

Norfolk Local Flood Risk Management Strategy

Habitat Regulations Assessment Task 1 Screening April 2015

Norfolk County Council





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Executive Summary

Norfolk County Council (NCC) as the Lead Local Flood Authority (LLFA) is required to develop, maintain, apply and monitor a Local Flood Risk Management Strategy (LFRMS) for the county of Norfolk. The purpose of the LFRMS is set out under the Flood and Water Management Act (FWMA) 2010¹. LFRMS must address the potential flood risk arising from local sources within the boundaries of the Local Authority area. 'Local flood risk' is defined as any flood risk from surface run-off, groundwater and ordinary watercourses. An ordinary watercourse includes a lake, pond or other areas of water which flows into an ordinary watercourse.

This Habitats Regulations Assessment (HRA) Screening report has been produced by Mott MacDonald Limited on behalf of Norfolk County Council. The aim of the HRA is to identify any Natura 2000 or Ramsar sites (hereafter both are referred to as 'European sites'), which may be affected by the proposed objectives, policies and measures within the LFRMS, together with sufficient information that will enable to the Competent Authority if required to make an appropriate assessment of the implication for the site/s. NCC, as the Competent Authority under the Habitats Regulations, may be able to introduce counter-acting measures to avoid the possibility of a significant effect on an European site during the screening stage.

This HRA Test of Likely Significance on the NCC LFRMS has been carried out following European Union guidance and is based on a precautionary approach, as required under the Habitats Directive. At this strategic level, it is not possible to identify or describe in detail all potential impacts that could be associated with the different policies, measures and actions that may result from the LFRMS specific projects. However, potential generic impacts have been identified that could affect the qualifying features of European sites.

The initial HRA screening conclusions for the NCC LFRMS identified the following policies and measures as having potential likely significant effects on European sites:

Policies

- UC1 Sustainability
- UC4 Critical Drainage Catchments
- UC7 Sustainable Flood Management
- UC12 Securing sustainable drainage
- OW4 Culverting
- E4 Ecological Potential
- E5 River Morphology

Measures

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- Understanding catchments and Flood Risk Surface water Management Plans
- Partnership coordination and working Critical infrastructure flood risk assessment and Highway flood risk investigation
- Implementation of identified mitigation measures Individual schemes

¹ Her Majesty's (HM) Government (2010) Flood and Water Management Act



As a result of the initial HRA screening conclusions recommendations for changes to policy wording were discussed with NCC to mitigate potential effects. Following the introduction of changes to Policy E1: Nature Conservation, it was concluded that the Norfolk LFRMS will not result in likely significant effects.

It is considered that under this policy the strategy will not result in likely significant effects as where one policy appears to support a proposal but another policy does not, the proposal should be taken to be unsupported by the strategy. Consequently if a proposal is made that is not supported by Policy E1 this proposal will not be supported by the strategy. Where a proposal is not supported by the strategy, it should not proceed unless very special circumstances indicate that the benefits of the proposal, to society as a whole, outweigh the policy objection.

Considering all of the above, it is concluded that the policies and measures within the Norfolk LFRMS will not result in likely significant effects to any European designated sites.



1 Introduction

1.1 Background

Norfolk County Council (NCC) as the Lead Local Flood Authority (LLFA) is required to develop, maintain, apply and monitor a Local Flood Risk Management Strategy (LFRMS) for the county of Norfolk. The purpose of the LFRMS is set out under the Flood and Water Management Act (FWMA) 2010². LFRMS must address the potential flood risk arising from local sources within the boundaries of the Local Authority area. 'Local flood risk' is defined as any flood risk from surface run-off, groundwater and ordinary watercourses. An ordinary watercourse includes a lake, pond or other areas of water which flows into an ordinary watercourse.

In accordance with the European Directive 2001/42/EC³, the effect of the Strategy on the environment is required to be assessed through a Strategy Environmental Assessment (SEA). In addition to undertaking a SEA, an assessment is also required under the European Directive 92/43/EEC⁴ ('Habitats Directive'). The Habitats Directive is brought into effect in England (and Wales) by the Conservation of Habitats and Species Regulations 2010 ('Habitats Regulations') (S.I. 2010/490) (as amended) and 2012 (as amended)⁵. Further descriptions of the HRA process are provided in Sections 1.2 and 1.3 below.

This HRA Screening report has been produced by Mott MacDonald Limited on behalf of NCC. The aim of the HRA is to identify any Natura 2000 or Ramsar sites (hereafter both are referred to as 'European sites'), which may be affected by the proposed objectives, policies and measures within the LFRMS, together with sufficient information that will enable to the Competent Authority if required to make an appropriate assessment of the implication for the site/s. NCC, as the Competent Authority under the Habitats Regulations, may be able to introduce counter-acting measures to avoid the possibility of a significant effect on European sites at the screening stage.

1.2 The purpose of the Habitat Regulations Assessment

In accordance with Article 6(3) of the Habitats Directive 'Article 6 Assessments' are required where a plan or project not directly connected with or necessary to the management of a European site(s), may give rise to significant effects upon a European site(s). The requirement for Article 6 Assessments has been transposed into UK law under Regulation 61(2) of the Conservation of Habitats and Species Regulations 2010 ('Habitats Regulations') (S.I. 2010/490) (as amended) and is commonly referred to as a HRA or an 'Appropriate Assessment' (AA). 'Appropriate Assessment' is taken to mean an assessment which is "appropriate to its purpose under the Habitats Directive and Habitats Regulations" and is not to be confused with the second of the Article 6 Assessments with the same name (Department for Communities and Local Government (DCLG), 2006).

² Her Majesty's (HM) Government (2010) Flood and Water Management Act

³ Directive 2001/42/EC of the European Parliament and of the Council (June 2001) on the Assessment of the Effects of Certain Plans and Programmes on the Environment

⁴ Directive 92/43/EEC of the European Parliament and of the Council (May 1992) on the Conservation of Natural Habitats and Wild Fauna and Flora

⁵ The Conservation of Habitats and Species (Amendment) Regulations 2012



Natura 2000 sites include Special Protection Areas (SPAs), Special Areas for Conservation (SACs), candidate SACs and proposed SPAs, as well as Sites of Community Importance (SCIs) which have been adopted by the EC, but not yet formally designated by the government of Member State. In the UK, Ramsar sites are also required to undergo an assessment when a plan or project is considered likely to have a significant effect upon a site (Department for Environment, Food and Rural Affairs (Defra), 2006). Herein Ramsar sites are also referred to as European sites.

A plan or project cannot be given effect or consented unless it can be determined that it would not have an adverse effect on the integrity of European sites or, where there are no alternative solutions, there are Imperative Reasons of Overriding Public Interest and compensatory measures are secured to ensure the coherence of the European site (Natura 2000) network. Any plan or project which has the potential to have an impact on a European Site, no matter how far away from that site should be considered. The LFRMS is regarded to be such a plan as it could implement plans and projects that have the potential to have a significant effect on European sites.

There are currently 13 European sites within Norfolk. Due to the presence of the European sites, this Task 1 HRA is required and has been produced in order to assess the likely significant effects that implementing the LFRMS may have on the European sites.

1.3 The HRA Assessment Process

The HRA is undertaken in a series of tasks that correspond with the Article 6 Assessments prescribed by the Habitats Directive. The outcome of each task determines whether further stages in the process are required. There are four key stages in the HRA process. These are as set out in Table 1.1 below.

Task One – Screening	This identifies whether there will be any potential effects on the European Designated sites and considers whether or not the effects are likely to be significant.		
Task Two – Appropriate assessment	This stage considers the impact on the integrity of a European site/s of the project or plan, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts.		
Task Three – Assessment of Alternative Solutions	If the mitigation measures prescribed at Stage 2 cannot avoid adverse impacts on the integrity of a European Site, this process examines alternative ways of achieving the objects of the project or plan that avoid adverse impacts on the integrity of the European site.		
Task Four – Assessment where no alternative solutions exist and where adverse impacts remain	If not suitable alternatives are available, this stage requires an assessment of compensatory measures where, in the light of an assessment of Imperative Reasons or Overriding Public Interest (IROPI), it is deemed that the project or plan cannot go ahead.		

Table 1.1: Summary of the Stages of the HRA process



1.3.1 Task 1 Screening Methodology

This Task 1 Screening Assessment has been undertaken in accordance with 'Assessment of plans and projects significantly affecting Natura 2000 sites, methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC' (European Commission, 2001).

The first screening stage, Task 1, identifies likely significant effects by identifying the presence or absence of significance indicators. If the conclusion of Task 1 is that there will be no significant effect on the European site/s, there is no requirement to undertake further stages.

The 'Task 1: Screening' consists of the following four key steps:

- **Step 1**: Identify whether the proposed plan is connected with or necessary to the management of any European sites present within the Zone of Influence;
- **Step 2**: Consider the policies in the plan or Strategy, and the magnitude of the effect that they may have on a European Site;
- Step 3: Understand the Conservation Objectives for the identified sites; and
- Step 4: Identify potential impacts and assessment of their significance on European sites.

This report includes information required to facilitate a Task 1 Screening. Throughout this process, the likely significant effects, as a result of the Strategy are assessed.



2 Task 1 Screening

2.1 Introduction

Definitions of conservation status, integrity and significance used in this report are defined in accordance with 'Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC' European Commission, 2000) (Table 2.1).

Status	Description
Conservation status – species	The sum of the influences acting on the species concerned that may affect the long- term distribution and abundance of its population.
Conservation status – habitats	The sum of the influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species
Integrity of a site	The coherence of the site's ecological structure and function, across its whole area, or the habitats, complex of habitats and/or populations of species for which the site is or will be classified.
Significant effect	The deterioration of natural habitats and the habitats of species, as well as disturbance of the species for which the areas have been designated, in so far as such disturbance could be significant in relation to the conservation objectives of the site.

Table 2.1: Definitions

2.2 Step 1: Management of the European Site(s)

The proposed plan described below, is not directly connected with or necessary to the management of any European site.

2.3 Step 2: Description of the Strategy

The increase in occurrence and severity of flooding in recent years, including that of summer 2007, sparked a government-commissioned investigation into flooding, known as the Pitt Review. The review summarised the failings of historic flood management, resulting in an extensive set of recommendations which were transposed into the Flood and Water Management Act (FWMA) 2010. The FWMA created a responsibility for County and Unitary Councils to act as the LLFRA which meant they were required to take leadership for the coordination and management of local flood risk.

NCC as the LLFA is required under Section 9 of the FWMA 2010 to develop, maintain (which includes updating and reviewing), apply and monitor a LFRMS in its area. The LFRMS must address potential flood risk arising from local sources within the boundaries of the Local Authority area.

A 'local flood risk' within the Act is defined as any flood risk from:

- surface run-off;
- groundwater; and
- ordinary watercourses.



An ordinary watercourse is defined (in the Water Resources Act 1991) as any watercourse, including lakes and ponds that is not a main river.

Flood risk arising from the sea, main rivers and reservoirs are not 'local sources' as defined by the FWMA 2010, and are therefore outside the scope of the LFRMS, as they are managed by the Environment Agency (EA) and other organisations. In addition, flood risk arising from sewers is also outside the scope of the LFRMS and is managed by water companies. However, consideration is given to the potential cumulative effects on flood risk from these non-local sources on local sources.

The LFRMS is a high level strategy document that sets out management policies for flood risk management. The purpose of the LFRMS is to identify the extent of flood risk in Norfolk, how it will be managed in partnership with others, and therefore outline NCC's approach to local flood risk management, ultimately forming a policy document. The LFRMS will provide details on management for specific flood risk areas. The LFRMS will include information on the locations of any Critical Drainage Area (CDA) designation that stem from Site Specific Surface Water Management Plan.

The Environment Agency has produced a '*National flood and coastal erosion risk management strategy for England*' (2011). This strategy describes what needs to be done by all organisations involved with flood and coastal erosion risk management. The Strategy is the overarching document for all LFRMS in England.

