



WEST OXFORDSHIRE
DISTRICT COUNCIL

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Parish Flood Report: Enstone

December 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 powers¹ 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 riparian² land owner, and permissive powers¹ 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 Council who have been a key contributor to the production of the report and have agreed to act as the first point of contact.

1.5 Legal

For the avoidance of doubt it should be noted that no part of this report is to be reproduced, copied or used by any third party without the prior express written consent of WODC in its absolute discretion. All those reading this report acknowledge that any conditions, warranties or other terms implied by statute or common law are excluded to the fullest extent permitted by law. Without limiting the scope of the

¹ 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

² Riparian owners are responsible for the maintenance of any watercourse within or adjacent to the boundaries of their property.
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foregoing, West Oxfordshire District Council does not give any warranty, representation or undertaking as to the efficacy or usefulness of the information contained within this report, nor that any advice contained within this report will produce satisfactory results if followed. West Oxfordshire District Council hereby excludes liability to the fullest extent permitted by law for any reliance placed in this report by third parties.

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
WODC continues to act in a coordination capacity with key external agencies
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 January 2009
Flood Products Fair held in Witney 9 th 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 Enstone 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 Enstone 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 Enstone and flood related issues raised by residents
- A presentation of the problems and causes of flooding in Enstone 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 Enstone that have been identified by the residents. More detail is provided regarding the specific locations and the causes in section 5 of the report.

3.1 Sources of flooding

One of the two properties which is recorded as having flooded in July 2007, suffered from a deluge of water which flowed down the driveway to the property. This water came across the public highway (B4030) although it originated from land to the north-west, which is called Spring Hill. This area of land also includes allotment gardens.

The other property which is recorded as having flooded in July 2007 (in addition to suffering during less severe events) relies upon the capacities of the adjoining watercourses, floodplains and highway bridges to cope with peak flows. The source of flooding is mainly therefore the inadequacy of the capacity of the natural system. There is however, a man-made contributory factor to the localised flooding problem, which is the diversion of the watercourse south of Stoney Bridge. That issue will be explained in this report.

There are several locations throughout the village which suffer severe highway flooding. These locations are the responsibility of the highway authority, however, actions for them will be stated in this report as West Oxfordshire District Council have taken a co-ordination role with regards to flood defence.

4.0 SURVEY

4.1 Description of area

The Parish of Enstone is approximately 2399 Hectares in size. It is located approximately 5 miles south east of Chipping Norton, with the major distributor road the A44 bisecting the settlement. The River Glyme rises in farmland to the east of Chipping Norton, it flows in a south easterly direction towards Enstone. It is not enained along this section, so it is the responsibility of the riparian owners. West Oxfordshire District Council is the enforcement agency regarding required maintenance issues, as West Oxfordshire District Council has permissive powers under the Land Drainage Act 1991. There is a second unnamed watercourse which rises further east of Chipping Norton and flows in parallel to the River Glyme, to the eastern side of Heythrop Park Estate and to the north of the A44. This watercourse passes adjacent to a sewage works which is a ¼ of a mile north of the property frequently flooded. This watercourse is also not enained.

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

Figure 2 shows the location of the watercourses and the mapped flood zones according to the Environment Agency.

4.2 Survey approach

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

4.3 Meetings

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

October 2007 – Mr. Philip Page, WODC attended a Parish Council Meeting

February 2008 – Mr. Laurence King, WODC & Mr. Wayne Barker, Oxfordshire County Council, carried out a visual survey of areas shown on the map sent to Laurence King by the Parish Council.

4.3.1 Application for Grant Aid

The District Council has distributed a range of financial support to the residents of the district in the form of;

- Emergency Flood Relief Grant Aid of £250 per applicant
- Administered Red Cross relief aid
- Hardship grants
- Council Tax exemptions

To date the owners of 2 residential properties in the Parish of Enstone 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.

4.3.2 Flooding History

A flooding history relevant to the Parish of Enstone has been compiled since July 2007 by WODC and is stored electronically at the West Oxfordshire District Council offices.

