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Department for Environment, Food & Rural Affairs

# **Habitats Regulations Assessment of the National Policy Statement for Water Resources Infrastructure**

Habitats Regulations  
Assessment



## Report for

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Doc Ref. L39649rr028i3

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## Document revisions

No.	Details	Date
1	Draft HRA Report [FOR REVIEW]	Aug 2018
2	Final Draft HRA [FOR ISSUE]	Oct 2018
3	Revised Final HRA [FOR ISSUE]	Nov 2018

# Non-Technical Summary

## The National Policy Statement for Water Resource Infrastructure and Habitats Regulations Assessment

This report has been produced to support the Secretary of State for the Environment, Food and Rural Affairs in meeting the obligations under Regulation 110 of the Conservation of Habitats and Species Regulations 2017 (the 'Habitats Regulations') as regards the National Policy Statement for Water Resources Infrastructure (the draft NPS).

The purpose of the draft NPS for Water Resources Infrastructure will be to guide the Secretary of State (SoS), the Planning Inspectorate, and applicants when considering any applications for development consent in relation to water resource-related nationally significant infrastructure projects<sup>1</sup> (NSIPs) in England. Once the NPS has been designated, the Secretary of State will be required to determine any applications for development consent in accordance with it, unless certain other criteria (set out in the Planning Act 2008) apply. The NPS will support the delivery of future large supply projects identified in water company Water Resource Management Plans, helping the water companies to plan, fund and develop any new large infrastructure that will improve the resilience of future water supplies. The NPS is intended to be a strategic planning document that provides high level assessment principles against which development consent order (DCO) applications will be considered; in common with the majority of other designated NPS, it is not anticipated that it will identify any specific sites for future water resource infrastructure.

## Screening

The draft NPS was subject to a screening assessment to determine whether it is likely to have significant effects on any European sites. The draft NPS is a high-level policy document that provides the framework for decision-making on development consent applications for the construction of new or the expansion of existing water resources infrastructure in England. However, the NPS does not exclude the possibility of water resource NSIPs requiring infrastructure within other parts of the UK mainland<sup>2</sup> and so European sites outside England may also be exposed to environmental changes associated with new water resource developments. This includes European sites on the UK mainland, and more distant sites in other member states with mobile species that may be reliant on habitats potentially exposed to the outcomes of schemes covered by the NPS. The possibility of likely significant effects on one or more European sites cannot therefore be excluded. Consistent with the scope of the Habitats Regulations, it is also noted that the NPS is not directly connected with or necessary to the management of any European site. On this basis and in line with the requirements of the Habitats Regulations, an appropriate assessment was then undertaken.

## Appropriate Assessment

The appropriate assessment has comprised:

- a review of the possible pathways by which European sites might be affected by projects that are compliant with the NPS; and, subsequently

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<sup>1</sup> Defined under the Planning Act 2008, Part 3, Section 27 and 28 (and any subsequent amendment).

<sup>2</sup> It should be noted that the NPS does not explicitly exclude the possibility of water resource schemes involving offshore islands or Northern Ireland; however, direct effects on European sites in these areas can be reasonably excluded from consideration due to the substantial practical difficulties that would be associated with any water resource scheme intended to supply England.

- a review of the content and scope of the NPS, to identify opportunities for policy requirements that will prevent or reduce any adverse effects that may result from NSIP water resource schemes developments.

The draft NPS identifies the importance of biodiversity and nature conservation through reference to policy and regulatory requirements. It also clearly states the responsibilities on the Secretary of State and developers with regard to international sites (so project compliance with the Habitats Regulations), with the Secretary of State directed to ensure that *"appropriate weight is attached to designated sites of international, national and local importance, protected species and habitats and other species of principal importance for the conservation of biodiversity, and to biodiversity and geological interests within the wider environment"*. The draft NPS also sets out a range of mitigation and conservation measures that should be considered by the developer.

However, the draft NPS, as a non site-specific planning document, does not rule out the possibility (however small) of any water resources infrastructure having adverse effects on European sites. In consequence, the appropriate assessment concluded that it was not possible to rule out the possibility that 881 European sites could, in theory, be potentially vulnerable to adverse effects as a result of the water resources infrastructure anticipated by the draft NPS. Mitigation measures that would exclude the possibility of specific adverse effects are not available at the strategic level that the NPS operates at, and policy statements to that effect would exceed the provisions of the Habitats Regulations. Some amendments to the NPS are recommended to emphasise the significance of European sites and the protection they receive and to ensure that avoidance and mitigation are prioritised when designing developments; however, the residual possibility of any water resources infrastructure having an adverse effect on a European site remains.

## Alternative Solutions

In consequence, and consistent with the Habitats Regulations Assessment (HRA) stages, the HRA examined alternative approaches for the NPS, including (*inter alia*):

- no NPS (aka 'business as usual');
- an NPS related to demand management or small-scale water supply infrastructure;
- an NPS that includes a threshold but not the infrastructure type;
- a NPS that specifies infrastructure categories to cover all possible major water resources infrastructure projects;
- a criteria-based NPS;
- a site-specific NPS; and
- an NPS that relocates demand rather than water.

The assessment concluded that the alternatives examined are either not feasible; or would not provide any additional certainty that adverse effects on European sites could be avoided or reduced, compared to the current NPS. As a result, the case for designating the NPS for Imperative Reasons of Overriding Public Importance (IROPI) was considered. It is considered that the NPS could be designated for reasons of human health and public safety.

## Conclusions

The draft NPS identifies the importance of biodiversity and nature conservation through reference to policy and regulatory requirements. It clearly states the responsibilities of the Secretary of State and the applicant with regard to international sites. It is the view of Government that the NPS (as drafted) would facilitate the successful and timely delivery of a nationally significant water resource infrastructure by providing planning

policy guidance against which DCO applications for any nationally significant water resources infrastructure project will be examined. This will support the Government's 'twin track' approach to improving the resilience of water supplies, with investment in new supplies complementing measures to reduce the demand for water.

The HRA of the Water Resources Infrastructure NPS does not remove the need for project-level HRAs, or prejudice the scope or outcomes of these assessments. The designation of the NPS for IROPI does not mean that these reasons will necessarily extend to all developments arising from the NPS, although the information provided in the NPS and HRA may have some relevance.

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# 1. Introduction

## 1.1 The National Policy Statement for Water Resources Infrastructure

- 1.1.1 Public water supplies and future water availability will be affected by population and economic growth, changes in consumer behaviour and the impacts of climate change. The Government's '25 Year Environment Plan'<sup>3</sup> states that:

*"Water companies must develop and implement robust long-term plans that develop new water resources where needed. New supplies will include large infrastructure, such as reservoirs and water transfers, which are needed to make sure the water industry can provide sufficient water for homes and businesses and reduce abstraction from some sources to protect the environment".*

- 1.1.2 The Government set out how it will enhance its policy framework to ensure the long-term resilience of the public water supply<sup>4</sup>. This included the potential to prepare a National Policy Statement (NPS) to support delivery of new 'nationally significant' water resources infrastructure. In her Written Statement<sup>5</sup> of 14<sup>th</sup> March 2017, the Parliamentary Under Secretary of State for the Environment and Rural Life Opportunities confirmed that the Government had decided to prepare an NPS for nationally significant infrastructure projects (NSIPs)<sup>6</sup> relevant to water resources. The preparation of the NPS was identified in the actions contained in the '25 Year Environment Plan'.<sup>7</sup> Preparation of the NPS is being led by the Department for Environment, Food and Rural Affairs (Defra).
- 1.1.3 The NPS for Water Resources Infrastructure will guide the Secretary of State (SoS), the Planning Inspectorate and applicants in the consideration of any applications for development consent in relation to water resource-related nationally significant infrastructure projects in England. Once the NPS has been designated, the Secretary of State will be required to determine any applications for development consent in accordance with it, unless certain other criteria (set out in the Planning Act 2008) apply.
- 1.1.4 The NPS will support the delivery of nationally significant water resources projects identified as preferred options in water company's final published water resource management plans (WRMPs). It may also be relevant to water resource schemes which, under section 35 of the Planning Act 2008, have been directed by the Secretary of State to be treated as an NSIP. The NPS will help water undertakers<sup>8</sup> to plan, fund and develop eligible infrastructure that will improve the resilience of future water supplies. The NPS is intended to be a strategic planning document that provides

<sup>3</sup> HM Government (2018) *A Green Future: Our 25 Year Plan to Improve the Environment*. Available from: <https://www.gov.uk/government/publications/25-year-environment-plan> [Accessed February 2018]

<sup>4</sup> Defra (2016) *Creating a great place for living: Enabling resilience in the water sector*. Available from: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/504681/resilience-water-sector.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/504681/resilience-water-sector.pdf) [Accessed August 2017].

<sup>5</sup> UK Parliament (2017) *Affordable, Resilient Water Supplies: Consultation on the Government's Strategic Priorities for Ofwat: Written statement - HCWS530*. Available from:

<http://www.parliament.uk/business/publications/written-questions-answers-statements/written-statement/Commons/2017-03-14/HCWS530/>

<sup>6</sup> Defined under the Planning Act 2008, Part 3, Section 27 and 28 (and any subsequent amendment).

<sup>7</sup> HM Government (2018) *A Green Future: Our 25 Year Plan to Improve the Environment*, page 70 under 'Actions we will take' states 'Consulting in 2018 on a National Policy Statement for water resources that will streamline the planning process for new large infrastructure schemes, leading to net environmental benefits, as set out in the Industrial Strategy', page 70 of

<sup>8</sup> This includes all private water companies who have a statutory duty to produce a WRMP every five years.

high level assessment principles against which development consent order (DCO) applications will be considered; in common with the majority of other designated NPS, it is not anticipated that it will identify any specific sites for future water resource infrastructure.

- 1.1.5 Both water management and planning are devolved issues. Therefore, the Welsh Government, Northern Ireland Executive and Scottish Government each have responsibility for these issues in or as regards their respective countries. The NPS will apply to England only.
- 1.1.6 As part of the development of the NPS, Defra has prepared the Draft National Policy Statement for Water Resources Infrastructure (the draft NPS) that is being published for public consultation. The draft NPS has been informed by the 'Climate Change Risk Assessment 2017'<sup>9</sup>, the 'Water resources long term planning framework (2015-2065)'<sup>10</sup>, 'Preparing for a drier future'<sup>11</sup>, other evidence<sup>12,13</sup> and WRMPs<sup>14</sup> prepared by water companies, alongside ongoing stakeholder engagement and assessment.

## 1.2 Habitats Regulations Assessment

- 1.2.1 Regulation 110 of the *Conservation of Habitats and Species Regulations 2017* (the 'Habitats Regulations') applies the provisions of Regulations 105 and 107 to National Policy Statements. Regulation 105 states that if a land-use plan "(a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects); and (b) is not directly connected with or necessary to the management of the site" then the plan-making authority must "...make an appropriate assessment of the implications for the site in view of that site's conservation objectives" before the plan is given effect.
- 1.2.2 Strictly, the term 'European sites' identified in Regulation 105 of the Habitats Regulations includes the following nature conservation sites: any Special Area of Conservation (SAC) from the point at which the European Commission and the UK Government agree the site as a 'Site of Community Importance' (SCI); any classified Special Protection Area (SPA); any candidate SAC (cSAC); and (exceptionally) any other site or area that the Commission believes should be considered as a SAC but which has not been identified by the Government. The term is also commonly used when referring to potential SPAs (pSPAs), to which the provisions of Article 4(4) of Directive 2009/147/EC (the 'new wild birds directive') apply; and to listed and proposed Ramsar Sites, to which the provisions of the Habitats Regulations are typically applied as a matter of Government policy (e.g.

<sup>9</sup> Committee on Climate Change (2017) *UK Climate Change Risk Assessment 2017*. Available from:

<https://www.theccc.org.uk/tackling-climate-change/preparing-for-climate-change/uk-climate-change-risk-assessment-2017/> [Accessed August 2017].

<sup>10</sup> Water UK (2016) *Water resources long term planning framework*. Available from:

[https://dl.dropboxusercontent.com/u/299993612/Publications/Reports/Water%20resources/WaterUK%20WRLTPF\\_Final%20Report\\_FINAL%20PUBLISHED.pdf](https://dl.dropboxusercontent.com/u/299993612/Publications/Reports/Water%20resources/WaterUK%20WRLTPF_Final%20Report_FINAL%20PUBLISHED.pdf) [Accessed August 2017].

<sup>11</sup> National Infrastructure Commission (2018) *Preparing for a drier future: England's water infrastructure needs*. Available from

<https://www.nic.org.uk/wp-content/uploads/NIC-Preparing-for-a-Drier-Future-26-April-2018.pdf> [Accessed October 2018].

<sup>12</sup> Defra (2016) *Guiding Principles for Water Resources Planning*. Available from:

<http://www.wrse.org.uk/wp-content/uploads/2018/04/Defra-Guiding-Principles-for-Water-Resource-Planning.pdf>

<sup>13</sup> Environment Agency and Natural Resources Wales (2016) *Final Water Resources Planning Guideline*. Available from:

<https://naturalresources.wales/media/678739/ea-nrw-and-defra-wg-ofwat-technical-water-resources-planning-guidelines.pdf> [Accessed July 2017].

<sup>14</sup> Water Resource Management Plans were published when Defra's 2016 iteration of the '*Guiding Principles for Water Resources Planning*' was the extant guidance. This has since been superseded by the 2018 iteration.

National Planning Policy Framework (NPPF)<sup>15</sup> paragraph 176; EN-1<sup>16</sup> paragraph 5.3.9)<sup>17</sup>. The term 'European site' is therefore used in this report in its broadest sense, as an umbrella term for all of the above designated sites.

- 1.2.3 The plan-making authority (in this case, the Secretary of State for the Environment, Food and Rural Affairs) may agree to the plan only if it has determined that it will not adversely affect the integrity of the European site; or, where this is not the case, that the plan or project meets the provisions of Regulation 107 (that there is no satisfactory alternative; and that the plan or project must be authorised for imperative reasons of overriding public interest (IROPI)). The process by which the requirements of Regulations 105 and 107 are met is generally known as Habitats Regulations Assessment (HRA)<sup>18</sup>.
- 1.2.4 The assessment and HRA Report have been completed by Wood Environment & Infrastructure Solutions UK Limited (Wood) on behalf of Defra.

## 1.3 Water Resources Infrastructure Planning

### Water Resources Management Planning

- 1.3.1 The Water Industry Act 1991, as amended by the Water Act 2003 and Water Act 2014, requires all water companies to prepare, maintain and publish statutory WRMPs. The plans set out how water companies intend to maintain the balance between water supply and demand and ensure security of supply over at least the next 25 years in a way that is economically, socially and environmentally sustainable.

- 1.3.2 Part III of the Water Industry Act 1991 states the following role for water companies in water supply:

*"37.—(1) It shall be the duty of every water undertaker to develop and maintain an efficient and economical system of water supply within its area and to ensure that all such arrangements have been made—*

*(a) for providing supplies of water to premises in that area and for making such supplies available to persons who demand them; and*

*(b) for maintaining, improving and extending the water undertaker's water mains and other pipes, as are necessary for securing that the undertaker is and continues to be able to meet its obligations under this Part.*

*37A.—(2) A water resources management plan is a plan for how the water undertaker will manage and develop water resources so as to be able, and continue to be able, to meet its obligations under this Part."*

<sup>15</sup> Ministry of Housing, Communities and Local Government (2018) *National Planning Policy Framework*

<sup>16</sup> Department of Business, Energy and Industrial Strategy (2011) *Overarching National Policy Statement for Energy (EN-1)*

<sup>17</sup> The protection provided by the Habitats Regulations is sometimes (but not always) explicitly extended to include possible SACs (pSACs) by Government policy (e.g. the NPPF specifically includes pSACs in para. 176; EN-1 does not).

<sup>18</sup> The term 'Appropriate Assessment' has been historically used to describe the process of assessment; however, the process is now more typically termed 'Habitats Regulations Assessment' (HRA), with the term 'Appropriate Assessment' limited to the specific stage within the process.

- 1.3.3 The Government has set out its priorities for water companies in developing their WRMPs via the 'guiding principles'<sup>19</sup> for water resources planning. The Water Resources Planning Guideline<sup>20</sup> produced by the Environment Agency and Natural Resources Wales, meanwhile, provides a framework for the development and presentation of water company plans.
- 1.3.4 The process of developing a WRMP requires an estimation of baseline supply forecast to be prepared, along with an estimation of baseline demand forecast. The uncertainties and target headroom<sup>21</sup> required are then estimated. The calculation of the baseline supply demand balance for each year of the plan's period are then used to determine if there are any years or critical periods where there is likely to be a supply-demand balance deficit. This is tested for resilience under a number of future scenarios. Once this information has been established and is considered robust, options which could be used to address the supply demand balance deficit are considered with the final planning solution for managing supply and demand presented in the WRMP. Following public consultation on the draft WRMP, amendment, review and direction by the Secretary of State for Food, Environment and Rural Affairs, the water company will publish the final WRMP.
- 1.3.5 The process of option development that underpins WRMP preparation includes a review of as many potential solutions as possible (the 'unconstrained list' of options) to identify 'feasible' (constrained) options. These 'feasible' options are then reviewed to identify 'preferred options' to resolve any supply deficits. The types of options considered in preparing WRMPs can be broadly categorised as follows:
- supply side measures – increasing the water available for use in the local supply area through an increase in deployable output from a range of measures that can include (but is not limited to) new or increased abstraction from existing sources, new or increased capacity for reservoirs, improving water treatment and reuse, water transfers (importing water from an area of surplus into an area of deficit) and desalination plants; and
  - demand management – reducing the demand for water through a combination of leakage reduction and water efficiency measures
- 1.3.6 In developing the WRMP, they can also be subject to a range of assessments including HRA and Strategic Environmental Assessment<sup>22</sup> (SEA). Water companies are the Competent Authority for the HRA of their WRMPs and Government<sup>23</sup>, industry<sup>24</sup> and regulator<sup>25</sup> guidance also requires water companies to determine whether their WRMPs fall within the scope of the SEA regulations and whether an SEA must be undertaken. In consequence, the likely significant effects of draft WRMPs, and the feasible and preferred options they contain have been identified, described and assessed.

<sup>19</sup> Further information available at <https://www.gov.uk/government/publications/water-resources-planning-managing-supply-and-demand/water-resources-planning-how-water-companies-ensure-a-secure-supply-of-water-for-homes-and-businesses>. A full copy of the guiding principles can be requested from [water-company-plan@environment-agency.gov.uk](mailto:water-company-plan@environment-agency.gov.uk)

<sup>20</sup> Environment Agency and Natural Resources Wales (2018) *Water Resources Planning Guideline: Interim Update*. Available from: <https://cdn.naturalresources.wales/media/686174/interim-wrpg-update-july18-final-changes-highlighted.pdf> [Accessed August 2018].

<sup>21</sup> Target headroom is the minimum buffer that a prudent company should allow between supply and demand to cater for uncertainties in the overall supply-demand balance and meet its agreed level of service.

<sup>22</sup> SEA is the process undertaken to meet Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment and the relevant UK transposing regulations, The Environmental Assessment of Plans and Programmes Regulations 2004.

<sup>23</sup> ODPM et al (2005) *A Practical Guide to the Strategic Environmental Assessment Directive*.

<sup>24</sup> UKWIR (2012) *Strategic Environmental Assessment and Habitats Regulations Assessment - Guidance for Water Resources Management Plans and Drought Plans (WR/02/A)*.

<sup>25</sup> Environment Agency and Natural Resources Wales (2018) *Water Resources Planning Guideline: Interim Update, July 2018*.

- 1.3.7 Once the WRMP is adopted, the preferred options are then implemented as schemes. Schemes that include the development of new water supply infrastructure usually require planning consent under the Town and Country Planning Act 1990. This planning framework has helped water companies understand future needs and maintain the balance of supply and demand within their boundaries.
- 1.3.8 The Environment Agency's 2011 'Case for Change'<sup>26</sup> considered the implications of climate change for water supplies regionally and nationally and concluded that while demand management is essential, significant new water resources will be needed to meet the needs of people, businesses and the environment. The Government requested that the water industry develop a national water resources long-term planning framework to establish water needs and the strategic options that could meet these needs. Water UK's 2016 'Water resources long-term planning framework (2015-2065)' noted the importance of demand management in conjunction with a combination of localised initiatives and strategic water resources infrastructure schemes to provide future resilience. Reflecting the recommendations of this report, the Government confirmed<sup>27</sup> that a 'twin track' approach to improving the resilience of water supplies is required, with investment in new supplies complementing measures to reduce the demand for water.

### National Policy Statement for Water Resources

- 1.3.9 In order to meet the challenge of increasing water resource resilience, the water industry may need to develop new 'nationally significant' water resources infrastructure. For 'nationally significant infrastructure projects' (such as a major new reservoir), a separate planning regime was established under the Planning Act 2008. In this, development consent is decided nationally based on policy criteria set out in the designated NPS. This is intended to simplify and shorten the process of providing development consent for such projects<sup>28</sup>.
- 1.3.10 In this context, the Government is developing the NPS for nationally significant water resources infrastructure with the aim of contributing to resilient water supplies and providing planning policy guidance against which DCO applications for any nationally significant water resources infrastructure project will be examined. Alongside the development of an NPS, the UK Government has laid a statutory instrument in parliament to amend the Planning Act 2008 criteria for water infrastructure that is classed as 'nationally significant'. This is in order to ensure that the right type and scale of projects are included to address the water resilience challenge.

