



WEST OXFORDSHIRE  
DISTRICT COUNCIL

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# Parish Flood Report: Fulbrook

November 2008



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## **1.0 INTRODUCTION**

On the 20th July 2007 large parts of the South of England were subjected to intensive storms. The scale and speed of the rainfall was unprecedented and took most communities by surprise causing widespread flooding of highways and property. On this occasion, unlike previous storms / flooding experienced, this impacted on many properties that had never been affected before, due to much of the flooding coming in the form of rain water run off from land.

A swathe of the district was particularly badly affected by the massive storms, which commenced in the morning and subsided in the evening. During the following days further disruption occurred due to rising river levels. At RAF Brize Norton, the records show that over 125 mm (5 inches) of rain fell in 12 hours, and this is a record going back over 100 years. Not only that, but the period from May to July had been the wettest on record since 1903 and meant that the ground was saturated and unable to absorb any more water.

On the 10th October 2007, the District Council's Cabinet considered a report of the Head of Street Scene and approved additional resources in order that a review of the affected areas could be carried out and further reports be prepared for the Council's considerations.

### **1.1 Purpose of the report**

In response to requests from both the Parish and Town Councils and the general public West Oxfordshire District Council has produced a number of reports that identify each individual cause of flooding within the Parish / Town, what work is being carried out by external agencies (EA, Thames water etc); what the potential options are for future mitigation - and who might be best placed to fund such schemes. The reports themselves reflect the series of water systems that all played a part in the flooding experienced in July 2007 and will help all the organisations involved understand the need to sequence their activities.

This report has been prepared by a qualified Engineer in consultation with the key external agencies and seeks to explore the main reason behind why the floods happened in July 2007 and give an overview of the event itself. It will also provide an understanding of the different roles and levels of responsibility for the agencies involved.

This report should be used to make sure that all the agencies involved with flood prevention – like the Environment Agency, Thames Water, Oxfordshire County Council, Town / Parish Councils and private land owners – work in true partnership for the good of everyone in the local community.

A key outcome of the reports is that residents are given a broad overview of the complex linkages between the different organisations involved and also the range of options available.

### **1.2 Roles and responsibilities**

One of West Oxfordshire District Councils key ongoing roles is to continue to lobby National agencies / Government on behalf of the residents and businesses of the district to secure funding and/or additional resources to assist with flood prevention and other relevant activities. The Council will also work closely with other agencies and organisations in order to highlight the local issues and actions identified in the report.

The legal responsibility for dealing with flooding lies with different agencies and is complex, so below is a simplified summary.

**Environment Agency (EA)** – permissive powers<sup>1</sup> for main rivers

**Oxfordshire County Council (OCC)** – Responsible for adopted highways and highway drainage.

**Thames Water (TW)** – Responsible for adopted foul and surface water sewers.

**West Oxfordshire District Council (WODC)** – duties as a riparian<sup>2</sup> land owner, and permissive powers<sup>1</sup> under Land Drainage Act 1991, Public Health Act 1936, Highways Act 1980 and Environmental Protection Act 1990.

**Private land owners** - duties as a riparian land owner.

### 1.3 Consultation and consent

The key organisations mentioned above are currently carrying out their own investigations, but operate independently of each other, have different methods of prioritisation and different funding criteria. The District Council has consulted with these agencies together with Parish Councils, Town Councils and individual property owners in order to prepare this report.

It is recognised that the majority of the options proposed in this report require further investigations / feasibility studies and / or consultation before they are carried out. Therefore these options may not be appropriate in every case when full costings, environmental, landscaping, biodiversity, built environment and historic factors are fully considered.

When considering protection against future flooding, it must be emphasised that the risk and impact of flooding can be mitigated against but in some cases not fully removed.

### 1.4 Response to this report

The options section of this report highlights the potential areas of work / activities under the responsible agency, for example the Environment Agency, West Oxfordshire District Council etc. If you have any specific questions relating to these activities please contact the relevant agency using the contact details provided at the top of the chart.

If you have any general questions please contact your Parish / Town Council who have been a key contributor to the production of the report and have agreed to act as the first point of contact.

The Council has recently held a series of 'road shows' in the Parish areas, where representatives from all the relevant areas were available to answer any questions local residents had as well as provide more information on ways residents may help themselves.

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<sup>1</sup> Permissive powers are when an organisation may choose whether or not to exercise their powers. I.e. they are NOT under a duty. In making this choice account must be taken of any factors required by the legislation, plus for example how urgent, how necessary they are, cost, likely result, etc

<sup>2</sup> Riparian owners are responsible for the maintenance of any watercourse within or adjacent to the boundaries of their property.  
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## **1.5 Legal**

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## 2.0 THE DISTRICT COUNCIL'S ACHIEVEMENTS OVER THE PAST 12 MONTHS

### Flood Grants

- WODC Flood Grants totalling **£284,250** given out in West Oxfordshire.