The LFRMS must be consistent with the objectives in the National Strategy which encourages more effective risk management by enabling people, communities, business, infrastructure, operators and the public sector to work together to:

- Ensure a clear understanding of the risks of flooding and coastal erosion, nationally and locally, so that investment in risk management can be effectively prioritised;
- Set out clear and consistent plans for risk management so that communities and businesses can make informed decisions about the management of the remaining risk;
- Manage flood and coastal erosion risks in an appropriate way;
- Ensure that emergency plans and responses to flood incidents are effective and that communities are able to respond effectively to flood forecasts, warnings and advice; and
- Help communities to recover more quickly and effectively after incidents.

Section 9(4) of the Act specifies what must be included within a LFRMS:

- The Risk Management Authorities on the Local Authority's area;
- The flood and coastal erosion risk management functions that may be exercised by those Authorities in relation to the areas;
- The objectives for managing local flood risk (including, when available, any objective included in an LLFA flood risk management plan prepared in accordance with the Flood Risk Regulations 2009);
- The measures proposed to achieve those objectives;
- How and when the measures are expected to be implemented;
- The costs and benefits of those measure, and how they are to be paid for;
- The assessment of local flood risk for the purpose of the strategy;
- How and when the strategy is to be reviewed; and



How the strategy contributes to the achievement of the wider environmental objectives.

The LFRMS is a high level strategy document that sets out management policies for flood risk management. The purpose of the LFRMS is to identify the extent of flood risk in Norfolk, how it will be managed in partnership with others, and therefore outline NCC's approach to local flood risk management, ultimately forming a policy document.

The aim of Norfolk County Council's (NCC) LFRMS is:

"To work with organisation, business and communities to manage flood risk and, where it is practicable, affordable, and sustainable to do so, to reduce risks to life, property and livelihoods that may arise from local surface runoff, ordinary watercourse and groundwater flooding."

The LFRMS is set out through seven objectives as outlined in Table 2.2.

Objective	Objective Description
Objective 1 - Determine and communicate Local Flood Risk	Undertake projects to determine and understand the risks of flooding from surface run-off, ordinary watercourses and groundwater. Increase public awareness through the publication of clear and consistent information about local flood risk.
Objective 2 - Partnership Working - Work with all Risk Management	Authorities (RMAs) and other stakeholders to coordinate flood risk management roles, responsibilities and activities. Share best practice; raise the profile of RMAs working within Norfolk and assist organisations in ensuring their plans and projects take proper account of flood risk.
Objective 3 - Partnership Programmes and Projects	Identify, secure and optimise resources to develop and deliver measures to manage flood risk. Assist organisations to establish and update long-term plans to manage flood risk.
Objective 4 - Riparian Responsibilities	Work with RMAs to encourage and where necessary enforce the management and maintenance of privately owned flood management structures and ordinary watercourses and minimise unnecessary constrictions and obstructions within local drainage networks.
Objective 5 - Flood Risk and Development	Ensure that planning authorities are properly informed about local flood risk, that there is a consistent approach to the consideration of flood risk management in new development and that new developments seek to reduce existing flood risk and contribute to the achievement of sustainable development.
Objective 6 - Water Framework Directive	Support the implementation of the 'Water Framework Directive' by ensuring that watercourse morphology, water quality and ecological status are not harmed by activities that are controlled by, or undertaken by, owners, occupiers and managers of Flood and Coastal Erosion Risk Management infrastructure. Facilitate measures to improve morphology, water quality and ecological status whenever it is practicable and necessary to do so.
Objective 7 - Support Water Company infrastructure	Work closely with water companies to minimise flood risks associated with water infrastructure and promote the development and management of sustainable water resources.

Table 2.2: LFRMS Objectives

These Strategy objectives are to be implemented through a series of policies and measures that are set out in the following sections of the document, and provided in detail in Table A.1, Table A.2 and Table A.4



in Appendix A. Further to these is a set of wider environmental objectives which aim to achieve wider environmental benefits as required by the Flood and Water Management Act (see Table A.3 in Appendix A).

2.3.1 Policies and Measures

The proposed policies and their relevance to each of the above seven objectives are set out in Table A.6 in Appendix A. This table also shows the results of an initial screening assessment to identify those policies likely to have an significant effect on European sites based on the description provided.

The following polices have been scoped out from further assessment as what is proposed is not considered likely to have a significant effect on a European site, therefore requiring no further assessment:

- UC2: Flood Investigation
- UC3: Flood Risk Asset Register
- UC5: Publishing Flood Risk Information
- UC6: Emergency Planning
- UC8: Risk based approach to prioritisation of resources
- UC9: Designation of 3rd party structures or features
- UC10: Planning
- UC12: Water company liaison
- UC13 Adapting to Climate Change
- OW1: Maintenance of Ordinary Watercourses
- OW2: Enforcement
- OW3: Consenting of works on Ordinary Watercourses
- E1: Nature conservation
- E2: Protecting Habitats
- E3: Water level (habitats)
- E6: Landscaping
- E7: Heritage

No pathway was identified through the implementation of policies UC2, UC3 and UC5. The remaining policies listed above are predicted to have no likely significant effect on any European site. Reasons to include or exclude policies in this assessment are set out in Table A.1, Table A.2 and Table A.4 in Appendix A.

Policies considered to have a likely significant effect on European sites are as follows, and will be assessed further in Step 3 (Section 2.4):

- UC1: Sustainability
- UC4: Critical drainage catchments
- UC7:Sustainable flood management
- UC11:Securing sustainable drainage
- OW4:Culverting
- E4: Ecological potential



E5: River morphology

The measures proposed to implement the objectives are listed in Table A.7. As for policies, this table also shows the results of an initial screening assessment to identify those measures that are likely to result in likely significant effects on European sites based on the description provided. These potential effects may either be positive or negative.

2.3.2 The Zone of Influence

Plans have the potential to impact on European sites beyond the confines of the individual sites themselves. Guidance on Ecological Impact Assessment (Institute of Ecology and Environmental Management, 2006) states that potential effects should be investigated which occur within the (ZoI) that arises during the whole lifespan of the proposed plan. The potential ZoI is defined as:

- Areas directly within the land take for the proposed plan;
- Areas which will be temporarily affected;
- Areas likely to be impacted by hydrological disruption; and
- Areas where there is a risk of pollution and disturbance (e.g. noise).

The Zol therefore includes:

- The area within the county of Norfolk; and
- Areas outside and within 15km of the county boundary, likely to be hydraulically linked to areas within the county that could be affected by flood management works taking place upstream, within the county.

These areas are shown on the map in Appendix B.

2.4 Step 3: Characteristics of the European Site(s)

2.4.1 Identification of European Sites

This step involves the identification of relevant European sites within the county boundary and within the likely Zol (up to 15 km from the boundary of the county). Potential effects on the European sites are also considered in the context of casual pathways and the sensitivity of the receiving environment, which are not necessarily determined by spatial distance.

Relevant sites are those defined as having primary reasons and/or qualifying features that are hydrological in nature or associated with hydrology and could therefore be potentially affected by the implementation of the Strategy. Sites that are not related to hydrology (and therefore are unlikely to be affected by the measures) have been screened out.

In order to understand and to therefore properly assess how the Strategy could impact the European sites, it is important to know the vulnerability of the sites. These may include, but are not limited to:

Degradation from past drainage and maintenance of water levels;



- Abandonment of tradition grazing and reed and peat-cutting practices contributing to successional vegetation changes;
- Pollution of water supplies especially from agricultural run-off of nitrate and phosphate threatens site with eutrophication or airborne nitrate inputs;
- Activities that prevent maintenance of water quality level and hydrological integrity of sites remaining intact; and
- Spread of invasive or non-favourable species.

Thus key activities which should be considered are those that result in change to volume of flow, pollutant loading and spread flow.

Based on the information reviewed, there are 25 European sites located within the Zol. Appendix B provides a plan showing the locations of these sites in relation to the county boundary. However, out of those 25 sites only 14 sites are considered likely to be affected by the Strategy. Appendix C details the respective primary reason for designations, qualifying features, conservation objectives and vulnerabilities. The reasons for site inclusion or exclusion within the HRA are set out in Table C.1 in Appendix C.

The following 14 European sites have been "screened in" (their classifications are provided in brackets):

- River Wensum (SAC);
- Dersingham Bog (SAC, Ramsar);
- Roydon Common (SAC, Ramsar);
- North Norfolk Coast (SAC, SPA, Ramsar);
- Broadland (SPA, Ramsar);
- The Broads (SAC);
- Winterton-Horsey Dunes (SAC);
- Norfolk Valley Fens (SAC);
- Breydon Water (SPA, Ramsar);
- Redgrave and South Lopham Fens (Ramsar);
- Breckland (SAC, SPA);
- Waveney and Little Ouse Fens (SAC);
- Ouse Washes (SAC); and
- The Wash (SAC, SPA, Ramsar).

2.5 Step 4: Assessment of Likely Significant Effects

2.5.1 Identification of Likely Significant Effects of Policies

To ensure that the policies to be implemented are correctly assessed each of the policies (and measures) "screened in" (see Section 2.3.1) have been reviewed and assessed to identify the potential impacts on the European sites identified in the initial stage. Each policy/measure has been considered in relation to the source-pathway-receptor evaluation.



The outcomes are listed in Table 2.3 and Table C.2 along with the measures required to implement these outcomes and the potential effect that these measures may cause that may be relevant to the European site. These potential effects may either be direct or indirect, temporary or permanent, positive or negative.

In general terms the implementation of flood management related activities may result in potential impacts including the following:

- Changes to physical regime;
- Changes to water chemistry;
- Changes in surface flooding (reduction);
- Competition from non-native species;
- Disturbance;
- Habitat loss;
- Habitat simplification;
- Physical damage; and
- Turbidity changes.

Measures required to implement the policies that are thought to have a potential effect on a European Site are highlighted in Table A.7 and Table C.2 with a short description of potential effects.

Policies	Potential effects
UC1: Sustainability	Negative effects may result from the needs of the economy or society outweigh ecological needs of a European site e.g. to prevent localized or regional flooding.
UC4: Critical drainage catchments	Negative effects may occur where the need to provide flood protection outweighs the ecological requirements of a European site.
UC7:Sustainable flood management	Negative effects may occur where the need to provide flood protection outweighs the ecological requirements of a European site.
UC11:Securing sustainable drainage	Potential negative direct or indirect effects on European sites should the implementation or adaptation of SUDS occur in the site locality, potential leading to changes in habitats.
OW4:Culverting	Approvals for culvert installation or removal within a European site, or within the Zone of Influence of a European site, could result in direct or indirect negative effects. Potential effects will need to be evaluated at a project level.
E4: Ecological potential	Negative effects likely where drainage or flood defence features cannot be designed to preserve or enhance ecological potential in an area within or hydrologically connected to a European site. Compensatory enhancement measures may have similar significant effects. At project level an HRA will have to be undertaken and measures assessed against conservation objectives for each site.
E5: River morphology	Negative effects likely where river morphology is altered in an area within or hydrologically connected to a European site. At project level an HRA will have to be undertaken and measures assessed against conservation objectives for each site.

Table 2.3: Potential effects that may arise from to the implementation of the Strategy policies



2.5.2 Identification of Likely Significant Effects of Measures

The measures listed in Table 2.4 below have been "screened in" to the assessment. These measures are likely to effect on a European Site and have been screened against the relevant European sites in Appendix C.

Measure		Potential effects	
Understanding catchments and flood risk	Surface Water Management Plans(SWMPs)	Further HRA assessment should be carried out at SWMP stage. Particularly to identify likely effects potentially arising from specific action identified to mitigate flood risk affecting Critical Drainage Catchments in areas within or hydrologically connected to a European site.	
Partnership coordination and working	Critical infrastructure flood risk assessment	Further HRA assessment should be carried out where flood risk mitigation measures are identified in areas within or hydrologically connected to a European site.	
	Highway flood risk investigation	Further HRA assessment should be carried out where flood risk mitigation measures are identified in areas within or hydrologically connected to a European site.	
Implementation of identified mitigation measures	Individual schemes	Further HRA assessment should be carried out at project level where flood risk mitigation measures are identified in areas within or hydrologically connected to a European site.	

Table 2.4: Measures that may have a likely significant effect on a European Site

As the Strategy is a high-level strategic plan, there is insufficient or no detail on proposed schemes and projects. As such an assessment of the likely significant effects are dependent on factors that are yet to be determined (future flood events, funding etc). However, there is a potential that schemes may be implemented in the future and that further consideration may be required for specific projects once they are realised. Provided these projects or measures are appropriately screened in accordance with the Habitats Directive prior to implementation (at a project level), it is anticipated that likely significant effects to the European sites can be appropriately identified, avoided or if applicable mitigated in accordance with the Habitats Directive.

