

# Water Services Strategic Plan

A Plan for the Future of Water Services

Customer



Water



Wastewater



Environment



Growth



Investment



Safeguarding your water for your future

## **Irish Water** at a glance...

Irish Water was created in

**2013** and serves

3.3 million people producing over  
**1.6 billion Litres**

of drinking water every day and taking wastewater away for treatment before it is returned to our rivers and seas.

**Thousands** of assets are operated and maintained to provide these services, including around:

**900** *water treatment plants*

which deliver water through an estimated

**60,000 kilometres** of pipelines

We treat wastewater in more than

**1000** wastewater treatment plants

and it is collected through an estimated

**25,000 kilometres** of pipelines

plus numerous pumping stations and sludge treatment centres.

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# Executive Summary

## Our Vision

Effective water services, including the delivery of a sustainable and reliable clean water supply and safe disposal of wastewater, are essential for a modern country. This document presents the Water Services Strategic Plan prepared by Irish Water which provides, for the first time, an opportunity to consider, at a national level, the way that water services are delivered in Ireland. The plan takes a 25 year view towards the vision that

*“Through responsible stewardship, efficient management and strong partnerships, Ireland has a world-class water infrastructure that ensures secure and sustainable water services, essential for our health, our communities, the economy and the environment”.*

The plan has been prepared to comply with our statutory obligation and as a basis for broad public and stakeholder engagement. A glossary of technical terms used is included at the end of the document.

## Overview of Irish Water

Irish Water was established as a subsidiary of the Ervia Group (formerly Bord Gáis Éireann). Ervia now has responsibility for the delivery of gas and water infrastructure and services in Ireland. Establishing Irish Water involved the creation of the required organisation, management systems and processes to manage the water services assets estimated to have a value of €11 Billion, drawing on the experience and expertise of Bord Gáis Éireann, as a modern efficient and customer focused energy utility.

Incorporated in July, 2013, Irish Water brings the water and wastewater services of the 34 local authorities together under one national service provider. From the 1st January, 2014, Irish Water became responsible for all public water services, involving the supply of drinking water and the collection, treatment and disposal of wastewater.

Irish Water took on the operation of the assets through Service Level Agreements (SLAs) with all 31 local authorities (after amalgamation of the previous 34), who continue to provide day to day operations. We also took over all of the capital investment decisions and implementation of the capital programme delivery across the country.

In discharging its role as the national water services utility, responsible for water services operations and investment, Irish Water is regulated by:

- a) The economic regulator, the Commission for Energy Regulation (CER), which is charged with protecting the interests of the customer, while approving an appropriate funding requirement sufficient to enable the utility to deliver the required services to specified standards in an efficient manner; and
- b) The environmental regulator, the Environmental Protection Agency (EPA), which sets standards and enforces compliance with EU and National Regulations for drinking water supply and wastewater discharge to water bodies. The EPA liaises with the Health Services Executive in matters of public health.

## Our Legal Context

Irish Water will plan, develop and operate our water service functions in line with the requirements of prevailing relevant national and European legislation. Relevant legislation includes multiple statutes, regulations and European directives. Some of the most pertinent legislation in the context of the operations covered by this plan include the Urban Waste Water Treatment Directive, the Drinking Water Directive, the Water Framework Directive, the Birds and Habitats Directives and our obligations under the Aarhus Convention in terms of European legislation and the Water Services Acts, 2007-2014, Water Supplies Act, 1942, the Planning and Development Act, 2000, European Union (Drinking Water) Regulations 2014 and Wastewater Discharge (Authorisation) Regulations 2007 in terms of national legislation.

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## Our Challenges

Irish Water is responsible for the delivery of water services to approximately 80% of the population. Whilst many customers receive a good quality water supply and wastewater provision, a significant proportion are dissatisfied with these services; based on quality, capacity and reliability issues. Despite the good work of local authorities over many decades, under-investment combined with a lack of planned asset management and maintenance programmes has led to a legacy of deficiencies in our treatment plants and networks. In many areas, limitations on treatment and/or network capacity urgently need to be addressed to accommodate new housing, commercial and industrial developments.

In our two largest cities of Dublin and Cork, we continue to rely for part of the daily drinking water requirement on 19th century systems which are no longer fit for purpose in their current condition. This exposes these supplies to an unacceptable risk of failure. Outside of our major urban centres, our water supply network is fragmented with many small and vulnerable water sources. Water quality does not meet European and Irish drinking water standards in many of our schemes and up to 30% of water treatment plants are considered to be “at risk” of failure in terms of quality parameters. In 2014, an estimated 23,000 customers had a Boil Water Notice, indicating that their water was not fit for drinking due to the risk of microbiological contamination. One hundred and twenty six (126) water supply zones are on the EPA’s Remedial Action List (see Appendix 1 for a list of water supply zones on the EPA RAL in Q3 2014), requiring investment and/or significant improvement in operation to reduce the risk of failure to accepted levels. We are also losing almost half of the water we produce due to leakage within our water mains and within customer properties.

Wastewater must be collected and treated before it is returned to the environment. The most recent EPA assessment of urban wastewater<sup>1</sup> identifies that wastewater treatment is not at the required standard in 38 of our larger urban areas and that 44 areas discharge raw sewage (sewage that is untreated or has had preliminary treatment only) (see Appendix 2 for list of these areas). As a result of Ireland’s failure to meet the requirements of the EU Urban Waste Water Treatment Directive in respect of 71 agglomerations/areas in 2011 (see Appendix 3 for the list of the 71 non-compliant agglomerations) the European Commission has initiated an Infringement Case against the state. Many of our sewers in urban areas receive rainfall run-off from roads and hard surfaces in addition to wastewater. These combined sewers are frequently overloaded during periods of heavy rain resulting in the flooding of some properties and giving rise to overflows which can cause pollution within our rivers and streams.

Apart from these compliance challenges, the welcome return of economic growth brings a requirement for additional capacity to support housing development, together with offices, factories and commercial buildings supporting jobs. There are areas zoned for development which are currently constrained by limitations in system capacity for water and wastewater. This additional demand must be met without risk to existing customer service standards. Key national policy objectives for employment and increasing housing output (Construction 2020<sup>2</sup>) must be provided for. The Housing Supply Co-ordination Task Force for Dublin (established by the DECLG as an action under Construction 2020) identifies water services infrastructure deficit among the constraints to be overcome if housing needs are to be met in the Greater Dublin Area.

Substantial improvements to water supply capacity, quality and reliability are required in addition to upgrading of our wastewater infrastructure, both treatment plants and collection networks, in order to protect the environment. This will require significant capital investment over many years. Even with additional funding, the timescale to address all of the issues is likely to extend through a number of investment cycles so that we must prioritise projects which should proceed in order of criticality.

## What is the Water Services Strategic Plan?

This Water Services Strategic Plan (WSSP) sets out strategic objectives for the delivery of water services over the next 25 years up to 2040. It details current and future challenges which affect the provision of water services and identifies the priorities to be tackled in the short and medium term. In developing the plan, we have considered its interaction with other national and regional strategic plans such as the National Spatial Strategy and River Basin Management Plans. This plan (Tier 1) also provides the context for subsequent detailed implementation plans (Tier 2) which will document the approach to be used for key water service areas such as water resource management, wastewater compliance and sludge management.

<sup>1</sup> Focus on urban wastewater treatment in 2013. Published by the EPA, December 2014.

<sup>2</sup> Construction 2020, A strategy for a renewed construction sector; May 2014; Government Publication; 2014

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The WSSP will be reviewed on at least a five yearly basis to ensure that it continues to be up to date with current and future needs. An interim review is also planned to ensure consistency with the new National Planning Framework, the new Regional Spatial and Economic Strategies and River Basin Management Plans which will be developed in the next few years.

In addition, Irish Water will prepare Business Plans during the period setting out targets for delivery of efficiencies in operational and capital expenditure and performance targets consistent with the delivery of the objectives in this WSSP. In accordance with the Service Level Agreements with the now 31 Local Authorities, a series of transformation initiatives are being implemented in partnership with the local authorities. The most important of these will be the development of the Water Industry Operating Framework to facilitate the delivery of water services under the single utility model.

The Water Services (No. 2) Act, 2013 provides for Ministerial Direction on the form and content of this WSSP and the Minister has set out the requirement for the plan to address the delivery of six strategic objectives as follows:

- **Meet Customer Expectations;**
- **Ensure a Safe and Reliable Water Supply;**
- **Provide Effective Management of Wastewater;**
- **Protect and Enhance the Environment;**
- **Support Social and Economic Growth; and**
- **Invest in Our Future.**

These are not in a particular order of priority. For each strategic objective within the plan, we outline the current situation, identify the key challenges and propose a number of aims and strategies to address the objective. We have suggested targets within the plan in order that our performance against the objectives can be monitored and assessed by our regulators, other stakeholders and our customers. It should be noted that a number of strategies are cross cutting between strategic objectives. For example, strategies for achieving effective wastewater management will also result in protecting the water environment.

An initial public consultation on the issues to be included in the plan was completed in the summer of 2014 and has informed this document. The plan has been subjected to Strategic Environmental Assessment and Appropriate Assessment and these documents are also published and are available at <http://www.water.ie>.

## **Our Current Priorities**

In this first strategic plan, we need to address urgent issues in the quality of our water services and in the integrity of our infrastructure, subject to adequate funding being available to us, while ensuring that water services that currently meet required standards continue to do so. We have therefore prioritised the following six areas:

- Demonstrating our commitment to the delivery of an improved quality water and wastewater service through the appropriate management of our assets in an economic and efficient manner ensuring least cost for our customers.
- Remediating the drinking water quality problems where customers have a Boil Water Notice or water supplies fail other mandatory requirements of the Drinking Water Regulations. We are also prioritising high risk plants identified in the EPA Remedial Action List.
- Complying with the Urban Waste Water Treatment Directive and, in particular, addressing the lack of wastewater treatment at 44 urban centres and improving treatment at the 38 larger urban areas which do not currently meet the required treatment standards. We are also prioritising upgrades at sites of serious pollution including sites resulting in adverse impacts on Bathing Waters.
- Reducing the excessive leakage from our water mains through our water conservation programmes. Completion of the domestic metering programme in line with Government policy will create customer awareness of their water usage and support behavioural changes in water consumption. It will identify the location of customer side leaks which can be addressed through our "first fix policy". In addition, the programme is adding to our knowledge of where lead service connection and supply pipes are located.
- Capturing accurate information on the nature, condition and performance of all of our assets (infrastructure and equipment) into quality assured databases, especially critical assets whose failure would have significant customer impacts, in order that we can better target investment in asset maintenance/upgrades.
- Catering for future growth.



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## Our Strategic Objectives

Our six strategic objectives are highlighted in the following sections.

### Objective: Meet Customer Expectations

Our aim under this objective is to **establish both customer trust and a reputation for excellent service** through delivering our set of defined strategies; thereby, building the trust and confidence of our customers.

We recognise the need for the provision of high quality, reliable water services, delivered through resilient systems in an efficient and economic manner. Our first response to ensuring delivery in an efficient and economic manner has been to review all proposed capital investment in the water services assets to more accurately define the scope required and confirm value for money. However, even with savings identified by re-scoping and introduction of new technologies, the level of investment required remains significant and we must prioritise the required projects against the available funding.

Our economic regulator, the CER, has set out the levels of service which we are required to meet in the Customer Handbook and this is supplemented by a number of Codes of Practice which we have published. These relate to how we will correspond with our customers, deal with requirements for billing, complaints and other matters.

We will communicate with our customers, particularly when we must temporarily interrupt services, giving advance notice in accordance with our regulatory requirements. When we have unplanned interruptions, for example as a result of burst mains or other emergency works, we will use the appropriate national, regional and local media as well as social media and mobile notifications and have a commitment to directly contact vulnerable customers.

We will fully support the work of the Public Water Forum to be established under the Water Services Act, 2014, with respect to their comments and suggestion in relation to the performance by Irish Water of its functions.



**Key targets** in relation to meeting customer expectations by the end of 2021, 2027 and 2040 include;

**Customer Contact Handling** – maintain the number of customer calls answered within 20 seconds at the current baseline of 80% and less than 5% of calls abandoned in line best practice in utilities in Ireland and the UK.

**Customer Complaint Handling** – increase the percentage of customer complaints resolved (or steps taken towards resolving the complaint) within 5 working days of receiving the complaint from current baseline of 90% to 100% by the end of 2021 and maintain this rate.

**Note:** for all targets identified in relation to this objective – see Indicators and Targets under this Objective in the main body of the document.



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## Objective: Ensure a Safe and Reliable Water Supply

Our aims under this objective are to:

- Manage the sustainability and quality of drinking water from source to tap to protect human health.
- Manage the availability, sustainability and reliability of water supply now and into the future.
- Manage water supplies in an efficient and economic manner.



Safe and reliable water supplies are essential to public health, social and economic growth. Irish Water currently operates around 900 water treatment plants. Water quality from some of these water treatment plants does not meet the current Drinking Water Quality Regulations due to microbiological contamination or exceedances of other water quality parameters. Many of these treatment plants take their water from small water sources which are vulnerable to contamination and the impacts of climate change. The water supply distribution networks operate as isolated systems which are not interconnected. We also estimate that, nationally, we are losing approximately 49% of the water we treat due to leakage from our water mains and within customers' properties. Some of our older water mains and our customers' service pipes are made from lead which can in itself contribute to contamination of water by dissolving into the water, particularly at times of no or low flow.

We have identified a set of actions to address the above challenges which include to:

- Prepare and implement a **National Water Resources Plan** for the strategic development of water supplies that comply with the water quality standards and build in security of supply through the interconnection, where practicable, of our current water supply networks and the development of new, larger and more secure water sources serving regional schemes.
- Prepare and implement **Drinking Water Safety Plans** to protect our water supplies in accordance with international best practice, eliminating Boil Water Notices other than from short term extreme events.
- Implement a **Lead in Drinking Water Mitigation Plan** to reduce the potential for water to dissolve lead from pipework and to replace our public lead water mains over a ten year period.
- Implement a national set of **Standard Operating Procedures** in our water treatment plants and networks to ensure their correct, efficient and safe operation.
- Manage all our **water abstractions** to minimise their impact on the environment.
- Implement **regional water conservation strategies** to reduce leakage from our water mains by over 50% in the period of the WSSP.
- Adopt an **asset management approach** to maintenance and investment in our infrastructure and equipment so that we maximise the lifespan of our assets for consistent levels of service at least cost, utilising the capabilities and systems established in Irish Water.

**Key targets** in relation to ensuring a safe and reliable water supply by the end of 2021, 2027 and 2040 include;

**Drinking Water Microbiological Standards** – increase the percentage of samples complying with water quality standards from the current baseline of 99.82% to 99.99% by the end of 2021 and maintain that compliance rate.

**Leakage of Treated Water** – reduce the current leakage rate of approximately 49% to less than 38% by the end of 2021, to 30% by 2027 and to an economic level of leakage by 2040.

**Note;** for all targets identified in relation to this objective – see Indicators and Targets under this Objective in the main body of the document.

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## Objective: Provide Effective Management of Wastewater

Our aims under this objective are to:

- Manage the operation of wastewater facilities in a manner that protects environmental quality.
- Manage the availability and resilience of wastewater services now and into the future.
- Manage wastewater in an efficient and economic manner.

Wastewater must be collected and treated to an acceptable standard before it is discharged back into the environment. As a minimum, discharges from our wastewater networks must comply with the standards set by the EU Urban Waste Water Treatment Directive (UWWTD). A number of our treatment plants do not meet this requirement. Some of our combined sewers (pipes which receive both wastewater and the rainfall run-off from our roads and other hard surface areas) do not have the capacity to cope with heavy rainfall and this can result in flooding of properties. During intense rainfall, combined sewer overflows (CSOs) discharge effluent into our watercourses with limited or no treatment and this can result in unacceptable levels of pollution.

We have identified a number of actions to tackle these issues including to:

- Prepare and implement a **Wastewater Compliance Strategy** to improve the management of the wastewater systems. This will seek to address unacceptable discharge quality through improvements to treatment and remediate problems associated with combined sewers, where feasible.
- Prepare and implement national **Standard Operating Procedures** to ensure that all of our wastewater treatment plants and networks are operated correctly, safely and efficiently.
- Progressively meet the requirements of the **UWWTD** and the EPA Discharge Licences and Certificates.
- Identify and record properties at risk of **flooding from combined sewers** and implement measures to reduce and mitigate this risk.
- Plan and deliver measures to reduce the pollution impact from **combined sewer overflows**.
- Adopt an **asset management approach** to maintenance and capital investment, as for our water supply services, utilising the capabilities and systems established in Irish Water.

**Key targets** in relation to providing effective management of wastewater by the end of 2021, 2027 and 2040 include;

**Compliance with UWWTD** – increase the percentage of the population equivalent served by wastewater treatment plants that are compliant with the requirements of the UWWTD from the current baseline of approximately 39% to 90% by the end of 2021, to 99% by 2027 and to 100% by 2040.

**Pollution Incidents caused by Irish Water's Waste Water Treatment Plants** – deliver a reduction in the number of Class 2 pollution incidents (localised pollution) from a current baseline of 168 incidents to 75 incidents by the end of 2021, to 20 incidents by 2027 and maintain this level.

**Note;** for all targets identified in relation to this objective – see Indicators and Targets under this Objective in the main body of the document.



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## Objective: Protect and Enhance the Environment

Our aims to protect and enhance the environment are to:

- Ensure that Irish Water services are delivered in a sustainable manner which contributes to the protection of the environment.
- Operate our infrastructure to support the achievement of objectives under the Birds, Habitats and Water Framework Directives.
- Manage all our residual waste in a sustainable manner.

Protecting and improving the long term quality of the water environment enables safe, affordable water services as well as protecting human health and biodiversity. Many sectors have activities which impact on the water environment including emissions from industry, polluted run-off from agriculture, private household septic tanks as well as our water and wastewater services. A balance needs to be struck between our activities that impact on the water environment and the ability of the environment to sustain these impacts over both the short and longer term.

Climate change in Ireland is predicted to cause a greater frequency of extreme weather events which could result both in increased flooding risk and periods of drought. It is important to ensure that water services are adapted to the impacts of climate change in terms of;

- Adapting our assets to be resilient to climate change impacts;
- Mitigating our climate impact by reducing our carbon footprint; and
- Supporting the objectives of the National Energy Efficiency Action Plan through targeted investments and adapting asset operations.

There are a number of European Directives that give special protection to identified areas which are important for drinking water supply, nature conservation, bathing and fisheries. The Birds and Habitats Directives designate specific habitats and species for special protection and set up a network of protected sites (Natura 2000). The Water Framework Directive, which is the over-arching Directive covering management of water resources in the EU, establishes a catchment based approach to the protection, improvement and sustainable use of inland and coastal waters including groundwater. It adopts the 'polluter pays' principle and seeks to develop holistic approaches to sustainable water use. Monitoring by the EPA indicates that many of our water bodies are not at 'Good Status' and discharges from wastewater treatment plants are one of the causes of this.

Water and wastewater treatment generates sludge products which require disposal or re-use where feasible. Wastewater sludge can be treated for re-use as a fertilizer and soil conditioner and also to generate renewable energy. We aim to retain and develop these outlets with full regard to all food safety and environmental considerations through quality management of all stages of the process.

We have identified a number of actions to achieve our environmental and sustainability aims including to:

- Implement a **Sustainability Policy and Framework**.
- Prepare and implement a **Sustainable Energy Strategy**.
- Prepare and implement a **Climate Change Adaptation and Mitigation Strategy**.
- Adopt a **green procurement approach** and review our current use of resources.
- Contribute to the delivery of the **Water Framework Directive** programmes of measures and our obligations under the Birds and Habitats Directives.
- Develop and implement **waste and sludge management plans**.

**Key targets** in relation to protecting and enhancing the environment to the end of 2021, 2027 and 2040 respectively include;

**Energy Efficiency** – improve the energy efficiency at Irish Water facilities over the 2009 baseline by 33% by 2020 (national policy target) and meet the targets that will be established by national energy policy to 2040.

**Facilitate the achievement of water body objectives under the Water Framework Directive and our obligations under the Birds and Habitats Directives** – achieve the key targets identified under the Provide Effective Management of Wastewater objective with respect to wastewater treatment and effluent discharges from Irish Water's facilities and under Ensure a Safe and Reliable Water Supply with respect to ensuring our abstractions for drinking water are environmentally sustainable.

**Note;** for all targets identified in relation to this objective – see Indicators and Targets under this Objective in the main body of the document.

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## Objective: Support Social and Economic Growth

Our aims under this objective are to:

- Support national, regional and local economic and spatial planning policy.
- Facilitate growth in line with national and regional economic and spatial planning policy.
- Ensure that water services are provided in a timely and cost effective manner.

The Central Statistics Office has published population growth forecasts at a national scale to 2046 and at a regional scale to 2031 based on the results of the 2011 census. These projections indicate that the national population will grow from 4.5 million in 2011 to between 5 million and 6.7 million by 2046, depending on the growth scenario used. Growth will vary across regions, with the Dublin/Mid East region likely to experience the greatest growth and the Western and Border Regions likely to experience the least growth.

The delivery of appropriate infrastructure to meet the required demand, where and when it is needed, supports the social and economic growth of the country. Reliable, high quality water supplies are increasingly important to attract foreign direct investment into Ireland. To achieve these objectives we must assess the demands for water services, based on national and regional spatial planning policies and plans, together with population and economic growth predictions. Our plans must ensure continuous service to all Irish Water's existing customers, whilst providing additional capacity to meet future population growth and industrial development. The objectives of the Government's strategic approach to housing identified in Construction 2020 must be provided for in terms of both treatment and network capacity.

However, there are a number of challenges in meeting this objective including the accurate prediction of the growth of the domestic population and changing demography. The demand from businesses and industry is uncertain and industrial development can have significant "one-off" demands for large water and/or wastewater capacity. This requires that our plans and implementation programmes are versatile and capable of being phased as far as possible to meet emerging needs.

To meet this strategic objective we will, in summary:

- Work with national, regional and local planning bodies to ensure that we understand and **plan for future development consistent with national, regional and local planning policy.**
- **Maximise the capacity of our existing assets** through effective management.
- **Invest in interconnection of networks and additional capacity** and ensure that we **maintain appropriate headroom** (spare capacity above demand) to cater for production risk and provide flexibility in capacity to meet new demands.
- **Balance investment for growth in demand with other priorities** to ensure best outcome for customers.
- Operate an equitable **new connections charging policy** for new customers.

**A key target** in relation to supporting social and economic growth to the end of 2021, 2027 and 2040 respectively includes;

**The availability of capacity, "Headroom", at water and wastewater treatment plants to meet "core strategies" identified in development plans.** The percentage of treatment plants meeting the target capacity headroom to increase from a current baseline of "unknown" to 60% of plants meeting their target by the end of 2021, 75% by 2027 and 100% of plants meeting their target by 2040.

**Note;** for all targets identified in relation to this objective – see Indicators and Targets under this Objective in the main body of the document.

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## Objective: Invest in Our Future

Our aims under this objective are to:

- **Manage our assets and investments in accordance with best practice asset management principles to deliver a high quality, secure and sustainable service at lowest cost.**
- **Invest in our assets while maintaining a sustainable balance between meeting customer standards, protecting the environment and supporting the economic development and growth of the country.**
- **Establish a sustainable funding model to ensure that Irish Water can deliver the required capital investment in order to achieve the required outcomes.**
- **Promote research and utilise proven, innovative technical solutions to meet standards set by our regulators including our objectives for cost and energy efficiency.**

The historic under-investment in our water and wastewater networks and treatment facilities means that we now need to secure significantly increased levels of funding (approximately €600M capital investment each year) in order to achieve adequate standards of drinking water and wastewater compliance and to support the growth of the country. Because of the very high levels of investment required and also the significant constraints on Government borrowing, the Irish Water funding model must enable us to raise finance from other sources.

In order for Irish Water to be able to raise significant finance at favourable interest rates, it will be necessary for it to demonstrate that it is an efficient water utility company, operating within a stable regulatory framework, with secure revenue streams.

We need to achieve a sustainable balance between the level of investment meeting customer standard, protecting the environment and supporting the social and economic development of the country through working with our regulators and stakeholders. This will require that we operate efficient systems and processes in both operations and capital delivery.

Our actions for achieving this strategic objective are to:

- Overcome the deficit in **knowledge of our current asset base** through the development of accurate databases linked to Geographical Information Systems and installing modern asset monitoring and reporting systems to support automation and process control.
- Maintain our infrastructure and plan for its replacement through adopting an **asset management approach** in line with international best practice.
- Develop a **sustainable funding model**. Irish Water is taking a 25 year perspective in relation to investment in water services.
- Engage collaboratively with our customers, stakeholders and regulators to deliver optimum investment outcomes at least cost using **clear and transparent investment criteria**.
- Raise **public and stakeholder awareness** of the value of water services and the requirements to deliver them to the required standards.
- Engage with organisations conducting **research and development** in water services, including Irish third level colleges and institutes, and use proven innovation to maximise benefits for our customers and the environment.

**A key target** in relation to investing in our future to the end of 2021, 2027 and 2040 respectively includes;

**Operational and capital efficiency** – meet 100% of the requirements identified by the CER with respect to operational and capital efficiency by end of 2021 and maintain this percentage.

**Note;** for all targets identified in relation to this objective – see Indicators and Targets under this Objective in the main body of the document.

## Summary of Strategic Objectives and Aims

A table summarising our strategic objectives and aims is presented below.

<b>CE</b>	<b>Meet Customer Expectations</b>
CE1	Establish both Customer Trust and a Reputation for Excellent Service.
<b>WS</b>	<b>Ensure a Safe and Reliable Water Supply</b>
WS1	Manage the sustainability and quality of drinking water from source to tap to protect human health.
WS2	Manage the availability, sustainability and reliability of water supply now and into the future.
WS3	Manage water supplies in an efficient and economic manner.
<b>WW</b>	<b>Provide Effective Management of Wastewater</b>
WW1	Manage the operation of wastewater facilities in a manner that protects environmental quality.
WW2	Manage the availability and resilience of wastewater services now and into the future.
WW3	Manage wastewater services in an efficient and economic manner.
<b>EN</b>	<b>Protect and Enhance the Environment</b>
EN1	Ensure that Irish Water services are delivered in a sustainable manner which contributes to the protection of the environment.
EN2	Operate our water services infrastructure to support the achievement of water body objectives under the Water Framework Directive and our obligations under the Birds and Habitats Directives.
EN3	Manage all our residual waste in a sustainable manner.
<b>SG</b>	<b>Support Social and Economic Growth</b>
SG1	Support national, regional and local economic and spatial planning policy.
SG2	Facilitate growth in line with national and regional economic and spatial planning policy.
SG3	Ensure that water services are provided in a timely and cost effective manner.
<b>IF</b>	<b>Invest in Our Future</b>
IF1	Asset Management. Manage our assets and investments in accordance with best practice asset management principles to deliver a high quality secure and sustainable service at lowest cost.
IF2	Balanced Sustainable Investment. Invest in our assets while maintaining a sustainable balance between meeting customer standards, protecting the environment and supporting the economic development and growth of the country.
IF3	Sustainable Funding Model. Establish a sustainable funding model to ensure that Irish Water can deliver the required capital investment in order to achieve the required outcomes.
IF4	Research and Innovation. Promote research and develop proven, innovative technical solutions to meet standards set by our regulators including our objectives for cost and energy efficiency.



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## Environmental Assessment, Consultation and Adoption of this Plan

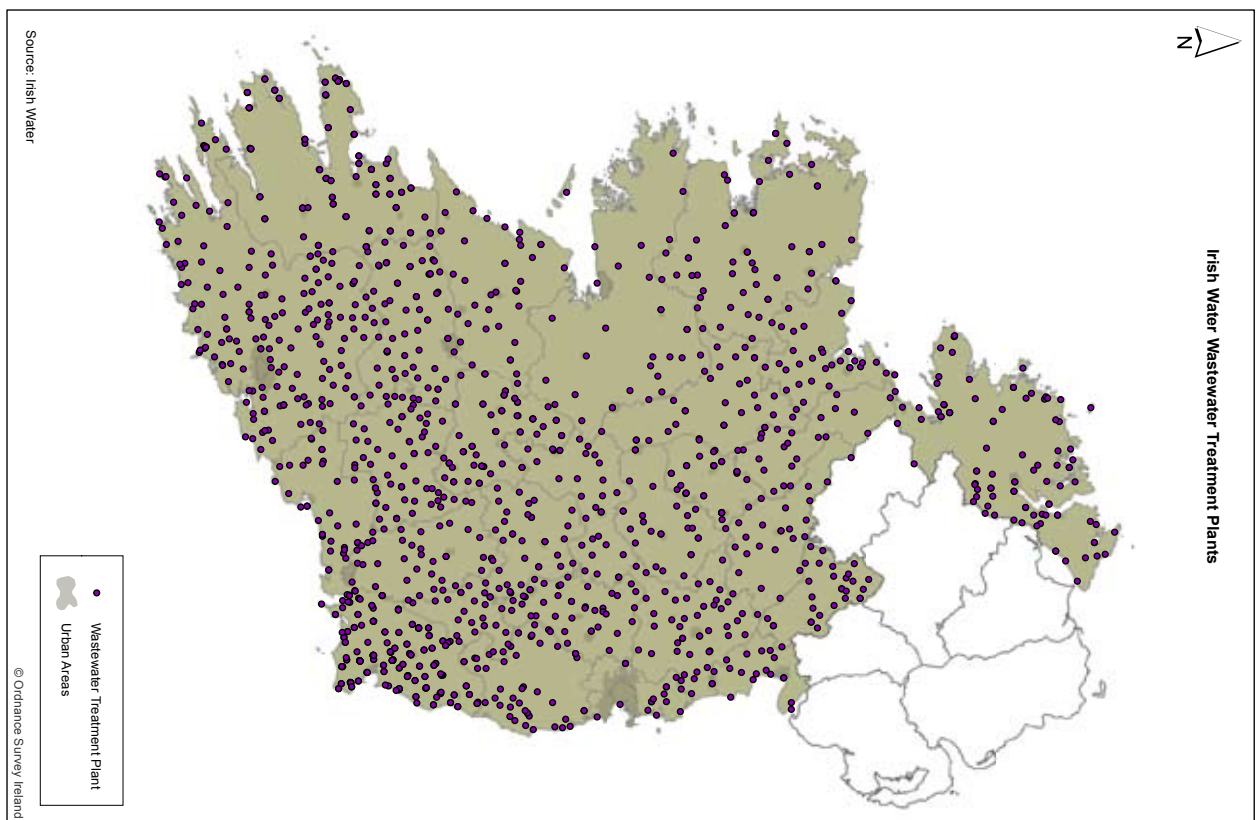
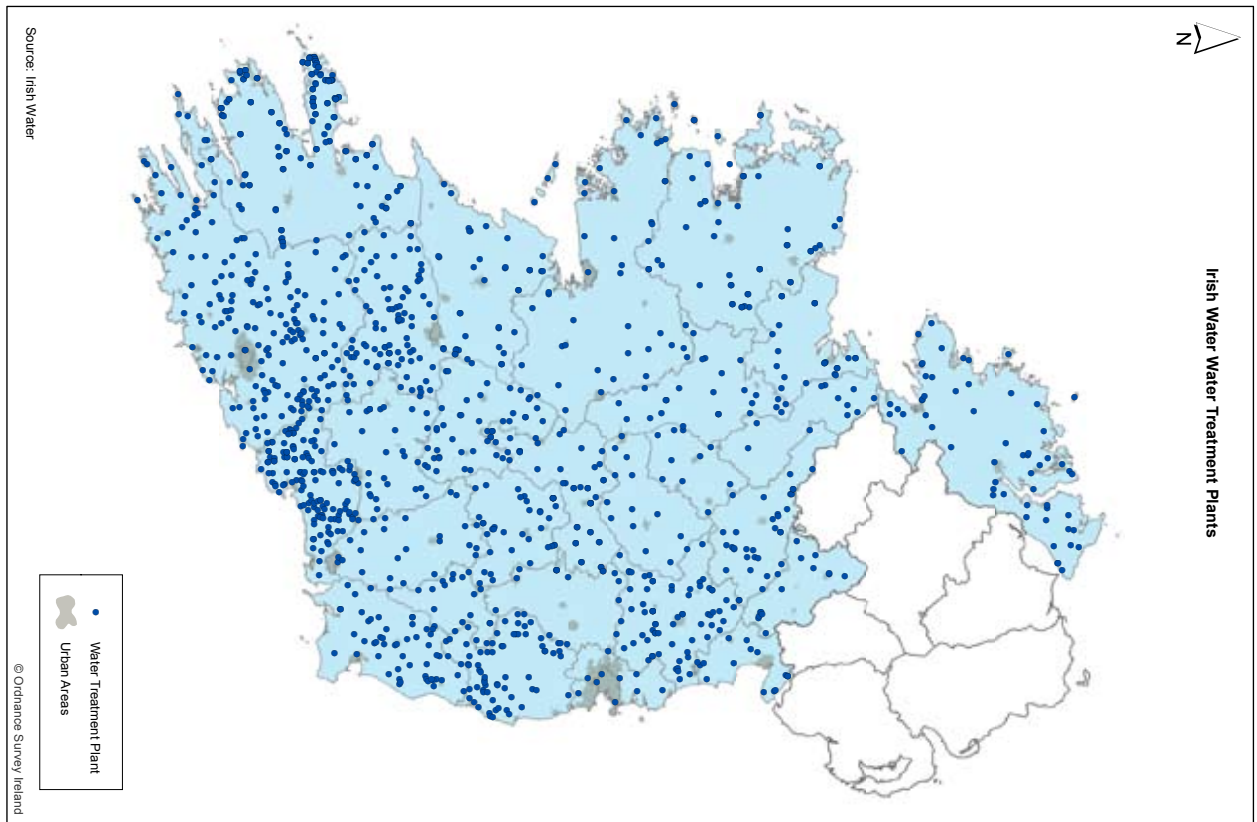
A Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA) were undertaken by Irish Water during the preparation of this Water Services Strategic Plan. A draft Plan, SEA Environmental Report and Natura Impact Statement (NIS) were published for consultation with statutory and non-statutory consultees and the general public from the 19th February to the 17th April 2015. We have taken on board the feedback we have received through the consultation process in the preparation of this final Plan. The changes made to the draft Plan due to this feedback are identified in the SEA Statement for the Plan. The Water Services Strategic Plan was adopted by the Irish Water and Ervia Boards in June 2015 and was brought to the Minister for the Environment, Community and Local Government for approval in July 2015.

This document, the SEA Statement and AA Determination are available for download online at <http://www.water.ie>.



*River Barrow at Srowland WTP Intake Site. Photo: Nicholas O'Dwyer*

# Map 1 & 2 Irish Water Water Treatment Plants & Wastewater Treatment Plants



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# Chapter 1 Introduction

## Irish Water's vision

Through responsible stewardship, efficient management and strong partnerships, Ireland has a world-class water infrastructure that ensures secure and sustainable water services, essential for our health, our communities, the economy and the environment.

### Transforming the Delivery of Water Services

Water is one of our most valuable resources and essential for sustaining life. Water circulates through the landscape influencing the locations of our towns and cities and fuelling our social and economic growth. Access to clean water and effective management of wastewater is a requirement for a modern society. However, clean water is expensive to produce and deliver. It is a complex process to turn the water from our rivers, lakes and groundwater (referred to as raw water) into clean drinking water and deliver it safely to each customer's tap. Wastewater must then be collected and treated before it can be reintroduced safely back into our environment.

The water services which each customer receives require significant funding for both the operation of the existing treatment plants and pipe networks and for investment in maintaining existing infrastructure and providing new infrastructure for water services. Irish Water, as a new national utility, must promote an understanding and acceptance of the need for a new fully funded entity to deliver the water services of this country in the 21st century.

The creation of Irish Water has, for the first time, enabled a transformation of the way that water services are delivered in Ireland. A national utility has the scale to effectively and efficiently address the many issues and risks to delivering water services. Despite the work of the local authorities over the last 130 years, substantially more investment is needed across the country to address weaknesses in the current systems, including high leakage rates, varying drinking water quality standards, disruptions to supply and unacceptable wastewater discharges.

This Water Services Strategic Plan provides an opportunity to take, for the first time, a high level view of how water services should be provided, taking a national rather than local perspective and looking at a 25 year time frame as well as considering priorities for short term investment. The plan sets out the framework for future implementation plans and projects. It has been subjected to a Strategic Environmental Assessment and an Appropriate Assessment and these documents are also published and are available at <http://www.water.ie>.

### Supporting Social and Economic Development

Reliable water services with the capacity for expansion will enable urban communities, business and industry to grow and attract investment. Within the lifetime of this strategic plan, the emerging problems of water stress around the world will become more acute and sustainably planned water services in Ireland will be a key global competitive advantage. Future development of water services must be in line with agreed national and regional development plans. We will therefore work with regional and local planning authorities and other agencies in the forward planning of water services infrastructure to meet social and economic growth. Importantly, we will be an active consultee in the preparation of the National Planning Framework (which will replace the National Spatial Strategy) and will continue to support national and regional spatial planning policy as it evolves.

## Our Responsibilities

Irish Water is responsible for the public supply of drinking water to over 80% of the population. Our water supply responsibilities extend from the abstraction of (raw) water from wells, rivers, lakes and reservoirs, to treatment of this water such that it is suitable for human consumption and onward delivery to our customers' homes and business premises.

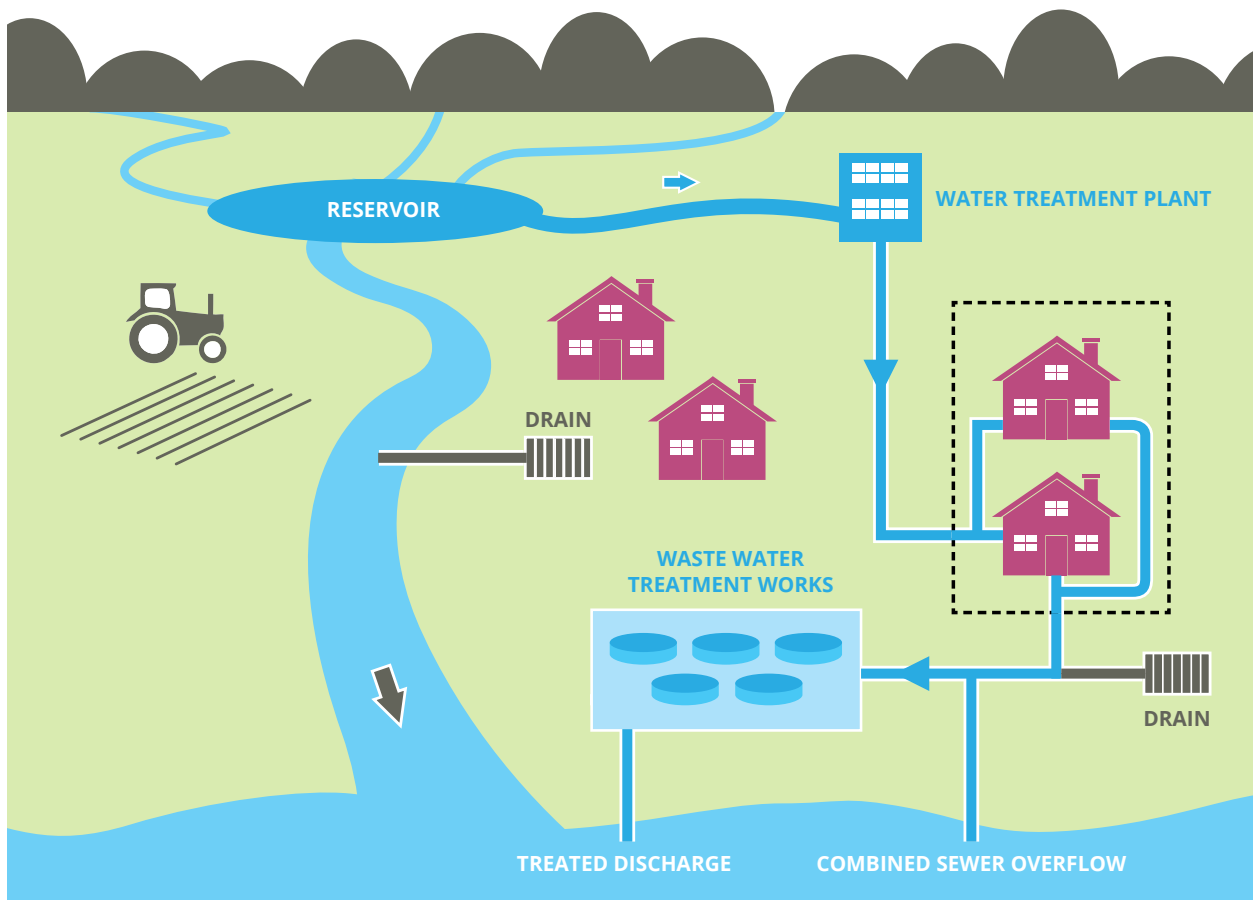
Our responsibilities for wastewater commence when effluent reaches the public wastewater network. We are responsible for its transfer to wastewater treatment plants, its treatment and the subsequent discharge of the treated effluent back into the water environment. We are also responsible for the treatment and disposal of the sludge that is generated from both our water and wastewater treatment plants.

Our environmental responsibilities are to ensure that the quantities of water that we abstract are sustainable and that sufficient water remains in water bodies to support the needs of the ecology and other water users. Our discharges to surface & ground water and emissions to the atmosphere must comply with current legislation, including meeting our discharge license requirements in relation to the EU Water Framework Directive objective to achieve "Good" water quality status for all water bodies. We must also meet national targets for energy efficiency set by the Government.

We are not responsible for Group Water Schemes or private water schemes. While we do provide water to those Group Water Schemes which are supplied from the public network, we are not responsible for their distribution networks and other infrastructure such as reservoirs and pumping stations. We are also not responsible for private wells or septic tanks. The surface water drainage network and flood prevention works remain the responsibility of the relevant local authority or the Office of Public Works. Our responsibility in this area relates only to flooding from our combined sewers (foul sewers receiving stormwater flows), that are generally found in older urban areas. We intend to establish a memorandum of understanding with both the Office of Public Works and local authorities to reflect the complex nature of urban flood management and the responsibilities of each of the parties.

The extent of our responsibilities is illustrated in dark blue in the graphic below.

**Figure 1** Extent of Irish Water's Responsibilities



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## Our Assets

Control of water services infrastructure assets, with a value of more than €11 Billion, transferred from 34 local authorities to Irish Water in January 2014. This large portfolio includes several thousand assets including reservoirs/ water storage facilities, water and wastewater treatment plants, pumping stations, approximately 60,000 km of water pipelines and 25,000 km of wastewater pipelines. At present, we supply drinking water to 3.3 million people through around 900 water treatment plants as well as the collection and treatment of wastewater from over 1,000 separate agglomerations (urban settlements). Due to the previously fragmented nature of the management of water services across the local authorities, the level and quality of data and records vary widely. Consequently, we will be carrying out asset surveys to increasing levels of detail, prioritising critical assets.

We do know that the condition of our assets varies from very good to 'at risk of failure' or in some cases the asset has actually failed. The scale of the remedial works required to eliminate the risk of failure has not yet been fully quantified. Of particular concern is the fact that a significant number of water supply zones are vulnerable to microbiological contamination. Leakage from our water supply networks is at unacceptable levels and well above international norms. Many of our wastewater treatment plants do not meet the legal requirements for discharging effluent to the water environment. Infiltration of groundwater into our wastewater collection network also presents difficulties for the adequate treatment of wastewater.

## Our Partners in Delivering Water Services

Irish Water took over the overall responsibility for water services from the 34 local authorities (subsequently amalgamated to 31) in January 2014. Irish Water operates the service on a daily basis through the implementation of Service Level Agreements with the local authorities (LAs) which will run for up to 12 years. Irish Water will prepare annual service plans with the local authorities and the plans will be delivered under these SLAs. Irish Water is currently implementing a transformation plan with the LAs to move towards a single way of working based on the utility model of delivering water services in Ireland into the future.

## Our Legal Context

Irish Water will plan, develop and operate our water service functions in line with the requirements of prevailing relevant national and European legislation. Relevant legislation includes multiple statutes, regulations and European directives, some of the most pertinent legislation is included below to illustrate the legislative context in which we operate and which is covered by this plan. The requirements of this legislation are elaborated on in the following chapters where relevant and a more comprehensive list of relevant European legislation is included at Appendix B of the SEA Environmental Report of the WSSP.

### Water Services Acts 2007- 2014

Irish Water was incorporated in July 2013 as a semi-state company under the Water Services Act, 2013. The Act sets the governance and funding arrangements for the company in addition to the requirements for water metering. The Water Services (No. 2) Act, 2013 provides for the transfer of water services functions and infrastructure assets from the Local Authorities to Irish Water. This Act also gives Irish Water the authority to charge all customers who are in receipt of public water and waste water services and requires that Irish Water submits a plan for the charging of customers for the provision of water services to the Commission for Energy Regulation (CER) for approval. The CER has been given the responsibility for the approval of a Code or Codes of Practice dealing with the standards of performance to be achieved by Irish Water in the delivery of its functions

Section 33 of the Water Services (No. 2) Act, 2013 requires Irish Water to prepare a Water Service Strategic Plan (WSSP). The WSSP shall state the objectives of Irish Water in relation to the provision by it of water services in respect of the period of 25 years following the approval of the plan by the Minister for the Environment, Community and Local Government. A review of the implementation and operation of the WSSP shall be conducted every 5 years. Section 34 of the Act requires Irish Water to prepare Investment Plans at intervals as directed by the CER. The Investment Plan sets out the investment in water services that Irish Water considers necessary for the effective performance of its function over the investment period. The Investment Plan forms a significant part of Irish Waters submission to the CER in relation to approval of charges to customers for water services. The WSSP and the Investment Plans must take into account statutory spatial planning policy and the requirements of river basin management plans prepared under the Water Framework Directive (see Figure 3).





## European legislation pertinent to the operation of Irish Water

As a member state of the European Union, the **Irish state** is required to comply with Directives set by the EU which are transposed into national legislation through Statutory Instruments. The principal directives and resultant national legislation pertinent to the activities of Irish Water are summarised below and discussed further in the Chapters 4, 5, 6 and 7.

- The European Drinking Water Directive (DWD), Council Directive 98/83/EC concerns the quality of water intended for human consumption and sets out quality requirements for same. It applies to all water intended for human consumption apart from natural mineral waters and waters which are medicinal products. The Directive is transposed into national legislation by the European Union (Drinking Water) Regulations 2014.
- The Urban Wastewater Treatment Directive (91/271/EEC) has the objective to protect the environment from the adverse effects of urban wastewater discharges through the regulation of the collection, treatment and discharge of urban wastewater. The Directive is transposed into national legislation by the Urban Waste Water Treatment Regulations 2001.
- The Water Framework Directive (2006/11/EEC) establishes a catchment based approach to the protection, improvement and sustainable use of rivers, lakes, transitional waters (estuaries), coastal waters and groundwater and is given effect through the preparation and implementation of River Basin Management Plans. It adopts the 'polluter pays' principle while the provisions of Article 22 of the Directive facilitates incorporating the requirements of a number of existing Directives into the wider objectives of the WFD. The Directive is transposed into Irish legislation by EU (Water Policy) Regulations 2003 and 2014, EU Surface Water Regulations 2009 and EU Groundwater Regulations 2010. The European Union Water Policy Regulations 2014 added Irish Water as a Public Authority for the purposes of cooperating with the Minister, the EPA and Local Authorities in the preparation and implementation of River Basin Management Plans. Irish Water participates within Tiers 2 and 3 of the new Governance structure summarised below:

**Figure 2** Irish Water's involvement in River Basin Management Plans

<p><b>TIER 1</b> National Governance</p>	<ul style="list-style-type: none"> <li>• <b>Policy, regulations and resources</b></li> <li>• <i>Led by DECLG</i></li> </ul>
<p><b>TIER 2</b> Technical Coordination</p>	<ul style="list-style-type: none"> <li>• <b>Coordination of monitoring, assessment, reporting and implementation</b></li> <li>• <i>Led by EPA</i></li> </ul> 
<p><b>TIER 3</b> River Basin District Actions</p>	<ul style="list-style-type: none"> <li>• <b>Implementation of Programmes of Measures, tracking and reporting</b></li> <li>• <i>Led by the lead Coordinating Local Authority</i></li> </ul> 



- The Habitats Directive (92/43/EEC) places an obligation on all Member States of the EU to establish the Natura 2000 network and require protection of defined habitats and species. The network is made up of Special Protection Areas (SPAs), established under the EU Birds Directive (79/409/EEC), and Special Areas of Conservation. The Directives were transposed into Irish national regulations and have been subsequently revised and consolidated in the European Communities (Birds and Natural Habitats) Regulations 2011.
- Environmental Liability Directive (2004/35/EC) transposed by the European Communities (Environmental Liability) Regulations 2008 which establishes a framework of environmental liability based on the 'polluter-pays' principle, to prevent and remedy environmental damage. A key aspect is that it requires all businesses to put in place management plans to prevent pollution of the environment and control spills of toxic substances.
- Aarhus Convention (1998) which lays down a set of basic rules to promote the involvement of citizens in environmental matters and to improve enforcement of environmental law. The provisions of the Aarhus Convention are broken down into three pillars: access to information, public participation in decision-making and access to justice. All members of the public are required to have access to review procedures to challenge decisions relating to the environment, made by public bodies or private persons. These procedures must be 'fair, equitable, timely and not prohibitively expensive'.

#### **Additional national legislation pertinent to the operation of Irish Water**

- Water Supplies Act, 1942. The abstraction of water from any lake, river, stream, well, or spring by a sanitary authority (Irish Water has the status of a sanitary authority) for a public water supply is governed by the Water Supplies Act which requires a sanitary authority wishing to abstract water for public supply to apply to the Minister (now An Bord Pleanála (ABP)) for a water abstraction order. When determining whether or not the sanitary authority can take a supply and the volume and abstraction rate for that supply, ABP must consider the potential impact of the abstraction on riparian owners, on the water body itself and on the navigability of navigable rivers or canals. ABP may refuse the granting of an abstraction order or alter the terms of the abstraction. The Water Supplies Act, 1942 also allows the sanitary authority to protect the source of their abstraction from pollution or interference with the flow.
- Planning and Development Act, 2000 and Regulations, 2001 (as amended). Irish Water is a prescribed body for the purpose of the making of making Regional Planning Guidelines, county development plans, local area plans and planning schemes. Irish Water is also a prescribed body for development management and can be asked by the planning authorities and ABP to make observations on planning applications. In addition, Irish Water must comply with the statutory requirements of the Act and Regulations when planning the development of water services infrastructure.

## **Our Commitment**

"We believe that all of our customers should receive a safe and reliable supply of drinking water and have their wastewater collected and safely returned to the environment.

We will protect the environment in discharging our responsibilities and support Ireland's social and economic growth through appropriate investment in water services."



## Our Strategic Plan for 25 years

The preparation of this Water Services Strategic Plan is required under Section 33 of the Water Services (No. 2) Act, 2013, with the purpose of stating the objectives for Irish Water in the provision of water services and the means to achieve those objectives over the next 25 years. As a public plan, it has been subjected to Strategic Environmental Assessment (SEA) in accordance with the European Union (EU) SEA Directive (2001/42/EC) and Appropriate Assessment (under the EU Habitats Directive) and these documents are also published for review.

This is the first Water Services Strategic Plan of Irish Water and it will be reviewed on at least a five yearly basis to ensure that the plan continues to be appropriate and captures the strategic objectives needed to provide efficient and effective water services for Ireland. The reviews will also be informed by changes in legislation and better information, especially on asset performance, demographics and climate change. Future reviews will also benchmark our performance against the targets set out in this plan and allow for revision of these targets to achieve our long term objectives.

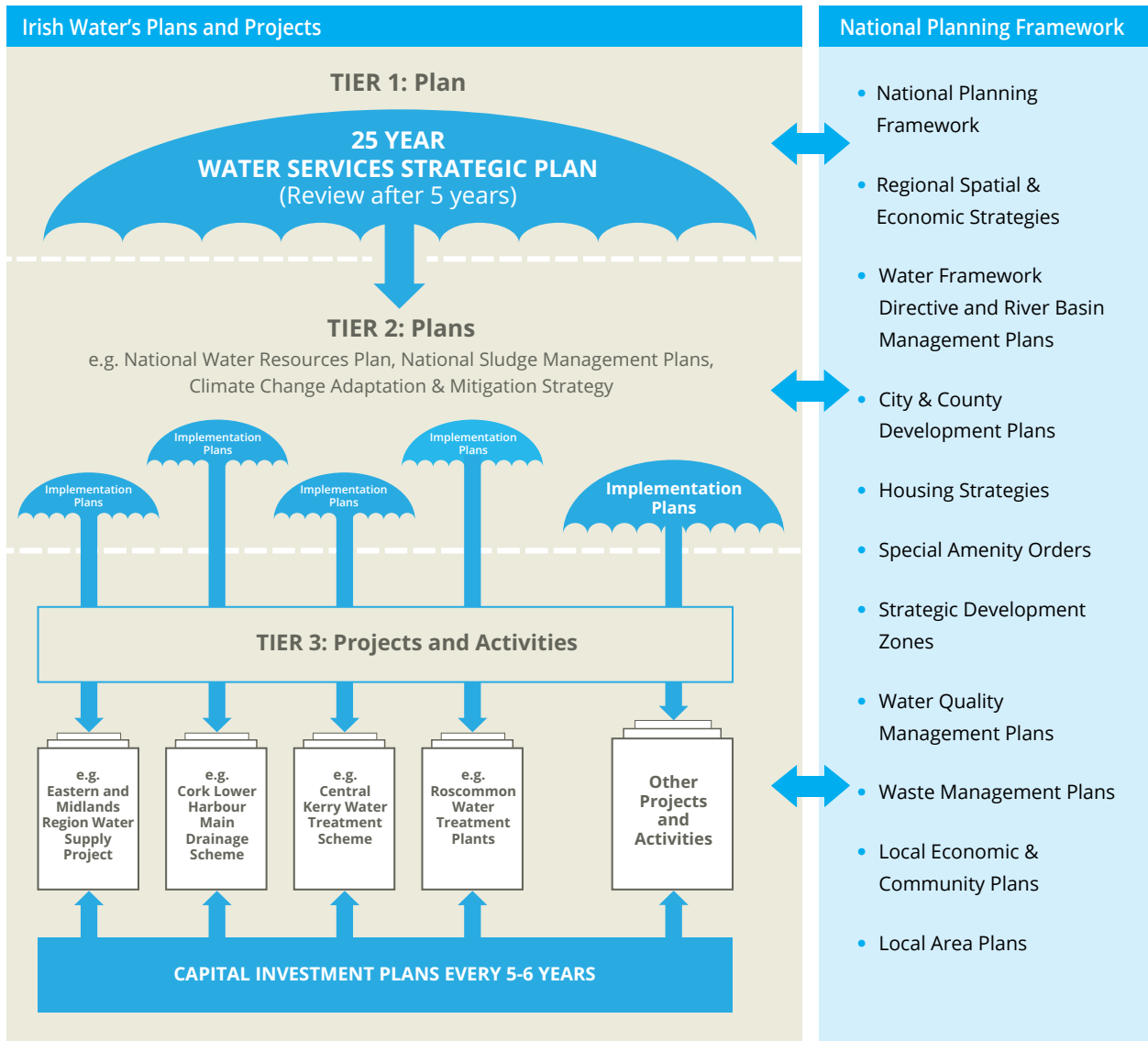
An interim review is also planned to ensure consistency with the new National Planning Framework, the new Regional Spatial and Economic Strategies and River Basin Management Plans which will be developed in the next few years.

## Planning for the Future

This Water Services Strategic Plan sets the context for subsequent implementation plans. These implementation plans will detail the programmes of works to be completed in specific water service areas, for example, water resource planning, sludge management planning, climate change adaptation and mitigation and wastewater compliance. Each implementation plan will ensure that we comply with our legal obligations, meet the objectives of this Water Services Strategic Plan and our performance targets. The implementation plans will also take into account the findings of other relevant national, regional and local plans (e.g. river basin management plans and regional development plans) and will be subject to Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA) legislation as required.

The relationship of this (Tier 1) Water Services Strategic Plan to the (Tier 2) implementation plans and the future (Tier 3) projects is illustrated in Figure 3 with their relationship to the national spatial planning framework included.

**Figure 3** Relationship of this Tier 1 WSSP to the Tier 2 plans and Tier 3 projects and their relationship to the national planning framework



**Table 1** A draft timetable for the delivery of implementation plans and strategies

Title of Plan/Strategy	Estimated Date Available	Strategy addressed
National Water Resources Plan	Q3 2017	WS1a
Drinking Water Safety Plans <i>Plans for 135 water supply zones (WSZ)</i> <i>Plans for the remaining WSZ</i>	Q1 2016 Q1 2021	WS1b
THM & Pesticides Strategies	Q3 2017	WS1f
National Water Treatment Plant Sludge Management Plan	Q3 2017	EN3c
Lead in Drinking Water Mitigation Plan	Q1 2016	WS1e
Wastewater Compliance Strategy	Q3 2017	WW1a
National Wastewater Sludge Management Plan	Q4 2015	EN3b
Climate Change Adaptation and Mitigation Strategy	Q2 2016	EN1c
Corporate Waste Management Strategy/Plan	Q4 2015	EN3a
Sustainable Energy Strategy	Q3 2015	EN1b





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## Our Strategic Objectives and Aims

The Minister for Environment, Community and Local Government has issued a Ministerial Direction (Water Services Strategic Plan Direction 2014) which sets out the form that this plan shall take and directs the plan to follow a customer-focussed approach with identifiable time-bound and measureable objectives. The direction also states that the plan should address the following seven thematic headings:

- **Challenges and Strategic Priorities;**
- **Meet Customer Expectations;**
- **Ensure a Safe and Reliable Water Supply;**
- **Provide Effective Management of Wastewater;**
- **Protect and Enhance the Environment;**
- **Support Social and Economic Growth; and**
- **Invest in Our Future.**

The latter six headings form our strategic objectives whilst not being in any particular order of priority. We will address these strategic objectives in partnership with our customers, our economic and environmental regulators, industry and other stakeholders to develop innovative, holistic, sustainable solutions whilst providing value for money.



## How this Document is Laid Out

The document presents the challenges and strategic priorities in the next chapter. This highlights the current and future challenges which we face in the provision of water services to customers and for the protection and enhancement of the environment. Our current priorities are also identified.

The six strategic objectives are presented in separate chapters. For each objective, we detail our understanding of the current situation, key challenges, what our customers can expect from us in the future and our high level strategies to address the challenges. Indicators and targets, against which our performance can be assessed, complete each chapter.

## A 25 Year Strategic Plan

The challenges which face the provision of water services are identified as:

- Meeting Customer Needs in an Economic and Efficient Manner
- Providing Safe Water Supplies
- Managing Wastewater
- Protecting the Environment
- Becoming more efficient in Energy use



*Roundstone, Connemara. Photo: Alan Forsyth*



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# Chapter 2 Challenges and Strategic Priorities

## The Current State of Water Services

Irish Water currently operates many fragmented and disjointed networks of water and wastewater systems. The origins of this position lie in the dispersed and rural nature of a significant part of the Irish population and the development of water and wastewater services within individual local authority boundaries. The services also reflect the historic development of our assets dating from the 19th Century up to the most recent investments.

The majority of Ireland's drinking water is of excellent quality. However, in some of our water supply zones, water quality does not meet European Union (EU) Directive and Irish Drinking Water Regulations due to microbiological contamination or exceedances of other water quality parameters. This can be due to the quality of the water source, the performance of the treatment plant or the condition of the distribution network.

Water abstractions have in many areas been sourced from smaller water bodies (lakes, rivers or groundwater) which are not capable of meeting future growth in demand without adversely affecting the surrounding environment. Likewise, smaller water bodies have a lower capacity to accept discharges from wastewater treatment plants without significant impact to the ecology (e.g. mammals, fish, invertebrates and plants).

The security of supply of water services is weak in many areas of the country with networks reliant on a single source, treatment plant or storage reservoir and low available headroom (spare capacity above normal demand) to cater for emergencies, planned maintenance or equipment failures. For example, there is frequently just 2% headroom available to supply water to the Greater Dublin Area. The vulnerability of this supply was seen in 2013 when water restrictions impacted many areas of Dublin due to a production problem at the Ballymore Eustace water treatment plant which delivers over 50% of the supply to Dublin.

A comparison with water services in Scotland is instructive. Scottish Water operates around a quarter of the number of water treatment plants as Irish Water to serve 2.4 million domestic households. The higher number of smaller water treatment plants controlled by Irish Water (many of which rely on small vulnerable sources) are more difficult and expensive to operate and we need to reduce this number through rationalisation where funding permits.

Local authorities were reliant on the exchequer for the bulk of their capital and operational funding. Capital funding rarely met the levels required especially over the last 30 years when EU standards drove the need for massive investment in upgraded treatment of drinking water and to an even greater extent in wastewater treatment. More seriously, operational budgets made only very limited provision for asset maintenance and even less for planned maintenance to preserve design capacity. The absence of an asset management approach meant that assets deteriorated over time and this is now reflected in the performance deficits giving rise to compliance failures and excessive leakage in water and wastewater networks.

## Challenges over a 25 year Period

This Water Services Strategic Plan challenges us to think holistically about water, and commit ourselves to what that means for the delivery of water services to our customers, so that we provide a strong policy-driven framework for our implementation plans and projects.

Looking beyond the current transitional challenges and immediate priorities to enable service delivery, the strategic challenges that face the provision of effective and efficient water services are:

- **Meeting Customer Needs in an Economic and Efficient Manner;**
- **Providing Safe Water Supplies;**
- **Managing Wastewater;**
- **Protecting the Environment;**
- **Becoming more efficient in Energy use; and**
- **Providing water services for future population and economic growth.**

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Within each of the later chapters on the Strategic Objectives we propose strategies to address these challenges. At the end of this chapter we identify our current, short term priorities. But first it is necessary to define their context.

### **Meeting Customer Needs in an Economic and Efficient Manner**

Meeting compliance standards and providing capacity for new development requires significant capital investment in our water services assets, particularly our treatment plants and networks. This capital investment must be delivered within efficiency targets set by CER, our economic regulator.

We must meet the service commitments to which we have agreed in the Customer Handbook, particularly in relation to accuracy of customer billing, reaction time to service requests and our relationships with customers whilst carrying out our operations. Our overall challenge is to meet the required level of customer satisfaction consistent with other utility companies within a short timescale.

### **Providing Safe Water Supplies**

Meeting the EU and Irish drinking water quality standards for all of our water supplies is a significant challenge. Pollution of water sources, groundwater and surface water, poses a significant risk of contamination to drinking water supplies and increases the cost of producing high quality potable water. Groundwater, in many areas of the country, is highly vulnerable due to the local geology and is susceptible to pollution from agricultural activities, septic tanks and other discharges to ground. Surface water sources are vulnerable to runoff of pollution from adjacent land and properties.

Leakage of water from supply networks is a serious problem on a national scale. Leakage, both in Irish Water's networks and within customer properties, is estimated nationally at approximately 49% of the water produced for supply. This is twice the level of that in the UK and several times the typical figures in Germany, Denmark and the Netherlands, indicating that significant investment will be needed over a number of investment cycles to catch up with international norms in the water utility sector. High levels of leakage result in more raw water being abstracted and treated. This uses more energy and chemicals, requires larger treatment plants and pipelines, and leaves less water in our natural environment.

