Thames river basin district
Flood Risk Management Plan 2015 to 2021
Habitats Regulation Assessment

March 2016
Executive summary

The Flood Risk Management Plan (FRMP) for the Thames River Basin District (RBD) provides an overview of the range of flood risks from different sources across the 17 catchments of the RBD and more specifically from local flood sources in the 2 Flood Risk Areas (FRAs) of London and Medway. The RBD catchments are defined in the River Basin Management Plan (RBMP) and based on the natural configuration of bodies of water (rivers, estuaries, lakes etc.).

The 2 FRAs were identified as having higher local flood risk by the Preliminary Flood Risk Assessments. The FRMP provides a range of objectives and programmes of measures identified to address these risks from all flood sources. These are drawn from the many risk management authority plans already in place but also include a range of further strategic developments for the FRMP ‘cycle’ period of 2015 to 2021. The range of measures in the Thames RBD FRMP are reported under the following types of flood management action:

<table>
<thead>
<tr>
<th>Types of flood management measures</th>
<th>% of measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevention – e.g. land use policy, relocating people at risk etc.</td>
<td>39%</td>
</tr>
<tr>
<td>Protection – e.g. various forms of asset or property-based protection</td>
<td>22%</td>
</tr>
<tr>
<td>Preparedness – e.g. awareness raising, forecasting and warnings</td>
<td>31%</td>
</tr>
<tr>
<td>Recovery and review – e.g. the ‘after care’ from flood events</td>
<td>3%</td>
</tr>
<tr>
<td>Other – any actions not able to be categorised yet</td>
<td>5%</td>
</tr>
</tbody>
</table>

The purpose of the HRA is to report on the likely effects of the FRMP on the network of sites that are internationally designated for protection (European sites) and the HRA has been carried out at the level of detail of the plan. Many measures do not have any expected physical effects on the ground and have been screened out of consideration including most of the measures under the categories of Prevention, Preparedness, Recovery and Review. Others that may have effects but are in catchments that do not have any designated European sites have also been screened out of consideration.

Risk management authorities (RMAs) have for a long time been addressing the range of flood risks through a range of plans and actions. Much of the Thames RBD FRMP presents measures that are ongoing from existing plans which have already been subject to HRA. RMAs have considered the effects of these existing plan measures on European Sites in published HRAs where required. These measures, their effects and agreed actions to mitigate the effects have been summarised under relevant RBD catchments and FRAs. Where RMAs have identified new flood risk management priorities for the next FRMP cycle period between 2015 and 2021, then the measures to implement these have been considered alongside existing plan measures in this HRA.

The following summarises the numbers of measures that the HRA has considered:
The HRA has been carried out for the set of measures for each RBD catchment that address main river, sea and reservoir flooding alongside any measures volunteered by RMAs that address local flooding and thus form a ‘RBD plan’ within the FRMP. Measures within FRAs that address high risk of local flooding in these areas have been considered in the HRA as separate ‘FRA plans’ within the FRMP. Both ‘RDB plan’ and ‘FRA plans’ are further considered in-combination by the HRA. The findings are a summary of the risks to European sites and an indication of the need for future HRAs at a project level when developing local actions, as well as considering how to avoid and mitigate any residual risks to European sites.

For the Thames RBD FRMP, the main conclusions from the stages of assessment across all 3 RMA plans of the FRMP are as follows:

A determination was made to screen out measures that would not have physical effects on any European sites.

The effects of the measures from existing plans include effects of measures to address coastal flooding from SMPs, measures to address main river flooding from CFMPs and measures to address local flooding from local strategies. Existing controls and mitigations from these plans include: for SMPs, development of coastal strategies, accompanied by more detailed HRAs for relevant SMP Policy Areas and for CFMPs and Local Strategies more detailed appraisal and assessment on plans or projects arising out of the plans to demonstrate meeting the requirements of the Conservation of Habitats and Species Regulations 2010, as amended (Habitats Regulations).

The effects of the measures that are for new flood risk management priorities for the next FRMP cycle period of 2015 to 2021 have been considered within this strategic-plan level HRA as far as they can be assessed at this high level. This HRA considered the range of mitigation options that may be applicable. It is concluded that the measures are expected to be able to be avoided or mitigated as part of their development as local actions, and all measures have been identified as capable of being fully mitigated. It can therefore be concluded that at the plan level there is sufficient scope for ensuring no likely significant effects during its implementation. The detail of the controls and mitigation required will be assessed as part of requirements to meet consents under planning and other consenting mechanisms as part of a project level HRA, some of which may need to proceed to appropriate assessment in order to gather the necessary level of detail.

The HRA further considers the potential for in-combination effects with other plans and projects. Given the level of information currently available, the assessment has identified the

<table>
<thead>
<tr>
<th>FRMP RMA plans</th>
<th>Screened out measures</th>
<th>Measures from existing plans</th>
<th>New cycle 1 measures 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thames RBD catchments</td>
<td>546</td>
<td>204</td>
<td>45</td>
</tr>
<tr>
<td>FRA London</td>
<td>828</td>
<td>34</td>
<td>17</td>
</tr>
<tr>
<td>FRA Medway</td>
<td>8</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>1382 (82%)</td>
<td>241 (14%)</td>
<td>62 (4%)</td>
</tr>
</tbody>
</table>

1 Measures across several catchments are counted up for each catchment for HRA purposes which may be a different figure than reported in the FRMP.
plans where the greatest risk of in-combination effects occur, but a detailed assessment can only be undertaken at the project level when details of location and design are known. Key external plans to consider for in-combination effects are:

- **Local Plans** – plans of local planning authorities to determine consent for proposed developments including FCRM ‘Protection’ types of development and which require HRA for developments affecting European sites.

- **Water Resource Management Plans** – plans to manage the supply of water to communities by Water Companies.

- **River Basin Management Plans** – plans that seek to ensure the objectives of water dependent European sites are maintained.

- **Marine Plans** – plans to manage the sustainable use of marine resources for inshore areas.

This HRA does not remove the need for HRA at a subsequent level, i.e. lower tier strategies, plans or projects that implement measures. This plan-level HRA does not give any weight to subsequent lower-tier plans or projects and their HRA outcomes.

As local actions are developed at a project level and the details of their scope and scale are known, this may identify additional effects on European sites that have not been assessed here, or were not appropriate to consider at this spatial scale of plan.
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1. **Introduction**

1.1. **Introducing this report**

This report sets out the results of a strategic-plan level Habitat Regulations Assessment (HRA) into the likely significant effects on designated ‘European sites’ of the Flood Risk Management Plan (FRMP) for the Thames River Basin District published in December 2015. The HRA report has been prepared by the Environment Agency on behalf of the collective Risk Management Authorities (RMAs) that have responsibilities for information being published within the FRMP and are thus the ‘competent authorities’ for the HRA of their respective published information, as follows:

- Information on flooding from main river, sea and reservoirs being published for the catchments of the river basin district (RBD) are the responsibility of the Environment Agency (for English catchments).
- Information on flooding from local sources being published for any Flood Risk Areas (FRA) is the collective responsibility of Lead Local Flood Authorities within the FRA.

In preparing the HRA report the Environment Agency has consulted with Natural England (for English catchments) and Natural Resource Wales (for Welsh catchments). The Lead Local Flood Authorities in Flood Risk Areas are ‘competent authorities’ for HRA of their FRMP information and have agreed that this report will meet their HRA requirements.

FRMPs are new strategic plans for implementing the Flood Risk Regulations 2009 and the existing National Flood and Coastal Erosion Risk Management (FCERM) Strategy for England. They have been developed for River Basin Districts (RBDs) and Flood Risk Areas (FRAs) and draw together information from a range of existing strategies and plans that are in place and continue to be maintained by Risk Management Authorities. The HRA has been carried out at the level of detail published in the FRMP and takes into account HRAs that have already been undertaken for measures in existing plans, and at the level of detail provided by these existing plans. Whilst a HRA at this strategic level cannot obtain the level of detail necessary for in-depth assessment, the HRA summarises the likely risks and potential need for controls and mitigation and the range of generic mitigation options available, which will then proceed through further consideration once measures are developed as specific local actions. In this way, this high-level HRA will be helpful for future HRAs that consider the effects on European sites at a project level.

The report describes each of the main stages and results of the FRMP HRA as follows:

- Describing the network of European sites within the RBD (chapter 2)
- The approach to the HRA (chapter 3)
- Screening and assessing likely significant effects (chapters 4,5,6)
- Appropriate assessment, alternative solutions and IROPI (chapters 4,5,6)
- Conclusion and future HRAs (chapter 8).
1.2. Background to the FRMPs

Flood risk management plans (FRMPs) highlight the hazards and risks from rivers, the sea, surface water, groundwater and reservoirs and set out how risk management authorities, such as the Environment Agency and local authorities will manage flood risk. They are required by the European Union Floods Directive and the Flood Risk Regulations 2009. The FRMPs must be reviewed and reissued every six years to describe progress.

The Environment Agency is required to prepare flood risk management plans for all of England covering flooding from main rivers, the sea and reservoirs. Lead Local Flood Authorities (county councils and unitary authorities) must prepare flood risk management plans for flood risk areas (there are ten flood risk areas in England) where the risk of flooding from local sources is significant as identified in Preliminary Flood Risk Assessments.

The 2015-2021 period will be the first cycle of the FRMPs, however RMAs already plan for flooding and a large proportion of the FRMPs are taken from existing plans that have already been consulted on and published. This includes plans such as Catchment Flood Management Plans (CFMPs) and Shoreline Management Plans (SMPs) as well as Local Flood Risk Management Strategies that have been developed by local authorities.

Some further strategic developments have been included for the 2015-2021 first cycle of the FRMP that build on existing plans and seek to address the key objectives of the Flood Risk Regulations 2009 such as: strengthening joint working of RMAs, developing more integrated management of the water environment, and updated priorities from any new understanding of flood risks including the implications of climate change.

1.3. The Thames RBD FRMP

The Thames River Basin District (RBD) covers a relatively small area of the UK in terms of area but contains a large proportion of the population, around 15 million people. The majority of people live in London. Other large centres of growing population include Reading, Swindon and Crawley. Intensification of land use is resulting in increase rainfall runoff in both urban and rural areas where land has been developed and is used productively.

The Thames RBD has many significant wetland and wildlife sites including protected marshes and chalk streams. There are many areas where the water environment is particularly important including rare wildlife habitats, bathing waters and areas where drinking water is abstracted.

Climate in the RBD is expected to change in general terms broadly in line with predictions for the rest of the UK. It is likely that summers will become hotter and drier and winters warmer and wetter. It is likely under these conditions that flood risk will generally increase in the RBD, including as a result of sea level rise.

The Thames RBD is made up of 17 management catchments (see map in Figure 1 below).

The FRMP describes the scale of flood risk in the Thames RBD which includes:

- Flooding from rivers, the sea, surface water, groundwater, storm water drainage (including highways), sewer systems and failure or overtopping of water control structures.
In London, the majority of rivers have been modified to carry water efficiently through artificial and straightened channels. Most of their floodplains have been heavily developed and flooding can happen very quickly.

Historically extensive, catchment-wide river flooding in the Thames river basin has happened when heavy and prolonged rainfall occurs when the catchment is either frozen or saturated, between the autumn and spring. These very large scale floods can affect 1000’s of properties across the RBD.

More recently, in 2000, conditions were such that groundwater flooding also occurred across much of the chalk down-land. Because of the size of the RBD, flooding is sometimes confined to sub-catchments as a result of storms and depressions only affecting part of the basin.

Urban catchments are particularly vulnerable to river flooding as a result of increased surface water run-off from impermeable surfaces. Surface water flooding occurs as drainage systems become overloaded with high volumes of rainfall.

*Figure 1 Thames RBD catchments and Flood Risk Areas*

The Thames RBD FRMP sets out the objectives and measures to manage flood risk, from the Environment Agency and the Lead Local Flood Authorities for the Thames RBD.

Measures within the FRMPs have been developed by the Environment Agency and the Lead Local Flood Authorities (LLFAs) within the respective FRMP areas.

Measures within the FRMPs are either already developed, these are derived from existing plans, which have been separately consulted on and published with accompanying assessment, including Habitats Regulations Assessment (HRA); or new measures,
developed specifically for inclusion in the FRMP. The source of the measures has determined how they have been treated in the HRA.

Existing plan measures in the Thames FRMP are derived from the following source plans:

- The River Medway to Swale Estuary Shoreline Management Plan (SMP)
- The Isle of Grain to South Foreland (SMP)
- The Thames Catchment Flood Management Plans (CFMP)
- The North Kent Rivers CFMP
- The Medway CFMP
- Local Flood Risk Management Strategies (FRMS) developed by LLFAs
- Surface Water Management Plans (SWMP’s)
- The Thames Estuary 2100 Plan
- London FRA Local Strategies
- London FRA SWMP’s
- Medway SWMP’s
- Other Local Plans.

The FRMP is divided into the separate plans that are the responsibility of different risk management authorities, as follows:

- Measures within the 17 RBD catchments of the Thames RBD that the Environment Agency is responsible for, and
- Measures within the Medway Flood Risk Area (FRA) for local sources of flooding that fall within the Medway management catchment. The Lead Local Flood Authorities (LLFAs) whose administrative boundaries fall within the Medway FRA are responsible for these measures.
- Measures within the London FRA for local sources of flooding that fall within the Lee, London, Colne, and Roding, Beam and Ingrebourne management catchments. The LLFAs whose administrative boundaries fall within the London FRA are responsible for these measures.

1.4. Background to Habitats Regulations Assessment


Sites protected under the Habitats Regulations comprise Special Protection Areas (SPA), Special Areas of Conservation (SAC), candidate SACs (cSAC), Sites of Community Importance (SCI) and, as a matter of government policy, to potential Special Protection Areas (pSPA) and Ramsar sites (sites designated under the 1971 Ramsar Convention for their internationally important wetlands). These sites are referred to collectively as in this report as ‘European sites’.
Regulation 9(3) of the Habitats Regulations requires that a ‘competent authority’ must consider the requirements of Habitats Directive in exercising any of its functions. Article 6(3) of the Habitats Directive defines the requirements for assessment of plans and projects potentially affecting European sites. This requires that a competent authority, before deciding to undertake, or give any consent or authorisation for a plan or project which is likely to have a significant effect on a European site, and is not directly connected with or necessary to the management of that site, must carry out an appropriate assessment. The term commonly referred to for the assessment process is ‘Habitats Regulations Assessment’.

The Thames FRMP is considered to fit within the definitions of a ‘plan’ as defined by the Habitats Directive, and requires a Habitats Regulations Assessment (HRA). The FRMP is a high-level planning document for the Thames River Basin District (RBD) (see map in Figure 2), therefore potential impacts of the plan on European sites across the RBD are difficult to determine. Given the geographic scale and nature of the plan, the HRA needs to be tailored to be appropriate for the spatial area of coverage and the strategic nature of the plan.

The Habitats Regulations Assessment has followed a framework of four distinct stages, only moving to the next stage if required by the results of that stage of the assessment. The four stages are:

**Stage 1: Screening and Likely Significant Effects** is the process which initially identifies the likely impacts upon a European Site of a plan or project, either alone or in combination with other plans or projects, and considers whether these impacts may be significant. This stage also includes the development of mitigation to avoid or reduce any possible impacts.

**Stage 2: Appropriate Assessment** is the detailed consideration of the impact on the integrity of the European Site of the plan or project, either alone or in combination with other plans or projects, with respect to the site’s conservation objectives and its structure and function. This is to determine whether there is objective evidence that adverse effects on the integrity of the site can be excluded. This stage also includes the development of mitigation to avoid or reduce any possible impacts.

**Stage 3: Assessment of alternative solutions** is the process which examines alternative ways of achieving the objectives of the plan or project that would avoid adverse impacts on the integrity of the European Site, should avoidance or mitigation be unable to avoid adverse effects.

**Stage 4: Assessment where no alternative solutions exist and where adverse effects remain** is made with regard to whether or not the plan or project is necessary for imperative reasons of overriding public interest (IROPI) and, if so, of any required compensatory measures.
2. European sites in the Thames RBD

Within the Thames RBD there are 29 SACs, 12 SPAs, and 8 Ramsar sites. Several sites have multiple designations such as the Lee Valley, Medway Estuary and Marshes, and the South West London Waterbodies, parts of these sites being designated as both SPA and Ramsar sites. Figure 2 shows a map of the Thames RBD with the European sites and the management catchments of the Thames RBD.

Figure 2 - Map of the European sites in the Thames River Basin District

Although most of the European sites in the RBD contain a variety of habitat types, broadly speaking they can be described as coastal / marine sites, freshwater sites such as gravel pits, water supply reservoirs and semi-natural lakes and terrestrial sites such as woodlands, several types of grasslands, and bogs. In general the European sites are broadly clustered in either the central southern, or far eastern area of the RBD, with a relative absence of sites towards the west.

Of the 8 Ramsar sites in the RBD, 5 are coastal which occur in the Thames Estuary. One of the largest at 6500 ha is The Swale on the North Kent coast, a complex of brackish and freshwater habitats where birds breed in important numbers. By contrast a significantly smaller inland freshwater site (at 830ha) is the South West London Waterbodies in Surrey, a series of embanked freshwater reservoirs and former gravel pits which provide important feeding and roosting sites for a diverse range of wintering wildfowl.

Of the 12 SPA sites in the RBD, 6 are coastal and 4 inland terrestrial. Of the coastal sites in the RBD Benfleet and Southend Marshes (at 2251 ha), located on the north shore of the
Thames Estuary is particularly renowned regionally for cockle shell banks, extensive mudflats and grassland that support a diverse flora and fauna. These habitats provide a wide range of feeding and roosting opportunities for internationally important numbers of wintering wildfowl and waders. Ashdown Forest, an example of a terrestrial inland SPA site in East Sussex (at 3207ha), has a diverse range of scrub and mixed woodland and contains one of the largest single continuous blocks of lowland heath in south-east England. These habitats support birds of European importance such as European Nightjar, Dartford warbler and Eurasian hobby.

SAC sites in the RBD are the most widespread in occurrence, and comprise the largest diversity of habitat types. These sites range from internationally rare chalk streams, to mixed use parkland sites such Richmond Park, through to mosaics of heath, scrub and bog, such as Shortheath Common in Hampshire. The (5154ha) composite Thursley Ash Pirbright and Chobham SAC in Surrey captures this diversity, being made up of numerous standing and running waterbodies, bogs, marshes, fens, heath habitat and coniferous woodland.

Annex B contains a summary of the European sites present within the Thames RBD. Table A2 in Annex A presents a summary of the European sites present within the management catchments of the Thames RBD. In a number of cases European sites cross over the boundary of two or more management catchments, therefore a number of European site names / designations may appear against more than one management catchment.

2.1. European sites that could be affected by the FRMP

The Thames RBD FRMP is a long term plan for the water environment, which could potentially affect both water dependent and non-water dependent European sites and their qualifying features.

