



Flood Investigation Report
Eleanor Street / Saddle Junction / Wallgate
24 – 26 September 2012

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Revision Schedule

Wigan Council

Flood Investigation Report

Revisions

Rev	Date	Details	Prepared	Reviewed	Approved
1	01/10/13	Initial Report for Stakeholder Consultation	AC	MAJ	MT
2	7/11/13	Agreed Report after Stakeholder Consultation	AC	MAJ	MT

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Executive Summary

This Flood Investigation Report has been completed by Wigan Council under our duties as the Lead Local Flood Authority (LLFA). Section 19 of the Flood and Water Management Act 2010 (FWMA) states that on becoming aware of a flood in our area, when appropriate, we must investigate the relevant flood risk management authorities involved and find out which flood risk management functions have been, or will be taken, if any.

Historically flooding in Saddle Junction / Wallgate area and Eleanor Street has been fluvial (river flooding) with the River Douglas over topping, however recent flood events have been attributed to pluvial (rain related surface water flooding) sources.

The area lies within Flood Zone 3 (Indicating a high probability' of flooding) with a 1% (one in a hundred) chance of flooding in any year as shown on the Environment Agency's (EA) Indicative Floodmap. Flood alleviation works have been carried out on various stretches of the River Douglas, with the EA constructing a new flood defence wall along the River Douglas adjacent to Eleanor Street to offer increased protection to the properties.

Additionally the Environment Agency's £12m Wigan Flood Risk Management Scheme became operational in 2011 and has created a potential 370,000 m³ of flood storage extending along a kilometer of the Douglas valley, the scheme now provides increased protection up to 1% (1 in 100 year return period).

The flood event over the 23, 24, 25 & 26 of September 2012 to the Saddle Junction / Wallgate Eleanor Street has been attributed to severe prolonged rainfall which resulted in eight residential properties and one commercial property flooding internally and was predominately surface water which overloaded United Utilities combined sewer which was not surcharged to a level to result in foul flooding but was surcharged sufficiently to prevent the highway drainage system in the area from discharging into it.

Additionally the highway drainage system on Wallgate also discharges directly into the River Douglas and again due to the above prolonged rainfall the river levels rose significantly above the highway drain outfall pipe preventing it from discharging into the river.

It was deemed necessary by Wigan Council to complete an investigation of the above flood incident. This report provides a summary of the actions being carried out by each of the authorities involved; as well as engaging the local Community.

1. Introduction

Wigan Council as the Lead Local Flood Authority (LLFA) has a responsibility under Section 19 of the Flood and Water Management Act 2010 to investigate and report flood events in the Wigan Borough.

Section 19 states that:

- (1) On becoming aware of a flood in its area, a lead local flood authority must, to the extent that it considers 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 carried out an investigation under subsection (1) it must –
 - a. Publish the results of its investigation, and
 - b. Notify and relevant risk management authorities.

A formal investigation will be undertaken when one or more of the following occurs:

- The source or responsibility of a flood incident is unknown
- Flooding has affected critical infrastructure
- Internal flooding of one property has occurred on more than one occasion in the last five years
- Internal flooding of five properties in close proximity has occurred during a single flood event.

This report provides a concise review of the rights and responsibilities of all risk management authorities involved, and an outline of their past or proposed actions, if any. It also makes recommendations for a possible way forward.

1.1 Flood Event

An investigation into the recent and previous flood incidents at this location was completed due to more than one property flooding internally on numerous occasions.

Flooding has occurred at this location for a number of years, most notably on the 24th September 2012 with eight residential properties and one commercial property flooding internally and flood waters reaching between 300mm and 750mm deep.

Sand bags and pumps were deployed to site to limit damage to residential properties.



Figure 1 - Sandbags outside residential property



Figure 2 - Surface Water Flooding to Commercial Properties

2. The Drainage System

During the flooding in September 2012 United Utilities sewer along with the highway drainage system were at capacity resulting in the inundation of the area. Figures 3 & 4 below show the approximate extent of flooding and the existing drainage layout.



