

Statement of environmental particulars for the River Roding Flood Risk Management Strategy

Introduction

Purpose

This statement of environmental particulars shows how environmental considerations and consultation comments were taken into account during the preparation of the River Roding Flood Risk Management Strategy (RRFRMS) and how the Environment Agency selected the approach adopted in the final Strategy.

The statement sets out the monitoring procedures that have been set in place to monitor the significant environmental effects of implementing the RRFRMS.

The statement also sets out the work undertaken to finalise the strategy following the consultation on the draft strategy.

In 2006 a draft of the RRFRMS was sent out to consultation. Since this consultation, a series of changes have been made on economic and sustainability grounds, leading to a revised strategy and an addendum to the Strategic Environmental Assessment (SEA). A further round of consultation was undertaken in 2011 on the draft revised RRFRMS and supporting SEA Addendum. This statement of environmental particulars outlines the environmental effects of the strategy and how consultation has affected the final plan.

Integration of environmental considerations

Environmental considerations were integrated throughout the development of this plan. Following the Environment Agency's Strategic Environmental Assessment (SEA) operational instruction, our National Environmental Assessment Service (NEAS) worked with the project team from the beginning of the strategy. Working in this way, many potential significant effects of the strategy on the environment were avoided and others mitigated through the strategy development.

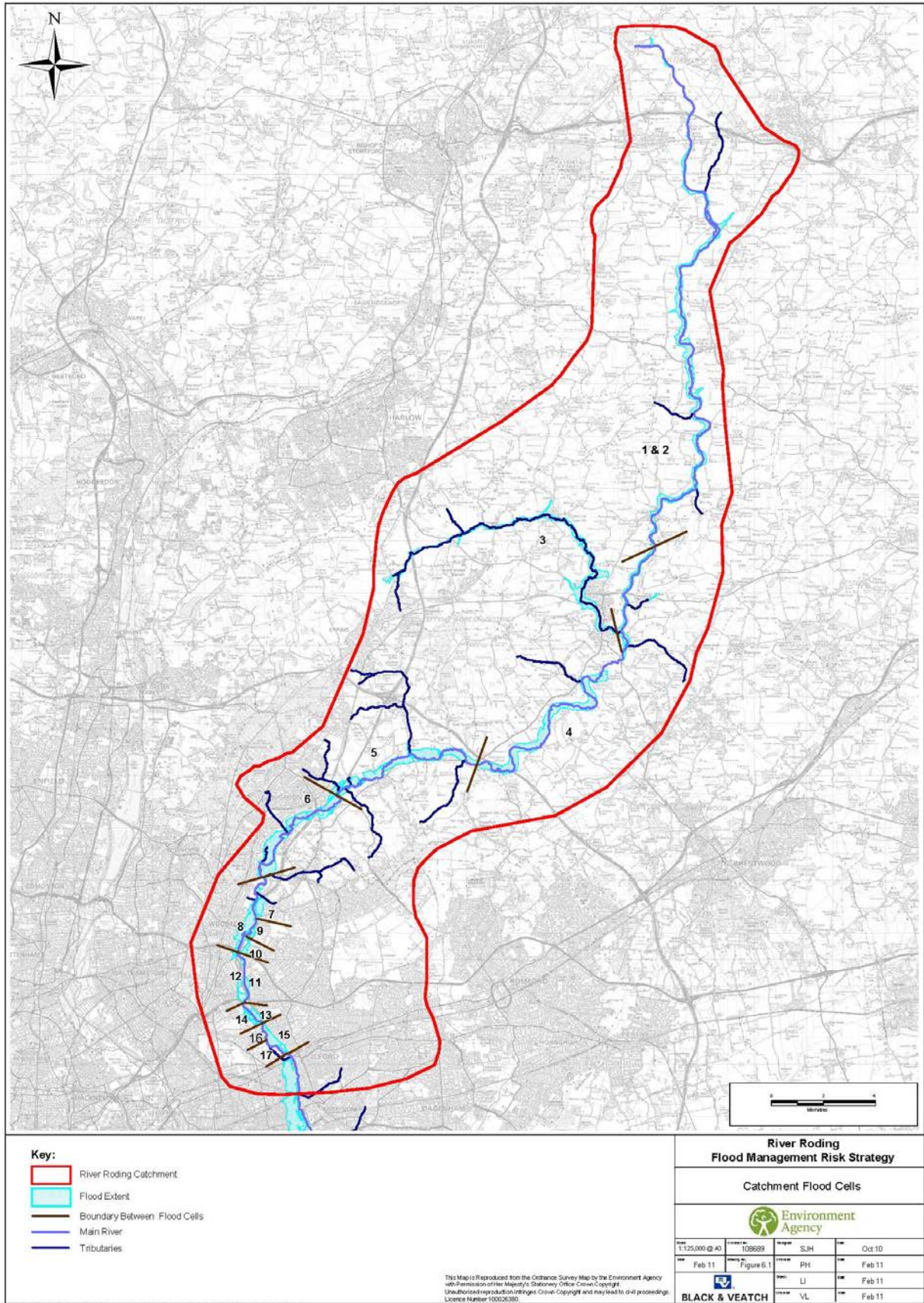
Plan history

The River Roding flows from Molehill Green in the North to the A12 south of Wanstead in the South (Figure 1). We have developed a plan to manage flooding from rivers and surface water adjacent to the River Roding. In 2006, a draft flood risk management strategy and SEA (documented in the SEA Environmental Report) was presented to the public, statutory and wider stakeholders for their comments. This iteration of the RRFRMS aimed to continue maintaining the existing flood risk management system and provide additional protection through a series of flood water storage areas.

