

National Policy Statement for Waste Water

A framework document for
planning decisions on nationally
significant waste water
infrastructure

March 2012

www.defra.gov.uk

Department of Environment,
Food and Rural Affairs

National Policy Statement for Waste Water:

A framework document for
planning decisions on nationally
significant waste water
infrastructure

Presented to Parliament pursuant to Section 5 (9) of the Planning Act 2008.

© Crown copyright 2012

You may re-use this information (excluding logos) free of charge in any format or medium, under the terms of the Open Government Licence. To view this licence, visit <http://www.nationalarchives.gov.uk/doc/open-government-licence/> or e-mail: psi@nationalarchives.gsi.gov.uk.

Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

Any enquiries regarding this publication should be sent to us at wastewatermps@defra.gsi.gov.uk

This publication is available for download at www.official-documents.gov.uk.

This document is also available from our website at:
<http://www.defra.gov.uk/environment/quality/water/sewage/>

ISBN: 9780108511486

Printed in the UK for The Stationery Office Limited
on behalf of the Controller of Her Majesty's Stationery Office

ID 2483621 03/12

Printed on paper containing 75% recycled fibre content minimum.

PB13709

Contents

1	Introduction	3
1.1	Background	3
1.2	Infrastructure covered by this NPS	4
1.3	Geographical coverage	5
1.4	The appraisal of sustainability	5
1.5	Interaction with the Habitats Directive	7
2	Government policy on need for waste water infrastructure	8
2.1	Introduction	9
2.2	Government's policy objectives	9
2.3	Drivers of demand for waste water infrastructure projects	10
2.4	Alternatives to new waste water infrastructure	12
2.5	The need for new waste water infrastructure	14
2.6	Nationally significant projects for which need has been demonstrated	15
3	Factors for examination and determination of applications	22
3.1	Introduction	22
3.2	Environmental impact assessment	23
3.3	Habitats regulations assessment	24
3.4	Alternatives	24
3.5	Criteria for "good design" for waste water infrastructure	25
3.6	Climate change adaptation	26
3.7	Pollution control and other environmental consenting regimes	27
3.8	Safety	29
3.9	Hazardous substances	29
3.10	Health	29
3.11	Common law nuisance and statutory nuisance	30
3.12	Security considerations	30
4.	Generic impacts	32
4.1	Introduction	32
4.2	Water quality and resources	32
4.3	Odour	34
4.4	Flood risk	36
4.5	Biodiversity and geological conservation	41
4.6	Coastal change	44

4.7	Landscape and visual impacts	46
4.8	Land use including open space, green infrastructure and green belt	49
4.9	Noise and vibration	53
4.10	Historic environment	55
4.11	Air quality and emissions	59
4.12	Dust, artificial light, smoke, steam and insect infestation	60
4.13	Traffic and transport impacts	61
4.14	Waste management	63
4.15	Socio-economic	64
Annex	66
A1	Site specific information	66
A1.1	Introduction	66
A1.2	Deephams sewage treatment works	66
A1.3	Thames tunnel	67

1. Introduction

1.1 Background

- 1.1.1 This National Policy Statement (NPS) sets out Government policy for the provision of major waste water infrastructure defined in section 1.2 below. It will be used by the decision maker¹ as the primary basis for deciding development consent applications for waste water developments that fall within the definition of Nationally Significant Infrastructure Projects (NSIP) as defined in the Planning Act 2008². In making decisions on waste water NSIPs, the decision maker must also have regard to any local impact report submitted by a relevant local authority, any relevant matters prescribed in regulations, any Marine Policy Statement (MPS)³ and marine plans and any other matters which it considers are both important and relevant to its decision.
- 1.1.2 The Planning Act 2008 also requires that the decision maker must decide an application for waste water infrastructure in accordance with the relevant NPS except to the extent it is satisfied that to do so would:
- lead to the UK being in breach of its international obligations;
 - be in breach of any statutory duty that applies to the decision maker;
 - be unlawful;
 - result in adverse impacts from the development outweighing the benefits; or
 - be contrary to regulations about how its decisions are to be taken.
- 1.1.3 This NPS is supported by the following documents:
- Appraisal of Sustainability (AoS) – ensures that the NPS takes account of environmental, social and economic considerations, with the objective of contributing to the achievement of sustainable development. The AoS incorporates the requirements of the Strategic Environmental Assessment (SEA) Directive.
 - Habitats Regulation Assessment (HRA) – examines the potential effects of a plan or project on nature conservation sites that are designated to be of European importance.
 - Impact Assessment (IA) – analyses the administrative costs and benefits to business, the public sector and the third sector (voluntary organisations) of proposed Government interventions.
 - Equalities Impact Assessment – highlights the potential impacts policy may have on communities and equality groups.

The NPS therefore should not be read as a standalone document but considered as a package of evidence presenting a strategic argument for new waste water infrastructure.

1 Amendments to the Planning Act 2008 that will come into effect in April 2012 (following the commencement of provisions in the Localism Act 2011) will result in the abolition of the Infrastructure Planning Commission (IPC). From April 2012 the Planning Inspectorate ('the examining authority') will hold examinations for development consent and will then make a recommendation to the Secretary of State. Decisions on applications will then be taken by the Secretary of State ('the decision maker').

2 Section 29 Planning Act 2008 <http://www.legislation.gov.uk/ukpga/2008/29/contents>

3 <http://archive.defra.gov.uk/environment/marine/documents/interim2/marine-policy-statement.pdf>

- 1.1.4 This NPS sets out a justification for new waste water infrastructure. It also provides information on two potential NSIPs. These are: a sewage treatment works scheme at Deephams in North East London and a waste water collection, storage and transfer tunnel (the Thames Tunnel). Although the Thames Tunnel project does not fall within the original thresholds contained within the Planning Act, given its significance, the Government has already stated its intention that the project should be considered at a national level. The NPS explains why these 2 potential NSIPs have been assessed as the most appropriate to deliver improvements. It is not the function of the NPS to describe how these and any future NSIPs will be taken forward.
- 1.1.5 This 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, in order to ensure that it remains appropriate for decision making. It is expected that the Secretary of State would review the NPS approximately every five years and that, subject to those reviews, the NPS itself, and the policy contained therein, would apply.
- 1.1.6 The policy set out in this NPS is, for the most part, intended to make existing policy and practice in consenting nationally significant waste water infrastructure clearer and more transparent, rather than to change the underlying policies against which applications are assessed. The Waste Water NPS has taken account of relevant Planning Policy Statements (PPSs)⁴ and older-style Planning Policy Guidance Notes (PPGs)⁵ in England where appropriate. In the event of a conflict between these or any other documents and an NPS, the NPS prevails for purposes of decision making given the national significance of the infrastructure.
- 1.1.7 Policy and guidance on generic impacts in Part 4 of this NPS may be helpful to local planning authorities (LPAs) in preparing their local impact reports which the examining authority will invite them to prepare under Section 60 of the Planning Act 2008. This NPS may be a material consideration in decision making on applications under the Town and Country Planning Act 1990 (as amended).

1.2 Infrastructure covered by this NPS

- 1.2.1 The Planning Act 2008⁶ sets out the thresholds for nationally significant infrastructure in the waste water sector. The Act empowers the examination of applications and subsequent decisions on the following waste water NSIPs in England:
- construction of waste water treatment plants which are expected to have a capacity exceeding a population equivalent⁷ of 500,000 when constructed; or
 - alterations to waste water treatment plants where the effect of the alteration is expected to be to increase by more than a population equivalent of 500,000 the capacity of the plant.

4 Or successor documents

5 Or successor documents

6 Part 3 Planning Act 2008. The Secretary of State may also direct that an application is treated as an application for an order granting development consent (under s.35), where the Secretary of State thinks that a waste water project is of national significance, either by itself or when considered with one or more other projects or proposed projects in the same field.

7 Population equivalent as defined in the Urban Waste Water Treatment Directive (91/271/EEC). 1 population equivalent is the biodegradable load (matter) in waste water having a 5-day biochemical oxygen demand (BOD5) of 60g oxygen per day: "the approximate load from one person". Population equivalent doesn't necessarily reflect the actual population of a community as a proportion of the total load may be from commercial / industrial trade effluent.

The Secretary of State made an announcement on 6 September 2010 that development consent for the Thames Tunnel project (described further below) should also be dealt with under the regime for nationally significant infrastructure projects. It is intended that the Thames Tunnel will be brought within the direct scope of the Planning Act 2008 by amending by Order the thresholds in section 14(3), Part 3 of the 2008 Act.

- 1.2.2 The Planning Act 2008 enables the decision maker to issue a development consent order that includes consent for development which is associated with a waste water infrastructure project which falls within paragraphs 1.2.1 above (subject to certain geographical and other restrictions set out in Section 115 of the Act). Guidance⁸ has been issued to which the examining authority and decision maker⁹ must have regard in deciding whether development is associated development. This NPS will be the primary basis for decision making on associated development.
- 1.2.3 The Planning Act 2008 enables the decision maker to issue a development consent order that can make provision relating to, or to matters ancillary to, the development of waste water infrastructure set out above. This NPS will be the primary basis for decision making on ancillary matters.¹⁰

1.3 Geographical coverage

- 1.3.1 This NPS provides the framework for decision making on development consent applications for the construction of new waste water infrastructure in England.
- 1.3.2 In Scotland, Wales and Northern Ireland, planning consents for all nationally significant waste water infrastructure projects are devolved to the Scottish Parliament, Welsh Government and Northern Ireland Executive respectively. The examining authority will not examine applications in these territories and the NPS will not apply there. The NPS will apply in the Severn Trent, Dwr Cymru/Welsh Water and Dee Valley Water areas where a NSIP is in England¹¹.

1.4 The appraisal of sustainability¹²

- 1.4.1 This NPS has been subject to an Appraisal of Sustainability (AoS), incorporating the requirements for Strategic Environmental Assessment (SEA)¹³. The AoS has informed the preparation of this NPS and the conclusions of the AoS and how these have influenced the NPS are summarised below.
- 1.4.2 The AoS provides a general appraisal for any waste water NSIPs which might come forward in the future as well as a more specific appraisal for the two potential NSIPs currently identified in this NPS. However, Government's AoS for these NSIPs is strategic in nature and does not pre-empt or replace the need for the developer to conduct site-specific assessments as part of the development consent application when the exact details of each scheme are known.

8 Information and guidance on the content and implementation of the Planning Act 2008 is available on the website for the Department for Communities and Local Government: <http://www.communities.gov.uk/publications/planningandbuilding/guidanceassocdevelopment>

9 See footnote 2

10 See footnote 2

11 The areas covered by Severn Trent Water, Dwr Cymru/Welsh Water and Dee Valley Water cover parts of both England and Wales.

12 Appraisal of Sustainability for the Waste Water National Policy Statement – Main Report.
<http://archive.defra.gov.uk/corporate/consult/waste-water/index.htm>

13 ODP, September 2005: Practical Guide to the Strategic Environmental Assessment Directive

- 1.4.3 The AoS identified that the Waste Water NPS could have a significant positive effect on water quality and resources. This corresponds with one of the key drivers for new waste water NSIPs to improve water quality in certain locations to meet statutory European and national requirements. Similarly there are likely to be positive effects for biodiversity (particularly the Deepphams scheme) related to improvements in water quality. There are no significant negative effects identified.
- 1.4.4 The main negative effects of the NPS are related to noise, landscape/townscape and visual effects and archaeology and cultural heritage. These reflect the fact that the population equivalent threshold in the Planning Act 2008 is likely to limit the geographical location of potential projects to very large conurbations. In consequence, the sustainability effects of the NPS have been considered in the context of new waste water NSIPs within a mature urban environment. The development of waste water NSIPs is consequently likely to result in adverse townscape and visual effects within a built up environment with many possible receptors, and in the short term, noise disturbance during construction. The likely adverse effect on archaeology and cultural heritage is related to the likelihood that the public benefits of the provision of new nationally significant waste water infrastructure, for which there is no alternative, could in some circumstances outweigh damage or loss to heritage assets or their setting. Heritage assets are a finite and irreplaceable resource; however, in some cases mitigation will be possible through amending a project design to avoid, incorporate or relocate a heritage asset. The treatment of heritage assets is covered in more detail in the Historic Environment section of this NPS.
- 1.4.5 The AoS has been undertaken alongside the development of the NPS and suggestions incorporated in the various provisions set out in the NPS, particularly factors for examination and determination of applications, and policy and guidance for the examining authority and the decision maker when considering specific impacts for the two schemes.
- 1.4.6 The two potential schemes, since they have been specifically included in this NPS, have been subject, at a strategic level, to the appraisals and consultation carried out on the NPS, i.e. they have been:
- subject to an Appraisal of Sustainability (AoS) that incorporates the requirements of the Strategic Environmental Assessment (SEA) Directive;
 - subject to a strategic level assessment under the Habitats Directive requirements¹⁴; and
 - will be the subject of public consultation and Parliamentary scrutiny through this NPS process.

The general background to these schemes, including the AoS and HRA, is summarised in the Annex.

¹⁴ This requirement of the Habitats Directive is carried out to assess the potential impacts on European designated sites.

1.5 Interaction with the Habitats Directive

- 1.5.1 The waste water NPS is a plan for the purposes of the Habitats Directive¹⁵. The Government has carried out a Habitats Regulation Assessment (HRA) in order to examine its potential effects on nature conservation sites that are designated to be of European importance.
- 1.5.2 The Government has concluded that it cannot rule out the potential for adverse effects on the integrity of European sites, including those adjacent to or at a distance from potential development covered by this NPS. In line with the requirements set out in Article 6(4) of the Habitats Directive, the Government considered potential strategic alternatives to the plan and the two sites and concluded that there were no alternatives that would better respect the integrity of European sites and deliver the objectives of this plan. However, it would be for the decision maker to consider the particular design elements of the individual schemes, based on the evidence provided by developers. Accordingly, the Government has presented a case for Imperative Reasons of Overriding Public Interest (IROPI) which sets out the rationale for why the plan should proceed, given the uncertain conclusions reached at the assessment stage of the HRA. Further information on this can be found at section 5.2 of the HRA.
- 1.5.3 The IROPI grounds include the need to ensure no further deterioration in surface water quality, leading to increased risk to human health and safety and consequences of primary importance for the environment. Failure to substantially reduce discharges into the tidal Thames could result in failure to achieve environmental objectives established under the Water Framework Directive (2000/60/EC). Notwithstanding the potential adverse effect on some designated features within European sites, the improvements to surface water quality that would result from adoption of the NPS could potentially represent an overall benefit of primary importance to the environment.
- 1.5.4 The conclusions of the HRA are set out in the main HRA report¹⁶. When individual consent applications are submitted to the examining authority in line with the Waste Water NPS, the applications constitute projects with regard to the Habitats Directive. The decision maker must assess them accordingly, taking into account the findings of the plan level HRA. Individual consent applications will be required to be supported by a more detailed, project level, HRA, including Appropriate Assessment where necessary.

15 The European Directive (92/43/EEC) on the Conservation of Natural Habitats and of Wild Flora and Fauna (the Habitats Directive) protects habitats and species of European nature conservation importance by establishing a network of internationally important sites designated for their ecological status. These are referred to as Natura 2000 sites or European Sites (which is the term used in the main HRA Report and throughout all the Site HRA Reports), and comprise Sites of Community Importance (SCI), Special Protection Areas (SPAs) (as classified under Birds Directive, EU Directive (2009/147/EC) on the Conservation of Wild Birds 2009), Special Areas of Conservation (SACs), candidate Special Areas of Conservation (cSAC), and European Offshore Marine Sites (EOMS) designated under the Habitats Directive. It is Government policy to treat Ramsar sites, designated by the Ramsar Convention on Wetlands (1971) and potential SPAs (pSPAs) as if there are fully designated European Sites for the purpose of considering any development proposals that may affect them. Planning Policy Statement 9 Biodiversity and Geological Conservation; Government Circular: Biodiversity & Geological Conservation – Statutory Obligations and their impact within the planning system (ODPM, 2005); Technical Advice Note (TAN) 5 Nature Conservation and Planning (WAG, 1996). For the purposes of the waste water NPS HRA – all SAC SCI cSAC SPA pSPA EOMS and Ramsar sites are referred to as European sites.

16 HRA of the Waste Water National Policy Statement: <http://archive.defra.gov.uk/corporate/consult/waste-water/101116-wastewaterpolicy-condoc-annex4.pdf>

2. Government policy on need for waste water infrastructure

Summary

Waste water treatment infrastructure is essential for public health and a clean environment. Demand for **new and improved** waste water infrastructure is likely to increase in response to the following main drivers:

More stringent statutory requirements to protect the environment and water quality;
Population growth and urbanisation;
Replacement or improvement of infrastructure;
Adaptation to climate change.

The Government is taking measures to reduce the demand for new waste water infrastructure in England, for example by requiring the use of sustainable drainage systems (SuDS) to reduce run-off in the built environment and exploring land management approaches that use natural systems to slow the flow of surface water in rural areas. However, there will still be a need for new waste water infrastructure to complement these approaches and ensure that the natural and man-made systems are able to function effectively together to deliver a wide range of ecosystem services and other benefits to society.

The need for improvements to meet environmental requirements is identified in reviews carried out by the Environment Agency and necessary projects resulting from this are listed in its National Environment Programme (NEP)¹⁷. In drawing up the NEP the Environment Agency works closely with individual water companies and other government bodies such as Natural England and the Drinking Water Inspectorate. Over 96 per cent of the NEP is based on statutory requirements, which are derived from European and national environmental legislation. The other requirements are made up of measures related to Biodiversity Action Plans (BAP) and local priorities.

The Government considers that need has been demonstrated for the nationally significant infrastructure projects which are included in the Environment Agency's NEP.

The proposed new sewage treatment works at Deephams in North East London may exceed the threshold set out in the Planning Act 2008 for waste water treatment works. In addition, the Government has stated its intention that a sewage collection and transfer scheme along the Thames in London (the Thames Tunnel) should be considered at national level because of its national significance. The examining authority and the decision maker should start its consideration of any applications submitted to it relating to these two projects on the basis that the strategic need for improvements at Deephams and the combined sewer overflows into the Thames has been demonstrated.

¹⁷ The current NEP ("PR09 NEP") is based on guidance published by Defra in December 2007, which outlines the obligations on the water industry in England for a five year period. The Statement of Obligations can be found at: <http://archive.defra.gov.uk/environment/quality/water/industry/review/documents/soo-0712-080702.pdf>

2.1 Introduction

- 2.1.1 Waste water is generally a mixture of domestic waste water from baths, sinks, washing machines and toilets, and waste water from industry. It will often also contain rainwater run-off from roofs, roads and other impermeable surfaces.
- 2.1.2 Proper collection, treatment and discharge of waste water and correct disposal of the resulting sludge helps to protect and improve water quality in the UK. Treatment allows water to be returned to the environment, helping to maintain river flows, which is important for other uses such as downstream abstraction, biodiversity and fisheries.
- 2.1.3 Every day in England and Wales the public sewerage system collects approximately 10 billion litres of waste water from households and industry. To enable the collection of this sewage and surface water there are, in England and Wales, over 324,000 km of public sewers and rising mains, 15,000 combined sewer overflows, 17,000 major pumping stations and 37,000 surface water outfalls.

