

# Coalville, Bardon Road

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# Flood Report

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To discuss the flood report contact the Flood Risk Management Team by  
e-mail: [flooding@leics.gov.uk](mailto:flooding@leics.gov.uk) or phone 0116 305 0001

# DETAILED FLOOD INVESTIGATION

<b>Investigation Ref.:</b>	<b>2012-010</b>
<b>Investigation:</b>	<b>Coalville, Bardon Road,</b>
<b>Date of Flooding:</b>	<b>28<sup>th</sup> June 2012</b>
<b>Revision</b>	<b>FINAL REPORT</b>

Officer:	R.JONES	David Smith Associates	22/4/14
Checked:	E.KNIGHT	Senior Technician	22/4/14
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# **1 EXECUTIVE SUMMARY**

## **1.1 STATUTORY CONTEXT**

Section 19 of the Flood and Water Management Act 2010 (FWMA) states that, on becoming aware of a flood which meets certain predetermined criteria, the LLFA (lead local flood authority) must undertake a formal flood investigation in order to determine the relevant flood risk management authorities involved and which flood risk management actions have been (or should be) taken to mitigate future flood risk. Where an authority carries out an investigation, it must publish the results. This Flood Investigation Report (FIR) has been completed by David Smith Associates on behalf of Leicestershire County Council

It was deemed necessary to complete a formal investigation into the flood incidents at Bardon Road, Coalville on 28<sup>th</sup> June 2012. Internal flooding of at least two properties from unknown or multiple sources occurred which meets the threshold for investigation as set out.

## **1.2 CAUSE OF FLOODING**

The flooding that occurred at Bardon Road, Coalville is a reflection of the intense rainfall that fell over a short period of time. The inability of existing drainage systems to collect and carry rainwater effectively meant excess surface water flowed over ground following natural contours to low points in the area.

## **1.3 MAIN FINDINGS**

The capacity of the culverted watercourse beneath the garage forecourt was exceeded which caused the culvert and surface systems within the immediate area to surcharge and flood two properties.





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## **2 INTRODUCTION**

### **2.1 LEAD LOCAL FLOOD AUTHORITY INVESTIGATION**

Section 19 of the FWMA states:

- (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 carries out an investigation under subsection (1), it must -
  - (a) publish the results of its investigation, and
  - (b) notify any relevant risk management authorities

### **2.2 FLOOD INVESTIGATION CRITERIA**

A formal investigation will be carried out if one or more of the following occurs after a flooding event:

- Loss of life or serious injury
- Critical infrastructure flooded or nearly flooded from unknown or multiple sources
- Internal property flooding from unknown or multiple sources

In the following circumstances, discretion may be used to investigate a flooding incident:

- A number of properties have been flooded or nearly flooded
- Other infrastructure flooded
- Repeated instances
- Investigation requested
- Risk to health (foul water)
- Environmental or ecologically important site affected
- Depth/area/velocity of flooding a cause for concern

### **2.3 RISK MANAGEMENT AUTHORITIES**

The following risk management authorities were identified as relevant to the flooding:

- Leicestershire County Council – Lead local flood authority
- Leicestershire County Council – Local highway authority
- Environment Agency – Midlands Central Area
- North West Leicestershire District Council
- Severn Trent Water



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## 2.4 NON-RISK MANAGEMENT AUTHORITIES

The following agencies are not prescribed as risk management authorities (RMAs). However, they have a significant involvement in flood risk management:

- Leicester, Leicestershire and Rutland Local Resilience Forum

## 2.5 FLOODING INCIDENT

It was deemed necessary to complete a formal investigation into the flood incident at Bardon Road, Coalville on 28<sup>th</sup> June 2012. Internal flooding of at least two properties occurred. The intensity of the rainfall event resulted in a number of drains, sewers and culverts to exceed their capacity and cause localised flooding.



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### **3 SITE BACKGROUND**

#### **3.1 LOCATION**

Coalville is situated in the north of Leicestershire approximately 11 miles northwest of Leicester city centre. Southeast of Coalville is Bardon Hill, an operational quarry. The A511 (Bardon Road) is situated to the southwest of the quarry (Appendix A).



