

# 2020 Flood Event: Flood and Water Management Act Section 19 - Investigation Kitling Greaves Lane, Outwoods Update to previous Section 19 Report

<b>Document Ref:</b>			<b>2020 Flooding: FWMA S.19 – Investigation Kitling Greaves Lane, Outwoods Update to previous Section 19 Report</b>		
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0	27/07/2021	Draft	James Youle	Jamie Cooper	
1	02/12/2022	Final	Jamie Cooper		Dale Arthur

## Introduction

Flooding of properties occurred in Kitling Greaves Lane, Outwoods on 12<sup>th</sup> March 2018 and a Section 19 Report has been published on our website, which can be located here:

[Flood Investigation Report, Kitling Greaves Lane, Outwoods](#)

Due to further flooding on 16<sup>th</sup> February 2020, we are required to produce an updated/amended Section 19 report to investigate the flooding.

## Section 19 Requirements

The Flood and Water Management Act 2010 places a duty on Lead Local Flood Authorities to investigate incidents of flooding. This is set out in Section 19 of the act and the investigations are therefore typically termed '*Section 19 Reports.*' The Act states:

- 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.

Following major flood events, it can often be difficult to identify the source of the flooding and with whom actions to help resolve flooding issues may lie. The purpose of Section 19 of the Flood and Water Management Act 2010 is to ensure that, where this uncertainty occurs, LLFAs assist with identifying the source(s) of flooding and notifying those Risk Management Authorities (RMAs) which have responsibilities.

The County will undertake a formal investigation for locally significant flood events when one or more of the following criteria are met. This is set out in the Staffordshire Local Flood Risk Management Strategy, which was approved by Staffordshire County Council's Cabinet on the 21 October 2015:

- Five or more residential properties are reported to have been internally flooded during a single flood event in one location;
- Two or more business properties are reported to have been internally flooded during a single flood event in one location, or;
- One or more items of critical infrastructure are reported to have been adversely affected during a single flood event in one location.

## Event Background

Several storms occurred in winter 2019-2020 across the UK and Midlands. The combined impacts of Storms Ciara, Dennis and Jorge led to exceptionally high rainfall totals across the UK, causing flooding in several areas.

Storm Dennis (15-16 February 2020) was the fourth named storm in the 2019/20 season, which arrived one week after Storm Ciara and brought with it heavy and persistent rainfall<sup>1</sup>. In the twelve months prior to Storm Dennis, Staffordshire had exceptionally high rainfall compared to the average (**Figure 1**). Rainfall in December and January was unremarkable. However, rainfall totals in February were exceptionally high, with February the wettest month in a series from 1862; the England figure was 258% of the long-term average (1981-2010). Crucially, soil moisture deficit from December 2019 through to February 2020 was generally practically zero/remained close to zero in Central England<sup>2</sup> (**Figure 2**). This means in the time running up to Storm Dennis there was generally little to no capacity within soils to drain or infiltrate rainfall. River flows in large rivers were also exceptionally high through February.

<sup>1</sup> Met Office – Winter 2019/2020 [https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/uk-past-events/summaries/uk\\_monthly\\_climate\\_summary\\_winter\\_2020.pdf](https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/uk-past-events/summaries/uk_monthly_climate_summary_winter_2020.pdf)