It is not possible from the outset to rule out, at the RBD scale, any (water-dependent or non water-dependent) European sites from being affected by the Thames RBD FRMP. This HRA (in particular Sections 4.2, and sections 5.2 / 6.2 for the two FRAs) reviews the European sites by management catchment, and determines whether any of the measures within the catchments are likely to lead to significant effects on European sites.

2.2. European sites and their status for FRMPs

The Thames RBMP provides summary information on the current status and baseline for water-dependent European Sites as part of its monitoring data.

European Sites in England, with the occasional exception, are also designated as SSSIs. Natural England monitors the conditions of SSSIs and their component units using six reportable condition categories: favourable; unfavourable recovering; unfavourable no change; unfavourable declining; part destroyed and destroyed.

The current status of water-dependent European site protected areas for the Thames RBD is summarised in Table 1 below. This gives the current area of water-dependent SSSI units of European protected areas in different condition categories as currently recorded on Natural England's designated site data system. SSSI units underpin European protected areas and Natural England only collects data at a SSSI unit level. When SSSI units are in favourable condition, they are deemed to be meeting their conservation objectives.
Table 1 Status of water-dependent European sites based on assessment of SSSI Units for the Thames RBD (Extract from Natural England databases August 2015)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Thames RBD (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Favourable</td>
<td>24,708</td>
</tr>
<tr>
<td>Destroyed / Part destroyed</td>
<td>0</td>
</tr>
<tr>
<td>Unfavourable declining</td>
<td>131</td>
</tr>
<tr>
<td>Unfavourable no change</td>
<td>227</td>
</tr>
<tr>
<td>Unfavourable recovering</td>
<td>7,357</td>
</tr>
<tr>
<td>Total Area Unfavourable</td>
<td>7,715</td>
</tr>
<tr>
<td>% Unfavourable</td>
<td>24</td>
</tr>
</tbody>
</table>

This shows that for the Thames RBD, 24% of water-dependent SSSI units of European protected area sites are currently not compliant with the condition requirements.

The generic pressures on such sites in the Thames region include most commonly lack of direct corrective action to improve condition of sites such as weed control in water dependent habitats but also application of inappropriate agricultural practices. These can include over cutting or mowing, or under-grazing of grassland sites and inappropriate scrub control in heathland areas. Public disturbance can also be a pressure, particularly on ancient woodland SSSI’s.

There are also long term national threats to habitats and especially species, including climate change, alterations in hydrological and coastal processes and invasive non-native species.

2.3. European sites and their management

As part of a new strategic approach to managing all England’s European sites, new measures needed to achieve favourable conservation status for all European sites in England have been developed by Natural England. These are collectively referred to as Site Improvement Plans (SIPs), and are being developed by the Improvement Programme for England’s Natura 2000 sites (IPENS). SIPs were published for all European sites in England in 2015².

The Thames FRMP recognises SIPs include actions where flood risk management is specifically a mechanism for their delivery. The following are the relevant SIPs for Thames RBD:

- Site Improvement Plan: Epping Forest (SIP076)
- Site Improvement Plan: River Lambourn and Kennet-Lambourn Floodplain (SIP112).

² Site Improvement Plans for the Thames River Basin District can be found on: [http://publications.naturalengland.org.uk/category/6287197783195648](http://publications.naturalengland.org.uk/category/6287197783195648)
3. Approach to the HRA

The steps undertaken to complete the HRA are as follows:

- describe the plan and the measures proposed
- screen and assess the likely significance of any effects on European Sites
- consider need for further stages of assessment (i.e. appropriate assessment, alternative solutions and IROPI)
- determine a plan level conclusion

3.1. Description of the FRMP programmes of measures

The Thames RBD FRMP is a joint publication of several plans required under the Flood Risk Regulations that are the separate responsibilities of specific Risk Management Authorities (RMAs), as follows:

- Thames River Basin District catchments (Environment Agency)
- Medway Flood Risk Area (LLFAs within the FRA)
- London Flood Risk Area (LLFAs within the FRA).

3.1.1. River Basin District Catchments

FRMPs for the River Basin District (RBD) are being published by the Environment Agency (for English catchments) and Natural Resources Wales (NRW) (for Welsh catchments), and are focused on measures principally to address flood sources from main river, the sea and reservoirs. The measures have been divided into catchments based on the River Basin Management Plans (where they are called ‘management catchments’).

Production of the FRMPs for the RBDs is the legal duty of the Environment Agency and NRW. Where any voluntary information on local sources of flooding within RBD catchments has been provided by LLFAs, these are published by joint agreement in the RBD FRMP. The Environment Agency and NRW are also the competent authority under the Habitats Regulations for the RBD FRMPs.

3.1.2. Flood Risk Areas

FRMPs for Flood Risk Areas (FRAs) are being published by the Lead Local Flood Authorities (LLFAs) where the FRAs lie within their administrative boundaries. Production of the FRMPs for the FRAs is the legal duty of the respective LLFAs. The LLFAs responsible for the FRA FRMPs are also the competent authority under the Habitats Regulations.

Where a RBD includes one or more FRA, as is the case for the Thames RBD, the measures that have been developed specifically for these FRA FRMPs are presented and assessed separately.

3.1.3. Applying HRA

In applying the HRA process, each RMA plan has been assessed separately. A final summary of conclusions and recommendations for future HRAs is provided that also draws on a high-level summary of the potential for in-combination effects of the FRMP with other key plans.
3.2. Screening and Likely Significant Effects

This first step of the HRA process requires consideration of screening and likely significant effects of measures on European Sites. The tasks undertaken to complete this are as follows, set out in more detail below:

- screening out catchments where no European Sites are present
- screening out measures that would not have physical effects
- considering measures from existing plans, with mitigation / controls already agreed in HRAs for any likely significant effects, or in some cases potential adverse effect on site integrity
- considering new measures and their likely significant effects, with mitigation / controls where considered necessary
- conclusion from screening and likely significant effects.

The results of these tasks for each RMA’s plan of the FRMP are provided in the following chapters:

- Chapter 4: Thames River Basin District catchments
- Chapter 5: Medway Flood Risk Area
- Chapter 6: London Flood Risk Area.

3.3. Screening out catchments where no European Sites are present

Where there are no European sites present in a catchment, it was determined that no further consideration of measures in the catchment is required. Given the level of detail in the plan where the FRMP measures are mainly strategic in nature and are not specific on their precise location, there is insufficient details to consider downstream or down drift effects beyond the catchment. However, such screening for cross-catchment effects will be a requirement in assessing local plans and projects.

3.4. Screening out measures that would not have physical effects

Every measure included within the FRMP is categorised according to one of the following 5 categories, accompanied by an M-code:

- **Prevention (M2)** - reducing the impacts of flooding through land use and development policy, relocation of assets at risk, or measures to divert the hazard to avoid harm.

- **Protection (M3)** - protecting people from the risk of flooding; for example, by the maintenance, refurbishment of existing defences or building new defences.

- **Preparedness (M4)** - by taking actions that prepare people for flooding; for example, by improving awareness of flood risk, or by providing warning and forecasting for floods.
- **Recovery and review (M5)** - supporting recovery after flooding has happened and reviewing how things can be improved; for example, by improving the availability of recovery services such as providing temporary accommodation.
- **Other (M6)** – measures not fitting in to any of the above categories.

Further definitions of each of the measures are set out in the FRMP according to a second tier of M-codes. For example, Prevention (M2) includes the second tier measure, M22, which is defined as “Prevention, removal or relocation measure to remove receptors from flood prone areas or to relocate receptors to areas of lower risk”. These measure definitions have been used as the basis for the initial screening out of the measures that require no for further consideration within the HRA.

The measure codes and their definitions are included as Table A1 (in Annex A to this document). Measures under ‘Preparedness’ (M4) and ‘Recovery and review’ (M5) will not result in development, demolition or changes of management ‘on the ground’ that could result in affects on European Sites. These were therefore screened out from any further consideration. Similarly, under the ‘Prevention’ category (M2), only the removal or relocation of receptors from flood prone areas could potentially affect European sites. The measures that have been screened in to the assessment are set out below and have been highlighted in Table A1:

- M22 – Prevention – removal or relocation (category)
- M3 – Protection – all sub-categories
- M6 – Other – not yet defined.

### 3.5. Considering measures from existing plans

Risk Management Authorities have a range of plans in place for developing and implementing measures related to flooding from main river (in Catchment Flood Management Plans), to flooding from the sea (in Shoreline Management Plans) and related to local sources of flooding (e.g. in Local Flood Risk Management Strategies). These plans have been subject to HRA where relevant, and have reported on the effects on European Sites consistent with the level of detail of the plans.

For this HRA, these existing HRAs have been used to summarise the effects of measures from existing plans that are now set out under specific RBD catchments or FRAs. For many RBD catchments and FRAs there are multiple existing plans covering the geographic area but also some existing plans that are split across RBD catchments or FRAs. Nonetheless we have separated out the 'screened in’ measures from individual existing plans and referenced the specific HRA results that apply to them.

The results from existing HRAs have considered the extent that they remain valid since they were published. This has been done by checking the status of the relevant European sites that were considered within the source plan’s HRA for any changes to site designations since the date of the HRA publication. The criteria were agreed with Natural England and comprised: whether there were any new / additional site designations, any changes in site boundaries, changes in designated site features, or any significant changes in site conditions.
The HRA results from Shoreline Management Plans are relatively recent with most published between 2010 and 2011. The HRA results from Catchment Flood Management Plans are a little older with most published between 2008 and 2010. The HRA results from Local Flood Risk Management Strategies are the most recent with the first ones being published around 2012 and most being published much more recently.

One of the main reasons for a likely change from when the effects of plan measures were reported in HRAs is where there have been boundary changes to European sites or to the scope of condition of the interest features of the sites i.e. specific habitats, species etc. Where we have been advised that such changes have occurred and are significant then this has triggered further consideration of the validity of the existing HRA results that we have relied upon.

3.6. Considering new measures for FRMP cycle 1

In reviewing the range of measures across existing plans covering all sources of flooding, Risk Management Authorities (RMAs) have taken the opportunity to put forward further strategic developments for the next 6 year cycle of the FRMP. These ‘new measures’ focus on: strengthening the joint working of RMAs across all flood sources; developing more integrated management of the water environment as set out in the River Basin Management Plans and other related plans; and updating flood risk information to help manage risks with communities.

For this HRA we have reviewed the set of new measures that have been ‘screened in’ for each catchment. As they are mostly ‘strategic’ measures without specific information on location or the form of action that would be developed on the ground, we have considered a range of factors that would give rise to any likely risks from this set of measures in a specific catchment, which includes:

- their general proximity in the catchment to European sites
- whether they aim to address sources of flooding that are local, or main river or related to the coast
- the mix of types of new measures within the catchment denoted by their M-codes (i.e. whether they are mainly maintenance, or channel works, or new solutions).

General proximity was considered by narrowing down the set of measures within a catchment to those that were closer in general and more likely to be connected to European sites by the hydrology of the catchment rather than applying specific buffer distances to individual measures.

3.7. Considering the need for further stages of assessment

HRA steps were carried out for each RBD catchment of the RBD plan that is the responsibility of the Environment Agency. Further HRA steps were carried out for each FRA (by catchment) that is the responsibility of respective Lead Local Flood Authorities. The determination for each catchment or FRA that there are no likely significant effects to European sites is based on the following assumptions:

- that this HRA does not remove the need for HRA at a subsequent level, i.e. lower tier strategies, plans or projects that implement measures, nor does it give any weight to
their outcomes. Consideration of potential impacts and options available to mitigate for those impacts should assist, but not influence or constrain any lower-tier assessments.

- that as local actions are developed at a project level and the details of their scope and scale are known, that this may identify additional effects on European Sites that have not been assessed here, or were not appropriate to consider at this spatial scale of plan.
4. Thames River Basin District Catchments HRA

This chapter sets out the results of carrying out the HRA on the measures for the Thames RBD catchments that are for flooding from main river, sea and reservoirs and for local flooding sources outside of Flood Risk Areas. This is the FRMP information for which the Environment Agency is the FRMP ‘statutory authority’ and HRA ‘competent authority’. The Flood Risk Area FRMP information for which other RMAs have responsibility has been considered separately in later chapters of the HRA (see sections 5 and 6).

This section covers the following stages of the assessment:

- Summary of measures being assessed
- Screening and assessment of likely significant effects
- Consideration of results and conclusion.

4.1. Summary of Measures

The initial screening and assessment of likely significant effect reviewed the measures for each of the 17 management catchments within the Thames FRMP.

Figure 3 - Map of the Thames river basin district and management catchments

A summary of the measures and their screening is given below for each catchment.
## Table 2  Summary of measures by catchment

<table>
<thead>
<tr>
<th>Management Catchment</th>
<th>Number of measures screened in (out)</th>
<th>Number of measures from existing plans</th>
<th>Number of measures related to types of existing plans¹</th>
<th>Number of new measures for cycle</th>
<th>Number of new measures and known level of detail¹</th>
<th>Number of European Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Catchments with no European sites present</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cherwell and Ray</td>
<td>0 (39)</td>
<td>No screened in measures as no European sites present</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Darent and Cray</td>
<td>0 (41)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Cotswolds</td>
<td>0 (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td><strong>Catchments with no screened in measures</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All remaining catchments have some screened in measures</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Catchments with all measures from existing plans</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medway</td>
<td>42 (53)</td>
<td>42</td>
<td>19 from CFMPs 23 from SMPs/other EA plans</td>
<td>0</td>
<td>No new measures</td>
<td>9</td>
</tr>
<tr>
<td>Mole</td>
<td>9 (9)</td>
<td>9</td>
<td>9 from CFMPs</td>
<td>0</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>North Kent</td>
<td>18 (20)</td>
<td>18</td>
<td>1 from CFMPs 17 from SMPs</td>
<td>0</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td>69 (172)</td>
<td>69</td>
<td>29 from CFMPs 40 from SMPs/other EA plans</td>
<td>0</td>
<td></td>
<td>(n/a)</td>
</tr>
<tr>
<td><strong>% all measures</strong></td>
<td>9%</td>
<td>9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Catchments with new measures for cycle 1 of the FRMP</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RBD-wide</td>
<td>4 (13)</td>
<td>2</td>
<td>2 from CFMPs</td>
<td>2</td>
<td>0 not in proximity 2 strategic/proximity unknown 0 specific/in proximity</td>
<td>49</td>
</tr>
<tr>
<td>Colne</td>
<td>11 (35)</td>
<td>2</td>
<td>2 from CFMPs</td>
<td>9</td>
<td>8 not in proximity 0 strategic/proximity unknown 1 specific/in proximity</td>
<td>4</td>
</tr>
<tr>
<td>Gloucestershire and the Vale</td>
<td>8 (25)</td>
<td>6</td>
<td>6 from CFMPs</td>
<td>2</td>
<td>2 not in proximity 0 strategic/proximity unknown 0 specific/in proximity</td>
<td>5</td>
</tr>
<tr>
<td>Kennet and tributaries</td>
<td>2 (16)</td>
<td>2</td>
<td>2 from CFMPs</td>
<td>0</td>
<td>0 not in proximity 0 strategic/proximity unknown 0 specific/in proximity</td>
<td>4</td>
</tr>
<tr>
<td>Loddon and tributaries</td>
<td>3 (21)</td>
<td>3</td>
<td>3 from CFMPs</td>
<td>0</td>
<td>0 not in proximity 0 strategic/proximity unknown 0 specific/in proximity</td>
<td>2</td>
</tr>
<tr>
<td>London</td>
<td>72 (90)</td>
<td>54</td>
<td>17 from CFMPs 33 from other EA plans 4 from LLFA plans</td>
<td>18</td>
<td>18 not in proximity 0 strategic/proximity unknown 0 specific/in proximity</td>
<td>9</td>
</tr>
<tr>
<td>Catchment Area</td>
<td>Total Measures</td>
<td>Proportion of Measures</td>
<td>Source of Measures</td>
<td>Proportion of Measures</td>
<td>Proportion of Measures</td>
<td>Proportion of Measures</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------</td>
<td>------------------------</td>
<td>--------------------</td>
<td>------------------------</td>
<td>------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Maidenhead and Sunbury</td>
<td>9 (18)</td>
<td>8</td>
<td>3 from CFMPs 5 from other EA plans</td>
<td>1</td>
<td>0 not in proximity 0 strategic/proximity unknown 1 specific/in proximity</td>
<td>6</td>
</tr>
<tr>
<td>Roding, Beam and Ingrebourne</td>
<td>19 (50)</td>
<td>14</td>
<td>10 from other EA plans 4 from LLFA plans</td>
<td>5</td>
<td>1 not in proximity 4 strategic/proximity unknown 0 specific/in proximity</td>
<td>1</td>
</tr>
<tr>
<td>Thames and South Chilterns</td>
<td>6 (24)</td>
<td>5</td>
<td>5 from CFMPs</td>
<td>1</td>
<td>1 not in proximity 0 strategic/proximity unknown 0 specific/in proximity</td>
<td>4</td>
</tr>
<tr>
<td>Upper Lee</td>
<td>6 (21)</td>
<td>4</td>
<td>4 from LLFA plans</td>
<td>2</td>
<td>2 not in proximity 0 strategic/proximity unknown 0 specific/in proximity</td>
<td>3</td>
</tr>
<tr>
<td>South Essex</td>
<td>36 (46)</td>
<td>32</td>
<td>24 from other EA plans 8 from LLFA plans</td>
<td>4</td>
<td>2 not in proximity 2 strategic/proximity unknown 0 specific/in proximity</td>
<td>4</td>
</tr>
<tr>
<td>Wey and tributaries</td>
<td>4 (15)</td>
<td>3</td>
<td>3 from CFMPs</td>
<td>1</td>
<td>0 not in proximity 0 strategic/proximity unknown 1 specific/in proximity</td>
<td>11</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td><strong>180 (374)</strong></td>
<td><strong>135</strong></td>
<td><strong>43 from CFMPs 72 from other EA plans 20 from LLFA plans</strong></td>
<td><strong>45</strong></td>
<td><strong>34 not in proximity 8 strategic/proximity unknown 3 specific/in proximity</strong></td>
<td><strong>6% 34 (4%) 8 (1%) 3 (&lt;1%)</strong></td>
</tr>
<tr>
<td><strong>% all measures</strong></td>
<td><strong>% all measures</strong>&lt;sup&gt;2&lt;/sup&gt;</td>
<td><strong>23% 17%</strong></td>
<td><strong>72 (9%) 112 (14%) 20 (3%)</strong></td>
<td><strong>6%</strong></td>
<td><strong>see above</strong></td>
<td><strong>see above</strong></td>
</tr>
</tbody>
</table>

1. All numbers are of 'screened in' measures, except those in brackets
2. All %s are of total of all 'screened in and out' measures
3. 'in proximity' means being generally in the same part of the catchment (specific distances are not applied, but further detail is provided in the assessment)
4. 'specific' is where a measure is place specific, 'strategic' is where a measure is catchment or RBD-wide
5. Measures across several catchments are counted up for each catchment for HRA purposes which may be a higher figure than reported in the FRMP.

