Appendix B

The Environmental Report

Contents

Non-Technical Summary

We are developing the Thames Catchment Flood Management Plan in order to establish long-term (50 - 100 years) policies for sustainable flood risk management. These policies will not set specific measures to reduce flood risk or establish how to manage flooding issues in a catchment. Our policies are at the highest level in our hierarchy of spatial flood risk management plans and are about setting the right strategic direction so that in the future we take the best and most sustainable approach to managing flood risk to people, the environment and the economy.

Although not a legal requirement, we are undertaking strategic environmental assessment (SEA) as part of our planning process in order to demonstrate how our plan takes account of the environment and, in particular, the likely significant environmental effects of the CFMP.

The CFMP involves:

- working with key partners and decision makers to establish long-term policies for sustainable flood risk management;
- carrying out a strategic assessment of current and future flood risk from all sources (such as rivers, sewers, groundwater and the sea) within the catchment, understanding both the likelihood and consequence of flooding and the effect of current ways of reducing risk. We measure the scale of risk in social, environmental and economic terms;
- considering how the catchment works, and looking at other policies, plans and programmes to identify opportunities and constraints to achieving sustainable flood risk management;
- finding ways to work with nature, and manage flood risk to maintain, restore or improve natural and historic assets.

In undertaking the SEA we considered the baseline environment, and how this would evolve without the influence of our plan.

The environment in the Thames Region (equivalent to the Thames CFMP area), which includes London, is subject to the greatest development pressures and natural resource challenges in England. The Thames Region covers the basin of the River Thames (including all its tributaries), from its source in Gloucestershire through London to its estuary in Essex. It includes the rural counties of Wiltshire and Oxfordshire, as well as heavily urbanised areas such as Reading, Slough and Luton. More than 14 million people live here and the population is growing. All need adequate living space, clean water and air, and somewhere to send their waste.

The current flood risks to people and the environment within the Thames CFMP area are:

- 188,000 properties within the 1% AEP fluvial floodplain
- 283,000 properties at risk from a 0.1% AEP fluvial flood event. This equates to over half a million people.
- 60% of properties at risk from fluvial flooding are located in the London river catchments, in the lower Thames and lower Lee.
- 24% of properties within the 0.1% AEP fluvial floodplain have a flood warning lead time of less than three hours. The majority of these are in London.
- 88% of properties within the floodplain for a 1% AEP flood event are residential
- There are 136,500 people at risk from a 1% AEP fluvial flood and within Enumeration Districts with an SFVI value of 4 or 5.
- 6% of properties that are affected by a 1% AEP fluvial flood are in areas where flooding can exceed 1 metre in depth.
- Total AAD is £390 million, of which 61% comes from commercial properties.
- All of the SPAs and Ramsar sites are at least partially inside the 1% AEP fluvial floodplain. 8 of the 21 SACs may also be affected by a 1% AEP flood event. In some cases, it is only a small proportion of the site that is actually within the floodplain. This may be detrimental for some sites but other water-dependent sites can benefit from inundations of floodwaters.
- There a large number of designated conservation sites within the region. These are under pressure from advancing urbanisation as well potential impacts from flooding.

Site Designation	Description	Status	No. in Region
Ramsar	Wetlands	International	3
SPA	Special Protection Areas	International	5
SAC	Special Areas of Conservation	International	21
SSSI	Sites of Special Scientific Interest	National	451
NNR	National Nature Reserves	National	17
LNR	Local Nature Reserves	Local	75
County wildlife sites	Local wildlife sites	Local	Over 5,000

The future flood risks to people and the environment within the Thames CFMP area are:

- The biggest risk to the environment from flooding is not using the opportunity provided by CFMPs to integrate flood risk management and environmental enhancement. This will allow growth of valuable conservations sites, creation of new sites through the habitat creation programme and ensure increased flooding in these areas is achieved though the most sensitive, beneficial and systematic methods.

- The following table shows the results from our modelling of future scenarios using MDSF

Percentage increase in the number of people at risk from flooding (1% AEP)		
	Climate change	**Urbanisation**
Thames basin	23%	4%
Lee basin	24%	4%
London Rivers	13%	n/a

Our understanding of the future was based on scenarios for the future, where estimated changes to the climate, development and land management could result in changes to flood risk. We used these scenarios to understand what six generic policy options could mean for flood risk to people, the environment and the economy. The options we considered were:

1. No active intervention (including flood warning and maintenance). Continue to monitor and advise
2. Reduce existing flood risk management actions (accepting that flood risk will increase over time)
3. Continue with existing or alternative actions to manage flood risk at the current level (accepting that flood risk will increase over time from this baseline)
4. Take further action to sustain current scale of flood risk into the future (responding to the potential increases in flood risk from urban development, land use change, and Climate Change).
5. Take further action to reduce flood risk (now and/or in the future)
6. Take action to increase the frequency of flooding to deliver benefits locally or elsewhere, (which may constitute an overall flood risk reduction, for example for habitat inundation).

With our Steering Group we established a series of social, environmental and economic aims and objectives for the catchment that drew from other policies, plans and programmes.

The **economic aim** is to achieve the optimum balance of policy and response to moderate the economic impacts caused by increases in fluvial flood risk. The objectives are:

- Manage the economic impacts of flooding on property
- Ensure future investment in the catchment is proportional to the risk

The **environmental aim** is to achieve the optimum balance of policy and response to maximise the potential to expand, enhance and maintain environmental assets within the context of increases in fluvial flood risk. The objectives are:

- To preserve or enhance the condition of internationally designated sites (SACs and SPAs)
- To preserve or enhance the condition of nationally designated sites (SSSIs)
- To enhance and expand floodplain BAP habitat and restore urban watercourses

The **social aim** is to achieve the optimum balance of policy and response to enhance and maintain people's well-being against a background of increases in fluvial flood risk. The objective is:

- Minimise flood related risks to the population

These objectives establish the key aims of the CFMP. We also consulted with the public on our draft objectives, and it was against these that we appraised the alternative policy options, drawing from opportunities and constraints provided from other policies, plans and programme. The most important opportunities and constraints to our CFMP are as follows:

Within the river channel and floodplain there are the following **opportunities**:
- River channel and floodplain provide flood defence
- River and floodplain restoration
- Improved channel morphology
- Environmental enhancement

Within our current flood risk management there are the following **opportunities**:
- Existing flood defence schemes
- Sustainable Urban Drainage Systems (SUDS) and onsite attenuation
- Flood resilience and resistance
- Flood warning & awareness raising
- Spatial planning

In a wider regional context, there are the following **opportunities**:
- Catchment-wide opportunities for managing flood risk
- Land use pattern and land management

Within the river channel and floodplain there are the following **constraints**:
- River engineering has modified the river channel
- Legal requirement to maintain Thames navigation

The current flood risk presents the following **constraints**:
- Large areas with little or no existing flood defences
- Declining standard of protection from existing defences
- Other sources of flooding

In a wider regional context, there are the following **constraints**:
- High level of urbanisation in the downstream end of catchments, leading to a high number of people and properties at risk
- High value of floodplain assets, leading to high economic damages
- Development and regeneration pressures for housing and employment

Through the SEA we have developed some specific environmental objectives which have been taken into account in the selection of the preferred policy. These are:

- No harm to life
- Maintain critical infrastructure
- Minimise community disruption
- Minimise disruption to daily life
- Minimise disruption to public access, amenity & recreation
- Protect and enhance nationally and regionally important cultural heritage sites and their settings.
- Protect and improve habitats and species.
- Naturalise river systems
- Water bodies achieve good ecological status (or potential)

Our preferred policy for each of the 43 policy units in the Thames CFMP are as follows:

Policy Unit	Policy
Abingdon	**P5** – reduce the risk – lower the probability of exposure to flooding and/or the magnitude of the consequences of a flood and hence the risk
Addlestone Bourne, The Cut and Emm Brook	**P6** - take action to increase the frequency of flooding to deliver benefits locally and/or reduce the risk elsewhere
Aylesbury	**P4** – accept the risk – but in the longer term take action to ensure that risk does not increase from current level
Basingstoke	**P4** – accept the risk – but in the long term take action to ensure that risk does not increase from current level
Beam	**P4** – accept the risk – but in the long term take action to ensure that risk does not increase from current level
Beverley Brook	**P4** – accept the risk – but in the long term take action to ensure that risk does not increase from current level
Brent	**P4** – accept the risk – but in the long term take action to ensure that risk does not increase from current level
Byfleet and Weybridge	**P5** – reduce the risk – lower the probability of exposure to flooding and/or the magnitude of the consequences of a flood and hence the risk
Colne	**P4** – accept the risk – but in the longer term take action to ensure that risk does not increase from current level
Colne tributaries and Wye	**P3** - accept the risk – our current scale of actions is sufficient to manage the current risk and future increases will be acceptable
Crane	**P4** – accept the risk – but in the long term take action to ensure that risk does not increase from current level
Graveney	**P4** – accept the risk – but in the long term take action to ensure that risk does not increase from current level
Guildford	**P5** – reduce the risk – lower the probability of exposure to flooding and/or the magnitude of the consequences of a flood and hence the risk
Hoe Stream	**P5** – reduce the risk – lower the probability of exposure to flooding and/or the magnitude of the consequences of a flood and hence the risk
Hogsmill	**P6** - take action to increase the frequency of flooding to deliver benefits locally and/or reduce the risk elsewhere
Ingrebourne	**P4** – accept the risk – but in the long term take action to ensure that risk does not increase from current level
Kennet	**P6** - take action to increase the frequency of flooding to deliver benefits locally and/or reduce the risk elsewhere
Loddon	**P6** - take action to increase the frequency of flooding to deliver benefits locally and/or reduce the risk elsewhere
Lower Lee	**P5** - reduce the risk – lower the probability of exposure to flooding and/or the magnitude of the consequences of a flood and hence the risk
Lower Lee tributaries	**P6** - take action to increase the frequency of flooding to deliver benefits locally and/or reduce the risk elsewhere
Lower Mole	**P3** - accept the risk – our current scale of actions is sufficient to manage the current risk and future increases will be acceptable
Lower Roding	**P4** – accept the risk – but in the long term take action to ensure that risk does not increase from current level
Lower Thames	**P5** – reduce the risk – lower the probability of exposure to flooding and/or the magnitude of the consequences of a flood and hence the risk
Luton	**P4** – accept the risk – but in the long term take action to ensure that risk does

	not increase from current level
Middle Lee and Stort	**P6** - take action to increase the frequency of flooding to deliver benefits locally and/or reduce the risk elsewhere
Middle Mole	**P3** - accept the risk – our current scale of actions is sufficient to manage the current risk and future increases will be acceptable
Middle Roding	**P4** – accept the risk – but in the long term take action to ensure that risk does not increase from current level
Ock	**P6** - take action to increase the frequency of flooding to deliver benefits locally and/or reduce the risk elsewhere
Oxford	**P5** – reduce the risk – lower the probability of exposure to flooding and/or the magnitude of the consequences of a flood and hence the risk
Pinn	**P6** - take action to increase the frequency of flooding to deliver benefits locally and/or reduce the risk elsewhere
Ravensbourne	**P4** – accept the risk – but in the long term take action to ensure that risk does not increase from current level
Reading	**P5** – reduce the risk – lower the probability of exposure to flooding and/or the magnitude of the consequences of a flood and hence the risk
Rural Wey	**P2** – accept the risk – both current and future increases in risk
Sandford to Cookham	**P4** – accept the risk – but in the longer term take action to ensure that risk does not increase from current level
Swindon	**P4** – accept the risk – but in the longer term take action to ensure that risk does not increase from current level
Thame	**P3** – accept the risk – our current scale of actions is sufficient to manage the current risk and future increases will be acceptable
Upper and Middle Blackwater	**P4** - accept the risk – but in the longer term take action to ensure that risk does not increase from current level
Upper Lee	**P3** – accept the risk – our current scale of actions is sufficient to manage the current risk and future increases will be acceptable
Upper Mole	**P6** - take action to increase the frequency of flooding to deliver benefits locally and/or reduce the risk elsewhere
Upper Roding	**P6** - take action to increase the frequency of flooding to deliver benefits locally and/or reduce the risk elsewhere
Upper Thames	**P6** – take action to increase the frequency of flooding to deliver benefits locally and/or reduce the risk elsewhere
Wandle	**P4** - accept the risk – but in the longer term take action to ensure that risk does not increase from current level
Windsor and Maidenhead	**P3** – accept the risk – our current scale of actions is sufficient to manage the current risk and future increases will be acceptable

As a result of the potential risk to Natura 2000 sites, we have undertaken an assessment of the plan and found potential adverse impact in some locations. Due to the policy based nature of this plan it is not viable to assess the significance or nature of these impacts until greater detail is known about the physical proposals recommended. We have hence identified the need for further investigation at the next stages of implementation of the policies advocated. It may be possible, following detailed appropriate assessment, that the significant adverse environmental effects are considered likely. In this case a justification must be made whether to pursue the preferred damaging option for reasons of overriding public interest and to commit to suitable mitigation and compensation. The likely reasons for the overriding public interest would be the reduction of public health risk and significant reduction in economic damages resulting from flooding.

The reasons for the selection of these policies and why alternative options were not chosen, are set out in the individual policy statements in section 6.3 of the Main CFMP report.

Areas of likely mitigation and enhancement measures are included within the appraisal of the alternatives and these will be cascaded down through our subsequent and more detailed plans as we decide the flood risk management measures we need to implement the policies. The monitoring of the significant effects of the plan will include:

- Strategic and project level appropriate assessment for Natura 2000 sites identified through the SEA process to be at risk of significant environmental effects from the implementation of the chosen policies.

- Strategic and project level assessment of the effect on Sites of Special Scientific Interest (SSSIs), Areas of Outstanding Natural Beauty (AONB), identified through the later SEA and EIA processes to be at risk of significant environmental effects from the implementation of the chosen policies.

- Water Level Management Plans (WLMPs) are used in areas of nature conservation (especially SSSIs) which are water dependent. They ensure that the management regime is planned correctly to allow for seasonal and long term variations in water level so that the conservation, recreation and sometimes economic functions are retained. WLMPs are used for individual monitoring of the sites and will provide a picture of the detailed effects of the CFMP.

- An overall view of the changes to the environment will be considered through the State of the Environment Report. This is the yearly report which describes the biological and chemical results of river monitoring as well as other environmental indicators.

- The Water Framework Directive also monitors the state of the environment and is useful as the Thames CFMP area makes up the majority of the Thames River Basin District (RBD). The repetitive reporting cycle of the WFD will monitor the quality of the rivers and provide useful information into the effects of the CFMP.

- The Regional Habitat Creation Programme will be one of the main drivers for creation of biodiversity action plan (BAP) habitats in Thames region and the CFMP will actively influence the location and nature of the programme to ensure integration between flood risk management and habitat creation.

Section B1 Introduction and Background

B1.1 The purpose of SEA

This appendix documents the strategic environmental assessment (SEA) process undertaken for the Thames Catchment Flood Management Plan (CFMP).

Strategic environmental assessment is a systematic process for anticipating and evaluating the environmental consequences of plans and programmes prior to decisions being made. The purpose of SEA is to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development. There is no legal requirement for us to undertake SEA for CFMPs because they are not required by legislation, regulation or administrative provision. However they clearly help set the framework for future planning decision, and have the potential to result in significant environmental effects. As a result Defra guidance (Defra, September 2004[1]) and our own internal policy have identified a need to undertake a SEA approach.

In developing our CFMP, we consider the environment alongside social and economic issues. This appendix demonstrates how we have gone about undertaking the SEA for our CFMP. The contents of this Environmental Report have been broadened to include the social and economic effects also considered in our plan making process.

B1.2 The Catchment Flood Management Plan

Figure B1.
The location of the Thames CFMP in the wider context of the UK

[1] http://www.defra.gov.uk/environ/fcd/policy/sea.htm

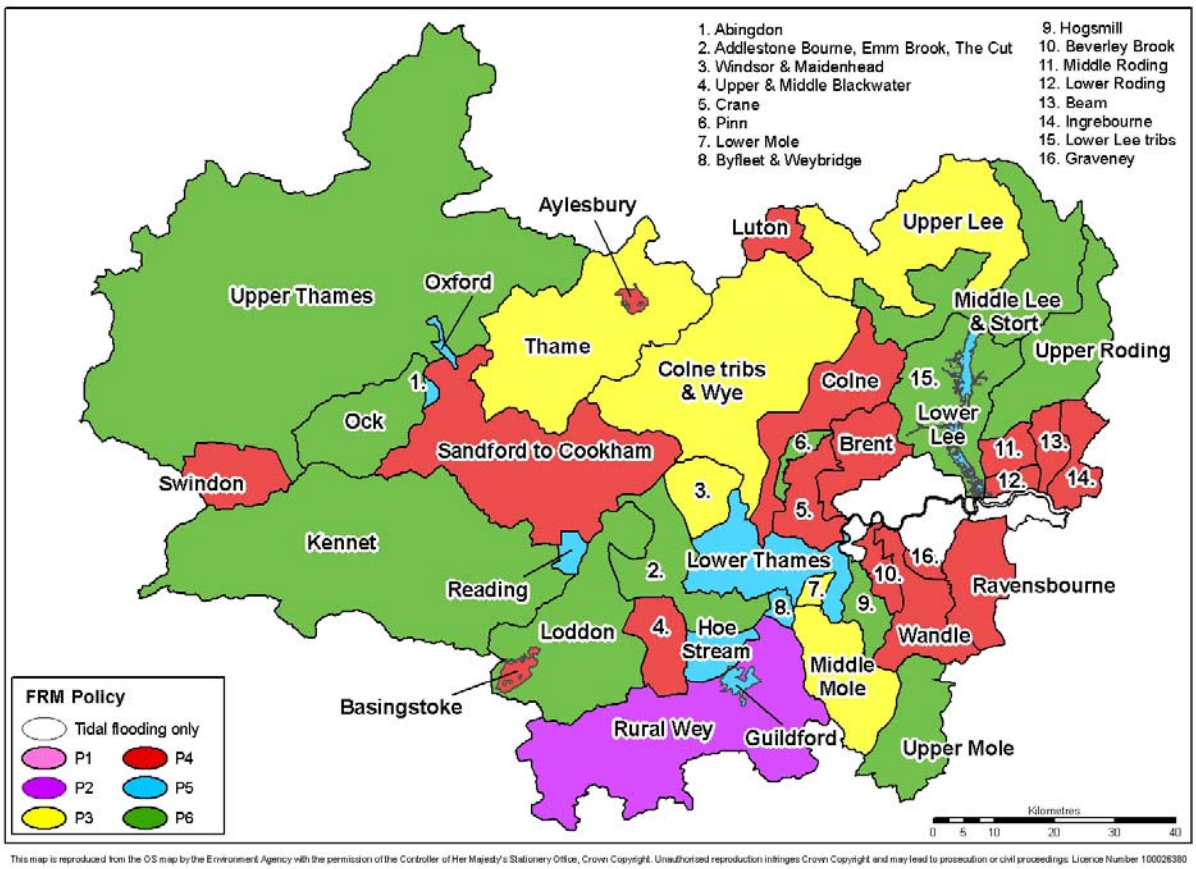


Figure B2. The location of the 43 policy units within the Thames CFMP area

Catchment Flood Management Plans are planning documents that we are preparing for all surface water river catchments across England and Wales. In developing the CFMPs, we are working with other key decision-makers to help us to establish policies to manage flood risk for the next 50-100 years. We know we cannot reduce flood risk everywhere, so we need to target efforts to where they are needed most: this is the purpose of our CFMP. They will not set specific measures to reduce flood risk or establish how to manage flooding issues in a catchment. Our policies are at the highest level in our hierarchy of spatial flood risk management plans and are about setting the right strategic direction so that we take the best and most sustainable approach in the future. To do this, we need to understand the extent, nature and scale of current and future flood risk to people, the environment and the economy across the whole catchment before choosing certain policies. We need to decide at this stage where to take further action to reduce or sustain flood risk, where we need to change the way we currently manage flood risk, or where we need to take little or no action.

The main body of the CFMP report provides a more detailed introduction to the CFMP, including the contents, aims and objectives of the plan: see Section 1.1 (Background) and Section 1.2 (Aims and Scope).

The CFMP involves:

- carrying out a strategic assessment of current and future flood risk from all sources (such as rivers, sewers, groundwater and the sea) within the catchment, understanding both the likelihood and consequence of flooding and the effect of current ways of reducing risk. We measure the scale of risk in social, environmental and economic terms;
- identifying opportunities and constraints within the catchment to reduce flood risk through changes in land use, land management practices and/or the flood defence infrastructure;
- finding ways to work with nature, and manage flood risk to maintain, restore or improve natural and historic assets;

- working out priorities for studies or projects to manage flood risk within the catchment, and identifying responsibilities for the Environment Agency, other operating authorities, local authorities, water companies or other key interested groups.

B1.3 Structure of the report appendix

This appendix documents the SEA process we have undertaken throughout our CFMP planning process and covers:

- Section B2 – Consultation: setting out information on how we have engaged interested parties, including the SEA consultation bodies, through CFMP development and the SEA process.
- Section B3 – Environmental Context: The relationship between the CFMP and relevant plans and programmes; a summary of the relevant environmental baseline in the catchment. It also sets out the environmental issues scoped into the SEA process and the environmental objectives used to carry out the assessment in Section B4.
- Section B4 – Assessment and Evaluation of Environmental Effects: Setting out the environmental effects of the different options available to the CFMP, cumulative effects of the CFMP as a whole and with other relevant plans in the catchment. It also sets out how mitigation and enhancement are considered at this strategic scale and the future monitoring requirements.

