Economic Regeneration, Growth & Environment

S19. (1) Flood Investigation Report

Engineering & Flood Risk Management Team

Warrington Borough Council – Lead Local Flood Authority

Date: February 2016

Location: Cromwell Avenue, Callands

Flood Investigation Reference Number: 2012/006b

Version: Final 01

Revision Schedule: 2012/006b Flood Investigation

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Document Status: Final01 issued to JWT for approval.				

Revision	**Name**	**Name**	**Name**	**Name**
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1.0 Introduction

Following this flood event an investigation under Section 19 (1) of the Flood and Water Management Act was undertaken to determine which risk management authorities had relevant flood risk management functions and whether each of those risk management authorities had exercised or was proposing to exercise those functions in response to the flood. In accordance with Section 19 (2) of the Flood and Water Management Act this report details the results of the investigation.

2.0 Details of the Flood Event

Reference:	2012/006		
Location:	100m section of Cromwell Avenue, Callands flooded to 0.15m depth.		
Date of Flood Events:	26/12/2015 – 27/12/2015	**Duration:**	unknown
Reason for investigation:	Flooding resulted in major disruption to the flow of traffic.		
Identified Source:	Surface water as drainage system was unable to discharge into Sankey Brook as brook level was higher than outfall.		

3.0 Flood History

Warrington Borough Council is aware of flooding to an approx. depth of 150mm at the same location on 24 September 2012 to 26 September 2012. A previous Flood Investigation was completed in respect of the September 2012 flood event reference: 2012/006 (November 2012).

4.0 Extent of the Flooding

The extent of the flooding was to a 100m section of Cromwell Avenue between Europa Boulevard and Sankey Brook. The depth of flooding according to the Highway Maintenance Event Log was 150mm.

5.0 Actions Undertaken

According to the Highway Maintenance Event Log, flood signs were erected at 02:00 on 27 December 2015 after the Council was notified by the Police and removed at 10:00 on 27 December 2015 when the flooding had receded.