Figure 3 - Eleanor Street Sewer Map and Flood Extents

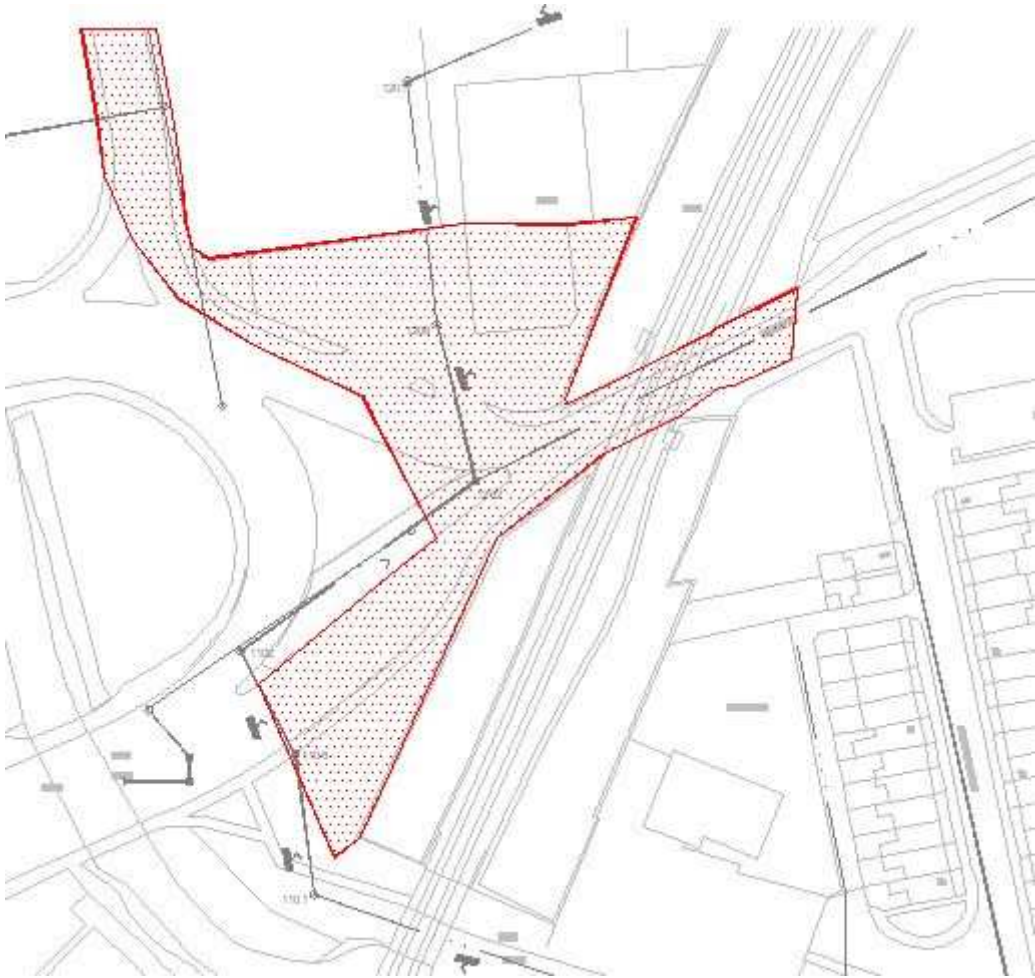


Figure 4 - Saddle Junction / Wallgate Sewer Map and Flood Extents

Flood History

Flooding at this location dates back to 2000. The most recent event was recorded in September 2012. Pictures can be found in Appendix A. Table 1 shows the flood events on record.