Water supply within our cities and large towns does not meet international norms for available headroom. Headroom is the spare capacity of all infrastructure (abstractions, treatment plants, pumps and networks). This spare capacity is used in the event of adverse weather conditions or during unplanned incidents such as breaks in trunk mains or problems at a water treatment plant. Planning for resilient water supplies must also take place, independently of any progress in demand management (reducing unnecessary use of water) or success in reducing leakage, because loss of a key water source, treatment plant, or pipeline remains a separate risk to be managed.

Adapting to the impact of climate change places additional challenges in providing safe and reliable water supplies. Periods of drought and greater frequencies of high intensity rainfall events are predicted to result from climate change. These events will affect the reliability and quality of smaller water sources which may become unavailable or suffer deterioration in water quality for periods of the year.

### **Managing Wastewater**

The European Commission reported adversely in 2013 on Ireland's implementation of the Urban Waste Water Treatment Directive (UWWTD) and has initiated an Infringement Case against Ireland in relation to 71 wastewater agglomerations. The UWWTD sets minimum standards for collection systems, wastewater treatment plants and discharge of treated wastewater back to water bodies. The most recently available Environmental Protection Agency (EPA) publication on wastewater compliance reported that 38 (23%) of the discharges from 162 larger urban (>10,000 population equivalent (PE) and >2000 PE if discharging to freshwater bodies or estuaries) agglomerations in the country are not meeting the relevant effluent quality and sampling standards set by the Directive. These include 7 agglomerations that have no treatment or only preliminary treatment. While 77% of the 162 agglomerations meet the relevant discharge and sampling standards, they represent only 39% of the total load (PE) discharged from these agglomerations.

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Historically, combined sewer systems have been constructed in many urban areas. During periods of heavy rainfall, surface drainage from roads and other impermeable areas combines with household and business wastewater in a 'combined' sewer. This places a large stress and capacity requirement on our wastewater networks and treatment plants. In a few cases flows from combined sewers also result in the periodic flooding of nearby properties with sewage effluent. Network modelling is required to identify the level of risk and the appropriate investment needed to manage such flows.

Additionally, periods of drought impact on the ability of smaller water bodies to dilute wastewater discharges to acceptable levels. Greater frequencies of drought, as a result of climate change, will result in the requirement for increased treatment of wastewater prior to its discharge.

## **Protecting the Environment**

Irish Water is faced with a major challenge in meeting EU and national environmental obligations.

The Birds and Habitats Directives designate specific habitats and species for special protection and set up a network of protected sites (Natura 2000). Many of these sites include water bodies and others rely on water bodies such as groundwater to support key habitats and species. The EU Water Framework Directive (WFD) focuses on the environmental quality of surface (both inland and coastal) and groundwater bodies, under all influencing factors including water abstractions and treated wastewater discharges. The WFD is implemented through river basin management plans which contain programmes of measures needed to deliver the water quality targets. The implementation of the UWWTD is one of a number of basic measures that must be implemented as part of an overall WFD programme of measures. The EPA, in licensing municipal wastewater discharges, has regard to the Environmental Objectives set under the WFD, the requirements of the Birds and Habitats Directives and the timelines set out in the river basin management plans to achieve these objectives. The key objective of the WFD is to protect and prevent deterioration in all water bodies and to return all waters to at least good status.

On the forthcoming review of the river basin management plans by the EPA, Irish Water will seek to agree effective and affordable measures that will have the greatest impact in terms of water quality improvement, recognising that other water users must also play their part in achieving water quality objectives.

Irish Water recognises the significant environmental compliance challenges that must be met. The range of issues across which progress must be made is broad and we must seek agreement with our environmental and financial regulators on the balance of priorities and necessary phasing of investments.

## **Becoming More Efficient in Energy Use**

Inefficient use of energy results in higher emissions of carbon dioxide, a contributor to climate change, and higher costs. As one of the largest single users of energy in Ireland, it is important that we optimise our energy use and seek to reduce it where possible.

We will seek to optimise our daily use of energy to take advantage of cheaper, off-peak and night time energy through, for example, running pumps and treatment plants to top-up reservoirs during these periods when feasible and without compromising service levels. We will improve energy efficiency through effective operation and replacement of inefficient plant and through energy recovery.

As a major energy user on a national scale we need to develop our use of renewable energy sources through working with the energy utility companies and to maximise generation of renewable energy from wastewater sludge where feasible.

## **Providing for Future Population and Economic Growth**

The challenge of providing for population and economic growth is one of making careful, timely and cost-effective investments in new plants and upgrades, based on forecasted growth rates. This will require close interaction with the preparation of spatial planning policy at the national level and with regional and local development planning.

Irish Water needs to plan across a range of growth and demographic scenarios and to ensure that plans are consistent with national and regional spatial planning policy. As a national utility we must regularly update our strategic planning to ensure that we provide water services where and when they are needed and that water supplies and wastewater treatment capacity are not limiting constraints to the economic development of the country.

### Building Our Capacity to Address these Challenges

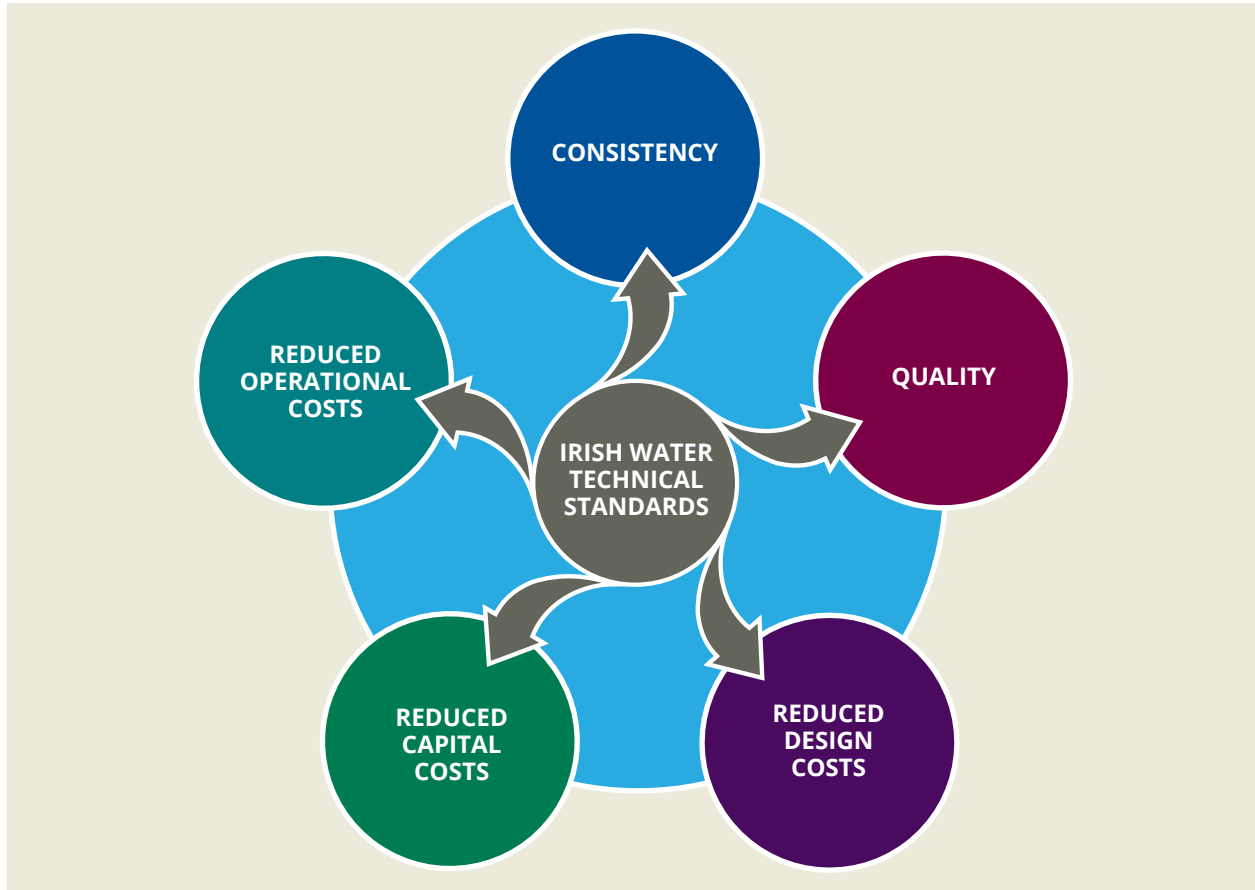
Irish Water was established to bring a consistent and efficient approach to the provision of water services. A key part of this approach is the development of our systems and processes, drawing on international best practice, where appropriate.

We will apply an asset management approach to achieve the optimum capacity from our existing infrastructure on a national basis. This will require the development of IT systems, including databases and Geographical Information Systems, to collate and display the location, condition and performance of our assets. These decision support systems will enable us to plan future maintenance and planned replacement of our asset base at least cost.

Prior to the creation of Irish Water, each local authority used its own standards based on local experience. We have begun the process of introducing Standard Operational Procedures across plants and networks. We are also introducing standardisation for spare parts, improved health and safety procedures for operatives and planned maintenance schedules. This planning and standardisation will in time improve safety and reduce the cost to operate and maintain our assets.

We will develop national approaches and specifications for the design and construction of new treatment plants and networks. This will ensure that our new infrastructure achieves the required performance in operation, that it maximises its design life and that it can be operated in a safe and efficient manner for the lowest whole life cost. The benefits from the above approaches are represented in Figure 4. )

**Figure 4** Benefits of Standardisation



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## Working With Our Regulators, Customers and other Stakeholders

To improve provision of water services, enable future growth and protect the environment, we will work closely and collaboratively with our regulators, customers and other stakeholders in all our planning, development and operational activities.

Irish Water is regulated by both the Commission for Energy Regulation (CER) for economic matters and the Environmental Protection Agency (EPA) for environmental matters and drinking water quality standards.

Irish Water's financial responsibilities (under the regulatory supervision of CER) extend to:

- The need to ensure that we perform our functions in a commercially viable manner whilst maintaining a balance between commercial viability and the cost of the service to customers.

The Environmental Protection Agency (EPA) regulates environmental matters and drinking water quality standards and our responsibilities relate to;

- The quality of the drinking water we supply.
- The impact of our activities on the water cycle (quantity and quality).
- The quality of the effluent we discharge to the environment.

The Health and Safety Authority (HSA) is responsible for Health and Safety whilst the Health Service Executive (HSE) is responsible for public health.

Irish Water also has obligations under the Water Services Act, 2013 in relation to spatial planning and is required to work with the DECLG, Regional Planning Authorities and Local Authorities in the delivery of future water services to support agreed national, regional and local spatial planning policies and plans.

## Our Current Priorities

In this first strategic plan, we need to address urgent issues in the quality of our water services and in the integrity of our infrastructure, subject to adequate funding being available to us, while ensuring that water services that currently meet required standards continue to do so. We have therefore prioritised the following six areas:

### 1. Our Customers

Demonstrating our commitment to the delivery of an improved quality water and wastewater service through the appropriate management of our assets in an economic and efficient manner ensuring least cost for our customers.

### 2. Reducing Drinking Water Quality Problems

Where water supplies are subject to Boil Water Notices, due to microbiological contamination, or have other drinking water quality problems, these must be resolved as key priorities through capital investment in infrastructure or changes to operational procedures where appropriate.

### 3. Achieving Compliance with the Urban Waste Water Treatment Directive

Bringing Ireland into compliance with the Urban Waste Water Treatment Directive must be an immediate priority. The European Commission's Infringement Case against Ireland for the 71 non-compliant agglomerations is likely to be progressed in 2015 and will require committed plans to meet the compliance limits on these and other schemes within a prescribed period.

### 4. Reducing Leakage in Water Supply Networks

We are currently utilising the early returns from the water metering programme to help us refine estimates of legitimate usage and levels of leakage within customers' properties. This will better define the size of the leakage problem, the optimum solutions and help us to determine where the largest leaks are. Works can then be prioritised which bring the largest water savings with targeted deployment of repair teams. We will also seek to reduce overall leakage within a network through better management of water pressure. We are determined to achieve the lowest level of leakage which is technically and economically sustainable, taking account of the state of the networks.

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## 5. Addressing Inadequate Asset Condition Information

Gathering accurate information on all of our assets into a quality assured database is a strategic priority. It is an essential tool for asset management over the lifetime of this plan and we cannot function effectively without it. We have currently drawn together all asset records onto a common national database (Geographical Information System) and are improving the accuracy and quality of these records on an on-going basis.

## 6. Catering for Growth

Irish Water will prioritise the allocation of resources to cater for growth using a risk based approach to determine which strategic assets are likely to constrain growth in the near future and taking into account the priorities set by the Minister and national planning policy. For example, the Minister has identified the need to address infrastructure constraints impacting on the delivery of housing units in urban areas as a current priority.

### How we will prioritise the allocation of funding.

Irish Water will prepare and publish a Capital Investment Plan (CIP) and submit this to the CER for approval of funding. The CIP will be prepared on at least a five year basis and will propose investment priorities in line with the policy set by the Minister taking into account the objectives and targets identified in this and subsequent revisions of the WSSP. Our proposed investment prioritisation methodology will be set out in each CIP.

## Monitoring Our Performance

This Water Services Strategic Plan proposes a suite of targets and indicators for each Strategic Objective presented in the later chapters. Our performance against these targets and the monitoring plan included in the SEA Statement will be assessed and reported by us within each revision of the Plan. This performance will therefore be available for scrutiny by our regulators (CER and EPA), other stakeholders and the general public. However, our progress against these targets is subject to adequate funding being available. Indicators and targets may change in subsequent revisions of the WSSP to reflect the priorities identified for the following period.

Our economic regulator, the CER, has published and will maintain **'The Customer Handbook'** which is primarily concerned with customer billing and communication. In accordance with this, we have published a set of Codes of Practice for the delivery of customer operations which will be subject to periodic revision and approval by CER.

As part of our regulatory framework, and in line with our commitment to customer care, we also operate a Customer Charter relating to our provision of water services for network operations and Terms and Conditions for both domestic and non-domestic customers. These will be published and periodically updated throughout the life of this plan.





# Chapter 3

Objective:

# Meet Customer Expectations



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## Our Strategic Aim

- Establish both Customer Trust and a Reputation for Excellent Service

### Introduction

Irish Water's first strategic objective is to meet our customers' expectations through the provision of high quality, reliable water services, delivered through resilient systems, in an economic and efficient manner, reflecting the customer service levels expected in a modern economy.

We must ensure that the need to meet higher standards for compliance in drinking water quality and wastewater discharges to the water environment is balanced against the cost of water services that we provide to our customers.

Our first response to ensuring that we deliver our services in an economic and efficient manner has been to review all proposed capital investment in our water services assets, for which we took over responsibility in January 2014, to more accurately define the scope required to address short and medium term needs and ensure value for money invested. Even with this revised scope of projects, the capital investment need remains large (€5-6 Billion is estimated to be needed by 2021).

### The Current Situation

As a new utility, we are in a period of transformation from the provision of water services by 34 (now 31) local authorities to operation and management of these services by Irish Water. Local authorities are presently working under service level agreements with Irish Water to ensure a continuity of service and a smooth transition. Our customers will continue to be served on the ground by local authority staff, operating the local treatment plants and networks. Irish Water staff will have an increasingly important role in planning and managing the provision of water and wastewater services, defining both the operational and investment strategies.

We are, therefore, in a period of transformation into a more centralised and cost effective customer operation. We will develop a new water industry operating framework to deliver more services regionally, with shared cross boundary working, centres of excellence and increased specialisation. This will enable transition to a leaner customer support team with a nationally consistent approach.

### Key Challenges

There is presently a lack of detailed knowledge of the cost and technical challenges that Irish Water face in the provision of water and wastewater services to the standards expected in a modern economy. This is because of uncertain information on the condition and performance of the assets, especially underground water distribution and sewage collection networks. Despite these limitations, Irish Water recognises that customer expectations of the quality of the service they will receive will increase following the introduction of charges.

Key challenges facing Irish Water in relation to meeting customer expectations are summarised below:

#### Identifying our customer base

Water services for part of the population are provided by Group Water Schemes or private supplies, while wastewater treatment for much of the rural population is served by septic tanks. As a result, one of our earliest activities is to identify and obtain correct contact and scope of services information for all of our customers. A primary function of the domestic customer application campaign is to identify who receives their water and/or wastewater services from Irish Water and who doesn't. This will ensure efficient delivery of services to each customer, together with accurate billing information.

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### Delivering reliable water services

Our water and wastewater assets have suffered from significant under-investment over an extended period of years. Consequently, water and wastewater services can be variable and inconsistent. We will prioritise investment to firstly ensure universal, basic service availability and beyond that to deliver consistent service quality equivalent to that provided by high performing utilities in other sectors.

### Meeting our customer service commitments and Codes of Practice

We are committed to achieving the service standards set out in the Customer Handbook. These standards are approved by the Commission for Energy Regulation (CER) and are the basis of the content of Irish Water's Customer Charter, Terms and Conditions and Codes of Practice.

### Delivering customer satisfaction

We anticipate a high level of communication with our customers by letter, email, phone, digital channels and through the media. We are committed to handling all customer communication in the manner expected of a modern professional utility. We aspire to deliver a consistent, functional and ultimately satisfying customer communication experience in relation to operational and billing queries, complaints, service requests, new connections services and all other interactions with Irish Water staff and contractors.

### Establishing sustainable customer funding

We are in a period of transition from water services being funded primarily through general taxation to one where direct charging of the end user provides part of the funding. As a utility increasingly dependent on the payment of water charges, it is essential that our customers recognise the importance of good water services provided efficiently.

### Balancing key customer objectives

Irish Water must work with our economic regulator to ensure that the costs incurred to deliver necessary improvements in infrastructure, services and standards is based on efficient working (both capital and operational).



## Objectives and Strategies

The proposed strategies to meet the above challenges and to achieve this objective are summarised in the table below and are detailed in the remaining sections of this chapter.

Strategy		Purpose
<b>Aim CE1 – Establish both Customer Trust and a Reputation for Excellent Service</b>		
CE1a	Create and operate a lean and effective Customer Operation.	Deliver best practice and value for money in customer operations.
CE1b	Build and maintain accurate customer databases.	To ensure accurate customer services and billing.
CE1c	Establish sustainable customer revenue.	To secure funding necessary to deliver efficient and effective water services.
CE1d	Establish effective communication channels with customers.	To ensure that customers can communicate with us when they need to in a manner that suits them and can be promptly informed of changes to services.
CE1e	Establish national customer service standards and robust customer protection measures.	Set appropriate customer expectations and deliver to these.
CE1f	Fully support the work of the Public Water Forum and establish effective communication with all our stakeholders.	To address the comments and suggestions of the Public Water Forum in relation to the performance by Irish Water of its functions and to ensure that we are open and transparent in relation to our obligations under Freedom of Information legislation and the Aarhus Convention.

### **CE1: ESTABLISH BOTH CUSTOMER TRUST AND A REPUTATION FOR EXCELLENT SERVICE**

#### **[CE1a] Create and operate a lean and effective customer operation.**

The employment of an effective workforce is an important part of delivering a competent customer service operation. This also requires Irish Water to establish the structure and governance procedures needed to deliver effective customer services. To ensure that the customer service operations are efficient, flexible long term service contracts with our suppliers will be required which will incorporate strict contract management systems. Irish Water is working with each local authority to ensure that effective structures, work practices, management and training of water services employees under the service level agreements is in place. It is working actively with the sector to achieve cross boundary working by local authority personnel to drive efficiency and improve service quality.

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## **[CE1b] Build and maintain accurate customer databases.**

Collating an accurate database of customers is critical to efficient delivery of services to each customer as well as Irish Water's revenue generation capability and customer acceptance of water charges. Irish Water is currently validating its domestic customer lists whilst simultaneously working with local authorities to transfer all non-domestic customers. This will provide Irish Water with the capability to communicate with, and provide quality water services to, customers effectively into the future and to implement accurate billing. Maintenance of an accurate database is crucial to Irish Water to enable delivery of an effective water service to all customers.

## **[CE1c] Establish sustainable customer revenue.**

To be willing to pay for the water and wastewater services that they are receiving, customers need to be satisfied that they are paying a fair amount for a defined service level. It is essential that Irish Water has a clear and transparent tariff structure and that we explain this clearly. We are working closely with our economic regulator (the CER) and other stakeholders on tariffs and customer protection consultations in order to achieve this objective. Customers expect to be able to pay in a way that best suits their needs. Irish Water will provide payment methods and frequency of payments that meet with customer demand.

## **[CE1d] Establish effective communication channels with customers.**

A number of documents have been published setting out how Irish Water will communicate with our customers.

The Customer Handbook, published by the Commission for Energy Regulation (CER) provides guidelines on the required levels of customer service. The Handbook is available at;

**<http://www.cer.ie/docs/001009/CER15010%20Irish%20Water%20Customer%20Handbook.pdf>**

The Codes of Practice and Customer Charter set out our commitments for effective communication with our customers.

The Customer Charter (**<http://www.water.ie/docs/150326-Customer-Charter.pdf>**) sets out the service provided and service quality levels offered to our customers. It also sets out a number of commitments where charter payments apply for domestic customers.

The Codes of Practice (**<http://www.water.ie/our-customer-commitment/>**) set out the standards and conditions of service for our customers and include information on: our charging structure, payment options, customer complaint handling (including the CER's dispute resolution role), frequency of bills and the testing of meters. They also include details on how you can expect us to communicate with customers and what we will do during planned and unplanned interruptions to the water supply.

All new domestic customers are issued with a copy of our Domestic Terms and Conditions for Water Services

**<http://www.water.ie/docs/Domestic-Terms-and-Conditions-English.pdf>**

We understand that some of our customers have different needs when it comes to using our water services and communicating with us. We have developed a register of vulnerable customers, which includes:

- a special services register for those customers who require additional support communicating or receiving services from us and;
- a priority services register for those customers who are critically dependent on water for their medical needs.

The vulnerable customer Code of Practice **[http://www.water.ie/docs/Vulnerable\\_Services\\_Booklet\\_ENG\\_web\\_final.pdf](http://www.water.ie/docs/Vulnerable_Services_Booklet_ENG_web_final.pdf)** gives details of how we plan to respond and adapt the services and communications provided to suit the needs of customers who tell us they are vulnerable.

We are committed to providing an excellent service to our customers that meets their evolving needs and requirements, while taking into account the challenges we face in establishing a modern water utility and the necessary upgrade of our assets to provide a reliable water supply.



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Our communications are intended to reach all of our customers and other interested parties and include the use of:

- **Our website;**
- **Social media;**
- **SMS messages (texts, used in clusters to communicate local operational problems);**
- **Telephone;**
- **Letter; and**
- **Face to face.**

Irrespective of the form of communication used we will always listen to feedback from our customers.



### **[CE1e] Establish national customer service standards and robust customer protection measures.**

Irish Water is committed to providing a satisfactory standard of water services to our customers with robust customer protection measures in place.

Our service standards outlined in our Codes of Practice and Customer Charter (for both domestic and non-domestic customers) are approved by the CER. Our Customer Charter originally published on the 30th September 2014 (<http://www.water.ie/docs/150326-Customer-Charter.pdf>) commits us to engage with customers through a range of communication channels. It also offers a process for the resolution of Customer Complaints and sets out Guaranteed Service Standards.

We operate under a range of Codes of Practice which comply with the requirements of the Water Handbook relating to:

- **Domestic Customer Communications Code of Practice**
- **Domestic Metering Code of Practice**
- **Domestic Billing Code of Practice**
- **Domestic Vulnerable Customer Code of Practice**
- **Domestic Network Operations Code of Practice**
- **Domestic Complaint Handling Code of Practice**
- **Business Customer Codes of Practice**

These are available from our Customer Communications team or on our website (<http://www.water.ie/our-customer-commitment/>). We expect our published codes and charter commitments to expand and evolve over time.

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## **[CE1f] Fully support the work of the public water forum.**

Irish Water will fully support the work of the Public Water Forum to be established under the Water Services Act, 2014. This forum represents the interests of Irish Waters' customers. We will work with this customer consultative forum to fully understand the expectations of our customers in relation to how we perform our statutory functions. We will listen to and address the comments and suggestions coming from the forum in relation to the performance of our functions.

In addition to and complementing our communication channels with our customers through the strategies outlined in above and through the Public Water Forum, Irish Water will take a proactive approach to communicating with our broad stakeholder base and will fulfill our obligations under the Freedom of Information Act, 2014 and the Aarhus Convention as outlined below;

### **Freedom of Information Act 2014**

Irish Water is a listed FOI body and full information on our FOI process and approach can be found on our website: <http://www.water.ie/about-us/freedom-of-information/>

### **Aarhus Convention**

The aim of the Aarhus Convention is to link environmental protection with human rights by ensuring access to environmental information (AIE), public participation in decision making and access to environmental justice.

### **Access to Environmental Information (AIE)**

Full information on our approach to AIE can be found on our website:

[http://www.water.ie/Access-to-Information-on-the-Environment\\_.pdf](http://www.water.ie/Access-to-Information-on-the-Environment_.pdf)

We are currently developing a facility on our website where the public can access information on the quality of drinking water in any Water Supply Zone. Results of our sampling regime of 11 drinking water parameters will be available on our website in Q3 of 2015 and the site will continue to be developed to allow the customers/members of the public to link an address to the water quality in a specific Water Supply Zone.

In addition, Annual Environmental Reports (AERs) for all our licensed wastewater treatment plants are available on the EPA's Website and Irish Water will work with the EPA to ensure this information continues to be available through access to their website and links on Irish Water's website.

### **Public participation in decision making**

There are a number of existing statutory instruments through which Aarhus is legislated for, these include Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA) and our national statutory planning process. Irish Water will ensure that we comply with this legislation and examine where additional public participation can be incorporated in the early phases of these processes.

Irish Water has demonstrated this approach in the consultation undertaken to date on the WSSP, which has had both statutory and non-statutory consultation phases in order to ensure that the general public can participate as early as possible in the decision-making process.

### **Environmental Justice**

All persons who feel their rights to access to information have been impaired (request for information ignored, wrongfully refused, inadequately answered) must have access, in the appropriate circumstances, to a review procedure under national legislation.

Irish Water will, as stated above, endeavour to help people access information; however there are procedures within the legislation that a person can follow if they feel they are not satisfied.

## Indicators and Targets

Indicators and targets to demonstrate that we meet this objective are presented in the table below.

MEET CUSTOMER EXPECTATIONS					
Indicators	Definition	Current Baseline	End of 2021 Target	End of 2027 Target	2040 Target
AIM CE1	Establish both Customer Trust and a Reputation for Excellent Service				
Contact Handling	Call answering and call abandonment	80% of calls answered in less than 20 seconds. Less than 5% of calls abandoned	80% of calls answered in less than 20 seconds. Less than 5% of calls abandoned	80% of calls answered in less than 20 seconds. Less than 5% of calls abandoned	80% of calls answered in less than 20 seconds. Less than 5% of calls abandoned
Complaint Handling	Time based	90% resolution or understood steps to resolution within 5 working days	100% resolution or understood steps to resolution within 5 working days	100% resolution or understood steps to resolution within 5 working days	100% resolution or understood steps to resolution within 5 working days
Supply Interruption	Advanced Notice	Not established	Minimum 2 day advanced notice of planned interruption	Minimum 2 day advanced notice of planned interruption	Minimum 2 day advanced notice of planned interruption
Billing & Payments	Meet CER's requirements	Accurate quarterly bills based on actual reads (for metered customers) Range of customer focused payment options available Sympathetic handling of payment difficulty cases			

# Chapter 4

Objective:

# Ensure a Safe and Reliable Water Supply



## Our Strategic Aims

- Manage the sustainability and quality of drinking water from source to tap to protect human health.
- Manage the availability, sustainability and reliability of water supply now and into the future.
- Manage water supplies in an efficient and economic manner.

### Introduction

Safe and reliable water supplies are essential to public health and to social and economic progress. The water we need must be abstracted from surface or groundwater sources and treated to a high standard before it is distributed through an extensive network of water mains to households and businesses.

This chapter details the current situation in regard to water supply, the challenges that Irish Water faces and our strategies for tackling these challenges. These strategies are arranged around three key requirements of:

- **Quality;**
- **Sustainability and Reliability; and**
- **Managing Water Supplies in an Economic and Efficient Manner.**

Performance targets against these key requirements are also presented.

### The Current Situation

Delivering a safe and reliable drinking water supply to over 80% of the population requires the abstraction, treatment and delivery of over 1,600 million litres of water each day. Water is delivered to each tap from a water supply zone. This is a defined supply area served by a single source or group of connected sources. Treated water is processed and transported from the water source through to each tap. The system serving the water supply zone includes one or more abstractions (where water is taken from - lake, river or groundwater), treatment plants to purify and disinfect the water, storage in a tank or reservoir and distribution through pipes. A graphical representation of a water supply zone is presented in Figure 5. There are currently around 900 separate water treatment plants and approximately 60,000 km of pipelines delivering water in Ireland.

Water supply zones were historically developed within local authority boundaries rather than on a river basin or regional level. This fragmentation has resulted in a large number of small water treatment plants and water supply zones and a highly variable performance ranging from good operation in newer treatment and distribution infrastructure (e.g. pumps, plant and pipes) to periods of unacceptable performance in older systems. Smaller water sources are also susceptible to sporadic and seasonal variations in water quality and availability.

### Our Main Legal Obligations

Legislation in relation to water services and public health dates back to the last century. The water quality standards which our treated water supplies must now meet are set by the European Drinking Water Directive and transposed into law in Ireland through the European Union (Drinking Water) Regulations, 2014. Enforcement of these regulations is the responsibility of the EPA. Amongst other requirements, the regulations set the limits of concentrations for a range of chemical and microbiological parameters in water intended for human consumption. Under the drinking water regulations, Irish Water must notify the EPA of non-compliances with these parameters. Parameters which do not impact on the wholesomeness or cleanliness of water intended for human consumption, such as colour or hardness, are not included as a required standard within the Drinking Water Directive.



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The abstraction of water from any lake, river, stream, well, or spring by a sanitary authority (Irish Water has the status of a sanitary authority) for a public water supply is governed by the Water Supplies Act, 1942. This Act requires a sanitary authority wishing to abstract water for public supply to apply to the Minister (now ABP) for a water abstraction order. When determining (i) whether or not the sanitary authority can take a supply; and (ii) the volume; and (iii) abstraction rate for that supply, ABP must consider the potential impact of the abstraction on riparian owners, on the water body itself and on the navigability of navigable rivers or canals. ABP may refuse the granting of an abstraction order or alter the terms of the abstraction. The Water Supplies Act, 1942 also allows the sanitary authority to protect the source of their abstraction from pollution or interference with the flow.

Our commitments in relation to the Birds, Habitats and Water Framework Directives are detailed in the Chapter 6 – Protect and Enhance the Environment and generally relate to the preservation of sustainable ecological flows in water bodies from which we abstract and ensuring that the construction and operation of our water supply infrastructure does not impact negatively on protected areas and species.

## Key Challenges

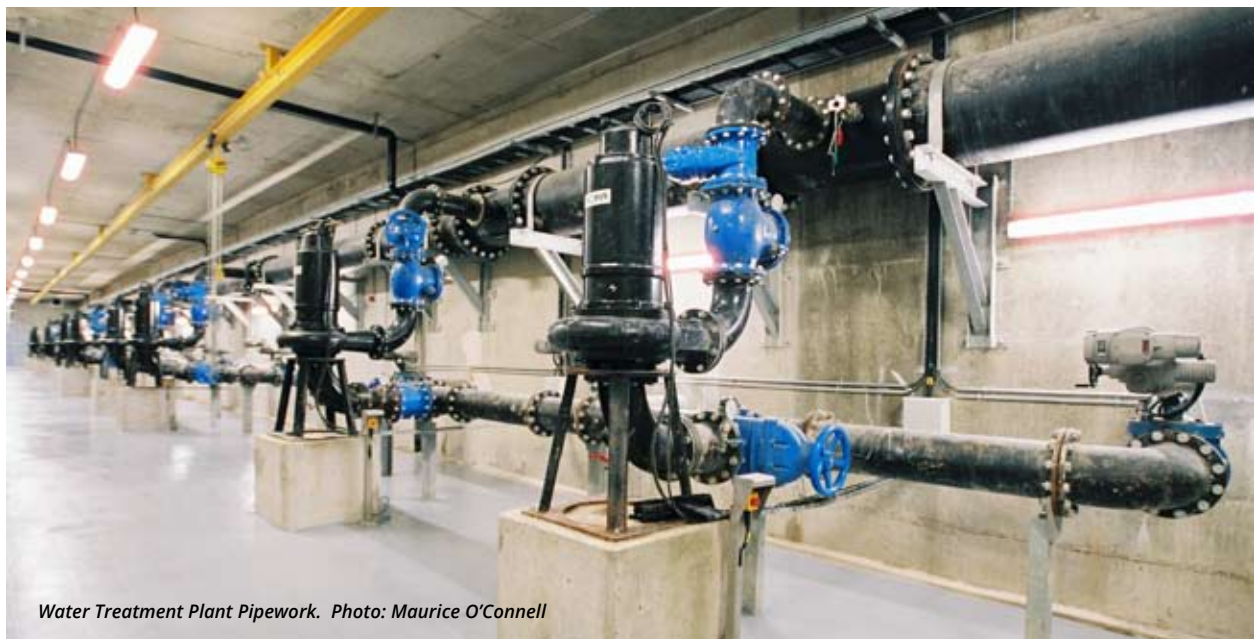
The challenges which face Irish Water to ensure a safe and reliable water supply to all its present and future customers are summarised in the paragraphs below.

There are currently many water supply zones which fail to meet the European and Irish Drinking Water standards for microbiological and chemical parameters or have significant operational, maintenance or capacity problems at individual treatment plants, giving rise to water quality risks. This includes customers who have a Boil Water Notice due to microbiological contamination in their water supplies (approximately 23,000 customers in January, 2014). This situation is unacceptable to us and addressing it is our top priority.

Protection of water sources from contamination ensures safe water supply and reduces treatment costs. However, the protection of individual water supply sources has to date been variable and risk based assessments to determine and prioritise protective measures have not been completed for all water supply sources.

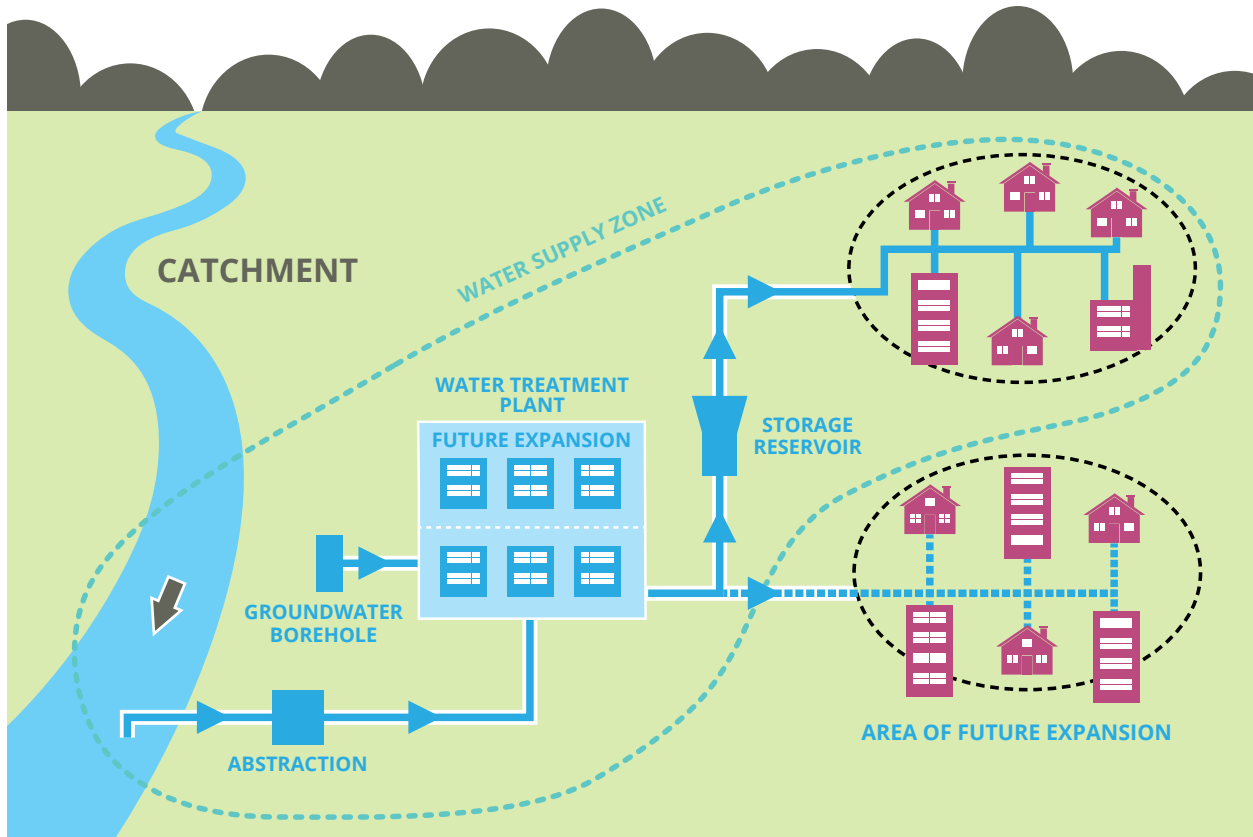
Water resources for supply have not, previously, been managed on a catchment, regional or national basis. Therefore, we have urban regions such as Dublin where there is a potential shortage of future water resources whilst in the west of Ireland there are catchments with a surplus of potential available resources but a deficit in treatment provision.

No national rules are in place to ensure correct, safe and efficient operation of our treatment plants, storage and distribution network. In some areas there is limited knowledge of the condition, lifespan and location of our above and below ground assets (e.g. treatment plants, pipes, valves and other infrastructure).



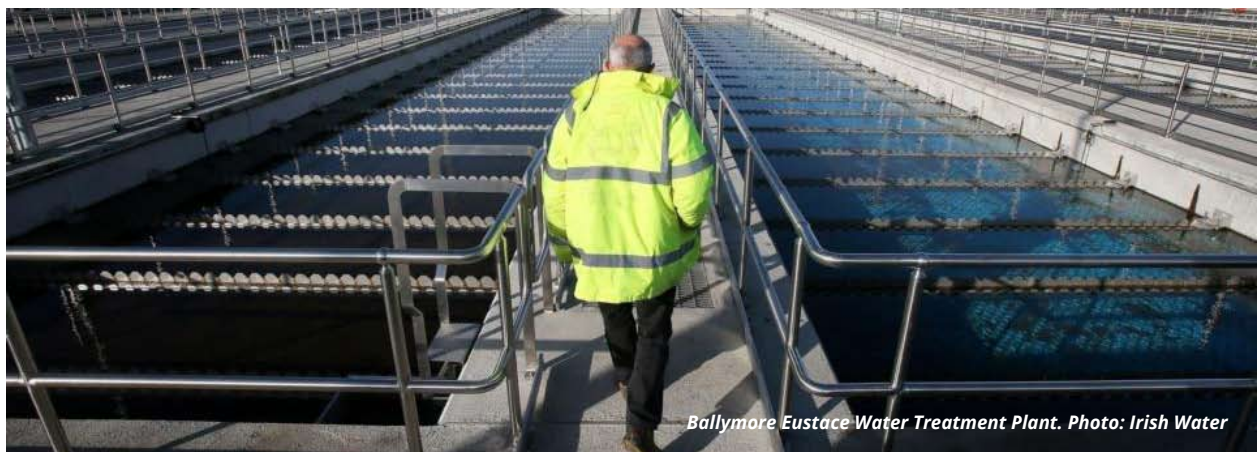
*Water Treatment Plant Pipework. Photo: Maurice O'Connell*

**Figure 5** Graphical Representation of a Water Supply Zone



Water flows through pipes at pressure from the treatment works to each household tap. We currently estimate that nationally we are losing approximately 49% of our treated water to leakage from the distribution network and in customer properties. This is unacceptable and reducing this level of leakage is a priority. However, with an underground network of ageing pipes and with a pressurised system including thousands of joints vulnerable to ground conditions and traffic vibrations it will never be possible to reduce water leakage to zero. Instead, our intention is to apply a best practice asset management approach in an economic and efficient manner in order to achieve the optimum water savings to achieve a sustainable and economic level of leakage. The metering of domestic and commercial properties will aid the detection of leaks within the customer's property and alert customers to the wastage of water on their property with the potential to reduce their water bills.

Water supplies also face a range of challenges from external factors outside of Irish Water's control such as climate change and the need to maintain sustainable resources by balancing abstraction against environmental needs.



*Ballymore Eustace Water Treatment Plant. Photo: Irish Water*

## Case Study

# Vartry Water Supply, a City Perspective

Prior to the 1860's in Dublin, most drinking water was sourced from the Royal and Grand Canals. The canals were poor water sources, offering limited supplies of low pressure, filthy water.

***"Drink the canal water as it is and you swallow filth and animal nature; boil it and you drink a decoction of poison"*** wrote one Dubliner of the day, Walter Thomas Meyler. The poor quality of drinking water in the city, resulted in large scale outbreaks of cholera and in the 1860's over a thousand deaths were traced directly to a single public water tap in Dublin which was contaminated with sewage. In 1852, an eminent doctor John Gray, was elected to Dublin City Council where he gained a reputation for his interest in improving the lot of the impoverished. In 1853 he was elected to the Waterworks Committee, and began work on improving the water supply for Dublin. He identified the River Vartry rising below the Sugar Loaf Mountain in County Wicklow, as the best potential source for the city. He sought to have a Parliamentary Bill passed to empower Dublin Corporation to advance the works, however, he faced wide scale objections from the private owners of the canals and there was outcry in the media at the high cost of the works and the volumes of water proposed. The Bill was debated for nearly five weeks and the first stones were turned on site in 1862. The Vartry Supply involved building two

major reservoirs to the south of Roundwood in Co. Wicklow, a water treatment plant, a 2.45 mile long tunnel under Callowhill, and forty miles of trunk water mains to deliver water to the city. The project was an amazing feat of engineering, with the works completed by men using picks and shovels, horses and carts.

The new supply project resulted in significant improvements in the quality of life for the inhabitants of Dublin. In terms of public health, the last major outbreak of dysentery was recorded in the late 1860's and the Vartry scheme dramatically reduced the scourge of waterborne disease in the city.

As a testimony to the success of the project, the original Vartry supply still provides drinking water for 200,000 people or 15% of the population of the Greater Dublin Area. However, the treatment plant and infrastructure has had no major upgrade since it was first built over 150 years ago, and the supply is now in decline. The water treatment plant does not conform to modern drinking water regulations, the tunnel is in danger of collapse, and the reservoir draw-off facilities need a to be re-built to ensure the safety of the structure. The upgrading of the Vartry Water Supply is likely to be addressed in Irish Water's National Water Resources Plan and future Capital Investment Plans.



Vartry Water Treatment Plant. Photo: Nicholas O'Dwyer.



Statue of Dr John Gray in O'Connell Street, Dublin.

Photo: Irish Water

## What our customers can expect from us

We will develop and implement strategies underpinned by 'on the ground' measures to meet water quality standards, ensure water availability and provide an acceptable level of service to our customers. We will monitor and report our compliance with these strategies.

## Objectives and Strategies

The proposed strategies and performance targets to achieve this objective are summarised in the table below and are detailed in the remaining sections of this chapter.

Strategy	Purpose
<p><b>Aim WS1 - Manage the sustainability and quality of drinking water from source to tap to protect human health</b></p>	
<p><b>WS1a</b></p>	<p>Prepare a National Water Resources Plan and implement on a phased basis.</p> <p>To ensure a sustainable water supply for all customers whilst maintaining sustainable ecological water flows, complying with water quality standards, identifying key strategic sources to support balanced regional development.</p>
<p><b>WS1b</b></p>	<p>Prepare and implement Drinking Water Safety Plans for all Water Supply Zones.</p> <p>All water supplies are protected in accordance with international best practice.</p>
<p><b>WS1c</b></p>	<p>Implement Standard Operational Procedures for all water treatment plants, water storage facilities and distribution networks.</p> <p>To ensure correct treatment of water and optimal operation of water treatment plants.</p>
<p><b>WS1d</b></p>	<p>Develop and implement Capital Investment Plans to improve drinking water quality</p> <p>To target investment to ensure that water supplies comply with Drinking Water Standards and meet capacity needs.</p>
<p><b>WS1e</b></p>	<p>Prepare and implement a "Lead in Drinking Water Mitigation Plan".</p> <p>To effectively address the risk of failure to comply with the drinking water quality standard for lead due to lead pipework.</p>
<p><b>WS1f</b></p>	<p>Prepare and implement strategies to manage other quality issues in water supplies.</p> <p>To address other (non-regulatory) water quality issues such as hardness where economically feasible.</p>

Strategy	Purpose
<b>Aim WS 2 – Manage the availability, sustainability and reliability of water supply now and into the future</b>	
WS2a	<p>Implement risk assessments for all water supply areas in terms of short, medium and long term risks to customer supply.</p> <p>To ensure that water supply areas have quantified risk assessments and appropriate mitigation measures are in place.</p>
WS2b	<p>Manage existing water resources and plan for new resources taking a regional view of needs and having regard to the objectives of the Water Framework Directive (WFD).</p> <p>To ensure long term sustainability of yields is considered in the management of existing and new water sources to meet predicted needs while being aligned with the requirements of the WFD with respect to maintaining sustainable ecological flows.</p>
WS2c	<p>Develop long-term sustainable water sources with resilience to climate change.</p> <p>To ensure all new sources are able to cope with the potential impacts and risks from climate change.</p>
WS2d	<p>Develop methodologies to build strategic resilience and network connectivity into resource planning.</p> <p>To ensure that all water supply zones have built in security and reliability, by developing larger scale regional solutions which offer better governance, economies of scale in operation and can be monitored effectively</p>
WS2e	<p>Manage future regulatory requirements for abstraction licencing, headroom in treatment facilities and population growth.</p> <p>To ensure security in Levels of Service for all customers which take account of impacts from future regulation and population growth.</p>
WS2f	<p>Match water abstraction to availability and quality using surface water and groundwater sources. This is known as Conjunctive Use.</p> <p>To ensure Levels of Service for all customers accounting for seasonal and climate change variations, maximising source resilience.</p>
WS2g	<p>Prepare Regional Water Conservation Strategies and implement on a phased basis.</p> <p>To reduce water leakage to a sustainable economic level in stages through a systematic work programme over a reasonable period.</p>



Strategy		Purpose
<b>Aim WS3 – Manage water supplies in an efficient and economic manner</b>		
<b>WS3a</b>	Adopt an asset management based approach to capital maintenance and capital investment.	To maximise the lifespan of assets and their performance for consistent levels of service at least cost.
<b>WS3b</b>	Optimise the unit cost of water supply through proper water resource and treatment planning.	To minimise the unit costs of water treatment for all our customers taking advantage of scale and efficient processes.
<b>WS3c</b>	Prepare and implement water demand management and customer education strategies.	To reduce the volume of water abstracted, treated and used and therefore to reduce the cost to the customer.
<b>WS3d</b>	Optimise capital and operational investments in water supply.	To ensure the maximum return and customer benefit from investments through delivery of services in the least cost manner.

## **WS1: MANAGE THE SUSTAINABILITY AND QUALITY OF DRINKING WATER FROM SOURCE TO TAP TO PROTECT HUMAN HEALTH**

### **[WS1a] Prepare a National Water Resources Plan and implement on a phased basis.**

A National Water Resources Plan is a country wide assessment of water resource availability and water demand. The plan will assess the likely future demands of our customers and balance these needs against availability and sustainability of water for supply on a catchment and river basin scale. The plan will then make strategic level recommendations for the development of water supply infrastructure to meet the demands of population and economic growth in a sustainable manner. The plan will take a regional perspective supporting balanced regional development and will include for inter-region or inter-catchment water transfers where required to ensure adequate water provision into the future. Any such transfers must be environmentally sustainable and therefore cannot compromise the needs of the local catchment or region.

Our National Water Resources Plan will focus on efficient, environmentally sustainable use of water and providing for reliability and security of supply (system resilience). We will improve or decommission water sources which are at risk from contamination or low flows or are causing avoidable environmental impacts.

The plan will also include strategies for addressing water quality issues related to pesticides, trihalomethanes (chemical compounds formed when chlorine used to disinfect drinking water reacts with organic matter) and sludges resulting from water treatment processes (See EN3c).

The plan will also include cost-effective measures to transfer water from areas that have plentiful water resources to those which have insufficient supplies to meet current demand and to support growth, ensuring that this approach meets sustainability criteria and supports balanced regional development in line with national and regional planning policy.

We are targeting a rationalised approach towards fewer larger water supply zones based on sustainable water sources to provide effective, consistent service, quality and value for money to our customers.

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## **[WS1b] Prepare and implement Drinking Water Safety Plans for all of our Water Supply Zones.**

Drinking Water Safety Plans (DWSP) seek to protect human health by managing risks to water quality taking a whole catchment approach to manage risks from source through to the tap. Protection of the water source is a priority component of this risk management as ensuring a high quality source of raw water can be the most effective way of reducing the cost of water treatment. The plans assess the risks of contamination of water sources and propose mitigation measures to minimise these risks. They then propose appropriate treatment processes and preventative measures for contamination risks in the water distribution system. Both the World Health Organisation (WHO) and the EPA strongly endorse the Drinking Water Safety Plan approach to managing drinking water supplies effectively in the interests of public health.

Irish Water will prepare DWSPs for all water supply zones (WSZs). All DWSPs will use an approach which is in accordance with the WHO guidelines and will ensure that protection and controls are put in place to meet health based standards. DWSPs will also consider the longer term impacts of climate change on the water sources.

We will categorise each WSZ on the basis of risk, focusing on those with the greatest risk of water quality failure. We have created data capture and management systems to assess risk and support DWSP development. We expect that these pro-active plans will take over from the reactive 'Remedial Action Lists' used successfully by the EPA up to now as the key drivers of investment in and operational management of our water supplies.

We will engage with all stakeholders, including landowners and the local authorities, in the development and implementation of measures aimed at delivering effective improvements in the quality of raw water within each catchment supporting good quality raw water sources. This approach will contribute towards sustainability and environmental gains, and potentially have a positive impact on both the cost of treating water and sustainability of yields from the catchment.

The categorisation of the water supply sources nationally using DWSP's will support the phased implementation of the National Water Resources Plan and inform where water sources should be abandoned or combined and also where treatment must be upgraded and centralised to meet water quality standards.

The implementation plan for DWSPs will be published in the first quarter of 2016 covering 135 WSZs and a subsequent programme will be published in 2021 covering the remaining WSZs.

## **[WS1c] Implement Standard Operating Procedures for water treatment facilities, water storage facilities and distribution networks.**

Standard Operational Procedures (SOPs) are written rules and processes for the correct operation of water treatment plants to ensure safe water supply and efficient operation. The procedures will be prepared by reference to best international practice, tailored for Irish conditions and will include staff training and maintenance regimes for all of our treatment plants, water storage facilities and distribution networks.

Irish Water will develop 'Asset Needs' briefs for each plant which will detail the improvements required to meet the SOPs. These documents will then inform the Capital Investment Plans. We will immediately address those failures which can be removed by implementing changes to plant operations or through our minor capital programmes.

We will update and maintain Drinking Water Incident Response Plans. These plans document the procedures, processes and information to support the management of a drinking water incident (unexpected event). The plans assess the risks and assign responsibilities in the event of an incident. They identify the correct communication channels and enable site and event specific arrangements to be made efficiently and effectively.

We will also work with relevant statutory bodies in support of 'A Framework for Major Emergency Management' as published by the Inter-Departmental Committee on Major Emergencies. We will develop and maintain an Emergency Response Plan, in accordance with the framework, so that Irish Water can respond when called upon in the support of the principal response agencies in reacting to and managing major emergencies.

## [WS1d] Develop and implement Capital Investment Plans to improve drinking water quality.

As we improve our knowledge of our assets, collect and interrogate data we will build up a greater understanding of our abstractions, treatment plants and distribution systems and how inadequacies in their operation, maintenance and condition contribute to water supply quality problems. We will then be able to prioritise our investment plans on the basis of risk.

We are presently implementing solutions to urgently address immediate inadequacies in water supply provision and Irish Water has developed a work plan for all schemes which are currently failing to comply with microbiological or chemical quality standards.

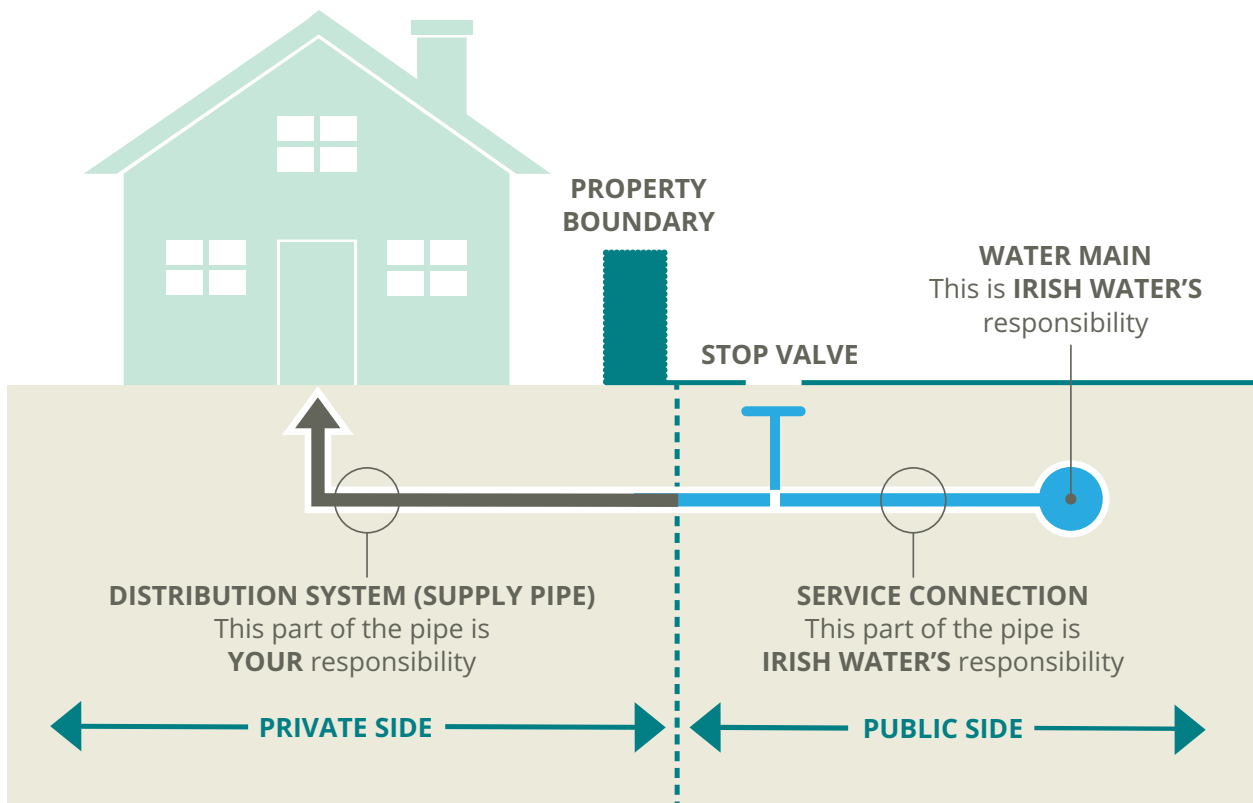
## [WS1e] Prepare and implement a Lead in Drinking Water Mitigation Plan.

The use of lead pipes and conduits in water supplies has been documented from Roman times. In Ireland water service connection pipes, storage tanks made of lead, lead supply pipes and internal plumbing were used in construction up until the early 1970s. Therefore, it must be assumed that the majority of older houses and public buildings may have lead supply pipes and internal plumbing, except where it has been replaced.

Lead can be absorbed into solution in water from lead pipes and the solubility (plumbosolvency) is a function of the water chemistry. Drinking water treatment usually includes pH adjustment (typically using lime) in order to reduce lead solubility, but this is only partially successful. Internationally, other chemical treatments are used which deposit a coating on the pipe wall inhibiting the solution of lead into the water.

The acceptable concentration of lead in drinking water is 10 µg/litre, based on standards set by the EU Drinking Water Directive, with effect from December, 2013. Prior to that date, the standard was 25 µg/l, down from 50µg/l in 2003. The general health advice, echoed by both the EPA and HSE, is that the preferred option for meeting this standard is full removal of lead from the distribution network (both public service connection pipes and private supply pipes and plumbing), but achieving this will inevitably take a considerable period of time.

**Figure 6** Extent of Responsibility for Household Connection Pipe



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The Irish Water website provides advice to customers on lead, including the HSE and EPA Joint Position Paper – Lead (Pb) in Drinking Water, December 2013 which is available from the following link (<http://www.water.ie/help-centre/questions-and-answers/lead-pipes-information-for-customers/>).

Irish Water is responsible for public service connection pipes up to the site boundary as shown in Figure 6. Householders are responsible for the supply pipe from outside the site boundary and internally in the property.

Irish Water is currently surveying the extent of lead pipework in our system and mapping it into our Geographic Information System (GIS) using data from the metering project and local authority surveys of backyard supply pipes.

Based on currently available data, we estimate that there are some 160,000 domestic properties with lead service connection pipes. There are also a further 30,000 to 40,000 domestic properties which have shared supply pipes and a proportion of these are lead pipes.

IW is currently developing a Lead in Drinking Water Mitigation Plan which will include the replacement of lead service connection pipes over a 10 year period and consideration of other feasible technological alternatives to reduce lead in drinking water as quickly as possible in the short term. We aim to have this strategy in place by early 2016.

We will notify households of lead exceedances in their water supply and advise households with lead supply pipes on flushing protocols and replacement options. We will also advise our customers on the appropriate Domestic Plumbing Standards Policy based on international best practice. Where a customer decides to replace their (private side) lead supply pipe, we will commit to replace the (public side) service connection pipe at the same time, if this has not already been done.

### **[WS1f] Prepare and implement strategies to manage other quality issues in water supplies.**

Drinking water must comply with standards set by the Drinking Water Regulations (2014) and the strategies for meeting these standards are presented above. We will also identify water supplies that suffer from water quality issues which do not have required standards under the Drinking Water Regulations such as water hardness and discolouration due to natural sources. These problems can cause concern to customers and excessive hardness in particular can cause damage to hot water appliances. However, neither hard water nor the substances associated with hard water, such as lime, calcium and magnesium, require the restriction of a supply nor do they make water unfit for human consumption.

We will continue to review our treatment processes to ensure optimum removal of colour, iron and manganese compounds and dissolved solids leading to colour. We also recognise that colour and turbidity often arise from changes in flow in old mains (notably iron pipes) and we will work to minimise this, recognising that relining or replacement of these is a long term objective. While treatment to reduce hardness in water supply is not currently a priority, it may be considered in severe cases by the CER when priority compliance issues have been addressed.

## **WS2: MANAGE THE AVAILABILITY, SUSTAINABILITY AND RELIABILITY OF WATER SUPPLIES NOW AND INTO THE FUTURE**

### **[WS2a] Implement risk assessments for all water supply zones in terms of short, medium and long term risks to customer supply.**

Water sources can be susceptible to changes in river flows or lake and groundwater levels. We will prepare risk assessments for all water supply sources to determine short, medium and long term risks to water supply capacity. Based on these risk assessments, we will identify and develop our plans for sustainable water sources nationally. Measures to achieve this will include rationalisation of water supply zones to utilise larger sources and interconnection of networks to ensure security of supply.

Risk assessments of all water supply zones will be completed by the end of 2017.

**[WS2b] Manage existing water resources and plan for new resources taking a regional view of needs and having regard to the objectives of the Water Framework Directive (WFD).**

The WFD promotes a holistic approach to the management of the water environment where all stakeholders work together. Working with the EPA, we will seek to balance the volume of our abstractions and the locations where we abstract water with the needs of the ecology supported by the water environment. We will identify opportunities for co-operation on the development of catchment management initiatives that will increase protection of drinking water sources.

This will form a key part of the National Water Resources Plan and Drinking Water Safety Plans with the initial identification of appropriate measures aligned with the requirements of the WFD being completed by the end of 2017.

**[WS2c] Develop long-term sustainable sources with resilience to climate change.**

It is important that our water treatment and distribution systems are able to cope with impacts from both short term extreme weather events and longer term changes to water resources.

Climate change studies indicate that extreme weather events such as droughts and flooding resulting from intense or prolonged rainfall could become more common in the future.

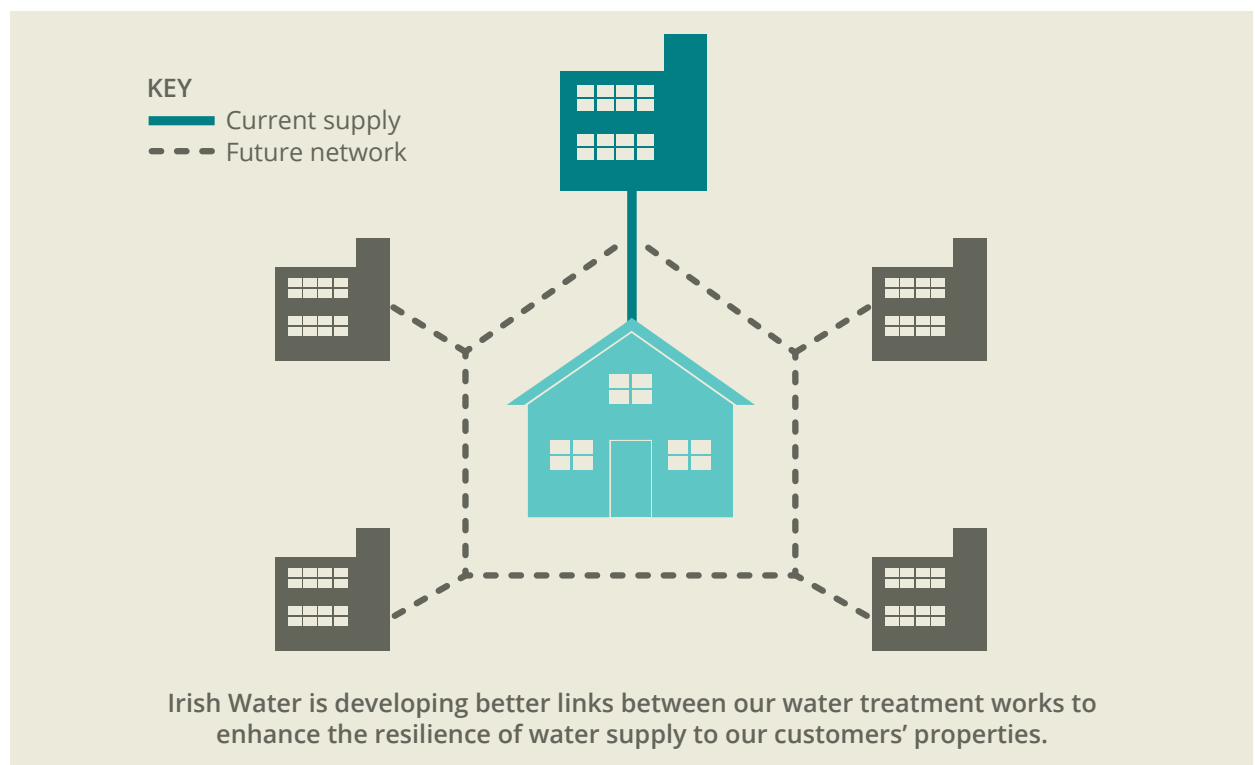
Irish Water will seek to develop new water sources and mobilise additional sources to support those at risk, in order to make our supplies resilient to potential climate change impacts.