2.2 Government's policy objectives

- 2.2.1 Without suitable treatment, the waste water we produce every day would damage the water environment and create problems for public health, water resources and wildlife, all of which would then seriously impact economic and social wellbeing¹⁸. This section outlines the policy context for the development of nationally significant waste water infrastructure.
- 2.2.2 Defra's Business Plan¹⁹ made a commitment to "reform the water industry to enhance competition and improve conservation". The Water White Paper²⁰, published in December 2011, sets out "the reform of the water industry to ensure a more efficient use of water and to protect poorer households". Climate change and population growth will create real challenges in the future and the White Paper explains that we need to take action now to ensure we have a resilient and sustainable water sector in the future.
- 2.2.3 **The Government's key policy objectives are:**
 - **Sustainable development** – to seek waste water infrastructure that allows us to live within environmental limits and that helps ensure a strong, healthy and just society, having regard to environmental, social and economic considerations;
 - **Public health and environmental improvement** – to continue to meet our obligations under the Urban Waste Water Treatment Directive (UWWTD)²¹ by providing suitable collection and treatment systems to limit pollution of the environment;
 - **To improve water quality in the natural environment** and meet our obligations under related European Directives, such as the Habitats Directive²², the Water Framework Directive (WFD)²³ and its Daughter Directives;

18 NEA: <http://uknea.unep-wcmc.org/>

19 <http://www.defra.gov.uk/corporate/about/what/business-planning/>

20 <http://www.official-documents.gov.uk/document/cm82/8230/8230.pdf>

21 Urban Waste Water Treatment Directive (91/271/EEC): http://ec.europa.eu/environment/water/water-urbanwaste/index_en.html

22 Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora: 'The Habitats Directive': http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm

23 Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy: 'The Water Framework Directive': http://ec.europa.eu/environment/water/water-framework/index_en.html

- **To reduce water consumption** by households and industry which will have the knock-on effect of reducing waste water production and therefore demand for waste water treatment infrastructure;
- **To reduce demand for waste water infrastructure capacity** by diverting surface water drainage away from the sewer system by using Sustainable Drainage Systems (SuDS);
- **Climate change mitigation and adaptation** – in line with the objectives of Defra's mitigation and adaptation plans to help deliver the UK's obligation to reduce greenhouse gas emissions by 80% by 2050 and work to carbon budgets stemming from the Climate Change Act 2008, within the context of the EU Emissions Trading System. Also to ensure that climate change adaptation is adequately included in waste water infrastructure planning; and
- **Waste Hierarchy** – to apply the waste hierarchy in terms of seeking to first reduce waste water production, to seek opportunities to re-use and recycle resources and to recover energy and raw materials where possible.

2.3 Drivers of demand for waste water infrastructure projects

2.3.1 Statutory requirements to protect the environment and water quality

Existing and new, more stringent environmental standards are driving improvements to waste water treatment. In particular, there is still a need for investment in waste water infrastructure in order to fulfil our obligations under the Urban Waste Water Treatment Directive (1991/271/EEC)²⁴, the Freshwater Fish Directive (FFD)²⁵ and the Water Framework Directive²⁶.

2.3.2 The objective of the UWWTD is to protect the environment from the adverse effects of waste water. It sets treatment levels on the basis of sizes of waste water discharges and the sensitivity of waters receiving the discharges.

2.3.3 The FFD seeks to improve and protect those fresh water bodies identified as waters suitable for sustaining fish populations. For those waters it sets monitoring requirements and physical and chemical water quality objectives for salmonid waters²⁷ and cyprinid waters²⁸.

2.3.4 The WFD is designed to improve and integrate the way water bodies are managed throughout Europe. It aims to enhance the status and prevent further deterioration of aquatic ecosystems, groundwater and associated wetlands, which depend on them. In England and Wales, the Environment Agency is the competent authority responsible for implementation of this Directive.

²⁴ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1991L0271:20081211:EN:PDF>

²⁵ The EC Freshwater Fish Directive (2006/44/EC) was originally adopted on 18 July 1978 but consolidated in 2006. The Directive will be repealed in 2013 by the EC Water Framework Directive: http://www.environment-agency.gov.uk/static/documents/Business/fish_directive_1769463.pdf

²⁶ The EC Water Framework Directive (2000/60/EC) came into force on 22 December 2000, and was put into UK law (transposed) in 2003.

²⁷ Waters which support or become capable of supporting fish belonging to species such as salmon, trout, grayling and whitefish.

²⁸ Waters which support or become capable of supporting fish belonging to the cyprinids (small freshwater fish including minnows, carps and shiners) as well as other species such as pike, perch and eel.

2.3.5 **Adaptation to climate change**

Climate change is already a major pressure on waste water infrastructure. With the probability of wetter winters, more intense rainfall events and greater climate variability in the UK²⁹, we can expect greater pressure on public sewer systems. Particularly regarding combined sewers which carry both foul sewage and rainwater run-off to sewage treatment works for treatment prior to discharge. The heavier the rain, the greater the flow the sewer has to carry. It is inevitable in heavy rainfall or equivalent weather events that some of these sewers will be overloaded. These combined sewer systems incorporate combined sewer overflows (CSO) to help protect properties from flooding during heavy rainfall by allowing overflows into watercourses, but these may significantly increase pollution from untreated waste. It is not just the immediate surface water runoff from a rainfall event that causes operational CSO and treatment problems. As the sewer stock continues to age it may, in some circumstances, become vulnerable to infiltration of groundwater, levels of which may vary in response to rainfall events. Without further investment in sewerage systems, we can expect to experience more frequent overflows from CSOs or overwhelmed treatment works which could potentially lead to water quality and flooding problems.

2.3.6 Climate change may also result in reduced annual or seasonal river flows which may in turn require higher standards of sewage treatment in order to meet statutory environmental requirements.

2.3.7 Research by the UK Water Industry Research Organisation (UKWIR)³⁰ concluded that extensive modifications would be needed to network infrastructure in response to the long term impacts of climate change, along with other options such as surface water management.

2.3.8 **Population growth and urbanisation**

As cities, towns, and villages grow and new developments are established, there will be a demand for new waste water infrastructure to provide treatment which is essential for public health and to ensure that we can continue to meet the standards for water quality set out in existing and new European Union and domestic legislation. Population growth is the main reason for the growth in new households, accounting for over three quarters of new homes. The remaining increase is attributable to changing age structure and household formation. The Government's projections estimate that the number of households in England is projected to grow to 27.5 million in 2033, an increase of 5.8 million over 2008³¹.

2.3.9 Increased urbanisation (the development of green areas in and around towns and cities) will also have impacts on the capacity of the existing sewerage system. This is when permeable areas within existing development, such as gardens or driveways, are resurfaced with impermeable materials. There is consequently an increase in runoff to sewerage systems and a reduction in their capacity for carrying sewage. Increased urbanisation could intensify the impact of climate change on sewers.

29 UKCP09: <http://climateprojections.defra.gov.uk/content/view/982/521/1>

30 UKWIR (2006) Climate Change and the Hydraulic Design of Sewerage Systems: Summary Report (03/CL/10/0). <http://www.ukwir.org/files/UKWIR/UKWIRReportsCatalogues/Catalogue-climate.pdf>

31 Laying the Foundations: A Housing Strategy for England November 2011 <http://www.communities.gov.uk/documents/housing/pdf/2033676.pdf>

2.3.10 **Resilience of existing infrastructure**

Waste water infrastructure providers need to ensure that core capability of key infrastructure is not unduly compromised by unusual events to secure its fitness for modern purposes.

- 2.3.11 There is also a need to generally maintain, extend or improve the infrastructure of varying ages, some of which dates back to Victorian times. Where appropriate, the replacement of infrastructure in poor condition, or at the end of its life cycle, particularly in large towns and cities, may also need to occur.

2.4 **Alternatives to new waste water infrastructure**

The factors above will drive demand for future investment in waste water infrastructure, some of which will be of national significance. The following subsection considers the alternatives to building new infrastructure.

2.4.1 **Reduce demand for waste water infrastructure – reduce domestic and industrial waste water production**

Household water consumption in England has been rising since the 1950s and is now approximately 150 litres per person per day (l/p/d)³². Most of this water will be discharged to the public sewer system, from uses such as toilet flushing, washing machines, showers, baths, sinks, dishwashers and washing cars on roads/driveways. The Government is committed to reducing household water consumption. This is likely to be achieved by widespread installation of water meters in water-stressed areas, coupled with tariffs that incentivise demand reduction. There will also be continued water efficiency education, stringent building codes for new homes³³, refurbishment of existing housing and promotion of water efficient devices and appliances. These measures could achieve a reduction in sewer and treatment capacity required for England of greater than 1 billion litres³⁴ per day.

- 2.4.2 However, despite this reduction in the volume of water entering the sewerage system, it should be noted that demand for waste water treatment capacity is driven by the pollutant load to be treated and the required standard. In order to meet increasingly more stringent European Directives requirements relating to water quality, the Government continues to take action to tackle pollution inputs that enter sewers, for example phosphates from domestic laundry cleaning products, and fats, oils and greases. By reducing the amount of pollution, in addition to the volume, entering sewers in the first place, we can reduce the amount that has to be removed at waste water treatment works.

- 2.4.3 The concentration and volume of trade effluent³⁵ discharges to sewers from industrial and commercial processes can potentially compromise treatment processes at waste water treatment works and result in inadequately treated discharges to the environment. Sewerage undertakers charge industry for disposal of trade effluent discharges via the sewerage system. This means that there are already cost incentives for industry to reduce any discharges.

32 Based on Waterwise data, 2006

33 Code for Sustainable Homes – http://www.planningportal.gov.uk/uploads/code_for_sust_homes.pdf

34 Volumetric reduction

35 Trade effluent is any liquid produced from trade or industry which is not domestic sewage or other domestic liquid waste. The legal definition of Trade Effluent is found in the 1991 Water Industry Act. It is an offence to discharge it without the formal consent of the Water Services Companies or when in breach of any condition of such a consent.

- 2.4.4 The changing nature of industry in the UK has resulted in a reduction in industrial water consumption since the 1950s and consequently the discharge of trade effluent and waste water to sewers.
- 2.4.5 The Government's view however is that, taking all these factors into account, demand management opportunities (in terms of domestic and industrial waste water production) will not be sufficient to significantly reduce future demand for waste water treatment capacity.
- 2.4.6 **Sustainable drainage systems**
The pattern of urbanisation, whereby increasing areas of land are being developed and connected to surface water drainage flowing into combined sewer systems, has added, and will continue to add, pressure to sewerage and waste water treatment infrastructure. Another alternative to the construction of new waste water treatment and sewerage infrastructure is to reduce the demand for additional capacity by eliminating surface water drainage from combined sewer systems. One option which can contribute to this is the wider use of Sustainable Drainage Systems (SuDS).
- 2.4.7 The use of SuDS can reduce the demand on infrastructure capacity by providing an alternative approach to piped systems. SuDS mimic natural drainage processes to: reduce the volume and rate of surface water run-off; increase water quality; and improve public amenity. The Government's policy is to encourage the use of SuDS wherever possible, and this policy was strengthened in the Flood and Water Management Act 2010.
- 2.4.8 When commenced Schedule 3 to the Act will establish a SuDS Approving Body (SAB) in county and unitary local authorities. It will give them responsibility for approving drainage systems in new developments and redevelopments in England and Wales and for adopting and maintaining those SuDS which serve more than one property. The automatic right to connect surface runoff from these developments to a public sewer has been removed and will be contingent on approval from the SAB. Proposed drainage systems must comply with National Standards prior to approval.
- 2.4.9 However, new build only accounts for a small percentage of total developments in England and Wales. Retrofitting SuDS for pre-existing developments offers the greatest opportunity to reduce the impact of surface water runoff, particularly in urban areas. For example, permeable surfaces can be used to replace impermeable surfaces. Government encourages households, businesses and communities to retrofit SuDS in place of conventional drainage that risks overloading public sewers.
- 2.4.10 Although SuDS can reduce surface water runoff, there remains a need to invest in sewerage and infrastructure in order to provide sufficient capacity for existing and future water services.
- 2.4.11 **Separate sewer systems**
Most new developments separate foul waste water (from housing and industry) from surface water drainage (which has a much lower pollutant load). Where possible, the surface water drainage can be discharged to a nearby water course without treatment but, in other cases, it often drains into a combined sewer system further down the sewerage catchment, and therefore passes to the waste water treatment works or contributes to the operation of CSOs.

- 2.4.12 By diverting surface water drainage away from the sewer system in new developments, the required volumetric capacity of the existing sewerage and waste water treatment works does not increase as greatly. However, this does not significantly affect the increase in the organic load that requires treatment, and therefore the capacity of waste water treatment works still has to be increased in response to population or industrial growth.
- 2.4.13 At present combined sewer systems comprise some 40% of the total network and are designed with limited capacity for peak surface water flows, the excess flow discharging untreated via CSOs to adjacent watercourses. Studies into the feasibility of retrospectively separating foul and surface water sewerage³⁶ usually find it to be uneconomic and impractical. In urban areas, this approach would lead to unacceptable levels of disruption to traffic and residents, and is not currently considered to be a viable solution.
- 2.4.14 **Decentralisation of waste water treatment infrastructure**
In general, a de-centralised approach to waste water treatment is most appropriate for smaller, dispersed rural communities, particularly those at the upper ends of river catchments, where the costs of pumping waste water long distances to large centralised works outweigh the potential economies of scale at the works. For urban areas, and in particular for large cities of the scale that might generate a project meeting the thresholds for consideration as an NSIP, it will remain more cost effective to centralise treatment to a single large treatment works. It is also not practical to retrospectively locate large numbers of small treatment works throughout urban areas. Generally, it will be necessary to transfer waste water to a suitable location for a treatment works and effluent discharge, outside of urban centres.
- 2.4.15 **General conclusions on alternatives to new large waste water infrastructure**
Demand (or the growth in demand) for waste water infrastructure may be reduced in the future by reducing domestic and industrial waste water loads and diverting surface water from sewerage systems. Small scale, de-centralised treatment approaches also exist for rural areas, and may be viable for urban fringe. However, the need for new waste water infrastructure projects will remain in some circumstances, for example to respond to demands placed on existing infrastructure due to climate change (through more extreme rainfall events), population growth (where this is heavily concentrated), or to meet existing or more stringent environmental standards (including where older infrastructure needs replacing).

2.5 The need for new waste water infrastructure

- 2.5.1 Every five years, the Government's environmental and economic regulators of the water industry (the Environment Agency and Ofwat), work with the water and sewerage companies in England and Wales to establish spending plans, including proposed waste water infrastructure, for the following five-year period. The Environment Agency³⁷ will determine when projects are needed to meet statutory environmental requirements (though there may be some other requirements which are made up of measures related to Biodiversity Action Plans (BAP) and local priorities) by assessing for example which discharges from the sewerage system need to be improved. The EA will then propose projects for inclusion in the National Environment Programme – confirmed by the Secretary of State.

36 Thames Tideway Strategic Study – Steering Group Report (2005) Reading, UK: <http://www.thameswater.co.uk/cps/rde/xbcr/corp/ttss-background-steering-group-report.pdf>

37 The Environment Agency is the environmental regulator of the water and sewerage sectors in England and Wales.

- 2.5.2 The NEP is included within a water or sewerage company's business plan that is submitted to the Water Services Regulation Authority (Ofwat), whose role is to scrutinise the overall plan and costings within it, challenging companies on proposals where appropriate. The business plan sets out a water or sewerage company's plan for the continued delivery of water supply and waste water services over a five year period. Ofwat expect water or sewerage companies to fully take account of the NEP in developing their business plans. It is for such companies to demonstrate that their proposals are the best solution to meeting the need established in the NEP. The economic justification (including social and environmental costs and benefits) for such proposals will be examined by Ofwat through its periodic review process of business plans.
- 2.5.3 The Government therefore considers that the need for new waste water treatment infrastructure will have been demonstrated if the Environment Agency has concluded that the project is necessary for environmental reasons and included it in its National Environment Programme.
- 2.5.4 The projects which have been identified through the Environment Agency's NEP, and for which need should be considered to have been demonstrated, are discussed below. Should other, unforeseen projects come forward, they should similarly be considered as being needed if they satisfy the criteria in paragraph 2.5.3 above.

2.6 Nationally significant projects for which need has been demonstrated

- 2.6.1 **Deephams Sewage Treatment Works – drivers of demand**
The planned scheme that will potentially meet the threshold to be considered a nationally significant infrastructure project is Deephams STW in the Thames Water region. The existing STW at Deephams in North East London has a capacity of 874,000 population equivalent. Ofwat has approved the funding to improve the standard of treatment in order to meet European and national water quality targets, as required by the Environment Agency's NEP. To achieve this improvement in treatment, the majority of the existing infrastructure needs to be replaced.
- 2.6.2 The scheme may potentially require an entirely new STW to be built. The new works would have a capacity of 941,000 population equivalent (allowing for some growth in the catchment) meaning the project would be above the threshold in the Planning Act 2008.
- 2.6.3 The need for improvement of waste water treatment at Deephams STW is driven by European and national statutory water quality requirements. The improvements are essential to ensure that Salmons Brook and the River Lee (to which it flows) meet environmental quality standards to comply with the Freshwater Fish Directive, and Water Framework Directive and to ensure that there is no deterioration in the current classification as a result of increased volumes of discharge.

2.6.4 **Urban Waste Water Treatment Directive**

In July 1998, the River Lee and Lee Navigation were designated as a sensitive area (eutrophic) under the Urban Waste Water Treatment Directive. Rivers with this eutrophic designation have a high level of nutrients which can cause excessive growth of algae and other plants which affect aquatic biodiversity, and the quality of the water overall. Previous Asset Management Plan (AMP³⁸) cycles have included investment at sewage treatment works higher up the River Lee catchment which have reduced nutrient inputs to the river. However, the River Lee and Lee Navigation remain eutrophic and it has become apparent that there is a need to reduce nutrient inputs to the lower stretches of the river from Deephams STW.

2.6.5 This is likely to be met by a temporary improvement to the existing treatment using chemical dosing which causes phosphorus to precipitate allowing it to be removed by settlement along with the sewage sludge. Chemical phosphorus removal is an expensive measure requiring large quantities of aluminium, iron or calcium (lime) to be added. It also results in the production of up to 40% more sludge which must be treated and/or disposed of.

2.6.6 A more sustainable method of nutrient removal is 'biological phosphate removal' using a modified arrangement of biological waste water treatment infrastructure. This technique is preferable as it may not require expensive chemical dosing and does not produce so much sludge. However, this modification would not be possible with the existing infrastructure at Deephams STW. A more sustainable long-term solution would therefore be to replace the existing infrastructure such that biological phosphate removal can be achieved.

2.6.7 **Freshwater Fish Directive**

In 2003, the stretch of the River Lee downstream of Deephams STW was designated as a cyprinid water under the Directive. Since fish are particularly sensitive to ammonia which is present in sewage, the Environment Agency's NEP requires that Deephams STW be improved in order to provide more effective removal of ammonia and meet a tighter discharge consent. This consent cannot be met by the existing treatment infrastructure.

