



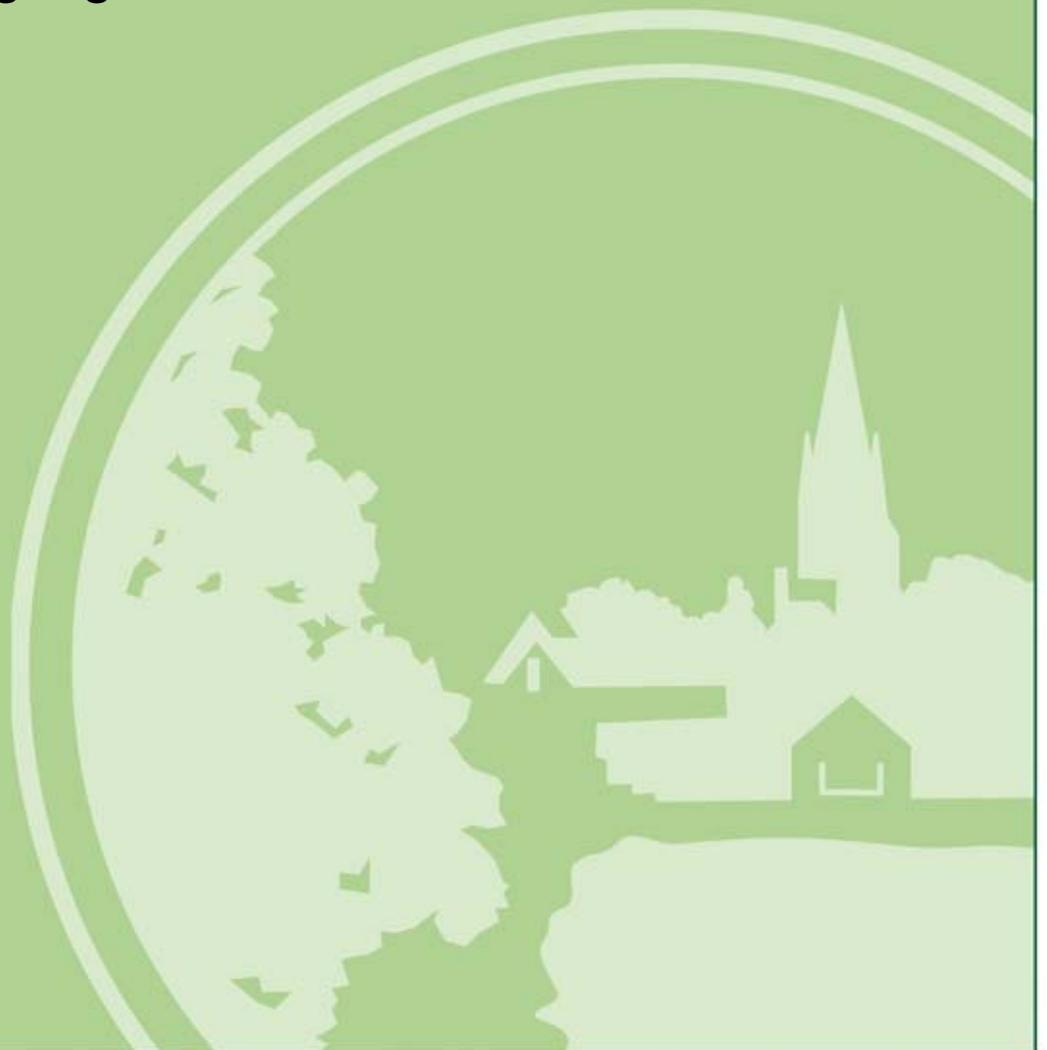
WEST OXFORDSHIRE
DISTRICT COUNCIL

www.westoxon.gov.uk

Parish Flood Report: **Grafton and Radcot**

July 2008

Version 1 – This report may be revised in the future to incorporate ongoing consultation results



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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 organisation 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 / 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 is also planning to hold a series of road shows in the Parish areas where representatives from all the relevant areas will be available to answer any questions local residents have as well as provide more information on ways residents may help themselves.

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.