**[WS2d] Develop methodologies to build strategic resilience and network connectivity into resource planning.**

Water supply zones that are reliant on a single source, water treatment plant or storage, are more vulnerable to short or longer term service interruptions due to contamination of a source or failure in a treatment process.

We will seek to interconnect water supply zones, where possible, or to develop back-up sources and treatment and storage facilities to ensure reliability and resilience in water supply. This will take account of the risk and impacts of supply failure and its mitigation will be a function of criticality and cost, taking account of funding available.

**Figure 7 Graphical Representation of a Strategic Water Supply Network**





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## **[WS2e] Manage future regulatory requirements for abstraction licencing, headroom in treatment facilities and population growth.**

We will work with the EPA and the Department of the Environment, Community and Local Government to manage the regulation of our water abstractions, on the assumption that new national regulations for abstractions are likely to be introduced in the near term. In respect of any new regulations, our paramount consideration will be to ensure that Irish Water can maintain supplies to its present and future customers.

The headroom capacity in some water treatment facilities, particularly in the Dublin area, is at critical levels. Irish Water has a target to maintain headroom capacity in the 10-20% range to ensure resilience of supply to meet peak demands, population growth and other demand increases. Where the scale and economic impact of supply failure is high, or the consequences to vulnerable customers would be significant, we believe that the available headroom should be at the upper end of this range, 20% over current daily need in large urban areas, 15% in regional gateway towns and 10% elsewhere.

## **[WS2f] Match water abstraction to availability and quality using surface water and groundwater sources.**

Irish Water will take a full part in the process of developing river basin management plans and related programmes of measures to protect water sources from catchment impacts. These can include runoff from agriculture, forestry, tourism or other activities. Drinking water supplies are particularly vulnerable to organic pollution (leading to algal blooms) but also to other compounds such as metals, chemical or pharmaceutical residues.

Within our water safety plans, we will include consideration of these risks and their mitigation. Depending on the level of risk, this may require consideration of mitigation measures such as temporary shut-down or interconnection of multiple sources, where practicable.

## **[WS2g] Prepare Regional Water Conservation Strategies and implement on a phased basis.**

Leakage is an immediate priority for Irish Water. Irish Water currently estimates that, nationally, 49% of water produced is lost to leakage, with the leakage lowest in the Greater Dublin Area and greatest in rural schemes with relatively long pipeline lengths per customer served.

We are currently carrying out detailed audits across the country and validation of the local area metering and valve controls forming District Meter Areas (DMAs) which have been installed since 2000 in most local authorities at a cost of over €100M. In many cases, the integrity of DMA boundaries has been compromised for local operational reasons so that accurate leakage calculations and leak targeting are not currently possible. We are working to re-establish the DMA infrastructure as a pre-requisite to a large scale programme of water conservation measures, which we plan to deliver on a regional basis.

We will prepare Regional Water Conservation Strategies that will deliver a targeted programme of leakage detection, leakage control, pressure management and leakage repair. This work will be implemented in a continuous programme over a number of investment cycles to bring leakage down and maintain it at sustainable economic levels. We will introduce pressure management measures and replace or rehabilitate water pipelines as required.

We estimate that 10% of our domestic customers have significant leaks, divided between internal leaks on fittings or plumbing and leaks on their external supply pipes. Our metering programme and our 'First fix' programme will assist in repairing the external leaks and will also encourage the repair of internal leaks by customers. We will analyse domestic metering data returns to build up a better picture of water usage and review demand calculations in all water supply zones during 2015 and 2016.

We plan on reducing leakage across all schemes to less than 38% by the end of 2021, 30% by the end of 2027 and will work to achieve a sustainable economic level of leakage, by 2040. Experience from the UK indicates that an economic level of leakage is in the region of 18-22% of water treated.

## **WS3: MANAGE WATER SUPPLIES IN AN EFFICIENT AND ECONOMIC MANNER**

### **[WS3a] Adopt an asset management based approach to capital maintenance and capital investment.**

Irish Water assets comprise our rights to abstract water from specific water bodies our reservoirs, extensive pipe networks, pumping and storage systems, treatment plants, buildings and other equipment. We recognise that robust and reliable information on the condition of our water assets, capacity and their future lifespan is vital to inform future investment plans and to ensure that assets are replaced or upgraded when necessary.

We have developed a national Geographic Information System (GIS) into which all of the available water network information from the local authorities has been mapped. This is reasonably comprehensive for the public water mains following major surveys as part of water conservation studies over the past 10 years. Where data is available, it is not always complete with regard to the size, material, condition or age of assets, all of which is useful information. The presence and location of fittings (valves, hydrants, manholes) and connections is also very important. Ongoing surveys will be needed to upgrade and increase the reliability and value of these asset datasets.

### **[WS3b] Optimise the unit cost of water supply through proper water resource and treatment planning.**

Minimising the unit cost of delivering water to the customer whilst meeting environmental compliance will result in the rationalisation of water supply areas over time and, subject to funding ability, will focus on a smaller number of high quality, sustainable sources with standardised treatment processes. This rationalisation approach will be developed within the National Water Resources Plan by the end of 2017.

### **[WS3c] Prepare and implement demand management and customer education strategies.**

Demand management encompasses activities to manage the use of water as a sustainable resource whilst protecting the environment.

As the Regional Water Conservation Strategies referred to in [WS2g] are implemented, the focus on customer demand management in combination with reduced leakage will ensure costs for water abstraction, treatment and distribution are reduced. Demand management will be facilitated through the domestic metering programme, with water use figures provided on quarterly bills and the potential for customer savings for low water use.

We will support education on water usage to encourage reduced water demand across both domestic and commercial water users. This will focus on the 'value of water' and how our actions and activities impact on our water demand and the implications for the environment, levels of service and costs to customers. The introduction of meters to measure domestic water usage at individual properties will facilitate this.

We will promote the reuse of grey water and water efficient domestic appliances, plumbing and fittings. We will also prepare and enforce standards on plumbing and fittings in relation to connection agreements. We will provide specific advice to our commercial and industrial customers on how to reduce water usage, thereby assisting our drive towards minimising abstraction.


















### **[WS3d] Optimise capital and operational investments in water supply.**













We will develop detailed cost benefit analysis and prioritisation models for all strategies and projects that deliver best value for our customers and satisfy our regulators (CER and EPA). The assessment of capital investment projects will follow a process with key decision points and detailed options assessment to ensure that the most cost effective alternatives are selected.

Within the project planning and development process, we will engage with all stakeholders including regulators, planning authorities, landowners, fisheries, our customers and other interested parties and work with all concerned in a collaborative basis. This will assist towards delivering our projects and programmes in a timely and efficient manner, minimising add-on costs.

## Indicators and Targets

Indicators and targets for ensuring a safe and reliable water supply are presented in the table below.

ENSURE A SAFE AND RELIABLE WATER SUPPLY					
Indicators	Definition	Current Baseline	End of 2021 Target	End of 2027 Target	2040 Target
AIM WS1	Manage the Sustainability and Quality of Drinking Water from Source to Tap to Protect Human Health				
Drinking Water Microbiological Standards	% of national samples meeting microbiological compliance standards	99.82% (based on currently available data)	 99.99%	 99.99%	 99.99%
Boil Water Notices	 Notices in place >200 days	 23,000 people on notices (2014)	0 people on notices	0 people on notices	0 people on notices
Treatment Plants on the EPA 2013 RAL	Carry out Remedial Action at all WTPs on the EPA's 2013 RAL	126 WTPs on the 2013 RAL (list Appendix 1)	100% of required remedial action undertaken		
Drinking Water Lead standards	% of national samples meeting Lead Compliance Standards sampled in the public network.	 Estimated 85–95% meeting standard of 10µg/l*	 98% meeting standard of 10µg/l**	 99%**	 99.5% meeting standard of 10µg/l
Drinking Water Chemical Standards	% of national samples meeting chemical compliance standards	 99.51% (based on currently available data)	 99.75%	 99.90%	 99.90%
Drinking Water Trihalomethane Standards	% of national samples meeting THM compliance standards	 90.3% (based on currently available data)	 93%	 99%	 99.50%
<p>* To be established through a comprehensive national monitoring programme  ** Based on technological alternative to lead replacement being available</p>					

ENSURE A SAFE AND RELIABLE WATER SUPPLY					
Indicators	Definition	Current Baseline	End of 2021 Target	End of 2027 Target	2040 Target
AIM WS2	Manage the Availability, Sustainability and Reliability of Water Supplies Now and into the Future				
Water Supply Interruptions	Average hours of supply interruption per property served (per year) - hours lost due to water supply interruption for 3 hours or longer (planned or unplanned)	 Not currently available. To be defined by end of 2016	 Transition from unplanned to planned supply interruptions with targeted reduction in number of interruptions	 On track to achieving long term target	 0.13 hours lost per annum - planned and unplanned interruptions
Water Pressure	% of properties at or above reference level (minimum of 15 metre pressure head at property meter)	 Not currently available. To be defined by end of 2016.	 From 2019, 2% per annum decrease in properties below pressure reference level	 On track to achieving long term target	 99.9% receiving appropriate pressure
AIM WS3	Manage Water Supplies in an Efficient and Economic Manner				
Leakage	Leakage expressed as a % of treated water put into the distribution system	 Approx. 49% of treated water	 Less than 38% of treated water	 Less than 30% of treated water	 Achieve Sustainable Economic Level of leakage <small>(*currently considered 18 to 22% in the UK)</small>
National Water Resources Planning (NWRP)	Implement National Water Resources Plan	Large number of small unsustainable Water Treatment Plants (WTPs) (Circa 900 in total). (Define the appropriate number of WTPs based on NWRP to be developed and implemented by 2018)	Rationalisation of WTPs & Water Supply Zones. Target reduction to 780 WTPs.	Continue programme of rationalisation base on cost benefit and available funding	Fully implement NWRP target for optimum number and scale of water treatment plants

# Chapter 5

Objective:

# Provide Effective Management of Wastewater





## Our Strategic Aims

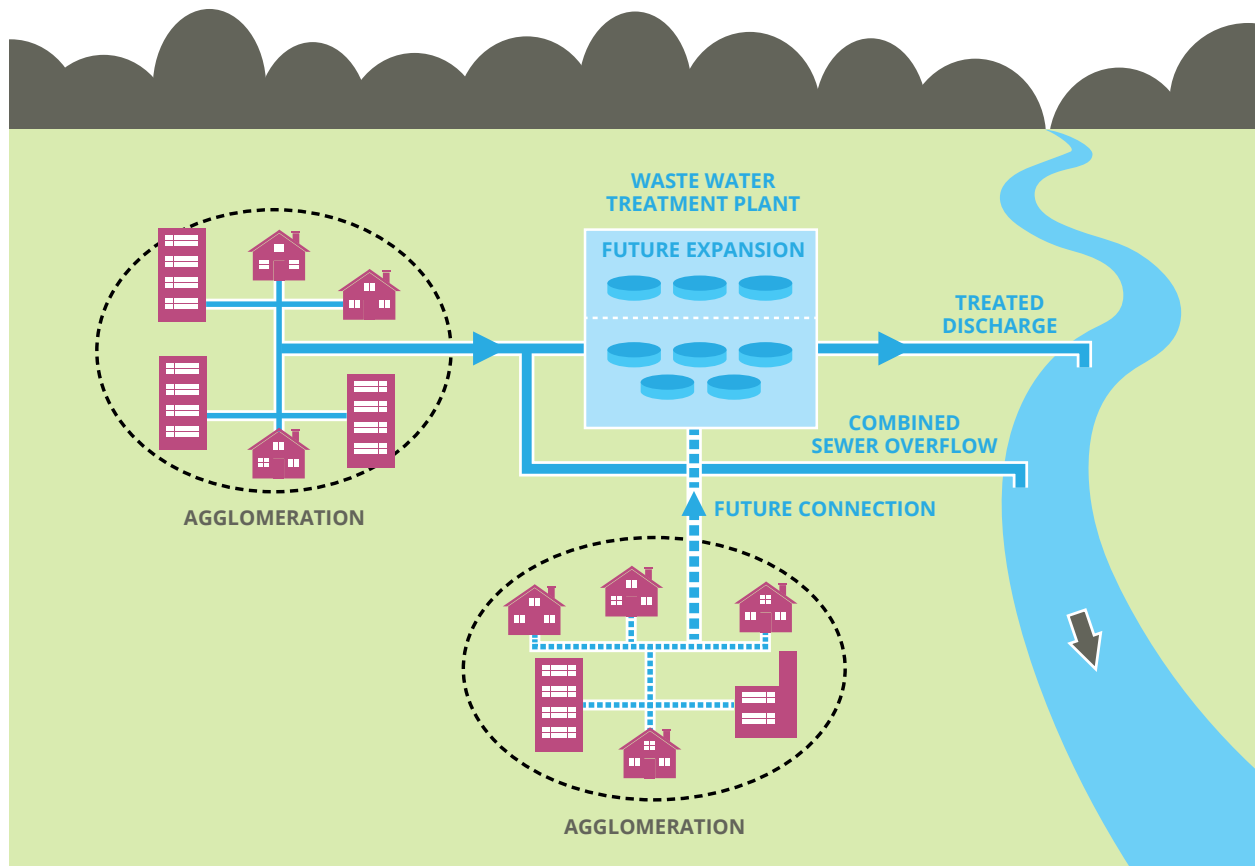
- Manage the operation of wastewater facilities in a manner that protects environmental quality.
- Manage the availability and resilience of wastewater services now and into the future.
- Manage wastewater services in an efficient and economic manner.

### Introduction

Providing an effective wastewater management system for the collection and treatment of effluent is essential to protect the environment and public health. The treatment of wastewater to appropriate standards prior to its discharge to watercourses safeguards water used for drinking water abstraction, bathing, fishing and other recreational activities. A graphic illustrating the elements of a wastewater management system is presented below.

This chapter details the current situation in terms of wastewater management, the challenges that Irish Water faces and our strategies for tackling these challenges. Performance targets against which our future progress can be assessed are also presented.

**Figure 8** Wastewater Management System



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## The Current Situation

Over 1,000 separate wastewater treatment plants and collection networks currently process our wastewater in Ireland. While some of our wastewater treatment plants have enough capacity to cope with their effluent loads, others do not. We have many smaller communities and a number of large coastal urban centres without any effective wastewater treatment. In addition, many communities are served by individual septic tanks or private treatment plants that are outside the scope of Irish Water's remit.

Under the previous funding model, investment in wastewater collection and treatment was the responsibility of the local authorities. This approach engendered a local focus rather than a regional or national perspective on the solution of issues. One consequence was that investment was concentrated in larger urban centres to address legislative requirements, at the expense of smaller development centres where a rapid expansion of housing had led to increased pressures and demands on outdated treatment systems. This has resulted in a large number of small schemes with either no treatment or unacceptable treatment which does not meet the requirements of the legislation.

At the same time, collection systems have developed in an ad-hoc manner. Older urban areas are served by combined systems which accept stormwater run-off and foul flows. Such systems present a risk of flooding and to offset this risk, many are provided with overflows which discharge excess flows to rivers and streams in times of heavy rainfall. These are referred to as Combined Sewer Overflows (CSOs) and where the overflows spill too frequently, or where the receiving stream is too small, they can be a source of pollution.

## Our Legal Obligations

The legislative context for provision and licencing of appropriate wastewater treatment infrastructure in Ireland is governed by the Urban Wastewater Treatment Regulations 2001 (UWWT Regulations) and the Wastewater Discharge (Authorisation) Regulations 2007.

The UWWT Regulations transpose the Urban Wastewater Treatment Directive 91/271/EEC (UWWTD) of the European Commission into Irish law. The UWWTD requires that secondary treatment must be provided at all larger urban areas, i.e. all areas with a population equivalent of greater than 10,000, and areas with a population equivalent between 2,000 and 10,000 that discharge to freshwater or estuaries. The Directive sets the permissible concentration in effluent discharges for a number of parameters, including nutrients (nitrogen and phosphorus) where effluent is discharged to designated sensitive waters. Achieving the permissible discharge concentrations set by the UWWTD forms one of the measures set by the EPA for the implementation of programmes of measures under the Water Framework Directive.

The Wastewater Discharge (Authorisation) Regulations 2007 require that all discharges from wastewater collection systems and treatment plants throughout the country which serve an agglomeration of greater than 500 PE (population equivalent) are issued with a Wastewater Discharge Licence from the EPA. Discharge licences set out the compliance and monitoring requirements in respect of treated effluent discharges to the receiving watercourse. All discharges from wastewater collection systems and treatment plants which serve an agglomeration of less than 500 PE (population equivalent) are required to be issued with a Wastewater Discharge Certificate from the EPA. The discharge licence/certificate sets the allowable Emission Limit Value for a discharge based on the status of the receiving water body, including its conservation status in relation to the Birds and Habitats Directives.

Compliance with these Directives and resulting regulations for surface waters, groundwater and water policy is discussed further in Chapter 6: Protect and Enhance the Environment.

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## Key Challenges

Currently, many of the discharges from our wastewater treatment plants do not comply with standards specified either in the UWWT Directive or in our Wastewater Discharge Licences due to overloading, lack of investment and in some cases poor operational procedures. As a consequence, an Infringement Case has been initiated by the European Commission on 71 agglomerations which did not meet the requirements of the UWWTD in 2011. The most recently available EPA publication on wastewater compliance<sup>1</sup> reported that 38 (23%) of the discharges from 162 larger urban (>10,000 PE discharging to coastal waters and >2000 PE if discharging to freshwater or estuaries) agglomerations in the country are not meeting the relevant treated effluent quality and sampling standards set by the Directive. These include seven agglomerations that have no treatment or only preliminary treatment.

While 77% of the 162 agglomerations meet the relevant discharge and sampling standards, they represent only 39% of the total load (PE) discharged from these agglomerations. Meeting compliance with the UWWT Directive for all of our wastewater treatment plants and discharges is a priority for Irish Water. The upgrading of the Ringsend wastewater treatment plant will make a significant contribution to Ireland meeting its obligations under the UWWTD and increasing our compliance rate (see reference to proposals to upgrade Ringsend in Chapter 8).

A key challenge is to ensure that compliance is achieved in a timely and cost effective manner through operational improvements and upgrading and replacement of assets. Investment must be prioritised to where the environmental benefit is greatest and growth is occurring.

A large proportion of our urban sewer networks function as combined systems carrying both wastewater and surface water runoff from impermeable hard-standings (e.g. roads, pavements, roofs of buildings, car parks). During periods of heavy rain, excess surface water run-off mixes with effluent and this can result in discharges through combined sewer overflows (CSOs) directly into watercourses. Such discharges can cause serious pollution from intermittent wastewater spills. Our challenge is to understand how these systems are operating and to design and implement appropriate interventions to mitigate the impact of discharges on the environment.

Currently, we have high volumes of infiltration of groundwater entering the wastewater collection networks due to leaky sewer pipes. This infiltration, together with peak flows in high rainfall and the variability of loads, represents a significant challenge to the efficient operation and performance of collection and treatment systems. In coastal areas, salt water intrusion has further adverse impacts in terms of plant corrosion and inhibition of the biological treatment process. The challenge of infiltration to sewers mirrors the leakage issue in water mains in that it is extremely difficult to quantify and resolve.

No national Standard Operating Procedures (SOPs) are in place for the collection and treatment of wastewater and their development and implementation is a high priority.

In many areas, there is limited knowledge of the location and condition of below ground assets. This requires significant surveys and upgrading of the GIS records, development of the system models and a process for keeping them up to date. Knowledge of networks is a pre-requisite for the efficient prioritisation of network improvements to deliver environmental improvement and to enable new development in a cost effective way.

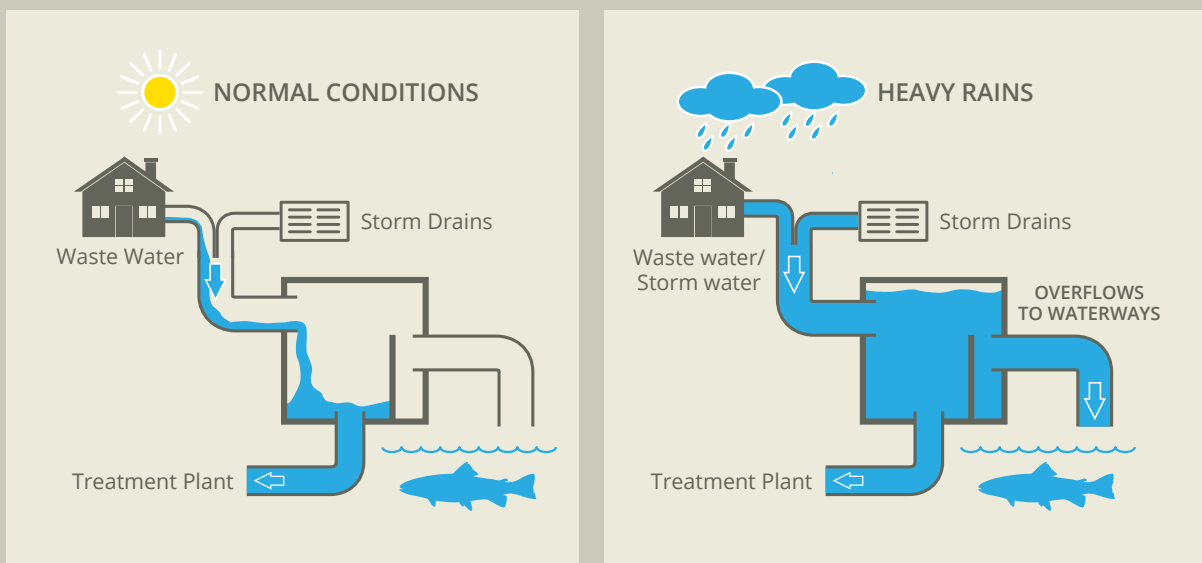


<sup>1</sup> Focus on Urban Wastewater Treatment in 2013. Publ. by the Environmental Protection Agency, Dec 2014.

## Combined Sewer Overflows (CSOs)

CSOs are an inherent and necessary part of our sewer network as constructed. They act as relief valves to the network during periods of heavy rainfall without which foul effluent would back-up the pipelines causing blockages and flooding of properties. While these discharges should only occur during heavy rainfall which results in dilution of the foul effluent prior to overflow many of the existing CSOs are inadequately designed to retain solid waste resulting in a threat to environmental standards.

A graphic of the operation of a CSO is presented below.



## What Our Customers Can Expect from Us

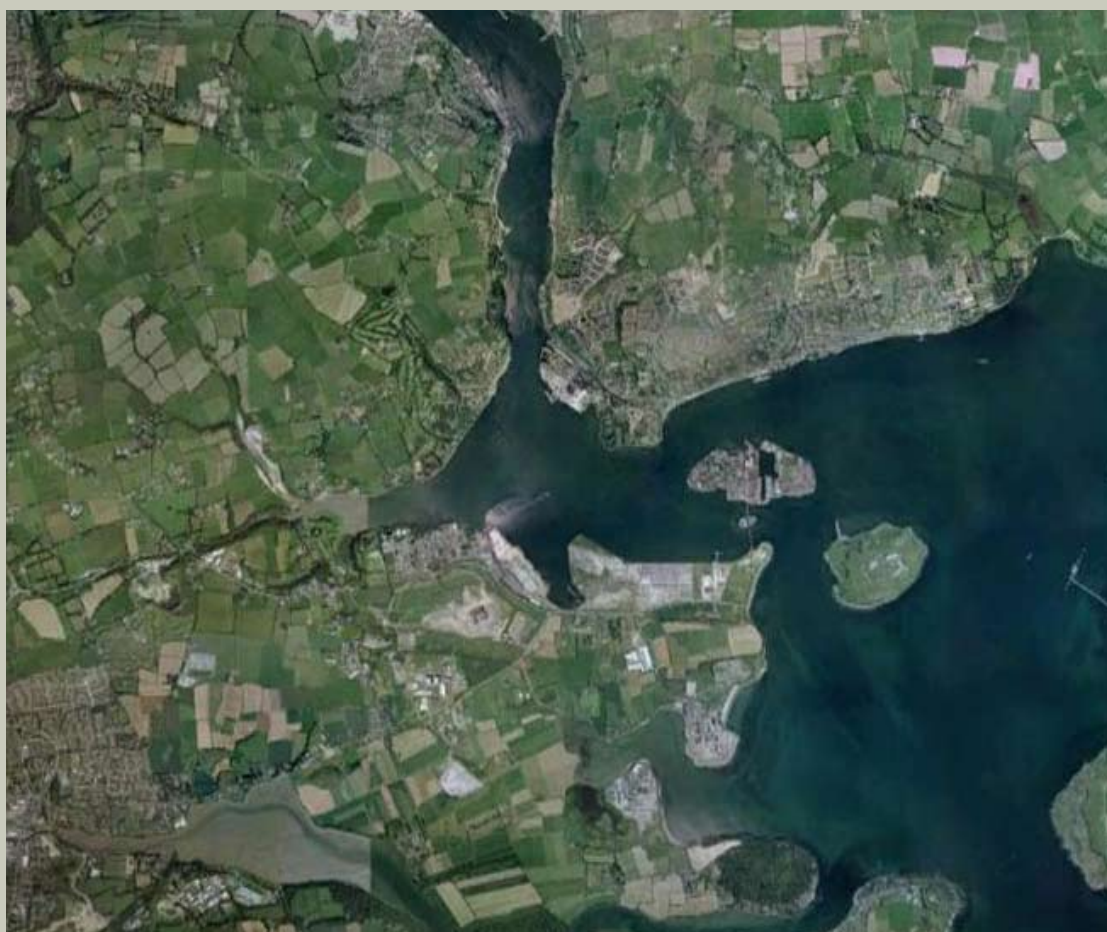
In the future our customers can expect us to provide an effective wastewater collection, treatment and disposal system, which protects human health and the environment whilst providing capacity for social and economic growth. Our objective is to ensure compliance with our discharge licences, with the Urban Wastewater Treatment Regulations and other relevant legislation for all of our wastewater discharges. Recognising that the scale of the challenge will require a number of investment cycles and will involve major investment, we must ensure that the solutions are appropriate and cost effective. However, any treatment plants which are currently non-compliant with the requirements of the UWWTD or are at risk of becoming non-compliant will be included in the next Capital Investment Plan (2017– 2021) where these are not already included in the current CIP.

## Case Study

# Lower Cork Harbour Main Drainage Scheme

The Cork Lower Harbour Main Drainage Scheme includes the population/industrial centres of Cobh, Carrigaline, Crosshaven, Passage West, Monkstown, Glenbrook, Ringaskiddy, Shanbally and Coolmore. The existing sewer network serving the Lower Cork Harbour area comprises mainly combined sewer systems. Wastewater from Cobh, Carrigaline, Passage West/Monkstown and Ringaskiddy is currently discharged following preliminary screening or untreated into the Harbour. This is in breach of the Urban Wastewater Treatment Directive.

Wastewater from the Cork Lower Harbour area will now be transferred to a new wastewater treatment plant at Shanbally (north west of Carrigaline) and treated effluent discharged utilising the existing IDA outfall discharging to the Harbour at Dognose Bank. The scheme includes the construction of associated pumping stations and new/upgraded sewers, rehabilitation of existing sewers and surface water separation where economically viable. The scheme has been approved by An Bord Pleanála and construction is due to commence in 2015.



## Objectives and Strategies

The proposed strategies and performance targets to achieve this objective are summarised in the table below and are detailed in the remaining sections of this chapter.

Strategy	Purpose
<b>Aim WW1 - Manage the operation of wastewater facilities in a manner that protects environmental quality</b>	
WW1a	Prepare and implement a Wastewater Compliance Strategy.
WW1b	Produce appropriate guidance documentation and Standard Operating Procedures.
WW1c	Develop and implement Capital Investment Plans on a prioritised basis to progressively achieve compliance.
WW1d	Manage the wider potential environmental impacts associated with the construction and operation of wastewater systems
<b>Aim WW2 - Manage the availability and resilience of wastewater services now and into the future</b>	
WW2a	Implement risk assessments for all agglomerations in terms of short, medium and long term risks to customer service.
WW2b	Manage existing wastewater assets and plan for new assets based on short, medium and long term sustainability.
WW2c	Identify properties at risk of flooding from combined sewers, and implement measures to reduce risk on a phased basis.
WW2d	Identify and manage critical wastewater assets.



Strategy	Purpose
<b>Aim WW3 - Manage wastewater services in an efficient and economic manner</b>	
WW3a	Adopt an asset management based approach to capital maintenance and capital investment. To optimise the lifecycle of assets, extend asset life and reduce operating costs.
WW3b	Develop and implement strategies and standards to minimise the unit costs of wastewater treatment including standardising treatment processes. To optimise costs and meet the various appropriate discharge requirements by availing of the best technologies and extending the usage of standardisation, automation and control systems.
WW3c	Optimise energy consumption in wastewater treatment plants and collection systems. To reduce energy consumption across all installations thereby reducing operating costs through efficient plant and process selection and maximising energy recovery opportunities.
WW3d	Ensure adequate governance and control of discharges to the sewer network, having regard for best practice and value. To ensure that discharges from the trade sector are controlled and managed to minimise loads at source, thereby reducing loads to treatment.
WW3e	Engage with regulators and stakeholders. To give certainty with regard to customer charges and to develop strategies for future growth and investment in infrastructure.
WW3f	Optimise capital and operational investments in wastewater services. To minimise costs while maintaining a compliant and sustainable level of service.

## **WW1: MANAGE THE OPERATION OF WASTEWATER FACILITIES IN A MANNER THAT PROTECTS ENVIRONMENTAL QUALITY.**

### **[WW1a] Prepare and implement a Wastewater Compliance Strategy.**

We will develop a Wastewater Compliance Strategy setting out a pathway to ensure that the discharges from the wastewater treatment plants and networks that we manage comply with the water quality standards required by the Urban Waste Water Treatment Directive (UWWTD) and support the objectives of the Water Framework Directive. We will continue to investigate all wastewater treatment plants that are failing or at risk of failing to meet the UWWTD and prioritise these for remedial work or upgrades.

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Combined sewer overflows (CSOs) will be addressed as a component of the Wastewater Compliance Strategy. We will look to international best practice to guide us in the development of design standards and will use network modelling simulation where appropriate to determine the performance and operation of CSO structures. We will then develop plans for remedial measures where required. Remedial measures will include for separating stormwater and wastewater where this is the optimal solution. Waste Water Discharge Licences control all discharge points from the agglomeration including CSOs. We recognise the challenge of achieving compliance within available funding and the need to prioritise in the early investment periods to secure the maximum environmental benefit.

In our programme for short term investment, we are prioritising meeting the requirements of the UWWTD including solutions to address the requirements highlighted in the Infringement Case taken by the European Commission on the 71 agglomerations, together with the full list of urban centres currently without treatment and a number of high priority sites identified by EPA where serious pollution is noted and where designated bathing areas are affected by wastewater discharges.

### **[WW1b] Produce appropriate guidance documentation and Standard Operating Procedures.**

There are currently no national Standard Operational Procedures (SOPs) to carry out maintenance, inspection and operational duties on wastewater treatment plants. This has led to inconsistencies in treatment plant performance and variations in operational costs due to the different approaches used previously by local authorities. We will develop national rules for effective wastewater system management in accordance with international best practice and will prepare SOPs including staff training and maintenance regimes across the range and scale of our wastewater treatment plants and collection networks. In developing these, we are drawing on proven processes developed in other high performing water utilities which we will adapt for Irish conditions during 2015.

Unexpected wastewater incidents (for example blockages, pollution, public complaints) require planned management to correct and minimise the impact of an event. We will develop, update and maintain Wastewater Incident Response Plans for all our wastewater systems which will be managed locally through the service level agreements with local authority staff. These plans will document the procedures, processes and information to support the management of an incident. We will develop and maintain an Emergency Response Plan with regard to provision of wastewater services, in accordance with 'A Framework for Major Emergency Management' published by the Inter-Departmental Committee on Major Emergencies, so that we can respond when called upon to support the principal response agencies in reacting to and managing major emergencies.

### **[WW1c] Develop and implement Capital Investment Plans on a prioritised basis to progressively achieve compliance.**

Where non-compliance arises from inadequate treatment processes or capacity constraints we will need to plan the necessary capital works to increase capacity and efficiency of treatment plants. Where feasible, minor capital investments focusing on process upgrades and bolt on solutions will be deployed as permanent or interim measures. Where larger capital works are required, we must have regard to the priority of compliance with the UWWTD standards, growth, available funding and the need to achieve optimum environmental benefit.

We recognise that we cannot address all of the compliance issues in the short term due to funding constraints and the need for a much greater understanding of the wastewater asset base and receiving environments on which they impact. This will require major surveys of our assets and the development of models of both the networks and the receiving water bodies. By adopting this approach future investments will be targeted and efficient and will deliver optimum benefit.

We will also rehabilitate, upgrade and replace wastewater collection pipelines that have significant structural and service defects which can be identified through surveys and investigations. This will be a long term programme having regard to the scale of the works, the lack of data on sewer condition and the need to prioritise critical infrastructure.

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## **[WW1d] Manage the wider potential environmental impacts associated with the construction and operation of wastewater systems.**

The construction and operation of our wastewater treatment plants and networks can result in environmental impacts due to noise, dust, odour and other factors. These can be mitigated by utilising appropriate design, construction and operational standards. Irish Water will follow a best practise standardised approach to the planning and execution of our works, including a high level of public engagement at key stages in the process.

The planning and construction of all new wastewater infrastructure will undergo appropriate environmental assessment as part of the relevant statutory processes. These studies will optimise site selection, identify site specific constraints associated with sensitive receptors (for example plants, animals, built heritage and humans) and develop mitigation measure to be adopted during the construction and operation of the new plant. Robust and well-engineered solutions which are sensitive to the environmental context will enable Irish Water to develop wastewater systems that can be built and operated without excessive adverse impact on communities and the wider environment.

## **WW2: MANAGE THE AVAILABILITY AND RESILIENCE OF WASTEWATER SERVICES NOW AND INTO THE FUTURE.**

### **[WW2a] Implement risk assessments for all agglomerations in terms of short, medium and long term risks to customer service.**

We will prepare risk assessments for all agglomerations served by our wastewater treatment systems to determine short, medium and long term risks to the effective provision of wastewater services. Risks include the flooding of properties, equipment failure, non-compliance of discharges, environmental pollution and capacity constraints. These risk assessments will be used to plan investment and mitigation measures.

As we obtain data regarding our below ground assets, we will develop hydraulic models of all our networks so that we can simulate high flow conditions and identify bottlenecks within the system which need to be addressed. We will supplement these with internal CCTV surveys and other investigations to identify critical defects.

The most persistent risks to disruption of wastewater services, particularly in urban areas, are blockages due to the accumulation of grease or non-biodegradable material. We are developing a national fats, oils and greases (FOG) strategy to effectively manage these discharges and seek to eradicate them at source.

### **[WW2b] Manage existing wastewater assets and plan for new assets based on short, medium and long term sustainability.**

We will work with the EPA and other stakeholders in a catchment based approach to ensure sustainable wastewater management. This approach will consider all effluent discharges into each catchment's water bodies (both from our wastewater discharges and from others) and the ability of the water body to receive treated effluent whilst achieving the water body objectives under the WFD.

This approach recognises that water quality in catchment is impacted by multiple pressures, from various sources. Our objective will be for a balanced approach between the sectors, with impacts from wastewater services being addressed as part of a coordinated approach in each catchment, towards the achievement of agreed water body objectives.

### **[WW2c] Identify properties at risk of flooding from combined sewers, and implement measures to reduce risk on a phased basis.**

Rain falling on roads, roofs and other impermeable surfaces, runs down gutters and drain pipes and into the storm drainage system. In older urban areas, developed pre 1970s, it was common to combine all drainage (foul and rainfall runoff) into a single combined sewerage system. Even where separate storm drainage is provided, it is common that a proportion of runoff is connected to the foul sewer, so that all sewerage systems have increased flows in times of rainfall.

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Increasing urbanisation combined with more frequent and intense rain storms (due to climate change) can result in the capacity of some combined sewers being exceeded. This can cause flooding of properties causing distress to some customers.

Irish Water is committed to implementing mitigation measures to either reduce the probability that a combined sewer will flood or reduce the severity of the flooding where long term protection solutions aren't economically feasible.

We are putting in place a publically available register to gather and record information on flooding events from combined sewers caused by inadequate capacity and due to other causes (blockages, collapses and equipment failures). The register will catalogue the extent, frequency and cause of flooding. It will inform our investment to enable us to prioritise areas that flood more frequently and to reduce the number of incidents of flooding caused by blockages, collapses and equipment failures.

Irish Water is committed to working with the key stakeholders (planners, land managers and developers) in developing long term sustainable solutions.

In the longer term, Irish Water will focus on research and development, improve sewer network models and investigate (in collaboration with local authorities) the use of sustainable urban drainage systems in combined sewer areas. These measures will enable Irish Water to promote an integrated urban drainage approach and to provide a more cost effective and more sustainable wastewater collection system.

This work will be carried out in close collaboration with local authorities and the OPW with whom Memoranda of Understanding are being developed. This will recognise that the operational response to flood events must be coordinated, to be led generally by the local authority, with Irish Water support. We will work with the CER to agree investment in flood risk abatement measures with a view to systematically reducing the numbers of properties at risk of flooding from our systems through each investment cycle. We will cooperate with other authorities when flood relief schemes are being developed to ensure that solutions are coordinated for effective relief for urban communities.

### **[WW2d] Identify and manage critical wastewater assets.**

Sustained environmental performance depends on the reliability and robustness of each treatment plant and its associated network. Critical elements of both plants and networks have the potential to cause major impacts on services and the environment if they fail. We will identify these critical assets and prioritise their maintenance and management.

## **WW3: MANAGE WASTEWATER SERVICES IN AN EFFICIENT AND ECONOMIC MANNER**

### **[WW3a] Adopt an asset management based approach to capital maintenance and capital investment.**

We recognise that robust and reliable information on wastewater infrastructure is vital to inform future investment plans and target improvements where they are most needed. Having inherited the wastewater services infrastructure from the local authorities, we have commenced the integration of wastewater asset records to our GIS system and we are in the process of collating existing hydraulic models and other records (CCTV files) where they exist. These are being assessed for reliability and we are scoping the on-going studies which will gradually improve the extent and accuracy of these vital data and analysis systems.

As we develop our data systems, we will collect workflow data from the field, in conjunction with our operational and maintenance activities, which will inform the system data to enable a whole life asset management approach to strategic planning and investment decisions.

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### **[WW3b] Develop and implement strategies and standards to minimise the unit costs of wastewater treatment including standardising treatment processes.**

We will develop a number of cost reduction strategies as part of our focus on minimising the unit cost of delivering wastewater services whilst meeting environmental standards.

We will strive to standardise treatment processes countrywide using best-in-class, value-for-money technology and control systems. Standardisation will support our strategy of modular development of treatment plants in sync with growth of demand.

This will also enable more cost effective planned maintenance, use of spare parts and skills requirements in their operation. We will combine this approach with remote monitoring of all plants, recording critical parameters, flows, energy consumption and process indicators, enabling us to target where interventions are required and minimise plant downtime.

### **[WW3c] Optimise energy consumption in wastewater treatment plants and collection systems.**

We will prepare and implement a Sustainable Energy Strategy, as outlined in under Aim EN1b of this document. Due to the energy intensive nature of pumping and wastewater treatment, we intend to implement measures to reduce power costs and carbon emissions including the delivery of “greener” technologies where possible. We will target replacement of older inefficient plant (pumps, air blowers), include variable speed controls and look to optimise energy recovery from wastewater sludge digestion.

### **[WW3d] Ensure adequate governance and control of discharges to the sewer network, having regard for best practice and value.**

We will develop and publish a Wastewater Source Control and Licensing Strategy in Q1 of 2016 to regulate and license the volume and quality of wastewater that commercial customers discharge into our collection network. We will work with local authorities and the EPA in relation to granting and approval of industrial discharge licence applications currently covered by Section 16 licences and Section 99e consents to ensure that the discharged load is within the capacity of the network and treatment plant and that, where necessary, additional capacity can be planned and implemented.

We will survey the wastewater treatment loads and operational practices of our industrial customers and will provide advice on initial treatment of effluent and the means of meeting their operational wastewater requirements. We recognise the need for greater control of waste loads to our sewers and plants to prevent corrosion of our assets, failure of our treatment processes and issues with extreme odour generation.

We will also develop and implement a management system for the regulation of discharges of Fats, Oils and Greases (FOGs) to our networks. This will include public education and information campaigns to inform customers of the impacts of fats, oils and greases and inappropriate material such as pharmaceuticals, baby wipes, nappies and sanitary towels being discharged into the wastewater system.

### **[WW3e] Engage with regulators and stakeholders.**

Through our project planning and development processes we will engage with all stakeholders including our regulators, planning authorities, landowners, our customers and other interested parties.


















We must balance the requirements set by both of our regulators: meeting our requirements under the UWWTD and WFD for the EPA and ensuring that our customers are receiving a quality of service in an efficient and economic manner as prescribed by the CER. To achieve these we will work together in a collaborative manner. We will agree a balanced approach to the delivery of services to both protect the customer and meet environmental objectives. This will be set out in our Wastewater Compliance Strategy.

### **[WW3f] Optimise capital and operational investments in wastewater services.**









We will develop detailed cost benefit analysis and prioritisation models for all works and strategies agreed with our regulators. We will promote the use of the most cost effective measures, and timing, in planning to achieve required wastewater discharge quality, with investments benefiting from best combination of capital and operational responses. In the first instance, we will seek to maximise the capacity of existing assets through operational improvements supported by targeted capital investment.

## Indicators and Targets

Indicators and targets for the effective management of wastewater are presented in the table below.

PROVIDE EFFECTIVE WASTE WATER MANAGEMENT					
Indicators	Definition	Current Baseline	End of 2021 Target	End of 2027 Target	2040 Target
AIM WW1	Manage the Operation of Wastewater Facilities in a manner that Protects Environmental Quality				
Waste Water Treatment - Compliance with UWWTD Requirements	% of total Population Equivalent (PE) served by **WWTP compliant with the UWWTD	39%* (based on EPA's Focus on urban waste water treatment report for 2013)	 90%	 99%	 100%
Urban Waste Water Treatment	Provide the appropriate level of wastewater treatment to the areas from which raw sewage is discharged (List in Appendix 2)	44 Agglomerations discharging raw sewage to the environment (List Appendix 2)	 100%	 100%	 100%
Waste water Treatment - Compliance with discharge Emission Limit Values (ELVs) to achieve WFD Objectives	% of WWTPs serving >500 PE - compliant with EPA discharge licenses ELVs	33%* (based on based on Annual Environmental Reports (AER) 2013)	  60%	 90%	100%
Pollution Incidents caused by Irish Water Waste Water Treatment Systems	Number of Category 2 (localised) pollution incidences reported to the EPA	    168	  75	 20	 20
** Refers to large urban areas WWTP > 10,000 PE discharging to all waters and > 2000 PE discharging to freshwater bodies or estuaries. Includes WWTP discharging "raw sewage"					



PROVIDE EFFECTIVE WASTE WATER MANAGEMENT					
Indicators	Definition	Current Baseline	End of 2021 Target	End of 2027 Target	2040 Target
AIM WW2	Manage the Availability and Resilience of Wastewater Services now and into the Future				
Sewer Flooding; flooding which occurs when the capacity of sewers is exceeded due to heavy rainfall, resulting in flooding inside and outside of buildings.	Number of incidents of sewer flooding of properties	 Not available. Develop register to record number, cause and extent of flooding	 Accurate register of number of properties at risk of flooding from sewers. Historic, high priority flood sites addressed	 The reduction by 25% number of the properties which flood frequently (> once in 10 years)	 The reduction by 80% number of the properties which flood frequently (> once in 10 years)
AIM WW3	Manage Wastewater Services in an Efficient and Economic Manner				
Licensed Trade Effluent Discharges to Sewers	% of national trade effluent licensable load discharged to sewers under conditions determined by Irish Water in accordance with the polluter pays	 Not available. Commence establishment of register of trade effluents producers & attribute a risk weighting to each	 50% of trade effluent load licensed, prioritised using a risk based approach	 75% of trade effluent load licensed using a risk based approach	 >95% of trade effluent load licensed (allowing for turnover of small businesses)



# Chapter 6

Objective:

# Protect and Enhance the Environment



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## Our Strategic Aims

- Ensure that Irish Water services are delivered in a sustainable manner which contributes to the protection of the environment.
- Operate our water services infrastructure in a manner that supports the achievement of water body objectives under the Water Framework Directive and our obligations under the Birds and Habitats Directives.
- Manage all our residual waste in a sustainable manner.

### Introduction

Protecting and improving the future, long term quality of the water environment is fundamental to providing safe water services and for the protection of human health and biodiversity. The water environment is inextricably linked to the wider environment and it is important to consider protection of the environment in a holistic way. Irish Water protects the water environment in its role in delivering water services, but also the broader environment in terms of the impacts of our activities, for example in our use of energy and our carbon footprint.

An enhanced water environment results in a reduced requirement for water treatment and supports recreational activities, biodiversity, tourism and the natural character of our countryside.

The need to protect and improve the water environment and the environment generally has been recognised in a number of European Directives that afford special protection to identified areas that are important for drinking water supply, nature conservation, bathing and fisheries. Examples include the Birds Directive, Habitats Directive, Bathing Water Directive and the Water Framework Directive (WFD). The WFD is the overarching Directive within which all matters impacting the water environment are managed.

This chapter will consider the implementation of sustainable strategies and measures to support our objectives in protecting and enhancing the environment.

### Our Legal Obligations

Irish Water has multiple environmental obligations which regulate its water services functions, operations and developments. The principal obligations result from Directives of the European Commission as detailed in the paragraphs below.

#### Birds and Habitats Directives

The Habitats Directive (92/43/EEC) placed an obligation on all Member States of the EU to establish the Natura 2000 network and require protection of defined habitats and species. The network is made up of Special Protection Areas (SPAs), established under the EU Birds Directive (79/409/EEC), and Special Areas of Conservation (SACs). The Directives were transposed into Irish national regulations and have been subsequently revised and consolidated in the European Communities (Birds and Natural Habitats) Regulations 2011.

Priority Habitats have been defined for Ireland that include amongst others raised and blanket bogs and turloughs which can be impacted by water abstraction and wastewater discharges. Over 400 SACs and about 150 SPAs have been designated to date in Ireland. Article 6 of the Habitats Directive requires member states to establish necessary conservation measures to protect sites and to take appropriate steps to avoid the deterioration of (or restore) natural habitats and species. Natural Heritage Areas (NHAs) have a national designation and protect features not covered by the Directives.

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As a public authority, Irish Water has duties under the above regulations “to take the appropriate steps to avoid, in European Sites, the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the areas have been designated in so far as such disturbance could be significant in relation to the objectives of the Habitats Directive.”

### Water Framework Directive

The Water Framework Directive (WFD) establishes a catchment based approach to the protection, improvement and sustainable use of rivers, lakes, transitional waters (estuaries), coastal waters and groundwater. It adopts the ‘polluter pays’ principle and will, over time, integrate the requirements of a number of existing directives for the protection of the water environment. It seeks to develop a holistic approach to sustainable water use, balancing social and economic factors with the need to protect and improve our water environment.

The WFD is implemented through river basin management plans which assess the current status of our inland and coastal water bodies (known as characterisation and classification). Where the status of a water body is less than “Good” (for example from pollution or over-abstraction), remedial actions or measures must be proposed and implemented to achieve the objectives set for each water body. Collectively, these are known as “programmes of measures”. The river basin management plans are currently being updated and will be published in 2017.

The Water Policy Regulations (S.I. No. 722 of 2003), Surface Waters Regulations (S.I. No. 272 of 2009) and Groundwater Regulations (S.I. No. 9 of 2010) govern the shape of the WFD characterisation, monitoring and status assessment programmes in terms of assigning responsibilities for the monitoring of different water categories, determining the quality elements and undertaking the characterisation and classification assessments.

The Surface Waters Regulations institute a wide-ranging set of environmental standards for Irish surface waters. The Groundwater Regulations establish environmental objectives to be achieved in groundwater bodies and include groundwater quality standards and threshold values for the classification of groundwater and the protection of groundwater against pollution and deterioration in groundwater quality.



*Reflections in Vartry Reservoir. Photo: Jean Clarke*

Irish Water’s key objectives in relation to the WFD will be the implementation of measures to reduce the impact of our wastewater discharges and thus improve water quality. Our discharge licences will be reviewed on a six yearly basis (by the EPA) and will be targeted to contribute to the delivery of the programmes of measures mentioned above. Where an urban wastewater discharge is the single significant pressure on a water body in relation to achieving its quality status, compliance with our discharge licence requirements should ensure that the water body achieves “Good” status. However, where there are other significant pressures effecting water quality, compliance with the wastewater discharge licence alone may not deliver “Good” status and thus all stakeholders causing significant pressures must play their part in reducing their impact in order to improve water quality. Irish Water will also actively participate in measures aimed at protecting drinking water supply zones and in ensuring ecological flows are maintained in the water bodies we abstract water from. We will undertake monitoring of water bodies used for the abstraction of public drinking water supply and assist stakeholders in the identification of significant pressures on these water resources.



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## The Current Situation

The current State of the Environment Report published by the EPA (2012) reports that 29% of rivers and canals and 53% of lakes were not Good or High status under the WFD and therefore required improvement. The recent trend in river water quality indicates an overall increase in the length of river channel which is slightly polluted which is mainly due to eutrophication (over-enrichment of nutrients resulting from agriculture and other land use). However, the number of seriously polluted river sites has decreased significantly since monitoring began, reflecting investment in basic wastewater treatment and improved environmental management of agriculture and other land use activities. The number of High status water bodies with sensitive and rare ecology like the Freshwater Pearl Mussel has declined in recent years and site specific, targeted work is required to remediate these and prevent further loss.

Groundwater is faring better with 85% of groundwater bodies being at good status. The principal reasons for failing groundwater bodies resulted from nutrient loading resulting from agricultural practices. A small number of water bodies failed due to site specific contamination from historical mining or other sources. There has been a general reduction in nitrate concentration in groundwater since monitoring commenced, attributed to reductions in the use of inorganic fertilisers and restrictions on land spreading in agriculture.

The EPA is responsible for licensing wastewater discharges from treatment plants for large towns, and for certification of discharges from treatment plants for smaller agglomerations (under 500 Population Equivalent). Currently, water abstractions are not licenced or regulated by the EPA. Compliance with wastewater discharge licences and certificates will continue to drive improvements in treatment and water quality. The current status of wastewater compliance is outlined in Chapter 5 (Provide Effective Management of Wastewater).

Irish Water is a high energy user with an annual cost estimated at €60M. In general, energy efficiency has not been a primary consideration in the construction and operation of water and wastewater treatment infrastructure in the past.

## What our Customers can Expect from Us

Our Customers should expect that in the future, following a period of sustained increased investment, all of our operations will meet their statutory compliance requirements, in particular our wastewater discharges. We will work closely with our environmental regulator, the EPA, and other environmental stakeholders and the general public to participate fully in the process of developing river basin management plans and the associated programmes of measures in the implementation of the WFD in Ireland.

## Key Challenges

Nationally, discharges from wastewater and agriculture are the principal activities currently impacting on the quality of the water environment and therefore we have a significant role in the protection of catchments.

A balance needs to be struck between our activities that impact on the environment and the ability of the environment to sustain these impacts over both the short and longer terms. Meeting the requirements of the WFD programmes of measures with regard to the sustainability of our abstractions, discharge licences and input to catchment management planning will be a significant challenge to our new organisation.

There are risks to water ecosystems outside our control from invasive species and from climate change which need to be considered in the future planning of our infrastructure.

With water and wastewater services delivered across local authorities there was previously no national sustainability policy or guidance on operations. Each local authority had its own policy with regard to works design and procurement.

With an ageing infrastructure, meeting our obligations for energy efficiency will require significant investment, in both the upgrade and replacement of inefficient systems whilst ensuring the best whole life options are selected for new capital investments.

The provision of water and wastewater services generates a significant volume of both water and wastewater sludge which is dispersed around the many water and wastewater treatment plants and other sites we operate. Effective and safe management of this sludge, utilising its potential for energy generation or reuse where feasible, is a key challenge.

## Objectives and Strategies

The proposed strategies to achieve this objective of protecting and enhancing the environment are summarised in the table below and are detailed in the remaining sections of this chapter.

Strategy	Purpose
<b>Aim EN1 – Ensure that Irish Water services are delivered in a sustainable manner which contributes to the protection of the environment</b>	
EN1a	Implement a Sustainability Policy and Sustainability Framework To ensure that Irish Water services are delivered in a sustainable manner balancing the need to support the social and economic development of the country with the need to protect water resources and the water environment.
EN1b	Prepare and implement a Sustainable Energy Strategy. To meet our obligations under the National Energy Efficiency Plan (2009-20).
EN1c	Prepare and implement a Climate Change Adaptation and Mitigation Strategy. To support national objectives for climate change mitigation and to meet our obligations under the National Climate Change Adaptation Framework to ensure the resilience and sustainability of water services.
EN1d	Adopt a Green Procurement Approach and drive efficient use of all our resources. To ensure that we utilise resources efficiently in our management of water and wastewater services.
EN1e	Adhere to environmental and planning legislation when planning and developing water services assets. To ensure that all future Irish Water infrastructure meets national planning and environmental legislation and to protect sites of natural and cultural importance.





Strategy	Purpose	
<p><b>Aim EN2 - Operate our water services infrastructure in a manner that supports the achievement of water body objectives under the Water Framework Directive and our obligations under the Birds and Habitats Directives</b></p>		
EN2a	Work effectively with other stakeholders to support a catchment based approach.	To contribute to the achievement of water body objectives under the Water Framework Directive.
EN2b	Manage the operation of our water and wastewater infrastructure towards the achievement of water body objectives and the conservation of protected sites and species.	To ensure that the operation of our water and wastewater infrastructure assists the achievement of water body objectives under the WFD and the conservation of protected sites and species under the Birds and Habitats Directives.
<p><b>Aim EN3 – Manage all our Residual Waste in a Sustainable Manner</b></p>		
EN3a	Develop and implement a Corporate Waste Management Strategy.	To ensure Irish Water meets its corporate sustainability responsibilities.
EN3b	Develop and implement a National Wastewater Sludge Management Plan.	To reduce the environmental impacts from wastewater treatment by re-use and renewable energy generation, where feasible.
EN3c	Develop and implement a National Water Treatment Plant Sludge Management Plan.	To reduce the environmental impacts from water treatment processes.



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## **EN1: ENSURE THAT IRISH WATER SERVICES ARE DELIVERED IN A SUSTAINABLE MANNER WHICH CONTRIBUTES TO THE PROTECTION OF THE ENVIRONMENT.**

### **[EN1a] Implement a Sustainability Policy and Sustainability Framework**

Water services face a range of environmental challenges from changing climate and extreme weather events, escalating energy costs and the impacts of demands of other stakeholders on water resources. It is important that Irish Water implements all of its operations in a way that enables long term sustainability (i.e. in a way that can continue indefinitely without long term harm to the environment).

Irish Water will prepare and implement a Sustainability Policy and a Framework to support the policy. These documents will represent our long term commitment to protecting and enhancing the environment in relation to the construction and operation of our infrastructure and the delivery of our services. The eight key framework components are Resource Efficiency, Climate Change, Habitats & Wildlife, Equity & Economic Development, Health, Amenity, Social Impact and Culture & Heritage. Our commitments under each of these headings will be established and documented. We aim to continually improve our environmental performance and will ensure that its requirements are communicated to all our employees and those working on our behalf.

### **[EN1b] Prepare and implement a Sustainable Energy Strategy**

The National Energy Efficiency Action Plan (NEEAP) is the Government policy setting out plans and actions to achieve energy efficiency savings across the economy. The action plan was updated in 2014 (NEEAP3) to take account of the Communication from the European Commission setting out its ambition for a 2030 Climate and Energy Policy Framework. The Commission's proposals for 2030 include a reduction in greenhouse gas emissions (GHG) by 40% below the 1990 level, an EU-wide binding target for renewable energy of at least 27% and renewed ambitions for energy efficiency policies. The review of the Energy Efficiency Directive, published in July 2014, calls for an efficiency target of 30% in 2030.

Irish Water is the largest single public user of electricity in Ireland. Our sustainable energy strategy will document how Irish Water will achieve energy efficiency through the use of technologies and initiatives designed to improve energy efficiency. The use of renewable energy sources will be considered where appropriate and economically viable. We intend to target asset investment and operational changes to meet targets for energy use, consumption and efficiency.

Irish Water's target is an improvement in energy efficiency by 33% by 2020 from the 2009 baseline. Irish Water has entered into an energy partnership with SEAI to avail of their support, resources and expertise in meeting this target.

### **[EN1c] Prepare and implement a Climate Change Adaptation and Mitigation Strategy**

Climate change impacts in Ireland are expected to include more intense rainfall events as well as periods of increased drought along with a rise in sea level. These events will impact on water services through increased risk of sewer flooding, possible inundation of treatment plants and other assets; deterioration in water quality in our rivers and lower dry weather river flows reducing the water available for abstraction or for diluting treated effluent.

Adapting to climate change will require careful planning, preparation, investment and management. Our strategy will address the vulnerability of water services and associated environment (including protected sites) to climate change events and identify actions to modify our infrastructure or operations. This could include, for example, the relocation of abstractions to larger more sustainable water sources, the blending of multiple sources and the implementation of flood protection measures.

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## **[EN1d] Adopt a green procurement approach and drive efficient use of all of our resources.**

We will implement a 'green procurement' approach and seek to reduce and remove wastage in our investment and operations decisions. We will work to ensure all goods and services are procured in accordance with the Green Procurement Guidelines. We will adopt a low carbon approach and consider the whole life carbon cost of all new investments. We will implement annual reporting of the actions being taken to improve energy efficiency. We will consider the carbon footprint in the design of our future infrastructure and seek, through value engineering, to minimise the embodied energy of each development.

Irish Water will optimise use of chemicals in our treatment processes and review the use of chemicals that have the potential to impact negatively on the environment. We will strive to support the purchase of energy-efficient products and services, where possible and applicable. We will ensure that significant new capital projects are designed and optimised for energy performance as far as possible.

## **[EN1e] Adhere to environmental and planning legislation when planning and developing water services assets.**

All Irish Water projects follow a systematic process to determine the appropriate strategy, option, design and method of implementation prior to construction and operation of new assets. This approach includes extensive consultation, where appropriate, with relevant planning authorities (local authorities, regional planning agencies, An Bord Pleanála) and our regulators (the Commission for Energy Regulation and the Environmental Protection Agency) in addition to key stakeholders such as government departments, non-governmental organisations, special interest groups and the general public.

All our projects are designed and developed in accordance with statutory planning processes and environmental regulations from the outset. We will comply with the statutory processes relevant to our programmes and projects, including Strategic Environmental Assessment (SEA), Environmental Impact Assessment (EIA) and Appropriate Assessment (AA) under the Habitat's Directive, ensuring the avoidance of potential significant adverse effects on biodiversity (including protected sites), human health, water, air quality, cultural heritage (including archaeology), soil and landscape and visual amenity as a result of the upgrade to/construction of new infrastructure, including potential transboundary effects.

## **EN2: OPERATE OUR WATER SERVICES INFRASTRUCTURE IN A MANNER THAT SUPPORTS THE ACHIEVEMENT OF WATER BODY OBJECTIVES UNDER THE WATER FRAMEWORK DIRECTIVE AND OUR OBLIGATIONS UNDER THE BIRDS AND HABITATS DIRECTIVES.**

### **[EN2a] Work effectively with other stakeholders to support a catchment based approach.**

We will participate in river basin management planning at an international, national and river basin level for the development and implementation of programmes of measures in relation to water services in support of the WFD. We consider that each programme of measures should be proportionate to each sector, based on the polluter pays principle, and planned over a timescale which is affordable.

We will work with the EPA and other relevant stakeholders to identify 'on-the-ground' measures to be implemented. Our approach will focus on holistic solutions for the management of the catchment which will consider impacts from all catchment land uses including water services, tourism, agriculture and industry.

We will develop, collaboratively where feasible, catchment based assessments of receiving waters, identifying the impact of our operations and other impacts on water status and assess the environmental benefit of options available to us.

### **[EN2b] Manage the operation of our water and wastewater infrastructure towards the achievement of water body objectives and the conservation of protected sites and species.**

Delivery of water services, particularly the abstraction of water for supply and discharges from our wastewater and water treatment plants, directly interact with the water environment which the Water Framework Directive (WFD) seeks to protect and enhance. We will plan for the development and management (construction and operation) of our water

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supply and wastewater infrastructure taking into account the whole water cycle and will target investment to meet the agreed Programmes of Measures related to treated effluent discharges set for specific water body objectives under the WFD, prioritising the greatest environmental benefit from the funding available.

As part of the Wastewater Licencing process undertaken by the EPA for all of Irish Waters discharges, an Appropriate Assessment is carried out where necessary by the Competent Authority (i.e. the EPA) to ensure that our discharges do not impact on Natura 2000 sites and their nature conservation interests (including the Freshwater Pearl Mussel).

We will manage our water abstractions sustainably to minimise impact on water body status, protected habitats and species and use by other stakeholders (for example, maintaining minimum environmental and navigation flows), and in accordance with current and future legislation.

We will work towards meeting the requirements of the Priority Substances Directive which sets environmental quality standards (EQS) for the specified substances (i.e. pollutant chemicals) in surface waters (river, lake, transitional and coastal) and will include for targeted monitoring and compliance (where applicable) in our detailed plans and programmes. We will target our efforts in this respect to wastewater discharges to drinking water protected areas and shellfish waters. We will, where appropriate, regulate the discharge of such priority substances to our collection systems and hence to our treatment works under our trade effluent licences.

### **EN3: MANAGE ALL OUR RESIDUAL WASTE IN A SUSTAINABLE MANNER**

#### **[EN3a] Develop and implement a Corporate Waste Management Strategy.**

Irish Water will develop and implement a Corporate Waste Management Policy and Plan as part of the resource efficiency element of our Sustainability Framework [Strategy EN1a].

We will manage waste generation and waste streams within the organisation to promote reduction, reuse and recycling of materials. Our plans will propose suitable transportation and disposal routes for waste and require annual reporting of the waste generated and recycled onsite with on-going targets for reduction.

#### **[EN3b] Develop and implement a National Wastewater Sludge Management Plan.**

Irish Water will prepare and implement a national plan to manage all wastewater sludges generated by our treatment processes and where feasible, sludges generated by septic tanks serving domestic residences..

The wastewater treatment process generates sludges which require further treatment prior to re-use or disposal. There is a deficit of sludge management facilities nationally and additional facilities are required to manage wastewater sludge.

We aim to treat all wastewater sludges to meet the requirements of the DECLG Code of Practice for re-use where possible as fertilizer and soil conditioner. This requires a stable pasteurised product, complying with chemical standards for safe use in agriculture or equivalent use.

Irish Water will accept wastewater sludges generated by septic tanks serving domestic residences from licenced contractors at specific sludge management facilities subject to appropriate commercial agreements. The acceptance of sludge from septic tanks will depend on suitable import facilities and spare capacity being available at the WWTP where sludge is accepted. At present there is insufficient capacity to accept all the septic tank sludge generated within Ireland. Where IW does not currently have capacity to meet the demand for accepting septic tank sludge, we will investigate the feasibility of developing this capacity on a commercial basis. Development of additional capacity for septic tank sludge would be dependent on IW having secure and sustainable outlets for all IW generated sludges in the first instance.