Since the 2006 consultation, we have been investigating the River Roding catchment as a series of flood cells, as shown on Figure 1. The options have become more focussed to each particular cell, leading to some changes from the 2006 draft strategy. The main changes are summarised below:

- The surface water flood storage area protecting Woodford has been moved from Ray Park to Broadmead, Chigwell Road.
- Surface water pumping forms part of the new preferred Strategy in Woodford.
- A flood storage area (FSA) at Shonks Mill is still part of the preferred Strategy, however this would now be constructed by 2020 and will be larger than proposed in 2006.
- Withdrawal of maintenance of the river channel in areas upstream of the Shonks Mill FSA where it is no longer economically viable to continue these works.
- Withdrawal of maintenance where the cost of maintaining existing defences to their current standard outweighs the benefits provided.

Figure 1: Location and Flood Cells



The environment during development of the plan**Influence of the Strategic Environmental Assessment**

The 2006 draft strategy was assessed using three catchment wide options. The strategy approach changed to one based on separate flood cells in the River Roding Flood Risk Management Strategy Review. The SEA was revisited and an addendum was produced to document the revised assessment. The main change was the ability to adopt different approaches in different parts of the river. The final RRFRMS contains three main recommendations, each with different environmental impacts. The strands are:

- Withdrawal of maintenance
- Continue current activities
- Construction of new flood water storage areas

The SEA assessed the potential impacts associated with each of these strands and influenced the choices for structural options. The SEA Addendum was open to public consultation and influenced the development of the strategy by identifying environmental enhancements and setting out requirements for mitigation, where significant negative impacts were identified.

The environmental benefit of withdrawing maintenance in certain reaches of the river has been the main environmental change between the 2006 and 2011 strategies.

Table 1 below provides a summary of the predicted environmental effects (those with a potential moderate or major impact) of the RRFRMS and the proposed mitigation measures planned to minimise the impact of these effects. Developments implemented as a result of the strategy will be assessed for environmental impacts at a project level, using the Environment Agency's Environmental Impact Assessment (EIA) operational instruction.

A Glossary of Terms can be found on page 14 of this report.

Table 1: Environmental Effects of RRFRMS and Proposed Mitigation/Enhancement measures:

No Active Intervention (Withdrawal of all maintenance), Mainly Upper Catchment Flood Cells 1, 2, 4, 5, 6, 13, 14, 15, 16 and 17 (see figure 1)			
Environmental Topic	Potential Impact	Agreed Mitigation ▲ / Enhancement activity ■	Responsibility for implementation
Hydrology	Increased flow variability and natural processes.	Contribute towards WFD mitigation measure 'increase in-channel morphological diversity' as 'do nothing' allows natural processes to take place, increasing localised flow variability and small scale morphological diversity in the channel ■	Environment Agency
Flora and Fauna	Increase in biodiversity through increased habitat and flow variability and reconnection with floodplain. Siltation and vegetation succession will lead to increased variability of riparian vegetation and diversity of flow patterns. Flooding may alter a range of local sites of nature conservation and BAP habitats. However, there will be minimal increases in risk flood risk.	Opportunities for freshwater habitat creation to improve diversity of habitats - a priority list has been determined, but will require external funding ■ Potential to contribute towards WFD mitigation measure 'preserve and where possible enhance ecological value of marginal aquatic habitat, banks and riparian zone' ■	Environment Agency Opportunities through: Wildlife Trusts, Local Authorities, Potential Developers
Landscape and visual amenity	A lack of effective drainage would create areas of wetland in the upper Roding changing the landscape.	Can contribute toward improving biodiversity ■	N/A
Water and Land Quality	Deliberate flooding of contaminated land may cause contaminated sediments to move, or contaminants to enter watercourses. Increased inundation and potential loss of quality agricultural land as lack of effective drainage would create areas of wetland.	Where known areas of contaminated land are to be flooded, undertake surveys to determine nature of contaminants and identify potential impacts and remedial strategies ▲ Potential for environmental stewardship schemes near freshwater areas, thereby improving sustainable land use ■	Environment Agency Land Owners
Continue current regime , Mainly Lower Catchment Maintain existing defences and channel Flood Cells 3, 8, 18 (see figure 1); Maintain channel only Flood Cells 7, 9, 10, 11 and 12 (see figure 1)			
Environmental Topic	Potential Impact	Agreed Mitigation ▲ /Enhancement activity ■	Responsibility for implementation
Hydrology	Maintenance works will mobilise nutrients within the river channel and temporarily reduce light penetration – potential	Works will be in accordance with Environment Agency Pollution Prevention Guidelines ▲	Environment Agency