Section B2 Consultation

Section 1.5 Involving others in the main CFMP report provides information about the consultation undertaken to date. This information is repeated below.

We cannot reduce flood risk across England and Wales on our own. All key organisations and decision-makers in a catchment must work together to plan and take action to reduce flood risk. The role of the Thames CFMP project board is to provide strategic direction, oversee the project, and to involve major interest groups in the region in the project. The project board is made up of members from the following organisations and committees:

- Environment Agency
- Department for Environment, Food and Rural Affairs (Defra)
- Thames Regional Flood Defence Committee (RFDC)
- South East England Regional Assembly (SEERA)
- HR Wallingford

Working with the project board, the CFMP steering group makes sure that relevant interest groups are involved in developing the Thames CFMP. This group also provides technical guidance on wider issues and agrees the final CFMP. It consists of key Environment Agency staff (Flood Risk Management, Strategic Environmental Planning, Thames Estuary 2100 and Conservation teams) and representative(s) from the Thames RFDC, Local Authorities, Defra, GOSE, Middlesex University (Flood Hazard Research Centre), HR Wallingford, Halcrow, Newcastle University, CEH Wallingford, Natural England and SEERA. Please see Appendix C for further details.

Table B1 summarises all the internal and external communication that has taken place since the project began in April 2003. Although the Thames CFMP is a public document, it is mainly used as the basis for dialogue between the Environment Agency and our professional partners.

The 12 week Consultation period ran between 25 January and 25 April 2007. We actively consulted with a range of external groups. Formal invitations to comment, and a hard copy of the summary document were sent to the following groups:

- Department for Environment Food and Rural Affairs (Defra)
- Countryside Agency and English Nature (now Natural England)
- English Heritage
- Royal Society for the Protection of Birds (RSPB)
- Thames Water

- National Farmers' Union
- Government Office for the East of England
- East of England Regional Assembly
- East of England Development Agency
- Government Office for the South East of England
- South East of England Regional Assembly
- South East of England Development Agency
- Greater London Authority
- Government Office for London
- London Development Agency
- South West Regional Assembly
- Government Office for the South West
- South West Regional Development Agency
- West Midlands Regional Assembly
- Government Office for the West Midlands
- Advantage West Midlands
- All Local Authorities within Thames Region
- Thames Regional Flood Defence Committee
- Flood Hazard Research Centre

Public awareness was raised by a series of press releases in local newspapers, and a series of interviews on local radio stations. During this time a copy of the Summary Document was available on the Environment Agency website and a full copy of the draft technical document was available on compact disc on request. Over 100 hard copies of the summary document and over 30 compact discs containing the full draft technical document were sent out during the consultation period.

The Summary Document sought general feedback on our recommendations for the future approach to flood risk management in Thames region and in particularly sought comments on the following questions.

1. Whether you agree /disagree with the approaches proposed to manage the long-term flood risk within Thames Region and why.
2. The opportunities for these proposals to be implemented through the work of your organisation.
3. Any areas where these proposal could conflict with the work of your organisation.
4. What you need to do – and what you need from us – to implement these approaches.

In total we received 22 responses from different individuals, representing regional and local government, non-government organisations, public interest groups and members of the public. Issues raised within the consultation can be broadly grouped into the following categories:

1. Conflicts between flood risk management and other development objectives
2. Utilisation of the flood plain for flood storage and attenuating flow
3. Maintenance activities
4. The role of flood resilience
5. Designated sites and the need for further more detailed investigations
6. Concerns about flood risk management rather than flood defence
7. Making the most of the planning system, but recognising the constraints
8. Consideration of other sources of flooding
9. Emphasising the other benefits that the plan can achieve
10. Roles and responsibilities of partner organisations
11. Links with other Policies and Directives
12. Data, content and clarification issues
13. Consultation Process and Document Review
14. Dealing with local issues within the large scale context of the CFMP
15. Clarification of Action Plans
16. Expressions of general opinion
17. Specific or local issues

The comments received were useful in identifying issues and confirming our approach, and has resulted in some changes to the document. For example, some Local Authorities provided more technical

information regarding their catchments. The consultation confirmed that our partners recognised the importance of working with us to manage flood risk, particularly when there may be conflict between flood risk management methods and other objectives they have to give consideration to meet wider sustainability objectives.

Each generic issue, with example comments and the response are summarised in Table 1.4 in Chapter 1. Due to the varied formats of the comments received, some responses are summarised or paraphrased and some are quoted. This was considered the best way to reflect the context in which the comments were made, whilst minimising the volume of text. Issues that are particularly specific or complex are detailed separately in Appendix C.

Stage	Date	Aim of Communication	Stakeholders/Staff Contacted/Attendees	Method of Communication	Outcome or Action Required
Stage 1: Establish Project Board	Apr-03	Project Board required to oversee the production of the CFMP in terms of timing and resources and also to give feedback and guidance on progress at key stages.	Members of the CFMP Project Board Thames Regional Strategic Unit Manager Regional Flood Defence Committee HR Wallingford Defra SEERA Thames Regional FRM Manager	Regular meetings with members of the project team	The role of the project board includes: Monitoring the project's progress and ensure that the interests of the CFMP Programme Board are best served Providing a forum for taking strategic, cross-functional decisions, removing obstacles, and for resolving issues To set up the Steering Group, to provide technical guidance, to sign off key project milestones / deliverables and to draft the terms of reference for the Steering Group.
Stage 2: (a) Project Start Up / Inception	Apr-03	To identify the key flood risk management issues within Thames Region and gain background information for the Scoping report	Regional Management Team and other key Environment Agency staff from Thames Region.	Contact individuals or groups for input to the CFMP process. CFMP Factsheet circulated.	Gain initial data and comments to assist in understanding catchment characteristics and develop ideas for the Scoping Report. Clarify data/information sources
Stage 2: (b) Qualitative Catchment Assessment	Jun-03	Identification of areas at risk, key issues, opportunities and constraints.	Consultants Newcastle University HR Wallingford/CFMP Project Board Environment Agency staff from Thames Region.	Catchment map circulated for comments. Meeting with EA staff to discuss	Initial catchment understanding Discuss possible options and questions
Stage 3: Inception Workshop Event (London)	Aug-03	To raise awareness of the CFMP and obtain feedback	Internal consultation with Environment Agency staff from Thames Region.	Workshop	Identify the main issues relating to flood risk management and potential solutions across the Thames catchment Consider: 1. What are the pressures over the next 50 years and which are most important? 2. What opportunities and constraints do we need to be mindful of? 3. Which options are worthy of further

					scrutiny? 4. How do you balance sound science with a broad-brush approach and uncertainty? Issues raised: Taking a 50 year view, is the objective of the CFMP to reduce flood risk (which is the EA strategy over the next 5 years) or not? What do we want to achieve, and for whom? Is the CFMP a plan for the Agency and Operating Authorities, or a plan for society as a whole? Society's expectations over the next 50 years will undoubtedly differ from the Agency's current strategy In considering possible options we need to be mindful of their sensitivity to the whole range of uncertainties In general we know enough about the uncertainties surrounding possible changes to the environment in the next 50+ years. At present we know less about possible social / economic / political change and uncertainty. How do we incorporate these uncertainties? Article published in Environment Agency's internal 'Grassroots' magazine for Thames Region to raise awareness of the workshop and its outcomes (October 2003).
Stage 4: Interim Consultation on Draft Scoping Report	Jan-04	Obtain initial feedback on draft Scoping Report	Thames Estuary 2100 Project Team CFMP Project Board	Copy of internal Draft Scoping Report circulated either in digital format or printed copy	To request comments and suggestions for areas of consideration in the Final Scoping Report or main CFMP study.
Stage 5: Scoping	Mar-04	Discussion of opportunities,	Thames CFMP steering group including statutory consultees	Workshop	To provide us with some guidance on the following questions:

Workshop Event (Oxford)		constraints and possible catchment solutions	(English Nature, Countryside agency and English Heritage) plus Surrey county council, DEFRA and key Environment Agency staff from Thames Region.		What are the pressures over the next 50yrs? Which are most important? Priorities? Which can we control or influence? What are the drivers? What opportunities and constraints do we need to take account of? Which options are worthy of further scrutiny? How do we balance sound science with a broad brush approach and uncertainty? Should the objective of the CFMP be to reduce flood risk or not? Notify stakeholders and gain initial data/comments to assist in understanding the catchment characteristics (processes, management, objectives & issues), opportunities & constraints and identify flood risk areas and initial catchment policies.
Stage 6 : Objectives Presentations & Workshops with Area teams	March and April 04	Define CFMP objectives in relation to the economy, environment and society	Key Environment Agency staff from Flood Risk Management, Waterways, Conservation, Development Control, Environment Management and Planning Liaison in each area	A presentation and a workshop in each area office	Part of the policy appraisal involves setting appropriate objectives, against which the impacts of different policy options can be tested.Provide people with the opportunity to input into this process Specific outputs required: What other objectives should be considered in the Thames CFMP What will be the most effective Indicators for the Environment objective How can we best characterise the Thames environment at a strategic level and assess the impact of increased or decreased flooding on those environments What other data could be used to assess the objectives What other hypothesis should be considered

Stage 7: Publish draft Scoping Report	July-Sept -04	Consultation on draft Scoping Report document for comment	Key interest group, Statutory consultees (English Nature, Countryside agency and English Heritage) and key Environment Agency staff from Thames Region.	Copy sent digitally or hardcopy posted/ delivered by hand	Identify gaps in the proposed approach/coverage, major issues/concerns in response to the preliminary review of catchment processes and flood mechanisms, appropriate responses on information gaps/provision of outstanding information and any short term needs to be addressed Outline how future flood risk will be explored and understood
Stage 8: (a) Circulation of Draft Consultation Document	Sep-05	Presentation of proposed policies for comment	Key interest group (including all Thames RFDC members), and Environment Agency staff from Thames Region.	Copy of document emailed to all prior to the event	Obtain initial feedback on proposed policies Incorporate comments into CFMP document Raise outstanding issues
Stage 8: (b) Policy Seminar, Oxford	Sep-05	Presentation of proposed policies for comment/discussion	Thames CFMP Steering Group including all Thames RFDC members and Environment Agency staff from Thames Region.	Discussion at workshop	Discuss policies - scrutiny of appraisal and conclusions Explore links with other organisations Action - consider communications: Key messages, range of audiences, priorities, 'new' partners / organisations
Stage 9: London rivers scoping workshop	Mar-06	To explain the need for additional work in London and to acquire information	Key Environment Agency staff from Thames Region.	Workshop event	Determine sources of information and key contacts Identify flood risks in London Determine scale of London rivers project and decide on way forward
Stage 10: Discussion of flood risk in London with external partners	Apr-06	Obtain information about sewer and surface water flooding	Members of staff from the Association of Thames Drainage Authorities (ATDA), Thames Water and Environment Agency staff	Meeting	To obtain information about sewer flooding in London To obtain information about surface water flooding in London To explain the work we are doing to put in place sustainable flood risk management policies

Stage 11: London rivers policy seminar	Jul-06	To present the proposed policies for London	Key Environment Agency staff from Thames Region.	Presentation and discussion	Present the policy statements for the London Rivers Present the implications of these policies Obtain feedback on the proposed policies so that they can be finalised
Stage 9: Draft CFMP Document	Feb-07 to Apr-07	Internal and external consultation on draft CFMP document	EA staff	Summary document published on the EA website and hardcopies of document made available	- Final revisions to text - Agreement on policy summaries for each flood risk area - Action: send for plain English editing and head office quality review Issues raised from consultation: • Need for watercourse maintenance to increase channel capacity • Clarification of messages for different floodplain types • More detailed action plan with proposals for individual areas and organisations • Prioritisation of actions? • Need to take full account of current planning policy relating to both designated sites (for nature conservation) and biodiversity in general. • The summary document does not reflect the structure and content of the full plan • Not always clear how the key messages for the different floodplain types were developed from the generic policy options • Support from Local Authorities
			External Organisations	Hardcopy sent to all Local Authorities in Thames Region, statutory consultees and other interested parties	
			Public	Summary document on EA website with details of how to comment and view the full document. Copies made available at EA offices within the region.	
Stage 10: Consultation with external organisations	Jan 07 onwards	Influence professional partners to use CFMPs as a sustainable approach to flood risk management	RSPB and English Nature (now Natural England), Local Authorities	Face-to-face meetings tailored to each organisation to communicate the main messages	Received feedback on policies and agreed actions

Stage 11: Influencing strategy	May-07 onwards	Reinforce key messages that relate to different groups and aspects of FRM	Internal staff, Local Authorities, Regional Assemblies	Meetings and workshops	Promotion of CFMP outcomes and how this relates to the day job of different teams within the Environment Agency and external partners.
Stage 12: Internal consultation on revised policy units	Sept-07	To obtain feedback from area teams on the revised policy units and the statements	Internal staff from FRM, Development Control and Planning Liaison in each area office	Meetings	Policy unit boundaries and policies confirmed and policy statements amended to include staff feedback and local knowledge
Stage 13: Input to SFRAs	Sept-07 onwards	Use of policy statements in SFRA dialogue with all LPAs	Local Authority planning teams and internal Development Control and Planning Liaison teams including the SFRA task group	Meetings	Incorporation of CFMP messages into SFRAs and an understanding of what they mean for future planning in each Local Authority

Table B1 Summary of consultation undertaken during the development of the CFMP

Section B3 Environmental context

B3.1 Policy, plan and programme review

The SEA considers the relationship between the CFMP and other relevant plans and programmes. A review was undertaken at the scoping stage and updated during the main stage assessment, in order to:

- help collate additional environmental baseline information for developing the CFMP;
- identify environmental issues relevant to the SEA (e.g. existing environmental problems / protection objectives);
- identify influences of the CFMP on existing plans and programmes and vice versa;
- understand these relationships to help evaluate the significance of environmental effects;
- help identify any further assessment required.

A diagram setting out our view of the relationship between CFMPs and other key policies, plans and programmes is illustrated in Figure B3. Section 1.4_Links with other plans discusses the relationship with other plans. Those plans that we have drawn into the development of the CFMP are listed in Table B3.

Figure B3 How the CFMP fits with the wider planning framework

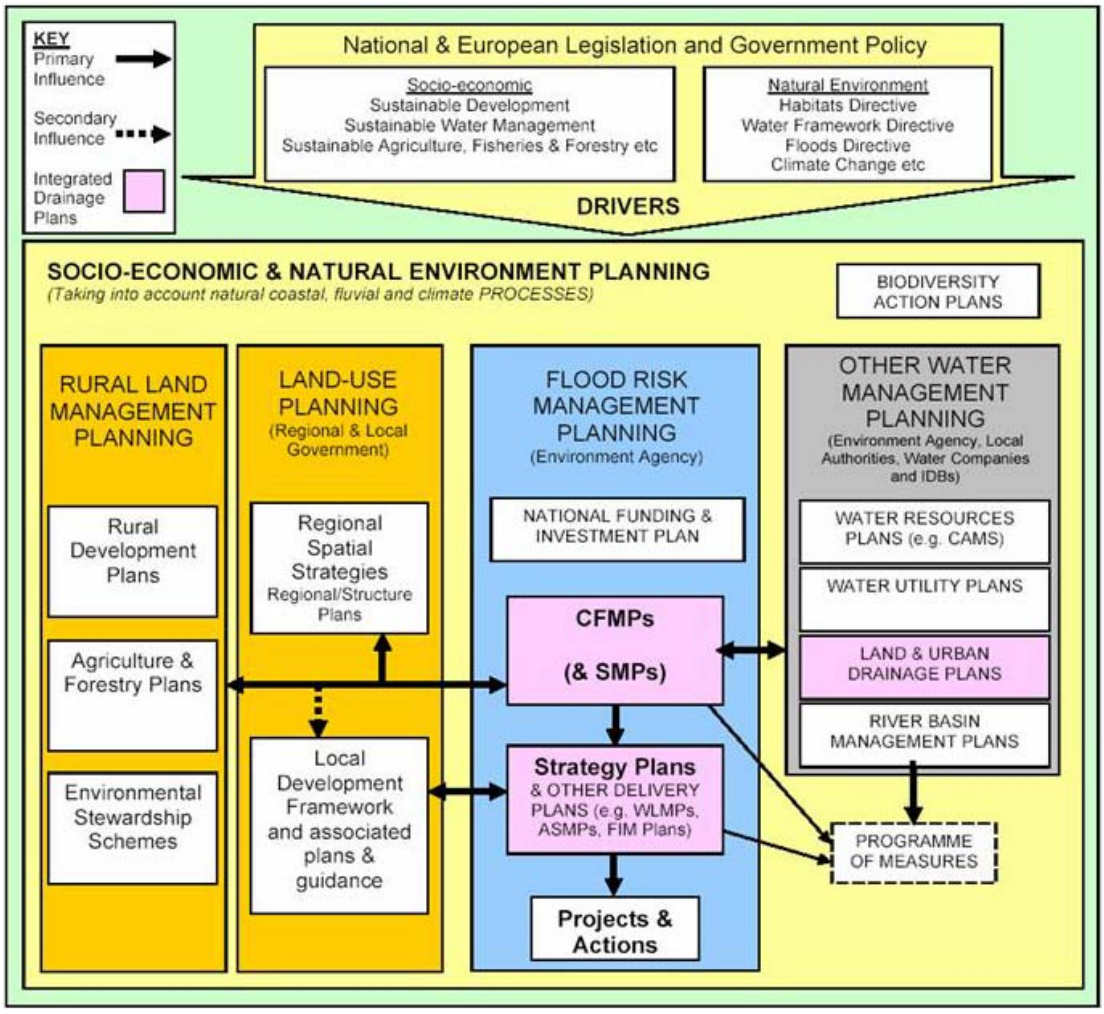


Table B2 Review of policies, plans, and programmes and relevance to the CFMP

Relevant plan, policy or programme	Potential influence	Relevance / links to the CFMP
Water Framework Directive	There is a requirement for all inland and coastal waters to achieve 'good status' by 2015.	• Improve inland and coastal waters and prevent further deterioration, especially by protecting against diffuse pollution in urban and rural areas through better land management • Create better habitats for wildlife that lives in and around water • Contribute to mitigating the effects of floods and droughts
European Floods Directive	The Directive will require that Member States take a long-term planning approach to reducing flood risks. The first stage is a preliminary flood risk assessment for all river basins by 2011, in order to determine areas at significant flood risk	• Aims to reduce the risk to human health, the environment and economic activity associated with floods • Sets out a significant change in how flood risk is managed and places more emphasis on non-structural measures like using natural flood plains as retention areas for water during floods.
Making Space for Water	The aim will be to manage flood risks by employing an integrated portfolio of approaches which reflect both national and local priorities, so as to reduce the threat to people and their property; and to deliver the greatest environmental, social and economic benefit, consistent with the Government's sustainable development principles.	• More flood management and coastal protection solutions working with natural processes. This will be achieved by making more space for water in the environment through, for example, appropriate use of realignment to widen river corridors and areas of inter-tidal habitat, and of multi-functional wetlands that provide wildlife and recreational resource. • Taking forward the concept of integrated urban drainage management • Taking action to ensure adaptability to climate change becomes an integral part of all flood and coastal erosion management decisions. • Expanding our flood warning and flood awareness activities; • Encouraging measures to improve resistance and resilience to flooding
Thames Estuary 2100 (TE2100)	The tidal flood risk plan will recommend actions that need to be taken to manage the increasing flood risk in the Thames estuary over the next 100 years.	• Reduce the risk to people and to the developed and natural environment from flooding and coastal erosion in the Thames tidal floodplain • The proposed policies and High Level Options for each of the Policy Management Units (for example improving existing defences or creating flood storage options), must be consistent with the CFMP messages for the lower reaches of the London rivers.
Regional Spatial Strategies (for London, South-East and East)	Major proposals for strategic infrastructure exposed to flooding – over one million new houses planned in the next 20 years	• Development in the floodplain places additional assets at risk, greatly increasing potential damages and reducing floodplain storage area • Development should only be permitted in areas of flood risk where there are no reasonably available sites in areas of lower flood risk and the benefits of the development outweigh the risks from flooding.