Transport and re-use/disposal of all wastewater sludges will be managed by Irish Water to ensure compliance with our standards for treatment and disposal by registered Contractors with full traceability. This will include any imported sludge from septic tanks accepted at Irish Water facilities. Re-use in agriculture or forestry will be managed in accordance with Nutrient Management Plans to ensure compliance with nitrogen and phosphorus controls.

Irish Water will work with industry to develop alternatives for the beneficial re-use of wastewater sludge and the possible recovery of energy and/or constituents in a sustainable and economically viable manner. Anaerobic digestion plants reduce the organic solids and create biogas which can be used to generate electricity for use in the treatment plants. These will be developed where feasible and economically viable.









## [EN3c] Develop and implement a National Water Treatment Plant Sludge Management Plan.

Sludges are also generated from the water treatment process through the removal of colour and fine sediments from the abstracted water using chemicals. These sludges contain aluminium, ferric salts or other chemical residues from the purification process and require dewatering prior to disposal. To date the sludges have limited re-use and have principally been disposed at landfill.

Irish Water will work with industry to develop alternatives for the beneficial re-use of water treatment residual sludge and the possible recovery of constituents in a sustainable and economically viable manner. Landfill disposal will continue to play a major role in managing these sludges. We will ensure that transport and disposal of these wastes are carried out in compliance with waste legislation and with least environmental impact.

### Indicators and Targets

Indicators and targets for Irish Water to protect and enhance the environment are presented in the table below.

PROTECT AND ENHANCE THE ENVIRONMENT					
Indicators	Definition	Current Baseline	End of 2021 Target	End of 2027 Target	2040 Target
AIM EN1	Ensure that Irish Water Services are Delivered in a Sustainable Manner which contributes to the Protection of the Environment				
Water and Wastewater Residual Sludge Disposal	% compliance of treatment and disposal of sludges with Irish Standards	 96% (Best estimate based on available data)	 99%	 100%	 100%
Energy Efficiency	% increase in overall energy efficiency at Irish Water facilities	 Baseline 2009	 33% energy efficiency improvement over baseline (by 2020)	 Meet relevant targets that will be established by national energy policy	 Meet relevant targets that will be established by national energy policy
AIM EN2	Operate our water services infrastructure in a manner that supports the achievement of water body objectives under the Water Framework Directive and our obligations under the Birds and Habitats Directives				
Appropriate & Effective Wastewater Treatment	Achieve Targets for Aim WW1				
Sustainable Water Supply	Achieve Targets for Aim WS3				



# Chapter 7

Objective:

# Support Social and Economic Growth





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## Our Strategic Aims

- Support National, Regional and Local Economic and Spatial Planning Policy.
- Facilitate growth in line with national and regional economic and spatial planning policy.
- Ensure that water services are provided in a timely and cost effective manner.

### Introduction

The delivery of appropriate infrastructure to meet the required demand where and when it is needed is fundamental to supporting social and economic growth. Water and wastewater capacity is an important factor in maintaining Ireland's competitiveness for industry and commercial activity and as a destination for foreign direct investment. Water stress is an increasingly critical issue in many parts of the world, whereas Ireland has an abundance of water resources, provided we manage them appropriately.

Irish Water must assess where the demands for water services are most likely to arise based on national and regional spatial planning policies and plans, together with population and economic growth predictions. We will plan to ensure continuous service to all Irish Water's existing customers whilst providing additional capacity to meet future population growth and industrial development.

### Our Legal Obligations

The Department of Environment, Community and Local Government (DECLG) sets policies in relation to spatial planning and economic development. The DECLG also sets policy in relation to water services and the protection of the environment. Under sections 33 and 34 of the Water Services (No. 2) Act, 2013, Irish Water must be consistent as far as is practicable with national & regional spatial planning policy and have regard to local spatial planning policy when developing strategies and planning investment in water services. These sections also require Irish Water to be consistent as far as is practicable with and take account of the River Basin Management Plans in relation to the implementation of the WFD. In addition, these sections require that Irish Water consults with its economic and environmental regulators and with regional and local planning authorities before preparing its strategic and investment plans.

As per the Planning and Development Regulations, 2001 (as amended) Irish Water is a prescribed body for the purpose of the making of Regional Planning Guidelines (new Regional Spatial and Economic Strategies), county development plans, local area plans and planning schemes. Irish water is also a prescribed body for development management.

The DECLG will prepare Ministerial Guidelines under section 28 of the Planning and Development Act, 2000 (as amended) to guide the engagement between Irish Water and local government at a regional and local level to ensure that water services provision is aligned with the country's spatial planning policy.

### The Current Situation

Some 62% of Ireland's population currently live in urban areas, with Dublin and the Mid-East being the most urbanised regions in the country. The Greater Dublin Area is the most significant area in terms of population concentration. However, in line with the objective of the current national spatial planning policy (National Spatial Strategy, NSS) for balanced regional development, economic development and growth is promoted across all regions. The NSS identifies a settlement hierarchy strategy of gateways, hubs and other towns for focused development and growth with appropriate infrastructure services.

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In rural areas away, from these settlements, the population is dispersed resulting in a large number of water supply zones and wastewater networks serving small populations. Many rural households are served by small private individual water and wastewater systems (wells and septic tanks respectively for the most part). Private Group Water Schemes have also been developed in rural areas. These private systems (individual or group) are outside the scope of Irish Water's remit.

Population growth targets for each of the state's 8 regions under the NSS were set by the Department of Environment, Community and Local Government (DECLG) in 2010, based on a balanced regional development policy. Each of the regional authorities subsequently set population targets to 2022 for each county within their region through their Regional Planning Guidelines (RPGs). All County Development Plans prepared since 2011 have based population growth targets for their settlement strategies on the relevant RPG.

The Central Statistics Office has published population growth forecasts at a national scale to 2046 and at a regional scale to 2031 based on the results of the 2011 census. These projections indicate that the national population will grow from 4.5 million in 2011 to between 5 million and 6.7 million by 2046, depending on the growth scenario used. Growth will vary across regions, with the Dublin/Mid East region likely to experience the greatest growth and the Western and Border Regions likely to experience the least growth. These forecasts indicate that in some areas, RPG targets to 2022 are unlikely to be achieved, while in other areas, targets will be surpassed.

The Department of Environment, Community and Local Government (DECLG) will be preparing a new National Planning Framework to replace the NSS in the near future and the three new regional assemblies (identified in "Putting People First") will subsequently prepare Regional Spatial and Economic Strategies to replace the existing RPGs by 2016.

Irish Water will regularly review and update our Water Services Strategic Plan to take account of the prevailing national, regional and local spatial planning policy and demographics.

## Key Challenges

The key challenges and uncertainties in the provision of water and wastewater services to support social and economic growth are:

- Uncertainty in the rate of population (domestic) growth and changing demography.
- Uncertainty in non-domestic demand, from general commercial development which usually follows domestic growth, from agriculture and from industrial development which can have significant "one-off" demands for large water and/or wastewater capacity.
- Balancing investment for growth with investment priorities for compliance, security of supply and operational efficiency.
- The extended timetable required for the planning and implementation of new strategic water and wastewater capacity.
- Funding availability for strategic capacity provision.
- Impacts of climate change and socio-economic factors on the demand for water services.
- Meeting environmental compliance whilst providing for growth.

## What our Customers can Expect from us

Our primary objective is to support population and economic growth in line with national and regional spatial planning policies and objectives. Our approach to planning and providing water services for growth will be evidence based. We will focus on utilising the capacities of our existing treatment facilities and networks to best effect while matching delivery of new capacity with realistic projections of demand based on appropriate planning horizons. We will aim to provide adequate spare capacity (headroom) in strategic level infrastructure to cater for variability in demand arising from factors such as weather and operational risk and some upward variation around projected development demand. We will seek to ensure that the standard of water services to our existing customers is maintained.

## Case Study

# Supporting Growth in the Greater Dublin Area

Over the past decade, water supply availability has regularly exceeded demand requirements in the Dublin Water Supply Zone by just 1%-2% (20% excess over seasonal peak would constitute normal best practice for a large urban area). The Dublin Water Supply Zone serves 84% of the population of the Greater Dublin Area (based on the 2011 Census population).

There have been three significant disruption 'events' in the past five years which have highlighted how finely balanced the supply-demand position is; the exceptional water demand at the time of severe cold weather in the winter of 2010, the algal bloom experienced on the Vartry Reservoir in May of 2013, and the operational problems experienced with raw water chemistry at the Ballymore Eustace plant in late October 2013 (at the time the Web Summit was hosted in Dublin). Each of these events resulted in supply interruptions and restrictions across the supply area, with negative economic and reputational impacts for the area and the country.

Over 84% of Dublin's water treatment capacity is now dependent upon the River Liffey, and this fact illustrates the vulnerability of the service, with negligible headroom, and the need for new long term sources in planning to manage risks such as unexpected population growth or migration, economic growth or risks from climate change and pollution.

Population in the Dublin Water Supply Zone is projected to reach 1.64m by 2021\*, from 1.52m in the 2011, and is forecast to grow to 2.15m\*\* by 2050. (The population in the GDA itself is projected to be 1.95m by 2021\*). Despite expected reductions in leakage and developing existing sources to their sustainable limits, increasing population and economic growth and security of supply will result in a need for a new source by the early 2020's. Similar considerations apply to wastewater capacity provision in the Greater Dublin Area.



*Leixlip Water Treatment Plant on the River Liffey. Photo: Irish Water*

\*based on the 2011 Census figures and the CSO's "most likely growth scenario" (Modified M2F2) identified in their Regional Population Projections

\*\* Project Need Report (2015) for the Eastern and Midlands Region Water Supply Project

## Objectives and Strategies

The proposed strategies to meet the above challenges and to achieve this objective are summarised in the table below and are detailed in the remaining sections of this chapter.

Strategy	Purpose
<b>Aim SG1 - Support National, Regional and Local Economic and Spatial Planning Policy</b>	
SG1a	<p>Liaise with national, regional and local government bodies and potential customers to anticipate and plan water services in line with the statutory planning policy.</p> <p>To ensure that we plan and advise coherently on future development and that our infrastructure development strategies are consistent as far as is practicable with national and regional planning policy and plans and have regard to local development policy and development proposals.</p>
<b>Aim SG2 – Facilitate growth in line with national and regional economic and spatial planning policy</b>	
SG2a	<p>Maximise capacity of existing assets through effective asset management and optimised operation.</p> <p>Minimise requirement for additional infrastructure.</p>
SG2b	<p>Plan water service infrastructure at national, regional and river basin level.</p> <p>To ensure water services are planned at a strategic level and can be provided where needed in line with development plans.</p>
SG2c	<p>Invest in the development of strategic networks and treatment works.</p> <p>To meet projected demand for our water services.</p>
SG2d	<p>Maintain appropriate headroom in strategic water services infrastructure.</p> <p>To facilitate growth between investment periods.</p>
SG2e	<p>Provide a high quality customer service for new customers.</p> <p>To promote Irish Water as a modern utility meeting published service standards to its new customers.</p>

Strategy	Purpose
<b>Aim SG3 - Ensure that water services are provided in a timely and cost effective manner</b>	
<b>SG3a</b>	Plan for water services infrastructure development to meet projected demand facilitating delivery on a phased basis.
<b>SG3b</b>	Ensure that new assets are constructed to match demand and that assets are proportionate in size to the short and medium term demand projections.
<b>SG3c</b>	Balance investment for growth in demand with other priorities to ensure best outcome for customers.
<b>SG3c</b>	Operate an equitable New Connections Charging Policy that ensures efficient service provision to new customers with full cost recovery on a least cost basis.
	To ensure that the cost of connecting new developments to Irish Water's networks is efficient and is not a burden on existing customers.

**SG1: SUPPORT NATIONAL, REGIONAL AND LOCAL ECONOMIC AND SPATIAL PLANNING POLICY**

**[SG1a] Work with national, regional and local bodies and potential customers to anticipate and plan for water services for growth in line with the statutory planning process.**

Irish Water will actively engage with national, regional and local government bodies and its economic and environmental regulators in the planning and development of our strategies for the delivery of water services and our investment plans.

Our method of engagement will follow the direction of the Ministerial Guidelines to be prepared by the DECLG under section 28 of the Planning and Development Act, 2000 (as amended) and the requirements of Planning and Development Regulations 2001 (as amended).

We will support a collaborative approach with national, regional and local planning bodies to promote proper planning and co-ordinated development which is environmentally and economically sustainable. Water is a valuable asset necessary for the life, wellbeing and wealth of our nation. With the creation of Irish Water, we provide a coherent national focus in the discussions regarding regional and national spatial planning and in the provision of critical national water infrastructure to underpin the economy and support growth. We are committed to fulfilling our role as a statutory consultee in the preparation of regional, county and local development plans.

We will support the objectives of the Government's strategic approach to housing identified in Construction 2020<sup>1</sup> and will continue our participation in the Housing Supply Co-ordination Task Force for Dublin (established by the DECLG as an action under Construction 2020).

We will engage with potential new industrial and commercial customers and key stakeholders such as the IDA, Enterprise Ireland, trade representative bodies and government organisations to anticipate and deliver water services infrastructure to support industrial development and job creation. We will engage directly with all inquiries for possible development and will seek to provide accurate and timely information on the capacity and likely cost of meeting requirements for water services. We recognise the need to build confidence in our ability to cater for such development, responding efficiently to opportunity, as it arises.

<sup>1</sup> Construction 2020; A strategy for a renewed construction sector; May 2014; Government Publication; 2014

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## **SG2: FACILITATE GROWTH IN LINE WITH NATIONAL AND REGIONAL ECONOMIC AND SPATIAL PLANNING POLICY.**

### **[SG2a] Maximise capacity of existing assets through effective asset management and optimised operation.**

Irish Water has established an asset management approach to water services investment planning, which involves mapping and modelling our existing systems in the first instance and implementing management and operational policies to ensure that they operate effectively to their design capacity. This forms the basis on which all capacity planning is carried out, with scenarios examined which take full account of how existing assets can be utilised to their optimum and how they might be cost effectively upgraded to meet the capacity need and maintain a safe headroom.

### **[SG2b] Plan water service infrastructure at national, regional and river basin level.**

We are committed to providing strategic capacity to cater for domestic demand arising from population growth and non-domestic demand associated with this growth (e.g. demand from education, hospital and commercial facilities serving these populations). The objectives of the Government's strategic approach to housing identified in Construction 2020 must be provided for in terms of both treatment and network capacity. In addition, we are committed to facilitating the requirements of commercial and industrial development for water services on the basis of full cost recovery, based on the least cost principle (lowest cost of available options to meet the capacity need).

In order to deliver on this commitment we will take a national, regional and river basin perspective on the development and management of water services to meet existing and planned for demand. Through the preparation of national implementation plans such as the National Water Resources Plan we will ensure that the strategies identified in this Water Services Strategic Plan are implemented through a programme of works and subsequently through individual projects identified in our Capital Investment Plans.

In the development of the National Water Resources Plan we will target a rationalised approach towards fewer schemes based on larger and more sustainable sources to provide reliability of service, network resilience and value for money to our customers. Our objective is to optimise the resources available to us, including consideration of sustainable catchment transfers, where necessary, for adequacy and security of service.

Our Wastewater Compliance Strategy will focus on ensuring that wastewater treatment is provided where and when it is required and that our treatment plants achieve compliance with the requirements of the Urban Wastewater Treatment Directive and support the achievement of the quality objectives of the Water Framework Directive on a prioritised phased basis. Where investment in infrastructure is necessary in order to achieve water quality standards and wastewater compliance, we will include additional capacity to meet future planned demand where there is evidence that this demand is likely to be realised.

### **[SG2c] Invest in the development of strategic networks and treatment works.**

We will adopt a strategic planning perspective in respect of the delivery of strategic infrastructure. Strategic water and wastewater service plans will be prepared to quantify existing asset capacity and utilisation and assess how future demands will impact on our assets. This assessment will be completed under various growth scenarios, based on development plan projections. The scenarios will include short, medium and long term growth horizons. Appropriate design solution options to address these impacts will be generated, evaluated and costed, based on asset management principles.

A key element will be active engagement with planning authorities at an early stage in their planning process to facilitate appropriate consideration of water services and, in particular, to ensure awareness of water service related constraints that might impact on size, scale, cost and location of proposed development centres, including environmental impact.



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## **[SG2d] Maintain appropriate headroom in strategic water services infrastructure.**

A key element of Irish Water's strategy for meeting demand is the maintenance of an acceptable level of headroom (available capacity over current demand) in our systems to allow for growth potential and capacity risks. This is a key parameter in managing risks to service and takes account of the likelihood and consequences of failure from scheme to scheme. Once this headroom falls below the specified level, it acts as a trigger to provide a further increment of capacity.

Many water supply schemes currently have insufficient headroom to provide an acceptable protection against occasional loss of supply. For example, the Greater Dublin Area has regularly operated historically at headroom levels of 1-2%. Appropriate and timely investments are required to keep capacity abreast of demand and to maintain headroom for security of supply.

The capacity of most systems can be increased by extending existing treatment works and upsizing key pipelines and pumping stations. It is our long-term objective to provide for and maintain capacity headroom based on the size of the settlement served, the economic and social impact of failure and likely growth potential in line with the settlement hierarchy identified in the NSS and its successors as follows:

- Large urban settlements (Dublin, Cork, Limerick/Shannon, Galway and Waterford); 20% headroom.
- Regional Gateways; (Dundalk, Sligo, Letterkenny/Derry and Athlone/Tullamore/ Mullingar); 15% headroom.
- Other towns; 10% headroom.

If new industries require large one-off demands, then this would be provided for by utilising available reserves coupled with upsizing of treatment plants and networks to restore system capacity. The actual cost incurred in restoring the headroom would be recovered in full from that industry in accordance with provisions of our New Connections Charging Policy.

For water and wastewater networks we will develop hydraulic models to enable us to establish available capacity for growth and existing deficiencies. We will prepare strategic network development plans e.g. drainage area plans on phased basis for larger settlements which will set out how we will address existing deficiencies in capacity and cater for anticipated future growth. Growth provision will align with the prevailing "core strategies" in local authority development plans.

We commit to a long term objective to maintain and publish a treatment **headroom capacity register** on an on-going basis.

## **[SG2e] Provide a high quality customer service for new customers.**

Irish Water will provide a high quality service to new customers through our Connections and Developer Services Team which will have representatives located in each of our regional offices. Our team will consult with the developer/new customer to provide a detailed connection offer and will sign a connection agreement with the customer should the offer be acceptable. We will provide a clear set of design standards for water services infrastructure which must be implemented by the developer and inspected by Irish Water, where not directly provided by our contractors under the agreement, prior to any connection taking place.

Where we receive requests for connections from beyond our networks for existing developments served by private treatment facilities (for example ribbon development served by septic tanks) we will consider these with the CER based on the costs of service and the willingness of the property owners to sign development agreements and meet the costs involved. We will work with Group Sewerage Schemes to avail of grant support from the DECLG Rural Water Programme where relevant and will cooperate in 'Taking in Charge' connections infrastructure constructed to our requirements and meeting all prescribed tests on completion.

## **SG3: ENSURE THAT WATER SERVICES ARE PROVIDED IN A TIMELY AND COST EFFECTIVE MANNER**

### **[SG3a] Plan for water services infrastructure development to meet projected demand facilitating delivery on a phased basis.**

All Irish Water's assets are targeted to provide an appropriate return on investment to ensure that charges to our customer base are kept as low as possible. A balanced and timely approach to meeting existing and emerging demands is required to ensure that investment is not wasted on the development of premature and oversized water services. This requires that our forward planning is comprehensive and based on accurate knowledge of our system capacity across all of our schemes.

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When planning strategic infrastructure we must take an appropriate view of the cost of future upsizing of major infrastructure. Therefore, when planning for certain “one-off” infrastructure such as long distance pipelines, outfalls or strategic crossings (rail, motorway) we will take a long term view of likely future demands based on the fact that its future upsizing is not practical or economical.

Where possible, Irish Water will develop infrastructure assets, including critical national infrastructure, according to the following principles:

- We will develop water services demand forecasts taking cognisance of population/growth projections and national spatial and economic planning policies. Some large scale assets, which are ‘one off’ in nature, will be delivered on the basis of long term growth forecasts.
- We will review headroom in strategic infrastructure on a regular basis and consider upgrading the infrastructure if capacity has fallen below the target headroom for that facility. We will include a planned upgrade of the facility in our next Capital Investment Plan to cater for a projected growth for 5-10 years from the planned completion date of the upgrade.
- Treatment plants and major pumping facilities will be planned based on a modular design and a phased approach to construction. Capacity for growth would be added in time to support development. This has the benefit that our capital is used to best advantage and provides better value for money to our customers. The land requirement to accommodate the ultimate capacity of the plant will be considered such that land availability will not compromise the development of the plant to full capacity.
- New major pipelines need to be of sufficient size (diameter) so that they do not require to be augmented in the short to medium term.
- Outfalls from treatment plants and combined sewer overflows may be required to be constructed on a ‘one-off’ basis, similar to major pipelines.
- Crossings of major infrastructure, such as motorways, railways, or canals may also be sized for long term capacity, to avoid repeated and socially expensive disruption.
- We will work with local authorities, local development groups and private investors to ensure that smaller towns and villages are appropriately supported by water services infrastructure in line with:
  - Planned demand;
  - Identification of funding sources;
  - Selection of appropriate technical solutions; and
  - Growth opportunities in towns and villages on a cluster basis.

### **[SG3b] Balance investment for growth in demand with other priorities to ensure best outcome for customers.**

Irish Water faces many challenges in providing an appropriate level of water services to our customers, in achieving compliance with statutory standards and legislation and in facilitating growth while ensuring that our services are provided in an efficient and economic manner to existing and new customers.

We are required to operate in a commercially viable and environmentally responsible manner and must take this into consideration when considering priorities for investment.

As a national body we have the opportunity to align our capital investment in a national context and to balance our investment priorities to ensure the best outcome for our existing customers while facilitating future growth as far as is practicable.

To achieve this balance we will engage with the EPA and CER to create alignment and agree priorities which support national planning policy and provide best outcomes for our customers.









## [SG3c] Operate an equitable New Connections Charging Policy that ensures efficient service provision to new customers with full cost recovery.

Prior to the establishment of Irish Water, each local authority set their own connection charging policy in terms of a Connection Fee and Planning Levies. Irish Water will operate a New Connection Charging Policy at a national level which clearly sets out our charges for all new customers based on full recovery of the cost to Irish Water of connecting customers to a public water/wastewater system. Our New Connection Charging Policy will be fully approved by the CER and we expect a uniform approach across the country.

Irish Water will work to ensure, through our New Connection Charging Policy and our investment plans, that the cost of developing water services and connecting to the Irish Water network is equitably apportioned between new and existing customers.

### Indicators and Targets

Indicators and targets for the objective to support social and economic growth are presented in the table below.

Primary Objective	SUPPORT SOCIAL AND ECONOMIC GROWTH				
Indicators	Definition	Current Baseline	End of 2021 Target	End of 2027 Target	2040 Target
AIM SG2	Facilitate Growth in line with National and Regional Economic and Spatial Planning Policy				
Availability of Headroom at Water & Wastewater Treatment Plants to meet Core Strategies	% of treatment plants with 20% capacity headroom in large urban areas, 15% headroom in Regional Gateway Towns, 10% headroom at all other plants	 Establish a register of current available headroom against required headroom by 2016.	 60% of plants meet headroom target	 75% of plants meet headroom target	 100% of plants meet target
Capacity in Strategic Networks to Support Growth	Availability of hydraulic models and strategic network development plans	 Establish a register of strategic networks and current availability of hydraulic models for water and wastewater networks by 2016	 Have hydraulic models and strategic network development plans for large urban areas & Gateway Towns	 Have hydraulic models and strategic network development plans for settlements > 2000 population	 Have hydraulic models and strategic network development plans for settlements > 2000 population

# Chapter 8

Objective:

# Invest in Our Future



## Our Strategic Aims

- Manage our assets and investments in accordance with best practice asset management principles to deliver a high quality secure and sustainable service at lowest cost.
- Invest in our assets while maintaining a sustainable balance between meeting customer standards, protecting the environment and supporting the economic development and growth of the country.
- Establish a sustainable funding model to ensure that Irish Water can deliver the required capital investment in order to achieve the required outcomes.
- Promote research and proven, innovative technical solutions to meet standards set by our regulators including our objectives for cost and energy efficiency.

## The Current Situation

An historic under-investment in our water and wastewater networks and treatment facilities means that we now have to secure significantly increased levels of funding in order to achieve adequate standards of drinking water and wastewater compliance, to provide for renewal of assets and to support the growth of the country. A particular challenge is the lack of knowledge of the condition and risk of failure of critical assets in the system. Examples of such assets which pose a threat to service reliability and standards are:

- Nineteenth century water treatment plants such as those at Roundwood (Vartry) and Cork City (Lee Road) where the original assets remain in service.
- Strategic water supply pipelines in cast iron, asbestos cement and concrete construction are in service beyond the normal design life and critical to customer service.
- Combined sewers in large urban centres of brick or masonry construction are known to be leaking, admitting fresh and salt water ingress, and structurally unsound (for example, Limerick and Cork City centre sewers).

Irish Water has been established as a customer focussed and asset management driven organisation, in line with best international practice in the water utility sector. In developing its capability, a key focus is an asset management approach to provide a radical transformation in the water services planning and delivery model in Ireland. On the basis of a sustainable funding model, Irish Water will target the necessary levels of investment to secure the condition of our critical assets to enable the required standard of quality and reliability in water services for our customers and the national economy. An informed evidence based approach to asset management will deliver the benefits of this investment, at lowest cost.



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## Key Challenges

Our key challenges are:

- Overcoming a deficit in knowledge of our assets location, condition, performance and life expectancy.
- Implementing an asset management strategy, with a detailed asset register and clearly defined critical assets.
- Investing in fixing current issues with water supply and wastewater service, targeting minor capital and improved operating programmes to overcome shortfalls and remove risks.
- Engaging with our customers, regulators and other stakeholders to ensure there is a sustainable balance between the interests of our customers, the environment and the need to support the economic development and growth of the country.
- Establishing a sustainable funding model to ensure that Irish Water can deliver the required capital investment in order to achieve the required outcomes for our customers, the environment and the national economy.
- Implementation of innovation, research and development in support of better asset performance and least costs new infrastructure.



## What our Customers Can Expect from Us

In the future, our customers can expect us to manage and obtain the best value from our existing assets and to deliver our commitments to safe water supply, environmental compliance, resilient capacity and energy efficiency. We will utilise best international practice in the delivery of our water and wastewater services, applying innovative and state of the art solutions to upgrade our assets and provide new infrastructure where these have been proven to deliver.



## Objectives and Strategies

The proposed strategies to meet the above challenges and achieve this objective are summarised in the table below and are detailed in the remaining sections of this chapter.

Strategy	Purpose
<p><b>IF1 – Asset Management - Manage our assets and investments in accordance with best practice asset management principles to deliver a high quality secure and sustainable service at lowest cost.</b></p>	
IF1a	<p>Implement asset management systems including comprehensive asset data collection and modelling tools.</p> <p>To enable the optimisation of asset performance through the optimum balance of operational, maintenance and capital investment for delivery of services at lowest long term costs.</p>
IF1b	<p>Develop long term asset strategies and implementation plans (Tier 2).</p> <p>To deliver operational cost efficiencies, meet capacity and performance needs and improve system resilience, through rationalisation and strategic forward planning.</p>
IF1c	<p>Development of initiatives such as asset standards and improved supply chain management.</p> <p>To deliver continuous improvement in value for money and reduce the cost of future investment to customers from standardisation of approach.</p>
<p><b>IF2 – Balanced Sustainable Investment - Invest in our assets while maintaining a sustainable balance between meeting customer standards, protecting the environment and supporting the economic development and growth of the country.</b></p>	
IF2a	<p>Engage with our customers, including households, commercial and industrial customers.</p> <p>To develop a balanced picture of customer concerns, issues and priorities to inform our strategy and deliver optimal outcomes which meet customer needs.</p>
IF2b	<p>Engage collaboratively with key stakeholders including CER, EPA, DECLG, HSE, regional and local authorities.</p> <p>To achieve optimum investment outcomes for customers, the environment and the national economy which satisfy national policy and growth projections.</p>
IF2c	<p>Apply clear and transparent investment prioritisation criteria.</p> <p>To ensure an appropriate balance between the interests of our customers, the environment and the need to support balanced regional development.</p>

Strategy	Purpose	
<p><b>IF3 - Sustainable Funding Model</b> - Establish a sustainable funding model to ensure that Irish Water can deliver the required capital investment in order to achieve the required outcomes.</p>		
IF3a	Transform the water industry in Ireland to an efficient water utility model within a regulated framework.	To deliver a sustainable funding model including off balance sheet funding as required, while achieving efficient capital and operational delivery.
IF3b	Work with regulators to achieve optimum balance of cost and service standards taking into account regulatory requirements.	To ensure that funding and investment plans deliver the best possible outcomes taking account of cost to customers and the state as a key issue.
IF3c	Deliver on Irish Water's commitments to raise public awareness of the value of water and achievements delivered.	To raise public awareness of the value of water resources and the benefits to customers, the environment and the national economy which Irish Water delivers.
<p><b>IF4 - Research and Innovation</b> - Promote research and proven, innovative technical solutions to meet standards set by our regulators including our objectives for cost and energy efficiency.</p>		
IF4a	Actively pursue research and development in water services and track opportunities to develop and adopt new technologies.	To adopt new technologies and innovation which will improve quality of service and/or reduce cost and carbon footprint.
IF4b	Engage effectively with universities, Institutes of Further Education, colleges and industry.	To ensure that opportunities for innovation through existing and on-going research and development are fully exploited.
IF4c	Develop knowledge management capability and implementation processes.	To maximise the benefits from innovative solutions.

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**IF1: ASSET MANAGEMENT - Manage our assets and investments in accordance with best practice asset management principles to deliver a high quality, secure and sustainable service at lowest cost.**

**[IF1a] Implement Asset Management Systems including comprehensive asset data collection and modelling tools.**

Asset management is the internationally accepted basis for cost effective management of extensive and spatially distributed assets in order to deliver a consistent and adequate level of service to all connected customers.

Asset management is based on robust and reliable information on infrastructure which is vital to inform critical maintenance and future investment plans and to target improvements where they are most needed. Irish Water has developed a national spatially referenced asset database in GIS format drawing together, for the first time, all available records from each of the 31 local authorities. To bring this knowledge up to the level required for asset planning and modelling, and combine this into consistent, accurate databases, we commenced a national asset data gathering and asset condition exercise in 2014 which is to be completed by 2018.

In addition, the asset management function will develop consistent standards, specifications, operation and maintenance programmes to manage the asset base. This has commenced with review of relevant international practise documents from high performing water companies, which are being adapted for Irish application. We are similarly developing the technologies required for remote monitoring of critical plants and network service indicators in order to support operating staff and response to incidents.

We are seeking to implement a strategy that optimises the life of our assets; balancing capital investment with maintenance and operation of the assets and thereby improving the life and safety of the assets and reducing performance risk.

**[IF1b] Develop long term asset strategies and implementation plans (Tier 2 plans).**

In order to deliver on the objectives of this WSSP, Irish Water will develop a series of implementation plans defining the programmes of work to be implemented. These plans will develop the range of scenarios and options from which the optimum approaches and prioritisation will be determined. The plans will take full account of the asset standards and policies adopted by Irish Water in shaping the strategic solutions. Where required, the plans will be subjected to Strategic Environmental Assessment and Appropriate Assessment, including public consultation. The plans will include:

- National Water Resources Plan, to assess present and future needs and resources at a regional level, taking account of resource constraints, and including sustainable inter-catchment or inter-regional transfers where required for secure resilient water supplies.
- Wastewater Compliance Plan, to determine the optimum strategies towards meeting compliance with license requirements while catering for future needs.
- National Wastewater Treatment Sludge Management Plan to define the optimum strategy for the re-use of sewage sludge, recovery of energy and disposal of waste residues.
- National Water Treatment Sludge Management Plan to develop an optimum national approach to water treatment process sludge disposal, in a sustainable cost effective manner.

All of these Implementation Plans (Tier 2) will require collection of relevant data, consideration of all relevant EU and National standards and policies, development of models and consideration of all technical, environmental and economic parameters.

**[IF1c] Development of initiatives such as asset standards and improved supply chain management.**

Asset standards are the technical standards used in the design and operation of water and wastewater infrastructure, which aim to ensure that the best solutions are adopted for new assets.

## Case Study

# Asset Management

Irish Water is responsible for operation and maintenance of several hundred thousand individual mechanical and electrical pieces of equipment across around 7,000 sites required to deliver water and wastewater services. Best practice asset management involves the care and maintenance of the assets based on comprehensive asset data so that the best value is obtained from the assets and water services are delivered at least cost.

Irish Water has developed an assets register down to individual component level, against which individual standards will be put in place. Our immediate priority is the identification of Critical Assets, being those assets whose failure would give rise to high customer impact on a large scale. The priority is to address the condition and likelihood of failure and its consequences. Investment plans must address the management of these key risks.



*Water Supply Pumping Station: Photo: Maurice O'Connell*

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We will develop and adopt a single set of national asset standards that will be periodically updated to reflect new innovative technology and changes in legislation. The benefits of having Irish Water asset standards will include standardisation, the selection of optimum solutions for new investment, reduced design costs and lower maintenance costs.

Irish Water has established central procurement for all goods and services required in the operation and investment in the services. We will use our national buying power to procure goods and services, standardising what we buy and ensuring that our supply chain is aligned to our requirements, particularly our adopted standards for quality, reliability and energy efficiency. We will procure goods and services in the competitive market place based on international best practice complying with procurement legislation. We will purchase goods and services using frameworks (longer term relationships), call off contracts (purchasing one item at a time) or discrete one off contracts where it is commercially beneficial to do so.

**IF2: BALANCED SUSTAINABLE INVESTMENT - Invest in our assets while maintaining a sustainable balance between meeting customer standards, protecting the environment and supporting the economic development and growth of the country.**

**[IF2a] Engage with our customers, including households, commercial and industrial customers.**

We will consult regularly with our customers and stakeholders and provide information so that all interested parties will be informed of our activities. As we develop our strategies and plans, these will be subject to consultation as appropriate, including the preparation of Strategic Environmental Assessments and Appropriate Assessments as required.

Our approach to investment in infrastructure, operations and maintenance, will be directed to achieving our key objectives which are based on delivery of services to our customers. We will engage with our customers to outline the issues, explain the options and ascertain feedback and input to assist us to determine preferences.

**[IF2b] Engage collaboratively with key stakeholders including CER, EPA, DECLG, HSE, regional and local authorities.**

Our operations are regulated by both CER for economic matters and the EPA for environmental matters and water quality standards. We will liaise closely with the DECLG in relation to matters of national policy and with the Health Service Executive (HSE) in regard to public health issues. Other key statutory consultees will include the National Parks and Wildlife Service, the regional and local authorities, IDA and the Health and Safety Authority (HSA). Consultation with special interest groups and the general public will be undertaken where they are affected.

**[IF2c] Apply clear and transparent investment prioritisation criteria.**

When the level of available funding is less than the investment needed, then prioritisation criteria are required to decide which capital projects can proceed and which must be deferred until funding becomes available. We will develop clear and transparent prioritisation criteria for agreement with CER, EPA and DECLG. This should ensure that the best outcomes are delivered for our customers, the environment and the national economy.

**IF3: SUSTAINABLE FUNDING MODEL - Establish a sustainable funding model to ensure that Irish Water can deliver the required capital investment in order to achieve the required outcomes.**

**[IF3a] Transform the water industry in Ireland based on an efficient water utility model within a regulated framework**

There has been a significant under-investment in water services infrastructure in Ireland over many decades which has resulted in current problems with water quality and reliability, high levels of leakage and below standard wastewater management across many parts of the country. From the first National Public Health Acts in 1878, to the setup of Irish

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Water, the responsibility for water services rested with Ireland's local authorities. In that period, the requirements evolved from a low technology, labour intensive enterprise to a modern, high technology industry. The need for a national approach with central and regional structures is evident from:

- The need for an integrated national set of asset data, technical models and development strategies on which all operational and investment decisions can be based.
- The need to integrate capital and operational investment decision making within an asset management framework, supported by high technology analytical systems to ensure the best service outcomes at the least cost.
- Developing the required technical competencies and specialisations (e.g. asset planning, process control, leakage reduction, trade discharge control, new connections and energy management) by combining local resources at central and regional sites.
- Delivering economies of scale by combining procurement of both goods and services and capital delivery. We expect that this approach will enable much more effective performance in areas such as leakage reduction and energy management.
- Achieving better outcomes from existing assets by introducing standard ways of working and maintaining assets and resolving customer problems.
- Using detailed workflow data (capturing all operational activity onto the asset database) to transition from reactive maintenance (in response to failure) towards greater planned maintenance, which ultimately greatly reduces asset risk and therefore improves outcomes.
- Deliver maximum savings in operation based on the best balance of staffing, technologies and asset maintenance, assuming that the critical investment needs are provided and the organisational transformation is completed.

To address the acknowledged infrastructure deficit, capital investment of around €600M per year will be required for a sustained period, probably several decades. One of the main elements of the Government's Water Sector Reform Programme was the establishment of a sustainable funding model which would enable this necessary capital investment to be put in place over the coming years. The main components included the establishment of Irish Water as an independent state-owned water utility, the introduction of a sustainable funding model including domestic water charges and independent regulation of water services by the CER.

Irish Water is committed to continuing to work with the local authorities under the Service Level Agreements (SLA's) to continue the industry transformation, including regional shared working across county boundaries and implementation of those initiatives required for service improvement and cost reduction.

Because of the very high levels of investment required in water services infrastructure and also the significant constraints on Government borrowing, the Water Sector Reform Programme had at its core a sustainable funding model whereby Irish Water would be able to raise finance in its own capacity.

In order for Irish Water to be able to raise significant finance at favourable interest rates, it will be necessary for Irish Water to demonstrate that it is an efficient water utility company operating within a stable regulatory framework with secure revenue streams. It is a core objective of Irish Water to deliver continuous improvement in water services delivery combined with cost efficiency to match international benchmark levels when the necessary structural reforms supported by investment in systems are in place. This should facilitate raising finance at favourable rates while ensuring that the overall cost is minimised.

### **[IF3b] Work with regulators to achieve optimum balance of cost and service standards taking into account regulatory requirements**

For Irish Water's investment plans to be sustainable they must be efficiently delivered at the least cost of service on a whole life basis. This consideration has to be balanced with ensuring sufficient funding to deliver the service levels required, taking account of the state of the assets and the committed costs inherited from the local authorities.

To this end, Irish Water will work closely and collaboratively with our regulators, CER and EPA, to agree priorities for the available funds to enable us to deliver the best possible outcomes in terms of drinking water quality, water services reliability, environmental protection and provision for growth.

### **[IF3c] Deliver on Irish Water's commitments to customers and the country and raise public awareness of the value of water and achievements delivered.**

Ireland's plentiful water resources are one of our most valuable national assets which provide tremendous economic, environmental and amenity value to our citizens and visitors. This natural resource, provided it is effectively managed,



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can also give us a significant advantage as we compete internationally for investment and job creation particularly in water dependant sectors of the economy.

Provision of safe, secure drinking water and effective wastewater management and treatment involves complex processes and requires significant investment in capital works as well as operation and maintenance. For a modern water utility, this requires the use of modern technologies in treatment, network management and energy efficiency. It also requires an asset management capability driving workflow activity, tracking outcomes and targeting all investments with the benefit of full asset data supporting decision making.

It is an objective of Irish Water to achieve public awareness of the value of water and the complexity of water services delivery. This will identify, over time, the benefits which Irish Water delivers in terms of drinking water safety and security, environmental protection and support for economic growth and development. This requires a secure revenue stream from customers which will in turn support the sustainable funding model to deliver the required levels of investment in our water services infrastructure.

#### **IF4: RESEARCH AND INNOVATION - Promote research and proven, innovative technical solutions to meet standards set by our regulators including our objectives for cost and energy efficiency.**

##### **[IF4a] Actively pursue research and development in water services and track opportunities to develop and adopt new technologies.**

Innovation in the provision of water services will be integral to delivering benefits in efficiency, customer service and water and environmental quality. This will enable the application of the most appropriate and sustainable solutions, drawing on best international practice and the required automation and instrumentation for central monitoring and control of asset condition and performance.

In addition to constant review of international practice, we will support local research and development to achieve the best outcomes for our customers and the environment.

We will pursue innovation in three ways:

- Collaboration with government organisations, academic institutions and other organisations to pursue research and innovation opportunities in solving technical challenges;
- Research and pilot innovative technologies, processes and systems for local application to meet specific quality needs and deliver cost effectiveness; and
- Collaboration with other water utilities and become a “fast follower” (i.e. learn best practices).

We will investigate alternative and innovative solutions in relation to both new projects and for the upgrading of existing plants and networks. Investment decisions will be based on solutions that provide the lowest whole life cost whilst also meeting our energy and carbon commitments.

##### **[IF4b] Engage effectively with universities, Institutes of Further Education, colleges and industry.**

We intend to engage actively with universities, colleges and industry to ensure that new technologies and innovative techniques are given due consideration on all our projects. We will work to achieve enduring relationships with the universities and technical colleges around shared objectives.

Innovation developed by industry for water services both here in Ireland and internationally can accelerate efficiencies in the delivery of our water services. Examples of this might be improvements to pump design resulting in energy efficiency, development of new wastewater treatment techniques or the reuse of chemicals to reduce our use of resources. We will work to ensure that our procurement approach is open to proven innovative options.

## Case Study

# Ringsend Wastewater Treatment Plant

The Ringsend Wastewater Treatment Works was designed for a capacity of 1.64 million Population Equivalent (PE) but is now operating just slightly over that capacity. To cater for the existing load and accommodate growth in the region, it is necessary to upgrade and expand the treatment works to its maximum capacity, which is estimated to be c. 2.1 million PE. The proposed upgrade must also achieve improved treated effluent quality in terms of nitrogen and phosphorus standards in order to conserve good water quality in the Liffey Estuary and Dublin Bay, based on their current designations. A scheme to expand and upgrade the treatment works has been approved by An Bord Pleanála.

Expansion and upgrading of the Ringsend Wastewater Treatment Plant is an urgent priority for Irish Water and a revision to the approved scheme to achieve required outcomes at least cost is currently being evaluated in partnership with Dublin City Council. Irish Water is proposing an innovative wastewater treatment technology for the upgrade and this innovative solution can result in a higher treatment standard to the benefit of Dublin Bay and a cost saving of €170 million compared to previous project proposals. Any proposed revisions to the approved scheme will be subject to environmental/planning approvals as appropriate.



*Ringsend Wastewater Treatment Plant and Power Station. Photo: Irish Water*

## [IF4c] Develop knowledge management capability and implementation processes.









Knowledge management is the process of capturing, developing, sharing, and effectively using organisational knowledge. It refers to a multi-disciplined approach to achieving organisational objectives by making the best use of knowledge by all parts of the organisation, including the local authority staff working under the SLAs.

The management and sharing of the combined knowledge and expertise within Irish Water and the local authorities is a key objective that will lead to improved performance, innovation, the sharing of lessons learned, integration and continuous improvement of the delivery of water services.

The use of knowledge management within Irish Water will mean that the benefits from innovative solutions will be adopted across the country and this will generate efficiencies and value for water customers.

### Indicators and Targets

Indicators and targets for this Objective to Invest in Our Future are presented in the graphic below.

Primary Objective	INVEST IN OUR FUTURE				
Indicators	Definition	Current Baseline	End of 2021 Target	End of 2027 Target	2040 Target
AIM IF2	Balanced Sustainable Investment				
Outcomes of Capital Investment Plans	Capital Investment Plans delivered (on time and within budget) within the investment period	 Establish baseline conditions of critical assets by 2018	 100% Delivery of Outcomes identified in Capital Investment Plan 2017 - 2021 as agreed with the CER	 Deliver IW objectives through balanced investment at least cost within approved funding model	 Deliver IW objectives through balanced investment at least cost within approved funding model
AIM IF3	Sustainable Funding Model				
Operational and Capital Efficiency	Meet CER's requirements for operational and capital efficiency	 Develop Best Practice Asset Management Principles and Systems	 Meet 100% of the requirements identified by CER with respect to operational and capital efficiency	 Meet 100% of the requirements identified by CER with respect to operational and capital efficiency	 Meet 100% of the requirements identified by CER with respect to operational and capital efficiency

# Glossary and Abbreviations



*Children on Beach*  
*Photo: Sinead McGinley*



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## Glossary and Abbreviations

Abbreviations	
CER	Commission for Energy Regulation
DECLG	Department of Environment, Community and Local Government
EPA	Environmental Protection Agency
RBMPs	River Basin Management Plans
RBD	River Basin District
UWWTD	Urban Wastewater Treatment Directive
WFD	Water Framework Directive
WSZ	Water Supply Zone

## Glossary

Abstraction	The removal of water from a river, lake or groundwater usually with the use of a pump.
Agglomeration	An urban settlement (village, town or city area) which is connected through a pipe network to a wastewater treatment plant. Agglomeration areas are defined on maps and used to plan wastewater services infrastructure.
Asset	Infrastructure (e.g. buildings, treatment plants) and equipment (e.g. pumps, screens, treatment units, disinfection systems and control panels) controlled and operated by Irish water to deliver water and wastewater services. We divide these into Below Ground Assets such as pipework and valves and Above Ground Assets such as treatment plants.
Borehole	A vertically drilled hole into the subsoils and/or bedrock which is used to monitor or abstract groundwater. A borehole is usually lined with a casing and/or screen to prevent it from collapse.
Biodiversity	The variety of all living things.
Catchment	The area of land where surface water from rainfall converges to a single point at a lower elevation, usually a point in a river, lake or an estuary. The catchment includes all drainage channels, tributaries (smaller streams) and floodplains.
Catchment Boundary or Watershed	The topographic line defining the catchment.
Discharge	Treated effluent from a wastewater treatment plant which is returned to the water environment. This is usually from a pipe and outflow structure into a river or the sea.
Drinking Water Regulations	European Union (Drinking Water) Regulations 2014 - S.I. No. 122 of 2014.
European Directive	A legal act of the European Union which requires member states to achieve a particular result. Examples are the Drinking Water Directive, Urban Wastewater Treatment Directive and the Water Framework Directive.
Groundwater	Water located beneath the ground surface in soil and rock pore spaces and fractures within rock formations.
Headroom	Spare capacity in water and wastewater infrastructure (treatment plants and networks) to cope with adverse weather conditions or unplanned incidents such as a break in a trunk main or equipment failures at a treatment plant.



Glossary	
Network	The interconnection of pipes and pumping stations used for the distribution of treated water and the collection of wastewater.
Plumbosolvency	The ability of water to dissolve lead into water supplies from lead pipes.
Population Equivalent (PE)	Wastewater treatment plants are described in terms of their designed treatment capacity, which is generally expressed as population equivalents (PE). This is a measurement of total organic biodegradable load, including industrial, institutional, commercial and domestic organic load, on a wastewater treatment plant, converted to the equivalent number of population equivalents (PE). One person is considered to generate 60g of BOD per day (BOD is the 5 day biochemical oxygen demand); and 1 PE is defined as being equivalent to 60g of BOD per day.
Raw Water	Water abstracted for drinking water purposes before treatment.
Regional Planning Guidelines	Regional Planning Guidelines (RPGs) are policy documents which aim to direct the future growth of a region over the medium to long term. They appraise the critical elements involved in ensuring sustainable and good planning in the right places, and though the protection of sensitive or environmentally important locations. The Guidelines inform and direct the City and County Development Plans of each of the Councils. The Planning and Development Act, 2000 (as amended) requires that all Regional Authorities shall at the direction of the Minister make Regional Planning Guidelines. Eight Regional Authorities were set up in 1994 under the Local Government Act 1991 (Regional Authorities) Establishment Order 1993. However, the 8 Regional Authorities have been reconfigured to 3 Regional Assemblies under the Local Government Reform Act, 2014 and the RPGs will be replaced by Regional Spatial and Economic Strategies to be published in 2016.
Resilience	The ability of a system (e.g. water supply zone or wastewater network) to cope with change or stress. In a water services context stress to the system or network could result from increased demand, partial failure of operating plant, climate change or local contamination of water sources.
River Basin District	A group of catchments which are defined within River Basin Management Plans prepared under the Water Framework Directive.
River Basin Management Plans	A plan for a group of catchments which contains a range of measures (proposals) aims at protecting and improving the use of the water environment.
Standard Operating Procedures	Detailed, written instructions and rules for managing and operating assets.

## Glossary

Sustainable Economic Level of Leakage	The level of leakage from underground pipes where it becomes economically and environmentally unsustainable to invest in further reductions in leakage. The cost (financially and environmentally) to fix the leakage is greater than the cost of water being lost.
Water Body	A defined section of river, lake or groundwater identified in the water body characterisation of the River Basin Management Plans developed under the Water Framework Directive.
Water Body Objectives	Environmental objectives set for each water body assessed within the River Basin Management Plans. The objectives could relate to achieving Good Status for the water body (requiring improvements to water quality, ecology, channelisation or other factors) or to no deterioration in status.
Water Supply Zone	The area supplied by an individual water supply scheme. This typically includes one or more abstractions (from a river, lake or groundwater), a treatment plant, storage in reservoirs and the distribution pipe network to deliver the water to each household or business.

# Appendix 1 - EPA Remedial Action List (2013)

## WATER SUPPLY

Local Authority		Name of Water Supply	Scheme Code
1.	Cavan Co.Co	Kingscourt	0200PUB1015
2.	Cork (West) Co.Co	Castletownbere New	0500PUB4205
3.	Cork (West) Co.Co	Drimoleague	0500PUB4103
4.	Cork (West) Co.Co	Kealkill	0500PUB4105
5.	Cork (West) Co.Co	Schull	050PUB4503
6.	Cork City Co.	Cork City Water Supply	0400PUB1001
7.	Donegal Co.Co	Cashilard	0600PUB1106
8.	Donegal Co.Co	Cresslough	0600PUB1075
9.	Donegal Co.Co	Fintown	0600PUB1065
10.	Donegal Co.Co	Glenties-Ardara	0600PUB1070
11.	Donegal Co.Co	Gortahork-Falcarragh	0600PUB1059
12.	Donegal Co.Co	Greencastle	0600PUB1015
13.	Donegal Co.Co	Owenteskna/Kilcar	0600PUB1091
14.	Donegal Co.Co	Letterkenny	0600PUB1110
15.	Donegal Co.Co	Portnoo-Narin	0600PUB1068
16.	Donegal Co.Co	Rathmullen	0600PUB1053
17.	Dublin City Co.	Ballyboden	0700PUB1002
18.	Dublin City Co.	Ballymore Eustace-Leixlip & Vartry/Ballymore Eustace	0700PUB1006
19.	Dublin City Co.	Vartry-Ballymore Eustace	0700PUB1007
20.	Dunlaoighre Rathdown Co.Co	Stillorgan	1000PUB1001
21.	Dunlaoighre Rathdown Co.Co	Roundwood	1000PUB1006
22.	Dunlaoighre Rathdown Co.Co	Church Road	1000PUB1007

## Appendix 1 - EPA Remedial Action List (2013) WATER SUPPLY continued

Local Authority		Name of Water Supply	Scheme Code
23.	Galway Co.Co	Ballinasloe Rws	1200PUB1004
24.	Galway Co.Co	Ballyconneely P.S	1200PUB1005
25.	Galway Co.Co	Carraroe PWS	1200PUB1009
26.	Galway Co.Co	Glenamaddy	1200PUB1021
27.	Galway Co.Co	Inishere P.S	1200PUB1025
28.	Galway Co.Co	Kilmor PWS	1200PUB1032
29.	Galway Co.Co	Kilkerrin/Moylough	1200PUB1031
30.	Galway Co.Co	Leenane P.S	1200PUB1035
31.	Galway Co.Co	Mid Galway	1200PUB1038
32.	Galway Co.Co	Portumna PS	1200PUB1042
33.	Galway Co.Co	Williamstown PS	1200PUB1049
34.	Kerry Co.Co	An Clochan 028D	1300PUB1027
35.	Kerry Co.Co	Ballinaskelligs 008H	1300PUB1049
36.	Kerry Co.Co	Ballymacadam 402F	1300PUB1102
37.	Kerry Co.Co	Barraduff 014A	1300PUB1015
38.	Kerry Co.Co	Caherdaniel 019H	1300PUB1051
39.	Kerry Co.Co	Caherciveen 017H	1300PUB1050
40.	Kerry Co.Co	Caragh Lake 022A	1300PUB1046
41.	Kerry Co.Co	Castlecove 023H	1300PUB1052
42.	Kerry Co.Co	Castlegregory 024D	1300PUB1026
43.	Kerry Co.Co	Cill Maolcheadair 047D	1300PUB1112
44.	Kerry Co.Co	Dingle 030D	1300PUB1034

## Appendix 1 - EPA Remedial Action List (2013) WATER SUPPLY continued

Local Authority		Name of Water Supply	Scheme Code
45.	Kerry Co.Co	Dun Chaoin 034D	1300PUB1035
46.	Kerry Co.Co	Glen 039H	1300PUB1098
47.	Kerry Co.Co	Inch PWS 044D	1300PUB1040
48.	Kerry Co.Co	Kenmare 045A	1300PUB1058
49.	Kerry Co.Co	Kilgarvan 046A	1300PUB1059
50.	Kerry Co.Co	Kilsarkin 403F	1300PUB1103
51.	Kerry Co.Co	Lauragh 051A	1300PUB1060
52.	Kerry Co.Co	Lisarboola 404F	1300PUB1105
53.	Kerry Co.Co	Lisloose Reservoir	1300PUB1106
54.	Kerry Co.Co	Lough Guitane 400F	1300PUB1016
55.	Kerry Co.Co	Maulin 066H	1300PUB1115
56.	Kerry Co.Co	Milltown (Poulgorum)	1300PUB1118
57.	Kerry Co.Co	Minard No.1 (Puck Island)	1300PUB1042
58.	Kerry Co.Co	Mountain Stage 062A	1300PUB1119
59.	Kerry Co.Co	Murreigh Ballydavid 063D	1300PUB1044
60.	Kerry Co.Co	Portmagee 064H	1300PUB1055
61.	Kerry Co.Co	Shrone 078A	1300PUB1121
62.	Kerry Co.Co	Templenoë 073A	1300PUB1062
63.	Kerry Co.Co	Ventry 074D	1300PUB1045
64.	Kerry Co.Co	Waterville 075H	1300PUB1057
65.	Kilkenny Co.Co	Inistioge WS	1500PUB1009
66.	Kilkenny Co.Co	Kilkenny City (Radestown) WS	1500PUB1010

## Appendix 1 - EPA Remedial Action List (2013)

### WATER SUPPLY continued

Local Authority		Name of Water Supply	Scheme Code
67.	Laois Co.Co	Portlaoise	1600PUB1004
68.	Leitrim Co.Co	South Leitrim Regional	1700PUB1100
69.	Longford Co.Co	Newtown Cashel	2000PUB1012
70.	Louth Co.Co	Omeath	2100PUB1012
71.	Louth Co.Co	Staleen	2100PUB1019
72.	Mayo Co.Co	Inishurk	2200PUB1031
73.	Mayo Co.Co	Kilmaine PS	2200PUB1016
74.	Mayo Co.Co	Kiltimagh	2200PUB1032
75.	Mayo Co.Co	Lough Mask	2200PUB1032
76.	Meath Co.Co	Ballinaclose	2300PUB2005
77.	Meath Co.Co	East Meath	2300PUB1008
78.	Meath Co.Co	Kells-Oldcastle	2300PUB1011
79.	Meath Co.Co	Navan & MidMeath PWS	2300PUB1016
80.	Meath Co.Co	Trim PWS	2300PUB1009
81.	Monaghan Co.Co	Carrickmacross	2400PUB1005
82.	Monaghan Co. Co	Lough Egish RWSS	2400PUB1001
83.	Roscommon Co.Co	Ballyfarnan	2600PUB1009
84.	Roscommon Co.Co	Ballinlough/Loughglynn	2600PUB1014
85.	Roscommon Co.Co	Boyle/Ardcarne	2600PUB1011
86.	Roscommon Co.Co	Boyle	2600PUB1023
87.	Roscommon Co.Co.	Castlerea Urban	2600PUB1016
88.	Roscommon Co.Co	Castlerea Regional	2600PUB1015



## Appendix 1 - EPA Remedial Action List (2013)

### WATER SUPPLY continued

Local Authority		Name of Water Supply	Scheme Code
89.	Roscommon Co.Co	North East RWSS	2600PUB1007
90.	Roscommon Co.Co	Roscommon Central	2600PUB1002
91.	Roscommon Co.Co	SRRWSS – Killeglan	2600PUB1004
92.	Roscommon Co.Co	SRRWSS - Lisbrock	2600PUB1022
93.	Roscommon Co.Co	NRRWSS	2600PUB1012
94.	Sligo Co.Co	Kilaraght Public Water Supply	2700PUB2714
95.	Sligo Co.Co	Lough Gill Regional Water Supply	2700PUB2710
96.	Sligo Co.Co	Lough Talt Regional Water Supply	2700PUB2702
97.	Sligo Co.Co	South Sligo Regional Water Supply	2700PUB2709
98.	South Tipperary Co.Co.	Burncourt	2900PUB0104
99.	South Tipperary Co.Co.	Carrick-on-Suir (Crotty's Lake)	2900PUB0118
100.	South Tipperary Co.Co	Carrick-on-Suir (Lingaun River)	2900PUB0150
101.	South Tipperary Co.Co	Clonmel Poulavanogue	2900PUB0109
102.	South Tipperary Co.Co	Cloran Regional	2900PUB0110
103.	South Tipperary Co.Co	Gortnapisha	2900PUB0137
104.	South Tipperary Co.Co	Graigue	2900PUB0205
105.	South Tipperary Co.Co	Mullenbawn	2900PUB0149
106.	Waterford Co.Co	Ballyhane	3100PUB1089
107.	Waterford Co.Co	Colligan	3100PUB1032
108.	Waterford Co.Co	Croan Upper	3100PUB1035
109.	Waterford Co.Co	Inchinleamy	3100PUB1054
110.	Waterford Co.Co	Ring/Helvick	3100PUB1084

## Appendix 1 - EPA Remedial Action List (2013)

### WATER SUPPLY continued

Local Authority		Name of Water Supply	Scheme Code
111.	Waterford Co.Co	Smoorebeg	3100PUB1092
112.	Waterford Co.Co	Tallow	3100PUB1095
113.	Wexford Co.Co	Sow Regional	3300PUB1641
114.	Wicklow Co.Co	Arklow Public Supply	3400PUB1004
115.	Wicklow Co.Co.	Aughrim/Annacurra	3400PUB1023
116.	Wicklow Co.Co	Avoca/Ballinaclesh Public Supply	3400PUB1024
117.	Wicklow Co.Co	Enniskerry Public Supply	3400PUB1024
118.	Wicklow Co.Co	Glenealy Public Supply	3400PUB1021
119.	Wicklow Co.Co	Wicklow Regional Public Supply	3400PUB1005
120.	Wicklow Co.Co	Windgates/Tempolecarrig	3400PUB1036
121.	Wicklow Co.Co	Bray Direct	3400PUB1001
122.	Wicklow Co.Co	Bray Reservoir	3400PUB1002
123.	Wicklow Co.Co	Greystones	3400PUB1003
124.	Wicklow Co.Co	Kilcoole	3400PUB1008
125.	Wicklow Co.Co	Kilmacanogue	3400PUB1009
126.	Wicklow Co.Co	Newtown Newcastle	3400PUB1010

## Appendix 2 - List of Areas from which raw sewage is discharged

### 7 LARGER URBAN AREAS, ABOVE THE DIRECTIVE THRESHOLDS, WITH NO TREATMENT OR PRELIMINARY TREATMENT ONLY AT THE END OF 2013

1.	Cork	Cobh	D0054-01
2.	Cork	Passage West/Monkstown	D0129-01
3.	Cork	Ringaskiddy/Crosshaven/Carrigaline	D0057-01
4.	Cork	Youghal	D0139-01
5.	Donegal	Bundoran	D0130-01
6.	Donegal	Killybegs	D0011-01
7.	Wicklow	Arklow	D0006-01

### 28 SMALLER URBAN AREAS, IN THE SIZE RANGE 500 P.E. UP TO THE DIRECTIVE THRESHOLDS, WITH NO TREATMENT OR PRELIMINARY TREATMENT ONLY IN 2013

	County/ Region	Urban Area	Licence Number
8.	Clare	Ballyvaughan	D0327-01
9.	Clare	Clarecastle	D0322-01
10.	Clare	Kilkee	D0078-01
11.	Clare	Kilrush	D0075-01
12.	Clare	Liscannor	D0430-01
13.	Cork	Ballycotton	D0516-01
14.	Cork	Castletownbere	D0297-01
15.	Cork	Castletownshend	D0468-01
16.	Cork	Ringaskiddy Village	D0436-01
17.	Cork	Timoleague	D0466-01
18.	Cork	Whitegate/Aghada	D0423-01
19.	Donegal	Falcarragh	D0343-01

## Appendix 2 - List of Areas from which raw sewage is discharged continued

20.	Donegal	Kilcar	D0520-01
21.	Donegal	Moville	D0212-01
22.	Donegal	Ramelton	D0341-01
23.	Donegal	St.Johnston	D0538-01
24.	Fingal	Rush	D0119-01
25.	Galway	Ahascragh	D0372-01
26.	Galway	Carraroe	D0388-01
27.	Galway	Kinvara	D0276-01
28.	Galway	Spiddal	D0396-01
29.	Kerry	Ballylongford	D0459-01
30.	Mayo	Bellmullet	D0074-01
31.	Mayo	Killala	D0067-01
32.	Waterford	Ardmore	D0162-01
33.	Waterford	Dunmore East	D0170-01
34.	Wexford	Duncannon	D0245-01
35.	Wexford	Kilmore Quay	D0232-01

## Appendix 2 - List of Areas from which raw sewage is discharged continued

### 9 CERTIFICATE OF AUTHORISATION AREAS (<500 P.E) WHERE WASTE WATER WAS DISCHARGED WITH NO TREATMENT

County/ Region		Certificate of Authorisation Site	Certificate Number
36.	Cork	Inchigeelagh	A0349-01
37.	Cork	Kilmacsimon	A0360-01
38.	Donegal	Burtonport	A0446-01
39.	Donegal	Coolatee Housing Scheme	A0525-01
40.	Donegal	Kerrykeel	A0445-01
41.	Galway	Roundstone	A0115-01
42.	Louth	Omeath	A0072-01
43.	Wexford	Arthurstown	A0243-01
44.	Wexford	Ballyhack	A0242-01

## Appendix 3 - Agglomerations identified in the European Commission Infringement Case against Ireland in respect of the Urban Waste Water Treatment Directive

1.	Abbeyfeale	23.	Cobh
2.	Abbeyleix	24.	Cork City
3.	Arklow	25.	Courtown/Gorey
4.	Athlone	26.	Dundalk
5.	Athy	27.	Dunmanway
6.	Ballincollig New	28.	Enfield
7.	Ballybofey/Stranorlar	29.	Enniscorthy
8.	Ballyragget	30.	Fermoy
9.	Blarney	31.	Kildare Town
10.	Borrisoleigh	32.	Kilkenny City and environs
11.	Callan	33.	Killarney
12.	Carlow	34.	Killybegs
13.	Carrickmacross	35.	Kingscourt
14.	Carrick-on-Suir	36.	Kinsale
15.	Carrigtwohill and environs	37.	Letterkenny
16.	Castlebar	38.	Lower Liffey Valley Regional Sewerage Scheme
17.	Castlebridge	39.	Lusk
18.	Castlecomer	40.	Mallow
19.	Castletroy	41.	Manorhamilton
20.	Cavan	42.	Midleton
21.	Clifden	43.	Monaghan
22.	Clonakilty and Environs	44.	Monksland Wastewater Treatment Works



## Appendix 3 - Agglomerations identified in the European Commission Infringement Case against Ireland in respect of the Urban Waste Water Treatment Directive continued

45.	Mountmellick	59.	Skibbereen
46.	Mountrath	60.	Swords
47.	Navan	61.	Templemore
48.	Nenagh	62.	Thomastown
49.	Passage/Monkstown	63.	Thurles
50.	Piltown	64.	Tralee
51.	Portarlinton	65.	Tubbercurry
52.	Rathcormac	66.	Tullamore
53.	Rathdowney	67.	Tullow Wastewater Treatment Plant
54.	Ringaskiddy	68.	Upper Liffey Valley Sewerage Scheme
55.	Ringsend	69.	Urlingford
56.	Roscommon	70.	Waterford
57.	Roscrea	71.	Youghal
58.	Shannon Town		





# Natura Impact Statement for the Water Services Strategic Plan

Customer



Water



Wastewater



Environment



Growth



Investment





## Executive Summary

Section 33 of the *Water Services (No.2) Act (2013)* requires that Irish Water prepares a Water Services Strategic Plan (WSSP) that sets out Irish Water's objectives over a 25 year period. The WSSP is a high-level overarching strategy that sits at the highest tier (known as Tier 1) of water services planning in Ireland. The strategies contained within the WSSP will be realised through a number of Implementation Plans (IPs) (Tier 2), with the specific projects and activities that are necessary to fulfil the provisions of the WSSP and IPs detailed at Tier 3 of the hierarchy. Consequently, the WSSP is not spatially specific and does not identify specific projects or schemes.