	intermittent water quality impacts		
Flora and Fauna	Intermittent maintenance impacts on designated areas and BAP habitats. Will intermittently affect biological elements and chemical (supporting) elements of water quality in the river during heavy maintenance (silt removal). Intermittent disturbance may encourage the spread of several invasive species	Best practice techniques for river maintenance; Consultation, ecology surveys and careful timing should minimise impacts ▲ Undertake further surveys to identify presence of BAP species and implement mitigation measures if necessary ▲ Opportunities for freshwater habitat creation to improve diversity of habitats. A priority list has been determined, but will require external funding ■	Environment Agency Opportunities through: Wildlife Trusts, Local Authorities, Potential Developers
Recreation and amenity	Construction may cause closure/ diversion of PRoW.	Agree diversions with Local Authority ▲	Environment Agency
Water and Land Quality	Water quality impacts from intermittent disturbance to riverbed during defence improvement Potential intermittent disturbance to contaminated land. Maintenance works are unlikely to disturb contaminated land as works will be carried out within previously disturbed areas.	Works will be in accordance with Environment Agency Pollution Prevention Guidelines ▲ Where known areas of contaminated land are to be disturbed undertake surveys to identify potential impacts and remedial strategies ▲	Environment Agency
Construction of new flood water storage areas Shonks Mill (SM) - Flood Cell 4, Woodford Surface Water (WSW) - Flood Cell 8 (see figure 1)			
Environmental Topic	Potential Impact	Agreed Mitigation ▲ /Enhancement activity ■	Responsibility for implementation
Hydrology	Intermittent inundation of nutrient rich farmland could mobilise nutrients in agricultural soil previously outside the floodplain. Potential stagnation of stored water. Potential impacts to chemical biological quality elements (BQEs) during flood events. (SM)	Encourage farmers to use less fertilisers/ pesticides within storage area, or secure Environmental Stewardship Schemes, catchment sensitive farming or reedbeds (SM) ■	Land Owners
Flora and Fauna	Construction impacts on water vole habitats and the Roding Site of Nature Conservation Interest (SNCI). Water voles could colonise the stretch of the river adjacent to the storage area. (WSW) Installation of a culvert could impact fish passage and movement of invertebrates. (SM)	Undertake further surveys to identify presence of water voles and implement mitigation measures if necessary (WSW) ▲ Ecology surveys, good design and careful timing, should minimise impacts on SNCI (WSW) ▲ Culvert will be designed in accordance with the Environment Agency Fish Passage Manual including consideration of substrate within the culvert and planting outside in line with	Environment Agency

		mitigation measures identified in WFD assessment (SM) ▲	
Landscape and visual amenity	As landscape is relatively flat arable farmland a 3.75m (maximum height) embankment will change landscape character of area during construction and in long term. (SM)	Sensitive design and screening will be implemented to minimise landscape impacts. Incorporate advice from the Landscape Assessment for the Roding (1997) and design in accordance with the LEDG guidance (SM) ▲	Environment Agency
Archaeology and cultural heritage	Historic Environment Record of a Medieval watermill could be affected. (WSW) Increase in the standard of flood risk protection to listed buildings and structures in the lower catchment of the Roding.	An archaeological desk study will be undertaken during design and a watching brief will be undertaken during construction ▲ Vibration reduction techniques will be implemented during construction ▲ Consultation with English Heritage will take place through design and construction to agree design and working methodologies (WSW) ▲ N/A ■	Environment Agency
Water and Land Quality	Long-term, infrequent and intermittent inundation of high quality agricultural land in flood events of 1 in 50 years or greater. (SM)	Farmers to be encouraged to secure environmental stewardship schemes, with funding for environmental management (SM) ■	Land Owners, Defra, NE

This information has been taken from the RRFRMS Strategic Environmental Assessment (SEA) and addendum that were carried out in 2006 and 2011 respectively. Further information on the environmental effects of the RRFRMS and the monitoring planned can be found in the RRFRMS SEA Environmental Report (2006) and the supporting addendum (2011).

Consultation responses

Consultation on the Draft RRFRMS was undertaken between July and September 2011. We consulted the local community on our plans to manage flood risk on the River Roding in the future. The consultation was based on our public consultation document, entitled 'River Roding Flood Risk Management Strategy - Our recommendations for managing flood risk in the Roding catchment, today and in the future'. Our Strategic Environmental Assessment (SEA) Report and addendum were available on request. During this consultation period, two public drop-in sessions were held within the RRFRMS Study area to promote the draft strategy and to seek comments. These were held at:

- Ongar Town Hall, 10 August 2011 (Northern part of the catchment)
- Broadmead Baptist Church, Woodford, 23 August 2011 (Southern part of the catchment)

Consultation on the SEA report and addendum was undertaken for a period of 12 weeks with interest groups, statutory and non-statutory consultees.

We created a dedicated webpage for the RRFRMS consultation. This contained a summary of our strategy, key documents and press releases. It also provided a link to the E-consultation pages where people were able to fill in a feedback form. Copies of the consultation documents were available at our EA offices and local libraries for public viewing.

A flyer was hand delivered to over a thousand properties in Woodford by our partners and we posted copies to other affected residents across the catchment.

Members of our project team held a series of face-to-face meetings with a variety of different stakeholders and landowners before, during and after the consultation period. These meetings included briefings for, and negotiations with, local authorities, landowners and other organisations whose buy-in we required to move the strategy forward.

In total 63 comments were received from members of the public, statutory and non-statutory consultees. At least 60 people attended to our public consultation sessions where comment forms were available. Comments received on the draft Strategy included (but were not limited to) the following topics:

- *Balancing People and Wildlife*
- *Scepticism about our plans* - ranging from our understanding of local flood risk and impacts to our engineering and management solutions
- *Increased flooding to property and infrastructure* - We undertook property threshold surveys in several areas, showing some properties in the upper catchment were at a lesser risk than we thought.
- *Further help/compensation for those still at risk*
- *Improved access to the river*
- *Current and future maintenance of the river*
- *Timing of Action*
- *Requesting further information*
- *Funding concerns*
- *Heritage Assets*

All comments received were carefully considered by the RRFRMS team and responses were sent to provide clarification where deemed appropriate. The majority of comments received did not result in any changes needing to be made to the final plan that was adopted. Comments received have been documented and will be considered throughout strategy implementation and further addressed at the project stage. Consultation will form a key part of strategy implementation and those consulted on the RRFRMS will continue to be consulted through implementing the strategy.

Table 2 (below) outlines any consultation responses received that resulted in any changes to the final Strategy and SEA, with a description of the changes made.