Of the total of 795 measures, 31% have been screened in for HRA consideration (69% screened out). Three management catchments contain no European Sites; all remaining management catchments within the Thames RBD have some screened in measures and are considered further.

There are 17 measures that are RBD-wide and are considered in section 4.2.4.12.

There are a number of measures from the neighbouring Anglian river basin district that are considered in section 4.2.4.13.

### 4.1.1. Risks from existing plan measures

26% of all FRMP measures (excluding Flood Risk Areas) are screened in and from existing plans, 9% are from CFMPs, 14% from SMPs / other Environment Agency plans and 3% from LLFA plans. Most risks are from SMP measures where adverse effects identified in HRAs for specific policy areas are being addressed.

Most risks to European Sites that are being addressed by existing plans relate to the (14%) measures in SMPs and other Environment Agency plans, and more specifically where the
SMP is managing likely adverse effects such as in the catchments of Medway and North Kent.

### 4.1.2. Risks from new measures

6% of all FRMP measures (excluding Flood Risk Areas) are screened in and new measures, 1% are strategic without locations, 4% are not in proximity to any European Sites and <1% are more specific improvements that are in proximity to sites. The most likely risks will be related to the development of local actions for the specific improvements in the next FRMP cycle and can be found in the Colne, Maidenhead and Sunbury, and Wey and tributaries management catchments. The future strategic measures may also present a risk depending on where they are implemented in the South Essex and Roding Beam and Ingrebourne management catchments.

### 4.2. Screening and Likely Significant Effects

The management catchments that make up the Thames RBD FRMP are set out in table 3 below. The colour coding in the table summarises the nature and source of the bundle of measures, which forms the basis for how each management catchment has been assessed. The following sub-sections consider each of the management catchments in turn.

**Table 3 Management Catchments of the Thames RBD / FRMP**

<table>
<thead>
<tr>
<th>Management Catchment Category</th>
<th>Management Catchments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management catchments with no European Sites present.</td>
<td>- Cherwell and Ray - Darent and Cray - Cotswolds</td>
</tr>
<tr>
<td>Management catchments with no 'screened in' measures.</td>
<td>None</td>
</tr>
<tr>
<td>Management catchments with all measures from existing plans.</td>
<td>- Medway - Mole - North Kent</td>
</tr>
<tr>
<td>Management catchments with new measures.</td>
<td>- Colne - Gloucestershire and the Vale - Kennet and tributaries - London - Maidenhead and Sunbury - Roding Beam &amp; Ingrebourne - Loddon and tributaries - Thames &amp; South Chilterns - Upper Lee - Wey and tributaries - South Essex</td>
</tr>
</tbody>
</table>

#### 4.2.1. Management catchments with no European sites present

There are 3 management catchments within the Thames RBD where no European sites are present; the Cherwell and Ray, Darent and Cray, and Cotswolds. These 3 management catchments have been screened out of further consideration on this basis.

#### 4.2.2. Management Catchments with no ‘screened in’ measures

All management catchments within the Thames RBD have screened in measures, therefore no management catchments have been ruled out of further consideration on this basis.
4.2.3. Management Catchments with all measures from existing plans

The following management catchments in the Thames FRMP do not contain any FRMP new measures; they contain only measures from existing plans.

Each of these plans has already been subject to consultation and assessment, including HRA. The HRA conclusions for those source plans have been referred to in each case.

4.2.3.1. Medway Management Catchment

<table>
<thead>
<tr>
<th>European sites</th>
<th>New measures</th>
<th>Existing plan measures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Screened in</td>
<td>Screened out</td>
</tr>
<tr>
<td>9</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

The Medway management catchment contains 9 European sites. There are no new measures within this catchment; all of the 95 measures are from existing plans. 42 are screened in and 53 are screened out.

The 9 European sites in the Medway catchment comprise the Ashdown Forest SAC and SPA in the far south of the catchment, south east of East Grinstead; Peter’s Pit SAC immediately north west of Burnham; Medway Estuary and Marshes SPA and Ramsar fringing the River Medway Estuary north of Chatham; Thames Estuary and Marshes SPA and Ramsar, and the Outer Thames Estuary SPA in the very north of the catchment on the fringe of the Thames Estuary, North of Cliffe, St Mary Hoo and Lower Stoke; North Downs Woodlands SAC in two discrete areas between Maidstone and Chatham, immediately north of Snodland; and Boxley and Queensdown Warren SAC immediately South-East of Chatham.

**Medway CFMP**

The Medway CFMP contains 24 screened out measures; these comprise flood risk reduction / prevention measures and avoidance measures relating primarily to avoiding inappropriate development.

The CFMP contains 15 screened in protection measures of which the majority are channel coastal and floodplain measures in connection with System Asset Management Plans. These support recurring maintenance of assets which protect residential properties from fluvial flooding in the Medway catchment. The remaining screened in measures are other measures which include the implementation of the Middle Medway Strategy and WFD actions which support flood risk management and habitat improvement of the River Beult.

The Medway CFMP measures implement the policies of the CFMP, which were assessed by the Medway CFMP HRA, which concluded that there were no schemes proposed (or identified for future need) that would affect site interest features or site integrity.

**Proposed mitigation and/or compensation measures:** comprised the need to develop any further FRM plans/projects to be in consultation with Natural England and subject to assessments as required under the Habitats Regulations.
**North Kent Rivers CFMP**

The North Kent Rivers CFMP contains 4 screened out measures, comprising flood risk prevention / reduction or avoidance measures.

The North Kent Rivers CFMP contains 4 screened in protection measures, and includes channel, coastal and floodplain works connected with System Asset Management Plans, reoccurring maintenance, SWMP measures to create and restore habitat and maintain outfalls for elvers.

The CFMP measures implement the policies of the North Kent Rivers CFMP, which were assessed by the North Kent Rivers CFMP HRA.

The HRA concluded that it is uncertain whether the plan will adversely affect the integrity of European sites as the CFMP is high level and lacks detail on the practical delivery of measures at specific areas that will be affected by the implementation of the plan.

**Proposed mitigation and/or compensation measures:** comprised the need for an assessment at the project level and to ensure that no adverse effects on integrity result from policies and the resultant projects.

**River Medway and Swale Estuary SMP**

The River Medway and Swale Estuary SMP, (August 2008) contains 15 screened out measures, relating to public awareness and preparedness, and other preparedness measures, engagement activities and monitoring.

The SMP contains 9 screened in channel, coastal and floodplain work measures. These measures all relate to undertaking capital maintenance and/or raising defences in the following policy units: PU2 Medway Bridge to North Halling, 5 Grain Tower to Colemouth Creek, 7 Power Station to Cockham Wood, 26 Kingsnorth Power Station, 27 North Halling to Snodland, 28 Snodland to Allington Lock, 29 Allington Lock to North Wouldham 31 Medway Bridge to West St Mary's Island.

The River Medway and Swale SMP measures implement the policies of the SMP which were assessed by the River Medway and Swale SMP HRA. The Medway Estuary and Marshes Ramsar and SPA, the Thames Estuary and Marshes Ramsar and SPA, Ashdown Forest SAC and SPA, North Downs Woodlands SAC, Peter’s Pit SAC and Queendown Warren SAC lie within the catchment boundary.

The HRA concluded that the SMP policies would have an adverse effect on the integrity of the Medway Estuary and Marshes and the Swale SPA / Ramsar site, through displacement of Grazing Marsh and Standing Water habitats.

As a consequence a statement of Imperative Reasons for Overriding Public Interest (IROPI) was prepared and submitted to the Secretary of State for Defra, which was subsequently approved.

Compensation measures were developed in Partnership with Natural England following Defra Policy Guidance on Coastal Squeeze and are proposed to be resourced within the Southern Regional Habitat Creation Programme. 3 Sites for Freshwater Grazing Marsh
compensation are identified as part of this programme at locations at Rank 1 the North Swale, Rank 2: South Swale, and Rank 3: at Hoo St Werberg.

**Isle of Grain to South Foreland SMP**

The 2 measures from the SMP are screened in, comprising channel, coastal and floodplain works - the Yanlet Creek Realignment Study; and maintain existing beach through recharge and recycling in PU12 Allhallows-on-Sea to Grain.

The Isle of Grain to South Foreland SMP measures implement the policies of the SMP, which were assessed by the Isle of Grain to South Foreland SMP HRA.

The HRA concluded that it *is not possible to demonstrate that the SMP does not have an adverse effect on the integrity of the Thames Estuary & Marshes Ramsar / SPA, and the Swale Ramsar / SPA.* An application was made to the Secretary of State for Defra to consider the case for IROPI, which was approved.

**Proposed mitigation and/or compensation measures:** measures were developed in partnership with Natural England following Defra policy guidance on coastal squeeze, and are proposed to be resourced within the Southern Regional Habitat Creation Programme. 2 sites for freshwater grazing marsh compensation are identified as part of this programme at locations in South Swale and possible additional sites within the Thames Estuary, to be identified by the TE2100 programme.

**Thames Estuary 2100 Plan**

The Thames Estuary 2100 (TE2100) Plan contains 6 screened out measures; these include 5 public awareness and preparedness measures and 1 avoidance measure.

The plan contains 14 screened in measures; these comprise 9 other protection measures concerning management / maintenance / improvement of existing defences, and 5 other measures which relate to implementing intertidal habitat creation.

The TE2100 Plan measures implement the policies of TE2100 Plan which were assessed by the TE2100 HRA. **The HRA assessment shows all options to have a significant impact on designated features on the Thames.**

**Proposed mitigation and/or compensation measures:** comprises the replacement and compensation for predicted impacts, which has been built in to the plan to maintain integrity of the European sites [Natura 2000 Network]. The replacement and compensation is currently being agreed on an ongoing basis.

**Kent Flood Risk Management Strategy**

The 2 measures from the Kent FRMS relate to flood risk modelling and are screened out.

<table>
<thead>
<tr>
<th>European sites</th>
<th>New measures</th>
<th>Existing plan measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Screened in</td>
<td>Screened in</td>
</tr>
<tr>
<td></td>
<td>Screened out</td>
<td>9</td>
</tr>
</tbody>
</table>
The Mole management catchment contains 2 European sites. There are no new measures within this catchment. This management catchment contains 18 measures from existing plans.

The Mole catchment contains 2 European sites: The Mole Gap to Reigate Escarpment SAC in the central area of the catchment, north east of Dorking and the Thames Basin Heaths SPA in the north west of the catchment south west of Cobham.

**Thames CFMP**

9 measures are screened out as they relate to avoidance, removal or relocation; flood forecasting and warning; emergency response planning / contingency planning; and public awareness and preparedness.

9 measures are screened in, they comprise channel, coastal and floodplain works; water flow regulation; and natural flood management measures.

The 9 CFMP protection measures within the Mole management catchment, implement the policies of the Thames CFMP, which were assessed as part of the Thames CFMP HRA screening. The HRA screening concluded that there would be no likely significant effect on the European sites in the catchment.

### 4.2.3.3. North Kent Management Catchment

<table>
<thead>
<tr>
<th>European sites</th>
<th>New measures</th>
<th>Existing plan measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Screened in</td>
<td>Screened out</td>
</tr>
<tr>
<td></td>
<td>Screened in</td>
<td>Screened out</td>
</tr>
<tr>
<td></td>
<td>Screened in</td>
<td>Screened out</td>
</tr>
<tr>
<td></td>
<td>Screened in</td>
<td>Screened out</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The North Kent management catchment contains 5 European sites. There are no new measures within this catchment. All of the 38 measures are from existing plans. 18 are screened in and 20 are screened out.

The management catchment contains 5 European sites: The Medway Estuary & Marshes Ramsar and SPA in the far north west of the catchment in the area south of Queensborough; the Outer Thames Estuary SPA, and the Swale Ramsar and SPA which fringes the large majority of the northern boundary of the catchment along the coast between Witstable and Sittingbourne; and the Blean Complex SAC in the very east of the catchment, east of Yorkletts.

**North Kent Rivers CFMP**

The North Kent Rivers CFMP contains 3 measures, 2 of these are flood risk prevention / reduction measures and are screened out. The 1 measure screened in is channel, coastal and floodplain works measure.

The protection measure incorporated within the North Kent Rivers CFMP implements the policies of the CFMP, which were assessed by the North Kent Rivers CFMP HRA. The Medway Estuary and Marshes Ramsar site and SPA, the Swale Ramsar site and SPA and the Blean Complex SAC lie within the catchment boundary.
The HRA concluded that the determination of likely significant effect on the European site was **Uncertain**. It further states that **The North Kent Rivers CFMP 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 Directive.**

**River Medway and Swale SMP**

The Medway and Swale SMP contains 13 measures which are screened out. The majority of these relate to public awareness and preparedness measures, and also prevention measures.

The SMP contains 4 screened in channel, coastal and floodplain works measures. These relate to maintaining and raising defences, in accordance with this SMP at several locations. These occur within the following policy units: 17, Kingsferry Bridge to Milton Creek; 23, Milton Creek and 37 Faversham to Nagden.

The protection measures incorporated within the River Medway and Swale SMP implement the policies of the SMP which were assessed by the River Medway and Swale SMP HRA. The Medway Estuary and Marshes Ramsar site and SPA, the Swale Ramsar site and SPA, and the Blean Complex SAC lie within the catchment boundary.

The SMP HRA concluded that the **SMP would have an adverse effect on the integrity of the Medway Estuary and Marshes and the Swale SPA/Ramsar network. A statement of case for Imperative Reasons for Overriding Public Interest (IROPI) was prepared and submitted to the Secretary of State. The IROPI case was approved by Defra.**

**Proposed mitigation and/or compensation measures**: comprises: compensatory habitat which will be quantified by the Lead Authority, with early advice from Natural England, to be secured via a Regional Habitat Creation Programme.

**Isle of Grain to South Foreland SMP**

This SMP contains 3 measures which are screened out; these are all other preparedness measures. The SMP contains 13 measures which are screened in, which all relate to channel, coastal and floodplain works, in numerous policy units covered by the SMP. These works include engineering works to maintain and hold the current line of defence applicable to policy units: PU13 Garrison Point to Minster; PU14 Minster Town; PU22 Seasalter to Whitstable Town Golf course and PU39 Sportsman Pub to Sealsalter. Further coastal and floodplain work includes the construction of set-back defences within PU10, Leysdown-on-Sea to Shell Ness and PU11, Faversham Creek to Sportsman Pub. Beach Management Plans will be produced within PU39 Sportsman Pub to Sealsalter; PU11 Faversham Creek to Sportsman Pub and PU13 Garrison Point to Minster.

The protection measures incorporated within the SMP implement the SMP policies, which were assessed by the Isle of Grain to South Foreland SMP HRA. The Medway Estuary and Marshes Ramsar site and SPA, the Swale Ramsar site and SPA and the Blean Complex SAC and the Outer Thames Estuary SPA lie within the North Kent management catchment boundary.
The HRA concluded that at this strategic level it cannot be guaranteed that these managed realignment policies will not have an adverse effect on grazing marsh and standing water habitats within the above referenced sites. The HRA was unable to conclude that the SMP will have no adverse effect on the integrity of these sites.

An application was made to the Secretary of State for Defra to consider the case for IROPI, which was approved.

**Proposed mitigation:** compensation measures were developed in partnership with Natural England following Defra policy guidance on coastal squeeze, and are proposed to be resourced within the Southern Regional Habitat Creation Programme. 2 sites for freshwater grazing marsh compensation are identified as part of this programme at locations in South Swale and possible additional sites within the Thames Estuary, to be identified by the TE2100 programme.

**Kent Flood Risk Management Strategy**

The 2 measures from the Kent Flood Risk Management Strategy are screened out as they comprise flood risk prevention / reduction and, preparedness measures.

### 4.2.4. Management Catchments with New Measures

The following management catchments in the Thames RBD contain plans with both existing and new measures.

#### 4.2.4.1. Colne Management Catchment

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The Colne management catchment contains 46 measures in total, 35 are screened out of the assessment. 9 new measures are screened in and 2 existing plan measures are screened in.

The Colne management catchment contains 4 European sites; the South West London Waterbodies SPA and Ramsar site, Burnham Beeches SAC and Chilterns Beechwoods SAC lie within the catchment boundary.

The South West London Waterbodies Ramsar and SPA is at the southern tip of the management catchment in the Wraysbury and Staines-on-Thames area; Burnham Beeches SAC is located north of Slough, immediately west of Hedgerly and Farnham Common; and Chiltern Beechwoods is located between Tring and Hemel Hempstead in the far north west of the catchment.

**Existing plan measures - Thames CFMP**

The 16 measures screened out comprise avoidance, removal or relocation, reduction, other prevention, flood forecasting and warning, and public awareness and preparedness / flood warnings.
The 2 screened in measures are protection measures; to develop a flood alleviation scheme on the River Pinn and to refurbish a culvert at Market Square on the Vale Brook.

The CFMP measures incorporated within the Colne management catchment, implement the policies of the Thames CFMP, which were assessed as part of the Thames CFMP HRA screening. The HRA screening concluded that there would be no likely significant effect on European sites in the Thames RBD, apart from potentially at four sites; one of which lies within the Colne management catchment - the South West London Waterbodies (SWLW) SPA. The HRA stated that HRA screening will need to be carried out at project level for works arising from the CFMP which are in proximity to this European site.

**Proposed mitigation** the Thames CFMP HRA requires HRA assessment / screening at project level in relation to the four potentially affected European sites, including the South West London Waterbodies SPA / Ramsar.

**New Measures**

19 of the 28 Environment Agency FRMP new measures are screened out, the large majority of these being other prevention and reduction measures to implement property level resilience; flood forecasting and warning; public awareness and preparedness.

The 9 screened in measures are predominantly measures which include channel, coastal and floodplain works and natural flood management / runoff and catchment management. These works vary from study level initial appraisal of possible works, to proposals to review options and implement flood alleviation schemes directly. Locations for the initial studies include Longford, Chess and Watford. Review of initiatives with existing options is planned for areas around Longford, Colnbrook and Poyle.

Locations where flood alleviation schemes are proposed include a scheme to reduce flooding from the River Ash and Staines Reservoir aqueduct; a scheme at Misbourne, London-Colney, and several partnership schemes which include addressing surface water flooding in Chesham and Watford. 8 of these 9 new measures are not in proximity to the European sites in the catchment, and are considered not to have potential to result **in likely significant effects on the sites.**

Of the 4 European sites in the Colne management catchment only the South west London waterbodies (SWLW's) SPA / Ramsar site is a water dependent habitat; the other three designated areas relate to dry woodland. The new measures include a measure to develop a flood alleviation scheme to reduce flooding of the towns of Poyle, Colnsbrook and Longford from the River and Staines Reservoir Aquaduct. Longford is located within 2km of the SWLW's and both Poyle and Colnsbrook within 1km.