## 4 FLOODING INCIDENT

### 4.1 PREVIOUS FLOODING INCIDENTS

The following table lists flooding incidents that have been recorded:

Year	Impact
28/06/12	Bardon Road – Garage – Building internally flooded and forecourt unusable.  Bardon Road – residential property – garage internally flooded, boundary fences damaged.  Bardon Road carriageway partially closed.

### 4.2 FLOOD INCIDENT

During the period of heavy rainfall described, flood water flowed over the forecourt of the garage at Bardon Road, and over the north property boundary. The flood water covered a large area of the garage forecourt to a depth of approximately 100mm, and entered the garage retail building. The flood water also entered the garage of a residential property on Bardon Road. The velocity of flow and level of flood water damaged the boundary fence adjacent to the garage.

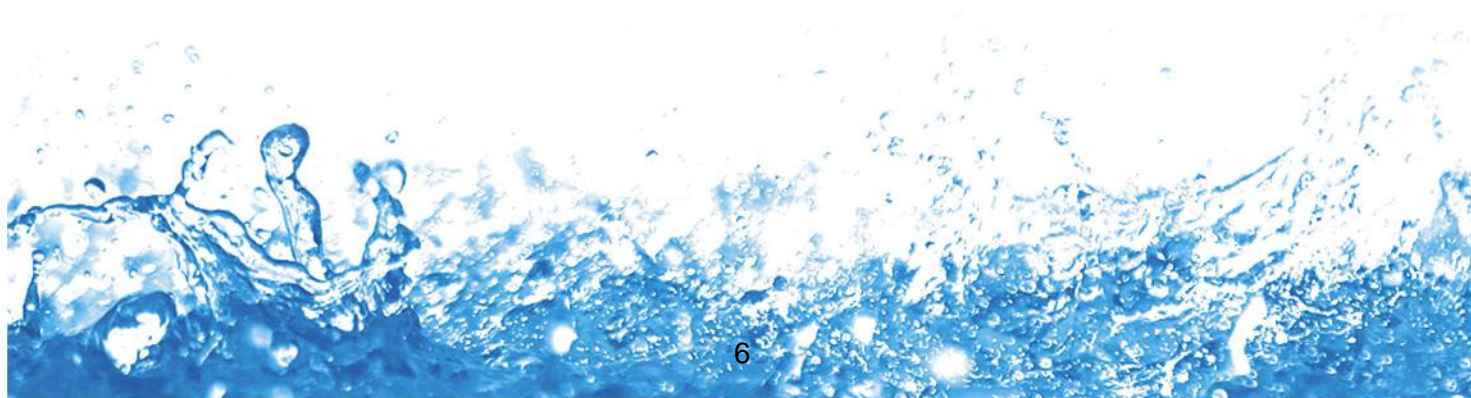
The source of the flood water consisted of both surface water from Bardon Road and water that surcharged out of manholes from the wider catchment area:

The main causes of flooding are considered to be as follows:

- Intense rainfall on the catchment.
- Alterations or restrictions to the natural condition of the receiving watercourse.
- Properties situated in areas at risk of flooding with reference to Environment Agency mapping (Appendix B).
- The capacity of the culverted watercourse.