Date	Extent of Flooding
30/10/2000	Internal
14/06/2002	External
05/12/2003	Internal
10/08/2004	Referred to United Utilities
20/08/2004	No info
10/01/2008	Highway
26/06/2008	External
24/09/2012	Internal
25/09/2012	Internal

Table 1 - List of Previous Flood Events

2.1 Possible Causes

Eleanor Street - Severe rainfall and potential inundation from other surface water sources resulted in the surcharge of United Utilities combined sewer which in turn prevented the highway drainage system from discharging into it. The road gullies on the highway drainage system offer the least point of resistance and as the highway drainage became overloaded it was unable to discharge into United Utilities combined sewer system, which whilst not overflowing was surcharged to a level that prevented the highway drainage system on Eleanor Street and Melverley Street from discharging into it.

Saddle Junction / Wallgate - Severe rainfall again overloaded the United Utilities combined sewer which was surcharged preventing any gullies on the highway drainage system at the Saddle Junction and Wallgate Bridge from discharging into it. Although overloaded the United Utilities combined sewer was not surcharged to a level to cause foul flooding with the flooding being predominantly surface water.

However as one of the road gullies under Wallgate Bridge is 540mm lower than the soffit level of Adam Bridge on the River Douglas and due to prolonged rainfall the river levels rose significantly above the highway drain possibly causing it to flow back up the highway drainage system compounding the flooding to the highway and surrounding commercial and residential properties. (See Figure 6). Additionally this would then have inundated the combined sewerage system giving rise to the surcharge referred to at Eleanor Street



Figure 5: Existing Surface Water / Highway Drainage Outfall – Normal Conditions



Figure 6: Adam Bridge - River Levels up to Soffit Level Preventing Discharge

2.2 Actions Taken

A forward incident officer was sent to site to speak to and reassure residents. Two pumps and pallets of sandbags/gel bags were deployed by the Council and its appointed Contractor; water did seep into the residential and commercial properties but eventually receded as the pump took effect and river levels receded. The pump was operational overnight.

Greater Manchester Police were made aware of the situation and residents concerns about looting, an Officer was sent to site and a PCSO was made available to be stationed on site until the end of their shift, however they do not work through the night.

3. Rights and Responsibilities

3.1 Lead Local Flood Authority

As stated within the introduction, Wigan Council as the LLFA has a responsibility to investigate flood incidents under Section 19 of the Flood and Water Management Act. The Act gave the Council strategic roles in overseeing the management of local flood risk i.e. flood risk from surface water runoff, groundwater and ordinary watercourses such as streams and ditches. It gives the Council the following new responsibilities:

- To develop, maintain, apply and monitor a record about each structure or feature, including the ownership and state of repair of assets which have a significant effect on flooding
- To designate structures and features that affect flooding
- To keep record of flooding hotspots across the Borough.

As the LLFA, Wigan Council will be looking for support from other authorities to ensure flood incidents are reported, and any assets which have a significant effect on flood risk are recorded on the asset register.

While Wigan Council can suggest possible causes of flooding and make recommendations to ensure flood risk is mitigated as far as possible, the Flood and Water Management Act does not provide Wigan Council with the mandate or funding to tackle all identified causes of flooding.

Wigan Council also have powers under Section 25 of the Land Drainage Act 1991 to serve notice on any persons impeding the flow of a watercourse and causing an increase in flood risk.

4.2 United Utilities

United Utilities maintain a register of properties at risk of flooding due to a hydraulic overload in the sewerage network, known as the DG5 register.

The DG5 register is a register of properties and areas that have suffered or are likely to suffer flooding from public foul, combined or surface water sewers due to hydraulic overloading of the sewerage system. .

As part of their obligation to Ofwat, United Utilities are required to undertake capacity improvements to alleviate sewer flooding problems on the DG5 register during the current Asset Management Period (AMP) (2010 – 15) with priority being given to more frequent internal flooding problems. However due to funding limits not all instances of flooding can be addressed in any AMP period. It is important to identify solutions that are robust and cost beneficial.

An essential flood risk management duty is defined under the Section 94 of the Water Industry Act 1991, which states that Water and Sewerage Companies (WaSCs) have a duty to provide, maintain and operate systems of public sewers and works for the purpose of effectually draining an area. Nevertheless there are nationally regarded limits to the capacity of such systems as it is not feasible to build sewerage systems able to cope with all storms.