The precise nature and locations of the works to reduce flooding in Longford, Poyle, and Colnsbrook is not known, with both subject to investigation and appraisal. Therefore the final solutions for these measures to reduce flooding are not yet defined. The FRMP does not constrain how or where these works are implemented, and any works arising will be subject to subsequent appraisal and assessment at project level.

At this strategic plan level, a range of mitigation options have been identified (see section 4.3.3 and also Table A3 in Annex A). In light of the mitigation options available to
adequately avoid or mitigate for impacts, the measures are screened as not likely to lead to significant effect on European sites. This is a plan-level conclusion and does not remove the need for lower-tier HRA, nor does it influence the conclusions or specific need for appropriate assessment to investigate mitigation options in more detail.

4.2.4.2. Gloucestershire and the Vale Management Catchment

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The Gloucestershire and the Vale management catchment contains 5 European sites. In total there are 33 measures for the catchment, 11 of which are new as part of the FRMP, and 22 from the existing Thames CFMP.

The following European sites lie within the Gloucestershire and the Vale management catchment: Cothill Fen SAC, located to the east of Appleton in the mid catchment area; North Meadow and Clattinger Farm SAC in the west of the catchment in the Cricklade area; Hackpen Hill SAC south west of Wantage in the south of the catchment; Oxford Meadows SAC to the immediate north west of Oxford in the north of the catchment and Little Wittenham SAC, immediately east of Little Wittenham in the east of the catchment.

Existing plan measures - Thames CFMP

16 measures from the Thames CFMP are screened out of the assessment; comprising avoidance measures and emergency event response / flood forecasting and warning.

6 measures are screened into the assessment. 1 is a natural flood management measure to enhance and expand the floodplain, create biodiversity action plan (BAP) habitat and restore urban watercourses.

3 are channel, coastal and floodplain works, to maintain defences across the catchment; maintain the standard of protection in Swindon; investigate the impact of storage in the Ock to reduce flood risk downstream and to progress options from the Oxford Strategy to reduce flood risk in Oxford.

The remaining 2 measures are both channel, coastal and floodplain works to expand the floodplain and to work with planning authorities to re-establish and enhance natural river corridors through new development.

The CFMP measures incorporated within the Gloucestershire and the Vale catchment, implement the policies of the Thames CFMP, which were assessed as part of the Thames CFMP HRA screening. This HRA screening concluded that there would be no likely significant effect on European sites in the Thames RBD, apart from potentially at 2 European sites from FCRM works in the RBD. These sites include the Oxford Meadows SAC, in proximity to works from the Oxford Strategy.

Proposed mitigation comprises further HRA assessment / screening at project level, particularly in relation to the North Meadow and Clattinger Farm, and Oxford Meadows SAC.
which is considered at risk from a range of generic measures in the catchment implemented by the CFMP.

The measures from the CFMP will be subject to subsequent HRA screening, appraisal and project level control as required through the consenting process, specifically with relation to both the and North Meadows and Clattinger Farm SAC sites, which will ensure these measures will not result in adverse effect on European sites.

**New measures**

9 measures are screened out. The majority are other prevention measures concerning flood modelling. The remaining measures are catchment-wide relating to emergency response / contingency planning, improving flood forecasting and warning,

2 new channel, coastal and floodplain works measures are screened in - to maintain existing defences in Cirencester, and to assess options generated by the River Churn Flood Risk Management Strategy, until a preferred option is taken forward.

The works to maintain defences in Cirencester are not in proximity of any European sites and so are considered to have no potential to have any likely significant effect on a European site. The River Churn is also not in proximity or hydraulically connected to the nearest European site – the North Meadow and Clattinger Farm SAC.

Given these factors, these measures are not likely to lead to significant effect on the European sites.

### 4.2.4.3. Kennet and tributaries Management Catchment

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The Kennet and tributaries management catchment contains 4 European sites. In total there are 18 measures, 11 existing measures and 7 new.

The European sites which lie within the management catchment are located as follows: the Kennet and Lambourn Floodplain SAC, Kennet Valley Alderwoods SAC, and River Lambourn SAC are central in the catchment, in the area around Hungerford and Newbury. The Pewsey Downs SAC is located in the far south west of the catchment, at a midpoint between Marlborough and Devizes, on the catchment boundary.

**Existing plan measures - Thames CFMP**

9 measures are screened out, comprising emergency event response / contingency planning measures and avoidance measures (3), resilience adaption to flooding (4), and flood forecasting and warning (2).

2 protection measures, natural flood management / runoff and catchment management, are screened in. These comprise catchment approaches to enhance and expand the floodplain, and enhance / restoring habitats and watercourses.
Concerning these measures in the Kennet and tributaries management catchment, the Thames CFMP HRA concluded that these measures, which implement the policies of the Thames CFMP, **would not give rise to any likely significant effect on these sites.**

**New measures**

There are 7 Environment Agency new measures in the FRMP for the Kennet and tributaries management catchment, all of which have been screened out as they relate to flood warning, and delivery of measures to recover from winter flooding of 2014.

### 4.2.4.4. Loddon and tributaries Management Catchment

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The Loddon and tributaries management catchment contains 2 European sites. In total there are 24 measures, 6 of which are new as part of the FRMP, and 18 from the Thames CFMP.

The European sites which lie within the management catchment are the Thursley, Ash Pirbright & Chobham SAC, located in the very east of the catchment, immediately east of Farnborough; and the component sites of the Thames Basin Heaths (SPA) are located throughout the central and south east of the catchment, clustered around the town of Fleet, to its immediate north and south east.

**Existing plan measures - Thames CFMP**

15 measures are screened out; 9 of these are avoidance measures, 3 measures relate to emergency event response / contingency planning and 3 measures relate to other prevention.

3 measures are screened into the assessment; 2 are natural flood management / runoff and catchment management measures to enhance / expand floodplain, improve / restore habitats and watercourses; and a channel, coastal and floodplain works measure to continue maintenance to ensure the standard of protection provided by the Cove Brook Flood Storage Area is maintained.

None of the European sites in the management catchment are considered by the Thames CFMP HRA to be at risk of likely significant effects from measures arising from the Thames CFMP.

**New measures**

The 6 new measures are all screened out of the assessment. 5 are other prevention measures, and comprise flood risk modelling; the remaining measure is to deliver measures to recover from the winter flooding of 2014.
4.2.4.5. London Management Catchment

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The London management catchment contains 9 European sites and 162 measures in total. These comprise 41 new measures and 121 measures from existing plans.

The management catchment contains the following European sites: the Lee Valley Ramsar and SPA, located in two areas towards the north of the catchment, the most northerly immediately east of Cheshunt and the more central directly between the Tottenham and Walthamstow areas. The remaining European sites in the catchment are all SACs. They include Wormley-Hoddesdonpark Woods in the far north of the catchment south-west of Hoddesdon; Epping Forest in the far north east, south-east of the Waltham Abbey area; Richmond Park immediately south of Richmond in the far west of the catchment; Mole Gap to Reigate Escarpment, immediately south-east of Leatherhead; and Wimbledon common, immediately south east of Putney in the west of the catchment.

**Existing plan measures - Thames CFMP**

31 measures are screened out; these comprise avoidance / removal measures, relocation / flood risk prevention / reduction measures.

17 measures from the Thames CFMP are screened into the assessment, comprising natural flood management / runoff and catchment management, water flow regulation, channel, coastal and floodplain works and other protection.

The CFMP measures incorporated within the London management catchment, implement the policies of the Thames CFMP, which were assessed as part of the Thames CFMP HRA screening. This screening concluded that there would be no likely significant effect on European sites in the London management catchment apart from potentially at the Lee Valley Ramsar and SPA through works arising from the Thames CFMP.

**Proposed mitigation** comprises the requirement for subsequent HRA screening, appraisal and project level control, particularly for any measures in proximity to the Lee Valley Ramsar and SPA.

**Existing plan measures - Thames Estuary 2100 Plan**

35 measures are screened out of the TE2100 Plan; these comprise public awareness and preparedness, avoidance and other recovery and review measures.

33 measures are screened in from the TE2100 Plan, the majority of which comprise other protection measures (M35), such as maintaining and improving / replacing defences and assets as well as intertidal habitat creation sites.

The Thames Estuary 2100 measures implement the policies of TE2100 Plan which were assessed by the TE2100 HRA.
The TE2100 HRA concluded that all options will have a significant impact on designated features on the Thames.

Proposed mitigation comprises the replacement and compensation for the identified impacts, which has been built in to the plan, in order to maintain integrity of the affected European sites (Natura 2000 network). The replacement and compensation is currently being agreed on an ongoing basis.

Existing plan measures - Local Authority FRM Strategies

There is 1 screened in measure (from the London FRM Strategy), which relates to ‘other protection’ (M35) - surface water management - maintenance works. However, this measure is located in the London Borough of Barnet with no European sites present. The screened in measure is therefore not likely to have a significant effect on any European sites.

Existing plan measures – Surface Water Management Plan

3 measures are screened in to the assessment, comprising surface water management / natural flood management / runoff. All 3 measures are from the Surface Water Management Plan (SWMP) of the London Borough of Richmond upon Thames. As part of the preparation of the SWMP, the requirement for HRA was considered, a screening decision was made which determined that HRA for the SWMP was not required. These measures are therefore determined not likely to have a significant effect on any European sites.

New measures – Environment Agency

There are 41 new measures from the Environment Agency, 23 of these measures are screened out as they comprise other prevention measures, avoidance and reduction measures.

There are 18 measures screened into the assessment. Almost half of the measures screened in are individual channel, coastal and floodplain works measures which include developing flood alleviation works in Lewisham and Catford, addressing flooding from Pymmes brook, Dagenham Brook and Moselle Brook, and developing a solution to flood risk at Turkey Brook Pipe Crossing.

The screened in measures additionally include 2 single surface water management measures to assess hydrological interactions at Salmons Brook, and at Ching Brook, and a further 2 individual measures to regulate flood water through development of a flood scheme at Ravensbourne, and additionally at Thamesmead and Marsh Dykes. The remaining single measure is an ‘other protection’ measure to continue maintenance at Salmon’s Brook.

The further measures comprise natural flood management / runoff and catchment management, channel, coastal and floodplain works, other protection, and surface water management. Works relating to these measures include development of flood alleviation schemes in Tokyington Park, Greenford, Brentford, Headstone, and at St Margaret’s, and a further measure to manage attenuation pathways in North Brent and Harrow.

The screened in measures are extensive and widespread within the London management catchment. However, only the Lee Valley SPA and Ramsar site, a water-dependent site,
has potential to be significantly affected by measures identified above. None of these measures are in proximity to either of the Lee Valley sites in the north of the London management catchment. It is therefore concluded that works arising from new Environment Agency measures in the FRMP are not likely to have a significant effect on European sites in the management catchment.

4.2.4.6. Maidenhead and Sunbury Management Catchment

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The Maidenhead and Sunbury management catchment contains 6 European sites and 27 measures in total; these comprise 4 new measures and 23 existing measures, from the Thames CFMP.

The 6 European sites within the catchment boundary comprise the South West London Waterbodies Ramsar and SPA, Burnham Beeches SAC, Chiltern Beechwoods SAC, Windsor Forest and Great Park SAC and the Thames Basin Heaths SPA.

The South West London Waterbodies Ramsar and SPA is located within the eastern boundary of the management catchment northwest of Staines-upon-Thames; the Thames Basin Heaths are immediately south of Bracknell, partially within the southern edge of the management catchment; Windsor Forest and Great Park are located to the north east of the Bracknell, on the southern edge of Windsor, and Burnham Beeches immediately north of Burnham within the northern edge of the management catchment.

**Existing plan measures – Thames CFMP**

9 measures are screened out - 4 avoidance measures and 5 other prevention measures.

3 measures are screened in; 2 channel, coastal and floodplain works - to improve three Thames weirs and works to the Desborough Cut, maintain flood risk management structures / review system asset management plans; 1 channel, coastal and floodplain works measure - to investigate feasible flood reduction measures for communities in high flood risk areas.

The CFMP measures incorporated within the Maidenhead and Sunbury management catchment implement the policies of the Thames CFMP, which were assessed as part of the Thames CFMP HRA screening. This screening concluded that there would be no likely significant effect on European sites in the Thames RBD. Two of these four sites lie within the Maidenhead and Sunbury management catchment: the South West London Waterbodies SPA / Ramsar site.

**Proposed mitigation** comprises further HRA assessment / screening at the project level for schemes arising from the CFMP.

**Existing plan measures – Environment Agency TE2100 Plan**

6 measures are screened out, comprising 5 public awareness and preparedness, and 1 reduction measure.
The 5 screened in measures comprise 4 other protection measures and 1 channel, coastal and floodplain measure planned for the TE2100 Zone 1, to maintain, enhance, improve or replace the defence walls and active structures and to agree programmes to manage flooding from other sources in the defended floodplain. The channel coastal and floodplain measure is to agree a programme of floodplain restoration and management.

The screened in protection measures within the Maidenhead and Sunbury management catchment implement the policies of the TE2100 Plan. These were assessed as part of the TE2100 Plan HRA screening. This screening concluded:

The HRA for TE2100 plan to date shows all options to have a likely significant adverse on the European sites in the Thames Estuary. Replacement and compensation for these has been built in to the Plan to maintain integrity of the Natura 2000 network.

However, this conclusion applies to European sites within the Thames Estuary, which are not within the Maidenhead and Sunbury management catchment; the 6 European sites within the catchment are distant from the Thames Estuary. On this basis it is concluded that measures from the TE2100 plan in the Maidenhead and Sunbury catchment will not result in likely significant effect on European sites in the management catchment.

**New measures – Environment Agency**

3 measures are screened out. They comprise an ‘other protection’ and 2 ‘other recovery’ measures.

1 measure is screened in, an ‘other protection’ measure to review the operation of the Maidenhead, Windsor and Eton Flood Alleviation Scheme (FAS).

Windsor Forest and Great Park SAC is located on the southern edge of the town of Windsor. Changes to the operation of the FAS in Windsor have very limited potential to the affect this European site as it is not water dependent. It is possible nevertheless that changes to operation of this scheme could result in adverse effects on the Windsor Forest and Great Park SAC as the FRMP does not constrain any changes which could be made to the operation of the current FAS in Windsor.

However, any changes arising from a review of current operation would be subject to project level control through the consenting process for these measures, and associated requirement for consideration of project level HRA. This will ensure these measures do not result in an adverse effect on Windsor Forest and Great Park SAC.

The nearest other European site to the towns of Maidenhead, Windsor or Eton is South West London Waterbodies SPA / Ramsar, 2km to the east of Windsor. This site is at greater distance from potential operational changes, although potentially more sensitive to any changes as the site is water dependent. Similarly, project level HRA will ensure changes arising from the operational review of the Windsor FAS would not result in an adverse effect on this site.

At this strategic plan level, a range of mitigation options have been identified (see section 4.3.3 and also Table A3 in Annex A). In light of the mitigation options available to adequately avoid or mitigate for impacts, the measures are screened as **not likely to lead to significant effect on the Windsor Forest Great Park and SAC**. This is a plan-level conclusion and does not remove the need for lower-tier HRA, nor does it influence the
conclusions or specific need for appropriate assessment to investigate mitigation options in more detail.

4.2.4.7. **Roding Beam and Ingrebourne Management Catchment**

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The Roding Beam and Ingrebourne management catchment contains one European site and 69 measures in total. These comprise 26 new measures and 43 existing measures.

The European site in the catchment is the Epping Forest SAC, located in the central part of the catchment, immediately west of Loughton.

*Existing plan measures – Environment Agency TE2100 Plan*

12 measures are screened out, comprising public awareness and preparedness, and avoidance measures.

The 10 screened in measures are almost all ‘other measures’ (M61) planned for the TE2100 Zones 3 and 4. The majority of these measures are to maintain, enhance improve or replace the defence walls and active structures. The remaining measures are to agree programmes to manage flooding from other sources in the defended floodplain and to implement habitat improvement and replacement schemes.

The screened in protection measures within the Roding Beam and Ingrebourne management catchment implement the policies of the TE2100 Plan. These were assessed as part of the TE2100 Plan HRA, which determined all options to have a likely significant adverse on the European sites in the Thames Estuary. Replacement and compensation for these has been built in to the Plan to maintain integrity of the Natura 2000 network.

However, this conclusion applies to European sites within the Thames Estuary, which are not within the Roding Beam and Ingrebourne Management catchment. Epping Forest SAC is the single European site in the management catchment and is well outside the Thames floodplain. On this basis it is concluded that measures from the TE2100 plan in the Roding Beam and Ingrebourne management catchment will not result in likely significant effect on European sites in the management catchment.

*Existing plan measures – Thames CFMP*

7 measures are screened out; these comprise 4 reduction measures, 2 avoidance measures and 1 flood forecasting and warning measure.

No measures are screened into the assessment. Measures from this plan in the Roding Beam and Ingrebourne are not likely to have a significant effect on European sites in this management catchment.
Existing plan measures – Essex County LFRMS

10 measures from the Essex County LFRMS are screened out, comprising flood risk reduction, prevention, forecasting, and public awareness and preparedness measures. 4 measures have been screened in and comprise natural flood management/ run-off and catchment management, water flow regulation and surface water management.

These measures comprise development of consenting policy, SuDs guidance, application of urban blue corridors, and identification of environmental benefits within Essex County, which could potentially be close to/ within the European sites within the South Essex management catchment.

These measures implement the policies of the Essex County LFRMS, which have been previously assessed under the Habitats Regulations in the Essex LFRMS HRA screening assessment (March 2013). This assessment concluded that the LFRMS does not have the potential to cause significant effects upon European sites, and that appropriate assessment was not deemed necessary. However, the assessment determined that before any further plans or measures in the Essex LFRMS are implemented, they must be subject to the requirements of the Habitats Regulations and must undergo an ‘appropriate assessment’ if they are likely to have a significant effect.

New measures – Environment Agency

21 measures are screened out of the assessment. 8 of these are reduction measures, 5 other protection measures, 4 public awareness and preparedness measures, 2 flood forecasting and warning measures, an avoidance measure and a recovery and review measure.

5 measures are screened into the assessment, 4 of these are natural flood management / runoff and catchment management measures and include promotion, naturalisation and restoration of floodplain; identify opportunities to restore channels to a naturalised state throughout the Ingrebourne catchment; seek de-culverting of the river channel in Rainham through any re-development that occurs by influencing planning decisions; reducing flood risk and maintenance costs through de-culverting.

One of the screened in measures is a channel, coastal and floodplain measure to create a marina at the mouth of the Gores Brook while improving the current flood defences.

The 4 natural flood management / runoff and catchment management measures, due to their non location-specific nature, have potential to be located throughout the catchment and therefore potentially be in proximity to the Epping Forest SAC.

However, any potential effects on this European site would be subject to project level control through the consenting process for these measures, and associated requirement for consideration of project level HRA. This will ensure these measures do not result in an adverse effect on Epping Forest SAC.