Article 6(3) of the Habitats Directive 92/43/EEC requires that competent authorities assess the potential impacts of plans and programmes on the Natura 2000 network of European protected sites to determine whether there will be any 'likely significant effects' (LSE) as a result of a plan's implementation (either on its own or 'in combination' with other plans or projects); and, if so, whether these effects will result in any adverse effects on the site's integrity. The provisions of the Habitats Directive 92/43/EEC are transposed into Irish law by the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended). The WSSP is a strategic plan and as such is subject to the provisions of Article 6(3) and the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended). Part 5 of the 2011 Regulations essentially describes a two-stage process for the assessment of plans and projects under Article 6(3), comprising 'screening' (sometimes referred to as 'AA screening') and 'Appropriate Assessment' (AA).

Irish Water has prepared the WSSP and the Boards of Irish Water and Ervia (as the parent company of Irish Water) will adopt the plan. Therefore, Irish Water is the competent authority in relation to determining the Appropriate Assessment of the WSSP.

Irish Water, supported by AOS Planning, undertook initial screening of the emerging WSSP in June 2014. This screening concluded that the WSSP requires AA since it is not directly connected with or necessary to the management of a European site; and it may have significant impacts on the Natura 2000 network. Therefore, applying the Precautionary Principle and in accordance with Article 6(3) of the Habitats Directive, a Stage 2 AA was deemed required as the possibility of significant effects on the Natura 2000 network could not be excluded.

Amec Foster Wheeler Environment and Infrastructure UK Limited (Amec Foster Wheeler), under the management of Nicholas O'Dwyer Ltd., was commissioned by Irish Water to undertake the preparation of a Natura Impact Statement in support of the AA of the draft WSSP. The Natura Impact Statement was published alongside the draft WSSP for statutory public consultation between 19<sup>th</sup> February 2015 and the 17<sup>th</sup> April 2015. The WSSP aims and strategies were reviewed and potential impact pathways by which the integrity of European sites could be adversely affected identified. Appropriate measures that should be employed in the final WSSP to ensure that adverse effects do not occur as a result of the Plan's implementation were also proposed.

The assessment of the draft WSSP strategies demonstrated the following points.

- 49 of 68 strategies will have 'no effect' on any European sites (and therefore no 'in combination' effects either). The majority of these are directions to prepare lower-tier plans or undertake activities



that are themselves likely to be neutral in their effects (e.g. engage with stakeholders; operate an equitable New Connections Charging Policy; etc.).

- 12 strategies cannot be meaningfully assessed at this level (e.g. the strategies contain elements that could ultimately result in adverse effects on a European site, depending on future implementation, but is too unspecific to allow assessment at this point in the planning hierarchy).
- 7 strategies will have ‘no adverse effect’. These are generally strategies that commit to environmental protection or other compliance (e.g. with the Water Framework Directive) that are likely to have a positive effect on European sites (i.e. there will be an effect but it will not undermine any site’s conservation objectives).

Where there is uncertainty over the ultimate outcomes, environmental protection strategies and supporting text (e.g. Strategy EN1e) were identified to provide an appropriate safeguard to ensure that the delivery of the WSSP will not adversely affect the integrity of any European sites, particularly where assessment is not possible at this level in the hierarchy. These protective strategies will require that all lower-tier plans, strategies and projects derived from the WSSP avoid or appropriately mitigate any likely significant effects and potential adverse effects on integrity that may be identified during their development.

The draft WSSP was modified following consultation to take into account the responses received from the statutory consultation, the findings of the AA and Strategic Environmental Assessment (SEA). These modifications have been reviewed to ensure that the conclusions of the initial assessment, that the WSSP, with appropriate controls and mitigation measures, will not result in adverse effects on sites designated under the Habitats or Birds Directives, remain valid for the final, published WSSP.

Potential positive effects on European sites are not factored into the AA (the legislative test does not consider the balance of positive and negative effects). However, it is worth noting that the development of the WSSP, and the strategic management of water resources and wastewater provision by a national body, will help improve the condition of many European sites and support the achievement and maintenance of favourable conservation status across the Natura 2000 network.

Irish Water has concluded that the WSSP will have no adverse effect on any European site, although it will remain necessary to undertake AA on the lower-tier Implementation Plans and projects (Tier 2 and Tier 3, respectively) as these are developed.

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# 1. Introduction

## 1.1 The Water Services Strategic Plan

### 1.1.1 Development of the WSSP

Irish Water is responsible for the development and provision of water and wastewater services throughout Ireland, having assumed responsibility for this from the 34 local authorities in January 2014. Irish Water therefore supplies drinking water to over 80% of the population and has adopted a large portfolio of assets including pumping stations; approximately 60,000 km of water pipelines; 25,000 km of wastewater pipelines; around 900 water treatment plants (WTPs); and over 1,000 wastewater treatment plants (WwTPs).

Section 33 of the *Water Services (No.2) Act (2013)* requires that Irish Water prepares a Water Services Strategic Plan (WSSP) that sets out Irish Water's objectives in relation to the provision of water services over a 25 year period. The WSSP must address the following aspects.

- Drinking water quality.
- The prevention or abatement of risk to human health or environment relating to the provision of water services.
- Existing and projected demand for water services.
- Existing and planned arrangements for provisions of water services.
- Existing and reasonably foreseeable deficiencies in the provision of water services.
- Existing and planned water conservation measures.
- The management of the property of Irish Water.

Work on the WSSP began in early 2014 and included the publication of the WSSP Issues Paper in July 2014 which was subject to public consultation for a period of five weeks. Taking into account responses to the WSSP Issues Paper and consultation with statutory bodies and key stakeholders, Irish Water prepared the draft WSSP that was published for statutory consultation between 19<sup>th</sup> February 2015 and the 17<sup>th</sup> April 2015.

The final WSSP will be adopted by the Irish Water and Ervia Boards and submitted to Minister of the Environment, Community and Local Government (the Minister) for approval in July 2015. The WSSP is available to view via Irish Water's website at <http://www.water.ie>

## 1.1.2 WSSP Scope and Content

Irish Water’s vision for water services in the future is that:

*“Through responsible stewardship, efficient management and strong partnerships, Ireland has a world-class water infrastructure that ensures secure and sustainable water services, essential for our health, our communities, the economy and the environment.”*

To achieve this vision, the WSSP sets out six strategic objectives which in-turn are underpinned by a series of aims relevant to the various aspects of water services identified in the Water Services Act 2013. The WSSP contains a range of strategies that are intended to support the delivery of each strategic objective and their associated aims. In total, 68 strategies are included within the WSSP across the following chapters:

- Meet Customer Expectations: which contains six strategies;
- Ensure a Safe and Reliable Water Supply: which contains seventeen strategies;
- Provide Effective Management of Wastewater: which contains fourteen strategies;
- Protect and Enhance the Environment: which contains ten strategies;
- Support Social and Economic Growth: which contains nine strategies; and
- Invest in Our Future: which contains twelve strategies.

A full list of the draft WSSP strategic objectives and associated aims and strategies are contained in **Appendix A**.

The WSSP sets the context for subsequent implementation plans, some of which are identified in the plan strategies. These implementation plans will detail the programmes of works to be completed in specific water service areas, for example, water resource planning, sludge management planning, climate change adaptation and mitigation and wastewater compliance. Each implementation plan will ensure that Irish Water complies with its legal obligations, meets the objectives of the WSSP and Irish Water’s performance targets. The implementation plans will also take into account the findings of other relevant national, regional and local plans (e.g. river basin management plans and regional development plans). Consequently, the aims and strategies of the WSSP are not spatially specific and do not identify specific projects or schemes.

## 1.2 The Habitats and Birds Directives

The European Union’s Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild flora and fauna), in conjunction with the Birds Directive (Council Directive 2009/147/EC<sup>1</sup> on the conservation of wild birds) is the main legal tool of the European Union for nature conservation. The stated aim of

<sup>1</sup> Birds Directive (Council Directive 2009/147/EC<sup>1</sup> on the conservation of wild birds) is the codified version of Directive 79/409/EEC as amended

the Directive is to contribute to the maintenance of biodiversity within the European territory of the Member States through the conservation of natural habitats and of wild fauna and flora of Community interest. The Birds Directive was adopted in 1979 by nine Member States, and was the first EU Directive on nature conservation. Since its adoption it has been a vital legal instrument for the conservation of all birds that occur naturally across the EU, acting in the broadest public interest to conserve Europe's natural heritage for present and future generations.

The Habitat Directive seeks to establish "Natura 2000", a network of protected areas throughout the European Community. It is the responsibility of each member state to designate Special Areas of Conservation (SACs) to protect habitats and species, which, together with the Special Protection Areas (SPAs) designated under the EU Birds Directive, form Natura 2000. Member States are required to maintain or restore at 'favourable conservation status' the habitats and species of Community Importance listed in Annex I and II of the Habitats Directive.

According to the Habitats Directive (Article 1(I)) an SAC means a site of Community importance designated by the Member States through a statutory, administrative and/or contractual act where the necessary conservation measures are applied for the maintenance or restoration, at a favourable conservation status, of the natural habitats and/or the populations of the species for which the site is designated.

SPAs are classified under Article 4 of the Birds Directive. These areas are designated in order to protect endangered bird species listed in Annex I or migratory species.

### 1.2.1 Article 6 Assessments

Article 6(3) of the Habitats Directive 92/43/EEC requires that competent authorities assess the potential impacts of plans and projects on the Natura 2000 network of European protected sites<sup>2</sup> to determine whether there will be any 'likely significant effects' (LSE) as a result of a plan's or project's implementation (either on its own or 'in combination' with other plans or projects); and, if so, whether these effects will result in any adverse effects on the site's integrity.

Article 6(4) of the Habitats Directive sets out the decision-making tests which must be applied to plans or projects that may impact a Natura 2000 site. Article 6(4) also requires compensatory measures to ensure that the coherence of the Natura 2000 network is protected if adverse effects on a European site cannot be avoided or mitigated. The provisions of the Habitats Directive 92/43/EEC are transposed into Irish law by the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended).

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<sup>2</sup> Natura 2000 is the European network of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) designated under Directive 92/43/EEC (the 'Habitats Directive') and Directive 2009/147/EC (the 'new wild birds directive') respectively. These sites are protected by Article 6(3) of the Habitats Directive (this applies to SACs from the point at which the European Commission and the Government agree the site as a 'Site of Community Importance' (SCI)). Article 6(3) of the Habitats Directive and Article 4(4) of the Birds Directive also apply (respectively) to any other site or area that the Commission believes should be considered as an SAC or SPA, until their status is determined. Under the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended) the term 'European site' applies to any designated SAC or SPA; any SCI; any candidate SCI (cSCI); any candidate SAC (cSAC); and any candidate SPA (cSPA).



The process by which the impacts of a plan or project is assessed against the conservation objectives of a European site is commonly known as ‘Appropriate Assessment’<sup>3</sup>. European Commission guidance<sup>4</sup> suggests a four-stage process for this assessment, although not all stages will necessarily be required (see **Box 1**).

#### **Box 1 Stages of Article 6 Assessment**

##### **Stage 1 – Screening:**

This stage identifies the likely impacts upon a European Site of a project or plan, either alone or ‘in combination’ with other projects or plans, and considers whether these impacts are likely to be significant.

##### **Stage 2 – Appropriate Assessment:**

Where there are likely significant effects, this stage considers the effects of the plan or project on the integrity of the relevant European Sites, either alone or ‘in combination’ with other projects or plans, with respect to the sites’ structure and function and their conservation objectives. Where it cannot be concluded that there will be no adverse effects on sites’ integrity, it is necessary to consider potential mitigation for these effects.

##### **Stage 3 – Assessment of Alternative Solutions:**

Where adverse effects remain after the inclusion of mitigation, this stage examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of European Sites.

##### **Stage 4 – Assessment Where No Alternative Solutions Exist and Where Adverse Impacts Remain:**

This stage assesses compensatory measures where it is deemed that the project or plan should proceed for imperative reasons of overriding public interest (IROPI). The EC guidance does not deal with the assessment of IROPI.

The WSSP is a strategic plan and as such is subject to the provisions of Article 6(3) and the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended). As with Strategic Environmental Assessment (SEA), for Appropriate Assessment it is accepted best-practice for the assessment of strategic planning documents to be run as an iterative process alongside development of the plan, with the emerging proposals or options continually assessed for their possible effects on European sites and modified or abandoned (as necessary) to ensure that the final plan is not likely to result in significant or adverse effects on any European sites, either alone or ‘in combination’ with other plans. It is therefore important to recognise that the assessment of strategic plans is ideally as much about guiding the development of the plan (and demonstrating that this has been done) as it is about (ultimately) assessing its effects.

## 1.3 This Report

The provisions of Articles 6(3) and 6(4) of the Habitats Directive 92/43/EEC are transposed into Irish law by Part 5 of the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended). Part 5 essentially

<sup>3</sup> ‘Appropriate Assessment’ has been historically used as an umbrella term to describe the process of assessment as a whole. This process is now more commonly divided into distinct stages, one of which is the Appropriate Assessment stage. The process as a whole is generally referred to as an ‘Article 6 Assessment’ (or sometimes as a ‘Habitats Directive Assessment’) for convenience, although these terms are not included within the legislation.

<sup>4</sup> EC (2001). *Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*. European Commission guidance produced by the Impacts Assessment Unit, Oxford Brookes University.

describes a two-stage process for the assessment of plans and projects under Article 6(3), comprising ‘screening’ (sometimes referred to as ‘AA screening’) and ‘Appropriate Assessment’ (AA).

Irish Water, supported by AOS Planning, undertook initial screening of the emerging WSSP in June 2014. This screening concluded that the WSSP requires AA since it is not directly connected with or necessary to the management of a European site; and it may have significant impacts on the Natura 2000 network. Therefore, applying the Precautionary Principle and in accordance with Article 6(3) of the Habitats Directive, a Stage 2 AA was deemed required as the possibility of likely significant effects on the Natura 2000 network could not be excluded.

Amec Foster Wheeler Environment and Infrastructure UK Limited (Amec Foster Wheeler), under the management of Nicholas O’Dwyer Ltd., was subsequently commissioned by Irish Water to undertake the preparation of a Natura Impact Statement in support of the AA of the draft WSSP and to determine whether any aspects of the WSSP (alone or in-combination) could have adverse effects on the integrity of any European site. The Natura Impact Statement was published alongside the draft WSSP for statutory public consultation between 19<sup>th</sup> February 2015 and the 17<sup>th</sup> April 2015. The comments received in relation to the AA are presented in **Appendix B**, with responses and actions that have been taken reflected in **Section 5** of this final version of the Natura Impact Statement accompanying the adopted WSSP.

The changes made to this revised Natura Impact Statement are summarised in **Table 1.1** below.

**Table 1.1 Amendments to the Revised Natura Impact Statement following Statutory Consultation**

Section	Amendment
new Section 3	Addition of new Ecological Baseline summary to provide context.
new Section 4	Assessment of the sensitivity of ecology and typical pathways for effects from generic water services of Irish Water.
Table 4.2	Revision of some assessment rationale and Recommendations for the Strategy based on improved knowledge from the consultation.
Table 4.3	New table detailing potential impacts arising from projects and activities identified to achieve the aims of the WSSP.
Section 5.3	Assessment of the strategies of the Final WSSP will ensure that adverse effects do not occur as a result of its implementation.
Section 5.4	Detailing of the wording of the final strategies of the WSSP showing amendments from the draft strategies.
Section 5.5	Update of the Concluding Statement for the AA Determination.

This report summarises the assessment of the draft WSSP, sets out the iterative process that has been undertaken to support the delivery of the WSSP and ensure that it meets the requirements of the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended), and assesses modifications to the final WSSP. The report should be read in conjunction with the AOS (2014) AA Screening Report (see **Appendix C**). More specifically, the report summarises:

- the approach to the AA of the draft WSSP (**Section 2**);
- the assessment of the draft WSSP strategies and aims, identifying potential impact pathways by which the integrity of European sites could be affected and appropriate measures to be employed in the final Plan to ensure that adverse effects do not occur as a result of the Plan's implementation (**Section 5.1**); and
- the assessment of the final WSSP (i.e. the plan proposed for adoption) following modifications identified during the consultation process and taking into account the findings of the assessment of the draft WSSP (**Section 5.3**).

## 2. Approach

### 2.1 Guidance

The following guidance has been used during the preparation of this Natura Impact Statement in support of the AA of the WSSP:

- DEHLG (2010) *Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities*. Department of Environment, Heritage and Local Government, Dublin.
- European Commission (2001) *Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*. European Commission, Brussels.
- UK Water Industry Research Ltd (2012) *Strategic Environmental Assessment and Habitats Regulations Assessment - Guidance for Water Resources Management Plans and Drought Plans*. UKWIR, Queen Anne's Gate, London.
- RSPB (2008) *Appropriate Assessment of Spatial Plans in Northern Ireland. A guide to why, when and how to do it*. RSPB, Sandy, Beds.
- DTA Publications (2013) *The Habitats Regulation Handbook* [online]. Available at: <http://www.dtapublications.co.uk/handbook/>. Accessed 11.11.14.
- SNH (2012) *Habitats Regulations Appraisal of Plans: Guidance for plan-making bodies in Scotland*. Scottish Natural Heritage / David Tyldesley Associates.

Some of this guidance relates to the application of the Habitats Directive under UK law. These guidance documents are therefore used advisedly. Nevertheless, they clearly address the requirements of the parent legislation (Articles 6(3) and 6(4) of the Habitats Directive), and its practical implementation. Most of the principles and practices outlined in these documents are therefore entirely consistent with the requirements of the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended).

### 2.2 Overview

The current European Commission guidance<sup>5</sup> suggests a four stage process for the assessment against Article 6, which is summarised in **Box 1**. The assessment process determines whether there will be any 'likely significant effects' (LSEs) on any European sites as a result of a plan's implementation, either on its own or 'in combination' with other plans or projects (screening) and, if so, whether it can be concluded that there will be no adverse effects on the sites' integrity (Appropriate Assessment).

<sup>5</sup> *Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC* (EC 2002).

The standard stepwise approach summarised in **Box 1** works well at the project-level where the scheme/project design is established and possible effects on European sites can be quantitatively assessed with the benefit of detailed survey data. In contrast, the fundamental nature of the WSSP presents a number of distinct challenges for a 'strategic' AA; in particular, every possible outcome of the Plan cannot always be identified and assessed in detail, requiring reliance on precautionary 'avoidance measures' or mitigation within the text to ensure that adverse effects do not occur as a result of the Plan's implementation. It is therefore important to understand how the WSSP is developed, how it would operate in practice, and hence how it might consequently affect European sites when identifying suitable measures.

## 2.3 Key Issues for AA of the WSSP

### 2.3.1 Understanding the Likely Outcomes of the WSSP

Irish Water is responsible for the provision and development of water and wastewater services throughout Ireland. Its day-to-day activities include:

- The abstraction and storage of raw surface water or groundwater;
- The treatment of abstracted water to potable standard;
- The storage and distribution of treated water;
- The collection of wastewater from customers connected to the public wastewater sewer network;
- The collection and treatment of surface water where drains are connected to the public sewer network;
- The treatment of wastewater to a standard set by legislation;
- Discharging treated wastewater under licence/certification by the EPA;
- Management, reuse and disposal of residual wastes and sludges; and
- The construction, operation, maintenance and management of the infrastructure and assets required to deliver the above.

Most of these activities have the potential to affect European sites, either due to current operation or through any future development and capital works that may be required. Consequently, it is easy to perceive mechanisms by which strategic plans produced by Irish Water, to help plan and deliver its services, could have indirect effects on European sites.

The WSSP is a high-level strategy that sets a framework for Irish Water's development as a utility and establishes the broad principles for the management of its assets and delivery of its statutory obligations. It outlines the strategic direction for Irish Water over the short, medium and long-term, up to 2040, providing a basis for planning water services to meet environmental compliance commitments in a cost effective manner. This is done through the identification of 'aims' for the efficient delivery of services, and 'strategies' for meeting these.

It is therefore important to recognise that the WSSP is effectively a high-level policy document rather than a typical land-use plan, and that most of the components of the plan (the aims and strategies) are effectively policy statements. As a result, there is no detailed geographical context attributed to the WSSP aims and strategies<sup>6</sup>; rather, the aims and strategies will be realised through lower-tier (Tier 2) Implementation Plans which will set out in more detail how specific aspects of Irish Waters services will be managed or delivered. These Implementation Plans will include, for example, a National Water Resources Plan and a National Sludge Management Plan. Specific projects and activities that are necessary to fulfil the provisions of the Implementation Plans will be detailed at a lower-tier still (i.e. Tier 3 Projects).

As a result, the aims and strategies within the WSSP are necessarily high-level. Whilst they may address or identify the broad service-provision requirements, or set a direction for future capital or operational investment, they are not spatially specific and do not identify specific projects or schemes. This is beyond its remit.

Critically, the WSSP is not advocating a ‘business as usual’ approach to the future management and operation of transferred assets. Improving the environmental performance of assets, and ensuring their compliance with all relevant legislation and standards, are fundamental: the outcome of the plan will not be an abstraction and discharge regime that maintains the status quo; rather the outcome will be continuous improvement and investment in water and wastewater services to ensure that environmental performance is improved until all Irish Water assets meet the relevant legislative requirements.

### 2.3.2 Uncertainty and ‘Down the Line’ Assessment

The WSSP will influence the future provision of water and wastewater services in Ireland by providing the context for the future implementation plans and so there are many conceivable ways in which it could therefore have an indirect influence on European sites. However, due to its wide scope, position in the planning hierarchy and long-term outlook there are inevitably a large number of uncertainties inherent within it and its outcomes. For example, a high-level aim advocating asset management could (arguably) lead to development on or near a European site; equally, it may not. Assuming direct effects such as this would ignore all the other stages and tiers in the planning process, and the opportunities for mitigation and avoidance that these provide. Often, specific effects on specific European sites cannot be identified and in searching for these effects there is a risk that the assessment begins to focus on effects that are ‘imaginable’ rather than ‘likely’, with a consequent risk that avoidance measures (i.e. protective measures incorporated into the policies) are not appropriately focused. What the higher-tier plan must avoid is making an adverse effect on a European site an inevitable or likely outcome, or constraining lower-tier plans and projects such that an effect becomes more likely.

As a result, the AA must consider and assess the strategies under each aim within the WSSP **appropriately**, whilst recognising (and mitigating) the inherent uncertainties within those strategies (i.e. the absence of any implementation details) and within the Plan itself.

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<sup>6</sup> i.e. the WSSP applies to the Republic of Ireland, but the aims and strategies are no more geographically explicit than this. Any spatial element is indirect only (e.g. an aim relating to waste water treatment arguably relates to a particular set of assets, the locations of which are largely known, but the aim will not relate to specific assets in specific locations).



It is recognised that some potential effects (or required mitigation) cannot be clearly determined at the strategic-level. In these instances, current guidance<sup>7</sup> (in Scotland, for example) indicates that it may be appropriate and acceptable for some or all of the assessment to be undertaken ‘down-the-line’ at a lower tier in the planning hierarchy, if:

- the higher tier Plan appraisal cannot reasonably predict the effects on a European site in a meaningful way; whereas;
- the lower tier Plan, which will identify more precisely the nature, scale or location of development, and thus its potential effects, retains enough flexibility within the terms of the higher tier plan over the exact location, scale or nature of the proposal to enable an adverse effect on site integrity to be avoided; and
- Appropriate Assessment of the Plan at the lower tier is required as a matter of law or Government policy<sup>8</sup>.

It should also be noted that the European Commission guidance ‘*Managing Natura 2000 sites: the provisions of Article 6 of the Habitats Directive 92/43/EEC*’ (EC, 2000) recognises that plans or plan components that are general statements of policy or political aspirations cannot have significant effects. Much of the WSSP (indeed, arguably the whole Plan) would meet this criterion.

## 2.4 Summary of Approach

### 2.4.1 Screening

The emerging WSSP as a whole was previously screened to determine whether AA is required; this screening concluded that the WSSP required AA since it is not directly connected with or necessary to the management of a European site; and because the possibility of significant effects on the Natura 2000 network could not be excluded. However, it should be noted that the screening was undertaken at an early stage in the Plan’s development (and therefore without the benefit of draft aims and strategies that could be assessed and modified), and on the Plan as a concept rather than draft strategies. The initial screening report noted that the screening would need to be revised and updated with the potential for some relevant European sites to be screened out based on the absence of particular habitats or species. In addressing the principal conclusions of the screening report (that an AA was required), attention moved beyond screening requirements and focused on revising and refining a methodology that appropriately assessed the effects on integrity that the WSSP could have, given the uncertainties regarding the nature, scale, duration and location of future development proposals (that would come forward under subsequent

<sup>7</sup> SNH (2012) *Habitats Regulations Appraisal of Plans: Guidance for plan-making bodies in Scotland*. Scottish Natural Heritage / David Tyldesley Associates.

<sup>8</sup> In some (rare) instances Government policy may extend the provisions that are strictly applicable to European sites (as defined by the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended)) to undesignated sites (typically those in the early stages of the designation process).

implementation plans). In consequence, screening out of sites in the manner original envisaged in the initial screening report was not pursued, due to the lack of necessary certainty.

Applying the Precautionary Principle and in accordance with Article 6(3) of the Habitats Directive, the initial screening report identified that a Stage 2 AA was required as the possibility of likely significant effects on the Natura 2000 network could not be excluded. In consequence, the Plan has been subject to AA to ensure that the components of the Plan (i.e. the individual aims or strategies) are examined and modified as necessary, although it is possible that the individual component aims and strategies will, on examination, not have significant effects (see **Section 2.4.3** and **Table 2.1**). For example, it is difficult to see a ‘policy’ such as WSSP aim SG2b (*‘Plan water service infrastructure at national, regional and river basin level’*) as anything other than a neutral policy statement regards effects on European sites; the logical alternative (*‘plan water service infrastructure at a local level only’*) is clearly more likely to lead to significant effects European sites by limiting the options for the lower tier plans.

#### 2.4.2 Scope of Assessment

The geographical scope of the assessment is set out in the Screening Report (see **Appendix C**). Since the WSSP covers all of the Republic of Ireland, and may have trans-boundary effects, the screening effectively considers all European sites that occur in the Republic (ROI) and Northern Ireland (NI) (other than those NI sites that are hydrologically separated from the Republic). There are 423 cSACs and 165 SPAs in ROI, with a further 57 SACs, SCIs or cSACs and 16 SPAs in Northern Ireland. The sites and qualifying features are listed in Appendix 1 of the AA Screening Report and so are not repeated in detail in the body of this document.

#### 2.4.3 Appropriate Assessment

The assessment must consider the effects of the WSSP on the conservation objectives of those European sites that could be affected. The National Parks and Wildlife Service (NPWS) are in the process of developing conservation objectives for all European sites; these are essentially as follows:

- For SACs, *“To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected”*.
- For SPAs, *“To maintain the bird species of special conservation interest for which the SPA has listed, at favourable conservation status”*.

Favourable conservation status is generally defined as follows in the conservation objective documents:

- Favourable conservation status of a habitat is achieved when: *“its natural range, and area it covers within that range, are stable or increasing; and the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and the conservation status of its typical species is favourable”*.
- Favourable conservation status of a species is achieved when: *“population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats; and the natural range of the species is neither being reduced nor is likely to be”*

*reduced for the foreseeable future; and there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis”.*

For some sites more detailed targets are provided by which the conservation objectives can be measured. In addition, the assessment has referred to the most recent Article 17 reports<sup>9</sup> on the status of habitats and species in Ireland that are listed by the Habitats Directive<sup>10</sup> and the Article 12 reports on the status of species listed by the Birds Directive<sup>11</sup>. These provide useful contextual information on the status and condition of interest features at a national level.

However, given that the WSSP is not spatially specific and does not direct development to particular areas, there is limited merit in undertaking a detailed and specific examination of every European site, their interest features and their conservation objectives to try and determine which might (in theory) be more or less vulnerable to the imagined outcomes of the WSSP; the same applies to specific interest features or groups of interest features (e.g. water-resource sensitive habitats). Indeed, such an approach is potentially counterproductive by creating an unjustified focus on particular European sites and / or particular features; in reality, plans or projects derived from the WSSP could potentially affect any site or feature<sup>12</sup>. Therefore, the European sites, interest features and conservation objectives have been referred to during the assessment process for information, in order to shape policy, but the effects of each strategy are not explicitly assessed on a site-by-site or feature-by-feature basis.

## Assessment of the Draft WSSP

The assessment of any strategic plan primarily considers the potential outcomes of the individual strategies and policies (in this case, of the WSSP its aims and strategies) and the associated development of measures (generally wording changes) to ensure that significant or adverse effects are not a likely outcome of a plan.

The WSSP aims and strategies may have effects in their own right, or they may be used to control potential effects or prevent them occurring. When considering the likely effects of a strategy or policy, it is recognised that some policy or strategy ‘types’ cannot result in impacts on any European sites. This can be applied to the WSSP or its components to help shape the strategies and identify those aspects requiring further detailed consideration. It can also be used to determine whether more detailed assessment of any strategy or aspect is required. Different guidance documents suggest various classification and referencing systems to help identify those strategies that can

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<sup>9</sup> Article 17 of the Habitats Directive requires that Member States report to the European Commission every six years on the status of the habitats and species listed by the Directive, and the implementation of any measures taken under the Directive.

<sup>10</sup> NPWS (2013) *The Status of EU Protected Habitats and Species in Ireland*. Volumes 1 – 3. Unpublished Report, National Parks & Wildlife Services. Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

<sup>11</sup> Article 12 of the Birds Directive requires that Member States report to the European Commission on the status of the Bird species listed under the Directive. The reporting cycles for the Birds Directive were amended to align them with the Habitats Directive. The latest report covers the period 2008-2012 inclusive.

<sup>12</sup> For example, new assets such as pipelines could arguably be sited anywhere.

be safely assessed as having no effect or no significant effects; the general characteristics of these policy or strategy types are summarised in **Table 2.1**.

**Table 2.1 Policy or strategy ‘types’ that can usually be excluded from further consideration**

Broad Type	Notes
General statements of policy / aspiration	The European Commission recognises* that plans or plan components that are general statements of policy or political aspirations cannot have significant effects; for example, general commitments to sustainable development. This would generally include policies which may promote change but where effects on any particular European site cannot be identified, because the proposal is too general (e.g. it is not known where, when or how the proposal may be implemented).
General design / guidance criteria or policies that cannot lead to or trigger development	A general ‘criteria based’ policy expresses the tests or expectations of the plan-making body when it comes to consider proposals, or relates to design or other qualitative criteria which do not themselves lead to development (e.g. controls on building design); however, policies with criteria relating to specific proposals or allocations should not be screened out.
External plans / projects	Plans or projects that are proposed by other plans and are referred to in the plan being assessed for completeness.
Environmental protection policies	Policies designed to protect the natural or built environment will not usually have significant or adverse effects (although they may often require modification if relied on to provide sufficient safeguards for other policies).
Policies which make provision for change but which could have no conceivable effect	Policies or proposals which cannot affect a European site (no impact pathways and hence no effect; for example, proposals for new cycle path several kilometres from the nearest European site) or which cannot undermine the conservation objectives, either alone or in combination, if impact pathways exist (no significant effect).

\* EC, 2000, Managing Natura 2000 sites: the provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC April 2000 at 4.3.2

It must be noted that it is inappropriate to apply a classification tool uncritically. There will obviously be some occasions when a strategy or similar may have potentially significant effects, despite being of a ‘type’ that would normally be screened out.

The criteria in **Table 2.1** were applied critically to the assessment of the draft strategies within the draft WSSP to identify the following strategy groups:

- ‘**No effect**’ strategies: strategies that will have ‘no effect’ (i.e. strategies that self-evidently would not have any effect on a European site due to the type of strategy or its operation; for example, a broad strategy directing the preparation of a lower tier plan, which does not compromise or constrain the lower tier plan). Note that ‘no effect’ strategies cannot have in combination effects.
- ‘**No adverse effect**’ strategies: strategies where impact pathways theoretically exist but the effects will not be significant and adverse (alone or in combination).
- ‘**Uncertain effect**’ strategies: strategies where the precise effects on European sites (either alone or in combination) are uncertain, and hence additional investigation through the appropriate assessment stage or policy modification is required (note that further investigation will often demonstrate that there is no significant effect or allow suitable mitigation or avoidance measures to be identified to ensure this).

- **‘Likely significant and adverse effect’** strategies: strategies which are likely to have a significant effects (either alone or in combination), which are also likely result in an adverse effect on site integrity. These require additional investigation and / or modification (e.g. the provision of avoidance measures or protective caveats) to ensure that the final strategy, and hence the plan, has either no significant effect or no adverse effect. These strategies are more likely to require that the strategy be amended, abandoned or re-worked.
- **‘Cannot be assessed’** strategies: strategies that cannot be meaningfully assessed at this level in the planning hierarchy.

### ‘In combination’ Assessment

Article 6(3) of the Habitats Directive requires that the potential effects of the WSSP on European sites must also be considered ‘in combination with other plans or projects’. The ‘in combination’ assessment must also consider within-plan effects (i.e. between strategies). The consideration of ‘in combination’ effects is not a separate assessment, but is integral to the screening and AA stages and the development of avoidance/ mitigation measures. There is limited guidance available on the scope of the ‘in combination’ element, particularly which plans should be considered. However, the assessment should not necessarily be limited to plans at the same level in the planning hierarchy and there is consequently a wide range of plans that could have potential ‘in combination’ effects with the WSSP due to its national scale.

The plans identified by the SEA and the screening report have provided the basis for the assessment of ‘in combination’ effects; these plans were reviewed to identify any potential effects and these were then considered (as necessary) within the AA. Completion of the ‘in combination’ assessment is directly related to the strategy wording, and it will often be possible to remove any risk of ‘in combination’ effects through careful strategy construction.

### Mitigation and Avoidance

The development of avoidance or mitigation measures is key to the AA and WSSP development process. Avoidance measures are those that are incorporated into a plan during its development to prevent adverse effects on European sites occurring; mitigation measures are used where specific significant effects are identified in order to prevent adverse effects on a particular site’s integrity, although in practice, with an emerging strategic plan, most measures are effectively avoidance measures.

Avoidance or mitigation measures should aim to reduce the probability or magnitude of impacts on a European site until ‘no likely significant effects’ or ‘no adverse effects’ will occur. These will generally involve the development and adoption of, for example, wording changes or additional strategies. Measures must be specific and targeted, and likely to work: it is not appropriate to re-state existing legislation, such as by adding “*and must have no significant effect on any European site*” (or similar) to every strategy. It should be noted that high-level strategies such as the WSSP often benefit from the use of overarching or cross-cutting protective strategies, particularly where effects cannot be meaningfully assessed at the plan-level, and lower tier plans are relied on to avoid significant and adverse effects.

## Assessment of the Final WSSP

The final WSSP is issued following consultations with statutory authorities, and takes account of any changes recommended either by consultees or through the SEA and AA processes. It is therefore necessary to review the changes to the final plan to ensure that the conclusions of the draft assessment remain valid and/or that recommended avoidance or mitigation measures have been appropriately incorporated.



### 3. Ecological Baseline

Ireland has a range of varied habitats across the country, with a large number of sites that are designated as internationally, nationally or locally important for biodiversity. Internationally designated sites include Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) established under European Union Directives, and Ramsar sites designated as part of global agreements. National designations include Natural Heritage Areas, National Parks and Nature Reserves. The distribution of designated sites across Ireland is shown in **Figure 3.1**.

Ireland contains the following designated sites, all of which are subject to protective measures:

- 423 SACs designated under the Habitats Directive, covering an area of 13,500 km<sup>2</sup>. Habitats which are protected through SACs in Ireland include raised bogs, blanket bogs, turloughs, sand dunes, heaths, lakes, rivers, woodlands, estuaries and sea inlets, with 53% of the SACs being land-based and the remainder marine or lakes. Salmon, otter, freshwater pearl mussel, bottlenose dolphin and Killarney fern are among the species protected by SACs<sup>13</sup>;
- 132 SPAs designated under the Birds Directive which cover an area of 5,700 m<sup>2</sup>. This includes wetlands, bays and estuaries, agricultural and inland habitats and marine colonies. Key species include light-bellied Brent goose, black-tailed godwit, whooper swan, dunlin, knot, merlin, golden plover and dunlin<sup>14</sup>;
- 45 Ramsar sites, which are wetlands of international importance, including shallow marine waters, rocky shores, estuaries, intertidal mudflats or marshes, plus inland rivers, lakes, wetlands and peats. The majority of these sites are also SACs and/or SPAs.<sup>15</sup>

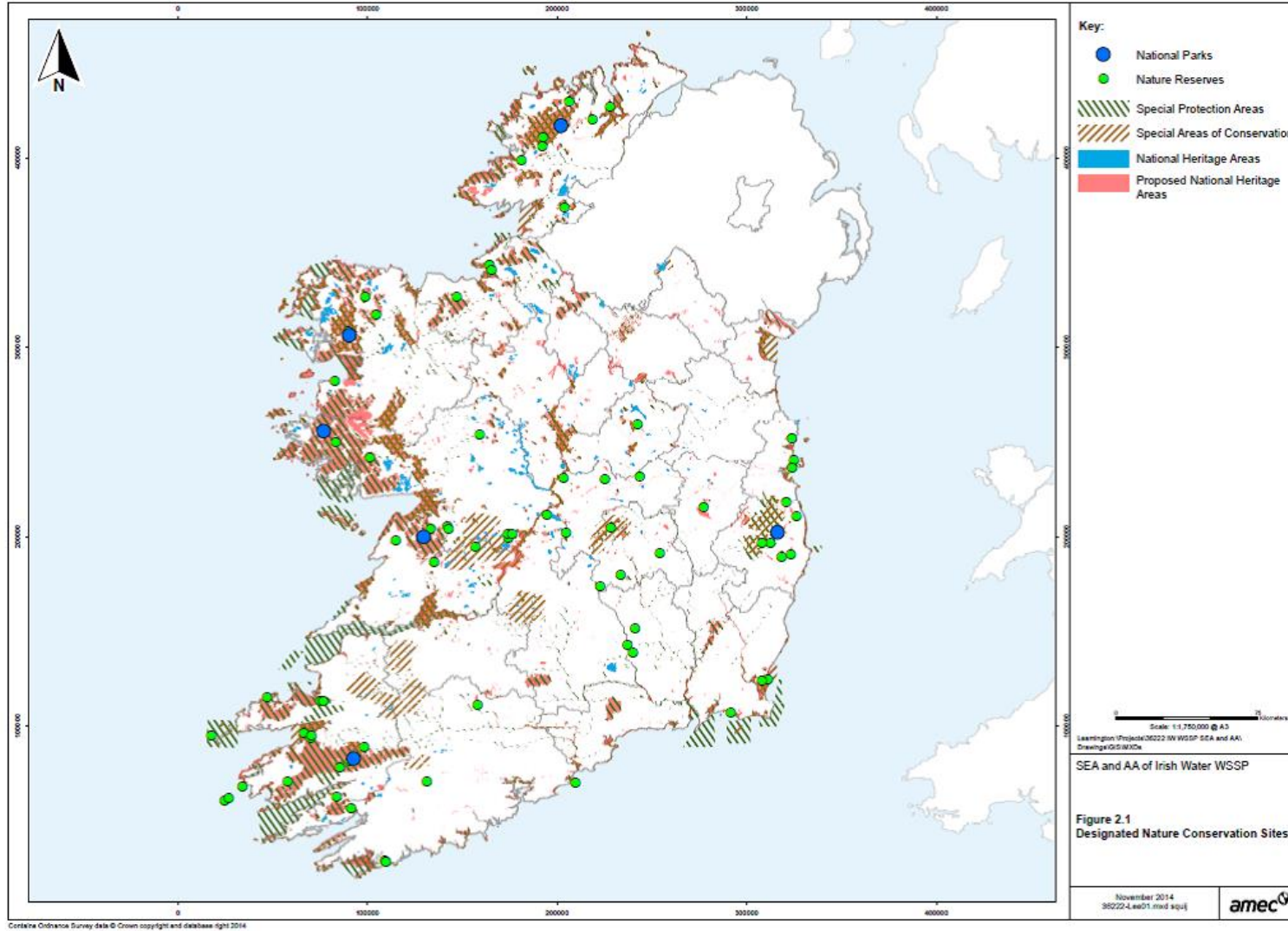
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<sup>13</sup> National Parks & Wildlife Service, SACs <http://www.npws.ie/protectedsites/specialareasofconservationsac/> (accessed 08/10/14)

<sup>14</sup> National Parks & Wildlife Service, SPAs <http://www.npws.ie/protectedsites/specialprotectionareasspa/> (accessed 08/10/14)

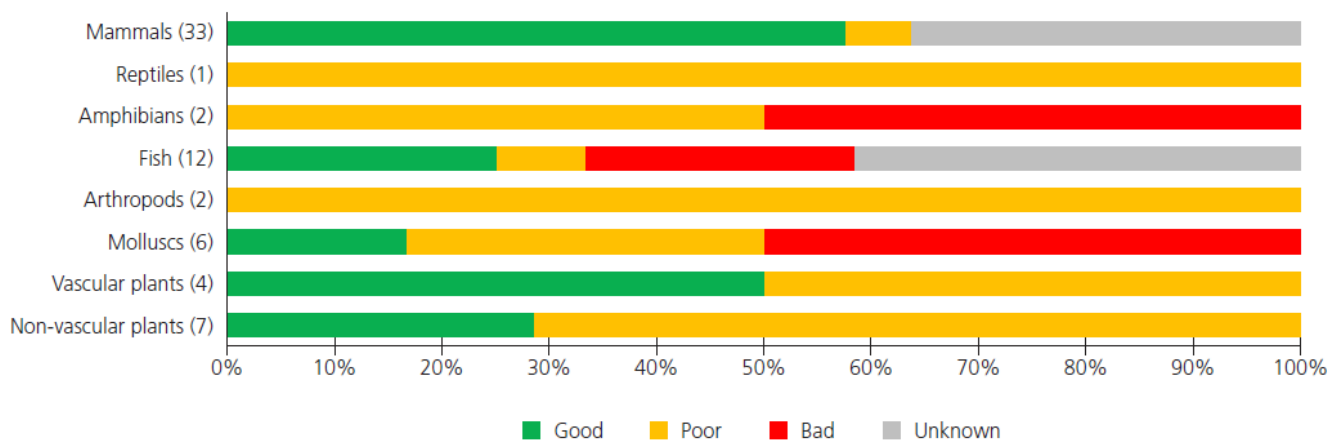
<sup>15</sup> Irish Ramsar Wetlands Committee, Ramsar Locations in Ireland <http://www.irishwetlands.ie/maps.html> (accessed 08/10/14)

Figure 3.1 Distribution of Designated Nature Conservation Sites in Ireland



The majority of habitats protected under the Habitats Directive in Ireland are of ‘poor’ or ‘bad’ conservation status, with only 7% of habitats in ‘favourable’ status. **Figure 3.2** provides an overview of the condition of protected species in Ireland and serves to highlight that protected species including bats, seals and plants are in a slightly better position with 39% in favourable condition overall. However, wetland and freshwater species such as fish, molluscs and toads are typically in less good condition. Further to this, a red list (based on the International Union for the Conservation of Nature (IUCN) categories) identifies species of key conservation concern. The groups containing critically endangered species include: water beetles; non-marine molluscs; amphibians, reptiles and freshwater fish; and bees.

**Figure 3.2 Overall Conservation Status of Species in Ireland Listed under the Habitats Directive by Major Species Group ((x) = number of occurrences)**



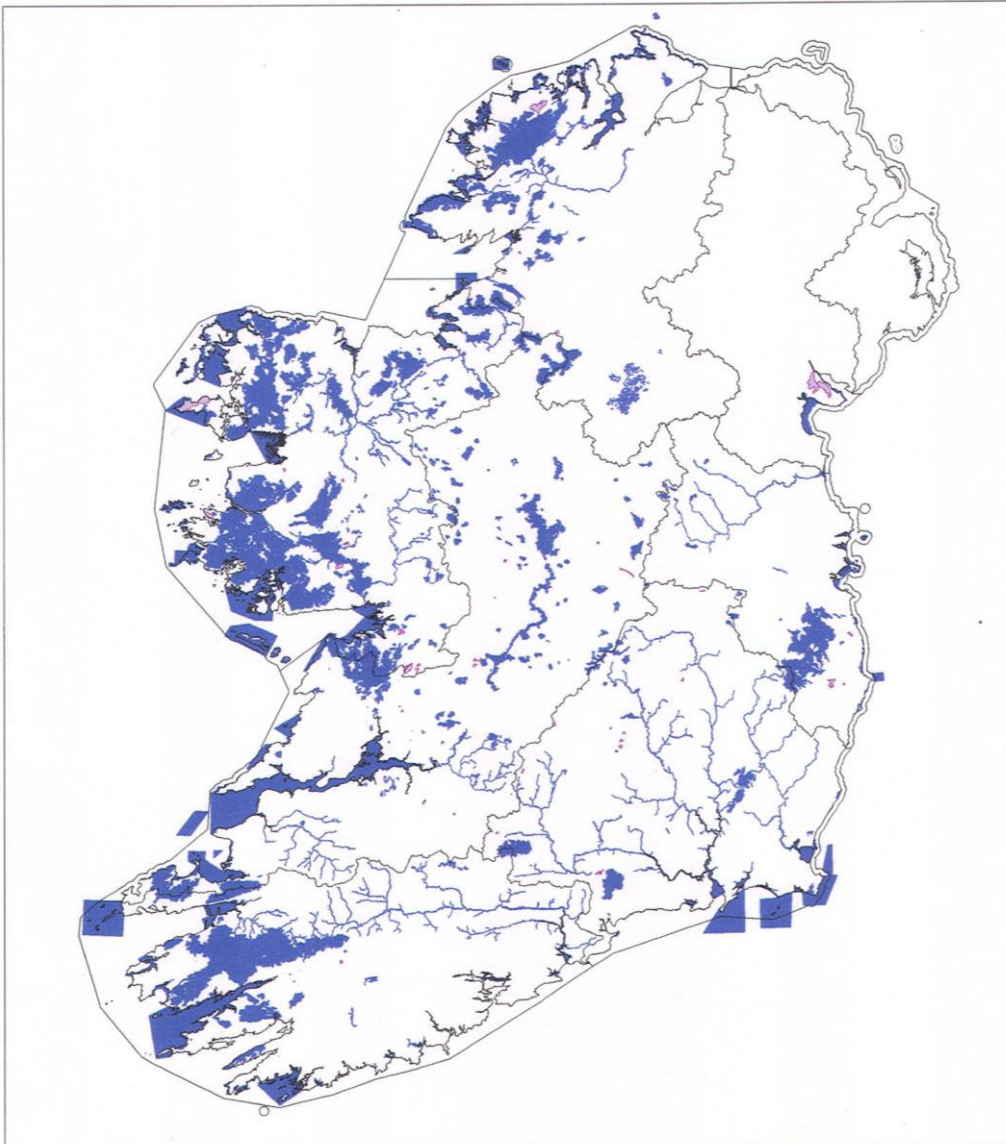
Source: Reproduced from EPA (2012) *Ireland's Environment 2012: Nature and Biodiversity*

The submission on the NIS from the National Parks and Wildlife Service highlighted that under the EU Habitats Directive, 45 Annex I habitats and 22 Annex II species have been identified as water-dependent for the purposes of identifying Special Areas of Conservation (SACs) on the Water Framework Directive Register of Protected Areas. The assessment of WFD Annex IV Protected Areas: Water Dependent Habitats and Species and High Status Sites<sup>16</sup> states that 363 SACs which are either onshore or coastal have at least one water dependent Annex I listed habitat or Annex II listed species listed as a Qualifying Interest. These are presented in **Figure 3.3** below.

<sup>16</sup> Mayes, E., 2008. *Water Framework Directive Annex IV Protected Areas: Water Dependent Habitats and Species*.

[http://www.wfdireland.ie/docs/27\\_HighStatusSites/WATER%20DEPENDENT%20HABITATS%20AND%20SPECIES%20GUIDANCE\\_Part1.doc](http://www.wfdireland.ie/docs/27_HighStatusSites/WATER%20DEPENDENT%20HABITATS%20AND%20SPECIES%20GUIDANCE_Part1.doc)

**Figure 3.3. Register of Protected Areas: SACs. Coastal and onshore SACs listed for water dependent habitats and species as a Qualifying Interest (in blue).**



From: Mayes, E., 2008.

The last national summary for the Article 12 report (2008-2012)<sup>17</sup> supporting the implementation of the Birds Directive lists 193 protected native bird species or taxa.

<sup>17</sup> [https://circabc.europa.eu/sd/a/a211d525-ff4d-44f5-a360-e82c6b4d3367/IE\\_A12NatSum\\_20141031.pdf](https://circabc.europa.eu/sd/a/a211d525-ff4d-44f5-a360-e82c6b4d3367/IE_A12NatSum_20141031.pdf)

## 4. Impact Pathways Overview

### 4.1 Overview

As noted, the WSSP is effectively a high-level policy document that sets a framework for Irish Water's development as a utility company and establishes the broad principles for the future management of its assets and delivery of its statutory obligations. The WSSP does not advocate a 'business as usual' approach to the future management and operation of adopted assets; the outcome of the plan will not be an abstraction and discharge regime that maintains the status quo, but continuous improvement and investment in water and wastewater services to ensure that environmental performance is improved until all Irish Water assets meet the relevant legislative requirements. The WSSP does not refer to specific locations or individual projects, nor does it give or imply consent for any specific operations.

Having said that, the AA screening identifies typical activities that Irish Water is responsible for which have the potential to affect European sites, as follows:

- Water Supply
  - (Raw) Water abstraction (from surface or ground water);
  - Treatment of raw water to a potable water standard (the level of treatment required will depend on the quality of raw water abstracted);
  - Storage of raw and treated water;
  - Distribute treated water to customers through a pipe network; and
  - Construction, operation, maintenance and management of the above.
- Waste Water Treatment
  - Collection of wastewater from customers connected to the public wastewater sewer network;
  - Collection and treatment of surface water where surface water drains are currently connected to the public sewer network;
  - Treatment of wastewater to an acceptable standard set by legislation (the level of treatment required will depend on the type of receiving water and its assimilative capacity);
  - Discharging treated wastewater to surface or groundwater under licence/certification by the EPA; and
  - Construction, operation, maintenance and management of the above.



The principal pathways for operational effects as a result of Irish Water's activities are via its abstractions and discharges (although the WSSP does not consent or otherwise affirm these). However, the potential effects of the WSSP are arguably more wide-ranging than simple operational activities. The WSSP is a high-level policy document that sets a framework for Irish Water's development as a utility company and establishes the broad principles for the future management of its assets and delivery of its statutory obligations. Therefore, it is implicitly and explicitly supporting the continuous improvement and maintenance of its assets, and the delivery of new assets to improve (*inter alia*) efficiency and environmental performance and support social and economic growth. As a result, lower tier plans or (particularly) projects that follow from the WSSP could arguably be sited anywhere; and so could arguably affect any European site in Ireland. For example, rationalising water resource zones and increasing their resilience is likely to require pipeline construction to enable the transfer of water resources between zones. The routes of such pipelines could, in theory, go anywhere, and the impacts will be highly variable. It is obviously impossible to predict how European sites might be affected by future development, based on the information and policies available within the WSSP; therefore, it is necessary to ensure that the aims and strategies are sufficiently protective and will not constrain delivery in such a way that adverse effects are likely.

The effects of the WSSP will depend on the provisions it includes to support the future undertaking of these activities without adversely affecting any European sites. The following sections provide a summary of the environmental baseline with respect to the impact of water supply and wastewater treatment, and summarises the examination of the Article 17 and Article 12 reports for features where discharges and abstractions could present a threat or pressure.

## 4.2 Water Supply

A number of protected habitats and species within Ireland have interest features that are potentially vulnerable to the effects of abstraction or flow regulation and these were highlighted in the consultation response from the National Parks and Wildlife Service (presented in Appendix B). These features include most aquatic and semi-aquatic habitats or species, such as Atlantic Salmon *Salmo salar*, Otter *Lutra lutra*, or Natural Dystrophic Lakes. However, a number of terrestrial habitats are also strongly dependent on water levels being maintained or supported by ground water<sup>18</sup> (e.g. Alkaline Fens) or surface water inputs (e.g. Alluvial Woodland), or by high water tables due to impeded drainage. Furthermore, other habitats or species often have quite subtle linkages to water supply; for example some studies have indicated that the number and densities of waterbirds around intertidal freshwater flows estuarine areas are consistently greater than across associated mudflats (Ravenscroft 1999; Ravenscroft & Beardall 2002; Ravenscroft & Emes 2004), suggesting that these flows may be important features in some SPAs.

Consequently, a wide range of sites in a variety of locations are potentially affected by abstraction (in particular) or flow regulation, and sites can often be located some distance from the source of any effect. This is particularly true for groundwater abstraction, where significant 'drawdown' of water tables can often occur several hundred metres or even kilometres from the abstraction point; and for rivers, where abstractions can affect downstream reaches or

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<sup>18</sup> Known as Groundwater Dependent Terrestrial Ecosystems (GWDTEs).



migrating species. The mechanisms by which features may be affected, and the consequences, are equally varied. For example, simple drawdown of groundwater can lead to the drying and loss of water-level dependent habitats and species; reductions in river flow at key times can prevent fish migration, and can concentrate pollutants; high ‘flushing flows’ in rivers may be required to maintain the quality of spawning gravels, but can be prevented by impoundments; saline or polluted water can be drawn into aquifers.

The broad effect of abstractions in Ireland can (to some extent) be gauged by reference to the ongoing WFD work, including the reporting sheets from 2005<sup>19</sup>. This work identifies the number of surface water bodies and ground water bodies that are categorised as either “1a – at significant risk” or “1b – probably at significant risk” from abstraction pressure in each River Basin District (RBD); these data are summarised in **Table 4.1**:

It should be noted that under the current round of preparation of RBMPs previous characterisation and risk assessment methodologies are being revised.

**Table 4.1 Surface Water Bodies (SWB) and Ground Water Bodies (GWB) classed as ‘1a - at significant risk’ or ‘1b – probably at significant risk’ from abstraction in 2004 (based on data from the EPA)**

RBD	SWBs classed as 1a		SWBs classed as 1b		GWBs classed as 1a		GWBs classed as 1b	
	No.	%	No.	%	No.	%	No.	%
Eastern	24	6%	8	2%	0	0%	5	7%
South East	16	2%	9	1%	4	3%	3	2%
South West	28	3%	28	3%	0	0%	1	1%
Shannon	27	3%	21	2%	0	0%	23	10%
Western	26	2%	9	1%	0	0%	7	7%
North West	51	6%	45	5%	0	0%	0	0%
Neagh Bann	2	2%	7	9%	1	4%	1	4%

These data illustrate that the number and proportion of surface and groundwater bodies at significant risk from abstraction is relatively low, when compared to other pressures: for example, in the Eastern RBD 78% of SWBs are classed as ‘1a - at significant risk’ or ‘1b – probably at significant risk’ from diffuse pollution; 23% from point-source pollution; and 63% from morphological pressures. This pattern is consistent across RBDs. It should also be noted that the table above refers to the risk from all types of abstraction and not just abstraction for public water supply.

The Article 17 report is feature rather than site-specific but identifies those SAC features for which groundwater or surface water abstractions are considered a pressure or a threat. 27 features (19 habitats and 8 species) have

<sup>19</sup> EPA (2005) *Submission in accordance with Article 5 of Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, and in accordance with EC-DG Environment D.2 document “Reporting Sheets for 2005 Reporting” dated 19 November 2004*

groundwater or surface water abstractions identified as a pressure or threat; PWS abstractions are specifically noted as threats or pressures for five of these features (Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*); Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp.; Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation; *Vertigo geyeri*; and *Margaritifera margaritifera*). 239 SACs support at least one of the 27 abstraction-sensitive features, and so are theoretically sensitive to abstractions. However, the exposure of individual features at individual sites to abstraction pressure, and the significance of this, is not clear; and groundwater abstraction is not specifically identified as a pressure or threat for most features<sup>20</sup>. SAC interest features that are theoretically sensitive to abstraction pressures are identified in **Appendix D**.

The Article 12 report (2008-2012)<sup>21</sup> reviews the main pressures and threats reported for the taxa and states that one taxa is listed as having a high impact from “Natural System Modification” pressures which includes water abstraction from surface waters. A review of the Annex 12 factual report was undertaken to identify which bird species could theoretically be impacted by abstractions and this is presented in Table E.1 of **Appendix E**.

### 4.3 Wastewater Treatment

Many waterbodies and watercourses in Ireland are affected to some extent by point discharges associated with the management of wastewater, including outfalls from wastewater treatment plants (WwTPs) and Combined Sewer Overflows (CSOs)<sup>22</sup>. The effect of these discharges will be strongly influenced by other factors, notably water levels and flow regimes. Low flow periods in rivers, or reduced water levels and circulation within lentic (ecosystems in flowing) waterbodies, will exacerbate the effects of pollutants; flooding or high intensity rainfall / run-off (e.g. from urban areas) will increase the inputs of potential pollutants.

The most recent EPA Urban Waste Water Discharges update report for 2013<sup>23</sup> stated that 36% of waste water treatment plants did not meet all waste water quality standards or EPA guidelines; this is down from 42% in June 2012. All wastewater discharges from agglomerations are subject to Appropriate Assessment by the EPA as part of the discharge consent process. By the end of 2015, all wastewater discharges that are the responsibility of Irish

<sup>20</sup> Generally, for groundwater abstraction the pressures and threats are grouped under the broad category ‘Water abstraction from groundwater’, which includes PWS but which also includes pressures such as localised drainage.

<sup>21</sup> [https://circabc.europa.eu/sd/a/a211d525-ff4d-44f5-a360-e82c6b4d3367/IE\\_A12NatSum\\_20141031.pdf](https://circabc.europa.eu/sd/a/a211d525-ff4d-44f5-a360-e82c6b4d3367/IE_A12NatSum_20141031.pdf)

<sup>22</sup> All sewerage pipes have a certain capacity, determined by the size of the pipe and the receiving WTW. At times of high rainfall this capacity can be exceeded, with the risk of uncontrolled pipe bursts or damage. CSOs provide a mechanism to prevent this, by allowing untreated sewerage to mix with surface water run-off when certain volumes are exceeded. This is then discharged to the nearest watercourse.

<sup>23</sup> Environmental Protection Agency (Dec 2014). *Focus on Urban Wastewater Treatment in 2013*. <http://www.epa.ie/pubs/reports/water/wastewater/30086%20Urban%20Waste%20Water%20Web.pdf>

Water will be licensed or certified by the EPA under the Wastewater Discharge Licence Authorisation process and Appropriate Assessments will have been determined by the EPA as the competent authority.

The WFD provides some information on the condition of receiving waters in Ireland. The WFD requires that all Member States implement the necessary measures to prevent deterioration of the status of all waters – surface, ground, estuarine and coastal – and protect, enhance and restore all waters with the aim of achieving at least ‘good’ status in all water bodies by 2015. All public bodies are required to coordinate their policies and operations so as to maintain the good status of water bodies which are currently unpolluted and improve polluted water bodies to good status by 2015. Overall, the status of Ireland’s water bodies compared to the WFD target is:

- 71 per cent of river channel is at high or good status;
- 44.6 per cent of lake area monitored is at high or good status;
- 46 per cent of the area of transitional and coastal waters are at high or good status; and
- 85.6 per cent of the area of groundwater aquifers is at good status.<sup>24</sup>

**Figure 4.1** highlights the ecological status of water bodies located within the various RBDs, as identified in the 2009 River Basin Management Plans.

With regard to rivers, 71% of monitored river channel (13000km monitored) was classified as ‘unpolluted’ in the period 2007-11 with the remainder predominantly falling into the ‘slightly polluted’ or ‘moderately polluted’ categories. High quality water (high ecological status), needed for freshwater pearl mussels, has also been in decline for the last 20 years, dropping from almost 30% of river sites in 1990 to approximately 16% in 2009.

The Article 17 report identifies those SAC features for which point-source discharges (either from WwTPs or overflows) are considered a pressure or a threat. 14 features (9 habitats and 5 species) have ‘industrial’ discharges (which include WwTPs) or overflows identified as a pressure or threat; municipal WwTPs are specifically noted as threats or pressures for three of these features (Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*); Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea*, Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp.). 133 SACs support at least one of the 14 discharge-sensitive features, and so are theoretically sensitive to Irish Water discharges. However, the exposure of individual features at individual sites to the effects of Irish Water discharges, and the significance of this, is not clear.