2.6.8 **Water Framework Directive**

The lower stretches of the River Lee into which Deephams STW discharges (via Salmons Brook) currently fail the chemical water quality requirements of the Directive. The Environment Agency's NEP requires various improvements at Deephams STW. In the short-term, there is a requirement to mitigate the impacts of overflows from the STW's storm tanks which can cause serious deoxygenation of the River Lee leading to the death of fish and other aquatic life. This was achieved in 2011 by dosing hydrogen peroxide into the discharge from the stormwater tanks. Thames Water is also making some improvements to the management of stormwater to reduce overflows. In the longer term, by 2017, Deephams STW will be required to meet stricter discharge consents for ammonia (also required under the Freshwater Fish Directive – see above) and other sanitary parameters. This consent cannot be met by the existing treatment infrastructure.

³⁸ Asset Management Plan (AMP) periods are the five-yearly investment planning cycle by the water industry in England and Wales.

2.6.9 **Increased demand**

Population growth has already contributed to increased volumes of discharge from the sewage treatment works into the River Lee and the Lee Navigation. Additional capacity is required to respond to recent and anticipated population growth and ensure adequate treatment of sewage. Ofwat has approved the funding for an upgrade to Deephams Sewage Works to increase the treatment capacity to accommodate expected growth up until at least 2026. This increase in capacity is included in the Environment Agency's NEP in order to prevent deterioration in the current river standard as a result of increased volumes of treated sewage effluent. Whilst the capacity increase at Deephams is only expected to be quite small, the scheme could qualify as a NSIP because of the size of the necessary upgrade required to meet the new quality consent.

2.6.10 **Alternatives: Deephams Sewage Treatment Works**

A number of strategic options to meet the need for the Deephams Sewage Treatment Works upgrade are being considered by Thames Water, including treatment on and off the existing site and various treatment technology options.

2.6.11 **Deephams conclusion on need**

The Government's environmental regulators of the water industry (the Environment Agency) have approved the need for improvements at Deephams STW in North East London in order to meet the requirements of the Urban Waste Water Treatment Directive, Freshwater Fish Directive and Water Framework Directive. These requirements are such that the cost-effective solution is likely to necessitate the replacement of the existing treatment infrastructure at Deephams and this may not be possible at the existing site without causing an unacceptable deterioration in water quality for the duration of the works.

2.6.12 The exact redevelopment of the site will be determined by Thames Water through consultation. The existing treatment infrastructure will continue to function during the construction work preventing any deterioration in water quality of the receiving waters.

2.6.13 The examining authority and the decision maker should therefore undertake any assessment of an application it receives for the development of Deephams STW on the basis that the national need for improvements to this STW has been demonstrated. It would be for Thames Water to justify in its application the specific mix of treatment options it is proposing, including any other options it has considered and ruled out.

2.6.14 **Thames Tunnel – drivers for demand**

The Thames Tunnel does not fall within the original thresholds contained in the Planning Act to be considered an NSIP as it is not associated with a new or extended STW of 500,000 population equivalent or above. However, the Secretary of State for Environment, Food and Rural Affairs made an announcement on 6 September 2010 that development consent for the project should be dealt with under the Planning Act 2008.

2.6.15 Much of the sewerage system serving London along the tidal Thames was designed in the 19th Century and consists of combined sewers. Combined sewers convey both foul sewage and rainwater run-off to sewage treatment works for treatment prior to discharge. When it rains, the combined sewer system often becomes overloaded and excess diluted sewage discharges from CSOs into the Rivers Lee and Thames. This reduces the risk of sewer flooding

to properties and the overloading of London's STWs. The STWs themselves have limited treatment capacity: when it rains they divert flows to large stormwater storage tanks. If this capacity is exceeded, dilute waste water must be discharged direct to the receiving water until the rain stops.

2.6.16 London's CSOs overflow into the River Thames tideway approximately 50 times per year and affect:

- biodiversity by reducing dissolved oxygen (DO) levels in the river potentially resulting in the death of adult fish and fish fry;
- health by increasing in pathogenic bacteria which potentially pose risks to users of the river; and
- the attractiveness of the environment due to large quantities of offensive solid material being discharged into the Thames and deposited on the foreshore.

2.6.17 On 3 August 2004, following a period of particularly heavy rainfall³⁹, an estimated 5 million tonnes of untreated waste water, mainly from the Mogden STW, overflowed into the Thames causing the death of thousands of fish and fry (juvenile fish)⁴⁰ and it also necessitated warnings being given to recreational users of the river.

2.6.18 On 5 and 6 June 2011 after heavy rainfall over 900,000 tonnes of storm sewage was released into the River Thames from the tidal combined sewer overflows. These discharges, combined with warm dry weather and low river flows, resulted in the low oxygen levels and approximately 26,000 fish deaths along a kilometre stretch of the River Thames.

2.6.19 It is essential to reduce the likelihood of such incidents, which also have a reputational impact on the UK, as they take place in the capital city's river. The above impacts impose an economic cost on the capital, country and society. These costs include direct financial costs such as the costs of measures to mitigate against low oxygen, fish re-stocking, costs on the health service and the wider economy due to people falling ill and costs of cleaning up debris.⁴¹ The pollution also imposes wider 'external' social and environmental costs on society.

2.6.20 **Urban Waste Water Treatment Directive**

A collecting system and treatment to meet the requirements of this Directive were required for the London agglomeration by 31 December 2000. In terms of the tidal Thames and River Lee, compliance with the Directive requires that sewage (domestic, industrial and rainwater run-off) is collected and conveyed to plants for secondary treatment, overflows are reduced and measures taken to limit pollution of the tidal Thames and the River Lee from CSOs.

39 This followed a period of localised heavy rainfall. This event was not exceptional in terms of either the total rainfall or quantity of storm sewage discharged from the CSOs. However, all the factors that could result in an impact due to low dissolved oxygen (DO) occurred at the same time: the discharge followed a prolonged period of extremely high temperatures, and dilution was minimal due to both low fluvial rates and a spring high tide.

40 The total number of adult, large dead fish was almost 1100 (comprising mainly bream, roach, perch, carp, dace and flounder). This represents an overall adult fish loss in excess of 10,000 individuals. The total loss of fish fry which are rapidly predated or otherwise lost is estimated as many hundreds of thousands.

41 The Thames Recreational Users Study Final Report (2007) – a collaborative partnership project between the City of London Port Health Authority and the Health Protection Agency.

2.6.21 **Water Framework Directive**

The River Basin Management Plan for the River Thames⁴² states that improvements to the sewage treatment works along the tidal River Thames and the construction of the London Tideway Tunnels are planned to be delivered by Thames Water over the next two river basin cycles. It considers that these major projects represent the primary measures to address point source pollution from the sewerage system and are fundamental to the achievement of good status in this catchment. It is considered that the Urban Waste Water Treatment Directive is the initial driver for the Thames Tunnel. However, full implementation of this Directive is a basic (obligatory) measure in the Water Framework Directive.

2.6.22 **Climate change and population growth**

A solution to address sewage overflows is also needed to respond to the challenges of an increasing population and the likely effects of climate change. The population of the Greater London area is expected to increase by 1.3 million by 2034/35⁴³ accompanied by about 26,700 new households per year, placing additional demands on waste water infrastructure in the capital.

2.6.23 Climate change is expected to increase the frequency of extreme rainfall events of the sort that caused such damaging impacts in August 2004. The Thames Tunnel is therefore also driven by the need to adapt to the impacts of climate change. Under the Government's Adaptation Reporting Power, introduced by the Climate Change Act, 2008, Thames Water reported to Government⁴⁴ in May 2011 on how they are preparing for the impact of climate change on their infrastructure services.

2.6.24 **Development of preferred solution**

The Thames Tideway Strategic Study⁴⁵ was convened in early 2000 and reported in 2005 and comprised Department of the Environment, Transport and Regions (DETR), Thames Water, the Environment Agency, and the Greater London Authority, with Ofwat as an observer, and an independent chair, Professor Chris Binnie. The Thames Tideway Strategic Study produced a detailed investigation of the environmental impact of sewage overflows, identified objectives for improvement and proposed potential solutions. This was followed by an independent review for Ofwat⁴⁶ published in February 2006, and further reports completed by Thames Water in the second half of 2006⁴⁷. Defra produced a 'Regulatory impact assessment – sewage collection and treatment for London' in March 2007 reviewing these various reports. This concluded that Thames Water should be asked to proceed urgently with a tunnel-based solution to resolve the problems in London.

42 <http://www.environment-agency.gov.uk/research/planning/125035.aspx>

43 As reported in Thames Water's draft Water Resource Management Plan.

44 <http://archive.defra.gov.uk/environment/climate/documents/water-comp-adapt-plan/wc-thames-water.pdf>

45 In 2000, the Thames Tideway Strategic Study (TTSS) was set up to consider the environmental impact of storm discharges to the tidal River Thames and to propose potential solutions that would comply with the EC Urban Waste Water Treatment Directive. Thames Water, the Environment Agency, the Greater London Authority, Defra and Ofwat (as an observer), all contributed to the study, chaired independently by Engineering Consultant, Professor Chris Binnie.

46 In view of the scale of the project and the significant cost for customers, Ofwat commissioned Jacobs Engineering Group Inc to carry out an independent review of the potential for less expensive and partial solutions to the problem. The final report published in February 2006 can be downloaded at: http://www.ofwat.gov.uk/sustainability/rpt_gen_tidewaybabbie20060214

47 Thames Water reports submitted in December 2006 are available at: <http://www.thamestunnelconsultation.co.uk/document-library/timeline-view/>

2.6.25 The proposed London Tideway Improvements scheme solution comprises:

- an early-phase 7km spur tunnel (the 'Lee Tunnel') between Abbey Mills and Beckton to pick up the large overflows at Abbey Mills CSO. Work has started on this tunnel after planning permission was granted following an application under the Town and Country Planning Act. In addition, work has begun on a major extension to Beckton STW, to treat the contents of the Thames and Lee Tunnels.
- A large diameter spine tunnel (The 'Thames Tunnel') – likely to be around 25km long running from west London, through central London picking up unsatisfactory overflows discharging direct to the tidal Thames. The Thames Tunnel is the subject of this part of the NPS.

These improvement works are required so that obligations under the Urban Waste Water Treatment Directive can continue to be met. The European Commission has referred the UK to the Court of Justice asserting breaches of the Directive in London (and Whitburn in North East England⁴⁸). The Commission's position is that the level of overflows is excessive and that an adequate sewerage and collection system should have been in place by the end of 2000. The construction of the Tunnel is a solution to address the discharges into the Thames and is part of the defence.

2.6.26 **Alternatives: Thames Tunnel**

A non intervention strategy is considered not to be feasible due to the frequency and volume of discharges of untreated waste water and the consequent environmental impacts. There is an existing system to mitigate reduced dissolved oxygen levels following discharges in the River Thames using the "Thames Bubbler" oxygenation craft as well as hydrogen peroxide dosing. This has helped prevent wide scale fish mortality but is not considered to be a sustainable or complete solution in the long-term. A number of other measures have also been considered and rejected.

2.6.27 **Preventing the rainwater from entering the sewerage system**

The highly impermeable nature of the London urban area generates massive volumes of rainfall run-off which must be collected and disposed of quickly and efficiently to prevent flooding of properties. The existing mechanism is via drains and gullies into the sewerage system.

2.6.28 Sustainable Drainage Systems can play a key role in increasing capacity and resilience in London's sewer network by reducing the volume entering sewers. However, in this instance simultaneous retrofit of all London's properties and the sewerage systems to the required level would be disproportionately expensive compared with a traditional drainage solution. It has also been demonstrated⁴⁹ that retrofitting would not provide sufficient reductions in CSO spill frequency to meet the objectives for the Tideway and comply with the UWWTD.

2.6.29 **Providing extra capacity within the sewerage system**

The existing sewers could be enlarged or duplicated, or storage could be provided but the sewerage system is so large and complex with so many cross connections that most of the network would need to be enlarged to prevent any CSOs from discharging. There are no

48 Case reference C – 301/10 An oral hearing took place in the European Court of Justice on 10 November 2011 with the Court's judgment expected from mid 2012.

49 Thames Tunnel Needs Report 2010 can be found at: <http://www.thamestunnelconsultation.co.uk/doclib/needs-report/>

particular pinch-points where enlargements could be carried out that would benefit the whole system. Substantial duplication/enlargement to most of the sewers would entail massive construction work throughout inner London, enormous disruption and extremely high costs. The environmental objectives for the Thames cannot be met by other alternatives at a lower cost.

2.6.30 Converting the combined drainage to a separate drainage system

This would involve the provision of a completely new network of sewers approximately 12,000 km in length and every existing property would require connecting to the new system. Cost and disruption would be very high and might lead to large numbers of misconnections, which would create a legacy of problems, pollution and further work.

2.6.31 Intercepting the CSOs at their point of discharge to the river and conveying to a suitable site for treatment (the preferred option)

This strategy, which has developed into the Thames Tunnel, would allow the CSOs to continue to operate but would collect the discharges and transfer them to a new treatment facility prior to discharge to the river. There are many advantages in adopting this strategy because it causes minimum disruption to the existing system and to inner London thus making it less expensive to deliver and, because it specifically captures CSO discharges, its effectiveness is assured and more predictable. This is the tunnel based option backed by Government in 2007 and reconfirmed by the present Government in 2010. The Government made a further statement to Parliament in support of a tunnel-based solution on 3 November 2011 and published a paper summarising the strategic and economic case for the tunnel, with accompanying cost benefit analysis.⁵⁰ This paper included a summary of the alternative options considered, assessing each option in terms of compliance with environmental and legal drivers, along with the associated costs for each option.

2.6.32 The Thames Tideway Strategic Study established environmental objectives which must be met by any solution for the River Thames. Thames Water continues to explore alternative designs and routes for the Thames Tunnel to deliver the environmental objectives with the least disruption and cost.

2.6.33 Thames Tunnel conclusion on need

It is inappropriate to “do nothing”: a sustainable long term solution is required to address the unacceptable levels of untreated sewage which are discharged into the River Thames and which have significant environmental, social and economic impacts. The Government considers that detailed investigations have confirmed the case for a Thames Tunnel as the preferred solution.

2.6.34 The examining authority and the decision maker should undertake any assessment of an application for the development of the Thames Tunnel on the basis that the national need for this infrastructure has been demonstrated. The appropriate strategic alternatives to a tunnel have been considered and it has been concluded that it is the only option to address the problem of discharging unacceptable levels of untreated sewage into the River Thames within a reasonable time at a reasonable cost⁵¹. It would be for Thames Water to justify in its application the specific design and route of the project that it is proposing, including any other options it has considered and ruled out.

⁵⁰ ‘Creating a River Thames fit for our future’, see <http://www.defra.gov.uk/environment/quality/water/sewage/overflows/>

⁵¹ Subject to Sections 104 (3) to 104 (8) of the Planning Act 2008.

3. Factors for examination and determination of applications

3.1 Introduction

- 3.1.1 The statutory framework for deciding applications for development consent under the Planning Act is summarised in Section 1.1 of this NPS. This Part of the NPS sets out certain general policies in accordance with which applications relating to waste water infrastructure are to be decided that do not relate only to the need for new infrastructure (covered in Part 2) or to particular physical impacts of its construction or operation (covered in Part 4).
- 3.1.2 Given the level and urgency of need for infrastructure of the types covered by this NPS, set out in Part 2 of this NPS, the decision maker should start with a presumption in favour of granting consent to applications for waste water NSIPs. That presumption applies unless any more specific and relevant policies set out in this NPS clearly indicate that consent should be refused. The presumption is also subject to the provisions of the Planning Act 2008 referred to at paragraph 1.1.1 of this NPS.
- 3.1.3 In considering any proposed development, and in particular when weighing its adverse impacts against its benefits, the decision maker should take into account:
- its potential benefits including its contribution to meeting the need for waste water infrastructure, job creation and any long-term or wider benefits; and
 - its potential adverse impacts, including any long-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts.
- 3.1.4 In this context, the decision maker should take into account environmental, social and economic benefits and adverse impacts, at national, regional and local levels. These may be identified in this NPS, in the application or elsewhere (including in local impact reports).
- 3.1.5 The Marine and Coastal Access Act 2009 provides for the preparation of a Marine Policy Statement (MPS) and a number of marine plans. The decision maker must have regard to the MPS and applicable marine plans in taking any decision which relates to the exercise of any function capable of affecting the whole or any part of the UK marine area. In the event of a conflict between any of these marine planning documents and an NPS, the NPS prevails for purposes of decision making given the national significance of the infrastructure.
- 3.1.6 The decision maker should 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. Guidance in Circular 11/95⁵², as revised, on “The Use of Conditions in Planning Permissions” or any successor to it should be taken into account.
- 3.1.7 The decision maker may take into account any development consent obligations that an applicant agrees with local authorities. These must be relevant to planning, necessary to make the proposed development acceptable in planning terms, directly related to the proposed development, fairly and reasonably related in scale and kind to the proposed development, and reasonable in all other respects.

52 <http://www.communities.gov.uk/documents/planningandbuilding/pdf/324923.pdf>

3.2 Environmental impact assessment

- 3.2.1 All proposals for projects that are subject to the European Environmental Impact Assessment Directive⁵³ must be accompanied by an Environmental Statement (ES) describing the aspects of the environment likely to be significantly affected by the project⁵⁴. The Directive specifically refers to effects on human beings⁵⁵, fauna and flora, soil, water, air, climate, the landscape, material assets and cultural heritage, and the interaction between them. The Directive requires 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 of the measures envisaged for avoiding or mitigating significant adverse effects⁵⁶. When considering a proposal, the examining authority and the decision maker should ensure that likely significant effects at all stages of the project have been adequately assessed, and should request further information where necessary.
- 3.2.2 To consider the potential effects, including benefits of a proposal for a project, the examining authority and the decision maker will find it helpful if the applicant also sets out information on the likely significant social and economic effects of the development, and shows how any likely significant negative effects would be avoided or mitigated. This information could include matters such as employment, equality, community cohesion and well-being⁵⁷.
- 3.2.3 When considering cumulative effects, the ES should provide information on how the effects of the applicant's proposal would combine and interact with the effects of other development (including projects for which consent has been sought or granted, as well as those already in existence)⁵⁸. The examining authority and the decision maker may also have other evidence before it, for example from appraisals of sustainability of relevant NPSs or development plans, on such effects and potential interactions. Any such information may assist the decision maker in reaching decisions on proposals and in assessing the mitigation measures that have been proposed by the applicant or considered in the examination.
- 3.2.4 The examining authority and the decision maker should consider how the accumulation of, and interrelationship between, effects might affect the environment, economy or community as a whole, even though they may be acceptable when considered on an individual basis with mitigation measures in place.
- 3.2.5 To help the examining authority and the decision maker consider thoroughly the potential effects of a proposed project in cases where the EIA Directive does not apply, and an ES is not therefore required, the applicant should instead provide information proportionate to the scale of the project on the likely significant environmental, social and economic effects. References to an ES in this NPS should be taken as including a statement which provides this information, even if the EIA Directive does not apply. In this NPS, the terms 'effects', 'impacts' or 'benefits' should be understood to mean likely significant effects, impacts or benefits.

