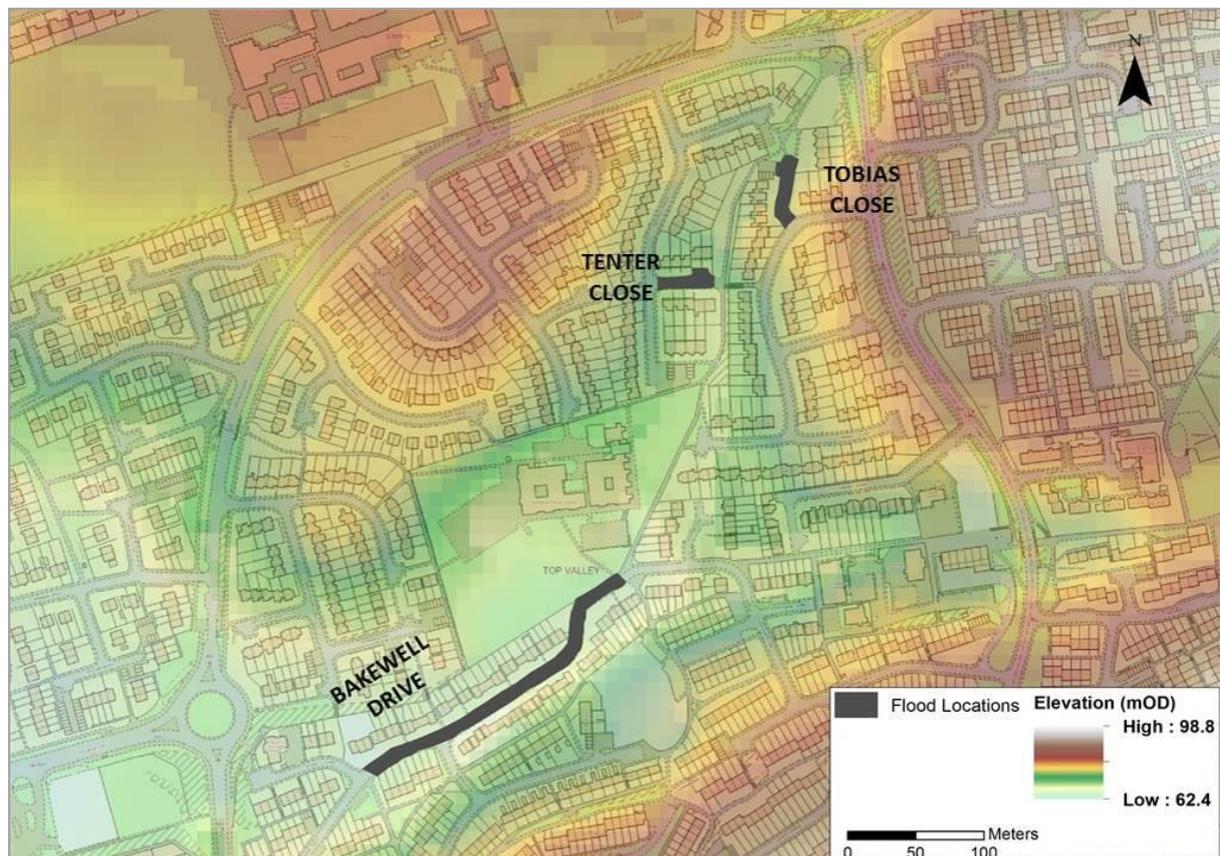


Figure 1: Site Location and Topography.

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The area was developed in the late 1960's/early 1970's including a new drainage system at the time, prior to this development the area was open fields. Due to the underlying geology it was a dry valley with no mapped watercourses. The properties on Bakewell Drive were demolished and rebuilt in 2006/2007.

## **2.2 Local river and drainage systems**

The River Leen is located 1.2km to the west of Bakewell Drive and there are no other nearby rivers or watercourses that could have an impact on flood risk in this area.

Bakewell Drive, Tobias Close and Tenter Close are served by a separate surface water and foul water public sewer network. Severn Trent Water's public sewer records show the surface water and foul water sewer pipes follow the natural topography of the land. Sewers flow down the valley from Tobias Close along the footpath on the east side of Westglade Primary School where they then head south west along the valley bottom following the north side of Bakewell Drive. A number of sewers connect into this main length of sewer draining approximately 1.25km<sup>2</sup> of the surrounding urban area.

