

# Draft National Policy Statement for Water Resources Infrastructure

**November 2018** 



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### 1.Introduction

### 1.1. Background and scope of this NPS

### **Purpose of this NPS**

- 1.1.1 The National Policy Statement for water resources infrastructure, hereafter referred to as the 'NPS', sets out the need and government's policies for, development of nationally significant infrastructure projects (NSIPs) for water resources in England. It provides planning guidance for applicants of NSIPs for water resources, as defined in the Planning Act 2008 ('the Planning Act').
- 1.1.2 This NPS will be used as the primary basis for preparing applications for development consent, for examination by the Examining Authority<sup>1</sup> and for making decisions by the Secretary of State in considering development consent applications for water resources infrastructure, that fall within the definition of NSIPs, as defined in Sections 27, 28 and 28A of the Planning Act 2008.
- 1.1.3 Where a development does not meet the current requirements for an NSIP set out in the Planning Act but the Secretary of State considers the project to be nationally significant, under Section 35 of the Planning Act, the Secretary of State may direct that a water resources infrastructure development should be treated as a development for which development consent is required. This could apply to infrastructure types in the field of water that do not meet the definition of an NSIP for water resources; provided the relevant requirements of Section 35 are satisfied.
- 1.1.4 Where a water resources infrastructure development is treated as a development for which development consent is required through Section 35 of the Planning Act, the NPS may be a material consideration.<sup>2</sup>
- 1.1.5 The Secretary of State<sup>3</sup> must decide an application for water resources infrastructure in accordance with this NPS, unless to do so would:
  - lead to the UK being in breach of its international obligations;
  - be unlawful;

<sup>&</sup>lt;sup>1</sup> The examination is undertaken by an Examining Authority appointed by the Secretary of State. For NSIPs in England, the Examining Authority is the Planning Inspectorate. More information on the role of the Planning Inspectorate is available on its website.

<sup>&</sup>lt;sup>2</sup> There is more on where this NPS may apply to section 35 schemes in section 1.4.6.

<sup>&</sup>lt;sup>3</sup> Pursuant to section 104 of the Planning Act.

- lead to the Secretary of State being in breach of any duty imposed by or under any legislation;
- result in adverse impacts of the development outweighing its benefits; or
- be contrary to legislation about how the decisions are to be taken.
- 1.1.6 This NPS provides a clear framework for those making development consent applications for water resources infrastructure; in particular by setting out the need for infrastructure (see section 2); providing assessment principles to guide the examination (see section 3) and more detailed guidance on the construction and operational impacts of the infrastructure types (see section 4). The National Planning Policy Framework and associated guidance is referenced in section 4. The National Planning Policy Framework clarifies its policy relationship to NPSs.<sup>4</sup>
- 1.1.7 The policy set out in this NPS is, for the most part, based on existing wider government policy and practice in relation to NSIPs, rather than representing a change or new underlying policies against which applications are assessed.
- 1.1.8 In making decisions on such applications, the Secretary of State must also have regard to any local impact report submitted by a local authority, in accordance with the Planning Act. Regard must also be given to any matters prescribed that are relevant to the application, and any other matters which the Secretary of State considers are both important and relevant to any decision.
- 1.1.9 In England, this NPS may also be a material consideration in making decisions on applications for development that fall within local authority planning regimes (for example under the Town and Country Planning Act 1990). Whether, and to what extent this NPS is a material consideration, will be judged on a case by case basis.
- 1.1.10 Where the NPS refers to other documents, these documents may be updated or amended over the time span of the NPS. Such references should be taken as references to successor documents.
- 1.1.11 This NPS is supported by the following documents:
  - Appraisal of Sustainability ensures that the NPS takes account of environmental, social and economic considerations, with the objective of contributing to the achievement of sustainable development. The Appraisal of Sustainability incorporates the requirements of the Strategic Environmental Assessment Directive.
  - Habitats Regulation Assessment examines the potential effects of the NPS on nature conservation sites that are designated to be of European importance.

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<sup>&</sup>lt;sup>4</sup> Paragraph 5 of the National Planning Policy Framework

1.1.12 These documents are explained in more detail in sections 1.7 and 1.8. The NPS therefore should not be read as a standalone document but considered as a package of evidence presenting the need and considerations for water resources infrastructure.

### 1.2. Geographical coverage

- 1.2.1. This 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.
- 1.2.2. In Scotland and Wales, planning consents for water resources infrastructure projects are devolved to Scottish government and Welsh government. Where a scheme crosses a national border, the applicants should ensure all relevant permissions are obtained from the relevant authorities. See sections 3 and 4 for more information on the consideration of cross border impacts and assessment criteria.
- 1.2.3. While the NPS applies in England only, the Appraisal of Sustainability and Habitats Regulation Assessment that informed this NPS (see sections 1.7 and 1.8), considers the potential socio-economic and environmental impacts of nationally significant infrastructure related to water resources infrastructure in Wales and Scotland, given their borders with England.

### 1.3. Infrastructure covered by the water resources NPS

- 1.3.1. Applications for development consent relating to water resources infrastructure will be made in accordance with the Planning Act. Water Resources infrastructure comprises development in England which meets the criteria set out in sections 27, 28 and 28A of the Planning Act.
- 1.3.2. Applications for development consent for these projects may also include 'associated development' within the meaning of the Planning Act.<sup>5</sup> Development that does not fall within the definition of water resources infrastructure or associated development may require a separate application for planning permission to be made to a local authority.
- 1.3.3. This NPS is not a site-specific document. That is, it does not identify specific locations where water resources infrastructure should be sited, but rather provides

<sup>&</sup>lt;sup>5</sup> <u>https://www.gov.uk/government/publications/planning-act-2008-associated-development-applications-formajor-infrastructure-projects</u>

guidance relevant to the consideration of this type of infrastructure anywhere in England.

### 1.4. Water resource management plans

- 1.4.1. The criteria for NSIPs relating to water resources, as set out in sections 27, 28 and 28A of the Planning Act, states that the development or construction of a project will be carried out by one or more water undertakers.<sup>6</sup>
- 1.4.2. All water undertakers have a statutory obligation to produce water resource management plans<sup>7</sup> (WRMPs). These plans, in accordance with the Water Industry Act 1991 and subsequent legislation, including The Water Resources Management Plan Regulations 2007 (2007 regulations) and The Water Resources Management Plan (England) Direction 2017,<sup>8</sup> set out how companies will manage and develop water resources, so as to be able to meet its water supply obligations. WRMPs are also developed in line with regulators' guidance.<sup>9</sup>
- 1.4.3. WRMPs look ahead at plans for at least the next 25 years and are reviewed every five years. It is through the process of preparing, consulting on and finalising these WRMPs that decisions will be made on what additional water resource infrastructure is required on a local, regional and national scale.
- 1.4.4. The Secretary of State will consider applications for development consent for infrastructure projects meeting the criteria set out in sections 27, 28 or 28A of the Planning Act. These projects will be present in final WRMPs, which the Secretary of State will have given permission to publish.
- 1.4.5. If an NSIP is included in a published final WRMP, the need for that scheme will have been demonstrated in line with government policy, and the applicable statutory requirements, and does not need to be revisited as part of the application for development consent. The Examining Authority and the Secretary of State should therefore start their assessment of applications for infrastructure covered by this NPS on that basis.
- 1.4.6. The Secretary of State will also consider applications for development consent for projects which do not meet the NSIP criteria, as set out in sections 27, 28 and 28A of the Planning Act, but which the Secretary of State directs are to be treated as a development for which development consent is required under section 35 of the

<sup>&</sup>lt;sup>6</sup> "Water undertaker" means a company appointed as a water undertaker under the Water Industry Act 1991.

<sup>&</sup>lt;sup>7</sup> Water undertakers produce water resource management plans every five years. These plans set out how water companies plan to deliver secure public water supplies over the next 25 years.

<sup>&</sup>lt;sup>8</sup> The <u>Water Resources Management Plan Regulations 2007</u> provide further detail on the WRMP process including consultation requirements.

<sup>&</sup>lt;sup>9</sup> This includes regulators' water resources planning guidelines and Government's guiding principles for water resources planning, which can be provided by the Environment Agency and Defra on request.

- Planning Act. Where a section 35 direction is made in relation to a scheme which has been identified as a preferred option in a final WRMP, this NPS may apply.<sup>10</sup>
- 1.4.7. Section 35 referrals that are not present in a WRMP or developed by a water undertaker/s should be dealt with on a case by case basis<sup>11</sup> and should demonstrate that they meet the need for nationally significant water resources infrastructure, as set out in section 2.

### 1.5. European Union

- 1.5.1. On 23 June 2016, the EU referendum took place and the people of the United Kingdom voted to leave the European Union. At the present time, the UK remains a full member of the European Union and all the rights and obligations of EU membership remain in force and the government will continue to negotiate, implement and apply EU legislation. The outcome of the negotiations between the UK and the EU will determine what arrangements apply in relation to EU legislation in the future once the UK has left the EU.
- 1.5.2. This NPS and the accompanying documents may refer to relevant EU Directives, the status of which within the UK will change once the UK has left the EU. References to a Directive in sections 3 ('Assessment Principles') and 4 ('Generic Impacts') of this NPS should, following the UK's departure from the EU, be read as references to the domestic legislation that implemented the Directive (including that domestic legislation as it is revised or replaced from time to time). References to a Directive elsewhere should be read in the context in which the reference appears.

### 1.6. Relationship with other NPSs

- 1.6.1. This is a standalone NPS and should be treated as such. It is separate from the waste water NPS and section 29 of the Planning Act, which sets out the definition of nationally significant waste water infrastructure.
- 1.6.2. This NPS could be an important and relevant consideration in respect of applications for infrastructure schemes that include, or have impacts upon, water resources infrastructure. Other NPSs may also be relevant to decisions on water resources infrastructure.

<sup>&</sup>lt;sup>10</sup> In accordance with section 104 of the Planning Act, where a national policy statement has effect in relation to development of the description to which the application relates.

<sup>&</sup>lt;sup>11</sup> Section 105 of the Planning Act may apply if section 104 and the NPS, does not apply in relation to the application.

### 1.7. Sustainability considerations

- 1.7.1. An Appraisal of Sustainability is required by section 5(3) of the Planning Act in relation to any NPS. An Appraisal of Sustainability, developed alongside this NPS to inform its preparation, has been published to accompany it. As set out earlier in this section, it has been carried out in such a way that satisfies the requirements of the Strategic Environmental Assessment Directive.<sup>12</sup>
- 1.7.2. The Appraisal of Sustainability appraised the likely sustainability effects of implementing the draft NPS in delivering the government's policy for the development of new water resources infrastructure with a particular focus on:
  - the proposed NPS objectives set out in section 1.10 of the draft NPS;
  - the proposed assessment principles and guidance on impacts and general siting considerations contained within Parts 3 and 4 of the draft NPS; and
  - the reasonable alternatives to the draft NPS.
- 1.7.3. As this NPS is not site specific, the Appraisal of Sustainability assessments are largely qualitative in nature. A final published WRMP will have undergone any relevant statutory environmental assessments, including a Strategic Environmental Assessment and Habitats Regulation Assessment. Schemes that are included in a final published WRMP will have been assessed to inform suitability and ensure they do not have any unacceptable environmental impacts that cannot be overcome. Following its identification as a preferred option in a WRMP, a scheme will likely need to undergo a more detailed environmental assessment. Information from these assessments may be relevant for a development consent application.

### 1.8. Habitats considerations

- 1.8.1. The NPS has also been assessed under the Habitats and Wild Birds Directives<sup>13</sup> and the Conservation of Habitats and Species Regulations 2017<sup>14</sup> (the Habitats Regulations).
- 1.8.2. This NPS sets out UK government policy but does not specify locations for new infrastructure, so the Habitats Regulations Assessment has been undertaken at a strategic level. The Habitats Regulations Assessment Report has been published alongside this NPS.

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<sup>&</sup>lt;sup>12</sup> Directive 2001/42/EC of the European Parliament and Council Directive on the assessment of the effects of certain plans and programmes on the environment. The Strategic Environmental Assessment Directive has been transposed in England by the Environmental Assessment of Plans and Programmes Regulations, SI 2004/1633.

<sup>&</sup>lt;sup>13</sup> Council Directive 92/43/EEC on the conservation of natural habitats and of wild flora and fauna (the Habitats Directive) and Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds (the Wild Birds Directive).

<sup>&</sup>lt;sup>14</sup> SI 2017/1012.

- 1.8.3. The Habitats Regulations Assessment considered the likely significant effects on European designated nature conservation sites (Special Areas of Conservation, Special Protection Areas and Ramsar Sites) of delivering the government's policy for developing water resources infrastructure through the NPS. The approach adopted in this assessment covered:
  - screening;
  - appropriate assessment;
  - · assessment of alternatives; and
  - assessment of imperative reasons of overriding public interest and identification of compensatory measures.
- 1.8.4. The conclusions of this assessment are given in the separate Habitats Regulations Assessment Report (titled 'National Policy Statement for Water Resources Infrastructure Habitats Regulations Assessment').

### 1.9. Period of validity and review

1.9.1. The NPS will remain in its entirety unless withdrawn or suspended in whole or in part by the Secretary of State. It will be kept under review by the Secretary of State, in accordance with the requirements of the Planning Act, to ensure that it remains appropriate for decision making.

### 1.10. Summary of objectives

- 1.10.1. The objectives of this NPS 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.

# 2. Government policy and the need for water resources infrastructure

### 2.1. Introduction

- 2.1.1. Water is essential for life and livelihoods. England's water supply currently comes from a mix of underground sources (aquifers), rivers and reservoirs. The pressure on our water resources is increasing due to population growth, the impacts of climate change and the need for sufficient water in our watercourses, lakes and wetlands to protect the environment.<sup>15</sup>
- 2.1.2. There is an immediate need to build resilience in the water sector to address pressures on water supplies. The goal set out in: 'A Green Future', the government's 25 year plan to improve the environment, is clean and plentiful water. <sup>16</sup> The government's vision is a water industry that works for everyone; providing reliable, robust services now and in the future, without compromising the needs of the environment. The government set out how it expects this vision to be achieved in the Strategic Policy Statement<sup>17</sup> to Ofwat in 2017. The main priorities are:
  - **Securing long-term resilience:** <sup>18</sup> Customers expect resilient services, now and in the future but some regions are exposed to substantial risks from service failures, for example due to drought.
  - Protecting customers: Every home and business depends on a resilient water industry – but not everyone can afford their water bill.
- 2.1.3. Securing long term resilience involves planning for future events (e.g. drought events) as effectively as we can, to mitigate the impacts whilst ensuring value for money for consumers, in line with the second priority in the Strategic Policy Statement. This is achieved through the water resource management planning (WRMP) process. There is more information on this process in section 2.5.

### 2.2. Pressure on water availability now and in the future

2.2.1. Many studies have looked at individual pressures behind future deficits, such as: the impact of climate change on river flows, <sup>19</sup> predictions of future population

<sup>&</sup>lt;sup>15</sup> The drivers leading to increased pressure on water resources are set out in detail in section 2.2 below.

<sup>&</sup>lt;sup>16</sup> https://www.gov.uk/government/publications/25-year-environment-plan

<sup>17</sup> Strategic Policy Statement to Ofwat 2017

<sup>&</sup>lt;sup>18</sup> Resilience in this sense means reduced risk of water supply interruptions or other issues, including those due to drought.

- growth<sup>20</sup> and the likelihood of drought<sup>21</sup> or its adverse economic impacts.<sup>22</sup> Impacts on the environment and possible targets to protect it have also been studied.<sup>23</sup> Other studies, such as the National Infrastructure Commission's report on water<sup>24</sup> and Water UK's Long Term Planning Framework, have synthesised this information and considered a range of possible future scenarios and ways to address them.
- 2.2.2. The challenges faced by the industry have also been identified in a number of documents, including the Climate Change Risk Assessment 2,<sup>25</sup> the Adaptation Sub Committee<sup>26</sup> report and the Environment Agency's Case for Change<sup>27</sup> and its advice to Defra on water supply and resilience and infrastructure.<sup>28</sup> The individual pressures leading to these deficits are set out below.
- 2.2.3. These pressures, along with others specific to individual schemes, are taken into account by water companies when developing supply and demand forecasts. The assumptions made to inform the extent of these pressures should be clearly communicated in WRMPs.

### Climate change

- 2.2.4. Climate change will affect the amount and timing of rainfall that supports river flows and replenishes groundwater. It will also influence the demand for water and its quality, as well as the way land is used all of which will put pressure on water resources.<sup>29</sup>
- 2.2.5. The 2015 HR Wallingford report<sup>30</sup> which informed the Climate Change Risk Assessment 2, predicted that over the short term (by the 2030s)<sup>31</sup> around one quarter of 'water resource zones'<sup>32</sup> in England could experience a supply-demand

<sup>&</sup>lt;sup>19</sup> Such as: CCIRG, 1996; Arnell, 2004; UKWIR, 2007; Watts, 2010; Vidal et al., 2011 and <u>The Future Flows and Groundwater Levels project</u> carried out, for the first time, a consistent assessment of the impact of climate change on river flows and groundwater levels across England, Wales and Scotland.

<sup>&</sup>lt;sup>20</sup> ONS <u>high</u> and <u>low</u> population variant data for England as of October 2017.

<sup>&</sup>lt;sup>21</sup> An extreme value analysis of UK drought and projections of change in the future, Met Office, 2010. Journal of Hydrology.

<sup>&</sup>lt;sup>22</sup> Strategic Infrastructure and Resilience (2016)- AECOM or Strategic Infrastructure and Resilience (2016)- URS Annex C

<sup>&</sup>lt;sup>23</sup> For example: <a href="https://www.gov.uk/government/collections/river-basin-management-plans-2015">https://www.gov.uk/government/collections/river-basin-management-plans-2015</a> or <a href="https://www.gov.uk/government/collections/river-basin-management-plans-2015">Water for wildlife (WWF, 2017)</a>

<sup>&</sup>lt;sup>24</sup> National Infrastructure Commission: preparing for a drier future

<sup>&</sup>lt;sup>25</sup> UK Climate Change Risk Assessment 2017

<sup>&</sup>lt;sup>26</sup> HR Wallingford- Updated projections for water availability for the UK 2015

<sup>&</sup>lt;sup>27</sup> Environment Agency, Case for Change, 2011

<sup>&</sup>lt;sup>28</sup> Water supply and resilience and Infrastructure-EA guidance to Defra 2016

<sup>&</sup>lt;sup>29</sup> UK Climate Change Risk Assessment 2017

<sup>&</sup>lt;sup>30</sup> Updated projections for water availability for the UK

<sup>&</sup>lt;sup>31</sup> Does not include for planned interventions set-out in the water company resource plans, so is in effect a 'no action' scenario.

<sup>&</sup>lt;sup>32</sup> Defined by the Environment Agency as the largest possible zone in which all resources, including external transfers, can be shared and, hence, the zone in which all customers will experience the same risk of supply

deficit of greater than 5 megalitres per day (Ml/d), with the number of areas affected growing over time. By 2050, under a medium climate change projection,<sup>33</sup> the same report projected that 33 'water resource zones' in England are to have a supply-demand deficit of greater than 5 Ml/d.

### Population growth

- 2.2.6. The demand for water is closely linked to population growth. It is estimated that the population of England will grow by between 2.7 and 9.6 million by 2040.<sup>34</sup> We need to ensure that there are sufficient water supplies to provide water for a growing population.
- 2.2.7. The ASC report stated that even low population growth and modest climate change scenarios show significant future water supply deficits. Higher population growth along with more severe climate change would see these deficits apparent in most of England by the 2050s.

### **Economic growth**

- 2.2.8. Economic growth will lead to increasing pressure on the industrial, commercial and agricultural use of water, as well as the public water supply. The Climate Change Risk Assessment 2 suggested an increase in water demand by 2050 of 2 5% for domestic consumption, 4 6% for industrial and commercial use and 26% for agriculture. A resilient, well connected water supply system is a vital part of creating the connectivity and growth ambitions set out in the Industrial Strategy.<sup>35</sup>
- 2.2.9. The National Infrastructure Commission concluded, in its report on water, that the cost to maintain current levels of resilience and relying on emergency measures<sup>36</sup> for more severe droughts to 2050, would be between £25 billion and £40 billion. The Commission also highlighted potential adverse public health and environmental impacts. In comparison, the Commission estimated that the cost of proactive long-term resilience improvements to the same standards range between £18 billion and £21 billion.
- 2.2.10. A drought would have wider economic impacts beyond the cost of emergency measures. The Water UK water resources long term planning framework estimated

failure from a resource shortfall. There are currently just over 100 water resource zones in England. The population of each zone and water supply required varies.

<sup>&</sup>lt;sup>33</sup> Based on a scenario with low population growth and no additional adaptation (such as new infrastructure), as defined in the HR Wallingford report.

<sup>&</sup>lt;sup>34</sup> ONS high and low population variant data for England as of October 2017.

<sup>35</sup> https://www.gov.uk/government/topical-events/the-uks-industrial-strategy

<sup>&</sup>lt;sup>36</sup> Such measures include rationing water through the use of standpipes and cutting supplies on a rota or sourcing emergency supplies via tankers or other temporary arrangements.

a loss of 37% for non-household Gross Value Added<sup>37</sup> across England and Wales, if severe drought restrictions on use were put in place. Applied across England and Wales, that would equate to an economic loss of around £1.3 billion per day.

### Protecting and enhancing the environment

- 2.2.11. The UK is home to globally important wetlands, rivers and chalk streams, the healthy existence of which depends on water availability. Having the right flow in our rivers and protecting groundwater levels is essential to support healthy ecology and enhancing natural resilience to drought. The impacts of climate change and the growing demand for water are putting added pressure on this availability.
- 2.2.12. The abstraction of water from the environment can alter the natural flow regime. Current levels of water abstraction from some sources will need to be reduced to protect the environment and help sustain important heritage assets, in line with the Water Abstraction Plan and River Basin Management Plans. In 'A Green Future', the government set out its commitment to reduce damaging abstraction of water from rivers and groundwater, while maintaining and improving water supply resilience now and in the future. The challenge in delivering this will increase in the future due to the impacts of climate change and population growth.