1.5 Legal

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 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

Ditch Clearance

- 1731 Linear metres WODC owned ditches cleared overall
- 1923 Linear metres Privately owned ditches cleared overall
- Overall 2.27 miles of ditches have been cleared

Flood Grants

- 1137 WODC Flood Grants totalling £284,250 given out overall
 - 11 (£2750) for Grafton and Radcot
- 112 Red Cross Flood Grants totalling £211,590 administered by WODC overall
- 301 Hardship Grants totalling £155,050 given out overall

Reports

- Interim Flooding Report published October 2007
- 12 Parish Flood Reports completed by June 2008, 1 report for Charlbury

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 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 the 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. Seminar being arranged to take place during 2008 to progress this
Progress the Strategic Flood Risk Assessment
Approaches to be made to the EA and Metrological Office with regard to improving their predictive capability
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

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 Grafton and Radcot and has been prepared by the Council's Engineering team. It pulls together information from external agencies and individual property owners and seeks to identify the causes of flooding in Grafton and Radcot during July 2007 and potential mitigating solutions.

Grafton and Radcot is a rural parish located approximately 13 km south west of Witney and 5km north of Faringdon.

Visual walkover surveys have been undertaken of the flooded areas and some of the properties. Meetings have been held with some of the affected residents. WODC records eleven applications for Flood Relief Grant Aid within the Parish.

Flooding experienced in Grafton and Radcot has been assessed as three separate areas. Area 1 is Home Farm, Lower Farm and Yeatmans Farm and the immediate surrounding area. This area suffered flooding from the River Thames, Grafton Stream, Kelmscot Brook, Radcot Cut, Langford Brook and Little Clanfield Brook caused by overtopping of the Thames and smaller watercourses backing up and overflowing due to channel vegetation and associated flow restrictions. Area 2 is Grafton Village and land north and east of Langley Lane. This area was affected by flooding from Little Clanfield Brook, Broadwell Brook and by surface water flooding and overland flow. Area 3 is Radcot and land south of Langley Lane. This area was affected by flooding from the River Thames and Radcot Cut and surface water and overland flooding.

Conclusions and recommendations, including maintenance and flood defence improvement measures and a programme, are provided in Section 7.

This report also includes Appendix 1 showing Photographs, Appendix 2 showing Maps and Appendix 3 provides a glossary.

4.0 SURVEY

4.1 Description of Area

The Parish of Grafton and Radcot is located approximately 13 km south west of Witney and 5km north of Faringdon. The Parish is rural in nature and forms part of the catchment area for Little Clanfield Brook, Broadwell Brook, and Kelmscot Brook and ultimately the River Thames, which flows in an easterly direction to the south of the Parish. In addition, a number of spring-fed tributaries of the aforementioned main watercourses flow through the Parish. A large proportion the Parish is situated within the Thames floodplain.

4.2 Survey Method

A visual walk-over survey of the area affected by the July 2007 flooding has been undertaken, including properties directly flooded by the July event.

See Appendix 2 – Photographs.

4.3 Meetings

Table 1: Summary of meetings and flooding descriptions

Date	Location	Description
w/c 19.11.2007	Grafton Parish	<ul style="list-style-type: none">• Meeting between WODC and Grafton Parish regarding the summer 2007 flooding maintenance work and ongoing concerns.
21.07.2008	Grafton Village	<ul style="list-style-type: none">• Meeting with residents to discuss summer 2007 flooding and ongoing concerns.• A road that provides access between Langley Lane south of Grafton Village and Grafton Lock on the River Thames has recently been resurfaced by the EA. The road is set 6 – 18 inches above the level of the surrounding fields and may therefore present a restriction to floodwaters, creating a ‘dam’ effect to the east of the access road.• A recently installed weir downstream of Clanfield Mill diverts water in a southerly direction down Little Clanfield Brook, away from Broadwell Brook. This ensures that a minimum flow is maintained downstream in Broadwell Brook, where water is abstracted at a cattle farm.• Maintenance of vegetation within and on the banks of river channels is highlighted as a concern.

Table 2: Stakeholder Communications and actions

Stakeholder	Description
TW	<ul style="list-style-type: none">Jenny Elliott of Thames Water has been approached regarding plans for future work in Grafton
WODC	<ul style="list-style-type: none">Discussions held between WODC and residents to discuss flooding and future plans
OCC	<ul style="list-style-type: none">Gordon Hunt of Oxfordshire County Council Highways Department has been approached regarding plans for future work in Grafton and Radcot
EA	<ul style="list-style-type: none">Phil Garvey and Nick Read were approached but held no site specific information.