Table 2: Consultee comments relating to changes in the final Strategy

Consultee	Summary of comments	Action taken to finalise Plan
English Heritage	<p>Concerns were raised about some deficiencies in the baseline information in respect to the historic environment. This is unlikely to affect the overall balance between the benefits and adverse impacts on heritage assets.</p> <p>Raised concern at the vague treatment of listed buildings in the baseline information section of the report. Listed buildings are a fundamental element of baseline information for understanding impacts on the historic environment.</p> <p>English Heritage requests that the Archaeological Priority Areas or Zones in the project area are identified as soon as possible in order to contribute to completing the necessary baseline information for the historic environment.</p> <p>A few minor amendments recommended reflecting the terminology of PPS5 (and the Draft National Planning Policy Framework).</p>	<p>We provided a joint written response to English Heritage and Essex County Council (See appendix 1), following the agreed process with English Heritage as defined in the Consideration of the historic environment in strategic environmental assessment (2008). Further comments and concerns arising from the consultation on the Environmental Report Addendum will be considered as part of the project level studies that come out of the River Roding Flood Risk Management Strategy. This note will also be appended to the Consultation Summary produced following consultation on the Environmental Report Addendum and preferred strategy.</p>
Essex County Council Archaeology	<p>The Roding Valley has been extensively occupied from the prehistoric period, with very few of the sites protected as Scheduled Monuments.</p> <p>The number of registered parks and gardens need to be checked and Essex does not have Archaeological Priority zones as in Greater London.</p> <p>There should be a commitment to evaluate the historic environment assets in areas where ground-works are proposed. At present the SEA only identifies a watching brief within the uncertainties. Prior to any development, appropriate archaeological evaluation with a mitigation strategy resulting in an agreed programme of recording in place will be needed.</p>	<p>We provided a joint written response to English Heritage and Essex County Council (See appendix 1), following the agreed process with English Heritage as defined in the Consideration of the historic environment in strategic environmental assessment (2008). Further comments and concerns arising from the consultation on the Environmental Report Addendum will be considered as part of the project level studies that come out of the River Roding Flood Risk Management Strategy. This note will also be appended to the Consultation Summary produced following consultation on the Environmental Report Addendum and preferred strategy.</p>

Trans-boundary consultation responses

The SEA did not identify any significant environmental effects that required trans-boundary consultation on this plan. Due to this, no consultation responses were received via this consultation route.

Reasons for selecting the adopted plan in light of reasonable alternatives

The approach adopted in the final RRFRMS was considered against a number of reasonable alternatives during its development. Financial, technical and environmental appraisal guided the options selected for appraisal:

Table 3: Catchment Wide Options

Catchment Wide FRM Option	Further Detail	Taken to Appraisal?
Do Nothing	No active intervention. No maintenance of channel or banks	Shortlisted
Do Minimum	Channel maintenance only	Shortlisted
Maintain	Channel and Asset maintenance	Shortlisted
Flood Flow and Channel Capacity	Sustainable Channel Capacity; Improve Channel Capacity; Re-routing of Flows in Adjacent Catchment	Rejected as not economically viable
Extend Flood Warning Service	Not assessed as would not have environmental impacts	Included in Strategy recommendations

Table 4: Location Specific Options

Location Specific FRM Option	Further Detail	Taken to Appraisal?
Extended Flood warning at Chipping Ongar	Included in catchment wide recommendations	Rejected as a location specific solution
Chipping Ongar	Flood Defences; Improved channel maintenance	Rejected as not economically viable
Woodford	Improve flood defences at Roding Lane	Rejected as not economically viable
Cranbrook	Flood wall	Rejected as not economically viable
Luxborough	Flood storage area	Rejected as not economically viable
Tilbury Railway Line	Reintroduce Meanders downstream	Rejected as flood risk not reduced
Woodford	Pumping on Winn Brook and at Charlie Brown's Round-about; Flood Water Storage at Chigwell Road	Shortlisted
Various Flood Storage Areas	Upstream from M25; Woodford Green Allotments; Wanstead Park; Roding Valley Meadows; Ray Park	Rejected as insufficient capacity
Improved Flood Storage	Thornwood Flood Storage Area	Rejected as insufficient capacity
Shonk Mill Bridge	Flood Storage upstream from Shonks Mill Bridge	Shortlisted
Laughton and Albridge	Flood storage areas	Rejected as would flood M11
The M11	Flood Storage upstream of the M11	Rejected as ground levels too high to store flood water

The evaluation of options in the 2011 RRFRMS resulted in a shortlist of five options, which were appraised on environmental, technical and economic feasibility.

Option 1: Do Nothing (No Active Intervention)

Withdrawal of all maintenance and repairs to existing structures and allowing nature to take its course.

Option 2: Do Minimum

Grass cutting, weed and debris clearance (light maintenance) and, where appropriate, silt removal (heavy maintenance). It has been assumed that the application of this option would lead to the eventual loss of any flood defence structures, at the end of the structure's residual life.

Option 3: Maintain

Continuing an efficient channel maintenance programme whilst repairing and replacing assets as required. It also includes asset inspections and all ongoing maintenance works needed to keep structures safe for users and the public. If adopted, this option will continue to provide the existing Standard of Protection (SoP) for the assets over the 100 year strategy period.

Option 4: Reduce Surface Water Flood Risk in Woodford

A new flood storage area (FSA) and two pumping stations designed to protect the properties behind the Woodford flood embankments to a 1 in 75 year (1.3%) SoP. Although these properties are protected by an existing embankment, they are currently at risk of surface water flooding.

Option 5: Flood Storage Upstream from Shonks Mill Bridge

A large FSA providing benefits to those downstream of the Shonks Mill Bridge. A 700m long embankment, with a maximum height of 3.75m above ground level, and a large culvert would be constructed to hold back water in events between 1 in 50 and 1 in 200 year flood events (2% to 0.5%).