Overall, as the LFRMS is a high level plan with no project specific details, any likely significant effects on European sites will be mitigated for by deferring the HRA to plans or projects produced as a result of the strategy. Every lower tier plan or project arising from the LFRMS will be subject to a plan or project based HRA and will include consultation with the relevant nature conservation body (currently Natural England and EA as relevant). Specific mitigation measures, alternatives and compensation requirements should also be evaluated and determined. IROPI considerations should not be necessary if the proposed schemes are consistent with the LFRMS objectives and policies. Consequently at this stage, no proposed schemes (as mentioned in different measures) have been scoped out.



2.5.3 Projects or Plans that Might Act In combination

As part of this assessment it is necessary to identify any elements of the Strategy that may have a Likely Significant Effect on any interest feature alone or in-combination with any other projects or plans both directly or indirectly. Potential in-combination effects may arise from the implementation of the Strategy, in-combination with the effects of other schemes, policies, plans and programmes. To be relevant, the residual effects of other plans or projects will need to either make no significant effect of the LFRMS likely.

Considering the above, in-combination effects are difficult to assess but will be produced by various current or proposed projects and plans within NCC boundaries both on small and large scales. However, it is considered impractical to consider small scale projects in this screening process as the impacts of these are very difficult to quantify (although it is acknowledged that numerous small projects may have a combined impact) it is impossible to measure the impact with any confidence or accuracy. It is always difficult to identify in-combination impacts as the assessment is conducted using the available information, and as such is unable to include schemes that are in the conception or preconception stage as these may not be in the public domain. Nevertheless the following plans have been considered:

- Anglian district River Basin Management Plans (RBMP) This focuses on the protection, improvement, and sustainable use of the water environment, and considers the status of the water environment in the river basin in relation to the Water Framework Directive (WFD). The Anglian RBMP provides examples of sector specific actions to improve the water environment including actions for local and regional government. These include implementation of Surface Water Management Plans (SWMPs) and promotion of the use of sustainable drainage systems. Although the primary aim of the LFRMS is the protection of property and infrastructure, protection of the water environment is also taken into account within the LFRMS policies;
- Relevant Drought Management Plans (DMP) The plans explain how a water company will safeguard public water supplies during extended periods of low rainfall when water resources become depleted, and how to minimise any potential environmental impacts that may arise as a result. It is possible for management measures interact with LFRMS through measures such as creating new storage areas during high rainfall or floods to provide a new supply during drier periods.
- Relevant Water Resource Management Plan (WRMP) and Surface Water Management Plan (SWMP) – These have already been considered as part of the 'Wider environmental considerations' and under the measures within the Strategy;
- Water Level Management Plans The objective of these plans is to provide a means by which the water level requirements for all activities and interests in the area, including agriculture flood defence and conservation, can be balanced and integrated.

Although LFRMS does not consider flood risk in coastal or offshore areas, the management policies identified in the following plans may have interactions with LFRMS and vice versa:

 Catchment Flood Management Plans (CFMP) giving an overview of the flood risk across each river catchment and consider all types of inland flooding, from rivers, groundwater, surface water and tidal flooding (but not coastal flooding); and

Relevant Shoreline Management Plans (SMPs) considering flooding from coastal processes.



Large scale projects within NCC boundaries will be subject to individual Environmental Impact Assessment (EIA) and HRA through the due planning process and as such any adverse environmental impacts on the European sites, including in-combination effects with projects arising from the LFRMS, should be identified through the planning process.

As the LFRMS has limited targets concerning physical measures it would be unfeasible to predict incombination effects with any degree of certainty without further specific information in regards to engineering solutions as a result of this screening process. Lower tier plans and projects resulting from the LFRMS will include further detail on the location and timing of practical measures and can be subject to the HRA screening process outlined in this document if required.

2.5.4 Consultation

The Statutory Authorities (currently Natural England and the Environment Agency) will be consulted on a project by project basis with respect to this assessment and any resulting comments or recommendations illustrated here once received.



3 Policy Amendments

The results of the screening stage were summarised in Chapter 2 of this report. At this strategic level, it is not possible to identify or describe in detail all potential impacts that could be associated with the different policies, measures and actions that may result from the LFRMS. Potential generic impacts have been identified that could affect the qualifying features of European sites.

Following the initial Task 1 Screening the following policies and measures were found to result in likely significant effects on European sites:

Policies

- UC1 Sustainability
- UC4 Critical Drainage Catchments
- UC7 Sustainable Flood Management
- UC12 Securing sustainable drainage
- OW4 Culverting
- E4 Ecological Potential
- E5 River Morphology

Measures

- Understanding catchments and Flood Risk Surface water Management Plans
- Partnership coordination and working Critical infrastructure flood risk assessment and Highway flood risk investigation
- Implementation of identified mitigation measures Individual schemes

To address these potential effects changes to Policy E1- Nature Conservation were made with the objective to further protect International designated sites (see Table A.4, changes are shown in bold). These changes are considered sufficient to protect the sites as it enforces the Risk Management Authorities to:

"fulfil their responsibilities in relation to the Habitats and Birds Directives (European Directives 92/43/EEC, 79/409/EEC and 2009/147/EC) and ensure that no works or plan approved by the Authorities results in adverse effects either directly or indirectly on the integrity of identified European sites (Natura 2000 Sites) or designated Ramsar sites".

It is considered that under this policy the strategy will not result in likely significant effects as where one policy appears to support a proposal but another policy does not, the proposal should be taken to be unsupported by the strategy. Consequently if a proposal is made that is not supported by Policy E1 this proposal will not be supported by the strategy. Where a proposal is not supported by the strategy, it should not proceed unless very special circumstances indicate that the benefits of the proposal, to society as a whole, outweigh the policy objection.

This however, does not preclude the need for each individual scheme to undergo through the HRA process at project level as described in Section 2.5 of this report.



4 Conclusions and Recommendations

The HRA of the NCC LFRMS has been carried out following EU guidance and is based on a precautionary approach, as required under the Habitats Directive. The results of the screening stage were summarised in Chapter 2 of this report. Following the introduction of changes to Policy E1: Nature Conservation, it was concluded that the strategy will not result in likely significant effects.

It is considered that under this policy the strategy will not result in likely significant effects as where one policy appears to support a proposal but another policy does not, the proposal should be taken to be unsupported by the strategy. Consequently if a proposal is made that is not supported by Policy E1 this proposal will not be supported by the strategy. Where a proposal is not supported by the strategy, it should not proceed unless very special circumstances indicate that the benefits of the proposal, to society as a whole, outweigh the policy objection.

This however, does not preclude the need for each individual scheme to undergo through the HRA process at project level as described in Section 2.5 of this report.

As the LFRMS is a high level plan with no project specific details, any likely significant effects on European sites will be mitigated for by deferring the HRA to lower tier plans or projects. Every lower tier plan or project arising from the LFRMS will be subject to a plan or project based HRA and will include consultation with the relevant nature conservation body (Natural England and EA as relevant). Specific mitigation measures, alternatives and compensation requirements should also be evaluated and determined. IROPI considerations should not be necessary if the proposed schemes are consistent with the LFRMS objectives and policies.

Considering all of the above, it is concluded that the policies and measures within the Norfolk LFRMS will not result in likely significant effects to any European sites



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Appendix A. LFRMS Policies and Measures

A.1 LFRMS Policy Screening

Table A.1: Policy screening matrix

Policy	Policy Description	Reasons for inclusion or exclusion
UC1: Sustainability	The Lead Local Flood Authority, district councils, internal drainage boards and highway authorities will adopt a sustainable approach to Flood Risk Management, maximising environmental and social benefits from policies and programmes, contribute to the achievement of sustainable development, balancing the needs of society, the economy and the urban, rural and natural environment, taking account of the cultural heritage and seeking to secure environmental benefits.	Include: LSE Negative effect may result from the needs of the economy or society outweigh ecological needs of a European Site e.g. to prevent localised or regional flooding.
Policy UC2: Flood Investigation	 The Lead Local Flood Authority (LLFA) will undertake a formal flood investigation where it is determined that: There is ambiguity surrounding the source or responsibility for a flood incident, and/or; There is cause to investigate the flood incident, due to either its impact, or consequence. When a decision is taken to investigate, the LLFA will notify the relevant RMAs and affected parties and will seek to determine the causal effects of flooding and understand the response of relevant Risk Management Authorities (RMAs) to the incident. After a formal flood investigation has been carried out, the LLFA will publish the results of its investigation and notify any relevant RMAs. The LLFA will publish a Flood Investigation Protocol describing how it proposes to carry out flood investigation duties and clarifying the factors that will be taken into account when assessing whether the impact or consequence of an event will trigger a formal investigation. During widespread flooding the LLFA will prioritise flood investigations based on the characteristics of the event, with greatest priority given to those events which are judged to have created a risk to life. 	Exclude: NLSE. The policy sets out the framework for undertaking an investigation where there is no reasonably foreseeable impacts on any European site.
Policy UC 3: Flood Risk Asset Register	The Lead Local Flood Authority (LLFA) will identify those structures or features whose function or attributes have a significant effect on an area of flood risk and will record such assets in an Asset Register. The LLFA will also maintain a record of each structure or feature listed in the register, including information about its ownership and state of repair, and will provide a copy of that record to any owner/manager of such structure or feature. The LLFA will make the Asset Register available by prior agreement, during office hours at County Hall, Martineau Lane, Norwich and online on the Norfolk County Council web site (http://www.norfolk.gov.uk/). The Lead Local Flood Authority will publish an Asset Register Protocol describing how it proposes to implement this duty. SuDS delivered as part of new developments will also be included in the Register.	Exclude: NLSE. The policy sets out the framework for creating a database where there is no reasonably foreseeable potential impacts on any European site.



Policy	Policy Description	Reasons for inclusion or exclusion	
Policy UC 4: Critical Drainage Catchments	In areas where Surface Water Management Plans or other studies identify a significant risk of surface runoff, groundwater, or ordinary watercourse flooding to homes, commercial properties and/or essential infrastructure, the LLFA, in partnership with other Risk Management Authorities, may publish maps identifying local catchments as 'Critical Drainage Catchments' (CDCs).	Include: LSE Negative effects may occur where the need to provide flood protection outweighs the ecological needs of a European Site.	
	The LLFA and its partner RMAs will proactively develop schemes to reduce flood risks in Critical Drainage Catchments and will seek the cooperation of local landowners to implement such proposals where funding is available.		
	The LLFA will also object to any planning application that might, on its own or in-combination with other developments, lead to a material increase in flood risks within Critical Drainage Catchments and will encourage measures to reduce flood risks where opportunities arise.		
Policy UC 5: Publishing flood risk information	 The LLFA has a significant role in disseminating and publishing flood risk information. It is committed to; Publishing formal flood investigation reports on its website Making asset register information available by prior agreement Publishing LLFA led or supported studies on local flood risk once adopted by the Council Highlighting the most up-to-date data and mapping on flood 	Exclude: No effect predicted . This policy outlines the process of disseminating information and therefore there are no reasonably foreseeable impacts on any European site	
Policy UC 6:	risk, integrating this with National datasets where appropriate. The Lead Local Flood Authority acknowledges its role in advising	Exclude: Only positive effects or	
Emergency Planning	 emergency planning authorities and will: Seek to ensure that Emergency Response and Recovery Plans take account of emergencies that might arise as a result of local flood risk; Contribute to the review of such plans, in consultation with the Environment Agency, when required; and Provide information and guidance on local flood risks to emergency response organisations during flood events if 	no change predicted. Positive effects may arise from the management of flooding which can benefit a European Site. Level of effect will be limited by time of flooding, infrequency and scale, depending on the local area being considered.	
Policy UC 7: Sustainable Flood Management	 required. In order to support an adequate, economically, technically and environmentally sound approach to providing flood management services, Risk Management Authorities will: Support a strategic approach to provision of flood mitigation measures, particularly by assessing any potentially wider effects of proposed defences. To this effect Risk Management Authorities will continue to play a full role in Local Environment Agency Plans for Norfolk; Support the provision of sustainable flood mitigation measures which provide social and/or economic benefits to people whilst taking account of natural processes and which avoid committing future generations to inappropriate defence options. 	Include: LSE. Reasons as for UC1 and UC4.	
Policy UC 8: Risk based approach to prioritisation of resources	 All Risk Management Authorities will support the investment of resources in areas of highest risk within their respective jurisdictions through: Utilising consistent and up-to-date information on local flood risk in the development of any projects and programmes. Detailing the level of flood risk mitigation proposed by projects and programmes in terms of 'return period' for any exceedance events. 	Exclude: Only positive effects predicted. Positive effects arising from the management of flood risk which can benefit a European Site.	