		• Effective ways of managing the risk (e.g. using measures such as resilience) must be incorporated into planning and design to prevent the need for future intervention.
Local Development Frameworks	Future housing allocations within areas exposed to flooding	• Accommodating future development to meet housing targets • There may well be a conflict between policies to develop Brownfield sites in floodplains and our wish to restore the natural floodplain • We need to utilising these re-development opportunities to make properties more resilient to flooding and therefore reduce the consequences of flooding
London River Restoration Strategies	Identifies 'areas of immediate opportunity for river restoration' and the potential for river enhancement in areas of regeneration where culverted or channelised rivers pass through proposed development sites.	• River restoration has an important role in sustainable urban regeneration • Re-instating the floodplain will provide a natural increase in flood storage capacity • The creation of a natural river channel re-establishes the natural hydro-geological relationship between the river and its channel
Biodiversity Action Plans (BAPs)	BAPs set targets for nationally and locally important habitats and wildlife	• Restoring the river channel and floodplain or widening the river corridor can improve the floodplain environment • Creating flood storage areas will provide new wetland BAP habitats
Habitat Action Plans (HAPs)	HAPs contain detailed actions and targets for conserving priority habitats	• There are opportunities to open up and restore large areas of rural and natural floodplain – creating new habitats and also protecting land from future development • Encouraging Environmental Stewardship initiatives has benefits for flood risk and the natural environment
Thames Regional Fisheries Strategy	Identifies cross-cutting issues affecting fisheries and outlines some of the key actions needed to help address them. The main issues include excessive habitat modification due to wide-scale urban development, waterways and flood risk management, variable water quality and vulnerable water resources	The CFMP can significantly contribute to achieving the aims of the Regional Fisheries strategy by: • Providing evidence to guide investment that will improve water quality, protect and create habitat for fish, and incorporate measures to improve fish migration through identification of redundant structures • Working with partners where possible, to maximise social, environmental and economic benefits of schemes; • Providing evidence and guidance to where soft engineering options for flood risk management are most needed and will have the greatest impact
Creating a Better Thames (Our Five Year Plan 2006-2011)	Reducing flood risk in Thames region is one of 10 priority areas of work that are identified in this document. Our Regional Management Team (RMT) have recently reviewed our regional	We will manage the risk of flooding to people living and working in the flood plain by: • completing our Catchment Flood Management Plan and Thames Estuary 2100 Plan and setting out our policies • influencing local authorities and developers to put our policies into practice

	performance and decided that several of our original ten priority areas overlap. There are now five priority areas (2008-2011) of which one is reducing flood risk.	• giving better flood warnings to more people • responding effectively to flooding incidents • creating new solutions and maintaining our rivers and defences for those at risk.
Water Level Management Plans (WLMPs)	Water Level Management Plans (WLMPs) provide a means of deciding the required water levels for Sites of Special Scientific Interest (SSSIs), and identifying the WLM actions needed to bring the sites to favourable or recovering condition. Flood Risk Management is responsible for putting the plans into action in England.	• Water regimes of SSSIs (and therefore SACs and SPAs) may be affected by flood risk management activities • The CFMP needs to be aware of individual SSSI site requirements in relation to water levels – an increase or decrease may have either positive or negative effects • The CFMP may identify opportunities to improve the site condition of a SSSI, for example more regular inundation by flood waters

B3.2 Baseline review

Section 2 Catchment Overview provides an overview to the characteristics of the catchment, including the environmental aspects relevant to the CFMP. Environmental issues within the catchment relevant to this CFMP are summarised below. Section B4 Assessment and evaluation of environmental effects provides more detail of the environmental characteristics of the individual areas most likely to be affected by the plan, their current state of the environment and the likely evolution thereof without implementation of the plan.

3.2.1 Environmental context

An understanding of the current state of the environment (baseline information) helps to identify any trends and problems that may be affected by the CFMP. It also provides a basis for predicting the impacts of the plan on the environment. This section summarises important strategic environmental information relevant to the SEA and sets the context within which the plan will operate.

People and society

Population
Thames region is home to over 13 million people – the largest population of all the Environment Agency regions. Although there are significant variations within the region, overall the population increased by 10.5 per cent between 1981 and 2005, compared with an average of around 7.6 per cent in England and Wales.

Some urban areas in Thames region have been designated by the Department of Communities and Local Government as growth areas for additional housing as part of the Sustainable Communities Plan. Future growth is predicted at 1.9 per cent above the national average between 2004 and 2019, and is likely to be concentrated around the Thames Gateway and between London and Stanstead along the M11 corridor. The 2012 Olympics will bring further changes to the east of London. The population density and growth levels put significant strain on the natural environment and existing infrastructure including, for example, regional water supply and sewerage services (water consumption in the region is 8–11 per cent higher than the national average).

Health and recreation
The population in Thames region is one of the healthiest in the UK and life expectancy is slightly above the national average although this varies widely within the region. There are significant health index differences between affluent and deprived communities; the reasons are complex but are linked to particular social circumstances and behaviour, and access to and use of services.

The natural environment can play a major role in the health of a population and water-related recreational activities are an important contributing factor. Examples include walking the Thames Path, a long-distance trail of international importance, use of various bathing waters, rowing, sailing, canoeing and angling.

Economy
Business services make up almost a fifth of the economy of Thames region. Banking and insurance, wholesale and distribution, personal services and transport are also important. The London and Medway ports provide deepwater facilities for international marine traffic. Manufacturing and agriculture make up only a small part of the overall economy within the region.

Between 1995 and 2002 economic output increased by 3.8 per cent per year, with the service industries showing the strongest growth. The service sector (including business services, retail and health) is the largest employer. The manufacturing sector has declined in relative importance, with a sustained decline in employment in this area.

Potential influence on the plan and key issues
Point source and diffuse urban pollution resulting from the region's demographic and economic characteristics are a significant water management issue. The interactions of these issues with other environmental topics will be considered in the SEA, together with any opportunities to achieve multiple benefits through implementing Water Framework Directive measures. Recreational features may be affected by alterations to land management practices, water quality, alterations to structures within the river such as weirs or locks, or modifications to the watercourses themselves. The SEA will identify (to

the extent possible) any strategic impacts on recreational features resulting from proposed measures within the plan. The choice of measures will strive to avoid net loss of areas of recreation value and consider opportunities to create/enhance such features.

Material assets

Infrastructure, economic assets and transport systems
The Thames region has one of the highest concentrations of vital infrastructure (railways, motorways, primary roads, power stations, major airports) in the country. The area also has some of the highest concentrations of properties at risk from flooding today and increasingly in the future from climate change. The Thames Barrier remains the primary flood defence asset for London and is supported by the other associated barriers along the estuary.

Land use
Arable and grassland agriculture accounts for two thirds of land use in the southeast of England. Reform of the Common Agricultural Policy is beginning to have substantial impacts on agriculture, mostly resulting in benefits for the environment. There is likely to be a general shift towards more extensive farming systems and more land is expected to enter Environmental Stewardship Schemes. The southeast of England has 40,623 hectares of land under organic cultivation or in the process of moving to organic farming. This represents an increase of 775 hectares over the last three years (3.3 per cent of total agricultural area). The Region also has large areas of residential development, heavy industry such as power stations, and land associated with defence and military training.

Waste
Increasing waste production and decreasing landfill capacity in the Thames Region makes waste management a major challenge. Plans to build more houses will exacerbate this situation.

Potential influence on the plan and key issues
Economic growth in the region is leading to construction of more assets and infrastructure, some of which are likely to be on the existing floodplain. This will exacerbate existing environmental problems – particularly pressure on morphology, flood storage and water quality. Development could also affect assets with a cultural heritage or conservation significance, and lead to demand for more resources (e.g. water and aggregates) and increased waste production. The likely growth of biofuels as a sector could also have a major impact on land use over the next few years.

Landscape

The 22 Joint Character Areas illustrate the range of landscape within the Thames River Basin (see Appendix G). A number of Areas of Outstanding Natural Beauty (e.g. the Cotswolds) contrast with the urban and industrial areas of Greater London and elsewhere. The riverine landscape of the Chilterns is characterised by enclosed and intimate valleys. This landscape has similarities with that of the Thames Valley and North Thames Basin Joint Character Areas, which are also predominantly chalk escarpment. The North Wessex Downs is the most significant of the lowland areas to the south of the Thames and is typified by scattered small hamlets clustered along valleys.

Much of the Thames corridor has been extensively modified and canalised over a long period Much of this modification (e.g. the lock systems along the River Thames) is integrated with the landscape and forms an important part of its historic character. The entire catchment is characterised by historic focal points such as the Historic Palaces and Royal Parks, and adjacent parkland alongside the Thames in west London. There are also significant areas of open urban landscapes (where recreational spaces or parks and gardens are integrated with the river and valley floor) and areas that have been radically modified to accommodate heavy industry, port activities, mineral extraction and reservoirs.

Potential influence on the plan and key issues
Urban development has had a significant impact on the river systems throughout the catchment; many river channels and flood plains are so heavily modified they no longer function as natural assets. However, there is considerable scope for these rivers to act as the basis for restoring urban green space and wider amenity functions.

The important issues in Thames region revolve primarily around proposed development schemes. Existing modifications to watercourses, in-stream structures and management of water levels are critical factors affecting morphology and water quality, but they also contribute significantly to landscape character which in turn is integral to amenity value.

Flora, fauna and biodiversity

Thames region supports ecosystems of national and international significance; Special Areas of Conservation, Special Protection Areas and Ramsar Site. Many are water-related (e.g. the Medway Estuary and Marshes Special Protection Area) and some are artificial (e.g. the South West London Waterbodies Special Protection Area is a mix of reservoirs and gravel pits).There are also 451 Sites of Special Scientific Interest, and 17 National Nature Reserves.

The River Thames and its tributaries support a number of priority species listed in the UK Biodiversity Action Plan, a number of which are water related such as cod, freshwater water-clawed crayfish and depressed river mussels. Salmon and otter are Habitats Directive Annex II species and important indicator species for healthy rivers. The populations of both species declined dramatically in the 20th century and have yet to recover. Current population fluctuations are caused by factors such as low flow conditions, barriers to migration, loss of bank-side habitat and greater pesticide use.

The main threats to biodiversity in Thames region include:
• development pressures;
• habitat fragmentation and loss;
• deteriorating water quality;
• inappropriate agricultural management;
• spread of invasive non-native species;
• water management and land drainage schemes;
• climate change and sea level rise;
• water abstraction and the impacts of drought[10].

The effects of these activities are seen in the population fluctuations of indicator species and in the status or condition of Sites of Special Scientific Interest. The data for the condition of Sites of Special Scientific Interest show that sites across the counties in Thames region are comparable to that across the UK as a whole. There is, on average, a slightly lower proportion of sites in 'favourable' condition. Farmland and woodland bird populations continue to decline, especially those that require particular types of habitat. Populations of species like water vole and salmon are falling below their conservation limits in parts and, if this trend continues, they could become extinct in some areas. However, in London, urban development and activities to restore rivers are providing opportunities for regeneration.

Potential influence on the Plan and key issues
Achieving good ecological status should benefit many of the habitats and species in Thames region, though some thrive in lower quality environments (e.g. many coarse fish). The SEA considers the effects of policies on international and Biodiversity Action Plan habitats, as well as the interrelationship of biodiversity with other issues.

Historic Environment

There are four World Heritage Sites in Thames Region, all with at least a contextual relationship with water. There are 2,228 nationally designated Scheduled Ancient Monuments and many other heritage resources, including water-related features All these assets have links to the cultural and visual amenity of the region (see Landscape section), and may also be significant social assets and revenue generators.

Examples of cultural heritage assets in the Thames region include:

- Palaeo-environmental remains and sediment sequences (e.g. Erith, Rainham and Alverley Marshes),
- buried organic and inorganic archaeological remains associated with settlements within area of former river courses and flood plains. (e.g. Lea Valley, Clink Street and waterfront, Port Meadow, Oxford, Roman city of London)

- Structural remains relating to bank-side sites, river crossings or associated flood plain structures (e.g. Tilbury Fort)
- Buried palaeo-ecological remains related to former land surfaces such as buried forests.
- Engineering structures for navigation or other purposes (including bridges and mills) and landscape of leats, wharfs, and river crossings (e.g. Abandoned locks – Swift Ditch, Abingdon).
- Industry and development with riverine communications or which emphasise the Thames as a pre-eminent communications corridor in the Medieval period. Also providing a focus of external display of wealth along the river (e.g. London Docklands, Hampton Court, Windsor Castle, Bishops Palaces of Winchester and Fulham, Palaces of Ham Island)

Potential influence on the plan and key issues
Measures to improve flood risk could affect the integrity of cultural heritage and archaeology in various ways. Depending on conditions or exposure, increased water saturation of archaeological layers can either preserve or destroy artefacts. Physical works such as the improvement of water utilities can also disturb buried archaeology. Changes in water quality or quantity could alter the preserving environment. For example, more oxygenated waters will encourage decay, while lower water levels could leave wooden remains exposed and cause them to dry out.

Many historical sites have a history or use that may assist or run contrary to the achievement of flood risk policy. For example, Rushey and Shepperton Weirs result in changes to river morphology and also present barriers to fish migration.
Further development of the built environment, particularly along the tidal Thames, could separate aspects of historical landscapes such as docks, warehouses or custom houses – undermining their historical context and weakening the justification for their protection. Due to the complexity, geographic distribution and varied interaction with the water environment the potential in the plan for adverse effects on archaeological or cultural resources cannot be adequately evaluated.

Soil, land quality and related industries

Soil and geology
The bedrock geology of Thames region is characterised by sandstone, mudstone and limestone. The surface, or drift geology, features clays, sands, silts and gravels laid over the bedrock in some places. In others, the bedrock remains exposed or lies directly beneath the soil.

Geological Conservation Review sites are of national and international importance. They display sediments, rocks, fossils and features of the landscape that are particularly significant in geological terms and include the vast majority of Geological Sites of Special Scientific Interest. There are over 3,000 Geological Conservation Review sites across Britain. Thames Region has a number of these such as Abbey Woods with its fish fossils. More information is available from the Joint Nature Conservation Committee website.

Minerals extraction
Most of the aggregates required in Thames region are supplied from within the area, a trend which is likely to continue. The characteristics of the materials mean that the sites tend to be located on flat, low-lying land next to watercourses. In the Thames RBD, many former extraction sites have been turned into reservoirs or recreational water bodies, some of which have subsequently been designated for their nature conservation interests

Agriculture
The majority of land in Thames region is farmed and agricultural practices have a major influence on soil quality. Good soil structure is beneficial to crop yield and quality and also significantly reduces the potential for run-off and erosion. However, soil is adversely affected by:

- inappropriate soil management practices leading to diffuse pollution, sedimentation, flooding and top soil loss;
- reliance on pesticide use in intensive agricultural and horticultural systems;
- loss of nutrients and organic wastes from agricultural sources;
- management of agricultural land as a way of reducing flood risk;
- farm diversification; and

- climate change, which is expected to affect yields, alter growing seasons and increase demand for irrigation.

Contaminated land
The lengthy industrial history of Thames region means there is a legacy of contaminated land, particularly in the London area. The next phases of SEA and EIA will require the locations of contaminated sites and further data to be identified in implementation of the policy.

Potential influence on the plan and key issues
Land quality in the Thames region is under pressure from infrastructure development, agriculture, industrial sites and residential construction. Transport, construction, runoff from urban areas and discharges from contaminated land result in additional diffuse pollution entering water systems.

Further activities resulting from the CFMP will need to take account of the geology and soils, and the variation in the hydrological properties of soils; this will be particularly important when trying to predict the effects of climate change on river flows. Those strategies and projects resulting from the plan will need to ensure there is no risk of water pollution arising from the realignment of the floodplain to inundate contaminated land.

Measures to improve and restore morphological characteristics of water bodies may have implications for future mineral extraction. Similarly, the extent of future mineral extraction will be a formative influence on the water environment.

Water

Water resources
Water resources in Thames region consist of:
• reservoirs such as Farmoor Reservoir near Oxford
• aquifers such as the limestone of the Cotswolds;
• the River Thames, which is fed by other major rivers such as the Kennet, Mole and Lee.

The Thames provides two-thirds of London's drinking water. Groundwater provides around 40 per cent of public water supplies in the Thames Basin, with chalk forming the predominant aquifer. It is also an important source for private water supplies, domestic use, industry and farming. In addition, river and stream flows and wetland habitats often depend heavily on groundwater seepage and springs (especially during drier months and in the upper reaches of the catchment). Both the quantity and quality of groundwater is extremely important in maintaining these resources.

Water quality
The majority of rivers across the Thames region are classified as 'very good' or 'good' for the Biological General Quality Assessment. Most of those that scored lower are in the east of the Region, and the lowest scores are found in and around London. For the Chemical General Quality Assessment there is considerable variation. There are many *Nitrate Vulnerable Zones* in the area which are sensitive to relief, climatic conditions and agricultural activity.

Potential influence on the plan and key issues
The average effective rainfall in south-east England is low and this can cause significant problems during periods of drought, particularly as many of the rivers are ecologically sensitive to low flows. The population density is also high and water shortages are often experienced. The problem will be made worse by new demands from housing and economic development, and by global warming and climate change.

The continuing trend for increased abstraction is unsustainable and the increase in demand cannot be met by increasing resources alone. Efficiency measures are vital to secure adequate water supplies without affecting the environment.

Groundwater is vulnerable to pollution from surface activities as aquifers make up two-thirds of the land surface in this densely populated area. The quantity and quality of groundwater is crucial in maintaining water resources in the region. Only water- issues related to flooding have be considered in the plan. The SEA considered the interrelation between water elements and other environmental factors. These include linkages between floodwater and biodiversity (e.g. where an increase in water quantity would not

necessarily meet conservation objectives), and the impacts of water flow on, for example, archaeological resources or landscape characteristics.

Air quality

Air quality in Thames Region is under pressure from factors such as increasing population, rising traffic levels, industry, aviation, construction and agriculture. Overall air quality continues to improve with measured air pollutants either complying with annual Air Quality Strategy objectives or remaining lower than annual levels recorded in the early 1990s.

Thames region has relatively few major industrial sites and emissions to air from activities regulated by the Environment Agency are improving. For most air pollutants, the emissions from these activities are low compared with those from other sources. Heavy road traffic in the region presents the greatest threat to air quality (particularly nitrogen oxides) and is only likely to increase with population growth and planned development.

Potential influence on the plan and key issues
Although air quality can affect human health, it is unlikely to affect our ability to achieve the CFMP's objectives. Therefore, air quality issues are not considered relevant to the SEA and we have not considered them in the assessment.

Climatic factors

Carbon dioxide (CO2) emissions in Thames region contributed approximately 22 per cent of the UK total in 2004, with those from traffic considered higher than those from industry.

Climate change will result in warmer temperatures, wetter winters and drier summers. By the 2020s, temperatures across Thames Region could rise by up to 2°C, while summer rainfall may fall by up to 15 per cent and winter precipitation may increase by up to 15 per cent. The largest changes will be in the south and east of the UK.

Potential influence on the Plan and key issues
The impact of the changing climate on the water environment has been taken into account when evaluating the measures or effects of the Plan. The CFMP should not promote options with associated high levels of carbon dioxide emissions and should seek to encourage climate change adaptation and mitigation measures. We will consider specific climate change implications of the chosen policies further at the assessment stage of the relevant strategies or projects falling out of the plan.

B3.3 Scope of the SEA and environmental objectives

An important early stage in the SEA process is to identify which environmental issues are relevant to this CFMP. Our Scoping exercise identified issues that are not relevant to this type and level of plan: allowing us to exclude these issues and focus our assessment on what is most important. To help us do this we consulted widely on a Scoping Report which was published in October 2004.

The scope of this SEA was determined by:

- developing an understanding of the flood risk management context for the catchment, including current flood risk to people and the environment (we also considered the economy), and the potential constraints and opportunities to the management of flood risk;
- undertaking a review of the environmental context of the catchment, including identifying relevant trends;
- a review of relevant plans and policies, including an assessment of their relationship with catchment flood management planning;
- identifying relevant environmental protection objectives from these plans and policies and consideration of how the CFMP might conflict with these, or influence their achievement; and
- consultation with key stakeholders (see previous Section B2), including the SEA statutory consultation bodies: Natural England and English Heritage.

The environmental and social issues scoped into the SEA were then used alongside economic issues to develop a suite of policy appraisal objectives, indicators and, where possible, targets (see Section 5.0 of the main report). Throughout this process we drew on the knowledge and vision of our CFMP Steering Group (see Section 1.5; Involving others) to help understand what matters in the catchment and shape what this plan was trying to achieve. Following our formal Scoping exercise, we considered what the future might look like, including what the effects of climate change could be, and the impact of future development pressures and changes in land management. While we can not predict the future with complete certainty, we used this perspective on the future to help us understand the scale of changes we could face in the future and so consider them explicitly within the development of the plan.

Table B3 summarises the issues we scoped into the development of the plan, and the resulting broad objectives we developed against which to test our alternative options. Not all of these issues are equally relevant everywhere in our plan area, and we also drew on other relevant policies, plans and programmes to identify opportunities and constraints for individual areas (Policy Units) within the plan area.