### 4.3 RAINFALL ANALYSIS

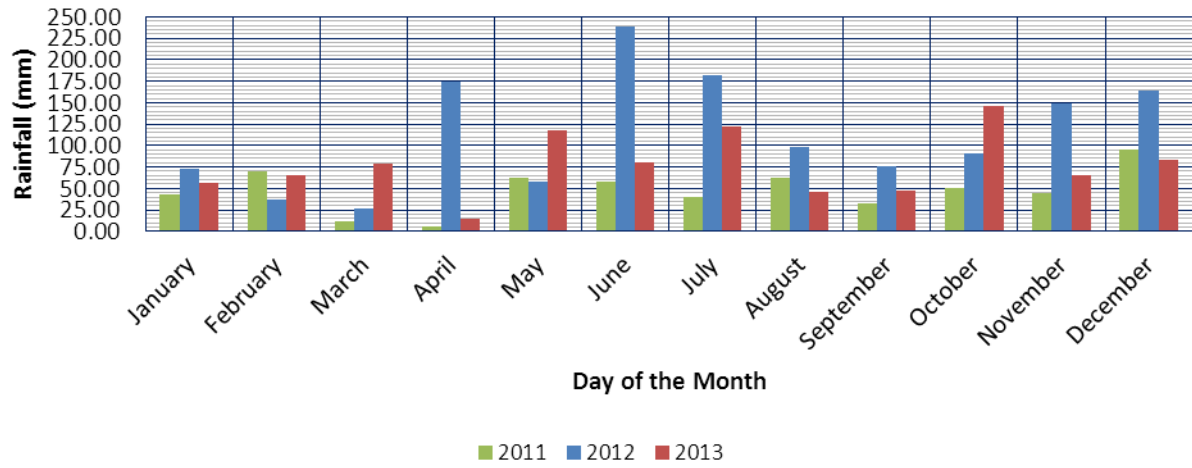
An intense rainfall event was experienced in the locality of Coalville on 28<sup>th</sup> June 2012. In preceding days to June 28<sup>th</sup>, high levels of rainfall had already fallen in the catchment. The graph below depicts the annual rainfall at Coalville weather station 2011 – 2013





## Annual Rainfall Data Coalville Weather Stations

<http://www.photoweather.com/aws/history/>



**Graph 1: Annual Rainfall, Coalville**



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## **5. SUMMARY OF IMPACTS AND FINDINGS**

### **5.1 IMPACTS**

People and property were affected by the flooding as a result of the significant rainfall. The County Council spoke to a local businesses and affected persons to establish and quantify the physical effects of the flooding incident. It is understood from these conversations that two properties flooded internally on Bardon Road.

### **5.2 LOCAL DRAINAGE SYSTEM**

Bardon Road is within a catchment area comprising the quarried north face of Bardon Hill, Bardon Hill Sports Club and a section of the Greenhill residential area of Coalville.

### **5.3 BARDON HILL**

Surface water run-off from the quarried north face of Bardon Hill is pumped to a system of lagoons, and recirculation systems used by the quarry. It is understood that the water is treated and re-used as far as practicable by the quarry before being discharged back to the riparian owned watercourse. The riparian owned watercourse flows southwest before sinking into a below ground piped system at Bardon Road.

### **5.4 BARDON ROAD**

The piped system flows northwest beneath the footway and verge of Bardon Road for approximately 70 metres, before turning to flow south west beneath the carriageway of Bardon Road at the garage. This section of the piped watercourse is recorded as a Severn Trent Water public sewer.

At the garage premises at Bardon Road, the piped watercourse becomes riparian owned and continues beneath the garage forecourt area. It then issues to a riparian owned open watercourse which continues southwest beyond the flood incident area to tributaries of the River Sence. The pipework is understood to reduce in diameter beneath the garage property.

The watercourse receives surface water run-off from various residential and commercial properties, and the public highway.

### **5.5 EXTENT OF FLOODING**

The extent of the flooding is broadly reflective of the low lying areas indicated by the Flood Map for Surface Water (Appendix B).

The Environment Agency's Flood Map for Surface Water shows areas where surface water would be expected to flow or pond.



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## **6. RESPONSIBILITIES**

### **6.1 LEAD LOCAL FLOOD AUTHORITY (LCC)**

As stated within the introduction section, the County Council as the LLFA has a responsibility to investigate flood incidents under Section 19 of the FWMA.

The LLFA also has a responsibility to maintain a register of assets which have a significant effect on flooding from surface runoff, groundwater or ordinary watercourse, as detailed within Section 21 of the FWMA. The register must contain a record about each structure or feature, including the ownership and state of repair.

Whilst the County Council can suggest possible causes of flooding in Leicestershire and make recommendations to ensure flood risk is mitigated as far as possible, the FWMA does not provide the County Council with the mandate or funding to tackle all identified causes of flooding.

The County Council also has powers to serve notice on individuals, requiring them to maintain the flow of ordinary watercourses in accordance with Section 25 of the Land Drainage Act 1991 (LDA)

### **6.2 NORTH WEST LEICESTERSHIRE DISTRICT COUNCIL (NWDC)**

NWLDC has powers under Section 14 of the LDA to undertake flood risk management works on ordinary watercourses (non-Main River), where deemed necessary. Under Section 20 of the LDA, NWDC has the powers to (by agreement of any person and at their expense) undertake drainage work which that person is entitled to carry out and maintain.