## 1.4 Purpose of this Report

- 1.4.1 This report is intended to support the Secretary of State in meeting the obligations under Regulation 110 of the Habitats Regulations. It documents Wood's assessment of the draft NPS against the requirements of the Habitats Regulations, summarising the HRA process and its application to strategic policies such as the draft NPS, and detailing the results of the screening and appropriate assessment stages. It then considers alternatives to the draft NPS and sets out the case for authorising the NPS for IROPI.

<sup>26</sup> Environment Agency (2011) *The case for change – current and future water availability*. Report No: GEHO1111BVEP-E-E

<sup>27</sup> See Defra (2007) *The government's strategic priorities and objectives for Ofwat*. Available from [https://consult.defra.gov.uk/water/consultation-on-a-new-sps/supporting\\_documents/Draft%20SPS%20for%20consultation%20%20FINAL.pdf](https://consult.defra.gov.uk/water/consultation-on-a-new-sps/supporting_documents/Draft%20SPS%20for%20consultation%20%20FINAL.pdf) [Accessed August 2017].

<sup>28</sup> For example, Defra estimate that the average time saving to reach consent per scheme through the NSIP planning process, compared with using local planning authorities (LPA), is assumed conservatively to be 6 months based on analysis of the Thames Tideway project. See also Hickman, H. and Mitchell, K. and National Infrastructure Planning Association (2017) *Effective national infrastructure: Balancing detail and flexibility through planning to delivery*. Project Report. National Infrastructure Planning Association. Available from: <http://eprints.uwe.ac.uk/32043>

- 1.4.2 It should be noted that the draft NPS does not identify potential locations for the construction of nationally significant water resource infrastructure, and so this assessment is not location-specific either; instead, it focuses on the assessment of the draft NPS policies and objectives, aiming to identify measures that can be incorporated into the draft NPS to avoid, reduce or mitigate adverse effects. The assessment is therefore specific to the draft NPS. Defra notes that all DCO applications which may be made pursuant to the draft NPS, once designated, will be subject to the requirements of the planning system under the Planning Act 2008<sup>29</sup>, and so this assessment does not remove the need for future project-level HRAs of any nationally significant water resource infrastructure that may be proposed.
- 1.4.3 In addition, Section 5(3) of the Planning Act 2008 requires that an appraisal of the sustainability (AoS) be carried out before an NPS can be designated. The main purpose of an AoS is to examine the likely social, economic and environmental effects of designating the draft NPS, recommending options for avoiding or mitigating potential significant adverse effects are identified. The AoS for the draft NPS is reported separately from this HRA report, although the conclusions of the HRA have helped to inform the appraisal process. The AoS report describes the scope and content of the draft NPS in some detail and is cross-referenced, where appropriate, to avoid unnecessary duplication of information.

## 1.5 Consultation and Stakeholder Engagement

- 1.5.1 An initial HRA Methodology Report was issued for consultation to the UK statutory consultees for the Habitats Regulations, and to the other relevant bodies identified in **Box 1.1** for comment between 13<sup>th</sup> November and the 22<sup>nd</sup> December 2017. Whilst this technical consultation was primarily aimed at the statutory nature conservation consultees, identified under the Habitats Regulations, Defra also made the initial Methodology Report publicly available. The initial AoS Scoping Report and a consultation document on the NPS (concerning proposed principles to be used to guide the detailed development of the NPS and proposals to change the types and sizes of new water supply infrastructure defined in the Planning Act 2008) were also issued for consultation at the same time.

### Box 1.1 Specific Consultees

UK Habitats Regulations Statutory Consultation Bodies	Additional Consultees
Natural England	Environment Agency
Scottish Natural Heritage	Scottish Environment Protection Agency
Natural Resources Wales	Scottish Government
Department of the Environment's 'Environment and Heritage Service', Northern Ireland	Welsh Government
	Ofwat
	Drinking Water Inspectorate
	Water companies
	Marine Management Organisation
	National Parks Authority
	Joint Nature Conservation Committee

- 1.5.2 Comments on any aspect of the initial Methodology Report were welcomed although views were particularly sought in response to the following questions:

<sup>29</sup> The Planning Act 2008 [http://www.opsi.gov.uk/acts/acts2008/ukpga\\_20080029\\_en\\_1](http://www.opsi.gov.uk/acts/acts2008/ukpga_20080029_en_1)

- Do you think that the proposed approach to assessing the NPS against the Habitats Regulations is appropriate? For example, you may consider if the approach described is proportionate and whether it would provide a suitable level of information about potential habitats impacts. If not, how do you think the intended approach should be amended, and why?
- Do you think that the HRA Methodology Report sets out sufficient information to establish the context for the Screening Report and later Appropriate Assessment? If not, which areas do you think have been missed and where is the information available from?

1.5.3 A total of 30 responses to the initial HRA Methodology Report were received from a range of bodies and individuals including: statutory consultees; the energy sector; water companies and other water sector representatives; local planning authorities; environmental groups; and individuals. Responses particularly concerned:

- possible alternatives to the NPS in the context of a twin track approach and a focus on demand management;
- the overall level of detail provided in the report in terms of the proposed approach to the HRA;
- the need for additional clarity with regard to the geographic scope of the assessment;
- the consideration of in-combination effects;
- the need to ensure that mobile species are fully considered in the assessment;
- requests to review HRAs undertaken in support of water company Water Resources Management Plans.

1.5.4 The report was revised and a final HRA Methodology Report<sup>30</sup> was published in March 2018. This included a detailed evaluation of the consultation responses received.

## 1.6 How to Comment on this HRA Report

1.6.1 Along with the draft NPS and AoS Report, this HRA Report is being issued for public consultation. Details of how to respond to the consultation are provided below.

### This Consultation: How to Give Us Your Views

1.6.2 We would welcome your views on any aspect of this HRA Report. However, we would particularly welcome responses to the following questions:

Consultation Questions	
1.	Do you agree with the findings from the Habitats Regulations Assessment Report for the draft NPS? Please provide reasons to support your answer.

<sup>30</sup> Amec Foster Wheeler (2018), Habitats Regulations Assessment of the National Policy Statement for Water Resources Final Methodology Report, March 2018

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/697239/nps-water-consult-hra-methodology-report.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/697239/nps-water-consult-hra-methodology-report.pdf)

1.6.3

Please provide your comments via the Citizen Space survey at <https://consult.defra.gov.uk/water/draft-national-policy-statement>. If you have any questions about the consultation please contact the Defra team at:

**Email:** [WaterSupplyNPS@defra.gsi.gov](mailto:WaterSupplyNPS@defra.gsi.gov)

**Post:** Water Infrastructure Team

Department for Environment, Food and Rural Affairs,

3rd Floor

Seacole Block

2 Marsham Street

London

SW1P

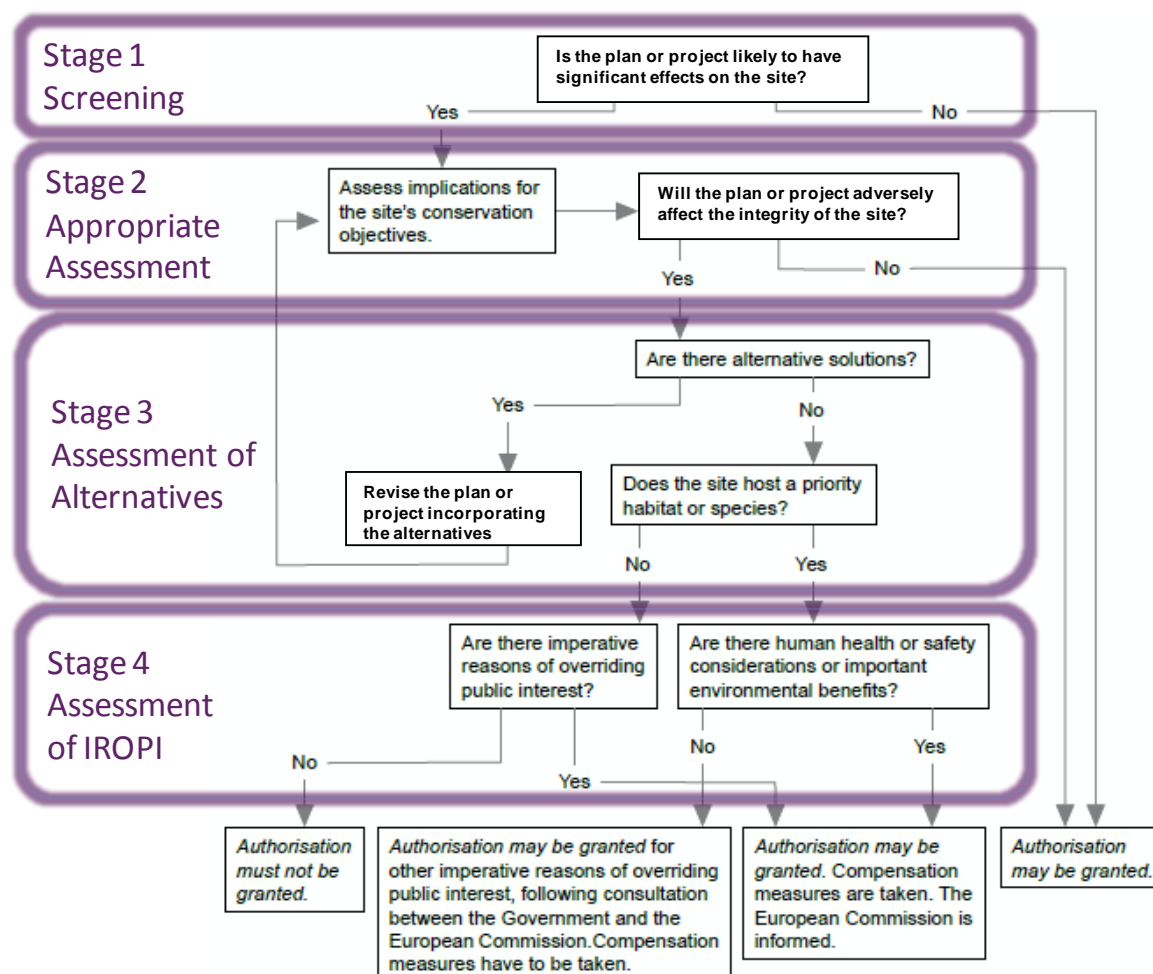
## 2. HRA of the Water Resources Infrastructure NPS

The Government is preparing a NPS for nationally significant water resources infrastructure. This section provides further detail of the planning context for nationally significant infrastructure projects and the scope and contents of the draft NPS

## 2.1 HRA Overview

2.1.1 The requirements of Regulations 105 and 107 are usually addressed through a staged process with sequential tests. The current EC guidance<sup>31</sup> suggests a four-stage process for HRA, although not all stages will be necessarily required; these stages, and the assessment process, are summarised in Figure 2.1 below:

Figure 2.1 Summary of HRA process and stages



<sup>31</sup> *Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC* (EC 2002).

- 2.1.2 At the screening stage, the plan should be considered 'likely' to have an effect if the competent authority (in this case, the Secretary of State) is unable on the basis of objective information to exclude the possibility that it could have significant effects on any European site, either alone or in combination with other plans or projects; an effect will be 'significant' if it could undermine the site's conservation objectives. The 'test of significance' is therefore a relatively low bar: 'significant effects' can generally be interpreted as any negative effects that are not negligible or inconsequential; 'likely' is interpreted as a simple question of whether the plan or project concerned is capable of having an effect<sup>32</sup>. It should be noted that recent case law<sup>33</sup> has altered the accepted treatment of 'mitigation' and 'avoidance' measures at the screening stage; this has also indirectly reinforced the interpretation of the 'screening' test as a low-bar 'trigger' for 'appropriate assessment'.
- 2.1.3 If 'no significant effect' cannot be established, then 'appropriate assessment' is required. What constitutes an 'appropriate' assessment is not defined by the Regulations or the Habitats Directive; however, the assessment must provide a robust, objective, scientific basis for determining whether the integrity of a site is likely to be affected that is proportional to the complexity, scale and risk of effects, and to the plan or policy that is being assessed.
- 2.1.4 Regulation 105 essentially provides a test that the final plan must pass; there is no statutory requirement for HRA to be undertaken on draft plans or similar developmental stages (e.g. issues and options; preferred options). However, as with SEA, it is accepted best-practice for the HRAs of strategic plans or policy documents to be run as an iterative process alongside their development. This helps ensure that policies that plan positively for the environment are developed from the beginning of the plan-making process, rather than the HRA being a purely retrospective assessment exercise applied towards the end of the process<sup>34</sup>.
- 2.1.5 If the competent authority cannot determine that there will be no adverse effects on the integrity of a site then it must consider alternative solutions for delivering the objectives of the plan (Regulation 107); if no alternatives are available, then a case for authorising the plan for 'imperative reasons of overriding public importance' (IROPI) may be made.

## 2.2 Guidance on HRA

- 2.2.1 There is little specific guidance on the application of HRA to National Policy Statements, particularly as similar high-level policy documents are often excluded from the HRA process<sup>35</sup>. However, the HRA of the NPS for Water Resources will be based on case-practice established through the HRAs

<sup>32</sup> Case C-258/11: Judgment of the Court (Third Chamber) of 11 April 2013 and Opinion of the Advocate General dated 22nd November 2012. *Peter Sweetman and Others v An Bord Pleanála*. Reference for a preliminary ruling: Supreme Court - Ireland

<sup>33</sup> Case C 323/17 Court of Justice of the European Union: *People Over Wind*; generally referred to as '*People over Wind*'. This has altered how avoidance and mitigation measures are accounted for by the HRA. The '*People Over Wind*' judgement states that "...it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects [mitigation] of the plan or project on that site"; this contrasts with established practice in this area (based on the "*Dilly Lane*" judgment) where avoidance and mitigation measures have typically been accounted for during screening.

<sup>34</sup> Although it is important to be mindful of the '*People over Wind*' judgement and the need to ensure that necessary mitigation or avoidance measures are considered and tested through an 'appropriate assessment' stage rather than through an extended or iterative screening exercise.

<sup>35</sup> European Commission guidance on the application of article 6(3) (*Managing Natura 2000 sites: the provisions of Article 6 of the Habitats Directive 92/43/EEC* (EC, 2000) states that "...a distinction needs to be made with 'plans' which are in the nature of policy statements, i.e. policy documents which show the general political will or intention of a ministry or lower authority. An example might be a general plan for sustainable development across a Member State's territory or a region. It does not seem appropriate to treat these as 'plans' for the purpose of Article 6(3), particularly if any initiatives deriving from such policy statements must pass through the intermediary of a land use or sectoral plan. However, where the link between the content of such an initiative and likely significant effects on a Natura 2000 site is very clear and direct, Article 6(3) should be applied."

of similar National Policy Statements (for example, NPSs EN-1 – EN-5) and the following general guidance:

- Department for Environment, Food and Rural Affairs [Defra] (2012) *The Habitats and Wild Birds Directives in England and its seas: Core guidance for developers, regulators & land/marine managers*. Defra, London;
- DTA Publications (2018) *The Habitats Regulations Handbook* [online]. Available at: <http://www.dtapublications.co.uk/handbook/> [Accessed July 2018];
- European Commission (2001) 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 (2000) Managing Natura 2000 sites: The provisions of article 6 of the Habitats Directive 92/43/EEC. European Commission, Brussels; and
- European Commission (2007/2012) Guidance document on article 6(4) of the Habitats Directive 92/43/EEC: Clarification of the Concepts of: Alternative Solutions, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence, Opinion of The Commission. European Commission, Brussels.
- The Planning Inspectorate (2017) *Advice note ten: Habitats Regulations Assessment relevant to nationally significant infrastructure projects* [online]. Available at: <https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/06/Advice-note-10v4.pdf> [Accessed August 2018].

## 2.3 Summary of the Draft NPS for Water Resources Infrastructure

- 2.3.1 This section provides further detail in respect of the planning context for nationally significant infrastructure projects and summarises the scope and contents of the draft NPS, to provide a framework for the HRA.

### Nationally Significant Infrastructure Projects

#### Legislative and Consenting Background

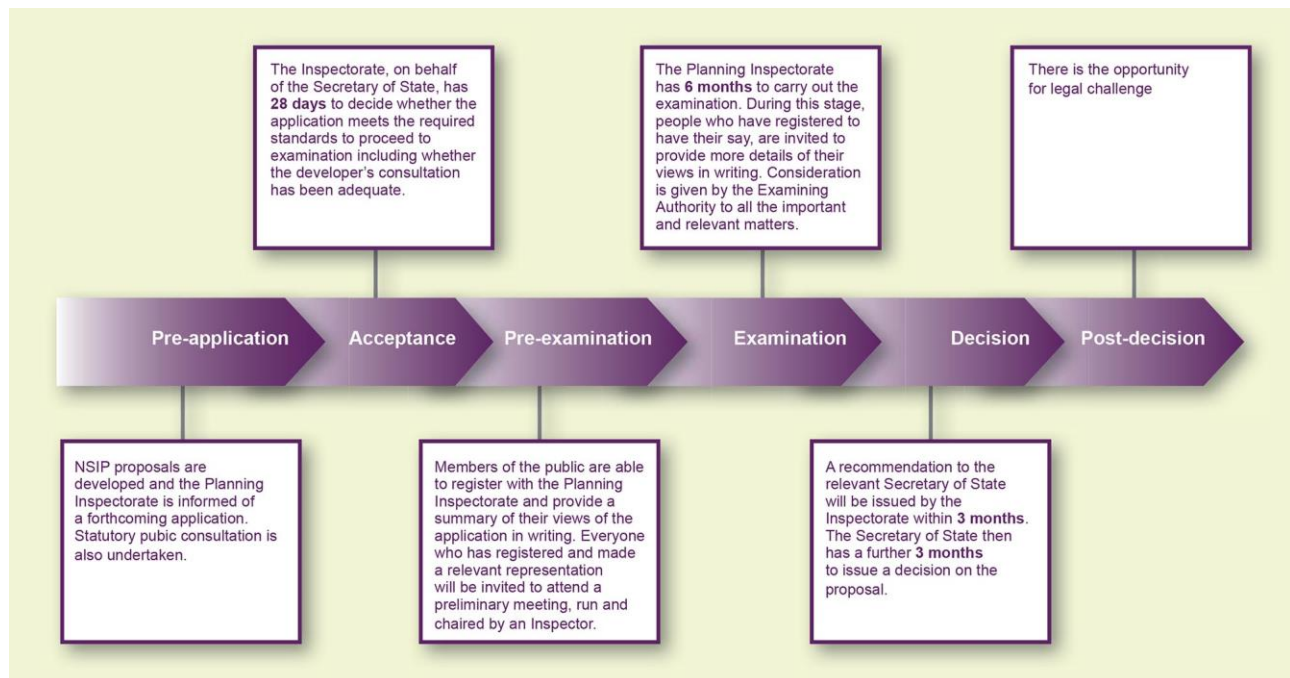
- 2.3.2 The Planning Act 2008 introduced a procedure to streamline the decision-making process for nationally significant infrastructure projects. Under the Act, an applicant wishing to construct a nationally significant infrastructure project must first apply for development consent. All development consent order applications which may be made pursuant to the NPS, once designated, will be subject to the requirements of the planning system under the Planning Act 2008. As part of this process, the applicant should consider whether the proposed nationally significant infrastructure project is considered to be an *Environmental Impact Assessment*<sup>36</sup> development under the *Infrastructure Planning (Environmental Impact Assessment) Regulations 2017* (the Environmental Impact Assessment Regulations). Similarly, the applicant should consider the potential effects of the proposed development on protected habitats through consideration of requirements of the *Conservation of Habitats and Species Regulations 2017*<sup>37</sup>.

<sup>36</sup> Planning Inspectorate (2015) *Preliminary Environmental Information, Screening and Scoping: Advice note Seven: Environmental Impact Assessment: Preliminary Environmental Information, Screening and Scoping*.

<sup>37</sup> Planning Inspectorate (2015) *Habitats Regulations Assessment: Advice note ten: Habitats Regulations Assessment relevant to nationally significant infrastructure projects*.

- 2.3.3 For such projects, the relevant Secretary of State will appoint an 'Examining Authority' to examine the application. The Examining Authority will be from the Planning Inspectorate and will be either a single Inspector or a panel of three or more Inspectors. Once the examination has been concluded, the Examining Authority will make a recommendation to the Secretary of State, who will make the decision on whether to grant or to refuse consent.
- 2.3.4 There are six key stages in the development consent application process for nationally significant infrastructure projects and these are shown in **Figure 2.2**

Figure 2.2 The Development Consent Process for Nationally Significant Infrastructure Projects



- 2.3.5 Part 3 of the Planning Act 2008 lists the projects that are to be determined as nationally significant infrastructure projects.
- 2.3.6 In addition to development consent under the Planning Act 2008, an applicant will also need permits from the environmental regulator before constructing a nationally significant infrastructure project. In England, the Environment Agency is responsible for environmental protection under the Environmental Permitting (England and Wales) Regulations 2016. There are separate environmental regulators in other parts of the UK. The Environment Agency will therefore be responsible for regulating the environmental aspects of developing water resources infrastructure (for example, regulating the impacts of any changes to local hydrological regimes as a result of the proposed infrastructure).

### National Policy Statements

- 2.3.7 NPSs set out the criteria by which applications for nationally significant infrastructure projects within their scope are determined. They include the Government's objectives for the development of nationally significant infrastructure in a particular sector and set out:
- how the infrastructure will contribute to sustainable development;
  - how the objectives for the sector in question have been integrated with other Government policies;

- how actual and projected capacity and demand have been taken into account;
- relevant issues in relation to safety or technology;
- circumstances where it would be particularly important to address the adverse impacts of development; and
- specific locations, where appropriate, in order to provide a clear framework for investment and planning decisions.

2.3.8 They also include any other policies or circumstances that Ministers consider should be taken into account in decisions on infrastructure development.