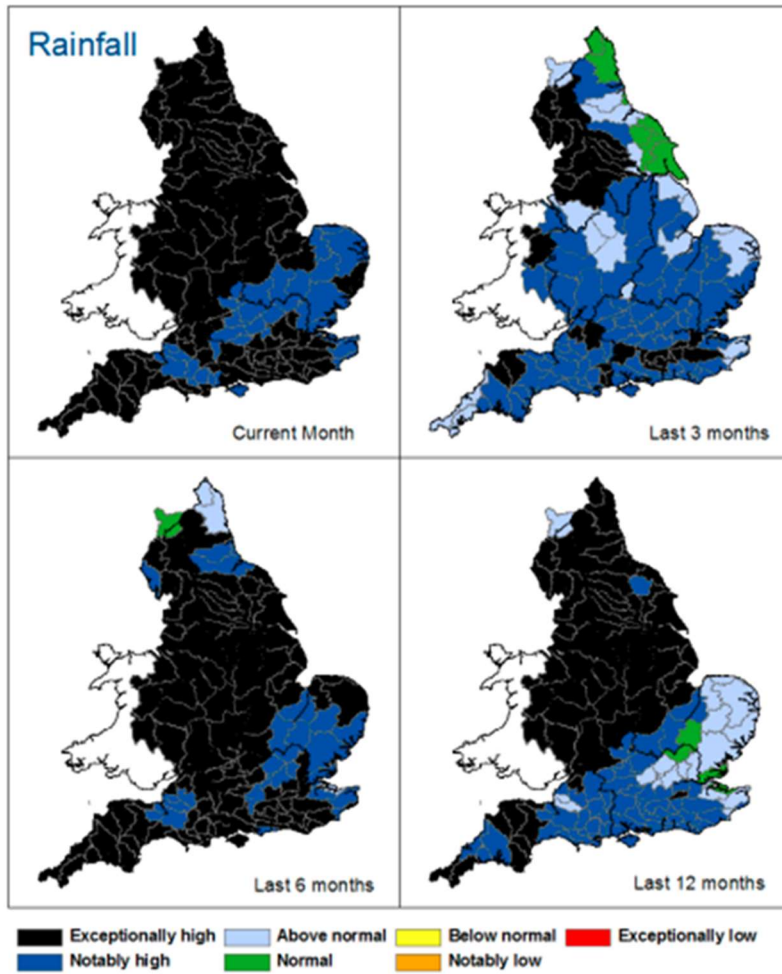


Figure 1: Total Rainfall Across England up to February 29 2020 (Source: Environment Agency<sup>4</sup>)

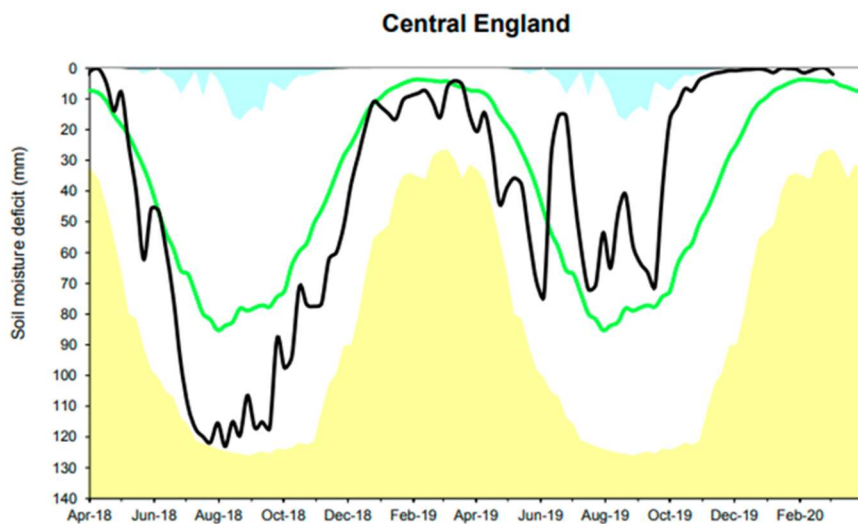
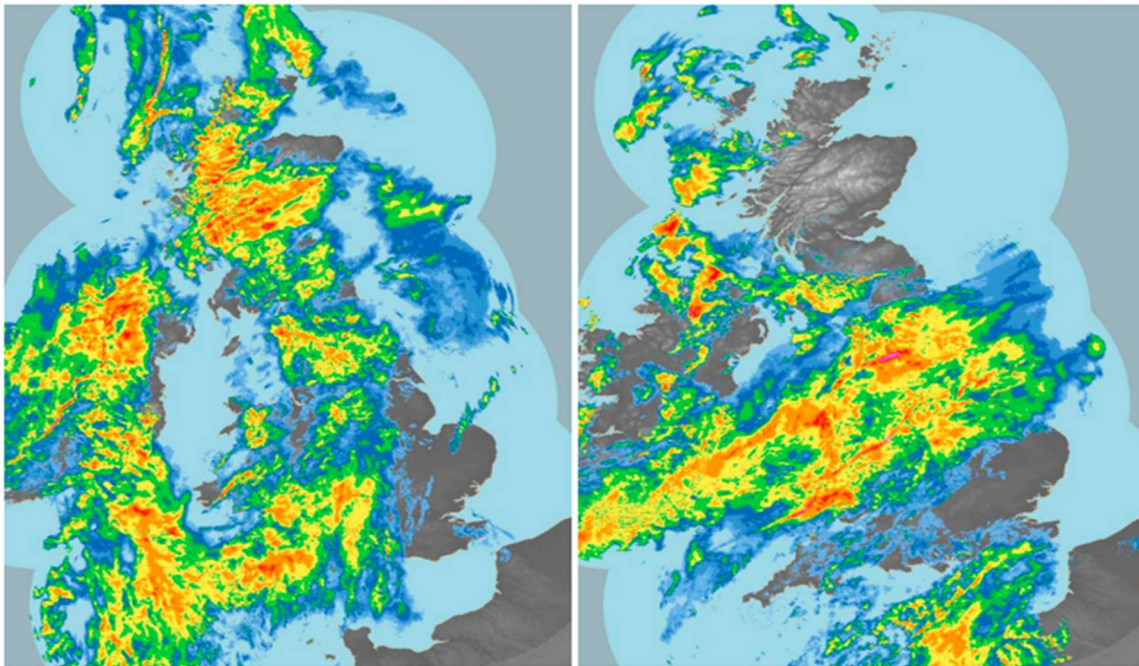