### 2.3. A twin track approach to resilient water supplies

- 2.3.1. The government is committed to a twin track approach to securing resilient water supplies, which requires both new water resources infrastructure and further action to reduce the demand for water. This commitment has been informed by a number of recent reports.
- 2.3.2. In 2015, the Environment Agency published 'A case for change'<sup>38</sup> which identified the future pressures on water resources. Building on this, in March 2016 the government published 'Enabling resilience in the water sector'<sup>39</sup> and asked the industry to develop a national water resources long term planning framework to establish our future water needs. The Water UK long term planning framework<sup>40</sup> was published and concluded that up to 3000 Ml/d<sup>41</sup> of extra supply may be needed to maintain current levels of resilience by 2040.

<sup>&</sup>lt;sup>37</sup> ONS definition of gross value added is the value generated by any unit engaged in the production of goods and services.

<sup>38</sup> The case for change- current and future water availability

<sup>&</sup>lt;sup>39</sup> Enabling resilience in the water sector

<sup>&</sup>lt;sup>40</sup> Water UK- Long Term Planning Framework

<sup>&</sup>lt;sup>41</sup> This figure includes Wales. Figure 6-24 of the report demonstrates the range of deficit scenarios considered. The 'severe' scenario corresponds with the current level of resilience that water companies are expected to plan for (see footnote 42). Under a base climate, upper 'severe' scenario, around 1800Ml/d extra supply is required.

- 2.3.3. In April 2018, the National Infrastructure Commission published its report on water; Preparing for a drier future. It concluded that maintaining the current level of resilience<sup>42</sup> in the future will require at least an additional 3,300 MI/d of additional capacity in the water supply system by 2050.
- 2.3.4. Water companies plan what is needed to meet the additional capacity required in their WRMPs. They should work collaboratively to ensure that the extra capacity is delivered in the most appropriate way. There is more on this and the role of WRMPs in section 2.5.

### Options for addressing need

2.3.5. The government does not decide which specific options will meet the need as these are identified by water companies in WRMPs.<sup>43</sup> However, the government, along with other regulators such as the Environment Agency and Ofwat, sets out guidelines and principles for the development of WRMPs. This includes the range of options which companies should be considering when developing their plans. These are considered briefly in table 1 below.<sup>44</sup> This makes clear the considerable contribution that demand management measures should make to reducing water supply deficits.

Table 1- options for addressing demand

O	pt	io	ns

### Demand management

### Asset management-leakage reduction.

A well maintained water distribution network increases resilience to drought and reduces the impact and inconvenience caused by leaks and bursts. Effective maintenance and asset management to reduce leakage are a high priority for the industry.

Since 1994 water leakage has fallen by a third. However, it remains at around 20% of supply and has plateaued in recent years. To tackle this Ofwat, supported by government in the Strategic Policy Statement<sup>45</sup> and 'A Green Future', has set expectations for companies to reduce leakage by

<sup>&</sup>lt;sup>42</sup> For PR19, water companies are expected to plan for a 1:200 level of resilience.

<sup>&</sup>lt;sup>43</sup> There is more on the WRMP process including information on statutory consultation requirements in section 2.5.

<sup>&</sup>lt;sup>44</sup> The Appraisal of Sustainability that accompanies this NPS considers alternatives to this NPS. It sets out that demand management is not an alternative to new water resources infrastructure. Both are required in conjunction with one another to secure resilient supplies, as part of government's twin track approach.

<sup>45</sup> https://www.gov.uk/government/uploads/system/uploads/attachment data/file/661803/sps-ofwat-2017.pdf

15% by 2025.

The National Infrastructure Commission report on water stated that halving leakage by 2050 could deliver one third of the additional capacity required to improve resilience by 2050. The water industry have committed to delivering this.

### Demand management

Using water more efficiently through behavioural change and reducing consumption

Since 1999/2000, per capita consumption has decreased from 150 litres/head/day to 141 litres/head/day in 2016/17. Metering in England over the same time period has increased from 17% to 50% and companies plan to increase metering to 87% by 2045 but there is more that can be done.

The government's ambitions to incentivise water efficiency further, provide 'plentiful water' and reduce personal water consumption were set out in the 25 Year Environment Plan. This included continuing to work with the industry, Waterwise and others to improve and promote efficiency and to determine an ambitious target for personal water consumption. The government will shortly be publishing a report on past and future action to encourage the conservation of water.

The National Infrastructure Commission report on water suggested that a third of the additional capacity required to secure resilience by 2050 should be met through improved efficiency (by reducing household and business consumption). The government is also exploring other options for reducing consumption.

# New water resources infrastructure

The Water UK Long Term Planning Framework and National Infrastructure Commission report on water set out that a range of supply side options will be required alongside demand management, to meet resilience needs. Infrastructure will be required to improve connectivity between water companies and/or between water company areas.

Water storage systems will be required to support transfers, along with other schemes such as desalination and effluent re-use that provide a high level of resilience to longer term drought periods.

The final third of additional capacity required to secure resilient supplies as included in the National Infrastructure Commission's report, should come from new water infrastructure.<sup>47</sup>

<sup>&</sup>lt;sup>46</sup> Refer to section 2.4.

<sup>&</sup>lt;sup>47</sup> There is more information on the need for water resources infrastructure in sections 2.4 and 2.5.

### Catchment management

The 25 Year Environment Plan acknowledges the important role of catchment management and investing in natural capital. It sets out how the government will support farmers and land managers in delivering outcomes and achieving benefits at a catchment level. This will help build resilience to climate change and drought and provide opportunities for species and ecosystem recovery.

The Water Abstraction Plan<sup>48</sup> set out the need to develop a stronger catchment focus and bring together the Environment Agency, abstractors and catchment groups to develop local solutions to existing pressures and to prepare for the future.

Our Strategic Policy Statement set the objective for Ofwat to challenge companies to further the resilience of ecosystems that underpin water and wastewater systems, by encouraging the sustainable use of natural capital in their plans.

### 2.4. Quantifying the need for new water resource infrastructure

- 2.4.1. To meet future needs, water resource infrastructure will be required to supplement demand management action. The National Infrastructure Commission's report on water<sup>49</sup> states that to maintain the current level of resilience,<sup>50</sup> at least 3,300 MI/d<sup>51</sup> of additional capacity in the water supply system is required by 2050. This corresponds with initial analysis of additional capacity required in the current (2019) draft WRMPs, which look ahead at water supply needs for at least the next 25 years, starting from 2020.
- 2.4.2. The National Infrastructure Commission's analysis suggests that to maintain current resilience, at least 1000 MI/d will need to be delivered through water supply infrastructure, even if its ambitious targets on leakage reductions and water efficiency are met. Initial analysis of the current 2019 draft WRMPs shows that around 1,200MI/d will be required through infrastructure.

<sup>&</sup>lt;sup>48</sup> Water Abstraction Plan

<sup>&</sup>lt;sup>49</sup> Preparing for a drier future: England's water infrastructure needs

<sup>&</sup>lt;sup>50</sup> For PR19, water companies are expected to plan for a 1:200 level of resilience. The National Infrastructure Commission's report on water recommended that 4,000MI/d of additional capacity is required in the water supply system by 2050. This corresponds with a 1:500 level of resilience. The National Infrastructure Commission's report stated that 1,300 MI/d of this 4,000MI/d additional capacity would need to be delivered through new infrastructure. This higher level of resilience will be explored further for future rounds of water resources planning.

<sup>&</sup>lt;sup>51</sup> Under low population growth, medium climate scenario. Under a high population, high climate scenario. this rises to 3.760 MI/d.

- 2.4.3. The national level of resilience required and the nationally significant infrastructure needed to meet this, will be confirmed by the government following the publication of final WRMPs.
- 2.4.4. To identify and quantify future national needs of public water supplies, the Environment Agency is developing a national framework for water resources.<sup>52</sup> This will also assess needs of industry, agriculture and the environment. It will develop tools to support collaboration between companies and other sectors, ensuring that these are taken into account in future water resources planning activities. This framework will be integrated into the WRMP process, starting with WRMP 2024. It will provide evidence to support planning guidance. The WRMP 2019 guidance, already sets out the need for companies to demonstrate they have considered national and regional need which this work will support.

# 2.5. The role of water resource management plans in identifying the need

### Identifying the most appropriate water resources option

- 2.5.1. If a water company identifies a future deficit in supply, it will need to assess the options to eliminate the deficit and demonstrate this in its WRMP. In draft 2019 WRMPs, most companies plan to develop new water resources due to deficits identified in current and future<sup>53</sup> water availability.
- 2.5.2. Even if there is no deficit, companies should consider options to improve service to customers, provide long-term best value, benefit the environment or collaborate with other water companies on strategic options.
- 2.5.3. The Environment Agency, Defra, Natural Resources Wales, the Welsh Government and Ofwat, issue water resources (WR) planning guidelines<sup>54</sup> to water undertakers, for the development of WRMPs ahead of each new set of plans being developed, every five years.<sup>55</sup> This guidance sets out the statutory requirements and other considerations that must be taken into account when considering future options. For example, government policy, costs and benefits, impact on the environment, customer preferences and optimising solutions, which includes the need for companies to work together to meet the national and regional challenges to water supply, both now and in the future.

<sup>&</sup>lt;sup>52</sup> As referenced in the Joint letter from Defra and the Regulators to water companies.

<sup>&</sup>lt;sup>53</sup> Over at least a 25 year planning period.

<sup>&</sup>lt;sup>54</sup> Available on request from the Environment Agency.

<sup>&</sup>lt;sup>55</sup> These guidelines are published alongside The Water Resources Management Plan (England) Direction.

- 2.5.4. Companies work together through regional groups such as Water Resources South East and Water Resources East. The need for this collaborative working is reinforced in WR planning guidelines, in government's guiding principles for water resources planning and was reiterated for WRMP 2019 in a letter sent from Defra, the EA, Drinking Water Inspectorate and Ofwat to water companies.<sup>56</sup>
- 2.5.5. WRMP guidance also makes clear the need to take account of the pressures identified in section 2.2 and the sources of evidence to be considered when calculating supply and demand. WR planning guidelines set out how WRMPs must have strong links to other plans, including local plans produced by local authorities.
- 2.5.6. The statutory process of developing WRMPs must take into account views of customers and regulators. It requires pre-consultation with statutory consultees and those listed in the WR planning guidelines. Water companies are then required to undertake formal public consultation during the preparation of WRMPs and state how this has been taken into account in their final plans. Any option included in a final WRMP will need to consider feasibility and reliability as well as taking account of potential environmental and social impacts.
- 2.5.7. WRMPs and the schemes identified as preferred options in them are subject to important statutory environmental assessments including a Habitats Regulation Assessment and Strategic Environmental Assessment. The intention is that the Strategic Environmental Assessment<sup>57</sup> is fully integrated into the WRMP process from the earliest stages. These assessments support the process for identifying the most appropriate options to be included in a final WRMP.
- 2.5.8. Once finalised, these plans and the schemes included in them are assessed by the Environment Agency who advises the Secretary of State. The Secretary of State, if satisfied with the plan, will direct the company to publish its final plan. The funding required to deliver these schemes is included as part of water companies' business plans to Ofwat, who review the proposals submitted by companies and announce the final level of funding deemed appropriate in 'final determinations'.
- 2.5.9. Water companies are required to review and report to Defra on their plans annually. Water companies must prepare revised plans at least every five years or earlier if their annual review indicates a material change of circumstances, or if directed to by the Secretary of State. Before applying for development consent, the developer should consider whether it needs to revise its WRMP. For example, due to some of its content being out of date.

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<sup>&</sup>lt;sup>56</sup> Joint letter from Defra and the Regulators to water companies.

<sup>&</sup>lt;sup>57</sup> The Strategic Environmental Assessment involves an iterative process of collecting information, defining alternatives, identifying environmental effects, developing mitigation measures and revising proposals in light of the predicted environmental effects.

# 2.6. The role of nationally significant infrastructure projects

- 2.6.1. The role of each infrastructure type in addressing our future water supply needs is set out below. Each type of infrastructure comes with challenges, whether that is land-take for reservoirs or treatment or pumping costs for transfers (including effluent reuse) or desalination. The National Infrastructure Commission's report sets out that the choice of infrastructure depends on the particular situation. The WRMP process is where such questions are considered. The final preferred options to come out of WRMPs will then be considered under the relevant planning regime.
- 2.6.2. Some of the final options identified through the WRMP process will include infrastructure schemes that meet the definition of an NSIP, as defined in the Planning Act. We have set out the need for these infrastructure types below.

#### Reservoirs

- 2.6.3. Reservoirs offer a lot of potential for drought management due to their ability to conserve water for later use. Water can be captured, during wet periods of the year or as a result of large transfers, and used during drier periods.
- 2.6.4. They have the advantage of greater flexibility to meet peak demands, as there is the potential for water to be abstracted from reservoirs for short periods at high rates without environmental impact. This can reduce the need for increased abstraction from rivers or groundwater during drought periods, therefore reducing the potentially negative impact on the environment and supporting the government's ambition to enhance the environment. They can also provide compensatory flows into rivers to support downstream abstraction. Reservoirs can also play a role in blending water from different sources to reduce treatment requirements for drinking water supplies and therefore the treatment cost. They can therefore have an important role as part of a water transfer and storage system.
- 2.6.5. Reservoirs can have benefits other than helping to secure a more resilient water supply and protect the environment. They can enhance the environment and the wildlife that exist in it by providing new habitats and nesting and breeding grounds for birds. Recreational and wellbeing benefits can also be achieved as set out in sections 3 and 4. In some cases they can also provide resilience to downstream flood events and can play a potential role in water trading by supporting water transfer schemes.
- 2.6.6. Larger reservoirs can provide a good level of resilience during a short term drought (two years or less) however, they are not as resilient as other infrastructure types such as desalination or effluent re-use, during longer term drought.
- 2.6.7. New reservoirs are likely to play an important role in securing resilient supplies and supporting transfers of water across the country in the future and it is likely that

reservoir schemes will feature in water companies WRMPs. Reservoirs must be planned well in advance of when they are needed, as it takes around ten years from the decision to build to being able to use the water supplied.

#### Water transfers

- 2.6.8. Water transfers are important for enhancing the resilience of water supplies by improving connectivity between areas of water surplus and those facing a deficit. Overall, there is currently a surplus of water for England, due to surpluses in the North and Southwest outweighing deficits in the South and East.<sup>58</sup> This high degree of regional variability highlights the need for a more strategic approach to managing water resources, and water transfers have an important role to play. Transfers can move water from areas of surplus to areas that need it. In some cases this can be through existing infrastructure such as rivers and canals but other channels and pipes and supporting infrastructure may also be required.
- 2.6.9. The National Infrastructure Commission made the importance of strategic transfers in meeting resilience needs clear in its report on water.<sup>59</sup> It set out how a range of studies have all found a positive cost-benefit case for greater transfers and water trading however, transfers currently only make up a small proportion of total supply (about 4%). The National Infrastructure Commission's report suggested that strategic transfers could provide about 700 Ml/d extra capacity to the water supply system. The report also pointed out that the range of locations for other water supply schemes, such as reservoirs, can be enhanced by the improved connectivity provided by transfers.
- 2.6.10. As mentioned in section 2.5, the government expects neighbouring water companies to work together when planning resources. The pressures already apparent in the South and the East of the country and the fragmented nature of water supply companies in the South East has led to the development of Water Resources in the South East group. This group already focuses on trading supplies but may need to focus on more strategic transfer options to address longer term pressures.

#### Desalination

2.6.11. Desalination refers to the process of abstracting and treating saline or brackish water to drinking water standards and, in theory can provide unlimited supplies of new water.<sup>60</sup> It doesn't rely on rainwater and so is extremely resilient to climate change. Desalination can provide resilience to longer term and extreme droughts

<sup>58</sup> Strategic Water Infrastructure and Resilience (2016)- AECOM

<sup>&</sup>lt;sup>59</sup> Preparing for a drier future: England's water infrastructure needs

<sup>&</sup>lt;sup>60</sup> Strategic Water Infrastructure and Resilience (AECOM 2016)

- as well as flooding and temperature extremes, for example, where demand rises rapidly. Desalination will often require supporting infrastructure such as tanks or reservoirs for blending or treatment, to maintain similarity with local raw water supplies.
- 2.6.12. Desalination plants currently require high operational energy and face constraints such as managing the impact of discharges from the treatment process which can increase the costs and impact of this type of water resource. At present there is only one large scale desalination plant operating in England. It is operated by Thames Water and takes its water from the Thames estuary. Desalination is widely used on a global scale and technology is innovating and continually developing to deliver cleaner desalination technologies.
- 2.6.13. Water UK's Long Term Planning Framework estimates that London and the South East might need 150 to 200 MI/d more desalination by 2065 in order to meet water supply needs.

#### Other infrastructure

- 2.6.14. Other infrastructure types or technologies, not specified in the Planning Act that do not meet the definition of an NSIP, may be considered under the Planning Act following a direction by the Secretary of State under section 35, as set out in section 1.<sup>61</sup> This could 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.
- 2.6.15. Aquifer recharge schemes are likely to be small, however if a large scheme was developed it may be suitable for a section 35 referral. Recycled water can have the advantage of being a constant, reliable supply of water and may reduce the amount of water extracted from the environment. Whilst not identified as a separate water resource activity in the Planning Act, large scale effluent reuse is likely to result in large transfers. In such circumstances the transfer may qualify as an NSIP, when assessed against the relevant threshold in the Planning Act or through a section 35 referral. It is likely that treatment and other supporting infrastructure should be considered as associated development.

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<sup>&</sup>lt;sup>61</sup> Provided the requirements of section 35 of the Planning Act are met.

### 3. Assessment principles

### 3.1 General principles of assessment

- 3.1.1. This section of the NPS sets out the cross cutting principles against which an application for development consent should be examined. These key principles relate to the design, environmental, health, safety and security aspects of the types of infrastructure covered by this NPS. This section also provides guidance on areas of statutory assessments and identifies where information from the WRMP options appraisal process may be useful to inform project level assessments (see Table 3). Section 4 in this NPS provides more detailed guidance on the construction and operational impacts of water resources NSIPs.
- 3.1.2. Subject to the detailed policies and protections in this NPS, and the legal constraints set out in the Planning Act, there is a presumption<sup>62</sup> in favour of granting development consent for water resources NSIPs that fall within the need for infrastructure established in this NPS.
- 3.1.3. In considering any proposed development, and in particular, when weighing its adverse impacts against its benefits, the Examining Authority and the Secretary of State should take into account:
  - its potential benefits, including the facilitation of economic development including: job creation, housing and environmental improvement and any long-term or wider benefits:
  - its potential adverse impacts, including any longer-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts.
- 3.1.4. In making decisions on such applications, the Secretary of State must also have regard to any local impact report submitted by a local authority in accordance with the Planning Act, any matters prescribed that are relevant to the application, and any other matter which is considered to be both important and relevant to any decision. The Secretary of State should also have regard to the manner in which such benefits are secured, and the level of confidence in their delivery.

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<sup>&</sup>lt;sup>62</sup> This presumption of granting development consent does not apply where development requiring appropriate assessment because of its potential impact on a habitats site is being planned or determined. See also section 3.3.

3.1.5. The WRMP infrastructure options appraisal process identifies where specific water supply infrastructure projects could feasibly be located. The process is subject to a number of statutory assessments (see 2.5.7) and other feasibility studies. Table 2 below (for illustrative purposes only) identifies where information from the WRMP options appraisal process may be useful for project level assessments or identification of impacts that are relevant to a Development Consent Order application.

Table 2 – WRMP process and assessments

WRMP assessment	Relevance to a Development Consent Order application
Water supply / demand forecast calculations (in accordance with EA/ Natural Resources Wales 'Water Resources Planning Guidelines' (2016) or successor guidance)	Establishes the 'deployable output' (size) of the NSIP
Infrastructure options appraisal (in accordance with EA/NRW 'Water Resources Planning Guidelines' (2016) or successor guidance)	Determines the most suitable infrastructure type and site location
Strategic Environmental Assessment	Information may be relevant for project level Environmental Impact Assessment (see section 3.2) or topic areas in Section 4 of this NPS.
Habitats Regulation Assessment	Information may be relevant for project level Habitats Regulation Assessment (see section 3.3) or NPS sections 3.3 and 4.3.
Water Framework Directive Assessment	Information may be relevant for project level Water Framework Directive assessment or NPS section 4.15.
Carbon Accounting	Information may be relevant for (but not limited to) NPS sections 3.2, 3.7 and 4.4.