2.3.9 NPSs undergo a process of public consultation and parliamentary scrutiny before being designated (i.e. published). They provide the framework within which Inspector(s) forming the Examining Authority make their recommendations to the Secretary of State.

## The National Policy Statement for Water Resources Infrastructure

### Purpose of the National Policy Statement

2.3.10 The NPS for Water Resources Infrastructure will set out the need for nationally significant infrastructure projects related to water resources and the Government's policies to deliver them. It will be used as the primary basis for the examination by the Examining Authority, and decisions by the Secretary of State, on development consent order applications for water resources infrastructure in England that falls within the definition of a nationally significant infrastructure project as defined in the Planning Act 2008 (subject to any future amendments). If circumstances were to arise requiring planning consideration of nationally significant water resources infrastructure elsewhere in the UK, planning decisions and environmental assessments would be pursued through the relevant, devolved planning system.

2.3.11 The NPS is also intended to work alongside the statutory water resources planning process (described in **Section 1.3**) and will inform water company business plans by clearly describing the case for water infrastructure, in turn providing improved clarity and confidence to the delivery phase of any preferred large supply schemes.

2.3.12 Following the Written Statement<sup>38</sup> confirming that the Government had decided to prepare an NPS for nationally significance water resources infrastructure, Defra has led its preparations. Its development has been guided by the following three high level principles:

- Principle 1: The NPS will set out the need for water infrastructure as part of a 'twin track' approach to managing water resources.
- Principle 2: The NPS will reinforce and make clear the role of water companies' WRMPs in identifying the most appropriate water resources schemes, including new water resources infrastructure.
- Principle 3: The NPS will reiterate the importance of developing and designing water resources schemes that meet the government's objective to enhance the environment.

<sup>38</sup> UK Parliament (2017) *Affordable, Resilient Water Supplies: Consultation on the Government's Strategic Priorities for Ofwat: Written statement - HCWS530*. Available from:

<http://www.parliament.uk/business/publications/written-questions-answers-statements/written-statement/Commons/2017-03-14/HCWS530/>

- 2.3.13 The application of these principles has informed the structure and content of the draft NPS.

### Infrastructure Covered by the National Policy Statement

- 2.3.14 The infrastructure covered by the NPS, which reflect the criteria proposed by Defra for nationally significant infrastructure that are related to water, include reservoirs, water transfer schemes and desalination. It should be noted, however, that whilst the NPS (as proposed) is aligned with the categories and thresholds for nationally significant water resources infrastructure (as set out in the statutory instrument laid in parliament), it does not preclude consideration of other major infrastructure projects. In section 35 of the Planning Act 2008, there are powers for the Secretary of State to direct that a water resources infrastructure development should be treated as an NSIP.
- 2.3.15 Descriptions of the three water resources infrastructure types covered by the NPS are provided below, together with Defra's proposed thresholds for projects that will be considered nationally significant.

### *Reservoirs (including new reservoirs and reservoir enlargement/raising)*

- 2.3.16 Reservoirs are used to ensure that water companies hold reserves of water in readiness for treatment when demand requires it. Reservoirs can also provide increased water supply resilience to climate change and enhance environmental resilience through the controlled release of water to rivers. Water levels within reservoirs will fluctuate where water drawn-down exceeds levels of recharge from the reservoirs supply source, typically in the summer; however, the operation of reservoirs is regulated by Environment Agency abstraction licences (with the exception of periods of drought when drought permits may be implemented).
- 2.3.17 Reservoirs can be constructed as impounding reservoirs, where the natural flow of a river or drainage from an area is held-back, or non-impounding reservoirs, where water is stored in a reservoir by pumping water or by a piped inflow of water. The capacity of existing reservoirs, meanwhile, can be increased by raising the dam level or by enlarging the storage facility. Enlargement may include the provision of smaller dams around the edge of the reservoir. New or enlarged reservoirs are likely to be supported by associated infrastructure including; pipelines, pumping stations and water treatment works.
- 2.3.18 **The definition of a nationally significant reservoir is one where the volume of water to be held back by the dam or stored in the reservoir will exceed 30 million cubic metres (m<sup>3</sup>); or the deployable output of the dam or reservoir will exceed 80 million litres per day (MI/d).**

### *Water Transfer Schemes*

- 2.3.19 Water transfer schemes have a fundamental role in enhancing the resilience of water supplies by increasing the connectivity of the network, especially when combined with other infrastructure types that are resilient to drought, such as desalination.
- 2.3.20 Water transfer schemes can include the distribution of water either within or between water company areas. There are various aspects of associated development required for the operation of transfer schemes which may include, for example; pipelines, treatment works, intake structures, screening equipment, service reservoirs and pumping stations. The types and amount of infrastructure needed to support a transfer is entirely dependent on the individual scheme; for example, some transfers will use more existing infrastructure or natural waterways, and be gravity-fed, whereas others will use pipes and require pumping stations.
- 2.3.21 **The definition of a nationally significant water transfer scheme is one where the deployable output of the infrastructure to be constructed or altered as a result of the development is expected to exceed 80 MI/d.**

### Desalination

- 2.3.22 There are over 16,000 desalination plants in the world; the Thames Water Desalination Plant in Beckton (which opened in June 2010) is the first and to date only large-scale desalination plant in the UK. The Beckton desalination plant is capable of supplying 150 million litres of potable water per day (which is sufficient to supply approximately 400,000 households).
- 2.3.23 Desalination plants work by extracting saltwater, which is then cleaned using various filtration processes. The salt is removed using a process called reverse osmosis that involves forcing the water at high pressure through very fine membranes, which hold back the salt and other molecules. The treated water is then re-mineralised so that it has similar properties to other local supplies, ensuring among other purposes, that it tastes the same. Following this, the water is purified to ensure it is safe to drink and then put into the supply network. Alongside the desalination plant itself, associated development may be required including, for example, pipelines, service reservoirs and pumping stations.
- 2.3.24 Desalination provides resilience to severe and extreme droughts, floods and temperature extremes and is anticipated to become increasingly utilised worldwide in response to pressures on water supply created by climate change. However, the technology is limited to coastal and estuarine locations and has high operational energy demands. In the future, if energy and treatment constraints can be addressed, desalination may become a more economic, continuous and flexible source of water, rather than a source only used as a last resort.
- 2.3.25 **The definition of a nationally significant desalination plant is one where the deployable output of the desalination plant is expected to exceed 80 MI/d.**

### Other infrastructure types

- 2.3.26 Other water resources infrastructure may also be considered under Section 35 of the Planning Act 2008 as a NSIP and may include, but is not limited to, large scale aquifer re-charge or effluent reuse schemes.

### Scope of the National Policy Statement

- 2.3.27 The NPS, once designated, will provide the framework for decision making on DCO applications for the construction of nationally significant infrastructure related to water resources in England. At the draft NPS stage it is the Government's preference for the NPS for water resource infrastructure to set out the need for nationally significant infrastructure and provide the high level assessment principles against which DCO applications will be considered. In common with the majority of other NPSs, and as a strategic planning document, it is not intended that it will be site specific.

### Preparation of the National Policy Statement

- 2.3.28 The key stages and indicative timetable for preparation of the NPS are set out in **Figure 2.3**. Public consultation on the principles for the NPS (and NSIP thresholds) took place concurrently with consultation on the initial Scoping Report. A further informal consultation on the types and sizes of nationally significant water resources infrastructure took place between the 5<sup>th</sup> and 26 April 2018. The responses to these consultations have been considered by Defra and have been used to help guide the development of the draft NPS (for example in the NSIP definitions and thresholds).
- 2.3.29 The draft NPS is then being issued for consultation during Autumn 2018. Taking into account the responses received to the consultation on the draft NPS alongside any new evidence, Defra will then finalise the NPS. It is currently expected that the NPS will be laid before parliament during summer 2019.

Figure 2.3 Indicative Timetable for the Preparation of the National Policy Statement



AoS=Appraisal of Sustainability, HRA=Habitats Regulations Assessment, NSIP=Nationally significant infrastructure project, NPS=National Policy Statement

### The Draft National Policy Statement for Water Resources Infrastructure

2.3.30 The draft NPS, which is the subject of this AoS Report, comprises four chapters, as follows:

- **Chapter 1:** provides an overview of the purpose and scope of the draft NPS including the draft NPS objectives. The draft NPS objectives are as follows:
  - ▶ To provide a clear national planning policy that facilitates the examination and determination of applications for NSIPs for water resources in England;
  - ▶ To set out the need for nationally significant water resources infrastructure and the role of WRMPs in identifying and satisfying the need. This will provide clarity and confidence on eligible NSIP schemes to inform water company's long term plans;
  - ▶ To provide the primary basis for examination by the Examining Authority and for decisions by the Secretary of State on development consent applications for water resources infrastructure;
  - ▶ To provide guidance to potential NSIP developers on the relevant infrastructure, generic impacts and general siting considerations that may need to be taken into account when planning for the development of water resources infrastructure;
  - ▶ To provide policy and guidance on generic impacts to support any relevant local planning authorities in preparing their local impact reports, which they will be invited to prepare under section 60 of the Planning Act;
  - ▶ To guide the development of NSIPs that support the government's sustainability goals and objective to enhance the environment.
- **Chapter 2:** outlines the need for nationally significant water resources infrastructure, in the context of the Government's twin-track approach to resilience, together with the regulatory framework for water and the options for addressing need.
- **Chapter 3:** sets out the assessment principles against which applications relating to water resources infrastructure are to be decided. The assessment principles are as follows:
  - ▶ Environmental Impact Assessment;
  - ▶ Habitats Regulations Assessment;
  - ▶ Environmental net gain;
  - ▶ Assessing alternatives
  - ▶ Criteria for 'good design' for water resources infrastructure;
  - ▶ Climate change adaptation;

- ▶ Environmental regulation;
- ▶ Common law nuisance and statutory nuisance;
- ▶ Safety;
- ▶ Security considerations; and
- ▶ Health.
- **Chapter 4:** sets out the generic impacts to be considered by an applicant and the Examining Authority. Guidance is provided across the following topics:
  - ▶ Air quality;
  - ▶ Biodiversity and nature conservation;
  - ▶ Carbon emissions;
  - ▶ Coastal change;
  - ▶ Dust, odour, artificial light, smoke and steam;
  - ▶ Historic environment;
  - ▶ Flood risk;
  - ▶ Landscape and visual impacts;
  - ▶ Land use including open space, green infrastructure and Green Belt;
  - ▶ Noise and vibration;
  - ▶ Resource and waste management;
  - ▶ Socio-economic impacts;
  - ▶ Traffic and transport; and
  - ▶ Water quality and resources.

2.3.31 For each impact, guidance is provided to the applicant on the matters to be considered and presented in an Environmental Statement, completed to meet the requirements of the EIA Regulations, and on decision making by the Secretary of State. Guidance is also provided with regard to proposed mitigation measures to be considered by the applicant.

## 2.4 HRA of the Draft NPS

### What can be assessed, and how?

2.4.1 The draft NPS (and the NPS to be designated) is a high-level policy document that does not identify specific potential locations for infrastructure. It should also be noted that the NPS does not itself drive or authorise development; schemes covered by the NPS will be developed by the water companies as part of the WRMP process (which is itself subject to HRA), and the NPS will simply provide planning guidance to be taken into account at determination. The principal mechanisms by which European sites could be affected will therefore be indirect and limited to the policies that influence the planning decisions for NSIP water resource schemes. The schemes themselves will be defined and driven instead by the WRMP process.

- 2.4.2 The HRA of the draft NPS is necessarily a strategic assessment. Other than identifying the broad type and scale of development that will fall under the NPS, the draft NPS provides no information on the precise nature, scale, timing, duration and location of any future activities; furthermore, it does not, through its policies, direct or determine the location (etc.) of development. The uncertainties regarding the developments and possible impact pathways are therefore numerous, and attempting to undertake a detailed analysis of how individual sites or features might be affected by a hypothetical development is neither feasible or, arguably, meaningful – the uncertainties over the final outcomes are too great.
- 2.4.3 Therefore, as quantifying or accurately identifying likely effects on specific sites is not feasible, the appropriate assessment aims to determine whether there are any policy measures that can be included within the NPS which will ensure that supported development cannot adversely affect any European sites.
- 2.4.4 The NPS will apply to England only. As both water management and planning are devolved issues, the Welsh Government, Northern Ireland Executive and Scottish Government each have responsibility for these issues in or as regards their respective countries. However, there is the potential for water resource management schemes in England to impact upon European sites in adjacent countries due to the transboundary nature of hydrological systems, such as rivers flowing across borders. In consequence, the HRA has considered these wider geographic effects (including in the marine environment where relevant).

### In combination effects

- 2.4.5 Regulation 105 of the Habitats Regulations requires that the potential effects of a plan on European sites must also be considered 'in combination with other plans or projects'. Consideration of 'in combination' effects is not a separate assessment, but is integral to the screening and appropriate assessment stages. There is limited guidance available on the scope of the 'in combination' element, particularly which plans should be considered for high level strategies. However, the assessment should not necessarily be limited to plans at the same level in the planning hierarchy and there is consequently a wide range of plans that could have potential 'in combination' effects with the draft NPS.
- 2.4.6 The AoS identifies a number of policies, plans and programmes which could operate cumulatively with the draft NPS. However, due to the strategic nature of the HRA of the NPS, the uncertainties associated with any in combination assessment are considerable, and multiply the uncertainties associated with the NPS. In particular, as the draft NPS is not location-specific, and does not constrain or direct developments, the NPS could (in theory) interact with any strategic plan related to England, Scotland and Wales. Attempting to identify specific potential effects associated with water resource developments that may arise in combination with other plans is therefore not practicable and such an assessment would not provide any meaningful results that would allow specific mitigation to be identified. For example, housing allocations in every local plan could have theoretical 'in combination' effects on water resources; or could affect air quality through 'in combination' effects via increases in traffic. The number and variety of these 'theoretical' interactions is obviously huge, and any assessment would be largely generic; how this would translate into policy is not clear, other than equally generic policy statements requiring that 'in combination' effects do not occur. 'In combination' assessments of specific future developments associated with the NPS with existing plans and projects can only be reasonably undertaken at the project-level.

## 3. Screening

### 3.1 Exposure of European Sites or Features to Environmental Changes

- 3.1.1 Regulation 110 of the Habitats Regulations applies the provisions of Regulations 105 to National Policy Statements; the draft NPS must therefore be subject to the 'screening' tests, which determine:
- whether the plan or policy likely to have a significant effect on a European site or a European offshore marine site (alone or in combination with other plans or projects); and, if so,
  - whether the plan is directly connected with or necessary to the management of any European site.
- 3.1.2 A European site or its features must be both exposed and sensitive to the environmental changes that could occur as a result of the NPS implementation for significant effects to be a possibility. If there is no exposure or no sensitivity then there will be 'no effects' (as opposed to 'no significant effects') and hence no possibility of 'in combination' effects.
- 3.1.3 Whilst the maximum scale and location of schemes covered by the NPS are not specified, infrastructure covered by the NPS would need to meet the following criteria:
- for reservoirs, a scheme where the volume of water to be held back by the dam or stored in the reservoir will exceed 30 million m<sup>3</sup>, or the deployable output of the dam or reservoir will exceed 80 MI/d;
  - for water transfer schemes, a scheme where the deployable output of the infrastructure to be constructed or altered as a result of the development is expected to exceed 80 MI/d;
  - for desalination schemes, a scheme where the deployable output of the desalination plant is expected to exceed 80 MI/d.
- 3.1.4 The extent or 'zone of influence' of any environmental changes associated with these schemes will depend partly on the scale and location of the development; however, when considering the potential for European sites or features to be exposed to the environmental changes some broad but robust 'zone of influence' criteria can be applied, based on examples of similar infrastructure. The following sections provide a summary of the environmental changes typically associated with the construction and operation of these schemes, and the distance over which these changes would be evident. A European site might be exposed to these changes if the site, or the ranges of its mobile species, coincides with the 'zone of influence' of an environmental change.

#### Reservoirs

##### Construction

- 3.1.5 The construction of new impoundment reservoirs can result in those environmental changes typically associated with large-scale construction schemes, with attendant risks of effects on European sites and features. Construction-stage environmental changes would typically involve the following:
- **Direct land take / habitat loss:** The physical loss of or damage to habitats due to construction; for impoundment reservoirs habitat loss can obviously be substantial and permanent. Habitats

close to working areas can also be exposed to toxic and non-toxic contamination (e.g. from water or air quality changes, see below).

- **Water quality:** Changes in the physio-chemical characteristics of surface and ground waters due to toxic and non-toxic contamination by site-derived pollutants; these changes can extend a substantial distance from a construction site unless mitigated or avoided through construction best-practice.
- **Air quality:** Changes in local air quality due to dust generation or combustion emissions from construction plant; current guidance<sup>39</sup> suggests that changes in air quality arising from road transport would only be potentially significant within ~200m of the source.
- **Surface and groundwater hydrology:** Construction may cause changes in surface and ground water hydrology (beyond that required for the operation of the reservoir itself), for example through dewatering of excavations or channel diversions. These changes can extend a substantial distance from a construction site depending on the hydrological connectivity.
- **Noise and vibration:** Construction typically results in local increases in noise and vibration, which can disturb and / or displace terrestrial, freshwater and marine species. Noise and vibration effects are distance-limited due to natural attenuation and most construction noise in terrestrial environments is unlikely to significantly affect receptors over ~1km from the source for this reason.
- **Visual stimuli:** Changes in visual stimuli such as artificial lighting, or the movement of people and machinery can disturb and / or displace terrestrial, freshwater and marine species, or create barrier effects. These environmental changes generally operate over short-ranges only (several hundred metres or less), although consequential effects (e.g. if barriers to migration are created) can be substantial.
- **Biological changes:** Principally associated with the potential introduction or spread of invasive non-native species (INNS) via machinery or materials.
- **Spatial environment:** The presence of structures (etc.) within the spatial environment may result in physical interactions with species, such as collisions with infrastructure or machinery.

3.1.6 The 'zone of influence' for these changes will depend on the circumstances of each specific scheme although in general (and with the exception of some hydrological and water quality changes) most construction-related environmental changes occur over a relatively short range from the source – almost invariably less than 2 km; however, this does not exclude the possibility of effects on more distant European sites as mobile species can obviously be affected by these changes when migrating or commuting.

## Operation

3.1.7 Large-scale reservoirs can result in far-field environmental changes, both upstream and downstream. The principal environmental changes typically associated with the operation of large-scale reservoir schemes are as follows:

- **Reduced sediment loads:** All reservoirs impede the downstream transport of fluvial sediments to some extent, which inevitably alters the balance between sediment input, erosion and transportation in downstream reaches. This typically results in increased sediment entrainment

<sup>39</sup> Department of Transport (2018) *Transport Analysis Guidance*. [online]. Available at: <https://www.gov.uk/guidance/transport-analysis-guidance-webtag> [Accessed July 2018].

downstream, so changing river geomorphology and hence habitat characteristics. These changes can extend a substantial distance downstream.

- **Physio-chemical changes:** Water released from or overtopping reservoirs will have a different physio-chemical profile from the 'natural' baseline; this might include variations in (*inter alia*):
  - ▶ temperature (due to stratification within deeper waters);
  - ▶ nutrient regimes (due to retention of organic matter or changes in primary productivity within the reservoir);
  - ▶ dissolved oxygen (due to temperature changes and reservoir eutrophication);
  - ▶ salinity (due to evaporation from the reservoir surface).
- **Hydrological changes:** The downstream flow regime will be altered by the reservoir. Whilst this can be moderated to some extent by operational procedures (e.g. maintenance of baseflows, periodic release of 'flushing flows') the reservoir will inevitably affect the 'naturalised' flows of downstream watercourses.
- **Groundwater changes:** These can occur downstream, in association with hydrological changes, but will also occur around the reservoir itself and potentially upstream also.
- **Local micro-climate changes:** Large bodies of water will influence local microclimates by influencing temperature, wind, humidity gradients, etc.
- **Biological changes:** the introduction of lentic ecosystems can result in changes in downstream communities and provide pathways for the introduction of non-native invasive species. They will also provide new habitat for species.

3.1.8 The zone of influence for these changes will depend entirely on the circumstances of each specific scheme; however, the presence of hydrological pathways makes it possible for changes to be detectable a considerable distance downstream of any new reservoir.

## Water Transfers

### Construction

3.1.9 The potential environmental changes associated with the construction of reservoirs (see above) will apply to water transfer schemes in terrestrial environments also.

### Operation

3.1.10 The environmental changes associated with the operation of a water transfer scheme will depend substantially on the nature of the scheme. With all schemes there is a theoretical risk of transfers influencing flows within watercourses post-consumption (i.e. following use) although this is generally considered to be nominal risk. Transfers of treated water by pipeline or aqueduct (or raw water transferred for immediate treatment) will generally result in few operational environmental changes that could affect European sites; however, transfers of raw water via rivers or canals, or which rely on reservoir storage prior to treatment, have the potential to affect European sites through environmental changes such as:

- **Physio-chemical changes:** Water from different catchments or sources (e.g. groundwater or surface water) will have different physio-chemical characteristics, which might include variations in (*inter alia*) temperature (e.g. groundwaters typically have a constant temperature of ~10 -

12°C, whereas surface water temperatures vary seasonally), nutrient load, pH, dissolved oxygen, salinity, mineral content, etc.

- **Hydrological changes:** The flow regime within any receiving watercourse will be altered by the transfer, although this can be moderated to some extent by operational procedures.
- **Geomorphological changes:** Changes in river geomorphology or processes can occur as a result of hydrological changes.
- **Biological changes:** the transfer of raw water between catchments can result in changes in riparian communities due to physio-chemical (etc.) changes, and can (particularly) provide pathways for the introduction of non-native invasive species.