4.4 Application for Grant Aid

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

- Emergency Flood Relief Grant Aid of £250
- 'Hardship' Grants
- Red Cross Grants

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

Whilst the Emergency Flood Relief Grant Aid was not paid to industrial and commercial properties, the Council did provide advice and support to local business affected by the flooding on funding available from Business Link and other organisations.

5.0 PROBLEMS AND CAUSES

5.1 Plans

Figure 1 in appendix 2 shows areas in the Parish where properties flooded in July 2007 and where owners have made claims for grant assistance. The flooding can be broadly split into three areas being:

Area 1 – Lower Farm, Home Farm and Yeatmans Farm

Area 2 – Grafton Village

Area 3 – Radcot

A map detailing the following is shown in Appendix 2:

- 1% annual probability of flooding - Flood Zone 3 (previously referred to as 1 in 100 year flooding)
A plan showing the 2008 Environment Agency 1% probability Flood Zone, this is the area defined by the EA as the extent of a flood with a 1 per cent chance happening in any year. This is the high probability risk zone.
- 0.1% annual probability flooding – Flood Zone 2 (previously referred to as 1 in 1000 year flooding)
A plan showing the 2008 Environment Agency 0.1% probability Flood Zone, this is the area defined by the EA as the extent of a flood with a 0.1 per cent chance happening in any year. This is the medium probability risk zone

5.2 Area 1 – Home Farm, Lower Farm, Yeatmans Farm and surrounding area

This area suffered extensive flooding through a combination of fluvial overtopping from the River Thames, Radcut cut, Grafton Stream, Kelmscot Brook and other minor watercourses. The River Thames at Grafton Lock was at its highest recorded level and water overtopped and flooded the surrounding land. As water levels in the River Thames were elevated, this caused a 'backing up' of water in its tributaries which then flooded.

The extent of fluvial flooding was exacerbated by the large amount of vegetation within and on the banks of Langford Brook, Radcut Cut, Kelmscot Brook and their minor tributaries. The vegetation restricted the conveyance of water and, coupled with debris being transported by the floodwater, created a 'dam' effect causing water to overtop the river banks.

Another factor that is likely to have contributed to the extensive and prolonged flooding is the raising of the EA owned access road to Grafton Lock. The road is set at 6-18 inches above the surrounding fields, in effect acting as a dam. Flood waters were held back and the flooded into adjacent fields. Witness reports state that flood water was seen to flow quickly across the road, once the impounded water had reached the road surface level. Prior to the raising of this road in 2003, Yeatmans farm had not flooded. Flooding of adjacent land now occurs more frequently and more extensively.

There is also now a significant discrepancy in headwaters at Buscot (upstream of Grafton) and Grafton locks. In the 2003 flood event, prior to the works to the access road there was approximately up to a 2 inch difference between the two locks. During the 2007 flood event, residents report that there was a 10 inch difference in water levels between the two locks.

5.3 Area 2 – Grafton Village

Anecdotal records suggest that flooding attributed to surface water occurred at many locations encompassing the majority of the village, with additional runoff from the surrounding higher ground, as the fields outside the village slope down from approximately 75 metres to a low spot in the village of 69 metres.

Grafton Brook runs through the village, and Little Clanfield Brook and Broadwell Brook run to the north and east of the village. Little Clanfield Brook and Grafton Stream are tributaries of the larger Broadwell Brook. There was fluvial flooding in the Parish from Little Clanfield Brook and Grafton Stream.

Grafton Stream receives the majority of its flow via a sluice gate from Broadwell Brook to the north of the Mill. Water levels in Broadwell Brook (which is embanked) appear to be maintained artificially high, in some places water levels were observed to be approximately 12-18 inches higher than necessary due to the operation of the self-levelling weir at sluice (B). The sluice gate (A), was severely restricting flow to Grafton Stream, adding to the building up of water levels in the mill area during flood flows.

To the immediate south of the mill, there is a new weir in operation, installed in April 2008, to regulate flow to Little Clanfield and Broadwell Brook. Broadwell Brook, being the major watercourse, would be expected to receive the majority of the flow. However, it was observed that the majority of flow was being directed via the mis-operation of the sluice gates to the smaller Little Clanfield Brook. During the July 2007 event, this disproportionate diversion of flow led to the capacity of Little Clanfield Brook being exceeded, and ultimately led to land and properties to the south and west of Little Clanfield Brook being exceeded and ultimately was the major contributory factor to that area being flooded.