- 3.1.6. Section 1.4.4 states that NSIPs as defined in sections 27, 28 and 28A of the Planning Act will have been identified within a published final WRMP. These projects will have undergone full options appraisal in accordance with WRMP requirements. The Examining Authority and the decision maker need not reconsider the details of this options appraisal process when considering applications for development consent.
- 3.1.7. The Examining Authority should only recommend, and the Secretary of State will only impose, requirements in relation to a development consent, that are necessary,

- relevant to planning, relevant to the development to be consented, enforceable, precise, and reasonable in all other respects.<sup>63</sup> Guidance on the use of planning conditions or any successor to it should be taken into account where requirements are proposed.
- 3.1.8. Obligations under section 106 of the Town and Country Planning Act 1990 should only be sought where they are necessary to make the development acceptable in planning terms, (including where necessary to ensure compliance with the Water Resources NPS), directly related to the proposed development, and fairly and reasonably related in scale and kind to the development.<sup>64</sup>

### 3.2 Environmental impact assessment

- 3.2.1. All proposals for projects that are subject to the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017<sup>65</sup> and are likely to have significant effects on the environment, must be accompanied by an environmental statement, describing the aspects of the environment likely to be significantly affected by the project.<sup>66</sup>
- 3.2.2. The Environmental Impact Assessment is required to identify, describe and assess effects on human beings, fauna and flora, soil, water, air, climate, the landscape, material assets and cultural heritage, and the interaction between them. Schedule 4 to the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 sets out the information that should be included in the environmental statement. This includes a description of the likely significant effects of the proposed project on the environment, covering the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the project, and also the measures envisaged for avoiding or mitigating significant adverse effects.
- 3.2.3. Information gathered from the WRMP options appraisal assessments (see 3.1.5) or information contained within section 4 of this NPS may be useful to identify the significant effects of the proposed project.
- 3.2.4. When examining an application for development consent, the Examining Authority should ensure that likely significant effects at all stages of the project have been adequately assessed. Any requests for environmental information not included in the original environmental statement, should be proportionate and focus only on likely significant effects. In this NPS, the terms 'effects', 'impacts' or 'benefits'

<sup>63</sup> National Planning Policy Framework, paragraph 55

<sup>&</sup>lt;sup>64</sup> Town and Country Planning Act 1990, section 106; Regulation 122(2) Community Infrastructure Levy Regulations 2010; National Planning Policy Framework, paragraph 56

<sup>&</sup>lt;sup>65</sup> Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (S.I. 2017/572)

<sup>66</sup> http://www.legislation.gov.uk/uksi/2009/2263/contents/made

- should accordingly be understood to mean likely significant effects, impacts or benefits.
- 3.2.5. When considering significant cumulative effects, any environmental statement should provide information on how the effects of an applicant's proposal would combine and interact with the effects of other development (including projects for which consent has been granted, as well as those already in existence if they are not otherwise considered as part of the "baseline" conditions).<sup>67</sup>
- 3.2.6. The Examining Authority should consider how significant cumulative effects, and the interrelationship between effects, might as a whole affect the environment, even though they may be acceptable when considered on an individual basis or with mitigation measures in place.
- 3.2.7. In some instances, it may not be possible at the time of the application for development consent for all aspects of the proposal to have been settled in precise detail. Where this is the case, the applicant should explain in its application which elements of the proposal have yet to be finalised, and the reasons why this is the case.
- 3.2.8. Effort should be made to refine the detail of the proposed development. However, where details are still to be finalised the applicant is advised to set out in the environmental statement the relevant design parameters used for the assessment. The environmental statement should explain, with reference to the parameters, what the maximum extent of the proposed development may be (for example in terms of site area) or the extent of change in respect of operational impacts, and assess the potential adverse effects which the project could have, to ensure that the impacts of the project as it may be constructed have been properly assessed.
- 3.2.9. Should the Secretary of State decide to grant development consent for an application where details are still to be finalised, this will need to be reflected in appropriate development consent requirements in the development consent order. It may be the case that development consent is granted for a proposal and, at a later stage, the applicant wishes (for technical or commercial reasons) to construct it in such a way that it is outside the terms of what has been consented, for example because its extent will be greater than has been provided for in terms of the consent. In this situation, it will be necessary for the applicant to apply for a change to be made to the development consent provided under the Planning Act.
- 3.2.10 In cases where the Environmental Impact Assessment Regulations do not apply to a project, and an environmental statement is not therefore required, the applicant should instead provide information proportionate to the project on the likely

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<sup>&</sup>lt;sup>67</sup> The applicant should refer to the Planning Inspectorate's advice on assessing cumulative effects https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/12/Advice-note-17V4.pdf

environmental, social and economic effects. The information should be based on (but not limited to) the impacts identified in section 4 of this NPS.

### 3.3 Habitats regulations assessment

- 3.3.1. Prior to granting development consent, the Secretary of State as competent authority must comply with the duties under the Conservation of Habitats and Species Regulations 2017. Under these regulations, if the competent authority considers that the proposed development 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 is not connected with or necessary to the management of that site, it must make an Appropriate Assessment of the implications for the site in view of the site's conservation objectives.<sup>68 69</sup> The applicant should also refer to the later sections, for example on biodiversity, land use, and air quality in this NPS. The competent authority must consult the appropriate nature conservation body to ensure that impacts on European sites are adequately considered (including potential for cross-boundary impacts to European sites in other countries).
- 3.3.2. The applicant is required to provide sufficient information<sup>70</sup> with their application for development consent to enable the Secretary of State to carry out an Appropriate Assessment if required. If it is concluded there is likely to be a significant effect, or such effects cannot be ruled out (alone or in combination), an Appropriate Assessment is required. The Habitats Regulation Assessment undertaken at the WRMP options appraisal process stage could provide useful information to inform any project specific Habitats Regulation Assessment.
- 3.3.3. If an Appropriate Assessment for a proposed development concludes that it is not possible to rule out an adverse effect on the integrity of a European site, including any proposed mitigation to minimise or avoid any adverse effects on the integrity on a European site, the Habitats Directive permits a derogation, subject to the proposal meeting three tests. These tests are (a) that there are no less damaging feasible

<sup>&</sup>lt;sup>68</sup> This includes candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation and Special Protection Areas, and is defined in Regulation 8 of the Conservation of Habitats and Species Regulations 2017. Para 176 of the National Planning Policy Framework also states the following should be given the same protection as European sites: a) potential Special Protection Areas and possible Special Areas of Conservation; b) listed or proposed Ramsar sites; and c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

<sup>&</sup>lt;sup>69</sup> Directive 2011/92/EU was amended in 2014 by Directive 2014/52/EU. As amended, Article 2(3) of the Directive provides that, where an obligation to assess environmental effects arises simultaneously from the Environmental Impact Assessment Directive and the Habitats Directive (Directive 92/43/EU) and/or the Wild Birds Directive (Directive 2009/147/EC), Member States "shall, where appropriate, ensure that coordinated and/or joint procedures" are provided for.

<sup>&</sup>lt;sup>70</sup> Planning Inspectorate guidance on Habitats Regulations Assessments: <a href="https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/">https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/</a>

alternative solutions, (b) that there are imperative reasons of overriding public interest for the proposal going ahead, and (c) that adequate and timely compensation measures will be put in place to ensure the overall coherence of the network of protected sites is maintained. At detailed design stage, and in so far as it may be necessary, the matters set out in this NPS will be relevant to determining whether there are alternative solutions and imperative reasons of overriding public interest, provided that the design remains consistent with the objectives of this NPS.

3.3.4. Where a development may negatively affect any priority natural habitat type or priority species<sup>71</sup> any imperative reasons of overriding public interest case would need to be established solely on one or more of the grounds relating to human health, public safety or beneficial consequences of primary importance to the environment. The competent authority may only rely on other (i.e. social or economic) imperative reasons of overriding public interest if it has first obtained an opinion from the relevant authority.

### 3.4 Environmental net gain

- 3.4.1. Environmental net gain is an approach to development that aims to leave the natural environment in a measurably better state than beforehand. This means protecting existing habitats and ensuring that lost or degraded environmental features are compensated for by restoring or creating environmental features that are of greater value to wildlife and people.
- 3.4.2. Water resource infrastructure projects have the potential to deliver significant benefits and enhancements, resulting in environmental net gains. The WRMP options appraisal process is informed by the Water Industry Strategic Environmental Requirements, and other related guidance, which provide advice on relevant assessment methodologies. The options appraisal process is also subject to statutory environmental assessments as discussed in section 2.3.5.
- 3.4.3. Applications for development consent must be accompanied by a statement demonstrating how opportunities for environmental enhancement have been incorporated into the detailed design (including any relevant operational aspects) of the project. In particular, the statement should summarise how environmental enhancement has been assessed and quantified. The statement should identify any relationships to other areas of assessment or requirements within this NPS, including net gains for biodiversity (see section 4.3).
- 3.4.4. Section 4 of this NPS provides guidance on the generic site specific impacts of new water resources infrastructure and references the National Planning Policy Framework. Opportunities are identified in a number of sections relating to

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<sup>&</sup>lt;sup>71</sup> As listed in Annex I and II of the Habitats Directive

environmental, social and economic enhancements, protection and mitigation measures that will need to be considered.

### 3.5 Assessing alternatives

- 3.5.1. The applicant should comply with all legal obligations and policy set out in this NPS on the assessment of alternatives. In particular:
  - The Environmental Impact Assessment Directive requires projects with significant
    environmental effects to include a description of the reasonable alternatives studied
    by the applicant, which are relevant to the proposed development and its specific
    characteristics, and an indication of the main reasons for the option chosen, taking
    into account the significant effects of the project on the environment;
  - There may also be other specific legal obligations requiring the consideration of alternatives, for example, under the Habitats and Water Framework Directives; and
  - There may be policies in this NPS requiring consideration of alternatives, for example the flood risk sequential test and the assessment of alternatives for developments in National Parks, the Broads and Areas of Outstanding Natural Beauty (AONB).
- 3.5.2. Relevant information from the WRMP options appraisal process (see section 3.1.5) will be useful to demonstrate how alternative options have been considered.

### 3.6 Criteria for 'good design' for water resources infrastructure

- 3.6.1. Good design is a key aspect of sustainable development, creates better places and helps make infrastructure projects acceptable to communities. Good design should save money, reduce risk, add value, support environmental enhancements and create a legacy that looks good and works well. Being clear about design expectations, and how these will be tested, is essential for achieving this. So too is effective engagement with communities, local planning authorities and other interests.
- 3.6.2. To ensure good design is embedded within the project development, a project board level design champion could be appointed and a representative design panel used to maximise the value provided by the infrastructure. Design principles<sup>72</sup> should be established from the outset of the project to guide the development from conception to operation. NSIPs covered by the NPS will present very different

<sup>&</sup>lt;sup>72</sup> Design principles should take into account any national guidance on infrastructure design, published by, for example, the National Infrastructure Commission.

- design challenges in terms of their specific visual impacts and the need to incorporate engineering, safety and operational considerations.
- 3.6.3. There may be opportunities for the applicant to demonstrate good design in terms of site layout and design measures relative to existing landscape and historical character and function, landscape permeability, landform and vegetation whilst integrating biodiversity and nature conservation interests.
- 3.6.4. The applicant should provide sufficient information in its application to demonstrate how the design process was conducted (including stakeholder engagement) and how the proposed design evolved. Where a number of different designs were considered, the applicant should set out the reasons why the favoured choice has been selected. The Examining Authority and Secretary of State will take into account the ultimate purpose of the infrastructure and bear in mind the operational, safety and security standards which the design has to satisfy. Appropriate weight should be given to outstanding or innovative designs which promote high levels of sustainability.

### 3.7 Climate change adaptation

- 3.7.1. The Planning Act requires the Secretary of State to have regard to the desirability of mitigating, and adapting to, climate change in designating an NPS.<sup>73</sup>
- 3.7.2. This section sets out how the NPS puts government policy on climate change adaptation into practice, and in particular how the applicant and the Secretary of State will take into account the effects of climate change when developing and considering water resource NSIP applications. Climate change mitigation is essential to minimise the most dangerous impacts of climate change. These impacts include an increased risk of drought and flooding, drier summers and warmer wetter winters, more intense rainfall events and rising sea levels. The contribution that water resource NSIPs make towards ensuring a resilient water supply and preparedness for drought is set out in section 2.
- 3.7.3. New water resources infrastructure will typically be a long-term investment which will need to remain operational over many decades. Consequently, the applicant must consider the impacts of climate change at design, build and operational stages. Section 4 of this NPS identifies areas where climate change adaptation should be incorporated into detailed design, such as flood risk and coastal change, biodiversity and nature conservation and water quality. Sections 4.4 and 4.14 also consider climate change mitigation, in terms of minimising energy use from processes and transportation.

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<sup>&</sup>lt;sup>73</sup> Planning Act, section 10(3)(a)

- 3.7.4. Detailed consideration must be given to the range of potential impacts of climate change (for example, the 10th, 50th and 90th percentiles) using the latest UK Climate Projections available at the time, and to identify appropriate mitigation or adaptation measures. This should cover the estimated lifetime of the new infrastructure. Should a new set of UK Climate Projections become available after the preparation of any environmental statement, the Examining Authority should consider whether it needs to request additional information from the applicant.
- 3.7.5. The applicant should demonstrate that there are no critical features of infrastructure design which may be seriously affected by credible maximum climate change scenarios. Any potential critical features should be assessed, taking account of the latest credible scientific evidence on, for example, sea level rise, and on the basis that necessary action can be taken to ensure the operation of the infrastructure over its estimated lifetime through potential further mitigation or adaptation.
- 3.7.6. Any adaptation measures should be based on the latest set of UK Climate Projections,<sup>74</sup> the most recent UK Climate Change Risk Assessment,<sup>75</sup> consultation with statutory consultation bodies, and any other appropriate climate projection data. Any adaptation measures must themselves also be assessed, which should set out how and where such measures are proposed to be secured.
- 3.7.7. If any proposed adaptation measures themselves give rise to consequential impacts, the Secretary of State will consider the impact in relation to the application as a whole and the assessment principles and guidance set out in this NPS.
- 3.7.8. Adaptation measures can be required to be implemented at the time of construction where necessary and appropriate to do so.
- 3.7.9. Where adaptation measures are likely to be necessary to deal with the impact of long term and/or extreme climate change scenarios, and that measure would have an adverse effect on other aspects of the project or the surrounding environment (e.g. coastal processes), the Secretary of State may consider requiring the applicant to ensure that the adaptation measure could be implemented should the need arise, rather than at the outset of the development (e.g. reserving land for future extension, increasing the height of an existing sea wall, or requiring a new sea wall).

### 3.8 Environmental regulation

3.8.1. Issues relating to discharges or emissions from a proposed project which affect air quality, water quality, land quality or the marine environment, or which include

<sup>74</sup> http://ukclimateprojections.metoffice.gov.uk/

<sup>75</sup> https://www.gov.uk/government/publications/uk-climate-change-risk-assessment-2017

noise, may be subject to separate regulation under the pollution control framework or other consenting and licensing regimes. Relevant permissions will need to be obtained for any construction or operational activities within the development that are regulated under those regimes before the activities can be commenced. The applicant should contact the relevant consenting authority for pre-application advice.

- 3.8.2. Water resource NSIPs may require a number of separate consents, or will be subject to other regulatory regimes (for example, see section 3.10 on the Reservoirs Act). Typical water related consents will include the control of abstractions (from either ground or surface waters); discharges to the water environment; impounding water and any construction works that affect rivers and watercourses, coastal or estuarine environments.
- 3.8.3. In deciding an application, the Secretary of State should focus on whether the development is an acceptable use of the land, and on the impacts of that use, rather than the control of processes, emissions or discharges themselves. The Secretary of State should assess the potential impacts of processes, emissions or discharges to inform decision making, but should work on the assumption that, in terms of the control and enforcement, the relevant pollution control or other consenting regime will be properly applied and enforced. Decisions under the Planning Act should complement but not duplicate those taken under the relevant pollution control regime.
- 3.8.4. These considerations apply in an analogous way to other environmental regulatory regimes, including those on land drainage and flood defence and biodiversity.
- 3.8.5. When an applicant applies for an Environmental Permit, the relevant regulator (the Environment Agency) requires that the application demonstrates that processes are in place to meet all relevant Environmental Permit requirements. In examining the impacts of the project, the Examining Authority may wish to seek the views of the regulator on the scope of the permit or consent and any management plans (such as any produced for noise) that would be included in an Environmental Permit application.
- 3.8.6. Applicants are encouraged to begin pre-application discussions with the Environment Agency as early as possible. Where applicants wish to parallel track Development Consent Order and Environmental Permit applications, the Environment Agency suggests that applicants should start work towards submitting the permit application at least 6 months prior to the submission of an application for a Development Consent Order. This will help ensure that applications take account of all relevant environmental considerations and that the relevant regulators are able to provide timely advice and assurance to the Examining Authority.
- 3.8.7. There is a statutory duty on applicants to consult the Marine Management Organisation on nationally significant projects which would affect, or would be likely

to affect, any relevant marine areas as defined in the Planning Act (as amended by section 23 of the Marine and Coastal Access Act 2009). The Secretary of State's consent may include a deemed marine licence and the Marine Management Organisation will advise on what conditions should apply to any deemed marine licence.

- 3.8.8. The Secretary of State should be satisfied that development consent can be granted taking full account of environmental impacts. This will require close cooperation with the Environment Agency and/or the pollution control authority, and other relevant bodies, such as the Marine Management Organisation, Natural England, Drainage Boards, and water and sewerage undertakers, to ensure that:
  - the relevant pollution control authority is satisfied that potential releases can be adequately regulated under the pollution control framework; and
  - the effects of existing sources of pollution in and around the project are not such that the cumulative effects of pollution when the proposed development is added would make that development unacceptable, particularly in relation to statutory environmental quality limits.
  - the relevant authority is satisfied that impacts on main rivers, flood/sea defences and the floodplain are capable of being adequately regulated under a Flood Risk Activity Permit.
- 3.8.9. 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.

### 3.9 Common law nuisance and statutory nuisance

- 3.9.1. Section 158 of the Planning Act provides a defence of statutory authority in civil or criminal proceedings for nuisance. Such a defence is also available in respect of anything else authorised by an order granting development consent. The defence does not extinguish the local authority's duties under Part III of the Environmental Protection Act 1990 to inspect its area and take reasonable steps to investigate complaints of statutory nuisance and to serve an abatement notice where satisfied of its existence, likely occurrence or recurrence.
- 3.9.2. During the examination of an application for development consent for infrastructure covered under this NPS, possible sources of nuisance under section 79(1) of the Environmental Protection Act 1990 should be considered by the Examining Authority. The Examining Authority should also consider how those sources of nuisance might be mitigated or limited so they can recommend appropriate requirements that the Secretary of State might include in any subsequent order granting development consent.

3.9.3. The defence of statutory authority is subject to any contrary provision made by the Secretary of State in any particular case by an order granting development consent.

### 3.10 Safety

- 3.10.1. For all water resources infrastructure types, relevant bodies such as local authorities and the Health and Safety Executive<sup>77</sup> should be consulted where required relating to safety.
- 3.10.2. Reservoirs covered by this NPS will be subject to the requirements of the Reservoirs Act 1975 due to their size. This Act was set up to promote the safety of large reservoirs and contains a number of provisions that may be relevant for the examining authority to consider, such as:
  - A suitably qualified civil engineer (known as a panel engineer)<sup>78</sup> must be appointed during design, construction and operational phases of the reservoir.
  - The Environment Agency must be notified of the intention to build a new reservoir. They advise on flood risk issues and other aspects associated with the reservoir. Once constructed, Environment Agency flood risk mapping may need updating.

Guidance has been issued for reservoir owners and operators.<sup>79</sup>

- 3.10.3. Design aspects relating to safety should be given significant weight when balanced against other reservoir design considerations.
- 3.10.4. Under the Environmental Impact Assessment regulations there is a requirement to consider the implications of major accidents or disasters.
- 3.10.5. Under the Water Industry Act, water undertakers have powers to introduce byelaws, which could address issues relating to public safety and security of facilities.

### 3.11 Security considerations

3.11.1. National security considerations apply across all national infrastructure sectors.

Defra acts as the sector sponsor department for the water sector, and in this

<sup>&</sup>lt;sup>76</sup> Planning Act, section 158(3)

<sup>77</sup> Health and Safety Executive role in NSIPs. PINS Advice Note 11, Annex G

https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2018/03/Advice-note-11-Annex-G.pdf

<sup>&</sup>lt;sup>78</sup> Reservoir Panel Engineers: <a href="https://www.gov.uk/government/publications/contact-details-of-engineers-on-the-all-reservoirs-panel">https://www.gov.uk/government/publications/contact-details-of-engineers-on-the-all-reservoirs-panel</a>

<sup>&</sup>lt;sup>79</sup> Guidance for reservoir owners and operators: <a href="https://www.gov.uk/guidance/reservoirs-owner-and-operator-requirements">https://www.gov.uk/guidance/reservoirs-owner-and-operator-requirements</a>

- capacity has lead responsibility for security matters and for directing the security approach to be taken, working with the Centre for the Protection of National Infrastructure, to reduce the vulnerability of the water sector to terrorism and other national security threats.
- 3.11.2. Government policy is to ensure that, where possible, proportionate protective security measures are designed into new infrastructure projects at an early stage in the project development. Security considerations will likely apply in the case of the infrastructure project for which development consent may be sought under this NPS.
- 3.11.3. Where national security implications have been identified, the applicant should consult with Defra to ensure that physical, procedural and personnel security measures have been adequately considered in the design process, and that adequate consideration has been given to the management of security risks. If Defra, taking advice from the Centre for the Protection of National Infrastructure and others it considers appropriate, forms the opinion that it is satisfied that current and potential future security needs are adequately addressed in the project and that relevant guidance on these matters has been appropriately taken into account in the application, it will provide confirmation of this to the Examining Authority, who need not give any further consideration to the details of the security measures during the examination.
- 3.11.4. The applicant should only include such security-related information in the application as is necessary to enable the Examining Authority to examine the development consent issues and make a properly informed recommendation on the application.
- 3.11.5. In exceptional cases where examination of an application would involve public disclosure of information about defence or national security which would not be in the national interest, the Secretary of State can intervene and may appoint an examiner to consider evidence in closed session.