53 Council Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment, amended by Directives 97/11/EC and 2003/35/EC.

54 Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (SI2009/2263): <http://www.legislation.gov.uk/ukSI/2009/2263/contents/made>

55 The effects on human beings include effects on health

56 See Circular 02/99: *Environmental impact assessment* for further information on the preparation and content of an Environmental Statement: <http://www.communities.gov.uk/publications/planningandbuilding/circularenvironmentalimpact>

57 See 4.15.2

58 For guidance on the assessment of cumulative effects, see, for example, Circular 02/99, *Environmental impact assessment*, or *Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions* (<http://ec.europa.eu/environment/eia/eia-studies-and-reports/guidel.pdf>).

3.2.6 **Flexibility in project proposals**

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.

3.2.7 Where some details are still to be finalised the ES should set out, to the best of the applicant's knowledge, what the maximum extent of the proposed development may be in terms of site and plant specifications, and assess, on that basis, the effects which the project could have to ensure that the impacts of the project as it may be constructed have been properly assessed.

3.2.8 Should the decision maker determine to grant development consent for an application where details are still to be finalised, it will need to reflect this in appropriate development consent requirements. Clearly, if development consent is granted for a proposal and at a later stage the developer wishes for technical or commercial reasons to construct it in such a way that its extent will be greater than has been provided for in the terms of the consent, it may be necessary to apply for a change to be made to the development consent, and the application to change the consent may need to be accompanied by further environmental information to supplement the original ES.

3.3 **Habitats regulations assessment**

3.3.1 Prior to granting a development consent order, the decision maker must, under the Habitats and Species Regulations⁵⁹, consider whether the project may have a significant effect on a European site, or on any site to which the same protection is applied as a matter of policy, either alone or in combination with other plans or projects. Further information on the requirements of the Habitats Regulations can be found in a Government Circular⁶⁰. Applicants should also refer to section 4.5 on biodiversity and geological conservation. The applicant should seek the advice of Natural England and/or the Countryside Council for Wales, and provide the examining authority with such information as it may reasonably require to determine whether an appropriate assessment is required. In the event that appropriate assessment is required, the applicant must provide such information as may reasonably be required to enable the examining authority to conduct the appropriate assessment. This should include information on any mitigation measures that are proposed to minimise or avoid likely effects.

3.4 **Alternatives**

3.4.1 Part 2 of this NPS provides an overview of the strategic alternatives both to the general nationally significant need for waste water infrastructure and to the project-specific need for the Thames Tunnel (a number of strategic options to meet the need for the Deepphams Sewage Treatment Works upgrade are being considered by Thames Water). These strategic alternatives do not need to be assessed by the examining authority or the decision maker.

⁵⁹ The Conservation of Habitats and Species Regulations 2010 (SI 2010/490): <http://www.legislation.gov.uk/uksi/2010/490/contents/made>

⁶⁰ Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their impact within the Planning System (ODPM 06/2005, Defra 01/2005) available via TSO website tso.co.uk/bookshop. It should be noted that this document does not cover more recent legislative requirements. Where this circular has been superseded, reference should be made to the latest successor document.

- 3.4.2 This NPS has not considered the detail of specific sites, routes, designs, layout, construction programmes or operational processes for these particular projects, which are the responsibility of the applicant to determine, in conjunction with the Government's environmental and economic regulators.
- 3.4.3 The Environmental Statement (ES) should include an outline of the main alternatives studied by the applicant and an indication of the main reasons for the applicant's choice, taking into account the environmental, social and economic effects⁶¹.

3.5 Criteria for "good design" for waste water infrastructure

- 3.5.1 Good design⁶² is about ensuring attractive, usable, durable and adaptable places and contributing to sustainable development. The expectation should be that good aesthetic and functional design can go together although the nature of much waste water infrastructure development will often limit the extent to which it can contribute to the enhancement of the quality of the area.
- 3.5.2 Nevertheless the decision maker needs to be satisfied that waste water infrastructure developments are sustainable and, having regard to regulatory and other constraints, are as attractive, durable and adaptable (including taking account of natural hazards such as flooding) as they can be. In so doing, the decision maker should satisfy itself that the applicant has taken into account both aesthetics and functionality (including fitness for purpose). Applicants and the examining authority should consider taking independent professional advice on the design aspects of a proposal. In particular, Design Council CABE can be asked to provide design review for nationally significant schemes and applicants are encouraged to use this service⁶³.
- 3.5.3 The development should, by the use of good architecture and appropriate landscaping, be as visually attractive as possible. While the applicant may have no, or very limited choice in the physical appearance of some waste water infrastructure, there may be opportunities for the applicant to demonstrate good design in terms of siting relative to existing and currently planned landscape character, landform and vegetation. Furthermore, the design and sensitive use of materials in any associated development such as control rooms and pumping stations will assist in ensuring that such development contributes to the quality of the area.
- 3.5.4 Applicants should set out the main alternatives to the design that they have considered and the reasons why the favoured choice has been selected, demonstrating that all proposed and alternative infrastructure meets the relevant EU or UK technical standard for design, construction, installation and maintenance, where such standards exist⁶⁴; and where they do not, that these components of design are fully explained by the applicant. In considering applications the examining authority and the decision maker should take into account the ultimate purpose of the infrastructure and bear in mind the operational, safety and security requirements which the design has to satisfy.

61 Existing guidance to alternatives can be found in the EU Guidance to EIA Scoping at <http://ec.europa.eu/environment/eia/eia-guidelines/g-scoping-full-text.pdf>

62 PPS1 "Delivering Sustainable Development" paragraphs 33-36: <http://www.communities.gov.uk/publications/planningandbuilding/planningpolicystatement1>

63 <http://www.communities.gov.uk/publications/planningandbuilding/letterdesignplanning>

64 For example, proposed National Standards for Sustainable Drainage under the Floods and Water Management Act 2010: <http://www.legislation.gov.uk/ukpga/2010/29/contents>

3.6 Climate change adaptation

- 3.6.1 Section 10(3)(a) of 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.
- 3.6.2 Section 2.2 of this NPS identifies relevant policies for mitigating climate change. This section sets out how applicants and the decision maker should take the effects of climate change into account when developing and consenting infrastructure. While climate change mitigation is essential to minimise the most dangerous impacts of climate change, previous global greenhouse gas emissions have already committed us to some degree of continued climate change for at least the next 30 years.
- 3.6.3 Climate change is likely to mean changes in future weather patterns; with warmer temperatures, continued sea level rise, changes to seasonal rainfall and more extreme events. This will increase the risk of flooding and drought events. Adaptation is therefore necessary to reduce the risks from these potential impacts.
- 3.6.4 To support planning decisions, the Government produces a set of UK Climate Projections and is developing a statutory National Adaptation Programme⁶⁵. In addition, the Government's Adaptation Reporting Power⁶⁶ ensures that reporting authorities (a defined list of public bodies and statutory undertakers, including water utilities) assess the risks to their organisation presented by climate change. The decision maker may take into account water utilities' reports to the Secretary of State when considering adaptation measures proposed by an applicant for new waste water infrastructure.
- 3.6.5 In certain circumstances, measures implemented to ensure a scheme can adapt to climate change may give rise to additional impacts, e.g. as a result of protecting against flood risk there may be consequential impacts on coastal change (see 4.6).
- 3.6.6 New infrastructure will typically be long-term investments which will need to remain operational over many decades, in the face of a changing climate. Consequently applicants must consider the impacts of climate change when planning the location, design, build, operation and, where appropriate, decommissioning of new waste water infrastructure. The ES should set out how the proposal will take account of the projected impacts of climate change. While not required by the EIA Directive, this information will be needed by the examining authority and the decision maker.
- 3.6.7 Applicants should use the latest set of UK Climate Projections⁶⁷ to ensure they have identified appropriate adaptation measures. Applicants should apply as a minimum, the emissions scenario that the Independent Committee on Climate Change suggests the world is currently most closely following – and the 10%, 50% and 90% estimate ranges. These results should be considered alongside relevant research which is based on the climate change projections.

⁶⁵ s.58 of the Climate Change Act 2008. <http://www.legislation.gov.uk/ukpga/2008/27/contents>

⁶⁶ s.62 of the Climate Change Act 2008

⁶⁷ See <http://ukclimateprojections.defra.gov.uk>

- 3.6.8 The decision maker should be satisfied that the proposals have taken into account the potential impacts of climate change using the latest UK Climate Projections available at the time the ES was prepared and have identified 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 the ES, the examining authority should consider whether they need to request further information from the applicant.
- 3.6.9 If any adaptation measures give rise to consequential impacts the decision maker should consider the impact of the latter in relation to the application as a whole and the impacts guidance set out elsewhere in this part of the NPS (e.g. on flooding, water resources and coastal change).
- 3.6.10 The decision maker should be satisfied that there are not critical features of the design of new waste water infrastructure which may be seriously affected by more radical changes to the climate beyond that projected in the latest set of UK climate projections, taking account of the latest credible scientific evidence on, for example, sea level rise (e.g. by referring to additional maximum credible scenarios – i.e. from the Intergovernmental Panel on Climate Change or the Environment Agency) and that necessary action can be taken to ensure the operation of the infrastructure over its estimated lifetime.
- 3.6.11 Any adaptation measures should be based on the latest set of UK Climate Projections, the Government's latest national Climate Change Risk Assessment, when available⁶⁸ and in consultation with the appropriate statutory consultees.
- 3.6.12 Adaptation measures can be required to be implemented at the time of construction where necessary and appropriate to do so.
- 3.6.13 Where an applicant has identified adaptation measures necessary to deal with the impact of climate change, and those measures would have an adverse effect on other aspects of the project and/or surrounding environment (e.g. coastal processes), the decision maker may consider requiring the applicant to ensure that the adaptation measures could be implemented should the need arise, rather than at the outset of the development (e.g. reserving land for future extension, increasing height of existing, or requiring new, sea wall).

3.7 Pollution control and other environmental consenting regimes

- 3.7.1 Issues relating to discharges or emissions from a proposed project which affect air quality, water quality, land quality, and the marine environment, or which include noise and vibration, may be subject to separate regulation under the pollution control framework or other consenting and licensing regimes.
- 3.7.2 The planning and pollution control systems are separate but complementary. The planning system controls the development and use of land in the public interest. It plays a key role in protecting and improving the natural environment, public health and safety, and amenity, for example by attaching requirements to allow developments which would otherwise not be environmentally acceptable to proceed, and preventing harmful development which cannot be made acceptable even through requirements. Pollution control is concerned with preventing

68 s.56 of the Climate Change Act 2008

pollution through the use of measures to prohibit or limit the releases of substances to the environment from different sources to the lowest practicable level. It also ensures that ambient air and water quality meet standards that guard against impacts to the environment or human health.

- 3.7.3 In considering an application for development consent, the examining authority and the decision maker should focus on whether the development itself 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 examining authority and the decision maker should work on the assumption that the relevant pollution control regime will be properly applied and enforced. It should act to complement but not seek to duplicate it.
- 3.7.4 These considerations apply in an analogous way to other environmental regulatory regimes, including those on land drainage, water abstraction and biodiversity.
- 3.7.5 Applicants should consult the Marine Management Organisation (MMO) on nationally significant projects which would affect, or would be likely to affect, any relevant marine areas as defined in the Planning Act 2008 (as amended by s.23 of the Marine and Coastal Access Act 2009). The decision maker's consent may include a deemed marine licence and the MMO will advise on what conditions should apply to the deemed marine licence. The examining authority and MMO should cooperate closely to ensure that nationally significant infrastructure projects are licensed in accordance with environmental legislation, including European directives.
- 3.7.6 The projects covered by this NPS may be subject to the Environmental Permitting (EP) regime, which also incorporates operational waste management requirements for certain activities. When a developer applies for an Environmental Permit, the relevant regulator (usually the Environment Agency, but sometimes the local authority) requires that the application demonstrates that processes are in place to meet all relevant EP requirements. In considering the impacts of the project as part of their examination, the examining authority may wish to consider with the regulator any management plans that would be included in an Environmental Permit application.
- 3.7.7 Applicants are advised to make early contact with relevant regulators, including the Environment Agency and the MMO, to discuss their requirements for environmental permits and other consents. 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. Wherever possible, applicants are encouraged to submit applications for Environmental Permits and other necessary consents at the same time as applying to the examining authority for development consent.
- 3.7.8 The examining authority and decision maker should be satisfied that development consent can be granted taking full account of environmental impacts. This will require close cooperation with the Environment Agency (EA) and/or the pollution control authority, and other relevant bodies, such as the MMO, Natural England, Drainage Boards, and water and sewerage undertakers, to ensure that in the case of potentially polluting developments:
- 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 site 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.

3.7.9 The decision maker should not refuse consent on the basis of regulated impacts unless it has good reason to believe that any relevant necessary operational pollution control permits or licences or other consents will not subsequently be granted.

3.8 Safety

3.8.1 Applicants should consult with the Health and Safety Executive (HSE) on matters relating to safety. HSE is responsible for enforcing a range of health and safety legislation applying to the construction, operation and decommissioning of waste water infrastructure. The decision maker will need to be satisfied that there is no reason to expect that the project will not comply.

3.8.2 Some waste water infrastructure may be subject to the Control of Major Accident Hazards (COMAH) Regulations 1999. These are enforced by HSE and the Environment Agency in England and Wales. The same principles apply here as for those set out in the previous section on Pollution Control and other Environmental Permitting Regimes.

3.9 Hazardous substances

3.9.1 All establishments wishing to hold stocks of certain hazardous substances, above a threshold quantity need hazardous substances consent. Applicants should consult the HSE at pre-application stage⁶⁹ if the project is likely to need hazardous substances consent. Where hazardous substances consent is applied for⁷⁰, the decision maker will consider whether to make an order directing that hazardous substances consent shall be deemed to be granted alongside making an order granting development consent. The decision maker should consult HSE about this.

3.9.2 HSE will assess the risks based on the development consent application. Where HSE does not advise against the decision maker granting the consent, it will also recommend whether the consent should be granted subject to any requirements.

3.9.3 HSE sets a consultation distance around every site with hazardous substances consent and notifies the relevant local planning authorities. Whenever a waste water development is proposed within any consultation distance, the applicant should consult the HSE for its advice on locating the particular development there.

3.10 Health

3.10.1 Waste water management has the potential to affect the health and well-being of the population. Adequate provision of waste water infrastructure is clearly beneficial to society and to our health as a whole. However, the possibility of some adverse effects cannot be discounted.

⁶⁹ Further information is available at the HSE's website: <http://www.hse.gov.uk/landuseplanning/nsip-applications.htm>

⁷⁰ Hazardous substances consent can also be applied for subsequent to a DCO application. Where they expect to apply for hazardous substances consent subsequently, the applicant should highlight this in their application to the IPC.

- 3.10.2 The direct impacts on health may include increased traffic, air pollution, dust, polluting water (toxicity and disease risks), hazardous waste and substances, noise, and increases in pests.
- 3.10.3 New waste water infrastructure may also have indirect health impacts, for example if it in some positive or negative way affects access to key public services, employment, transport or use of open space and water for recreation and physical activity.
- 3.10.4 These impacts may affect people simultaneously, so the applicant, the examining authority and the decision maker should consider the cumulative impact on health.
- 3.10.5 The applicant should identify any significant adverse health impacts in the ES, and identify measures to avoid, reduce or compensate for these impacts as appropriate⁷¹.

3.11 Common law nuisance and statutory nuisance

- 3.11.1 Section 158 of the Planning Act 2008 confers statutory authority for carrying out development consented to by, or doing anything else authorised by, a development consent order. Such authority is conferred only for the purpose of providing a defence in any civil or criminal proceedings for nuisance. This would include a defence for proceedings for nuisance under Part III of the Environmental Protection Act 1990⁷² (statutory nuisance) but only to the extent that the nuisance is the inevitable consequence of what has been authorised. The defence does not extinguish the local authority's duties under Part III of the EPA 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. The defence is not intended to extend to proceedings where the matter is "prejudicial to health" and not a nuisance.
- 3.11.2 It is very important that, at the application stage of an NSIP, possible sources of nuisance under section 79(1) of the 1990 Act and how they may be mitigated or limited are set out by the applicant and considered by the examining authority so that appropriate requirements can be included in any subsequent order granting development consent.
- 3.11.3 The decision maker should note that the defence of statutory authority is subject to any contrary provision made by the decision maker in any particular case in a development consent order (section 158(3)). Therefore, subject to paragraph 3.11.1, the decision maker can disapply the defence of statutory authority, in whole or in part, in any particular case, but in doing so should have regard to whether any particular nuisance is an inevitable consequence of the development.

3.12 Security considerations

- 3.12.1 National security considerations apply across all national infrastructure sectors. Overall responsibility for security of waste water infrastructure lies with Defra. Defra has lead responsibility for security of the waste water sector. It works closely with Government Agencies including the Centre for the Protection of National Infrastructure (CPNI) to reduce the vulnerability of the most 'critical' infrastructure assets in the sector to terrorism and other national security threats.

⁷¹ Cross reference to paragraph 3.2.1

⁷² <http://www.legislation.gov.uk/ukpga/1990/43/contents>

-
- 3.12.2 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. Where applications for development consent for infrastructure covered by this NPS relate to potentially 'critical' infrastructure, there may be national security considerations.
 - 3.12.3 Defra should be notified by the developer at pre-application stage about likely future applications for nationally significant infrastructure projects, so that any national security implications can be identified. Where national security implications have been identified, the applicant should consult with relevant security experts from CPNI and 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 CPNI and Defra are satisfied security issues have been adequately addressed in the project when the application is submitted, they will provide confirmation of this to the examining authority and they should then not need to give any further consideration to the details of the security measures in its examination.
 - 3.12.4 The applicant should only include sufficient information in the application as is necessary to enable the examining authority to examine the development consent issues and for the decision maker to make a properly informed decision on the application.
 - 3.12.5 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 examine a part or the whole of the application. In that case, the Secretary of State may appoint an examiner to consider evidence in closed session.

4. Generic impacts

4.1 Introduction

- 4.1.1 Some impacts will be relevant to any waste water infrastructure. Those impacts are considered here.
- 4.1.2 The list of impacts and the detailed information in this section covers the most significant issues and those which arise most frequently; it is not a comprehensive list of all possible effects. There may therefore 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 fact that an impact or other consideration is not covered in the NPS should not in itself be a reason for giving less weight to that impact or consideration and should not be taken to imply that the impact or other consideration may not be significant or a key impact or consideration in the circumstances of a particular application.

4.2 Water quality and resources

4.2.1 Introduction

Infrastructure development can have adverse effects on the water environment, including groundwater, inland surface water, transitional waters⁷³ and coastal waters. During the construction, operation and decommissioning phases, it can lead to increased demand for water, involve discharges to water and cause adverse ecological effects resulting from physical modifications to the water environment. There may also be an increased risk of spills and leaks of pollutants to the water environment. These effects could lead to adverse impacts on health or on protected species and habitats (see section 4.5 on biodiversity and geological conservation) and could, in particular, result in surface waters, groundwaters or protected areas⁷⁴ failing to meet environmental objectives established under the Water Framework Directive.

Applicant's assessment

- 4.2.2 Where the project is likely to have effects on the water environment, the applicant should undertake an assessment of the existing status of, and impacts of the proposed project on water quality, water resources and physical characteristics of the water environment as part of the Environmental Statement (ES) or equivalent.
- 4.2.3 The ES should describe:
- the existing quality of waters affected by the proposed project and the impacts of the proposed project on water quality, noting any relevant existing discharges, proposed new discharges and proposed changes to discharges;
 - existing water resources affected by the proposed project and the impacts of the proposed project on water resources, noting any relevant existing abstraction rates, proposed new abstraction rates and proposed changes to abstraction rates (including any impact on or use of mains supplies and reference to Catchment Abstraction Management Strategies);

⁷³ As defined in the Water Framework Directive (2000/60/EC), 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.