However, there is no legal duty or responsibility relating to highway drainage, land drainage and watercourses, with the exception of that WaSCs can accept highway drainage by agreement with a Highway Authority.

4.3 Residents

Wigan residents who are aware that they are at risk of flooding should take action to ensure that they and their properties are protected. Community resilience is important in providing information and support to each other if flooding is anticipated.

Actions taken can include laying sandbags and moving valuable items to higher ground, to more permanent measures such as installing floodgates, raising electrical sockets and fitting non-return valves on pipes.

Anyone affected by flooding should try to document as much information about the incident as possible. Wigan Council should be contacted and will make a record of the details provided.

4.4 Highways Authority

Wigan Council is responsible for maintaining the roads and pavements of adopted highways in the Borough. An adopted highway is one where the local authority has taken on the legal responsibility for maintenance. The Council is responsible for the drainage of surface water from the adopted highways.

Road gullies on classified roads are cleaned out on an annual cycle. In addition to this regular cleaning programme, the Council will attend to any reports of blocked gullies to investigate the problem and take remedial action to restore them.

4. Recommendations

The method for prioritising works on watercourses varies for each risk management authority involved, and is dependent on factors such as resources available, operational area, and interpretation of flood risk. It is therefore important that all risk management authorities are open and honest with the community about what actions will or won't be taken, and why.

Wigan Council as the LLFA is in a position to facilitate sharing of information between risk management authorities, and the community, if required. We also recommend the actions summarised within Table 2 overleaf along with the implementation of the flood defence works identified in the Saddle Junction SWMP and River Douglas Flood Mitigation Works:

Following the success in obtaining FdGIA funding the installation of an underground surface water attenuation tank was completed in March 2013; providing storage for 912m³ of storm water giving protection to the Saddle Junction, Eleanor Street and Wallgate areas up to a 1% (1 in 100 year plus climate change return period). This attenuation tank is connected by a series of pipes and manholes to the newly constructed Saddle relief road's drainage system that is pumped under pressure directly into the River Douglas; as opposed to a gravity fed system .

Future flood defence work proposed is to:

- Increase the height of the river banks; to include the installation of low level plastic sheet piling adjacent the river bank reinforced by an earth dam with an average height above existing bank level of 500mm, along with the construction of a 3m length of 200mm high dwarf wall with facing and coping stones to match the existing flood defence wall.

Table 2 Recommendations

Authority/ Stakeholder	Recommended Actions
LLFA (Wigan Council)	<ul style="list-style-type: none"> • Facilitate sharing of information between risk management authorities, and the community. • Keep a record of all flood incidents and significant flood risk assets within the area. • Ensure the owners of culverts and watercourses within the area are aware of their responsibilities. • Where the condition of a watercourse is such that ordinary flows are being impeded and the risk of flooding increased, The LLFA should ensure the owner of that watercourse remedies the condition. • Facilitate the serving notice under the Land Drainage Act 1991 on landowners where there is evidence flows are being impeded and increasing flood risk. • Determine any application to works affecting the watercourse and ensure such proposals are appropriate.
Environment Agency	<ul style="list-style-type: none"> • Continue to work in partnership with other authorities, providing information and comments when appropriate.
Highways Authority	<ul style="list-style-type: none"> • Asset Management should inspect and maintain the drainage system on a regular basis with maintenance activities continued based on agreed cyclic cleansing regime.
United Utilities	<ul style="list-style-type: none"> • Continue to maintain the DG5 register of properties and areas that have suffered or are likely to suffer hydraulic flooding from public foul, combined or surface water sewers due to overloading of the sewerage system. . • Investigate the feasibility to undertake capacity improvements to alleviate sewer flooding problems.
Residents	<ul style="list-style-type: none"> • Take measures to protect themselves and their property when flooding is imminent. • Document and photograph flood incidents where possible, report flooding to the EA, Wigan Council, Canal & River Trust.
Riparian Landowners	<ul style="list-style-type: none"> • Must maintain any culvert, or the bed and banks of any adjacent watercourse. • Clear away any debris from the watercourse, culvert or grill, even if it did not originate from their land.