5.4 Area 3 –Radcot

The hamlet of Radcot and surrounding land suffered a combination of surface water flooding and fluvial flooding from the river Thames and Radcot Cut. All the homes north of the river Thames (excepting those on Radcut Bridge Farm) were flooded for the first time in the July 2007 flood event.

The flood resulted from unprecedented rainfall, which exceeded the capacity of the A4095 causeway culverts and bridges to the North of Radcot to carry away surface water. It is felt by residents, and supported by OCC, that an additional culvert under the A4095 would have alleviated the flooding event.

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. The areas affected by flooding within the Parish have been given unique area numbers, i.e. Area I. Several options for flood alleviation projects are identified for each area as “Actions” or “Options”.

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 could 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.

Parish Flood Options										
Grafton and Radcot										
Version 1 – July 2008										
Option ref	Flood Overview	Description of work required					Key issues			Comments
	Options	Environment Agency	Oxfordshire County Council	Thames Water	WODC	Private	Effectiveness	Affects on adjacent land	Cost	
		For queries Tel 08708 506 506 Or email enquiries@environment-agency.gov.uk	Main switchboard: 0845 310 1111 Or e-mail: online@oxfordshire.gov.uk	Enquiries: 0845 200 800	Switchboard: 01993 861 000					
Area 1 – Home Farm, Lower Farm and Yeatmans Farm										
	Flooding in the immediate vicinity of Lower Farm, Home Farm and Yeatmans Farm, affecting properties and land and making the roads difficult to pass.									
A	Riparian owners to actively manage vegetation in the channel and on the banks and adjacent land of Langford Brook, Radcot cut, Little Clanfield Brook, Kelmscot Brook and other tributaries and ditches in the Parish.	Consent required from EA for vegetation management. The EA will be consulted and provide advice.			WODC to co-ordinate and utilise powers under Land Drainage Act to ensure channels are kept clear.	Landowner co-operation needed to clear and maintain river channels and ditches	This would remove restrictions to flow, improve the capacity of the channel to convey flood water and allow flood water to pass onto the floodplain without backing up. It will therefore reduce water levels in affected watercourses and reducing overtopping	Will reduce flood risk	Up to £5,000 per channel	One farmer has already started to clear channels and improvements in channel conveyance can already be seen
B	Reprofile (lower) the access road to Grafton Lock and insert drainage.	Following consultation, to be undertaken by the EA.			WODC to liaise with EA		Will reduce water levels and protect properties at risk of flooding	Will reduce flood risk	to £5,000 study to £10,000 construction	
C	Allocate land to create attenuation/storage basins to the north of the River Thames.	To be undertaken in cooperation and agreement with the EA.			WODC to co-ordinate	Landowner cooperation required regarding use of land as Flood Storage facility.	Will reduce water levels and protect properties at risk of flooding	Will reduce flood risk	to £5,000 study Up to £10,000 per basin construction	
D	Maintenance and upgrading of Thames embankments, with construction of secondary embankment alongside Langley Road	To be undertaken in cooperation and agreement with and by the EA.			WODC to liaise with EA	Landowner co-operation required for access and purchase of land to construct embankment.	Will prevent overtopping and flooding during smaller events and lessen impacts of larger events	Will reduce flood risk	£50,000-£100,000	