Figure 2: Central England Soil Moisture Deficit (Source: Environment Agency<sup>4</sup>)

<sup>2</sup> Environment Agency – Monthly water situation report: England  
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/871949/Water\\_situation\\_February\\_2020.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/871949/Water_situation_February_2020.pdf)

On 14 February, Storm Dennis developed off the west coast of Ireland moving east and arriving in England by early afternoon. By mid-afternoon the front swept into Staffordshire and by late Friday night/early hours of Saturday morning this front had passed east out of Staffordshire. On Saturday 15 February a large front of rainfall developed in the morning and approached Staffordshire quickly, sustaining through to mid-day and continuing to remain over Staffordshire until early afternoon on Sunday 16 February. **Figure 3** shows radar-images of the rainfall across the UK. Through the rest of Sunday, the sustained/persistent rainfall moved over the rest of Europe, leaving scattered rainfall showers over Staffordshire through to Monday. For a more detailed account of Storm Denis please refer to [The Met Office](#)<sup>3</sup> and [Centre for Ecology and Hydrology](#)<sup>4</sup>.



**Figure 3:** Rain-radar images at 12 UTC 15th and 00 UTC 16th February 2020 show the heavy and persistent rainfall from storm Dennis with the fronts sweeping across the UK (Source: The Met Office<sup>5</sup>)

<sup>3</sup> Met Office – Storm Dennis [https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/uk-past-events/interesting/2020/2020\\_03\\_storm\\_dennis.pdf](https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/uk-past-events/interesting/2020/2020_03_storm_dennis.pdf)

<sup>4</sup> Centre for Ecology and Hydrology – Briefing note: Severity of the February 2020 floods – preliminary analysis [https://nrfa.ceh.ac.uk/sites/default/files/Briefing\\_Note\\_V6.pdf](https://nrfa.ceh.ac.uk/sites/default/files/Briefing_Note_V6.pdf)

## Analysis and Recommendations

It is understood at least 5 properties on Kitling Greaves Lane flooded again in Storm Dennis, 16<sup>th</sup> February 2020.

The return period of the flow within the ordinary watercourse generated by the storm was approximately 1 in 30 year or to have a 3.3% chance of occurring in any year. (Figures 4 & 5).