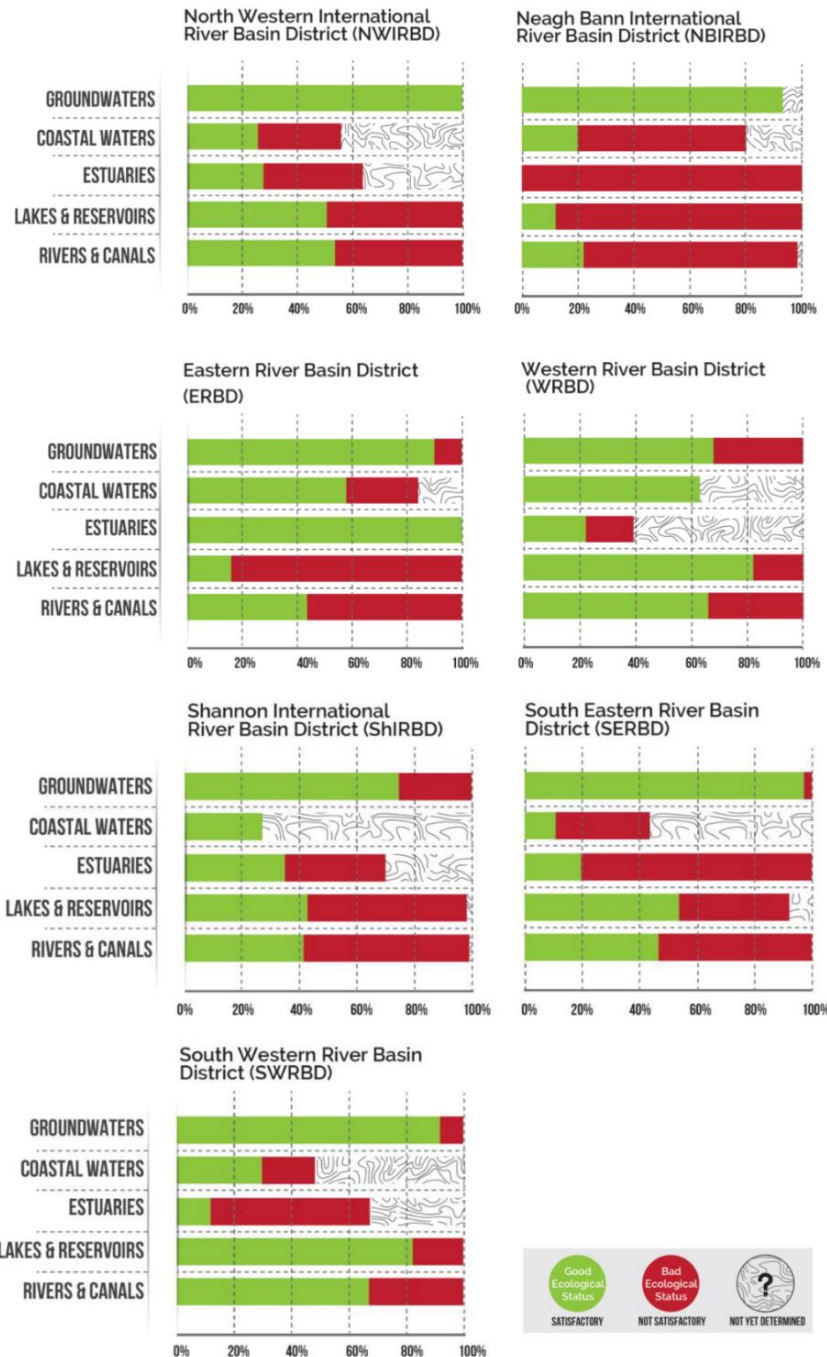
With regard to protected species under the Birds Directive, the Article 12 report (2008-2012)<sup>25</sup> notes pollution as a high pressure or threat on 1 species, though the type of pollution is not stated. A review of the Annex 12 factual

<sup>24</sup> Environmental Protection Agency (2012) *Ireland’s Environment 2012: Water* [http://www.epa.ie/media/00061\\_EPA\\_SoE12\\_Ch04.pdf](http://www.epa.ie/media/00061_EPA_SoE12_Ch04.pdf) (accessed 08/10/14)

<sup>25</sup> [https://circabc.europa.eu/sd/a/a211d525-ff4d-44f5-a360-e82c6b4d3367/IE\\_A12NatSum\\_20141031.pdf](https://circabc.europa.eu/sd/a/a211d525-ff4d-44f5-a360-e82c6b4d3367/IE_A12NatSum_20141031.pdf)

reports was undertaken to identify which bird species could theoretically be impacted by discharges. This is presented in Table E.1 of **Appendix E**.

**Figure 4.1 Ecological Water Status as set out in the Draft River Basin Management Plans (2009)**



Source: Reproduced from Regional Indicators Report Monitoring Framework for Implementation of the Regional Planning Guidelines (Regional Authorities of Ireland, 2014); data were sourced and adapted for this Regional Indicators Report from (a) status assessments carried out by the Environmental Protection Agency on behalf of the various River Basin Districts for their respective River Basin Management Plans; and (b) Surface water trends data for the period 2009 – 2011 (EPA, 2013).

## 5. Appropriate Assessment of WSSP Strategies

### 5.1 Draft WSSP Review

The assessment of the draft WSSP strategies (as presented in the Natura Impact Statement published alongside the draft WSSP) is summarised in **Table 5.2**. This considered each strategy under each aim, and took account of any cross-cutting protective strategies and aims (e.g. EN1). This is designed to identify those strategies that are likely to have a significant and adverse effect on the Natura 2000 network of European protected sites, and any appropriate mitigation or avoidance measures that may require inclusion in the adopted Plan to avoid this. Recommendations for strategy changes or amendments were made (i.e. to be included in the final, adopted plan) but it should be recognised that these are not intended to be prescriptive and a number of approaches for ensuring ‘no adverse effects’ may be acceptable. The colour coding used in the table is as follows:

**Table 5.1 Colour coding for review of draft strategies**

	Cannot be assessed – outcomes of strategy cannot be meaningfully assessed at this level; lower tier assessment required
	No effect – strategies that will have no effect on any European sites (generally no impact pathways, e.g. direction to prepare a plan)
	No adverse effect; strategy will not adversely affect any European sites and so can be excluded from further assessment
	No effect or no adverse effect, but amendments suggested to enhance the strategy or plan regards protection of European sites
	Strategy requires changes to avoid adverse effects (e.g. minor re-wording; referencing mitigating strategies), or effects are uncertain.
	Adverse effects likely; strategy should be abandoned or re-worked to include specific mitigation (may apply to policy groups)

Note that the inclusion of a strategy in the ‘red’ or ‘yellow’ category does not mean that adverse effects are certain and cannot be avoided since in many instances the assessment reflects an uncertainty that may need to be explored through further assessment. For some strategies a more detailed assessment may be required, even if there is some confidence that identified mitigation will be successful in avoiding adverse effects on integrity, to demonstrate that the potential effects have been suitably considered. The review also included an assessment of ‘in combination’ effects between strategies.

The likely outcomes of many of the strategies cannot be meaningfully assessed at this level (for example, the effects of Strategy WS1a “*Prepare a National Water Resources Plan and implement on a phased basis*” is entirely dependent on the content of the lower-tier plan, which has not yet been developed) and in this instance it is necessary to rely on future assessments of lower-tier plans to ensure that adverse effects are avoided. However, it is usually appropriate for the higher-tier plan to ensure (as far as it can) that effects on European sites are explicitly considered during the development of the lower tier plans and strategies; there are a number of approaches to this, but it commonly involves the inclusion of an over-arching policy statement or supporting text that sets out the expectations for the development of lower-tier plans.

Table 5.2 Assessment of draft strategies under each WSSP aim

Strategy and overview		Predicted Effects		Likely outcomes and assessment rationale	Recommendations for strategy
		Alone	In combination*		
<b>Aim CE1 – Establish both Customer Trust and a Reputation for Excellent Service</b>					
CE 1a	Create and operate a lean and effective Customer Operation	No effects	-	This strategy aims to deliver best practice in customer operations. This is a general statement of policy / aspirations and therefore there is no impact pathway.	None
CE1b	Build and maintain accurate customer databases	No effects	-	This strategy aims to ensure accurate customer services and billing; it is a general statement of policy / aspirations and therefore there is no impact pathway.	None
CE 1c	Establish sustainable customer revenue	No effects	-	This strategy aims to secure funding necessary to deliver efficient and effective water services; it is a general statement of policy / aspirations and therefore there is no impact pathway.	None
CE1d	Establish effective communication channels with customers	No effects	-	This strategy aims to develop a Customer Communication Strategy; it is a general statement of policy / aspirations and therefore there is no impact pathway.	None
CE1e	Establish national customer service standards and robust customer protection measures	No effects	-	This strategy aims to develop appropriate customer expectation and deliver to these; it is a general statement of policy / aspirations and therefore there is no impact pathway.	None
CE1f	Fully support the work of the Public Water Forum	No effects	-	This strategy aims to address the comments and suggestions of the Public Water Forum in relation to the performance by Irish Water of its functions; it is a general statement of policy / aspirations and therefore there is no impact pathway.	None



Strategy and overview		Predicted Effects		Likely outcomes and assessment rationale	Recommendations for strategy
		Alone	In combination*		
<b>Aim WS1 – Manage the quality of drinking water from source to tap to protect human health</b>					
WS1a	Prepare a National Water Resources Plan and implement on a phased basis	No effect	-	Strategy requires the preparation and implementation of a National Water Resources Plan (NWRP); the direction to prepare a Plan would not in itself lead to any effects (no impact pathway), and the NWRP will be subject to Appropriate Assessment during its development. The WSSP does not constrain how the NWRP is drafted or implemented, and therefore the WSSP cannot have significant effects (although the outcomes of the lower tier Plan could conceivably affect European sites). Any risk of effects can be avoided through overarching strategy setting out the expectations for the NWRP.	Strategy safeguards can be introduced to the WSSP to specify that Appropriate Assessment of lower tier plans will be required, and that these will not be considered compliant with the WSSP if significant adverse effects on European sites are not avoided or suitably mitigated; this can be addressed in the supporting text to EN1e (see Section 3.3).
WS1b	Prepare and implement Drinking Water Safety Plans for all Water Supply Zones.	No effect	-	Strategy requires the preparation and implementation of Drinking Water Safety Plans (DWSP); these will be used to assess risks to safety within the drinking water system and may result in capital investment or other measures to address these risks. The direction to prepare and implement a plan would not in itself lead to any effects (no impact pathway), and the DWSP is also unlikely to result in significant effects (identifying quality problems and investment needs does not constrain how those quality issues are addressed). The WSSP does not constrain how the DWSP is drafted or implemented, and therefore the WSSP cannot have any effects.	Any risk of effects due to the lower tier Plans can be avoided through an overarching strategy setting out the expectations and requirements for lower tier Plans regards European sites; this can be addressed in the supporting text to EN1e (see Section 3.3)
WS1c	Implement Standard Operational Procedures for all water treatment plants, water storage facilities and distribution networks.	No effect	-	The direction to prepare and implement a Best Practice Guidelines or Standard Operations Procedures (SOPs) would not in itself lead to any effects (no impact pathway); the effects will ultimately depend on the Best Practice Guidance and Standard Operational Procedures themselves, and the extent to which European sites are safeguarded by the operational procedures. This can only be determined at the guidance / SOP level, although any risk of effects can be avoided through overarching strategy setting out the expectations for the SOPs.	Any risk of effects due to the lower tier Plans can be avoided through an overarching strategy setting out the expectations and requirements for lower tier Plans regards European sites; this can be addressed in the supporting text to EN1e (see Section 3.3)
WS1d	Develop and Implement Capital Investment Plans to improve Drinking Water Quality.	No effects	-	Strategy requires the preparation and implementation of Capital Investment Plans (CIP); these will provide a prioritised list of programmes and projects for targeted investment, aimed at (inter alia) improving compliance with Drinking Water Standards. The direction to prepare and implement a plan would not in itself lead to any effects (no impact pathway), and identifying investment needs does not constrain how those quality issues are addressed.	Any risk of effects can be avoided through an overarching strategy setting out the expectations and requirements regards European sites; this can be addressed in the supporting text to EN1e (see Section 3.3).

Strategy and overview		Predicted Effects		Likely outcomes and assessment rationale	Recommendations for strategy
		Alone	In combination*		
WS1e	Prepare and implement a 'Lead Compliance Strategy'	No effect	-	Strategy requires the preparation and implementation of a Lead Strategy to address plumbo-solvency issues and potential contamination of supplies. The agreed Lead Strategy will be subject to its own Appropriate Assessment.	Any risk of effects can be avoided through AA of the Strategy regards European sites; this can be addressed in the supporting text to EN1e (see Section 3.3).
WS1f	Prepare and implement strategies to manage other quality issues in water supplies.	No effects	-	As for WS1e (direction to prepare and implement a Plan would not in itself lead to any effects (no impact pathway)).	None

Strategy and overview	Predicted Effects		Likely outcomes and assessment rationale	Recommendations for strategy	
	Alone	In combination*			
<b>Aim WS 2 – Manage the availability and resilience of water supply now and into the future</b>					
WS2a	Implement risk assessments for all water supply areas in terms of short, medium and long term risks to customer supply.	No effect	-	Strategy requires the preparation of supply risk assessments to identify areas where supply improvements may be required to meet service standards. The direction to prepare a risk assessment would not in itself lead to any effects (no impact pathway), and identifying areas requiring service improvement does not constrain how those improvements are addressed.	None
WS2b	Manage existing water resources and plan for new resources taking a regional view of needs and having regard to the objectives of the Water Framework Directive (WFD).	No adverse effect	No adverse effect	Managing water resources sustainably to help meet the WFD objectives will ultimately benefit European sites.	Any risk of effects due to the lower tier projects can be avoided through an overarching strategy setting out the expectations and requirements for lower tier projects regards European sites; this can be addressed in the supporting text to EN1e.
WS2c	Develop long-term sustainable water sources with resilience to climate change.	No adverse effect	No adverse effect	Development of water resources could theoretically affect European sites although this can only be meaningfully assessed at the lower tier plans and projects when specific locations or sources are known; the commitment to 'sustainable' sources minimises the risk of effects, and any risk of effects due to the lower tier plans and projects can be avoided through an overarching strategy setting out the expectations and requirements for lower tier plans and projects regards European sites. The strategy does not constrain the outcome or dictate how sustainable water sources may be delivered.	Any risk of effects due to the lower tier projects can be avoided through an overarching strategy setting out the expectations and requirements for lower tier projects regards European sites; this can be addressed in the supporting text to EN1e.
WS2d	Develop methodologies to build strategic resilience and network connectivity into resource planning.	No effect	-	Strategy requires the development of methods; the direction to prepare these would not in itself lead to any effects (no impact pathway), Introducing strategic resilience and network connectivity could theoretically affect European sites although this can only be meaningfully assessed at the lower tiers when specific locations or proposals are known. Any risk of effects due to the lower tier plans and projects can be avoided through an overarching strategy setting out the expectations and requirements for lower tier plans and projects regards European sites.	Any risk of effects due to the lower tier projects can be avoided through an overarching strategy setting out the expectations and requirements for lower tier projects regards European sites; this can be addressed in the supporting text to EN1e.
WS2e	Manage future regulatory requirements for abstraction licencing, headroom in treatment facilities and population growth.	No effect	-	Strategy essentially requires the development of integrated water resources planning; the direction to prepare these would not in itself lead to any effects (no impact pathway), and the WSSP does not constrain how these strategies/plans might be delivered.	Any risk of effects due to the lower tier Plans can be avoided through an overarching strategy setting out the expectations and requirements for lower tier Plans regards European sites; this can be addressed in the supporting text to EN1e.

Strategy and overview		Predicted Effects		Likely outcomes and assessment rationale	Recommendations for strategy
		Alone	In combination*		
WS2f	Match water abstraction to availability and quality using surface water and groundwater sources. This is known as Conjunctive Use.	No effect	-	Strategy essentially requires the development of integrated water resources planning; the direction to prepare these water abstraction strategies would not in itself lead to any effects (no impact pathway), and the WSSP does not constrain how these strategies might be delivered. Any risk of effects due to the lower tier strategies or plans can be avoided through overarching strategy setting out the expectations and requirements for lower tier strategies/plans regarding European sites.	Any risk of effects due to the lower tier strategies or plans can be avoided through overarching strategy setting out the expectations and requirements for lower tier strategies/plans regarding European sites this can be addressed in supporting text to EN1e
WS2g	Prepare Regional Water Conservation Strategies and implement on a phased basis	No effect	-	Requires production of strategies to reduce demand; likely to have a positive effect on European sites, but the direction to prepare strategies would not in itself lead to any effects (no impact pathway), and identifying areas requiring service improvement does not constrain how those improvements are addressed.	Any risk of effects due to the lower tier strategies or plans can be avoided through overarching strategy setting out the expectations and requirements for lower tier strategies/plans regarding European sites this can be addressed in supporting text to EN1e

Strategy and overview		Predicted Effects		Likely outcomes and assessment rationale	Recommendations for strategy
		Alone	In combination*		
<b>Aim WS 3 – Manage the affordability of water supplies</b>					-
WS3a	Adopt an asset management based approach to capital maintenance and capital investment.	No effect	-	This strategy relates to asset management procedures, particularly improving the knowledge of assets through planned National Data Gathering and Asset Condition Exercises; this will allow for maintenance etc. requirements to be identified at an early stage and appropriate capital investment decisions made. This is not likely to have an effect on any European sites.	None.
WS3b	Optimise the unit cost of water supply through proper water resource and treatment planning.	No effect	-	Minimising the unit cost of delivering water to the customer whilst meeting environmental compliance will result in the rationalisation of water supply areas over time and, subject to funding ability, will focus on a smaller number of sustainable sources, standardising treatment processes and using high quality raw water sources. This rationalisation approach will be developed within the National Water Resources Plan by the end of 2018. The strategy requires the preparation and implementation of a National Water Resources Plan (NWRP); the direction to prepare a Plan would not in itself lead to any effects (no impact pathway), and the NWRP will be subject to Appropriate Assessment during its development. The strategy is likely to ultimately reduce abstraction pressure on some European sites.	None
WS3c	Prepare and implement water conservation strategies including demand management.	No adverse effect	No adverse effect	Effects on European sites would depend on implementation, which cannot be meaningfully identified or assessed at this level. Any risk of effects due to the lower tier strategies can be avoided through an overarching strategy setting out the expectations and requirements for lower tier strategies regard European sites. However, water conservation strategies would generally be expected to benefit European sites.	Any risk of effects due to lower tier projects can be avoided through an overarching strategy setting out the expectations and requirements for lower tier projects regards European sites; this can be addressed in the supporting text to EN1e.
WS3d	Optimise capital and operational investments in water supply.	Cannot be meaningfully assessed	-	The strategy promotes the development of robust cost benefit analysis models and prioritisation models for works and strategies, which will satisfy the regulators. This process will be fully developed in the Capital Investment Plans. The strategy cannot be meaningfully assessed at this level.	Any risk of effects due to lower tier strategies or plans can be avoided through overarching strategy setting out the expectations and requirements for lower tier strategies/plans regarding European sites this can be addressed in supporting text to EN1e

Strategy and overview		Predicted Effects		Likely outcomes and assessment rationale	Recommendations for strategy
		Alone	In combination*		
<b>Aim WW1 – Manage the operation of wastewater facilities in a manner that protects environmental quality</b>					
WW1a	Prepare and implement a Wastewater Compliance Strategy.	Cannot be meaningfully assessed	-	The Wastewater Compliance Strategy has not yet been drafted and therefore the strategy cannot be meaningfully assessed at this level.	Any risk of effects due to the lower tier Plans can be avoided through an overarching strategy setting out the expectations and requirements for lower tier Plans regards European sites; this can be addressed in the supporting text to EN1e (see Section 3.3).
WW1b	Produce appropriate guidance documentation and Standard Operating Procedures.	No effect		The direction to prepare and implement a Best Practice Guidelines or Standard Operations Procedures (SOPs) would not in itself lead to any effects (no impact pathway); the effects will ultimately depend on the Best Practice Guidance and Standard Operational Procedures themselves, and the extent to which European sites are safeguarded by the operational procedures. This can only be determined at the guidance / SOP level, although any risk of effects can be avoided through overarching strategy setting out the expectations for the SOPs.	None.
WW1c	Develop and implement Capital Investment Plans on a prioritised basis to progressively achieve compliance.	Cannot be meaningfully assessed	-	These plans target capital investment to progressively achieve compliance, starting with the basic Urban Wastewater Treatment Directive requirements, progressing to Emission Level Value requirements arising from the implementation of the Water Framework Directive; this will ultimately have positive effects on European sites. Potential effects from individual schemes will be addressed through AA of the scheme. The strategy cannot be meaningfully assessed at this level.	Any risk of effects due to the lower tier Plans can be avoided through an overarching strategy setting out the expectations and requirements for lower tier Plans regards European sites; this can be addressed in the supporting text to EN1e (see Section 3.3).
WW1d	Manage the wider potential environmental impacts associated with the construction and operation of wastewater systems	No adverse effect	No adverse effect	This is effectively a protective strategy which will include protection of European sites; there is no impact pathway for effects as a result of this strategy although it could usefully be strengthened by referencing the need to consider impacts on Natura 2000 sites.	Strategy could usefully be strengthened by referencing the need to prevent adverse effects on Natura 2000 sites (rather than simply managing impacts); this can be addressed in the supporting text to EN1e.



Strategy and overview	Predicted Effects		Likely outcomes and assessment rationale	Recommendations for strategy	
	Alone	In combination*			
<b>Aim WW2 – Manage the availability and resilience of wastewater services now and into the future</b>					
WW2a	Implement risk assessments for all agglomerations in terms of short, medium and long term risks to customer service	No effect	-	Strategy requires the preparation of risk assessments to identify areas where improvements may be required to meet service standards or to comply with environmental legislation. The direction to prepare a risk assessment would not in itself lead to any effects (no impact pathway), and identifying assets (etc.) requiring improvement does not constrain how those improvements are addressed.	None.
WW2b	Manage existing wastewater assets and plan for new assets based on short, medium and long term sustainability.	Cannot be meaningfully assessed	-	Strategy aims to maintain service levels while having regard to requirements under the Water Framework Directive; planning water treatment services will ultimately have positive effects on European sites. Potential effects from individual schemes will be addressed through AA of the scheme.. The strategy cannot be meaningfully assessed at this level and any risk of effects due to the lower tier plans or projects can be avoided through an overarching strategy setting out the expectations and requirements for lower tier plans and projects regard European sites.	Any risk of effects due to the lower tier Plans can be avoided through an overarching strategy setting out the expectations and requirements for lower tier Plans regards European sites; this can be addressed in the supporting text to EN1e.
WW2c	Identify properties at risk of flooding from combined sewers, and implement measures to reduce risk on a phased basis	Cannot be meaningfully assessed	-	Identifying properties at risk of CSO flooding will not in itself have any effects; implementing measures to reduce risk may affect European sites depending on the proposals, although this cannot be meaningfully assessed at this level.	Any risk of effects due to the lower tier Plans can be avoided through an overarching strategy setting out the expectations and requirements for lower tier Plans regards European sites; this can be addressed in the supporting text to EN1e.
WW2d	Identify and manage critical wastewater assets.	Cannot be meaningfully assessed	-	Identifying critical assets will not in itself have any effects; managing these could have operational effects but this will be controlled by existing permitting regimes and the effects of this cannot be meaningfully assessed at this level.	Any risk of effects due to the lower tier Plans can be avoided through an overarching strategy setting out the expectations and requirements for lower tier Plans regards European sites; this can be addressed in the supporting text to EN1e.

Strategy and overview		Predicted Effects		Likely outcomes and assessment rationale	Recommendations for strategy
		Alone	In combination*		
<b>Aim WW3 - Manage the Affordability and Reliability of Wastewater Services</b>					
WW3a	Adopt an Asset Management Based Approach to capital maintenance and capital investment.	No effect	-	This strategy relates to asset management procedures, particularly improving the knowledge of assets through planned National Data Gathering and Asset Condition Exercises; this will allow for maintenance etc. requirements to be identified at an early stage and appropriate capital investment decisions made. This is not likely to have an effect on any European sites.	None.
WW3b	Develop and implement strategies and standards to minimise the unit costs of wastewater treatment including standardising treatment processes.	No effect	-	Strategy encourages standardisation of treatment processes; effects of this depend on the standard processes adopted but it is reasonable to assume that any outputs will comply with the relevant legislation including the Habitats Directive. Managing these could have operational effects but this will be controlled by existing permitting regimes.	None.
WW3c	Optimise energy consumption in wastewater treatment plants and collection systems.	Cannot be meaningfully assessed		Aims to reduce energy consumption; will have no effects that can be meaningfully assessed at this level.	None.
WW3d	Ensure adequate governance and control of discharges to the sewer network, having regard for best practice and value.	No adverse effect	No adverse effect	Ensuring that discharges to the sewer network (i.e. inputs to the treatment system) are controlled will not negatively affect European sites and may have a positive effect as assets are safeguarded from damage etc.	None.
WW3e	Engage with regulators and stakeholders.	No effect	-	Engagement with stakeholders cannot in itself have an effect.	None.
WW3f	Optimise capital and operational investments in wastewater services.	Cannot be meaningfully assessed		The strategy promotes the optimisation of expenditure to minimise costs to the customer whilst remaining compliant with the relevant legislation. Compliance will ensure that significant effects do not occur, taking into account the improvements that are required to meet various directives. Note, strategy cannot be meaningfully assessed at this level.	Any risk of effects due to the lower tier Plans can be avoided through an overarching strategy setting out the expectations and requirements for lower tier Plans regards European sites; this can be addressed in the supporting text to EN1e.

Strategy and overview		Predicted Effects		Likely outcomes and assessment rationale	Recommendations for strategy
		Alone	In combination*		
<b>Aim EN1 – Ensure that Irish Water services are delivered in a sustainable manner which contributes to the protection of the environment</b>					
EN1a	Implement a Sustainability Policy and Sustainability Framework	No effect	-	Strategy aims to ensure that Irish Water services are delivered in a sustainable manner balancing the need for water services to support the social and economic development of the country with the need to protect water resources and the water environment in the face of changing climate and extreme weather events. The adoption of a sustainability policy will not negatively affect any European sites.	None.
EN1b	Prepare and implement a Sustainable Energy Strategy.	No effects	-	As above.	None.
EN1c	Prepare and implement a climate change adaptation and mitigation strategy.	No effects	-	Strategy requires the preparation of a climate change strategy; the direction to prepare this would not in itself lead to any effects (no impact pathway), and outcomes of the strategy cannot be assessed at this level.	<p>The strategy could be usefully strengthened to emphasise the key role that Irish Water will play in preventing or mitigating effects on some European sites as a consequence of climate change, for example:</p> <p><i>“Our strategy will address the vulnerability of water services <b>and the associated environment (including protected sites)</b> to climate change and identify actions to modify our infrastructure or operations”</i></p>
EN1d	Adopt a Green Procurement Approach and drive efficient use of all our resources.	No effects	-	Aims to ensure that resources are utilised efficiently; the adoption of a green procurement approach would not in itself lead to any effects (no impact pathway).	None.
EN1e	Adhere to environmental and planning legislation when planning and developing water services assets.	No adverse effect	No adverse effect	Adhering to environmental and planning legislation will include adherence to the Habitats Directive, and therefore will have no significant and adverse effect.	None.

Strategy and overview		Predicted Effects		Likely outcomes and assessment rationale	Recommendations for strategy
		Alone	In combination*		
<b>Aim EN2 - Operate our water services infrastructure to support the achievement of water body objectives under the Water Framework Directive</b>					
EN2a	Work effectively with other stakeholders to support a catchment based approach to water management.	No effect		Engagement with stakeholders cannot in itself have an effect.	None.
EN2b	Manage the operation of our water and wastewater infrastructure towards the achievement of water body objectives	No adverse effect	No adverse effect	Managing water resources sustainably to help meet the WFD objectives will ultimately benefit European sites.	None.
<b>Aim EN3 – Manage all our Residual Waste in a Sustainable Manner</b>					
EN3a	Develop and implement a Corporate Waste Management Strategy.	No effects	-	The direction to prepare a waste management strategy would not in itself lead to any effects (no impact pathway).	Any risk of effects due to this lower tier strategy can be avoided through overarching strategy setting out the expectations and requirements for lower tier plans, strategies and projects regards European sites; this can be addressed in the supporting text to EN1e.
EN3b	Develop and implement a National Wastewater Sludge Strategy.	No effects	-	The direction to prepare a wastewater sludge strategy would not in itself lead to any effects (no impact pathway).	Any risk of effects due to this lower tier strategy can be avoided through overarching strategy setting out the expectations and requirements for lower tier plans, strategies and projects regards European sites; this can be addressed in the supporting text to EN1e.
EN3c	Develop and implement a National Water Sludge Strategy.	No effects	-	The direction to prepare a water sludge strategy would not in itself lead to any effects (no impact pathway).	Any risk of effects due to this lower tier strategy can be avoided through overarching strategy setting out the expectations and requirements for lower tier plans, strategies and projects regards European sites; this can be addressed in the supporting text to EN1e.

Strategy and overview	Predicted Effects		Likely outcomes and assessment rationale	Recommendations for strategy	
	Alone	In combination*			
<b>Aim SG1 - Support National, Regional and Local Economic and Spatial Planning Policy</b>					
SG1a	Work with national, regional and local bodies and potential customers to anticipate and plan water services for growth in line with the statutory planning process.	No effect	-	Engagement with stakeholders cannot in itself have an effect; early planning of water services reduces the likelihood of significant effects occurring.	None.
<b>Aim SG2 - Facilitate growth in line with national and regional economic and spatial planning policy</b>					
SG2a	Maximise capacity of existing assets through effective asset management and optimised operation.	Cannot be meaningfully assessed	-	Maximising capacity will minimise the requirements for new infrastructure, which in most cases will ensure that significant effects on particular sites do not occur; however, there may be some instances where this is not appropriate, although these cannot be meaningfully identified or assessed at this level.	It is recommended that the strategy acknowledges that maximising capacity may not be appropriate in all instances, for example " <i>maximise capacity where appropriate...</i> "
SG2b	Plan water service infrastructure at national, regional and river basin level.	No adverse effect	No adverse effect	Planning water services at national, regional and river basin levels will not negatively affect European sites and is likely to result in benefits for some sites due to improved integration of catchment strategies.	None.
SG2c	Invest in the development of strategic networks and treatment works.	Cannot be meaningfully assessed	-	Strategic networks will ultimately reduce pressure on European sites as the system becomes more resilient and integrated; developing those networks may affect European sites during development, but this cannot be meaningfully assessed at this level; this can be addressed in the supporting text to EN1e.	None.
SG2d	Maintain appropriate headroom in strategic water services infrastructure.	Cannot be meaningfully assessed	-	Statement of best-practice; strategic networks will ultimately reduce pressure on European sites as the system becomes more resilient and integrated; developing those networks may affect European sites during development, but this cannot be meaningfully assessed at this level; this can be addressed in the supporting text to EN1e.	Any risk of effects due to this lower tier strategy can be avoided through overarching strategy setting out the expectations and requirements for lower tier plans, strategies and projects regards European sites; this can be addressed in the supporting text to EN1e.
SG2e	Provide a high quality customer service for new customers.	No effect	-	This strategy is a customer service commitment; it is a general statement of policy / aspirations and therefore there is no impact pathway and no effect.	None.

Strategy and overview		Predicted Effects		Likely outcomes and assessment rationale	Recommendations for strategy
		Alone	In combination*		
<b>Aim SG3 - Ensure that water services are provided in a timely and cost effective manner</b>					
SG3a	Plan for water services infrastructure development to meet projected demand facilitating delivery on a phased basis	Cannot be meaningfully assessed	-	Statement of best-practice; planning water services to meet projected demand will minimise the risk of impacts on European sites; meeting demand growth may ultimately affect some European sites during asset development, but this cannot be meaningfully assessed at this level; this can be addressed in the supporting text to EN1e.	Any risk of effects due to this lower tier strategy can be avoided through overarching strategy setting out the expectations and requirements for lower tier plans, strategies and projects regards European sites; this can be addressed in the supporting text to EN1e.
SG3b	Balance investment for growth in demand with affordability.	No effect	-	This strategy aims to ensure affordability to customers is paramount over investment in additional capacity, and that minimum cost to customers is ensured by providing capacity only when the demand is likely to be realised. One of the drivers for additional capacity (new sources or new treatment works, for example) will be the need to ensure regulatory compliance, and that European sites are not affected, and so the strategy in itself is neutral and will have no effects. However, it is important that this strategy is integrated closely with other planning aspects to ensure that the provision of additional water services (particularly wastewater treatment) is timely and delivered ahead of need.	Strategy supporting text could clarify the importance of environment as a factor in investment and ensuring that additional capacity is delivered in a timely manner to prevent significant effects on European sites occurring as a result of unexpected or unplanned growth.  e.g. <i>"We are required to operate in a commercially viable <b>and environmentally responsible</b> manner and must take this into consideration when considering priorities for investment."</i>
SG3c	Operate an equitable New Connections Charging Policy that ensures efficient service provision to new customers with full cost recovery on a least cost basis.	No effect.	-	This strategy relates to the connections policy; it is a general statement of policy / aspirations and so there is no impact pathway and no effect.	None.



Strategy and overview	Predicted Effects		Likely outcomes and assessment rationale	Recommendations for strategy	
	Alone	In combination*			
<b>Aim IF1: Asset Management - Manage our assets and investments in accordance with best practice asset management principles to deliver a high quality secure and sustainable service at lowest cost.</b>					
IF1a	Implement asset management systems including comprehensive asset data collection and modelling tools.	No effect	-	Commitment to introduce formalised asset management systems and data collection; no impact pathway.	None.
IF1b	Develop long term asset strategies and implementation plans (Tier 2 Plans).	No effect	-	Irish Water will develop a series of implementation plans defining the programmes of work to be implemented. These plans will develop the range of scenarios and options from which the optimum approaches and prioritisation will be determined. These Plans will take full account of the asset standards and policies adopted by Irish Water in shaping the strategic solutions. Where required, these plans will be subjected to Strategic Environmental Assessment and Appropriate Assessment, including public consultation. The direction to prepare a plan would not in itself lead to any effects (no impact pathway). The WSSP does not constrain how the lower tier plans are drafted or implemented, and therefore the WSSP cannot have significant effects. Any risk of effects can be avoided through an overarching strategy setting out the expectations for the lower tier plans.	Any risk of effects due to the lower tier Plans can be avoided through an overarching strategy setting out the expectations and requirements for lower tier Plans regards European sites; this can be addressed in the supporting text to EN1e.
IF1c	Development of initiatives such as asset standards and improved supply chain management.	No effect	-	Promotes general management good practice and innovation; general statement of policy; no impact pathways	None.

Strategy and overview		Predicted Effects		Likely outcomes and assessment rationale	Recommendations for strategy
		Alone	In combination*		
<b>Aim IF2: Balanced Sustainable Investment - Invest in our assets while maintaining a sustainable balance between the interests of our customers, the environment and the need to support the economic development and growth of the country.</b>					
IF2a	Engage with our customers, including households, commercial and industrial customers.	No effect	-	No impact pathway: strategy for customer engagement will not affect any European sites.	None.
IF2b	Engage collaboratively with key stakeholders including CER, EPA, HSE, DECLG, regional and local authorities.	No effect	-	No impact pathway: strategy for engaging with stakeholders cannot in itself have an effect; early planning of water services reduces the likelihood of significant effects occurring.	None.
IF2c	Apply clear and transparent investment prioritisation criteria.	No effect	-	This strategy aims to apply transparent criteria for investment; this has no impact pathway and cannot in itself have an effect.	None
<b>Aim IF3: Sustainable Funding Model - Establish a sustainable funding model to ensure that Irish Water can deliver the required capital investment in order to maintain critical assets and achieve the required outcomes for our customers, the environment and the national economy.</b>					
IF3a	Transform the water industry in Ireland to an efficient water utility model within a regulated framework.	No effect	-	No impact pathway; strategy requires development of a business model that ensures that Irish Water can deliver the capital investment required to achieve the necessary outcomes for our customers, the environment and the national economy; development of business model cannot have an effect.	None.
IF3b	Work with regulators to achieve optimum balance of affordability and service standards taking into account regulatory requirements.	No effect	-	Strategy for engaging with regulators cannot in itself have an effect; strategy reflects need to take into account regulatory requirements.	None.
IF3c	Deliver on Irish Water's commitments to raise public awareness of the value of water and achievements delivered..	No effect	-	No impact pathway. Strategy aims to achieve best value for money from investment decisions.	None.

Strategy and overview	Predicted Effects		Likely outcomes and assessment rationale	Recommendations for strategy	
	Alone	In combination*			
<b>Aim IF4: Research and Innovation. Promote research and proven, innovative technical solutions.</b>					
IF4a	Actively pursue research and development in water services and track opportunities to develop and adopt new technologies.	No effect	-	No impact pathway; promoting Research and Development cannot in itself have an effect.	None.
IF4b	Engage effectively with universities, Institutes of Further Education, colleges and industry.	No effect	-	No impact pathway.	None
IF4c	Develop knowledge management capability and implementation processes.	No effect	-	No impact pathway.	None.

\* Within plan in combination effects with other strategies

### 5.1.1 Between-plan ‘In Combination’ Effects

The screening identified a number of policies, plans and programmes that could theoretically operate ‘in combination’ with the WSSP to affect European sites (see Section 2.8 of the AA screening document in **Appendix C** attached). These included a number of European directives. The potential for these plans and programmes, and additional plans identified by the SEA (see Section 4.4.2 of the SEA Environmental Report), to operate ‘in combination’ was considered.

In summary, it is not possible to undertake a meaningful ‘in combination’ assessment due to the multiple uncertainties that exist regarding the outcomes of the WSSP and most of the ‘in combination’ plans (most are not spatially-specific and so effects on particular European sites cannot be identified or assessed; those that do have a spatial element (e.g. the Greater Dublin Strategic Drainage Strategy) will not constrain how the principles of the WSSP are delivered (or vice versa). As a result, it is recommended that the WSSP contain over-arching or cross-cutting strategies that provide certainty that plans or projects derived from it will not have significant adverse ‘in combination’ effects (see **Section 5.1.2** below).

### 5.1.2 Draft Strategy Conclusions

The assessment of the draft WSSP strategies demonstrated the following points.

- 49 of 68 strategies will have ‘no effect’ on any European sites (and therefore no ‘in combination’ effects either). The majority of these are directions to prepare lower-tier plans or undertake activities that are themselves likely to be neutral in their effects (e.g. engage with stakeholders; operate an equitable New Connections Charging Policy; etc.).
- 12 strategies cannot be meaningfully assessed at this level (e.g. the strategies contain elements that could ultimately result in adverse effects on a European site, depending on future implementation, but are too unspecific to allow assessment). In these instances it is suggested that the WSSP explicitly states that screening for AA should be undertaken for all lower-tier plans, strategies and projects derived from the WSSP, and that these plans, strategies and projects should (as part of their remit) ensure that they do not have significant adverse effects on any European sites.
- 7 strategies will have ‘no adverse effect’. These are generally strategies that commit to environmental protection or other compliance (e.g. with the WFD) that are likely to have a positive effect on European sites (i.e. there will be an effect but it will not undermine any site’s conservation objectives).

The assessment highlighted that some individual strategies could be strengthened by reference to the protection of European sites; however, inclusion of an overarching environmental protection strategy and supporting text (e.g. Aim EN1 and Strategy EN1e) that is specific to European sites will provide an appropriate safeguard to ensure that the delivery of the WSSP will not adversely affect any European sites, particularly where assessment is not possible at this level in the hierarchy. The following strategy amendments were recommended:

- **Supporting text to EN1c:** “*Our strategy will address the vulnerability of water services **and the associated environment (including protected sites)** to climate change and identify actions to modify our infrastructure or operations”.*

- **Supporting text to EN1e:** *“Safeguarding Ireland’s environmental assets will be central to all strategies, plans or projects derived from the WSSP, and to our activities and operations. In particular, all lower-tier strategies, plans or projects derived from the WSSP will, during their development, be screened for their potential to affect European sites, and must not have significant adverse effects on any such site, alone or in combination with other plans or projects. Lower-tier plans, strategies or projects that are likely to have significant adverse effects will not be considered compliant with the WSSP. The consideration of potential effects on European sites will be a fundamental component of the plan development”.*
- **Supporting text to SG3b:** *“We are required to operate in a commercially viable **and environmentally responsible** manner and must take this into consideration when considering priorities for investment.”*
- **Strategy SG2a:** *“Maximise capacity of existing assets through effective asset management and optimised operation, **where appropriate taking into account environmental factors**”.*

Assuming that these minor changes (or similar) were made, the assessment of the draft WSSP concluded that the Plan would have no significant and adverse effects on any European sites, alone or ‘in combination’ with other plans and programmes.

## 5.2 Managing and Avoiding Effects

**Table 5.3** summarises how the WSSP manages the key risks to European sites identified in the AA screening report. As the WSSP is a high-level policy document it is not appropriate for it to detail specific measures for specific European sites; the aims and strategies within the WSSP are cross-cutting to ensure that together they provide the best possible basis for the long term protection and restoration of European sites that may be affected by underperforming assets adopted by Irish Water. The WSSP will ensure that investment in water and wastewater services is prioritised to improve environmental performance until all Irish Water assets meet the relevant legislative requirements.

**Table 5.3 Potential impacts arising from activities and projects likely to be undertaken in order to achieve the aims of the WSSP.**

WSSP Related Activities / Projects	Potential Impacts	Vulnerable Features of European Sites	How does the WSSP mitigate these potential impacts?
Water Supply	<ul style="list-style-type: none"> <li>• Reduction of habitat area;</li> <li>• Reduction in species density;</li> <li>• Changes in key indicators of conservation value (water quantity).</li> </ul>	<p>Surface water dependent habitats and species;</p> <p>Groundwater dependent habitats and species.</p>	<p>The WSSP avoids, manages or mitigates the potential for these impacts to occur through the following policies:</p> <p>WS1a Prepare a National Water Resources Plan and implement on a phased basis.</p> <p>The NWRP will help ensure that abstractions maintain sustainable ecological water flows.</p> <p>WS2b Manage existing water resources and plan for new resources taking a regional view of needs and having regard to the objectives of the Water Framework Directive (WFD).</p> <p>This will ensure that the long term sustainability of yields is considered in the management of existing and new water sources, aligning with the requirements of the WFD with respect to environmental flows. The WFD includes European Sites in its register of Protected Areas and will consider water quantity requirements in relation to environmental flows.</p> <p>WS2c Develop long-term sustainable water sources with resilience to climate change.</p> <p>This will ensure that sustainable water sources are developed.</p> <p>WS2d Develop methodologies to build strategic resilience and network connectivity into resource planning.</p> <p>Strategic resilience and network connectivity will help relieve seasonal or long-term pressures on marginal water resources that may affect European sites through their operation.</p> <p>WS2f Match water abstraction to availability and quality using surface water and groundwater sources. This is known as Conjunctive Use.</p> <p>Will help relieve seasonal or long-term pressures on marginal water resources that may affect European sites through their operation.</p> <p>WS2g Prepare Regional Water Conservation Strategies and implement on a phased basis.</p> <p>Reductions in leakage will reduce abstraction pressures on European sites.</p> <p>EN2b Manage the operation of our water and wastewater infrastructure towards the achievement of water body objectives and the conservation of protected sites and species.</p> <p>Protective policy, will ensure that sites and species identified under the Birds and Habitats Directives are protected from operational impacts.</p> <p>SG1a Work with national, regional and local bodies and potential customers to anticipate and plan water services for growth in line with the statutory planning process.</p>



WSSP Related Activities / Projects	Potential Impacts	Vulnerable Features of European Sites	How does the WSSP mitigate these potential impacts?
Wastewater Treatment	<ul style="list-style-type: none"> <li>• Reduction of habitat area;</li> <li>• Reduction in species density;</li> <li>• Fragmentation;</li> <li>• Changes in key indicators of conservation value (water quantity and quality).</li> </ul>	Surface water dependent habitats and species; Groundwater dependent habitats and species; Coastal transitional and marine habitats and species.	<p>Strategic planning is likely to reduce abstraction pressures.</p> <p>IF1a Implement asset management systems including comprehensive asset data collection and modelling tools.</p> <p>Irish Water have begun a National Asset Data Gathering and Asset Condition Exercise, to be completed by 2018, to provide sufficient data for effective asset planning and modelling; this will allow underperforming or marginal assets to be identified and (with other aims and strategies) measures defined to improve their performance.</p> <p>The WSSP avoids, manages or mitigates the potential for these impacts to occur through the following policies:</p> <p>WW1a Prepare and implement a Wastewater Compliance Strategy.</p> <p>This will contribute to the management of water quality to meet the UWWTD and the requirements of the Water Framework Directive River Basin Management Plans.</p> <p>WW1c Develop and implement Capital Investment Plans on a prioritised basis to progressively achieve compliance.</p> <p>This will prioritise capital investment to achieve compliance with the Urban Waste Water Treatment Directive and the Water Framework Directive; this will clearly benefit European sites and help improve the condition of sites that may be under pressure from WwTW / CSO discharges.</p> <p>WW2d Identify and manage critical wastewater assets.</p> <p>To build strategic resilience within the wastewater infrastructure to minimise the risk and consequence of critical asset failure. This will reduce the risk of acute effects on European sites due to asset failure.</p> <p>EN2b Manage the operation of our water and wastewater infrastructure towards the achievement of water body objectives and the conservation of protected sites and species.</p> <p>Protective policy, specifically designed to ensure that sites and species identified under the Birds and Habitats Directives are protected from operational impacts.</p> <p>IF1a Implement asset management systems including comprehensive asset data collection and modelling tools.</p> <p>Irish Water have begun a National Asset Data Gathering and Asset Condition Exercise, to be completed by 2018, to provide sufficient data for effective asset planning and modelling; this will allow underperforming or marginal assets to be identified and (with other aims and strategies) measures defined to improve their performance.</p>
Development of new water services infrastructure	<ul style="list-style-type: none"> <li>• Loss / reduction of habitat area;</li> <li>• Disturbance to species;</li> <li>• Fragmentation;</li> </ul>	Surface water dependent habitats and species; Groundwater dependent habitats and species;	<p>The WSSP avoids, manages or mitigates the potential for these impacts to occur through the following policies:</p> <p>WW1d Manage the wider potential environmental impacts associated with the construction and operation of wastewater systems.</p>

WSSP Related Activities / Projects	Potential Impacts	Vulnerable Features of European Sites	How does the WSSP mitigate these potential impacts?
	<ul style="list-style-type: none"> <li>• Changes in key indicators of conservation value.</li> </ul>	Terrestrial habitats and species; Coastal transitional and marine habitats and species.	<p>Requires that environmental impacts are avoided, managed or mitigated when new assets are developed; supported by EN1e.</p> <p>WW2b Manage existing wastewater assets and plan for new assets based on short, medium and long term sustainability.</p> <p>Appropriate planning, including long-term planning will minimise the risk of effects on European sites due to the development of new infrastructure.</p> <p>EN1e Adhere to environmental and planning legislation when planning and developing water services assets.</p> <p>Protective policy, specifically designed to ensure that sites and species identified under the Birds and Habitats Directives are protected from impacts as a result of asset development.</p> <p>SG2b Plan water service infrastructure at national, regional and river basin level.</p> <p>Appropriate planning will reduce pressures on existing assets that may operate marginally, and support the development of strategic assets / resources that operate more efficiently.</p>

### 5.3 Assessment of the Final WSSP

The final WSSP takes into account the consultation responses and any changes recommended through the SEA and AA processes. Since Article 6(3) and 6(4) tests apply to the final plan (rather than draft versions) it is necessary to review the changes to ensure that the conclusions of the draft assessment remain valid, or that any suggested avoidance or mitigation measures have been appropriately incorporated.

This review was undertaken in May 2015. **Table 5.4** below summarises the recommendations arising from the appropriate assessment of the draft WSSP together with how they have been incorporated into the final Plan. In summary, the changes to the aims and strategies suggested through the AA process have been appropriately incorporated into the final WSSP and will ensure that adverse effects do not occur as a result of its implementation.

**Table 5.4 Natura Impact Statement Recommendations**

Recommendation	Revisions incorporated in the final WSSP
<p>'Sustainable' could be defined within the WSSP, with this definition including reference to the safeguarding of European sites.</p>	<p>Sustainability is used in a number of different contexts within the WSSP and it would be difficult to develop a definition to cover all contexts. However the term has now been included in Aims WS1 and WS2 in relation to water supply terms with specific reference to environmentally sustainable use of water, needs of the ecology supported by the water environment and ecological flows. Reference to managing abstractions sustainably to minimize the impact on protected habitats and species is also included in EN2b.</p>
<p>Supporting text to Strategy EN1c could be amended to read: <i>"Our strategy will address the vulnerability of water services and the associated environment (including protected sites) to climate change and identify actions to modify our infrastructure or operations"</i>.</p>	<p>Irish Water can only address the vulnerability of the associated environment directly affected by the operation of its water services. The following wording is incorporated:</p> <p><i>"Our strategy will address the vulnerability of water services and associated environment (including protected sites) to climate change events and identify actions to modify our infrastructure or operations"</i></p>
<p>Supporting text to Strategy EN1e could be amended to read: <i>"Safeguarding Ireland's environmental assets will be central to all strategies, plans or projects derived from the WSSP, and to our activities and operations. In particular, all lower-tier strategies, plans or projects derived from the WSSP will, during their development, be screened for their potential to affect European sites, and must not have significant adverse effects on any such site, alone or in combination with other plans or projects. Lower-tier plans, strategies or projects that are likely to have significant adverse effects will not be considered compliant with the WSSP. The consideration of potential effects on European sites will be a fundamental component of the plan development"</i>.</p>	<p>Additional commitment added to Strategy EN1e to ensure avoidance of potential significant adverse effects on biodiversity (including protected sites).</p> <p>However, Irish Water may at some point in the future (for imperative reasons of over-riding public interest) require a plan or project to have a significant adverse effect on a protected site.</p>
<p>Supporting text to Strategy SG3b could be amended to read: <i>"We are required to operate in a commercially viable and environmentally responsible manner and must take this into consideration when considering priorities for investment."</i></p>	<p>Incorporated.</p>

## 5.4 Strategies of the Final WSSP

The strategies that were amended specifically in relation to protected sites were:

- Aim EN2: Operate our water services infrastructure to support the achievement of water body objectives under the Water Framework Directive and our obligations under the Birds and Habitats Directives.

Strategy EN2b: Manage the operation of our water and wastewater infrastructure towards the achievement of water body objectives **and the conservation of protected sites and species**.

- Aim IF2: **Balanced Sustainable Investment** - Invest in our assets while maintaining a sustainable balance between **meeting** customer **standards**, **protecting** the environment and **supporting** the economic development and growth of the country.

In addition text specifically relating to protected sites was inserted into paragraphs underpinning strategies:

- EN1c – Prepare and implement a Climate Change Adaptation and Mitigation Strategy.
- EN1e – Adhere to environmental and planning legislation when planning and developing water services assets.
- SG3b – Balance investment for growth in demand with other priorities to ensure best outcome for our customers.

A list of the final strategies for the WSSP are presented in **Table 5.5** with the amendments to the draft WSSP strategies highlighted in **bold** or ~~strikeout~~.

**Table 5.5 Aims and Strategies of the Final WSSP**

Aim	Strategy
Meet Customer Expectations	
Aim CE1: Establish both Customer Trust and a Reputation for Excellent Service.	<ul style="list-style-type: none"> <li>• CE1a: Create and operate a lean and effective Customer Operation.</li> <li>• CE1b: Build and maintain accurate customer databases.</li> <li>• CE1c: Establish sustainable customer revenue.</li> <li>• CE1d: Establish effective communication channels with customers.</li> <li>• CE1e: Establish national customer service standards and robust customer protection measures.</li> <li>• CE1f: Fully support the work of the Public Water Forum and establish effective communication with all our stakeholders.</li> </ul>
Ensure a Safe and Reliable Water Supply	
Aim WS1: Manage the <b>sustainability</b> and quality of drinking water from source to tap to protect human health.	<ul style="list-style-type: none"> <li>• WS1a: Prepare a National Water Resources Plan and implement on a phased basis.</li> <li>• WS1b: Prepare and implement Drinking Water Safety Plans for all Water Supply Zones.</li> <li>• WS1c: Implement Standard Operational Procedures for all water treatment plants, water storage facilities and distribution networks.</li> <li>• WS1d: Develop and Implement Capital Investment Plans to improve Drinking Water Quality.</li> <li>• WS1e: Prepare and implement a "Lead <b>Strategy-in Drinking Water Mitigation Plan</b>".</li> <li>• WS1f: Prepare and implement strategies to manage other quality issues in water supplies.</li> </ul>

Aim	Strategy
<p>Aim WS 2: Manage the availability, <b>sustainability</b> and reliability of water supply now and into the future.</p> <p>Aim WS3: Manage the affordability of water supplies <b>in an efficient and economic manner.</b></p>	<ul style="list-style-type: none"> <li>• WS2a: Implement risk assessments for all water supply areas in terms of short, medium and long term risks to customer supply.</li> <li>• WS2b: Manage existing water resources and plan for new resources taking a regional view of needs and having regard to the objectives of the Water Framework Directive (WFD).</li> <li>• WS2c: Develop long-term sustainable water sources with resilience to climate change.</li> <li>• WS2d: Develop methodologies to build strategic resilience and network connectivity into resource planning.</li> <li>• WS2e: Manage future regulatory requirements for abstraction licencing, headroom in treatment facilities and population growth.</li> <li>• WS2f: Match water abstraction to availability and quality using surface water and groundwater sources. This is known as Conjunctive Use.</li> <li>• WS2g: Prepare Regional Water Conservation Strategies and implement on a phased basis.</li> <li>• WS3a: Adopt an asset management based approach to capital maintenance and capital investment.</li> <li>• WS3b: Optimise the unit cost of water supply through proper water resource and treatment planning.</li> <li>• WS3c: Prepare and implement water demand management <b>and customer education strategies.</b></li> <li>• WS3d: Optimise capital and operational investments in water supply.</li> </ul>
Provide Effective Management of Wastewater	
<p>Aim WW1: Manage the operation of wastewater facilities in a manner that protects environmental quality.</p> <p>Aim WW2: Manage the availability and resilience of wastewater services now and into the future.</p> <p>Aim WW3: Manage the <b>Affordability and Reliability</b> of Wastewater Services <b>in an efficient and economic manner.</b></p>	<ul style="list-style-type: none"> <li>• WW1a: Prepare and implement a Wastewater Compliance Strategy.</li> <li>• WW1b: Produce appropriate guidance documentation and Standard Operating Procedures.</li> <li>• WW1c: Develop and implement Capital Investment Plans on a prioritised basis to progressively achieve compliance.</li> <li>• WW1d: Manage the wider potential environmental impacts associated with the construction and operation of wastewater systems.</li> <li>• WW2a: Implement risk assessments for all agglomerations in terms of short, medium and long term risks to customer service.</li> <li>• WW2b: Manage existing wastewater assets and plan for new assets based on short, medium and long term sustainability.</li> <li>• WW2c: Identify properties at risk of flooding from combined sewers, and implement measures to reduce risk on a phased basis.</li> <li>• WW2d: Identify and manage critical wastewater assets.</li> <li>• WW3a: Adopt an asset management based approach to capital maintenance and capital investment.</li> <li>• WW3b: Develop and implement strategies and standards to minimise the unit costs of wastewater treatment including standardising treatment processes.</li> <li>• WW3c: Optimise energy consumption in wastewater treatment plants and collection systems.</li> <li>• WW3d: Ensure adequate governance and control of discharges to the sewer network, having regard for best practice and value.</li> <li>• WW3e: Engage with regulators and stakeholders.</li> <li>• WW3f: Optimise capital and operational investments in wastewater services.</li> </ul>

Aim	Strategy
Protect and Enhance the Environment	
<p>Aim EN1: Ensure that Irish Water services are delivered in a sustainable manner which contributes to the protection of the environment.</p>	<ul style="list-style-type: none"> <li>• EN1a: Implement a Sustainability Policy and Sustainability Framework.</li> <li>• EN1b: Prepare and implement a Sustainable Energy Strategy.</li> <li>• EN1c: Prepare and implement a Climate Change Adaptation and Mitigation Strategy.</li> <li>• EN1d: Adopt a Green Procurement Approach and drive efficient use of all our resources.</li> <li>• EN1e: Adhere to environmental and planning legislation when planning and developing water services assets.</li> </ul>
<p>Aim EN2: Operate our water services infrastructure to support the achievement of water body objectives under the Water Framework Directive <b>and our obligations under the Birds and Habitats Directives.</b></p>	<ul style="list-style-type: none"> <li>• EN2a: Work effectively with other stakeholders to support a catchment based approach to <b>water management.</b></li> <li>• EN2b: Manage the operation of our water and wastewater infrastructure towards the achievement of water body objectives <b>and the conservation of protected sites and species.</b></li> </ul>
<p>Aim EN3: Manage all our Residual Waste in a Sustainable Manner.</p>	<ul style="list-style-type: none"> <li>• EN3a: Develop and implement a Corporate Waste Management Strategy.</li> <li>• EN3b: Develop and implement a National Wastewater Sludge <b>Strategy Management Plan.</b></li> <li>• EN3c: Develop and implement a National Water Sludge <b>Strategy Management Plan.</b></li> </ul>
Support Social and Economic Growth	
<p>Aim SG1: Support National, Regional and Local Economic and Spatial Planning Policy.</p>	<ul style="list-style-type: none"> <li>• SG1a: <del>Work</del> <b>Liaise</b> with national, regional and local government bodies and potential customers to anticipate and plan water services <del>for growth</del> in line with the statutory planning <b>process policy.</b></li> </ul>
<p>Aim SG2: Facilitate growth in line with national and regional economic and spatial planning policy.</p>	<ul style="list-style-type: none"> <li>• SG2a: Maximise capacity of existing assets through effective asset management and optimised operation.</li> <li>• SG2b: Plan water service infrastructure at national, regional and river basin level.</li> <li>• SG2c: Invest in the development of strategic networks and treatment works.</li> <li>• SG2d: Maintain appropriate headroom in strategic water services infrastructure.</li> <li>• SG2e: Provide a high quality customer service for new customers.</li> </ul>
<p>Aim SG3: Ensure that water services are provided in a timely and cost effective manner.</p>	<ul style="list-style-type: none"> <li>• SG3a: Plan for water services infrastructure development to meet projected demand facilitating delivery on a phased basis.</li> <li>• SG3b: Balance investment for growth in demand with <del>affordability</del> other priorities to ensure best outcome for customers.</li> <li>• SG3c: Operate an equitable New Connections Charging Policy that ensures efficient service provision to new customers with full cost recovery on a least cost basis.</li> </ul>
Invest in Our Future	
<p>Aim IF1: Asset Management - Manage our assets and investments in accordance with best practice asset management principles to deliver a high quality secure and sustainable service at lowest cost.</p>	<ul style="list-style-type: none"> <li>• IF1a: Implement asset management systems including comprehensive asset data collection and modelling tools.</li> <li>• IF2b: Develop long term asset strategies and implementation plans (Tier 2 Plans).</li> <li>• IF2c: Development of initiatives such as asset standards and improved supply chain management.</li> </ul>
<p>Aim IF2: Balanced Sustainable Investment - Invest in our assets while maintaining a sustainable balance <del>between the interests of our meeting customer standards, protecting the environment and the need to</del> supporting the economic development and growth of the country.</p>	<ul style="list-style-type: none"> <li>• IF2a: Engage with our customers, including households, commercial and industrial customers.</li> <li>• IF2b: Engage collaboratively with key stakeholders including CER, EPA, HSE, DECLG, regional and local authorities.</li> <li>• IF2c: Apply clear and transparent investment prioritisation criteria.</li> </ul>



Aim	Strategy
Aim IF3 : Sustainable Funding Model - Establish a sustainable funding model to ensure that Irish Water can deliver the required capital investment in order to maintain critical assets and achieve the required outcomes for our customers, the environment and the national economy.	<ul style="list-style-type: none"> <li>• IF3a: Transform the water industry in Ireland to an efficient water utility model within a regulated framework.</li> <li>• IF3b: Work with regulators to achieve optimum balance of affordability cost and service standards taking into account regulatory requirements.</li> <li>• IF3c: Deliver on Irish Water's commitments to raise public awareness of the value of water and achievements delivered.</li> </ul>
Aim IF4: Research and Innovation - Promote research and proven, innovative technical solutions to meet standards set by our regulators including our objectives for cost and energy efficiency.	<ul style="list-style-type: none"> <li>• IF4a: Actively pursue research and development in water services and track opportunities to develop and adopt new technologies.</li> <li>• IF4b: Engage effectively with universities, Institutes of Further Education, colleges and industry.</li> <li>• IF4c: Develop knowledge management capability and implementation processes.</li> </ul>

The amendments to the draft WSSP were reviewed in order to determine the extent to which they are significant and therefore require further assessment as part of the AA process. In this instance, the amendments made to the draft WSSP are not substantive. No additional Aims or Strategies have been included within the final WSSP and changes principally comprise minor amendments to wording that either improved their performance with respect to European sites, or which are not considered material to the outcome of the assessment contained in the NIS. In consequence, further assessment is not considered to be necessary.

## 5.5 Concluding Statement

Based on the assessment of the draft WSSP and the subsequent assessment of the final WSSP, it is considered that the WSSP will have no adverse effects on any European sites, alone or 'in combination' with other plans and programmes.

This conclusion does not remove the need for screening any other plans, strategies or projects, or permissions associated with, or arising from the Plan. Acceptance that the WSSP is consistent, so far as can be ascertained, with the Habitats Directive and Regulations does not guarantee that any Tier 2 plans or strategies or Tier 3 projects derived from the Plan will also be found consistent when taken forward. The WSSP will be subject to monitoring and performance testing, and a formal five-year review cycle, which will allow for strategy adjustments to ensure (*inter alia*) the long-term compliance with the Habitats Directive and Regulations.