The Preferred Option**Options Appraisal**

All options considered within the RRFRMS were appraised to see if they were technically feasible, economically viable and environmentally acceptable. The SEA, technical and economic appraisal concluded that each flood cell would take one of the first three options. The structural measures presented in options 4 and 5 also form part of the preferred RRFRMS.

The preferred option is shown by flood cell in the table below. Figure 1 on page three provides the locations of each of the flood cells.

Flood Cell	Preferred Option
1, 2, 4, 5, 6, 13, 14, 15, 16 and 17	No Active Intervention (Withdrawal of all maintenance)
3, 8 and 18	Maintain existing defences and channel
7, 9, 10, 11 and 12	Maintain channel only
4	Flood Storage Area (Shonks Mill)
8	Flood Storage area and pumping (Woodford Surface Water)

Environmental Monitoring Measures during Plan implementation

Table 5, below, sets out the indicators that will be monitored to ensure that unforeseen significant environmental effects are not generated during implementation. These indicators will also monitor the success of mitigation measures and environmental enhancements in the adopted plan. Developments implemented as a result of the plan will be assessed for environmental impacts at a project level using the Environment Agency's internal Environmental Impact Assessment (EIA) operational instruction.

Table 5: Environmental Effects of RRFRMS and Proposed Mitigation/Enhancement measures:

Environmental effect/mitigation/enhancement	Indicator	Monitoring method	Responsibility
Reduce flood risk to human life and communities	<p>Number of properties within the floodplain</p> <p>Have major flooding incidents been avoided as a result of the Strategy?</p> <p>Have employers, infrastructure or services been displaced due to the Strategy?</p> <p>Have there been any issues with sewerage capacity as a result of the Strategy?</p> <p>In a project starting in 2012, we will review the properties located on tributaries to investigate their risk and whether they qualify for Resistance and Resilience funding.</p> <p>Ensure this is in the monitoring plan</p>	<p>Environment Agency (EA) records on major flood incidents</p> <p>Flood mapping of the extent of flood events</p> <p>EA records on major flood incidents</p> <p>Flood mapping of the extent of flood events</p> <p>Local Authority data on business areas and amenity precincts</p> <p>Thames Water data</p> <p>Investigate Resistance and Resilience measures for properties on tributaries</p>	Environment Agency
To improve water resources	<p>Has the status of chemical or biological elements (WFD) changed as a result of the Strategy?</p> <p>Have there been any water related pollution incidents as a result of the Strategy?</p> <p>Have consented discharges been affected by Strategy?</p> <p>Have groundwater quality and levels within Source Protection Zones changed as a result of the Strategy?</p>	<p>EA water quality data and EA data on water pollution incidents</p> <p>EA data on consented discharges</p> <p>EA Groundwater and Contaminated Land (A) Team</p> <p>EA data own licensed abstractions</p>	Environment Agency
To conserve and enhance the ecology of the Roding	<p>Does the Strategy maintain or enhance the favourable condition status of the SSSI features?</p> <p>Does the Strategy maintain or enhance the condition of the local designated sites?</p> <p>Does the Strategy provide the opportunity to maintain or improve the diversity of the river habitats and flora and fauna?</p> <p>Does the Strategy address previous river realignment or modification?</p> <p>Does the Strategy avoid substantial changes in the velocity and volume of flows?</p> <p>Does the Strategy maintain, create, restore or enhance a BAP habitat or conditions for a BAP species?</p> <p>Have invasive species spread as a result of the Strategy?</p>	<p>Natural England SSSI favourable condition assessments</p> <p>County Biological Records</p> <p>Monitor local biological records office data</p> <p>Monitor EA fish survey data</p> <p>Pre and post construction invertebrate monitoring</p> <p>River corridor studies</p> <p>UK and local BAP data</p> <p>Periodic monitoring of protected and invasive species.</p>	Environment Agency, NE, Wildlife trusts, Local Authority

To maintain and enhance river landscape character	Does the Strategy avoid the introduction of any features that will intrude upon the aesthetic quality of the river landscape?	Roding Landscape Assessment 1997, or more recent update if available.	Environment Agency
To maintain and enhance opportunities for recreation and tourism	Does the Strategy maintain/ improve land-based recreation/ access to the river? Does the Strategy avoid a significant increase in flow volumes and velocities maintaining a safe navigation? Does the Strategy avoid closures of PRow? Does the Strategy affect improvement schemes on the Roding?	Local Authority definitive PRow and MOL data EA flow data Query local boat and angling clubs regarding their use of the River Roding. Local Authority definitive PRow data	Local Authority, Boating and Angling clubs
To conserve features of archaeological, historic and built heritage importance	Does the Strategy avoid a material impact on scheduled monuments? Does the Strategy avoid the loss of a non-statutory archaeological or historic site? Does the Strategy maintain/increase the current standard of protection for a Conservation Area or listed building? Does the Strategy avoid an impact on a site listed on the Parks and Gardens Register?	English Heritage data Essex and London County Archaeologists' and Sites and Monuments Record Data. Where relevant undertake a watching brief during construction. Local Authorities Listed Building / Conservation Area Officers English Heritage's Historic Parks and Gardens data	English Heritage, SAMs data
To protect land from flooding and contamination	Does the Strategy avoid the loss of, or increased period of inundation of, Defra classified Grade 1, 2 or 3 agricultural land? Does the Strategy prevent the creation of a pathway for pollutants to reach a receptor?	Defra data on Agricultural Land Classifications Local Authority and Environment Agency records of potentially contaminated land	Environment Agency, Defra, Local Authority

This information has been taken from the RRFRMS Strategic Environmental Assessment (SEA) and addendum that were carried out in 2006 and 2011 respectively. Further information on the environmental effects of the RRFRMS and the monitoring planned can be found in the RRFRMS SEA Environmental Report (2006) and the supporting addendum (2011).