Between Tobias Close and Bakewell Drive the surface water sewer increases in size from 900mm to 1125mm and the foul water sewer increases from 300mm to 375mm. On both the surface water and foul water networks there are a number of sewers that join together on Bakewell Drive at the south eastern corner of the Westglade Primary School playing fields. The pipe sizes increase to accommodate the additional flows as more pipes connect together.

## **2.3 Historical flood events**

Nottingham City Council and Severn Trent Water hold no records of internal or external flooding as a result of rainfall in this area of Nottingham prior to the flood event on 23<sup>rd</sup> July 2013. None of the residents interviewed recall historical flooding in this area.

## **2.4 Areas predicted to flood**

The Environment Agency's Flood Map for Surface Water is a national dataset which shows areas that are predicted to be at risk of flooding from surface water. The Map was made publically available on the Environment Agency's website<sup>1</sup> in December 2013.

The Flood Map for Surface Water shows that Tobias Close, Tenter Close and Bakewell Drive are at a high risk of surface water flooding. High risk means that each year, there is a chance of flooding of greater than 1 in 30 (3.3%). Areas at Medium risk (chance of flooding between the 1 in 30 and 1 in 100), Low risk (chance of flooding between the 1 in 100 and 1 in 1000) and Very Low risk (chance of flooding of less than 1 in 1000) are also indicated on the Map. The Map also shows that the flood flow route follows the natural valley identified in Section 2.1.

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<sup>1</sup> Environment Agency Flood Map for Surface Water, available online at [maps.environment-agency.gov.uk](https://maps.environment-agency.gov.uk), select 'Risk of Flooding from Surface Water'

An extract from the Flood Map for Surface Water is included in Appendix A.

## 3 CAUSES AND IMPACTS OF FLOODING

### 3.1 Weather conditions before and during the event

General conditions in the weeks leading up to the 23<sup>rd</sup> July 2013 were dry. Rainfall data from the City Council's rain gauge network shows that between 21:00 on 22<sup>nd</sup> July and 12:30 on 23<sup>rd</sup> July three rainfall events occurred. The Bulwell Riverside rain gauge, which is located 2km south west of Top Valley, recorded a total of 24mm of rain during this time (Figure 2, Events 1, 2 & 3).

At 17:00 on 23<sup>rd</sup> July 2013 an intense storm moved south west to north east across the north of Nottingham City, including the Top Valley area (Figure 2, Event 4). Rainfall data from the Bulwell Riverside rain gauge recorded 25.8mm of rain in 29 minutes, though affected residents in the Top Valley area recall the rain lasting for up to an hour. At the peak of the storm 17mm of rain was recorded in 10 minutes. It is important to note that rainfall can vary greatly over short distances and that the rainfall data reported here was recorded at Bulwell. The flood event started during the intense rainfall event at 17:00 on 23<sup>rd</sup> July 2013.

The City Council commissioned a report to undertake detailed analysis of the rainfall data from the Bulwell rain gauge. This concluded that the main storm at 1700 was a 1 in 36 annual probability event.

The intensity of the rainfall event is important because nationally the public sewer network is designed to accommodate the 1 in 30 annual probably rainfall event. Sewerage systems are designed to the modern water industry standard and are ordinarily expected to accommodate the 1 in 30 year event. The rainfall event exceeded the design standard and Severn Trent Water therefore class the event as 'extreme'.