⁷⁴ 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.

- 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 Framework Directive and source protection zones (SPZs) around potable groundwater abstractions; and
- any cumulative effects.

4.2.4 The applicant should assess the impact of the proposal on existing abstractions that currently benefit from informal and indirect effluent re-use. The developer should also assess the potential water resources benefits that could arise from changes to effluent discharges as a result of the proposal.

4.2.5 If the Environment Agency has concerns about the proposal on the grounds of impacts on water quality/resources, the applicant should discuss these concerns with the Environment Agency and take all reasonable steps to agree ways in which the proposal might be amended, or additional information provided, which would satisfy the Environment Agency's concerns.

4.2.6 **Decision making**
Activities that discharge to the water environment are subject to pollution control. The considerations set out in section 3.7.2 on the interface between planning and pollution control therefore apply. These considerations will also apply in an analogous way to the abstraction licensing regime regulating activities that take water from the water environment, and to the control regimes relating to works to, and structures in, on, or under a controlled water.

4.2.7 The decision maker will generally need to give impacts on the water environment more weight where a project would have adverse effects on the achievement of the environmental objectives established under the Water Framework Directive.

4.2.8 The decision maker should be satisfied that a proposal has regard to the River Basin Management Plans and meets the requirements of the Water Framework Directive (including Article 4.7) and its daughter directives, including those on priority substances and groundwater. The specific objectives for particular river basins are set out in River Basin Management Plans. The decision maker should also consider the interactions of the proposed project with other plans such as Water Resources Management Plans and Shoreline/Estuary Management Plans.

4.2.9 The examining authority and the decision maker should consider proposals to mitigate adverse effects on the water environment put forward by the applicant and whether appropriate requirements should be attached to any development consent and/or development consent obligations entered into.

4.2.10 **Mitigation**
The decision maker should consider whether the mitigation measures put forward by the applicant which are needed for operational, construction and decommissioning phases (and which are over and above any which may form part of the project application) are acceptable. A construction management plan may help codify mitigation at that stage.

- 4.2.11 The risk of impacts on the water environment can be reduced through careful design to facilitate adherence to good pollution control practice. For example, designated areas for storage and unloading, with appropriate drainage facilities, should be clearly marked.
- 4.2.12 The impact on local water resources can be minimised through planning and design for the efficient use of water, including water recycling.

4.3 Odour

4.3.1 Introduction

Odours from waste water infrastructure can have a significant adverse impact on the quality of life of individuals and communities.

- 4.3.2 Waste water infrastructure generates odour emissions during all stages of conveyance, treatment, and storage. At waste water treatment works odours may arise from the inlet works; primary settlement tanks; during secondary treatment; and particularly from sludge treatment, transfer and storage.

- 4.3.3 The potential for adverse odour impact from waste water infrastructure will be dependent on a number of factors including the layout and distance of the most odorous sources to receptors, the selection of process technologies with high or low "odour potential", the selection and ongoing maintenance and control of appropriate and effective odour abatement equipment and, above all, continuing effective management.

- 4.3.4 Because of the potential effects of odour emissions and in view of the availability of the defence of statutory authority against nuisance claims described in section 5.11, it is important that the impacts of odour from waste water treatment is considered by the examining authority and the decision maker.

4.3.5 Applicant's assessment

All waste water treatment infrastructure projects considered by the examining authority will be subject to an appropriate odour impact assessment submitted as part of an Environmental Statement. The applicant should assess the potential for odour to have a detrimental impact on amenity.

- 4.3.6 The assessment provided by the applicant should include:

- a description of the component plant and processes of the development which will give rise to odour;
- nature of the odour emissions from the identified sources;
- consideration of the prevailing wind conditions;
- premises or locations that may be affected by the emissions;
- effects of the odour on identified premises or locations; and
- measures to be employed to prevent or mitigate odorous emissions.

- 4.3.7 These factors should be examined and assessed by means of a thorough and objective source-receptor pathway risk assessment of potential odour impacts.

- 4.3.8 Odour impacts should be assessed using appropriate odour impact standards that reflect whether the odour source is highly offensive, moderately offensive or less offensive.
- 4.3.9 The odour impact assessment should also include consideration of:
- ancillary activities associated with the project, for example, transport of sludge; and
 - the effects of abnormal operations (e.g. a major plant failure) and emergencies such as loss of sludge disposal route.
- 4.3.10 The applicant is advised to consult the local planning authority and, where appropriate, the Environment Agency about the scope and methodology of the assessment.
- 4.3.11 **Decision making**
The decision maker should satisfy itself that all reasonable steps have been taken and will be taken, to minimise any detrimental impact on amenity from odours on surrounding uses of land and development including housing, hospitals, schools, commercial premises, recreational facilities and open spaces.
- 4.3.12 Notwithstanding that some aspects of projects covered by this NPS will be subject to regulation under the Environmental Permitting (EP) regime, odour will not be regulated from all aspects of waste water infrastructure projects. For example, odour should be regulated from a waste exempt operation under the EP regime such as the treatment and storage of sludge produced on site during waste water treatment; whereas, odours generated during primary and secondary waste water treatment will not usually be regulated under the EP regime.
- 4.3.13 If the decision maker does grant development consent for a project, they 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 it cannot conclude that this is justified it should disapply in whole or in part the defence or remove the defence entirely through a provision in the development consent order.
- 4.3.14 It is important for the decision maker to consider the impact of odour emissions from waste water infrastructure not from the narrow perspective of nuisance but to consider the broader impact on amenity. Nuisance does not equate to a loss of amenity as significant loss of amenity will occur at lower levels of odour emission than would constitute a nuisance.
- 4.3.15 Where it believes it appropriate, the decision maker may consider that a requirement should be placed in a development consent order to secure certain mitigation measures proposed by the applicant or considered as part of the examination.
- 4.3.16 **Mitigation**
Mitigation measures may include one or more of the following:
- locating the main odour sources away from sensitive developments (such as housing, schools and hospitals, and other sensitive land uses including recreational facilities, commercial premises and open spaces);
 - selection of “low odour” process technologies;
 - containment or enclosure of the most odorous sources on the site;

- where processes are enclosed, ventilation should be provided and vented, at high enough extraction rates to control fugitive leaks, to suitable odour abatement equipment; and
- an Odour Management Plan (OMP) documenting the measures to be employed by the site operator to anticipate the formation of odours and to control their release from the site. This should include provision and obligations for suitable monitoring and testing regimes to ensure that controls are properly maintained throughout the life of the development.

4.4 Flood risk

4.4.1 Introduction

Flooding is a natural process that plays an important role in shaping the natural environment. However, flooding threatens life and causes substantial damage to property. The effects of weather events on the natural environment, life and property can be increased in severity both as a consequence of decisions about the location, design and nature of settlement and land use, and as a potential consequence of future climate change. Although flooding cannot be wholly prevented, its adverse impacts can be avoided or reduced through good planning and management.

4.4.2 Climate change over the next few decades is likely to mean milder wetter winters and hotter drier summers in the UK, while sea levels will continue to rise. Within the lifetime of nationally significant infrastructure projects, these factors will lead to increased flood risks in areas susceptible to flooding, and to an increased risk of flooding in some areas which are not currently thought of as being at risk. The applicant and the examining authority and decision maker should take account of the policy on climate change adaptation in section 3.6.

4.4.3 The aims of planning policy on development and flood risk are to ensure that flood risk from all sources of flooding is taken into account at all stages in the planning process to avoid inappropriate development in areas at risk of flooding, and to direct development away from areas at highest risk. Where new development is, exceptionally, necessary in such areas, policy aims to make it safe without increasing flood risk elsewhere and where possible, by reducing flood risk overall.

4.4.4 Applicant's assessment

Applications for projects of 1 hectare or greater in Flood Zone 1⁷⁵, and all proposals for projects located in Flood Zones 2 and 3 in England should be accompanied by a flood risk assessment (FRA). An FRA will also be required where a project less than 1 hectare may be subject to sources of flooding other than rivers and the sea (e.g. surface water), or where the Environment Agency, Internal Drainage Board or other body has indicated that there may be drainage problems. This should identify and assess the risks of all forms of flooding to and from the project and demonstrate how these flood risks will be managed, taking climate change into account.

75 The Flood Zones refer to the probability of flooding from rivers, the sea and tidal sources and ignore the presence of existing defences, because these can be breached, overtopped and may not be in existence for the lifetime of the project. The definition of flood zones can be found in PPS25 or its successor document <http://www.communities.gov.uk/documents/planningandbuilding/pdf/planningpolicystatement25.pdf>

- 4.4.5 The minimum requirements for FRAs are that they should:
- be proportionate to the risk and appropriate to the scale, nature and location of the project;
 - consider the risk of flooding arising from the project in addition to the risk of flooding to the project;
 - take the impacts of climate change into account clearly stating the development lifetime over which the assessment has been made;
 - be undertaken by competent people, as early as possible in the process of preparing the proposal;
 - consider both the potential adverse and beneficial effects of flood risk management infrastructure including raised defences, flow channels, flood storage areas and other artificial features together with the consequences of their failure;
 - consider the vulnerability of those using the site, including arrangements for safe access;
 - consider and quantify the different types of flooding (whether from natural and human sources and including joint and cumulative effects) and identify flood risk reduction measures, so that assessments are fit for the purpose of the decisions being made;
 - consider the effects of a range of flooding events including extreme events on people, property, the natural and historic environment and river and coastal processes;
 - include the assessment of the remaining (known as 'residual') risk after risk reduction measures have been taken into account and demonstrate that this is acceptable for the particular project;
 - consider how the ability of water to soak into the ground may change with development, along with how the proposed layout of the project may affect drainage systems;
 - consider if there is a need to be safe and remain operational during a worst case flood event over the development's lifetime; and
 - be supported by appropriate data and information, including historical information on previous events.
- 4.4.6 Further guidance can be found in the Practice Guide which accompanies Planning Policy Statement 25 (PPS25) or successor documents.
- 4.4.7 Applicants for projects which may be affected by, or may add to, flood risk should arrange pre-application discussions with the Environment Agency, and, where relevant, other bodies such as Internal Drainage Boards, sewerage undertakers, navigation authorities, highways authorities and reservoir owners and operators. Such discussions should identify the likelihood and possible extent and nature of the flood risk, to help scope the FRA, and identify the information that will be required by the decision maker to reach a decision on the application once it has been submitted and examined.
- 4.4.8 If the Environment Agency has concerns about the proposal on flood risk grounds, the applicant should discuss these concerns with the Environment Agency and take all reasonable steps to agree ways in which the proposal might be amended, or additional information provided, which would satisfy the Environment Agency's concerns.

4.4.9 Decision making

- 4.4.10 In determining an application for development consent, the decision maker should be satisfied that, where relevant:
- the application is supported by an appropriate FRA;
 - the Sequential Test has been applied as part of site selection;
 - the proposal is in line with any relevant national and local flood risk management strategy⁷⁶;
 - a sequential approach has been applied at the site level to minimise risk by directing the most vulnerable uses to areas of lowest flood risk;
 - priority has been given to the use of sustainable drainage systems (SuDS), and the requirements set out in the next paragraph on National Standards have been met; and
 - in flood risk areas, the project is appropriately flood resilient and resistant, including safe access and escape routes where required, and that any residual risk can be safely managed over the lifetime of the development.
- 4.4.11 For construction work which has drainage implications⁷⁷, approval for the project's drainage system will form part of the development consent issued by the decision maker. The decision maker will therefore need to be satisfied that the proposed drainage system complies with any National Standards published by Ministers under Paragraph 5(1) of Schedule 3 to the Flood and Water Management Act 2010⁷⁸. In addition, the development consent order, or any associated development consent obligations, will need to make provision for the adoption and maintenance of any SuDS, including any necessary access rights to property. The decision maker should be satisfied that the most appropriate body is being given the responsibility for maintaining any SuDS, 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, the relevant local authority, or another body such as the Internal Drainage Board.
- 4.4.12 If the Environment Agency continues to have concerns and objects to the grant of development consent on the grounds of flood risk, the decision maker can grant consent, but would need to be satisfied before deciding whether or not to do so that all reasonable steps have been taken by the applicant and the Environment Agency to try to resolve the concerns.
- 4.4.13 The decision maker should not consent development in Flood Zone 2 unless it is satisfied that the Sequential Test requirements have been met. In relation to waste water infrastructure, it should not consent development in Flood Zone 3a unless it is for water treatment works which do **not** need to remain operational during times of flood, or sewage treatment works (if adequate measures to control pollution and manage sewage during flooding events are in place). It should not consent development in Flood Zone 3b unless it is satisfied that the Sequential and Exception Test requirements have been met (see below). However, when seeking development consent on a site allocated in a development plan through the application of the Sequential Test, informed by a strategic flood risk assessment (SFRA), applicants need not apply the Sequential Test, but should apply the sequential approach to locating development within the site.

⁷⁶ As provided for in the Flood and Water Management Act 2010

⁷⁷ As defined in paragraph 7(2) of Schedule 3 to the Flood and Water Management Act 2010

⁷⁸ The National Standards set out requirements for the design, construction, operation and maintenance of SuDS and may include guidance to which the IPC should have regard.

4.4.14 **The Sequential Test**

Preference should be given to locating projects in Flood Zone 1. If there is no reasonably available site⁷⁹ in Flood Zone 1, then projects can be located in Flood Zone 2. If there is no reasonably available site in Flood Zones 1 or 2, then essential infrastructure (including nationally significant infrastructure) projects can be located in Flood Zone 3 subject to the Exception Test.

4.4.15 **The Exception Test**

If, following application of the Sequential Test, it is not possible, consistent with wider sustainability objectives, for the project to be located in zones of lower probability of flooding than Flood Zone 3, the Exception Test can be applied. The test provides a method of managing flood risk while still allowing necessary development to occur.

4.4.16 The Exception Test is only appropriate for use where the Sequential Test alone cannot deliver an acceptable site, taking into account the need for essential infrastructure to remain operational during floods. It may also be appropriate to use it where, as a result of the alternative site(s) at lower risk of flooding being subject to national designations such as landscape, heritage and nature conservation designations, for example, Areas of Outstanding Natural Beauty (AONBs), Sites of Special Scientific Interest (SSSIs) and World Heritage Sites (WHS), it would not be appropriate to require the development to be located on the alternative site(s).

4.4.17 All the three elements of the test will have to be passed for development to be consented. For the Exception Test to be passed:

- a) it must be demonstrated that the project provides wider sustainability benefits to the community that outweigh flood risk;
- b) the project should be on developable previously-developed land⁸⁰ or, if it is not on previously developed land, that there are no reasonable alternative sites on developable previously-developed land; and
- c) a FRA must demonstrate that the project will be safe, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

4.4.18 **Mitigation**

To satisfactorily manage flood risk, arrangements are required to manage surface water and the impact of the natural water cycle on people and property.

⁷⁹ Guidance on interpreting the term “reasonably available site” in this test can be found in the Practice Guide which accompanies PPS25 or its successor document. The applicant should justify with evidence to the IPC what area of search has been used in examining whether there are reasonably available sites. This will allow the IPC to consider whether the Sequential Test has been met as part of site selection.

⁸⁰ Previously developed land is that which is or was occupied by a permanent structure, including the curtilage of the developed land and any associated fixed surface infrastructure. This definition includes defence buildings, but excludes: (a) land that is or has been occupied by agricultural or forestry buildings (b) land that has been developed for minerals extraction or waste disposal by landfill purposes where provision for restoration has been made through development control procedures (c) land in built up areas such as private residential gardens, parks, recreation grounds and allotments, which, although it may feature paths, pavilions and other buildings, has not been previously developed (d) land that was previously developed but where the remains of the permanent surface structure or fixed surface structure have blended into the landscape in the process of time (to the extent that it can reasonably be considered as part of the natural surroundings).

- 4.4.19 In this document the term Sustainable Drainage Systems (SuDS) refers to the whole range of sustainable approaches to surface water drainage management including where appropriate:
- 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 run-off to infiltrate into permeable material below ground and provide storage if needed;
 - basins, ponds and tanks 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.
- 4.4.20 Site layout and surface water drainage systems should 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.
- 4.4.21 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, unless specific off-site arrangements are made and result in the same net effect. 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 site. There may be circumstances where it is appropriate for infiltration facilities or attenuation storage to be provided outside the project site, if necessary through the use of a planning obligation.
- 4.4.22 The sequential approach should be applied to the layout and design of the project. More vulnerable uses should be located on parts of the site at lower probability and residual risk of flooding. Applicants should seek opportunities to use open space for multiple purposes such as amenity, wildlife habitat and flood storage uses. Opportunities should be taken to lower flood risk by reducing the built footprint of previously-developed sites and using SuDS.
- 4.4.23 Essential waste water infrastructure which has to be located in flood risk areas should:
- where the development is for water treatment works, remain operational when floods occur;
 - where the development is for sewage treatment works, be designed to be resilient to the effects of flooding (eg adequate measures to control pollution and manage sewage during flooding events are in place).
- 4.4.24 The receipt of and response to warnings of floods is an essential element in the management of the residual risk of flooding. Flood warning and evacuation plans should be in place for those areas at an identified risk of flooding. The applicant should take advice from the emergency services when producing an evacuation plan for the project as part of the FRA. Any emergency planning documents, flood warning and evacuation procedures that are required should be identified in the FRA.

4.5 Biodiversity and geological conservation

4.5.1 Introduction

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. Geological conservation relates to the sites that are designated for their geology and/or their geomorphological⁸¹ importance.

4.5.2 The wide range of legislative provisions at the international and national level that can impact on planning decisions affecting biodiversity and geological conservation issues are set out in a Government Circular⁸². A separate guide sets out good practice in England in relation to planning for biodiversity and geological conservation⁸³.

4.5.3 Applicant's assessment

Where the development is subject to EIA the applicant should ensure that the ES clearly sets out any effects on internationally, nationally and locally designated sites of ecological or geological conservation importance, on protected species, and on habitats and other species identified as being of principal importance for the conservation of biodiversity. The applicant should provide environmental information proportionate to the infrastructure where EIA is not required. The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests.

4.5.4 Decision making

The Government's biodiversity strategy is set out in the 'England Biodiversity Strategy'⁸⁴. Its aim is to ensure:

- a halting, and if possible a reversal, of declines in priority habitats and species, with wild species and habitats as part of healthy, functioning ecosystems; and
- the general acceptance of biodiversity's essential role in enhancing the quality of life, with its conservation becoming a natural consideration in all relevant public, private and non-governmental decisions and policies.

4.5.5 This aim needs to be viewed in the context of the challenge of climate change: failure to address this challenge will result in significant impact on biodiversity. The policy set out in the following sections recognises the need to protect the most important biodiversity and geological conservation interests.

4.5.6 As a general principle, and subject to the specific policies below, development should aim to avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives⁸⁵ where significant harm cannot be avoided, then appropriate compensation measures should be sought.