Glossary of Terms:

SEA	Strategic Environmental Assessment
FSA	Flood Storage Area
EIA	Environmental Impact Assessment
WFD	Water Framework Directive
Defra	Department for Environment, Food & Rural Affairs
EA	Environment Agency
BAP	Biodiversity Action Plan habitat
NE	Natural England
RRFRMS	River Roding Flood Risk Management Strategy
BQE	Biological Quality Element (from WFD)
PRoW	Public Right of Way
SSSI	Site of Special Scientific Interest
SoP	Standard of Protection
MOL	?
SAMs	Scheduled Ancient Monuments

Appendix 1: English Heritage and Essex County Council Update

River Roding Environmental Report Addendum – Heritage Update

Overview

This note has been written to address the consultation responses received from English Heritage (dated 23 August 2011) and Essex County Council (dated 20 September 2011). In our response, we have followed our agreed process with English Heritage as defined in the Consideration of the historic environment in strategic environmental assessment (2008). Further comments and concerns arising from the consultation on the Environmental Report Addendum will be considered as part of the project level studies that come out of the River Roding Flood Risk Management Strategy. This note will also be appended to the Consultation Summary produced following consultation on the Environmental Report Addendum and preferred strategy and inform our Statement of Environmental Particulars.

We consulted English Heritage earlier this year in May and Adina Brown was generally supportive of the Strategy (10 April 2011). We are aware that Adina has left English Heritage and will add Katharine Fletcher (representing the English Heritage East of England office) and Claire Craig (representing English heritage Greater London) to our list of consultees for English Heritage going forward.

Baseline Data

Listed Buildings

All of the listed buildings within 150m of the lower part of the Roding and its tributaries (including the Cripsey Brook and Chipping Ongar southwards), are shown in Figure 5.7 in the Environmental Report (2006) (reproduced below) and listed by name in Appendix C of the Environmental Report. These properties were considered to be those at the highest risk of flooding in the gathering of our baseline data. The total number of listed buildings in the lower catchment amounts to 103 properties. In addition, Figure 5.7 also identifies locally listed buildings within the London Borough of Redbridge, which is an additional local designation provided by this borough.

Scheduled Monuments

Section 4.8.1 of the Environmental Report Addendum states the following:

'The locations of 120 Sites and Monuments Record (SMRs) identified are shown in Figures 5.8a and 5.8b in the RFRM Strategy SEA 2006 Environmental Report (Black & Veatch, 2006), including a medieval watermill at Charlie Browns Roundabout.'

We accept that an error has been made in Section 6 and 7 where the text refers to Charlie Browns Roundabout as a Scheduled Monument. The correct classification of the medieval watermill at Charlie Browns Roundabout is a Sites and Monuments Record (SMR) which is now referred to as a Historic Environment Record (HER). Therefore there will not be any need for Scheduled Monument Consent for works at this location. We will continue to consult with English Heritage and the County Archaeologist to determine the need for appropriate mitigation measures for any construction impacts to archaeological assets.