Option ref	Flood Overview	Description of work required					Key issues			Comments
		Environment Agency	Oxfordshire County Council	Thames Water	WODC	Private	Effectiveness	Affects on adjacent land	Cost	
	Options	For queries Tel 08708 506 506 Or email enquiries@environment-agency.gov.uk	Main switchboard: 0845 310 1111 Or e-mail: online@oxfordshire.gov.uk	Enquiries: 0845 200 800	Switchboard: 01993 861 000					
Area 1 – Home Farm, Lower Farm and Yeatmans Farm (Continued)										
E	Flood-resilient measures on properties and localised demountable defences e.g. flood walls and gates around affected properties. Additionally the Parish needs to create its own emergency flood plan.	The EA website contains reference information on flood resilient measures to properties.				Homeowners to provide protection against flooding to their properties e.g. flood boards, flood proofing of exterior walls, sand bags.	Only effective if defences are put in place before the water level rises.	May increase flood risk to adjacent properties as flood water will be displaced	Up to £5k	On completion of the emergency flood plan, it should be sent to WODC for approval and registration.
Area 2 – Grafton Village										
	Flooding attributed to surface water throughout Grafton Village and fluvial flooding affecting most village properties									
A	Undertake maintenance of existing drains, gullies and culverts.		OCC Highways to inspect current drainage provision and undertake continued maintenance, upgrades and provision of new management systems where necessary		WODC to co-ordinate		Will improve management of surface water and reduce the risk of surface water flooding to properties	Will reduce flood risk	to £10,000	
B	Riparian owners to actively manage vegetation in the channel and on the banks and adjacent land of Grafton Stream and other tributaries and ditches in the Parish.	Consent required from EA for vegetation management. EA to be consulted and provide advice.			WODC to co-ordinate	Landowner co-operation needed to clear and maintain river channels and ditches	This would remove restrictions to flow, improve the capacity of the channel to convey flood water and allow flood water to pass onto the floodplain without backing up. It will therefore reduce water levels in affected watercourses and reducing overtopping	Will reduce flood risk	Up to £5,000 per channel	One farmer has already started to clear channels and improvements in channel conveyance can already be seen
C	Maintenance and more efficient use of sluices and management of flow on Broadwell Brook in the area of the Mill.	Consent required from EA for works on Broadwell Brook. EA will be responsible for Main River, and Landowner/ WODC for ordinary watercourses.			WODC to coordinate	Land/Mill owner co-operation required for access to sluices and operation of sluices	Will restore effectiveness of channel to convey floodwater thereby reducing water levels in affected watercourses and reducing overtopping	Will reduce flood risk	Up to £5,000 for maintenance and operation	

Option ref	Flood Overview	Description of work required					Key issues			Comments
		Environment Agency	Oxfordshire County Council	Thames Water	WODC	Private	Effectiveness	Affects on adjacent land	Cost	
	Options	For queries Tel 08708 506 506 Or email enquiries@environment-agency.gov.uk	Main switchboard: 0845 310 1111 Or e-mail: online@oxfordshire.gov.uk	Enquiries: 0845 200 800	Switchboard: 01993 861 000					
Area 2 – Grafton Village (Continued)										
D	Alteration of sluices and weirs in the vicinity of the Mill to divert more flow along Grafton Stream and Broadwell Brook to relieve pressure on Little Clanfield Brook and decrease water levels upstream of the mill	Consent and advice required from EA for works on Broadwell Brook			WODC to coordinate	Land/Mill owner co-operation required for access to sluices and operation of sluices	Will restore effectiveness of channel to convey floodwater thereby reducing water levels in affected watercourses and reducing overtopping	Will reduce flood risk	Up to £5000 for study Up to £20,000 depending upon recommendations of study	
E	Flood-resilient measures on properties. Additionally the Parish needs to create its own emergency flood plan.	The EA website contains reference information on flood resilient measures to properties.			WODC to approve emergency flood plan.	Homeowners to provide protection against flooding to their properties e.g. flood boards, flood proofing of exterior walls, sand bags.	Only effective if defences are put in place before the water level rises.	May increase flood risk to adjacent properties as flood water will be displaced	Up to £5k	
Area 3 – Radcot										
	Flooding attributed to high flows in the River Thames and Radcot Cut and surface water caused flooding of land and property in Radcot.									
A	Maintenance and upgrading of Thames embankments, with construction of secondary embankment to the south of Radcot Bridge Farm and Radcot House.	To be undertaken in cooperation and agreement with and by the EA.			WODC to liaise with EA	Landowner co-operation required for access and purchase of land to construct embankment.	Will prevent overtopping and flooding during smaller events and lessen impacts of larger events	Will reduce flood risk	£50,000-£100,000 inclusive of study	
B	Flood-resilient measures on properties. Additionally the Parish needs to create its own emergency flood plan.	The EA website contains reference information on flood resilient measures to properties.			WODC to approve emergency flood plan.	Homeowners to provide protection against flooding to their properties e.g. flood boards, flood proofing of exterior walls, sand bags.	Only effective if defences are put in place before the water level rises.	May increase flood risk to adjacent properties as flood water will be displaced	Up to £5k	