6. Conclusions

The flood event at Eleanor Street, the Saddle Junction and Wallgate of September 2012 could be attributed to severe rainfall which resulted in surcharge of the United Utilities combined sewer, which was itself impacted on by flooding at Wallgate, which in turn prevented any gullies on the highway drainage system at both locations from further discharging into it. Although overloaded the United Utilities combined sewer was not surcharged to a level to result in foul flooding, with the flooding being predominantly surface water.

The works executed as part of the Saddle relief road project included the installation of additional road gullies at the end of Eleanor Street. These 2 new gullies and the 4 lowest existing gullies are to be connected to the new road's drainage system (a pumped system discharging directly into the River Douglas) as opposed to a gravity fed system discharging into United Utilities Combined sewer this will reduce the flood risk by reducing the volume of surface water entering the above sewer.

Additionally the new road has reduced the surface water catchment area by acting as a dam to the surface water holding in times of heavy rain in the former bus depot area

Whilst a permanent solution to flooding may not be achievable due to the complex nature of this situation and the risk of fluvial flooding from the river Douglas the installation of the flood mitigation measures mentioned in section 5 will reduce the risk of flood from a 1% (1 in 100 year plus climate change return period) event and as a consequence residential properties in the Eleanor Street and Molverley Street area together with other commercial businesses will be removed from the Flood Zone 3 and into an Area Benefitting from Defence.

Consideration should be given to the application for FdDIA funding to install property-level flood protection measures to residents affected by the flood event of September 2012.

All flood risk authorities must continue working together, sharing information on any actions taken.

Useful Contacts and Links

Wigan Council

The Environment Services Helpline Tel: 01942 404364

E-mail: eshelpline@wigan.gov.uk

Out of office hours in an emergency, Central Watch – 01942 404040

Land Drainage in Wigan

www.wigan.gov.uk/Resident/Environmental-Problems/land-drainage.aspx

Environment Agency

General Enquiries 03708 506 506 (Mon-Fri, 8am - 6pm)

Incident Hotline 0800 80 70 60 (24hrs)

EA Floodline 0845 988 1188 (24hrs)

e-mail: enquiries@environment-agency.gov.uk

United Utilities

Tel 0845 746 2200 (24Hrs)

<http://www.unitedutilities.com/default.aspx>

Highways Act 1980:

<http://www.legislation.gov.uk/ukpga/1980/66/contents>

Water Resources Act 1991:

<http://www.legislation.gov.uk/ukpga/1991/57/contents>

Land Drainage Act 1991:

<http://www.legislation.gov.uk/ukpga/1991/59/contents>

EA - 'Living on the Edge' a guide to the rights and responsibilities of riverside occupation:

<http://www.environment-agency.gov.uk/homeandleisure/floods/31626.aspx>

EA - River and Coastal Maintenance Programmes:

<http://www.environment-agency.gov.uk/homeandleisure/floods/109548.aspx>

EA - Prepare your Property for Flooding:

How to reduce flood damage

Flood protection products and services

<http://www.environment-agency.gov.uk/homeandleisure/floods/31644.aspx>

The National Flood Forum

www.floodforum.org.uk

Tel: 01299 403 055

Appendix A



Surface Water Flooding to Eleanor Street



Surface Water Flooding to Eleanor Street



Surface Water Flooding to Eleanor Street



Internal Flooding at Eleanor Street



Internal Flooding at Eleanor Street



Internal Flooding at Eleanor Street



External Flooding at Eleanor Street



External Flooding at Eleanor Street



Surface Water Flooding to Wallgate



Surface Water Flooding to Wallgate



Surface Water Flooding to Saddle Junction



Surface Water Flooding to Saddle Junction



Flooding to Commercial Property Wallgate



Flooding to Commercial Property Wallgate