81 A list of designated sites (including marine sites) is included in the Geological Conservation Review held by the Joint Nature Conservation Committee (JNCC), www.jncc.gov.uk/earthheritage

82 Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System (ODPM 06/2005, Defra 01/2005) available via TSO website www.tso.co.uk/bookshop. It should be noted that this document does not cover more recent legislative requirements, such as the Marine Strategy Framework Directive. Where this circular has been superseded, reference should be made to the latest successor document.

83 Planning for Biodiversity and Geological Conservation: A Guide to Good Practice (March 2006): <http://www.communities.gov.uk/publications/planningandbuilding/planningbiodiversity>

84 Biodiversity 2020: A strategy for England's wildlife and ecosystem services <http://www.defra.gov.uk/publications/files/pb13583-biodiversity-strategy-2020-110817.pdf>

85 As set out in Section 3.4 above.

- 4.5.7 In taking decisions, the decision maker should ensure that appropriate weight is attached to designated sites of international, national and local importance; protected species; habitats and other species of principal importance for the conservation of biodiversity; and to biodiversity and geological interests within the wider environment.
- 4.5.8 **International sites**
The most important sites for biodiversity are those identified through international conventions and European Directives. The Habitats Regulations provide statutory protection for these sites⁸⁶, but do not provide statutory protection for potential Special Protection Areas (pSPAs) before they have been agreed with the European Commission. For the purposes of considering development proposals affecting them, as a matter of policy, the Government wishes pSPAs to be considered in the same way as if they had already been designated. Listed Ramsar sites should, also as a matter of policy, receive the same protection.
- 4.5.9 **Sites of Special Scientific Interest**
Many 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. All National Nature Reserves are notified as SSSIs.
- 4.5.10 Where a proposed development on land within or outside a 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 only be made where the benefits (including need) of the development, at this site⁸⁷, 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 decision maker should ensure that the applicants proposals to mitigate the harmful⁸⁸ 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 development consent obligations should be used to ensure these proposals are delivered.
- 4.5.11 **Marine Conservation Zones**
Marine Conservation Zones (MCZs) (Marine Protected Areas in Scotland), 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 habitats or types of marine habitat or features of geological or geomorphological interest. The protected feature or features and the conservation objectives for the MCZ are stated in the designation order for the MCZ, which provides statutory protection for these areas. Measures to restrict damaging activities will be implemented by the MMO and other relevant organisations. As a public authority, the decision maker is bound by the duties in relation to MCZs imposed by sections 125 and 126 of the Marine and Coastal Access Act 2009.

⁸⁶ See the Government Circular referred to in the Introduction above for further information on the requirements of the Habitats Regulations.

⁸⁷ The words "the need for and benefits of the development, at this site" should be understood to mean the national need for the infrastructure and the benefits it will bring, as well as the justification why the project has to take place at the site proposed.

⁸⁸ In line with the principle above, the term "harm" should be understood to mean significant harm.

4.5.12 **Regional and local sites**

Sites of regional and local biodiversity and geological interest, which include Regionally Important Geological Sites, Local Nature Reserves and Local Sites, have a fundamental role to play in meeting overall national biodiversity targets; contributing to the quality of life and the well-being of the community; and in supporting research and education. The decision maker 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.

4.5.13 **Ancient woodland and veteran trees**

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 decision maker should not grant development consent for any development that would result in its loss or deterioration unless the benefits (including need) of the development, in that location⁸⁹, outweigh the loss of the woodland habitat. Aged or 'veteran' trees found outside ancient woodland are also particularly valuable for biodiversity and their loss should be avoided⁹⁰. Where such trees would be affected by development proposals, the applicant should set out proposals for their conservation or, where their loss is unavoidable, the reasons why.

4.5.14 **Biodiversity within developments**

Development proposals provide many opportunities for building-in beneficial biodiversity or geological features as part of good design. When considering applications, the decision maker should consider the extent to which the applicant has maximised such opportunities in and around developments. The decision maker may use requirements or planning agreements where appropriate in order to ensure that such beneficial features are delivered.

4.5.15 **Protection of other habitats and species**

Many individual wildlife species receive statutory protection under a range of legislative provisions⁹¹.

4.5.16 **Other species and habitats have been identified as being of principal importance for the conservation of biodiversity in England and Wales⁹² and thereby requiring conservation action.**

The decision maker 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 agreements may be used in order to deliver this protection. The decision maker should refuse consent where harm to the habitats or species and their habitats would result unless the benefits (including need) of the development clearly outweigh that harm.

⁸⁹ The words "the need for, and benefits of, the development, in that location" should be understood to mean the national need for the infrastructure and the benefits it will bring, as well as the justification why the project has to take place in the location proposed.

⁹⁰ This does not prevent the loss of such trees where the decision maker is satisfied that their loss is unavoidable.

⁹¹ 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 Regulation 2010. Some other animals are protected under their own legislation, for example Protection of Badgers Act 1992.

⁹² 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 at <http://www.ukbap-reporting.org.uk/news/details.asp?X=45>

4.5.17 **Mitigation**

The applicant should include appropriate mitigation measures as an integral part of the proposed development. 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, including as a consequence of transport access arrangements;
- habitats will, where practicable, be restored after construction works have finished; and
- opportunities will be taken to enhance existing habitats and, where practicable, to create new habitats of value within the site landscaping proposals.

4.5.18 The decision maker should consider what appropriate requirements should be attached to any consent and/or development consent obligations entered into in order to ensure that mitigation measures are delivered.

4.5.19 The decision maker will need to take account of what mitigation measures may have been agreed between the applicant and Natural England (or the Countryside Council for Wales) or the Marine Management Organisation (MMO), and whether Natural England (or the Countryside Council for Wales) or the MMO has granted or refused, or intends to grant or refuse, any relevant licences, including protected species mitigation licences.

4.6 Coastal change

4.6.1 **Introduction**

The Government's aim is to ensure that our coastal communities continue to prosper and adapt to coastal change. This means planning should:

- ensure that policies and decisions in coastal areas are based on an understanding of coastal change over time;
- prevent new development from being put at risk from coastal change by:
 - (i) avoiding inappropriate development in areas that are vulnerable to coastal change or any development that adds to the impacts of physical changes to the coast, and
 - (ii) directing development away from areas vulnerable to coastal change;
- ensure that the risk to development which is, exceptionally, necessary in coastal change areas because it requires a coastal location and provides substantial economic and social benefits to communities, is managed over its planned lifetime; and
- ensure that plans are in place to secure the long term sustainability of coastal areas.

4.6.2 For the purpose of this section, coastal change means physical change to the shoreline, i.e. erosion, coastal landslip, permanent inundation and coastal accretion. Where onshore infrastructure projects are proposed on the coast, coastal change is a key consideration. Some kinds of coastal change happen very gradually, others over shorter timescales. Some are the result of purely natural processes; others, including potentially significant modifications of the coastline or coastal environment resulting from climate change, are wholly or partly man-

made. This section is concerned both with the impacts which waste water infrastructure can have as a driver of coastal change and with how to ensure that developments are resilient to ongoing and potential future coastal change.

- 4.6.3 The construction of an onshore waste water infrastructure project on the coast may involve, for example, dredging, dredge spoil deposition, culvert construction, marine landing facility construction and flood and coastal protection measures, which could result in direct effects on the coastline, seabed and marine ecology and biodiversity.
- 4.6.4 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 and marine biodiversity.
- 4.6.5 This section only applies to onshore waste water infrastructure projects situated on the coast and estuaries. It also applies to rivers where the impact of the infrastructure may affect coastal or estuarine processes. Section 4.5 on biodiversity and geological conservation, section 4.4 on flood risk, section 4.10 on the historic environment, and section 3.6 on 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 section 4.8 on land use.
- 4.6.6 **Applicant's assessment**
Where relevant, applicants should undertake coastal geomorphological and sediment transfer modelling to predict and understand impacts and help identify relevant mitigating or compensatory measures.
- 4.6.7 The ES (see Section A) should include an assessment of the effects on the coast, distinguishing between the construction, operation and decommissioning project stages as appropriate. In particular, applicants should assess:
- the impact of the proposed project on coastal processes and geomorphology, including by taking account of potential impacts from climate change. If the development will have an impact on coastal processes the applicant must demonstrate how the impacts will be managed to minimise adverse impacts on other parts of the coast;
 - the implications of the proposed project on strategies for managing the coast as set out in Shoreline Management Plans, any relevant Marine Plans, River Basin Management Plans and capital programmes for maintaining flood and coastal defences;
 - the effects of the proposed project on marine ecology, biodiversity and protected sites;
 - the effects of the proposed project on maintaining coastal recreation sites and features; and
 - the vulnerability of the proposed development to coastal change, taking account of climate change, during the project's operational life and any decommissioning period.
- 4.6.8 For any projects involving dredging or disposal into the sea, the applicant should consult the Marine Management Organisation (MMO) at an early stage. The applicant should also consult the MMO on projects which could impact on coastal change, since the MMO 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.

- 4.6.9 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 (SACs), coastal SACs and candidate coastal SACs, coastal Special Protection Areas (SPAs) and potential coastal SPAs, Ramsar sites, Sites of Community Importance (SCIs) and potential SCIs and Sites of Special Scientific Interest.
- 4.6.10 **Decision making**
The decision maker should be satisfied that the proposed development will be resilient to coastal erosion and deposition, taking account of climate change, during the project's operational life and any decommissioning period.
- 4.6.11 The decision maker should not normally consent new development in areas of dynamic shorelines where the proposal could inhibit sediment flow or have an adverse impact on coastal processes at other locations. Impacts on coastal processes must be managed to minimise adverse impacts on other parts of the coast. Where such proposals are brought forward, consent should only be granted where the decision maker is satisfied that the benefits (including need) of the development outweigh the adverse impacts.
- 4.6.12 The decision maker should ensure that applicants have restoration plans for areas of foreshore disturbed by direct works and will undertake pre- and post-construction coastal monitoring arrangements with defined triggers for intervention and restoration.
- 4.6.13 In addition to this NPS the decision maker must have regard to the appropriate marine policy documents, as provided for in the Marine and Coastal Access Act 2009. The decision maker may also have regard to any relevant Shoreline Management Plans. 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 Section 3.6 of this NPS, taking account of the potential effects of climate change on these risks as discussed above.
- 4.6.14 **Mitigation**
Applicants should propose appropriate mitigation measures to address adverse physical changes to the coast in consultation with the MMO, the Environment Agency, Local Planning Authorities, other statutory consultees, Coastal Partnerships and other coastal groups, as it considers appropriate. The decision maker should consider whether the mitigation requirements put forward by an applicant are acceptable and whether requirements should be attached to any grant of development consent in order to secure their delivery.

4.7 Landscape and visual impacts

4.7.1 Introduction

The landscape and visual effects of waste water projects will vary on a case by case basis according to the type of development, its location and the landscape setting of the proposed development. In this context, references to landscape should be taken as covering seascape and townscape, where appropriate.

4.7.2 **Applicant's assessment**

The applicant should carry out a landscape and visual assessment and report it in the ES. A number of guides have been produced to assist in addressing landscape issues⁹³. 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 project. The applicant's assessment should also take account of any relevant policies based on these assessments in local development documents in England and local development plans in Wales.

4.7.3 The applicant's assessment should include the effects during construction of the project and the effects of the completed development and its operation on landscape components and landscape character.

4.7.4 The assessment should include the visibility and conspicuousness of the project during construction and of the presence and operation of the project and potential impacts on views and visual amenity. This should include any light pollution effects including on local amenity and nature conservation.

4.7.5 **Decision making**

Landscape impact

4.7.6 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 project on landscape. Projects need 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 minimise harm to the landscape, providing reasonable mitigation where possible and appropriate.

Development proposed within nationally designated landscapes

4.7.7 National Parks, the Broads and Areas of Outstanding Natural Beauty (AONB), have been confirmed by the Government as having the highest status of protection in relation to landscape and scenic beauty. Each of these designated areas has specific statutory purposes which help ensure their continued protection and which the decision maker has a statutory duty to have regard to in its decisions⁹⁴. The conservation of the natural beauty of the landscape and countryside should be given substantial weight by the decision maker in deciding on applications for development consent in these areas.

93 Landscape Institute and Institute of Environmental Management and Assessment (2002, 2nd edition): *Guidelines for Landscape and Visual Impact Assessment*; and *Land Use Consultants (2002): Landscape Character Assessment – Guidance for England and Scotland*.

94 For an explanation of the statutory purposes and of the duties which will apply to the decision maker, see "Duties on relevant authorities to have regard to the purposes of National Parks, AONBs and the Norfolk and Suffolk Broads" at <http://archive.defra.gov.uk/rural/documents/protected/npaonb-duties-guide.pdf>

- 4.7.8 Nevertheless, the decision maker may grant development consent in these areas in exceptional circumstances. The development should be demonstrated to be in the public interest and consideration of such applications should include an assessment of:
- (i) the need for the development, including in terms of any national considerations⁹⁵, and the impact of consenting, or not consenting it, upon the local economy;
 - (ii) the cost of, and scope for, developing elsewhere outside the designated area, or meeting the need for it in some other way⁹⁶; and
 - (iii) Any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.
- 4.7.9 Where consent is given in these areas, the decision maker should make sure that the applicant has ensured that the project will be carried out to high environmental standards, and, where necessary should consider the application of appropriate requirements to ensure these standards are delivered.

Developments outside nationally designated areas which might affect them

- 4.7.10 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 aim should be to avoid compromising the purposes of designation and such projects should be designed sensitively given the various siting, operational, and other relevant constraints. This should include projects in England which may have impacts on National Scenic Areas in Scotland.
- 4.7.11 The fact that a proposed project will be visible from within a designated area should not in itself be a reason for refusing consent.

Developments in other areas

- 4.7.12 Outside nationally designated areas, there are local landscapes that may be highly valued locally and protected by local designation. Where a local development document in England or a local development plan in Wales has policies based on landscape character assessment, these should be paid particular attention. However, local landscape designations should not be used in themselves as reasons to refuse consent, as this may unduly restrict acceptable development.
- 4.7.13 The decision maker should consider whether the project has been designed carefully, taking account of environmental effects on the landscape and siting, operational and other relevant constraints, to minimise harm to the landscape, including by reasonable mitigation.

Visual impact

- 4.7.14 The decision maker will have to 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.

⁹⁵ National considerations should be understood to include the national need for the infrastructure as set out in section 2 and the contribution of the infrastructure to the national economy.

⁹⁶ See section 2 for the general factors that should frame the decision maker's consideration of alternative sites or routes.

- 4.7.15 It may be helpful for applicants to draw attention, in the supporting evidence to their applications, to any examples of existing permitted infrastructure they are aware of with a similar magnitude of impact on sensitive receptors. This may assist the decision maker in judging the weight it should give to the assessed visual impacts of the proposed development.

Mitigation

- 4.7.16 Reducing the scale of a project can help to mitigate the visual and landscape effects of a proposed project. However, reducing the scale or otherwise amending the design of development may result in a significant operational constraint and reduction in function. There may, however, be exceptional circumstances, where mitigation could have a very significant benefit and warrant a small reduction in function. In these circumstances, the decision maker may decide that the benefits of the mitigation to reduce the landscape effects outweigh the marginal loss of function.
- 4.7.17 Within a defined site, adverse landscape and visual effects may be minimised through appropriate siting of infrastructure within that site, design including colours and materials, and landscaping schemes, depending on the size and type of proposed project. Materials and designs of buildings should always be given careful consideration.
- 4.6.18 Depending on the topography of the surrounding terrain and areas of population it may be appropriate to undertake landscaping off site. For example, filling in gaps in existing tree and hedge lines would mitigate the impact when viewed from a more distant vista.

4.8 Land use including open space, green infrastructure and green belt

4.8.1 Introduction

A waste water infrastructure project will have direct effects on the existing use of the proposed site and may have indirect effects on the use, or planned use, of land in the vicinity for other types of development. Given the likely locations of waste water infrastructure projects there may be particular effects on open space⁹⁷ including green infrastructure⁹⁸.

- 4.8.2 The Government's policy is to ensure there is adequate provision of high quality open space (including green infrastructure) and sports and recreation facilities to meet the needs of local communities. Open spaces, sports and recreational facilities all help to underpin people's quality of life and have a vital role to play in promoting healthy living. Green infrastructure, in particular, will also play an increasingly important role in mitigating and adapting to the impacts of climate change.

97 Open space is defined in the Town and Country Planning Act 1990 (<http://www.legislation.gov.uk/ukpga/1990/8/contents>) 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 also act as a visual amenity.

98 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.

- 4.8.3 The re-use of previously developed land for new development can make a major contribution to sustainable development by reducing the amount of countryside and undeveloped greenfield land that needs to be used. However, this may not be possible for some forms of infrastructure.
- 4.8.4 Green Belts, defined in a local planning authority's development plan⁹⁹, are situated around certain cities and large built-up areas. The fundamental aim of Green Belt policy is to prevent urban sprawl by keeping land permanently open; the most important attribute of Green Belts is their openness. For further information on the purposes of Green Belt policy see Planning Policy Guidance 2 (PPG2) or any successor to it¹⁰⁰.
- 4.8.5 **Applicant's assessment**
The ES should identify existing and proposed¹⁰¹ land-uses near the project, 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. Applicants should also assess any effects of precluding a new development or use proposed in the development plan.
- 4.8.6 Applicants will need to consult the local community on their proposals to build on open space, sports or recreational buildings and land. Taking account of the consultations, applicants should consider providing new or additional open space, including green infrastructure, sport or recreation facilities, to substitute for any losses as a result of their proposal. Applicants should use any up-to-date local authority assessment or, if there is none, provide an independent assessment to show whether the existing open space, sports and recreational buildings and land is surplus to requirements.
- 4.8.7 During any pre-application discussions with the applicant, the local planning authority (LPA) 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 surplus to requirements.
- 4.8.8 Applicants should seek to minimise impacts on the best and most versatile agricultural land (defined as land in grades 1, 2 and 3a of the Agricultural Land Classification), and preferably use land in areas of poorer quality (grades 3b, 4 and 5) except where this would be inconsistent with other sustainability considerations. Applicants should also identify any effects and seek to minimise impacts on soil quality taking into account any mitigation measures proposed. For developments on previously developed land, applicants should ensure that they have considered the risk posed by land contamination.
- 4.8.9 Applicants should safeguard any mineral resources on the proposed site as far as possible, taking into account the long-term potential of the land use after any future decommissioning has taken place.
- 4.8.10 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.

99 Or else so designated under The Green Belt (London and Home Counties) Act 1938.

100 See Planning Policy Guidance 2: Green belts, or any successor to it. <http://www.communities.gov.uk/documents/planningandbuilding/pdf/155499.pdf>

101 For example, where a planning application has been submitted

Applicants should therefore determine whether their proposal, or any part of it, is within an established Green Belt and, if it is, whether their proposal may be inappropriate development within the meaning of Green Belt policy (as set out below).

- 4.8.11 However, infilling or redevelopment of major developed sites in the Green Belt, if identified as such by the local planning authority, may be suitable for some forms of nationally significant infrastructure. It may help to secure jobs and prosperity without further prejudicing the Green Belt or offer the opportunity for environmental improvement. Applicants should refer to relevant criteria¹⁰² on such developments in Green Belts.