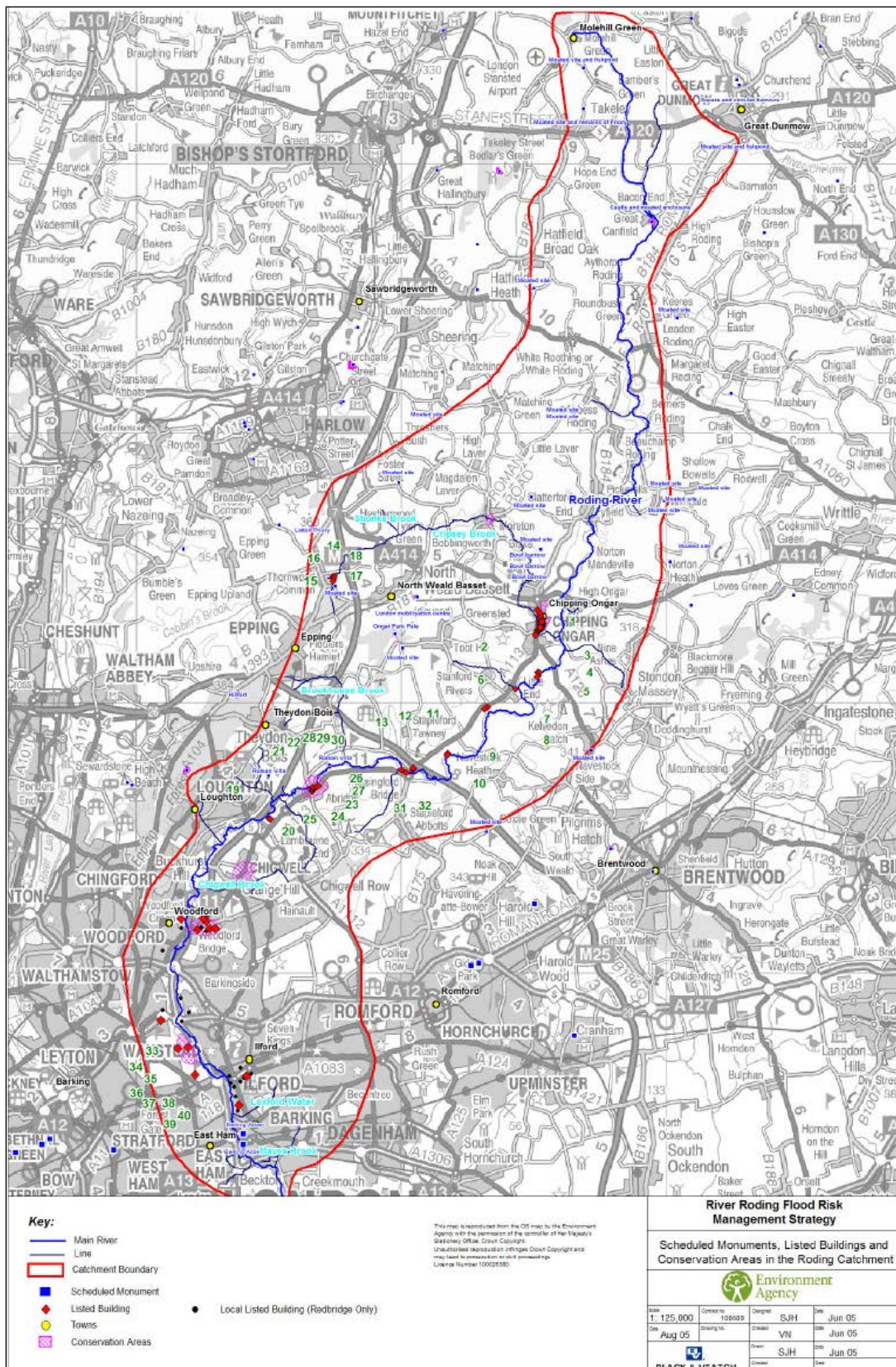


Figure 5.7: Scheduled Monuments, Listed Buildings and Conservation Areas in the Roding Catchment

Potential Effects

Listed Buildings

A total of 13 properties will have a lower standard of protection as a result of the Strategy. Of these properties, six are Grade II listed, and are located in Great Canfield, Fyfield, Leaden Roding and Passingford Bridge in Essex. We have undertaken targeted

consultation with owners of properties that may receive a lower standard of protection as a result of the Strategy, and will be discussing options for flood resilience and resistance measures. All of the Grade II Listed Buildings qualify for Defra funded resilience and resistance measures to improve the potential standard of protection at these properties, which will be implemented by the Environment Agency as part of the Strategy.

A total of 97 listed buildings adjacent to the River Roding in the lower catchment will receive the same, or an increase in, standard of protection that is currently provided.

The structural works that are proposed (outlined in Section 7.2.1 of the Environmental Report Addendum) will not lead to any impacts on listed buildings.

- Water Hall, Great Canfield, CM6 1JR
- Brickyards, Fyfield, CM5 0NW
- Clarks Farm, Fyfield, CM5 0NW
- Wash Cottage, Leaden Roding, CM6 1RE
- Passingford Bridge Mill House, Passingford Bridge, RM4 1RB
- Passingford Bridge Mill, Passingford Bridge, RM4 1RB

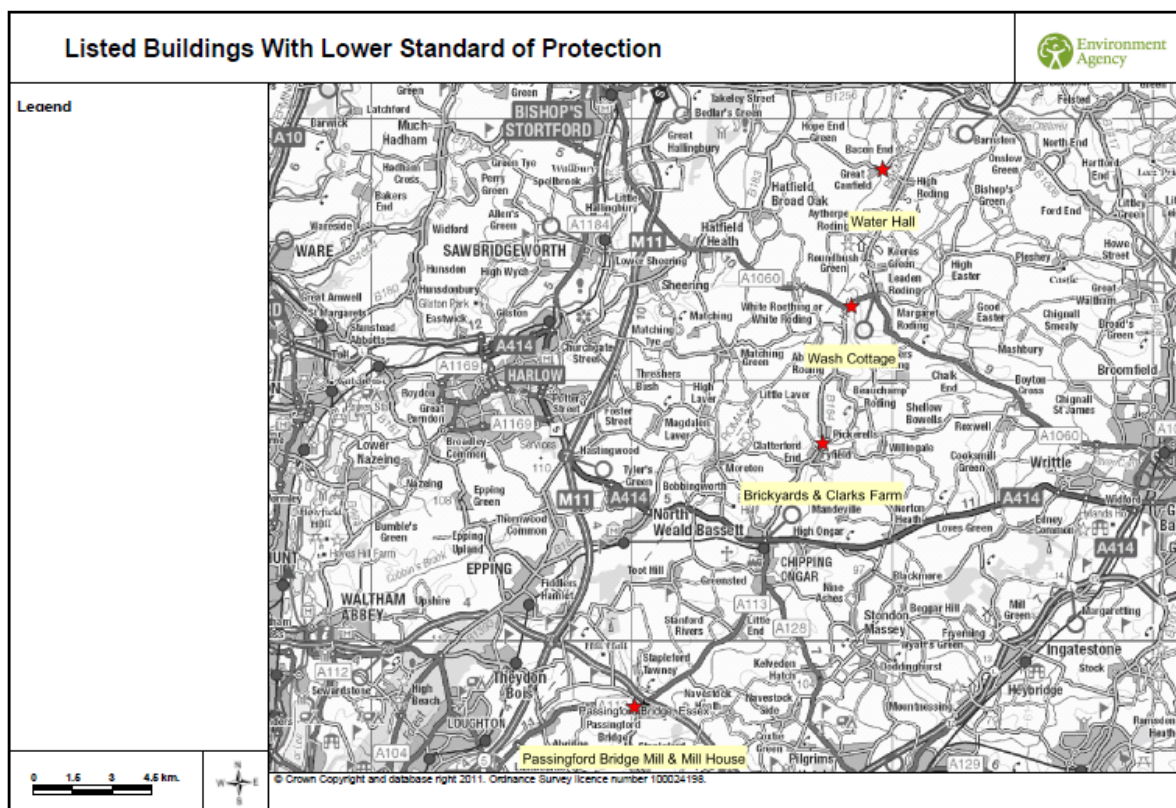


Figure 2: Listed Buildings with lower standard of protection

Archaeological Priority Zones

Essex County Council has confirmed in their consultation response that there are no Archaeological Priority Zones defined in Essex. Further examination of areas of Archaeological importance will therefore have to be undertaken at the project level and consideration of impacts undertaken at an early stage.