# Appendix A

## Draft WSSP Strategic Objectives, Aims and Strategies

Table A.1 Draft WSSP Strategies

Aim	Strategy
Meet Customer Expectations	
Aim CE1: Establish both Customer Trust and a Reputation for Excellent Service.	<ul style="list-style-type: none"> <li>• CE1a: Create and operate a lean and effective Customer Operation.</li> <li>• CE1b: Build and maintain accurate customer databases.</li> <li>• CE1c: Establish sustainable customer revenue.</li> <li>• CE1d: Establish effective communication channels with customers.</li> <li>• CE1e: Establish national customer service standards and robust customer protection measures.</li> <li>• CE1f: Fully support the work of the Public Water Forum.</li> </ul>
Ensure a Safe and Reliable Water Supply	
Aim WS1: Manage the quality of drinking water from source to tap to protect human health.	<ul style="list-style-type: none"> <li>• WS1a: Prepare a National Water Resources Plan and implement on a phased basis.</li> <li>• WS1b: Prepare and implement Drinking Water Safety Plans for all Water Supply Zones.</li> <li>• WS1c: Implement Standard Operational Procedures for all water treatment plants, water storage facilities and distribution networks.</li> <li>• WS1d: Develop and Implement Capital Investment Plans to improve Drinking Water Quality.</li> <li>• WS1e: Prepare and implement a “Lead Compliance Strategy”.</li> <li>• WS1f: Prepare and implement strategies to manage other quality issues in water supplies.</li> </ul>
Aim WS 2: Manage the availability and reliability of water supply now and into the future.	<ul style="list-style-type: none"> <li>• WS2a: Implement risk assessments for all water supply areas in terms of short, medium and long term risks to customer supply.</li> <li>• WS2b: Manage existing water resources and plan for new resources taking a regional view of needs and having regard to the objectives of the Water Framework Directive (WFD).</li> <li>• WS2c: Develop long-term sustainable water sources with resilience to climate change.</li> <li>• WS2d: Develop methodologies to build strategic resilience and network connectivity into resource planning.</li> <li>• WS2e: Manage future regulatory requirements for abstraction licencing, headroom in treatment facilities and population growth.</li> <li>• WS2f: Match water abstraction to availability and quality using surface water and groundwater sources. This is known as Conjunctive Use.</li> <li>• WS2g: Prepare Regional Water Conservation Strategies and implement on a phased basis.</li> </ul>
Aim WS3: Manage the affordability of water supplies.	<ul style="list-style-type: none"> <li>• WS3a: Adopt an asset management based approach to capital maintenance and capital investment.</li> <li>• WS3b: Optimise the unit cost of water supply through proper water resource and treatment planning.</li> <li>• WS3c: Prepare and implement water conservation strategies including demand management.</li> <li>• WS3d: Optimise capital and operational investments in water supply.</li> </ul>

Aim	Strategy
<b>Provide Effective Management of Wastewater</b>	
<p>Aim WW1: Manage the operation of wastewater facilities in a manner that protects environmental quality.</p>	<ul style="list-style-type: none"> <li>• WW1a: Prepare and implement a Wastewater Compliance Strategy.</li> <li>• WW1b: Produce appropriate guidance documentation and Standard Operating Procedures.</li> <li>• WW1c: Develop and implement Capital Investment Plans on a prioritised basis to progressively achieve compliance.</li> <li>• WW1d: Manage the wider potential environmental impacts associated with the construction and operation of wastewater systems.</li> </ul>
<p>Aim WW2: Manage the availability and resilience of wastewater services now and into the future.</p>	<ul style="list-style-type: none"> <li>• WW2a: Implement risk assessments for all agglomerations in terms of short, medium and long term risks to customer service.</li> <li>• WW2b: Manage existing wastewater assets and plan for new assets based on short, medium and long term sustainability.</li> <li>• WW2c: Identify properties at risk of flooding from combined sewers, and implement measures to reduce risk on a phased basis.</li> <li>• WW2d: Identify and manage critical wastewater assets.</li> </ul>
<p>Aim WW3: Manage the Affordability and Reliability of Wastewater Services.</p>	<ul style="list-style-type: none"> <li>• WW3a: Adopt an asset management based approach to capital maintenance and capital investment.</li> <li>• WW3b: Develop and implement strategies and standards to minimise the unit costs of wastewater treatment including standardising treatment processes.</li> <li>• WW3c: Optimise energy consumption in wastewater treatment plants and collection systems.</li> <li>• WW3d: Ensure adequate governance and control of discharges to the sewer network, having regard for best practice and value.</li> <li>• WW3e: Engage with regulators and stakeholders.</li> <li>• WW3f: Optimise capital and operational investments in wastewater services.</li> </ul>
<b>Protect and Enhance the Environment</b>	
<p>Aim EN1: Ensure that Irish Water services are delivered in a sustainable manner which contributes to the protection of the environment.</p>	<ul style="list-style-type: none"> <li>• EN1a: Implement a Sustainability Policy and Sustainability Framework.</li> <li>• EN1b: Prepare and implement a Sustainable Energy Strategy.</li> <li>• EN1c: Prepare and implement a Climate Change Adaptation and Mitigation Strategy.</li> <li>• EN1d: Adopt a Green Procurement Approach and drive efficient use of all our resources.</li> <li>• EN1e: Adhere to environmental and planning legislation when planning and developing water services assets.</li> </ul>
<p>Aim EN2: Operate our water services infrastructure to support the achievement of water body objectives under the Water Framework Directive.</p>	<ul style="list-style-type: none"> <li>• EN2a: Work effectively with other stakeholders to support a catchment based approach to water management.</li> <li>• EN2b: Manage the operation of our water and wastewater infrastructure towards the achievement of water body objectives.</li> </ul>
<p>Aim EN3: Manage all our Residual Waste in a Sustainable Manner.</p>	<ul style="list-style-type: none"> <li>• EN3a: Develop and implement a Corporate Waste Management Strategy.</li> <li>• EN3b: Develop and implement a National Wastewater Sludge Strategy.</li> <li>• EN3c: Develop and implement a National Water Sludge Strategy.</li> </ul>
<b>Support Social and Economic Growth</b>	
<p>Aim SG1: Support National, Regional and Local Economic and Spatial Planning Policy.</p>	<ul style="list-style-type: none"> <li>• SG1a: Work with national, regional and local bodies and potential customers to anticipate and plan water services for growth in line with the statutory planning process.</li> </ul>
<p>Aim SG2: Facilitate growth in line with national and regional economic and spatial planning policy.</p>	<ul style="list-style-type: none"> <li>• SG2a: Maximise capacity of existing assets through effective asset management and optimised operation.</li> <li>• SG2b: Plan water service infrastructure at national, regional and river basin level.</li> <li>• SG2c: Invest in the development of strategic networks and treatment works.</li> </ul>

Aim	Strategy
	<ul style="list-style-type: none"> <li>• SG2d: Maintain appropriate headroom in strategic water services infrastructure.</li> <li>• SG2e: Provide a high quality customer service for new customers.</li> </ul>
<p>Aim SG3: Ensure that water services are provided in a timely and cost effective manner.</p>	<ul style="list-style-type: none"> <li>• SG3a: Plan for water services infrastructure development to meet projected demand facilitating delivery on a phased basis.</li> <li>• SG3b: Balance investment for growth in demand with affordability.</li> <li>• SG3c: Operate an equitable New Connections Charging Policy that ensures efficient service provision to new customers with full cost recovery on a least cost basis.</li> </ul>
Invest in Our Future	
<p>Aim IF1: Asset Management - Manage our assets and investments in accordance with best practice asset management principles to deliver a high quality secure and sustainable service at lowest cost.</p>	<ul style="list-style-type: none"> <li>• IF1a: Implement asset management systems including comprehensive asset data collection and modelling tools.</li> <li>• IF2b: Develop long term asset strategies and implementation plans (Tier 2 Plans).</li> <li>• IF2c: Development of initiatives such as asset standards and improved supply chain management.</li> </ul>
<p>Aim IF2: Balanced Sustainable Investment - Invest in our assets while maintaining a sustainable balance between the interests of our customers, the environment and the need to support the economic development and growth of the country.</p>	<ul style="list-style-type: none"> <li>• IF2a: Engage with our customers, including households, commercial and industrial customers.</li> <li>• IF2b: Engage collaboratively with key stakeholders including CER, EPA, HSE, DECLG, regional and local authorities.</li> <li>• IF2c: Apply clear and transparent investment prioritisation criteria.</li> </ul>
<p>Aim IF3 : Sustainable Funding Model - Establish a sustainable funding model to ensure that Irish Water can deliver the required capital investment in order to maintain critical assets and achieve the required outcomes for our customers, the environment and the national economy.</p>	<ul style="list-style-type: none"> <li>• IF3a: Transform the water industry in Ireland to an efficient water utility model within a regulated framework.</li> <li>• IF3b: Work with regulators to achieve optimum balance of affordability and service standards taking into account regulatory requirements.</li> <li>• IF3c: Deliver on Irish Water's commitments to raise public awareness of the value of water and achievements delivered.</li> </ul>
<p>Aim IF4: Research and Innovation - Promote research and proven, innovative technical solutions.</p>	<ul style="list-style-type: none"> <li>• IF4a: Actively pursue research and development in water services and track opportunities to develop and adopt new technologies.</li> <li>• IF4b: Engage effectively with universities, Institutes of Further Education, colleges and industry.</li> <li>• IF4c: Develop knowledge management capability and implementation processes.</li> </ul>

# Appendix B

## Natura Impact Statement Consultation Response Summary

Public consultation on the Natura Impact Statement ran from 19th February 2015 to the 17th April 2015. The tables below contain the comments received and responses and revisions as appropriate.

## Submission No.1: Environmental Protection Agency

Relevant Submission Text	Response and Updates to SEA and NIS arising (if any)
<p><b>1. Integration of SEA and AA in the WSSP</b></p> <p>It is not clear how the SEA and AA processes have influenced and informed the preparation of the WSSP. A description and schematic should be included in the Executive Summary and the WSSP describing and showing the link between the SEA and AA processes and the WSSP preparation. These should indicate how and where the SEA has informed the WSSP. In the SEA Environmental Report, Figure 1.4 <i>Linking the SEA and the WSSP</i> shows the integration of the processes and could be extended to include the Appropriate Assessment process and included in the WSSP. The integration of the WSSP and SEA process should reflect the overall objective of the SEA Directive “to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes”.</p>	<p>Comment noted. The SEA Environmental Report and Natura Impact Statement have identified a number of measures to avoid or minimise potential negative effects and to enhance positive effects arising from the implementation of the WSSP (summarised in Section 4.5 of the Environmental Report and Section 5.1 of the Natura Impact Statement). Those measures that relate to the WSSP itself (as opposed to Tier 2 plans and Tier 3 projects) have been considered by Irish Water in preparing the final WSSP. The SEA Statement sets out explicitly how these measures have been incorporated into the final Plan and so the extent to which they have influenced the final Plan.</p> <p>Page 6 of the WSSP sets out that the Plan has been subject to SEA and AA and the relationship between the development of WSSP, SEA and AA.</p>

## Submission No.2: Department of Communications, Energy and Natural Resources (Inland Fisheries Ireland)

Relevant Submission Text	Response and Updates to SEA and NIS arising (if any)
<p>Under section 7(3) of the IFI Act it is stated that <i>without prejudice to subsection (1), IFI shall in the performance of its functions have regard to:</i></p> <p><i>(g) the requirements of the European Communities (Natural Habitats) Regulations 1997 (S.I. No. 94 of 1997) and the need for the sustainable development of the inland fisheries resource (including the conservation of fish and other species of fauna and flora habitats and the biodiversity of inland water ecosystems),</i></p> <p><i>(h) as far as possible, ensure that its activities are carried out so as to protect the national heritage (within the meaning of the Heritage Act 1995).</i></p>	<p>Comment noted. Irish Water recognises the importance of inland and marine fisheries and the need to consider the effects of its activities on these resources.</p>



Relevant Submission Text	Response and Updates to SEA and NIS arising (if any)
<p>Article 5 of the 2009 Surface Water Regulations requires that a public authority, in performance of its functions, shall not undertake those functions in a manner that knowingly causes or allows deterioration in the chemical or ecological status of a body of surface water. Also article 28(2) of the said Regulations states that a surface water body whose status is determined to be less than good shall be restored to at least good status not later than the end of 2015.</p> <p>Inland Fisheries Ireland is also the competent authority for fish and has significant responsibilities and powers under S.I. 477 of 2011 whereby Ireland transposed into Irish law its responsibilities under the European Communities (Birds and Natural Habitats) regulations – the habitats directive. Furthermore the Eel is now endangered and additional protection measures have also been introduced in that regard and it is incumbent on Ireland to ensure that the eel and its range and habitat is properly protected.</p> <p>Please note that IFI are in broad agreement with the content and aims of your Water Service Strategic Plan</p> <p>It is also important to note that while many rivers are not designated under the Habitats Directive, they hold species that are designated under that directive. Atlantic salmon, for example, are listed as an Annex II Species under the European Habitats Directive.</p> <p>It is respectfully highlighted that various fish species receive protection under Irish National Fisheries Legislation (which can be found referenced in our guidelines document).</p> <p>Regard should be had to the need for the sustainable development of the inland and marine fisheries resource when undertaking any works on any surface water (whether subject to formal designation or not).</p>	

### Submission No.3: Department of Arts, Heritage and the Gaeltacht

Relevant Submission Text	Response and Updates to SEA and NIS arising (if any)
<p><b>General Observations on the Environmental Report and Natura Impact Statement:</b></p> <p><b>Baseline data and information on the receiving environment:</b></p> <p>The most recent Article 17 Report on the status of habitats and species listed on the Habitats Directive has not been considered in the Environmental Report or in the Natura Impact Statement, although this has been available since September 2013 and has been referred to in previous submissions from this Department.</p>	<p>Comment noted. References to the Article 12 / 17 reports have been included in the revised Statement. In addition, habitats and species identified in the Article 17 and Article 12 reports which are considered potentially sensitive to Irish Waters activities have been identified and are presented in Appendices D &amp; E respectively.</p>

Relevant Submission Text	Response and Updates to SEA and NIS arising (if any)
<p>Appropriate assessments, and screenings, are to be undertaken in view of best scientific knowledge (Part 5, SI 477 of 2011). There does not appear to be any consideration of the effects on the status of bird species or the current state of the receiving environment in relation to bird species. The Department's previous observations of June 2014 provided information on the availability of the Article 17 Report and the recent Birds' Directive Article 12 Report, but these do not seem to have been taken into account.</p>	<p>The Article 17 report provides useful information on the status of habitats and species nationally; the WSSP contains policies and measures that will operate nationally to ensure that European sites and interest features are protected. However, the range of potential impacts arising from Irish Water's activities is so broad (relating to capital and operational works) that any assessment can only be undertaken at a very high level. Hence, the WSSP and the Natura Impact Statement focus on the development of good policy that will ensure that adverse effects do not occur as a result of any activities that may ultimately result from the plan. It should also be noted that the assessment is of the WSSP and its likely outcomes (taking into account cross-cutting protective measures and strategies), not individual consents etc.</p>
<p><b>Integration of ecological issues between the Environmental Report and the NIS</b></p> <p>The Environmental Report and the screening for Appropriate Assessment set out a range of impacts that may arise as a result of the Plan but these are not carried through and resolved in the Natura Impact Statement. The Department acknowledges the commitments made to protecting the environment within the Strategy and the challenges in undertaking an appropriate assessment of a plan of this nature. While it may not yet be known where future projects to be developed under the Plan will arise, there is existing knowledge about the current infrastructure, discharges, their location and the effects they may or currently have on European sites and this should be used to inform this assessment and to ensure all necessary mitigation at Tier 1 and Tier 2 etc is developed and integrated into the Plan.</p> <p>Consideration of how the Plan will affect the obligation to maintain <i>and restore</i> habitats and species to favourable conservation condition needs to be included within the NIS. The development of strategic Plan-level mitigation (e.g. by helping to inform and broaden the scope of the R&amp;D Strategy), rather than project-level mitigation, should help projects to move through the required consent processes in a more timely manner. A number of the proposed Tier 2 plans and strategies should serve as useful mitigation in this regard but a more systematic linkage of impacts and effects that may arise to the Tier 1 and Tier 2 mitigation would support the conclusion of the assessment more robustly. This should also then serve to inform the necessary targets and indicators of the Tier 1 Strategy.</p>	<p>The SEA Environmental Report and the Appropriate Assessment Screening set out a range of 'conceivable' impacts that could occur as a result of the normal operations and capital works undertaken by a water company and this has been updated in the NIS. However, for the reasons set out in the Natura Impact Statement it is considered that the exhaustive documentation and assessment of all of these conceivable impacts is neither possible or appropriate for the plan being assessed.</p> <p>The assessment of potential impacts on European protected sites from all current water services infrastructure and operations would be a substantial undertaking.</p> <p>The WSSP does not advocate a 'business as usual' approach and recognises the detailed assessments that will be required of Irish Water's assets and their performance. Currently, the WSSP is considered to contain sufficient protective measures and policies to ensure that there will not be adverse effects as a result of its implementation – this includes policies directly related to legal compliance and the safeguarding of European sites during all Irish Water activities – and the specific asset and impact assessments proposed by the Department are more appropriate to the Tier 2 plans that the Strategy promotes, rather than the high-level Strategy itself.</p>

Relevant Submission Text	Response and Updates to SEA and NIS arising (if any)
<p><b>Relevant Ecological Context:</b></p> <p>The following ecological context, amongst other considerations raised in previous observations provided by this Department, should be used to inform the Water Services Strategic Plan, its targets, indicators, the associated assessments and subsequent Tier 2 Plans; these observations are provided particularly in the context of issues to be considered in relation to abstraction.</p> <p>Under the EU Habitats Directive, 45 Annex I habitats have been identified as water-dependent for the purposes of identifying Special Areas of Conservation (SACs) on the Water Framework Directive Register of Protected Areas.</p> <p>1. 6 of these are in freshwater rivers and/or lakes:</p> <p>a. All river and lake habitats have the potential to be impacted by surface water abstractions and have some groundwater dependence.</p> <p>b. Hard-water lakes (3140) and calcareous sub-types of river habitat (3260) are likely to be most sensitive to groundwater abstractions.</p> <p>c. Sensitivity to groundwater abstraction will be particularly case- and location-specific, owing to the potential for an abstraction to 'tap-into' a particular flow path that drives the ecology of the lake/river habitat.</p> <p>2. 19 of the water-dependent habitats are Groundwater Dependent Terrestrial Ecosystems (GWDTE):</p> <p>a. The most sensitive to groundwater abstraction will be *petrifying springs (7220), transition mires (7140), alkaline fens (7230) and *Cladium fens (7210).</p> <p>b. The coastal habitats *machair (21A0), dune slacks (2190) and dunes with Salix repens (2170) are also very sensitive to groundwater abstractions, such as for golf-course irrigation or caravan parks. Saline intrusion is also a consideration here.</p> <p>c. The sensitivity of all GWDTE to groundwater abstraction is very case- and location- specific.</p> <p>3. Under the EU Habitats Directive, 22 Annex II species have been identified as water-dependent for the purposes of identifying SACs on the Water Framework Directive Register of Protected Areas.</p> <p>a. 10 of these are found in freshwater rivers and/or lakes.</p> <p>b. Of these 10, the freshwater pearl mussel is the most sensitive to surface water abstractions (from upstream lakes and/or occupied rivers). Abstractions at low flows are the greatest concern, owing to risks of exposure of mussels, slower flow, increased sedimentation and macrophyte/macroalgal growth. Relatively</p>	<p>Comment noted. This information has been used to inform the final WSSP and will be referenced as appropriate in undertaking any future assessments of Tier 2 plans.</p>

Relevant Submission Text	Response and Updates to SEA and NIS arising (if any)
<p>small abstractions at a sensitive location or acting cumulatively/in-combination (e.g. with land drainage, or bank erosion) could have significant negative impacts.</p> <p>c. <i>Najas flexilis</i> is sensitive to lake abstractions, given that it occupies the base of the euphotic zone.</p> <p>d. There is potential for the freshwater pearl mussel to be impacted by groundwater abstractions, as up-welling by groundwater in the river substratum contributes to water circulation and oxygenation, however the risks are presumed to be lower owing to the predominance of surface water abstractions in pearl mussel catchments. The aquifers in such areas are usually poorly productive, so abstractions are typically from rivers and lakes. The Nore may be an exception to this generalisation, however.</p> <p>e. Seven of the water-dependent species are largely ground-water dependent, found in GWDTE and sensitive to groundwater abstractions.</p> <p>f. Of these 7, <i>Vertigo geyeri</i>, <i>Saxifraga hirculus</i>, <i>Petalophyllum ralfsii</i> and <i>Drepanocladus vernicosus</i> are likely to be the most sensitive.</p> <p>4. While the selection of water-dependent Special Protection Areas (SPAs) for the Water Framework Directive Register of Protected Areas was never finalised, the primary consideration in relation to bird species protected under the EU Birds Directive is to avoid deterioration of wetlands and the birds that use them.</p> <p>5. It is also important to ensure that potentially significant disturbance of bird species by activities related to abstractions and impoundments should be avoided.</p> <p>Other relevant work includes that undertaken for the Western River Basin District on water dependent habitats and species (<a href="http://www.wfdireland.net/docs/27_HighStatusSites/">http://www.wfdireland.net/docs/27_HighStatusSites/</a>) as well as work recently funded by the EPA Strive programme on GWDTE (ground-water dependent terrestrial ecosystems) and high status sites.</p>	
<p><b>Terminology, tests and conclusion of screening/AA.</b></p> <p>It is noted that the wording of the conclusion to the Natura Impact Statement is that it is considered that the WSSP will have “no significant adverse effects on any European site, alone or “in combination” with any other plans and programmes”. The language to determine and conclude an appropriate assessment is whether the effects of a plan will have “an adverse effect on integrity of the site”, whereas, at screening, consideration is given to whether <i>significant</i> effects will or may arise. The language used in the NIS combines the terminology of the different stages of the assessment, which causes confusion as to the question being answered and should be clarified. Please also note that the terminology “Habitats Directive</p>	<p>Agreed. An effect can only be adverse if it is significant, so the phrase has been amended to ‘no significant and adverse effects’ (since an effect can be significant but not adverse).</p> <p>With regard to the Screening Report recommendation “...the screening should be refined further to determine the relevant European sites that can be screened out based on the absence of particular habitats or species”, we do not think this would be appropriate for the reasons set out in Section 2.4.3 of the Natura Impact Statement. Irish Water’s future works and operations</p>

Relevant Submission Text	Response and Updates to SEA and NIS arising (if any)
<p>Assessment" (HDA) is not typically used in the Republic of Ireland and is not the terminology used in the relevant Regulations.</p> <p>Also, the conclusion of the screening report does not appear to have been resolved in the Natura Impact Statement, which is pertinent to the comments above on the consideration of impacts within the NIS. The Screening Report Section 2.9 states "<i>it is recommended that the screening should be refined further to determine the relevant European sites that can be screened out based on the absence of particular habitats or species</i>". This approach does not appear to have been applied within the Natura Impact Statement. For instance, using a mapping comparison of existing assets (including those on the Remedial List) to European sites would have helped to elucidate which habitats and species, and sites, may be particularly at risk, and then could have been used to inform the development of plan-level mitigation that may be required and to inform any prioritisation exercise that will be undertaken.</p>	<p>could theoretically result in effects on any European site and so trying 'screen out' European sites at this Tier 1 plan stage would add little value.</p> <p>Irish Water also has an imperfect knowledge of the assets being adopted, making cross-cutting policies more appropriate than trying to identify specific measures for specific sites. The specific asset and impact assessment proposed by the Department is more appropriate to one of the Tier 2 plans that the WSSP promotes, rather than the high level Plan.</p>
<p><b>Use of guidance from other jurisdictions:</b></p> <p>The Department notes that guidance from other jurisdictions has been used in the preparation of the NIS. Such guidance may not always be consistent with the requirements of the national legislation under which this appropriate assessment is to be concluded.</p>	<p>Comment noted. The assessment has been undertaken in accordance with European Communities (Birds and Natural Habitats) Regulations 2011 (as amended).</p>
<p><b>Specific points concerning statements/figures in the documentation:</b></p> <p>- Natura Impact Statement:</p> <p>Footnote 8 states "<i>In some (rare) instances Government policy may extend the provisions that are strictly applicable to European sites (as defined by the European Communities (Birds and Natural Habitats Regulations) 2011 (as amended)) to undesignated sites (typically those in the early stages of the designation process)</i>". The provisions extend to all sites from their time of notification.</p> <p>Footnote 10 states that "<i>it should be noted that Irish case suggests that avoidance or mitigation measures can (and should) be considered at the screening stage</i>". This statement appears to go further than the case law referenced, as mitigation is not always an intrinsic part of the work to be carried out (which is the wording of the case-law quoted). Irish Water's attention is also brought to the Waddenzee judgment of the European Court of Justice (C-127/02) which states that the triggering of an appropriate assessment "follows from the mere probability that such an [significant] effect attaches to that plan or project" and that in view of the precautionary principle "in case of doubt as to the absence of significant effects such an [Article 6(3)] assessment must be carried out."</p>	<p>Comments noted.</p> <p>Regarding footnote 8 of the Natura Impact Statement, we accept any clarifications provided on this point, although the footnote is correct: the Government may extend the provisions to undesignated sites as a matter of policy, ahead of the notification process.</p> <p>Comment noted. The footnote has been deleted.</p>

#### Submission No.4: Northern and Western Regional Assembly

Relevant Submission Text	Response and Updates to SEA and NIS arising (if any)
<p>The conclusions of the Natura Impact Statement for the WSSP recommend amendments to the draft strategy, suggesting that their inclusion will result in the WSSP having no significant adverse effects on any European sites, etc. However they haven't been included in the document within the identified sections. It is important to ensure that all mitigation proposed through Appropriate Assessment (AA) and Strategic Environmental Assessment (SEA) processes are incorporated into the final plan.</p>	<p>Comment noted. The recommendations of the AA have been taken into account in developing the final WSSP. Further detail is provided in <b>Section 5.4</b> of this report.</p>

#### Submission No.5: Southern Regional Assembly

Relevant Submission Text	Response and Updates to SEA and NIS arising (if any)
<p>The Regional Assembly notes that the conclusions from the Appropriate Assessment are that:-</p> <ul style="list-style-type: none"> <li>• 49 of the 68 strategies contained within the draft WSSP would have 'no effect' on any European sites,</li> <li>• 12 strategies cannot be assessed at the level of the WSSP but that screening for AA should be undertaken for such lower level plans, strategies and projects derived from the WSSP</li> <li>• 7 strategies within the WSSP will have no significant effects and area likely to have positive effects on European sites.</li> </ul>	



Relevant Submission Text	Response and Updates to SEA and NIS arising (if any)
<p>Overall, the Appropriate Assessment prepared is considered to address the requirements of the Habitats Directive to assess potential impacts of the WSSP on the Natura 2000 network of European sites. However, the following observations are set out below in relation to specific sections of the report:-</p> <ul style="list-style-type: none"> <li>The Executive Summary states at page iv that 'the WSP is not spatially specific' whereas it is considered that the WSSP <i>is</i> a spatially specific Plan for the Irish State. In this regard, it is noted at Section 2.4.2 on page 8 that the document correctly identifies the need to assess Transboundary Effects for the adjoining territory of Northern Ireland, where the AA Screening identifies 57 SACs (Special Areas of Conservation) and 16 SPAs (Special Protection Areas) in Northern Ireland that have been assessed.</li> <li>Table 2.5 Plans and Projects likely to cause In-Combination Effects (Page 18 of the Outline AA Screening report) should also include the Northern Ireland Regional Development Strategy 2035 and the Northern Ireland Water Resources Management Plan.</li> </ul> <p>Finally, in both the Glossary and Appendices there are out of date references to the former Regional Authorities which were abolished in June 2014, and to various Local Authorities which have merged as of this same date. It would be desirable if the final version of the Plan made the appropriate updates to reflect the current make-up of the local government sector following the enactment of the Local Government reform Act, 2014.</p>	<p>Comment noted. We have considered re-worded the 'spatially specific' term as it is not as clear as it could be. The only spatial dimension to the WSSP is that it is for the Irish State. However, given that this is the highest possible dimension for a plan such as the WSSP, to some extent, the statement is of limited relevance to the specifics of the assessment.</p> <p>Comment noted. It is not intended to update the Screening Report as this document is superseded by the NIS.</p> <p>The Glossary has been updated to reflect the recent changes. The Appendices refer to lists from the EPA and have been retained for clarity.</p>

## Submission No.6: Sustainable Water Network (SWAN)

Relevant Submission Text	Response and Updates to SEA and NIS arising (if any)
<p>As with the SEA for the Draft WSSP, and as acknowledged in the NIS, the high level of the plan makes it hard to pinpoint specific impacts on individual Natura 2000 sites and their Annex I habitats and Annex I and Annex II species. However, in our opinion even at this early stage there are certain types of plans and projects that could potentially have a significant negative effect on a Natura 2000 site. For example:</p>	<p>Comment noted. Irish Water welcomes SWAN's endorsement of the findings of the Natura Impact Statement.</p>

Relevant Submission Text	Response and Updates to SEA and NIS arising (if any)
<ul style="list-style-type: none"> <li>• Potential negative impacts to a Natura 2000 site could occur due to the direct loss of habitat and degradation of habitats due to the construction, upgrading or repair of water services related infrastructure. At a species level species listed under the Habitats and Birds Directives may be disturbed and or displaced during the construction, operational and decommissioning stage of a project;</li> <li>• The abstraction and storage of raw surface water or groundwater: Abstraction could stress water bodies and changing water levels may have a negative impact on biodiversity.</li> <li>• The storage and distribution of treated water;</li> <li>• Management, reuse and disposal of residual wastes and sludges.</li> </ul> <p>We would therefore fully agree with the conclusion that it will remain necessary to undertake Appropriate Assessment on the lower-tier Implementation Plans and projects (Tier 2 and Tier 3, respectively) as these are developed. SWAN would also be broadly in support of the conclusion that the development of the WSSP, and the strategic management of water resources and wastewater provision by a national body, will help improve the condition of many European sites and support the achievement and maintenance of favourable conservation status across the Natura 2000 network. Of course the effectiveness of this will depend on the prioritisation of measures for these sites (See Section 5).</p>	

### Submission No.7: Northern Ireland Environment Agency

Relevant Submission Text	Response and Updates to SEA and NIS arising (if any)
<p>We are broadly content with the Natural Impact Statement as it relates to Northern Ireland. We note that the statement did not identify any adverse effects on any European Site in Northern Ireland.</p> <p>We welcome the inclusion of overarching environmental protection strategies and supporting text in the WSSP. We welcome the additional measures to avoid or minimise potential negative effects and to enhance</p>	<p>Comments noted and welcomed.</p> <p>The plan will include a statement within the Protect and Enhance the Environment strategic objective in relation to international river basins and transboundary effects. Any future SEA and Appropriate Assessment in</p>

Relevant Submission Text	Response and Updates to SEA and NIS arising (if any)
<p>positive effects arising from the implementation of the WSSP that were identified in the SEA Environmental Report. We consider that these mitigation and enhancement measures are also relevant to subsequent proposals and projects that may have transboundary interaction with Northern Ireland.</p> <p>We would welcome the inclusion of a statement in the WSSP indicating that relevant proposals and projects should also have regard to the mitigation and enhancement measures in the WSSP in relation to the environment in Northern Ireland in order to avoid or minimise transboundary negative effects and to enhance positive effects.</p> <p>We note that appropriate assessments remain necessary on the lower-tier plans, strategies and projects derived from the WSSP. We consider that these assessments should also consider potential effects on European Sites in Northern Ireland.</p>	<p>respect of Tier 2 plans and Appropriate Assessment in relation to Tier 3 projects will, where appropriate, consider potential transboundary effects on European designated sites in Northern Ireland.</p>

# **Appendix C**

## **Appropriate Assessment Outline Screening Report**

# APPROPRIATE ASSESSMENT OUTLINE SCREENING REPORT

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IN SUPPORT OF THE

## APPROPRIATE ASSESSMENT

OF THE

### Water Services Strategic Plan

IN ACCORDANCE WITH THE REQUIREMENTS OF  
ARTICLE 6(3) OF THE EU HABITATS DIRECTIVE

**for:** **Irish Water,**  
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**JUNE 2014**

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# Section 1 Introduction and Background

## 1.1 Background

AOS Planning has been appointed by Irish Water to provide an Outline Appropriate Assessment (AA) Screening Report in relation to the emerging Water Services Strategic Plan (WSSP) in accordance with the requirements of Article 6 of the EU Habitats Directive<sup>1</sup>. This report is divided into two sections as follows:

- Section 1 Introduction and Background
- Section 2 Stage 1 Screening

## 1.2 Legislative Context

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, better known as “The Habitats Directive”, provides legal protection for habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species of Community interest through the establishment and conservation of an EU-wide network of sites known as Natura 2000. These include candidate Special Areas of Conservation (cSACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Conservation of Wild Birds Directive (Directive 2009/147/EC - codified version of Directive 79/409/EEC as amended), hereafter referred to as European sites.

Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect European sites. Article 6(3) establishes the requirement for AA:

*“Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subjected to appropriate assessment of its implications for the site in view of the site’s conservation objectives. In light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public*

*If, in spite of a negative assessment of the implications for the [Natura 2000] site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, Member States shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.*

*Where the site concerned hosts a priority natural habitat type and/or a priority species the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest.”*

These requirements are implemented in the Republic of Ireland (ROI) by the European Communities (Birds and Natural Habitats) Regulations 2011. These regulations consolidate the European Communities (Natural Habitats) Regulations 1997 to 2005 and the European Communities (Birds and

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<sup>1</sup> Directive 92/43/EEC

Natural Habitats) (Control of Recreational Activities) Regulations 2010, as well as addressing transposition failures identified in the Court of Justice of the European Union (CJEU) judgments.

### 1.3 Stages of Appropriate Assessment

This Draft Outline AA Screening Report has been prepared in accordance with the following guidance:

- *Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities.* Department of the Environment, Heritage and Local Government, 2010.
- *Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.* European Commission Environment DG, 2002.
- *Managing Natura 2000 sites: The Provisions of Article 6 of the Habitats Directive 92/43/EEC.* European Commission, 2000

AA comprises up to four stages:

#### **Stage One: Screening**

The process which identifies the likely impacts upon a European site of a project or plan, either alone or in combination with other projects or plans, and considers whether these impacts are likely to be significant.

#### **Stage Two: Appropriate Assessment**

The consideration of the impact on the integrity of the European site of the project or plan, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts.

#### **Stage Three: Assessment of Alternative Solutions**

The process which examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the European site.

#### **Stage Four: Assessment where no alternative solutions exist and where adverse impacts remain**

An assessment of compensatory measures where, in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that the project or plan should proceed.

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures. First, the plan should aim to avoid any impacts on European sites by identifying possible impacts early in the plan-making process and writing the plan in order to avoid such impacts. Second, mitigation measures should be applied, if necessary, during the AA process to the point where no adverse impacts on the site(s) remain. If the plan is still likely to result in impacts on European sites, and no further practicable mitigation is possible, then it must be rejected. If no alternative solutions are identified and the plan is required for imperative reasons of overriding public interest (IROPI test) under Article 6(4) of the Habitats Directive, then compensation measures are required for any remaining adverse effect.

## Section 2 Stage 1 Screening

### 2.1 Description of the Water Services Strategic Plan

#### 2.1.1 Introduction

Irish Water is responsible for the operation of public water and wastewater services under the Water Services (No. 2) Act 2013. Irish Water is bringing the water and wastewater services of the 34 Local Authorities together under one national water utility that will be responsible for the management of national water assets, maintenance of the water system, managing capital projects as well as customer care and billing. In addition to this, Irish Water will also make capital and operational investment decisions regarding the country's national water infrastructure.

As part of this process, Irish Water is currently preparing a Water Services Strategic Plan (WSSP) which will set out Irish Water's high level strategies for providing water services to their customers over a 25 year horizon and how they will meet their environmental compliance commitments. The WSSP for Irish Water is intended to outline the strategic direction for Irish Water over the short, medium and long-term time frames up to 2040. Irish Water will identify what areas require focus and development in order to meet key objectives and mandate set out by government. The WSSP will be a strategic framework which will identify and prioritise the key objectives required to ensure the public water system can meet the challenges of the future. This framework will also allow future capital investment plans to be developed by Irish Water and approved by the Economic Regulator.

#### 2.1.2 The WSSP Vision

The current version of the Vision of the WSSP is:

"We value water as a precious natural resource on which the quality of life depends."

"Through responsible stewardship, efficient management and strong partnerships, Ireland has a world-class water infrastructure that ensures secure and sustainable water services, essential for our health, our communities, the economy and the environment."

The over-riding objective of the WSSP is to realise this vision, by meeting the service expectations of their customers at the lowest achievable cost.

### 2.2 Content and Context of the WSSP

#### 2.2.1 Content of the WSSP

As per the requirements of Article 33 (4) of the Water Services (No. 2) Act 2013, the WSSP will state the objectives of Irish Water in relation to the provision by Irish Water of water services and the means by which Irish Water proposes to achieve those objectives. The objectives will include those in relation to:

- a) drinking water quality,
- b) the prevention or abatement of risks to human health or the environment relating to the provision of water services,
- c) the existing and projected demand for water services,
- d) existing and planned arrangements for the provision of water services by Irish Water,
- e) existing and reasonably foreseeable deficiencies in the provision of water services by Irish Water,
- f) existing and planned water conservation measures,
- g) the management of the property of Irish Water.

For additional information on the likely content of the WSSP please refer to Appendix I of the Draft SEA Scoping Document. It is foreseen that the outcome of the AA process will contribute to the final content of the WSSP.

### 2.2.2 Context for the WSSP

The WSSP is set in the overall context of water services planning, with related plans, projects and activities and their associated SEA, AA, Environmental Impact Assessment (EIA) and licensing as required under current legislation as illustrated in the schematic presented as Figure 2.1 below. The WSSP will not generally refer to specific water services projects.

The WSSP is at the highest tier (Tier I) of water services planning. The WSSP will set out Irish Water's high level strategies for providing water services to their customers over a 25 year horizon and how they will meet their environmental compliance commitments. The implementation and operation of the WSSP will be reviewed not later than 5 years after approval and thereafter as required by statute.

The implementation of the strategies identified in the WSSP will be detailed in a number of Implementation Plans (Tier II) which will be prepared by Irish Water following the approval of the WSSP by the Minister of the Environment Community and Local Government. These Implementation Plans: will include, for example, a National Water Resources Management Plan, a National Sludge Management Plan, Water Conservation Plans, Water Safety Plans etc. (note: this list is not exhaustive and titles of plans may change); will be reviewed on a cyclical basis; and will be subject to environmental assessment as appropriate. The requirement to carry out an SEA/AA on these individual plans will be considered at the commencement of preparing each plan and subject to the requirements of relevant legislation.

Irish Water has responsibility for providing a clean safe water supply to current and future customers connected to the network. The main activities associated with providing a water supply include the following:

- (Raw) Water abstraction (from surface or ground water);
- Treatment of raw water to a potable water standard (the level of treatment required will depend on the quality of raw water abstracted);
- Storage of raw and treated water;
- Distribute treated water to customers through a pipe network;
- Construction, operation, maintenance and management of the above; and
- Metering, billing and customer services.

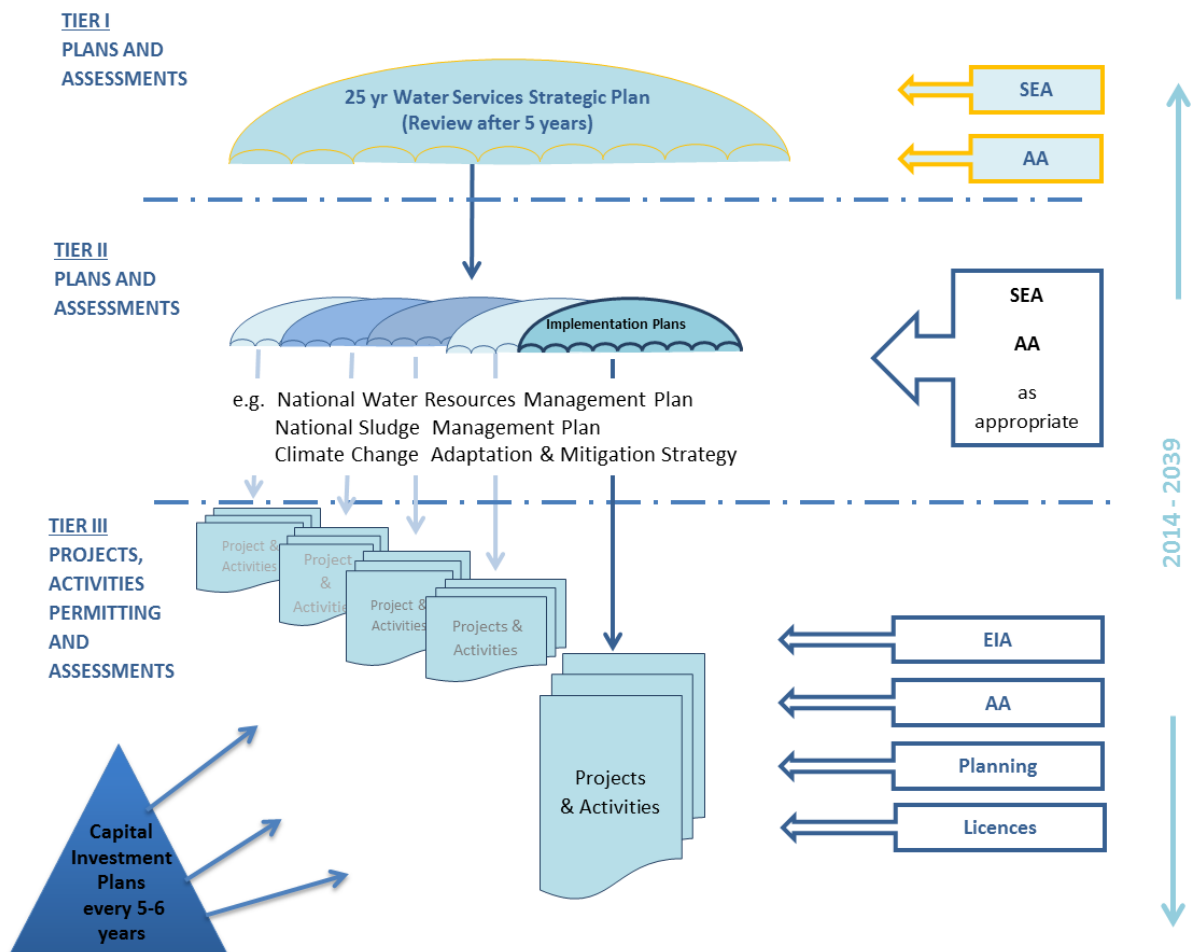
Irish Water is also responsible for collecting, treating and safely disposing of wastewater from current and future customers connected to the public wastewater network. The main activities associated with providing effective management of wastewater include the following:

- Collection of wastewater from customers connected to the public wastewater sewer network;
- Collection and treatment of surface water where surface water drains are currently connected to the public sewer network;
- Treatment of wastewater to an acceptable standard set by legislation (the level of treatment required will depend on the type of receiving water and its assimilative capacity);
- Discharging treated wastewater to surface or groundwater under licence/certification by the EPA;
- Construction, operation, maintenance and management of the above; and
- Metering billing and customer services in relation to the above.

The high level strategies to be identified in the WSSP will focus on how Irish Water will plan for the above activities in order to provide water services to customers in a cost effective manner over a 25 year horizon and how Irish Water will meet environmental compliance commitments related to these

activities. It is not envisaged that geographical context will be attributed to the strategies identified in the WSSP. The subsequent Implementation Plans referred to above and in Figure 2.1 will detail how these strategies will be carried out at a regional and county level. The lists of activities to be carried out by IW are not exhaustive but identify the main activities that may have the potential to impact on the Natura 2000 network.

At Tier III of the hierarchy, the projects and activities required to implement the strategies outlined in the WSSP and detailed in the Implementation Plans will be identified and developed and will be subject to all appropriate EIA, AA, planning, licensing and permitting processes.



**Figure 2.1: Planning and Environmental Assessment Hierarchy for Water Services**

### 2.2.3 Relationship with other relevant Plans and Programmes

The WSSP is set in a water services planning context of related plans, projects and activities and their associated SEA, AA and Environmental Impact Assessment (EIA) requirements as illustrated in Figure 2.1.

Further examination of the WSSP by the AA will take account of Irish Water’s obligation to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies – the achievement of the objectives of the regulatory framework for environmental protection and management led by the Water Framework Directive and implemented by the River Basin Management Plans.

The following is a preliminary list of other plans, programmes and projects which relate to a range of sectors (e.g., water management, land use, energy) at a range of levels (e.g., national, regional, county, local) that are already subject to more specific higher and lower tier AA and that could potentially interact with the WSSP:

European	National / Regional	Sub-Regional
Water Framework Directive (2000/60/EC)	National Spatial Strategy for Ireland 2002-2020 People, Places and Potential	County and Town Development Plans
Surface Water Directive (75/440/EC)	Regional Planning Guidelines	Local Area Plans
Groundwater Directive (2006/118/EC)	Flood Risk Management Plans	Strategic Development Zones(SDZ)
Drinking Water Directive (98/83/EC)	River Basin Management Plans and associated Programmes of Measures - including International (Northern Ireland) Plans and Programmes	Housing Strategies
Bathing Water Directive (2006/7/EC)	Groundwater Protection Schemes	Biodiversity Action Plans
Marine Strategy Framework Directive (2008/56/EC)	Water Quality Management Plans	Heritage Plans
Urban Waste Water Treatment Directive (91/271/EEC)	Regional Waste Management Plans	County Landscape Character Assessments
Flood Directive (2007/60/EC)	National Renewable Energy Action Plan	
Freshwater Fish Directive (78/659/EEC)	Offshore Renewable Energy Development Plan	Special Amenity Area Order
Shellfish Waters Directive (2006/113/EC)	Harnessing Our Ocean Wealth	Shellfish Pollution Reduction Programmes
Habitats Directive (92/43/EEC)	Grid25 Implementation Programme	Freshwater Pearl Mussel Sub-Basin Management Plans
Birds Directive (2009/147/EC)	Harvest 2020	County Renewable Energy Strategies
Nitrates Directive (91/676/EEC)	Agri-vision 2015 Action Plan	Sludge Management Plans
	Rural Environmental Protection Scheme (REPS)	Greater Dublin Strategic Drainage Strategy
Dangerous Substances Directive (76/464/EEC) (2006/11/EC)	Agri-Environmental Options Scheme(AEOS)	Northern Ireland Water Resources Management Plan 2012
Environmental Quality Standards Directive (Directive 2008/105/EC)(also known as the Priority Substances Directive) as amended by Directive 2013/39/EU)	Green, Low-Carbon, Agri-environment Scheme (GLAS)	Strategic Integrated Framework Plan for the Shannon Estuary



European	National / Regional	Sub-Regional
Environmental Liability Directive (2004/35/EC)	National Rural Development Programme	Local/County Water Services Strategic Plans
SEA Directive (2001/42/EC)	Forests, Products and People. Ireland's Forest Policy - A Renewed Vision (Draft)	Local Catchment Flood Risk Management Plan
EIA Directive (85/337/EEC)	National Peatlands Strategy (Draft)	Office of Public Works Arterial Drainage Maintenance and High Risk Designation Programme 2011-2015
Renewable Energy Directive (2009/28/EC)	Raised Bog SAC Management Plan and Review of Raised Bog Natural Heritage Areas	
EU 2020 climate and energy package	National Climate Change Strategy	
A Blueprint to Safeguard Europe's Water Resources		
European Union Biodiversity Strategy to 2020		

## 2.3 Elements of the WSSP with Potential to Cause Adverse Impacts on the Natura 2000 Network

As outlined in Section 2.2 above, the WSSP is a high level strategy for the development of water services in Ireland at the highest tier (Tier I) of water services planning. It is a national strategy that does not refer to specific geographic locations or individual projects. However, the WSSP will provide an indication of the types of infrastructural requirements likely to arise in the future. The draft WSSP will provide as indicative overview of the general objectives for Irish Water over a 25 year period.

The types of activities that Irish Water will be responsible for during the implementation of the WSSP that could give rise to significant effects on the Natura 2000 network can be categorised into two main groups, relating to either; water supply, or wastewater treatment, as follows:

### Water Supply

- (Raw) Water abstraction (from surface or ground water);
- Treatment of raw water to a potable water standard (the level of treatment required will depend on the quality of raw water abstracted);
- Storage of raw and treated water;
- Distribute treated water to customers through a pipe network; and
- Construction, operation, maintenance and management of the above.

### Waste Water Treatment

- Collection of wastewater from customers connected to the public wastewater sewer network;
- Collection and treatment of surface water where surface water drains are currently connected to the public sewer network;
- Treatment of wastewater to an acceptable standard set by legislation (the level of treatment required will depend on the type of receiving water and its assimilative capacity);
- Discharging treated wastewater to surface or groundwater under licence/certification by the EPA; and
- Construction, operation, maintenance and management of the above.

## 2.4 Natura 2000 Network

### 2.4.1.1 SACs and SPAs

The European Union's Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild flora and fauna), in conjunction with the Birds Directive (Council Directive 79/409/EEC on the conservation of wild birds) is the main legal tool of the European Union for nature conservation. The Birds Directive was adopted in 1979 by nine Member States, and was the first EU Directive on nature conservation. Since its adoption it has been a vital legal instrument for the conservation of all birds that occur naturally across the EU, acting in the broadest public interest to conserve Europe's natural heritage for present and future generations.

The Habitats Directive was proposed in 1988 and after many significant changes was adopted in July 1992. The stated aim of the Directive is to contribute to the maintenance of biodiversity within the European territory of the Member States through the conservation of natural habitats and of wild fauna and flora of Community interest. The Birds and Habitats Directive together offer useful legal conceptual models and a set of standards and norms in common use.

The Habitat Directive seeks to establish "Natura 2000", a network of protected areas throughout the European Community. It is the responsibility of each member state to designate Special Areas of Conservation (SACs) to protect habitats and species, which, together with the Special Protection Areas (SPAs) designated under the EU Birds Directive, form Natura 2000.

Member States are required to maintain or restore at 'favourable conservation status' the habitats and species of Community Importance listed in Annex I and II of the Habitats Directive.

According to the Habitats Directive (Article 1(I)) an SAC means a site of Community importance designated by the Member States through a statutory, administrative and/or contractual act where the necessary conservation measures are applied for the maintenance or restoration, at a favourable conservation status, of the natural habitats and/or the populations of the species for which the site is designated.

SPAs are classified under Article 4 of the Birds Directive. These areas are designated in order to protect endangered bird species listed in Annex I or migratory species.

It is general practice, when screening a plan or project for compliance with the Habitats Directive, to identify all European sites within the functional area of the plan itself and within 15 km of the boundaries of the area the plan applies to. This approach is currently recommended in the Department of the Environmental, Heritage and Local Government's document Guidance for Planning Authorities and as a precautionary measure, to ensure that all potentially affected European sites are included in the screening process. As the WSSP applies to the entire ROI and may have effects beyond Ireland's borders, the screening exercise considers all European sites within the ROI and Northern Ireland (NI).

There are 423 sites chosen as cSACs in the ROI designated for the protection of 59 Annex I habitats and 24 Annex II species (known as Qualifying Interests (QIs)). There are a further 57 cSACs in NI designated for the protection of 51 Annex I habitats and 15 Annex II species. See Table 2.1 and Table 2.2 for the full list of qualifying habitats and species for which sites are designated. The current list of all cSACs in the ROI and NI is presented in Appendix I.

There are 165 SPAs in the ROI designated for the conservation of 68 bird species. There are a further 16 SPAs in NI designated for the conservation of 20 bird species. The bird species that form the Special Conservation Interests of SPAs in the ROI and NI are listed in Table 2.3. Not all of these species are listed in Annex I of the Birds Directive, as several species are regularly occurring migratory species for which Ireland has a special responsibility. The current list of all cSACs in the ROI and NI is presented in Appendix I.

A map showing the overall distribution and extent of European Sites throughout the island of Ireland is presented in Figure 2.2.

**Table 2.1: List of Habitats for which SACs are designated.**

EU Habitat code	Habitat name (abbreviated version) <sup>2</sup>	Relevance to ROI / NI
91E0	Residual Alluvial Forests	ROI & NI
21A0	Machairs	ROI
91D0	Bog woodland	ROI & NI
91A0	Old Oak Woodlands	ROI & NI
91J0	Yew Woodlands	ROI
1110	Sandbanks	ROI & NI
1130	Estuaries	ROI & NI
1140	Tidal Mudflats and Sandflats	ROI & NI
1150	Coastal lagoons	ROI & NI
1160	Large shallow inlets and bays	ROI & NI
1170	Reefs	ROI & NI
1210	Annual vegetation of drift lines	ROI & NI
1220	Perennial vegetation of stony banks	ROI & NI
1230	Vegetated sea cliffs	ROI & NI
1310	Salicornia Mud	ROI & NI
1320	Spartina swards	ROI & NI
1330	Atlantic Salt Meadows	ROI & NI
1410	Mediterranean Salt Meadows	ROI
1420	Halophilous Scrubs	ROI
2110	Embryonic shifting dunes	ROI & NI
2120	Marram Dunes (white dunes)	ROI & NI
2130	Fixed Dunes (grey dunes)	ROI & NI
2140	Decalcified Empetrum Dunes	ROI
2150	Decalcified Dune Heath	ROI & NI
2160	Dunes with Hippopha rhamnoides	NI
2170	Dunes with Creeping Willow	ROI & NI
2190	Humid Dune Slacks	ROI & NI
3110	Lowland Oligotrophic Lakes	ROI
3130	Upland Oligotrophic Lakes	ROI & NI
3140	Hard Water Lakes	ROI & NI
3150	Natural eutrophic Waters	ROI & NI
3160	Dystrophic lakes	ROI & NI
3180	Turloughs	ROI & NI
3260	Floating River vegetation	ROI & NI
3270	Chenopodium rubri	ROI
4010	Wet heath	ROI & NI
4030	Dry heath	ROI & NI
4060	Alpine and Subalpine Heath	ROI & NI
5130	Juniper Scrub	ROI

<sup>2</sup> The sign '\*' indicates priority habitat types.

EU Habitat code	Habitat name (abbreviated version) <sup>2</sup>	Relevance to ROI / NI
6130	Calaminarian grassland	ROI
6170	Alpine and subalpine calcareous grasslands	NI
6210	Orchid-Rich Grassland/Calcareous Grassland	ROI & NI
6230	Species-rich Nardus Upland Grassland	ROI & NI
6410	Molinia meadows	ROI & NI
6430	Hydrophilous tall herb	ROI
6510	Lowland Hay Meadows	ROI
7110	Raised Bog (Active*)	ROI & NI
7120	Degraded raised bogs	ROI & NI
7130	Blanket bog (Active*)	ROI & NI
7140	Transition mires	ROI & NI
7150	Rhynchosporian Depressions	ROI & NI
7210	Cladium Fens	ROI & NI
7220	Petrifying springs	ROI & NI
7230	Alkaline fens	ROI & NI
8110	Siliceous scree	ROI & NI
8120	Calcareous scree	ROI & NI
8210	Calcareous rocky slopes	ROI & NI
8220	Siliceous Rocky Slopes	ROI & NI
8240	Limestone pavement*	ROI & NI
8310	Caves	ROI
8330	Sea Caves	ROI & NI
9180	Tilio-Acerion forests of slopes, screes and ravines	NI
9580	Mediterranean Taxus baccata woods	ROI

**Table 2.2: List of Annex II species for which SACs are designated in ROI and NI.**

EU Species code	Species Name	Latin	Relevance to ROI / NI
1013	Geyer's Whirl Snail	<i>Vertigo geyeri</i>	ROI
1014	Narrow-mouthed Whirl Snail	<i>Vertigo angustior</i>	ROI & NI
1016	Desmoulin's Whirl Snail	<i>Vertigo moulinsiana</i>	ROI
1024	Kerry Slug	<i>Geomalacus maculosus</i>	ROI
1029	Fresh Water Pearl Mussel	<i>Margaritifera margaritifera</i>	ROI & NI
1065	Marsh Fritillary	<i>Euphydryas aurinia</i>	ROI & NI
1092	White-clawed Crayfish	<i>Austropotamobius pallipes</i>	ROI & NI
1095	Sea Lamprey	<i>Petromyzon marinus</i>	ROI & NI
1096	Brook Lamprey	<i>Lampetra planeri</i>	ROI & NI
1099	River Lamprey	<i>Lampetra fluviatilis</i>	ROI & NI
1102	Allis Shad	<i>Alosa alosa</i>	ROI
1103	Twaite Shad	<i>Alosa fallax fallax</i>	ROI
1106	Atlantic Salmon	<i>Salmo salar</i>	ROI & NI
1303	Lesser Horseshoe Bat	<i>Rhinolophus hipposideros</i>	ROI
1349	Bottlenose Dolphin	<i>Tursiops truncatus</i>	ROI & NI
1351	Harbour Porpoise	<i>Phocoena phocoena</i>	ROI & NI

EU Species code	Species Name	Latin	Relevance to ROI / NI
1355	Otter	<i>Lutra lutra</i>	ROI & NI
1364	Grey Seal	<i>Halichoerus grypus</i>	ROI & NI
1365	Common (Harbour) Seal	<i>Phoca vitulina</i>	ROI & NI
1393	Slender Green Feather-moss	<i>Drepanocladus vernicosus</i>	ROI
1395	Petalwort	<i>Petalophyllum ralfsii</i>	ROI & NI
1421	Killarney Fern	<i>Trichomanes speciosum</i>	ROI
1528	Marsh Saxifrage	<i>Saxifraga hirculus</i>	ROI & NI
1833	Slender Naiad	<i>Najas flexilis</i>	ROI
1990	Nore Fresh Water Pearl Mussel	<i>Margaritifera durrovensis</i>	ROI

**Table 2.3: List of Special Conservation Interests (SCIs) for which SPAs are designated in the ROI and NI. Wetlands are also listed as an SCI of some SPAs in the ROI.**

Species of Special Conservation Interest	Latin	Annex I species	Relevance to ROI / NI
Arctic Tern	<i>Sterna paradisaea</i>	✓	ROI & NI
Barnacle Goose	<i>Branta leucopsis</i>	✓	ROI & NI
Bar-tailed Godwit	<i>Limosa lapponica</i>	✓	ROI
Bewick's Swan	<i>Cygnus columbianus</i>	✓	ROI
Black-headed Gull	<i>Larus ridibundus</i>		ROI
Black-tailed Godwit	<i>Limosa limosa</i>		ROI
Chough	<i>Pyrrhocorax pyrrhocorax</i>	✓	ROI
Common Gull	<i>Larus canus</i>		ROI
Common Scoter	<i>Melanitta nigra</i>		ROI
Common Tern	<i>Sterna hirundo</i>	✓	ROI & NI
Coot	<i>Fulica atra</i>		ROI
Cormorant	<i>Phalacrocorax carbo</i>		ROI & NI
Corncrake	<i>Crex crex</i>	✓	ROI
Curlew	<i>Numenius arquata</i>		ROI
Dunlin	<i>Calidris alpina schinzii</i>	✓	ROI
Fulmar	<i>Fulmarus glacialis</i>		ROI
Gadwall	<i>Anas strepera</i>		ROI
Gannet	<i>Morus bassanus</i>		ROI
Golden Plover	<i>Pluvialis apricaria</i>	✓	ROI & NI
Goldeneye	<i>Bucephala clangula</i>		ROI
Great Crested Grebe	<i>Podiceps cristatus</i>		ROI & NI
Great Northern Diver	<i>Gavia immer</i>	✓	ROI
Greenland White-fronted Goose	<i>Anser albifrons flavirostris</i>	✓	ROI
Greenshank	<i>Tringa nebularia</i>		ROI
Grey Heron	<i>Ardea cinerea</i>		ROI
Grey Plover	<i>Pluvialis squatarola</i>		ROI
Greylag Goose	<i>Anser anser</i>		ROI
Guillemot	<i>Uria aalge</i>		ROI & NI

Species of Special Conservation Interest	Latin	Annex I species	Relevance to ROI / NI
Hen Harrier	<i>Circus cyaneus</i>	✓	ROI & NI
Herring Gull	<i>Larus argentatus</i>		ROI
Kittiwake	<i>Rissa tridactyla</i>		ROI & NI
Knot	<i>Calidris canutus</i>		ROI & NI
Lapwing	<i>Vanellus Vanellus</i>		ROI
Leach's Petrel	<i>Oceanodroma leucorhoa</i>	✓	ROI
Lesser Black-backed Gull	<i>Larus fuscus</i>		ROI
Light-bellied Brent Goose	<i>Branta bernicla hrota</i>		ROI
Little Grebe	<i>Tachybaptus ruficollis</i>		ROI
Little Tern	<i>Sterna albifrons</i>	✓	ROI
Mallard	<i>Anas platyrhynchos</i>		ROI
Manx Shearwater	<i>Puffinus puffinus</i>		ROI & NI
Merlin	<i>Falco columbarius</i>	✓	ROI & NI
Oystercatcher	<i>Haematopus ostralegus</i>		ROI
Peregrine	<i>Falco peregrines</i>	✓	ROI & NI
Pintail	<i>Anas acuta</i>		ROI
Pochard	<i>Aythya farina</i>		ROI
Puffin	<i>Fratercula arctica</i>		ROI
Purple Sandpiper	<i>Calidris maritima</i>		ROI
Razorbill	<i>Alca torda</i>		ROI & NI
Red-breasted Merganser	<i>Mergus serrator</i>		ROI
Redshank	<i>Tringa tetanus</i>		ROI & NI
Red-throated Diver	<i>Gavia stellata</i>	✓	ROI
Ringed Plover	<i>Charadrius hiaticula</i>		ROI & NI
Roseate Tern	<i>Sterna dougallii</i>	✓	ROI & NI
Sanderling	<i>Calidris alba</i>		ROI
Sandwich Tern	<i>Sterna sandvicensis</i>	✓	ROI & NI
Scaup	<i>Aythya marila</i>		ROI
Shag	<i>Phalacrocorax aristotelis</i>		ROI
Shelduck	<i>Tadorna tadorna</i>		ROI
Shoveler	<i>Anas clypeata</i>		ROI
Storm Petrel	<i>Hydrobates pelagicus</i>	✓	ROI
Teal	<i>Anas crecca</i>		ROI
Tufted Duck	<i>Aythya fuligula</i>		ROI
Turnstone	<i>Arenaria interpres</i>		ROI & NI
Whooper Swan	<i>Cygnus cygnus</i>	✓	ROI & NI
Wigeon	<i>Anas penelope</i>		ROI



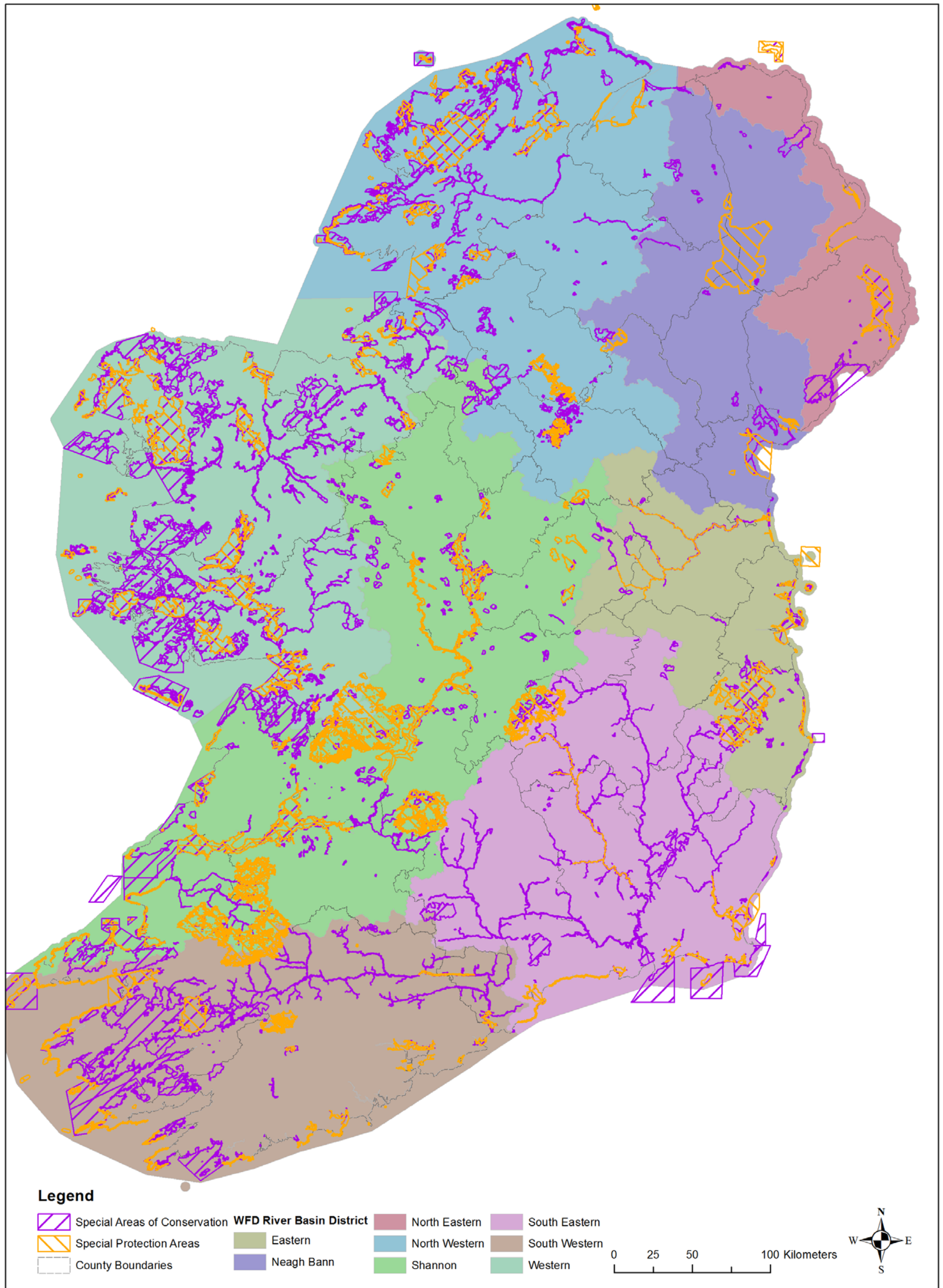


Figure 2.2: Map showing the distribution and extent of designated European sites on the island of Ireland overlain on the Water Framework Directive River Basin Districts.