5.0 PROBLEMS AND CAUSES

5.1 Plans

Appendix 2 contains 2 maps:-

1. Fig 1 – Parish map showing areas discussed in the report

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

- Enstone 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

Only 1 property is recorded as having been flooded in this area. However, the source of the flooding would cause the assumption that the flooding risk will increase. The main problem is the amount of water flowing across the agricultural land and onto the public highway. The highway drainage is unable to cope with this deluge and so the water enters the low lying driveway. Measures to increase the capability of the highway drainage to cope, coupled with measures to reduce the possibility of water flowing towards the low lying property should be taken.

5.3 Area 2

This area has the most complex problems involving watercourse maintenance, watercourse diversion, structural constraints and location of affected property. The initial actions to take involve clearance of the watercourses upstream of the property, in addition to the clearing of the apertures in the “Stoney Bridge” on the B4030.

Further discussions should take place on the merits of installing a flood relief culvert which would cross Stoney Bridge and /or altering the watercourse at the “Planks” back to its original course.

Clearance of the watercourses upstream of the regularly affected property would bring water quickly to the plot. However, the water would continue through the downstream meadow, under the Stoney Bridge into the watercourse and floodplain at the same rate, subject to the apertures of the bridge being sufficient to accommodate the amount of flow. That equation is required to be worked out to ensure maintenance of the upstream watercourses will not simply cause more water to quickly “back-up” to the property.

The diversion that was carried out to dry out the land may also be causing a slow down in the rate the water can flow through the Planks area. The loss of that section of flood plain, coupled with the change in direction could contribute to the water backing-up in the Stoney Bridge area. Further investigations should be carried out to determine the effects the diversion has had.

5.4 Areas 3 & 4

These areas suffer from flooding on the public highway. No properties have been flooded, but obviously regular flooding of sections of the highway causes a risk to pedestrians and motorists.

The problems are caused by a mixture of poor highway surfacing, a lack of regular highway drainage maintenance and an obstructed land drainage system. The solutions are fairly straightforward, and fall mainly to Oxfordshire Highways Department to carry out.

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 I

Area		I		
Flooded Properties & Causes		Agricultural land run-off flows onto public highway. Highway drainage cannot cope and water enters private property.		
Options		1	2	3
Description of options		Install raised kerb line across driveway & camber cross-over to fall towards carriageway	Install additional highway drainage in front of driveway	Create cut-off ditch in land behind Clay Hill Close
Responsible Agencies	EA For queries Tel: 08708 506506			
	OCC For queries Tel: 08453 101111	Oxfordshire County Council to give consent for works to proceed	Oxfordshire County Council to carry out this work (should be carried out in conjunction with Option 1)	
	Thames Water For queries Tel: 08459 200800			
	WODC For queries Tel: 01993 861000			West Oxfordshire District Council to assist landowner
	Private/Other Organisations			Landowner to create ditch
Effectiveness/ Effects on adjacent land		This will prevent flows from entering sloping driveway	Will be effective in lower order events only, due to gully capacities	Will create storage and reduce rat water flows onto sloping hard surface
Cost		Up to £2K	Up to £2K	Up to £2K

Area 2

Area		2		
Flooded Properties & Causes		Property and highway flood, due to a combination of factors including the watercourse and the bridge on the watercourse on the B4030 at Stoney Bridge		
Options		1	2	3
Description of options		Re-direct watercourse which was diverted 20 years ago, to its original course	De-silt under Stoney Bridge and install flood relief culvert	Carry out channel clearance work on watercourses throughout system. This will increase storage capacity.
Responsible Agencies	EA For queries Tel: 08708 506506	Environmental impact assessments required and Environment Agency consent		Environmental impact assessments required and Environment Agency consent
	OCC For queries Tel: 08453 101111		Oxfordshire County Council to carry out this work	
	Thames Water For queries Tel: 08459 200800			
	WODC For queries Tel: 01993 861000			As land drainage authority, West Oxfordshire District Council to co-ordinate works and carry out enforcement
	Private/Other Organisations	Landowner to carry out works <u>IF</u> found to be required		Riparian owners to carry out work
Effectiveness/ Effects on adjacent land		Will involve longer length of channel to deal with peak flows, in addition to using more floodplain land to soak up water.		
Cost		Survey £3K; Construction up to £2K	Up to £5K	£20K – £50K (for entire length of system)