GLAAS have identified the Archaeological Priority Zones in Greater London. Of those represented in the study area, only Wanstead Park and Roding Valley Park are of interest. In section 4.8.1 our strategic assessment considered the identification of the locations of these sites to be sufficient for the purposes of assessing areas of undesignated, important archaeology. The implications which the presence of these Archaeological Priority Zones may have for design and construction, such as the requirement for avoidance, mitigation and archaeological monitoring in the area will be considered at the detailed design stage. We are very much in agreement that all impacts

on archaeology will need to be considered in advance of 'works'. As noted in our proposed mitigation in the impact tables in section 7 of the Environmental Report Addendum, we will continue to liaise proactively with English Heritage and the County Archaeologist(s) to ensure that this is the case.

Heritage at Risk

We appreciate your recommendation regarding review of the 'Heritage at Risk' Register and understand that this is an important source of information and an opportunity to explore enhancements to listed buildings and encourage sustainability. None of the six listed buildings that may have a lower standard of protection as a result of the Strategy are listed on the Heritage at Risk Register.

Local Heritage

We recognise that designated heritage assets are only a small proportion of the historic context, which includes the setting of assets, locally accessible and significant monuments or undiscovered archaeological remains. Consideration of the Strategy's likely impact on known important local heritage has been discussed above. Such impacts will be assessed during project level environmental appraisals of the structural measures proposed as part of the Strategy, once the details of the options have been refined.

Heritage Counts

We thank you for informing us of this very useful resource and we will endeavour to utilise it on the future projects which will come from implementation of our preferred strategy.

Benefits, Mitigation & Management

The implementation of the strategy allows the continued, or improved, protection of 97 listed properties in the downstream section of the catchment. There is an overall positive effect on heritage properties through implementation of the strategy.

The slight change in risk of the six identified listed properties, has been discussed through targeted consultation with owners. We will be looking at options for flood resilience and resistance measures which are achievable to maintain the current level of protection.

Mitigation and Monitoring

Prior to construction the impacts on heritage assets will be considered through environmental assessment and detailed design at a level proportionate to the delivery of the project. Assessment will consider the need for avoidance and mitigation. Assessment will occur in consultation with the local planning authority's Archaeological and Conservation advisors and English Heritage where designated heritage assets are affected. Assessment and any mitigation will be proportionate to the impact and importance of the Heritage asset affected at construction and any ancillary works.

On page 86 of the Environmental Report Addendum, in the assessment of 'Option 3 – Maintain' the potential for impacts to Chipping Ongar and Abridge Conservation Areas is mentioned. The effects are to do with the repair and replacement of assets on the Cripsey Brook. At Strategic level the details and timings of the required repairs and replacement (which are referred to here as 'defence improvements') are not known with any certainty. Sensitive design following the principles set out in the conservation area descriptions, combined with liaison with the local authority we expect will minimise any potential impact on Conservation Areas. Prior to any works on defences to be maintained (repaired/replaced) taking place there would be investigations at project level to consider the effect that any works would have on Conservation Areas to ensure that appropriate mitigation can be developed prior to construction. However, the impact of not undertaking these works could allow the flooding of conservation areas and a large scale impact on the buildings within the conservation area.

As stated above we agree with the comment that there is a need to consider the adoption of proportionate archaeological good practices prior to works. We previously stated in Table 7.8, under potential mitigation measures, that '*Early consultation with the English Heritage Scheduled Monument Inspector and Archaeological Advisor and identification of the need for an archaeological desk study and watching brief.*' We agree that this is restrictive and would suggest, in line with Essex County Councils response, that "*identification of the need for archaeological desk study, on site evaluation and mitigation measures*" would be more considered response at project level. Good design and influence in the location of works (within agreed boundaries) will take the strategy principles and deliver a project which will seek to avoid the important and complex heritage assets once they are defined local level.

We appreciate your concern that we have emphasised the potential for undiscovered remains rather than on the known heritage assets. The Summary of Impact Tables (Tables 7.5 - 7.9) list only the receptors for which impacts which are considered likely to occur rather than listing all receptors and stating that there are no anticipated impacts for some. For consistency, the format of the 2006 Environmental Report was followed however we do understand that this may have caused some confusion as to which receptors had been assessed. We believe that this challenge will be addressed through local level appraisal within the option appraisal and detailed design stages.

We thank you for your recommendation to use the Greater London Archaeological Advisory Service (GLASS) to aid in the monitoring for the implementation of the Strategy.

Terminology

We agree that the terms 'heritage asset' and 'Historic Environment Record' should be used in all strategies and projects and we will endeavour to make sure this terminology is used going forward. For consistency in the Environmental Report Addendum we endeavoured to use terminology that was consistent with the 2006 Environmental Report, however on reflection it may have been clearer to use the new terminology that has emerged since 2006.

Conclusion

We appreciate your consultation responses which have aided us in reviewing the River Roding Flood Risk Management Strategy and supporting Strategic Environmental Assessment Addendum. It is not proposed to revisit the Environmental Report Addendum at this time, as it was sent out as a final version to support the preferred strategy. This particular document will be attached to the SEA as an Appendix, included in the Consultation Summary and referred to in the Statement of Environmental Particulars which will lead the projects advocated in the Strategy.