



WEST OXFORDSHIRE
DISTRICT COUNCIL

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Parish Flood Report: Hardwick with Yelford

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 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

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 November 2008
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 Hardwick with Yelford 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 Hardwick with Yelford 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 Hardwick with Yelford and flood related issues raised by residents
- A presentation of the problems and causes of flooding in Hardwick with Yelford 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 Hardwick with Yelford 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

Yelford has a history of flooding, which goes back many years; however, the parish has experienced a much higher frequency of flooding in the last 8 to 10 years. That said, it was only in July 2007 that internal flooding of property was experienced. This is a result of a combination of factors, including the change in the maintenance regime of the Brighthampton Cut, a lack of maintenance of the ordinary watercourses, an increase in the volume and rate of field run-off which enters the drainage ditches and the inadequacy of the highway drainage system, which includes the culvert crossing the road through the village. An additional factor to be considered is the way that the flood plain has been bisected by the road through the village and the way that the floodplain has become less effective due to that fact.

4.0 SURVEY

4.1 Description of area

The Parish of Hardwick with Yelford is approximately 657 Hectares in size. Yelford is a small village, located 4 Km south of Witney. The Brighthampton Cut becomes a main river (enmained) at the bridge crossing. It is a medium consequence (risk) system, which flows in a south easterly direction to its confluence with the Elm Bank ditch.

A map of the parish is shown in Figure 1. The area affected by flooding have been identified as Area 1 - Yelford

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

A briefing was attended by Mr. N. Hands of West Oxfordshire District Council on the 7th July 2008. Due to Mr. Hands leaving West Oxfordshire District Council, Laurence King of West Oxfordshire District Council attended a second briefing meeting on the 5th September 2008. Mr. Roger Rosewell and Mr. Peter Fullerton of the Parish Council briefed Mr. King.

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

To date the owners of 4 residential properties in the Parish of Hardwick with Yelford 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 Hardwick with Yelford has been compiled since July 2007 by WODC and is stored electronically.

The Manor House has the remains of a moat, which would have been used to accommodate the stream which enters the village from Boys & Homewood.

The diversion works carried out to the stream in the 19th Century culminated in a convergence of watercourses and ditches, on the upstream side of the culvert which is laid under the road through the village. The road itself did not exist until the 19th Century.

It is widely accepted that the rate of run-off from Ricklees Hill and the fields adjacent Homewood, has considerably increased in recent years. This is due to the fields being used for arable farming now rather than grass, in addition to the compaction of the ground, the loss of hedgerows and the probability of a higher groundwater level.

There have been a series of flood events in Yelford during the last 7 years. However, they have not caused the same level of concern and damage as that experienced in July 2007.

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:-

- Hardwick with Yelford 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 - Yelford

As previously stated it is accepted that the village drainage system is now required to cope with large amounts of water arriving in shorter periods of time. With that in mind, it seems obvious that the lack of maintenance of the ditches and watercourse channels passing through the village would have an impact on the rate that water can reach the junction area at the main culvert in the village, which then takes the water away from the residential area.

Since the events of July 2007, Oxfordshire County Council have installed a new box culvert at this point and steel sheet piling to prioritise flows through the bridge. In addition to that they have installed a multi-pipe culvert on the western side of the village across the access road, which will relieve the ditch system entering the village during severe events.

The condition of the Brighthampton Cut from the downstream side of the new bridge, is considered to be a major factor in causing the “backing up” of water into the village. The Brighthampton Cut runs for approximately 1500 metres, before it is met by the Elm Bank ditch. The watercourse then continues towards the River Thames. The Cut is extremely overgrown with shrubs and saplings growing in or near to the bed. The rate of flow and its capacity are considerably reduced because of the poor maintenance regime employed. If the cut was in a clear condition, with a bank profile able to utilise the adjacent flood plain (during more severe events) the water would be drawn through the residential area much more quickly. This action is also required to assist the rate of flow due to the shallow gradient of the Cut.

There is a need to assess the way that the highway is drained in the village area. The road entering the village from the east is thought to bring large volumes of water very quickly into the Manor House, College Farm and Linten Warren area. This water does not reach the bridge area, but enters the gardens and drives of the above properties.

The final aspect to consider is the operation of the culvert crossing the road on the western side of the village. This culvert discharges water from the Claywell Farm area into the Elm Bank ditch. This culvert has been cleared by Oxfordshire County Council and a new parapet wall built, however, during severe events, the Elm Bank ditch is over 1.5 metres full of fast flowing water. This restricts the amount of water able to flow into the Elm Bank ditch as it is flowing at a slower rate. The water builds up on the upstream side of the culvert to a point where it starts to flow down the ditch towards the village. This risk to the village has been alleviated by the action of Oxfordshire County Council installing the multi-pipe flood relief culvert across the road.