Policy	Policy Description	Reasons for inclusion or exclusion
	 Identifying the possibility of match funding from third parties and beneficiaries of mitigation schemes. Assessing the potential wider synergies and effects of proposed mitigation schemes on wider catchments, communities and other RMA schemes through consultation with the Norfolk Water Management Partnership. Supporting the delivery of sustainable flood mitigation schemes which provide social and/or economic benefits to people whilst taking account of natural processes. 	
Policy UC 9: Designation of 3rd party structures or features	The Lead Local Flood Authority, the Environment Agency, Internal Drainage Boards or District Councils will 'designate' any structure or natural/manmade feature of the environment, where, in the opinion of the risk management authority, the protection of such asset would be beneficial in ensuring protection of land and property against flood or coastal erosion risks. Lead Local Flood Authorities will normally be the relevant authority for designating structures or features that affect surface runoff, groundwater or ordinary watercourses outside of Internal Drainage Board districts. Where it is considered to be necessary for the purpose of ensuring the continuity of effective surface water drainage in the locality, SuDS structures or features (whether on public land or on private property / private or adopted by the SAB)	Exclude: Only positive effects predicted. This is a positive improvement in terms of managing flood risk but is unlikely to directly/indirectly affect a European Site.
	may also be designated by the Lead Local Flood Authority. The Environment Agency will normally be the relevant authority to designate structures or features that affect strategic sources of risk such as large raised reservoirs, the sea and main rivers. Internal Drainage Boards will normally be the relevant authority to designate structures or features that affect ordinary watercourses within Internal Drainage Board districts. District Councils will normally be the relevant authority to designate structures or features that affect surface runoff, groundwater or ordinary watercourses in areas where they have responsibility for managing coastal flood and erosion defences if those structures or features. Designating authorities may agree with other authorities to designate on a different basis where material circumstances indicate that is appropriate to do so.	
Policy UC 10: Planning	The Lead Local Flood Authority will take a proactive role in the development of local plans and will expect planning authorities to prepare policies that address local flood risk issues and ensure the provision of effective sustainable drainage in new developments. The Lead Local Flood Authority will also work with local planning authorities to prepare guidance for applicants and will provide advice in respect of individual planning applications where these effect or are affected by local flood risks. The Lead Local Flood Authority will expect planning authorities to take account of flood risks identified by Surface Water Management Plan modelling, Strategic Flood Risk Assessments and other sources of flood risk modelling (such as the flood risk mapping provided by the Environment Agency) and either avoid locating new development within areas that are at risk of flooding, or ensure that designs fully mitigate for the expected flood risk.	Exclude: NLSE Any plans/projects are expected to consider European sites as part of the planning process and unlikely to be approved if a negative effect on a European Site is predicted.



Policy	Policy Description	Reasons for inclusion or exclusion
	The LLFA will seek to resist developments or plans that might lead to an increase in flood risks.	
Policy UC11: Securing Sustainable Drainage	The Lead Local Flood Authority shall, using all available legislative and regulatory measures, seek to secure the implementation of Sustainable Drainage Systems (SuDS). Where possible, the Lead Local Flood Authority will also, through the voluntary cooperation of landowners, aim to secure adaptation of existing drainage networks to Sustainable Drainage Systems (SuDS).	Include: LSE Potential negative direct or indirect effects on European sites should the implementation or adaptation of SuDS occurs in the Site locality.
Policy UC 12: Water Company liaison	 Risk Management Authorities will work closely with water companies to; Reduce the occurrence of foul water flooding caused or exacerbated by sources of local flood risk. Influence Water Companies to consider local flood risk in their development of sustainable water resources and infrastructure. Promote water efficiency where appropriate. 	Exclude: Only positive effects or no change predicted. Potential positive effects on European Site from reduction of storm water overflows, reducing flooding and betterment of water quality.
Policy UC 13: Adapting to climate change	When developing policy, determining applications or taking enforcement action, Risk Management Authorities will have regard to the predicted impacts of climate change including the need to account for changes in sea level and more frequent extreme weather events. In doing so Risk Management Authorities will have regard to the most up to date advice available, including UKCIP Climate Change Projections.	Exclude: Only positive effects or no change predicted. This is a positive improvement in terms of managing flood risk but is unlikely to directly/indirectly affect a European Site.

Table A.2: Ordinary Watercourse Regulation Policy Screening Matrix

Policy	Policy Description	Reasons for inclusion or exclusion
Policy OW1: Maintenance of Ordinary Watercourses	Where responsibility for maintenance of ordinary watercourses rests with a land owner, the Lead Local Flood Authority and other Risk Management Authorities (RMAs) will aim to secure co-operation in ensuring appropriate maintenance takes place, but will draw on powers of enforcement when necessary. The LLFA and other RMAs will inform and advise individuals of their riparian owner responsibilities and of the route for settling disputes with other riparian owners where appropriate.	Exclude: Only positive effects or no change predicted. This is a positive improvement in terms of managing flood risk but is unlikely to directly/indirectly affect a European Site.
Policy OW2: Enforcement	 The Lead Local Flood Authority (LLFA) and other Risk Management Authorities (RMAs) will take a risk-based and proportionate approach to enforcement action under the Land Drainage Act 1991, taking into account the location and nature of any nuisance caused by: the failure to repair or maintain watercourses, bridges or drainage works un-consented works impediments to the proper flow of water The LLFA will take enforcement action where there is, or has been, a risk to life or serious injury, internal flooding of residential or commercial properties and flooding impacting on critical services. An initial assessment will be based on the LLFAs impact criteria. Where works are un-consented and the relevant landowner, person and/or risk management authority responsible provides no evidence 	Exclude: Only positive effects predicted . Potential positive effects through consideration of presence of European Sited within the consenting process (application phase). It will also limit unconsented works which may have a negative effect on a European Site.



Policy	Policy Description	Reasons for inclusion or exclusion
	or insufficient evidence to support an assertion that the un- consented works would not cause a nuisance or increase flood risk, there will be a presumption that the un-consented works would cause a nuisance or increase flood risk, unless visible evidence suggests otherwise.	
	The LLFA may close an enforcement case file and/or take no action where:	
	 there is a lack of physical evidence to corroborate the impact of a flood event and/or there is no actual or potential risk to properties or infrastructure; and/or that the matter complained of is not the cause of the drainage problem; and/or the matter is trivial in nature (de minimis). 	
	Where no enforcement action is taken further correspondence may	
	 referral to the First Tier Tribunal (Property Chamber), Agricultural Land and Drainage (AL&D) where appropriate; and Informing those of their riparian responsibilities. 	
	Where the LLFA or other RMAs are made aware of breaches to other legislation they will advise the appropriate authorities.	
Policy OW3: Consenting of works on Ordinary Watercourses	The Lead Local Flood Authority (LLFA) will normally approve alterations to ordinary watercourses where proposed works would not: (a) Lead to an increase in unmanaged flood risks on the site; (b) Increase the risk of flooding in areas beyond the site; (c) Materially increase the risk of a watercourse becoming obstructed; (d) Increase the risk of erosion on the site or in areas beyond the site; (e) Result in water quality that does not meet standards required by the Water Framework Directive or other legislation; (f) Have a detrimental impact on protected species of flora and fauna, SSSI, Natura 2000, or Ramsar habitats, Marine Conservation Zones, National Nature Reserves, County Wildlife Sites, or habitats covered by Biodiversity Action Plans; (a) Have a materially detrimental impact on the morphology of	Exclude: Only positive effects predicted. Only positive effects due to the consideration of effects on European sites within the approval process.
Policy OW4: Culverting	natural watercourses. The Lead Local Flood Authority (LLFA) will only approve an application to culvert a watercourse if there is no reasonably practicable alternative, or if the detrimental effects of culverting would be so minor that they would not justify a more costly alternative. In all cases, where it is appropriate to do so, adequate mitigation must be provided for damage caused. Wherever practicable the LLFA will seek to have culverted watercourses restored to open channels.	Include: LSE Approvals for culvert installation or removal within or in Zol of a European Site could result in a direct or indirect effect.



Policy	Policy Description	Reasons for inclusion or exclusion
	 The LLFA will normally reject applications for culverting in areas identified as being; in Flood Zones 2 or 3a/3b; and/or at risk of surface run-off flooding as indicated by the Environment Agency's updated flood map for surface water. This is due to the potential of proposed works increasing flood risk. 	
	Exceptions to this policy will only be considered if the applicant is able to demonstrate that, on the balance of probabilities, the proposed development would not increase flood risk.	
	Where opportunities arise and there is benefit in doing so, the Lead Local Flood Authority may encourage landowners to remove existing culverts and restore surface watercourses.	

Table A.3: Policies – Wider Environmental Considerations

Policy	Policy Description	Reasons for inclusion or exclusion in HRA
Water Framework Directive (WFD)	A further factor that will influence the strategy is the requirements of the Water Framework Directive (European Directive 2000/60/EC). The WFD sets environmental targets (including water quality, morphology and biodiversity standards) for inland surface waters, transitional waters, coastal waters and groundwater. Risk Management Authorities have a responsibility to consider the effects of their decisions, plans and proposals on these targets. In particular the WFD sets requirements to; mitigate the effects of floods and droughts on water-bodies; achieve 'good status' for all water-bodies by 2015; prevent deterioration in the status of water bodies; conserve aquatic ecosystems, habitats and species promote sustainable use of water, balancing abstraction and recharge. The Environment Agency's River Basin Management Plan (RBMP) for the Anglian River Basin District is the lead policy document that covers Water Framework Directive matters for Norfolk. The WFD environmental objectives will only be met if all organisations and stakeholders involved in, or that effect, water management integrate its requirements into their working practices and projects. As such this Local Flood Risk Management Strategy seeks to integrate WFD requirements through the adoption of appropriate policies.	Exclude: Only positive effects predicted. Positive effects on European sites due to the objectives to conserve and improve aquatic ecosystems, habitats and species.
Eel Regulations	 On 15th January 2010, the Eels (England and Wales) Regulations 2009 came into force. These regulations afford new powers to the Environment Agency to implement measures for the recovery of European eel stocks and have important implications for operators of abstractions and discharges. The main people and works they apply to are: Licensed abstractors of water: companies or individuals abstracting and/or discharging water for a wide range of industrial, agricultural and other purposes; Impounding works: any dam, weir, or other works by which water may be impounded Anyone constructing, altering or maintaining a dam, or any other structure in or near water, liable to cause an obstruction to the passage of eels. 	Exclude: Only positive effects predicted. Positive effects on European sites due to the objectives to conserve and improve aquatic ecosystems, habitats and species



Policy	Policy Description	Reasons for inclusion or exclusion in HRA
	There is a requirement under the regulations to notify the Environment Agency of the construction, alteration or maintenance of any structure likely to affect the passage of eels and to construct and operate an eel pass to allow the free passage of eels. This may include removal of any obstruction, the use of eel screens to exclude eels from water abstraction and discharge points and if necessary, the use of a bywash to return excluded eels to the waters they came from.	
Green Infrastructure and Recreation	There is a significant correlation between activities necessary for surface water management and the creation of environments that provide landscape benefits and recreational opportunities for communities. Providing recreation facilities and landscaping are not primary functions of the Local Flood Risk Management Strategy, however, Risk Management Authorities need to be aware of the potential synergies between these objectives and where practicable they should make allowance for the development of recreational and landscaping benefits within sustainable drainage and flood risk management schemes. Similarly Risk Management Authorities should look for opportunities to maximise the potential for landscape and recreation proposals to include measures that will enhance sustainable drainage and reduce flood risk.	Exclude: Only positive effects or no change predicted. The type of recreational facilities and landscaping options, and the location of these in relation to a European Site will determine its effect. However, as these are added value activities, it is likely only activities that will have a positive influence on the nearby Site will be approved therefore only positive effects predicted.
Water Resource Management	The management and delivery of water resources is primarily the responsibility of water companies. However, actions taken in the interests of managing flood risk and sustainable drainage can make contributions to the sustainable delivery of water supplies and similarly management of water resources can affect flood risk. Risk Management Authorities will work alongside the water companies to support the provision of sustainable water resources and ensure that the provision of water resources is undertaken in a manner that does not introduce additional local flood risks.	Exclude: Only positive effects predicted. Water resource management associated preventing an increase or reducing flood risk in a locality is likely to have a positive effect on a European Site within Zol of works. [Other aspects of water resource management (e.g. changes to discharge quality) may affect a Site but is not considered further for this HRA, which focussed on flood risk only.]