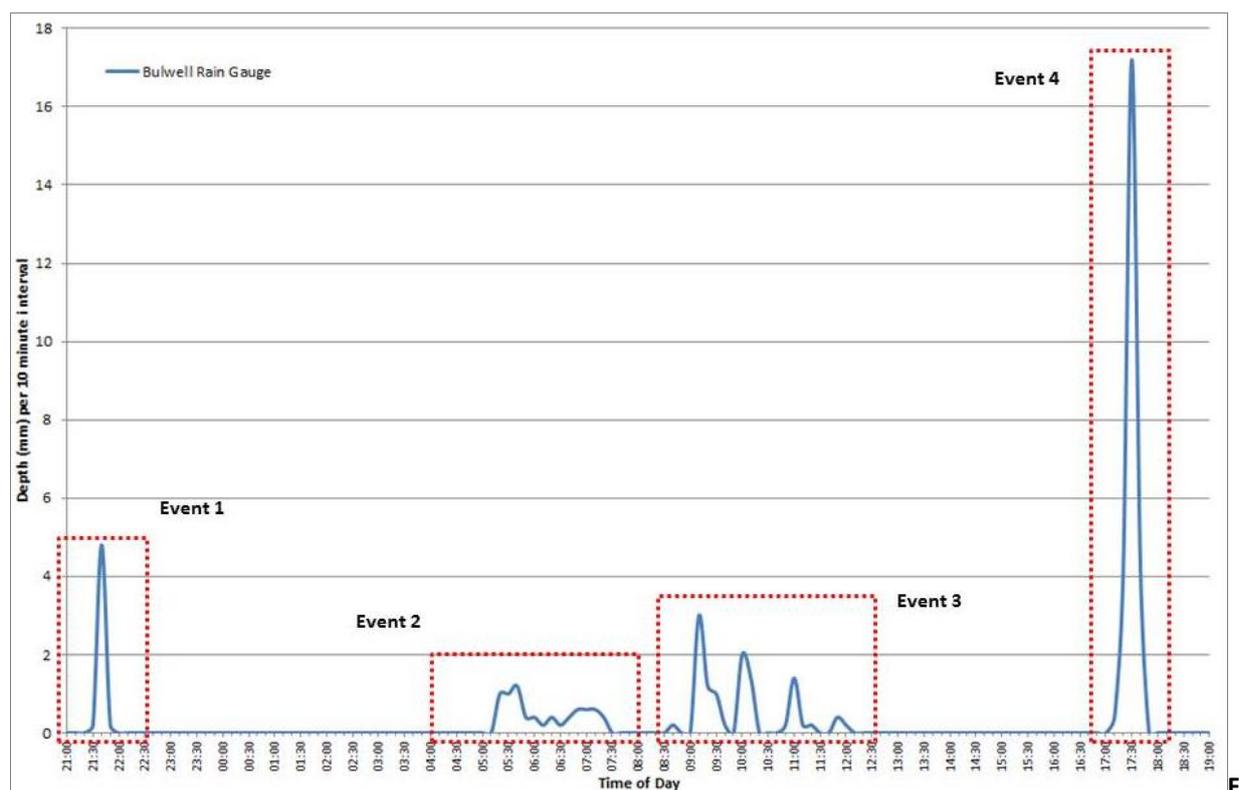


Figure 2: Rain gauge data from Bulwell for the evening of 22<sup>nd</sup> July 2013 and throughout 23<sup>rd</sup> July 2013

## 3.2 Flooding mechanisms and impacts

### 3.2.1 Observed flooding mechanism

The flooding of properties on Tobias Close, Tenter Close and Bakewell Drive occurred during and after the intense rainfall event at 1700 on 23<sup>rd</sup> July 2013. It is likely that rainfall in the 24 hours before the main rainfall event (Figure 2, Events 1-3) had filled much of the storage available in the sewerage pipe network and saturated areas of green open space both locally and within the wider Top Valley area. This, combined with the intensity of the main rainfall event, resulted in rapid overland flow and ponding of surface water in low lying areas.

Surface water flowed down the valley from the subway under Top Valley Drive and Old Farm Road and was conveyed along roads and footpaths towards properties on Tobias Close, Tenter Close and Bakewell Drive. Due to the local topography, properties on Bakewell Drive were also affected by overland flow from Barnes Road, Whitworth Rise at the east end of Bakewell Drive and from the school playing fields to the north of the properties. Residents recall roads that looked like rivers and water flowing out of the drainage system via manholes and road gullies.

Evidence of flooding closer to the River Leen suggests that the surface water sewer was unable to outfall into the river freely due to high flow levels during the storm. This may have caused

water to back up within the sewer network and cause manholes to surcharge, however, it is unknown to what extent this mechanism affected the Top Valley area 1.2km to the east.

There is no further evidence of contributory factors that may have increased the flood impact across the area.