At this strategic plan level, a range of mitigation options have been identified (see section 4.3.3 and also Table A3 in Annex A). In light of the mitigation options available to adequately avoid or mitigate for impacts, the measures are screened as not likely to lead to significant effect on European sites in the Roding Beam and Ingrebourne.
management catchment. This is a plan-level conclusion and does not remove the need for lower-tier HRA, nor does it influence the conclusions or specific need for appropriate assessment to investigate mitigation options in more detail.

4.2.4.8. Thames and South Chilterns Management Catchment

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<th>European sites</th>
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30 measures apply to the management catchment. Of the 8 new measures only 1 is screened in; of the 22 existing measures 5 are screened in. There are 4 European sites within the management catchment: Aston Rowant SAC, Chilterns Beechwoods SAC, Little Wittenham SAC and Hartslock Wood SAC lie within the catchment boundary.

2 of the 4 SACs above are located in the central eastern part of the management catchment. These are Aston Rowant SAC, immediately west of Stokenchurch and Chiltern Beechwoods, north west of High Wycombe. Little Wittenham SAC lies on the western boundary of the catchment north west of Didcot; and Hartslock Wood is located immediately south of Lower Basildon in the south of the catchment.

Existing plan measures – Thames CFMP

10 measures are screened out, 5 of which are avoidance / reduction measures. The remaining measures 5 measures comprise emergency event response / contingency planning and public awareness.

5 measures are screened in, 3 of which are other protection measures to progress investigations to establish what can be achieved to reduce flood risk, in the towns of Pangbourne, Purley and Bisham. The remaining screened in measures comprise expansion of the floodplain, increase biodiversity action plan habitat, restoration of urban watercourses, to improve the condition of internationally and nationally designated conservation sites and to continue maintenance to maintain the standard of protection of the Aylesbury flood storage area.

The 5 CFMP protection measures incorporated within the Thames and South Chilterns catchment implement the policies of the Thames CFMP, which were assessed as part of the Thames CFMP HRA screening. The HRA screening concluded that implementation of the CFMP measures in this management catchment would not result in any likely significant effect on European sites.

Existing plan measures – Anglian Water Asset Management Plan

All 7 measures from the Anglian Water AMP are screened out of the assessment: 2 reduction measures, 2 other preparedness measures, 2 other prevention and an avoidance measure.

New measures – Environment Agency
A total of 7 measures are screened out, 6 of which are other prevention measures, and one is an emergency response and contingency planning / flood forecasting and warning measure.

One new channel, coastal and floodplain works measure, to construct a flood bund in Purley to reduce flood risk is screened in. However, Purley is not in proximity to a European site therefore the screened in measure will not have a likely significant effect on European sites in the Thames and South Chilterns Management Catchment.

### 4.2.4.9. Upper Lee Management Catchment

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27 measures apply to the management catchment; 13 new measures and 14 from existing plans.

There are 3 European sites in the management catchment. The Lee Valley Ramsar and SPA, south east of Hertford, and the Wormley-Hoddesdonpark Woods SAC, east of Brayford. The sites are all located on the southern boundary of the catchment.

**New measures – Environment Agency**

10 measures are screened out of the assessment. These include 8 flood risk prevention / reduction measures and 2 other prevention measures.

2 measures are screened in; a channel, coastal and floodplain works measure, at the Houghton Regis flood storage area to reduce flood risk in Luton; and a flood storage area to be incorporated into the A120 road bypass scheme at Little Hadham.

Both measures are at a significant distance (over 10km) from the nearest European site – the Chiltern Beechwood SAC, a non water-dependent site located outside the Upper Lee catchment. These measures are therefore considered not likely to have a significant effect on any European sites.

**New Measures - LLFA**

The one new measure from the LLFA, relates to flood risk prevention / reduction - a study to investigate potential options to reduce the impact of flooding in Kimpton - is screened out of the assessment.

**Existing plan measures – Essex County LFRMS**

10 measures from the Essex County LFRMS are screened out, comprising flood risk reduction, prevention, forecasting, and public awareness and preparedness measures. 4 measures have been screened in and comprise natural flood management/ run-off and catchment management, water flow regulation and surface water management.

These measures comprise development of consenting policy, SuDs guidance, application of urban blue corridors, and identification of environmental benefits within Essex County, which
could potentially be close to/within the European sites within the Upper Lee management catchment.

These measures implement the policies of the Essex County LFRMS, which have been previously assessed under the Habitats Regulations in the Essex LFRMS HRA screening assessment (March 2013). This assessment concluded that the LFRMS does not have the potential to cause significant effects upon European sites, and that appropriate assessment was not deemed necessary. However, the assessment determined that before any further plans or measures in the Essex LFRMS are implemented, they must be subject to the requirements of the Habitats Regulations and must undergo an ‘appropriate assessment’ if they are likely to have a significant effect.

4.2.4.10. South Essex Management Catchment

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The South Essex catchment contains 82 measures. 32 measures are screened in from existing plans, and 4 new measures are screened in.

The catchment contains 4 European sites. These are Benfleet and South End Marshes SPA and Ramsar, located immediately south of Benfleet and south west of Canvey Island; and Thames Estuary and Marshes SPA / Ramsar, running north-south along the estuary coastline east of East Tilbury.

**Existing plan measures – South Essex CFMP**

The 2 measures from the South Essex CFMP both relate to other flood risk prevention, and are screened out of the assessment.

**Existing plan measures – Thames Estuary 2100 Plan**

18 measures from the Thames Estuary 2100 Plan are screened out of the assessment; 15 public awareness and preparedness measures and 3 avoidance measures.

24 measures from the plan are screened into the assessment. 17 are other protection measures, comprising a programme of managing flooding from other sources in the defended tidal floodplain; operate, maintain, enhance and replace the river defence walls and active structures. The remaining 7 measures screened into the assessment comprise other measures (M61) to investigate contamination issues, a programme for habitat enhancement and replacement and replacement schemes.

The HRA for the TE2100 Plan concluded that all options will have a significant impact on designated features on the Thames.

**Proposed mitigation** comprises the replacement and compensation for affected sites/features, which has been built in to the plan in order to maintain integrity of the European sites [Natura 2000 network]. The replacement and compensation is currently being agreed on an ongoing basis.
**Existing plan measures - Thurrock Flood Risk Management Strategy**

15 measures are screened out of the assessment. 8 are other prevention measures, 3 public awareness and preparedness, 2 avoidance, 2 other preparedness, and an emergency event response / contingency planning measure.

4 other protection measures are screened into the assessment. These include actions to implement and educate departments in a standardised asset register; asset surveys and records to check outfall conditions to local ditches etc, and to record location of assets in the borough, including areas acting as flood storage areas, to establish ownership and maintenance agreements; create a maintenance regime that prioritises key assets and drainage areas based on the surveys and register.

These protection measures are considered due to their nature, primarily recording existing asset location, asset condition, and reviewing current maintenance activities, are not likely to have likely significant effects on European sites in the management catchment.

**Existing plan measures – Essex County LFRMS**

10 measures from the Essex County LFRMS are screened out, comprising flood risk reduction, prevention, forecasting, and public awareness and preparedness measures. 4 measures have been screened in and comprise natural flood management/ run-off and catchment management, water flow regulation and surface water management.

These measures comprise development of consenting policy, SuDs guidance, application of urban blue corridors, and identification of environmental benefits within Essex County, which could potentially be close to/ within the European sites within the South Essex management catchment.

These measures implement the policies of the Essex County LFRMS, which have been previously assessed under the Habitats Regulations in the Essex LFRMS HRA screening assessment (March 2013). This assessment concluded that the LFRMS does not have the potential to cause significant effects upon European sites, and that appropriate assessment was not deemed necessary. However, the assessment determined that before any further plans or measures in the Essex LFRMS are implemented, they must be subject to the requirements of the Habitats Regulations and must undergo an 'appropriate assessment' if they are likely to have a significant effect.

**New Measures**

One ‘other flood risk prevention’ measure is screened out of the assessment.

4 measures are screened into the assessment. These comprise 2 natural flood management / runoff and catchment management measures to carry out habitat improvements (projects identified include enhanced floodplain connectivity in the lower Mardyke, re-profiling the river channel downstream of Stifford and reviewing the operation of assets) and to work with landowners in the Mardyke Valley to use alternative land management techniques. The remain 2 measures comprise channel, coastal and floodplain works to naturalise the River Mardyke; and a surface water management measure to develop Sustainable Urban Drainage Systems (SuDS) schemes.
The measures relating to the River Mardyke and Mardyke Valley above are not in proximity to European sites in the management catchment. However, the natural flood management and surface water management measures in the management catchment are not location specific so their potential to affect European sites in the management catchment cannot be discounted.

At this strategic plan level, a range of mitigation options have been identified (see section 4.3.3 and also Table A3 in Annex A). In light of the mitigation options available to adequately avoid or mitigate for impacts, the measures are screened as **not likely to lead to significant effect on European sites**. This is a plan- level conclusion and does not remove the need for lower- tier HRA, nor does it influence the conclusions or specific need for appropriate assessment to investigate mitigation options in more detail.

### 4.2.4.11. Wey and tributaries Management Catchment

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The Wey and tributaries management catchment contains 19 measures, 17 from the Thames CFMP and 2 new measures. There are 11 European sites, widespread across the catchment from the northern to southern catchment boundary.

The South West London Waterbodies SPA and Ramsar site lies within the far northern boundary of the management catchment immediately south west of Staines-upon-Thames. Windsor Forest and Great Park SAC is also located in the northern part of the catchment, immediately to the east of Bracknell, straddling the northern boundary. Further south, the Thames Basin Heaths SPA is located northwest of Guildford, between Wokingham and Farnborough. Thursley and Ockley Bogs Ramsar is located in the central area of the catchment immediately south of Elsted, to the west of Guilford. Thursley, Ash, Pirbright and Chobham SAC, is located in the central catchment to the west of Godalming and the Surrey Hills. The Thursley, Hankley and Freshham Commons SPA is also located in this vicinity near Milford. The southwest of the catchment contains the following sites: East Hampshire Hangers SAC, in the Selbourne area west of Bordon; Shortheath Common SAC, west of Bordon, immediately north of Wey; Woolmer Forest SAC, immediately north of Liphook on the south-western boundary of the catchment; and Wealden Heaths Phase II SPA lies immediately south of Bordon on the southern catchment boundary.

**Existing plan measures – Thames CFMP**

14 measures are screened out of the CFMP, comprising avoidance measures, emergency event response planning / contingency planning, flood forecasting and warning and other prevention.

3 measures are screened in. These include 2 'other protection' measures to investigate flood risk management in Godalming, Guildford, Old Woking and Byfleet and Weybridge; and a natural flood management measure to continue maintenance to maintain the standard of protection provided of Woking flood defences.
The CFMP measures incorporated within the Wey and tributaries management catchment implement the policies of the Thames CFMP which were assessed as part of the Thames CFMP HRA screening. This screening concluded that there would be no likely significant effect on European sites in the Thames RBD, apart from potentially at four of the European sites in the RBD, one of which lies within the Wey and tributaries management catchment - the South West London Waterbodies SPA. The HRA goes on to say that HRA screening will need to be carried out at project level for works arising from the CFMP which are in proximity to this European site.

**Proposed mitigation** the Thames CFMP HRA requires HRA assessment / screening at project level in relation to the four potentially affected European sites, including the South West London Waterbodies SPA.

**New measures – Environment Agency**

One new measure is screened out of the assessment, to deliver the recovery programme after the winter floods in 2014. One new measure from the Environment Agency is screened into the assessment; a channel, coastal and floodplain measure, to reduce the impact of flooding through progression of the River Wey improvement scheme.

The Tilford Shalford Reach of the River Wey is located on the north east boundary of the Thursley, Ash, Pirbright and Chobham SAC, and approximately 1km north east of the Thursley and Ockley Bogs Ramsar site. Owing to the proximity of the measure to the European site, the potential for effects of improvement works arising from the measure cannot be discounted.

At this strategic plan level, a range of mitigation options have been identified (see section 4.3.3 and also Table A3 in Annex A). In light of the mitigation options available to adequately avoid or mitigate for impacts, the measures are screened as not likely to lead to significant effect on European sites. This is a plan-level conclusion and does not remove the need for lower-tier HRA, nor does it influence the conclusions or specific need for appropriate assessment to investigate mitigation options in more detail.

### 4.2.4.12. Thames River Basin District wide measures

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The Thames RBD contains 49 European sites which are distributed across the RBD, although the concentration of European sites is highest in estuarine/coastal environments. In total there are 17 RBD-wide measures for the Thames RBD, 2 of these are new as part of the FRMP and 15 from the Thames CFMP.

**New measures**

2 new measures are screened in; these comprise an ‘other protection’ measure to incorporate climate change allowances into flood risk management works; and a natural flood / catchment management measure to identify where working with natural processes
can help to reduce flood and coastal erosion risk, and help catchments both adapt and become more resilient to the impacts of climate change.

The RBD-wide coverage of these measures means that there is a potential for likely significant effect on European sites, hence further programme/project level HRA will be required as necessary.

Given the nature of the other protection measures screened in to work with natural processes and incorporate climate change considerations into flood risk management works, and that the final solutions are not yet defined, the FRMP does not constrain or specify how or where the measures are implemented. These measures will be subject to project level control through the relevant consenting process and the associated requirement for the consideration of project level HRA. At this strategic plan level, a range of mitigation options have been identified (see section 4.3.3 and also Table A3 in Annex A). In light of the mitigation options available to adequately avoid or mitigate for impacts, the measures are screened as not likely to lead to significant effect on European sites. This is a plan-level conclusion and does not remove the need for lower-tier HRA, nor does it influence the conclusions or specific need for appropriate assessment to investigate mitigation options in more detail.

**Existing plan measures - Thames CFMP**

13 measures are screened out which include the following measures: 4 other prevention, 3 flood forecasting and warning, 2 emergency event response/contingency planning, 1 recovery/restoration measure, 2 public awareness and preparedness, and an avoidance measure.

2 protection measures are screened in – a channel, coastal and floodplain works measure to investigate what flood reduction measures are possible where there is high flood risk to communities and to explore partnership funding to support preferred options, and an ‘other protection’ measure to monitor and regulate reservoirs in accordance with the Reservoirs Act 1975.

The 2 CFMP protection measures incorporated within the Thames CFMP implement the policies of the CFMP, which were assessed as part of the Thames CFMP HRA screening. The HRA screening overall concluded that with exception of the, South West London Waterbodies Ramsar and SPA, Lee Valley Ramsar and SPA and the Oxford Meadows SAC. The CFMP measures in the Thames **would not result in any likely significant effect on European sites**. Where potential for significant likely effects does exist relative to these sites lower-tier HRA will be carried out in this report as per the recommendations given within this report relating to the management catchments which these sites lie in.

**4.2.4.13. Cross-border measures (from Anglian)**

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In total there are 25 cross border measures (from the Anglian RBD / FRMP), 4 new measures and 21 from existing plans. 7 measures are screened in, and 18 are screened out.
**New measures - Anglian FRMP**

2 other prevention measures are screened out, these comprise joint Environment Agency / Essex County Council working to support the development, implementation and review of the Local Flood Risk Management Strategy, and co-ordination of work to control and eradicate priority invasive non native species in Norfolk, Suffolk and Essex.

2 natural flood management / runoff and catchment management measures are screened in. These comprise the delivery of a strategic programme of riparian tree planting in Essex, Norfolk & Suffolk to improve the diversity of rivers, increase floodwater storage, trap nutrient rich sediment run off and reduce annual maintenance costs; and to understand the flood risk function of all structures within the Essex, Southend and Thurrock area, allowing removal of structures which restrict movement of fish and eels upstream and restore more natural flows to achieve WFD targets.

All measures will be subject to project level control through the relevant consenting process and the associated requirement for the consideration of project level HRA. At this strategic plan level, a range of mitigation options have been identified (see section 4.3.3 and also Table A3 in Annex A). In light of the mitigation options available to adequately avoid or mitigate for impacts, the measures are screened as **not likely to lead to significant effect on European sites.** This is a plan-level conclusion and does not remove the need for lower-tier HRA, nor does it influence the conclusions or specific need for appropriate assessment to investigate mitigation options in more detail.

**Existing plan measures - Central Bedfordshire Flood Risk Management Strategy**

5 measures are screened out of the assessment: 2 avoidance, 2 other prevention and 1 public awareness and preparedness measure.

**Existing plan measures - Northamptonshire Flood Risk Management Strategy**

One avoidance measure is screened out of the assessment.

**Existing plan measures – Essex and South Suffolk Shoreline Management Plan**

3 measures are screened out of the assessment, two flood risk prevention measure and a recovery and review measure.

5 measures are screened into the assessment; 3 other protection / natural flood management measures, comprising holding the line (at the Foulness Peninsular and Southend-on-Sea), an ‘other protection’ measure of property protection at Great Wakering, and a natural flood management measure at Rushey Island for managed realignment during epoch 2.

The Essex & South Suffolk SMP covers the coastline from Landguard Point in Suffolk (close to the Stour & Orwell Estuaries European sites) south to Southend-on-Sea in Essex (within the Benfleet & Southend Marshes European sites). The prevention and protection measures have been previously assessed in the Essex & South Suffolk SMP HRA. **This assessment concluded that SMP policy in almost all management units has the potential to have a likely significant effect on European sites** and despite proposed mitigation it was not possible to conclude no adverse effect on the integrity of European sites.
A Statement of Case for IROPI was prepared to be signed off by the Secretary of State for the Environment. The Statement of Case primarily focused on saltmarsh loss as a result of coastal squeeze and included a commitment to monitor the rate of loss to inform the extent of compensatory saltmarsh habitat creation. Compensatory habitats will be delivered in advance of losses through the Environment Agency Anglian Habitat Creation Programme.

**Existing plan measures - Anglian Water Asset Management Plan**

There are 7 measures from the Anglian Water AMP that apply to the South Essex management catchment in the Thames RBD. The measures are all screened out of this assessment as they all relate to either flood prevention/reduction or flood preparedness.

### 4.3. Consideration of results and conclusion

The assessment of likely significant effects has been carried out for each catchment in turn. The risks to European sites for those measures drawn from existing plans have been considered with reference to existing HRAs and existing controls and mitigation in place. The potential risks arising from new strategic priorities for the next FRMP cycle have also been considered.

In all catchments the conclusions are that likely significant effects can be avoided or mitigated by appropriate controls and actions that are currently in place or will be in place at a project level, when local actions are developed to implement the plan.

#### 4.3.1. Risks from existing plan measures

26% of measures are from existing plans of which 9% are from CFMPs, 14% from SMPs / other Environment Agency plans and 3% from LLFA plans. Most risks are from SMP measures where adverse effects identified in HRAs for specific policy areas are being addressed.

All risk management authorities responsible for implementing the measures in the FRMP that are sourced from the existing CFMPs and SMPs, where risks to Europeans sites have been identified, are required to take account of the HRAs of those plans (as identified in section 4.2 above) and any mitigation proposals or statements made within them.