### 3.12 Health

- 3.12.1. The construction and use of water resources infrastructure has the potential to affect people's health, wellbeing and quality of life. Infrastructure can have direct impacts on health because of traffic, noise, vibration, air quality and emissions, light pollution, community severance, dust, odour, polluting water, hazardous waste and pests. These impacts are considered further in section 4.
- 3.12.2. New or enhanced water resources infrastructure may also have indirect health impacts, for example if they affect access to key public services, local transport, opportunities for cycling and walking, or the use of open space for recreation and physical activity (see also section 4.13). It should be noted that there is potential for

- increased employment, along with the new recreational opportunities (particularly for reservoirs) that may have indirect positive health impacts.
- 3.12.3. Where the proposed project has likely significant environmental impacts that would have an effect on human beings, the applicant should identify and set out the assessment of any likely significant health impacts. Adequate consultation should be undertaken with key stakeholders such as Public Health England, the Health and Safety Executive, relevant local authorities and local health care groups.
- 3.12.4. The applicant should identify measures to avoid, reduce or compensate for adverse health impacts and seek enhancement opportunities as appropriate. These impacts may affect people simultaneously, so the applicant, the Examining Authority and the Secretary of State (in determining an application for development consent) should consider the cumulative impact on health.

# 4. Generic impacts

## 4.1. Overview

- 4.1.1. This section focuses on the potential construction and operational impacts of water resources infrastructure, the assessments that an applicant will need to carry out, and the specific planning requirements that the applicant will need to meet, in order to gain development consent.
- 4.1.2. Many of the following topic sections include a summary table<sup>80</sup> of potentially significant impacts associated with each infrastructure type and potential mitigation measures. There may be other impacts, for which policy is not set out in this NPS, which the decision maker will wish to consider where they determine that the impact is relevant and important to their decision. The government's planning policy guidance, which is referred to in this section, is likely to be another useful source of guidance on generic impacts.
- 4.1.3. While this NPS covers developments in England only, assessments of impacts should take account of any impacts that water resources infrastructure may have in the devolved administrations. Where projects affect cross-border links, applicants should work with the devolved administrations as set out in Section 1.2 and relevant regulatory organisations.
- 4.1.4. Sufficient relevant information is crucial to good decision making, particularly where formal assessments are required (such as Environmental Impact Assessment, Habitats Regulation Assessment, flood risk or transport assessment). To avoid delay, applicants should discuss what information is needed with the Planning Inspectorate, statutory bodies and other relevant organisations as early as possible. Any assessment should be based on the most up to date data and guidance.

# 4.2. Air quality

#### Introduction

4.2.1. The development of water resources infrastructure can involve emissions to air during construction and operational phases, which could lead to adverse impacts on health, on protected species and habitats, or on the wider environment. Table 3

<sup>&</sup>lt;sup>80</sup> The information contained in these tables has been compiled from a review of a number of SEAs of WRMPs. The information is not an exhaustive list of all potential impacts or mitigation measures. The information is presented to assist with the identification of potential significant impacts and related possible mitigation or enhancement measures associated with the infrastructure types. Please refer to the accompanying Appraisal of Sustainability for further details.

identifies impacts that may be relevant for the applicant's assessment and identification of potential mitigation measures.

Table 3 - Potential impacts of water resources NSIPs on air quality.

NSIP type	Construction impacts	Operational impacts	Potential mitigation
Reservoirs	Emissions to air (including dust) from vehicle movements and the use of plant'*	Vehicle movements associated with the ongoing operation of reservoirs or recreational facilities.	HGV movements and construction vehicles could be routed and timed to avoid peak traffic periods and sensitive receptors.
Transfers	Emissions to air (including dust) from vehicle movements and the use of plant.	No significant impacts identified.	Use of best practice methods including the development and implementation of Construction Environmental Management Plans should be
Desalination	Emissions to air (including dust) from vehicle movements and the use of plant.	Vehicle movements associated with the ongoing operation.  If onsite renewable power generation is utilised, local air quality (and environmental permitting requirements) may need consideration.	considered.  Dust suppression measures could be utilised during construction.  Air quality monitoring could be undertaken where appropriate.  Lower emissions plant and vehicles could be used.  Detailed air quality and transport assessments could be undertaken as required.

<sup>\*</sup> The term 'plant' used within this and subsequent tables refers to mobile or static construction machinery

4.2.2. Current UK legislation sets out health-based ambient air quality objectives, including concentration limit values for the main air pollutants.<sup>81</sup> The UK has also signed up to ambitious emission reduction commitments for five harmful air pollutants by 2020 and 2030 under the amended Gothenburg Protocol and revised

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<sup>81</sup> The Air Quality Standards Regulations 2010/1001

- National Emission Ceilings Directive, building on existing commitments which have applied since 2010.<sup>82</sup>
- 4.2.3. The air quality effects of the proposed development on wildlife and biodiversity should be assessed in accordance with the Biodiversity and Nature Conservation Section 4.3 of this NPS.

#### Applicant's assessment

- 4.2.4. Where the air pollution impacts of the proposed development are likely to be significant, or cumulatively could lead to a breach of limit values as set out in the Air Quality Standards Regulations 2010, the applicant must undertake an assessment of the impacts of the proposed development as part of the Environmental Statement.
- 4.2.5. Air quality considerations are likely to be particularly relevant where water resources infrastructure is proposed within or adjacent to Air Quality Management Areas <sup>83</sup> or any road links exceeding limit values according to Defra's assessments <sup>84</sup> <sup>85</sup> or where they may have potential impacts on Natura 2000 sites, <sup>86</sup> including those outside England.
- 4.2.6. The Environmental Statement should describe:
  - existing (background) air quality levels;
  - any significant air quality effects, associated with the development (both alone and in-combination), their mitigation and any residual effects distinguishing between the project stages, and taking account of any significant emissions from any traffic generated by the project;
  - the contribution of emissions to air, to site-specific critical levels and loads, for the protection of vegetation and ecosystems after mitigation methods have been applied; and
  - the contribution of emissions to air to ambient air quality after mitigation methods have been applied.

<sup>&</sup>lt;sup>82</sup> The amended Gothenburg Protocol to the UNECE Convention on Long-range Transboundary Air Pollution; Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants (transposed in the National Emission Ceilings Regulations 2018).

<sup>&</sup>lt;sup>83</sup> If a local authority finds any places where the national air quality objectives are not likely to be achieved, it must declare an Air Quality Management Area and put together a plan to improve air quality.

<sup>84</sup> https://uk-air.defra.gov.uk/interactive-map

<sup>85</sup> https://uk-air.defra.gov.uk/data/gis-mapping

<sup>&</sup>lt;sup>86</sup> Natura 2000 is a network of nature protection areas in the territory of the European Union. It is made up of Special Areas of Conservation and Special Protection Areas designated respectively under the Habitats Directive and Birds Directive. The network includes both terrestrial and marine sites (Marine Protected Areas (MPAs).

4.2.7. Defra publishes future national projections of air quality based on estimates of future levels of emissions, traffic and vehicle fleet. Projections are updated as the evidence base changes. The applicant's assessment should be consistent with this, but may include more detailed modelling to demonstrate local impacts.

## **Decision making**

- 4.2.8. The Secretary of State should take into account the presence of Air Quality Management Areas or any road links referred to in paragraph 4.2.5. A proposed development should be consistent with local air quality action plans.
- 4.2.9. The Secretary of State should consider air quality impacts over the wider area that is likely to be affected, as well as in the vicinity of a proposed development. In all cases, the Secretary of State must take account of relevant statutory air quality thresholds, including those set out in the Air Quality Standards Regulations 2010.
- 4.2.10. Where a proposed development is likely to lead to a breach of the air quality thresholds, or affect the ability of a non-compliant area to achieve compliance within the timescales set out in the most recent relevant air quality plan at the time of the decision, the applicant should work with the relevant authorities to secure appropriate mitigation measures, with a view to ensuring that those thresholds are not breached. Air quality considerations are likely to be particularly relevant where a development is proposed:
  - within or adjacent to Air Quality Management Areas or nature conservation sites (including Natura 2000 sites and Sites of Special Scientific Interest (SSSIs),<sup>87</sup> including those outside England)(see also Habitats Regulation Assessment requirements, section 3.3 of this NPS); and
  - where changes are sufficient to bring about the need for a new Air Quality
    Management Area or local air quality plan to address exceedances of limit
    values under the Air Quality Standards Regulations 2010, or change the area of
    an existing Air Quality Management Area; or bring about changes to
    exceedances of the limit values, or where they may have the potential to impact
    on nature conservation sites.
- 4.2.11. The Secretary of State must give air quality considerations substantial weight where, after taking into account mitigation, a development would be likely to lead to a significant adverse air quality impact in relation to the Environmental Impact

<sup>87</sup> Sites of Special Scientific Interest (Area of Special Scientific Interest (ASSI) in Northern Ireland) is a conservation designation denoting a protected area in the United Kingdom. Sites of Special Scientific Interest are the basic building block of site based nature conservation logiclation and most other logic.

conservation designation denoting a protected area in the United Kingdom. Sites of Special Scientific Interest are the basic building block of site-based nature conservation legislation and most other legal nature/geological conservation designations in Great Britain are based upon them, including national nature reserves, Ramsar sites, Special Protection Areas, and Special Areas of Conservation.

Assessment or where they lead to deterioration in air quality in agglomeration or non-agglomeration zones.<sup>88</sup>

- 4.2.12. The Secretary of State should refuse consent where, after taking into account mitigation, the air quality impacts of the development will:
  - result in a zone or agglomeration that is currently reported as being compliant
    with the limit values set out in Schedule 2 of the Air Quality Standards
    Regulations 2010 for the relevant averaging periods becoming non-compliant; or
  - affect the ability of a non-compliant area to achieve compliance within the timescales set out in the most recent relevant air quality plan at the time of the decision.

#### **Mitigation**

- 4.2.13. The Secretary of State should be satisfied that the mitigation measures put forward by the applicant, and which are needed in respect of both construction and operational emissions, are acceptable. A construction management plan, adequately secured through for example a Development Consent Order requirement, will help provide mitigation measures (such as air quality monitoring, dust suppression plans, containment, limiting times of activity and ensuring an adequate distance between sources of emissions and receptors).
- 4.2.14. In considering proposed mitigation measures, the Secretary of State may refer to the conditions and advice in any relevant air quality plan.
- 4.2.15. Reductions in air emissions might be achieved through consideration of design and layout; the technologies employed; and energy use.

# 4.3. Biodiversity and nature conservation

#### Introduction

4.3.1. Biodiversity is the variety of life in all its forms and encompasses all species of plants and animals and the complex ecosystems of which they are a part. Government policy for the natural environment is set out in 'A Green Future: Our 25 Year Plan to Improve the Environment'. The Plan sets out the vision for biodiversity, by supporting healthy, well-functioning ecosystems and establishing more coherent ecological networks that are more resilient to current and future pressures.

<sup>&</sup>lt;sup>88</sup> For monitoring and reporting air pollution the UK has been divided into agglomeration zones (areas of urban population > 250,000 people) and non-agglomeration zones.

- Geological conservation relates to the sites that are designated for their geology and/or their geomorphological importance.<sup>89</sup>
- 4.3.2. The wide range of legislative provisions that can impact on planning decisions affecting biodiversity and geological conservation issues are set out in government Planning Practice Guidance.<sup>90</sup>
- 4.3.3. The development of water resources infrastructure could have impacts (both adverse and beneficial) on biodiversity and nature conversation interests during construction and operational phases. The table below identifies impacts that may be relevant for the applicant's assessment and identification of potential mitigation, compensation or enhancement measures. A site specific Habitats Regulation Assessment (where required) or Habitats Regulation Assessment undertaken for WRMP will also help identify impacts and mitigation measures.

Table 4 - Potential impacts of water resources NSIPs on biodiversity and nature conservation.

NSIP type	Construction impacts	Operational impacts	Potential mitigation or enhancement
Reservoirs	Permanent land use change could result in adverse impacts on species, cause damage to designated and non-designated sites and lead to the loss, fragmentation and isolation of habitats.  Disturbance to habitats and species could occur from construction activity which is likely to take place over an extended period (potentially several	New or enlarged reservoirs can have a wide range of adverse effects on biodiversity. For example, there may be effects on downstream habitats and species associated with long-term changes to hydrological regimes or changes to morphological conditions.  There is a strong potential for ecological benefits associated with new and enlarged reservoirs to be realised.	The layout of development could seek to avoid damage to designated nature conservation sites and the area of works could be minimised to reduce the risk of adverse impacts on local biodiversity.  Species and habitat surveys could be undertaken pre, during and post construction to inform the application of appropriate management and mitigation procedures.  For underground works, following construction there is the potential for the

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<sup>&</sup>lt;sup>89</sup> A list of designated sites (including marine sites) is included in the Geological Conservation Review held by the Joint Nature Conservation Committee (JNCC)

<sup>90</sup> NPPG on Natural Environment https://www.gov.uk/guidance/natural-environment

	years) and include substantial groundworks, land reprofiling and creation of embankments.  (See also sections 4.2 and 4.15 on air and water quality)	Existing reservoirs commonly develop into conservation assets and many become designated sites in themselves, providing new habitats for birds, fish and other species.	reinstatement of the environment to its pre-construction condition. Where this cannot be achieved, it may be necessary to create compensatory habitat depending on the type and sensitivity of any designated nature conservation sites that
Transfers	Construction activities for pipelines and associated works can occur over long distances and could result in the loss of or disturbance to habitats and species.  Watercourse crossings present particular risks such as  • the loss or damage of habitats and species;  • creating a barrier to the movement of fish and other wildlife;  • preventing sediment and woody debris being moved downstream; and  • prevention of natural river movement.  There is also the potential for the transfer of non-native species (see section 4.15.9).	Some disturbance to habitats and species associated with the operational maintenance of any water transfer infrastructure and risks associated with the transfer of non-native species (see section 4.15.9).	may be affected.  Where a river crossing cannot be avoided, the design and engineering of the crossing should be undertaken in accordance with best practice guidance.  Use of best practice methods including the development and implementation of Construction Environmental Management Plans should be considered. These could incorporate for example seasonal restrictions on timings of vegetation clearance and impacts on species and need for 'watching briefs'.  Design measures to mitigate the risk of adverse effects on aquatic flora and fauna could be identified and implemented including, for example:  • Fish passages may be required where there is a physical obstruction to a water course.  • The design of screens on intake pince accorded.
Desalination	The loss of or disturbance to habitats	Impacts may be associated with, for	intake pipes could minimise the risks to fish and other marine organisms

and species associated with land take and construction activities.

Potential for adverse effects on coastal/marine habitats and species due to the construction of water intake and outfall structures. Effects in this regard may include, for example, underwater noise, barriers to the movement of mobile species and disturbance to habitats.

example, the entrapment of fish and marine mammals in intake screens, the discharge of brine and other chemicals and increased turbidity and seawater temperatures which can affect sensitive habitats and species.

 The timing, method and location of discharges from desalination plants could be considered to minimise the effects on marine flora and fauna.

Biodiversity enhancement measures (such as new habitat creation and provision of green corridors) could be incorporated where possible into the project design.

# Applicant's assessment

- 4.3.4. Where the project is subject to Environmental Impact Assessment the applicant should ensure that the environmental statement clearly sets out any likely significant effects on internationally, nationally and locally designated sites of ecological or geological conservation importance (including those outside England) on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity. The assessment should consider the full range of potential impacts on ecosystems including habitats, protected species or species identified as being of principal importance to biodiversity and nature conservation.
- 4.3.5. The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests.<sup>91</sup> (See section 3.4 also on environmental net gain).

<sup>91</sup> See, for example, the biodiversity planning toolkit created by the Association of Local Government Ecologists in partnership with NGOs, Defra, SNCB and the Environment Agency.

#### **Decision making**

- 4.3.6. The government's policy for biodiversity in England is set out in the 25 Year Environment Plan, Biodiversity 2020, the National Pollinators Strategy and the UK Marine Strategy. The aim is to halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people. This aim needs to be viewed in the context of the challenge presented by climate change. Healthy, naturally functioning ecosystems and coherent ecological networks will be more resilient and adaptable to climate change effects. Failure to address this challenge will result in significant adverse impact on biodiversity.
- 4.3.7. As a general principle, and subject to the specific policies below, development should avoid significant harm to biodiversity and geological conservation interests and contribute overall to net biodiversity gain. Where significant harm cannot be avoided or mitigated, as a last resort, appropriate compensation measures should be sought to provide net gains for biodiversity. The applicant may wish to make use of biodiversity offsetting<sup>92</sup> (see mitigation section below) in devising compensation proposals to counteract any negative impacts on biodiversity which cannot be avoided or mitigated.
- 4.3.8. In taking decisions, the Secretary of State should ensure that appropriate weight is given to designated sites of international, national and local importance, protected species, and other habitats and species of importance for the conservation of biodiversity and geological interest in the wider environment.

#### International sites

- 4.3.9. The highest level of biodiversity protection is afforded to sites identified through international conventions and European Directives. The Habitats Regulations provide statutory protection for European sites.<sup>93</sup> The National Planning Policy Framework states that the following wildlife sites should have the same protection as European sites:
  - potential Special Protection Areas and possible Special Areas of Conservation;

<sup>92</sup> Biodiversity offsets are measurable conservation outcomes resulting from actions designed to compensate for residual adverse biodiversity impacts arising from a development after mitigating measures have been taken. The goal of biodiversity offsets is to achieve a net gain of biodiversity.

<sup>&</sup>lt;sup>93</sup> This includes candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation and Special Protection Areas, and is defined in regulation 8 of the Conservation of Habitats and Species Regulations 2017.

- listed or proposed Ramsar sites;<sup>94</sup> and
- sites identified, or required, as compensatory measures for adverse effects on European sites, potential Special Protection Areas, possible Special Areas of Conservation and listed or proposed Ramsar sites.

## **Sites of Special Scientific Interest**

- 4.3.10. Many Sites of Special Scientific Interest (SSSIs) are also designated as sites of international importance and will be protected accordingly. Those that are not, or those features of SSSIs not covered by an international designation, should be given a high degree of protection in recognition of their national significance. All National Nature Reserves are also notified as SSSIs.
- 4.3.11. Where a proposed development on land within or outside an SSSI is likely to have an adverse effect on an SSSI (either individually or in combination with other developments), development consent should not normally be granted. Where an adverse effect on the site's notified special interest features is likely, an exception should be made only where the benefits of the development at this site clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest, and any broader impacts on the national network of SSSIs. The Secretary of State should ensure that the applicant's proposals to mitigate the harmful<sup>95</sup> aspects of the development and, where possible, to ensure the conservation and enhancement of the site's biodiversity or geological interest, are acceptable. Where necessary, requirements and/or planning obligations should be used to ensure these proposals are delivered.

#### **Marine Conservation Zones**

4.3.12. Marine Conservation Zones introduced under the Marine and Coastal Access Act 2009, are areas that have been designated for the purpose of conserving marine flora or fauna, marine habitat or types of marine habitat or features of geological or geomorphological interest. The protected feature or features and the conservation objectives for the Marine Conservation Zones are stated in the designation order for the Marine Conservation Zones, which provides statutory protection for these areas. Measures to restrict damaging activities will be implemented by the Marine Management Organisation and other relevant organisations. As a public authority, the Secretary of State is bound by the duties in relation to Marine Conservation Zones imposed by sections 125 and 126 of the Marine and Coastal Access Act 2009.

<sup>&</sup>lt;sup>94</sup> Potential Special Protection Areas, possible Special Areas of Conservation and proposed Ramsar sites are sites on which Government has initiated public consultation on the scientific case for designation as a Special Protection Area, candidate Special Area of Conservation or Ramsar site.

<sup>&</sup>lt;sup>95</sup> In line with the principle above, the term "harm" should be understood to mean significant harm.

#### **Regional and Local Sites**

4.3.13. Sites of regional and local biodiversity and geological interest (which include Local Geological Sites, Local Nature Reserves and Local Wildlife Sites and Nature Improvement Areas) have a fundamental role to play in meeting overall national biodiversity targets, in contributing to the quality of life and the well-being of the community, and in supporting research and education. The Secretary of State should give due consideration to such regional or local designations. However, given the need for new infrastructure, these designations should not be used in themselves to refuse development consent.

# Irreplaceable habitats including ancient woodland and ancient or veteran trees

4.3.14. Ancient woodland is a valuable biodiversity resource both for its diversity of species and for its longevity as woodland. Once lost it cannot be recreated. The Secretary of State should not grant development consent for any development that would result in the loss or deterioration of irreplaceable habitats including ancient woodland and the loss of ancient or veteran trees found outside ancient woodland, unless there are wholly exceptional reasons, for example where the need for and other public benefits of the development, in that location, would clearly outweigh the loss or deterioration of the habitat, and a suitable compensation strategy exists.

## Biodiversity within and around developments

4.3.15. Development proposals potentially provide many opportunities for building in beneficial biodiversity or geological features as part of good design or delivering environmental net gain. When considering proposals, the Secretary of State should consider whether the applicant has maximised such opportunities in and around developments. The Secretary of State may use requirements or planning obligations where appropriate in order to ensure that such benefits are delivered.

# Protection of other habitats and species

4.3.16. Many individual wildlife species receive statutory protection under a range of legislative provisions. <sup>96</sup> Other species and habitats have been identified as being of principal importance for the conservation of biodiversity in England and Wales <sup>97</sup>

<sup>&</sup>lt;sup>96</sup> Certain plant and animal species, including all wild birds, are protected under the Wildlife and Countryside Act 1981. European plant and animal species are protected under the Conservation of Habitats and Species Regulations 2017.2010 (as amended). Some other animals are protected under their own legislation, for example Protection of Badgers Act 1992.

<sup>&</sup>lt;sup>97</sup> Lists of habitats and species of principal importance for the conservation of biological diversity in England published in response to Section 41 of the Natural Environment and Rural Communities Act 2006 are available from the Biodiversity Action Reporting System website.

and therefore requiring conservation action. The Secretary of State should ensure that applicants have taken measures to ensure these species and habitats are protected from the adverse effects of development. Where appropriate, requirements or planning obligations may be used in order to deliver this protection. The Secretary of State should refuse consent where harm to the habitats or species and their habitats would result, unless the benefits of the development (including need) clearly outweigh that harm.