Table A.4: Environmental Policies Screening Matrix

Policy	Policy Description	Reasons for inclusion or exclusion in HRA
Policy E1: Nature Conservation	 Risk Management Authorities will: play a positive role in fulfilling their statutory and other responsibilities for furthering nature conservation, including achievements of the Government's environmental obligations and targets; fulfil their responsibilities in relation to nationally and internationally important conservation areas, under the Wildlife and Countryside Act 1981 and as a competent authority under the terms of the Conservation of Habitats and Species Regulations 2010 by applying strategies and policies laid down in policy documents; fulfil their responsibilities in relation to the Habitats and Birds Directives (European Directives 92/43/EEC, 79/409/EEC and 2009/147/EC) and ensure that no works or plan approved by the Authorities results in adverse effects either directly or indirectly on the integrity of identified European sites (Natura 2000 Sites) or 	Exclude: Only positive effects predicted. This policy focuses on the consideration of nationally and internationally important conservation areas, including European sites, in all the works the RMA do.



Policy	Policy Description	Reasons for inclusion or exclusion in HRA
	 designated Ramsar sites. when carrying out works, seek opportunities for environmental enhancement, aim to avoid net damage to environmental interest and ensure no net loss to habitats covered by Biodiversity Action Plans; where an environmental impact assessment or scheme is required, monitor all losses and gains of such habitats as a result of these operations and report on them to Natural England and/or the Environment Agency; and ensure that they work in partnership with Natural England to complete, implement and review plans, policies and measures. 	
Policy E2: Protecting habitats	 When carrying out works consistent with the need to maintain satisfactory drainage and flood protection standards, Risk Management Authorities and riparian owners (or their contractors) shall: avoid any unnecessary damage to natural habitats avoid any long term damage to natural habitats ensure no net loss of habitats covered by Biodiversity Action Plans, Take appropriate opportunities to enhance habitats. 	Exclude: Only positive effects or no change predicted. Positive effects may result through the consideration of conservation of natural habitats if associated with or connected to a European Site.
Policy E3: Water levels (habitats)	Within pumped catchments, Risk Management Authorities shall sustain water levels in accordance with Water Level Management Plans (WLMPs) prepared for Sites of Special Scientific Interest and (in conjunction with Natural England and other interested parties) shall participate in the review of such plans.	Exclude: Only positive effects predicted. Consultation with Natural England will ensure the WLMPs will have no adverse effect on European sites.
Policy E4: Ecological Potential	The Lead Local Flood Authority, SAB and, where relevant, Internal Drainage Boards will require applications for SuDS approval and applications for Ordinary Watercourse Consents to include measures within their design to preserve or (where practicable) enhance ecological potential, including, where appropriate, providing landscaping using native species that are compatible with the local water environment. Where there are technical or operational reasons why drainage or flood defence features cannot be designed to preserve or enhance ecological potential, the Lead Local Flood Authority, SAB and, where relevant, Internal Drainage Boards will expect applicants to provide compensatory enhancement measures in the locality of the proposed works. Applications for the modification of watercourses or the creation of new watercourses or SuDS features may be refused if insufficient information on landscaping and ecological potential is provided, or if landscape proposals are of poor quality.	Include: LSE Negative effects possible where drainage or flood defence features cannot be designed to preserve or enhance ecological potential in an area within or connected to a European Site. Compensatory enhancement measures may have similar effects.
Policy E5: River Morphology	Developments which alter the bank of an ordinary watercourse or which create a new watercourse as part of a sustainable drainage scheme shall mimic features of natural river morphology and hydrology wherever it is practicable to do so. Where it is not practicable to do so compensatory measures may be required.	Include: LSE For reasons as stated above (Policy E4).
Policy E6: Landscaping	 Landscape proposals accompanying applications or works to an ordinary watercourse shall be designed to: enhance the drainage characteristics of the scheme; stabilise areas that may be vulnerable to erosion; enhance the visual appearance of the development; and Enhance the ecological potential of the local environment. 	Exclude: Only positive effects predicted. Positive effects due to the need to enhance ecological potential if works are



Policy	Policy Description	Reasons for inclusion or exclusion in HRA
	The use of plants that are likely to be invasive and/or detrimental to the wider natural environment will not be permitted.	proposed in an area within or connected to a European Site.
Policy E7: Heritage Assets	When considering applications for ordinary watercourse consent or SuDS Approval in the vicinity of protected heritage assets, the Lead Local Flood Authority, SAB or relevant Internal Drainage Board will make enquiries to confirm that applicants have given due regard to the impact of the development on such assets and, where relevant, that they have sought the appropriate consent.	Exclude: NLSE
	When Risk Management Authorities are carrying out works in the vicinity of heritage assets, they will seek advice from the appropriate heritage body and, wherever it is practicable to do so, will aim to avoid any detrimental effect on heritage assets.	

Table A.5: Measures

Measures	Actions	Reasons for inclusion or exclusion in HRA
Understanding catchments and flood risk (links to Objective 1 -	Surface water Management Plans	Include: Potential positive and negative effects
Determine and Communicate Local Flood Risk)	Assessment of Ordinary Watercourses	Exclude: NLSE
	Deliver LLFA asset records and register	Exclude: NLSE
	Catchment Mapping	Exclude: NLSE
	Groundwater flood risk study	Exclude: NLSE
	Installation of Rain Gauges	Exclude: NLSE
Disseminating Knowledge (links to Objective 1 - Determine and	Education Programme (e.g. seminars and lectures).	Exclude: NLSE
communicate Local Flood Risk)	Published Guidance (e.g. publishing research findings, guidance leaflets, undertake marketing programme and dissemination via media).	
	Web based resources (e.g. displaying LLFA information online and signposting of other web resources).	
Partnership coordination and	Promote partnership working	Exclude: NLSE
working (links to Objective 2 – Partnership working)	Review of Water Level Management	Exclude: Only positive effects predicted.
i anno onp working,	Plans and System Asset Management Plans	This measure considers environmental restriction in operation of water management systems.
	Critical infrastructure flood risk	Include: LSE
	assessment	Potential positive and negative effects from the implementation of identified mitigation.



Measures	Actions	Reasons for inclusion or exclusion in HRA
	Disseminate outputs of local flood risk studies and investigations to the Local Resilience Forum (LRF) and multi- agency flood plans.	Exclude: NLSE
	Highway flood risk investigation	Include: LSE
		Potential positive and negative effects from the implementation of identified mitigation.
Flood mitigation funding (links to Objective 3 – Partnership Programmes and Projects)	Identify funding opportunities including 3 rd party funding for areas of local flood risk	Exclude: NLSE
Monitoring Maintenance Spend (links to Objective 3 – Partnership Programmes and Projects)	Norfolk Risk Management Authorities	Exclude: NLSE
Implementation of identified mitigation measures (links to Objective 3 –Partnership Programmes and Projects)	Individual schemes	Include: LSE Potential positive and negative effects from the implementation of specific schemes in
		areas within a European site or its zone of influence
Delivery of small scale projects	Installation of Property Level Protection	Exclude: NLSE
(links to Objective 3 – Partnership Programmes and Projects)	Installation of Highways Warning Signage for subways underpasses and fords.	Exclude: NLSE
Deliver local flood risk regulation (links to Objective 4 – Riparian responsibilities)	Ordinary Watercourse Regulation	Exclude: NLSE
	Designation of 3rd Party Structures	Exclude: NLSE
Support for local planning authorities (links to Objective 5 – Flood Risk and Development)	Provide targeted and proportionate advice to local planning authorities on local flood risk	Exclude: NLSE
	Provide advice to local planning authorities on appropriate development plan policies when they are developed and updated.	Exclude: NLSE

Table A.6: Initial screening of LFRMS policies

	Unde	ertaking	gs and	l comm	itment	S								Ordiı Regu	nary W Ilation	later C Policie	ourse es	Wide Cons	er Envi siderat	ronmei ions	ntal	Enviro
Objectives	JC1: Sustainability	JC2: Flood Investigation	JC3: Flood Risk Asset Register	JC4: Critical Drainage Catchments	JC5: Publishing flood risk information	JC6: Emergency Planning	JC7: Sustainable Flood Management	JC8: Risk based approach to prioritisation of esources	JC9: Designation of 3rd party structures or features	JC10: Planning	JC11: Securing Sustainable Drainage	JC12: Water company liaison	JC13 Adapting to climate change	DW1: Maintenance of Ordinary Watercourses	DW2: Enforcement	DW3: Consenting of works on Ordinary Natercourses	DW4: Culverting	Nater Framework Directive	Eel Regulations	Green Infrastructure and Recreation	Nater Resource Management	E1: Nature Conservation
Objective 1: Determine and communicate Local Flood Risk	0	0	0		0				+				+							+	+	
Objective 2: Partnership Working						+		+		+				+						+	+	
Objective 3: Partnership and Programme Projects								+			+									+	+	
Objective 4: Riparian Responsibilities	+													+	+	+			+	+	+	
Objective 5: Flood Risk and Development	/ \$ //									+						+			+	+	+	
Objective 6: Water Framework Directive	+															+		+	+	+	+	+





				Unde	rtakin	gs and	comn	nitment	S								Ordiı Regu	nary V Ilatior	Vater Co Policie	ourse s	Wide Cons	er Envi siderat	ronme ions	ntal	Enviro
	Objec	tives		UC1: Sustainability	UC2: Flood Investigation	UC3: Flood Risk Asset Register	UC4: Critical Drainage Catchments	UC5: Publishing flood risk information	UC6: Emergency Planning	UC7: Sustainable Flood Management	UC8: Risk based approach to prioritisation of resources	UC9: Designation of 3rd party structures or features	UC10: Planning	UC11: Securing Sustainable Drainage	UC12: Water company liaison	UC13 Adapting to climate change	OW1: Maintenance of Ordinary Watercourses	OW2: Enforcement	OW3: Consenting of works on Ordinary Watercourses	OW4: Culverting	Water Framework Directive	Eel Regulations	Green Infrastructure and Recreation	Water Resource Management	E1: Nature Conservation
(\ 	Objectiv Water (Infrastru	ve 7: Su Compar ucture	ipport iy	+										+	+							+	+	+	
I	Кеу	+	Positive	-	Neg	ative	+1-	Positive Negativ	e/ re	D	No change		rele	Not evant											





Table A 7 [.]	Initial screening	of LERMS	measures

	Unde risk	rstandiı	ng catch	ments	and flo	bod	Dissem knowled	inating dge	Partr work	nership ing	coord	ination a	and	Flood mitigation funding	Monitoring Maintenance Spend	Implementation of identified mitigation measures	Deliver small s project	y of cale s	Deliv local risk regul	er flood ation	Suppo plannii author	rt for local ng ities
Objectives	Surface Water Management Plans	Assessment of Ordinary Water Courses	Deliver LLFA asset records and register	Catchment Mapping	Groundwater flood risk study	Installation of Rain Gauges	Education Programme,	Published Guidance, Web based resources	Promote partnership working	Review of Water Level Management Plans and System Asset Management Plans	Critical infrastructure flood risk assessment	Disseminate outputs of local flood risk studies/investigation	Highway flood risk investigation	Identify funding opportunities	Norfolk Risk Management Authorities	Individual schemes	Installation of Property Level Protection	Installation of Highways Warning Signage	Ordinary Watercourse Regulation	Designation of 3rd Party Structures	Provide targeted and proportionate advice to local planning authorities on local flood risk	Provide advice to local planning authorities on appropriate development plan policies when they are developed and updated.
Objective 1: Determine and communicate Local Flood Risk		ο	0	0	0	0	0	0					+									
Objective 2: Partnership Working									ο	+		0										
Objective 3: Partnership and Programme Projects								+			+			0	ο		Ο	0				
Objective 4: Riparian Responsibilities																	0	0		+		