### **6.3 ENVIRONMENT AGENCY**

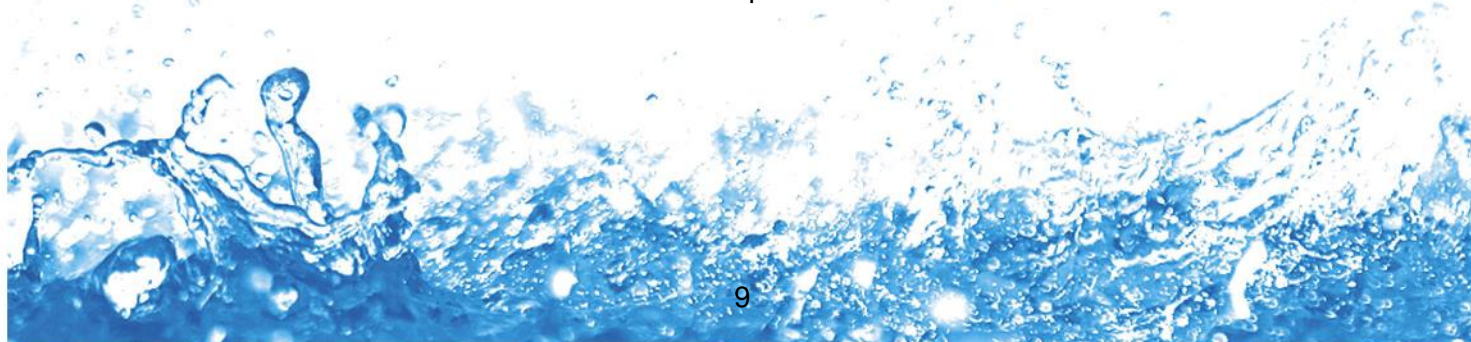
The Environment Agency has a strategic overview responsibility under the FWMA as well as permissive powers to carry out maintenance work on Main Rivers under Section 165 of the Water Resources Act (WRA). Main River means all watercourses shown on the statutory Main River maps held by the Environment Agency and the Department of Environment, Food and Rural Affairs, and can include any structure or appliance for controlling or regulating the flow of water into, in or out of the channel.

The Environment Agency has permissive powers to carry out works of maintenance and improvement on these rivers. These powers can be used to undertake works to reduce flood risk where landowners fail to undertake their responsibilities under the WRA.

The Environment Agency can undertake enforcement action where third party asset owners fail to maintain their property/land in appropriate condition. They may consider undertaking maintenance or repair of third party assets in order to safeguard the public interest and where other options are not appropriate.

### **6.4 HIGHWAY AUTHORITY (LCC)**

LCC, in its role as local highway authority, has a duty to maintain the highway under Section 41 of the Highway Act 1980. Section 100 of the Highways Act 1980 also gives the power to prevent water running on to a highway. Further information on the Highways Act 1980 is available via the link identified within the Useful Links section of this report.





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## 6.5 WATER COMPANY (SEVERN TRENT WATER)

Water and sewerage companies are responsible for managing the risks of flooding from surface water, foul water or combined sewer systems. Public sewers are designed to protect properties from the risk of flooding in normal wet weather conditions. However, in extreme weather conditions, there is a risk that sewer systems can become overwhelmed and result in sewer flooding.

Since October 2011, under the 'Private Sewer Transfer', Water Companies are required to adopt piped systems on private land that serve more than one curtilage and were connected to a public sewer on or prior to 1<sup>st</sup> July 2011. Statutory sewerage undertakers have a duty under Section 94 of the Water Industry Act 1991 to provide sewers for the drainage of buildings and associated paved areas within property boundaries.

Water companies are responsible for public sewers and lateral drains. A public sewer is a conduit, normally a pipe that is vested in a water and sewerage company (or predecessor thereof) that drains two or more properties and conveys foul, surface water or combined sewage from one point to another point and discharges via a positive outfall. There is no automatic right of connection for other sources of drainage to the public sewer network. Connection is therefore discretionary, following an application to connect.