### Actions from the Council's Interim Report published in January 2008

- The table below provides a summary of some of the completed actions identified in the report

Bronze command procedure to be updated to recognise the need for ensuring shift rotas are in place in the early stages of an emergency
Consider producing a revised warning system that identifies a higher category of risk that is only issued in exceptional circumstances
The emergency plan specifically addresses the need to keep in regular contact with elected members
That the Emergency Plan recognises the role the elected members can play in emergency and recovery situations
That in future emergency situations District Councils ensure that they have a representative present at Silver Command from the start of the emergency to act as a conduit for information between Silver Command and the District Councils
The council should encourage all residents residing in a flood plain and in areas at risk of flooding to sign up to the EA Flood Alert system.
Provide clear information to residents and businesses about what type of waste we can collect and how it will be collected
Explanations to residents of our need for bulky waste to be placed on the roadside for collection
Commence a review of the mapping of the many thousands of privately owned ditches and culverts, and ensure they are kept clear and well maintained in accordance with the new policy (2 TOR 3)
Lobby central government for a single agency to take control of all land drainage issues
Continue to liaise with EA to ensure that procedures relating to planning consultations are robust.
Progress the Strategic Flood Risk Assessment
Consider producing a revised warning system that identifies a higher category of risk that is only issued in exceptional circumstances
Approaches to be made to the EA and Meteorological Office with regard to improving their predictive capability
WODC continues to act in a coordination capacity with key external agencies
During emergency events, have an external media person (BBC) in Bronze Command
Purchase digital TVs to assist with reviewing weather, local and national news to assist emergency management
Bid to EA for £1 million (over 3 years for river surveying, modelling and improvements)
Final West Oxfordshire District Council strategic report to be published in November 2008
Flood Products Fair held in Witney on 9 <sup>th</sup> October 2008

### 3.0 EXECUTIVE SUMMARY

Following the flooding events of July 2007, West Oxfordshire District Council (WODC) has responded to requests from both Town and Parish Councils to aid the coordination of all the agencies and bodies that were undertaking their own investigations into the floods through the production of Parish Flood Reports.

This document is the Parish Flood Report for the village of Fulbrook and has been prepared by the Council's Engineering team. It pulls together information from external agencies and individual property owners. It identifies the causes of flooding in Fulbrook during July 2007 and potential mitigating solutions.

The report itself is broken down into a number of sections and will include;

- An overview of flooding history in Fulbrook and flood related issues raised by residents
- A presentation of the problems and causes of flooding in Fulbrook during July 2007.
- A summary of all the flooding issues and potential mitigation options.
- A breakdown of the recommendations for immediate, mid-term and long term actions including the responsible agency based on the options identified.

The summary below lists the main sources of flooding in Fulbrook that have been identified by the residents. More detail is provided regarding the specific locations and the causes in section 5 of the report.

#### Sources of flooding

- Surface water from a field on the northern side of Westhall Hill passes through 2 adjacent properties and flows through a front boundary drystone wall, continuing to flow down the hill. This has previously caused the collapse of the wall, which has since been repaired. The problem is compounded by the presence of natural springs within the properties and surface water shedding onto the highway from a field entrance on the south side of the road. Runoff has also previously flooded a property in Burford Rd, the owners of which have subsequently taken steps to protect it by raising the dropped kerbs outside the entrance.
- A watercourse connects a pond at Woodgrove Farm, Meadow End, to the River Windrush. A ditch which forms part of the watercourse is overgrown in the vicinity of the sewage works and flooding consequently occurs
- Natural springs within the grounds of 2 properties in Beech Grove shed water onto the highway, which, due to the lack of highway drainage in the road, flows down to and floods Orchard Row.
- Orchard Row is also affected by run-off from the field to the south-east of the road, although it is understood that an attempt has been made to prevent this by the creation of 2 large soakaways within the field
- Surface water run-off from a field entrance on the south-east side of the A361, north-east of Upper End, shedding onto the highway. As there is a dip in the road water tends to gather here, although some of it also sheds harmlessly onto the grassland opposite
- General poor maintenance to highway gullies causes ponding in specific areas, e.g. in the vicinity of the war memorial in Meadow Lane and at the roundabout at the junction of the A424 and A361

## **4.0 SURVEY**

### **4.1 Description of area**

The Parish of Fulbrook is approximately 694 Hectares (1715 acres) in size. It is located 0.5 miles north-east of Burford .