	Unde risk	rstandii	ng catcł	nments	and flo	ood	Dissem knowle	inating dge	Partr work	nership ting	coord	ination a	Ind	Flood mitigation funding	Monitoring Maintenance Spend	Implementation of identified mitigation measures	Deliver small s project	y of cale s	Deliv local risk regul	er flood lation	Suppor plannir authori	rt for local ng ities
Objectives	Surface Water Management Plans	Assessment of Ordinary Water Courses	Deliver LLFA asset records and register	Catchment Mapping	Groundwater flood risk study	Installation of Rain Gauges	Education Programme,	Published Guidance, Web based resources	Promote partnership working	Review of Water Level Management Plans and System Asset Management Plans	Critical infrastructure flood risk assessment	Disseminate outputs of local flood risk studies/investigation	Highway flood risk investigation	Identify funding opportunities	Norfolk Risk Management Authorities	Individual schemes	Installation of Property Level Protection	Installation of Highways Warning Signage	Ordinary Watercourse Regulation	Designation of 3rd Party Structures	Provide targeted and proportionate advice to local planning authorities on local flood risk	Provide advice to local planning authorities on appropriate development plan policies when they are developed and updated.
Objective 5: Flood Risk and Development																					0	0

Key	+	Positive	-	Negative +/-	Positive/ Negative	0	No change		Not relevant	
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Appendix B. Maps of European Sites located within the Zol

Mott MacDonald

Habitat Regulations Assessment Task 1 Screening





Appendix C. Screening Assessment of European sites

C.1 Screening of relevant European sites located within the Zol

Site name	Designation	Within Norfolk county	Intersects boundary or hydraulically linked and within 15km	Reason for inclusion & exclusion
Breckland	SAC, SPA	~	~	Include – Potentially affected by changes to hydrology, including upstream measures potentially affecting downstream locations outside the county boundary.
Breydon Water	Ramsar, SPA	~		Include – Potentially affected by changes to hydrology upstream of site.
Broadland	Ramsar, SPA	~	~	Include – Potentially affected by changes to hydrology, including upstream measures potentially affecting downstream locations outside the county boundary.
Dersingham Bog	Ramsar, SAC	~		Include – Potentially affected by changes to hydrology upstream of site.
North Norfolk Coast	SPA, Ramsar, SAC	~	~	Include – Potentially affected by changes to hydrology, although limited to surface and groundwater (HRA excludes tidal influences). Also, potentially affected by upstream measures potentially affecting downstream locations outside the county boundary.
Norfolk Valley Fens	SAC	~		Include – Potentially affected by changes to hydrology upstream of site.
Overstrand Cliffs	SAC	~		Exclude – Protected vegetated sea cliffs unlikely to be affected by changes in hydrology (HRA excludes tidal influences).
Paston Great Barn	SAC	~		Exclude – Protected as a maternity roost of barbastelles <i>Barbastella barbastellus</i> in a building, and unlikely to be affected by changes to hydrology.
River Wensum	SAC	~		Include – Potentially affected by changes to hydrology upstream of site.
Roydon Common	Ramsar, SAC	~		Include – Potentially affected by changes to hydrology upstream of site.
The Broads	SAC	~	~	Include – Potentially affected by changes to hydrology, including upstream measures potentially affecting downstream locations outside the county boundary.
The Wash & North Norfolk Coast	SAC	~	~	Include – Potentially affected by changes to hydrology, including upstream measures potentially affecting downstream locations outside the county boundary.
Benacre to Easton Bavents	SPA		~	Exclude – Not hydraulically connected to county area.

Table C.1: Justification for inclusion and exclusion of European sites within Zol



Site name	Designation	Within Norfolk county	Intersects boundary or hydraulically linked and within 15km	Reason for inclusion & exclusion
Benacre to Easton Bavents Iagoons	SAC		~	Exclude – Not hydraulically connected to county area.
Chippenham Fen	Ramsar		~	Exclude – Spring-fed wet woodland, however it located 15km beyond the county boundary and not hydraulically linked to county area. Therefore, site unlikely to be affected by changes in hydrology within the county.
Fenland (linked with Chippenham Fen above)	SAC		~	Exclude – Protected fenland (bog/marsh/peat), however it is located 15km beyond the county boundary and not hydraulically linked to county area. Therefore, site unlikely to be affected by changes in hydrology within the county.
Great Yarmouth North Denes	SPA		~	Exclude – Protected European marine site, unlikely to be affected by changes in local flood risk (HRA excludes tidal influences).
Minsmere- Walberswick	Ramsar, SPA		~	Exclude – Protected European marine site, unlikely to be affected by changes in local flood risk (HRA excludes tidal influences).
Nene Washes	Ramsar, SAC, SPA		~	Exclude – Site is located upstream of any potential downstream works along the county boundary (River Nene), therefore unaffected by the Strategy.
Ouse Washes	Ramsar, SAC, SPA		~	Include – Potentially affected by changes to hydrology upstream of site.
Redgrave & South Hopham Fens	Ramsar		~	Include – Potentially affected by changes to hydrology upstream of site.
Rex Graham Reserve	SAC		~	Exclude – Protected for dry grassland/scrubland, with no hydrological element, therefore unaffected by changes in hydrology.
Waveney & Little Ouse Valley Fens	SAC		~	Include – Potentially affected by changes to hydrology upstream of site.
Winterton-Horsey Dunes	SAC		~	Include – Potentially affected by changes to hydrology upstream of site.



C.2 Screening assessment of European sites located within NCC boundary and within 15km of NCC boundaries

Site Name	River Wensum
Designation	SAC
Qualifying Features	• 3260 – Water course of plain to montane levels with the <i>Ranunclion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation
	 1092 – White-clawed crayfish (Austropotamobius pallipes)
	 1016 - Desmoulin`s whorl snail Vertigo moulinsiana
	 1096 -Brook lamprey Lampetra planeri
	 1163 - Bullhead Cottus gobio
Conservation	Subject to natural change, to maintain or restore:
Objectives	 Extent and distribution of qualifying natural habitats and habitats of qualifying species
	 The structure and function (including typical species) of qualifying natural habitats
	 The structure and function of the habitats of qualifying species
	 The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely
	 The populations of qualifying species, and,
	 The distribution of qualifying species within the site.
Condition Assessment	Approximately 70% of the site is in Favourable condition or Unfavourable- Recovering. The remaining area is in Unfavourable- No change condition.
Site Vulnerability	Agricultural chemical runoff may cause severe damage to the flora and fauna of the river.
	• Silt management of the river is required to minimise the disturbance 6to channel and bankside.
	 Development on the flood plain would alter the flow regime of the river.
Screening Outcome	The qualifying features for this designated site are hydrological in nature. Although the designated site is a Main River, changes to the ordinary watercourses forming tributaries to this river may affect its integrity. As such, the implementation of LFRMS policies will result in a likely significant effect on the European site.
Recommendations	 Consultation and consent with the Environment Agency will be required before works can commence within water courses.
	 As a result of consultation with statutory bodies (such as the Environment Agency and NCC) it is anticipated that individual project would require a project specific HRA and would need to produce a project management plan to undertake works within the SAC.
	 Environmental impacts can be reduced through good site practice and/or the use of a CEMP.
	 Project level assessments such as EIAs and HRAs.

Site Name	Dersingham Bog	
Designation	SAC	RAMSAR
Qualifying Features	 4010 Northern Atlantic wet heaths with Erica tetralix 	Annex II species – invertebrates from the British Red Data Book
	 7150 Depressions on peat substrates of the Rhynchosporion 	
	 4030 European dry heaths 	
Conservation	Subject to natural change, to maintain or restore:	



Objectives	
Objectives	 The extent and distribution of qualifying natural habitats;
	 The structure and function (including typical species) of qualifying natural habitats; and
	 The supporting processes on which qualifying natural habitats rely
Condition Assessment	The total area of the site is in Unfavourable – Recovering condition.
Site Vulnerability	The bogs are surrounded by intensely farmed arable land.
	 Vulnerable to pollution for agricultural runoff and spreading of sludge on nearby fields.
	 Spread of scrub and woodland at the expense of the mire vegetation due to cutting and grazing management.
Screening Outcome	The qualifying feature for this designated site is hydrological in nature, however it is not connected to an ordinary watercourses. As such, the Bog is unlikely to be impacted by the implementation of a LFRMS.
Recommendations	 Consultation and consent with the Environment Agency will be required before works can commence within water courses.
	 As a result of consultation with statutory bodies (such as the Environment Agency and NCC) it is anticipated that individual project would require a project specific HRA and would need to produce a project management plan to undertake works within the SAC.
	• Environmental impacts can be reduced through good site practice and/or the use of a CEMP.
	 Project level assessments such as EIAs and HRAs.

Site Name	Roydon Common		
Designation	SAC	RAMSAR	
Qualifying Features	 4010 Northern Atlantic wet heaths with <i>Erica tetralix</i> 7150 Depressions on peat substrates of the <i>Rhynchosporion</i> 	Valley mire heathlandAcidphillic invertebrateSix British Red Data Book invertebrates	
	 4030 European dry heaths 		
Conservation	Subject to natural change, to maintain or restore:		
Objectives	 The extent and distribution of qualifying natural habitats; 		
	 The structure and function(including typical species) of qualifying natural habitats; and 		
	The supporting processes on which qualifying natural habitats.		
Condition Assessment	95% of the site area is in Unfavourable – Recovering condition, with the remaining 5% Unfavourable – Declining.		
Site Vulnerability	Vulnerable to pollution for agricultural runoff and spreading of sludge on nearby fields.		
	 Ground water abstraction from the underlying greens to the mire communities. 	s and aquifer also presents a potential threat	
	 Spread of scrub and woodland at the expense of the management 	mire vegetation due to cutting and grazing	
Screening Outcome	The qualifying feature of this site is hydrological in nature, therefore it is anticipated that the implementation of LFRMS policies may have an impact upon the SAC and Ramsar site.		
Recommendations	 Consultation and consent with the Environment Ager commence within water courses. 	ncy will be required before works can	
	 As a result of consultation with statutory bodies (such anticipated that individual project would require a pro produce a project management plan to undertake wood 	h as the Environment Agency and NCC) it is oject specific HRA and would need to orks within the SAC.	



• Environmental impacts can be reduced through good site practice and/or the use of a CEMP.

• Project level assessments such as EIAs and HRAs.

Site Name	North Norfolk Coast			
Designation	SAC	SPA	RAMSAR	
Qualifying Features	 1110 Sandbanks which are slightly covered by sea water all the time 1140 Mudflats and sandflats not 	Annex 1 birds during the breeding season and over winter	 Coastal habitat Higher plants Birds 	
	covered by seawater at low tide		 Invertebrates 	
	 1160 Large shallow inlets and bays 			
	• 1170 Reefs			
	 1310 Salicornia and other annuals colonising mud and sand 			
	 1330 Atlantic salt meadows 			
	 1420 Mediterranean and thermo- Atlantic halophilous scrubs 			
	 1150 Coastal lagoons 			
	• 1365 Harbour seal Phoca vitulina			
	• 1355 Otter Lutra lutra			
Conservation	Subject to natural change, to maintain c	or restore:		
Objectives	 The extent and distribution of qualifying natural habitats and habitats of qualifying species; 			
	 The structure and function (including typical species) of qualifying natural habitats; 			
	 The structure and function of the habitats of qualifying species; 			
	 The supporting processes on which qualifying natural habitats and the habitats of qualifying natural habitats and the habitats of qualifying natural habitats. 			
	 The populations of qualifying species; a 	s; and		
	 The distribution of qualifying species with 	hin the site.		
Condition Assessment	The majority of the site (>99%) is in Fav	ourable condition.		
Site Vulnerability	Problems with sea level rise and effective	ve flood defence strategies.		
	 Increased recreational use through the i recreational use. 	ncrease in visitor pressure ar	nd increase habitat	
	 The site is vulnerable to natural sea leve patterns, which are likely to affect the free 	el rise, storm surges and char eshwater grazing marsh and r	nges in the erosion reed-bed habitats.	
	 Freshwater ground abstraction for arabl flows onto the grazing marshes. 	e farmland irrigation may affe	ct the freshwater sprint	
Screening Outcome	The qualifying features of this site are the while the remaining sites are associated assumed that the implementation of	ne coastal lagoons, which a I with surface water hydrolo L FRMS may have an impa	re hydrological in nature, gy. It is therefore ct upon the site.	
Recommendations	 Consultation and consent with the Envir commence within water courses. 	onment Agency will be requir	ed before works can	
	 As a result of consultation with statutory is anticipated that individual project wou produce a project management plan to 	bodies (such as the Environi Id require a project specific H undertake works within the S/	ment Agency and NCC) it IRA and would need to AC, SPA and Ramsar site.	
	• Environmental impacts can be reduced	through good site practice an	d/or the use of a CEMP.	