## 6.6 RIPARIAN LANDOWNERS OF WATERCOURSES

As detailed within the EA document 'Living on the Edge', riparian landowners have certain rights and responsibilities, including the following:

- they must maintain the bed and banks of their watercourse, and also the trees and shrubs growing on the banks;
- they must clear any debris, even if it did not originate from their land. This debris may be natural or man-made;
- they must keep any structures that they own clear of debris. These structures include culverts, trash screens, weirs and mill gates.

The following link provides further information:

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

## 6.7 RESIDENTS, TENANTS AND BUSINESSES

Coalville residents, tenants and businesses 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 signing up to Flood Warning Direct (if available), nominating a community flood warden, producing a community flood plan implementing property level protection 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. LCC and the EA can provide advice on these matters and more information can be found at:

## 6.8 COMPLIANCE

There is no evidence to suggest that any of the risk management authorities or stakeholders listed above did not comply with either internal policy or any legal duties





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## 7. CONCLUSIONS

The flooding that occurred in Coalville is a reflection of the intense rainfall that fell over a short period of time. Existing drainage systems were unable to cope with the deluge of water, causing the water to surcharge out of drains and manholes. Surface water run-off from private areas flowed onto the public highway, and vice versa.

Physical barriers, such as kerbs, were compromised by the volume and high velocity of surface water and the depth of ponding.

In the event of drainage system being overwhelmed, there are no properties on Bardon Road that have been fitted with a property level protection system.



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## **8. RECOMMENDATIONS**

### **8.1 SEVERN TRENT WATER**

Assess the sources of water entering the public sewerage system and identify any areas of insufficient capacity. Where this leads to flood risk to properties improvement work should be considered.

### **8.2 LEAD LOCAL FLOOD AUTHORITY (LCC)**

Inform owners of the drainage systems within the catchment of their legal responsibilities, and provide details of a recommended maintenance regime.

This may require owners to re-excavate ditches to a calculated cross sectional area, repair all piped/culvert sections or replace these with new pipework of calculated diameter and clear and trim watercourses. This could also include the replacement of structures and clearing of vegetation. All such works would require the appropriate Consent for Works on an Ordinary Watercourse in accordance with Section 23 of the Land Drainage Act 1991.

LLFA to consider any additional support in respect of design and implementation of maintenance and improvement works, subject to resource implications.

### **8.3 LOCAL HIGHWAY AUTHORITY (LCC)**

The County Council should continue to undertake regular drainage cleansing throughout the area and respond to reports of blockages.

Review the positions of gullies to ensure their effectiveness in removing water from the Highway and review the levels of kerbs and road cambers to consider any works to prevent the runoff of surface water from the Highway to private properties.

### **8.4 NORTH WEST LEICESTERSHIRE DISTRICT COUNCIL**

NWLDC to continue to consult with the Environment Agency and LLFA as required in respect of planning applications for new developments to reduce flood risk.

### **8.5 LOCAL RESILIENCE FORUM**

The LRF to support the community in the recruitment and training of a community based Flood Warden.



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## **9. USEFUL LINKS**

### **9.1 ENVIRONMENT AGENCY**

General enquiries 03708 506 506 (Mon-Fri, 8am – 6pm)  
Incident hotline 0800 80 70 60 (free phone, 24hours)

### **9.2 SEVERN TRENT WATER**

Emergencies 0800 783 4444 (24hours)

### **9.3 LEICESTERSHIRE COUNTY COUNCIL**

Highways 0116 305 0001 (24hours)

### **9.4 LEICESTERSHIRE COUNTY COUNCIL**

Lead local flood authority 0116 305 0001 (Mon-Fri, 9am – 5pm)  
Email: [flooding@leics.gov.uk](mailto:flooding@leics.gov.uk)

### **9.5 NORTH WEST LEICESTERSHIRE DISTRICT COUNCIL**

Customer Services 01830 454545  
Email [customer.services@nwleicestershire.gov.uk](mailto:customer.services@nwleicestershire.gov.uk)

### **9.6 USEFUL LINKS**

**OFWAT Guidance on sewers**

[http://www.ofwat.gov.uk/consumerissues/rightsresponsibilities/sewers/prs\\_web\\_sewertransfer](http://www.ofwat.gov.uk/consumerissues/rightsresponsibilities/sewers/prs_web_sewertransfer)