A map of the parish is shown in figure 1. The areas affected by flooding have been identifies as (1), (2), (3), (4) and (5)

## **2 Survey approach**

A visual walk-over survey has been undertaken. Photographs of some of the flood affected areas are in Appendix 1.



### 4.3 Meetings

Details of meetings attended by District Council representatives about the flooding of Fulbrook in July 2007 are given in Table below;

<b>Date</b>	<b>Main participants and Venue</b>	<b>Description</b>
17.7.08	Kevin Jack and Gary Marden – various locations	Information gathering exercise on problem areas for flooding

#### 4.3.1 Application for Grant Aid

The District Council has given financial support to the residents of the district in the form of;

- Emergency Flood Relief Grant Aid of £250 per applicant

To date the owners of 3 residential properties in the Parish of Fulbrook have received Emergency Flood Relief Grant Aid, however it is acknowledged that this may not be the total number of properties affected as some owners may have been reluctant to claim.

## 5.0 PROBLEMS AND CAUSES

### 5.1 Plans

Appendix 2 contains 2 maps:-

**1. Fig 1 – Areas affected by flooding within Fulbrook Parish**

**2. Fig.2 – Environment Agency plan showing:-**

- Fulbrook parish boundary
- Main rivers and enmained water courses in the area
- Flood Zone 2, January 2008 - 0.1% annual probability of flooding occurring or low to medium risk. Previously referred to as 1:1,000 year flooding
- Flood Zone 3, January 2008 - 1% annual probability of flooding occurring or high risk. Previously referred to as 1:100 year flooding

**Note – this EA map has been updated to reflect the events of July 2007. All references to flood zones in this report refer to the previous EA flood zone map i.e. pre July 2007.**

## **5.2 Area 1 – Westhall Hill and Burford Road**

2 properties applied for the flooding grant after July 2007. Other properties may also have been affected that did not apply for a grant.

The cause of flooding is ascertained to be:

- 5.21 Surface water run-off from a field on the northern side of the road
- 5.22 Natural springs within the grounds of 2 properties on the north side
- 5.23 Surface water from a field on the south side of the road

## **5.3 Area 2 – In vicinity of the sewage works**

No properties applied for a flooding grant after July 2007.

The cause of flooding is ascertained to be:

- 5.31 An overgrown watercourse leading from the pond at Woodgrove Farm to the River Windrush

## **5.4 Area 3 – Beech Grove, Meadow Lane and Orchard Row**

No properties applied for a flooding grant after July 2007, although some may have been affected that did not apply for a grant.

The cause of flooding is ascertained to be:-

- 5.41 Natural springs within the grounds of 2 properties in Beech Grove
- 5.42 A lack of highway drainage in Beech Grove and Meadow Lane
- 5.43 Blocked gullies in the Meadow Lane area
- 5.44 Surface water run-off from the field to the south-east of Orchard Row

## **5.5 Area 4 – A361, north-east of Upper End**

No properties applied for a flooding grant after July 2007.

The cause of flooding is ascertained to be:-

- 5.51 Surface water run-off from the field entrance on the south - eastern side of the road
- 5.52 Blocked gullies on the A361
- 5.53 Inadequate highway drainage

## **5.6 Area 5 – between A424 / A361 roundabout and Burford bridge**

One property applied for a flooding grant after July 2007

The cause of flooding is ascertained to be:-

### **5.6.1 Blocked highway gullies in the vicinity of the roundabout**

## 6.0 OPTIONS

The following table shows the possible options available for flood alleviation schemes throughout the Parish, and their potential effectiveness, as assessed by the District Council Engineers.

Many of these options will require further detailed investigation along with the agreement of the responsible landowner, identification of budget and a cost benefit analysis to be carried out before they can be implemented.

Some of the options shown are also mutually exclusive, that is if one option is carried out then another will not be necessary. To find if this is the case for an option, please look at the detailed description in the Conclusions and Recommendations (Section 7.0).

If you require further information regarding a particular option, please contact the agency that would be responsible for implementation of the proposal, where this has been shown, using the contact information at the top of the column. If no contact details are shown, there may be a private landowner responsible. If this is the case the District Council will ensure that private landowners are made aware of their responsibilities, and can use enforcement powers under the Land Drainage Act 1991 to ensure they carry out their duties if necessary.