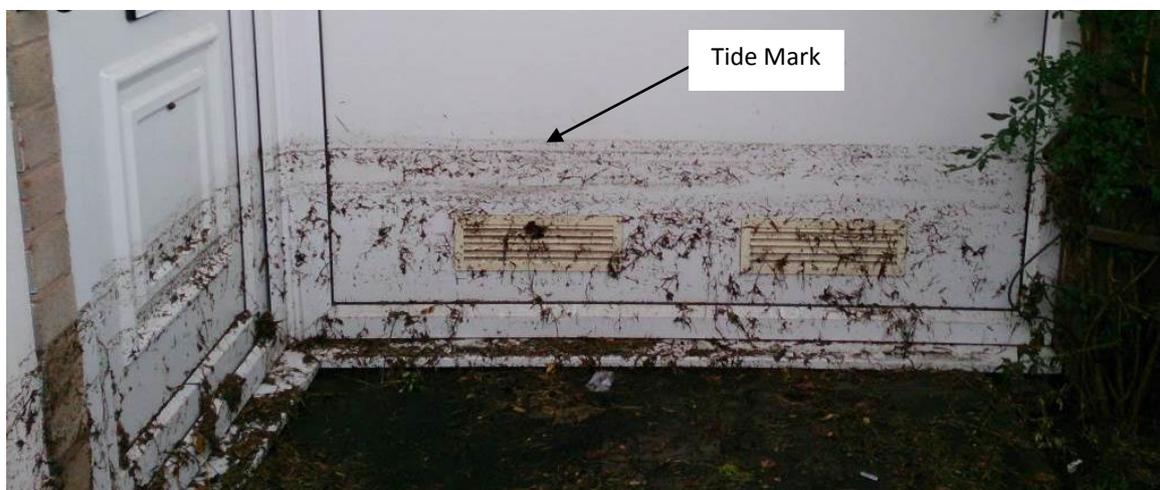
**Figure 3: Primary routes of surface water during the flood event.**

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### 3.2.2 Tobias Close

Residents at Tobias Close reported water flowing rapidly along the footpath from the subway below Top Valley Drive and Old Farm Road and ponding in a natural hollow at the front of the properties. Surface water also flowed down Torkard Drive and Tobias Close, contributing to the flood depths. The water level rose quickly and water entered through front doorways causing internal flooding to four properties. Photographic evidence and tide marks observed on site show that the depth of water was up to 530mm externally and internally on the ground floor properties (Figure 4).

Residents report that the water was foul smelling, suggesting that the surface water and foul sewers had begun to surcharge and flood, mixing with surface water runoff.



**Figure 4: External flood damage Tobias Close.**

### 3.2.3 Tenter Close

From reports of residents, it would appear the main conduit for surface water flow affecting Tenter Close was the footpath running from Tobias Close downhill towards Bakewell Drive. Due to the local topography, water flowed from the footpath and towards properties on Tenter Close. This was exacerbated by the fact that the affected properties on Tenter Close are set lower than the level of the adjacent road surface and water flowed down the driveways of the properties and through the front doors. Two properties flooded internally on Tenter Close.

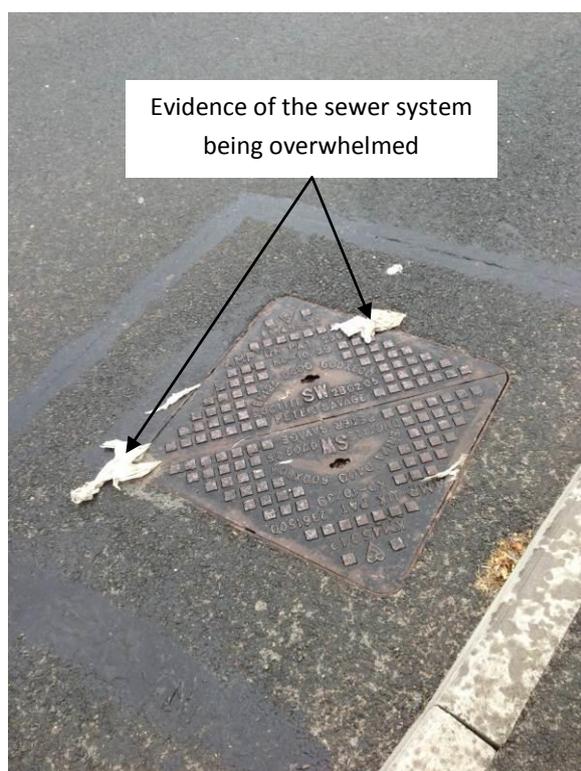
There is a series of five gullies on the footpath from Tobias Close to Bakewell Drive. However, given that evidence suggests that the sewer system was at capacity it is unlikely that they would have been able to take in water effectively.