**Environment Agency:**

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

**North West Leicestershire District Council Website:**

<https://www.nwleics.gov.uk/>

**Leicestershire County Council Flood Risk Team:**

<http://www.leics.gov.uk/flooding>

**Local Resilience Forum:**

<http://www.localresilienceforum.org.uk/>

**Land Drainage Act 1991:**

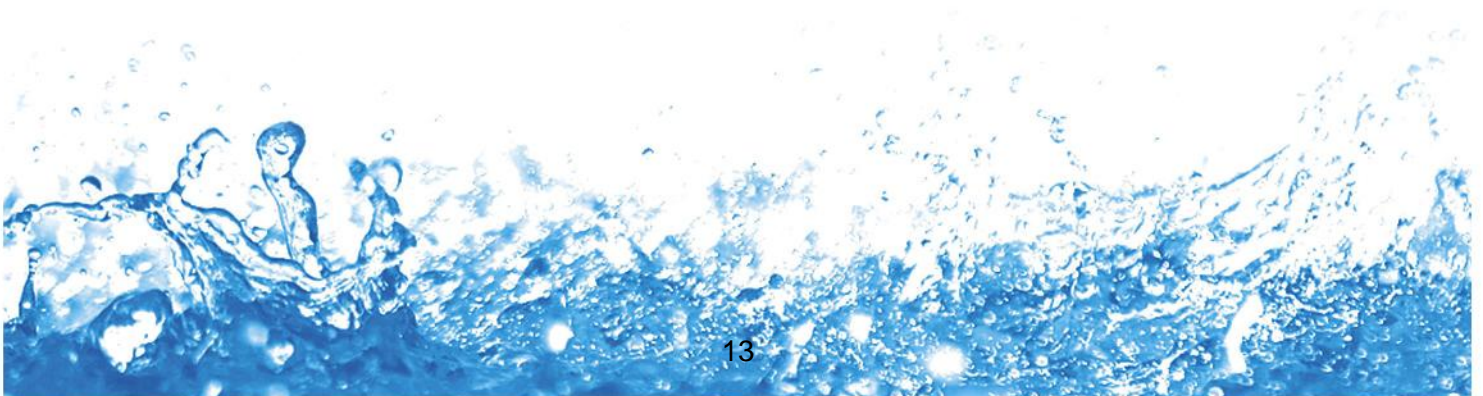
<http://www.legislation.gov.uk/ukpga/1991/59/contents>