### Area 1 - Westhall Hill and Burford Road

Area		1		
<b>Flooded Properties &amp; Causes</b>		2 properties applied for flooding grant, although others may also have been affected. Estimated frequency once a year  <u>Primary causes</u> – (i) Surface water run-off from a field on the northern side of the road, (ii) Natural springs within 2 properties on the north side, (iii) Surface water from a field on the south side of the road		
Options		1	2	3
<b>Description of options</b>		Construct retention pond / ditch / soakaway system in field on north side of road	Clear and extend ditches / culverts on south side of road from field entrance to Burford Rd	Connect ditch at Burford Road end into gully
<b>Responsible Agencies</b>	<b>EA</b> For queries Tel: 08708 506506			
	<b>OCC</b> For queries Tel: 08453 101111		OCC to assist with funding	OCC to organise and assist with funding
	<b>Thames Water</b> For queries Tel: 08459 200800			
	<b>WODC</b> For queries Tel: 01993 861000	WODC to co-ordinate	WODC to co-ordinate	
	<b>Private/Other Organisations</b>	Private landowner to organise and fund	Riparian owner/s to organise and part fund	
<b>Effectiveness/ Effects on adjacent land</b>		Will help to prevent flooding of road	Will help to prevent flooding of road	Will help to prevent flooding of road
<b>Cost</b>		£20K - £50K	£5K - £10K	£0K - £5K

## Area 2 – In vicinity of the sewage works

<b>Area</b>		<b>2</b>
<b>Flooded Properties &amp; Causes</b>		No properties were affected,. Estimated frequency once a year.  <u>Primary cause</u> – blocked ditch near sewage works
<b>Options</b>		<b>1</b>
<b>Description of options</b>		Ditch to be cleared
<b>Responsible Agencies</b>	<b>EA</b> For queries Tel: 08708 506506	
	<b>OCC</b> For queries Tel: 08453 101111	
	<b>Thames Water</b> For queries Tel: 08459 200800	Thames Water to clear length of ditch adjacent to their land
	<b>WODC</b> For queries Tel: 01993 861000	WODC to co-ordinate
	<b>Private/Other Organisations</b>	Other riparian owner/s to clear section/s of ditch as necessary
<b>Effectiveness/ Effects on adjacent land</b>		Will help to prevent flooding in vicinity of watercourse
<b>Cost</b>		£5K - £10K

### Area 3 – Beech Grove, Meadow Lane and Orchard Row

Area		3			
<b>Flooded Properties &amp; Causes</b>		No properties applied for flooding grant, although some may have been affected. Estimated frequency every 6 months  <u>Primary causes</u> – (i) Natural springs within the grounds of 2 properties in Beech Rd, (ii) A lack of highway drainage in Beech Grove and Meadow Lane, (iii) Surface water run-off from the field to the south-east of Orchard Row			
Options		1	2	3	4
<b>Description of options</b>		Provide land drainage in grounds of properties	Consider improving surface water drainage system	More frequent maintenance of highway drainage in general area	Construct retention pond / ditch system in field to SE of Orchard Row
<b>Responsible Agencies</b>	<b>EA</b> For queries Tel: 08708 506506				
	<b>OCC</b> For queries Tel: 08453 101111		OCC to provide gullies and laterals	OCC to arrange	
	<b>Thames Water</b> For queries Tel: 08459 200800		Thames Water to provide carrier drain		
	<b>WODC</b> For queries Tel: 01993 861000	WODC to co-ordinate			WODC to co-ordinate
	<b>Private/Other Organisations</b>	Private householders to arrange and fund			Private landowner to arrange and fund
<b>Effectiveness/ Effects on adjacent land</b>		Will help to prevent flooding of roads	Will help to prevent flooding of roads	Will help to prevent flooding of road	Will help to prevent flooding of road
<b>Cost</b>		£5K - £10K	£20K - £50K	£0K - £5K	£20K - £50K



### Area 4 – A361, north-east of Upper End

<b>Area</b>		<b>4</b>		
<b>Flooded Properties &amp; Causes</b>		No properties were affected,. Estimated frequency every 6 months.  <u>Primary causes</u> – (i) Surface water run-off from field on south side of road, (ii) Blocked highway gullies along road, (iii) Inadequate highway drainage along road		
<b>Options</b>		<b>1</b>	<b>2</b>	<b>3</b>
<b>Description of options</b>		Construct retention pond / ditch / soakaway system in field	More frequent maintenance of highway drainage	Consider improving surface water drainage system
<b>Responsible Agencies</b>	<b>EA</b> For queries Tel: 08708 506506			
	<b>OCC</b> For queries Tel: 08453 101111		OCC to organise	OCC to provide gullies and laterals
	<b>Thames Water</b> For queries Tel: 08459 200800			
	<b>WODC</b> For queries Tel: 01993 861000	WODC to co-ordinate works		
	<b>Private/Other Organisations</b>	Landowner to arrange and fund		
<b>Effectiveness/ Effects on adjacent land</b>		Will help to prevent flooding of road	Will help to prevent flooding of road	Will help to prevent flooding of road
<b>Cost</b>		£20K - £50K	£0K - £5K	£10K - £20K