### 3.2.4 Bakewell Drive

Bakewell Drive runs along the natural valley bottom of Top Valley and as such became a conduit for water from the surrounding higher ground. Surface water flowed rapidly downhill along the footpath that passes from Tobias Close and along the east side of Westglade Primary School. Surface flows from the surrounding steep roads and grassed areas, including Whitworth Rise and Barnes Road and Westglade Primary School playing fields also contributed to flooding on Bakewell Drive.

The sewer network drains a large area at this point (approximately 1.25km<sup>2</sup>) and evidence suggests that rainfall covered the whole catchment during the peak of the storm. Residents report that both the foul water and surface water sewer systems on Bakewell Drive became overloaded and began to flood and contribute to overland flow. From a site visit in the days following the event, evidence of sewage content at a manhole cover at the south eastern corner of Westglade Primary School supports the anecdotal evidence (Figure 5). The surrounding sewer network connects to the surface water and foul water sewer running along the north side of Bakewell Drive and it is likely that both surcharged under the excessive amounts of water in the system leading to flooding from the rear as well as the front of the properties.

This excessive surface water flow led to the internal flooding of 25 properties of Bakewell Drive with external flooding depths between 127mm and 1200mm. The properties on north side of Bakewell Drive are set slightly lower than the road surface to the front and playing fields to the rear. Many of the properties have a low doorstep threshold, in accordance with current building regulations and air bricks allowing for entrance of surface water if the kerb is breached (Figure 6).



**Figure 5: Evidence of sewer flooding on Bakewell Drive near to the footpath adjacent to Westglade Primary School.**



**Figure 6: Example of tide mark and low threshold on Bakewell Drive.**

**Table 2: Flooding impact on properties during the flood event.**

Location	Number of Properties	Flooding Source	Impact
<b>Tobias Close</b>	4  (of which 2 are social housing managed by Nottingham City Homes)	<ul style="list-style-type: none"> <li>• Surface Water</li> <li>• Sewer Flooding</li> </ul>	<ul style="list-style-type: none"> <li>• Downstairs flats internal and external damage to electrics, carpets, floors, doors, walls &amp; furniture</li> <li>• Upstairs flats damage to door, carpet, floors and walls in hallway</li> </ul>
<b>Tenter Close</b>	2	<ul style="list-style-type: none"> <li>• Surface Water</li> <li>• Sewer Flooding</li> </ul>	<ul style="list-style-type: none"> <li>• Internal flooding with complete renovation of downstairs of both properties required including flooring, kitchens, walls, doors, plaster, furniture</li> </ul>
<b>Bakewell Drive</b>	25	<ul style="list-style-type: none"> <li>• Surface Water</li> <li>• Sewer Surcharge</li> </ul>	<ul style="list-style-type: none"> <li>• Internal damage to carpets, floors, doors, walls &amp; furniture and external damage to walls, sheds &amp; gardens.</li> </ul>

## 4 RESPONSIBILITIES, AGREED ACTIONS & RECOMMENDATIONS

### 4.1 Which Risk Management Authorities have flood risk management functions in relation to the flood event

The flooding that occurred on Bakewell Drive, Tenter Close and Tobias Close was as a result of intense rainfall that generated large volumes of surface water runoff and likely overwhelmed drainage systems causing water to pond in low lying areas. The following authorities therefore have flood risk management functions in relation to the flood event:

- **Nottingham City Council** is responsible for managing flood risk from surface water and for providing and maintaining highway drainage systems.
- **Severn Trent Water** is responsible for providing effectual drainage on the public sewer network.

### 4.2 Actions taken by Authorities and the Community before the event

The City Council has an annual, cyclical maintenance regime of road gullies within the City Council area. As a minimum, each road gully is cleansed annually and requests for maintenance are responded to within three working days. The road gullies in the Top Valley area are subject to this annual maintenance regime. It is likely that the road gullies and highway drains in the flooded area and the wider catchment were overwhelmed by the volume, flow and depth of surface water flowing down roads and pathways. The highway drainage connects into the public sewer network and evidence observed after the event suggests surface water would have been unable to drain away because the public sewer network was at maximum capacity.