3.1.11 As with reservoirs the zone of influence for these changes will depend entirely on the circumstances of each specific scheme; however, there is the potential for some changes (e.g. through the introduction of non-native species) to be experienced throughout the receiving catchment, and not just in the reaches directly affected by the transfer.

## Desalination

### Construction

3.1.12 The potential environmental changes associated with the construction of reservoirs (see above) will apply to desalination schemes in terrestrial environments also. Similar changes will also occur in marine environments, although the range over which these changes might be evident is often greater (for example, noise transmission through water).

### Operation

3.1.13 The environmental changes associated with the operation of a desalination scheme will depend substantially on the nature of the scheme (e.g. whether desalination is achieved through distillation or reverse osmosis (RO)), its scale and location. Environmental impacts may occur at the point of discharge where the salinity, temperature, and chemical composition of the concentrate flow differ significantly from that of the ambient seawater. However, the nature of marine environments does increase the risk of far-field effects on the features of European sites, particularly due to the ranges of some marine species. Based on existing desalination schemes, the principal environmental changes typically associated with the operation are as follows:

- **Increased impingement or entrainment risk:** depending on location, water intakes typically increase the risk of marine organisms being drawn into the intake (entrainment) or trapped against it (impingement).
- **Physio-chemical changes:** There are a number of potential physio-chemical changes as a result of operation which may result in toxic or non-toxic contamination; these are principally associated with the discharge of hypersaline brine and include the following:
  - ▶ **Salinity changes:** RO produces hypersaline brine with salinity typically 1.5 - 2 times higher than seawater. The effects of this depend largely on the location and operation of the discharge and hence the amount of mixing that occurs; discharge systems are usually designed to maximise dilution in the near-field region, although as brine is denser than seawater it can form stratified plumes that can flow for some distance across the seafloor, with limited mixing. However, it is worth noting that many studies have demonstrated that near-field dilution of brine to ambient levels typically occurs within a relatively short distance (tens of metres rather than kilometres) with appropriate diffusers.

- ▶ Temperature: Desalination using distillation techniques can increase the temperature of brine discharges above that of the receiving waters, although this is less of an issue with RO.
- ▶ Process chemicals: A range of chemicals including anti-scalants, biocides, flocculants, and cleaning chemicals are required for desalination processes and are often discharged with the brine.
- ▶ Nutrients: nitrogen and iron are often required during RO, and are typically low-availability limiting nutrients in marine systems; their discharge can therefore have local effects on primary productivity.
- **Geomorphological changes:** Intake and outfall structures can have local geomorphological effects, either directly from their operation or by altering local hydrodynamics so influencing scour and deposition.
- **Seawater intrusion:** Subsurface intakes (i.e. below the seafloor) can increase the risk of saline intrusion of aquifers.

- 3.1.14 In addition, there may be ancillary effects associated with desalination provision – for example, the high energy demands of desalination systems can require new power plants, which are often co-located with the desalination plant.
- 3.1.15 The zone of influence for these changes will depend entirely on the circumstances of each specific scheme. Whilst it is possible that environmental changes could be experienced some distance from an outfall (mainly if there is limited mixing and stratified saline flows develop), it is worth noting that many studies<sup>40</sup> have demonstrated that near-field dilution of brine to ambient levels typically occurs within a relatively short distance (tens or hundreds of metres rather than kilometres), and that impacts to benthic communities from concentrate discharges can be reliably minimised by using properly-designed diffuser systems.
- 3.1.16 It is therefore considered that marine environmental changes associated with the operation of desalination plants are unlikely to extend more than 1.5km from the outfall location, which in turn are unlikely to extend more than four kilometres from the coastline (in line with existing wastewater long sea outfalls (LSOs) in the UK, the longest of which is ~3.75km at Anchorsholme on the Fylde coast). This would suggest that a zone of influence of ~5 km from the English coastline is suitably precautionary (on the basis that desalination plants for English water companies are very unlikely to be sited in Wales or Scotland).

## Other Schemes

- 3.1.17 Other infrastructure types or technologies that do not meet the definition of an NSIP may be considered under Section 35 of the Planning Act. The NPS suggests that this might include other options to enhance the storage capability of the water supply system and water available for use, including (but not limited to) aquifer re-charge and effluent re-use schemes. The need for these schemes may be identified through the WRMP process as the best solution for increasing water supply capacity. Where this is the case, the need will also have been demonstrated for the purposes of the NPS and any DCO application.

<sup>40</sup> e.g. Roberts DA, Johnston EL & Knott NA (2009) Impacts of desalination plant discharges on the marine environment: A critical review of published studies. *Water Research* 44 (2010) 5117-5128; Fernández-Torquemada Y, González-Correa JM, Loya A, Ferrero LM, Díaz-Valdés M (2009) Dispersion of brine discharge from seawater reverse osmosis desalination plants. *Desalination and Water Treatment* 5 (2009) 137-145; Portillo E., Ruiz de la Rosa M., Louzara G., Quesada J., Ruiz J.M. & Mendoza H. (2014) Dispersion of desalination plant brine discharge under varied hydrodynamic conditions in the south of Gran Canaria. *Desalination and Water Treatment*, 52:1-3, 164-177.

3.1.18 The environmental changes associated with aquifer recharge and effluent re-use schemes will be largely consistent with those identified above for reservoirs, water transfers and desalination, particularly in relation to construction. Environmental changes associated with scheme operation will principally relate to the hydrological outcomes, for example:

- changes in river flows due to effluent re-use;
- changes in river physio-chemistry due to effluent re-use and dilution;
- changes in groundwater physio-chemistry depending on the source of any recharge.

3.1.19 The zones of influence for these changes will again depend entirely on the circumstances of each specific scheme, although they will be consistent with the schemes noted above.

## 3.2 Screening

### Assumptions

- 3.2.1 The NPS recognises that separate regulation under the pollution control framework or other consenting and licensing regimes will also apply, and that water resource NSIPs may require a number of separate consents or be subject to other regulatory regimes. The NPS indicates that the Secretary of State should work on the assumption that, in terms of the control and enforcement, the relevant pollution control regime will be properly applied and enforced, and that decisions under the Planning Act 2008 should complement but not duplicate those taken under the relevant pollution control regime. The Secretary of State should not refuse consent on the basis of regulated impacts unless there is good reason to believe that any relevant necessary operational pollution control permits or licences or other consents will not subsequently be granted.
- 3.2.2 The HRA necessarily makes a similar assumption – i.e. that all normal licensing and consenting procedures will be employed at scheme delivery, including HRA, and that these consenting and licensing regimes will be fully effective. The HRA cannot assume that these regimes will not function as intended.
- 3.2.3 However, it should be noted that that recent case law known as ‘People Over Wind’<sup>41</sup> has altered how avoidance and mitigation measures are accounted for by the HRA. The ‘People Over Wind’ judgement states that “...it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects [mitigation] of the plan or project on that site”. This contrasts with established practice in this area (based on the “Dilly Lane” judgment<sup>42</sup>) where avoidance and mitigation measures have typically been accounted for during screening.
- 3.2.4 There is currently little information on the practical implementation of the ‘People over Wind’ judgement, particularly for plan- or NPS-level HRA, although broad guidance has been issued by the Planning Inspectorate (PINS)<sup>43</sup>. Generally, high-level HRAs have often assumed that established best-practice avoidance and mitigation measures would be employed throughout scheme design and construction to safeguard environmental receptors (including European site interest features), and so accounted for this at the screening stage when considering whether sites or features are potentially exposed to environmental changes. However, it is arguable that an assumption such as

<sup>41</sup> Case C 323/17 Court of Justice of the European Union: People Over Wind

<sup>42</sup> Hart District Council v Secretary of State for Communities and Local Government [2008] EWHC 1204

<sup>43</sup> PINS Note 05/2018: *Consideration of avoidance and reduction measures in Habitats Regulations Assessment: People over Wind, Peter Sweetman v Coillte Teoranta.*

this, albeit in relation to a lower-tier plan or project that would itself be subject to HRA, might constitute an 'avoidance measure' that the NPS is effectively relying on to ensure that significant effects do not occur. In this instance, therefore, no assumptions regarding established best-practice avoidance and mitigation measures are taken into account at screening, but are instead introduced at the 'appropriate assessment' stage (if required).

## European Sites

3.2.5 Paragraph 1.2.2 of this report sets out those designated nature conservation sites included under the term 'European site' to which screening will apply.

Table 3.1 Summary of European site designations

Designation	Long Form	Description	No. in UK*
<b>SAC</b>	Special Area of Conservation	Special Areas of Conservation (SACs) are strictly protected sites designated under the EC Habitats Directive ( <i>Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora</i> ). Article 3 of the Habitats Directive requires the establishment of a European network of important high-quality conservation sites that will make a significant contribution to conserving the 189 habitat types and 788 species identified in Annexes I and II of the Directive (as amended). The listed habitat types and species are those considered to be most in need of conservation at a European level (excluding birds). Of the Annex I habitat types, 78 are believed to occur in the UK. Of the Annex II species, 43 are native to, and normally resident in, the UK.	658
<b>SCI</b>	Site of Community Importance	Sites of Community Importance (SCIs) are sites that have been adopted by the European Commission but not yet formally designated by the government of each country. Although not formally designated they are nevertheless fully protected by the Habitats Directive and the <i>Conservation of Habitats and Species Regulations 2017</i> .	9
<b>cSAC</b>	Candidate Special Area of Conservation	Candidate SACs (cSACs) are sites that have been submitted to the European Commission, but not yet formally adopted as SCIs. Although these sites are still undergoing designation and adoption they are nevertheless fully protected by the Habitats Directive and the <i>Conservation of Habitats and Species Regulations 2017</i> .	1
<b>pSAC</b>	Possible Special Area of Conservation	Sites that have been formally advised to UK Government, but not yet submitted to the European Commission. As a matter of policy the Governments in England, Scotland and Wales extend the same protection to these sites in respect of new development as that afforded to SACs.	0
<b>dSAC</b>	Draft Special Area of Conservation	Areas that have been formally advised to UK government as suitable for selection as SACs, but have not been formally approved by government as sites for public consultation. These are not protected (unless covered by some other designation) although the statutory authorities will usually take into account the proposed reasons for designation when considering potential impacts on them.	Not stated
<b>SPA</b>	Special Protection Area	Designated under <i>EU Council Directive 79/409/EEC on the Conservation of Wild Birds</i> (the 'old Wild Birds Directive') and <i>Directive 2009/147/EC on the Conservation of Wild Birds</i> (the 'new Wild Birds Directive, which repeals the 'old Wild Birds Directive'), and protected by Article 6 of <i>Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora</i> . These directives are implemented in the UK through the <i>Wildlife &amp; Countryside Act 1981</i> (as amended), the <i>Conservation of Habitats and Species Regulations 2017</i> (as amended), the <i>Wildlife (Northern Ireland) Order 1985</i> , the <i>Nature Conservation and Amenity Lands (Northern Ireland) Order 1985</i> and <i>The Conservation (Natural Habitats, &amp;c.) (Northern Ireland) Regulations 1995</i> (as amended) and the <i>Offshore Marine Conservation (Natural Habitats &amp; c.) Regulations 2007</i> .	275**

Designation	Long Form	Description	No. in UK*
<b>pSPA</b>	Potential SPA	These are sites that are still undergoing designation and have not been designated by the Secretary of State; however, ECJ case law indicates that these sites are protected under Article 4(4) of <i>Directive 2009/147/EC</i> , and as a matter of policy the Governments in England, Scotland and Wales extend the same protection to these sites in respect of new development as that afforded to SPAs.	1
<b>Ramsar</b>	Ramsar	The <i>Convention on Wetlands of International Importance especially as Waterfowl Habitat</i> (Ramsar Convention or Wetlands Convention) was adopted in Ramsar, Iran in February 1971. The UK ratified the Convention in 1976. As a matter of policy the Governments in England, Scotland and Wales extend the same protection to listed Ramsar sites in respect of new development as that afforded to SPAs and SACs.	175

\*As of 17 September 2018, based on JNCC data (<http://jncc.defra.gov.uk/page-23>; <http://jncc.defra.gov.uk/page-1399>; <http://jncc.defra.gov.uk/page-1388>)

\*\*Excludes subsumed sites which have not been formally declassified

- 3.2.6 Sites and features are usually 'screened out' either because they will not be exposed to the environmental changes associated with a scheme, or because the features will not be sensitive to those changes. **Section 3.1** indicates the ranges over which environmental changes associated with schemes supported by the NPS would be expected to operate in the absence of mitigation or avoidance measures; for most changes (with the possible exception of some hydrological and water-quality changes) this would almost invariably be less than 5 km from the source.
- 3.2.7 The NPS provides the framework for decision-making on development consent applications for the construction of new or the expansion of existing water resources infrastructure in England. Planning consents for water resources infrastructure projects in Scotland, Wales and Northern Ireland are devolved to Scottish Government, Welsh Government and Northern Ireland Executive respectively, and the NPS notes that the examining authority will not examine applications, nor will the Secretary of State consider, applications in these nations. However, the NPS does not exclude the possibility of water resource NSIPs requiring infrastructure within other parts of the UK mainland<sup>44</sup> and so European sites outside England may also be exposed to environmental changes associated with new water resource developments.
- 3.2.8 A total of 812 of the sites presented in **Table 3.1** are located on or immediately adjacent to the UK mainland. As the NPS does not prevent works taking place within European sites, all of the mainland UK sites are potentially exposed to environmental changes that may be associated with schemes that fall under the NPS (including, at least, direct impingement on site habitats).
- 3.2.9 In addition, some sites in the wider UK and other EU countries support mobile species that may be reliant on designated and non-designated habitats that are exposed environmental changes; significant effects are therefore possible if species populations are 'functionally linked' to affected areas. This is a principally an issue in relation to environmental changes in marine habitats due to the substantial migratory and foraging ranges of some species, particularly pelagic seabirds and marine mammals.
- 3.2.10 Any environmental changes occurring in the marine environment due to schemes covered by the NPS will clearly be limited in extent (see Section 3.1), based on the numerous examples of NSIPs that have taken place in the UK. Essentially, in the absence of mitigation, potentially significant environmental changes associated with the construction and operation of wholly terrestrial schemes are only likely where developments are relatively close to marine areas and there is a hydrological pathway, and changes will not extend substantially into marine environments due to

<sup>44</sup> It should be noted that the NPS does not explicitly exclude the possibility of water resource schemes involving offshore islands or Northern Ireland; however, direct effects on European sites in these areas can be reasonably excluded from consideration due to the substantial practical difficulties that would be associated with any water resource scheme intended to supply England.

natural attenuation (either by river flows or tidal mixing), notwithstanding any scheme-specific mitigation that might be applied. Changes are therefore unlikely to be notable outside of estuarine and immediate inshore areas. Similarly, environmental changes associated with the construction and operation of schemes with significant offshore components (i.e. desalination) will depend on the scheme, although as noted in Section 3.1 these are unlikely to extend more than 5 km from the English coastline. Therefore, it is considered that any marine environmental changes will be evident in inshore areas only – i.e. within 5 km of the England coastline for desalination schemes, and substantially less (certainly less than 1 km from the UK mainland coastline) for entirely terrestrial schemes.

3.2.11 However, in the absence of scheme-specific data it is necessary to adopt a precautionary approach to the screening of sites with mobile marine features. The Marine Management Organisation (MMO) is currently preparing Marine Plans for England, and is completing HRAs for these. The MMO has undertaken a 'pre-screening' exercise to identify European sites that are potentially vulnerable (i.e. exposed and sensitive) to the outcomes of the Marine Plans, based on a range of criteria including the ranges of mobile species in the marine environment. Essentially, the 'pre-screening' for the Marine Plans considered the following:

- All sites within 100km of each Marine Plan area (note, these extend substantially further offshore than the likely zone of influence of schemes covered by the NPS).
- Sites designated for fulmar, Manx shearwater, gannet, storm petrel, lesser black-backed gull and puffin within 400km of the Marine Plan areas (on the basis that these have mean maximum foraging ranges between 100km and 400km).
- Sites designated for freshwater pearl mussel and migratory fish (Atlantic salmon, twaite shad, allis shad, sea lamprey or river lamprey), where either the fish region or a probable main migratory route overlapped with a Marine Plan Area.
- Sites designated for common seal, grey seal, bottlenose dolphin and harbour porpoise that are in the same marine mammal Management Unit as a Marine Plan Area.

3.2.12 As the Marine Plans cover a wide range of inshore and offshore marine activities, the approach used provides a sufficiently precautionary basis for the screening of the NPS (as effects associated with developments covered by the NPS will clearly not extend further than effects from developments considered by the Marine Plans). Therefore, the screening of the NPS considers that all of the following sites are potentially exposed to significant effects (alone or in combination) as a result of schemes associated with the NPS (although the principal risk is associated with desalination schemes).

- all mainland UK European sites and features;
- all sites designated for their seabirds within 100km of the mainland UK coast;
- sites designated for fulmar, Manx shearwater, gannet, storm petrel, lesser black-backed gull and puffin within 400km of the of the mainland UK coast;
- sites designated for freshwater pearl mussel and migratory fish (Atlantic salmon, twaite shad, allis shad, sea lamprey or river lamprey), where either the fish region or a probable main migratory route may be within 10km of the mainland UK coast; and
- sites designated for common seal, grey seal, bottlenose dolphin and harbour porpoise that are in the same marine mammal Management Unit as the mainland UK coastal areas.

3.2.13 This screening process leads to the identification of 881 European sites and these sites are listed in Appendix A. Sites outside of these areas are not considered to be exposed, and so there will be 'no effects' on these sites. It should be noted that this screening conclusion is necessarily

precautionary, and it is unlikely that most of these sites or features will be exposed to environmental changes in practice.

3.2.14

In addition, the potential for 'typical species' to be affected is considered. This is obviously a hugely diverse category but the subdivision of this into specific groups or taxa is not practicable at this level in the plan or assessment hierarchy. It is therefore important that 'typical species' are appropriately considered in any 'down-the-line' HRAs.

## 4. Appropriate Assessment

### 4.1 Overview

- 4.1.1 The screening indicates that the possibility of significant effects on European sites from water resource infrastructure schemes that fall under the NPS cannot be excluded, principally because (a) potential mechanisms for effects can be identified; and (b) the NPS does not, through its policy controls, exclude the possibility of schemes having significant effects.
- 4.1.2 It is important to note that the NPS does not itself drive or promote the identification or delivery of specific water resource infrastructure schemes – this is done principally through the WRMP process (which as noted in Section 1.3, is subject to HRA). Therefore, the NPS is largely neutral in this regard, and primarily provides developer guidance and planning assessment criteria for schemes that are brought forward for consideration following identification in a WRMP. As a result, the adverse effects due to the NPS are ‘indirect’, i.e. if the policies do not exclude the possibility of adverse effects occurring; or if the policies or criteria within the NPS support or direct development that is likely to have an adverse effect on a European site or compromise the ability of developments to avoid or mitigate adverse effects at the project-level.
- 4.1.3 As with screening, the absence of information on schemes that may come forward ensures that effects on specific European sites cannot be categorically and objectively excluded using data on either the schemes, or the exposure and sensitivities of the European site features. The appropriate assessment has therefore comprised:
- a review of the possible pathways by which European sites might be affected by projects that are compliant with the NPS; and, subsequently
  - a review of the content and scope of the NPS, to identify opportunities for policy requirements that will prevent or reduce any adverse effects that may result from NSIP water resource schemes developments.

### 4.2 Review of Pathways

#### Avoidance and Mitigation Measures

- 4.2.1 The appropriate assessment stage assumes that all normal and established best-practice mitigation and avoidance measures will be employed at the project planning and delivery stages (including as part of the option development in a WRMP). Examples of these measures are provided in Appendix B, with other potential mitigation measures noted within the NPS itself. These standard measures are known to be available, achievable, and likely to be effective in avoiding many potential effects, particularly those associated with construction, and so are factored into the review of the effect pathways to determine whether adverse effects on any sites can be reasonably excluded based on the available information

#### Site Assessment

- 4.2.2 The screening identifies 881 sites which may be exposed to the potential effects of schemes that will be subject to the NPS (see Appendix A). Section 3.1 provides a summary of the principal mechanisms by which these sites could be affected by environmental changes associated with water resource infrastructure schemes. The likelihood of sites being indirectly affected by these developments decreases substantially if normal and established best-practice mitigation and

avoidance measures are taken into account, particularly for terrestrial schemes where control mechanisms are well understood and known to be effective. However, it is not practicable or beneficial to examine all of the European sites on site-by-site (or feature by feature) basis to attempt to identify sites where adverse effects cannot occur, as the absence of information on schemes that may come forward ensures that effects cannot be categorically and objectively excluded, and so assessments would be partial and subject to caveats.

- 4.2.3 Having said that, it is evident that few schemes covered by the NPS are likely to be so constrained in terms of location or delivery that adverse effects are unavoidable. Furthermore, with regard to far-field effects in the marine environment and associated effects on mobile species, it is clear that environmental changes due to NPS-related development will be local and small-scale, particularly when balanced against the area available for foraging (etc.) for most mobile marine species (and on this basis alone adverse effects on most mobile marine features would typically be excluded). It is also evident from the numerous examples of different NSIPs that have taken place in the UK that adverse effects are rarely an unavoidable consequence of a development, and that far-field effects on European sites in other EU countries are very unlikely to occur.
- 4.2.4 However, whilst adverse effects on European sites are unlikely, it is not possible to categorically exclude such effects at the NPS level as the NPS does not do so; and arguably it is not appropriate for the NPS HRA to prematurely exclude sites and so influence the scope of lower-tier HRAs.