**Area 5 - between A424 / A361 roundabout and Burford bridge**

<b>Area</b>		<b>5</b>
<b>Flooded Properties &amp; Causes</b>		One property applied for a flooding grant, although others may also have been affected. Estimated frequency once a year.  <u>Primary cause</u> – blocked highway gullies in vicinity of roundabout.
<b>Options</b>		<b>1</b>
<b>Description of options</b>		More frequent maintenance of highway gullies
<b>Responsible Agencies</b>	<b>EA</b> For queries Tel: 08708 506506	
	<b>OCC</b> For queries Tel: 08453 101111	OCC to organise
	<b>Thames Water</b> For queries Tel: 08459 200800	
	<b>WODC</b> For queries Tel: 01993 861000	
	<b>Private/Other Organisations</b>	
<b>Effectiveness/ Effects on adjacent land</b>		Will help to prevent flooding of road and properties
<b>Cost</b>		Up to £5K

## 7.0 CONCLUSIONS AND RECOMMENDATIONS

### 7.1 Area 1 - Westhall Hill and Burford Road

#### 7.1.1 Maintenance

The following on-going maintenance is recommended:

- Action 1 – Landowner to maintain proposed new land drainage system in field on north side of Westhall Hill
- Action 2 - Riparian owner/s to clear and maintain ditch on south side of Westhall Hill

#### 7.1.2 Flood defence improvement schemes

The following flood defence improvement schemes are recommended:

##### Immediate (Under 1 year)

- Action 3 - Connect ditch on south side Westhall Hill into gully at Burford Road end

##### Mid-Term (under 1 -2 years)

- Action 1 - Construct retention pond / ditch / soakaway system in field on north side of road

### 7.2 Area 2 – In vicinity of the sewage works

#### 7.2.1 Maintenance

The following on-going maintenance is recommended:-

- Action 1 - Thames Water / Riparian owners to keep ditch clear on regular basis

##### Immediate (Under 1 year)

- Action 1 - Thames Water / Riparian owners to clear ditch of all obstructions

### 7.3 Area 3 – Beech Grove, Meadow Lane and Orchard Row

#### 7.3.1 Maintenance

The following on-going maintenance is recommended:-

- Action 1 – Private householders to maintain proposed new land drainage on regular basis
- Action 2 – regular maintenance of improved surface water drainage system
- Action 3 – more frequent maintenance of existing highway drainage system in area
- Action 4 – Regular maintenance of proposed new retention pond / ditch system

Mid term (1 – 2 years)

- Action 1 - Provide land drainage in grounds of properties
- Action 2 - Consider improving surface water drainage system in area
- Action 4 - Construct retention pond / ditch system

**7.4 Area 4 – A361, north-east of Upper End**

**7.4.1 Maintenance**

The following on-going maintenance is recommended:-

- Action 1 - Regular maintenance of proposed new retention pond / ditch / soakaway system
- Action 2 – More frequent maintenance of highway drainage
- Action 3 – Regular maintenance of improved surface water drainage system

Mid term (1 – 2 years)

- Action 1 - Construct retention pond / ditch / soakaway system in field
- Action 3 - Consider improving surface water drainage system

**7.5 Area 5 - between A424 / A361 roundabout and Burford bridge**

**7.5.1 Maintenance**

The following on-going maintenance is recommended:-

- Action 1 - More frequent maintenance of highway drainage

## Appendix 1: Photographs



Area 1 – Westhall Hill, looking from Burford Rd



Area 1 – Ditch on south side of Westhall Hill that needs reforming



Area 1 – Land on northern side of Westhall Hill  
from which runoff occurs



Area 1 – Field entrance on southern side of Westhall Hill  
from which runoff occurs



Area 2 – location of culvert entrance at blocked watercourse adjacent to sewage works



Area 2 – open watercourse adjacent to sewage works





Area 2 – open watercourse adjacent to sewage works



Area 2 – blocked watercourse leading to River Windrush



Area 3 – Beech Grove, looking towards Orchard Row



Area 3 – Orchard Row, showing water damage to road



Area 3 – Orchard Row, showing areas affected by flooding



Area 4 – A361, showing field entrance on SE side of road and area affected by flooding



Area 4 –grassland (with watercourse at rear) on NW side of A361 that takes runoff from flooded road



Area 5 – blocked gullies at A424 / A361 roundabout