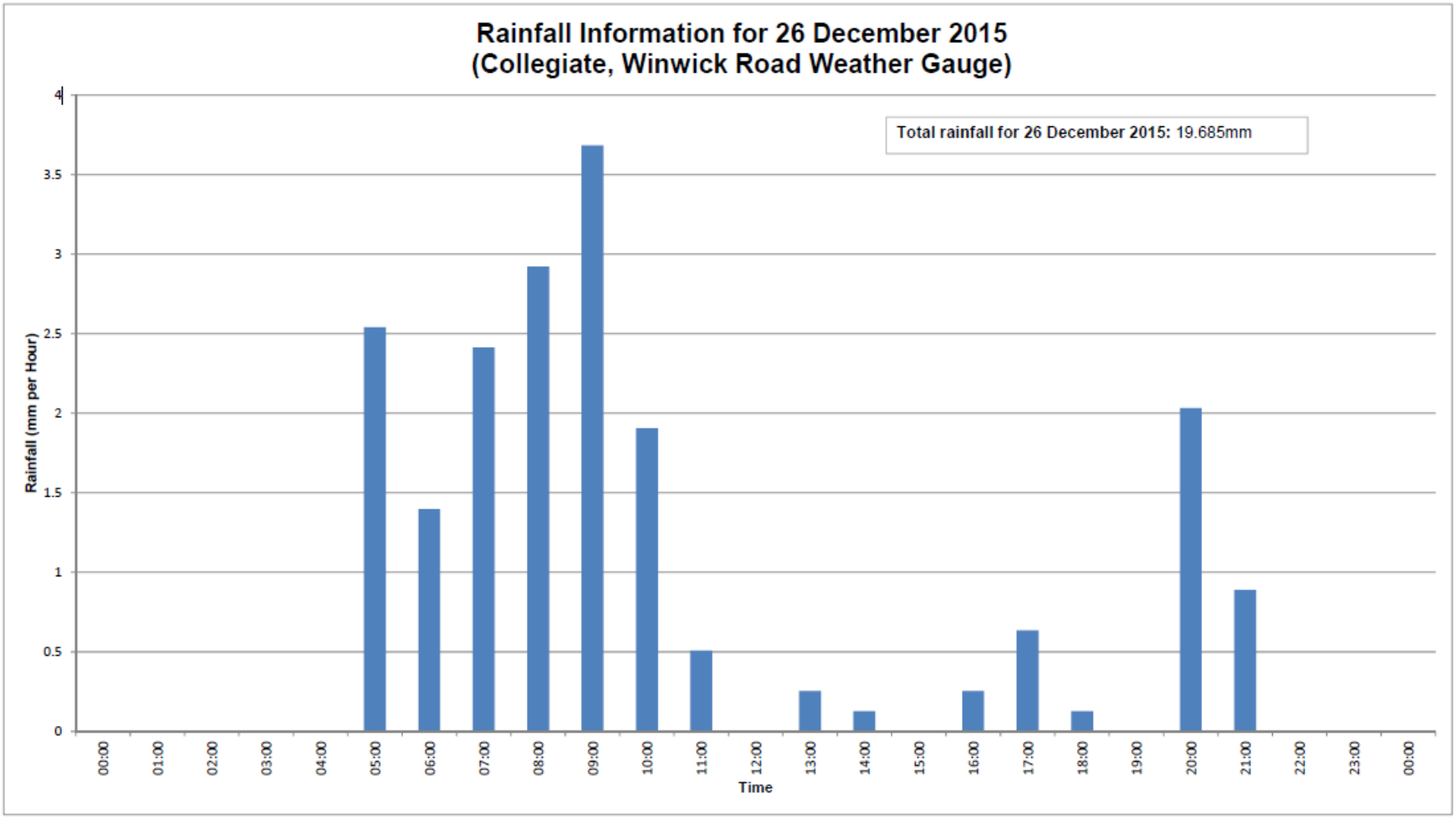
6.0 Cause of the Flood Event

6.1 Rainfall Information

19.685mm of rain fell on the Warrington Borough Council rain gauge at the Collegiate, Long Lane from 05:00 to 21:00 on 26 December 2015. (See figure 1.)

The rainfall data shows that no rain fell on 27 December 2015.

Figure 1: Rainfall information.



6.2 River Levels

Following the flood event, Warrington Borough Council obtained river telemetry data from the Environment Agency.

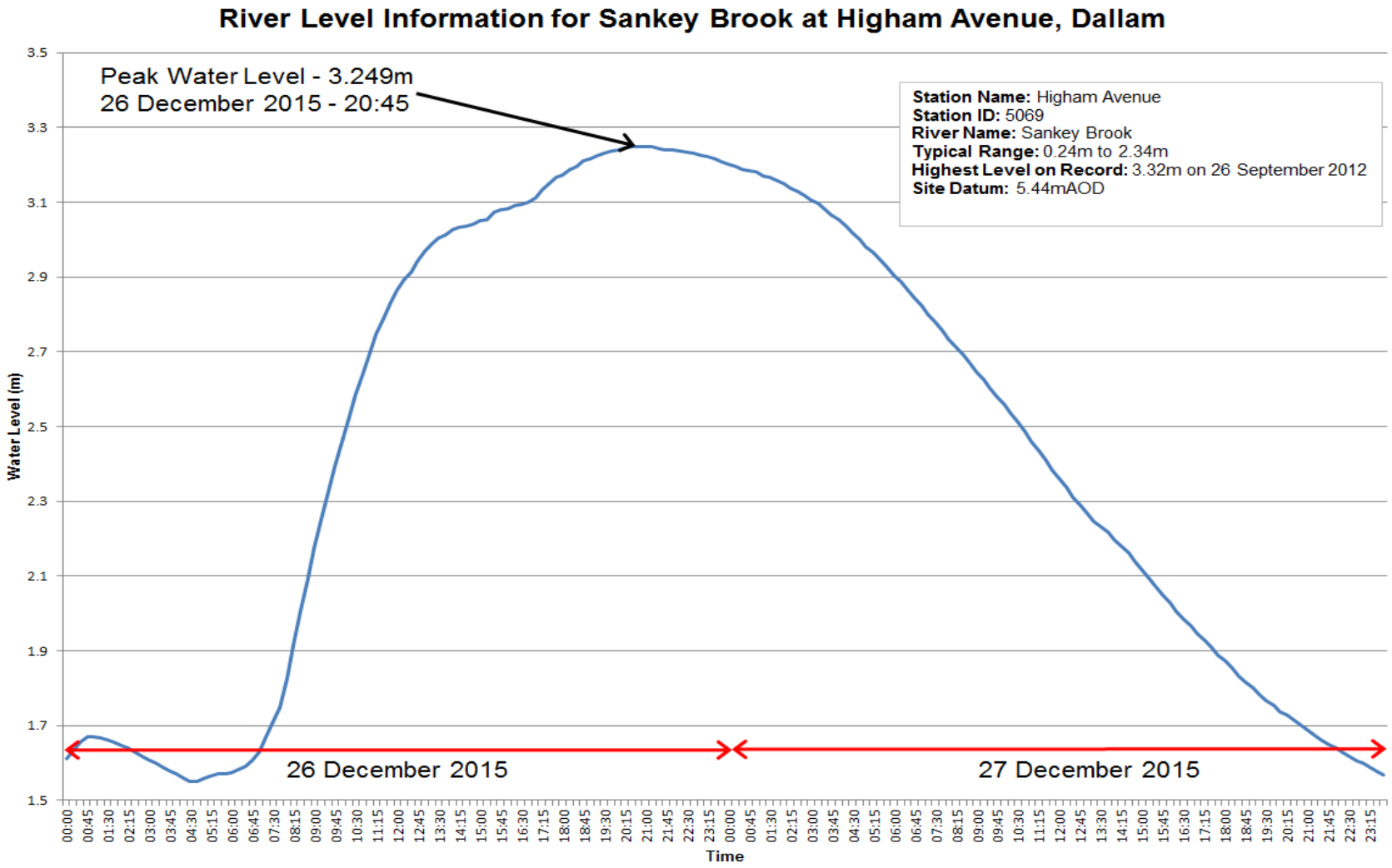
The telemetry station is at a point on Sankey Brook approximately 720m downstream of the surface water outfall point for Cromwell Avenue.