Most risks to European Sites that are being addressed by existing plans relate to the (14%) measures in SMPs and other Environment Agency plans and more specifically where the SMP is managing likely adverse effects such as in the catchments of Medway and North Kent.

#### 4.3.2. Risks from new measures

6% of measures are new of which 1% are strategic, 4% are not in proximity to any European Sites and <1% are more specific improvements that are in proximity to sites. The most likely risks will be related to the development of local actions for the specific improvements in the next FRMP cycle and can be found in the Colne, Maidenhead and Sunbury, and Wey and tributaries management catchments. The future strategic measures may also present a risk depending on where they are implemented in the South Essex and Roding Beam and Ingrebourne management catchments.
4.3.3. Control and Mitigation for main risks from new cycle 1 measures

**Controls**

The principal controls for the development of local actions from new FRMP measures that are more specific and are in the proximity of European Sites comprise the consenting procedures, in place to assess proposed actions in order to authorise implementation. Actions involving construction or creation of new, or changes to, alteration or improvement of existing flood defence structures affecting main river are likely to require planning permission. In some cases, flood risk management may ordinarily be permitted development. Other types of actions may require controls under Flood Defence Consents from the Environment Agency for main rivers or Lead Local Flood Authority (LLFA) for non-main watercourses.

Where a European site is potentially affected, the need for project level HRA is determined through the planning process, the required information is submitted with the planning application, with the assessment being the responsibility of the local planning authority as competent authority. A determination is made in consultation with Natural England. Even where the action would normally be permitted development, approval of the local planning authority is required where a development is likely to have a significant effect on a European site.

As part of these consenting mechanisms, the measures cannot receive approval to proceed until it has been demonstrated that they will not result in adverse effects on integrity of any affected European sites. Or, where an adverse effect cannot be avoided, a case for ‘Imperative Reasons of Overriding Public Interest’ (IROPI) that includes the identification of compensatory measures is approved by the Secretary of State for Environment, Food and Rural Affairs. Table A3 in Annex A provides additional detail on the consenting processes and the consideration of the Habitats Regulations as they relate to measures to address flooding from the various flooding sources (e.g. main river, ordinary watercourses, tidal, reservoir).

**Mitigation**

Implementation of measures at the subsequent tier of plan or project, if deemed likely to result in significant effect on one or more European sites, may need to include mitigation to avoid or reduce potential effects. Specification of mitigation should be tailored to the specifics of a project, and to the sites and features potentially affected, through the project level HRA process and through consultation with Natural England ideally early in a project’s appraisal and design. That way, mitigation can be incorporated into the way that the project is designed and built, tailored to the specifics of the site/s and their qualifying features, and therefore be most effective in avoiding or reducing potential adverse effects.

Project-level mitigation for European site species would consider the potential impacts arising from construction and operation of the project / measure, alongside any site specific sensitivities of the affected species. Depending on the nature of the project, identification of the use of habitats in proximity by qualifying species and the functioning role of those supporting habitats affected, may either be established by existing data / studies or may need to be established through site survey.

Construction-related mitigation should consider managing the timing of activities to avoid ecologically sensitive periods, such as breeding, over-wintering or migratory passage.
periods for birds, or migratory periods for anadromous fish. The exact timings for these construction ‘windows’ may vary for different sites in the RBD, depending on the presence, distribution and proximity of qualifying species present. Avoidance or reduction of visual or noise disturbance to species may also consider the use of techniques such as screening, segregation or establishing buffer zones, recognising that some species may be more vulnerable or sensitive than others (for example different bird species can vary in their flight response). For potential construction impacts on habitats, such as loss of habitat or physical damage, key construction-focused mitigation should focus on the avoidance of working on, or in proximity to sensitive habitats, and development of site sensitive construction techniques. This may for example include avoiding heavy plant usage in particular areas, or screening / creation of buffer zones to avoid any disturbance or physical damage. This can be informed through site specific / project-level HRA, and supporting survey where necessary, to establish the presence, nature and sensitivities of potentially affected habitats.

For potential operational effects, sensitive and sympathetic design can minimise or avoid effects, such as appropriate location or layout of any structures (set-back from sensitive habitats) or minimising footprints where possible. Project-level HRA should also consider potential changes in physical processes, such as changes to flows / velocities and the physical regime, and potential water quality changes, for example due to the addition or removal of a structure or a changed profile of the riparian zone / channel banks. Such effects, as identified through the HRA, should inform a project’s appraisal and the building of suitable mitigation into the design.

4.3.4. Conclusion

The assessment above has considered the FRMP information in RBD catchments that the Environment Agency are responsible for and has screened the measures as having no likely significant effect. This is concluded in light of the range of avoidance and mitigation measures available.

Regulatory controls will identify any risks to European sites when the actions required to implement the measures are developed. The FRMP itself also makes it clear that before any measures in the plan are implemented they must be subject to the requirements of the Habitats Regulations by the relevant competent authority. This is already the case for measures from existing plans where HRAs have identified risks to European sites and where any adverse effects that cannot be ruled out have been addressed through appropriate mitigation and compensatory provision.

It is concluded that at this strategic-plan level, the measures are screened as being not likely to have any significant effects on any European sites, alone or in combination with other plans or projects (see chapter 7). Given this conclusion, there is no requirement to progress to the next stage of the Habitats Regulations Assessment (an ‘appropriate assessment’ to examine the question of adverse effect on the integrity of European sites). Lower-tier assessments will be required and will be assisted by the information gathered in this high-level assessment, but their conclusions will not be influenced by this HRA, and each individual plan or project must be assessed as necessary in order to meet the requirements of the Habitats Regulations.
5. Medway Flood Risk Area HRA

This section sets out the results of carrying out the HRA on the measures for the Medway Flood Risk Area (FRA) that are for flooding from local sources (ordinary watercourses, surface water, groundwater, etc.) and are the responsibility of the Lead Local Flood Authorities (LLFA) within the Flood Risk Area. This is the FRMP information for which this LLFA is the FRMP ‘statutory authority’ and HRA ‘competent authority’. This section covers the following stages of the assessment:

- Summary of measures being assessed
- Screening and assessment of likely significant effects
- Consideration of results and conclusion.

5.1. Summary of Measures

The initial screening and assessment of likely significant effects reviewed the measures for the catchments within the Medway (FRA), which is the Medway management catchment, as illustrated in Figure 4 below. An overall summary of the LLFA FRA measures is presented in Table 4.

Figure 4 Map of the Medway Flood Risk Area and Management Catchments
### Table 4 Summary of Medway FRA measures by catchment

<table>
<thead>
<tr>
<th>Management Catchment</th>
<th>Number of measures screened in (out)</th>
<th>Number of measures from existing plans</th>
<th>Number of new measures and known level of detail</th>
<th>Number of European Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catchments with no screened in measures</td>
<td>Medway FRA catchment has some screened in measures.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catchments with all measures from existing plans</td>
<td>Medway</td>
<td>3 (8)</td>
<td>3 from Local Strategies</td>
<td>0</td>
</tr>
<tr>
<td>Catchments with new measures for cycle 1 of the FRMP</td>
<td>Medway FRA catchment only has existing plan measures</td>
<td>Overall Total</td>
<td>% all measures&lt;sup&gt;2&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>3 from Local Strategies</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(8)</td>
<td>27%</td>
<td></td>
</tr>
</tbody>
</table>

1. - all numbers are of ‘screened in’ measures, except those in brackets
2. - all %s are of total of all ‘screened in and out’ measures
‘in proximity’ means being generally in the same part of the catchment (specific distances are not applied, but further detail is provided in the assessment)
‘specific’ is where a measure is place specific, ‘strategic’ is where a measure is catchment or RBD-wide.

Of the total of 11 measures for the Medway FRA, 3 (27%) have been screened in for HRA consideration, and 8 (73%) screened out.

#### 5.1.1. Risks from existing plans measures

3 (27%) of measures are from existing plans, all from the Medway Flood Risk Management Strategy, which covers part of the Medway management catchment.

#### 5.1.2. Risks from new measures

There are no new measures for the Medway FRA.

#### 5.2. Screening and Likely Significant Effects

##### 5.2.1. Medway Management Catchment

<table>
<thead>
<tr>
<th>European sites</th>
<th>New measures</th>
<th>Existing plan measures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Screened in</td>
<td>Screened out</td>
</tr>
<tr>
<td>9</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

The Medway management catchment contains 9 European sites. There are no new measures within this catchment; all of the 11 measures are from an existing plan – the Medway Local Flood Risk Management Strategy.
**Existing plan measures - Medway Local Flood Risk Management Strategy**

The Medway Local Flood Risk Management Strategy (LFRMS) contains 8 measures related to avoidance, public awareness and preparedness, and other prevention, which are screened out from further consideration.

The Medway LFRMS contains 3 protection measures, relating to surface water management and other protection, and are screened in. They include initiatives to identify opportunities to retrofit SuDs; to develop local guidance and standards for the approval and adoption of SuDs; and to consider how infrastructure improvements and capital investment could be used to deliver flood risk reduction.

The Medway catchment contains the following European sites: the Medway Estuary and Marshes Ramsar and SPA, the Thames Estuary and Marshes Ramsar and SPA, Ashdown Forest SAC and SPA, North Downs Woodlands SAC, Peter’s Pit SAC and Queendown Warren SAC lie within the catchment boundary.

The measures from the Medway LFRMS are generic and target surface water management which will result in improved quality of surface and ground water discharge. Given the tidal nature of the areas within the SPA and FRA boundaries, the measures to manage surface water flood risk would have a negligible direct impact, with any potential indirect significant impacts managed through project level controls, i.e. planning and consent mechanism. In light of this Natural England considers the need for formal HRA screening of the Medway LFRMS unnecessary. The measures are not considered likely to have a significant impact on the European sites in the catchment.

5.3. Consideration of results and conclusion

The assessment of likely significant effects has been carried out for the Medway management catchment, which is the only catchment in the FRA, and considered the risks to European Sites and existing controls in place for existing plans. There are no new strategic development measures for the next FRMP cycle.

In the Medway catchment the conclusions are that measures from the Medway LFRMS are sufficiently generic, targeting surface water management, as to not present a risk of likely significant effects. Of the 3 screened in measures for the FRA from the Medway LFRMS, none are, at this stage, specific enough to be confirmed as ‘in proximity’ to European Sites in the catchment. The measures from the Medway LFRMS are strategic in nature, and their effects will be avoided or mitigated by appropriate controls and actions that are currently in place or will be in place at a project level when local actions are developed to implement the strategy.

5.3.1. Conclusion

At this strategic-plan level of the Medway FRA the measures are screened as being not likely to have any significant effects on any European sites, alone or in combination with other plans or projects (see chapter 7). Given this conclusion, there is no requirement to progress to the next stage of the Habitats Regulations Assessment (an ‘appropriate assessment’ to examine the question of adverse effect on the integrity of European sites). Lower-tier assessments will be required and will be assisted by the information gathered in this high-
level assessment, but their conclusions will not be influenced by this HRA, and each individual plan or project must be assessed as necessary in order to meet the requirements of the Habitats Regulations.
6. London Flood Risk Area HRA

This section sets out the results of carrying out the HRA on the measures for the London Flood Risk Area that are for flooding from local sources (ordinary watercourses, surface water, groundwater, etc.) and are the responsibility of the Lead Local Flood Authorities (LLFAs) within the Flood Risk Area. This is the FRMP information for which these LLFAs are the FRMP ‘statutory authority’ and HRA ‘competent authority’. This section covers the following stages of the assessment:

- Summary of measures being assessed
- Screening and assessment of likely significant effects
- Consideration of results and conclusion.

6.1. Summary of Measures

The initial screening and assessment of likely significant effects reviewed the measures for each of the catchments within the London Flood Risk Area (FRA), which are: North Kent, Upper Lee, Colne, London, Roding, Beam and Ingrebourne, and South Essex, as illustrated in Figure 5 below. An overall summary of the LLFA FRA measures is presented in Table 5.

Figure 5 Map of the London FRA and Management Catchments
Table 5 Summary of London FRA measures by catchment

<table>
<thead>
<tr>
<th>Management Catchment</th>
<th>Number of measures screened in (out)</th>
<th>Number of measures from existing plans</th>
<th>Number of measures related to types of existing plans&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Number of new measures and known level of detail&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Number of European Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of measures related to types of existing plans</td>
<td>Number of new measures for cycle one</td>
<td>Number of new measures and known level of detail</td>
<td>Number of European Sites</td>
<td></td>
</tr>
<tr>
<td>London, Maidenhead and Sunbury, Colne and North Kent</td>
<td>0 (633)</td>
<td>No screened in measures as no European sites present within a range of London Boroughs (see section 6.2)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Catchments with all measures from existing plans

All remaining catchments have new measures

### Catchments with new measures for cycle 1 of the FRMP

<table>
<thead>
<tr>
<th>Management Catchment</th>
<th>Number of measures screened in (out)</th>
<th>Number of measures from existing plans</th>
<th>Number of measures related to types of existing plans&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Number of new measures and known level of detail&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Number of European Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of measures related to types of existing plans</td>
<td>Number of new measures for cycle one</td>
<td>Number of new measures and known level of detail</td>
<td>Number of European Sites</td>
<td></td>
</tr>
<tr>
<td>London</td>
<td>40 (179)</td>
<td>27</td>
<td>27 from SWMP/other LLFA plans</td>
<td>13</td>
<td>13 not in proximity 0 strategic/proximity unknown 0 specific/in proximity</td>
</tr>
<tr>
<td>Roding, Beam and Ingrebourne</td>
<td>10 (16)</td>
<td>7</td>
<td>7 from Local Strategies</td>
<td>3</td>
<td>3 not in proximity 0 strategic/proximity unknown 0 specific/in proximity</td>
</tr>
<tr>
<td>South Essex</td>
<td>1 (0)</td>
<td>0</td>
<td></td>
<td>1</td>
<td>1 not in proximity 0 strategic/proximity unknown 0 specific/in proximity</td>
</tr>
</tbody>
</table>
| Sub-total            | 51 (195) | 34 | 27 from SWMP/other LLFA plans 7 from Local Strategies | 17 | 17 not in proximity 0 strategic/proximity unknown 0 specific/in proximity | 2%
| % all measures       | 6%       | 4% | see above | see above | see above |
| Overall Total        | 51 (828) | 34 | see above | 17 | see above |
| % all measures       | 6%       | 4% | see above | see above | see above |

<sup>1</sup> - all numbers are of 'screened in' measures, except those in brackets
<sup>2</sup> - all %s are of total of all 'screened in and out' measures

`in proximity` means being generally in the same part of the catchment (specific distances are not applied, but further detail is provided in the assessment)

`specific` is where a measure is place specific, `strategic` is where a measure is catchment or RBD-wide

Of the total of 879 measures, 51 (6%) have been screened in for HRA consideration, and 828 (94%) screened out.

### 6.1.1. Risks from existing plans measures

34 (4%) of measures are from existing plans, all of which are either Local Flood Risk Management Strategies (LFRMS) or Surface Water Management Plans. The plans comprise the LFRMS’s that cover parts of the London, and Roding Beam and Ingrebourne management catchments (see Figure 5 and Table 5 above).
6.1.2. Risks from new measures

17 (2%) of measures are new, all of which are not in proximity to European sites and are considered in the sections below. There are no strategic or specific measures / in proximity to European sites.

6.2. Screening and Likely Significant Effects

The following London Boroughs within the London FRA do not contain any European sites therefore FRA plans from these boroughs are screened out of the assessment:


These boroughs contain 633 measures which have been screened out of this assessment for the management catchments in the London FRA.

The management catchments considered from this point onwards contain London boroughs with European sites within them. Plans from these boroughs are therefore considered in this assessment.

6.2.1. London Management Catchment

<table>
<thead>
<tr>
<th>European sites</th>
<th>New measures</th>
<th>Existing plan measures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Screened in</td>
<td>Screened out</td>
</tr>
<tr>
<td>9</td>
<td>13</td>
<td>20</td>
</tr>
</tbody>
</table>

The London management catchment contains 9 European sites and 219 FRA measures in total. These comprise 33 new measures and 186 measures from existing plans.

The management catchment contains the following European sites: the Lee Valley Ramsar and SPA, located in two areas towards the north of the catchment, the most northerly immediately east of Cheshunt and the more central directly between the Tottenham and Walthamstow areas. The remaining European sites in the catchment are all SACs. They include: Wormley-Hoddesdon Park Woods in the far north of the catchment, south west of Hoddesdon; Epping Forest in the far north east, south-east of the Waltham Abbey area; Richmond Park immediately south of Richmond in the far west of the catchment; Mole Gap to Reigate Escarpment, immediately south east of Leatherhead; and Wimbledon common, immediately south east of Putney in the west of the catchment.

**New measures- LLFAs (London Borough of Waltham Forest and Surrey County Council)**

There are 3 FRA new measures (2 from the London Borough of Waltham Forest, 1 from Surrey County Council) for the London management catchment; the measures relate to flood risk preparedness, prevention / reduction and are screened out of further consideration.

**New Measures – LLFAs (London Borough of Harrow)**

17 measures are screened out of the assessment; these comprise avoidance, flood risk prevention / reduction, avoidance, removal or relocation measures; recovery, clean up and
restoration measures, emergency event response / contingency planning, flood forecasting and warning, and public awareness and preparedness.

13 measures are screened into the assessment. 11 of these are natural flood management, runoff and catchment management measures and include actions to work with other RMAs to resolve local flooding problems, flood defence and (Harrow) drainage maintenance programmes, incorporate blue/green objectives within schemes (Harrow Green Grid project). The measures also include a number of specific schemes related to river restoration / flood storage areas; the remaining 2 measures are ‘other’ measures (M61) to comply with Harrow biodiversity action plan objectives / Harrow Parks and Open Spaces Strategy.

There are no European sites within the London Borough of Harrow; the nearest European site to these measures, the South West London Waterbodies SPA / Ramsar site is approximately 15km south of the borough boundary. These new measures are therefore not likely to have a significant effect on any European site.

Existing plan measures – London Borough of Wandsworth Local Flood Risk Management Strategy

A total of 50 FRA measures are in the London Borough of Wandsworth from the LFRMS, 43 of which are screened out of the assessment, relating to other preparedness (13), public awareness and preparedness (12), avoidance measures (9), other recovery and review (6), avoidance (2) and other prevention / reduction (1).

7 measures are screened in, which comprise 4 surface water management measures and 3 other protection measures.

The London Borough of Wandsworth contains 1 European site, Wimbledon Common SAC, which is located immediately south east of Putney in the west of the borough; the site is not water-dependent.

The screened in measures from the existing plan comprise feasibility studies, and review and updating of data. These measures were assessed as components of the HRA carried out by London Borough of Wandsworth which concluded that this LFRMP is not likely to have a significant effect on Wimbledon Common SAC, the only European site in the Borough.

Existing plan measures - Richmond upon Thames Local Flood Risk Management Strategy

The borough contains 1 European site, Richmond Park SAC which is located immediately South of Richmond in the north west of the borough, the site is not water dependent.