### Project-level mitigation opportunities

- 4.2.5 Specific mitigation measures for European specific sites or features cannot be identified at the NPS level, and the 'possible' measures outlined in Appendix B are obviously partial; in reality, there will be a wide range of potential mitigation approaches that could be employed. However, the importance of avoidance (e.g. through siting of works, or timing etc.) should not be understated: avoiding potential effects should always be the first option. In this regard it is important to note that schemes coming forward for consideration under the NPS will have already been assessed through the WRMP process, which will allow any critical mitigation or avoidance measures to be identified.

## 4.3 Assessment of NPS Components

- 4.3.1 The content of the NPS is largely neutral with regard to European sites. It repeats or reflects the current legislative or policy protections for European sites, and does not include measures or policies that could (directly or indirectly) increase the likelihood of European sites being affected by future development, for example:
- by including any elements that direct development, such that particular European sites would be at greater risk of adverse effects; or
  - by constraining future developments (through siting criteria) such that opportunities to avoid or minimise adverse effects at the project level are removed or compromised.
- 4.3.2 Adverse effects on European sites are not therefore an inevitable or unavoidable consequence of the NPS policies or its implementation. Indeed, it is likely that adverse effects will be entirely avoidable for the majority of schemes covered by the NPS through normal project planning, design and best-practice; this is self-evident, based on the numerous major infrastructure schemes that occur nationwide and which are delivered without adverse effects despite (in some instances) their close proximity to European sites.
- 4.3.3 In addition, it is noted that para. 3.1.2 of the NPS explicitly removes the 'presumption in favour' granted by the NPS for developments where appropriate assessment is required.

- 4.3.4 More significantly, it should be recognised that the schemes being considered under the NPS must first have been included with a water company WRMP, which will itself be subject to HRA; consequently, any schemes that are likely to have unavoidable adverse effects will have already been identified and assessed at the WRMP stage and probably abandoned at that point. Exceptionally, however, a scheme may be included within a WRMP following an IROPI case, and the NPS does not exclude the possibility of these projects being permitted (for example, by including provisions whereby projects with residual adverse effects are refused) as Council Directive 92/43/EEC (the 'Habitats Directive') allows for plans or projects to proceed under the strict tests under Article 6. Therefore, projects that are compliant with the NPS may still have adverse effects. The appropriate assessment of the NPS must therefore conclude that adverse effects on the integrity of one or more European sites cannot be ruled out.

### In combination effects

- 4.3.5 Regulation 105 requires that the potential effects of a plan on European sites must also be considered '*in combination with other plans or projects*'. Consideration of 'in combination' effects is integral to the screening and appropriate assessment stages and the development of avoidance/mitigation measures. There is limited guidance available on the scope of the 'in combination' element, particularly which plans should be considered for high level strategies. The AoS identifies a number of policies, plans and programmes which could operate cumulatively with the water resources NPS. Due to the strategic nature of this assessment, and the uncertainties that remain, it is not practicable or meaningful to interrogate these plans in detail, to attempt to identify specific 'in combination' effects that may occur if a development were sited in a particular area (for example, comparing the NPS against every Catchment Flood Management Plan to determine whether there are policy conflicts that would increase the likelihood of unavoidable adverse effects). Specific consideration of in combination effects would be required as developments are brought forward through the NPS, and it should be noted that schemes will have been subject to in combination assessment as part of the WRMP HRA process; however, the NPS does not include any measures that would obviously constrain the mitigation options available for future development, or direct development such that conflict with other plans is inevitable, or contain policies or objectives that would allow protective measure included in other plans to be ignored.

### Recommendations

- 4.3.6 The draft NPS has been reviewed to identify any aspects that require amendment or modification to strengthen its policy framework for European sites. These potential amendments do not include the addition of any specific policies that will ensure that adverse effects cannot occur as it is assumed (based on other NPSs) that such exclusions would not be consistent with the requirements of the NPS (see also Section 5).
- 4.3.7 There are no aspects related to HRA where amendments are critical; however, the following notes may improve the 'performance' of the NPS in HRA terms and will aid the direction of HRAs of projects that are covered by the NPS:
- 4.3.8 **Section 3.3:** The section on 'Habitats Regulations Assessment' addresses the legal aspects of HRA but (unlike the section on EIA) provides little guidance on the process and the benefits of an iterative approach and 'avoidance through design'. The section on HRA could be enhanced to emphasise the importance of the HRA in the design and decision-making. The following additions (or similar) after Para. 3.3.2 would provide some additional clarity in this regard.
- [New para. after 3.3.2] *"It is recommended that the Evidence Plan approach for NSIPs be pursued where significant effects are possible. The applicant will be required to demonstrate that it has fully consulted the relevant Statutory Nature Conservation Bodies (SNCBs) pre-application and*

*had regard to comments received. Any assessments must provide a robust, objective, scientific basis for determining whether the integrity of a site is likely to be affected and be proportional to the type, complexity, scale and risk of effects."*

- [New Para. after 3.3.3] *"Alternative solutions may include different locations as well as different approaches to delivering the need regionally. The applicant will be required to demonstrate that additional mitigation or alternatives are not achievable if the project is to remain technically, legally and financially feasible. Developments adversely affecting European sites will not be supported unless it can be clearly demonstrated that the mitigation hierarchy has been employed throughout the design process".*
- [New para. after above] *"If no alternative solutions are available then the SoS may permit the scheme for Imperative Reasons of Overriding Public Importance, provided that any compensatory measures necessary to ensure the overall coherence of Natura 2000 are identified and secured. Compensatory measures must be*
  - ▶ *appropriate to the interest features affected and biogeographical area, and be capable of protecting the overall coherence of the Natura 2000 network;*
  - ▶ *based on robust scientific evidence, technically and practically feasible, clearly defined and measurable, and likely to be effective;*
  - ▶ *fully secured before consent is given (i.e. all the necessary legal, technical, financial and monitoring arrangements must be in place) and ideally operational and effective before the adverse effect occurs".*

4.3.9

**Para 4.5.7:** This paragraph notes how the predicted effects of climate change should be accounted for, although it is worth noting that adaptation also applies to the potential for biodiversity features to adapt; the following amendment may be useful:

- *"The applicant should be particularly careful to identify any effects of physical changes on the integrity and special features of Marine Conservation Zones, candidate marine Special Areas of Conservation, coastal Special Areas of Conservation and candidate coastal Special Areas of Conservation, coastal Special Protection Areas and potential coastal Special Protection Areas, Ramsar sites, Sites of Community Importance (SCIs) and potential Sites of Community Importance and Sites of Special Scientific Interest. For any projects affecting the above marine protected areas, the applicant should consult Natural England and where appropriate, for cross-boundary impacts, Natural Resource Wales and Scottish Natural Heritage, at an early stage. [New text] The applicant should also demonstrate that the development will not significantly affect the ability of these designated sites and their interest features to adapt to a changing climate, through (for example) mechanisms such as coastal squeeze.*

## 4.4 Conclusion

4.4.1

The appropriate assessment has concluded that any European site on the mainland UK, and several more distant sites with mobile species could, in theory, be potentially vulnerable to adverse effects as a result of water resources infrastructure schemes that are considered under the NPS, as the possibility of adverse effects is not excluded. Mitigation measures that would exclude the possibility of specific adverse effects are not available at the strategic level that the NPS operates at, and policy statements to that effect would exceed the provisions of the Habitats Regulations.

## 5. Alternatives

### 5.1 Overview

#### Legislative requirements

- 5.1.1 Regulation 107(1) of the Habitats Regulations states that *"If the plan-making authority are satisfied that, there being no alternative solutions [our emphasis], the land use plan must be given effect for imperative reasons of overriding public interest...they may give effect to the land use plan notwithstanding a negative assessment of the implications for the European site or the European offshore marine site..."*. In keeping with European Commission guidance<sup>45</sup> and UK Government's interpretation of the requirements of Regulation 107 (Defra 2012)<sup>46</sup> there is a requirement to identify a range of possible alternative ways of achieving the objectives of the project or plan and these alternatives can then be assessed against their likely impact upon the conservation objectives of the Natura 2000 site.
- 5.1.2 The purpose of the alternative solutions consideration is to determine whether there are any other feasible ways to deliver the overall objective of the plan or project which will be less damaging to the integrity of the European site(s) affected. The plan or project can only proceed to be considered in relation to IROPI if there are no alternative solutions; an alternative solution must be financially, technically and legally feasible; and have a lesser effect on the integrity of the European site(s) affected by the proposals.
- 5.1.3 The overall objectives of the NPS are set out in Section 1.9 of that document. In summary, to meet future needs, water resource infrastructure will be required to supplement demand management. NIC's report on water<sup>47</sup> indicates that at least 3,000Ml/d of extra water will be required by 2040 and that a third of this needs to be delivered through new water supplies; the NPS aims to help secure resilient water supplies that support population and economic growth.

#### Alternatives to the NPS

- 5.1.4 The potential alternatives to the NPS considered during its development are set out in detail in Section 2.5 of the AoS. In summary, the following alternatives were identified by the AoS:
- no NPS (aka 'business as usual');
  - an NPS related to demand management or small-scale water supply infrastructure;
  - an NPS that includes a threshold but not the infrastructure type;
  - a NPS that specifies infrastructure categories to cover all possible major water resources infrastructure projects (i.e. projects not explicitly defined in the Planning Act 2008 but which may come forward as section 35 development);
  - a criteria-based NPS (i.e. an NPS that is generic but includes criteria (for example, criteria based on excluding areas of specific environmental concern));

<sup>45</sup> EC Assessment of plans and projects significantly affecting Natura 2000 sites – Methodological Guidance to A6(3) & 6(4); [http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura\\_2000\\_assess\\_en.pdf](http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura_2000_assess_en.pdf)

<sup>46</sup> [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/69622/pb13840-habitats-iropi-guide-20121211.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69622/pb13840-habitats-iropi-guide-20121211.pdf)

<sup>47</sup> [Preparing for a drier future](#): England's water infrastructure needs

- a site-specific NPS (i.e. an NPS that identifies specific sites or locations for specific projects);
- an NPS that relocates demand rather than water (i.e. an NPS that promotes consumptive development in areas with high water resource availability, rather than transporting water).

5.1.5 These alternatives are examined in the following sections, although it should be noted that some of the AoS alternatives are not meaningful alternatives in HRA terms.

## 5.2 Assessment of Alternatives

### No NPS ('Business as Usual')

- 5.2.1 Under this alternative, an NPS relating to nationally significant water resources infrastructure would not be designated. It is still assumed, however, that nationally significant water resources infrastructure projects would still be identified in water company WRMPs (as appropriate) and be implemented. For any such qualifying development, a DCO would still be required under the Planning Act 2008 and a DCO application would still be submitted to the Secretary of State. However, the DCO application's development, subsequent examination and final determination by the Secretary of State would be undertaken without the explicit guidance of an NPS.
- 5.2.2 It is possible that the objectives of the NPS (increased resilience of water supplies) could be achieved without an NPS. In this case, existing planning policy and legislation would be relied on when testing the acceptability of any proposals; with regard to European sites, the primary national policy against which proposals would be assessed is the NPPF. The NPS reflects the requirements of the NPPF and does not provide a lower level of protection for European sites. Therefore, the 'no NPS' alternative solution would not perform better than the NPS, and would not be any less likely to result in significant or significant adverse effects, or be less damaging to the integrity of any European site(s) that may ultimately be affected.

### An NPS focused on demand-management / leakage-reduction / small-scale projects

- 5.2.3 This alternative can perhaps be characterised as one whereby demand management, leakage-reduction or multiple smaller-scale projects are the core elements of the NPS, rather than an NPS focused on the delivery of NSIPs.
- 5.2.4 It is arguable that an NPS focused on multiple local schemes would be less likely to result in adverse effects on European sites. Demand management schemes would be extremely unlikely to have any negative effects at all on European sites, and the although leakage-reduction or smaller-scale projects could adversely affect European sites depending on the scheme location and characteristics, the risk of this is arguably less than under the current NPS given (a) the assumed small-scale of these works and (b) that it is unlikely that there would be no alternatives to such small-scale projects, or that they would individually meet the threshold for an IROPI case, should adverse effects be likely.
- 5.2.5 However, demand management, leakage reduction or multiple smaller schemes cannot resolve the predicted deficits on their own. The challenges faced by the water industry have recently been identified in a number of documents, including the *Climate Change Risk Assessment (CCRA2)*,<sup>48</sup> the

<sup>48</sup> Committee on Climate change (2017) *UK Climate Change Risk Assessment 2017 Evidence Report*. Available at: <https://www.theccc.org.uk/tackling-climate-change/preparing-for-climate-change/uk-climate-change-risk-assessment-2017/>

Adaptation Sub Committee (ASC)<sup>49</sup> report and the Environment Agency's *Case for Change*<sup>50</sup> including its advice to Defra on water supply and resilience and infrastructure<sup>51</sup>. The current evidence predicts potential deficits across England and Wales of up to 3,000 megalitres per day (MI/d) by 2040, increasing to 4,000 MI/d by 2050<sup>52</sup> and 5,200 MI/d by 2065<sup>53</sup>. The recent National Infrastructure Commission report, *Preparing for a Drier Future*<sup>54</sup>, indicates that one third of the predicted deficit could be addressed by reduced leakage from water company pipes and a further third by improved efficiency (by reducing household consumption), but that the remaining third would need to be addressed by water transfers between companies and new water resources.

- 5.2.6 The Water UK's 2016 *Water Resources Long-Term Planning Framework* (2015-2065)<sup>55</sup> noted the importance of demand management in conjunction with a combination of localised initiatives and strategic schemes to provide future resilience and address the forecast supply deficit, and the Government has confirmed that a 'twin track' approach to improving the resilience of water supplies is required, with investment in new supplies complementing measures to reduce the demand for water. However, the Government has concluded that there is a compelling need for the development of water supply infrastructure alongside demand management (etc.); as a result, an NPS that relates to demand management, leakage reduction and small-scale projects only would not meet the objectives of the NPS.
- 5.2.7 The AoS also notes the potential for extending the scope of the NPS to explicitly include demand management projects alongside water supply infrastructure. In HRA terms this would not alter the conclusions of the appropriate assessment (as the focus on NSIPs would remain). However, the AoS does note that, from a planning perspective, demand management measures would either not require any planning consent or would be permitted development; as a result, the inclusion of demand management in the NPS is likely to increase the regulatory requirements and time required for implementation of these schemes, without providing any additional benefits.

## An NPS with alternative infrastructure treatments

- 5.2.8 The AoS considered two loosely related alternatives to the NPS, whereby either:
- the NPS includes a threshold but not the infrastructure type (so the scope of the infrastructure included would not be defined by type, but limited to a threshold deployable output value e.g. 80MI/d or higher); or
  - the NPS specifies infrastructure categories to cover all major water resources infrastructure projects (so the scope of development included in the draft NPS (as proposed) would be extended to cover a wider range of categories of water resources infrastructure that could be

<sup>49</sup> Committee on Climate change (2017) *Updated projections for water availability for the UK* (HR Wallingford). Available at: <https://www.theccc.org.uk/publication/climate-change-risk-assessment-ii-updated-projections-for-water-availability-for-the-uk/>

<sup>50</sup> Environment Agency (2011) *The Case for Change – Current and Future Water Availability*. Available online: <http://webarchive.nationalarchives.gov.uk/20140328154328/http://cdn.environment-agency.gov.uk/geho1111bvep-e-e.pdf>

<sup>51</sup> Environment Agency (2015) *Water Supply and Resilience Infrastructure*. Available online: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/504682/ea-analysis-water-sector.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/504682/ea-analysis-water-sector.pdf)

<sup>52</sup> National Infrastructure Commission (2018) *Preparing for a drier future*. Available online: <https://www.nic.org.uk/wp-content/uploads/NIC-Preparing-for-a-Drier-Future-26-April-2018.pdf> [Accessed May 2018].

<sup>53</sup> Water UK (2016) *Water Resources Long-Term Planning Framework*. Available online: <https://www.water.org.uk/water-resources-long-term-planning-framework> [Accessed May 2018].

<sup>54</sup> National Infrastructure Commission (2018) *Preparing for a drier future*. Available online: <https://www.nic.org.uk/wp-content/uploads/NIC-Preparing-for-a-Drier-Future-26-April-2018.pdf>

<sup>55</sup> Water UK (2016) *Water resources long term planning framework*. Available online: <https://dl.dropboxusercontent.com/u/299993612/Publications/> [Accessed May 2018].

considered as development for which development consent is required under Section 35 of the Planning Act 2008).

- 5.2.9 The purpose of the alternative solutions consideration is to determine whether there are any other feasible ways to deliver the overall objective of the plan or project which will be less damaging to the integrity of the European site(s) affected. These alternatives are considered to be largely technical variations that would not alter or reduce the likelihood of schemes considered under the NPS affecting European sites; essentially, unless these alternatives included additional safeguarding (etc.) policies (see below) then they would not exclude the possibility of adverse effects occurring. These alternatives are not therefore relevant from an HRA perspective.

## Use of Safeguarding Criteria or Policies

- 5.2.10 Many plans and policy documents use safeguarding criteria or policies that restrict development to, or prevent it occurring in, certain areas (typically referred to as inclusionary or exclusionary criteria respectively). These safeguarding criteria or policies are therefore protective measures included in the plan to ensure certain receptors are not affected. A wide range of specific criteria could be employed in the NPS to control the location and effects of any water resources infrastructure, although in HRA-terms the obvious exclusionary criteria would be either
- geographical exclusions (e.g. that no works should take place within a European site); or
  - effects-based exclusions (e.g. that the NPS will not support schemes that adversely affect European sites).
- 5.2.11 Simply excluding works from within a European site would not necessarily exclude the possibility of adverse effects occurring (although the general risk of adverse effects might be reduced); any safeguarding policy would need to reference likely effects on a site rather than just its geographical extent. Safeguarding in the NPS might therefore be achieved through:
- an overarching policy precluding development that would have adverse effects on any European site (this is sometimes employed in plans using caveats such as '*development proposals will only be in accordance with this plan and will only be permitted if there are no adverse effects on the integrity of...*' etc.);
  - the identification of generic but precautionary exclusion areas, based on the typical sensitivities of the interest features of every site that is potentially vulnerable (e.g. '*no development will be permitted within 20km of an SAC designated for its bat populations, or associated SSSIs ...*'); or
  - the identification of bespoke site-specific exclusion areas, based on specific analysis of every European site that is potentially vulnerable (e.g. '*no development will occur within 500m of [x] SAC...*').
- 5.2.12 Taking each of these three areas in turn:
- 5.2.13 Firstly, with regard to the use of an overarching policy precluding adverse effects, this is not generally appropriate for policy documents where a clear effect can be identified, due to the need for bespoke measures and to avoid conflict between different aspects of the plan. For the NPS, however, it is not possible to identify specific effects or the likelihood of them occurring: simply, the possibility of adverse effects cannot be excluded. An overarching exclusionary policy (e.g. '*development that has an adverse effect will not be permitted...*') might therefore be an acceptable approach (from an HRA perspective) for ensuring that adverse effects do not occur as a result of the NPS. This approach would, however, exceed the provisions of the Habitats Regulations and Habitats Directive, which allow developments to take place where there are no alternative solutions and Imperative Reasons of Overriding Public Interest (IROPI) apply. Whilst government policy can sometimes set more stringent standards than are strictly required by legislation (for example,

Ramsar sites are treated as European sites as a matter of government policy, and not due to any legislative provision), this would be disproportionately restrictive for an NPS. Under this approach the Government would be limiting the options for delivery of water resources infrastructure, which could reduce the potential scope for the provision of new infrastructure in the most suitable and sustainable locations.

- 5.2.14 Secondly, a 'generic' exclusion policy based on site interest features would have similar issues, and would probably be more precautionary in its scope. It would be possible to qualify any exclusion (for example, *'no development will be permitted within 20km of an SAC designated for its bat populations, unless project-level environmental studies or HRA indicate that the exclusion is not required or not appropriate, or that alternative or additional mitigation measures are more appropriate/necessary'*, or similar) although this would obviously not guarantee 'no adverse effects' unless explicitly stated.
- 5.2.15 Thirdly, with regard to specifying geographical exclusion areas on a site-by-site basis, the development of bespoke exclusion areas is not therefore considered appropriate (or, indeed, practicable) as:
- the data required to robustly identify exclusion areas for each European site would be substantial;
  - without any information on the scheme proposals, the assessment of effects would be speculative and hence exclusion areas necessarily (and so perhaps overly) precautionary; and
  - any exclusions would be pre-judging the acceptability of future proposals based on partial information.
- 5.2.16 Furthermore, there is a clear statutory process for deciding on the most appropriate water resource options. In accordance with the *Water Industry Act 1991* and subsequent legislation, each water company has a statutory obligation to produce a WRMP every five years. These are informed by an assessment of need including the supply-demand balance and a rigorous process of options identification and assessment (including SEA and HRA). A scheme cannot apply for development consent in accordance with Sections 27, 28 or 28A of the Planning Act unless it has been identified as a preferred option through this process. In this context, the Government considers that it would be inappropriate for the NPS to include exclusionary or inclusionary criteria as the Government would be prejudging the suitability of areas for development which could unduly constrain the selection of suitable sites by water companies and undermine the WRMP options identification and appraisal process. This is particularly pertinent given the range of infrastructure to be covered by the NPS and associated effects, their scale and the likelihood that multiple projects will come forward.
- 5.2.17 Overall, therefore, it is considered that exclusion areas or exclusionary policies are either not appropriate at the NPS level in the planning hierarchy, or would not provide any meaningful additional safeguards for European sites over those measures already included within the NPS.