The peak water level for this flood event for the Sankey Brook at Higham Avenue, Dallam was 3.249m and it occurred on 26 December 2015 at 20:45. This is 71mm lower than the previously highest recorded level. The river level information is shown in Figure 2.

The highest recorded level for the telemetry station was observed during the event on 26 September 2012 at 3.32m. This coincides with previous reported flooding.

It should be noted that high river levels can cause surface water systems which are drained by gravity to fail to discharge or not operate efficiently as their outfalls are blocked or flap valves are closed to prevent river water entering the system and exacerbating the situation.

Figure 2: EA River Level Telemetry Reading at Higham Avenue.



6.3 Drainage System

The area of Cromwell Avenue which flooded is served by United Utilities (UU) surface water sewer which discharges into Sankey Brook.

6.4 Cromwell Avenue Flood Event Details

The flood mechanism on 26 December 2015 was not observed by Warrington Borough Council, however the flood mechanism was observed during the flooding in September 2012.

In 2012, during the flood event, rainfall surcharged through gully pots to flood the highway at its lowest point. This was because the UU surface water sewer that receives the highway drainage was unable to discharge into Sankey Brook as the brook level was higher than the outfall. This closed the tide flap on the sewer and caused water to surcharge back through the system.

7.0 Conclusion and Flood Risk Management Authority Responsibility

It is the conclusion of this report that the surface water system was unable to discharge due to the high brook level. Warrington Borough Council as highway authority is responsible for managing this flood risk.

8.0 Recommended Actions

The following is a recommended but not binding action for Warrington Borough Council:

- As Highway Authority, WBC shall monitor the highway surface water drainage system to ensure it is adequately maintained and be prepared to react accordingly if a similar or greater rainfall event occurs in future.

9.0 Disclaimer

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

This report has been prepared as part of Council's responsibilities under the Flood and Water Management Act 2010 as Lead Local Flood Authority (LLFA).

The findings of this report are based on a subjective assessment of the information available to those undertaking the investigation and therefore may not include all relevant information. Therefore it shouldn't 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 our assumptions when preparing this report, including, but not limited to those key assumptions noted in the reports, including reliance on information provided by third parties.

The Council expressly disclaims responsibility for any error in, or omission from, this report arising from or in connection with any of the assumptions made being incorrect. The opinions, conclusions and any recommendations in these reports are based on conditions encountered and information reviewed at the time of preparation and the Council expressly disclaims responsibility for any error in, or omission from, this report arising from or in connection with those opinions, conclusions and any recommendations.

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This document will be reviewed following any new information being received in relation to the flood event and its causes/effects.