A total of 49 FRA measures are in the London Borough of Richmond upon Thames. 41 measures are screened out of the assessment comprising 15 other prevention, 11 public awareness and preparedness, 6 emergency event response planning / contingency planning, 6 avoidance, 2 flood forecasting and warning and 1 other preparedness.

8 measures are screened into the assessment; comprising 2 surface water management measures to progress localised flood risk schemes / a drainage maintenance regime and 6 other prevention measures.

The screened in measures include 9 locations for measures as part of flood alleviation works. However these measures are not in proximity to Richmond Park SAC, and in
accordance with the HRA assessment carried out for this LFRMS, the plan is not likely to have a significant effect.

**Existing plan measures - Merton Local Flood Risk Management Strategy**

A total of 55 FRA measures are in the London Borough of Merton, which is located in the London management catchment. 53 existing measures are screened out of the assessment and 2 are screened in. There are no new measures.

The London Borough of Wandsworth contains 1 European site, Wimbledon Common SAC which is located immediately south east of Putney in the north of the management catchment; the site is not water-dependent.

53 measures are screened out from the Merton FRMS, all of which are borough-wide; these measures comprise other preparedness / public awareness and preparedness, emergency event response contingency planning, flood risk prevention / reduction, flood forecasting and warning, avoidance, recovery and review.

2 measures are screened into the assessment; these are surface water management, and natural flood management measures (feasibility studies to investigate local flood risk in the Cottenham Park Critical and Seely Road Drainage Areas).

The screened in measures are feasibility studies to investigate flood risk and are not likely to have a significant effect on Wimbledon Common SAC in line with the conclusions of the HRA for the London Borough of Merton LFRMS.

**Existing plan measures - Waltham Forest LFRMS**

London Borough of Waltham Forest contains 3 European sites. Epping Forest SAC which is located along the Eastern Boundary of the Waltham Forest Borough, West of Loughton, and along the North Eastern Boundary of the London catchment; and the Lee Valley SPA and Ramsar which is located in the very West of borough in the Area between Tottenham and Walthamstow, north of Hackney, and in the general north east of the London management catchment.

13 measures are screened out of the assessment. These comprise 4 reduction measures and 9 preparedness measures.

5 ‘other’ measures (M61) are screened in, on a precautionary basis. However, these measures all relate to data management, review and reporting activity related to flood risk, and will not result in any physical effects. **These measures are not likely to have a significant effect on European sites,** which is in line with Natural England’s view that that an HRA was not required for this LFRMS.

**Existing Plans - London Borough of Waltham Forest Surface Water Management Plan (SWMP)**

2 measures relate to flood risk prevention / reduction and are screened out of further consideration.

1 ‘other protection’ measure - surface water management, is screened in; however this measure is to investigate capacity problems within the Thames Water network, and will not
result in any physical effects; the measures is therefore not likely to have a significant effect on any European sites.

**Existing plan measures - London Borough of Waltham Forest Multi-Agency Plan**

2 ‘other’ measures (M61) from this plan are screened in; an action listed in the preliminary flood risk assessment and ‘Exercise Poseidon’ carried out in 2013 to test the current plan. These measures are assessment and response plans and therefore are not likely to have a significant effect on European sites.

**Existing plan measures - London Borough of Lewisham LFRMS**

7 measures from this plan are screened out; comprising avoidance, prevention, reduction and flood forecasting / warning measures.

2 measures from this plan are screened in, comprising an ‘other’ (M61) measure and a natural flood management / runoff measure.

As part of the preparation of the Lewisham LFRMS, a screening / test of likely significant effect under the Habitats Regulations was completed, which concluded that the LFRMS was not likely to adversely affect the integrity of any European site. These measures are therefore determined not likely to have a significant effect on any European sites.

6.2.2. **Roding Beam and Ingrebourne Management Catchment**

<table>
<thead>
<tr>
<th>European sites</th>
<th>New measures</th>
<th>Existing plan measures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Screened in</td>
<td>Screened out</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>8</td>
</tr>
</tbody>
</table>

The Roding Beam and Ingrebourne catchment contains 1 European site, the Epping Forest SAC, located in the central part of the catchment, immediately west of Loughton. There are 26 measures in total; these comprise 11 new measures and 15 measures from existing plans.

**New Measures – LLFAs - Havering London Borough**

8 measures are screened out, these include 3 avoidance measures, 2 removal or relocation, 2 reduction measures and 1 emergency event response / contingency planning measure.

3 measures are screened in, these comprise 2 channel, coastal and floodplain works measures and a natural flood management / runoff and catchment management measure.

The measures lie within the London Borough of Havering, the administrative boundaries of which do not include any European sites, and are approximately 15km from the nearest site, Epping Forest SAC; there is no potential for hydraulic connectivity with this site due to lack of any watercourse connectivity. The new measures from the London Borough of Havering are therefore considered will not have a significant effect on any European sites.

**Existing plan measures – London Borough of Redbridge LFRMS**

7 measures are screened out of the assessment; 5 of these are flood risk prevention / reduction measures and 2 relate to public awareness and preparedness.

7 measures are screened in; these comprise identifying potential flood alleviation schemes and the development of feasibility studies / funding stream bids to support potential
schemes. The measures also comprise natural flood management / runoff and catchment management measures. These measures are strategic, with no location specific information at this stage. As such, there is potential for some activities / actions arising from the measures to be in proximity to the Epping Forest SAC.

Any works arising from these measures will be subject to subsequent appraisal and assessment at project level. Project level control through the consenting process for these measures, and associated requirement for consideration of project level HRA will ensure these measures will not result in adverse effect on the Epping Forest SAC.

**Existing plan measures – London Borough of Barking and Dagenham Surface Water Management Plan**

There is one screened out measure from the London Borough of Barking and Dagenham Surface Water Management Plan relating to flood prevention (M24).

### 6.2.3. South Essex Management Catchment

<table>
<thead>
<tr>
<th>European sites</th>
<th>New measures</th>
<th>Existing plan measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Screened in</td>
<td>Screened out</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

The catchment contains 4 European sites; the Benfleet and South End Marshes SPA and Ramsar, immediately south of Benfleet, south west of Canvey Island; and the Thames Estuary and Marshes SPA / Ramsar site running north-south along the estuary coastline east of East Tilbury. There is a single (new) measure for the management catchment, considered below.

**New Measures - London Borough of Havering**

The South Essex catchment contains a single new measure from the London Borough of Havering, and no existing measures. The measure relates to removal or relocation, and is screened in for further consideration. The measure comprises the de-silting of West Mar Dyke reach, clearing ditches and upgrading the overflow systems. West Mar Dyke reach, and the point at which it discharges to the Thames Estuary, is not in proximity to any European sites within the catchment. The measure is therefore considered not likely to give rise to significant effects on European sites.

### 6.3. Consideration of results and conclusion

The assessment of likely significant effects has been carried out for each catchment in the FRA in turn, and considered the risks to European Sites and existing controls in place for existing plans as well as the potential risks in the development of future local actions related to new strategic development measures for the next FRMP cycle.

In all catchments the conclusions are that measures are sufficiently distant from European sites as not present a risk or that likely significant effects will be avoided or mitigated by appropriate controls and actions that are currently in place or will be in place at a project level when local actions are developed to implement the plan.

The 34 measures screened into the assessment in the London FRA from existing plans, including LLFA local strategies and multi-agency plans have referenced control requirements
under the planning and consenting regulations that will ensure project level HRAs are carried out when and where relevant. These measures from existing plans in the London FRA will not have a likely significant effect on European sites.

Of the 17 new measures for the FRA none are considered to be in proximity to European sites in the management catchments in the London FRA. Project level controls will also additionally be in place should these be required to ensure these measures do not have likely significant effects on European sites in the London FRA.

6.3.1. Conclusion

At this strategic-plan level of the London FRA the measures are screened as being not likely to have any significant effects on any European sites, alone or in combination with other plans or projects (see chapter 7). Given this conclusion, there is no requirement to progress to the next stage of the Habitats Regulations Assessment (an 'appropriate assessment' to examine the question of adverse effect on the integrity of European sites). Lower-tier assessments will be required and will be assisted by the information gathered in this high-level assessment, but their conclusions will not be influenced by this HRA, and each individual plan or project must be assessed as necessary in order to meet the requirements of the Habitats Regulations.
7. In combination effects with other plans and projects

The Habitats Directive and the Habitats Regulations require competent authorities to consider the assessment of effects on a European site in combination with other plans or projects. The Habitats Regulations Assessment of the FRMP has demonstrated that, for those measures where there is a potential effect on a European site, there is insufficient detail available at this stage to understand the site-specific context in terms of location or outline design of the flood risk management solution to be able to assess the likely effects in the detail necessary to advise on site- specific avoidance and mitigation required. Rather, the assessment has set out the range of avoidance, mitigation and control measures that can be applied, and there is enough confidence in the breadth and type of measures available to screen out likely significant effects for the purposes of plan-level assessment. The application of HRA requirements at the project or lower-tier plan level will take place when a greater level of detail will be available. Given the lack of available information on the location and design of solutions and therefore the associated effects, we are also unable to meaningfully assess the in-combination effects with other plans and projects. This section has therefore set out the types of plans and projects where interactions are possible and more detailed consideration of these will be required in the HRAs for projects or lower tier plans.

The potential for in-combination effects lies with the following potential interactions.

- The RBD FRMP with the FRA FRMP
- Between different RBD FRMPs
- The RBD FRMP with other external plans within the RBD.

The in-combination effects with existing Risk Management Authority plans during the period of the plan, including Shoreline Management Plans, Catchment Flood Management Plans and Local Strategies, have been considered as part of the FRMP assessments undertaken within each RBD catchment and flood risk area (see previous sections). This is because the FRMP has already considered how the objectives and measures of these existing plans combine and relate to the 6 year cycle 2015 to 2021 of the FRMP.

7.1. RBD and FRA FRMPs

FRAs geographically overlay one or more RBD catchments and as distinct ‘plans’ addressing local flood sources may have measures that coincide with wider RBD catchment measures addressing flooding from main rivers, sea and reservoirs. Together these measures have the potential to cause in-combination effects on nearby European sites depending on their nature, location and relationship. At the strategic-plan level of the HRA such in-combination effects on specific European sites in unable to be considered. Instead the HRA highlights where risks of in-combination effects may in general be higher and which project level assessments should consider further as follows:

- Most FRAs are in urban areas where there are less European sites present so most measures are unlikely to be in proximity to them
- Most measures in FRAs are drawn from existing plans (local strategies and surface water management plans) that will have considered their flood management
measures alongside any in the same strategic area under CFMPs and SMPs, including any in-combination effects on European sites in any HRA.

- The combination of measures with highest risks of in-combination effects not considered under existing plans, will be where there are specific improvement measures that are new in the FRMP under both the RBD catchment (main river/sea flooding) and the FRA (local flooding) that are in close proximity to each other and a European site. This combination of measures is not significant in this RBD FRMP.

7.2. In-combination effects between RBD FRMPs

The Thames RBD shares a border with four other RBDs:

- Anglian to the north
- South east to the east and south
- South West to the south west (a relatively short border)
- Severn to the west and north west.

RBD borders follow the margins of catchments and some European sites span the borders of the Thames RBD. With the exception of the Thames / Severn, European sites span the borders of each of these RBDs.

In general more FRMP measures are located close to where the risks of flooding to people and property are greatest and as a result less are located close to the water shed margins of catchments that are the borders of RBDs. There are however, catchment or RBD wide measures that relate to these borders and often involve working with natural processes. At this level of the plan, the nature of such measures on any specific European sites that cross RBD borders are not sufficient to identify effects and such measures are considered to result in no likely significant effects to cross border European sites. Such effects may be important for lower tier plans and project level assessments to consider when more details of the measures and the effects are known.

7.3. In-combination effects with external plans

Potential for in-combination effects with external plans will depend on the specific locations and design of actions or measures arising from the FRMP, external plan or project. Nevertheless, a number of plans could give rise to projects that have the potential to contribute to an in-combination effect have been identified.

At this stage, given the uncertainty of location and design of measures in the FRMP, there is limited value in examining other plans in detail and speculating on where interactions might occur. The approach taken was to identify key plans that should be considered in the HRAs for projects or lower tier plans or strategies, as described below. However, this is not a definitive list; there are a range of plans and projects that will need to be taken account of in the HRAs for lower-tier plans projects, when considering potential in-combination effects.

Local plans: Local Plans set out a vision and a framework for the future development of the area, addressing needs and opportunities in relation to housing, the economy, community facilities and infrastructure – as well as a basis for safeguarding the environment, adapting to climate change and securing good design. During their development and before they are adopted, plans will be subject to an HRA where there is the potential for significant effects on
a European site or sites. Other local plans that may be relevant to also consider relate to transport, minerals and waste.

**Water Resource Management plans:** Thames Water has produced the water resource plan for the Thames. The boundaries of the plan area are substantially the same as that for the RBD. The plan sets out the investment needed to ensure that there is sufficient water to continue supplying communities over the 25 years from 2015 to 2040. An HRA was undertaken on the plan for the Thames and concluded that the plan was unlikely to result in any significant effects on European sites, either alone or in combination with other plans or projects.

**River Basin Management Plan (RBMP):** RBMPs set statutory objectives for river, lake, groundwater, estuarine and coastal water bodies and summarise the measures needed to achieve them. Because water is linked to land, they also inform decisions on land-use planning. The RBD that provides the spatial boundary for the FRMP is the same as that used for the RBD. The planning timeframe is also the same, so the plan for the period 2015-21 is currently being prepared. Water-dependent European sites are designated as “Protected Areas” under the Water Framework Directive, and the RBMPs include measures to ensure that the objectives for these areas are achieved. While it is unlikely that the plan will result in a significant effect on a European site, an HRA is being undertaken to identify any risks and unanticipated effects.

**Marine plans:** Marine plans set out priorities and directions for future development within the plan area, informs sustainable use of marine resources and helps marine users understand the best locations for their activities, including where new developments may be appropriate. Marine plans are proposed for the inshore and offshore areas. Only interactions with the inshore plan would be expected. Marine plans are required to be produced by 2021, but to date there is no draft plan for ‘South East Inshore’ and therefore it is not possible to consider the potential for in-combination effects further.
8. Conclusion and Future HRAs

This HRA has been carried out at the level of published detail in the FRMP. For measures from existing plans, the HRA has summarised the results from existing HRAs of these plans. For any new strategic measures provided for the new FRMP cycle (2015-2021), the HRA has considered the effects at a strategic level, as local actions will be developed at lower tiers of plans or projects. The HRA has determined a conclusion for each of the 3 RMA plans: Thames RBD FRMP and the 2 FRA FRMPs: London and Medway. The HRA provides a basis to identify options to avoid or mitigate for impacts to give confidence that the plan can be screened as having no likely significant effect. The HRA also makes clear that these will require further case-specific consideration during determination of any authorisations or consents by the relevant competent authority as to their effects on European sites, and then inform the appropriate mechanisms to be applied to secure any mitigation required.

The strategic nature of the FRMP limits the extent to which in-combination effects can be considered. Nevertheless, the potential for in-combination effects has been considered and a summary of the potential for risks with other plans and projects that are external to the FRMP has been identified.

The HRA conclusions for the FRMP is that there is sufficient scope for future avoidance and mitigation to have confidence that the plan can be screened out of any likely significant effects. This is based on controls already in place for measures from existing plans (with agreed HRAs and the necessary avoidance, mitigation or compensation secured), and controls that projects will have in place when developing local actions for any new strategic measures in the FRMP.

Future HRAs should make specific reference to this strategic-plan HRA for risks related to the ‘screened in’ measures where they are considered close enough to European Sites to need detailed consideration at project level. Future HRAs should also make specific reference to HRAs for existing plans with agreed controls in place, and to any further controls and mitigation in this strategic HRA related to any new strategic developments for the new cycle of the FRMP.

This HRA does not remove the need for HRA at a subsequent level, i.e. lower-tier strategies, plans or projects that implement measures, including the need for detailed appropriate assessment where required.

As local actions are developed at a project level and the details of their scope and scale are known, this may identify additional effects on European sites that have not been assessed here, or were not appropriate to consider at this spatial scale of plan.
## ANNEX A