4.8.12 **Decision making**

Where the project conflicts with a proposal in a development plan, the decision maker should take account of the stage which the development plan document in England or local development plan in Wales has reached in deciding what weight to give to the plan for the purposes of determining the planning significance of what is replaced, prevented or precluded. The closer the development plan document in England or local development plan in Wales is to being adopted by the LPA, the greater the weight which can be attached to the impact of the proposal on the plan.

- 4.8.13 The decision maker should not grant consent for development on existing open space, sports and recreational buildings and land unless an assessment has been undertaken either by the local authority or independently, which has clearly shown the open space or the buildings and land to be surplus to requirements or the decision maker 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. The loss of playing fields should only be allowed where applicants can demonstrate that they will be replaced with facilities of equivalent or better quantity or quality in a suitable location.
- 4.8.14 In reaching a judgment, the decision maker should consider whether any adverse impact is temporary, such as during construction, and/or whether any adverse impact on the landscape will be capable of being reversed in a timescale that the decision maker considers reasonable.
- 4.8.15 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.
- 4.8.16 The decision maker should ensure that justification is provided where applicants site their scheme on the best and most versatile agricultural land. It should give little weight to the loss of poorer quality agricultural land (in grades 3b, 4 and 5), except in areas (such as uplands) where particular agricultural practices may themselves contribute to the quality and character of the environment or the local economy.

¹⁰² See Annex C to Planning Policy Guidance 2: Green belts or any successor to it.

- 4.8.17 In considering the impact on maintaining coastal recreation sites and features the decision maker should expect applicants to have taken advantage of opportunities to maintain and enhance access to the coast. In doing so the decision maker should consider the implications for development of the creation of a continuous signed and managed route around the coast, as provided for in the Marine and Coastal Access Act 2009.
- 4.8.18 When located in the Green Belt, waste water infrastructure projects may comprise 'inappropriate development'¹⁰³. Inappropriate development is by definition harmful to the Green Belt and there is a presumption against it. The decision maker will need to assess whether there are very special circumstances to justify inappropriate development. Very special circumstances will not exist unless the harm by reason of inappropriateness, and any other harm, is clearly outweighed by other considerations. In view of the presumption against inappropriate development, the decision maker will attach substantial weight to the harm to the Green Belt when considering any application for such development.
- 4.8.19 **Mitigation**
Applicants 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.
- 4.8.20 Where green infrastructure is affected, the decision maker should consider whether the applicants proposals to maintain the connectivity of the green infrastructure network are acceptable. The decision maker should also consider whether requirements should be attached to any development consent to ensure these proposals, any necessary works, and any proposals for mitigation of adverse impacts (and where appropriate, any proposals to improve the network and other areas of open space, including appropriate access to new coastal access routes) are delivered.
- 4.8.21 The decision maker should also consider whether mitigation of any adverse effects on green infrastructure or open space is adequately provided for by means of any development consent obligations, for example, to exchange land and provide for appropriate management and maintenance agreements¹⁰⁴. 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 2008 apply, replacement land provided under those sections will need to conform to the requirements of those sections.
- 4.8.22 Where a proposed development has an impact upon a Mineral Safeguarding Area (MSA), the decision maker should ensure that the applicant has put forward appropriate mitigation measures to safeguard mineral resources.
- 4.8.23 Where a project 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 or for parking and storage in employment areas.

¹⁰³ Defined in section 3 of PPG2: Green Belts

¹⁰⁴ The land provided in exchange for open space, common land and certain other land must comply with the requirements of s131 or s132 of the Planning Act 2008, where applicable.

- 4.8.24 Rights of way, National Trails, and other rights of access to land (e.g. open access land) are important recreational facilities e.g. for walkers, cyclists and horse riders. The decision maker should expect applicants to take appropriate mitigation measures to address adverse effects on coastal access, National Trails and other rights of way. The decision maker should consider whether the mitigation measures put forward by an applicant are acceptable and whether requirements in respect of these measures might be attached to any grant of development consent.

4.9 Noise and vibration

4.9.1 Introduction

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 places and areas with high landscape quality. The Government's policy is set out in the Noise Policy Statement for England¹⁰⁵. 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 to "noise" below apply equally to assessment of impacts of vibration.

- 4.9.2 Noise resulting from a proposed development can also have adverse impacts on wildlife and biodiversity. Noise effects of the proposed development on ecological receptors should be assessed in accordance with the Biodiversity and Geological Conservation section of this NPS.

- 4.9.3 Factors which will determine the likely noise impact include:

- the inherent operational noise from the proposed development, 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 quiet 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.

4.9.4 Applicant's assessment

Where noise impacts are likely to arise from the proposed development, the applicant should include the following in the noise assessment:

- 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;

105 As set out in the Noise Policy Statement for England (<http://archive.defra.gov.uk/environment/quality/noise/policy/documents/noise-policy.pdf>)

- a prediction of how the noise environment will change with the proposed development:
 - in the shorter term such as during the construction period;
 - in the longer term during the operating life of the infrastructure; and
 - at particular times of the day, evening and night as appropriate;
- an assessment of the effect of predicted changes in the noise environment on any noise sensitive premises and noise sensitive areas; and
- measures to be employed in mitigating the effects of noise.

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

- 4.9.5 The noise impact of ancillary activities associated with the development, such as increased road and rail traffic movements, or other forms of transportation, should be considered.
- 4.9.6 Operational noise, with respect to human receptors, should be assessed using the principles of the relevant British Standards and other guidance. For the prediction, assessment and management of construction noise, reference should be made to any relevant British Standards and other guidance which also give examples of mitigation strategies.
- 4.9.7 The applicant should consult the Environment Agency and Natural England as necessary and 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 seasonality of potentially affected species in nearby sites may also need to be taken into account.
- 4.9.8 **Decision making**
The project should demonstrate good design through selection of the quietest cost effective plant available; containment of noise within buildings wherever possible; optimisation of plant layout to minimise noise emissions; and, where possible, the use of landscaping, bunds or noise barriers to reduce noise transmission.
- 4.9.9 The decision maker should not grant development consent unless it is satisfied that the proposals will meet the following aims:
- avoid significant adverse impacts on health and quality of life from noise;
 - mitigate and minimise adverse impacts on health and quality of life from noise; and
 - where possible, contribute to improvements to health and quality of life through the effective management and control of noise.
- 4.9.10 When preparing the development consent order, the decision maker should consider whether requirements are needed which specify the mitigation measures or the measurable requirements put forward by the applicant to ensure that the noise levels from the project do not exceed those described in the assessment or any other estimates on which the decision was based.

4.9.11 Mitigation

The decision maker should consider whether the applicants proposals for mitigation measures needed both for operational and construction noise (over and above any which may form part of the project application) are acceptable. The decision maker may wish to impose requirements to ensure delivery of these mitigation measures.

4.9.12 Mitigation measures may include one or more of the following:

- **engineering:** reduction of noise at point of generation and containment of noise generated;
- **lay-out:** adequate distance between source and noise-sensitive receptors; incorporating good design to minimise noise transmission through screening by natural barriers, or other buildings
- **administrative:** restricting activities allowed on the site; specifying acceptable noise limits; and taking into account seasonality of wildlife in nearby designated sites.

4.9.13 In certain situations, and only when all other forms of noise mitigation have been exhausted, the applicant may consider it appropriate to provide noise mitigation through improved sound insulation to dwellings, or, in extreme cases, through compulsory purchase of affected properties in order to gain consent for what might otherwise be unacceptable development.

4.10 Historic environment

4.10.1 Introduction

The construction, operation and decommissioning of waste water infrastructure has the potential to result in adverse impacts on the historic environment.

4.10.2 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. Those elements of the historic environment that hold value to this and future generations because of their historic, archaeological, architectural or artistic interest are called 'heritage assets'. A heritage asset may be any building, monument, site, place, area or landscape, or any combination of these. The sum of the heritage interests that a heritage asset holds is referred to as its significance¹⁰⁶.

4.10.3 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 Sites¹⁰⁷; Protected Military Remains; Registered Parks and Gardens; Registered Battlefields and Conservation Areas¹⁰⁸.

¹⁰⁶ Save for the term "Designated Heritage Asset", these and other terms used in this section are defined in Annex 2 to PPS5, or any successor to it. The PPS5 Practice Guide contains guidance on their interpretation. <http://www.communities.gov.uk/documents/planningandbuilding/pdf/1514132.pdf>

¹⁰⁷ The issuing of licenses 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 consents issued by the IPC. The issuing of licences for Protected Military Remains is the responsibility of the Secretary of State for Defence.

¹⁰⁸ Additionally, part of the purpose of designating National Parks is to protect their cultural heritage and the conservation of cultural heritage is an important consideration in all Areas of Outstanding Natural Beauty.

- 4.10.4 There are heritage assets with archaeological interest that are not currently designated as scheduled monuments, but which are demonstrably of equivalent significance. These include:
- those that have yet to be formally assessed for designation;
 - those that have been assessed as being designatable but which the Secretary of State has decided not to designate; and
 - those that are incapable of being designated by virtue of being outside the scope of the Ancient Monuments and Archaeological Areas Act 1979.
- 4.10.5 The absence of designation for such heritage assets does not indicate lower significance. If the evidence before the decision maker indicates to it that a non-designated heritage asset of the type described may be affected by the proposed development then the heritage asset should be considered subject to the same policy considerations as those that apply to designated heritage assets.
- 4.10.6 The decision maker should also consider the impacts on other non-designated heritage assets, as identified either through the development plan making process (including local listing) or through the NSIP decision making process on the basis of clear evidence that the assets have a significance that merits consideration in its decisions, even though those assets are of lesser value than designated heritage assets.
- 4.10.7 **Applicant's assessment**
As part of the ES the applicant should provide 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 importance of the heritage assets and no more than is sufficient to understand the potential impact of the proposal on the significance of the heritage asset. As a minimum the applicant should have consulted the relevant Historic Environment Record¹⁰⁹ and assessed the heritage assets themselves using expertise where necessary according to the proposed development's impact.
- 4.10.8 Where a development site includes, or the available evidence suggests it has the potential to include, heritage assets with an archaeological interest, the applicant should carry out appropriate desk-based assessment and, where such desk based research is insufficient to properly assess the interest, a field evaluation. Where proposed development will affect the setting of a heritage asset, representative visualisations may be necessary to explain the impact.
- 4.10.9 The applicant should ensure that the extent of the impact of the proposed development on the significance of any heritage assets affected can be adequately understood from the application and supporting documents.

¹⁰⁹ Historic Environment Records (HERs) are information services maintained by local authorities and National Park Authorities with a view to providing access to resources relating to the historic environment of an area for public benefit and use. Details of HERs in England are available from the Heritage Gateway website at <http://www.heritagegateway.org.uk/Gateway/CHR/>. For Wales, details of HERs can be obtained through the Historic Wales Portal at <http://jura.rcahms.gov.uk/nms/start.jsp>. English Heritage and Cadw hold additional information about heritage assets in English or Welsh waters. This should also be consulted where relevant.

4.10.10 **Decision making**

In determining applications, the decision maker should 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:

- evidence provided with the application;
- any designation records;
- the Historic Environment Record, and similar sources of information¹¹⁰;
- the heritage assets themselves;
- the outcome of consultations with interested parties; and
- where appropriate and when the need to understand the significance of the heritage asset demands it, expert advice.

4.10.11 In considering the impact of a proposed development on any heritage assets, the decision maker should take into account the particular nature of the significance of the heritage assets, and the value that they hold for this and future generations. This understanding should be used to avoid or minimise conflict between conservation of the significance and proposals for development.

4.10.12 The decision maker should take into account the desirability of sustaining and, where appropriate, enhancing the significance of heritage assets, the contribution of their settings and the positive contribution they can make to sustainable communities and economic vitality¹¹¹. The decision maker should take into account the desirability of new development making a positive contribution to the character and local distinctiveness of the historic environment. The consideration of design should include scale, height, massing, alignment, materials and use. The decision maker should have regard to any relevant local authority development plans or local impact report on the proposed development in respect of the factors set out in the footnote 110 below.

4.10.13 There should be a presumption in favour of the conservation of designated heritage assets and the more significant the designated heritage asset, the greater the presumption in favour of its conservation should be. 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. Loss affecting any designated heritage asset should require clear and convincing justification. Substantial harm to or loss of a grade II listed building, park or garden should be exceptional. Substantial harm to or loss of designated assets of the highest significance, including Scheduled Monuments, registered battlefields, grade I and II* listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.

¹¹⁰ Guidance on the available sources of information can be found in PPS5 Planning for the Historic Environment: Historic Environment Planning Practice Guide, March 2010, or any successor document.

¹¹¹ This can be by virtue of:

- heritage assets having an influence on the character of the environment and an area's sense of place;
- heritage assets having a potential to be a catalyst for regeneration in an area, particularly through leisure, tourism and economic development;
- heritage assets being a stimulus to inspire new development of imaginative and high quality design;
- the re-use of existing fabric, minimising waste; and
- the mixed and flexible patterns of land use in historic areas that are likely to be, and remain, sustainable.

- 4.10.14 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 will be needed for any loss. Where the application will lead to substantial harm to or total loss of significance of a designated heritage asset the decision maker should refuse consent unless it can be demonstrated that the substantial harm to or loss of significance is necessary in order to deliver substantial public benefits that outweigh that loss or harm.
- 4.10.15 Not all elements of a World Heritage Site or Conservation Area will necessarily contribute to its significance. The policies in paragraphs 4.10.10 – 4.10.14 apply to those elements that do contribute to the significance. The decision maker should take into account the relative significance of the element affected and its contribution to the significance of the World Heritage Site or Conservation Area as a whole.
- 4.10.16 Where the decision maker considers that the loss of significance of any heritage asset has been justified by the applicant based on the merits of the new development, they should consider imposing a requirement on the consent, or requiring the applicant to enter into an obligation, that will prevent the loss occurring until it is reasonably certain that the relevant part of the development is to proceed.
- 4.10.17 When considering applications for development affecting the setting of a designated heritage asset, the decision maker should treat favourably applications that preserve those elements of the setting that make a positive contribution to, or better reveal the significance of, the asset. When considering applications that do not do this, the decision maker should weigh any negative effects against the wider benefits of the application. The greater the negative impact on the significance of the designated heritage asset, the greater the benefits that will be needed to justify approval.
- 4.10.18 **Mitigation and Recording**
Applicants should aim to design the proposal to avoid unnecessary damage but also ensure that any unavoidable losses are recorded.
- 4.10.19 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 consent should be given.
- 4.10.20 Where the loss of the whole or a material part of a heritage asset's significance is justified, the applicant should record and advance understanding of the significance of the heritage asset before it is lost. The decision maker may add requirements to the development consent order to ensure that this is undertaken in a timely manner in accordance with a written scheme of investigation that meets the requirements of this Section and has been agreed in writing with the relevant Local Authority and that the completion of the exercise is properly secured¹¹². The extent of the requirement should be proportionate to the nature and level of the asset's significance. Applicants should be required to publish this evidence and deposit copies of the reports with the relevant Historic Environment Record. They should also be required to deposit the archive generated in a local museum or other public depository willing to receive it.

¹¹² Guidance on the contents of a written scheme of investigation is set out in the Practice Guide to PPS5.

- 4.10.21 Where the decision maker considers there to be a high probability that a development site may include as yet undiscovered heritage assets with archaeological interest, they should consider requirements to ensure that appropriate procedures are in place for the identification and treatment of such assets discovered during construction.

4.11 Air quality and emissions

4.11.1 Introduction

Infrastructure development can have adverse effects on air quality. The construction, operation and decommissioning phases can involve emissions to air which could lead to adverse impacts on health, on protected species and habitats, or on the wider countryside. Impacts on protected species and habitats are covered in section 4.5.

4.11.2 Applicant's assessment

Where the project is likely to have adverse effects on air quality the applicant should undertake an assessment of the impacts of the proposed project as part of the Environmental Statement (ES).

4.11.3 The ES should describe:

- any significant air emissions, their mitigation and any residual effects distinguishing between the project stages, and taking account of any significant emissions from any road traffic generated by the project;
- the predicted absolute emission levels from the proposed project, after mitigation methods have been applied; and
- existing air quality levels and the relative change in air quality from existing levels.

4.11.4 Decision making

The decision maker should generally give air quality considerations substantial weight where a project would lead to a deterioration in air quality in an area, or leads to a new area, where the air quality breaches any national air quality limits. However, air quality considerations will also be important where substantial changes in air quality are expected, even if this does not lead to any breaches of any national air quality limits.

- 4.11.5 In all cases the decision maker must take account of relevant statutory air quality limits. Where a project is likely to lead to a breach of such limits applicants should work with the relevant authorities to secure appropriate mitigation measures to allow the proposal to proceed. In the event that a project will lead to non-compliance with a statutory limit the decision maker should refuse consent.

4.11.6 Mitigation

The decision maker should consider whether mitigation measures put forward by the applicant or considered at examination of a project, and which are needed both for operational and construction emissions, are acceptable. A construction management plan may help codify mitigation at this stage.

- 4.11.7 In doing so the decision maker may refer to the conditions and advice in the Air Quality Strategy or any successor to it.

- 4.11.8 The mitigations identified in the section on transport impacts will help mitigate the effects of air emissions from transport.

4.12 Dust, artificial light, smoke, steam and insect infestation

4.12.1 Introduction

During the construction, operation and decommissioning of waste water infrastructure there is potential for the release of a range of emissions such as dust, steam, smoke, artificial light and for infestation of insects. 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. Note that pollution impacts from some of these emissions (e.g. dust, smoke) are covered in the section on air emissions.

- 4.12.2 Because of the potential effects of these emissions and infestation, and in view of the availability of the defence of statutory authority against nuisance claims described in Section 3.11, it is important that the potential for these impacts is considered by the examining authority and the decision maker.

- 4.12.3 For nationally significant infrastructure projects of the type covered by this NPS, some impact on amenity for local communities is likely to be unavoidable. The aim should be to keep impacts to a minimum, and at a level that is acceptable.

4.12.4 Applicant's assessment

The applicant should assess the potential for insect infestation and emissions of dust, steam, smoke and artificial light to have a detrimental impact on amenity, as part of the Environmental Statement.

- 4.12.5 In particular, the assessment provided by the applicant should describe:

- the type, quantity and timing of emissions;
- aspects of the development which may give rise to emissions;
- 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.

- 4.12.6 The applicant is advised to consult the relevant local planning authority and, where appropriate, the Environment Agency (EA) about the scope and methodology of the assessment.

4.12.7 Decision making

The decision maker should satisfy itself that all reasonable steps have been taken, and will be taken, to minimise any detrimental impact on amenity from insect infestation and emissions of dust, steam, smoke, and artificial light.

- 4.12.8 If the decision maker does grant development consent for a project, it 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 it cannot conclude that this is justified, it should disapply in whole or in part the defence through provision in the development consent order.

4.12.9 Where it believes it appropriate, the decision maker may consider attaching requirements to the development consent, in order to secure mitigation measures proposed by an applicant, in particular for the management and mitigation concerning insect infestation and emissions of dust, steam, smoke and artificial light from the development.

4.12.10 **Mitigation**

Mitigation measures may include one or more of the following:

- **engineering:** prevention of a specific emission at the point of generation; control, containment and abatement of emissions if generated;
- **lay-out:** adequate distance between source and sensitive receptors; reduced transport or handling of materials;
- **administrative:** limiting operating times; restricting activities allowed on the site; implementing management plans.