Severn Trent Water has a programme of serviceability inspections on the public sewer network to inspect the condition of sewers and remove blockages. It is expected that the sewerage system is designed to modern water industry standards and can ordinarily accommodate up to the 1 in 30 year storm event.

Interviews with affected residents have shown that this is the first flood event that residents have experienced in this area. Residents were unaware of the flood risks and therefore did not have any measures available to deploy to prevent water entering properties. Due to the time of day and the flashy nature of the flood a number of residents were out of their properties at the time.

### 4.3 Agreed future action plan

Surface water, highway drains and public sewers are closely linked. During this flood there is evidence of surface water being unable to drain into the highway drainage system and also

evidence that sewers were flooding and contributing towards surface water volumes. Any future solution to reduce the risk of flooding to the affected area would need to be undertaken in partnership between Severn Trent Water and Nottingham City Council.

Nationally, the modern public sewer network is designed to accommodate the 1 in 30 annual probability rainfall event. The rainfall event exceeded the design standard and Severn Trent Water therefore class the event as 'extreme'. Severn Trent Water prioritise investment in capacity improvements to the sewerage system based on risk, with the priority given to the most frequent and severe internal flooding. Currently, flooding in an extreme weather event beyond the design standards of the sewerage system does not meet criteria for a capacity improvement scheme at this time. As such, future actions are focused around improving community preparedness and resilience, rather than large-scale capital schemes. The Action Plan below summarises the actions that have been agreed between Nottingham City Council and Severn Trent Water.

<b>Nottingham City Council Actions</b>		<b>Status</b>
Secure funding from Central Government and / or the Local Levy to support affected residents by part funding appropriate property level protection such as flood resistant doors and smart airbricks.		Bid submitted March 2014 and funding was granted April 2015.
Continue to maintain road gullies on a regular basis to ensure that the maximum volume of surface water is transferred to the public sewer network. Gullies on Bakewell Drive, Tobias Close and Tenter Close are to be placed on the Targeted Gully Cleansing Regime for more regular maintenance.		Ongoing maintenance activity. Gullies have been placed on Targeted Gully Cleansing Regime.
<b>Severn Trent Water Actions</b>		<b>Status</b>
Ensure flooding of the 23 <sup>rd</sup> July 2013 is included on Severn Trent's records.		Completed
Maintain serviceability of public sewer system by inspecting and undertaking necessary remedial action (blockage removal etc).		Ongoing

Severn Trent Water Actions	Status
Monitor any future reported internal or external flooding incidents and the nature of the storm that causes flooding to identify any triggers for capital investment.	Ongoing

#### 4.4 Recommendations for affected residents

The table below contains recommendations for individual residents to improve resilience and preparedness.

Recommendations for Residents	Further Advice*
Residents should recognise that their property is vulnerable to future flooding in extreme rainfall events and make a <b>Flood Plan</b> , which involves ensuring that you have all of the information available that you may need in a flood event and helps you to consider what actions you will take if another flood occurs.	Environment Agency Personal Flood Plan Guidance: <a href="https://www.gov.uk/government/publications/personal-flood-plan">https://www.gov.uk/government/publications/personal-flood-plan</a>
Residents should consider installing appropriate property level flood protection measures such as flood resistant doors and smart airbricks on their properties to prevent water entering the property and reduce the impact of future intense rainfall events.	Environment Agency 'What to do before, during & after a flood': <a href="https://www.gov.uk/government/publications/flooding-what-to-do-before-during-and-after-a-flood">https://www.gov.uk/government/publications/flooding-what-to-do-before-during-and-after-a-flood</a>
Residents should maintain adequate flood insurance cover for the property. The National Flood Forum provides advice on flood insurance cover.	National Flood Forum website: <a href="http://nationalfloodforum.org.uk">nationalfloodforum.org.uk</a>
Residents should report any blocked road gullies to Nottingham City Council so that the City Council can act quickly to resolve the issue.	See 'Contacts' on Page 19

Residents should report any future external or internal flooding to both Nottingham City Council and Severn Trent Water. If this information is reported it will support evident for future capital investment to reduce flood risk.