**Water Resources Act 1991:**

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

**Highways Act 1980:**

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



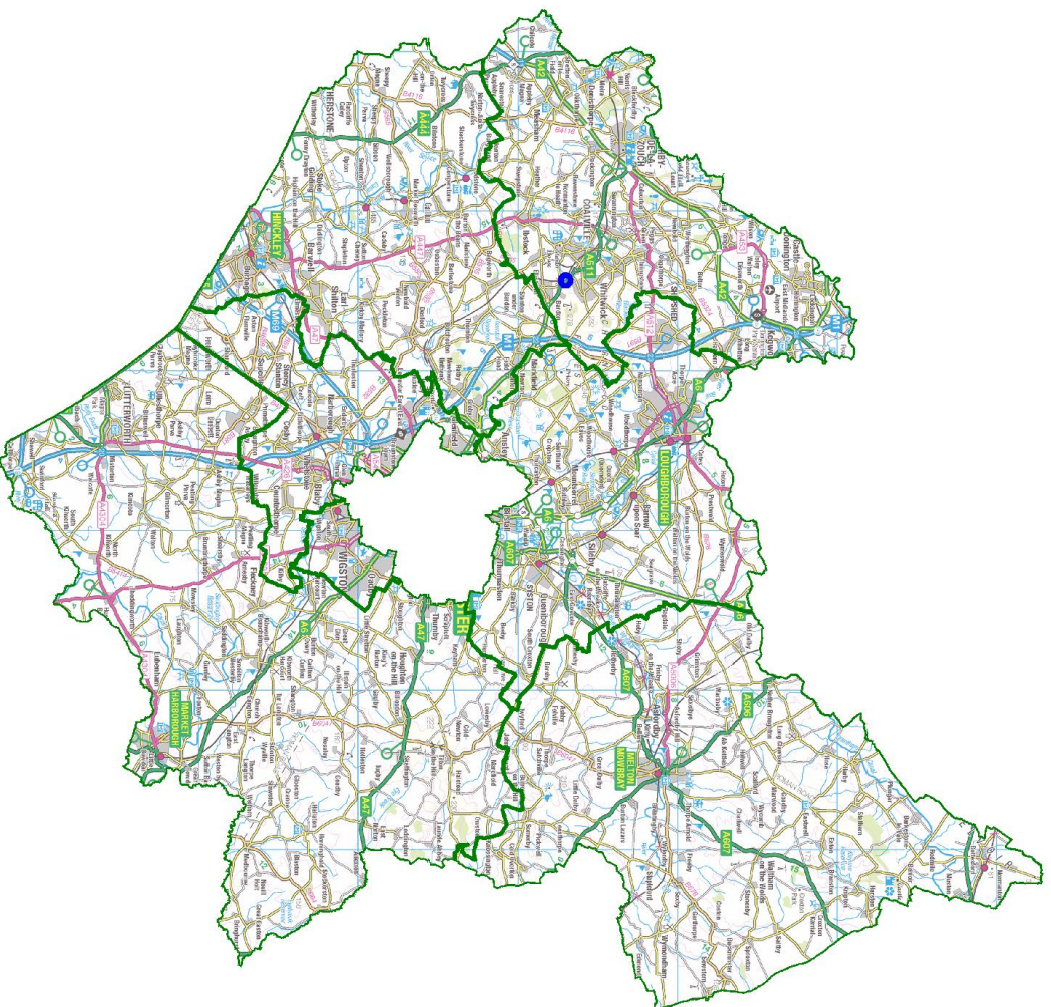
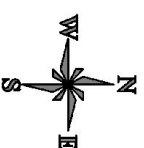
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# **APPENDIX A**

# **SITE LOCATION PLAN**







**NOTES:**

- 1. Blue Circle indicates approximate location



**ENVIRONMENT AND TRANSPORT  
DEPARTMENT**

**ON BEHALF OF THE  
DIRECTOR**

**LEICESTERSHIRE COUNTY COUNCIL  
ENVIRONMENT AND TRANSPORT**

SERVICE:  
**LEAD LOCAL FLOOD AUTHORITY**

TITLE:  
**Location Plan for  
Bardon Road**

LOCATION:  
**BARDON ROAD, COALVILLE**

DRAWING NUMBER  
SCALE

**2013-INV-010-LP** **Not To Scale**

CREATED BY: Chris Bramley DATE: 23-12-2013

APPROVED BY: Daniel Rawle SIZE: A4

E-MAIL: [flooding@leics.gov.uk](mailto:flooding@leics.gov.uk)

PHONE: 0116 305 0001 FAX:

COUNTY HALL · GLENFIELD · LEICESTER · LE3 8RJ

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This map gives an indication of the broad areas likely to be at risk of surface water flooding. It is not suitable for use at an individual property scale due to the method used.