## A site-specific NPS

- 5.2.18 A site-specific NPS would identify candidate sites for nationally significant water resources infrastructure. There are examples of other NPSs taking a site-specific approach; for example, the nuclear generation NPS (EN-6) identifies potentially suitable sites for the deployment of new nuclear power stations whilst the Airports NPS identifies Heathrow as the preferred location for new runway capacity and infrastructure in south east England.
- 5.2.19 In theory, strategic direction of infrastructure schemes could allow then to be sited such that significant adverse effects on European sites are almost certainly avoided (e.g. where there are no

European sites within, say, 20km). This would allow the HRA of the NPS to conclude that adverse effects have been avoided; it would also reduce the costs and investment in project-level HRA. However, as noted above, this would effectively mean that the Government prejudges the suitability of areas for development, which would constrain the selection of suitable sites by water companies and undermine the WRMP options identification and appraisal process. Overall, therefore, it is considered that specifying locations or (by extension) infrastructure schemes is not appropriate at the NPS level in the planning hierarchy, and would not provide any meaningful additional safeguards for European sites over those measures already included within the NPS.

### An NPS that relocates demand

- 5.2.20 The AoS considers an alternative whereby the NPS does not address the provision of water resources infrastructure, but instead supports residential and economic development in areas with the highest surplus water supply, with the aim of reducing the need for new water resources infrastructure. This would obviously be an entirely different NPS from that being considered, and the AoS notes that it is the Government's view that this option does not relate to the provision of nationally significant infrastructure and in consequence, it is outside of the scope of the NPS. With regard to HRA, this approach would not make adverse effects on European sites less likely and would, in reality, introduce a substantial number of new impact pathways that could be realised (e.g. increased visitor pressure due to residential development) but would remain unassessable at the NPS level. This is not therefore a reasonable alternative from an HRA perspective.

## 5.3 Summary

- 5.3.1 The appropriate assessment has determined that any European site associated with mainland UK (as well as some overseas sites) is, in theory, potentially vulnerable to adverse effects due to water resources infrastructure supported by the NPS. Consequently, Regulation 107 of the Habitats Regulations requires an assessment of alternative solutions test to determine whether there are any other feasible ways to deliver the overall objective of the NPS (i.e. to help secure resilient water supplies) which will be less damaging to the integrity of the European site(s) affected.
- 5.3.2 Several alternatives were considered by the AoS, which have formed the basis of the HRA assessment of alternatives. In summary, these alternatives are either not appropriate for the NPS; or would not provide any additional certainty that adverse effects on European sites can be avoided or reduced, compared to the currently proposed NPS. It should be noted that the assessment of alternatives for NPS purposes does not replace the need for the assessment of alternatives for HRA purposes at the project level

## 6. IROPI and Compensatory Measures

### 6.1 Legislative Requirements

- 6.1.1 Regulation 107(1) of the Habitats Regulations allows a plan to be given effect notwithstanding a *"negative assessment of the implications for the European site or the European offshore marine site..."* if there are no alternatives and it can be demonstrated that the plan is required for Imperative Reasons of Overriding Public Interest (IROPI). If the European site supports a priority habitat or species then Regulation 107(3) applies, which states that the IROPI must relate to *"human health, public safety or beneficial consequences of primary importance to the environment"*; other IROPI, including socio-economic reasons, require consultation with the European Commission. This section outlines the Government's consideration of IROPI for designating the draft NPS, despite it not being possible to rule out adverse effects and there being no alternative solutions. It also sets out a strategic framework for compensatory measures in accordance with Article 6(4) of the Habitats Directive.

### 6.2 Imperative Reasons of Overriding Public Interest (IROPI)

- 6.2.1 The appropriate assessment has demonstrated that the NPS does not exclude the possibility of adverse effects on one or more European sites as a result of water infrastructure schemes that are subject to it. The assessment of alternative solutions, in Section 5 of this HRA report, has concluded that there are no feasible alternatives that would provide any additional certainty that adverse effects on European sites can be avoided or reduced, compared to the draft NPS, whilst delivering the policy objective. As the draft NPS does not identify specific water resource schemes or exclude development locations, any European site within mainland UK, and several sites supporting mobile species within adjacent countries are potentially vulnerable to its outcomes. Therefore, sites with priority features could potentially be affected.
- 6.2.2 Taking into account the CCRA2,<sup>56</sup> the ASC<sup>57</sup> report and the Environment Agency's *Case for Change*,<sup>58</sup> the Government considers that there is a need to for a water resources infrastructure NPS to ensure resilience of water supplies in the long-term. Population growth will add to economic growth to increase the demand for water services from all sectors. The CCRA2 suggested an increase in water demand by 2050 of between 2 and 5% for domestic consumption, 4 and 6% for industrial and commercial use and 26% for agriculture. The current evidence predicts potential deficits across England and Wales of up to 3,000 megalitres per day (MI/d) by 2040, increasing to 5,200 MI/d by 2065<sup>59</sup>. The recent National Infrastructure Commission report, *Preparing for a Drier Future*<sup>60</sup>, indicates that one third of the predicted deficit could be addressed by reduced leakage from water company pipes and a further third by improved efficiency (by reducing household

<sup>56</sup> Committee on Climate change (2017) *UK Climate Change Risk Assessment 2017 Evidence Report*. Available at: <https://www.theccc.org.uk/tackling-climate-change/preparing-for-climate-change/uk-climate-change-risk-assessment-2017/>

<sup>57</sup> Committee on Climate change (2017) *Updated projections for water availability for the UK (HR Wallingford)*. Available at: <https://www.theccc.org.uk/publication/climate-change-risk-assessment-ii-updated-projections-for-water-availability-for-the-uk/>

<sup>58</sup> Environment Agency (2011) *The Case for Change – Current and Future Water Availability*. Available online: <http://webarchive.nationalarchives.gov.uk/20140328154328/http://cdn.environment-agency.gov.uk/geho1111bvpe-e-e.pdf>

<sup>59</sup> Water UK (2016) *Water Resources Long-Term Planning Framework*. Available online: <https://www.water.org.uk/water-resources-long-term-planning-framework> [Accessed May 2018].

<sup>60</sup> National Infrastructure Commission (2018) *Preparing for a drier future*. Available online: <https://www.nic.org.uk/wp-content/uploads/NIC-Preparing-for-a-Drier-Future-26-April-2018.pdf>

consumption), but that the remaining third would need to be addressed by water transfers between companies and new water resources. The Government has therefore concluded that there is a compelling need for the development of water supply infrastructure alongside demand management, and that the development of an NPS for schemes meeting NSIP thresholds is necessary to facilitate delivery of this infrastructure.

6.2.3 It is the view of Government that an NPS would facilitate the successful and timely delivery of a nationally significant water resource infrastructure.

6.2.4 Consequently, the Government is satisfied that the production of an NPS for water resources infrastructure is supported by Imperative Reasons of Overriding Public Interest related to human health. As the IROPI relate to human health and public safety, the Government is not required to seek the opinion of the European Commission before adopting the NPS, in accordance with Regulation 107(3).

## 6.3 Compensatory Measures

6.3.1 Regulation 109 of the Habitats Regulations states that "the appropriate authority must secure that any necessary compensatory measures are taken to ensure that the overall coherence of Natura 2000 is protected" if a plan is given effect for IROPI. As specific effects on specific European sites cannot be identified at the NPS level in the planning hierarchy it is not appropriate (or possible) to specify compensatory measures. The measures that may be required will depend on the projects that are put forward and the European sites and interest features that are affected. However project-level compensatory measures, if required, must meet the following criteria:

- they must be clearly defined, technically and practically feasible, likely to be effective, measurable, and based on robust scientific evidence;
- they must be appropriate to the interest features affected and biogeographical area, and be capable of protecting the overall coherence of the network of European sites; and
- they must be fully secured before consent is given (i.e. all the necessary legal, technical, financial and monitoring arrangements must be in place) and ideally should be operational and effective before the adverse effect occurs<sup>61</sup>.

6.3.2 It is suggested, however, that these criteria be included in the NPS to ensure that the broad requirements of any compensatory measures are clearly set out.

## 6.4 Project-level HRA

6.4.1 The HRA of the draft NPS does not remove the need for project-level HRAs, or prejudice the scope or outcomes of these assessments. The designation of the NPS for IROPI does not mean that these reasons will necessarily extend to all developments arising from the NPS, although the information provided in the NPS and HRA may have some relevance.

<sup>61</sup> Note, where compensatory measures are unlikely to be fully functioning before adverse impacts are realised, compensation ratios will likely need to be greater than 1:1.



# Appendix A

## European sites

Table A.1 European sites on the UK mainland

Site name
Alde, Ore and Butley Estuaries SAC
Arnecliff and Park Hole Woods SAC
Arun Valley SAC
Asby Complex SAC
Ashdown Forest SAC
Aston Rowant SAC
Avon Gorge Woodlands SAC
Barnack Hills and Holes SAC
Baston Fen SAC
Bath and Bradford-on-Avon Bats SAC
Beast Cliff - Whitby (Robin Hood's Bay) SAC
Bee's Nest and Green Clay Pits SAC
Beer Quarry and Caves SAC
Benacre to Easton Bavents Lagoons SAC
Birklands and Bilhaugh SAC
Blackstone Point SAC
Blean Complex SAC
Bolton Fell Moss SAC
Border Mires, Kielder - Butterburn SAC
Borrowdale Woodland Complex SAC
Bracket's Coppice SAC
Braunton Burrows SAC
Breckland SAC
Bredon Hill SAC
Breny Common and Goss and Tregoss Moors SAC
Briddlesford Copses SAC

**Brown Moss SAC**

**Burnham Beeches SAC**

**Butser Hill SAC**

**Calf Hill and Cragg Woods SAC**

**Cannock Chase SAC**

**Cannock Extension Canal SAC**

**Carrine Common SAC**

**Castle Eden Dene SAC**

**Castle Hill SAC**

**Cerne and Sydling Downs SAC**

**Chesil and the Fleet SAC**

**Chilmark Quarries SAC**

**Chilterns Beechwoods SAC**

**Clints Quarry SAC**

**Cothill Fen SAC**

**Cotswold Beechwoods SAC**

**Craven Limestone Complex SAC**

**Crookhill Brick Pit SAC**

**Crowdy Marsh SAC**

**Culm Grasslands SAC**

**Cumbrian Marsh Fritillary Site SAC**

**Dartmoor SAC**

**Dawlish Warren SAC**

**Denby Grange Colliery Ponds SAC**

**Devil's Dyke SAC**

**Dew's Ponds SAC**

**Dixton Wood SAC**

**Dorset Heaths SAC**

**Dorset Heaths (Purbeck and Wareham) and Studland Dunes SAC**

**Dover to Kingsdown Cliffs SAC**

**Downton Gorge SAC**

**Drigg Coast SAC****Duddon Mosses SAC****Duncton to Bignor Escarpment SAC****Dungeness SAC****Durham Coast SAC****East Devon Pebblebed Heaths SAC****East Hampshire Hangers SAC****Ebernoe Common SAC****Eller's Wood and Sand Dale SAC****Emer Bog SAC****Ensor's Pool SAC****Epping Forest SAC****Essex Estuaries SAC****Eversden and Wimpole Woods SAC****Exmoor and Quantock Oakwoods SAC****Exmoor Heaths SAC****Fal and Helford SAC****Fen Bog SAC****Fenland SAC****Fens Pools SAC****Flamborough Head SAC****Folkestone to Etchingill Escarpment SAC****Fontmell and Melbury Downs SAC****Ford Moss SAC****Gang Mine SAC****Godrevy Head to St Agnes SAC****Great Yews SAC****Grimsthorpe SAC****Hackpen Hill SAC****Hamford Water SAC****Harbottle Moors SAC**

Hartslock Wood SAC

Hastings Cliffs SAC

Hatfield Moor SAC

Helbeck and Swindale Woods SAC

Hestercombe House SAC

Holme Moor and Clean Moor SAC

Holnest SAC

Humber Estuary SAC

Ingleborough Complex SAC

Isle of Portland to Studland Cliffs SAC

Isle of Wight Downs SAC

Isles of Scilly Complex SAC

Kennet and Lambourn Floodplain SAC

Kennet Valley Alderwoods SAC

Kingley Vale SAC

Kirk Deighton SAC

Lake District High Fells SAC

Lands End and Cape Bank SAC

Lewes Downs SAC

Little Wittenham SAC

Lizard Point SAC

Lower Bostraze and Leswidden SAC

Lower Derwent Valley SAC

Lundy SAC

Lydden and Temple Ewell Downs SAC

Lyme Bay and Torbay SAC

Lyppard Grange Ponds SAC

Manchester Mosses SAC

Margate and Long Sands SAC

Mells Valley SAC

Mendip Limestone Grasslands SAC

**Mendip Woodlands SAC**

**Minsmere to Walberswick Heaths and Marshes SAC**

**Mole Gap to Reigate Escarpment SAC**

**Moor House - Upper Teesdale SAC**

**Morecambe Bay SAC**

**Morecambe Bay Pavements SAC**

**Motte Meadows SAC**

**Mottisfont Bats SAC**

**Naddle Forest SAC**

**Nene Washes SAC**

**Newham Fen SAC**

**Newlyn Downs SAC**

**Norfolk Valley Fens SAC**

**North Downs Woodlands SAC**

**North Meadow and Clattinger Farm SAC**

**North Norfolk Coast SAC**

**North Northumberland Dunes SAC**

**North Pennine Dales Meadows SAC**

**North Pennine Moors SAC**

**North Somerset and Mendip Bats SAC**

**North York Moors SAC**

**Oak Mere SAC**

**Orfordness - Shingle Street SAC**

**Orton Pit SAC**

**Ouse Washes SAC**

**Overstrand Cliffs SAC**

**Ox Close SAC**

**Oxford Meadows SAC**

**Parkgate Down SAC**

**Paston Great Barn SAC**

**Pasturefields Salt Marsh SAC**

Peak District Dales SAC
Penhale Dunes SAC
Peter's Pit SAC
Pevensey Levels SAC
Pewsey Downs SAC
Phoenix United Mine and Crow's Nest SAC
Plymouth Sound and Estuaries SAC
Polruan to Polperro SAC
Portholme SAC
Prescombe Down SAC
Quants SAC
Queendown Warren SAC
Rex Graham Reserve SAC
Richmond Park SAC
River Avon SAC
River Axe SAC
River Camel SAC
River Clun SAC
River Derwent SAC
River Derwent and Bassenthwaite Lake SAC
River Eden SAC
River Ehen SAC
River Itchen SAC
River Kent SAC
River Lambourn SAC
River Mease SAC
River Wensum SAC
Rixton Clay Pits SAC
Rochdale Canal SAC
Rodborough Common SAC
Roman Wall Loughs SAC

<b>Rook Clift SAC</b>
<b>Rooksmoor SAC</b>
<b>Roudsea Wood and Mosses SAC</b>
<b>Roydon Common and Dersingham Bog SAC</b>
<b>Salisbury Plain SAC</b>
<b>Saltfleetby-Theddlethorpe Dunes and Gibraltar Point SAC</b>
<b>Sandwich Bay SAC</b>
<b>Sefton Coast SAC</b>
<b>Shell Flat and Lune Deep SAC</b>
<b>Shortheath Common SAC</b>
<b>Sidmouth to West Bay SAC</b>
<b>Simonside Hills SAC</b>
<b>Singleton and Cocking Tunnels SAC</b>
<b>Skipwith Common SAC</b>
<b>Solent and Isle of Wight Lagoons SAC</b>
<b>Solent Maritime SAC</b>
<b>South Dartmoor Woods SAC</b>
<b>South Devon Shore Dock SAC</b>
<b>South Hams SAC</b>
<b>South Pennine Moors SAC</b>
<b>South Solway Mosses SAC</b>
<b>South Wight Maritime SAC</b>
<b>St Albans Head to Durlston Head SAC</b>
<b>St Austell Clay Pits SAC</b>
<b>Start Point to Plymouth Sound &amp; Eddystone SAC</b>
<b>Staverton Park and The Thicks, Wantisden SAC</b>
<b>Stodmarsh SAC</b>
<b>Strensall Common SAC</b>
<b>Studland to Portland SAC</b>
<b>Subberthwaite, Blawith and Torver Low Commons SAC</b>
<b>Tankerton Slopes and Swalecliffe SAC</b>

<b>Tarn Moss SAC</b>
<b>Thanet Coast SAC</b>
<b>The Broads SAC</b>
<b>The Lizard SAC</b>
<b>The Mens SAC</b>
<b>The New Forest SAC</b>
<b>The Stiperstones and The Hollies SAC</b>
<b>The Wash and North Norfolk Coast SAC</b>
<b>Thorne Moor SAC</b>
<b>Thrislington SAC</b>
<b>Thursley, Ash, Pirbright and Chobham SAC</b>
<b>Tintagel-Marsland-Clovelly Coast SAC</b>
<b>Tregonning Hill SAC</b>
<b>Tweed Estuary SAC</b>
<b>Tyne and Allen River Gravels SAC</b>
<b>Tyne and Nent SAC</b>
<b>Ullswater Oakwoods SAC</b>
<b>Walton Moss SAC</b>
<b>Wast Water SAC</b>
<b>Waveney and Little Ouse Valley Fens SAC</b>
<b>West Dorset Alder Woods SAC</b>
<b>West Midlands Mosses SAC</b>
<b>Wimbledon Common SAC</b>
<b>Windsor Forest and Great Park SAC</b>
<b>Winterton - Horsey Dunes SAC</b>
<b>Witherslack Mosses SAC</b>
<b>Woolmer Forest SAC</b>
<b>Wormley Hoddesdonpark Woods SAC</b>
<b>Wye and Crundale Downs SAC</b>
<b>Yewbarrow Woods SAC</b>
<b>Haisborough, Hammond and Winterton SAC</b>

**Inner Dowsing, Race Bank and North Ridge SAC**

**Southern North Sea SCI**

**Berwickshire and North Northumberland Coast SAC**

**River Tweed SAC**

**Solway Firth SAC**

**Bristol Channel Approaches / Dynesfeydd Môr Hafren SCI**

**Dee Estuary/ Aber Dyfrdwy SAC**

**Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses SAC**

**River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC**

**River Wye/ Afon Gwy SAC**

**Severn Estuary/ Môr Hafren SAC**

**Wye Valley and Forest of Dean Bat Sites/ Safleoedd Ystlumod Dyffryn Gwy a Fforest y Ddena SAC**

**Wye Valley Woodlands/ Coetiroedd Dyffryn Gwy SAC**

**Aughnadarragh Lough SAC**

**Ballykilbeg SAC**

**Ballynahone Bog SAC**

**Banagher Glen SAC**

**Bann Estuary SAC**

**Binevenagh SAC**

**Black Bog SAC**

**Breen Wood SAC**

**Carn-Glenishane Pass SAC**

**Cladagh (Swanlinbar) River SAC**

**Cranny Bogs SAC**

**Cuilcagh Mountain SAC**

**Curran Bog SAC**

**Dead Island Bog SAC**

**Deroran Bog SAC**

**Derryleckagh SAC**

**Eastern Mourne SAC**

**Fairy Water Bogs SAC**

<b>Fardrum and Roosky Turloughs SAC</b>
<b>Garron Plateau SAC</b>
<b>Garry Bog SAC</b>
<b>Hollymount SAC</b>
<b>Largalunny SAC</b>
<b>Lecale Fens SAC</b>
<b>Lough Melvin SAC</b>
<b>Magheraveely Marl Loughs SAC</b>
<b>Magilligan SAC</b>
<b>Main Valley Bogs SAC</b>
<b>Monawilkin SAC</b>
<b>Moneygal Bog SAC</b>
<b>Moninea Bog SAC</b>
<b>Montiaghs Moss SAC</b>
<b>Murlough SAC</b>
<b>North Antrim Coast SAC</b>
<b>Owenkillew River SAC</b>
<b>Peatlands Park SAC</b>
<b>Pettigoe Plateau SAC</b>
<b>Rathlin Island SAC</b>
<b>Rea`s Wood and Farr`s Bay SAC</b>
<b>Red Bay SAC</b>
<b>River Faughan and Tributaries SAC</b>
<b>River Foyle and Tributaries SAC</b>
<b>River Roe and Tributaries SAC</b>
<b>Rostrevor Wood SAC</b>
<b>Skerries and Causeway SAC</b>
<b>Slieve Beagh SAC</b>
<b>Slieve Gullion SAC</b>
<b>Strangford Lough SAC</b>
<b>Teal Lough SAC</b>

<b>The Maidens SAC</b>
<b>Tonnagh Beg Bog SAC</b>
<b>Tully Bog SAC</b>
<b>Turmennan SAC</b>
<b>Upper Ballinderry River SAC</b>
<b>Upper Lough Erne SAC</b>
<b>West Fermanagh Scarplands SAC</b>
<b>Wolf Island Bog SAC</b>
<b>North Channel SCI</b>
<b>Anton Dohrn Seamount SAC</b>
<b>Bassurelle Sandbank SAC</b>
<b>Braemar Pockmarks SAC</b>
<b>Croker Carbonate Slabs SCI</b>
<b>Darwin Mounds SAC</b>
<b>Dogger Bank SAC</b>
<b>East Rockall Bank SAC</b>
<b>Haig Fras SAC</b>
<b>Hatton Bank cSAC</b>
<b>North Norfolk Sandbanks and Saturn Reef SAC</b>
<b>North West Rockall Bank SAC</b>
<b>Pisces Reef Complex SAC</b>
<b>Scanner Pockmark SAC</b>
<b>Stanton Banks SAC</b>
<b>Wight-Barfleur Reef SAC</b>
<b>Wyville Thomson Ridge SAC</b>
<b>Abhainn Clais an Eas and Allt a' Mhuilinn SAC</b>
<b>Achnahaird SAC</b>
<b>Airds Moss SAC</b>
<b>Altnaharra SAC</b>
<b>Amat Woods SAC</b>
<b>Ardgour Pinewoods SAC</b>