Table B3 Scope of the SEA in relation to the CFMP

Environmental Topic	Scope and Justification		Relevant environmental objective	Relevance to the CFMP
	Scoped in	Scoped out		
Population, Human Health, Material Assets and Landscape	**People exposed to flooding and the risk of death due to flooding**. The plan explicitly considers the implications of flood risk on People. **The impact of flooding on the communities they live in and the infrastructure and services they rely on (material assets**) The plan explicitly considers the implications of flood risk on communities and infrastructure.	**Disease, stress and trauma as a result of flooding.** A robust assessment of the risk associated with these impacts is not established for this level of plan. The risk of disease for such rare events would be unlikely to be significant. **Landscape Assessment.** Due to the high level policy nature of the options choice the individual assessment of the impact of the chosen policy ion each unit cannot be robustly quantified. Assessment will be carried out at a sub catchment strategy or project level.	• Manage the economic impacts of flooding on property • Minimise flood related risks to the population	The plan takes into account the objectives reducing the risk and consequence of flooding related damage to people, property and infrastructure as the core of its focus. The resulting stresses and knock on effects are not considered as the primary objective is to reduce the preliminary risk and hence these objectives are intrinsically met. Landscape assessment has been considered solely on the ability of each unit to provide floodplain storage where appropriate. The effects on the landscape will be considered as the policies are implemented and will seek to be minimised.
Historic Environment, including cultural, architectural and archaeological heritage	**Sites designated or recognised as being of international importance**. The plan considers flood risk to World Heritage sites.	**Sites designated or recognised as being of national, regional or local importance**. At the CFMP scale it is the internationally recognised sites that have been screened and scoped. All other SAMs are protected through the land use	- No objectives set	Thames Region contains a large number of nationally (SAMs) and also some internationally important (World Heritage Sites) archaeological sites. A small percentage of these are within the 0.1% AEP. If flooding occurs more often in the future and is more severe

		planning system and would therefore be fully assessed at a local scale if any interventions arising from the CFMP could impact on a SAM.		it may lead to the loss or damage of these assets. Historic environment assets and their settings may also be vulnerable to damage resulting from flood risk management schemes, in particular those requiring construction of defences. The alteration of water levels may also impact upon historic resources, for example altering the preservation environment of buried archaeology or causing structural damage to historic buildings. It is an offence under the 1979 Ancient Monuments and Archaeological Areas Act to deliberately flood land in, on or under which there is a scheduled monument
Air quality	**No air quality issues are relevant to this level of plan**	**Air quality issues** There is no potential for CFMP policies to influence issues that effect air quality, e.g. emissions or generation of particulate matter at a strategic level. Air quality issues are therefore not considered to be significant and have been scoped out of the assessment.	- No objectives set	There is no potential for CFMP policies to influence issues that effect air quality. Similarly air quality issues will have no effect on the policy determination for Flood Risk Management.
Climatic factors	**Climate Change Implications** The plan explicitly considers the implications of climate change on flood risk. Our policies are therefore aiming to help society to adapt to climate change	**Climate Change** There is no potential for CFMP Policies to influence issues that effect the climate. Any local effects on climate due to flooding are not considered significant in the long term and therefore scoped out of the assessment.	- No objectives set	The plan explicitly considers the implications of climate change on flood risk. There is no potential for CFMP policies to influence issues that effect the climate
Biodiversity, fauna and fauna	Sites designated as Special Protection Areas (SPAs), Special Areas of Conservation (SACs), RAMSAR sites, Sites of Special Scientific Interest (SSSIs) and	**SPAs, SACs, SSSIs and BAP habitats and species that do not have a dependence on the water environment**. Also those designated sites which are not geographically or	• To enhance and expand floodplain BAP habitat and restore urban watercourses • To preserve or enhance the condition of	The chosen policies in the plan will impact on biodiversity, flora and fauna through the increase or reduction in inundation due to flooding but also from the construction or maintenance of defences.

	Biodiversity Action Plan (BAP) Habitats and Species where these have some dependence on the water environment and flooding. We also consider the need to undertake an Appropriate Assessment for Natura 2000 sites.	hydrologically connected to flooding within the catchment.	internationally designated sites • To preserve or enhance the condition of nationally designated sites **NB** for SPAs, SACs and RAMSAR sites our aim is to have no significant detrimental impact on the features of the site for which it is designated. Where we can not demonstrate that a significant detrimental effect is not likely we will undertake an Appropriate Assessment in accordance with the requirements of the Habitats Directive. This will be achieved at the strategic/project level.(See section B4.1)	Similarly the presence of nationally and internationally designated sites will affect the implementation of the policy through the habitats regulations and planning processes.
Soils	Due to the size and complexity of land use in each of the policy units the effects of sediment erosion and soil have not been evaluated at this scale.	**Sediment Erosion & Transport Issues Erosion Issues** **Soil Quality And Quantity Issues** The effect of the CFMP policies on erosion and transport of sediment and gravel and soil quality and quantity is not considered due to the nature of the catchment and the wide variation of factors within each individual policy unit	- No objectives set	The potential for flooding and flood risk management to effect the achievement of good ecological potential of water bodies.
Water	The potential for flooding and flood	The effect of the CFMP policies on	• To enhance and expand	The potential for flooding and flood risk

	risk management to affect the achievement of good ecological potential of water bodies.	water quality and quantity is not considered significant due to the mainly infrequent nature of the flooding events being considered in this plan.	floodplain BAP habitat and restore urban watercourses	management to effect the achievement of good ecological potential of water bodies is considered in the context of Significant Water Management Issues (SWMI) in relation to the Water Framework Directive objectives.

Section B4 Assessment and Evaluation of Environmental Effects

B4.1 Strategic options and appraisal process

We have considered six generic options in our policy plan, which are listed in Table B4.

Table B4 Definition of policy options

Policy option	Risk management strategic approach
1. No active intervention (including flood warning and maintenance). Continue to monitor and advise	**Accept the risk** – both current and future increases in risk
2. Reduce existing flood risk management actions (accepting that flood risk will increase over time)	**Accept the risk** – both current and future increases in risk
3. Continue with existing or alternative actions to manage flood risk at the current level (accepting that flood risk will increase over time from this baseline)	**Accept the risk** – our current scale of actions is sufficient to manage the current risk, and future increases will be acceptable
4. Take further action to sustain current scale of flood risk into the future (responding to the potential increases in flood risk from urban development, land use change, and Climate Change).	**Accept the risk** – but in the longer term take action to ensure the risk does not increase from current level
5. Take further action to reduce flood risk (now and/or in the future)	**Reduce the risk** – lower the probability of exposure to flooding and/or the magnitude of the consequences of a flood, and hence the risk
6. Take action to increase the frequency of flooding to deliver benefits locally or elsewhere, (which may constitute an overall flood risk reduction, for example for habitat inundation).	**Reduce the risk** by transferring the risk to other locations where the risks (typically the consequences) are positive

These options relate to the outcome of flood risk management in terms of the scale of risk and management activity compared to today. Deciding on the specific measures needed to achieve these outcomes is not the purpose of the CFMP. However, we do need to appreciate whether or not the change in risk under a particular policy is generally feasible and desirable in terms of where the water goes in the catchment. To appreciate this we need to understand how the catchment works in times of flood so that our policies make sense. The water needs to go somewhere when it floods and we need to understand that if we prevent water from flooding homes in one location what the knock-on effects would be in another location.

In order to understand how the catchment works we develop models that can draw on information about the amount of rainfall and show to some extent how this drains off the land and into the river systems. We can then consider at a broad scale how the flow of water within the catchment could change over time with or without management intervention.

Of particular importance in driving future changes in flood risk are:

- the potential impact of climate change on flooding due to increased rainfall and sea level rise;
- the potential impact of new development due to extra run-off from impermeable surfaces as well as new properties being developed in areas exposed to flooding; and
- the potential impact of changes in land management because this can change the permeability of the catchment and how the rate at which water drains into the river system.

To consider what the future might be like, and thus what the flood risk could be like with no management intervention, we have considered a number of future scenarios. These scenarios aim to establish what changes there could be in the three important drivers of change listed above (climate change, development and land management). To develop reasonable predictions of change we have looked at past changes and had discussions with our Steering Group to arrive at reasonable projections of what the future could be like. To consider the impact of climate change on flooding we have used the

government guidance issued by Defra. A more detailed explanation of the scenarios used is given in Section 4.2 Scenarios.

Our appraisal of the alternative policies is undertaken by considering how the flow within the catchment could change in the future. This understanding is done at a high level using our models, complemented with expert judgement on how water flows through the catchment during times of flood. For example, we might say that if land management practices changed in the headlands of a catchment, the land would be more permeable and this would reduce the rate at which rainfall enters the river system downstream. Such a change in how water flows through the catchment could then reduce the volume of floodwater downstream (and reduce the frequency of flooding to homes in this downstream location).

Our consideration of how the catchment works, and what the current and future risks are has allowed us to divide the catchment up into smaller geographical areas that we have called Policy Units. In each Policy Unit we have considered how the risks arise (using a source-pathway-receptor model) and what our specific objectives are. We have considered other policies, plans and programmes to see where there may be objectives and constraints that our plan could contribute to or that we need to take account of. For example, a biodiversity action plan (BAP) may identify habitat improvement such as creation of wet grassland. Our investigations could start to show that if the area adjacent to the river corridor was to flood more frequently, then this could potentially help contribute to achieving the BAP improvements. The process of SEA encourages us to make these links with other plans so that we can help deliver broader benefits and reduce conflict between our flood risk management policies and other aspirations. We have done this during the review of other plans and considered others' objectives as opportunities or constraints to our policy development, as an integral part of our appraisal.

B 4.2 Baseline Assessment and evaluation of impacts

An appropriate assessment needs to be undertaken in respect of any plan or project which:

a. either alone or in combination with other plans or projects would be likely to have a *significant effect* on a European Site, and
b. is not directly connected with the management of the site for nature conservation.

Appropriate assessment is required by law for all European Sites. A European Site is any classified SPA and any SAC from the point where the Commission and the Government agree the site as a Site of Community Importance. Appropriate assessment is also required, as a matter of Government policy, for potential SPAs, candidate SACs and listed Ramsar Sites for the purpose of considering development proposals affecting them.

The Key Steps in Appropriate Assessment

The competent authority (in this case the Environment Agency):

1. Must consult Natural England
2. May consult the general public
3. Should clearly identify and understand the site's conservation objectives having regard to the advice of Natural England
4. Should identify the effects of the proposal on the habitats and species of international importance and how those effects are likely to affect the site's conservation objectives
5. Should decide whether the plan or project, as proposed, would adversely affect the integrity of the site in the light of the conservation objectives.
6. Should consider the manner in which the plan or project is proposed to be carried out, whether it could be modified, or whether conditions or restrictions could be imposed, so as to avoid adverse effects on the integrity of the site
7. Should conclude whether the proposal, as modified by conditions or restrictions, would adversely affect the integrity of the site
8. Should record the Assessment and notify Natural England of the conclusions

Thames CFMP appropriate assessment tiering methodology

In this SEA we have identified the Natura 2000 sites with potential to be affected by the policies chosen in the CFMP. In most cases this is those sites which either lie wholly or partially within the floodplain or have direct hydrological or geographical dependence upon waters affected by the CFMP.

Due to the general policy nature of the CFMP, the large scale of the implementation areas and the lack of detail in the resulting actions from those policies; it is impossible to determine specific impacts resulting from the plan. That is to identify the effects of the proposal on the habitats and species of international importance and how those effects are likely to affect the site's conservation objectives either adversely or positively. Whilst no likely significant effects are anticipated on the designated features, taking the precautionary approach we cannot rule out all significant effects either.

In many instances, identified potential impacts of the Catchment Flood Management Plan on designated sites will not be inevitable but rather will depend on how its policies and proposals are implemented on the ground.

With this in mind, we used the appropriate assessment procedure to evaluate the policies outlined for each policy unit and highlighted where there are residual potential adverse effects on a Natura 2000 site. A screening approach was used to eliminate those sites and features which could be deemed unaffected by the policies outlined in the CFMP. The remaining sites were then evaluated through stages 2 and 3 of the appropriate assessment process to assess potential for significant effects on the designated features.

The sites identified and (relevant policy units) are shown below, details of the residual potential impacts can be found in the Appropriate Assessment documents, 'Form HR02: Proforma for FRM stage 3 Appropriate Assessment'.

Table B5 Natura 2000 sites included in the Stage 3 Appropriate Assessment

Designated European Site	CFMP Policy Unit
Lee Valley (RAMSAR / SPA) -	Lower Lee / Middle Lee and Stort
South West London Waterbodies (RAMSAR / SPA)	Lower Thames
Thursley and Ockley Bogs (RAMSAR/SPA)	Rural Wey
Thames Basin Heaths (SPA)	Loddon, Hoe Stream, Upper and Middle Blackwater
Wealden Heaths Phase II (SPA)	Rural Wey
Thursley, Hankley and Frensham Common (Wealden Heaths Phase I)* (SPA)	Rural Wey
Cothill Fen (SAC)	Ock
Epping Forest (SAC)	Lower Lee Tributaries, Upper Roding
Kennet & Lambourne Floodplain (SAC)	Kennet
Kennet Valley Alderwoods (SAC)	Kennet
North Meadow & Clattinger Farm (SAC)	Upper Thames
Oxford Meadows (SAC)	Upper Thames
Shortheath Common (SAC)	Rural Wey
Thursley, Ash, Pirbright & Chobham (SAC)	Rural Wey, Hoe Stream and Addlestone Bourne, Emm Brook and The Cut

Conclusions

Due to the lack of detail within the CFMP concerning specific works and their effects on site integrity, the issues at the above sites can only be addressed at the project level. We have identified actions that enable the policy to be implemented with no adverse impacts on the sites;

- Where possible no works will take place within the site boundaries
- Careful scheme design and location will ensure that projects undertaken will not adversely affect the hydrological or physical site regimes.
- Any works undertaken within the site boundaries will take adequate regard for the protection of the designated features

We cannot be sure at this stage whether all of the actions will not lead to damage and therefore more study may be required to review the mitigation options. If we are unable to show no impact we will take the proposals through the Appropriate Assessment process during the development of the strategy or project.

It is also recognised there is scope for effects other than those highlighted to become evident through implementation of the CFMP policies across the units and that Appropriate Assessment should be carried out in cases where an effect on a Natura 2000 is deemed likely as is usually the case with standalone schemes.

This CFMP has been signed off as setting the strategic direction for managing flood risk in the catchment on the basis that it cannot be put into effect until more detailed appraisal and assessment has taken place on plans or projects arising out of this CFMP to show it and they have met the requirements of the Habitats Regulations.

B 4.2.1 Baseline Assessment

Condition of Natura 2000 Sites

Natura 2000 is the European Union-wide network of protected areas, recognised as 'sites of Community importance' under the EC Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora).

The Birds Directive required the establishment of Special Protection Areas (SPAs). SPAs are important for rare and vulnerable birds because they rely on them for breeding, feeding, wintering or migration. The Habitats Directive required Special Areas of Conservation (SACs) to be designated for other species, and for habitats. SACs are classified under the Habitats Directive and provide rare and vulnerable animals, plants and habitats with increased protection and management.

Together, SPAs and SACs make up the Natura 2000 network. All EU Member States are required to manage and implement Natura 2000. The table below shows the condition of the Natura 2000 sites within Thames region.

Designation	Sites in wholly favourable condition	Site with management issues to achieve favourable condition
RAMSAR	0	3
SPA	1	2
SAC	11	9

As the Natura 2000 sites are also designated as SSSI's either in whole or through a combination of SSSI designations the targets and trends are addressed below.

Condition of Sites of Special Scientific Interest (SSSIs)
Sites of Special Scientific Interest are vital for the protection and conservation of England's most important wildlife and geology. Natural England selects, protects, and assesses SSSIs. However, a wide range of organisations and stakeholders - including the Environment Agency - are responsible for the

conservation and restoration of these sites. Information on the condition of SSSIs helps us to manage health and conservation status of these important areas.

There are 451 Sites of Special Scientific Interest (SSSI), covering over 45,000 hectares or nearly 3.5 per cent of the region. These sites include woodland, grassland, wetlands, bogs, saltmarsh, rivers, lakes, and various types of geological location. See the map below for more information.

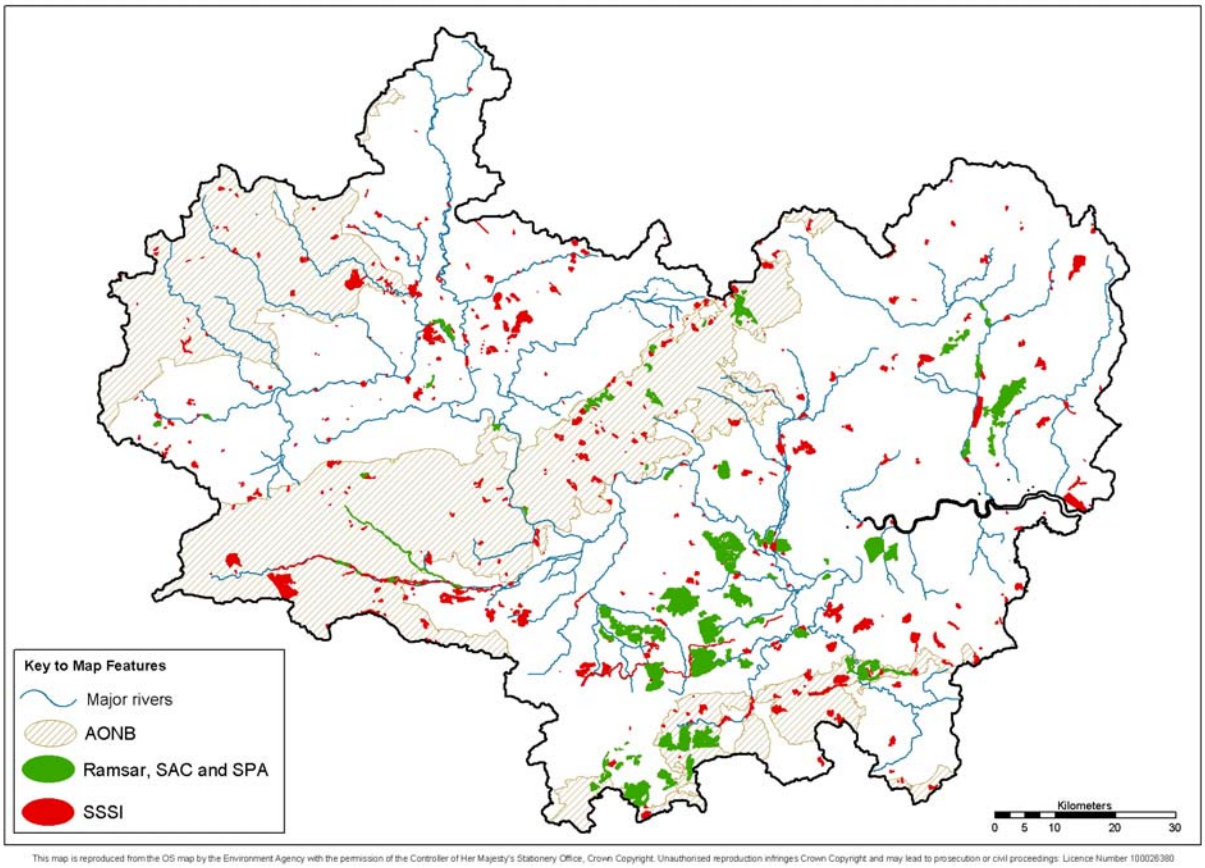


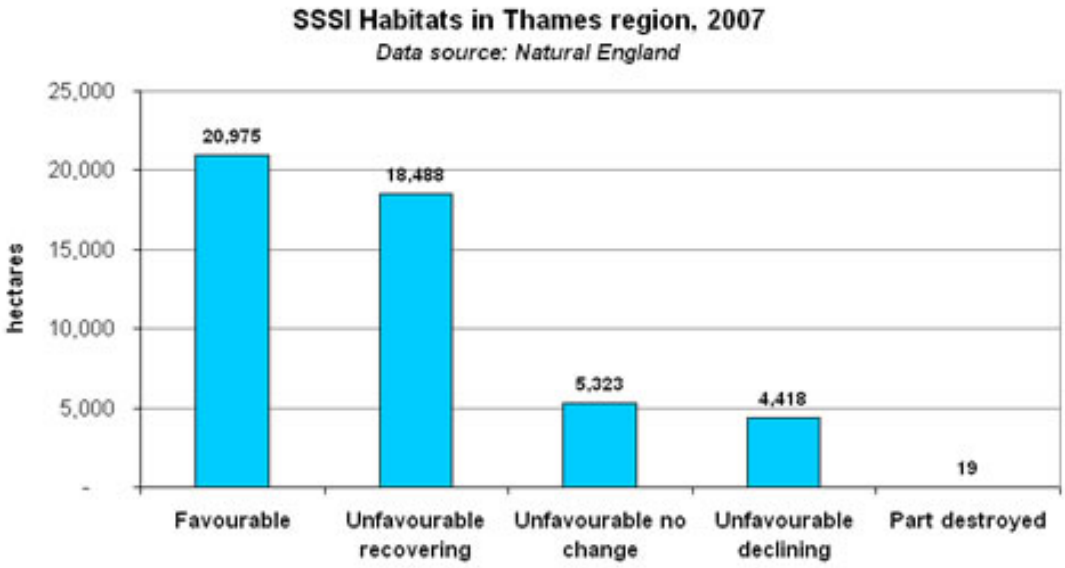
Figure B4 Sites of national and international importance in the Thames Region

Targets:

The Government's Public Service Agreement requires 95% of all SSSIs to be in favourable condition by 2010. The Environment Agency is responsible for the maintenance of any SSSI lands under its ownership or where it has an operational or management role.

Trends:

The bar chart below indicates the condition of these sites in August 2007. It shows that most sites fall into the 'favourable' or 'unfavourable recovering' classifications.



The alternative options have been assessed against objectives that are specific for each policy unit. The tables set out in **Appendix D** detail this appraisal. These tables identify the preferred option for each Policy Unit along with monitoring requirements. As such they set out the findings of the SEA in relation to the assessment of options.

Information on mitigation and enhancement measures related to the preferred policy option identified for each policy unit is set out in section B4.4. At this level of plan, the mitigation and enhancement measures are integral to the policy appraisal. Where we have the potential to enhance the environment we have included this potential within the appraisal objectives. Mitigation measures at this level are generally included as part of the policy options, so that a less detrimental impact will tend to be an alternative policy option. We therefore can not identify any further specific mitigation measures at the policy level. At a lower level in our planning hierarchy, when we are investigating the details of how we will implement flood risk management measures, we will be undertaking an appropriate level of environmental assessment which will, in turn, identify more relevant mitigation measures to the impacts arising.