#### Mitigation

- 4.3.17. Applicants should include appropriate mitigation measures as an integral part of their proposed development, including identifying where and how these will be secured. In particular, the applicant should demonstrate that:
  - during construction, they will seek to ensure that activities will be confined to the minimum areas required for the works;
  - during construction and operation, best practice will be followed to ensure that risk of disturbance or damage to species or habitats is minimised;
  - habitats will, where practicable, be restored after construction works have finished;
  - developments will be designed and landscaped to provide green corridors and minimise habitat fragmentation where possible and reasonable;
  - opportunities will be taken to enhance existing habitats and, where practicable, to create new habitats of value within the site landscaping proposals.
- 4.3.18. The Secretary of State should consider what appropriate requirements should be attached to any consent and/or in any planning obligations entered into in order to ensure that mitigation measures are delivered.
- 4.3.19. The Secretary of State will need to take account what mitigation measures may have been agreed between the applicant and Natural England and/or the Marine Management Organisation and whether Natural England and/or or the Marine Management Organisation has granted or refused, or intends to grant or refuse, any relevant licences, including protected species mitigation licences. For cross border impacts, Natural Resources Wales and Scottish Natural Heritage should also be consulted.

# 4.4. Carbon emissions

#### Introduction

- 4.4.1. Anthropogenic activities continue to increase the concentration of greenhouse gases in the atmosphere. The Climate Change Act 2008 established a legally binding target to reduce the UK's greenhouse gas emissions to at least 80% below 1990 levels by 2050, and has a series of five year carbon budgets on the way to 2050. The Paris Agreement<sup>98</sup> marked a clear turning point towards a sustainable and low carbon future, requiring countries to have national mitigation plans to reduce emissions, with the goal of keeping global warming below 2 °C.
- 4.4.2. The development of water resources infrastructure could give rise to carbon (greenhouse gas) emissions during construction and operational phases. Table 5 identifies impacts that may be relevant for the applicant's assessment and identification of potential mitigation measures.

Table 5 - Potential impacts of water resources NSIPs on carbon (greenhouse gas) emissions.

NSIP type	Construction impacts	Operational impacts	Potential mitigation
Reservoirs	The large scale of construction required for the enlargement of existing, or construction of new, reservoirs could generate emissions of greenhouse gases from HGV movements, construction plant and the embodied carbon in raw materials.	Greenhouse gas emissions could be mainly associated with the energy use required for pumping and treatment of water (and other associated infrastructure needs) and a small number of vehicle movements.	The use of low emission plant could be considered.  Maximising the use of on-site materials could reduce HGV movements (see sections 4.12 and 4.14 on resource use and transport also)  New infrastructure could be designed to incorporate the use of energy efficient
Transfers	The construction activities required for water transfer schemes could generate emissions of greenhouse gases from	Greenhouse gas emissions could be mainly associated with the energy use required for pumping of water (and other	materials, building techniques and energy efficient pumping and water treatment equipment.  Gravity fed transfers could

<sup>&</sup>lt;sup>98</sup> At the Paris climate conference (COP21) in December 2015, 195 countries adopted the first-ever universal, legally binding global climate deal:

http://ec.europa.eu/clima/policies/international/negotiations/future/index en.htm

	HGV movements, construction plant and the embodied carbon in raw materials.	associated infrastructure needs) and a small number of vehicle movements.	require less energy requirements for pumping.  Opportunities could be sought for the use of, or generation
Desalination	The construction activities required for desalination projects could generate emissions of greenhouse gases from HGV movements, construction plant and the embodied carbon in raw materials.	The desalination process can be energy intensive and in consequence, operational emissions could be significant. There may also be additional emissions associated with the pumping and treatment of water.	of, renewable energy to help offset additional operational carbon emissions.

## **Applicant's assessment**

- 4.4.3. Carbon impacts are considered as part of the WRMP options appraisal process. This information may be useful in the preparation of site specific assessments.
- 4.4.4. While it is unlikely that the development of water resources infrastructure will adversely affect the government's ability to meet its emissions targets, the applicant should provide evidence of the carbon impact of the development and an assessment of emissions associated with construction and operation against government targets.
- 4.4.5. Where a proposed development is Environmental Impact Assessment development under the Environmental Impact Assessment Regulations,<sup>99</sup> the applicant should undertake an assessment of the project as part of the environmental statement, to include an assessment of any likely significant climate effects. The applicant should provide evidence of the carbon impact of the project (including embodied carbon), both from construction and operation, such that it can be assessed against the government's carbon obligations, including but not limited to carbon budgets.

<sup>99</sup> Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (S.I. 2017/572). Regulation 5(2)(c) refers to the significant effects of the proposed development on, among other factors, climate.

## **Decision making**

4.4.6. Any increase in carbon emissions alone is not a reason to refuse development consent, unless the increase in carbon emissions resulting from the project is so significant that it would have a material impact on the ability of the government to meet its carbon reduction targets, including carbon budgets.

#### Mitigation

4.4.7. Evidence of appropriate mitigation measures (where appropriate incorporating engineering plans on configuration and layout, and use of materials) in design, construction and operation should be presented. The applicant should demonstrate that it has investigated feasible options in terms of using energy efficient technology or processes, or using renewable energy sources, produced either on site or linked to any local renewable energy initiatives. The Secretary of State will consider the effectiveness of such mitigation measures in order to ensure that the carbon footprint is not unnecessarily high. The Secretary of State's view of the adequacy of the mitigation measures will be a material factor in the decision making process.

# 4.5. Coastal change

#### Introduction

- 4.5.1. Where infrastructure projects are proposed on or near the coast, coastal change may be a key consideration. This section is concerned both with the impacts which water resources infrastructure (primarily desalination projects) can have as a driver of coastal change and with how to ensure that developments are resilient to ongoing and potential future coastal change. The aim of the government's planning policy is to reduce risk from coastal change by avoiding inappropriate development in vulnerable areas, or adding to the impacts of physical changes to the coast.
- 4.5.2. The construction of water resources infrastructure on the coast may involve, for example, the construction of discharge outfalls and abstraction points, dredging, dredge spoil deposition and flood and coastal protection measures which could result in direct effects on the coastline, seabed, marine ecology and biodiversity, and the historic environment. The effluent discharge from the desalination process may be highly saline and require careful management.
- 4.5.3. Additionally indirect changes to the coastline and seabed might arise as a result of a hydrodynamic response to some of these direct changes. This could lead to localised or more widespread coastal erosion or accretion and changes to offshore features such as submerged banks and ridges, marine biodiversity and the historic environment

4.5.4. This section only applies to water resources infrastructure projects situated on or near the coast. The sections on biodiversity and geological conservation, flood risk, the historic environment and climate change adaptation, including the increased risk of coastal erosion, are also relevant, as is advice on access to coastal recreation sites and features in the section on land use.

Table 6 - Desalination project potential impacts on coastal change.

NSIP type	Construction impacts	Operational impacts	Potential mitigation
Desalination	Desalination plants using sea water, by their nature, are located on or near coastal or estuarine areas. Construction of the desalination plant, associated intake and outfall structures, and potentially flood defences has the potential to impact coastal erosion elsewhere.  (See also section 4.8 on flood risk)	Unlikely significant but potential impacts from maintenance operations.  See also section 4.15 on water quality.	Effective design and engagement with relevant authorities and coastal organisations.

#### Applicant's assessment

- 4.5.5. Applications for development in a Coastal Change Management Area should make it clear why there is a need for it to be located in a Coastal Change Management Area. 100 If this is the case, applicants should consult the local planning authority, Environment Agency and other relevant bodies on the scope of an assessment of the vulnerability of the proposed development to coastal change, to help demonstrate its appropriateness in such a location. The applicant should take into account the potential impacts of climate change during the infrastructure's operational life using the latest UK Climate Change Risk Assessment, the latest set of UK Climate Projections, and other relevant sources of climate change evidence.
- 4.5.6. For projects involving dredging or disposal into the sea, the applicant should consult the Marine Management Organisation, and where appropriate, for cross-boundary

<sup>&</sup>lt;sup>100</sup> Coastal Change Management Areas are areas identified in Local Plans as likely to be affected by coastal change (physical change to the shoreline through erosion, coastal landslip, permanent inundation or coastal accretion).

impacts, Natural Resource Wales and Scottish Natural Heritage, at an early stage. The applicant should also consult the Marine Management Organisation on projects which could impact on coastal change, since the Marine Management Organisation may also be involved in considering other projects which may have related coastal impacts. The applicant should examine the broader context of coastal protection around the proposed site and the influence in both directions, i.e. coast on site and site on coast.

4.5.7. 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 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.

#### **Decision making**

- 4.5.8. When assessing applications in a Coastal Change Management Area, the Secretary of State should not grant development consent unless it is demonstrated that:
  - the development will be safe (from flood risk and coastal erosion) over its planned operational lifetime and will not have an unacceptable impact on coastal change;
  - the character of the coast (including designations) is not compromised;
  - the development provides wider sustainability benefits; and
  - the development does not hinder the creation and maintenance of a continuous, signed and managed route around the coast.
- 4.5.9. Essential utilities infrastructure may be granted development consent in a Coastal Change Management Area, provided there are clear plans to manage the impacts of coastal change on it, and it will not have an adverse impact on rates of coastal change elsewhere.
- 4.5.10. In addition to this NPS, the Secretary of State must have regard to the appropriate marine policy documents, as provided for in the Marine and Coastal Access Act 2009, in taking any decision which relates to the exercise of any function capable of affecting any part of the UK marine area. The Secretary of State may also have

regard to any relevant Shoreline Management Plans.<sup>101</sup> In the event of a conflict between any of these marine policy documents and this NPS, the NPS prevails for the purposes of decision making given the national significance of the infrastructure.

4.5.11. Substantial weight should be attached to the risks of flooding and coastal erosion. The applicant must demonstrate that full account has been taken of the policy on assessment and mitigation in this NPS, taking account of the potential effects of climate change on these risks as discussed above.

## Mitigation

- 4.5.12. Applicants should propose appropriate mitigation measures to address any adverse physical changes to the coast in consultation with the Marine Management Organisation, the Environment Agency, Natural England, Natural Resource Wales, Scottish Natural Heritage, Local Planning Authorities, other statutory consultees, Coastal Partnerships and other coastal groups, as it considers appropriate. The Secretary of State should consider whether the mitigation requirements put forward by an applicant are acceptable and will be delivered and whether any requirements and/or obligations should be attached to any grant of development consent in order to secure their delivery.
- 4.5.13. Resilient and long term adaptive design could help to mitigate against coastal change. The Secretary of State should ensure that any development consent granted in a Coastal Change Management Area is not impacted by coastal change if necessary by limiting the planned life-time of the proposed development and including restoration requirements where these are necessary to reduce the risk to people and the development.

<sup>&</sup>lt;sup>101</sup> Shoreline management plans are developed by Coastal Groups with members mainly from local councils and the Environment Agency. They identify the most sustainable approach to managing the flood and coastal erosion risks to the coastline in the short term (0 to 20 years), medium term (20 to 50 years) and the long term (50 to 100 years). The Shoreline Management Plan is available online at: <a href="https://www.gov.uk/government/publications/shoreline-management-plans-smps">https://www.gov.uk/government/publications/shoreline-management-plans-smps</a>

# 4.6. Dust, odour, artificial light, smoke and steam

#### Introduction

- 4.6.1. The construction and operation of water resources infrastructure, common to any infrastructure project, has the potential to create a range of emissions such as dust, odour, artificial light, smoke and steam. All have the potential to have a detrimental impact on amenity or cause a common law nuisance or statutory nuisance under Part III, Environmental Protection Act 1990. 102 These may also be covered by pollution control or other environmental consenting regimes.
- 4.6.2. Because of the potential effects of these emissions and in view of the availability of the defence of statutory authority against nuisance claims, it is important that the potential for these impacts is considered by the applicant in its application, by the Examining Authority in examining applications, and by the Secretary of State in taking decisions on development consent.
- 4.6.3. For NSIPs covered by this NPS, some impact on amenity for local communities is likely to be unavoidable, particularly during construction. Impacts should be kept to a minimum and should be at a level that is acceptable.

#### **Applicant's assessment**

- 4.6.4. Where the development is subject to an Environmental Impact Assessment, the applicant should assess any likely significant effects on amenity from emissions of dust, odour, artificial light, smoke and steam, and describe these in the environmental statement. In particular, the assessment provided by the applicant should describe:
  - The type and quantity of emissions;
  - Aspects of the development which may give rise to emissions during construction, operation and decommissioning;
  - Premises or locations that may be affected by the emissions;
  - Effects of the emission on identified premises or locations; and
  - Measures to be employed in preventing or mitigating the emissions.
- 4.6.5. The applicant is advised to consult the relevant local planning authority and, where appropriate, the Environment Agency, about the scope and methodology of the assessment.

<sup>102</sup> http://www.legislation.gov.uk/ukpga/1990/43/part/III

## **Decision making**

- 4.6.6. The Secretary of State should be satisfied that all reasonable steps have been taken, and will be taken, to minimise any detrimental impact on amenity from emissions of dust, odour, artificial light, smoke and steam. This includes the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.
- 4.6.7. If development consent is granted for a project, the Secretary of State should consider whether there is a justification for all of the authorised project (including any associated development) being covered by a defence of statutory authority against nuisance claims. If the Secretary of State cannot conclude that this is justified, then the defence should be disapplied, in whole or in part, through a provision in the development consent order.

#### Mitigation

4.6.8. The Secretary of State should ensure the applicant has provided sufficient information to show that any necessary mitigation will be put into place. In particular, the Secretary of State should consider whether to require the applicant to abide by a scheme of management and mitigation concerning emissions of dust, odour, artificial light, smoke and steam from the development to reduce any loss to amenity which might arise during the construction and operation of the development. A construction management plan may help clarify and secure mitigation.

# 4.7. Historic environment

#### Introduction

4.7.1. The construction and operation of water resources infrastructure has the potential to result in adverse impacts on the historic environment, both above, at and below the surface. Table 7 identifies impacts that may be relevant for the applicant's assessment and identification of potential mitigation measures.

Table 7 – Potential impacts of water resources NSIPs on the historic environment and cultural heritage.

NSIP type	Construction impacts	Operational impacts	Potential mitigation
Reservoirs	Adverse impacts on the significance of heritage assets could occur directly (through the loss of, or	Any operational changes in river flows downstream of a reservoir could affect heritage assets such as	Site layout and visual screening options could be considered to reduce impacts on any

	harm to, assets) or indirectly (through effects on setting). Construction activities (such as associated vehicle movements, dust and noise generation) may also have impacts on heritage assets.	mills and bridges or water dependent archaeological assets.	heritage assets.  Construction methods could adopt practices which seek to reduce potential adverse impacts to heritage assets.  Archaeological
Transfers	Adverse impacts on the significance of heritage assets could occur directly (through the loss of, or harm to, assets) or indirectly (through effects on setting). Construction activities (such as associated vehicle movements, dust and noise generation) may also have impacts on heritage assets.	Although most pipelines would be subsurface, associated development such as water treatment works could continue to affect the settings of heritage assets.  Any operational changes in river flows could affect heritage assets such as mills and bridges or water dependent archaeological assets.	watching briefs could be put in place during construction to identify, record and protect heritage assets.  Careful consideration should be given to the operational impacts of infrastructure on heritage assets associated with changes in water flows.
Desalination	Adverse impacts on the significance of heritage assets could occur directly (through the loss of, or harm to, assets) or indirectly (through effects on setting). Construction activities (such as associated vehicle movements, dust and noise generation) may also have impacts on heritage assets.	Continuance of effects on the settings of heritage assets.	

4.7.2. The historic environment includes all aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and landscaped and planted or managed flora.

- 4.7.3. Those elements of the historic environment identified as having a degree of significance meriting consideration in planning decisions because of their historic, archaeological, architectural or artistic interest are called 'heritage assets'. Heritage assets may be buildings, monuments, sites, places, areas or landscapes, or any combination of these. The value of a heritage asset to this and future generations because of its heritage interest is referred to as its significance. The interest may be historic, archaeological, architectural or artistic. Significance derives not only from a heritage asset's physical presence, but also from its setting.<sup>103</sup>
- 4.7.4. Some heritage assets have a level of significance that justifies official designation. Categories of designated heritage assets are:
  - World Heritage Sites;
  - Scheduled Monuments;
  - Listed Buildings;
  - Protected Wreck Sites;
  - Registered Parks and Gardens;
  - · Registered Battlefields; and
  - Conservation Areas. 104
- 4.7.5. Non-designated heritage assets of archaeological interest that are demonstrably of equivalent significance to Scheduled Monuments should be considered subject to the policies for designated heritage assets.<sup>105</sup> The absence of designation for such heritage assets does not indicate lower significance.
- 4.7.6. The Secretary of State will also consider the effects of the proposed development on other non-designated heritage assets in determining applications for development consent. Any non-designated heritage assets would be identified either through the development plan process by local authorities, including 'local listing', or through the NSIP examination and decision making process.

<sup>103</sup> Setting of a heritage asset is the surroundings in which it is experienced. Its extent is not fixed, and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance, or may be neutral.

<sup>&</sup>lt;sup>104</sup> The issuing of licences to undertake works on protected wreck sites in English waters is the responsibility of the Secretary of State for Culture, Media and Sport and does not form part of development consent orders. The issuing of licences for protected military remains is the responsibility of the Secretary of State for Defence.

<sup>&</sup>lt;sup>105</sup> There will be archaeological interest in a heritage asset if it holds, or may potentially hold, evidence of past human activity worthy of expert investigation at some point. Heritage assets with archaeological interest are the primary source of evidence about the substance and evolution of places, and the people and cultures that made them.

#### **Applicant's assessment**

- 4.7.7. Where the development is subject to Environmental Impact Assessment the applicant should undertake an assessment of any likely significant heritage impacts, including cumulative, of the proposed project as part of the Environmental Impact Assessment and describe these in the environmental statement.
- 4.7.8. The applicant should provide, as part of the environmental statement, a description of the significance of the heritage assets affected by the proposed development, and the contribution of their setting to that significance. The level of detail should be proportionate to the asset's importance, and no more than is sufficient to understand the potential impact of the proposal on the significance of the asset. Consideration will also need to be given to the possible impacts, including cumulative, on the wider historic environment. As a minimum, the relevant Historic Environment Record 106 should be consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, the applicant should include an appropriate desk-based assessment and, where necessary, a field evaluation. The applicant should ensure that the extent of the impact of the proposed development on the significance of any heritage asset affected can be adequately understood from the application and supporting documents.
- 4.7.9. The applicant is encouraged, where opportunities exist, to prepare proposals which can make a positive contribution to the historic environment, and to consider how their scheme takes account of the significance of heritage assets affected. This can include, where possible:
  - Enhancing, through a range of measures such as sensitive design, the significance of heritage assets including its setting;
  - Considering measures that address those heritage assets that are at risk, or which may become at risk, as a result of the scheme; and
  - Considering how visual or noise impacts can affect heritage assets, and whether there may be opportunities to enhance access to or interpretation, understanding and appreciation of the heritage assets affected by the scheme.
- 4.7.10. Careful consideration in preparing the scheme will be required on whether the impacts on the historic environment will be direct or indirect, temporary or permanent.

<sup>106</sup> Historic Environment Records are information services maintained and updated by (or on behalf of) local authorities and National Park Authorities with a view to providing access to comprehensive and dynamic resources relating to the historic environment of an area for public benefit and use. Details of Historic Environment Records in England are available from the Heritage Gateway website. Historic England should also be consulted where relevant.

#### **Decision making**

- 4.7.11. In determining applications, the Secretary of State will seek to identify and assess the particular significance of any heritage asset that may be affected by the proposed development (including by development affecting the setting of a heritage asset), taking account of the available evidence and any necessary expertise from:
  - Relevant information provided with the application and, where applicable, relevant information submitted during examination of the application;
  - Any designation records included on the National Heritage List for England;
  - Historic landscape character records;
  - The relevant Historic Environment Record(s) and similar sources of information<sup>107</sup>;
  - Representations made by interested parties during the examination; and
  - Expert advice, where appropriate and when the need to understand the significance of the heritage asset demands it.
- 4.7.12. The Secretary of State must also comply with the regime relating to Listed Buildings, Conservation Areas and Scheduled Monuments set out in The Infrastructure Planning (Decisions) Regulations 2010.<sup>108</sup>
- 4.7.13. In considering the impact of a proposed development on any heritage assets, the Secretary of State will take into account the particular significance of the heritage asset. This understanding should be taken into account when considering the impact of a proposal on a heritage asset to avoid or minimise any conflict between the conservation of the heritage asset and any aspect of the proposal.
- 4.7.14. The Secretary of State will take into account: the desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation and the positive contribution their conservation can make to sustainable communities including their economic vitality. The Secretary of State will also take into account the desirability of new development making a positive contribution to the local character and distinctiveness. The consideration of design should include scale, height, massing, alignment, materials, use and landscaping (for example screen planting).
- 4.7.15. When considering the impact of a proposed development on the significance of a designated heritage asset, the Secretary of State will give great weight to the

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<sup>&</sup>lt;sup>107</sup> Historic Environment Good Practice Advice in Planning: 2 - Managing Significance in Decision-Taking in the Historic Environment, available online at: <a href="https://historicengland.org.uk/images-books/publications/gpa2-managing-significance-in-decision-taking/">https://historicengland.org.uk/images-books/publications/gpa2-managing-significance-in-decision-taking/</a>

<sup>108</sup> http://www.legislation.gov.uk/uksi/2010/305/regulation/3/made

- asset's conservation. The more important the asset, the greater the weight should be. This is irrespective of whether any potential harm amounts to substantial harm, total loss or less than substantial harm to its significance.
- 4.7.16. Once lost, heritage assets cannot be replaced, and their loss has a cultural, environmental, economic and social impact. Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. Given that heritage assets are irreplaceable, any harm or loss should require clear and convincing justification.
- 4.7.17. Substantial harm to or loss of a Grade II Listed Building or a Grade II Registered Park or Garden should be exceptional. Substantial harm to or loss of designated sites of the highest significance, including World Heritage Sites, Scheduled Monuments, Grade I and II\* Listed Buildings, Protected Wreck Sites, Registered Battlefields, and Grade I and II\* Registered Parks and Gardens should be wholly exceptional.
- 4.7.18. Any harmful impact on the significance of a designated heritage asset should be weighed against the public benefit of development, recognising that the greater the harm to the significance of the heritage asset, the greater the justification that will be needed for any loss.
- 4.7.19. Where the proposed development will lead to substantial harm to or the total loss of significance of a designated heritage asset, the Secretary of State will refuse consent unless it can be demonstrated that the substantial harm or total loss of significance is necessary in order to deliver substantial public benefits that outweigh that loss or harm, or alternatively that all of the following apply:
  - The nature of the heritage asset prevents all reasonable uses of the site;
  - No viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation;
  - Conservation by grant funding or some form of not for profit charitable or public ownership is demonstrably not possible; and
  - The harm or loss is outweighed by the benefit of bringing the site back into use.
- 4.7.20. Where the proposed development will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including, where appropriate, securing its optimum viable use.
- 4.7.21. The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that affect directly or indirectly non-designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.