<b>Ardmeanach SAC</b>
<b>Ardnamurchan Burns SAC</b>
<b>Ardvar and Loch a' Mhuilinn Woodlands SAC</b>
<b>Ascrib, Isay and Dunvegan SAC</b>
<b>Ballochbuie SAC</b>
<b>Bankhead Moss, Beith SAC</b>
<b>Barry Links SAC</b>
<b>Beinn a' Ghlo SAC</b>
<b>Beinn Bhan SAC</b>
<b>Beinn Dearg SAC</b>
<b>Beinn Iadain and Beinn na h' Uamha SAC</b>
<b>Ben Alder and Aonach Beag SAC</b>
<b>Ben Heasgarnich SAC</b>
<b>Ben Lawers SAC</b>
<b>Ben Lui SAC</b>
<b>Ben Nevis SAC</b>
<b>Ben Wyvis SAC</b>
<b>Berriedale and Langwell Waters SAC</b>
<b>Black Loch Moss SAC</b>
<b>Black Wood of Rannoch SAC</b>
<b>Blawhorn Moss SAC</b>
<b>Borders Woods SAC</b>
<b>Braehead Moss SAC</b>
<b>Broubster Leans SAC</b>
<b>Buchan Ness to Collieston SAC</b>
<b>Burrow Head SAC</b>
<b>Caenlochan SAC</b>
<b>Cairngorms SAC</b>
<b>Caithness and Sutherland Peatlands SAC</b>
<b>Cape Wrath SAC</b>
<b>Carn nan Tri-tighearnan SAC</b>

Carsegowan Moss SAC
Cawdor Wood SAC
Claish Moss and Kentra Moss SAC
Clyde Valley Woods SAC
Coalburn Moss SAC
Cockinhead Moss SAC
Coille Mhor SAC
Coladoir Bog SAC
Coll Machair SAC
Conon Islands SAC
Coyles of Muick SAC
Craigengar SAC
Craighall Gorge SAC
Cranley Moss SAC
Creag Meagaidh SAC
Creag nan Gamhainn SAC
Culbin Bar SAC
Dam Wood SAC
Dinnet Oakwood SAC
Dogden Moss SAC
Dornoch Firth and Morrich More SAC
Drumochter Hills SAC
Dun Moss and Forest of Alyth Mires SAC
Dunkeld - Blairgowrie Lochs SAC
Durness SAC
Dykeneuk Moss SAC
East Caithness Cliffs SAC
East Mingulay SCI
East Mires and Lumbister SAC
Eilean na Muice Duibhe SAC
Eileanan agus Sgeiran Lios mor SAC

<b>Endrick Water SAC</b>
<b>Fair Isle SAC</b>
<b>Fannich Hills SAC</b>
<b>Faray and Holm of Faray SAC</b>
<b>Feur Lochain SAC</b>
<b>Firth of Lorn SAC</b>
<b>Firth of Tay and Eden Estuary SAC</b>
<b>Flanders Mosses SAC</b>
<b>Flow of Dergoals SAC</b>
<b>Foinaven SAC</b>
<b>Galloway Oakwoods SAC</b>
<b>Garron Point SAC</b>
<b>Glac na Criche SAC</b>
<b>Glen Beasdale SAC</b>
<b>Glen Coe SAC</b>
<b>Glen Creran Woods SAC</b>
<b>Glen Shira SAC</b>
<b>Glen Tanar SAC</b>
<b>Glenartney Juniper Wood SAC</b>
<b>Green Hill of Strathdon SAC</b>
<b>Hascosay SAC</b>
<b>Hill of Towanreef SAC</b>
<b>Hoy SAC</b>
<b>Inchnadamph SAC</b>
<b>Inner Hebrides and the Minches SCI</b>
<b>Insh Marshes SAC</b>
<b>Inverasdale Peatlands SAC</b>
<b>Invernaver SAC</b>
<b>Inverpolly SAC</b>
<b>Isle of May SAC</b>
<b>Keen of Hamar SAC</b>

<b>Keltneyburn SAC</b>
<b>Kilhern Moss SAC</b>
<b>Kinloch and Kyleakin Hills SAC</b>
<b>Kinveachy Forest SAC</b>
<b>Kippenrait Glen SAC</b>
<b>Kirkcowan Flow SAC</b>
<b>Ladder Hills SAC</b>
<b>Langavat SAC</b>
<b>Ledmore Wood SAC</b>
<b>Lendalfoot Hills Complex SAC</b>
<b>Lewis Peatlands SAC</b>
<b>Lismore Lochs SAC</b>
<b>Little Gruinard River SAC</b>
<b>Loch a' Phuill SAC</b>
<b>Loch Achnacloich SAC</b>
<b>Loch Creran SAC</b>
<b>Loch Etive Woods SAC</b>
<b>Loch Fada SAC</b>
<b>Loch Laxford SAC</b>
<b>Loch Lomond Woods SAC</b>
<b>Loch Maree Complex SAC</b>
<b>Loch Moidart and Loch Shiel Woods SAC</b>
<b>Loch nam Madadh SAC</b>
<b>Loch of Isbister SAC</b>
<b>Loch of Stenness SAC</b>
<b>Loch of Wester SAC</b>
<b>Loch Roag Lagoons SAC</b>
<b>Loch Ruthven SAC</b>
<b>Loch Ussie SAC</b>
<b>Loch Watten SAC</b>
<b>Lochs Duich, Long and Alsh Reefs SAC</b>

<b>Lower Findhorn Woods SAC</b>
<b>Lower River Spey - Spey Bay SAC</b>
<b>Luce Bay and Sands SAC</b>
<b>Meall na Samhna SAC</b>
<b>Merrick Kells SAC</b>
<b>Methven Moss SAC</b>
<b>Mingarry Burn SAC</b>
<b>Mochrum Lochs SAC</b>
<b>Moffat Hills SAC</b>
<b>Moidach More SAC</b>
<b>Moine Mhor SAC</b>
<b>Mointeach nan Lochain Dubha SAC</b>
<b>Mointeach Scadabhaigh SAC</b>
<b>Monach Islands SAC</b>
<b>Monadh Mor SAC</b>
<b>Monadhliath SAC</b>
<b>Moniack Gorge SAC</b>
<b>Moorfoot Hills SAC</b>
<b>Moray Firth SAC</b>
<b>Morrone Birkwood SAC</b>
<b>Mortlach Moss SAC</b>
<b>Morven and Mullachdubh SAC</b>
<b>Morvern Woods SAC</b>
<b>Mound Alderwoods SAC</b>
<b>Mousa SAC</b>
<b>Muir of Dinnet SAC</b>
<b>Mull Oakwoods SAC</b>
<b>Mull of Galloway SAC</b>
<b>Ness Woods SAC</b>
<b>North Fetlar SAC</b>
<b>North Harris SAC</b>

North Rona SAC
North Shotts Moss SAC
North Uist Machair SAC
Obain Loch Euphoirt SAC
Oldshoremore and Sandwood SAC
Onich to North Ballachulish Woods SAC
Oronsay SAC
Papa Stour SAC
Peeswit Moss SAC
Pitkeathly Mires SAC
Pitmaduthy Moss SAC
Raeburn Flow SAC
Rannoch Moor SAC
Rassal SAC
Red Moss SAC
Red Moss of Netherley SAC
Reidside Moss SAC
Rhidorroch Woods SAC
Rigg - Bile SAC
Rinns of Islay SAC
River Bladnoch SAC
River Borgie SAC
River Dee SAC
River Evelix SAC
River Kerry SAC
River Moidart SAC
River Moriston SAC
River Naver SAC
River Oykel SAC
River South Esk SAC
River Spey SAC

<b>River Tay SAC</b>
<b>River Teith SAC</b>
<b>River Thurso SAC</b>
<b>Ronas Hill - North Roe SAC</b>
<b>Rum SAC</b>
<b>Sanday SAC</b>
<b>Sands of Forvie SAC</b>
<b>Shelforkie Moss SAC</b>
<b>Shingle Islands SAC</b>
<b>Sligachan Peatlands SAC</b>
<b>Slochd SAC</b>
<b>Solway Mosses North SAC</b>
<b>Sound of Arisaig (Loch Ailort to Loch Ceann Traigh) SAC</b>
<b>Sound of Barra SCI</b>
<b>South Uist Machair SAC</b>
<b>South-East Islay Skerries SAC</b>
<b>St Abb's Head to Fast Castle SAC</b>
<b>St Kilda SAC</b>
<b>Strath SAC</b>
<b>Strathglass Complex SAC</b>
<b>Strathy Point SAC</b>
<b>Stromness Heaths and Coast SAC</b>
<b>Sullom Voe SAC</b>
<b>Sunart SAC</b>
<b>Tarbert Woods SAC</b>
<b>Taynish and Knapdale Woods SAC</b>
<b>Tayvallich Juniper and Coast SAC</b>
<b>The Maim SAC</b>
<b>The Vadills SAC</b>
<b>Threepwood Moss SAC</b>
<b>Tingon SAC</b>

<b>Tiree Machair SAC</b>
<b>Tràigh na Berie SAC</b>
<b>Treshnish Isles SAC</b>
<b>Trossachs Woods SAC</b>
<b>Trotternish Ridge SAC</b>
<b>Tulach Hill and Glen Fender Meadows SAC</b>
<b>Turclossie Moss SAC</b>
<b>Turflundie Wood SAC</b>
<b>Tynron Juniper Wood SAC</b>
<b>Upper Nithsdale Woods SAC</b>
<b>Upper Strathearn Oakwoods SAC</b>
<b>Urquhart Bay Wood SAC</b>
<b>Waukenwae Moss SAC</b>
<b>West Fannyside Moss SAC</b>
<b>Whitlaw and Branhholme SAC</b>
<b>Yell Sound Coast SAC</b>
<b>Pobie Bank Reef SAC</b>
<b>Solan Bank Reef SAC</b>
<b>Aberbargoed Grasslands SAC</b>
<b>Afon Eden - Cors Goch Trawsfynydd SAC</b>
<b>Afon Gwyrfaï a Llyn Cwellyn SAC</b>
<b>Afon Teifi/ River Teifi SAC</b>
<b>Afon Tywi/ River Tywi SAC</b>
<b>Afonydd Cleddau/ Cleddau Rivers SAC</b>
<b>Alyn Valley Woods/ Coedwigoedd Dyffryn Alun SAC</b>
<b>Bae Cemlyn/ Cemlyn Bay SAC</b>
<b>Berwyn a Mynyddoedd de Clwyd/ Berwyn and South Clwyd Mountains SAC</b>
<b>Blackmill Woodlands SAC</b>
<b>Blaen Cynon SAC</b>
<b>Brecon Beacons/ Bannau Brycheiniog SAC</b>
<b>Cadair Idris SAC</b>

<b>Caeau Mynydd Mawr SAC</b>
<b>Cardiff Beech Woods SAC</b>
<b>Cardigan Bay/ Bae Ceredigion SAC</b>
<b>Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd SAC</b>
<b>Carmarthen Bay Dunes/ Twyni Bae Caerfyrddin SAC</b>
<b>Cernydd Carmel SAC</b>
<b>Clogwyni Pen Llŷn/ Seacliffs of Llyn SAC</b>
<b>Coed Cwm Einion SAC</b>
<b>Coed y Cerrig SAC</b>
<b>Coedwigoedd Dyffryn Elwy/ Elwy Valley Woods SAC</b>
<b>Coedwigoedd Penrhyn Creuddyn/ Creuddyn Peninsula Woods SAC</b>
<b>Coedydd a Cheunant Rheidol/ Rheidol Woods and Gorge SAC</b>
<b>Coedydd Aber SAC</b>
<b>Coedydd Derw a Safleoedd Ystlumod Meirion/ Meirionnydd Oakwoods and Bat Sites SAC</b>
<b>Coedydd Llawr-y-glyn SAC</b>
<b>Coedydd Nedd a Melite SAC</b>
<b>Coetiroedd Cwm Elan/ Elan Valley Woodlands SAC</b>
<b>Cors Caron SAC</b>
<b>Cors Fochno SAC</b>
<b>Corsydd Eifionydd SAC</b>
<b>Corsydd Llŷn/ Llyn Fens SAC</b>
<b>Corsydd Môn/ Anglesey Fens SAC</b>
<b>Crymlyn Bog/ Cors Crymlyn SAC</b>
<b>Cwm Cadlan SAC</b>
<b>Cwm Clydach Woodlands / Coedydd Cwm Clydach SAC</b>
<b>Cwm Doethie - Mynydd Mallaen SAC</b>
<b>Deeside and Buckley Newt Sites SAC</b>
<b>Drostre Bank SAC</b>
<b>Dunraven Bay SAC</b>
<b>Elenydd SAC</b>
<b>Eryri/ Snowdonia SAC</b>

<b>Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh SAC</b>
<b>Glannau Ynys Gybi/ Holy Island Coast SAC</b>
<b>Glan-traeth SAC</b>
<b>Glaswelltiroedd Cefn Cribwr/ Cefn Cribwr Grasslands SAC</b>
<b>Glynllifon SAC</b>
<b>Gower Ash Woods/ Coedydd Ynn Gŵyr SAC</b>
<b>Gower Commons/ Tiroedd Comin Gŵyr SAC</b>
<b>Granllyn SAC</b>
<b>Great Orme`s Head/ Pen y Gogarth SAC</b>
<b>Grogwynion SAC</b>
<b>Gweunydd Blaencleddau SAC</b>
<b>Halkyn Mountain/ Mynydd Helygain SAC</b>
<b>Johnstown Newt Sites SAC</b>
<b>Kenfig/ Cynffig SAC</b>
<b>Limestone Coast of South West Wales/ Arfordir Calchfaen de Orllewin Cymru SAC</b>
<b>Llangorse Lake/ Llyn Syfaddan SAC</b>
<b>Llwyn SAC</b>
<b>Llyn Dinam SAC</b>
<b>Migneint-Arenig-Dduallt SAC</b>
<b>Montgomery Canal SAC</b>
<b>Morfa Harlech a Morfa Dyffryn SAC</b>
<b>Mwyngloddiau Fforest Gwydir/ Gwydyr Forest Mines SAC</b>
<b>Mynydd Epynt SAC</b>
<b>North Anglesey Marine / Gogledd Môn Forol SCI</b>
<b>North Pembrokeshire Woodlands/ Coedydd Gogledd Sir Benfro SAC</b>
<b>North West Pembrokeshire Commons/ Comins Gogledd Orllewin Sir Benfro SAC</b>
<b>Pembrokeshire Bat Sites and Bosherton Lakes/ Safleoedd Ystlum Sir Benfro a Llynnoedd Bosherton SAC</b>
<b>Pembrokeshire Marine/ Sir Benfro Forol SAC</b>
<b>Pen Llŷn a`r Sarnau/ Llyn Peninsula and the Sarnau SAC</b>
<b>Preseli SAC</b>
<b>Rhinog SAC</b>

<b>Rhos Goch SAC</b>
<b>Rhos Llawr-cwrt SAC</b>
<b>Rhos Talglas SAC</b>
<b>River Usk/ Afon Wysg SAC</b>
<b>St David's / Ty Ddewi SAC</b>
<b>Sugar Loaf Woodlands SAC</b>
<b>Tanat and Vyrnwy Bat Sites/ Safleoedd Ystlumod Tanat ac Efyrnwy SAC</b>
<b>Usk Bat Sites/ Safleoedd Ystlumod Wysg SAC</b>
<b>West Wales Marine / Gorllewin Cymru Forol SCI</b>
<b>Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay SAC</b>
<b>Y Twyni o Abermenai i Aberffraw/ Abermenai to Aberffraw Dunes SAC</b>
<b>Yerbeston Tops SAC</b>
<b>Abberton Reservoir SPA</b>
<b>Abernethy Forest SPA</b>
<b>Achanalt Marshes SPA</b>
<b>Alde-Ore Estuary SPA</b>
<b>Anagach Woods SPA</b>
<b>Anglesey Terns SPA</b>
<b>Arun Valley SPA</b>
<b>Ashdown Forest SPA</b>
<b>Assynt Lochs SPA</b>
<b>Avon Valley SPA</b>
<b>Bae Caerfyrddin/ Carmarthen Bay SPA</b>
<b>Ballochbuie SPA</b>
<b>Beinn Dearg SPA</b>
<b>Ben Alder SPA</b>
<b>Ben Wyvis SPA</b>
<b>Benacre to Easton Bavents SPA</b>
<b>Benfleet and Southend Marshes SPA</b>
<b>Berwyn SPA</b>
<b>Black Cart SPA</b>

**Blackwater Estuary (Mid-Essex Coast Phase 4) SPA**

**Bowland Fells SPA**

**Breckland SPA**

**Breydon Water SPA**

**Broadland SPA**

**Buchan Ness to Collieston Coast SPA**

**Burry Inlet SPA**

**Caenlochan SPA**

**Cairngorms SPA**

**Cairngorms Massif SPA**

**Caithness and Sutherland Peatlands SPA**

**Caithness Lochs SPA**

**Cameron Reservoir SPA**

**Cape Wrath SPA**

**Castle Loch, Lochmaben SPA**

**Castlemartin Coast SPA**

**Chesil Beach and The Fleet SPA**

**Chew Valley Lake SPA**

**Chichester and Langstone Harbours SPA**

**Colne Estuary (Mid-Essex Coast Phase 2) SPA**

**Craig yr Aderyn (Bird's Rock) SPA**

**Craigmore Wood SPA**

**Creag Meagaidh SPA**

**Cromarty Firth SPA**

**Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) SPA**

**Darnaway and Lethen Forest SPA**

**Deben Estuary SPA**

**Dengie (Mid-Essex Coast Phase 1) SPA**

**Din Moss - Hoselaw Loch SPA**

**Dornoch Firth and Loch Fleet SPA**

**Dorset Heathlands SPA**

<b>Drumochter Hills SPA</b>
<b>Dungeness, Romney Marsh and Rye Bay SPA</b>
<b>Dyfi Estuary / Aber Dyfi SPA</b>
<b>East Caithness Cliffs SPA</b>
<b>East Devon Heaths SPA</b>
<b>Elenydd - Mallaen SPA</b>
<b>Exe Estuary SPA</b>
<b>Fala Flow SPA</b>
<b>Firth of Forth SPA</b>
<b>Firth of Tay and Eden Estuary SPA</b>
<b>Flamborough Head and Bempton Cliffs SPA</b>
<b>Foinaven SPA</b>
<b>Forest of Clunie SPA</b>
<b>Forth Islands SPA</b>
<b>Foulness (Mid-Essex Coast Phase 5) SPA</b>
<b>Fowlsheugh SPA</b>
<b>Gibraltar Point SPA</b>
<b>Gladhouse Reservoir SPA</b>
<b>Glannau Aberdaron ac Ynys Enlli/ Aberdaron Coast and Bardsey Island SPA</b>
<b>Glen Affric to Strathconon SPA</b>
<b>Glen App and Galloway Moors SPA</b>
<b>Glen Etive and Glen Fyne SPA</b>
<b>Glen Tanar SPA</b>
<b>Great Yarmouth North Denes SPA</b>
<b>Greenlaw Moor SPA</b>
<b>Hamford Water SPA</b>
<b>Handa SPA</b>
<b>Holburn Lake and Moss SPA</b>
<b>Hornsea Mere SPA</b>
<b>Humber Estuary SPA</b>
<b>Imperial Dock Lock, Leith SPA</b>

Inner Clyde Estuary SPA
Inner Moray Firth SPA
Inverpolly, Loch Urigill and nearby Lochs SPA
Kintyre Goose Roosts SPA
Kinveachy Forest SPA
Knapdale Lochs SPA
Lairg and Strath Brora Lochs SPA
Langholm - Newcastleton Hills SPA
Lee Valley SPA
Leighton Moss SPA
Lindisfarne SPA
Liverpool Bay / Bae Lerpwl SPA
Loch Ashie SPA
Loch Eye SPA
Loch Flemington SPA
Loch Ken and River Dee Marshes SPA
Loch Knockie and nearby Lochs SPA
Loch Leven SPA
Loch Lomond SPA
Loch Maree SPA
Loch of Inch and Torrs Warren SPA
Loch of Kinnordy SPA
Loch of Lintrathen SPA
Loch of Skene SPA
Loch of Strathbeg SPA
Loch Ruthven SPA
Loch Shiel SPA
Loch Spynie SPA
Loch Vaa SPA
Lochnagar SPA
Lower Derwent Valley SPA