B4.3 Cumulative environmental effects

SEA requires assessment of cumulative and synergistic effects. This section sets out the significant environmental effects of the plan as a whole, which have been considered in relation to each of the environmental objectives. It goes on to consider the environmental effects of potential interactions between the CFMP and relevant plans and programmes within the catchment. These findings are summarised in Table B6.

Objective	Indicator	Cumulative effects across the whole plan area (sum of Policy Unit impacts)		Interaction of CFMP with relevant Plans and Programmes
Manage the economic impacts of flooding on property	• Properties at risk in the 1% AEP flood event	Implementation of the policies will result in the number of properties at risk reducing from 153,000 to between 119,000 and 124,000.	Approximately 25% of the current day risks can be managed through spatial planning. This is dependent upon successful partnership with LPAs. Approximately 11% of current day risks can be managed through structural interventions. Approximately 7% of the risk could be managed through a combination of both. Overall the policies can potentially maintain damages and impacts to social and economic receptors at current day levels against a background of climate change.	• Thames Estuary 2100 (TE2100) • Regional Spatial Strategies (for London, South-East and East of England) • Local Development Frameworks (including SFRAs)
	• Annual Average Damages	Implementation of the policies will result in a reduction in AAD from £377M to between £270M and £274M		
Minimise flood related risks to the population	• Number of people at risk from a 1% AEP flood	Implementation of the policies will result in a reduction of the number of people at risk from 345,000 to between 268,228 and 279,289		
	• Social vulnerability of people at risk from flooding	Implementation of the policies will result in the number of socially vulnerable people at risk reducing from 111,000 to between 73,000 and 78,000		
Enhance and expand floodplain BAP habitat and restore urban watercourses	• Length of watercourses where there is potential to restore rivers	Implementation of the policies will increase the current length of restored river (1800km) by 32km to 183km	Policies and the resulting approaches and actions will lead to an increase in the length of natural channel through the redevelopment of river corridors.	• Regional Habitat Creation Programme • Making Space for Water • London River Restoration Strategies
	• Potential to increase the area of BAP habitat	Implementation of the policies will increase the current area of BAP habitat (1300km²) by 129km^2 to 158km^2	Policies will increase the potential for the expansion and enhancement of floodplain BAP habitat. There should be no adverse impact on ecological status as a consequence of the implementation of policy from the Thames CFMP	• Regional Habitat Creation Programme • London River Restoration Strategies • Biodiversity Action Plans (BAPs) • Habitat Action Plans (HAPs)
Preserve or enhance the condition of internationally	• Potential impact on internationally designated sites	Positive impacts could be gained from the implementation of the policies at 5 sites.	Policies have the potential to improve site conditions where they compliment the preferred hydrological management regimes. Our aim is to	• Water Level Management Plans (WLMPs)

designated sites		The impacts of the policies are likely to be neutral at 6 sites Negative impacts are in theory possible at 2 sites, but in practice the negative impacts can be avoided and constrained.	have no significant detrimental impact on the features of the site for which it is designated. Where we can not demonstrate that a significant detrimental effect is not likely we will undertake an Appropriate Assessment in accordance with the requirements of the Habitats Directive. This will be achieved at the strategic/project level	
Preserve or enhance the condition of nationally designated sites	• Potential impact on nationally designated sites	Very positive impacts could be expected from the implementation of policies at 4 sites. Positive impacts could be expected from the implementation of policies at 17 sites. Positive to neutral impacts could be expected from the implementation of policies at 10 sites. Neutral impacts could be expected from the implementation of policies at 11 sites. Negative impacts are in theory possible at 5 sites, but in practice the negative impacts can be avoided and constrained. The impacts are uncertain or there is not likely to be any impact from flood risk management activity at 35 sites.	Policies have the potential to improve site conditions where they compliment the preferred hydrological management regimes. our aim is to have no significant detrimental impact on the features of the site for which it is designated. Where we can not demonstrate that a significant detrimental effect is not likely we will undertake an Appropriate Assessment in accordance with the requirements of the Habitats Directive. This will be achieved at the strategic/project level	• Water Level Management Plans (WLMPs)

Table B6 Summary of cumulative issues

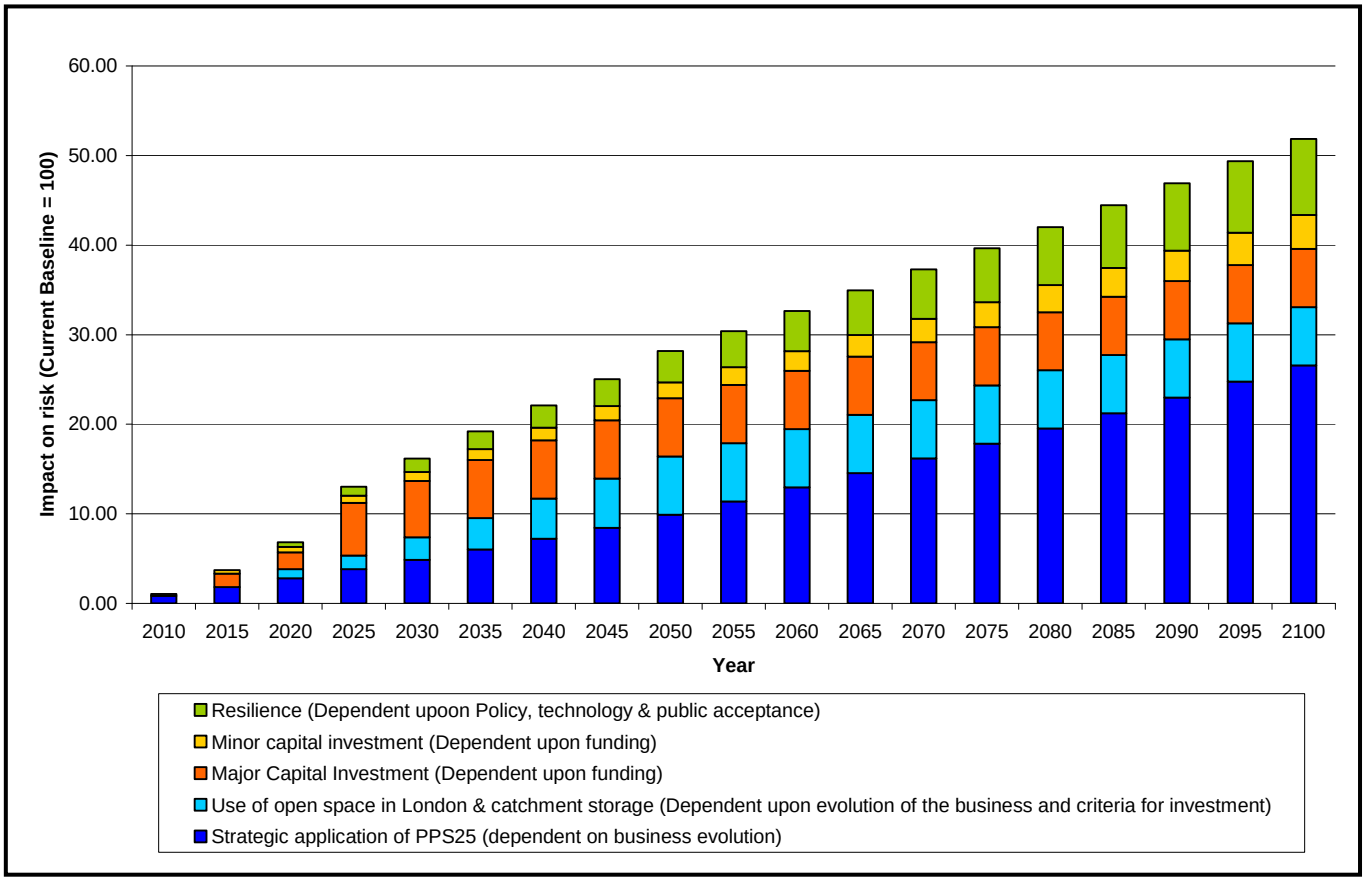


Figure B5 Representation of the impact and dependencies of approaches to managing risk

Figure B5 illustrates how implementation of the approaches and policies proposed in the Thames CFMP can combine to offset the impacts of climate change.

Approximately 25% of the current risk could be addressed though spatial planning. This will be dependent upon evolution of our approaches. Catchment attenuation using both the natural floodplain and open space in London could address a further 7% of the current risk. This will be dependent upon progress in the adoption of principles being developed under the Making Space for Water programme, evolution of the business and to some extent funding. Capital improvements, both to maintain existing defences and build new ones, are an important part of the implementation of this plan. However, the plan cannot be dependent upon this as defences can only ever address a small proportion of the overall problem. Subject to funding flood defences could help address up to 10% of the current day risk. Finally there are a broad suite of approaches to manage the consequences of flooding such as flood resilience, responding more effectively to flood warning and emergency planning.

B4.4 Mitigation and Enhancement

At this level of policy making, where we are setting the direction for future actions, the mitigation and enhancement measures are integral to the policy appraisal. Where we have the potential to enhance the environment we have included this potential within the appraisal as opportunities. Mitigation measures at this level are generally included as part of the policy options, so that a less detrimental impact will tend to be implicit within an alternative policy option. At a lower level in our planning hierarchy, when we are investigating the details of how we will implement flood risk management measures, we will be undertaking an appropriate level of environmental assessment and consultation which will, in turn, identify more relevant mitigation measures to the impacts arising. We will use the assessment of potential impacts undertaken at this level to help focus our lower levels of decision making, ensuring that relevant assessment, mitigation and enhancement measures are explored fully.

Where Table B6 identifies potential benefits / impacts between the CFMP and other plans / programmes operating within the catchment we will take this into account when developing further proposals, as set out above.

B4.5 Monitoring

SEA requires significant environmental effects related to the implementation of the plan to be monitored. Information on the monitoring requirements related to the implementation of the CFMP is included in the appraisal tables presented in Section B4.2.

Areas of likely mitigation and enhancement measures are included within the appraisal of the alternatives and these will be cascaded down through our subsequent and more detailed plans as we decide the flood risk management measures we need to implement the policies. The monitoring of the significant effects of the plan will include:

- Strategic and Project level Appropriate Assessment for Natura 2000 sites identified through the SEA process as at risk of significant environmental effect from the implementation of the chosen policies.

- Strategic and Project level assessment of the effect on Sites of Special Scientific Interest, Areas of Outstanding Natural Beauty, identified through the later SEA and EIA processes as at risk of significant environmental effect from the implementation of the chosen policies.

- Water Level Management Plans (WLMPs) are used in areas of nature conservation (especially SSSI) which are water dependent. They ensure that the management regime is planned correctly to allow for seasonal and long term variations in water level so that the conservation, recreation and sometimes economic functions are retained. WLMPs are used for individual monitoring of the sites and will provide a picture of the detailed effects of the Plan.

- An overall view of the changes to the environment will be considered through the State of the Environment Report. This is the yearly report which describes the biological and chemical results of river monitoring as well as other environmental indicators.

- The Water Framework Directive also monitors the state of the environment and is useful as the monitoring area for the Thames Region is the same as for the CFMP – the River Basin District (RBD). The repetitive reporting cycle of the WFD will monitor the quality of the rivers and provide useful information into the effects of the Plan.

- The Regional Habitat Creation Programme will be one of the main drivers for creation of biodiversity action plan (BAP) habitats in the region and the CFMP will actively influence the location and nature of the programme to ensure integration between flood risk management and habitat creation. The Regional Habitat Creation Programme will also allow compensation areas to be found as appropriate, to balance any significant effects impacting on Natura 2000 or SSSI sites identified by appropriate assessment.

APPENDIX 1

Form HR01: Proforma for new applications within Stage 2 criteria.	ENVIRONMENT AGENCY
Environment Agency Record of Assessment of Likely Significant Effect On European Sites (Stage 2) The Thames Catchment Flood Management Plan detailed below is within the Stage 1 criteria which may impact a European Site(s) and in order to progress the plan a Stage 2 assessment and consultation with Natural England is required.	
PART A	
1. Type of permission/activity:	**Thames Catchment Flood Management Plan (CFMP)**
2. Brief description of proposal:	Thames CFMP proposes flood risk management policies for Thames Region of the Environment Agency. This CFMP is a high level document containing long-term (50-100 years) policies related to flood risk management. The CFMP cements our understanding of how floods are generated and currently managed, and sets objectives for the future management of flood risk in the CFMP area. The main messages of the CFMP are: • Flood defences cannot be built to protect everything • Climate change will be the major cause of increased flood risk in the future. • The floodplain within Thames is our most important asset in managing flood risk across the region. • Development and urban regeneration provide a crucial opportunity to manage the future flood risk. Six generic CFMP policies have been appraised against six objectives, encapsulating the overall aims and aspirations of flood risk management in this area. Each Policy Unit has then been allocated a single Generic Policy. Consultation with Natural England has occurred throughout the development of this CFMP.

3. European site name(s) and status:	
	• Lee Valley (RAMSAR / SPA) • South West London Water bodies (RAMSAR / SPA) • Thursley and Ockley Bogs (RAMSAR/SPA) • Thames Basin Heaths (SPA) • Wealden Heaths Phase II (SPA) • Thursley, Hankley and Frensham Common

	(Wealden Heaths Phase I)* (SPA) • Aston Rowant* (SAC) • Burnham Beeches* (SAC) • Chilterns Beechwoods (SAC) • Cothill Fen (SAC) • East Hampshire Hangers (SAC) • Epping Forest (SAC) • Hackpen Hill* (SAC) • Hartslock Wood (SAC) • Kennet & Lambourne Floodplain (SAC) • Kennet Valley Alderwoods (SAC) • Little Wittenham (SAC) • Mole Gap to Reigate Escarpment (SAC) • North Meadow & Clattinger Farm (SAC) • Oxford Meadows (SAC) • Richmond Park (SAC) • River Lambourne (SAC) • Shortheath Common (SAC) • Thursley, Ash, Pirbright & Chobham (SAC) • Wimbledon Common (SAC) • Windsor Forest & Great Park (SAC) • Wormley-Hoddesdonpark Woods (SAC)
*These sites lie outside the 0.1% AEP flood event and will not therefore be affected by any of the flood risk management activities outlined by the policies evaluated in this CFMP. They have not therefore been considered further in the assessment.	

4. European site name(s) and status:	**Qualifying Features of International Importance:**
Lee Valley **(RAMSAR / SPA)** (SSSI's: Turnford and Cheshunt Pits, Rye Meads, Amwell Quarry, Walthamstow Reservoirs)	**RAMSAR Convention Criteria** Critierion 2 - (a) Whorled Water mil-foil (Myriophyllum verticillatum) (2.2) (b) Micronecta minutissima (Water Boatman) (2.2) Criterion 6 - (a) Shoveler - 406 wintering individuals = 1% of the NW/Central European population (3.6) (b) Gadwall - 456 wintering individuals = 1.5% of the NW European population (3.6) **SPA Habitat Classes** 1.5-Inland water bodies (standing water, running water) 1.2-Bogs. Marshes. Water fringed vegetation. Fens 1.7-Humid grassland. Mesophile grassland Improved grassland 1.6-Broad-leaved deciduous woodland
South West London Water bodies	**RAMSAR Convention Criteria**

APPENDIX 1

(RAMSAR / SPA) (SSSI's: Wraysbury and Hythe End Gravel Pits, Wraysbury No. 1 Gravel Pit, Thorpe Park No. 1 Gravel Pit, Staines Moor, Wraysbury Reservoir, Knight and Bessborough Reservoirs, Kempton Park Reservoirs)	Criterion 6 (a) Gadwall - 710 wintering individuals = 2.4% of the NW European population (3.6) (b) Shoveler - 853 wintering individuals = 2.1% of the NW/Central European population (3.6) **SPA Habitat Classes** 1.5-Inland water bodies (standing water, running water) 1.6-Broad-leaved deciduous woodland 1.7-Humid grassland. Mesophile grassland. Improved grassland
Thursley and Ockley Bogs (RAMSAR/SPA) (SSSIs: Thursley, Hankley & Frensham Commons)	**RAMSAR Convention Criteria** Criterion 2 Rare wetland invertebrate species including breeding dragonflies.(2.2) Criterion 3 (a) Supports all six native reptile species (2.10) (b) The site also supports nationally important breeding populations of European nightjar and woodlark.(3.2) **SPA Habitat Classes** 1.2-Bogs. Marshes. Water fringed vegetation. Fens 1.5-Inland water bodies (standing water, running water) 1.6-Coniferous woodland 1.8-Heath. Scrub.
Thames Basin Heaths (SPA) (SSSI's: Heath Brow, Whitmoor Common, Horsell Common, Hazeley Heath, Castle Bottom to Yately and Hawley Commons, Sandhurst to Owlsmoor Bogs and Heaths, Broadmoor to Bagshot Woods and Heaths, Ash to Brookwood Heaths, Bramshill, Ockham and Wisley Commons, Colony Bog and Bagshot Heaths, Bourley and Long Valley, Basingstoke Canal, Chobham Common, Eelmoor Marsh, Mucking Flats and Marshes)	**SPA Habitat Classes** 1.2-Bogs. Marshes. Water fringed vegetation. Fens 1.5-Inland water bodies (standing water, running water) 1.6-Broad-leaved deciduous woodland, Coniferous woodland. Mixed woodland 1.8-Heath. Scrub.
Wealden Heaths Phase II (SPA) (SSSIs: Bromshott and Ludshott Commons, Devil's Punchbowl, Broxhead and Kingsley Commons, Woolmer Forest)	**SPA Habitat Classes** 1.2-Bogs. Marshes. Water fringed vegetation. Fens 1.5-Inland water bodies (standing water, running water) 1.6-Broad-leaved deciduous woodland. Coniferous woodland Mixed woodland 1.7-Dry grassland. Steppes, Improved grassland 1.8-Heath. Scrub.
Thursley, Hankley and Frensham Commons (Wealden Heaths Phase I) (SPA) (SSSIs: Thursley, Hankley and Frensham Commons)	**SPA Habitat Classes** 1.2-Bogs. Marshes. Water fringed vegetation. Fens 1.5-Inland water bodies (standing water, running water) 1.6-Broad-leaved deciduous woodland-Coniferous woodland-Mixed woodland 1.8-Heath. Scrub. Maquis and garrigue. Phygrana

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Chilterns Beechwoods (SAC) (SSSIs: Hollowhill and Pullingshill Woods, Bradenham Woods, Park Wood and The Coppice, Bisham Woods, Ellesborough and Kimble Warrens, Naphill Common, Windsor Hill, Ashridge Commons and Woods, Tring Woodlands, Aston Rowant Woods)	**SAC Features** 1.3 Alder woodland on floodplains. 1.6 Asperulo-Fagetum beech forests-Beech forests on neutral to rich soils. 1.7-Semi-natural dry grasslands and scrubland 1.8-Juniperus communis formations on heaths or calcareous grasslands 2.10-Triturus cristatus-Great crested newt. 2.7 -Lucanus cervus-Stag beetle.
Cothill Fen (SAC) (SSSIs Cothill Fen)	**SAC Features** 1.2 -Alkaline fens-Calcium-rich springwater-fed fens. 1.3 Alder woodland on floodplains. 1.7-Semi-natural dry grasslands and scrubland 2.2-Coenagrion mercuriale-Southern damselfly.
East Hampshire Hangers (SAC) (SSSIs: Upper Greensand Hangers: Empshott to Hawkley, Wick Wood and Worldham Hangers, Upper Greensand Hangers: Wyck to Wheatley, Noar Hill, Selborne Common, Wealden Edge Hangers, Coombe Wood and The Lythe)	**SAC Features**. 1.6 Yew-dominated woodland. 1.6-Asperulo-Fagetum beech forests-Beech forests on neutral to rich soils. 1.6-Tilio-Acerion forests of slopes, screes and ravines-. 1.7-Semi-natural dry grasslands and scrubland 1.7-Semi-natural dry grasslands and scrubland (important orchid sites) 2.10-Triturus cristatus-Great crested newt.
Epping Forest (SAC) (SSSI Epping Forest)	**SAC Features** 1.2- -Wet heathland with cross-leaved heath. 1.6-Atlantic acidophilous beech forests 1.8-European dry heaths-. 2.10-Triturus cristatus-Great crested newt. 2.7-Lucanus cervus-Stag beetle.
Hartslock Wood (SAC) (SSSI Hartslock Wood)	**SAC Features** 1.6- -Yew-dominated woodland. 1.7-Semi-natural dry grasslands and scrubland (important orchid sites)
Kennet and Lamboune Floodplain (SAC) (SSSIs: Thatcham Reed Beds, Kennet and Lambourn Floodplain, Boxford Water Meadows, Chilton Foliat Meadows)	**SAC Features** 1.3 Alder woodland on floodplains. 2.2-Vertigo moulinsiana-Desmoulin`s whorl snail.
Kennet Valley Alderwoods (SAC) (SSSI Kennet Valley Alderwoods)	**SAC Features** 1.3 Alder woodland on floodplains
Little Whitenham (SAC) (SSSI Little Whitenham)	**SAC Features** 2.10-Triturus cristatus-Great crested newt.
Mole Gap to Reigate Escarpment (SAC) (SSSI : Mole Gap to Reigate Escarpment)	**SAC Features** 1.6-Beech forests on neutral to rich soils. 1.6-Juniperus communis formations on heaths or calcareous grasslands 1.7 Natural box scrub. 1.7-Semi-natural dry grasslands and (important orchid