- 4.7.22. Not all elements of a World Heritage Site or Conservation Area will necessarily contribute to its significance. The Secretary of State will treat the loss of a building (or other element) that makes a positive contribution to the significance of a World Heritage Site or Conservation Area's significance either as substantial harm or less than substantial harm, as appropriate, taking into account the relative significance of the elements affected and their contribution to the significance of the World Heritage Site or Conservation Area as a whole.
- 4.7.23. Where the loss of significance of any heritage asset is justified on the merits of the new development, the Secretary of State will consider imposing a requirement on the consent, or require the applicant to enter into an obligation, that will prevent the loss occurring until the relevant part of the development has commenced.
- 4.7.24. The applicant should look for opportunities for new development within Conservation Areas and World Heritage Sites, and within the setting of heritage assets, to enhance and better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to or better reveal the significance of the asset should be treated favourably.
- 4.7.25. Where there is evidence of deliberate neglect of, or damage to, a heritage asset, the Secretary of State should not take its deteriorated state into account in any decision.

# Mitigation by recording

- 4.7.26. A documentary record of our past is not as valuable as retaining the heritage asset, and therefore the ability to record evidence of the asset should not be a factor in deciding whether such loss should be permitted and consent should be given.
- 4.7.27. Where the loss of the whole or part of a heritage asset's significance is justified, the Secretary of State will require the applicant to record and advance understanding of the significance of the heritage asset before it is lost (wholly or in part). The extent of the requirement should be proportionate to the asset's importance and significance and the impact. The applicant should be required to publish this evidence and to deposit copies of the reports with the relevant Historic Environmental Record. They should also be required to deposit the archive generated in a local museum or other public repository willing to receive it.
- 4.7.28. Where appropriate, the Secretary of State will impose requirements on the development consent order to ensure that the work is undertaken in a timely manner, in accordance with a written scheme of investigation that complies with the policy in this NPS and which has been agreed in writing with the relevant local authority, and to ensure that the completion of the exercise is properly secured.
- 4.7.29. Where there is a high probability that a development site may include as yet undiscovered heritage assets with archaeological interest, the Secretary of State

will consider requirements to ensure appropriate procedures are in place for the identification and treatment of such assets discovered during construction.

## 4.8. Flood risk

#### Introduction

- 4.8.1. Climate change over future decades is likely to result in milder, wetter winters and hotter, drier summers in the UK, while sea levels will continue to rise. These factors will lead to increased flood risk in areas susceptible to flooding, and to an increased risk of flooding in some areas not currently thought of as being at risk. In addition to increasing flood risk, longer term climate change will result in changes to weather-related disruption, most often caused by wind, rain, snow and ice. The applicant, the Examining Authority and the Secretary of State in taking decisions should take account of the policy on climate change adaptation as set out in the National Planning Policy Framework <sup>109</sup> and supporting guidance. <sup>110</sup>
- 4.8.2. The National Planning Policy Framework sets out that inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk. 111 But where development is necessary, it should be made safe without increasing flood risk elsewhere. Supporting guidance 112 explains that essential infrastructure (which can include NSIPs covered by the NPS) is permissible in areas of high flood risk, subject to the Exception Test. In addition, as set out in the National Planning Policy Framework new development should be planned to avoid increased vulnerability to the range of impacts arising from climate change. 113
- 4.8.3. Where this NPS mentions the UK Climate Change Risk Assessment, the reader should refer to the most recent version of the document.
- 4.8.4. The development of water resources infrastructure could affect, or be affected by, areas at risk of flooding during construction and operational phases. Table 8 below identifies impacts that may be relevant for the applicant's assessment and identification of potential mitigation measures.

<sup>&</sup>lt;sup>109</sup> National Planning Policy Framework, paragraph 149

<sup>110</sup> https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances and https://www.gov.uk/government/publications/adapting-to-climate-change-for-risk-management-authorities

<sup>111</sup> National Planning Policy Framework, paragraph 155

<sup>112</sup> http://planningguidance.communities.gov.uk/blog/guidance/flood-risk-and-coastal-change/

<sup>&</sup>lt;sup>113</sup> National Planning Policy Framework, paragraph 149

Table 8 - Potential impacts of water resources NSIPs on flood risk.

NSIP type	Construction impacts	Operational impacts	Potential mitigation
Reservoirs	Construction works may be liable to flooding, and/or cause or exacerbate flooding elsewhere, particularly where development sites are located in Flood Zones 2 or 3.	Reservoirs could present an increased flood risk to downstream communities. Please see section 3.10 on safety also.  An increase in impermeable areas as a result of any associated development may also cause increased flood risk elsewhere due to surface water runoff.	A flood risk sequential approach could be taken towards the siting of infrastructure within the development area.  Sustainable drainage approaches and other measures such as planting could be adopted to ensure no net change in fluvial, estuarine or surface water flood risk, arising from site run-off.
Transfers	Construction works may be liable to flooding, and/or cause or exacerbate flooding elsewhere, particularly where development sites are located in Flood Zones 2 or 3 or cross watercourses.	An increase in impermeable areas as a result of any associated development may also cause increased flood risk elsewhere due to surface water runoff.	Where required flood storage measures could be included in the design of development.  New or enlarged reservoirs may provide an opportunity to address existing flood risk (for example, by providing extra space for
Desalination	Construction works may be liable to flooding, and/or cause or exacerbate flooding elsewhere, particularly where development sites are located in Flood Zones 2 or 3 or adjacent to coastal areas. (See also section 4.5 on coastal change)	An increase in impermeable areas as a result of development may also cause increased flood risk elsewhere due to surface water runoff.	flood water storage or by improving monitoring and control of water flows).  Where works are proposed at or near the coast, a Coastal Erosion  Vulnerability Assessment or similar could be undertaken.

#### **Applicant's assessment**

- 4.8.5. Applications for infrastructure projects in the following locations should be accompanied by a flood risk assessment:
  - Flood Zones 2 and 3 (medium and high probability of river and sea flooding);
  - Flood Zone 1 (low probability of river and sea flooding) for projects of 1 hectare or greater (or where strategic flood risk assessments identify land as being at increased flood risk in future), or projects which may be subject to other sources of flooding (local watercourses, surface water, groundwater or reservoirs), or where the Environment Agency has notified the local planning authority that there are critical drainage problems.
- 4.8.6. For local flood risk (surface water, groundwater and ordinary watercourse flooding), local flood risk management strategies and surface water management plans provide useful sources of information for consideration in flood risk assessments. Surface water flood issues need to be understood and these issues taken into account; for example flow routes should be clearly identified and managed.
- 4.8.7. The applicant should identify and assess the risks of all forms of flooding to and from the development, and demonstrate how these flood risks will be managed, taking climate change into account.<sup>114</sup>
- 4.8.8. In preparing a flood risk assessment the applicant should:
  - Consider the risk of all forms of flooding arising from the development, in addition to the risk of flooding to the project, and demonstrate how these risks will be managed and, where relevant, mitigated, so that the development remains safe throughout its lifetime<sup>115</sup>;
  - Take into account the impacts of climate change, clearly stating the development lifetime over which the assessment has been made, and the range of climate scenarios considered;
  - Explore opportunities for enhancing local flood risk management (for example, through increased water storage);
  - · Consider the need for safe access and exit arrangements;
  - Include the assessment of residual risk after risk reduction measures have been taken into account, and demonstrate that this is acceptable for the development;
  - Consider if there is a need to remain operational during a worst case flood event over the development's lifetime; and

<sup>114</sup> https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

<sup>&</sup>lt;sup>115</sup> Updated flood maps are available on the Environment Agency's website

- Provide evidence for the Secretary of State to apply the Sequential Test and Exception Test, <sup>116</sup> as appropriate.
- 4.8.9. Where the development may be affected by, or may add to, flood risk, the applicant is advised to seek early pre-application discussions with the EA, and, where relevant, other flood risk management bodies such as lead local flood authorities, Internal Drainage Boards, sewerage undertakers, highways authorities and reservoir owners and operators. These discussions can be used to identify the likelihood and possible extent and nature of the flood risk, help scope the flood risk assessment, and identify the information that may be required by the Secretary of State to reach a decision on the application. If the Environment Agency has concerns about proposals on flood risk grounds, the applicant is encouraged to discuss these concerns at a sufficiently early stage with the Environment Agency and explore ways in which the proposal might be amended, or additional information provided, which would satisfy the Environment Agency concerns, before the application for development consent is submitted.

#### **Decision making**

- 4.8.10. Where flood risk is a factor in determining an application for development consent, the Secretary of State will need to be satisfied that, where relevant:
  - The application is supported by an appropriate flood risk assessment; and
  - The Sequential Test<sup>117</sup> has been applied as part of site selection and, if required, the Exception Test.<sup>118</sup>
- 4.8.11. When determining an application, the Secretary of State will need to be satisfied that flood risk will not be increased elsewhere, and will only consider development appropriate in areas at risk of flooding where, informed by a flood risk assessment, following the Sequential Test and, if required, the Exception Test, it can be demonstrated that:
  - within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;
  - the development is appropriately flood resistant and resilient;
  - it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;
  - any residual risk can be safely managed; and
  - safe access and escape routes are included where appropriate, as part of an agreed emergency plan.

<sup>&</sup>lt;sup>116</sup> National Planning Policy Framework, paragraphs 157-161

<sup>&</sup>lt;sup>117</sup> National Planning Policy Framework, paragraph 157-158

<sup>&</sup>lt;sup>118</sup> National Planning Policy Framework, paragraph 159-160

- 4.8.12. The applicant should take into account the potential impacts of climate change using the latest UK Climate Change Risk Assessment, the latest set of UK Climate Projections, and other relevant sources of climate change evidence. The applicant should also ensure any environment statement identifies appropriate mitigation or adaptation measures and how these will be secured. This should cover the estimated lifetime of the new infrastructure. Should a new set of UK Climate Projections become available after the preparation of an environmental statement, the Examining Authority or the Secretary of State will consider whether they need to request additional information from the applicant as part of the development consent application.
- 4.8.13. When determining an application, the Secretary of State will need to be satisfied that the potential effects of climate change on flood risk on the development have been considered as part of the design.
- 4.8.14. Approval for the development's overall approach to drainage systems will form part of any development consent issued by the Secretary of State.<sup>119</sup> The Secretary of State will therefore need to be satisfied that the proposed drainage system complies with any technical standards issued by the government<sup>120</sup> or to any National Standards<sup>121</sup> issued under Schedule 3 to the Flood and Water Management Act 2010.<sup>122</sup> In addition, the development consent order, or any associated planning obligations, will need to make provision for the adoption and maintenance of any sustainable drainage systems, including any necessary access rights to property. The Secretary of State will need to be satisfied that the most appropriate body would be given the responsibility for maintaining any sustainable drainage systems, taking into account the nature and security of the infrastructure on the proposed site. The responsible body could include, for example, the applicant, the landowner (if different from the applicant), the relevant local authority, or another body such as the internal drainage board or water company.
- 4.8.15. If the Environment Agency maintains an objection to the grant of development consent on the grounds of flood risk, the Secretary of State can grant consent, but would need to be satisfied that all reasonable steps have been taken by the applicant and the Environment Agency to attempt to resolve the concerns. Similarly, if the lead local flood authority objects to the development consent on the grounds of surface or other local sources of flooding, the Secretary of State can grant consent, but would need to be satisfied that all reasonable steps have been

The National Standards set out requirements for the design, construction, operation and maintenance of sustainable drainage systems, and may include guidance to which the Secretary of State will have regard http://www.legislation.gov.uk/ukpga/2010/29/contents

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Drainage implications as defined in Paragraph 7(2) of Schedule 3 to the Flood and Water Management
 Act 2010 <a href="http://www.legislation.gov.uk/ukpga/2010/29/schedule/3/crossheading/requirement-for-approval">http://www.legislation.gov.uk/ukpga/2010/29/schedule/3/crossheading/requirement-for-approval</a>
 <a href="https://www.gov.uk/government/publications/sustainable-drainage-systems-non-statutory-technical-standards">https://www.gov.uk/government/publications/sustainable-drainage-systems-non-statutory-technical-standards</a>

taken by the applicant and the lead local flood authority to attempt to resolve the concerns.

## Mitigation

- 4.8.16. The applicant should ensure that the development's design takes into account flood risk, and should put forward measures to mitigate the impact of flooding. Mitigation measures will need to be developed as part of the applicant's application for development consent to ensure that it is safe from flooding, and will not increase flood risk elsewhere for the proposed development's lifetime, taking into account climate change.
- 4.8.17. To manage flood risk satisfactorily and the impact of the natural water cycle on people, property and ecosystems, good design and infrastructure may need to be secured using requirements and / or planning obligations. This may include the use of sustainable drainage systems but could also include vegetation to help to slow runoff, hold back peak flows, and make landscapes more able to absorb the impact of severe weather events.
- 4.8.18. In this NPS, the term sustainable drainage systems is used and taken to cover the whole range of sustainable approaches to surface water drainage management including:
  - Source control measures including rainwater recycling and drainage;
  - Infiltration devices to allow water to soak into the ground, that can include individual soakaways and communal facilities;
  - Filter strips and swales, which are vegetated features that hold and drain water downhill mimicking natural drainage patterns;
  - Filter drains and porous pavements to allow rainwater and runoff to infiltrate into permeable material below ground and provide storage if needed;
  - Basins and ponds to hold excess water after rain and allow controlled discharge that avoids flooding; and
  - Flood routes to carry and direct excess water through developments to minimise the impact of severe rainfall flooding.
- 4.8.19. Site layout and surface water drainage systems should be able to cope with events that exceed the design capacity of the system, so that excess water can be safely stored on or conveyed from the site without adverse impacts.
- 4.8.20. The surface water drainage arrangements for any project should be such that the volumes and peak flow rates of surface water leaving the site are no greater than the rates prior to the proposed project, taking into account climate change, unless specific off-site arrangements are made and result in the same net effect.

- 4.8.21. It may be necessary to provide surface water storage and infiltration to limit and reduce both the peak rate of discharge from the site and the total volume discharged from the application / main application site. There may be circumstances where it is appropriate for infiltration attenuation storage to be provided outside the project site, if necessary through the use of a planning obligation or a development consent order requirement.
- 4.8.22. The sequential approach should be applied to the layout and design of the project. Vulnerable uses should be located on parts of the site at lower probability and residual risk of flooding. The applicant should seek opportunities where appropriate to use open space for multiple purposes such as amenity, wildlife habitat, and flood storage uses. Opportunities can be taken to lower flood risk by improving flow routes, flood storage capacity and using sustainable drainage systems.

# 4.9. Landscape and visual impacts

#### Introduction

- 4.9.1. The landscape and visual impacts of a proposed water resources NSIP will vary on a case-by-case basis according to the type of infrastructure (including any associated development), its location and the landscape setting of the proposed development. Landscape and visual effects also include tranquillity effects, which would affect people's enjoyment of the natural environment and recreational facilities. In this context, references to landscape should be taken as covering waterscape, seascape and townscape, where appropriate.
- 4.9.2. Table 9 identifies impacts that may be relevant for the applicant's assessment and identification of potential mitigation measures.

Table 9- Potential landscape and visual impacts of water resources NSIPs.

NSIP type	Construction impacts	Operational impacts	Potential mitigation
Reservoirs	Construction activity could take place over an extended period (potentially several years) and include substantial groundworks, land reprofiling and creation of embankments.  Could be sited on greenfield land with the potential for existing	Reservoirs can become attractive landscape features in their own right, however they result in a permanent land-use change and altered landscape profile. They could affect landscape character and the visual amenity of nearby receptors.	Construction activity could be screened where possible to avoid or minimise adverse landscape and visual impacts.  Site layout and infrastructure design could minimise landscape and visual impacts including

Transfers	landscape features (e.g. hedgerows or trees) to be lost as a consequence of the works. Where development takes place in designated landscapes in particular, impacts could be significant.  Construction activity associated with long distance pipelines could have detrimental impacts on the visual amenity of nearby receptors and landscape quality, particularly where development affects designated landscapes, as well as townscapes.	The impacts of subsurface pipelines are likely to be negligible. However, any aboveground infrastructure such as pumping stations and water treatment works may continue to have adverse impacts on landscape character and visual amenity.	utilising existing, and providing new, landscape features.  Opportunities could be sought to enhance landscape character through, for example, green infrastructure provision.  Opportunities could be sought to improve public access to the countryside.
Desalination	Construction activity could particularly affect seascapes.	May continue to have adverse impacts on particularly seascape character and visual amenity.	

# Applicant's assessment

4.9.3. The applicant should undertake an assessment of any likely significant landscape and visual impacts and describe these in the Environmental Statement. A guide has been produced to assist in addressing landscape issues. 123 The landscape and visual assessment should include reference to any landscape character assessment and associated studies as a means of assessing landscape impacts relevant to the proposed development. In addition, the applicant's assessment should take account of any relevant policies based on these assessments in local development documents.

<sup>&</sup>lt;sup>123</sup> Landscape Institute and Institute of Environmental Management and Assessment (2013, 3rd edition): 'Guidelines for Landscape and Visual Impact Assessment Impact Assessment'.

- 4.9.4. The applicant's assessment should include any significant effects during construction of the development and / or the significant effects of the completed development and its operation on landscape components and landscape character, including historic characterisation.
- 4.9.5. The assessment should include the visibility and conspicuousness of the development during construction and the presence and operation of the development and potential impacts on views and visual amenity. This should include any noise and light pollution effects, including on local amenity, tranquillity and nature conservation.
- 4.9.6. Legislation already provides a high degree of protection for National Parks and Areas of Outstanding Natural Beauty. Any application for development consent within, or to affect land in, a National Park or an Area of Outstanding Natural Beauty would need to comply with the respective duties in the National Parks and Access to Countryside Act 1949<sup>124</sup> and the Countryside and Rights of Way Act 2000. 125
- 4.9.7. Where necessary, applicants will need to demonstrate how they have fulfilled the requirements set out in Defra's 'English National Parks and the Broads: UK government vision and circular 2010' or successor documents. These requirements should also be complied with where infrastructure projects impact on Areas of Outstanding Natural Beauty.

# **Decision making**

#### **Landscape Character Impact**

4.9.8. Landscape effects depend on the existing character of the local landscape, its current quality, how highly it is valued and its capacity to accommodate change. All of these factors need to be considered in judging the impact of a proposed development on landscape. A proposed development needs to be designed carefully, taking account of the potential impact on the landscape. Having regard to siting, operational and other relevant constraints the aim should be to avoid or minimise harm to the landscape, providing reasonable mitigation or enhancement measures where possible and appropriate.

#### Development proposed within nationally designated areas

4.9.9. Great weight should be given to conserving landscape and scenic beauty in nationally designated areas. National Parks, the Broads and Areas of Outstanding Natural Beauty have the highest status of protection in relation to landscape and

<sup>&</sup>lt;sup>124</sup> Section 11A of National Parks and Access to the Countryside Act 1949, chapter 97, available online at: https://www.legislation.gov.uk/ukpga/Geo6/12-13-14/97

<sup>&</sup>lt;sup>125</sup> Section 85 of Countryside and Rights of Way Act 2000, chapter 37, available online at: https://www.legislation.gov.uk/ukpga/2000/37/section/85

- scenic beauty. Each of these designated areas has specific statutory purposes which help ensure their continued protection and which the Secretary of State has a statutory duty to have regard to in decisions.
- 4.9.10. The Secretary of State should refuse development consent in these areas except in exceptional circumstances and where it can be demonstrated that the development is in the public interest. Consideration of such applications should include an assessment of:
  - The need for the development, including in terms of any national considerations, and the impact of consenting, or not consenting it, upon the local economy;
  - The cost of, and scope for, developing elsewhere, outside the designated area, or meeting the need for it in some other way; and
  - Any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.
- 4.9.11. Where consent is given in these areas, the Secretary of State should be satisfied that the applicant has ensured that the development will be carried out to high environmental standards and, where possible, includes measures to enhance other aspects of the environment. Where necessary, the Secretary of State should consider the imposition of appropriate requirements to ensure these standards are delivered.

#### Developments outside nationally designated areas which might affect them

4.9.12. The duty to have regard to the purposes of nationally designated areas also applies when considering applications for projects outside the boundaries of these areas which may have impacts within them. The development should aim to avoid compromising the purposes of designation, and such projects should be designed sensitively given the various siting, operational, and other relevant constraints. This duty also applies to developments in England which may have impacts on designated areas in Wales or on National Scenic Areas in Scotland.