**Marazion Marsh SPA**

**Martin Mere SPA**

**Medway Estuary and Marshes SPA**

**Mersey Estuary SPA**

**Mersey Narrows and North Wirral Foreshore SPA**

**Migneint-Arenig-Dduallt SPA**

**Minsmere-Walberswick SPA**

**Moidart and Ardgour SPA**

**Montrose Basin SPA**

**Morangie Forest SPA**

**Moray and Nairn Coast SPA**

**Muir of Dinnet SPA**

**Muirkirk and North Lowther Uplands SPA**

**Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal SPA**

**Nene Washes SPA**

**New Forest SPA**

**North Caithness Cliffs SPA**

**North Inverness Lochs SPA**

**North Norfolk Coast SPA**

**North Pennine Moors SPA**

**North York Moors SPA**

**Northumbria Coast SPA**

**Novar SPA**

**Ouse Washes SPA**

**Outer Thames Estuary SPA**

**Pagham Harbour SPA**

**Peak District Moors (South Pennine Moors Phase 1) SPA**

**Poole Harbour SPA**

**Porton Down SPA**

**Portsmouth Harbour SPA**

**Ramsey and St David's Peninsula Coast SPA**

<b>Rannoch Lochs SPA</b>
<b>Renfrewshire Heights SPA</b>
<b>Ribble and Alt Estuaries SPA</b>
<b>River Spey - Insh Marshes SPA</b>
<b>Rutland Water SPA</b>
<b>Salisbury Plain SPA</b>
<b>Sandlings SPA</b>
<b>Severn Estuary SPA</b>
<b>Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro SPA</b>
<b>Slamannan Plateau SPA</b>
<b>Solent and Southampton Water SPA</b>
<b>Somerset Levels and Moors SPA</b>
<b>South Pennine Moors Phase 2 SPA</b>
<b>South Tayside Goose Roosts SPA</b>
<b>South West London Waterbodies SPA</b>
<b>St Abb's Head to Fast Castle SPA</b>
<b>Stodmarsh SPA</b>
<b>Stour and Orwell Estuaries SPA</b>
<b>Strath Carnaig and Strath Fleet Moors SPA</b>
<b>Tamar Estuaries Complex SPA</b>
<b>Teesmouth and Cleveland Coast SPA</b>
<b>Thames Basin Heaths SPA</b>
<b>Thames Estuary and Marshes SPA</b>
<b>Thanet Coast and Sandwich Bay SPA</b>
<b>The Dee Estuary SPA</b>
<b>The Swale SPA</b>
<b>The Wash SPA</b>
<b>Thorne and Hatfield Moors SPA</b>
<b>Thursley, Hankley and Frensham Commons (Wealden Heaths Phase 1) SPA</b>
<b>Tips of Corsemaul and Tom Mor SPA</b>
<b>Traeth Lafan/ Lavan Sands, Conway Bay SPA</b>

<b>Troup, Pennan and Lion's Heads SPA</b>
<b>Upper Nene Valley Gravel Pits SPA</b>
<b>Upper Solway Flats and Marshes SPA</b>
<b>Walmore Common SPA</b>
<b>Wealden Heaths Phase 2 SPA</b>
<b>West Inverness-shire Lochs SPA</b>
<b>Wester Ross Lochs SPA</b>
<b>Westwater SPA</b>
<b>Ythan Estuary, Sands of Forvie and Meikle Loch SPA</b>
<b>Abberton Reservoir Ramsar</b>
<b>Alde–Ore Estuary Ramsar</b>
<b>Arun Valley Ramsar</b>
<b>Avon Valley Ramsar</b>
<b>Benfleet and Southend Marshes Ramsar</b>
<b>Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar</b>
<b>Breydon Water Ramsar</b>
<b>Broadland Ramsar</b>
<b>Chesil Beach and The Fleet Ramsar</b>
<b>Chichester and Langstone Harbours Ramsar</b>
<b>Chippenham Fen Ramsar</b>
<b>Colne Estuary (Mid-Essex Coast Phase 2) Ramsar</b>
<b>Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) Ramsar</b>
<b>Deben Estuary Ramsar</b>
<b>Dengie (Mid-Essex Coast Phase 1) Ramsar</b>
<b>Dersingham Bog Ramsar</b>
<b>Dorset Heathlands Ramsar</b>
<b>Duddon Estuary Ramsar</b>
<b>Esthwaite Water Ramsar</b>
<b>Exe Estuary Ramsar</b>
<b>Foulness (Mid-Essex Coast Phase 5) Ramsar</b>
<b>Hamford Water Ramsar</b>

<b>Holburn Lake and Moss Ramsar</b>
<b>Humber Estuary Ramsar</b>
<b>Irthinghead Mires Ramsar</b>
<b>Lee Valley Ramsar</b>
<b>Leighton Moss Ramsar</b>
<b>Lindisfarne Ramsar</b>
<b>Lower Derwent Valley Ramsar</b>
<b>Malham Tarn Ramsar</b>
<b>Martin Mere Ramsar</b>
<b>Medway Estuary and Marshes Ramsar</b>
<b>Mersey Estuary Ramsar</b>
<b>Midland Meres and Mosses Phase 1 Ramsar</b>
<b>Minsmere–Walberswick Ramsar</b>
<b>Morecambe Bay Ramsar</b>
<b>Nene Washes Ramsar</b>
<b>The New Forest Ramsar</b>
<b>North Norfolk Coast Ramsar</b>
<b>Northumbria Coast Ramsar</b>
<b>Ouse Washes Ramsar</b>
<b>Pagham Harbour Ramsar</b>
<b>Pevensey Levels Ramsar</b>
<b>Poole Harbour Ramsar</b>
<b>Portsmouth Harbour Ramsar</b>
<b>Redgrave and South Lopham Fens Ramsar</b>
<b>Ribble and Alt Estuaries Ramsar</b>
<b>Rostherne Mere Ramsar</b>
<b>Roydon Common Ramsar</b>
<b>Rutland Water Ramsar</b>
<b>Solent and Southampton Water Ramsar</b>
<b>Somerset Levels and Moors Ramsar</b>
<b>South West London Waterbodies Ramsar</b>

Stodmarsh Ramsar

Stour and Orwell Estuaries Ramsar

Teesmouth and Cleveland Coast Ramsar

Thames Estuary and Marshes Ramsar

Thanet Coast and Sandwich Bay Ramsar

The Swale Ramsar

The Wash Ramsar

Thursley and Ockley Bog Ramsar

Walmore Common Ramsar

Wicken Fen Ramsar

Woodwalton Fen Ramsar

Upper Solway Flats and Marshes Ramsar

Midland Meres and Mosses Phase 2 Ramsar

Severn Estuary Ramsar

Cairngorm Lochs Ramsar

Caithness and Sutherland Peatlands Ramsar

Caithness Lochs Ramsar

Cameron Reservoir Ramsar

Castle Loch, Lochmaben Ramsar

Claish Moss Ramsar

Cromarty Firth Ramsar

Din Moss – Hoselaw Loch Ramsar

Dornoch Firth and Loch Fleet Ramsar

Fala Flow Ramsar

Firth of Forth Ramsar

Firth of Tay & Eden Estuary Ramsar

Gladhouse Reservoir Ramsar

Greenlaw Moor Ramsar

Inner Clyde Estuary Ramsar

Inner Moray Firth Ramsar

Kintyre Goose Roosts Ramsar

<b>Loch Eye Ramsar</b>
<b>Loch Ken and River Dee Marshes Ramsar</b>
<b>Loch Leven Ramsar</b>
<b>Loch Lomond Ramsar</b>
<b>Loch Maree Ramsar</b>
<b>Loch of Inch and Torrs Warren Ramsar</b>
<b>Loch of Kinnordy Ramsar</b>
<b>Loch of Lintrathen Ramsar</b>
<b>Loch of Skene Ramsar</b>
<b>Loch of Strathbeg Ramsar</b>
<b>Loch Ruthven Ramsar</b>
<b>Loch Spynie Ramsar</b>
<b>Montrose Basin Ramsar</b>
<b>Moray and Nairn Coast Ramsar</b>
<b>Muir of Dinnet Ramsar</b>
<b>Rannoch Moor Ramsar</b>
<b>River Spey – Insh Marshes Ramsar</b>
<b>Silver Flowe Ramsar</b>
<b>South Tayside Goose Roosts Ramsar</b>
<b>Westwater Ramsar</b>
<b>Ythan Estuary and Meikle Loch Ramsar</b>
<b>Burry Inlet Ramsar</b>
<b>Cors Caron Ramsar</b>
<b>Cors Fochno and Dyfi Ramsar</b>
<b>Corsydd Môn a Llyn/ Anglesey and Llyn Fens Ramsar</b>
<b>Crymlyn Bog Ramsar</b>
<b>Llyn Idwal Ramsar</b>
<b>Llyn Tegid Ramsar</b>
<b>Upper Nene Valley Gravel Pits Ramsar</b>
<b>The Dee Estuary Ramsar</b>
<b>Mersey Narrows and North Wirral Foreshore Ramsar</b>

Table A.2 Non-UK Mainland European sites with mobile species that are potentially exposed to effects in the marine environment

Site name	Country	Vulnerable Features
Baie de Seine occidentale SAC or SCI	France	Fish
Baie de Seine orientale SAC or SCI	France	Fish
Baie du mont Saint-Michel SAC or SCI	France	Fish
Chausey SAC or SCI	France	Fish
Cote de Granit rose-Sept-Iles SAC or SCI	France	Fish
Estuaire de la Seine SAC or SCI	France	Fish
Falaises et dunes de Wimereux, estuaire de la Slack, Garennes et Communaux d'Ambleteuse-Audresselles SAC or SCI	France	Fish
Littoral Ouest du Cotentin de Brehal à Pirou SAC or SCI	France	Fish
Marais du Cotentin et du Bessin - Baie des Veys SAC or SCI	France	Fish
Prairies et marais tourbeux de la basse vallée de l'Authie SAC or SCI	France	Fish
Riviere le Douron SAC or SCI	France	Fish
Rivière Leguer, forêts de Beffou, Coat an Noz et Coat an Hay SAC or SCI	France	Fish
Vallee de l'Authie SAC or SCI	France	Fish
River Barrow and River Nore SAC or SCI	Ireland	Fish
Slaney River Valley SAC or SCI	Ireland	Fish
Vlakte van de Raan SAC or SCI	Netherlands	Fish
Voordelta SAC or SCI	Netherlands	Fish
Westerschelde & Saeftinghe SAC or SCI	Netherlands	Fish
Vlakte van de Raan SAC	Belgium	Marine Mammals
Abers - Côtes des légendes SAC	France	Marine Mammals
Baie de Canche et couloir des trois estuaires SAC or SCI	France	Marine Mammals
Bancs des Flandres SAC	France	Marine Mammals
Falaises du Cran aux Oeufs et du Cap Gris-Nez, Dunes du Chatelet, Marais de Tardinghen et Dunes de Wissant SAC	France	Marine Mammals

Site name	Country	Vulnerable Features
<b>Ouessant-Molene SAC</b>	France	Marine Mammals
<b>Récifs et landes de la Hague SAC</b>	France	Marine Mammals
<b>Récifs Gris-Nez Blanc-Nez SAC</b>	France	Marine Mammals
<b>Ridens et dunes hydrauliques du détroit du Pas-de-Calais SAC</b>	France	Marine Mammals
<b>Doggerbank SAC</b>	Germany	Marine Mammals
<b>Doggersbank SAC</b>	Netherlands	Marine Mammals
<b>Isle of May SAC</b>	UK	Marine Mammals
<b>Isles of Scilly Complex SAC</b>	UK	Marine Mammals
<b>Lundy SAC</b>	UK	Marine Mammals
<b>Murlough SAC</b>	UK	Marine Mammals
<b>Strangford Lough SAC</b>	UK	Marine Mammals
<b>SBZ 1 / ZPS 1 SAC or SCI</b>	Belgium	Marine Mammals, Fish
<b>SBZ 2 / ZPS 2 SAC or SCI</b>	Belgium	Marine Mammals, Fish
<b>SBZ 3 / ZPS 3 SAC or SCI</b>	Belgium	Marine Mammals, Fish
<b>Vlaamse Banken SAC or SCI</b>	Belgium	Marine Mammals, Fish
<b>Vlakte van de Raan SAC or SCI</b>	Belgium	Marine Mammals, Fish
<b>Baie de Morlaix SAC or SCI</b>	France	Marine Mammals, Fish
<b>Estuaires et littoral picards (baies de Somme et d'Authie) SAC or SCI</b>	France	Marine Mammals, Fish
<b>Tregor Goelo SAC or SCI</b>	France	Marine Mammals, Fish
<b>SBZ 1 / ZPS 1 SPA</b>	Belgium	Seabirds
<b>SBZ 2 / ZPS 2 SPA</b>	Belgium	Seabirds
<b>Vlaamse Banken SPA</b>	Belgium	Seabirds
<b>Archipel de Glénan SPA</b>	France	Seabirds
<b>Baie de Saint-Brieuc - Est SPA</b>	France	Seabirds
<b>Baie de Seine occidentale SPA</b>	France	Seabirds
<b>Baie de Vilaine SPA</b>	France	Seabirds
<b>Bancs des Flandres SPA</b>	France	Seabirds
<b>Camaret SPA</b>	France	Seabirds
<b>Cap d'Erquy-Cap Fréhel SPA</b>	France	Seabirds

Site name	Country	Vulnerable Features
Cap Sizun SPA	France	Seabirds
Chausey SPA	France	Seabirds
Estuaire de la Loire - Baie de Bourgneuf SPA	France	Seabirds
Estuaire de la Loire SPA	France	Seabirds
Falaise du Bessin Occidental SPA	France	Seabirds
Iles Houat-Hoëdic SPA	France	Seabirds
Landes et dunes de la Hague SPA	France	Seabirds
Les "Cinq Tailles" SPA	France	Seabirds
Littoral augeron SPA	France	Seabirds
Littoral seino-marin SPA	France	Seabirds
Mor Braz SPA	France	Seabirds
Pertuis charentais - Rochebonne SPA	France	Seabirds
Roches de Penmarc'h SPA	France	Seabirds
Secteur marin de l'île d'Yeu jusqu'au continent SPA	France	Seabirds
Östliche Deutsche Bucht SPA	Germany	Seabirds
Ramsar-Gebiet S-H Wattenmeer und angrenzende Küstengebiete SPA	Germany	Seabirds
Seevogelschutzgebiet Helgoland SPA	Germany	Seabirds
Ballycotton Bay SPA	Ireland	Seabirds
Ballymacoda Bay SPA	Ireland	Seabirds
Beara Peninsula SPA	Ireland	Seabirds
Blackwater Estuary SPA	Ireland	Seabirds
Blasket Islands SPA	Ireland	Seabirds
Cork Harbour SPA	Ireland	Seabirds
Deenish Island and Scariff Island SPA	Ireland	Seabirds
Dungarvan Harbour SPA	Ireland	Seabirds
Galley Head to Duneen Point SPA	Ireland	Seabirds
Helvick Head to Ballyquin SPA	Ireland	Seabirds
Howth Head Coast SPA	Ireland	Seabirds
Ireland's Eye SPA	Ireland	Seabirds
Iveragh Peninsula SPA	Ireland	Seabirds

Site name	Country	Vulnerable Features
Lambay Island SPA	Ireland	Seabirds
Old Head of Kinsale SPA	Ireland	Seabirds
Puffin Island SPA	Ireland	Seabirds
Saltee Islands SPA	Ireland	Seabirds
Sheep's Head to Toe Head SPA	Ireland	Seabirds
Skelligs SPA	Ireland	Seabirds
Skerries Islands SPA	Ireland	Seabirds
Tacumshin Lake SPA	Ireland	Seabirds
The Bull and The Cow Rocks SPA	Ireland	Seabirds
Wicklow Head SPA	Ireland	Seabirds
Veerse Meer SPA	Netherlands	Seabirds
Ailsa Craig SPA	UK	Seabirds
Copeland Islands SPA	UK	Seabirds
Coquet Island SPA	UK	Seabirds
Fair Isle SPA	UK	Seabirds
Farne Islands SPA	UK	Seabirds
Grassholm SPA	UK	Seabirds
Isles of Scilly SPA	UK	Seabirds
Mingulay and Berneray SPA	UK	Seabirds
Outer Ards SPA	UK	Seabirds
Rathlin Island SPA	UK	Seabirds
Rum SPA	UK	Seabirds
Seas off Foula pSPA	UK	Seabirds
Shiant Isles SPA	UK	Seabirds
Strangford Lough SPA	UK	Seabirds
Ynys Seiriol / Puffin Island SPA	UK	Seabirds
Baie de Seine occidentale SAC or SCI	France	Fish
Baie de Seine orientale SAC or SCI	France	Fish
Baie du mont Saint-Michel SAC or SCI	France	Fish
Chausey SAC or SCI	France	Fish

Site name	Country	Vulnerable Features
<b>Cote de Granit rose-Sept-Iles SAC or SCI</b>	France	Fish
<b>Estuaire de la Seine SAC or SCI</b>	France	Fish
<b>Falaises et dunes de Wimereux, estuaire de la Slack, Garennes et Communaux d'Ambleteuse-Audresselles SAC or SCI</b>	France	Fish
<b>Littoral Ouest du Cotentin de Brehal á Pirou SAC or SCI</b>	France	Fish
<b>Marais du Cotentin et du Bessin - Baie des Veys SAC or SCI</b>	France	Fish

# Appendix B

## Standard avoidance measures and best-practice

### Overview

The following section summarises some of the established best-practice and avoidance measures that the HRA assumes will be applied unless project-level HRAs or scheme-specific environmental studies demonstrate that they are not required (i.e. the anticipated effect will not occur), not appropriate, or that alternative or additional measures are necessary or more appropriate. Note that these measures are not exhaustive or exclusive and must be reviewed at the project stage, taking into account any changes in best-practice as well as scheme-specific survey information or studies.

### General Measures and Principles

#### Scheme Design and Planning

All options will be subject to project-level environmental assessment as they are brought forward, which will include assessments of their potential to affect European sites during their construction or operation. These assessments will consider or identify (inter alia):

- opportunities for avoiding potential effects on European sites through design (e.g. alternative pipeline routes; micro siting; etc);
- construction measures that need to be incorporated into scheme design and/or planning to avoid or mitigate potential effects - for example, ensuring that sufficient working area is available for pollution prevention measures to be installed, such as sediment traps;
- operational regimes required to ensure no adverse effects occur (e.g. compensation releases - although note that these measures can only be identified through detailed investigation schemes and agreed through the abstraction licensing process).

#### Pollution Prevention

The habitats of European sites are most likely to be affected indirectly, through construction-site derived pollutants, rather than through direct encroachment. There is a substantial body of general construction good-practice which is likely to be applicable to all of the proposed options and can be relied on (at this level) to prevent significant or adverse effects on a European site occurring as a result of construction site-derived pollutants. The following guidance documents detail the current industry best-practices in construction that are likely to be relevant to the proposed schemes:

- Environment Agency Pollution Prevention Guidance Notes<sup>62</sup>, including:
  - ▶ PPG1: General guide to the prevention of pollution (May 2001);
  - ▶ PPG5: Works and maintenance in or near water (October 2007);

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<sup>62</sup> Note, the Environment Agency Pollution Prevention Guidance Notes have been withdrawn by the Government, although the principles within them are sound and form a reasonable basis for pollution prevention measures.

- ▶ PPG6: Pollution prevention guidance for working at construction and demolition sites (April 2010);
- ▶ PPG21: Pollution incident response planning (March 2009);
- ▶ PPG22: Dealing with spillages on highways (June 2002);
- Environment Agency (2001) *Preventing pollution from major pipelines* [online]. Available at [www.environment-agency.gov.uk/static/documents/Business/pipes.pdf](http://www.environment-agency.gov.uk/static/documents/Business/pipes.pdf). [Accessed 1 March 2011];
- Venables R. *et al.* (2000) *Environmental Handbook for Building and Civil Engineering Projects*. 2nd Edition. Construction Industry Research and Information Association (CIRIA), London.

It is assumed that the best-practice procedures and measures detailed in these documents will be followed for all construction works associated with water resources infrastructure schemes covered by the NPS, unless scheme-specific investigations identify additional measures and/or more appropriate non-standard approaches for dealing with potential site-derived pollutants.

## General measures for species

Most species-specific avoidance or mitigation measures can only be determined at the scheme level, following scheme-specific surveys, and 'best-practice' mitigation for a species will vary according to a range of factors that cannot be determined at the strategic level. In addition, some general 'best-practice' measures may not be relevant or appropriate to the interest features of the European sites concerned (for example, clearing vegetation over winter is usually advocated to avoid impacts on nesting birds; however, this is unlikely to be necessary to avoid effects on some SPA species (such as overwintering estuarine birds) and the winter removal of vegetation might actually have a negative effect on these species through disturbance). However, it is assumed that the following general measures will be followed to minimise the potential for impacts on species that are European site interest features unless project level environmental studies or HRA indicate that they are not required or not appropriate, or that alternative or additional measures are more appropriate/necessary:

- Scheme design will aim to minimise the environmental effects by 'designing to avoid' potential habitat features that may be used by species that are European site interest features when outside the site boundary (e.g. linear features such as hedges or stream corridors; large areas of scrub or woodland; mature trees; etc.) through scheme-specific routing studies.
- The works programme and requirements for each option will be determined at the earliest opportunity to allow investigation schemes, surveys and mitigation to be appropriately scheduled and to provide sufficient time for consultations with the SNCBs.
- Night-time working, or working around dusk/dawn, should be avoided to reduce the likelihood of negative effects on nocturnal species.
- Any lighting required (either temporary or permanent) will be designed with an ecologist to ensure that potential 'displacement' effects on nocturnal animals, particularly SAC bat species, are avoided.
- All compounds/pipe stores etc. will be sited, fenced or otherwise arranged to prevent vulnerable SAC species (notably otters) from accessing them.
- All materials will be stored away from commuting routes/foraging areas that may be used by species that are European site interest features.
- All excavations will have ramps or battered ends to prevent species becoming trapped.

- Pipe-caps must be installed overnight to prevent species entering and becoming trapped in any laid pipe-work.

## 6.5 Mitigation noted in in the NPS

The following measures are also noted in the NPS in respect of Biodiversity and Conservation:

- In-river and riparian improvement measures should be considered in the design of development.
- HGV movements should be routed to avoid disturbance to designated nature conservation sites.
- Where appropriate, measures should be identified as part of the design of proposals to encourage public access to wildlife.
- Proposals should seek to create/contribute to a Nature Recovery Network

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