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	sites)- 1.7-Semi-natural dry grasslands and scrubland 1.8-European dry heaths. 2.10-Triturus cristatus-Great crested newt. 2.8 Yew-dominated woodland. 2.8-Myotis bechsteini-Bechstein`s bat. 2.8-Rhinolophus ferrumequinum-Greater horseshoe bat.
North Meadow and Clattinger Farm (SAC) (SSSIs: Clattinger Farm, North Meadow, Cricklade)	**SAC Features** 1.7-Lowland hay meadows
Oxford Meadows (SAC) (SSSIs: Cassington Meadows, Wolvercote Meadows, Port Meadow with Wolvercote Common and Green, Pixey and Yarnton Meads)	**SAC Features** 1.7 Lowland hay meadows 2.4 - Apium repens-Creeping marshwort.
Richmond Park (SAC) (SSSI Richmond park)	**SAC Features** 2.7- Lucanus cervus-Stag beetle.
River Lambourne (SAC) (SSSI :River Lambourne)	**SAC Features** 1.3 -Rivers with floating vegetation often dominated by water-crowfoot. 2.6- Lampetra planeri - Brook lamprey. 2.6 - Cottus gobio - Bullhead.
Shortheath Common (SAC) (SSSI Shortheath Common)	**SAC Features** 1.2-Bog woodland 1.2-Transition mires and quaking bogs 1.4-Natural dystrophic lakes and ponds 1.8-European dry heaths
Thursley, Ash, Pirbright and Chobham (SAC) (SSSIs: Ash to Brookwood Heaths, Thursley, Hankley and Frensham Commons, Colony Bog and Bagshot Heath, Chobham Common)	**SAC Features** 1.8-European dry heaths. 1.2 -Wet heathland with cross-leaved heath. 1.6 Atlantic acidophilous beech forests 1.2 -Alder woodland on floodplains. 2.10-Triturus cristatus-Great crested newt.
Wimbledon common (SAC) (SSSI Wimbledon Common)	**SAC Features** 1.2 Wet heathland with cross-leaved heath. 1.8-European dry heaths
Windsor Forest and Great Park (SAC) (SSSIs: Windsor Forest, Windsor Great Park)	**SAC Features** 2.7-Limoniscus violaceus-Violet click beetle. 1.6-Old acidophilous oak woods with Quercus robur on sandy plains. 2.7-Lucanus cervus-Stag beetle. 1.6-Atlantic acidophilous beech forests
Wormley-Hoddesdonpark Woods (SAC)	**SAC Features** 1.6-Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli

5. Is the proposal directly connected with or necessary to the management of the site for nature conservation?	No

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6. What potential hazards are likely to affect the interest features? (Refer to relevant sensitivity matrix and only include those to which the interest features are sensitive). **Are the interest features potentially exposed to the hazard?**

Sensitive Interest Features:	**Potential hazard:**	**Potential exposure to hazard and mechanism of effect/impact if known:**
Lee Valley (RAMSAR / SPA) Critierion 2 - 2.2 Invertebrates of wet habitats Criterion 6 - 3.6 Lowland freshwater birds 1.5 Inland water bodies (standing water, running water) 1.2 Bogs. Marshes. Water fringed vegetation. Fens 1.7 Humid grassland. Mesophile grassland Improved grassland 1.6-Broad-leaved deciduous woodland	**Lower Lee – P5** *Reduce the risk – lower the probability of exposure to flooding and/or the magnitude of the consequences of a flood and hence the risk* **Middle Lee and Stort – P6** *Take action to increase the frequency of flooding to deliver benefits locally or elsewhere* • **Habitat loss/Physical Damage** • **Reduced flood frequency and extent,** • **Changes to flow and velocity regime,** • **Changes in hydrological regime,** • **Changes to physical regime,** • **Turbidity,** • **Changes to water chemistry**.	Raising and widening of existing river structures or construction of new structures to decrease current level of flood risk has the potential to result in the direct loss of habitat in the plan footprint. **Potential Significant Effect** The water dependant habitats will be sensitive to decreases or increases in flood frequency and extent **Potential Significant Effect** Water dependant features maybe affected by long term changes to hydrological or physical regime **Potential Significant Effect** Changes to flow and velocity regime, turbidity, changes to water chemistry: Features are unlikely. to be affected by short term changes associated with flood events. **No Likely Significant Effect**
South West London Water bodies (RAMSAR / SPA) Criterion 6 - 3.6 Lowland freshwater birds 1.5 Inland water bodies (standing water, running water) 1.2 Bogs. Marshes. Water fringed vegetation. Fens 1.7 Humid grassland. Mesophile grassland Improved grassland 1.6-Broad-leaved deciduous woodland	**Lower Thames –P5** *Reduce the risk – lower the probability of exposure to flooding and/or the magnitude of the consequences of a flood and hence the risk* • **Habitat loss/Physical Damage** • **Reduced flood frequency and extent,** • **Changes to flow and velocity regime,** • **Changes in hydrological regime,** • **Changes to physical regime,** • **Turbidity,** • **Changes to water chemistry**.	Raising and widening of existing river structures or construction of new structures to decrease current level of flood risk has the potential to result in the direct loss of habitat in the plan footprint. **Potential Significant Effect** The water dependant habitats will be sensitive to decreases in flood frequency and extent **Potential Significant Effect** Water dependant features maybe affected by long term changes to hydrological or physical regime **Potential Significant Effect** Changes to flow and velocity regime, turbidity, changes to water chemistry: Features are unlikely. to be affected by short term changes associated with flood events. **No Likely Significant Effect**

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Thursley and Ockley Bogs (RAMSAR/SPA) Criterion 2 breeding dragonflies.(2.2) Criterion 3 native reptile species (2.10) European nightjar and woodlark.(3.2) 1.2-Bogs. Marshes. Water fringed vegetation. Fens 1.5-Inland water bodies (standing water, running water) 1.6-Coniferous woodland 1.8-Heath. Scrub.	**Rural Wey –P2** *Accept the risk – reduce existing flood risk management actions* • **Increased flood frequency and extent,** • **Changes to flow and velocity regime,** • **Changes in hydrological regime,** • **Changes to physical regime,** • **Changes to water chemistry**.	The drier habitats will be sensitive to any increase in flood risk. **Potential Significant Effect** The water dependant habitats will be sensitive to changes in flood frequency and extent **Potential Significant Effect** Water dependant features maybe affected by long term changes to hydrological or physical regime **Potential Significant Effect** Changes to flow and velocity regime, turbidity, changes to water chemistry: Features are unlikely. to be affected by short term changes associated with flood events. **No Likely Significant Effect** .
Thames Basin Heaths (SPA) 1.2-Bogs. Marshes. Water fringed vegetation. Fens 1.5-Inland water bodies (standing water, running water) 1.6-Broad-leaved deciduous woodland, Coniferous woodland. Mixed woodland 1.8-Heath. Scrub. places, mines, industrial sites)	**Hoe stream – P5** *Reduce the risk – lower the probability of exposure to flooding and/or the magnitude of the consequences of a flood and hence the risk* **Loddon – P6** *Take action to increase the frequency of flooding to deliver benefits locally or elsewhere* **Upper and Middle Blackwater – P4** *Accept the risk – but in the longer term take action to ensure that risk does not increase from current level* • **Habitat loss/Physical Damage** • **Reduced flood frequency and extent,** • **Changes to flow and velocity regime,** • **Changes in hydrological regime,** • **Changes to physical regime,** • **Turbidity,** • **Changes to water chemistry**.	Raising and widening of existing river structures or construction of new structures to decrease current level of flood risk has the potential to result in the direct loss of habitat in the plan footprint. **Potential Significant Effect** The water dependant habitats will be sensitive to decreases or increases in flood frequency and extent **Potential Significant Effect** Water dependant features maybe affected by long term changes to hydrological or physical regime **Potential Significant Effect** Changes to flow and velocity regime, turbidity, changes to water chemistry: Features are unlikely to be affected by changes associated with reducing flood risk **No Likely Significant Effect** In the Upper and Middle Blackwater only: No change in current regime Habitats are not sensitive to the delivery of actions within the Policy Unit. **No Likely Significant Effect.**

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Wealden Heaths Phase II (SPA) 1.2-Bogs. Marshes. Water fringed vegetation. Fens 1.5-Inland water bodies (standing water, running water) 1.6-Broad-leaved deciduous woodland. Coniferous woodland Mixed woodland 1.7-Dry grassland. Steppes, Improved grassland 1.8-Heath. Scrub.	**Rural Wey –P2** *Accept the risk – reduce existing flood risk management actions* • **Increased flood frequency and extent,** • **Changes to flow and velocity regime,** • **Changes in hydrological regime,** • **Changes to physical regime,** • **Turbidity,** • **Changes to water chemistry**.	The drier habitats will be sensitive to any increase in flood risk. **Potential Significant Effect** The water dependant habitats will be sensitive to changes in flood frequency and extent **Potential Significant Effect** Water dependant features maybe affected by long term changes to hydrological or physical regime **Potential Significant Effect** Changes to flow and velocity regime, turbidity:, changes to water chemistry; Features are unlikely to be affected by short term changes associated with flood events. **No Likely Significant Effect**
Thursley, Hankley and Frensham Commons (Wealden Heaths Phase I) (SPA) 1.5 Inland water bodies (standing water, running water) 1.2-Bogs. Marshes. Water fringed vegetation. Fens 1.8-Heath. Scrub. Maquis and garrigue. Phygrana 1.6-Broad-leaved deciduous woodland 1.6 Coniferous woodland 1.6-Mixed woodland	**Rural Wey –P2** *Accept the risk – reduce existing flood risk management actions* • **Increased flood frequency and extent,** • **Changes to flow and velocity regime,** • **Changes in hydrological regime,** • **Changes to physical regime,** • **Turbidity,** • **Changes to water chemistry**.	The drier habitats will be sensitive to any increase in flood risk. **Potential Significant Effect** The water dependant habitats will be sensitive to changes in flood frequency and extent **Potential Significant Effect** Water dependant features maybe affected by long term changes to hydrological or physical regime **Potential Significant Effect** Changes to flow and velocity regime, turbidity:, changes to water chemistry; Features are unlikely. to be affected by short term changes associated with flood events. **No Likely Significant Effect**
Chilterns Beechwoods (SAC) 1.3 Alder woodland on floodplains. 1.6 Asperulo-Fagetum beech forests-Beech forests on neutral to rich soils. 1.7-Semi-natural dry grasslands and scrubland 1.8-Juniperus communis formations on heaths or calcareous grasslands 2.10-Triturus cristatus-Great crested newt. 2.7 -Lucanus cervus-Stag beetle.	**Thame – P3** *Accept the risk – our current scale of actions is sufficient to manage the current risk and future increases will be acceptable*	No change in current regime Habitats are not sensitive to the delivery of actions within the Policy Unit. **No Likely Significant Effect**

Cothill Fen (SAC) 1.2 -Alkaline fens-Calcium-rich springwater-fed fens. 1.3 Alder woodland on floodplains. 1.7-Semi-natural dry grasslands and scrubland 2.2-Coenagrion mercuriale-Southern damselfly.	**Ock –P6** *Take action to increase the frequency of flooding to deliver benefits locally or elsewhere* • **Habitat loss/Physical Damage** • **Increased flood frequency and extent** • **Changes to flow and velocity regime,** • **Changes in hydrological regime,** • **Changes to physical regime,** • **Turbidity,** • **Changes to water chemistry**.	Raising and widening of existing river structures or construction of new structures to change the level of flood risk has the potential to result in the direct loss of habitat in the plan footprint. **Potential Significant Effect** The water dependant habitats will be sensitive to changes in flood frequency and extent **Potential Significant Effect** The drier habitats will be sensitive to any increase in flood risk. **Potential Significant Effect** Water dependant features maybe affected by long term changes to hydrological or physical regime **Potential Significant Effect** Changes to flow and velocity regime, turbidity, changes to water chemistry: Features are unlikely. to be affected by short term changes associated with flood events. **No Likely Significant Effect**
East Hampshire Hangers (SAC) 1.6 Yew-dominated woodland. 1.6-Asperulo-Fagetum beech forests-Beech forests on neutral to rich soils. 1.6-Tilio-Acerion forests of slopes, screes and ravines-. 1.7-Semi-natural dry grasslands and scrubland 1.7-Semi-natural dry grasslands and scrubland (important orchid sites) 2.10-Triturus cristatus-Great crested newt.	**Rural Wey –P2** *Accept the risk – reduce existing flood risk management actions* • **Increased flood frequency and extent** • **Changes to flow and velocity regime,** • **Changes in hydrological regime,** • **Changes to physical regime,** • **Turbidity,** • **Changes to water chemistry**.	Habitats are upland in nature and are not sensitive to the delivery of actions within the Policy Unit. **No Likely Significant Effect.**

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Epping Forest (SAC) 1.2- -Wet heathland with cross-leaved heath. 1.6-Atlantic acidophilous beech forests 1.8-European dry heaths-. 2.10-Triturus cristatus-Great crested newt. 2.7-Lucanus cervus-Stag beetle)	**Lower Lee tributaries–P6** **Upper Roding – P6** *Take action to increase the frequency of flooding to deliver benefits locally or elsewhere* • **Habitat loss/Physical Damage** • **Increased flood frequency and extent,** • **Changes to flow and velocity regime,** • **Changes in hydrological regime,** • **Changes to physical regime,** • **Turbidity,** • **Changes to water chemistry**.	Raising and widening of existing river structures or construction of new structures to change the level of flood risk has the potential to result in the direct loss of habitat in the plan footprint. **Potential Significant Effect** The water dependant habitats will be sensitive to changes in flood frequency and extent **Potential Significant Effect** The drier habitats will be sensitive to any increase in flood risk. **Potential Significant Effect** Water dependant features maybe affected by long term changes to hydrological or physical regime **Potential Significant Effect** Changes to flow and velocity regime, turbidity, changes to water chemistry: Features are unlikely. to be affected by short term changes associated with flood events. **No Likely Significant Effect**
Hartslock Wood (SAC) 1.6- -Yew-dominated woodland. 1.7-Semi-natural dry grasslands and scrubland (important orchid sites)	**Sandford to Cookham – P4** *Accept the risk – but in the longer term take action to ensure that risk does not increase from current level*	No change in current regime. Habitats are not sensitive to the delivery of actions within the Policy Unit. **No Likely Significant Effect.**

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Kennet and Lamboune Floodplain (SAC) 1.3 Alder woodland on floodplains. 2.2-Vertigo moulinsiana-Desmoulin`s whorl snail.	**Kennet –P6** *Take action to increase the frequency of flooding to deliver benefits locally or elsewhere* • **Habitat loss/Physical Damage** • **Increased flood frequency and extent** • **Changes to flow and velocity regime,** • **Changes in hydrological regime,** • **Changes to physical regime,** • **Physical damage,** • **Turbidity,** • **Changes to water chemistry**.	Raising and widening of existing river structures or construction of new structures to change the level of flood risk has the potential to result in the direct loss of habitat in the plan footprint. **Potential Significant Effect** The water dependant habitats will be sensitive to changes in flood frequency and extent **Potential Significant Effect** Water dependant features maybe affected by long term changes to hydrological or physical regime **Potential Significant Effect** Changes to flow and velocity regime, turbidity, changes to water chemistry: Features are unlikely. to be affected by short term changes associated with flood events. **No Likely Significant Effect**
Kennet Valley Alderwoods (SAC) 1.3 Alder woodland on floodplains	**Kennet –P6** *Take action to increase the frequency of flooding to deliver benefits locally or elsewhere* • **Increased flood frequency and extent** • **Changes to flow and velocity regime,** • **Changes in hydrological regime,** • **Changes to physical regime,** • **Turbidity,** • **Changes to water chemistry**.	Raising and widening of existing river structures or construction of new structures to change the level of flood risk has the potential to result in the direct loss of habitat in the plan footprint. **Potential Significant Effect** The water dependant habitats will be sensitive to changes in flood frequency and extent **Potential Significant Effect** Water dependant features maybe affected by long term changes to hydrological or physical regime **Potential Significant Effect** Changes to flow and velocity regime, turbidity, changes to water chemistry: Features are unlikely. to be affected by short term changes associated with flood events. **No Likely Significant Effect**
Little Whitenham (SAC) 2.10-Triturus cristatus-Great crested newt.	**Sandford to Cookham – P4** *Accept the risk – but in the longer term take action to ensure that risk does not increase from current level*	No change in current regime Habitats are not sensitive to the delivery of actions within the Policy Unit. **No Likely Significant Effect.**

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Mole Gap to Reigate Escarpment (SAC) 1.6-Beech forests on neutral to rich soils. 1.6-Juniperus communis formations on heaths or calcareous grasslands 1.7 Natural box scrub. 1.7-Semi-natural dry grasslands and (important orchid sites)- 1.7-Semi-natural dry grasslands and scrubland 1.8-European dry heaths. 2.10-Triturus cristatus-Great crested newt. 2.8 Yew-dominated woodland. 2.8-Myotis bechsteini-Bechstein`s bat. 2.8-Rhinolophus ferrumequinum-Greater horseshoe bat.	**Middle Mole – P3** *Accept the risk – but in the longer term take action to ensure that risk does not increase from current level*	Habitats are upland in nature and are not sensitive to the delivery of actions within the Policy Unit. **No Likely Significant Effect.**
North Meadow and Clattinger Farm (SAC) 1.7-Lowland hay meadows	**Upper Thames –P6** *Take action to increase the frequency of flooding to deliver benefits locally or elsewhere* • **Habitat loss/Physical Damage** • **Increased flood frequency and extent ,** • **Changes to flow and velocity regime,** • **Changes in hydrological regime,** • **Changes to physical regime,** • **Turbidity,** • **Changes to water chemistry**.	Raising and widening of existing river structures or construction of new structures to sustain or increase current level of flood risk has the potential to result in the direct loss of habitat in the plan footprint. **Potential Significant Effect** These drier habitats will be sensitive to any increase in flood risk. **Potential Significant Effect** Water dependant features maybe affected by long term changes to hydrological or physical regime **Potential Significant Effect** Changes to flow and velocity regime, turbidity, changes to water chemistry: Features are unlikely. to be affected by short term changes associated with flood events. **No Likely Significant Effect**

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Oxford Meadows (SAC) 1.7 Lowland hay meadows 2.4 - Apium repens-Creeping marshwort.	**Upper Thames –P6** *Take action to increase the frequency of flooding to deliver benefits locally or elsewhere* • **Habitat loss/Physical Damage** • **Increased flood frequency and extent ,** • **Changes to flow and velocity regime,** • **Changes in hydrological regime,** • **Changes to physical regime,** • **Turbidity,** • **Changes to water chemistry**.	Raising and widening of existing river structures or construction of new structures to change the level of flood risk has the potential to result in the direct loss of habitat in the plan footprint. **Potential Significant Effect** The drier habitats will be sensitive to any increase in flood risk. **Potential Significant Effect** The water dependant habitats will be sensitive to changes in flood frequency and extent **Potential Significant Effect** Water dependant features maybe affected by long term changes to hydrological or physical regime **Potential Significant Effect** Changes to flow and velocity regime, turbidity, changes to water chemistry: Features are unlikely to be affected by short term changes associated with flood events. **No Likely Significant Effect**
Richmond Park (SAC) 2.7 - Lucanus cervus -Stag beetle	**Beverley Brook – P4** *Accept the risk – but in the longer term take action to ensure that risk does not increase from current level*	No change in current regime. Habitats are not sensitive to the delivery of actions within the Policy Unit. **No Likely Significant Effect.**
River Lambourn (SAC) 1.3 -Rivers with floating vegetation often dominated by water-crowfoot. 2.6- Lampetra planeri - Brook lamprey. 2.6 - Cottus gobio - Bullhead	**Kennet – P6** *Take action to increase the frequency of flooding to deliver benefits locally or elsewhere* • **Changes to flow and velocity regime,** • **Changes in hydrological regime,** • **Changes to physical regime,** • **Turbidity,** • **Changes to water chemistry**.	Changes to flow and velocity regime, changes to hydrological regime, turbidity, changes to water chemistry: Features are unlikely to be affected by short term changes associated with flood events. Habitats are aquatic and currently subject to in channel flood flows. Policy will not significantly change hydrological regime within the river channel. Site is therefore not sensitive to the delivery of actions within the Policy Unit. **No Likely Significant Effect.**