#### **Developments in other areas**

- 4.9.13. Outside nationally designated areas, there are local landscapes and townscapes that are highly valued locally and may be protected by local designation. Where a local development document in England has policies based on landscape character assessment, these should be given particular consideration. However, local landscape designations should not be used in themselves as reasons to refuse consent, as this may unduly restrict acceptable development.
- 4.9.14. In taking decisions, the Secretary of State will consider whether the development has been designed carefully, taking account of environmental effects on the landscape and siting, operational and other relevant constraints, to avoid adverse

effects on landscape or to minimise harm to the landscape, including by reasonable mitigation.

### **Visual impacts**

4.9.15. The Secretary of State will judge whether the visual effects on sensitive receptors, such as local residents, and other receptors, such as visitors to the local area, outweigh the benefits of the development. Coastal areas are particularly vulnerable to visual intrusion because of the potential high visibility of development on the foreshore, on the skyline and affecting views along stretches of undeveloped coast, especially those defined as Heritage Coast. 126

### **Mitigation**

- 4.9.16. Reducing the scale of a project or making changes to its operation can help to avoid or mitigate the visual and landscape effects of a proposed project. However, reducing the scale or otherwise amending the design or changing the operation of a proposed development may result in a significant operational constraint and reduction in function. There may be exceptional circumstances where mitigation could have a very significant benefit and warrant a small reduction in scale or function. In these circumstances, the Secretary of State may decide that the benefits of the mitigation to reduce the landscape effects outweigh the marginal loss of scale or function.
- 4.9.17. Adverse landscape and visual effects may be minimised through appropriate siting of infrastructure, design (including choice of materials), and landscaping schemes, depending on the size and type of proposed project. Materials and designs for infrastructure should always be given careful consideration.
- 4.9.18. Depending on the scale of the project, topography of the surrounding terrain and areas of population it may be appropriate to undertake landscaping off site, although if such landscaping was proposed to be consented by the development consent order, it would have to be included within the order limits for that application. For example, filling in gaps in existing tree and hedge lines may help to mitigate the impact when viewed from a more distant vista.

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<sup>&</sup>lt;sup>126</sup> See paragraph 173 of the National Planning Policy Framework.

# 4.10. Land use including open space, green infrastructure and Green Belt.

#### Introduction

- 4.10.1. The land use implications of a proposed water resources NSIP will vary on a case-by-case basis according to the type of infrastructure (and any associated development) and its location. Applicants should engage at an early stage with relevant local, county or unitary planning authorities to discuss the land use implications of proposals (or the Marine Management Organisation in coastal locations). In the interests of making effective use of land, opportunities for using previously developed land should be fully investigated.
- 4.10.2. Green Belts, defined in a development plan, are situated around certain cities and built up areas, including London. The fundamental aim of Green Belt policy is to prevent urban sprawl by keeping land permanently open. The essential characteristics of Green Belts are their openness and their permanence. Further information on the purposes and protection of Green Belt is set out in the National Planning Policy Framework.<sup>127</sup>
- 4.10.3. Best and most versatile agricultural land is land which is most flexible, productive and efficient in response to inputs and which can best deliver future crops for food and non-food uses such as biomass, fibres and pharmaceuticals. This is land which is in grades 1, 2 and 3a of the government's Agricultural Land Classification. The National Planning Policy Framework is clear that local planning authorities should take into account the economic and other benefits of best and most versatile agricultural land. Planning practice guidance for the natural environment provides additional guidance on best and most versatile agricultural land and soil issues.
- 4.10.4. Development of land will affect soil resources, including physical loss of and damage to soil resources, through land contamination and structural damage. Indirect impacts may also arise from changes in the local water regime, organic matter content, soil biodiversity and soil process.
- 4.10.5. Where pre-existing land contamination is being considered through development, the objective is to ensure that the site is suitable for its intended use. Risks would require consideration in accordance with the contaminated land statutory guidance as a minimum.<sup>128</sup>

<sup>127</sup> National Planning Policy Framework, paragraphs 133-142

<sup>128</sup> https://www.gov.uk/government/publications/contaminated-land-statutory-guidance

- 4.10.6. Access to high quality open spaces<sup>129</sup> and the countryside and opportunities for sport and recreation can be a means of providing necessary mitigation and/or compensation requirements. Green and blue infrastructure<sup>130</sup> can also enable developments to provide positive environmental, social, health and economic benefits.
- 4.10.7. Table 10 below identifies impacts that may be relevant for the applicant's assessment and identification of potential mitigation measures.

Table 10 - Potential land use impacts of water resources NSIPs.

NSIP type	Construction impacts	Operational impacts	Potential mitigation
Reservoirs	Could result in loss of existing land uses (for example, agriculture) or indirectly affect nearby land uses (due to, for example noise disturbance).  Construction activity could lead to soil contamination as a result of accidental spillage, disturb existing contaminated land, or cause soil compaction as a result of the use of heavy machinery.  Potential long term alterations to local groundwater levels and possible effects on nearby receptors, such as quarries or landfill sites.	Expected to be negligible, however, there may be indirect impacts on soils associated with any changes in the local groundwater or surface water regimes.	Site layout design could seek to avoid development on the best and most versatile agricultural land and geologically sensitive sites.  Where possible, land could be reinstated following construction.  Development should seek to remediate contaminated land.  Undertake all construction activities in accordance with relevant best practice
Transfers	Possible temporary or permanent loss or damage to existing land uses.	Expected to be negligible.	pollution prevention guidance.

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<sup>&</sup>lt;sup>129</sup> Open space is defined in the Town and Country Planning Act 1990 as land laid out as a public garden, or used for the purposes of public recreation, or land which is a disused burial ground. However, in applying the policies in this section, open space should be taken to mean all open space of public value, including not just land, but also areas of water (such as rivers, canals, lakes and reservoirs) which offer important opportunities for sport and recreation and can act as a visual amenity.

<sup>&</sup>lt;sup>130</sup> Green infrastructure is a network of multi-functional green spaces, both new and existing, both rural and urban, which supports the natural and ecological processes and is integral to the health and quality of life of sustainable communities. Blue infrastructure relates to features which incorporate the water environment.

	Construction activity could lead to soil contamination as a result of accidental spillage, disturb existing contaminated land, or cause soil compaction as a result of the use of heavy machinery.	
Desalination	Possible loss of existing land uses or indirectly affect nearby land uses (due to, for example noise disturbance). See also Section 4.5 on coastal change	Expected to be negligible.
	Construction activity could lead to soil contamination as a result of accidental spillage, disturb existing contaminated land, or cause soil compaction as a result of the use of heavy machinery.	

- 4.10.8. The applicant should identify existing and proposed land uses<sup>131</sup> near the project, including any effects of replacing an existing development or use of the site with the proposed project or preventing a development or use on a neighbouring site from continuing. The applicant should also assess any effects of precluding a new development or use proposed in the development plan. The assessment should be proportionate to the scale of the preferred scheme and its likely impacts on such receptors. For developments on previously developed land, the applicant should ensure that they have considered the risk posed by land contamination and how it is proposed to address this.
- 4.10.9. Existing open space, sports and recreational buildings and land should not be developed unless the land is no longer needed or the loss would be replaced by equivalent or better provision in terms of quantity and quality in a suitable location. If the applicant is considering proposals which would involve developing such land, it should have regard to any local authority's assessment of need for such types of land and buildings and consult with the local community.

<sup>&</sup>lt;sup>131</sup> For example, where a planning application has been submitted

- 4.10.10. During any pre-application discussions with the applicant, the local planning authority should identify any concerns it has about the impacts of the application on land use, having regard to the development plan and relevant applications and including, where relevant, whether it agrees with any independent assessment that the land is no longer needed. These are also matters that local authorities may wish to include in their Local Impact Report which can be submitted after an application for development consent has been accepted.
- 4.10.11. The general policies controlling development in the countryside apply with equal force in Green Belts but there is, in addition, a general presumption against inappropriate development within them. Such development should not be approved except in very special circumstances which are already the subject of government guidance.<sup>132</sup> The applicant should therefore determine whether the proposal, or any part of it, is within the Green Belt and, if so, whether its proposal may be considered inappropriate development within the meaning of Green Belt policy. Metropolitan Open Land and land designated a Local Green Space in a local or neighbourhood plan are subject to the same policies of protection as Green Belt, and inappropriate development should not be approved except in very special circumstances.
- 4.10.12. Applicants should take into account the economic and other benefits of land. Applicants should seek to minimise impacts on the best and most versatile agricultural land. Where significant development on agricultural land is demonstrated to be necessary, applicants should use poorer quality land (grades 3b, 4 and 5) where possible to minimise impacts on soil quality (except where doing so would be inconsistent with other sustainability considerations). Applicants should also identify any effects on soil quality and show how they would minimise those effects, including by proposing appropriate mitigation measures.
- 4.10.13. Where required, a preliminary assessment of ground instability should be carried out at the earliest possible stage. Applicants should ensure that any necessary investigations are undertaken to ascertain that the site is and will remain stable or can be made so as part of the development. The site needs to be assessed in context of surrounding areas where subsidence, landslides and land compression could threaten the development during its anticipated life or damage neighbouring land or property. Risks to groundwater resources should also be assessed. This could be in the form of a land stability or slope stability risk assessment report.
- 4.10.14. The applicant should identify and assess any impacts the proposed project may have for mineral safeguarded areas (or other minerals supply aspects) with the relevant Mineral Planning Authority.

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https://www.gov.uk/guidance/housing-and-economic-land-availability-assessment#paragraph\_044 and National Planning Policy Framework paragraphs 143-147

### **Decision making**

- 4.10.15. Where the proposed development conflicts with a proposal in a development plan, the Secretary of State should take account of the stage which the development plan document in England has reached. In deciding what weight to give to the plan for the purposes of determining the planning significance of what would be replaced, prevented or precluded, the closer the development plan document is to being adopted by the local planning authority, the greater weight which can be attached to the impact of the proposal on that development plan.<sup>133</sup>
- 4.10.16. The Secretary of State should not grant consent for development on existing open space, land used for sports and recreational buildings and for other sports and recreational purposes including playing fields, unless an assessment has been undertaken either by the local authority or independently, which has shown the open space and the buildings and/or land to be no longer needed, or the Secretary of State determines that the benefits of the project (including need) outweigh the potential loss of such facilities, taking into account any positive proposals made by the applicant to provide new, improved or compensatory land or facilities.
- 4.10.17. Where networks of green infrastructure have been identified in development plans, they should normally be protected from development and, where, possible, strengthened by or integrated within it.
- 4.10.18. The Secretary of State will take into account the economic and other benefits of the best and most versatile agricultural land, and ensure the applicant has put forward appropriate mitigation measures to minimise impacts on soils or soil resources.
- 4.10.19. When located in the Green Belt, projects may comprise inappropriate development. Inappropriate development is by definition harmful to the Green Belt and there is a presumption against it except in very special circumstances. The Secretary of State will need to assess whether there are very special circumstances to justify inappropriate development. Very special circumstances will not exist unless the potential harm to the Green Belt by reason of inappropriateness, and any other harm, is clearly outweighed by other considerations. In view of the presumption against inappropriate development, the Secretary of State will attach substantial weight to the harm to the Green Belt, when considering any application for such development.
- 4.10.20. In considering the impact on maintaining coastal recreation sites and features, the Secretary of State should expect an applicant to have taken advantage of

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<sup>&</sup>lt;sup>133</sup> See the National Planning Policy Framework for national policy on the weight to be given to policies in emerging plans

opportunities to maintain and enhance access to the coast. In doing so, the Secretary of State should consider the implications of development for the creation of a continuous signed and managed route around the coast, as provided for in the Marine and Coastal Access Act 2009.

4.10.21. Where the development has an impact on a mineral safeguarding area, the Secretary of State must ensure that the applicant has put forward appropriate mitigation or compensation measures to safeguard mineral resources.

### Mitigation

- 4.10.22. The applicant can minimise the direct effects of a project on the existing use of the proposed site, or proposed uses near the site, by the application of good design principles, including the layout of the project and the protection of soils during construction. 134
- 4.10.23. Where green infrastructure is affected, the applicant should aim to ensure the functionality and connectivity of the green infrastructure network is maintained and any necessary works are undertaken, where possible, to mitigate any adverse impact and, where appropriate, to improve that network and other areas of open space, including appropriate access to National Trails and other public rights of way.
- 4.10.24. The Secretary of State must also consider whether mitigation of any adverse effects on green infrastructure or open space is adequately provided for by means of requirements, planning obligations, or any other means, for example to provide exchange land and provide for appropriate management and maintenance agreements. Any exchange land should be at least as good in terms of size, usefulness, attractiveness, quality and accessibility. Alternatively, where sections 131 and 132 of the Planning Act apply, 135 any replacement land provided under those sections will need to conform to the requirements of those sections.
- 4.10.25. Where the development has a sterilising effect on land use, there may be scope for this to be mitigated through, for example, using the land for nature conservation or wildlife corridors.
- 4.10.26. Public rights of way, National Trails, and other rights of access to land are important recreational facilities for walkers, cyclists and equestrians. The applicant is expected to take appropriate mitigation measures to address adverse effects on National Trails, other public rights of way and open access land and, where

<sup>&</sup>lt;sup>134</sup> <a href="https://www.gov.uk/government/publications/code-of-practice-for-the-sustainable-use-of-soils-on-construction-sites">https://www.gov.uk/government/publications/code-of-practice-for-the-sustainable-use-of-soils-on-construction-sites</a>

http://www.legislation.gov.uk/ukpga/2008/29/section/131 and http://www.legislation.gov.uk/ukpga/2008/29/section/132

appropriate, to consider what opportunities there may be to improve access. In considering revisions to an existing right of way, consideration needs to be given to the use, character, attractiveness and convenience of the right of way. The Secretary of State should consider whether the mitigation measures put forward by an applicant are acceptable and whether requirements or other provisions in respect of these measures might be attached to any grant of development consent.

### 4.11. Noise and vibration

#### Introduction

- 4.11.1. Excessive noise can have wide-ranging impacts on the quality of human life and health (e.g. owing to annoyance or sleep disturbance), use and enjoyment of areas of value (such as quiet or tranquil places) and areas with high landscape quality. Noise can also affect terrestrial and marine biodiversity. The government's policy is set out in the Noise Policy Statement for England. 136 It promotes good health and good quality of life through effective noise management. Similar considerations apply to vibration, which can also cause damage to buildings. In this section, in line with current legislation, references below to 'noise' apply equally to the assessment of impacts of vibration.
- 4.11.2. Factors that will determine the likely noise impact include:
  - construction noise and the inherent operational noise from the proposed development and its characteristics;
  - the proximity of the proposed development to noise-sensitive premises, (including residential properties, schools and hospitals) and noise-sensitive areas (including certain parks and open spaces);
  - the proximity of the proposed development to tranquil places and other areas that are particularly valued for their acoustic environment or landscape quality; and
  - the proximity of the proposed development to designated sites where noise may have an adverse impact on protected species or other wildlife.

### Applicant's assessment

4.11.3. Where noise impacts are likely to arise from water resources infrastructure, the applicant should include a noise assessment as part of the Environmental Statement. That noise assessment should include:

<sup>&</sup>lt;sup>136</sup> Noise Policy Statement for England, Defra, 2010, available online at: https://www.gov.uk/government/publications/noise-policy-statement-for-england

- a description of the noise-generating aspects of the development proposal leading to noise impacts, including the identification of any distinctive tonal, impulsive or low frequency characteristics of the noise;
- identification of noise-sensitive premises and noise-sensitive areas that may be affected;
- the characteristics of the existing noise environment;
- a prediction of how the noise environment will change with the proposed development:
  - o in the shorter term, such as during the construction period;
  - o in the longer term, during the operating life of the infrastructure; and
  - o at particular times of the day, evening and night (and weekends) as appropriate, and at different times of the year.
- an assessment of the effect of predicted changes in the noise environment on any noise-sensitive premises and noise-sensitive areas;
- if likely to cause disturbance, an assessment of the effect of underwater or subterranean noise; and
- measures to be employed in mitigating the effects of noise. Applicants should consider using best available techniques to reduce noise impacts.

The nature and extent of the noise assessment should be proportionate to the likely noise impact.

- 4.11.4. The potential noise impact of ancillary activities associated with the development, such as increased road and rail traffic movements, or other forms of transportation, should also be considered as appropriate.
- 4.11.5. Operational noise, with respect to human receptors, should be assessed using the principles of the relevant British Standards<sup>137</sup> and other guidance.<sup>138</sup> For the prediction, assessment and management of construction noise, reference should be made to any relevant British Standards<sup>139</sup> and other guidance which also give examples of mitigation strategies.
- 4.11.6. The applicant should consult the relevant authority on the likely scope of an Environmental Statement and should consult Natural England in particular with regard to assessment of noise on protected species or other wildlife. The results of any noise surveys and predictions may inform the ecological assessment. The

<sup>&</sup>lt;sup>137</sup> As published by the British Standards Institution, available online at: <a href="https://www.bsigroup.com/">https://www.bsigroup.com/</a>, for example BS 4142, BS 6472 and BS 8233

<sup>&</sup>lt;sup>138</sup> For example, Planning Practice Guidance on noise: https://www.gov.uk/guidance/noise--2

<sup>&</sup>lt;sup>139</sup> As published by the British Standards Institution, available online at: <a href="https://www.bsigroup.com/">https://www.bsigroup.com/</a>, for example BS 5228

seasonality of potentially affected species in nearby sites may also need to be taken into account.

### **Decision making**

- 4.11.7. A development must be undertaken in accordance with statutory requirements for noise. Due regard must be given to the relevant sections of the Noise Policy Statement for England, the National Planning Policy Framework, and the government's associated planning guidance on noise.
- 4.11.8. The proposed development should demonstrate good design through selection of the quietest cost-effective approach available; containment of noise within buildings wherever possible; optimisation of facility layout to minimise noise emissions; and, where possible, the use of landscaping, bunds or noise barriers to reduce noise transmission.
- 4.11.9. The Secretary of State should not grant development consent unless satisfied that the proposals will meet the following aims, through the effective management and control of noise, within the context of government policy on sustainable development:
  - avoid significant adverse impacts on health and quality of life from noise as a result of new development;
  - mitigate and minimise other adverse impacts on health and quality of life from noise from new development; and
  - where possible, contribute to improvements to health and quality of life.
- 4.11.10. In determining an application, the Secretary of State should consider whether mitigation measures are needed both for construction noise and operational noise. The Secretary of State may wish to impose requirements to ensure delivery of all mitigation measures. This is to ensure that the noise levels from the proposed development do not exceed those described in the assessment or any other estimates on which the decision was based.
- 4.11.11. Applicants should propose appropriate mitigation measures to limit the impact of any noise emissions on amenity.
- 4.11.12. For those processes in a development which would be subject to the Environmental Permitting regime, the Secretary of State may assume that the regime will exercise the necessary controls over noise impacts. However, the Secretary of State must take into account the potential impact from all noise sources, as relevant, when deciding whether or not to grant development consent and, if so, on what terms.

### Mitigation

- 4.11.13. Mitigation measures for the project should be proportionate and reasonable and may include one or more of the following:
  - engineering: reduction of noise at point of generation and containment of noise generated;
  - materials: use of materials that reduce noise:
  - lay-out: adequate distance between source and noise-sensitive receptors; incorporating good design to minimise noise transmissions through screening by natural or purpose built barriers or buildings;
  - administration: restricting activities allowed on the site, either during construction and/or operation such as specifying acceptable noise limits or times of use (for example, any facilities needing to use a public announcement system). This should also take into account seasonality of wildlife in any nearby designated sites.
- 4.11.14. In certain situations, and only when all other forms of noise mitigation have been exhausted, it may be appropriate for the Secretary of State to consider requiring noise mitigation through improved sound insulation to dwellings and the provision of appropriate suitably mitigated outdoor areas for amenity.

### 4.12. Resource and waste management

### Introduction

- 4.12.1. Government policy on hazardous and non-hazardous waste is intended to protect human health and the environment by producing less waste and by using it as a resource wherever possible. Where this is not possible, waste management regulation ensures that waste is disposed of in a way that is least damaging to the environment and to human health.
- 4.12.2. Sustainable waste management is implemented through the 'waste hierarchy', which sets out the priority order that must be applied when managing waste. 140 These are (in order):
  - prevention;
  - preparing for reuse;
  - recycling;

<sup>&</sup>lt;sup>140</sup> The waste hierarchy is set out in Article 4 of Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives and Regulation 12 of The Waste (England and Wales) Regulations 2011/988.

- other recovery, including energy recovery; and
- disposal.

Departure from this priority order in order to achieve the best overall environmental outcome is possible where it is justified by life-cycle analysis on the overall impacts of the generation and management of the waste.

- 4.12.3. Water resources infrastructure projects may generate hazardous and non-hazardous waste during the construction and operation. The applicant should consult with the relevant waste planning authority and operators to ensure that there is sufficient local waste management capacity. The Environmental Permitting<sup>141</sup> regime incorporates operational waste management requirements for certain activities. When an applicant applies to the Environment Agency for an environmental permit, they will require the application to demonstrate that processes are in place to meet all relevant permit requirements.
- 4.12.4. As a producer of waste, the applicant has a duty of care to ensure their waste is appropriately managed, <sup>142</sup> specifically in taking all reasonable steps to:
  - prevent unauthorised or harmful deposit, treatment or disposal of waste
  - prevent any other person failing to meet the requirement to have an environmental permit, or a breach of a permit condition
  - prevent the escape of waste from their control
  - ensure that any person they transfer the waste to has the correct authorisation
  - provide an accurate description of the waste when it is transferred to another person.
- 4.12.5. Table 11 below identifies impacts that may be relevant for the applicant's assessment and identification of potential mitigation measures.

Table 11 - Potential impacts of water resources NSIPs on resource use and waste.