### Table A1 HRA screening table for the FRMP measure categories

<table>
<thead>
<tr>
<th>Measure code</th>
<th>Measure description</th>
<th>Screened in or out</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>M2 Prevention</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M21</td>
<td>Prevention, avoidance measure to prevent the location of new or additional receptors in flood prone areas such as land use planning policies or regulation</td>
<td>Out</td>
<td>Comprises prevention and avoidance measures therefore unlikely to result in physical intervention.</td>
</tr>
<tr>
<td>M22</td>
<td>Prevention, removal or relocation measure to remove receptors from flood prone areas or to relocate receptors to areas of lower risk</td>
<td>In</td>
<td>Removal or relocation measures may involve physical intervention, with potential for effects on European sites where these interventions are in proximity. Screened in on a precautionary basis.</td>
</tr>
<tr>
<td>M23</td>
<td>Prevention, reduction measures to adapt receptors to reduce the adverse consequences in the event of a flood actions or buildings, public networks etc</td>
<td>Out</td>
<td>Flood risk prevention / reduction / adaption to buildings etc will not result in physical interventions affecting European sites.</td>
</tr>
<tr>
<td>M24</td>
<td>Prevention, other prevention measures to enhance flood risk prevention (may include flood risk modelling and assessment, flood vulnerability assessment, maintenance programmes or policies etc)</td>
<td>Out</td>
<td>Flood risk modelling / assessment will not result in physical interventions affecting European sites.</td>
</tr>
<tr>
<td>M3 Protection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M31</td>
<td>Natural flood management/run off and catchment management. Measures to reduce the flow into natural or artificial drainage systems such as overland flow interceptors and/or storage, enhancement of infiltration, etc and including in-channel, flood plan works and the reforestation of banks, that restore natural systems to help slow flow and store water.</td>
<td>In</td>
<td></td>
</tr>
<tr>
<td>M32</td>
<td>Water flow regulation. Measures involving physical intervention to regulate flows such as construction modification or removal of water retaining structures (e.g. dams or other on-line storage areas) or development of existing flow regulation rules and which have significant impact on the hydrological regime.</td>
<td>In</td>
<td>Measures comprise physical activities or interventions resulting in actual changes on the ground or effects on flows / movement of water and changes to physical processes.</td>
</tr>
<tr>
<td>M33</td>
<td>Channel, coastal and floodplain works. Measures involving physical interventions to freshwater channels, mountain streams, estuaries, coastal water and flood prone areas of land, such as construction, modification or removal of structures or the alteration of channels, sediment dynamics, management dykes etc.</td>
<td>In</td>
<td></td>
</tr>
<tr>
<td>M34</td>
<td>Surface water management measures involving physical interventions to reduce surface water flooding, typically, but not exclusively in an urban environment such as enhancing artificial drainage capacity or through SuDS</td>
<td>In</td>
<td></td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Measure code</th>
<th>Measure description</th>
<th>Screened in or out</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>M35</td>
<td>Other measures to enhance protection against flooding which may include flood defences, asset maintenance programmes or policies.</td>
<td>In</td>
<td></td>
</tr>
<tr>
<td>M41</td>
<td>Flood forecasting and warning. Measures to establish or enhance a flood forecasting or warning system.</td>
<td>Out</td>
<td>Measures do not comprise or result in physical changes or interventions.</td>
</tr>
<tr>
<td>M42</td>
<td>Emergency event response planning/contingency planning measures to establish or enhance flood event institutional emergency response planning</td>
<td>Out</td>
<td></td>
</tr>
<tr>
<td>M43</td>
<td>Public awareness and preparedness. Measures to establish the public awareness or preparedness for flood events.</td>
<td>Out</td>
<td></td>
</tr>
<tr>
<td>M44</td>
<td>Other measures to establish or enhance preparedness for flood events to reduce adverse consequences.</td>
<td>Out</td>
<td></td>
</tr>
<tr>
<td>M51</td>
<td>Recovery and review (planning for recovery and review phases is in principle part of preparedness) individual and society recovery, clean up and restoration activities (buildings, infrastructure etc). Health and mental health supporting actions, inc managing stress disaster financial assistance (grants, tax) inc disaster legal assistance, disaster unemployment assistance, temporary or permanent, relocation, other.</td>
<td>Out</td>
<td>Measures on the whole do not comprise or result in physical changes or interventions. Measures involving physical activity are focused on restoration at a local level, i.e. buildings etc., none of which considered likely to result in physical effects on European sites.</td>
</tr>
<tr>
<td>M52</td>
<td>Environmental recovery, clean up and restoration activities (with several sub-topics as mould protection, well-water safety and securing hazardous material containers).</td>
<td>Out</td>
<td></td>
</tr>
<tr>
<td>M53</td>
<td>Other recovery, review and lessons learnt from flood events, insurance policies.</td>
<td>Out</td>
<td></td>
</tr>
<tr>
<td>M61</td>
<td>Other measures not fitting in to any of the other categories (M2-4) or their sub-categories.</td>
<td>In</td>
<td>M61 code includes a variety of different kinds of measures, but includes measures such as habitat creation, floodplain restoration, managed realignment. Therefore screened in on a precautionary basis.</td>
</tr>
<tr>
<td>Management Catchment</td>
<td>European Site</td>
<td>Management Catchment</td>
<td>European Site</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>---------------------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Colne</td>
<td>• Burnham Beeches SAC&lt;br&gt;• Chilterns Beechwoods SAC&lt;br&gt;• South West London Waterbodies Ramsar&lt;br&gt;• South West London Waterbodies SPA</td>
<td>Cherwell and Ray</td>
<td>No European Sites</td>
</tr>
<tr>
<td>Gloucestershire and the Vale</td>
<td>• Cothill Fen SAC&lt;br&gt;• Hackpen Hill SAC&lt;br&gt;• North Meadow &amp; Clattinger Farm SAC&lt;br&gt;• Oxford Meadows SAC&lt;br&gt;• Little Wittenham SAC</td>
<td>Cotswolds</td>
<td>No European Sites</td>
</tr>
<tr>
<td>Darent and Cray</td>
<td>No European Sites</td>
<td>Kennet and tributaries</td>
<td>• Kennet &amp; Lambourn Floodplain SAC&lt;br&gt;• Kennet Valley Alderwoods SAC&lt;br&gt;• River Lambourn SAC&lt;br&gt;• Pewsey Downs SAC</td>
</tr>
<tr>
<td>Loddon and tributaries</td>
<td>• Thursley, Ash Pirbright &amp; Chobham SAC&lt;br&gt;• Thames Basin Heaths SPA</td>
<td>Maidenhead and Sunbury</td>
<td>• Windsor Forest &amp; Great Park SAC&lt;br&gt;• South West London Waterbodies Ramsar&lt;br&gt;• South West London Waterbodies SPA&lt;br&gt;• Burnham Beeches SAC&lt;br&gt;• Chiltern Beechwoods SAC&lt;br&gt;• Thames Basin Heaths SPA</td>
</tr>
<tr>
<td>London</td>
<td>• Epping Forest SAC&lt;br&gt;• Richmond Park SAC&lt;br&gt;• Wimbledon Common SAC&lt;br&gt;• Wormley-Hoddesdonpark Woods SAC&lt;br&gt;• Lee Valley SPA&lt;br&gt;• South West London Waterbodies SPA&lt;br&gt;• Lee Valley Ramsar</td>
<td>Medway</td>
<td>• North Downs Woodlands SAC&lt;br&gt;• Peters Pit SAC&lt;br&gt;• Queendown Warren SAC&lt;br&gt;• Ashdown Forest SPA&lt;br&gt;• Thames Estuary &amp; Marshes SPA&lt;br&gt;• Thames Estuary &amp; Marshes Ramsar</td>
</tr>
<tr>
<td>Management Catchment</td>
<td>European Site</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Mole                 | - South West London Waterbodies Ramsar  
|                      | - Mole Gap to Reigate Escarpment SAC  
|                      | - Thames Basin Heaths SPA  
|                      | Roding, Beam and Ingrebourne  
|                      | - Epping Forest SAC  
| North Kent           | - Medway Estuary & Marshes SPA  
|                      | - The Swale SPA  
|                      | - Medway Estuary & Marshes Ramsar  
|                      | - The Swale Ramsar  
|                      | - Blean Complex SAC  
|                      | Thames and South Chilterns  
|                      | - Aston Rowant SAC  
|                      | - Hartslock Wood SAC  
|                      | - Little Wittenham SAC  
|                      | - Chilterns Beechwoods SAC  
| South Essex          | - Benfleet and South End Marshes SPA  
|                      | - Benfleet and South End Marshes Ramsar  
|                      | - Thames Estuary and Marshes SPA  
|                      | - Thames Estuary and Marshes Ramsar  
|                      | Upper Lee  
|                      | - Lee Valley Ramsar  
|                      | - Lee Valley SPA  
|                      | - Wormley-Hoddesdonpark Woods SAC  
| Wey and tributaries  | - East Hampshire Hangers SAC  
|                      | - Shortheath Common SAC  
|                      | - Thursley, Ash, Pirbright & Chobham SAC  
|                      | - Thames Basin Heaths SPA  
|                      | - Thursley, Hankley & Frensham Commons SPA  
|                      | - Wealden Heaths Phase II SPA  
|                      | - Thursley & Ockley Bogs Ramsar  
|                      | - South West London Waterbodies Ramsar  
|                      | - South West London Waterbodies SPA  
|                      | - Windsor Forest and Great Park SAC  
|                      | - Woolmer Forest SAC  
|
### Table A3  Mitigation and Control Measures

<table>
<thead>
<tr>
<th>Flooding source</th>
<th>Legal / consenting processes and consideration of Habitats Regulations</th>
</tr>
</thead>
</table>
| **Measures to address flooding from rivers (main river)** | - Measures involving construction / creation of new, or changes to / alteration / improvement of existing flood defence structures and main river channels / floodplain generally require planning permission from the local planning authority under the Town & Country Planning Act 1990. Where a European site is potentially affected, the need for HRA is determined through the planning process, with HRA submitted with the planning application, determined by the local planning authority as competent authority.
- Measures involving works on or near a main river, flood or sea defences requires Flood Defence Consent from the Environment Agency, under the Water Resources Act 1991, Flood and Water Management Act 2010. Where a European site is potentially affected, the need for HRA is determined through the consenting process, with a HRA submitted with the consent application, determined by the Environment Agency as competent authority.
- Smaller scale measures for flood defence works, improvements or alterations to main river channels, and measures comprising maintenance, such as replacement, repair or refurbishment of existing structures, may not require planning permission, but fall under The Town and Country Planning (General Permitted Development) Order 1995 (as amended). Where a European site is potentially affected, the need for HRA is determined, and if likely significant effect is predicted, Regulation 73 of the Habitats Regulations places a condition of any planning permission granted by a general development order, requiring written notification of approval of the local planning authority. HRA process then as for planning permission. |
| **Measures to flooding from rivers (ordinary watercourses)** | - Measures involving construction / creation of new, or changes to / alteration / improvement of existing flood defence structures and ordinary watercourse river channels / floodplain generally require planning permission from the local planning authority under the Town & Country Planning Act 1990. Where a European site is potentially affected, the need for HRA is determined through the planning process, with HRA submitted with the planning application, determined by the local planning authority as competent authority.
- Measures involving works on or near all other watercourses that aren’t main river requires Ordinary Watercourse Consent from either the Lead Local Flood Authority (LLFA) or Internal Drainage Board (IDB). Where a European site is potentially affected, the need for HRA is determined through the consenting process, with a HRA submitted with the consent application, determined by the LLFA / IDB as competent authority.
- Smaller scale measures for flood defence works, improvements or alterations to all other watercourses that aren’t main river, and measures comprising maintenance, such as replacement, repair or refurbishment of existing structures, may fall under The Town and Country Planning (General Permitted Development) Order 1995 (as amended). Where a European site is potentially affected, the need for HRA is determined, and if likely significant effects predicted, Regulation 73 of the Habitats Regulations places a condition of any planning permission granted by a general development order, requiring written notification of approval of the local planning authority. HRA process then as for planning permission. |
<table>
<thead>
<tr>
<th>Flooding source</th>
<th>Legal / consenting processes and consideration of Habitats Regulations</th>
</tr>
</thead>
</table>
| Flooding from the Sea            | • Measures involving construction / creation of new, or changes to / alteration / improvement of existing coastal / tidal flood defence structures and estuary / coastal frontage (above mean low water) generally require planning permission from the local planning authority under the Town & Country Planning Act 1990. Where a European site is potentially affected, the need for HRA is determined through the planning process, with HRA submitted with the planning application, determined by the local planning authority as competent authority.  
• Measures involving works below the mean high water spring tidal limit (including the waters of every estuary, river or channel where the tide flows up to the mean high water spring tide limit) require a Marine Works Licence from the Marine Management Organisation (MMO). Where a European site is potentially affected, the need for HRA is determined through the consenting process, with a HRA submitted with the consent application. The HRA is determined by the MMO as competent authority.  
• Measures involving works on or near a main river, flood or sea defences requires Flood Defence Consent from the Environment Agency, under the Water Resources Act 1991, Flood and Water Management Act 2010. Where a European site is potentially affected, the need for HRA is determined through the consenting process, with a HRA submitted with the consent application, determined by the Environment Agency as competent authority.  
• Maintaining coast protection works does not require a marine licence when carried out by, or on behalf of, the Environment Agency or a coast protection authority, provided the activity is carried out within the existing boundaries of the works being maintained. Some coast protection works maintenance activities also do not require planning permission, falling under the remit of The Town and Country Planning (General Permitted Development) Order 1995 (as amended). Where a European site is potentially affected, the need for HRA is determined, and if likely significant effects predicted, Regulation 73 of the Habitats Regulations places a condition of any planning permission granted by a general development order, requiring written notification of approval of the local planning authority. HRA process then as for planning permission. |
| Coastal erosion                  | • Measures involving construction / creation of new, or changes to / alteration / improvement of existing coastal / tidal flood defence structures and estuary / coastal frontage (above mean low water) generally require planning permission from the local planning authority under the Town & Country Planning Act 1990. Where a European site is potentially affected, the need for HRA is determined through the planning process, with HRA submitted with the planning application, determined by the local planning authority as competent authority.  
• Measures involving works below the mean high water spring tidal limit require a Marine Works Licence from the Marine Management Organisation (MMO). Where a European site is potentially affected, the need for HRA is determined through the consenting process, with a HRA submitted with the consent application. The HRA is determined by the MMO as competent authority.  
• Measures involving works on or near a main river, flood or sea defences requires Flood Defence Consent from the Environment Agency, under the Water Resources Act 1991, Flood and Water Management Act 2010. Where a European site is potentially affected, the need for HRA is determined through the consenting process, |
<table>
<thead>
<tr>
<th>Flooding source</th>
<th>Legal / consenting processes and consideration of Habitats Regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>with a HRA submitted with the consent application, determined by the Environment Agency as competent authority.</td>
</tr>
<tr>
<td></td>
<td>• Maintaining coast protection works does not require a marine licence when carried out by, or on behalf of, the Environment Agency or a coast protection authority, provided the activity is carried out within the existing boundaries of the works being maintained. Some coast protection works maintenance activities also do not require planning permission, falling under the remit of The Town and Country Planning (General Permitted Development) Order 1995 (as amended). Where a European site is potentially affected, the need for HRA is determined, and if likely significant effects predicted, Regulation 73 of the Habitats Regulations places a condition of any planning permission granted by a general development order, requiring written notification of approval of the local planning authority. HRA process then as for planning permission.</td>
</tr>
<tr>
<td></td>
<td>• Measures involving construction / creation of new, or changes to / alteration / improvement of existing structures to address surface water flooding (e.g. culverts, drainage ditches / channels) generally require planning permission from the local planning authority under the Town &amp; Country Planning Act 1990. Where a European site is potentially affected, the need for HRA is determined through the planning process, with HRA submitted with the planning application, determined by the local planning authority as competent authority.</td>
</tr>
<tr>
<td></td>
<td>• Measures to address surface water flooding in proximity to main river or ordinary watercourses requires Flood Defence Consent / Ordinary Watercourse Consent from the Environment Agency / LLFA / IDB for work on or near all other watercourses that aren’t main rivers. HRA requirements as for measures to address flooding from rivers (main river / ordinary watercourses).</td>
</tr>
<tr>
<td></td>
<td>• Measures involving maintaining existing structures to address surface water flooding may not require planning permission, falling under the remit of The Town and Country Planning (General Permitted Development) Order 1995 (as amended). Where a European site is potentially affected, the need for HRA is determined, and if likely significant effects predicted, Regulation 73 of the Habitats Regulations places a condition of any planning permission granted by a general development order, requiring written notification of approval of the local planning authority. HRA process then as for planning permission.</td>
</tr>
<tr>
<td></td>
<td>• Measures to address groundwater flooding in proximity to main river or ordinary watercourses requires Flood Defence Consent / Ordinary Watercourse Consent from the Environment Agency / LLFA / IDB for work on or near all other watercourses that aren’t main rivers. HRA requirements as for measures to address flooding from rivers (main river / ordinary watercourses).</td>
</tr>
<tr>
<td></td>
<td>• Measures to address groundwater flooding involving the construction / creation of above ground structures generally require planning permission from the local planning authority under the Town &amp; Country Planning Act 1990. Where a European site is potentially affected, the need for HRA is determined through the planning process, with HRA submitted with the planning application, determined by the local planning authority as competent authority.</td>
</tr>
<tr>
<td>Flooding source</td>
<td>Legal / consenting processes and consideration of Habitats Regulations</td>
</tr>
<tr>
<td>-----------------</td>
<td>--------------------------------------------------</td>
</tr>
</tbody>
</table>
| **Sewer flooding** | • Measures to address sewer flooding in proximity to main river or ordinary watercourses requires Flood Defence Consent / Ordinary Watercourse Consent from the Environment Agency / LLFA / IDB for work on or near all other watercourses that aren’t main rivers. HRA requirements as for measures to address flooding from rivers (main river / ordinary watercourses).  
• Measures to address sewer flooding involving the construction / creation of above ground structures generally require planning permission from the local planning authority under the Town & Country Planning Act 1990. Where a European site is potentially affected, the need for HRA is determined through the planning process, with HRA submitted with the planning application, determined by the local planning authority as competent authority.  
• Measures to address sewer flooding involving the construction / creation of above ground structures generally require planning permission from the local planning authority under the Town & Country Planning Act 1990. Where a European site is potentially affected, the need for HRA is determined through the planning process, with HRA submitted with the planning application, determined by the local planning authority as competent authority.  
• Measures to address sewer flooding by sewerage undertakers may fall within their Permitted Development powers under authority The Town and Country Planning (General Permitted Development) Order 1995 (as amended). Where a European site is potentially affected, the need for HRA is determined through the planning process, with HRA submitted with the planning application, determined by the local planning authority as competent authority. |
| **Flooding from reservoirs** | • New reservoirs / impounding structures, or alterations or removals of existing structures, require an Impoundment Licence from the Environment Agency (Water Resources Act 1991 (as amended by Water Act 2003), Environment Act 1995, Water Resources (Abstraction and Impounding) Regulations 2006). Where a European site is potentially affected, the need for HRA is determined through the licensing application process, with HRA determined by the Environment Agency as competent authority.  
• Measures involving construction / creation of new reservoirs / impounding structures, or changes to / alteration / of existing structures generally require planning permission from the local planning authority under the Town & Country Planning Act 1990. Where a European site is potentially affected, the need for HRA is determined through the planning process, with HRA submitted with the planning application, determined by the local planning authority as competent authority. |
## Annex B – Thames RBD European Sites

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Name of Site</th>
<th>SPA, SAC, Ramsar</th>
<th>Area (ha)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK0030080</td>
<td>Ashdown Forest</td>
<td>SAC</td>
<td>2729</td>
</tr>
<tr>
<td>UK0030082</td>
<td>Aston Rowant</td>
<td>SAC</td>
<td>126</td>
</tr>
<tr>
<td>UK0013697</td>
<td>Blean Complex</td>
<td>SAC</td>
<td>523</td>
</tr>
<tr>
<td>UK0030034</td>
<td>Burnham Beeches</td>
<td>SAC</td>
<td>384</td>
</tr>
<tr>
<td>UK0012724</td>
<td>Chilterns Beechwoods</td>
<td>SAC</td>
<td>1286</td>
</tr>
<tr>
<td>UK0012889</td>
<td>Cothill Fen</td>
<td>SAC</td>
<td>43</td>
</tr>
<tr>
<td>UK0012723</td>
<td>East Hampshire Hangers</td>
<td>SAC</td>
<td>572</td>
</tr>
<tr>
<td>UK0012720</td>
<td>Epping Forest</td>
<td>SAC</td>
<td>1631</td>
</tr>
<tr>
<td>UK0013690</td>
<td>Essex Estuaries *</td>
<td>SAC</td>
<td>46110</td>
</tr>
<tr>
<td>UK0030162</td>
<td>Hackpen Hill</td>
<td>SAC</td>
<td>36</td>
</tr>
<tr>
<td>UK0030164</td>
<td>Hartslock Wood</td>
<td>SAC</td>
<td>34</td>
</tr>
<tr>
<td>UK0030044</td>
<td>Kennet and Lambourn Floodplain *</td>
<td>SAC</td>
<td>115</td>
</tr>
<tr>
<td>UK0030175</td>
<td>Kennet Valley Alderwoods</td>
<td>SAC</td>
<td>58</td>
</tr>
<tr>
<td>UK0030184</td>
<td>Little Wittenham *</td>
<td>SAC</td>
<td>69</td>
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* Denotes if the site is a WFD: Natura 2000 protected area site.

*Area denoted is for the entire designated area rather than the area within the RBD boundary.
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