See 'Contacts' on Page 19

*\* Most documents referred to are available on the internet. These can be provided by Nottingham City Council in hard copy format upon request. See 'Contacts' section on page 19*

## 5 CONCLUSIONS

A total of 31 residential properties were flooded internally on Bakewell Drive, Tenter Close and Tobias Close in Top Valley. A series of three heavy rainfall events passed over the City on 22<sup>nd</sup> and 23<sup>rd</sup> July that saturated the ground and filled available storage in underground drainage networks. A fourth rainfall event passed over Nottingham at 17:00 on 23<sup>rd</sup> July resulting in the flooding of 31 properties and extensive flooding of external areas. The properties that were affected are in low lying areas of the natural valley that forms the Top Valley area.

Nottingham City Council and Severn Trent Water are the Risk Management Authorities that have flood risk management functions in relation to the flood event. Nottingham City Council is responsible for managing the risk of flooding from surface water and highway drainage and Severn Trent Water is responsible for providing effectual drainage and public sewers (surface water sewers and foul water sewers). Due to the complex nature of the interactions between surface water and public sewers the City Council and Severn Trent Water have worked in partnership to investigate the flooding and agree an action plan.

Due to the extreme nature of the rainfall event the flooding incident does not trigger Severn Trent Water's capital investment programme and therefore the actions that the City Council and Severn Trent Water have agreed focus on the continued maintenance of the existing drainage systems so that they operate at maximum efficiency during rainfall events.

A number of recommendations have been made for residents to improve the level of preparedness and resilience of their properties. It is also important for residents to report any future flooding issues to Nottingham City Council and Severn Trent Water.

## 6 DISCLAIMER

This report has been prepared as part of Nottingham City 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. Nottingham City Council expressly disclaim responsibility for any error in, or omission from, this report and the supporting technical assessment 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 Nottingham City Council expressly disclaim 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 the City Council highlighting flooding to properties at a street level.

Nottingham City Council does not accept any liability for the use of this report or its contents by any third party.

## 7 CONTACTS & USEFUL LINKS

Nottingham City Council Contacts & Links		
<b>Drainage Team</b>	0115 8765275 or 01158765279 Monday to Friday 9:00-17:00	<i>For advice on improving the level of protection to your property</i>
<b>Highway Services Team</b>	0115 9152000 Monday to Friday 9:00-17:00 Online reporting: <a href="http://www.nottinghamcity.gov.uk/article/26940/Report-a-fault">www.nottinghamcity.gov.uk/article/26940/Report-a-fault</a>	<i>To report problems with blocked road gullies or flooding incidents during office hours</i>
<b>Emergency Contact</b>	0115 9152222 Out of office hours	<i>To report emergency flooding incidents out of office hours</i>
<b>Useful Web Pages</b>	<a href="http://www.nottinghamcity.gov.uk/article/25423/Flooding">http://www.nottinghamcity.gov.uk/article/25423/Flooding</a>	
Severn Trent Water Contacts		
<b>Emergency contact</b>	0800 783 4444 24 hours	<i>To report flooding incidents or blockages on sewers</i>
Environment Agency		
<b>Floodline</b>	0345 988 1188 24 hours	<i>For advice on current flood warnings</i>
<b>Useful web pages</b>	<a href="https://www.gov.uk/government/publications/flooding-what-to-do-before-during-and-after-a-flood">https://www.gov.uk/government/publications/flooding-what-to-do-before-during-and-after-a-flood</a>	
Emergency Services		
<b>Non Emergency Contact</b>	101	

**8 APPENDIX A: MAPS AND POLICY**

**Table A1: Nottingham City Council Thresholds for Initiating Flood Investigations on residential properties. (Section 19 Flood Investigation Policy)**

Threshold / Trigger	Included	Excluded
<ul style="list-style-type: none"> <li>• All incidents where internal flooding affects five or more properties and the properties are either in close proximity or the flooding is hydraulically linked.</li> <li>• Where there is uncertainty around the cause of flooding or the responsible Risk Management Authority, regardless of the number of properties affected.</li> <li>• Where the frequency or impacts of flooding are particularly severe, regardless of the number of properties affected.</li> </ul>	<p>‘Internal’ flooding relates to:</p> <ul style="list-style-type: none"> <li>• Flooding of any area of a property that was originally intended to be habitable at ground floor level and above e.g. kitchen, reception rooms, sleeping accommodation.</li> <li>• Flooding of a sub-surface structure, such as a basement or cellar, where the floodwater contains sewage or other contaminants that cause concern for public health.</li> </ul>	<p>The following exclusions relate to the definition of ‘internal’ flooding:</p> <ul style="list-style-type: none"> <li>• External areas such as gardens, driveways and paths.</li> <li>• Structures that were not originally designed to be part of the habitable property such as sheds, summer houses, conservatories or garages.</li> <li>• Flooding of a sub-surface structure, such as a basement or cellar, where the floodwater does not cause concern for public health.</li> </ul>