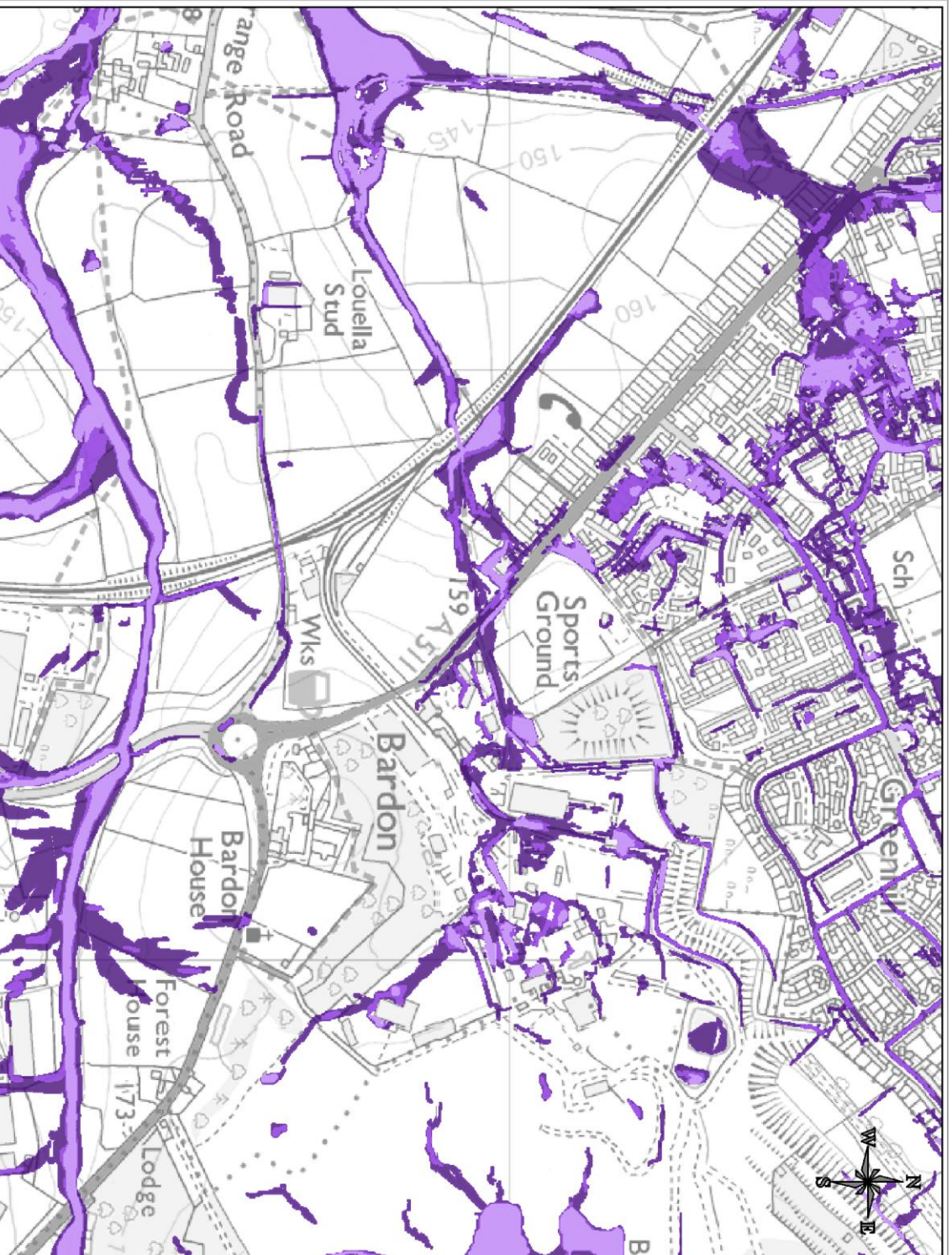
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# APPENDIX B

## UPDATED FLOOD MAP FOR SURFACE WATER (FMfSW)



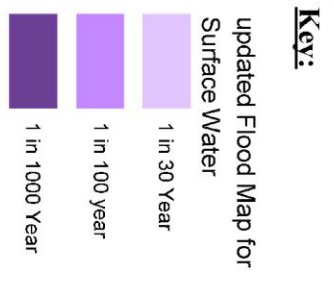




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ENVIRONMENT AND TRANSPORT  
DEPARTMENT

ON BEHALF OF THE  
DIRECTOR

LEICESTERSHIRE COUNTY COUNCIL  
ENVIRONMENT AND TRANSPORT

SERVICE:  
LEAD LOCAL FLOOD AUTHORITY

TITLE:  
updated Flood Map for Surface Water

LOCATION:  
BARDON ROAD, COALVILLE

DRAWING NUMBER  
2012-INV-10-02

SCALE  
Not To Scale

CREATED BY: Chris Bramley

APPROVED BY: Daniel Rawle

DATE: 22.04.2014

SIZE: A4

E-MAIL: [floodmg@leics.gov.uk](mailto:floodmg@leics.gov.uk)

PHONE: 0116 305 0001

FAX: COUNTY HALL · GLENFIELD · LEICESTER · LE3 8RJ

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# **APPENDIX C**

## **EA STANDARD NOTICE**





## Standard notice [not for use with Special Data, Personal Data or unlicensed 3<sup>rd</sup> party rights]



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