Option ref	Flood Overview	Description of work required					Key issues			Comments
		Options	Environment Agency	Oxfordshire County Council	Thames Water	WODC	Private	Effectiveness	Affects on adjacent land	
		For queries Tel 08708 506 506 Or email enquiries@environment-agency.gov.uk	Main switchboard: 0845 310 1111 Or e-mail: online@oxfordshire.gov.uk	Enquiries: 0845 200 800	Switchboard: 01993 861 000					
Area 3 – Radcot (continued)										
C	Riparian owners to actively manage vegetation in the channel and on the banks and adjacent land of Radcot Cut and other tributaries and ditches in the Parish..	Consent and advice required from EA for vegetation management			WODC to co-ordinate	Landowner co-operation needed to clear and maintain river channels and ditches	This would remove restrictions to flow, improve the capacity of the channel to convey flood water and allow flood water to pass onto the floodplain without backing up. It will therefore reduce water levels in affected watercourses and reducing overtopping	Will reduce flood risk	Up to £5,000 per channel	
D	Installation a new culvert and weir wall, which will cross the A4095, outside of flood zone 3.	Preliminary consent granted June 2008. Formal consent to be obtained.	OCC to install culvert , on behalf of residents(as highway authority) and to approve design.				This will reduce the risk of flooding, as the floodplain will not attenuate water to a risk level.			

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 Area 1 – Lower Farm, Home Farm and Yeatmans Farm

7.1.1 Maintenance

The following ongoing maintenance is recommended:

- Option A - Riparian owners to actively manage vegetation in the channel and on the banks and adjacent land of the Grafton Stream, Radcot cut, Kelmscot Brook, Langford Brook and other tributaries and ditches in the Parish. This would remove restrictions to flow, improve the capacity of the channel to convey flood water and allow flood water to pass onto the floodplain without backing up.

7.1.2 Flood Defence Improvement Schemes

Immediate (under 1 year)

- Option E – Flood resilience measures and localised demountable defences e.g. flood walls and gates around affected properties.

Mid-Term (under 1 -2 years)

- Option D - Maintenance and upgrading of Thames embankments, with construction of secondary embankment alongside the road
- Option B- Reprofile (lower) the access road to Grafton Lock and insert drainage.

Long-Term (3 years or more)

- Option C - Allocate land to create attenuation/storage basins on land to the north of the River Thames.

7.2 Area 2 – Grafton Village

7.2.1 Maintenance

The following ongoing maintenance is recommended:

- Option A - Undertake maintenance of existing drains, gullies and culverts.
- Option B - Riparian owners to actively manage vegetation in the channel and on the banks and adjacent land of Grafton Stream and other tributaries and ditches in the Parish.
- Option C - Maintenance and more efficient use of sluices and management of flow on Broadwell Brook in the area of the Mill

7.2.2 Flood Defence Improvement Schemes

Immediate (under 1 year)

- Option E – Flood resilience measures and localised demountable defences e.g. flood walls and gates around affected properties.

Mid-Term (under 1 -2 years)

- Option D - Alteration of sluices and weirs in the vicinity of the Mill

7.3 Area 3 – Radcot

7.3.1 Maintenance

The following ongoing maintenance is recommended:

- Option C - Riparian owners to actively manage vegetation in the channel and on the banks and adjacent land of the Radcot Cut and other tributaries and ditches in the Parish. This would remove restrictions to flow, improve the capacity of the channel to convey flood water and allow flood water to pass onto the floodplain without backing up.
- Option A – Maintenance of the Thames embankments

7.3.2 Flood Defence Improvement Schemes

Immediate (under 1 year)

- Option B - Flood-resilient measures on properties.
- Option D – Installation of flood relief culvert on A4095.

Long-Term (3 years or more)

- Option A – Upgrading of Thames embankments and construction of secondary embankments.

Appendix I: Photographs



Langford Brook Looking South, vegetation encroaching into main channel



Radcot House Gardens during July 2007 Flood



Overgrown channel of Radcot cut - there was widespread flooding in this area in July 2007



EA access road to Grafton Lock- up to 18inches above surrounding land



Flow entering Little Clanfield Brook following diversion from Broadwell Brook



Broadwell Brook (major watercourse)- top of photo with a lower flow as water is diverted into Little Clanfield Brook (minor watercourse beyond weir) with high flow



Sluice A controlling very limited flow into Grafton Stream from Broadwell Brook