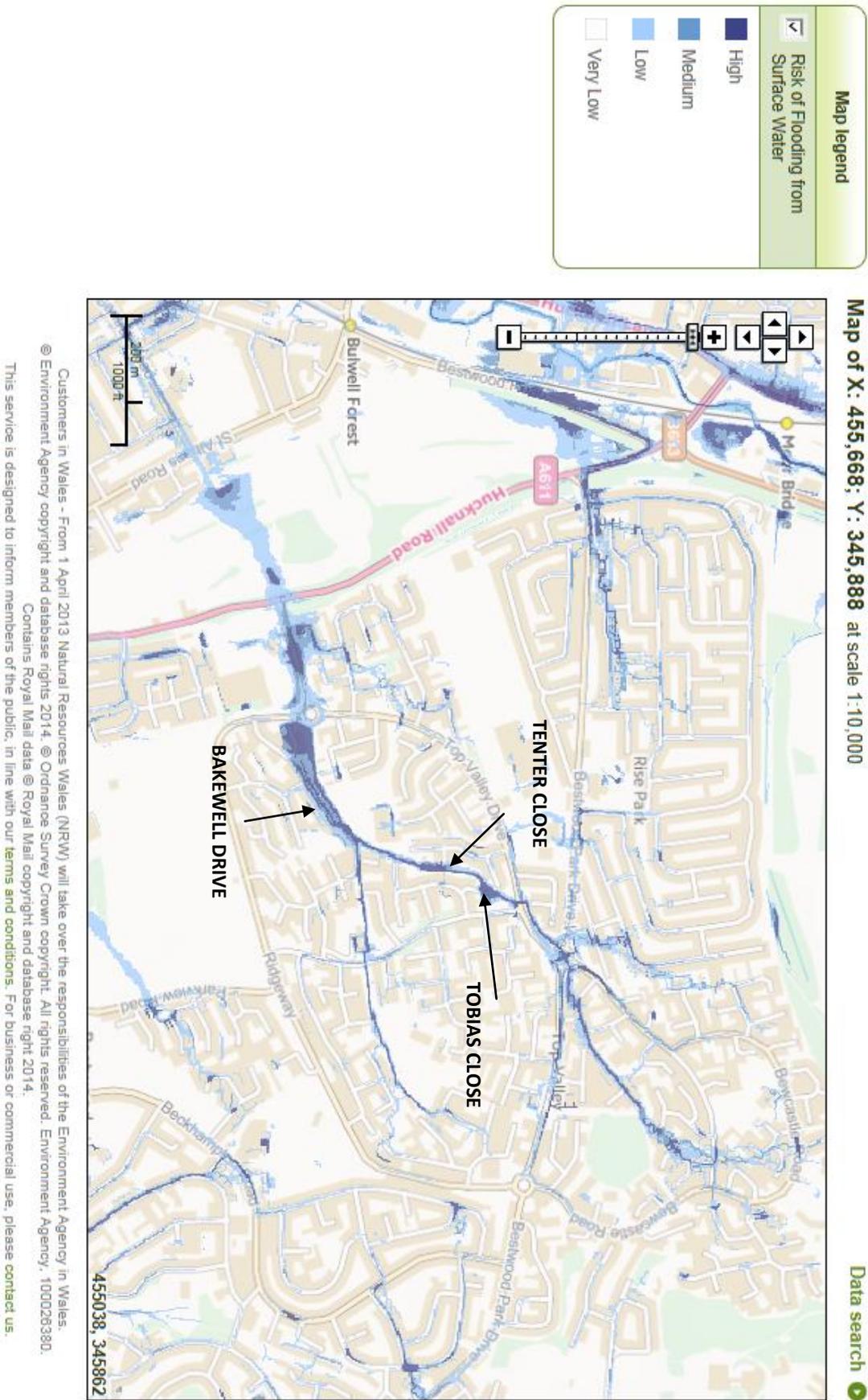


Figure A1: Environment Agency Flood Map for Surface Water