Applicants should consider the need for such a scheme to reduce any loss to amenity which might arise during the construction, operation and decommissioning of the development. A construction management plan may help codify mitigation at that stage.

4.13 Traffic and transport impacts

4.13.1 **Introduction**

The transport of materials, goods and personnel to and from a development during all project phases can have a variety of impacts on the surrounding transport infrastructure and potentially on connecting transport networks, e.g. through increased congestion. Impacts may include economic, social and environmental effects. Environmental impacts may result particularly from increases in noise and emissions from road transport. Disturbance caused by traffic and abnormal loads generated during the construction phase will depend on the scale and type of the proposal.

4.13.2 The consideration and mitigation of transport impacts is an essential part of Government's wider policy objectives for sustainable development as set out in section 2.2 of this NPS.

4.13.3 **Applicant's assessment**

If a project is likely to have significant transport implications, the applicant's ES should include a transport assessment, using the NATA/WebTAG methodology stipulated in Department for Transport guidance¹¹³, or any successor to such methodology. Applicants should consult the Highways Agency and/or the relevant highway authority, as appropriate, on the assessment and on mitigation measures. The assessment should distinguish between the construction, operation and decommissioning project stages as appropriate.

4.13.4 Where appropriate, the applicant should prepare a travel plan including demand management measures to mitigate transport impacts. The applicant should also provide details of proposed measures to improve access by public transport, walking and cycling, to reduce the need for parking associated with the proposal and to mitigate transport impacts.

¹¹³ Guidance on transport assessments is at <http://www.dft.gov.uk/publications/guidance-on-transport-assessment>

4.13.5 If additional transport infrastructure is proposed, applicants should discuss with network providers the possibility of co-funding by Government for any third-party benefits. Guidance has been issued in England¹¹⁴ which explains the circumstances where this may be possible, although the Government cannot guarantee in advance that funding will be available for any given uncommitted scheme at any specified time.

4.13.6 **Decision making**

A new nationally significant infrastructure project may give rise to substantial impacts on the surrounding transport infrastructure and the decision maker should therefore ensure that the applicant has sought to mitigate these impacts, including during the construction phase of the development. Where the proposed mitigation measures are insufficient to reduce the impact on the transport infrastructure to acceptable levels, the decision maker should consider requirements to mitigate adverse impacts on transport networks arising from the development, as set out below. Applicants may also be willing to enter into development consent obligations for funding infrastructure and otherwise mitigating adverse impacts.

4.13.7 Provided that the applicant is willing to enter into planning or transport obligations or requirements can be imposed to mitigate transport impacts identified in the NATA/WebTAG transport assessment, with attribution of costs calculated in accordance with the Department for Transport's guidance, then development consent should not be withheld, and appropriately limited weight should be applied to residual effects on the surrounding transport infrastructure.

4.13.8 **Mitigation**

Where mitigation is needed, possible demand management measures must be considered and, if feasible and operationally reasonable, required, before considering requirements for the provision of new inland transport infrastructure to deal with remaining transport impacts.

4.13.9 The decision maker should 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.

4.13.10 Water-borne or rail transport is preferred over road transport at all stages of the project, where cost-effective. Where there is likely to be substantial HGV traffic, applicants should look to:

- control numbers of HGV movements to and from the site in a specified period during its construction and possibly on the routing of such movements;
- make sufficient provision for HGV parking, either on the site or at dedicated facilities elsewhere, to avoid 'overspill' parking on public roads, prolonged queuing on approach roads and uncontrolled on-street HGV parking in normal operating conditions; and
- ensure satisfactory arrangements for reasonably foreseeable abnormal disruption, in consultation with network providers and the responsible police force.

The decision maker may consider attaching requirements to any development consent in order to ensure such arrangements are delivered.

¹¹⁴ <http://www.dft.gov.uk/pgr/regional/fundingtransportinfrastructure/>

- 4.13.11 If an applicant suggests that the costs of meeting any obligations or requirements would make the proposal economically unviable this should not in itself justify the relaxation by the decision maker of any obligations or requirements needed to secure the mitigation.

4.14 Waste management

- 4.14.1 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.
- 4.14.2 Sustainable waste management is implemented through the “waste hierarchy”:
- prevention;
 - preparing for reuse;
 - recycling;
 - other recovery, including energy recovery;
 - disposal.
- 4.14.3 Disposal of waste should only be considered where other waste management options are not available or where it is the best overall environmental outcome.
- 4.14.4 All large infrastructure projects are likely to generate hazardous and non-hazardous waste during the construction, operation and decommissioning phases. The Environment Agency’s (EA) Environmental Permitting (EP) regime incorporates operational waste management requirements for certain activities. When an applicant applies to the EA for an Environmental Permit, the EA will require the application to demonstrate that processes are in place to meet all relevant EP requirements.
- 4.14.5 **Applicant’s assessment**
The applicant should set out the arrangements that are proposed for managing any waste produced and prepare a Site Waste Management Plan. The arrangements described and the Management Plan should include information on the proposed waste recovery and disposal system for all waste generated by the development, and an assessment of the impact of the waste arising from development on the capacity of waste management facilities to deal with other waste arising in the area for at least five years of operation. The applicant should seek to minimise the volume of waste produced and the volume of waste sent for disposal unless it can be demonstrated that this is the best overall environmental outcome. The applicant must demonstrate that all waste produced by the facility will be managed in accordance with the waste hierarchy and that during construction, excavated soils and subsoils will, where possible, be re-used on site e.g. for the balancing of cut and fill.

4.14.6 **Decision making**

The decision maker should consider the extent to which the applicant has proposed an effective system for managing hazardous and non-hazardous waste arising from the construction, operation and decommissioning of the proposed development. It should be satisfied that:

- any such waste will be properly managed, both on-site and off-site;
- the waste from the proposed facility 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 arisings in the area; and
- adequate steps have been taken to minimise the volume of waste arisings, and of the volume of waste arisings sent to disposal, except where that is the best overall environmental outcome.

4.14.7 Where necessary, the decision maker should use requirements or obligations to ensure that appropriate measures for waste management proposed by the applicant or considered at examination are delivered. The decision maker may wish to include a condition on revision of waste management plans at reasonable intervals when giving consent.

4.14.8 Where the project will be subject to the Environment Agency's Environmental Permitting (EP) regime, waste management arrangements during operations will be covered by the permit and the considerations set out in section 3.11.1 will apply.

4.15 **Socio-economic**

4.15.1 **Introduction**

The construction, operation and decommissioning of waste water infrastructure may have socio-economic impacts at local and regional levels.

4.15.2 **Applicant's assessment**

Where the project is likely to have socio-economic impacts at local or regional levels, the applicant should undertake and include in their application an assessment of these impacts during the construction, operation and decommissioning phases.

4.15.3 This assessment could consider the following impacts, however these suggestions are not exhaustive and other socio-economic impacts should be assessed if appropriate for the proposed development:

- Regional and local socio-economic impacts associated with new waste water infrastructure may include the creation of jobs and training opportunities. The application should have taken into account the location of public rights of way, including footpaths, bridleways and byways and minimised hindrance to them where possible.
- The changing influx of workers during the different construction, operation and decommissioning phases of the waste water infrastructure may alter the demand for services and facilities in the areas surrounding the proposed development.

- 4.15.4 Applicants should describe the existing socio-economic conditions in the areas surrounding the proposed development and could also refer to how the development's socio-economic impacts correlate with local planning policies.
- 4.15.5 Socio-economic impacts may be linked to other impacts, for example the visual impact of a development is considered in (section 4.7) but may also have an impact on tourism and local businesses.
- 4.15.6 The applicant should undertake and include in their application an equalities impact assessment for the construction, operation and decommissioning phases. This will require an Initial Equalities Impact Assessment (EqIA) to identify potential adverse, differential or positive impact on equalities groups, and whether these are direct or indirect. If significant impacts are identified at the screening stage, a full Equalities Impact Assessment should be undertaken.
- 4.15.7 The applicant should identify which impacts have an adverse, differential or positive impact on particular equalities groups.
- 4.15.8 The applicant should describe the existing demographics of the area surrounding the development which will show whether a disproportionate number of a particular equalities group will be affected by the generic impacts e.g. air emissions, other emissions, flood risk, noise, visual impacts, land use etc.
- 4.15.9 The applicant should describe the equalities impact on people living, working or owning businesses who may be displaced as a result of the development. The applicant should also describe the indirect equalities impact of a loss of goods or services as a result of displacement.
- 4.15.10 **Decision making**
The decision maker should have regard to the potential socio-economic impacts of new waste water infrastructure identified by the applicant and from any other sources that it considers to be both relevant and important to its decision. It should be reasonable for the decision maker to conclude that little weight is to be given to speculative assertions of socio-economic impacts not supported by evidence (particularly in view of the need for waste water infrastructure as set out in this NPS).
- 4.15.11 The decision maker should have regard to the initial EqIA, and if appropriate, the full EqIA.
- 4.15.12 **Mitigation**
The decision maker should consider whether the mitigation measures put forward by the applicant are acceptable, for example in order to mitigate any adverse socio-economic impacts of the development. For example, high quality design can improve the visual and environmental experience for visitors and the local community alike.
- 4.15.13 The decision maker should also consider whether measures put forward by the applicant to mitigate any adverse equalities impacts are acceptable.

A1. Site Specific Information

A1.1 Introduction

In the development of this NPS two schemes have been identified as meeting the need for waste water infrastructure. These are a sewage treatment works at Deephams in North East London and a sewage collection and transfer scheme (the Thames Tunnel).

A1.2 Deephams Sewage Treatment Works

A1.2.1 **Background**

Deephams sewage treatment works (STW) is located in Edmonton, North East London and is owned and operated by Thames Water Utilities Ltd. It has a capacity of 874,000 population equivalent making it the ninth largest STW in England. The site covers approximately 30 hectares and includes inlet works, primary and secondary treatment, stormwater storage and a large sludge treatment centre. Treated effluent is discharged into 'Salmons Brook', a minor tributary of the River Lee which itself flows into the River Thames in East London.

A1.2.2 The Government's environmental regulators have approved the need that has arisen to replace the waste water treatment infrastructure at Deephams STW for the reasons set out in Section 2.6. Thames Water will determine how and where the works will be redeveloped through a consultation process.

A1.2.3 **Appraisal of Sustainability**

This NSIP is included in the Appraisal of Sustainability (AoS) that assesses the Waste Water NPS as a whole, as required by section 5(3) of the Planning Act 2008, incorporating the requirements for Strategic Environmental Assessment (SEA). The AoS is however strategic in nature and does not pre-empt or replace the need for the developer to conduct site-specific assessments as part of the planning application when the exact details of the scheme are known.

A1.2.4 **Interaction with the Habitats Directive**

For the purposes of the Habitats Directive, this NPS is considered to constitute a plan. For the Deephams STW, its objectives include ensuring that the environmental objectives for the River Lee are met and therefore the UK's compliance with the Urban Waste Water Treatment Directive (UWWTD), Freshwater Fish Directive (FFD) and Water Framework Directive (WFD). This is to be achieved by improving the waste water treatment provided at Deephams STW.

A1.2.5 This Section should be read in conjunction with the main Habitats Regulation Assessment (HRA) report¹¹⁵. Conclusions for this proposal, insofar as they are known at this stage, form part of the Plan level assessment, although it should be noted that an adverse effect on the integrity of the Thames Estuary and Marshes SPA and Ramsar site cannot be excluded at this stage. More detailed assessment of the implications of the project for the European site will need to be undertaken at the scheme design stage.

¹¹⁵ Habitats Regulations Assessment of the Waste Water National Policy Statement

A1.3 Thames Tunnel

A1.3.1 Background

Around 39 million cubic metres of untreated sewage and rainwater (from the Beckton and Crossness sewerage catchments) pollute the River Thames tideway¹¹⁶ every year from London's combined sewer overflows (CSOs) when waste water capacity is exceeded. These discharges occur, on average, once a week and have a significant environmental impact on the river. These discharges increase the likelihood of fish kills, create a higher health hazard for users of the river and damage the aesthetic appeal of the Thames.

A1.3.2 The Thames Tunnel is the preferred infrastructure solution to address this issue. It comprises a major tunnel, likely to run for approximately 25kms from West to East London to intercept storm sewage overflows and transfer them for treatment at Beckton sewage treatment works (STW) in East London. A major part of the tunnel route is likely to follow the course of the River Thames.

A1.3.3 A tunnel was identified as the best solution in 2007 following detailed studies including the Thames Tideway Strategic Study¹¹⁷. A Regulatory Impact Assessment was completed at this stage. On 22 March 2007, the then Environment Minister, Ian Pearson, announced that a tunnel solution would be brought forward to intercept significant CSO discharges along the Thames tideway in London and transport the waste water for treatment in East London. The new government confirmed its commitment to the scheme in a ministerial announcement on 6 September 2010.

A1.3.4 Relationship with the rest of the NPS

The proposed Thames Tunnel forms a part of the wider London Tideway Improvements scheme which also includes the Lee tunnel (intercepting the CSO discharge to the River Lee at Abbey Mills and transferring to Beckton STW) as well improvements at Mogden, Crossness, Longreach, and Riverside STWs, and a major extension of treatment capacity at Beckton STW to treat almost all of the storm sewage collected in the Thames and Lee tunnels.

A1.3.5 A first stage of work including the Lee Tunnel and extension of Beckton STW is already progressing and has received planning permission under the Town and Country Planning legislation. The Thames Tunnel itself is the second stage of the London Tideway Improvements scheme and as such is a unique development which does not constitute a waste water treatment plant and would not therefore fall under the waste water threshold set out in the Planning Act 2008. However, there are provisions in the Planning Act 2008 for other individual projects, including waste water projects, to be decided at national level where they are considered to be of national significance. The Secretary of State for Environment, Food and Rural Affairs made an announcement on 6 September 2010 that development consent for the project should be dealt with under the regime for nationally significant infrastructure projects under the Planning Act 2008. It is intended that the Thames Tunnel will be brought within the direct scope of the Planning Act 2008 by amending by Order the thresholds in section 14(3), Part 3 of the 2008 Act. The following section sets out the national need for the Thames Tunnel and its specific local impacts.

¹¹⁶ The River Thames tideway refers to the tidal section from Dartford to Teddington Lock and is about 40 miles in length.

¹¹⁷ For further details of the studies, see paragraph 2.6.24 of this NPS. The Environment Agency and Ofwat were amongst those bodies involved in work on this study.

- A1.3.6 The Thames Tunnel is considered to be an infrastructure scheme of national significance for a number of reasons:
- It is essential to meet the ecological water quality objectives of a major river of national importance;
 - It is essential to reduce the risk of human health impacts;
 - It is essential to reduce aesthetic impacts;
 - It is essential to meet statutory requirements.
- A1.3.7 London has a key role in supporting the national economy and the reputation of the UK. The unsatisfactory intermittent discharges cause reputational risk to the UK, detracting from the appeal of the river in the nation's capital, which is otherwise a great asset to residents and visitors alike; and
- A1.3.8 The unique scale and complexity of the development will lead to an equally large and complex planning process and the Government has a clear interest in ensuring that the planning process goes as smoothly as possible, to ensure that there are not significant delays in addressing the problems caused by these sewage overflows, while ensuring the process is transparent and that all interested points of view are heard and considered properly.
- A1.3.9 **Geographical coverage**
The location of the scheme is limited by the need to be in London and by the Thames in order to intercept combined sewer overflow (CSO) outfalls. The key issue for consideration of this scheme by the examining authority and the decision maker is where several shafts from the surface connecting to the tunnel are located and also the location of construction compounds.
- A1.3.10 Although the exact location of the tunnel and access shafts has not yet been confirmed, the proposed scheme spans up to 14 London Boroughs alongside the River Thames, listed below in order from upstream to downstream:
- London Borough of Richmond upon Thames;
 - London Borough of Hounslow;
 - London Borough of Ealing
 - London Borough of Hammersmith and Fulham;
 - London Borough of Wandsworth;
 - Royal Borough of Kensington and Chelsea;
 - City of Westminster;
 - London Borough of Lambeth;
 - City of London;
 - London Borough of Southwark;
 - London Borough of Tower Hamlets;
 - London Borough of Lewisham;
 - London Borough of Greenwich; and
 - London Borough of Newham.

A1.3.11 The Boroughs listed above are those expected to be crossed by the Tunnel itself. Although physical presence of the scheme is expected to be limited to these listed Boroughs, the Tunnel would actually serve the far wider catchment of the River Thames Tideway (Beckton and Crossness catchments).

A1.3.12 Appraisal of Sustainability

The Appraisal of Sustainability (AoS)¹¹⁸ includes an assessment of the specific aspects of the Thames Tunnel proposal. The AoS is however strategic in nature and does not pre-empt or replace the need for the developer to conduct site-specific assessments as part of the planning application when the exact details of the scheme are known.

A1.3.13 Interaction with the Habitats Directive

For the purposes of the Habitats Directive, the Waste Water NPS is considered to be a plan¹¹⁹. For the Thames Tunnel scheme, its objective is to ensure the environmental objectives for the River Thames are met and therefore the UK's compliance with the Urban Waste Water Treatment Directive. This is to be achieved by resolving the problem of discharges from combined sewer overflows and STW into the River Thames.

A1.3.14 This Section should be read in conjunction with the main Habitats Regulation Assessment (HRA) report. Conclusions for this proposal, insofar as they are known at this stage, form part of the Plan level assessment, although it should be noted that an adverse effect on the integrity of the Thames Estuary and Marshes SPA and Ramsar site cannot be excluded at this stage. More detailed assessment of the implications of the project for the European site will need to be undertaken at the scheme design stage.

A1.3.15 The Appropriate Assessment of the draft NPS has concluded that this part of the NPS can be implemented without there being any adverse effects on the integrity of European or Ramsar sites adjacent to or at a distance from the Thames Tunnel development area¹²⁰. Compliance with the draft NPS should, therefore, ensure that the Thames Tunnel project will not have a significant effect on any European or Ramsar sites and that there will be no adverse effects on the integrity of any such sites. However, it is necessary to undertake a project-level HRA in order to confirm this.

¹¹⁸ Appraisal of Sustainability of the Waste Water NPS

¹¹⁹ See footnote 33

¹²⁰ European and Ramsar sites situated within or adjacent to the Thames river basin seaward of the Thames Tunnel development area or European and Ramsar sites within a 15km radius of the Thames Tunnel development area.



Published by TSO (The Stationery Office) and available from:

Online

www.tsoshop.co.uk

Mail, Telephone, Fax & E-mail

TSO

PO Box 29, Norwich NR3 1GN

Telephone orders/general enquiries: 0870 600 5522

Order through the Parliamentary Hotline Lo-Call 0845 7 023474

Fax orders: 0870 600 5533

Email: customer.services@tso.co.uk

Textphone: 0870 240 3701

The Parliamentary Bookshop

12 Bridge Street, Parliament Square,

London SW1A 2JX

Telephone orders/general enquiries: 020 7219 3890

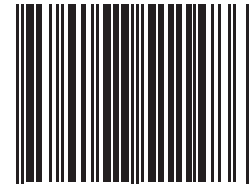
Fax orders: 020 7219 3866

Email: bookshop@parliament.uk

Internet: <http://www.bookshop.parliament.uk>

TSO@Blackwell and other accredited agents

ISBN 978-0-10-851148-6



9 780108 511486