Area 3

Area		3	
Flooded Properties & Causes		Water ponding on public highway in all locations. Intervention by Oxfordshire County Council required, due to depth and frequency of ponding in addition to damage being caused to construction layers of highway	
Options		1	2
Description of options		In area 3 (near the B4030 and B4022 junction) the highway requires re-profiling to ensure water reaches gullies, soak away condition is also to be checked	Cling Clang Lane. Water discharging from higher field must be able to cross lane in culvert, to an unobstructed discharge point east of playing field area.
Responsible Agencies	EA For queries Tel: 08708 506506		
	OCC For queries Tel: 08453 101111	OCC to carry out this work	Oxfordshire County Council to ensure culvert under public road is functioning
	Thames Water For queries Tel: 08459 200800		
	WODC For queries Tel: 01993 861000		WODC to co-ordinate works
	Private/Other Organisations		Landowner of lower field to ensure discharge point is kept clear
Effectiveness/ Effects on adjacent land			
Cost		Up to £2K	Up to £2K

Area 4

Area		4	
Flooded Properties & Causes		Highway is flooded, due to water not being able to drain away sufficiently to existing highway drainage	
Options		1	2
Description of options		Clear and jet existing gullies and lateral pipes to carrier drain. Inspect discharge point and carry out required repairs to pipes	Carry out kerbing and surface repairs to ensure water can flow to gullies
Responsible Agencies	EA For queries Tel: 08708 506506		
	OCC For queries Tel: 08453 101111	OCC to carry out this work	Oxfordshire County Council to carry out this work
	Thames Water For queries Tel: 08459 200800		
	WODC For queries Tel: 01993 861000		
	Private/Other Organisations		
Effectiveness/ Effects on adjacent land			
Cost		Up to £5K	Up to £5K

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 Area 1

7.1.1 Maintenance

The following on-going maintenance is recommended:

- Ensure highway drainage is functioning at full capacity.

7.1.2 Flood defence improvement schemes

The following flood defence improvement schemes are recommended:

Immediate (under 1 years)

Option 1 - Install raised kerb line across driveway & camber cross-over to fall towards carriageway

Option 2 - Install additional highway drainage in front of driveway

Option 3 - Create cut-off ditch in land behind Clay Hill Close

Options 1, 2 & 3 should be immediately discussed with the relevant parties

7.2 Area 2

7.2.1 Maintenance

The following on-going maintenance is recommended:

Option 2 - De-silt under Stoney Bridge (without the need to install a new relief culvert)

Option 3 - Carry out channel clearance work on watercourses throughout system. This will increase storage capacity

7.2.2 Flood defence improvement schemes

Mid-Term (under 1-2 years)

The following flood defence improvement schemes are recommended:

Option 1 - Re-direct watercourse which was diverted 20 years ago, to its original course

Option 2 – In full, de-silt under Stoney Bridge and install flood relief culvert

7.3 Area 3

7.3.1 Maintenance

The following on-going maintenance is recommended:

Option 2 - Cling Clang Lane. Water discharging from higher field must be able to cross lane in culvert, to an unobstructed discharge point east of playing field area.

7.3.2 Flood defence improvement schemes

Mid-Term (under 1-2 years)

The following flood defence improvement schemes are recommended:

Option 1 - In area 3 (near the B4030 and B4022 junction) the highway requires re-profiling to ensure water reaches gullies; soak away condition is also to be checked

7.4 Area 4

7.4.1 Maintenance

The following on-going maintenance is recommended:

Option 1 - Clear and jet existing gullies and lateral pipes to carrier drain. Inspect discharge point and carry out required repairs to pipes

7.4.2 Flood defence improvement schemes

Mid-Term (under 1-2 years)

The following flood defence improvement schemes are recommended:

Option 2 - Carry out kerbing and surface repairs to ensure water can flow to gullies

Appendix I: Photographs



Area 1- No kerb face on driveway



Area 1- Looking towards source of run-off



Area 2- Partially blocked arches at bridge on B4030



Area 2- Overgrown stream at the Planks



Area 2- The Planks showing width of floodplain



Area 2- Diverted route of River Glyme



Area 3 - Cling Clang Lane, upstream side



Area 3 - Cling Clang Lane, downstream side



Area 4 - Kerb damage, due to ponding water on highway



Area 4 - Confluence of River Glyme and drain at Woodford Bridge (upstream side)