NSIP type	Construction impacts	Operational impacts	Potential mitigation
Reservoirs	Construction activities associated with substantial groundworks, land reprofiling and creation of embankments could require	Any associated development or processes (such as water treatment) could generate waste and involve resource use (such	Efficient use of existing on site materials and infrastructure assets

<sup>&</sup>lt;sup>141</sup> The Environmental Permitting (England and Wales) Regulations 2016

<sup>&</sup>lt;sup>142</sup> The waste duty of care is set out in Section 34 of the Environmental Protection Act 1990.

	the use of significant quantities of soils and construction aggregates. Materials sourced on and off site.  (See also sections 4.4 and 4.14 on carbon emissions and transport)	as chemicals).	could be utilised.  Where possible, reused or recycled materials could be used during construction.  Construction and operational waste
Transfers	Construction materials use and waste arisings (although any soil displaced during pipeline works could be reinstated).	Any associated development or processes (such as water treatment) could generate waste and involve resource use (such as chemicals).	could be reused or recycled where possible.  Infrastructure could be designed to incorporate the use of
Desalination	Construction materials use and waste products.	The process uses brackish or sea water as a primary resource. As a by-product of the process, brine effluent is produced and discharged back to the environment. (See also section 4.15 on water quality)  Ongoing energy and chemical usage and associated waste arisings requiring disposal which may be contaminated (e.g. sludge). (See also section 4.4 on carbon impacts)	resource efficient processes, materials and building techniques.

4.12.6. The applicant should set out the arrangements that are proposed for managing any waste produced in the application for development consent. The applicant should prepare a Site Waste Management Plan. The arrangements in the plan should include information on the proposed waste recovery and disposal system for all waste generated by the development and should also include details of the alternatives that have been considered. The applicant must demonstrate that all waste produced by the facility will be managed in accordance with the waste

hierarchy outlined in paragraph 4.12.2 above and that, during construction, excavated soil, subsoil and rock will, where possible, be reused. The applicant must also set out the process in place to ensure their duty of care as a waste producer outlined in paragraph 4.12.4 above is met. The applicant should seek to minimise the volume of waste produced. The applicant should also seek to minimise the volume of waste sent for disposal unless it can be demonstrated that this is the best overall environmental, social and economic outcome when considered over the whole lifetime of the project.

### **Decision making**

- 4.12.7. The Secretary of State will consider the extent to which the applicant has proposed an effective process that will be followed to ensure effective management of hazardous and non-hazardous waste arising from all stages of the lifetime of the development. The Secretary of State should be satisfied that the process set out provides assurance that:
  - Waste produced will be properly managed, both onsite and offsite;
  - The waste from the proposed development can be dealt with appropriately
    by the waste infrastructure which is, or is likely to be, available. Such waste
    arisings should not have an adverse effect on the capacity of existing waste
    management facilities to deal with other waste arising in the area; and
  - Adequate steps have been taken to minimise the volume of waste arising, and of the volume of waste arising sent to disposal, except where an alternative is the most sustainable outcome overall.

### Mitigation

4.12.8. The applicant should set out a comprehensive suite of mitigations to eliminate or significantly reduce the risk of adverse impacts associated with resource and waste management. Where necessary, the Secretary of State should use requirements or obligations to ensure that appropriate mitigations are applied.

### 4.13. Socio-economic impacts

### Introduction

4.13.1. The construction and operation of water resources infrastructure may have short or longer term economic and social impacts on local communities, businesses or services. The construction phase of reservoirs in particular can be lengthy, however reservoirs also offer long term opportunities for the provision of recreational and/or educational facilities. Applicants should look to maximise local employment opportunities during construction and operational phases.

- 4.13.2. Water resources infrastructure may also offer opportunities to supply local business water user's needs directly, for example local industries or agricultural operations. Potential users may be identified at the pre-consultation stage by engagement with local communities, authorities or business forums, or through regional water resources groups or by water companies in their WRMPs.
- 4.13.3. Table 12 identifies impacts that may be relevant for the applicant's assessment and identification of potential mitigation measures.

Table 12 - Potential local socio-economic impacts of water resources infrastructure

NSIP type	Construction impacts	Operational impacts	Potential mitigation
Reservoirs	Represents a large capital investment that could have a significant positive impact on the local economy associated with employment opportunities and supply chain benefits generated by the development together with spend by construction workers and contractors. However, potential direct adverse impacts by loss of existing land uses and indirect effects on existing nearby businesses and the tourism sector due to, for example, loss of amenity.  An influx of construction workers to host communities could potentially increase pressure on existing services and facilities (albeit temporarily).	Minor opportunity for job creation for day-to-day operation and maintenance of infrastructure.  Many existing reservoirs provide recreational opportunities such as walking and water sports that help support local businesses and the tourism sector. A number also incorporate wildlife or educational centres.	Where possible, work could be carried out by local firms and contractors that could help contribute to the local economy and meet any employment needs.  Potential opportunities for public education could be identified as part of proposals.  Opportunities for proposals.  Opportunities for proposals to provide recreation/tourism opportunities could be considered.
Transfers	See above construction impacts	Minor opportunity for job creation for day-to-day operation and maintenance of infrastructure.	
Desalination	See above construction impacts	Minor opportunity for job creation for day-to-	

day operation and maintenance of	
infrastructure.	

- 4.13.4. The applicant should consider how the impacts of the infrastructure during construction and operational phases, such as job creation and increased spending in local economies, visual impacts and traffic and transport may affect local communities and amenities.
- 4.13.5. Applicants should describe the existing socio-economic conditions, in the areas surrounding the proposed development, following appropriate consultation with those most affected, and should refer to how the development's socio-economic impacts correlate with local planning policies. Applicants should assess any likely, significant positive and negative socio-economic impacts as part of an Environmental Statement.
- 4.13.6. The assessment should cover any socio-economic impacts appropriate to the proposed development. Examples include:
  - the creation of jobs and training opportunities;
  - the provision of educational and visitor facilities;
  - the impact of the proposed new facility on tourism, local businesses or local services;
  - opportunities to provide a direct water supply to local business water users.
- 4.13.7. Socio-economic impacts may be linked to other impacts, for example the visual impact or an individual's perception of a development. It may also have an impact on the local economy and local businesses. Where such impacts are relevant to the development, an applicant should include them in their assessments.
- 4.13.8. Any cumulative effects on communities should be assessed. For example, if development consent, or consent under other regimes, were to be granted for a number of infrastructure projects within a region and these were developed in a similar timeframe, there could be some short-term negative effects. For instance, a potential shortage of construction workers to meet the needs of other industries and major projects within the region.

4.13.9. Applications for reservoirs are required 143 to be supported by a recreational amenities statement outlining details of any amenities to be provided. The statement could use information gathered from sections 4.13 and 3.12 (for example) to justify any associated recreational or educational amenities. The Water Industry Act also places certain duties on water undertakers in relation to the provision of recreational facilities.

### **Decision making**

- 4.13.10. The Secretary of State should consider any relevant provisions the applicant has made or is proposing to make to mitigate impacts (for example through planning obligations), and any community investment that may arise as well as any options for phasing development that would mitigate any socio-economic impacts.
- 4.13.11. The Secretary of State should ensure that infrastructure projects can be integrated effectively with existing businesses and community facilities. Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new infrastructure projects in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.

### Mitigation

4.13.12. The Secretary of State should consider whether the mitigation measures put forward by the applicant are acceptable to mitigate any adverse socio-economic impacts of the development. For example, high quality design and/or screening (e.g. by natural features) can improve the visual and environmental experience for visitors and the local community alike.

### 4.14. Traffic and transport

#### Introduction

4.14.1. The transport of materials, goods and personnel to and from a water resources infrastructure site can have a variety of impacts, on the surrounding transport infrastructure and potentially on connecting transport networks, during the construction and operational phases. Impacts may result particularly from increases in noise and emissions from road transport.

<sup>&</sup>lt;sup>143</sup> Section 6(6) The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

4.14.2. Table 13 identifies impacts that may be relevant for the applicant's assessment and identification of potential mitigation measures.

Table 13 - Traffic and transport impacts of water resources NSIPs

NSIP type	Construction impacts	Operational impacts	Potential mitigation
Reservoirs	A significant volume of vehicle movements (over a lengthy construction time period) could occur associated with the movement of materials, waste and workers to/from site. There may also be a requirement for associated pipeline works within or across roads. Depending on location and the capacity of the highways network, this could result in congestion and driver delay as well as road safety impacts. Vehicle movements could also have the potential to cause nuisance to the host community and impacts on wildlife and habitats.  Potential requirement for the temporary (and possibly permanent) closure of public rights of way.	Traffic and transport impacts, associated with reservoir operations or recreational/education al facilities expected to be minor.	HGV movements and construction vehicles could be routed and timed to avoid peak traffic periods and sensitive receptors.  Consideration could be given to the utilisation of waterborne and rail transport to deliver large quantities of construction materials.  Where new transport infrastructure is required (for example, roads) consideration should be given to how this can be delivered to maximise public benefit.  A detailed transport
Transfers	Vehicle movements associated with the movement of materials, waste and workers to/from sites (pipelines may have simultaneous multiple working areas along the route). There may also be a requirement for pipeline works within or across roads. Depending on location and the capacity of the highways network, this could result in congestion and driver delay as well as road safety impacts. Vehicle movements	Minor impacts expected.	assessment including a Construction Traffic Management Plan could be undertaken and implemented.  Siting and construction activities could be undertaken so as to minimise any short term adverse effects on public rights of way.

	could also have the potential to cause nuisance to the host community and impacts on wildlife and habitats.  Potential requirement for the temporary (and possibly permanent) closure of public rights of way.		
Desalination	See Transfer construction impacts above	Minor impacts expected.	

- 4.14.3. If a proposed development is likely to have significant transport implications, the applicant's Environmental Statement should include a transport assessment. Applicants should consult Highways England, highway authorities, the railway network operator(s), Network Rail, the Maritime and Coastguard Agency, relevant navigation authorities and Associated British Ports, as appropriate, on the assessment and on any proposed mitigation measures. The assessment should distinguish between the construction and operation stages if appropriate. The assessment should illustrate accessibility to the site by all modes of transport and the likely split by each mode of travel to and from the site. The applicant should prepare a travel plan including any demand management measures to mitigate transport impacts. The applicant should also provide details of any proposed measures to improve access by public transport, walking and cycling, to reduce the need for parking associated with the proposal and to mitigate any transport impacts. Planning Practice Guidance provides more information on these assessments. 144
- 4.14.4. If additional transport infrastructure is proposed, applicants should discuss with network providers the possibility of other funding arrangements including cofunding by government for any third party benefits. Guidance has been issued in respect of England which explains the circumstances where this may be possible. Government cannot guarantee in advance that funding will be available for any given uncommitted scheme at any specified time. An applicant should explain how they consider any such additional transport infrastructure is sufficiently associated with the development for which they are seeking development consent.

<sup>&</sup>lt;sup>144</sup> Planning practice guidance on transport: <a href="https://www.gov.uk/guidance/travel-plans-transport-assessments-and-statements">https://www.gov.uk/guidance/travel-plans-transport-assessments-and-statements</a>

### **Decision making**

- 4.14.5. If the development is expected to cause significant impacts on the surrounding transport infrastructure, the Secretary of State will ensure that the applicant has taken reasonable steps to mitigate these impacts, including during the construction phase of the development. Applicants must be willing to enter into planning obligations, when necessary, for funding infrastructure and otherwise mitigating adverse impacts.
- 4.14.6. Provided the applicant is willing to commit to transport planning obligations satisfactorily to mitigate transport impacts identified in the transport assessment (including environment and social impacts), with costs being considered in accordance with the Department for Transport's policy on the funding of surface access schemes, development consent should not be withheld on surface access grounds.

### Mitigation

- 4.14.7. Where mitigation is needed, subject to operational and feasibility issues, demand management measures are preferred before considering and imposing new transport infrastructure to manage transport impacts.
- 4.14.8. The Secretary of State should also have regard to the cost-effectiveness of demand management measures compared to new transport infrastructure, as well as the aim to secure more sustainable patterns of transport development when considering mitigation measures.
- 4.14.9. Where considerations are between rail, water-borne or road transport, rail and water-borne options are to be preferred over road transport options, where that option is safe and cost-effective.
- 4.14.10. Where there is likely to be substantial Heavy Goods Vehicle traffic, an applicant should consider how to:
  - control numbers of Heavy Goods Vehicle movements to and from the site in a specified period during construction and operation where possible and consider the impacts of alternative transport routes;
  - make sufficient provision for Heavy Goods Vehicle parking, either on the site
    or at dedicated facilities elsewhere, to avoid in normal operating conditions,
    'overspill' parking on public roads, prolonged queuing on approach roads and
    uncontrolled on-street Heavy Goods Vehicle parking; and
  - ensure satisfactory arrangements for reasonably foreseeable abnormal disruption, in consultation with relevant network providers and the responsible police force.

4.14.11. The Secretary of State may consider attaching requirements, or requiring obligations in relation to, any development consent to ensure such arrangements are delivered.

### 4.15. Water quality and resources

#### Introduction

- 4.15.1. Section 2 outlines the important part water resources NSIPs contribute to providing a safe and resilient national water supply. However, the construction and operational impacts of water resources infrastructure could have an adverse effect on the local water environment, including groundwater, inland surface water, transitional waters<sup>145</sup> and bathing and coastal waters. The environmental objectives for water bodies are set out in River Basin Management Plans<sup>146</sup> and are legally binding.
- 4.15.2. Projects could also cause adverse ecological effects resulting from physical modifications to the local water environment (hydro-morphological changes). This is particularly relevant for 'impounding' reservoirs. These effects could lead to adverse impacts on health and/or on protected species and habitats (see also section 4.3), and could, in particular, result in surface waters, bathing waters, groundwater or protected areas failing to meet environmental objectives established under the Water Framework Directive (Water Environment (Water Framework Directive) (England and Wales) Regulations 2017). Preventing deterioration in status is the primary environmental objective of the Water Framework Directive.
- 4.15.3. The WRMP options appraisal process is subject to Water Framework Directive assessment and information from this process may be useful for any project specific Water Framework Directive assessment. The WRMP options appraisal process considers the wider availability of water supplies, so that projects have been assessed in terms of the *quantity* of water available for public supply and its

<sup>&</sup>lt;sup>145</sup> Transitional waters are bodies of surface water in the vicinity of river mouths which are partly saline in character as a result of their proximity to coastal waters but which are substantially influenced by freshwater flows

<sup>&</sup>lt;sup>146</sup> https://www.gov.uk/government/collections/river-basin-management-plans-2015

<sup>&</sup>lt;sup>147</sup> 'Impounding' reservoirs block the natural flow of a river or drainage from an area. 'Non-impounding' reservoirs are filled by pumping water or by piped inflow of water.

<sup>&</sup>lt;sup>148</sup> Protected areas are areas which have been designated as requiring special protection under specific Community legislation for the protection of their surface water and groundwater or for the conservation of habitats and species directly depending on water.

<sup>&</sup>lt;sup>149</sup> The Water Framework Directive allows for situations where it is not realistically possible to meet its targets. Article 4.7 provides the process whereby an exemption may be granted, including for the purpose of Sustainable Development, where new modifications to a water body would prevent achievement of the Water Framework Directive's environmental objectives.

- impact on water availability for the local environment. This section therefore focuses on local water quality aspects.
- 4.15.4. The government's planning policies make clear that the planning system should contribute to and enhance the natural and local environment. It should do this by preventing both new and existing development from contributing to water pollution so that the environment is not adversely affected or put at unacceptable risk. The government has issued guidance on water supply, wastewater and water quality considerations in the planning system.<sup>150</sup>
- 4.15.5. Table 14 identifies impacts that may be relevant for the applicant's assessment and identification of potential mitigation measures.

Table 14 – Potential impacts of water resources NSIPs on water quality.

NSIP type	Construction impacts	Operational impacts	Potential mitigation
Reservoirs	Potential for contamination to affect groundwater, surface water and water courses from construction activities. There may also be changes to the hydrological regime, continuity, and morphological conditions of on site or affected watercourses.	Water quality requirements are closely related to the various functions that a reservoir may provide, such as water supply, flood control, hydropower, navigation, wildlife conservation and recreation. Where reservoirs are to be used for drinking water supply, phytoplankton blooms could cause taste problems in drinking water. Impaired water quality, such as the presence of iron and manganese, could increase treatment costs.  The operation of new reservoirs could result in long term water quality changes due to, for example, alterations to downstream flows.  Potential to spread invasive	Care should be taken during construction regarding the potential for contaminants such as silt, concrete or fuel oil to pollute water courses or groundwater. Construction activities should be undertaken in accordance with relevant best practice pollution prevention guidance.  Realignment of or compensation for directly affected watercourses subject to Water Framework Directive requirements.  Appropriate and efficient water treatment processes

<sup>150</sup> https://www.gov.uk/guidance/water-supply-wastewater-and-water-quality

		non-native species (see section 4.15.9).	could be used subject to approval with the relevant authorities
Transfers	Potential for contamination to affect groundwater, surface water and water courses from construction activities. Where pipelines cross watercourses, there may be changes to the hydrological regime, continuity, or morphological conditions.	Transfer schemes can adversely affect various parameters of water quality. The effects are dependent on the baseline conditions of the two water bodies that the water transfer is taking place between. The rate of transfer and seasonal timing can also have a significant effect on factors such as iron concentration and the growth of cyanobacteria. These effects in turn could lead to a failure to meet 'good ecological status' or 'good ecological status' or 'good ecological potential' under the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017.  Potential to spread invasive non-native species (see section 4.15.9).	relevant authorities and consenting / licensing requirements.  The timing, method and location of release of brine from desalination plants should be adequately investigated to minimise the effects on aquatic flora and fauna. The timing of brine release could therefore avoid times of water scarcity, such as at low-tide.  Discharge pipes with multiple outlets may assist in promoting mixing and diffusion.  The location of discharge could also seek to identify those areas with the greatest potential for diffusion.
Desalination	Potential for contamination to affect groundwater, surface water, coastal waters and water courses from construction activities.	The desalinisation process produces highly concentrated brine as a by-product, which is discharged back into the marine environment. If this discharge is not sufficiently dispersed it could adversely affect water quality. There may also be effects associated with increased turbidity and seawater temperatures.	

- 4.15.6. The applicant should make early contact with the relevant regulators, including the local authority, the Environment Agency and Marine Management Organisation where appropriate, for relevant licensing and environmental permitting requirements. Where the proposed development is likely to have adverse effects on the water environment, the applicant should undertake an assessment of the existing status and impacts of the proposed development on water quality, water resources and physical characteristics as part the Environmental Statement. A project specific Water Framework Directive assessment 151 may also be required.
- 4.15.7. Any environmental statement should describe:
  - the existing quality of waters affected by the proposed project;
  - existing water resources affected by the proposed project and the impacts of the proposed project on water resources;
  - existing physical characteristics of the water environment (including quantity and dynamics of flow) affected by the proposed project, and any impact of physical modifications to these characteristics;
  - any impacts of the proposed project on water bodies or protected areas under the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 including groundwater resources, bathing or coastal waters;
  - the likely range of impacts on existing water quality, resources, physical characteristics of the water environment and waterbodies or protected areas due to climate change, and
  - any cumulative effects.
- 4.15.8. In the context of protecting groundwater the applicant should in particular take note of guidance<sup>152</sup> which explains the legal requirements associated with groundwater activities.
- 4.15.9. Movement of 'raw' (untreated) water supplies risks spreading invasive non-native species<sup>153</sup> between abstracted and receiving waters. Some degree of water treatment may therefore be required. Where necessary, an assessment of the

 <sup>151</sup> Planning Inspectorate advice note on Water Framework Directive
 https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/
 152 https://www.gov.uk/government/publications/protect-groundwater-and-prevent-groundwater-pollution

<sup>&</sup>lt;sup>153</sup> An invasive non-native, or "alien", species (INNS) is defined as a species introduced outside its normal past or present distribution. INNS are those which threaten ecosystems, habitats or species with environmental or socio-economic harm.

increased risk to water quality that the project poses (that is considering existing pathways and potential for spread via these) should be submitted. The assessment should detail the measures required to mitigate the risk. As part of the WRMP options appraisal process, water companies are required to undertake a similar assessment and this will help to identify risks and mitigation measures.

### **Decision making**

- 4.15.10. Activities that discharge substances into the water environment are subject to pollution control. The considerations set out in section 3.8 of this NPS on the interface between planning and other regulatory controls therefore apply.
- 4.15.11. The Secretary of State will need to give impacts on the water environment more weight where a development would have adverse effects on the achievement of the environmental objectives established under Water Environment (Water Framework Directive) (England and Wales) Regulations 2017.
- 4.15.12. The Secretary of State should be satisfied that a proposal has had regard to the River Basin Management Plans and the requirements of Water Framework Directive, including Article 4.7 and those on priority substances and groundwater. The specific objectives for particular river basins are set out in River Basin Management Plans.
- 4.15.13. The Secretary of State should consider proposals to mitigate adverse effects on the water environment and any enhancement measures put forward by the applicant and whether appropriate requirements should be attached to any development consent and/or whether planning obligations are necessary.

### **Mitigation**

- 4.15.14. The Secretary of State will need to consider whether the mitigation or enhancements measures put forward by the applicant which are needed for operation and construction are acceptable.
- 4.15.15. The project should adhere to any national standards for sustainable drainage systems, which introduce a hierarchical approach to drainage design that promotes the most sustainable approach but recognises the feasibility and use of conventional drainage systems as part of a sustainable solution for any given site given its constraints. Please refer to section 4.8 also on flood risk.
- 4.15.16. The risk of impacts on the water environment can be reduced through careful design and adherence to pollution control practice.

## **List of acronyms**

**NPS**- National Policy Statement

**NSIP**- Nationally Significant Infrastructure Project

**WRMP**- Water Resources Management Plan