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Shortheath Common (SAC) 1.2-Bog woodland 1.2-Transition mires and quaking bogs 1.4-Natural dystrophic lakes and ponds 1.8-European dry heaths	**Rural Wey –P2** *Accept the risk – reduce existing flood risk management actions* • **Increased flood frequency and extent** • **Changes to flow and velocity regime,** • **Changes in hydrological regime,** • **Changes to physical regime,** • **Turbidity,** • **Changes to water chemistry**.	The water dependant habitats will be sensitive to changes in flood frequency and extent **Potential Significant Effect** The drier habitats will be sensitive to any increase in flood risk. **Potential Significant Effect** Water dependant features maybe affected by long term changes to hydrological or physical regime **Potential Significant Effect** Changes to flow and velocity regime, turbidity, changes to water chemistry: Features are unlikely to be affected by short term changes associated with flood events. **No Likely Significant Effect**
Thursley, Ash, Pirbright and Chobham (SAC) 1.8-European dry heaths. 1.2 -Wet heathland with cross-leaved heath. 1.6 Atlantic acidophilous beech forests 1.2 -Alder woodland on floodplains. 2.10-Triturus cristatus-Great crested newt	**Rural Wey –P2** Accept the risk – reduce existing flood risk management actions **Hoe stream – P5** *Accept the risk – but in the longer term take action to ensure that risk does not increase from current level* **Addlestone Bourne – P6** *Take action to increase the frequency of flooding to deliver benefits locally or elsewhere* • **Habitat loss/Physical Damage** • **Changes to frequency and extent of flood regime** • **Changes to flow and velocity regime,** • **Changes in hydrological regime,** • **Changes to physical regime,** • **Turbidity,** • **Changes to water chemistry**.	Raising and widening of existing river structures or construction of new structures to change the level of flood risk has the potential to result in the direct loss of habitat in the plan footprint. **Potential Significant Effect** The drier habitats will be sensitive to any increase in flood risk. **Potential Significant Effect** The water dependant habitats will be sensitive to changes in flood frequency and extent **Potential Significant Effect** Water dependant features maybe affected by long term changes to hydrological or physical regime **Potential Significant Effect** Changes to flow and velocity regime, turbidity, changes to water chemistry: Features are unlikely. to be affected by changes associated with reducing flood risk **No Likely Significant Effect**
Wimbledon common (SAC) 1.2 Wet heathland with cross-leaved heath. 1.8-European dry heaths	**Beverley Brook – P4** *Accept the risk – but in the longer term take action to ensure that risk does not increase from current level*	No change in current regime. Habitats are not sensitive to the delivery of actions within the Policy Unit. **No Likely Significant Effect.**

Windsor Forest and Great Park (SAC) 2.7-Limoniscus violaceus-Violet click beetle. 1.6-Old acidophilous oak woods with Quercus robur on sandy plains. 2.7-Lucanus cervus-Stag beetle. 1.6-Atlantic acidophilous beech forests	**Windsor and Maidenhead – P3** *Accept the risk – our current scale of actions is sufficient to manage the current risk and future increases will be acceptable* **Lower Thames - P5** *reduce the risk – lower the probability of exposure to flooding and/or the magnitude of the consequences of a flood and hence the risk*	Habitats are not flood dependant and are therefore not sensitive to the delivery of actions within the Policy Unit. **No Likely Significant Effect.**
Wormley-Hoddesdonpark Woods (SAC) 1.6-Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	**Lower Lee Tributaries – P6** *Take action to increase the frequency of flooding to deliver benefits locally or elsewhere*	Habitats are not flood dependant and are therefore not sensitive to the delivery of actions within the Policy Unit. **No Likely Significant Effect.**

10. Is the potential scale or magnitude of any effect likely to be significant?	
a) Alone? (explain conclusion, e.g. in relation to de minimis criteria)	**Yes** Due to the broad scale nature of the CFMP, with no specified works having any geographical or hydrological connection with any of the designated sites, we believe that environmentally acceptable (and in places beneficial) approaches to delivering the CFMP policies can be developed. However at this stage **we cannot conclude that there will be no likely Significant Effect**
b) In combination with other Environment Agency permissions and/or other plans or projects?	**Yes** • North Meadow WLMP • Clattinger Farm WLMP • Cassington Meadows WLMP • Pixey & Yarnton Meads WLMP • Wolvercote Meadows WLMP • Port Meadow with Wolvercote Common & Green WLMP • Shortheath Common WLMP • Thursley, Hankley & Frensham Commons WLMP
c) In combination with permissions and/or plans/projects of other Competent Authorities?	As a result of its risk assessment, the Environment Agency can conclude that: This plan could act in combination with permissions and/or plans/projects of other competent authorities, e.g. **London Plan** **South East of England Regional Plan** **GOSE Plan, North West Regional Spatial Strategy** **Local Authority Local Development Frameworks**

APPENDIX 1

11. Conclusion: **Is the proposal likely to have a Significant Effect 'alone and/or in combination' on a European site?**	**Yes** The plan could result in a range of unspecified land management and flood risk management actions and alterations to existing maintenance regimes that could affect the designated sites, as assessed above. We believe that environmentally acceptable (and in places beneficial) approaches to delivering the CFMP policies can be developed. However at this stage **we cannot conclude that there will be no likely Significant Effect**	
12. Justification for Reduced Consultation review process :	CFMPs are undergoing a comprehensive process of consultation. Natural England has been involved in every stage of this CFMP's development.	
13. Name of EA Officer:	Glen Westmore	Date: May 2008
14. Natural England comment on assessment:	Natural England is in agreement with the conclusion of this assessment.	
15. Name of Natural England Officer:	Russ Money	Date: 30/06/2008
IF THE PROPOSAL IS LIKELY TO HAVE A SIGNIFICANT EFFECT AN APPROPRIATE ASSESSMENT WILL BE REQUIRED (see part B for suggested scope).		

Form HR02: Proforma for FRM stage 3 Appropriate Assessment

Part A: Technical consideration

1 Table 1 – Plan details

Type of plan:	**Thames Catchment Flood Management Plan (CFMP)**						
Plan Elements/Components (Protected Site)	**Habitat Loss / Physical Damage**	**Changes in Flood inundation / frequency**	**Changes to Flow and velocity regime**	**Changes to Hydrological Regime**	**Changes in Physical Regime**	**Turbidity**	**Changes to Water Chemistry**
Addlestone Bourne – P6 *Take action to increase the frequency of flooding to deliver benefits locally or elsewhere* - Thursley, Ash, Pirbright and Chobham (SAC)	✓	✓	×	✓	✓	×	×
Hoe Stream –– P5 *Reduce the risk – lower the probability of exposure to flooding and/or the magnitude of the consequences of a flood and hence the risk* - Thames Basin Heaths (SPA) - Thursley, Ash, Pirbright and Chobham (SAC)	✓	✓	×	✓	✓	×	×
Lower Lee – P5 *Reduce the risk – lower the probability of exposure to flooding and/or the magnitude of the consequences of a flood and hence the risk* - Lee Valley (RAMSAR / SPA)	✓	✓	×	✓	✓	×	×
Lower Lee tributaries–P6 *Take action to increase the frequency of flooding to deliver benefits locally or elsewhere* **-** Epping Forest (SAC)	✓	✓	×	✓	✓	×	×
Lower Thames –P5 *Reduce the risk – lower the probability of exposure to flooding and/or the magnitude of the consequences of a flood and hence the risk* - South West London Water bodies (RAMSAR / SPA)	✓	✓	×	✓	✓	×	×
Middle Lee and Stort – P6 *Take action to increase the frequency of flooding to deliver benefits locally or elsewhere* **-** Lee Valley (RAMSAR / SPA)	✓	✓	×	✓	✓	×	×
Ock –P6 *Take action to increase the frequency of flooding to deliver benefits locally or elsewhere* - Cothill Fen (SAC)	✓	✓	×	✓	✓	×	×
Kennet- Policy -P6 *Take action to increase the frequency of flooding to deliver benefits locally and/or reduce the risk elsewhere* - Kennet and Lambourn Floodplain (SAC) - Kennet Valley Alderwoods (SAC)	✓	✓	×	✓	✓	×	×
Upper Thames - P6 *Take action to increase the frequency of flooding to deliver benefits locally and/or reduce the risk elsewhere* - North Meadow and Clattinger Farm (SAC) - Oxford Meadows (SAC)	✓	✓	×	✓	✓	×	×

Rural Wey –P2 *Accept the risk – reduce existing flood risk management actions* - Thursley and Ockley Bogs (SPA) - Shortheath Common (SAC) - Thursley, Hankley and Frensham Commons (Wealden Heaths Phase I) (SPA) - Thursley, Ash, Pirbright and Chobham (SAC) - Wealden Heaths Phase II (SPA)	×	✓	×	✓	✓	×	×
Upper Roding – P6 *Take action to increase the frequency of flooding to deliver benefits locally or elsewhere* **-** Epping Forest (SAC**)**	✓	✓	×	✓	✓	×	×

2 Table 2 - Features List:

Features	Plan has associated hazards to which features are sensitive?	Details of Hazard (plan component reference)
Lee Valley (RAMSAR / SPA)		
2.2 Invertebrates of wet habitats	✓	• **Habitat loss/Physical Damage** • **Reduced flood frequency and extent,** • **Changes to physical regime,** • **Changes in hydrological regime,**
3.6 Birds of freshwater and their margins	✓	
1.5 Inland water bodies (standing water, running water)	✓	
1.2 Bogs. Marshes. Water fringed vegetation. Fens	✓	
1.7 Improved grassland	✓	
1.6 Broad-leaved deciduous woodland	✓	
South West London Water bodies (RAMSAR / SPA)		
3.6 Birds of freshwater and their margins	✓	• **Habitat loss/Physical Damage** • **Reduced flood frequency and extent,** • **Changes to physical regime,** • **Changes in hydrological regime,**
1.5 Inland water bodies (standing water, running water)	✓	
1.2 Bogs. Marshes. Water fringed vegetation. Fens	✓	
1.7 Improved grassland	✓	
1.6 Broad-leaved deciduous woodland	✓	
Thursley and Ockley Bogs (RAMSAR/SPA)		
2.2. Wetland invertebrate species	✓	• **Increased flood frequency and extent,** • **Changes in hydrological regime,** • **Changes to physical regime,**
2.10 All six native reptile species.	✓	
3.2 Birds of Woodland and scrub	✓	
1.5 Inland water bodies (standing water, running water)	✓	
1.8 Dry heathland Habitats	✓	
1.2 Bogs. Marshes. Water fringed vegetation. Fens	✓	
1.7 Improved grassland	✓	
1.6 Broad-leaved deciduous woodland	✓	
Thames Basin Heaths (SPA)		
1.5 Inland water bodies (standing	✓	• **Habitat loss/Physical Damage** • **Reduced flood frequency and extent,** • **Changes to physical regime,** • **Changes in hydrological regime,**
water, running water)	✓	
1.8 Dry heathland Habitats	✓	
1.2 Bogs. Marshes. Water fringed vegetation. Fens	✓	
1.7 Improved grassland	✓	
1.6 Broad-leaved deciduous woodland	✓	

Thursley, Hankley and Frensham Commons (Wealden Heaths Phase I) (SPA)		
1.5 Inland water bodies (standing water, running water)	✓	• **Increased flood frequency and extent,** • **Changes in hydrological regime,** • **Changes to physical regime,**
1.2-Bogs. Marshes. Water fringed vegetation. Fens		
1.8 Dry heathland Habitats		
1.6-Broad-leaved deciduous woodland		
1.6 Coniferous woodland		
1.6-Mixed woodland		
Wealden Heaths Phase II (SPA)		
1.5 Inland water bodies (standing water, running water)	✓	• **Increased flood frequency and extent,** • **Changes in hydrological regime,** • **Changes to physical regime,**
1.8 Dry heathland Habitats	✓	
1.2 Bogs. Marshes. Water fringed vegetation. Fens	✓	
1.7 Improved grassland	✓	
1.6 Broad-leaved deciduous woodland	✓	
Cothill Fen (SAC)		
2.2 Invertebrates of wet habitats-Southern damselfly.	✓	• **Habitat loss/Physical Damage** • **Reduced flood frequency and extent,** • **Changes in hydrological regime,** • **Changes to physical regime,**
1.3 Alder woodland on floodplains.	✓	
1.2 Alkaline fens-Calcium-rich springwater-fed fens.	✓	
1.7 Semi-natural dry grasslands and scrubland facies: on calcareous substrates	✓	
Epping Forest (SAC)		
1.8 European dry heaths-Dry heaths.	✓	• **Habitat loss/Physical Damage** • **Reduced flood frequency and extent,** • **Changes in hydrological regime,** • **Changes to physical regime,**
2.10 Triturus cristatus-Great crested newt.	✓	
2.2 Northern Atlantic wet heaths with Erica tetralix-Wet heathland with cross-leaved heath.	✓	
1.6 Atlantic acidophilous beech forests	✓	
Kennet and Lambourn Floodplain (SAC)		
1.3 Alder woodland on floodplains.	✓	• **Habitat loss/Physical Damage** • **Reduced flood frequency and extent,** • **Changes in hydrological regime,** • **Changes to physical regime,**
Kennet Valley Alderwoods (SAC)		
1.3 Alder woodland on floodplains	✓	• **Habitat loss/Physical Damage** • **Reduced flood frequency and extent,** • **Changes in hydrological regime,** • **Changes to physical regime,**
North Meadow and Clattinger Farm (SAC)		
1.7 Lowland hay meadows	✓	• **Habitat loss/Physical Damage**

		• **Changes in flood frequency and extent,** • **Changes in hydrological regime,** • **Changes to physical regime,**
Oxford Meadows (SAC)		
1.7 Lowland hay meadows	✓	• **Habitat loss/Physical Damage** • **Reduced flood frequency and extent,** • **Changes in hydrological regime,** • **Changes to physical regime,**
2.2 wetland plants	✓	
Shortheath Common (SAC)		
1.2 Bog woodland	✓	• **Reduced flood frequency and extent,** • **Changes in hydrological regime,** • **Changes to physical regime,**
1.8 European dry heaths	✓	
1.2 Transition mires and quaking bogs	✓	
1.2 Natural dystrophic lakes and ponds	✓	
Thursley, Ash, Pirbright and Chobham (SAC)		
1.8 European dry heaths-Dry heaths.	✓	• **Habitat loss/Physical Damage** • **Change in flood frequency and extent,** • **Changes in hydrological regime,** • **Changes to physical regime,**
2.2 Northern Atlantic wet heaths with Erica tetralix-Wet heathland with cross-leaved heath	✓	
1.6 Beech forests	✓	
2.2 -Alder woodland on floodplains.	✓	
2.10 Triturus cristatus-Great crested newt.	✓	

3 Introduction:

The Thames Catchment Flood Management Plan (CFMP) proposes flood risk management policies for the whole of the Environment Agency Thames Region. This CFMP is a high level document containing long-term (50-100 years) policies related to flood risk management.

The CFMP cements our understanding of how floods are generated and currently managed, while setting objectives for the future of the CFMP area. In Thames region there are:

- 188,000 properties within the 1% AEP fluvial floodplain
- 283,000 properties at risk from a 0.1% AEP fluvial flood event. This equates to over half a million people.

60% of properties at risk from fluvial flooding are located in the London river catchments, in the Lower Thames and Lower Lee. There are some other major concentrations of people at risk from flooding away from London, for example in Oxford, Reading, the Blackwater Valley, the Colne Valley and Upper Mole.

The main cause of flooding in all these areas is from rivers however there is a growing risk of flooding from sewers and surface water (as witnessed in the flood event of July 2007).

At a regional scale, the main driver of future flood risk for the Thames CFMP is likely to be our changing climate, rather than land management or urbanisation, which are not expected to measurably affect flood risk. However at a more local level, the impacts can be greater.

Six generic CFMP policies (below) have been appraised against six objectives, encapsulating the overall aims and aspirations of flood risk management in this area. Each Policy Unit has then been allocated a single Generic Policy.

Policy 1 – Do Nothing (not used in this CFMP)
Policy 2 - Reduce existing FRM actions
Policy 3 - Continue with current or alternative actions to manage flood risk
Policy 4 - Take further action to sustain the current level of flood risk into the future
Policy 5 – Take further action to reduce flood risk
Policy 6 - Take action to increase the frequency of flooding

Consultation with Natural England has occurred throughout the development of this CFMP

Only those policy units and associated policies where a Likely Significant Effect on a European site(s) could not be screened out at Stage 2 (HRO1), are included in this Appropriate Assessment.

Figure 1 shows the Thames CFMP area and the location of the Natura 2000 sites for which it was shown in Stage 2 that there may be a potential significant effect as a result of the chosen CFMP policy (Form HR01, Table 6). An Appropriate Assessment of these policies has been undertaken, as detailed in Table 4a.

Figure 1 Location of the Natura 2000 sites for which it was shown that there may be a potential significant effect as a result of the chosen CFMP policy

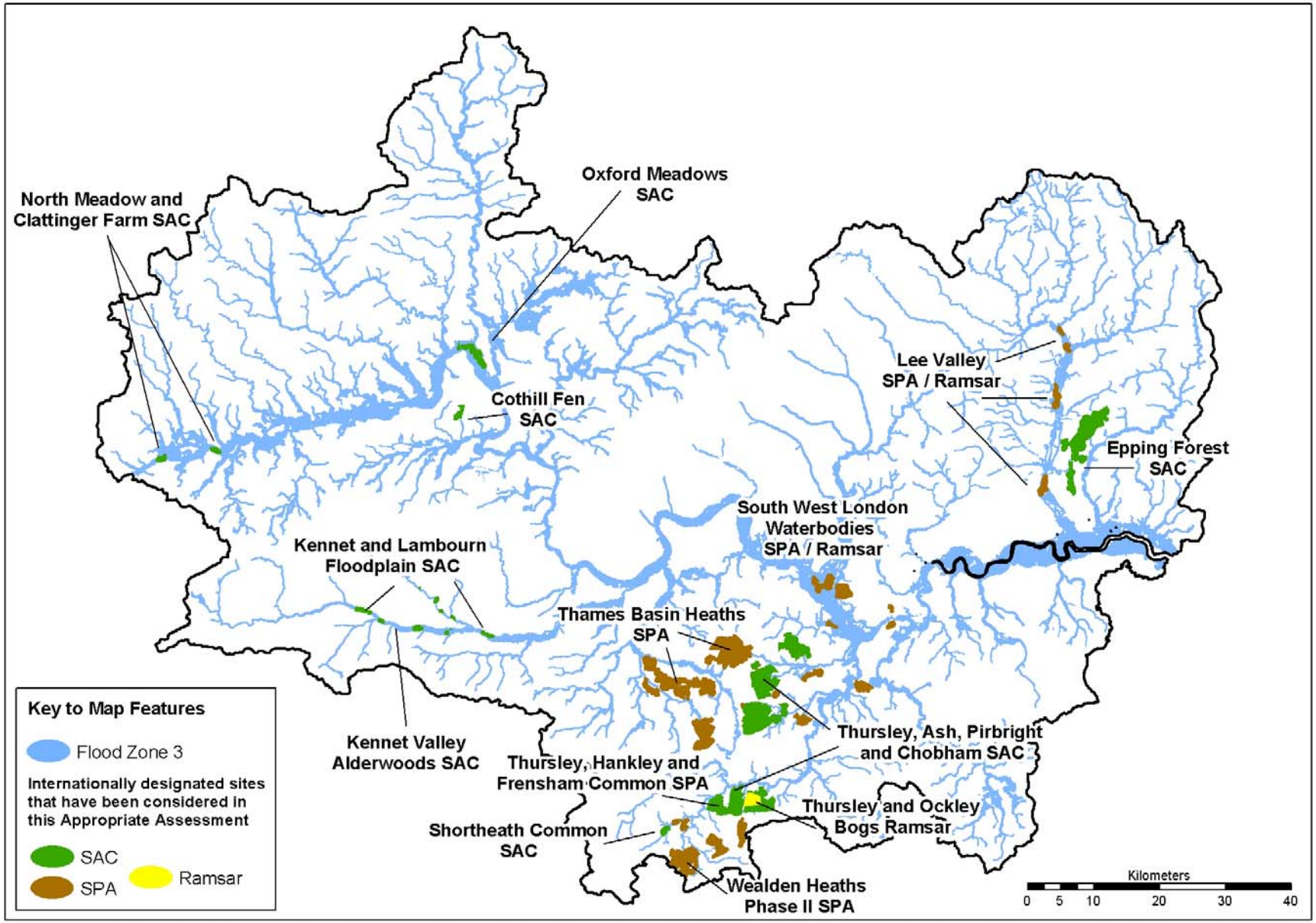


Table 4a Appendix 12: Proforma for Stage 3 (Appropriate Assessment Record) Summarised Conclusions:

Hazard	Interest feature	Favourable condition target for relevant attribute[1] (including range of natural variation) based on conservation objectives	Contribution of attribute[1] to ecological structure and function of site	Contribution of management[2] or other unauthorised sources to attribute and /or feature condition	Adverse Effect of proposal alone and in-combination on attribute[1] and/or feature	Can adverse affects be avoided?	Adverse affect on integrity; long term, short term. Yes, No or uncertain?
Lee Valley (RAMSAR / SPA)							
Habitat loss/Physical Damage **Reduced flood frequency and extent,** **Changes to physical regime,** **Changes in hydrological regime,**	2.2 Invertebrates of wet habitats 3.6 Birds of freshwater and their margins 1.5 Inland water bodies (standing water, running water) 1.2 Bogs. Marshes. Water fringed vegetation. Fens 1.7 Improved grassland 1.6 Broad-leaved deciduous woodland	Maintain habitats to support self sustaining populations Maintain Habitats to sustain breeding bird populations Maintain trophic condition for each standing water type. No deterioration in long term water quality or fluctuation of water table outside of acceptable limits. Bog water should be stagnant and close to ground level and indicative of anaerobic conditions Maintain extent and composition of sward Maintain extent and composition of vegetation communities	Whole site is affected by eutrophic water quality and is dependent on ground water levels. Site is also reliant on freshwater flows through the site.	Habitat Management on site and surrounding hydrological catchments Catchment Land use, hydrological changes leading to changes in flooding, water level and water quality Groundwater levels managed to prevent over abstraction	Alone: *There is a possibility of damage due to chosen policy – Reduced flood risk may effect water dependent features* In combination: *Site Habitat management.* *Catchment Management, Land use and development* *Climate change*	**UNABLE TO CONCLUDE EITHER ADVERSE OR NO ADVERSE EFFECT** Due to the lack of detail within the CFMP concerning specific works and their effects on site integrity, these issues can only be addressed at the project level. Any identified adverse effects will be avoided where possible. Careful scheme design and location will aim to ensure that projects undertaken will not adversely affect the hydrological or physical site regimes. Where possible no works will take place within the site boundaries. Any works undertaken within the site boundaries will take adequate regard for the protection of the designated features	***UNCERTAIN***