• Project level assessments such as EIAs and HRAs.

Site Name	Broadland	
Designation	SPA	RAMSAR
Qualifying Features	 Annex II Species for birds; 	H7210 Calcareous fens
	 Bittern Botaurus stellaris 	 H7230 Alkaline fens
	Marsh Harrier Circus aeruginosus	 H91E0 Alluvial forests
	Bewick's Swan Cygnus columbianus bewickii	S1016 Vertigo moulinsiana
	Ruff Philomachus pugnax	Desmoulin's whorl snail
	Whooper Swan Cygnus cygnus	S1355 Lutra lutra Otter
	Gadwall Anas strepera	• S1903 Liparis loeselli Fen orchid.
	 Pink-footed Goose Anser brachyrhynchus 	
	Shoveler Anas clypeata	
Conservation	Subject to natural change, to maintain or restore:	
Objectives	• The extent and distribution of the habitats of the qual	lifying features;
	• The structure and function of the habitats of the qual	ifying features;
	The supporting processes on which the habitats of the supporting processes on which the habitate of the support of the su	ne qualifying features rely;
	The population of each of the qualifying features; and	d
	 The distribution of the qualifying features within the site. 	
Condition Assessment	No overall assessment available.	
Site Vulnerability	 Management neglect and natural succession. 	
	 Sea level rise and lower summer flows in the river Bu have led to an increase in salinity and generally drien 	ure due to greater abstraction which r summer conditions.
	 Eutrophication is a problem due to the build-up of nu largely due to sewage outfalls and to a lesser extent, 	trients over a long period of time, , agricultural run-off.
	 Increased pressure from recreation and tourism, alth managed. 	ough this is now being more effectively
	 Increased drainage from reclaimed parts of the wetla value. 	ands has led to a reduction in wildlife
Screening Outcome	The qualifying features of this site are the Annex I H fens, Calcium rich fens and Alkali fens. These are h assumed that the implementation of a LFRMS ma	labitats, which include Calcareous ydrological in nature, therefore it is y have an impact upon the site.
Recommendations	 Consultation and consent with the Environment Ager commence within water courses. 	ncy will be required before works can
	 As a result of consultation with statutory bodies (such NCC) it is anticipated that individual project would re need to produce a project management plan to unde Ramsar site. 	h as the Environment Agency and quire a project specific HRA and would rtake works within the SPA and
	 Environmental impacts can be reduced through good CEMP. 	d site practice and/or the use of a
	• Project level assessments such as EIAs and HRAs.	



Site Name	The Broads	
Designation	SAC	
Qualifying Features	 3140 Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. 	
	• 3150 Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	
	 7140 Transition mires and quaking bogs 	
	• 7210 Calcareous fens with Cladium mariscus and species of the Caricion davallianae	
	7230 Alkaline fens	
	 91E0 Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) 	
	 6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils 	
	 1016 Desmoulin`s whorl snail Vertigo moulinsiana 	
	• 1903 Fen orchid Liparis loeselii	
	• 4056 Ramshorn snail Anisus vorticulus	
	• 1355 Otter Lutra lutra	
Conservation	Subject to natural change, to maintain or restore:	
Objectives	 The extent and distribution of qualifying natural habitats and habitats of qualifying species; 	
	 The structure and function (including typical species) of qualifying natural habitats; 	
	 The structure and function of the habitats of qualifying species; 	
	 The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely; 	
	 The populations of qualifying species; and 	
	The distribution of qualifying species within the site.	
Condition Assessment	No overall assessment available.	
Site Vulnerability	Site suffered from management neglect.	
	 Climate change is causing an increase in the saline intrusion into the site. 	
	 The site suffers from eutrophication due to the sewage outfalls and diffuses water pollution from a variety of sources. 	
	 Increased tourism pressures need addressing to reduce the erosion and other conservation impacts. 	
	 Flood defence for the wetland area is required to protect the surrounding habitats. 	
Screening Outcome	The qualifying features of this designated site are hydrological in nature and may be impacted by the implementation of the LFRMS.	
Recommendations	 Consultation and consent with the Environment Agency will be required before works can commence within water courses. 	
	 As a result of consultation with statutory bodies (such as the Environment Agency and NCC) it is anticipated that individual project would require a project specific HRA and would need to produce a project management plan to undertake works within the SPA and Ramsar site. 	
	 Environmental impacts can be reduced through good site practice and/or the use of a CEMP. 	
	 Project level assessments such as EIAs and HRAs. 	



Site Name	Norfolk Valley Fens
Designation	SAC
Qualifying Features	7230 Alkali fens
	• 4010 Northern Atlantic wet heaths with <i>Erica tetralix</i>
	 4030 European dry heaths
	 6210 Semi natural dry grasslands and scrubland facies on calcareous substrates
	6410 Molinia Meadows
	 7210 Calcaerous fends with Cladium mariscus and species
	91E0 Alluvial forests
	 1014 Narrow-mouth whorl snail
	 1016 Desmoulin's Whorl snail
Conservation	Subject to natural change, to maintain or restore:
Objectives	 The extent and distribution of qualifying natural habitats and habitats of qualifying species;
	 The structure and function (including typical species) of qualifying natural habitats;
	 The structure and function of the habitats of qualifying species;
	 The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;
	 The populations of qualifying species; and
	 The distribution of qualifying species within the site.
Condition Assessment	No overall assessment available.
Site Vulnerability	 The fens are vulnerable to reductions on the water table and a decrease in the volume of spring flows from groundwater abstraction for arable irrigation.
	 Scrub and woodland encroachment is an issue for the site due to the cease in cutting and grazing on the fens.
	 Hydrological changes create pressure on the moor-grass meadows.
	 Threat of invasive species needs to be managed and controlled appropriately.
Screening Outcome	The qualifying features (habitat/species) of this designated site are hydrological in nature and the site covers a considerable catchment area. The site is therefore likely to be impacted by LFRMS should measures be implemented in this locality.
Recommendations	 Consultation and consent with the Environment Agency will be required before works can commence within water courses.
	 As a result of consultation with statutory bodies (such as the Environment Agency and NCC) it is anticipated that individual project would require a project specific HRA and would need to produce a project management plan to undertake works within the SAC.
	 Environmental impacts can be reduced through good site practice and/or the use of a CEMP.
	 Project level assessments such as EIAs and HRAs.

Site Name	Breydon Water	
Designation	SPA	RAMSAR
Qualifying Features	 Wetland of national importance 	Common tern
	Common Tern Sterna hirundo	• Pied avocet, Recurvirostra avosetta



	 Avocet Recurvirostra avosetta 	• Whimbrel , Numenius phaeopus
	 Bewick's Swan Cygnus 	• Common greenshank, Tringa nebularia,
	columbianus bewickii	• Greater white-fronted goose , Anser albifrons
	 Golden Plover Pluvialis apricaria 	Albifrons
		• Eurasian teal , Anas crecca
		Northern pintail , Anas acuta
		Ruff , Philomachus pugnax
Conservation	Subject to natural change, to maintain	or restore:
Objectives	• The extent and distribution of the habi	tats of the qualifying features;
	• The structure and function of the habi	tats of the qualifying features;
	• The supporting processes on which the	he habitats of the qualifying features rely;
	• The population of each of the qualifyir	ng features; and,
	• The distribution of the qualifying featu	res within the site.
Condition Assessment	100% of the site is in favourable condition.	
Site Vulnerability	Eutrophication and pollution of the fens from agricultural fertiliser.	
Screening Outcome	The qualifying features (habitat/specie nature. The site is therefore likely to implemented in this locality.	es) for this designated site are hydrological in be impacted by LFRMS should measures be
Recommendations	Consultation and consent with the Encommence within water courses.	vironment Agency will be required before works can
	 As a result of consultation with statute NCC) it is anticipated that individual p need to produce a project manageme Ramsar site. 	ory bodies (such as the Environment Agency and roject would require a project specific HRA and would nt plan to undertake works within the SAC and
	 Environmental impacts can be reduce CEMP. 	d through good site practice and/or the use of a
	 Project level assessments such as EI. 	As and HRAs.

Site Name	Breckland		
Designation	SAC	SPA	
Qualifying Features	 2330 Inland dunes with open Corynephorus and Agrostis grassland 	Birds, in particular:Nightjar Caprimulgus	
	• 3150 Natural eutrophic lakes with Magnopotamion	europaeus	
	 4030 European dry heaths 	 Stone Curlew Burhinus 	
	 6210 Semi-natural dry grassland and scrubland facies on calcareous substrates 	oedicnemusWoodlark Lullula arborea	
	 91E0 Alluvial forests with Alnus glutinosa and Fraxinus excelsior 		
	 1166 Great crested newt 		
Conservation Objectives	Subject to natural change, to maintain or restore:		
	 The extent and distribution of qualifying natural habitats and habitats of qualifying species; 		
	• The structure and function (including typical species)	of qualifying natural habitats;	



	 The structure and function of the habitats of qualifying species;
	 The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;
	 The populations of qualifying species; and
	 The distribution of qualifying species within the site.
Condition Assessment	The majority of the site (>99%) is in Unfavourable-recovering condition.
Site Vulnerability	 Potential of over-grazing from sheep and cattle.
	 Nutrient deposition from the atmosphere and adjacent arable farming, invasion by self- sown trees/ shrubs.
	 Local ground water abstraction has a deleterious impact on the natural eutrophic lakes and the Breckland meres
Screening Outcome	The qualifying features are hydrological in nature. The site is therefore likely to be impacted by LFRMS.
Recommendations	 Consultation and consent with the Environment Agency will be required before works can commence within water courses.
	 As a result of consultation with statutory bodies (such as the Environment Agency and NCC) it is anticipated that individual project would require a project specific HRA and would need to produce a project management plan to undertake works within the SAC and SPA site.
	 Environmental impacts can be reduced through good site practice and/or the use of a CEMP.
	 Project level assessments such as EIAs and HRAs.