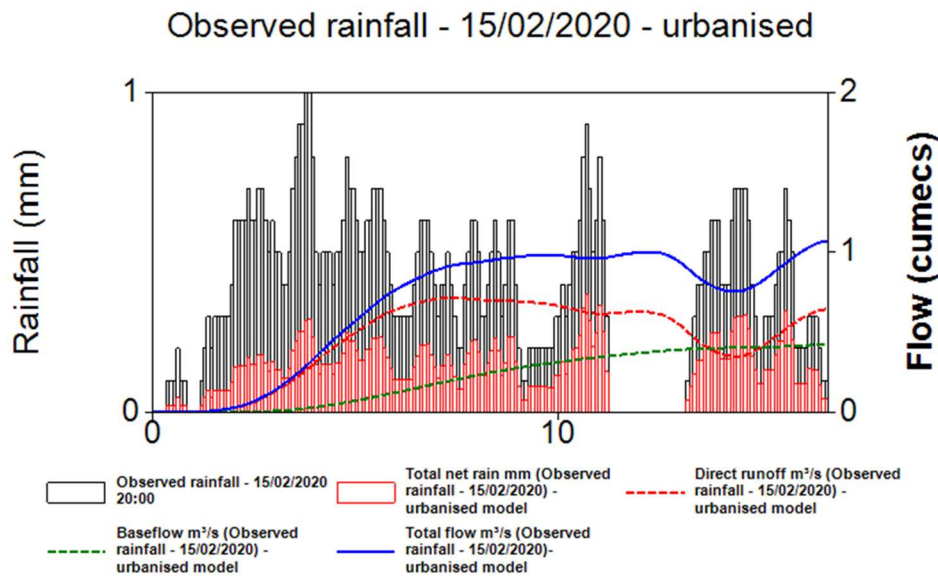


Figure 4: Rainfall and flow results based on rainfall radar maps and hydrological (ReFH) modelling for period up to and including 16 February 2022. Peak flow 1.08 m<sup>3</sup>/s.

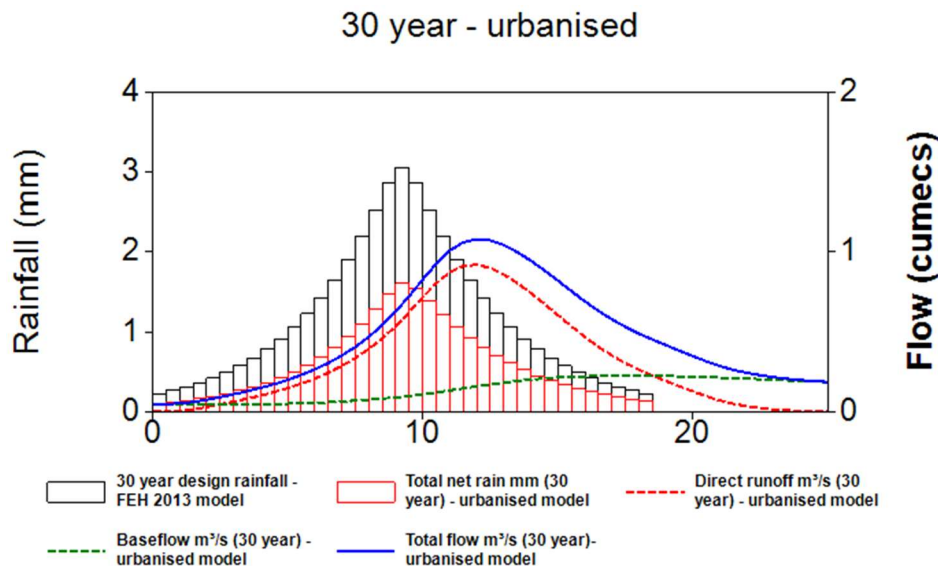


Figure 5: 1 in 30-year (3.3% chance occurring in any year) flow based on theoretical hydrological modelling (ReFH). This is very similar to the peak observed in Figure 4.

Based on the Environment Agency's updated flood map for surface water, we would reasonably expect flooding of properties for this type of storm.

We believe the mechanism of the flooding to be the same as occurred on 16 February 2020, with water coming down the ordinary watercourse and topping onto the road. We have received anecdotal evidence that the ordinary watercourse was blocked with debris at the time of the flooding.

Following consultation with the relevant Risk Management Authority (SCC Highways) we have established that the existing trash screen has been modified, a new secondary trash screen has been installed, some additional local works installed, and this stretch of watercourse has been added to the monthly maintenance regime.

Staffordshire County Council as Lead Local Flood Authority will continue to work with partners, the community, and others to understand the feasibility in undertaking further actions to alleviate the flooding in this area.