Hazard	Interest feature	Favourable condition target for relevant attribute[1] (including range of natural variation) based on conservation objectives	Contribution of attribute[1] to ecological structure and function of site	Contribution of management[2] or other unauthorised sources to attribute and /or feature condition	Adverse Effect of proposal alone and in-combination on attribute[1] and/or feature	Can adverse affects be avoided?	Adverse affect on integrity; long term, short term. Yes, No or uncertain?
South West London Water bodies (RAMSAR / SPA)							
Habitat loss/Physical Damage **Reduced flood frequency and extent,** **Changes to physical regime,** **Changes in hydrological regime,**	3.6 Birds of freshwater and their margins 1.5 Inland water bodies (standing water, running water) 1.2 Bogs. Marshes. Water fringed vegetation. Fens 1.7 Improved grassland 1.6 Broad-leaved deciduous woodland	Maintain Habitats to sustain breeding bird populations Maintain trophic condition of standing water type. No deterioration in long term water quality or fluctuation of water table outside acceptable limits. Bog water should be stagnant and close to ground level and indicative of anaerobic conditions Maintain extent and composition of sward and vegetation communities	Floodwaters entering still water bodies may have a significant negative impact on the water quality and the biology in the water bodies Sites are reliant in groundwater levels and flow through drainage channels	Habitat Management on site and surrounding hydrological catchments Catchment Land use, hydrological changes leading to changes in flooding, water level and water quality Water levels are managed through use of control structures	Alone: *There is a possibility of damage due to chosen policy – Reduced flood risk may effect water dependent features* In combination: *Site Habitat management.* *Catchment Management, Land use and development* *Climate change*	**UNABLE TO CONCLUDE EITHER ADVERSE OR NO ADVERSE EFFECT** This is being fully considered in the more detailed Lower Thames Strategy. The associated appropriate assessment will investigate and determine any significant effects. It will also provide for any mitigating or compensatory measures required.	***UNCERTAIN***
Thursley and Ockley Bogs (RAMSAR/SPA)							
Increased flood frequency and extent, **Changes in hydrological regime,** **Changes to physical regime,**	2.2.Wetland invertebrate species 2.10 All six native reptile species. 3.2 Birds of Woodland and scrub 1.5 Inland water bodies (standing water, running water) 1.8 Dry heathland Habitats 1.2 Bogs. Marshes. Water fringed vegetation. Fens 1.7 Improved grassland 1.6 Broad-leaved deciduous woodland	Maintain habitats to support and sustain breeding bird and other species Maintain trophic condition for each standing water type. No deterioration in long term water quality or fluctuation of water table outside of acceptable limits. Bog water should be stagnant and close to ground level and indicative of anaerobic conditions Maintain extent and composition of sward and vegetation communities	Whole site is affected by eutrophic water quality and is dependent on ground water levels. Sites are reliant in groundwater levels and flow through drainage channels	Habitat Management on site and surrounding hydrological catchments Catchment Land use, hydrological changes leading to changes in flooding, water level and water quality	Alone: *There is a possibility of damage due to chosen policy– Future inundation of favourable condition site* In combination: *Site Habitat management.* *Catchment Management, Land use and development* *Climate change*	**YES** No actions are planned that will impact on groundwater levels.	***NO***

Hazard	Interest feature	Favourable condition target for relevant attribute[1] (including range of natural variation) based on conservation objectives	Contribution of attribute[1] to ecological structure and function of site	Contribution of management[2] or other unauthorised sources to attribute and /or feature condition	Adverse Effect of proposal alone and in-combination on attribute[1] and/or feature	Can adverse affects be avoided?	Adverse affect on integrity; long term, short term. Yes, No or uncertain?
Thames Basin Heaths (SPA)							
• **Habitat loss/Physical Damage** • **Reduced flood frequency and extent,** • **Changes to physical regime,** • **Changes in hydrological regime,**	1.5 Inland water bodies (standing water, running water) 1.8 Dry heathland Habitats 1.2 Bogs. Marshes. Water fringed vegetation. Fens 1.7 Improved grassland 1.6 Broad-leaved deciduous woodland	Maintain trophic condition for each standing water type. No deterioration in long term water quality or fluctuation of water table outside of acceptable limits. Bog water should be stagnant and close to ground level and indicative of anaerobic conditions Maintain extent and composition of sward and vegetation communities	Site features and designation reliant on preservation of heathland habitats.	Habitat Management on site and surrounding hydrological catchments Catchment Land use, hydrological changes leading to changes in flooding, water level and water quality	Alone: *There is a possibility of damage due to chosen policy – Reduced flood risk may effect water dependent features* In combination: *Site Habitat management.* *Catchment Management, Land use and development* *Climate change*	**YES** Implementation of any measures to reduced flood risk in the Hoe Stream policy unit will be downstream of the Thames Heaths SPA. No actions are proposed that will alter groundwater conditions.	***NO***
Thursley, Hankley and Frensham Commons (Wealden Heaths Phase I) (SPA)							
Increased flood frequency and extent, **Changes in hydrological regime,** **Changes to physical regime,**	1.5 Inland water bodies (standing water, running water) 1.2-Bogs. Marshes. Water fringed vegetation. Fens 1.8 Dry heathland Habitats 1.6-Broad-leaved deciduous woodland 1.6 Coniferous woodland 1.6-Mixed woodland	Maintain trophic condition for each standing water type. No deterioration in long term water quality or fluctuation of water table outside of acceptable limits. Bog water should be stagnant and close to ground level and indicative of anaerobic conditions Maintain extent and composition of sward and vegetation	Site features and designation reliant on preservation of heathland habitats. The heathland habitats of the Special Protection Area are very dependent upon grazing and other traditional management practices. The area is vulnerable to heathland fires	Habitat Management on site and surrounding hydrological catchments Catchment Land use, hydrological changes leading to changes in flooding, water level and water quality	Alone: *There is a possibility of damage due to chosen policy– Future inundation of favourable condition site* In combination: *Site Habitat management.* *Catchment Management, Land use and development* *Climate change*	**YES** No land drainage actions are proposed that could impact on this site. The site is at the headwaters of the catchment where no additional flood defence activity is planned	***NO***

Hazard	Interest feature	Favourable condition target for relevant attribute[1] (including range of natural variation) based on conservation objectives	Contribution of attribute[1] to ecological structure and function of site	Contribution of management[2] or other unauthorised sources to attribute and /or feature condition	Adverse Effect of proposal alone and in-combination on attribute[1] and/or feature	Can adverse affects be avoided?	Adverse affect on integrity; long term, short term. Yes, No or uncertain?
Wealden Heaths Phase II (SPA)							
• **Increased flood frequency and extent,** • **Changes in hydrological regime,** • **Changes to physical regime,**	1.5 Inland water bodies (standing water, running water) 1.8 Dry heathland Habitats 1.2 Bogs. Marshes. Water fringed vegetation. Fens 1.7 Improved grassland 1.6 Broad-leaved deciduous woodland	Maintain trophic condition for each standing water type. No deterioration in long term water quality or fluctuation of water table outside of acceptable limits. Bog water should be stagnant and close to ground level and indicative of anaerobic conditions Maintain extent and composition of sward and vegetation communities	Site features and designation reliant on preservation of heathland habitats. The heathland habitats of the Special Protection Area are very dependent upon grazing and other traditional management practices. The area is vulnerable to heathland fires	Habitat Management on site and surrounding hydrological catchments Catchment Land use, hydrological changes leading to changes in flooding, water level and water quality	Alone: *There is a possibility of damage due to chosen policy– Future inundation of favourable condition site* In combination: *Site Habitat management.* *Catchment Management, Land use and development* *Climate change*	**YES** No land drainage actions are proposed that could impact on this site. The site is at the headwaters of the catchment where no additional flood defence activity is planned.	***NO***
Cothill Fen (SAC)							
Habitat loss/Physical Damage **Increased flood frequency and extent,** **Changes in hydrological regime,** **Changes to physical regime,**	2.2 Invertebrates of wet habitats-Southern damselfly. 1.3 -Alder woodland on floodplains. 1.2 Alkaline fens-Calcium-rich springwater-fed fens. 1.7 Semi-natural dry grasslands and scrubland facies: on calcareous substrates	Maintain habitats to support self sustaining populations Maintain trophic condition for each standing water type. No deterioration in long term water quality or fluctuation of water table outside of acceptable limits. Maintain extent and composition of sward Maintain extent and composition of vegetation communities	The calcium-rich spring water-fed fen habitats are wetland areas that are supplied with base-rich groundwater and where the water level is permanently high	Habitat Management on site and surrounding hydrological catchments Catchment Land use, hydrological changes leading to changes in flooding, water level and water quality	Alone: *There is a possibility of damage due to chosen policy– Future inundation of favourable condition site* In combination: *Site Habitat management.* *Catchment Management, Land use and development* *Climate change*	**YES** No additional flood risk management activity is planned at this site. No actions are proposed that will alter groundwater conditions.	***NO***

Hazard	Interest feature	Favourable condition target for relevant attribute[1] (including range of natural variation) based on conservation objectives	Contribution of attribute[1] to ecological structure and function of site	Contribution of management[2] or other unauthorised sources to attribute and /or feature condition	Adverse Effect of proposal alone and in-combination on attribute[1] and/or feature	Can adverse affects be avoided?	Adverse affect on integrity; long term, short term. Yes, No or uncertain?
Epping Forest (SAC)							
Habitat loss/Physical Damage Increased flood frequency and extent, Changes in hydrological regime, Changes to physical regime	1.8 European dry heaths-Dry heaths. 2.10 Triturus cristatus-Great crested newt. 2.2 Wet heathland with cross-leaved heath. 1.6 Atlantic acidophilous beech forests	Maintain habitats to support self sustaining populations Maintain trophic condition for each standing water type. No deterioration in long term water quality or fluctuation of water table outside of acceptable limits. Maintain extent and composition of vegetation communities	Site features and designation reliant on preservation of heathland habitats and pollarding of beech forest	Habitat Management on site and surrounding hydrological catchments Catchment Land use, hydrological changes leading to changes in flooding, water level and water quality	Alone: *There is a possibility of damage due to chosen policy– Future inundation of favourable condition site* In combination: *Site Habitat management.* *Catchment Management, Land use and development* *Climate change*	**YES** Only a tiny proportion of the SAC is in the floodplain and this is at the headwaters of minor tributaries where no additional flood defence activity is planned.	***NO***
Kennet and Lambourn Floodplain (SAC)							
Habitat loss/Physical Damage Increased flood frequency and extent, Changes in hydrological regime, Changes to physical regime,	1.3 Alder woodland on floodplains.	No deterioration in long term water quality or fluctuation of water table outside of acceptable limits. Maintain extent and composition of vegetation communities	Critically dependent upon an adequate supply of high quality water and have appropriate water levels.	Habitat Management on site and surrounding hydrological catchments Catchment Land use, hydrological changes leading to changes in flooding, water level and water quality	Alone: *There is a possibility of damage due to chosen policy– Future inundation of favourable condition site* In combination: *Site Habitat management.* *Catchment Management, Land use and development* *Climate change*	**YES** The selected policy is complementary to the management requirements of the site to maintain water levels and natural processes.	***NO***

Hazard	Interest feature	Favourable condition target for relevant attribute[1] (including range of natural variation) based on conservation objectives	Contribution of attribute[1] to ecological structure and function of site	Contribution of management[2] or other unauthorised sources to attribute and /or feature condition	Adverse Effect of proposal alone and in-combination on attribute[1] and/or feature	Can adverse affects be avoided?	Adverse affect on integrity; long term, short term. Yes, No or uncertain?
North Meadow and Clattinger Farm (SAC)							
Habitat loss/Physical Damage Increased flood frequency and extent, Changes in hydrological regime, Changes to physical regime,	1.7 Lowland hay meadows	Maintain extent and composition of sward	Clattinger Farm is the only lowland farm in Britain known to have received absolutely no agricultural chemicals To maintain the hay meadows, winter flooding with suitable quality water should be maintained and if possible increased to bring silt onto the site and maintain productivity of the grassland.	Habitat Management on site and surrounding hydrological catchments Catchment Land use, hydrological changes leading to changes in flooding, water level and water quality	Alone: *There is a possibility of damage due to chosen policy– Future inundation of favourable condition site* In combination: *Site Habitat management.* *Catchment Management, Land use and development* *Climate change*	**UNABLE TO CONCLUDE EITHER ADVERSE OR NO ADVERSE EFFECT** The impact of the selected policy on areas of natural floodplain that are not currently protected by flood defences (including North Meadow and Clattinger Farm SAC) will be neutral. The precise location of future flood storage or attenuation has not been established in any detail and can be implemented to avoid damage to specific sites. Careful scheme design and location will aim to ensure that projects undertaken will not adversely affect the hydrological or physical site regimes. Any works undertaken within the site boundaries will take adequate regard for the protection of the designated features	***UNCERTAIN***

Hazard	Interest feature	Favourable condition target for relevant attribute[1] (including range of natural variation) based on conservation objectives	Contribution of attribute[1] to ecological structure and function of site	Contribution of management[2] or other unauthorised sources to attribute and /or feature condition	Adverse Effect of proposal alone and in-combination on attribute[1] and/or feature	Can adverse affects be avoided?	Adverse affect on integrity; long term, short term. Yes, No or uncertain?
Kennet Valley Alderwoods (SAC)							
Habitat loss/Physical Damage Increased flood frequency and extent, Changes in hydrological regime, Changes to physical regime,	1.3 - Alder woodland on floodplains	No deterioration in long term water quality or fluctuation of water table outside of acceptable limits. Maintain extent and composition of vegetation communities	The conservation interest of the site is critically dependent upon maintenance of constantly high groundwater levels. The site is subject to low levels of intervention and natural processes are allowed to prevail to a large extent	Habitat Management on site and surrounding hydrological catchments Catchment Land use, hydrological changes leading to changes in flooding, water level and water quality	Alone: *There is a possibility of damage due to chosen policy– Future inundation of favourable condition site* In combination: *Site Habitat management.* *Catchment Management, Land use and development* *Climate change*	**YES** The selected policy is complementary to the management requirements of the site to maintain water levels and natural processes.	***NO***
Oxford Meadows (SAC)							
Habitat loss/Physical Damage Increased flood frequency and extent, Changes in hydrological regime, Changes to physical regime,	1.7 Lowland hay meadows 2.2 wetland plants	Maintain extent and composition of sward No deterioration in long term water quality or fluctuation of water table outside of acceptable limits. Maintain extent and composition of vegetation communities	The special interest of the site is critically dependent upon groundwater levels and annual flooding, and the site is very sensitive to changes in groundwater levels.	Habitat Management on site and surrounding hydrological catchments Catchment Land use, hydrological changes leading to changes in flooding, water level and water quality	Alone: *There is a possibility of damage due to chosen policy– Future inundation of favourable condition site* In combination: *Site Habitat management.* *Catchment Management, Land use and development* *Climate change*	**UNABLE TO CONCLUDE EITHER ADVERSE OR NO ADVERSE EFFECT** This is being fully considered in the more detailed Oxford strategy. The selected policy for this area is complementary with the aim of increased winter flooding. The associated appropriate assessment will investigate and determine any significant effects. It will also provide for any mitigating or compensatory measures required.	***UNCERTAIN***

Hazard	Interest feature	Favourable condition target for relevant attribute[1] (including range of natural variation) based on conservation objectives	Contribution of attribute[1] to ecological structure and function of site	Contribution of management[2] or other unauthorised sources to attribute and /or feature condition	Adverse Effect of proposal alone and in-combination on attribute[1] and/or feature	Can adverse affects be avoided?	Adverse affect on integrity; long term, short term. Yes, No or uncertain?
Shortheath Common (SAC)							
Increased flood frequency and extent, **Changes in hydrological regime,** **Changes to physical regime,**	1.2 Bog woodland 1.8 European dry heaths 1.2 Transition mires and quaking bogs 1.2 Natural dystrophic lakes and ponds	Maintain trophic condition for each standing water type. No deterioration in long term water quality or fluctuation of water table outside acceptable limits. Favourable conditions for the bog woodland are indicated by 'no artificial disturbance to the hydrological regime' Maintain extent and composition of vegetation communities	Maintain the high and stable water levels that are currently present within the Shortheath Pond and to maintain high water levels within the valley mire to balance seepage and surface water.	Habitat Management on site and surrounding hydrological catchments Catchment Land use, hydrological changes leading to changes in flooding, water level and water quality	Alone: *There is a possibility of damage due to chosen policy– Future inundation of favourable condition site* In combination: *Site Habitat management.* *Catchment Management, Land use and development* *Climate change*	**YES** No actions are proposed that will impact on groundwater levels. No actions are proposed that will lead to additional land drainage activity.	***NO***
Thursley, Ash, Pirbright and Chobham (SAC)							
Habitat loss/Physical Damage **Changes in flood frequency and extent,** **Changes in hydrological regime,** **Changes to physical regime,**	1.8 European dry heaths-Dry heaths. 2.2 Wet heathland with cross-leaved heath 1.6 Beech forests 2.2 -Alder woodland on floodplains. 2.10 Triturus cristatus-Great crested newt.	Maintain trophic condition for each standing water type. No deterioration in long term water quality or fluctuation of water table outside acceptable limits. Maintain extent and composition of vegetation communities Bog water should be stagnant and close to ground level and indicative of anaerobic conditions Maintain habitats to support self sustaining populations	Site is largely dependent on active heathland management., lowering of water tables as a result of water abstraction or other reasons could cause loss or damage to wet heath and mire community	Habitat Management on site and surrounding hydrological catchments Catchment Land use, hydrological changes leading to changes in flooding, water level and water quality	Alone: *There is a possibility of damage due to chosen policy– Changes in inundation of favourable condition site* In combination: *Site Habitat management.* *Catchment Management, Land use and development* *Climate change*	**YES** No actions are proposed that would impact on groundwater levels. No actions are proposed that will lead to additional land drainage activity.	***NO***

Notes:
1 ATTRIBUTE = Quantifiable aspects of interest features (subject to natural variation in some cases) that can be used to help define favourable condition for that feature. See Site Conservation Objectives
2 MANAGEMENT = in this context management refers to management of the **European site**
3 If uncertain consider time-limited consent, or other legally enforceable modifications

Stage 3 Environment Agency conclusion

Can it be ascertained that this plan will not adversely affect the integrity of the European site(s)? **For the majority of the sites potentially affected by this CFMP a conclusion of NO ADVERSE EFFECT has been identified. for four of the sites however IT CANNOT BE PROVEN EITHER WAY THAT ADVERSE OR NO ADVERSE EFFECTS EXIST. This is due to insuffient information at this time on the nature of the implementation of the policies identified within the CFMP.**

This assessment has been carried out considering the likely effects of the implementation of high level policies identified in the Thames CFMP (July 2008) alone and in-combination, on site integrity of a number of European sites. These policies are high level and lack detail with regards to specific impacts caused by the delivery of the plan/policies and the precise areas that will be affected by the implementation of the plan/policies. In many instances, identified potential impacts of the Catchment Flood Management Plan on designated sites will not be inevitable but rather will depend on how its policies and proposals are implemented on the ground.

The policies outlined in the plan do not directly affect any designated sites at present. Avoidance measures are recommended in Table 4a which detail how other plans, strategies and projects resulting from this plan are to be implemented to prevent adverse effects on integrity of European sites.

This assessment at the plan level does not remove the need for an assessment at the project level. The relevant projects and strategies (such as the Oxford and Lower Thames strategies) may still require further Appropriate Assessment, as detail emerging at the scheme-design stage may identify additional impacts that have not been assessed here.

If a project is not consistent with the plan then a new Habitats Regulations Assessment may well be required, and will be undertaken in the appropriate fashion.

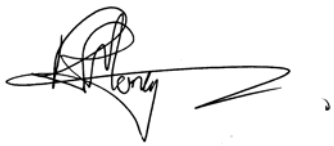
This CFMP has been signed off as setting the strategic direction for managing flood risk in the catchment on the basis that it cannot be put into effect until more detailed appraisal and assessment has taken place on plans or projects arising out of this CFMP to show it and they have met the requirements of the Habitats Regulations.

Name of EA officer undertaking appropriate assessment:
Signed: Glen Westmore **Date: June 2008**

Endorsed by (if appropriate) e.g. team leader and date

NE COMMENTS ON APPROPRIATE ASSESSMENT:
IS THERE AGREEMENT WITH THE CONCLUSION? YES/NO
(Please provide summary and explanation for answer given)

Assessment follows agreed national guidance and conclusion is appropriately precautionary.

Signed:  **Date: 30/06/2008**