Site Name	The Wash		
Designation	SAC	SPA	RAMSAR
Qualifying Features	 1110 Sandbanks which are slightly covered by sea water at all times 	 Breeding birds – Common Tern Sterna hirundo 	 The Wash is a large shallow bay comprising very extensive coltrastbac, major
	 1140 Mudflats and sandflats not covered by seawater at low tide 	 Little Tern Sterna albifrons Marsh Harrier Circus 	intertidal banks of sand and mud, shallow
	 1160 Large shallow inlets and bays 1170 Deefe 	aeruginosus Avocet Recurvirostra avosetta 	water and deep channels.
	 1170 Reefs 1310 Salicornia and other annuals colonising 	 avosetta Bar-tailed Godwit Limosa lapponica Golden Plover Pluvialis apricaria Whooper Swan Cygnus cygnus Black-tailed Godwit Limosa limosa islandica Curlew Numenius arquata, 	 eurasian oystercatcher Haematopus ostralegus ostralegus, On the second se
	 1330 Atlantic salt meadow 1400 Maditerrane en 		 Grey plover Pluvialis squatarola Red knot Calidris canutus islandica
	 1420 Mediterranean and thermo-Atlantic halophilous scrubs 1150 Coastal lagoons 1205 Harbour coal 		 Sanderling <i>Calidris alba</i> Eurasian curlew <i>Numenius arquata</i> <i>arquata</i>
	 1365 Harbour Seal 1355 Otter 	 Dark-bellied Brent Goose Branta bernicla bernicla 	 Common redshank Tringa totanus tetanus Ruddy turnstone



		 Dunlin Calidris alpina alpina Grey Plover Pluvialis squatarola Knot Calidris canutus Oystercatcher Haematopus ostralegus Pink-footed Goose Anser brachyrhynchus Pintail Anas acuta Redshank Tringa totanus Shelduck Tadorna tadorna Turnstone Arenaria internres 	 Arenaria interpres interpres Pink-footed goose Anser brachyrhynchus Dark-bellied brent goose Branta bernicla Bernicla Common shelduck Tadorna tadorna Northern pintail Anas acuta Dunlin Calidris alpina alpine Bar-tailed godwit Limosa lapponica
		interpres	lapponica Ringed plover Charadrius hiaticula Black-tailed godwit Limosa limosa islandica
			 European golden plover <i>Pluvialis apricaria</i> <i>Apricaria</i> Northern lapwing <i>Vanellus vanellus</i>
Conservation Objectives	 Subject to natural change, The extent and distribution The structure and function The supporting processes The population of each of The distribution of the quadities 	to maintain or restore: n of the habitats of the qualifying f n of the habitats of the qualifying f on which the habitats of the qual the qualifying features; and lifying features within the site.	eatures; eatures; ifying features rely;
Condition Assessment	The majority of the site (>9 condition.	9%) is in Favourable or Unfavo	urable-recovering
Site Vulnerability	 The intertidal zone is being and coastal defence works The area supports interna disturbance and disruption 	g threatened from coastal squeez s as well as sea-level rise and sto tionally important seal populations n of the marine ecosystem upon w	e as a result of land-claim rm-surges. s that are vulnerable to <i>r</i> hich they depend.
Screening Outcome	The qualifying features for be affected by modification flowing to the site (tidal floo to be impacted by LFRMS locations.	this designated site are hydrolo is to upstream watercourses or oding excluded from LFRMS). T S should measures be implem	gical in nature, and may surface water catchments he site is therefore likely nented in these upstream
Recommendations	 Consultation and consent can commence within wat As a result of consultation 	with the Environment Agency will er courses. with statutory bodies (such as the	be required before works e Environment Agency and
	 NCC) it is anticipated that would need to produce a p Environmental impacts ca 	Individual project would require a project management plan to unde n be reduced through good site p	project specific HRA and rtake works within the SAC. ractice and/or the use of a
	CEMP.		



• Project level assessments such as EIAs and HRAs.



C.3 Screening assessment of European sites hydraulically connected to and within 15km of NCC boundaries

Site Name	Winterton-Horsey Dunes
Designation	SAC
Qualifying Features	 2150 Atlantic decalcified fixed dunes
	2190 Humid dune slacks
	 2110 Embryonic shifting dunes
	 2120 "Shifting dunes along the shoreline with Ammophils arenaria
Conservation	Subject to natural change, to maintain or restore:
Objectives	 The extent and distribution of the qualifying natural habitats;
	• The structure and function (including typical species) of the qualifying natural habitats; and
	 The supporting processes on which the qualifying natural habitats rely.
Condition Assessment	The majority of the site (>99%) is in Unfavourable-recovering condition
Site Vulnerability	 Beach-feeding operations pose a threat through the possible use of sand with shell fragments, particularly to the Atlantic decalcified fixed dunes.
	• The site is backed by intensively-farmed arable land, and water abstraction from this area is a threat to the humid dune slack communities.
	 Visitor pressures are high especially in the summer, resulting in erosion, fire and disturbance impacts.
	 The site relies on rabbits to maintain open habitats, and is therefore vulnerable to outbreaks of disease.
Screening Outcome	Although the dunes are not hydrologically feed, they do support swamp and mire communities, which are affected by changes in hydrology. The site is therefore likely to be impacted by LFRMS should measures be implemented in this locality.
Recommendations	 Consultation and consent with the Environment Agency will be required before works can commence within water courses.
	 As a result of consultation with statutory bodies (such as the Environment Agency and NCC) it is anticipated that individual project would require a project specific HRA and would need to produce a project management plan to undertake works within the SAC.
	 Environmental impacts can be reduced through good site practice and/or the use of a CEMP.
	 Project level assessments such as EIAs and HRAs.

Site Name	Redgrave and South Lopham Fens
Designation	RAMSAR
Qualifying Features	 Molinia caerulea meadows and Cladium mariscus-dominated chalk fen. Great Raft Spider Dolomedes plantarius
Conservation Objectives	 Subject to natural change, to maintain or restore: The extent and distribution of the habitats of the qualifying features; The structure and function of the habitats of the qualifying features;



	 The supporting processes on which the habitats of the qualifying features rely;
	 The population of each of the qualifying features; and
	 The distribution of the qualifying features within the site.
Condition Assessment	100% of the site is in Unfavourable-Recovering condition
Site Vulnerability	Eutrophication and pollution of the fens for agricultural fertiliser
Screening Outcome	The qualifying features (habitat/species) for this designated site are hydrological in nature. The site is therefore likely to be impacted by LFRMS should measures be implemented in this locality.
Recommendations	 Consultation and consent with the Environment Agency will be required before works can commence within water courses.
	 As a result of consultation with statutory bodies (such as the Environment Agency and NCC) it is anticipated that individual project would require a project specific HRA and would need to produce a project management plan to undertake works within the SAC and Ramsar site.
	 Environmental impacts can be reduced through good site practice and/or the use of a CEMP.
	 Project level assessments such as EIAs and HRAs.

Site Name	Ouse Washes					
Designation	SAC	SPA	Ramsar			
Qualifying Features	1149 Spined loach Cobitis taenia	 Ruff Philomachus pugnax Spotted Crake Porzana porzana Bewick's Swan Cygnus columbianus bewickii Hen Harrier Circus cyaneus Ruff Philomachus pugnax Whooper Swan Cygnus cygnus Black-tailed Godwit Limosa limosa limosa Gadwall Anas strepera Shoveler Anas clypeata Black-tailed Godwit Limosa limosa islandica Gadwall Anas strepera Pintail Anas acuta Pochard Aythya ferina Shoveler Anas clypeata Wigeon Anas penelope 	 The site is one of the most extensive areas of seasonally-flooding washland of its type in Britain. The site supports several nationally scarce plants. The site holds relict fenland fauna. Tundra swan Cygnus columbianus bewickii Whooper swan Cygnus cygnus Eurasian wigeon Anas penelope Gadwall Anas strepera strepera Eurasian teal Anas crecca Northern pintail Anas acuta Northern shoveler Anas clypeata Mute swan Cygnus olor Common pochard Aythya ferina Black-tailed godwit 			



			Limosa limosa islandica						
Conservation	Subject to natural change, to maintain or restore:								
Objectives	 The extent and distribution of the habitats of qualifying species; 								
	 The structure and function of the habitats of qualifying species; 								
	The supporting processes on which the habitats of qualifying species rely;The populations of qualifying species; and								
	 The distribution of qualifying s 	pecies within the site.							
Condition Assessment	Approximately 80% of the site is in Unfavourable-No change condition. The remaining area is in Favourable or Unfavourable-Recovering condition								
Site Vulnerability	 Water abstraction, over-deeperinputs to the river. 	ening of local rivers and land dra	ainage has reduced the						
	 Increase in phosphorous and nitrogen due to the locality of the sewage works has caused an increase rate in eutrophication. 								
	 Blanket-weed (aquatic algae) poses problems to navigation and angling, leading to issues of timing and frequency of aquatic weed-cutting. 								
	 Flood water draining off the adjacent Ouse Washes into the inner river can be of a very poor quality (particularly in warm weather) leading to problems of deoxygenation with resultant fish-kills. 								
Screening Outcome	The qualifying features for this vulnerable to changes in hydro could result in adverse impacts entering the river could result i positively or negatively impacts this locality.	designated sites are hydrolog pmorphology and changes to l s. Conversely, the better man n beneficial effects. The site acted by LFRMS should mea	gical in nature. The site is local land drainage which agement of flood water is therefore likely to be asures be implemented in						
Recommendations	 Consultation and consent with the Environment Agency will be required before works can commence within water courses. 								
	 As a result of consultation with statutory bodies (such as the Environment Agency and NCC) it is anticipated that individual project would require a project specific HRA and would need to produce a project management plan to undertake works within the SAC. 								
	 Environmental impacts can be CEMP. 	e reduced through good site pra	ctice and/or the use of a						
	 Project level assessments such 	h as FIAs and HRAs.							

Site Name	Waveney and Little Ouse Fens					
Designation	SAC					
Qualifying Features	 6410 Molinia meadows on calcareous, peaty or clayey-slit-laden soils 					
	• 7210 Calcareous fens with Cladiu mariscus and species of Caricion davallianae					
	 1016 Desmoulin's whorl snail 					
Conservation	Subject to natural change, to maintain or restore:					
Objectives	 The extent and distribution of qualifying natural habitats and habitats of qualifying species; 					
	 The structure and function (including typical species) of qualifying natural habitats; 					
	 The structure and function of the habitats of qualifying species; 					
	 The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely; 					



	 The populations of qualifying species; and 								
	 The distribution of qualifying species within the site. 								
Condition Assessment	No overall assessment available.								
Site Vulnerability	Water abstraction, over-deepening of local rivers and land drainage has reduced the groundwater inputs while increasing outflows from the fens. Consequently some areas of peat have undergone periods of drying and rotting which has released nutrients into the system and allowed scrub to progressively invade the fens.								
Screening Outcome	The qualifying feature for this designated site is hydrological in nature. The site is therefore likely to be impacted by LFRMS should measures be implemented in this locality.								
Recommendations	 Consultation and consent with the Environment Agency will be required before works can commence within water courses. 								
	 As a result of consultation with statutory bodies (such as the Environment Agency and NCC) it is anticipated that individual project would require a project specific HRA and would need to produce a project management plan to undertake works within the SAC and SPA site. 								
	 Environmental impacts can be reduced through good site practice and/or the use of a CEMP. 								
	 Project level assessments such as EIAs and HRAs. 								



C.4 Screening assessment of the likely impact of proposed LFRMS policies and measures on Natura 2000 and Ramsar sites



Table C.2: Screening assessment of likely impacts of proposed policies on designated sites

	Policies						I	Measures			
Designated site	LUC1: Sustainability	UC4: Critical Drainage Catchments	UC7: Sustainable Flood Management	UC11: Securing Sustainable Drainage	OW4: Culverting	E4: Ecological Potential	E5: River Morphology	Surface Water Management Plans	Critical Infrastructure flood risk assessment	Highway flood risk investigation	Individual schemes
River Wensum (SAC)				+						///////////////////////////////////////	
Dersingham Bog (SAC, Ramsar)											
Roydon Common (SAC, Ramsar)											
North Norfolk Coast (SAC, SPA, Ramsar)				+							
Broadland (SPA, Ramsar)											
The Broads (SAC)	/////				<u>////</u>			///////////////////////////////////////			////
Winterton-Horsey Dunes (SAC)											
Norfolk Valley Fens	///////////////////////////////////////	///////////////////////////////////////	///////////////////////////////////////	///////////////////////////////////////	//////	11411	///////////////////////////////////////	//////		//.	///_

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	Policies							Measures			
Designated site	JC1: Sustainability	JC4: Critical Drainage Catchments	JC7: Sustainable ⁻ lood Management	JC11: Securing Sustainable Drainage	OW4: Culverting	E4: Ecological ⊃otential	Ξ5: River Vlorphology	Surface Water Vlanagement Plans	Critical Infrastructure lood risk assessment	Highway flood risk nvestigation	ndividual schemes
(SAC)											
Breydon Water (SPA, Ramsar)				<u></u>							
Redgrave & South Lopham Fens (Ramsar)											
Breckland (SAC, SPA)	////	n/a			////		/ <u>/</u> ///				
Waveney and Little Ouse Fens (SAC)		n/a			<u> </u>	/ <u>+</u> +//					
Ouse Washes (SAC)	///	//54///	/ // ///	///////////////////////////////////////			<u> </u>	///////////////////////////////////////		/////	////
The Wash (SAC, SPA, Ramsar)											