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 - Yelford

Area		I			
Flooded Properties & Causes		Poor ditch maintenance, poor main river maintenance, inadequacy of culvert during severe events, inadequate provision / maintenance of highway verge grips and gullies.			
Options		1	2	3	4
Description of options		EA to carry out considerably increased level of maintenance on Brighthampton Cut. Channel to be cleared and the maximum gradient achieved.	Cut additional verge grips and maintain existing to a higher frequency. Clear any existing gullies.	Install a flood relief culvert at culvert crossing near Claywell Farm land	Install a dam in ditch on western side of village. This would be village side of multi-pipe crossing. This would utilise multi-pipe crossing more frequently.
Responsible Agencies	EA For queries Tel: 08708 506506	EA to carry out this work			
	OCC For queries Tel: 08453 101111		OCC to carry out work		
	Thames Water For queries Tel: 08459 200800				
	WODC For queries Tel: 01993 861000	To provide a co-ordination role		This s a land drainage issue so WODC to fund	Land drainage action. WODC to assist residents
	Private/Other Organisations				
Effectiveness/ Effects on adjacent land			Will reduce amount of highway run-off entering private property during storm events	Construction would need to include protection against erosion of farm land	Flood plain would be utilised more frequently
Cost		£5K - £20K	£2K	Up to £5K	Up to 1K

Area		I		
Flooded Properties & Causes		Poor ditch maintenance, poor main river maintenance, inadequacy of culvert during severe events, inadequate provision / maintenance of highway verge grips and gullies.		
Options		5	6	7
Description of options		Clear all private boundary ditches and ordinary watercourses of bed and bank restrictions to flow	Ensure flood plain adjacent to Brighthampton Cut is correctly utilised by Brighthampton Cut	Install a flow control device at confluence of Brighthampton Cut and Elm Bank ditch to give priority to Brighthampton Cut.
Responsible Agencies	EA For queries Tel: 08708 506506		EA to profile banks of Brighthampton Cut.	EA consent required. Possible source of funding.
	OCC For queries Tel: 08453 101111			
	Thames Water For queries Tel: 08459 200800			
	WODC For queries Tel: 01993 861000	WODC to co-ordinate and assist residents		
	Private/Other Organisations	This is primarily private residents responsibility		This would need to be proposed by residents
Effectiveness/ Effects on adjacent land		Reduction to amount of water sitting in channels adjacent to properties and increase flow rate to bridge	Flood plain would be utilised more frequently on the side away from the residential area.	Could cause an increase in frequency of flooding of farm land
Cost		Up to £5K	Up to £10K	Up to £5K

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 Area 1 - Yelford

7.1.1 Maintenance

The following maintenance is recommended;

- Option 1 - EA to carry out considerably increased level of maintenance on Brighthampton Cut. Channel to be cleared and the maximum gradient achieved.
- Option 2 - Cut additional verge grips and maintain existing to a higher frequency. Clear any existing gullies.
- Option 5 - Clear all private boundary ditches and ordinary watercourses of bed and bank restrictions to flow

These three options must be progressed in the next 12 months

7.1.2 Flood defence improvement schemes

The following flood defence improvements are recommended

- Options 3, 4, 6 & 7 can be carried out separately. On that basis, subject to hydraulic calculations being carried out and the necessary consents being obtained, all the remaining options are recommended for further investigation.
- Option 3 - Install a flood relief culvert at culvert crossing near Claywell Farm land
- Option 4 - Install a dam in ditch on western side of village. This would be village side of multi-pipe crossing. This would utilise multi-pipe crossing more frequently.
- Option 6 - Ensure flood plain adjacent to Brighthampton Cut is correctly utilised by Brighthampton Cut
- Option 7 - Install a flow control device at confluence of Brighthampton Cut and Elm Bank ditch to give priority to Brighthampton Cut.

Appendix I: Photographs



Overgrown riparian owned ditch in village – 05/09/08



View looking out of Yelford – 05/09/08



Topography on upstream side of the Lew Road – 05/09/08



View looking towards Yelford – 05/09/08



New multi-pipe flood relief structure, installed by OCC (upstream side) - 05/09/08



New multi-pipe flood relief structure, installed by OCC (downstream side) - 05/09/08



Topography on upstream side of the Lew Road – 05/09/08



Access way to fields on upstream side of culvert crossing – 05/09/08



Upstream side of culvert on the Lew Road, Yelford – 05/09/08



Looking across culvert on the Lew Road, Yelford – 05/09/08



Upstream view from culvert. Land drainage entering Elm Ditch system – 05/09/08



View of Elm Ditch from culvert on road through Yelford – 05/09/08



Upstream side of culvert, rebuilt by OCC since July '07 (note driven steel piles directing flow) – 05/09/08



New garage being built near upstream side of culvert on the Lew Road, Yelford – 05/09/08



View looking downstream on Brixthampton Cut, from road through Yelford – 05/09/08



Outfall point and weir on watercourse outside Yelford Manor – 05/09/08