## 2.5 Assessment Criteria

### 2.5.1 Direct, Indirect or Secondary Impacts

This section of the screening exercise includes a preliminary examination of the types of impacts that may arise during the implementation of the WSSP.

The type of impacts that may potentially arise depends on the characteristics of particular projects or activities undertaken by IW in achieving the objectives of the Plan. Typical projects or activities that could give rise to impacts include the construction, operation, maintenance, and management of the following:

- Water abstraction (surface water and groundwater);
- Water storage;
- Pipe network for delivery of treated water;
- Pipe network for the collection of waste water and surface water;
- Collection of waste water and surface water in the public sewer network;
- Treatment of waste water and surface water; and
- Discharging treated wastewater to surface or groundwater.

The European Commission's document "*Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*", lists impacts that may potentially occur upon the Natura 2000 network, listed as follows:

- Loss / Reduction of habitat area;
- Disturbance to key species;
- Habitat / Species fragmentation;
- Reduction in species density; and
- Changes in key indicators of conservation value (such as decrease in water quality and / or quantity).

A key consideration in determining potential for adverse impacts on European sites is the sensitivity of features for which the sites are designated. The Qualifying Interests of cSACs and Special Conservation Interests of SPAs can be categorised into a number of groups based on their sensitivity to impacts from different pathways as follows:

- Surface Water Dependant Habitats and Species;
- Ground Water Dependant Habitats and Species;
- Coastal Transitional and Marine Habitats and Species; and
- Other Terrestrial Habitats and Species.

A summary of potential impacts on European sites taking into consideration possible sources of impacts and the sensitivity of sites is presented in Table 2.4.

#### 2.5.1.1 Loss / Reduction of Habitat Area

Direct habitat loss is caused where there is complete removal of a habitat type. Habitat loss can also occur through the reduction of habitat quality and a loss of important habitat functions. It can arise from the introduction of invasive species, toxic contamination, or physical alteration.

Loss or reduction of habitat area may occur through the installation of necessary water pipes and water services facilities. Direct loss or reduction of habitat area will be confined to works which take place within or in close proximity to a European site(s).

### **2.5.1.2 Disturbance to Key Species**

Key species are defined as those listed on the Annexes of the EU Habitats Directive and Bird's Directive for which sites are designated. Disturbance to species supported by a European site is likely to increase where there is an increase in activity levels from developments within or adjacent to designated areas. Sources of disturbance include noise, vibration, light, emanating from construction and / or operational activities.

In relation to the activities of Irish Water, disturbance to key species could result from construction associated with any new water services infrastructure that may be required to meet the objectives of the WSSP. Similarly, operational activities of Irish Water could also give rise to disturbance where they are undertaken in proximity to a European site(s).

### **2.5.1.3 Habitat / Species Fragmentation**

Habitat and species fragmentation can occur through the breaking up of or loss of habitats resulting in interference with existing ecological units. Fragmentation can also result from impediments to the natural movements of species. This is relevant where important corridors for movement or migration are likely to be disrupted such as along river corridors when construction may introduce a barrier to the free movement of species from one area of habitat to another. Habitat / species fragmentation may arise from the construction of new water services infrastructure and is particularly relevant to linear developments such as the laying major pipelines through semi-natural areas. Habitat / species fragmentation could also arise from ongoing operation of water services due to for example, deterioration in water quality as a result of discharges to sensitive receptors.

### **2.5.1.4 Reduction in Species Density**

Reduction in species density may result from loss / reduction of habitat area, disturbance, or fragmentation, either individually or in combination. In addition, changes in habitat quality could lead to reductions in populations of sensitive species. In relation to the WSSP, surface and groundwater dependant species would be sensitive to any deterioration in habitat quality due to changes in water quality or quantity that could result from water abstraction or discharges to receiving waters (see below).

### **2.5.1.5 Changes in Key Indicators of Conservation Value**

The key indicators of conservation value for the majority of sites likely to be affected by the implementation of the WSSP are surface water and groundwater quality and quantity.

Any deterioration in water quality within surface and ground water dependant ecosystems can lead to direct and indirect impacts on a range of habitats and species of conservation importance.

Similarly, changes in water quantity (water table height; flow regime; flow rates etc) can also impact on many habitats and species that are associated with freshwater and marine European sites.

In relation to the WSSP, the main sources of such impacts could include:

- the abstraction of surface water or groundwater from areas that are hydrologically linked to sensitive European sites;
- the discharge of treated waste water to sensitive surface or groundwater receptors that are hydrologically linked to sensitive European sites; and
- potential discharge of silt laden waters or other pollutants from construction related projects.

**Table 2.4: Potential impacts arising from activities and projects likely to be undertaken in order to achieve the aims of the WSSP.**

WSSP Related Activities / Projects	Potential Impacts	Vulnerable Features of European Sites	European Sites Potentially Affected
Water abstraction	<ul style="list-style-type: none"> <li>• Reduction of habitat area;</li> <li>• Reduction in species density;</li> <li>• Changes in key indicators of conservation value (water quantity).</li> </ul>	<p>Surface water dependant habitats and species;</p> <p>Groundwater dependant habitats and species.</p>	<p>All sites which contain surface and/or groundwater dependant habitats and species that are hydrologically linked to abstractions.</p>
Discharge of treated waste water	<ul style="list-style-type: none"> <li>• Reduction of habitat area;</li> <li>• Reduction in species density;</li> <li>• Fragmentation;</li> <li>• Changes in key indicators of conservation value (water quantity and quality).</li> </ul>	<p>Surface water dependant habitats and species;</p> <p>Groundwater dependant habitats and species;</p> <p>Coastal transitional and marine habitats and species.</p>	<p>All sites hydrologically connected with receiving waters which are designated for any of the following:</p> <ul style="list-style-type: none"> <li>• Surface water dependant habitats and species</li> <li>• Groundwater dependant habitats and species</li> <li>• Coastal transitional and marine habitats and species.</li> </ul>
Development of new water services infrastructure	<ul style="list-style-type: none"> <li>• Loss / reduction of habitat area;</li> <li>• Disturbance to species;</li> <li>• Fragmentation;</li> <li>• Changes in key indicators of conservation value.</li> </ul>	<p>Surface water dependant habitats and species;</p> <p>Groundwater dependant habitats and species;</p> <p>Terrestrial habitats and species;</p> <p>Coastal transitional and marine habitats and species.</p>	<p>All mainland and coastal sites within ROI;</p> <p>Sites in NI that contain water dependant habitats and species which are hydrologically linked to the ROI.</p>

## 2.6 Is the Plan Necessary to the Management of European Sites?

Under the Habitats Directive, Plans that are directly connected with or necessary to the management of a European site do not require AA. For this exception to apply, management is required to be interpreted narrowly as nature conservation management in the sense of Article 6(1) of the Habitats Directive. This refers to specific measures to address the ecological requirements of annexed habitats and species (and their habitats) present on a site(s). The relationship should be shown to be direct and not a by-product of the plan, even if this might result in positive or beneficial effects for a site(s).

The primary purpose of the WSSP is not the nature conservation management of the sites, but to provide for development and maintenance of water supply and waste water treatment. Therefore, the WSSP is not considered by the Habitats Directive to be directly connected with or necessary to the management of European designated sites.

## 2.7 European Sites Potentially Affected by the Plan

The draft WSSP is a high level plan which outlines objectives of Irish Water that will influence future developments of water services and waste water treatment in Ireland. As such, the plan covers large unspecific areas and does not identify particular areas for development. This broad scope limits the Appropriate Assessment as to what can be adequately assessed at this stage.

A high level assessment of potential impacts on European sites due to the implementation of the WSSP is presented in Table 2.4. This assessment concludes that the following European sites should be screened in and therefore require further consideration in the AA process as it is not possible at this stage to rule out potential significant effects:

- All European sites that occur in the ROI (see Appendix I);
- All European sites in NI that are hydrologically linked to the ROI and are designated for water dependant habitats and / or species (the only sites in NI that are hydrologically isolated from the ROI (and therefore can be screened out) are those that occur within the North Eastern River Basin District, see Figure 2.2).

## 2.8 Other Plans and Programmes

Article 6(3) of the Habitats Directive requires an assessment of a plan or project to consider other plans or programmes that might, in combinations with the plan or project, have the potential to adversely impact upon European sites. Table 2.5 lists the plans or projects that may interact with the draft Plan to cause in-combination effects to European sites. The plans or projects are listed according to a spatial hierarchy of International, National, Regional/Local Projects and Plans.

Given the uncertainties that exist with regard to the scale and location of developments facilitated by the draft Plan, it is recognised that the identification of cumulative impacts is limited and that the assessment of in-combination effects will need to be undertaken in a more comprehensive manner at the lower level plan or project-level.

Further examination of the WSSP by the AA will take account of Irish Water's obligation to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies – the achievement of the objectives of the regulatory framework for environmental protection and management led by the Water Framework Directive and implemented by the River Basin Management Plans.

**Table 2.5: Plans and Projects Likely to Cause In-Combination Effects**

Directive	Purpose	Interactions resulting in Cumulative Impacts
<b>International</b>		
EU Water Framework Directive (2000/60/EC)	Objectives seek to maintain and enhance the quality of all surface waters in the EU.	No risk of likely significant in-combination effects will result as the primary purpose of the Directive is to improve environmental quality. Implementation of the WSSP should assist Ireland in achieving its WFD objectives.
Bathing Water Directive (2006/7/EC)	Preserve, protect and improve the quality of the environment and to protect human health by complementing the Water Framework Directive 2000/60/EC	No risk of likely significant in-combination effects will result as the primary purpose of the Directive is to improve water quality. Implementation of the WSSP should assist in achieving the objectives of the Directive.
Marine Strategy Framework Directive (2008/56/EC)	Establishes a framework whereby the necessary measures are undertaken to achieve or maintain good environmental status in the marine environment by the year 2020.	No risk of likely significant in-combination effects will result as the primary purpose of the Directive is to improve environmental quality. Implementation of the WSSP should assist in achieving the objectives of the Directive.
Shellfish Waters Directive (2006/113/EC)	Protect and improve the quality of shellfish waters in order to support selected shellfish populations. The Shellfish Waters Directive (92006/113/EC) was repealed by the Water Framework Directive from December 2013.	No risk of likely significant in-combination effects will result as the primary purpose of the Directive is to improve water quality. Implementation of the WSSP should assist in achieving the objectives of the Directive.
EU Freshwater Fish Directive (78/659/EEC)	Objectives seek to protect those fresh water bodies identified by Member States as waters suitable for sustaining	No risk of likely significant in-combination effects will result as the primary purpose of the

Directive	Purpose	Interactions resulting in Cumulative Impacts
	fish populations. For those waters it sets physical and chemical water quality objectives for salmonid waters and cyprinid waters.	Directive is to improve environmental quality. Implementation of the WSSP should assist Ireland in achieving its obligations under the Directive.
EU Groundwater Directive (2006/118/EC)	This directive establishes a regime, which sets underground water quality standards and introduces measures to prevent or limit inputs of pollutants into groundwater.	No risk of likely significant in-combination effects will result as the primary purpose of the Directive is to improve environmental quality. Implementation of the WSSP should assist Ireland in achieving its obligations under the Directive.
EU Floods Directive (2007/60/EC)	The Floods Directive applies to river basins and coastal areas at risk of flooding. With trends such as climate change and increased domestic and economic development in flood risk zones, this poses a threat of flooding in coastal and river basin areas.	Potential in-combination impacts may arise where changes in hydrographic flow could result from the development of water services infrastructure.
Nitrates Directive (91/676/EEC)	This Directive has the objective of reducing water pollution caused or induced by nitrates from agricultural sources and preventing further pollution.	No risk of likely significant in-combination effects will result as the primary purpose of the Directive is to improve environmental quality.
The Urban Wastewater Treatment Directive (91/271/EEC)	The primary objective is to protect the environment from the adverse effects of discharges of urban wastewater, by the provision of urban wastewater collecting systems (sewerage) and treatment plants for urban centres. The Directive also provides general rules for the sustainable disposal of sludge arising from wastewater treatment.	No risk of likely significant in-combination effects will result as the primary purpose of the Directive is to improve environmental quality. Implementation of the WSSP should assist Ireland in achieving its obligations under the Directive.
Sewage Sludge Directive (86/278/EEC)	Objective is to encourage the appropriate use of sewage sludge in agriculture and to regulate its use in such a way as to prevent harmful effects on soil, vegetation, animals and man. To this end, it prohibits the use of untreated sludge on agricultural land unless it is injected or incorporated into the soil.	No risk of likely significant in-combination effects will result as the primary purpose of the Directive is to improve environmental quality. Implementation of the WSSP should assist Ireland in achieving its obligations under the Directive.
The Integrated Pollution Prevention Control Directive (96/61/EC)	Objective is to achieve a high level of protection of the environment through measures to prevent or, where that is not practicable, to reduce emissions to air, water and land from industrial sources.	No risk of likely significant in-combination effects will result as the primary purpose of the Directive is to improve environmental quality. Implementation of the WSSP should assist in achieving the objectives of the Directive.
European Union Biodiversity Strategy to 2020	Aims to halt or reverse biodiversity loss and speed up the EU's transition towards a resource efficient and green	No risk of likely significant in-combination effects will result as the primary purpose of the

Directive	Purpose	Interactions resulting in Cumulative Impacts
	economy. Halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible.	Strategy is to improve water quality. Opportunities may exist in the implementation of the WSSP to assist in achieving the objectives of the Strategy.
<b>National / Regional</b>		
National Spatial Strategy 2002-2020	Objectives of the NSS are to achieve a better balance of social, economic and physical development across Ireland, supported by more effective planning.	Potential in-combination impacts may arise where there is a requirement to provide new water services infrastructure.
Grid 25	Grid25 is a high-level strategy outlining how EirGrid intends to undertake the development of the electricity transmission grid in the short, medium and longer terms, to support a long-term sustainable and reliable electricity supply. The Grid25 strategy thereby seeks to implement the provisions of the 2007 Government White Paper on Energy - "Delivering a Sustainable Energy Future for Ireland" in terms of development of electricity transmission infrastructure. The Grid25 Implementation Programme (IP) is a practical strategic overview of how the early stages of Grid25 are intended to be implemented.	Potential in-combination impacts may arise where new infrastructure is planned.
Harvest 2020	Aims to innovate and expand the Irish food industry in response to increased global demand for quality foods. Sets out a vision for the potential growth in agricultural output after the removal of milk quotas in 2015	Potential in-combination impacts may arise due to increased pressures on the water environment associated with an intensification of agriculture.
Rural Environmental Protection Scheme (REPS) Agri-Environmental Options Scheme(AEOS) Green, Low-Carbon, Agri-environment Scheme (GLAS)	Agri-environmental funding schemes aimed at rural development for the environmental enhancement and protection	No risk of likely significant in-combination effects will result as the primary purpose of the schemes is to improve environmental quality.
Forests, Products and People. Ireland's Forest Policy - A Renewed Vision (Draft)	Outlines the framework for developing an internationally competitive and sustainable forestry sector that provides a range of economic, environmental and social benefits.	Potential in-combination impacts may arise due to any increased pressures on the water environment associated with forestry activities in sensitive areas.
National Peatlands Strategy (Draft)	Establishes principles in relation to Irish peatlands in order to guide Government policy. Aims to provide a framework for which all of the peatlands within the State can be managed responsibly in	No risk of likely significant in-combination effects foreseen.



Directive	Purpose	Interactions resulting in Cumulative Impacts
	order to optimise their social, environmental and economic contribution.	
Raised Bog SAC Management Plan and Review of Raised Bog Natural Heritage Areas	Aims to meet nature conservation obligations while having regard to national and local economic, social and cultural needs.	No risk of likely significant in-combination effects foreseen.
Regional Planning Guidelines	Policy document which aims to direct the future growth of the Midlands Area over the medium to long term and works to implement the strategic planning framework set out in the National Spatial Strategy (NSS)	Potential in-combination impacts may arise where there is a requirement to provide for new water services infrastructure.
Office of Public Works Arterial Drainage Maintenance and High Risk Designation Programme 2011-2015	Part 1 of the Programme comprises Arterial Drainage Maintenance (including Scheme Channel Maintenance Works, Maintenance of Scheme Structures, Scheme Embankment Maintenance and Flood Relief Scheme Maintenance. Part 2 of the Programme comprises High Risk Channel Designation.	Potential in-combination impacts may arise where there are pressures on Natura sites from Arterial Drainage maintenance schemes.
<b>Local</b>		
County Renewable Energy Strategies	Aims to ensure competitive, secure and sustainable energy.	Potential in-combination impacts may arise where new infrastructure is planned.
County / City / Town Development Plans	Overall strategies for the proper planning and sustainable development of the administrative area of the relevant Local Authorities.	The core aims of Development Plans are to increase the community's employment, infrastructure, energy, residential, economic and water services potential. Potential in-combination impacts may arise where there is a requirement to provide for new water services infrastructure.

## 2.9 Conclusions

The likely significant effects that may arise from the implementation of the WSSP have been examined in the context of a number of factors that could potentially affect the integrity of the Natura 2000 network. On the basis of the findings of this Screening for Appropriate Assessment, it is concluded that the Plan:

- (i) is not directly connected with or necessary to the management of a European site and
- (ii) may have significant impacts on the Natura 2000 network.

Therefore, applying the Precautionary Principle and in accordance with Article 6(3) of the Habitats Directive, a Stage 2 Appropriate Assessment is required.

As the WSSP progresses further the AA screening outlined in this report should be updated and revised as new information becomes available. It is recommended that the screening should be refined further to determine the relevant European sites that can be screened out based on the absence of particular habitats or species.

**APPROPRIATE ASSESSMENT  
OUTLINE SCREENING REPORT**

**APPENDIX I**

**LIST OF EUROPEAN SITES (CSACs AND SPAs) CONSIDERED**

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IN SUPPORT OF THE  
**APPROPRIATE ASSESSMENT**  
OF THE  
**Water Services Strategic Plan**

IN ACCORDANCE WITH THE REQUIREMENTS OF  
ARTICLE 6(3) OF THE EU HABITATS DIRECTIVE

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**JUNE 2014**

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## Introduction

This Appendix presents a list of all candidate Special Areas of Conservation (cSACs) and Special Protection Areas (SPAs) under consideration in the Appropriate Assessment Screening report prepared in support of the Water Services Strategic Plan (WSSP) being developed by Irish Water.

Those sites that are designated as cSACs are presented in Table 1 while those sites designated as SPAs are presented in Table 2.

**Table 1: Candidate Special Areas of Conservation that were considered in the Appropriate Assessment of the WSSP.**

Site Code	Site Name	ROI / NI
IE0000006	Killyconny Bog (Cloghbally)	ROI
IE0000007	Lough Oughter and Associated Loughs	ROI
IE0000014	Ballyallia Lake	ROI
IE0000016	Ballycullinan Lake	ROI
IE0000019	Ballyogan Lough	ROI
IE0000020	Black Head-Poulsallagh Complex	ROI
IE0000030	Danes Hole, Poulnalecka	ROI
IE0000032	Dromore Woods and Loughs	ROI
IE0000036	Inagh River Estuary	ROI
IE0000037	Pouladatig Cave	ROI
IE0000051	Lough Gash Turlough	ROI
IE0000054	Moneen Mountain	ROI
IE0000057	Moyree River System	ROI
IE0000064	Poulnagordon Cave (Quin)	ROI
IE0000077	Ballymacoda (Clonpriest and Pillmore)	ROI
IE0000090	Glengarriff Harbour and Woodland	ROI
IE0000091	Clonakilty Bay	ROI
IE0000093	Caha Mountains	ROI
IE0000097	Lough Hyne Nature Reserve and Environs	ROI
IE0000101	Roaringwater Bay and Islands	ROI
IE0000102	Sheep's Head	ROI
IE0000106	St. Gobnet's Wood	ROI
IE0000108	The Gearagh	ROI
IE0000109	Three Castle Head to Mizen Head	ROI
IE0000111	Aran Island (Donegal) Cliffs	ROI
IE0000115	Ballintra	ROI
IE0000116	Ballyarr Wood	ROI
IE0000129	Croaghonagh Bog	ROI
IE0000133	Donegal Bay (Murvagh)	ROI
IE0000138	Durnesh Lough	ROI

Site Code	Site Name	ROI / NI
IE0000140	Fawnboy Bog/Lough Nacung	ROI
IE0000142	Gannivegil Bog	ROI
IE0000147	Horn Head and Rinclevan	ROI
IE0000154	Inishtrahull	ROI
IE0000163	Lough Eske and Ardnamona Wood	ROI
IE0000164	Lough Nagreany Dunes	ROI
IE0000165	Lough Nillan Bog (Carrickatlieve)	ROI
IE0000168	Magheradrumman Bog	ROI
IE0000172	Meenaguse/Ardbane Bog	ROI
IE0000173	Meentygrannagh Bog	ROI
IE0000174	Curraghchase Woods	ROI
IE0000181	Rathlin O'Birne Island	ROI
IE0000185	Sessiagh Lough	ROI
IE0000189	Slieve League	ROI
IE0000190	Slieve Tooley/Tormore Island/Loughros Beg Bay	ROI
IE0000191	St. John's Point	ROI
IE0000194	Tranarossan and Melmore Lough	ROI
IE0000197	West of Ardara/Maas Road	ROI
IE0000199	Baldoyle Bay	ROI
IE0000202	Howth Head	ROI
IE0000204	Lambay Island	ROI
IE0000205	Malahide Estuary	ROI
IE0000206	North Dublin Bay	ROI
IE0000208	Rogerstown Estuary	ROI
IE0000210	South Dublin Bay	ROI
IE0000212	Inishmaan Island	ROI
IE0000213	Inishmore Island	ROI
IE0000216	River Shannon Callows	ROI
IE0000218	Coolcam Turlough	ROI
IE0000231	Barroughter Bog	ROI
IE0000238	Caherglassaun Turlough	ROI
IE0000242	Castletaylor Complex	ROI
IE0000248	Cloonmoylan Bog	ROI
IE0000252	Coole-Garryland Complex	ROI
IE0000255	Croaghill Turlough	ROI
IE0000261	Derrycrag Wood Nature Reserve	ROI
IE0000268	Galway Bay Complex	ROI
IE0000278	Inishbofin and Inishshark	ROI
IE0000285	Kilsallagh Bog	ROI
IE0000286	Kiltartan Cave (Coole)	ROI
IE0000295	Levally Lough	ROI
IE0000296	Lisnageeragh Bog and Ballinastack Turlough	ROI

Site Code	Site Name	ROI / NI
IE0000297	Lough Corrib	ROI
IE0000299	Lough Cutra	ROI
IE0000301	Lough Lurgen Bog/Glenamaddy Turlough	ROI
IE0000304	Lough Rea	ROI
IE0000308	Loughatorick South Bog	ROI
IE0000318	Peterswell Turlough	ROI
IE0000319	Pollnacknockaun Wood Nature Reserve	ROI
IE0000322	Rahasane Turlough	ROI
IE0000324	Rosroe Bog	ROI
IE0000326	Shankill West Bog	ROI
IE0000328	Slyne Head Islands	ROI
IE0000330	Tully Mountain	ROI
IE0000332	Akeragh, Banna and Barrow Harbour	ROI
IE0000335	Ballinskelligs Bay and Inny Estuary	ROI
IE0000343	Castlemaine Harbour	ROI
IE0000353	Old Domestic Building, Dromore Wood	ROI
IE0000364	Kilgarvan Ice House	ROI
IE0000365	Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment	ROI
IE0000370	Lough Yganavan and Lough Nambrackdarrig	ROI
IE0000375	Mount Brandon	ROI
IE0000382	Sheheree (Ardagh) Bog	ROI
IE0000391	Ballynafagh Bog	ROI
IE0000396	Pollardstown Fen	ROI
IE0000397	Red Bog, Kildare	ROI
IE0000404	Hugginstown Fen	ROI
IE0000407	The Loughans	ROI
IE0000412	Slieve Bloom Mountains	ROI
IE0000428	Lough Melvin	ROI
IE0000432	Barrigone	ROI
IE0000439	Tory Hill	ROI
IE0000440	Lough Ree	ROI
IE0000448	Fortwilliam Turlough	ROI
IE0000453	Carlingford Mountain	ROI
IE0000455	Dundalk Bay	ROI
IE0000458	Killala Bay/Moy Estuary	ROI
IE0000461	Ardkill Turlough	ROI
IE0000463	Balla Turlough	ROI
IE0000466	Bellacorick Iron Flush	ROI
IE0000470	Mullet/Blacksod Bay Complex	ROI
IE0000471	Brackloon Woods	ROI
IE0000472	Broadhaven Bay	ROI



Site Code	Site Name	ROI / NI
IE0000474	Ballymaglancy Cave, Cong	ROI
IE0000475	Carrowkeel Turlough	ROI
IE0000476	Carrowmore Lake Complex	ROI
IE0000479	Cloughmoyne	ROI
IE0000480	Clyard Kettle-holes	ROI
IE0000484	Cross Lough (Killadoon)	ROI
IE0000485	Corraun Plateau	ROI
IE0000492	Dooastle Turlough	ROI
IE0000495	Duvillaun Islands	ROI
IE0000497	Flughany Bog	ROI
IE0000500	Glenamoy Bog Complex	ROI
IE0000503	Greaghans Turlough	ROI
IE0000504	Kilglassan/Caheravoostia Turlough Complex	ROI
IE0000507	Inishkea Islands	ROI
IE0000516	Lackan Saltmarsh and Kilcummin Head	ROI
IE0000522	Lough Gall Bog	ROI
IE0000525	Shrule Turlough	ROI
IE0000527	Moore Hall (Lough Carra)	ROI
IE0000532	Oldhead Wood	ROI
IE0000534	Owenduff/Nephin Complex	ROI
IE0000541	Skealaghan Turlough	ROI
IE0000542	Slieve Fyagh Bog	ROI
IE0000566	All Saints Bog and Esker	ROI
IE0000571	Charleville Wood	ROI
IE0000572	Clara Bog	ROI
IE0000575	Ferbane Bog	ROI
IE0000576	Fin Lough (Offaly)	ROI
IE0000580	Mongan Bog	ROI
IE0000581	Moyclare Bog	ROI
IE0000582	Raheenmore Bog	ROI
IE0000584	Cuilcagh - Anierin Uplands	ROI
IE0000585	Sharavogue Bog	ROI
IE0000588	Ballinturly Turlough	ROI
IE0000592	Bellanagare Bog	ROI
IE0000595	Callow Bog	ROI
IE0000597	Carrowbehy/Caher Bog	ROI
IE0000600	Cloonchambers Bog	ROI
IE0000604	Derrinea Bog	ROI
IE0000606	Lough Fingall Complex	ROI
IE0000607	Errit Lough	ROI
IE0000609	Lisduff Turlough	ROI
IE0000610	Lough Croan Turlough	ROI

Site Code	Site Name	ROI / NI
IE0000611	Lough Funshinagh	ROI
IE0000612	Mullygollan Turlough	ROI
IE0000614	Cloonshanville Bog	ROI
IE0000622	Ballysadare Bay	ROI
IE0000623	Ben Bulbin, Gleniff and Glenade Complex	ROI
IE0000625	Bunduff Lough and Machair/Trawalua/Mullaghmore	ROI
IE0000627	Cummeen Strand/Drumcliff Bay (Sligo Bay)	ROI
IE0000633	Lough Hoe Bog	ROI
IE0000634	Lough Nabrickkeagh Bog	ROI
IE0000636	Templehouse and Cloonacleigha Loughs	ROI
IE0000637	Turloughmore (Sligo)	ROI
IE0000638	Union Wood	ROI
IE0000641	Ballyduff/Clonfinane Bog	ROI
IE0000646	Galtee Mountains	ROI
IE0000647	Kilcarren-Firville Bog	ROI
IE0000665	Helvick Head	ROI
IE0000668	Nier Valley Woodlands	ROI
IE0000671	Tramore Dunes and Backstrand	ROI
IE0000679	Garriskil Bog	ROI
IE0000685	Lough Ennell	ROI
IE0000688	Lough Owel	ROI
IE0000692	Scragh Bog	ROI
IE0000696	Ballyteige Burrow	ROI
IE0000697	Bannow Bay	ROI
IE0000700	Cahore Polders and Dunes	ROI
IE0000704	Lady's Island Lake	ROI
IE0000707	Saltee Islands	ROI
IE0000708	Screen Hills	ROI
IE0000709	Tacumshin Lake	ROI
IE0000710	Raven Point Nature Reserve	ROI
IE0000713	Ballyman Glen	ROI
IE0000714	Bray Head	ROI
IE0000716	Carriggower Bog	ROI
IE0000717	Deputy's Pass Nature Reserve	ROI
IE0000719	Glen of the Downs	ROI
IE0000725	Knocksink Wood	ROI
IE0000729	Buckroneys-Brittis Dunes and Fen	ROI
IE0000733	Vale of Clara (Rathdrum Wood)	ROI
IE0000764	Hook Head	ROI
IE0000770	Blackstairs Mountains	ROI
IE0000781	Slaney River Valley	ROI
IE0000831	Cullahill Mountain	ROI

Site Code	Site Name	ROI / NI
IE0000849	Spahill and Clomantagh Hill	ROI
IE0000859	Clonaslee Eskers and Derry Bog	ROI
IE0000869	Lisbigney Bog	ROI
IE0000919	Ridge Road, SW of Rapemills	ROI
IE0000925	The Long Derries, Edenderry	ROI
IE0000930	Clare Glen	ROI
IE0000934	Kilduff, Devilsbit Mountain	ROI
IE0000939	Silvermine Mountains	ROI
IE0000979	Corratirrim	ROI
IE0000994	Ballyteige (Clare)	ROI
IE0000996	Ballyvaughan Turlough	ROI
IE0001013	Glenomra Wood	ROI
IE0001021	Carrowmore Point to Spanish Point and Islands	ROI
IE0001040	Barley Cove to Ballyrisode Point	ROI
IE0001043	Cleanderry Wood	ROI
IE0001058	Great Island Channel	ROI
IE0001061	Kilkeran Lake and Castlefreke Dunes	ROI
IE0001070	Myross Wood	ROI
IE0001090	Ballyness Bay	ROI
IE0001107	Coolvoy Bog	ROI
IE0001125	Dunragh Loughs/Pettigo Plateau	ROI
IE0001141	Gweedore Bay and Islands	ROI
IE0001151	Kindrum Lough	ROI
IE0001179	Muckish Mountain	ROI
IE0001190	Sheephaven	ROI
IE0001195	Termon Strand	ROI
IE0001197	Keeper Hill	ROI
IE0001209	Glenasmole Valley	ROI
IE0001228	Aughrusbeg Machair and Lake	ROI
IE0001230	Courtmacsherry Estuary	ROI
IE0001242	Carrownagappul Bog	ROI
IE0001251	Cregduff Lough	ROI
IE0001257	Dog's Bay	ROI
IE0001271	Gortnandarragh Limestone Pavement	ROI
IE0001275	Inisheer Island	ROI
IE0001285	Kiltiernan Turlough	ROI
IE0001309	Omey Island Machair	ROI
IE0001311	Rusheenduff Lough	ROI
IE0001312	Ross Lake and Woods	ROI
IE0001313	Rosturra Wood	ROI
IE0001321	Termon Lough	ROI
IE0001342	Cloonee and Inchiquin Loughs, Uragh Wood	ROI

Site Code	Site Name	ROI / NI
IE0001371	Mucksna Wood	ROI
IE0001387	Ballynafagh Lake	ROI
IE0001398	Rye Water Valley/Carton	ROI
IE0001403	Arroo Mountain	ROI
IE0001430	Glen Bog	ROI
IE0001432	Glenstal Wood	ROI
IE0001459	Clogher Head	ROI
IE0001482	Clew Bay Complex	ROI
IE0001497	Doogort Machair/Lough Doo	ROI
IE0001501	Erris Head	ROI
IE0001513	Keel Machair/Menaun Cliffs	ROI
IE0001529	Lough Cahasy, Lough Baun and Roonah Lough	ROI
IE0001536	Mocorha Lough	ROI
IE0001547	Castletownshend	ROI
IE0001571	Urlaur Lakes	ROI
IE0001625	Castlesampson Esker	ROI
IE0001626	Annaghmore Lough (Roscommon)	ROI
IE0001637	Four Roads Turlough	ROI
IE0001656	Bricklieve Mountains & Keishcorran	ROI
IE0001669	Knockalongy and Knockachree Cliffs	ROI
IE0001673	Lough Arrow	ROI
IE0001680	Streedagh Point Dunes	ROI
IE0001683	Liskeenan Fen	ROI
IE0001741	Kilmuckridge-Tinnaberna Sandhills	ROI
IE0001742	Kilpatrick Sandhills	ROI
IE0001757	Holdenstown Bog	ROI
IE0001766	Magherabeg Dunes	ROI
IE0001774	Lough Carra/Mask Complex	ROI
IE0001776	Pilgrim's Road Esker	ROI
IE0001786	Kilroosky Lough Cluster	ROI
IE0001810	White Lough, Ben Loughs and Lough Doo	ROI
IE0001818	Lough Forbes Complex	ROI
IE0001831	Split Hills and Long Hill Esker	ROI
IE0001847	Philipston Marsh	ROI
IE0001858	Galmoy Fen	ROI
IE0001873	Derryclogher (Knockboy) Bog	ROI
IE0001879	Glanmore Bog	ROI
IE0001880	Meenaguse Scragh	ROI
IE0001881	Maulagowna Bog	ROI
IE0001890	Mullaghanish Bog	ROI
IE0001898	Unshin River	ROI
IE0001899	Cloonakillina Lough	ROI

Site Code	Site Name	ROI / NI
IE0001912	Glendree Bog	ROI
IE0001913	Sonnagh Bog	ROI
IE0001919	Glenade Lough	ROI
IE0001922	Bellacorick Bog Complex	ROI
IE0001926	East Burren Complex	ROI
IE0001932	Mweelrea/Sheeffry/Erriff Complex	ROI
IE0001952	Comeragh Mountains	ROI
IE0001955	Croaghaun/Slievemore	ROI
IE0001957	Boyne Coast and Estuary	ROI
IE0001975	Ballyhoorisky Point to Fanad Head	ROI
IE0001976	Lough Gill	ROI
IE0001992	Tamur Bog	ROI
IE0002005	Bellacragher Saltmarsh	ROI
IE0002006	Ox Mountains Bogs	ROI
IE0002008	Maumturk Mountains	ROI
IE0002010	Old Domestic Building (Keevagh)	ROI
IE0002012	North Inishowen Coast	ROI
IE0002031	The Twelve Bens/Garraun Complex	ROI
IE0002032	Boleybrack Mountain	ROI
IE0002034	Connemara Bog Complex	ROI
IE0002036	Ballyhoura Mountains	ROI
IE0002037	Carrigeenamronety Hill	ROI
IE0002041	Old Domestic Building, Curraglass Wood	ROI
IE0002047	Cloghernagore Bog and Glenveagh National Park	ROI
IE0002070	Tralee Bay and Magharees Peninsula, West to Cloghane	ROI
IE0002074	Slyne Head Peninsula	ROI
IE0002081	Ballinafad	ROI
IE0002091	Newhall and Edenvale Complex	ROI
IE0002098	Old Domestic Building, Askive Wood	ROI
IE0002110	Corliskea/Trien/Cloonfelliv Bog	ROI
IE0002111	Kilkieran Bay and Islands	ROI
IE0002112	Ballyseedy Wood	ROI
IE0002117	Lough Coy	ROI
IE0002118	Barnahallia Lough	ROI
IE0002119	Lough Nageeron	ROI
IE0002120	Lough Bane and Lough Glass	ROI
IE0002121	Lough Lene	ROI
IE0002122	Wicklow Mountains	ROI
IE0002123	Ardmore Head	ROI
IE0002124	Bolingbrook Hill	ROI
IE0002125	Anglesey Road	ROI
IE0002126	Pollagoona Bog	ROI

Site Code	Site Name	ROI / NI
IE0002129	Murvey Machair	ROI
IE0002130	Tully Lough	ROI
IE0002135	Lough Nageage	ROI
IE0002137	Lower River Suir	ROI
IE0002141	Mountmellick	ROI
IE0002144	Newport River	ROI
IE0002147	Lisduff Fen	ROI
IE0002157	Newgrove House	ROI
IE0002158	Kenmare River	ROI
IE0002159	Mulroy Bay	ROI
IE0002161	Long Bank	ROI
IE0002162	River Barrow and River Nore	ROI
IE0002164	Lough Golagh and Breesy Hill	ROI
IE0002165	Lower River Shannon	ROI
IE0002170	Blackwater River (Cork/Waterford)	ROI
IE0002171	Bandon River	ROI
IE0002172	Blasket Islands	ROI
IE0002173	Blackwater River (Kerry)	ROI
IE0002176	Leannan River	ROI
IE0002177	Lough Dahybaun	ROI
IE0002179	Towerhill House	ROI
IE0002180	Gortacarnaun Wood	ROI
IE0002181	Drummin Wood	ROI
IE0002185	Slieve Mish Mountains	ROI
IE0002187	Drongawn Lough	ROI
IE0002189	Farranamanagh Lough	ROI
IE0002193	Ireland's Eye	ROI
IE0002213	Glenloughaun Esker	ROI
IE0002214	Killeglan Grassland	ROI
IE0002236	Island Fen	ROI
IE0002241	Lough Derg, North-East Shore	ROI
IE0002243	Clare Island Cliffs	ROI
IE0002244	Ardrahan Grassland	ROI
IE0002245	Old Farm Buildings, Ballymacrogan	ROI
IE0002246	Ballycullinan, Old Domestic Building	ROI
IE0002247	Toonagh Estate	ROI
IE0002249	The Murrough Wetlands	ROI
IE0002250	Carrowmore Dunes	ROI
IE0002252	Thomastown Quarry	ROI
IE0002256	Ballyprior Grassland	ROI
IE0002257	Moanour Mountain	ROI
IE0002258	Silvermines Mountains West	ROI

Site Code	Site Name	ROI / NI
IE0002259	Tory Island Coast	ROI
IE0002261	Magharee Islands	ROI
IE0002262	Valencia Harbour/Portmagee Channel	ROI
IE0002263	Kerry Head Shoal	ROI
IE0002264	Kilkee Reefs	ROI
IE0002265	Kingstown Bay	ROI
IE0002268	Achill Head	ROI
IE0002269	Carnsore Point	ROI
IE0002274	Wicklow Reef	ROI
IE0002279	Askeaton Fen Complex	ROI
IE0002280	Dunbeacon Shingle	ROI
IE0002281	Reen Point Shingle	ROI
IE0002283	Rutland Island and Sound	ROI
IE0002287	Lough Swilly	ROI
IE0002293	Carrowbaun, Newhall and Ballylee Turloughs	ROI
IE0002294	Cahermore Turlough	ROI
IE0002295	Ballinduff Turlough	ROI
IE0002296	Williamstown Turloughs	ROI
IE0002298	River Moy	ROI
IE0002299	River Boyne and River Blackwater	ROI
IE0002301	River Finn	ROI
IE0002303	Dunmuckrum Turloughs	ROI
IE0002306	Carlingford Shore	ROI
IE0002312	Slieve Bernagh Bog	ROI
IE0002313	Ballymore Fen	ROI
IE0002314	Old Domestic Buildings, Rylane	ROI
IE0002315	Glanlough Woods	ROI
IE0002316	Ratty River Cave	ROI
IE0002317	Cregg House Stables, Crusheen	ROI
IE0002318	Knockanira House	ROI
IE0002319	Kilkishen House	ROI
IE0002320	Kildun Souterrain	ROI
IE0002324	Glendine Wood	ROI
IE0002327	Belgica Mound Province	ROI
IE0002328	Hovland Mound Province	ROI
IE0002329	South-West Porcupine Bank	ROI
IE0002330	North-West Porcupine Bank	ROI
IE0002331	Mouds Bog	ROI
IE0002332	Coolrain Bog	ROI
IE0002333	Knockacoller Bog	ROI
IE0002336	Carn Park Bog	ROI
IE0002337	Crosswood Bog	ROI



Site Code	Site Name	ROI / NI
IE0002338	Drumalough Bog	ROI
IE0002339	Ballynamona Bog and Corkip Lough	ROI
IE0002340	Moneybeg and Clareisland Bogs	ROI
IE0002341	Ardagullion Bog	ROI
IE0002342	Mount Hevey Bog	ROI
IE0002343	Tullaheer Lough and Bog	ROI
IE0002346	Brown Bog	ROI
IE0002347	Camderry Bog	ROI
IE0002348	Clooneen Bog	ROI
IE0002349	Corbo Bog	ROI
IE0002350	Curraglehanagh Bog	ROI
IE0002351	Moanveanlagh Bog	ROI
IE0002352	Monivea Bog	ROI
IE0002353	Redwood Bog	ROI
IE0002354	Tullaghanrock Bog	ROI
IE0002356	Ardgraigue Bog	ROI
UK0016599	Ballynahone Bog	NI
UK0016603	Cuilcagh Mountain	NI
UK0016606	Garron Plateau	NI
UK0016607	Pettigoe Plateau	NI
UK0016608	Teal Lough	NI
UK0016609	Black Bog	NI
UK0016610	Garry Bog	NI
UK0016611	Fairy Water Bogs	NI
UK0016612	Murlough	NI
UK0016613	Magilligan	NI
UK0016614	Upper Lough Erne	NI
UK0016615	Eastern Mournes	NI
UK0016618	Strangford Lough	NI
UK0016619	Monawilkin	NI
UK0016620	Derryleckagh	NI
UK0016621	Magheraveely Marl Loughs	NI
UK0016622	Slieve Beagh	NI
UK0030045	Largalinny	NI
UK0030047	Lough Melvin	NI
UK0030055	Rathlin Island	NI
UK0030068	Fardrum and Roosky Turloughs	NI
UK0030083	Banagher Glen	NI
UK0030084	Bann Estuary	NI
UK0030089	Binevenagh	NI
UK0030097	Breen Wood	NI
UK0030110	Carn-Glenshane Pass	NI
UK0030116	Cladagh (Swanlinbar) River	NI
UK0030169	Hollymount	NI
UK0030180	Lecale Fens	NI
UK0030199	Main Valley Bogs	NI

Site Code	Site Name	ROI / NI
UK0030211	Moneygal Bog	NI
UK0030212	Moninea Bog	NI
UK0030214	Montiaghs Moss	NI
UK0030224	North Antrim Coast	NI
UK0030233	Owenkillew River	NI
UK0030236	Peatlands Park	NI
UK0030244	Rea`s Wood and Farr`s Bay	NI
UK0030268	Rostrevor Wood	NI
UK0030277	Slieve Gullion	NI
UK0030291	Turmennan	NI
UK0030296	Upper Ballinderry River	NI
UK0030300	West Fermanagh Scarplands	NI
UK0030303	Wolf Island Bog	NI
UK0030318	Aughnadarragh Lough	NI
UK0030319	Ballykilbeg	NI
UK0030320	River Foyle and Tributaries	NI
UK0030321	Cranny Bogs	NI
UK0030322	Curran Bog	NI
UK0030323	Dead Island Bog	NI
UK0030324	Deroran Bog	NI
UK0030325	Tonnagh Beg Bog	NI
UK0030326	Tully Bog	NI
UK0030360	River Roe and Tributaries	NI
UK0030361	River Faughan and Tributaries	NI
UK0030365	Red Bay	NI
UK0030383	Skerries and Causeway	NI
UK0030384	The Maidens	NI

**Table 2: SPAs that were considered in the Appropriate Assessment Screening of the WSSP.**

Site Code	Site Name	ROI / NI
800004002	Saltee Islands	ROI
800004003	Puffin Island	ROI
800004004	Inishkea Islands	ROI
800004005	Cliffs Of Moher	ROI
800004006	North Bull Island	ROI
800004007	Skelligs	ROI
800004008	Blasket Islands	ROI
800004009	Lady's Island Lake	ROI
800004013	Drumcliff Bay	ROI
800004014	Rockabill	ROI
800004015	Rogerstown	ROI
800004016	Baldoye Bay	ROI
800004019	The Raven	ROI
800004020	Ballyteigue Burrow	ROI
800004021	Old Head Of Kinsale	ROI
800004022	Ballycotton Bay	ROI
800004023	Ballymacoda Bay	ROI
800004024	South Dublin Bay And River Tolka Estuary	ROI
800004025	Malahide Estuary	ROI
800004026	Dundalk Bay	ROI
800004027	Tramore Back Strand	ROI
800004028	Blackwater Estuary	ROI
800004029	Castlemaine Harbour	ROI
800004030	Cork Harbour	ROI
800004031	Inner Galway Bay	ROI
800004032	Dungarvan Harbour	ROI
800004033	Bannow Bay	ROI
800004034	Trawbreaga Bay	ROI
800004035	Cummeen Strand	ROI
800004036	Killala Bay/Moy Estuary	ROI
800004037	Blacksod Bay/Broadhaven	ROI
800004039	Derryveagh And Glendowan Mountains SPA	ROI
800004040	Wicklow Mountains	ROI
800004041	Ballyallia Lough	ROI
800004042	Lough Corrib	ROI
800004043	Lough Derravaragh	ROI
800004044	Lough Ennell	ROI
800004045	Glen Lough	ROI
800004046	Lough Iron	ROI
800004047	Lough Owel	ROI
800004048	Lough Gara	ROI
800004049	Lough Oughter	ROI
800004050	Lough Arrow	ROI

Site Code	Site Name	ROI / NI
800004051	Lough Carra	ROI
800004052	Carrowmore Lake	ROI
800004056	Lough Cutra	ROI
800004057	Lough Derg (Donegal)	ROI
800004058	Lough Derg (Shannon)	ROI
800004060	Lough Fern	ROI
800004061	Lough Kinale And Derragh Lough	ROI
800004062	Lough Mask	ROI
800004063	Poulaphouca Reservoir	ROI
800004064	Lough Ree	ROI
800004065	Lough Sheelin	ROI
800004066	The Bull And The Cow Rocks	ROI
800004068	Inishmurray	ROI
800004069	Lambay Island	ROI
800004072	Stags Of Broad Haven	ROI
800004073	Tory Island SPA	ROI
800004074	Illanmaster	ROI
800004075	Lough Swilly	ROI
800004076	Wexford Harbour And Slobs	ROI
800004077	River Shannon And River Fergus Estuaries	ROI
800004078	Carlingford Lough	ROI
800004080	Boyne Estuary	ROI
800004081	Clonakilty Bay	ROI
800004082	Greers Isle	ROI
800004083	Inishbofin, Inishdoeey And Inishbeg SPA	ROI
800004084	Inishglora And Inishkeeragh	ROI
800004086	River Little Brosna Callows	ROI
800004087	Lough Foyle	ROI
800004089	Rahasane Turlough	ROI
800004090	Sheskinmore Lough	ROI
800004091	Stabannan-Braganstown	ROI
800004092	Tacumshin Lake	ROI
800004093	Termoncarragh Lake And Annagh Machair	ROI
800004094	Blackwater Callows	ROI
800004095	Kilcolman Bog	ROI
800004096	Middle Shannon Callows	ROI
800004097	River Suck Callows	ROI
800004098	Owenduff/Nephin Complex	ROI
800004100	Inishtrahull	ROI
800004107	Coole-Garryland	ROI
800004110	Lough Nillan Bog	ROI
800004111	Duvillaun Islands	ROI
800004113	Howth Head Coast	ROI
800004114	Illanonearaun	ROI

Site Code	Site Name	ROI / NI
800004115	Inishduff	ROI
800004116	Inishkeel	ROI
800004117	Ireland's Eye	ROI
800004118	Keeragh Islands	ROI
800004119	Loop Head	ROI
800004120	Rathlin O'birne Island	ROI
800004121	Roaninish	ROI
800004122	Skerries Islands	ROI
800004124	Sovereign Islands	ROI
800004125	Magharee Islands	ROI
800004129	Ballysadare Bay	ROI
800004132	Illancrone And Inishkeeragh	ROI
800004134	Lough Rea	ROI
800004135	Ardboline Island And Horse Island	ROI
800004136	Clare Island	ROI
800004137	Dovegrove Callows	ROI
800004139	Lough Croan Turlough	ROI
800004140	Four Roads Turlough	ROI
800004142	Cregganna Marsh	ROI
800004143	Cahore Marshes	ROI
800004144	High Island, Inishshark And Davillaun	ROI
800004145	Durnesh Lough	ROI
800004146	Malin Head SPA	ROI
800004148	Fanad Head SPA	ROI
800004149	Falcarragh To Meenlaragh SPA	ROI
800004150	West Donegal Coast	ROI
800004151	Donegal Bay	ROI
800004152	Inishmore	ROI
800004153	Dingle Peninsula	ROI
800004154	Iveragh Peninsula	ROI
800004155	Beara Peninsula	ROI
800004156	Sheep's Head To Toe Head	ROI
800004158	River Nanny Estuary And Shore -	ROI
800004159	Slyne Head To Ardmore Point Islands	ROI
800004160	Slieve Bloom Mountains	ROI
800004161	Stack's To Mullaghareirk Mountains	ROI
800004162	Mullaghanish To Musheramore Mountains	ROI
800004165	Slievefelim To Silvermines Mountains	ROI
800004167	Slieve Beagh	ROI
800004168	Slieve Aughty Mountains	ROI
800004170	Cruagh Island	ROI
800004172	Dalkey Islands	ROI
800004175	Deenish Island And Scariff Island	ROI
800004177	Bills Rocks	ROI

Site Code	Site Name	ROI / NI
800004181	Connemara Bog Complex	ROI
800004182	Mid Clare Coast	ROI
800004186	The Murrrough	ROI
800004187	Sligo/Leitrim Uplands	ROI
800004188	Tralee Bay Complex	ROI
800004189	Kerry Head	ROI
800004190	Galley Head To Duneen Point	ROI
800004191	Seven Heads	ROI
800004192	Helvick Head To Ballyquin	ROI
800004193	Mid-Waterford Coast	ROI
800004194	Horn Head To Fanad Head	ROI
800004212	Cross Lough (Killadoon)	ROI
800004219	Courtmacsherry Bay	ROI
800004220	Corofin Wetlands	ROI
800004221	Illaunnaon	ROI
800004227	Mullet Peninsula	ROI
800004228	Lough Conn And Lough Cullin	ROI
800004230	West Donegal Islands SPA	ROI
800004231	Inishbofin, Omey Island And Turbot Island SPA	ROI
800004232	River Boyne And River Blackwater SPA	ROI
800004233	River Nore SPA	ROI
800004234	Ballintemple And Ballygilgan SPA	ROI
800004235	Doogort Machair SPA	ROI
UK9020301	Antrim Hills	NI
UK9020101	Belfast Lough	NI
UK9020290	Belfast Lough Open Water	NI
UK9020161	Carlingford Lough	NI
UK9020291	Copeland Islands	NI
UK9020221	Killough Bay	NI
UK9020042	Larne Lough	NI
UK9020031	Lough Foyle	NI
UK9020091	Lough Neagh And Lough Beg	NI
UK9020271	Outer Ards	NI
UK9020051	Pettigoe Plateau	NI
UK9020011	Rathlin Island	NI
UK9020021	Sheep Island	NI
UK9020302	Slieve Beagh – Mullaghfad – Lisnaskea	NI
UK9020111	Strangford Lough	NI
UK9020071	Upper Lough Erne	NI

## Appendix D

# Potentially Sensitive SAC Interest Features

Table D.1 summarises SAC interest features for which abstraction or typical water-company point-source discharges (i.e. WwTW discharges; CSOs) are identified as pressures or threats in the most recent Article 17 report. The habitats and species which were identified in the WFD Annex IV protected areas report as sensitive to hydrological impacts or water pollution are also identified<sup>26</sup>. Features where PWS abstractions or municipal sewage discharges are specifically noted are identified with a \*.

Note that the information in Table D.1 is based on generic assessments and the actual sensitivity of the habitat or species to Irish Waters operations will be site specific. Note that the table does not include all interest features present in Ireland; if a feature is absent it is unlikely (based on available information) to be particularly sensitive to the typical effects of Irish Water's primary operations (abstraction, sewage treatment), although that obviously does not mean it is not potentially vulnerable to other aspects of Irish Water's work (e.g. pipeline construction).

**Table D.1 Interest features for which abstractions or discharges could potentially be a pressure or threat**

Feature	Pressure / Threat (Article 17)		Sensitive (WFD Annex IV Protected areas: Water dependant habitats and species)	
	Abstraction	Discharges	Abstraction	Discharges
Active raised bogs	Y		Y	Y
Alkaline fens	Y		Y	Y
Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> ( <i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i> )	Y		Y	Y
Annual vegetation of drift lines				
Atlantic decalcified fixed dunes ( <i>Calluno-Ulicetea</i> )				
Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritimae</i> )			Y	Y
Blanket bog (*active only)	Y		Y	Y
Bog woodland			Y	Y
Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>	Y		Y	Y
Coastal lagoons			Y	Y
Decalcified fixed dunes with <i>Empetrum nigrum</i>				

<sup>26</sup> Mayes, E., 2008. Water Framework Directive Annex IV Protected Areas: Water Dependent Habitats and Species.

[http://www.wfdireland.ie/docs/27\\_HighStatusSites/WATER%20DEPENDENT%20HABITATS%20AND%20SPECIES%20GUIDANCE\\_Part1.doc](http://www.wfdireland.ie/docs/27_HighStatusSites/WATER%20DEPENDENT%20HABITATS%20AND%20SPECIES%20GUIDANCE_Part1.doc)



Feature	Pressure / Threat (Article 17)		Sensitive (WFD Annex IV Protected areas: Water dependant habitats and species)	
	Abstraction	Discharges	Abstraction	Discharges
Degraded raised bogs still capable of natural regeneration	Y		Y	Y
Depressions on peat substrates of the <i>Rhynchosporion</i>	Y		Y	Y
Dunes with <i>Salix repens</i> ssp. <i>argentea</i> ( <i>Salix arenariae</i> )	Y		Y	Y
Embryonic shifting dunes				
Estuaries				Y
Fixed coastal dunes with herbaceous vegetation (grey dunes)				
Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.*	Y*	Y	Y	Y
Humid dune slacks	Y		Y	Y
Hydrophillic Tall Herb Fringe Communities			Y	Y
Large shallow inlets and bays			Y	Y
Lowland hay meadows ( <i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i> )				
Machairs (* in Ireland)	Y		Y	Y
Mediterranean and thermo-Atlantic halophilous scrubs ( <i>Sarcocornetea fruticosi</i> )		Y		Y
Mediterranean salt meadows ( <i>Juncetalia maritimi</i> )			Y	Y
Molinia meadows on calcareous, peaty or clayey-silt-laden soils ( <i>Molinion caeruleae</i> )	Y		Y	Y
Mudflats and sandflats not covered by seawater at low tide				Y
Natural dystrophic lakes and ponds	Y	Y	Y	Y
Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> -type vegetation	Y	Y	Y	Y
Northern Atlantic wet heaths with <i>Erica tetralix</i>	Y		Y	Y
Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i> *	Y	Y*	Y	Y
Oligotrophic waters containing very few minerals of sandy plains ( <i>Littorelletea uniflorae</i> )*	Y	Y*	Y	Y
Perennial vegetation of stony banks				
Petrifying springs with tufa formation ( <i>Cratoneurion</i> )	Y		Y	Y
Reefs				Y
Rivers with muddy banks with <i>Chenopodion rubri</i> p.p. and <i>Bidention</i> p.p. vegetation			Y	Y
Salicornia and other annuals colonizing mud and sand		Y		Y
Sandbanks which are slightly covered by sea water all the time				Y
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)				
Spartina swards ( <i>Spartinion maritimae</i> )				

Feature	Pressure / Threat (Article 17)		Sensitive (WFD Annex IV Protected areas: Water dependant habitats and species	
	Abstraction	Discharges	Abstraction	Discharges
Submerged or partly submerged sea caves				
Transition mires and quaking bogs	Y		Y	Y
Turloughs			Y	Y
Vegetated sea cliffs of the Atlantic and Baltic coasts		Y		
Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation		Y	Y	Y
<i>Alosa fallax</i>			Y	Y
<i>Austropotamobius pallipes</i>			Y	Y
<i>Drepanocladus vernicosus</i>			Y	Y
<i>Euphydryas aurinia</i>			Y	
<i>Halichoerus grypus</i>				Y
<i>Lampetra fluviatilis</i>			Y	Y
<i>Lampetra planeri</i>			Y	Y
<i>Lutra lutra</i>			Y	Y
<i>Margaritifera durrovensis</i>	Y	Y	Y	Y
<i>Margaritifera margaritifera</i>	Y	Y	Y	Y
<i>Najas flexilis</i>	Y	Y	Y	Y
<i>Petalophyllum ralfsii</i>			Y	Y
<i>Petromyzon marinus</i>			Y	Y
<i>Phoca vitulina</i>				
<i>Salmo salar</i>	Y	Y	Y	Y
<i>Saxifraga hirculus</i>			Y	Y
<i>Tursiops truncatus</i>				
<i>Vertigo angustior</i>			Y	Y
<i>Vertigo geyeri</i>	Y		Y	Y
<i>Vertigo moulinsiana</i>	Y	Y	Y	Y

## Appendix E

# Potentially Sensitive SPA Species

A review of the Article 12 report was undertaken to identify which bird species could theoretically be impacted by abstractions and discharges. Table E.1 identifies those species where hydrological or pollution related threats/pressures have been identified. Please note that for some species no threats or pressures were available from the reports.

**Table E.1 Interest features for which abstractions or discharges could potentially be a pressure or threat**

Bird Species	Pressures and Threats listed in Annex 12 report	Pollution and hydrological related pressures and threats	Impact
Accipiter nisus nisus (A633) - Breeding	No	Information not available from report	
Acrocephalus schoenobaenus (A295) - Breeding	No	Information not available from report	
Acrocephalus scirpaceus (A297) - Breeding	No	Information not available from report	
Actitis hypoleucos (A168) - Breeding	No	Information not available from report	
Aegithalos caudatus (A324) - Breeding	No	Information not available from report	
Alauda arvensis (A247) - Breeding	No	Information not available from report	
Alca torda (A200) - Breeding	Yes	H03 - Marine water pollution	M - medium importance
Alcedo atthis (A229) - Breeding	Yes	H01 - Pollution to surface waters (limnic & terrestrial, marine & brackish); J02 - human induced changes in hydraulic conditions	L - low importance
Anas acuta (A054) - Winter	Yes	H01 - Pollution to surface waters (limnic & terrestrial, marine & brackish); H03 - Marine water pollution; H07 - Other forms of pollution; J02 - human induced changes in hydraulic conditions; J03 - Other ecosystem modifications	L - low importance
Anas clypeata (A056) - Breeding	No	Information not available from report	
Anas clypeata (A056) - Winter	Yes	H01 - Pollution to surface waters (limnic & terrestrial, marine & brackish); H03 - Marine water pollution; H07 - Other forms of pollution	L - low importance
Anas crecca crecca (A704) - Breeding	No	Information not available from report	
Anas crecca crecca (A704) - Winter	Yes	H01 - Pollution to surface waters (limnic & terrestrial, marine & brackish); H03 - Marine water pollution; H07 - Other forms of pollution; J02 - human induced changes in hydraulic conditions	L - low importance

Bird Species	Pressures and Threats listed in Annex 12 report	Pollution and hydrological related pressures and threats	Impact
Anas penelope (A050) - Winter	Yes	H01 - Pollution to surface waters (limnic & terrestrial, marine & brackish); H03 - Marine water pollution; H07 - Other forms of pollution; J02 - human induced changes in hydraulic conditions; J03 - Other ecosystem modifications	L - low importance
Anas platyrhynchos platyrhynchos (A705) - Breeding	No	Information not available from report	
Anas platyrhynchos platyrhynchos (A705) - Winter	Yes	H01 - Pollution to surface waters (limnic & terrestrial, marine & brackish); H03 - Marine water pollution; H07 - Other forms of pollution; J02 - human induced changes in hydraulic conditions	L - low importance
Anas strepera strepera (A703) - Breeding	No	Information not available from report	
Anas strepera strepera (A703) - Winter	Yes	H01 - Pollution to surface waters (limnic & terrestrial, marine & brackish); H03 - Marine water pollution; H07 - Other forms of pollution; J02 - human induced changes in hydraulic conditions	M - medium importance; L - low importance
Anser albifrons flavirostris (A395) - Winter	Yes	H03 - Marine water pollution; H07 - Other forms of pollution	M - medium importance; L - low importance
Anser anser (A043) - Winter	Yes	H07 - Other forms of pollution	L - low importance
Anser anser (A043-X) - Breeding	No	Information not available from report	
Anthus petrosus (A666) - Breeding	No	Information not available from report	
Anthus pratensis (A257) - Breeding	No	Information not available from report	
Apus apus (A226) - Breeding	No	Information not available from report	
Aquila chrysaetos (A091) - Breeding	No	Information not available from report	
Ardea cinerea cinerea (A699) - Breeding	No	Information not available from report	
Ardea cinerea cinerea (A699) - Winter	Yes	H01 - Pollution to surface waters (limnic & terrestrial, marine & brackish)	L - low importance
Arenaria interpres (A169) - Winter	Yes	H03 - Marine water pollution; J03 - Other ecosystem modifications	L - low importance
Asio otus (A221) - Breeding	No	Information not available from report	
Aythya ferina (A059) - Winter	Yes	H01 - Pollution to surface waters (limnic & terrestrial, marine & brackish); H07 - Other forms of pollution	M - medium importance; L - low importance
Aythya fuligula (A061) - Breeding	No	Information not available from report	
Aythya fuligula (A061) - Winter	Yes	H01 - Pollution to surface waters (limnic & terrestrial, marine & brackish); H07 - Other forms of pollution	M - medium importance; L - low importance
Aythya marila (A062) - Winter	Yes	H01 - Pollution to surface waters (limnic & terrestrial, marine & brackish); H03 - Marine water pollution	M - medium importance; L - low importance

Bird Species	Pressures and Threats listed in Annex 12 report	Pollution and hydrological related pressures and threats	Impact
Branta bernicla hrota (A674-A) - Winter	Yes	G05 - Other human intrusions and disturbances ; H03 - Marine water pollution; H07 - Other forms of pollution; J03 - Other ecosystem modifications	L - low importance
Branta canadensis (A044-X) - Breeding	No	Information not available from report	
Branta leucopsis (A045-A) - Winter	Yes	No	
Bucephala clangula (A067) - Winter	Yes	H01 - Pollution to surface waters (limnic & terrestrial, marine & brackish); H03 - Marine water pollution; H07 - Other forms of pollution	M - medium importance; L - low importance
Buteo buteo (A087) - Breeding	No	Information not available from report	
Calidris alba (A144) - Winter	Yes	H03 - Marine water pollution	L - low importance
Calidris alpina (A149) - Winter	Yes	H03 - Marine water pollution; J02 - human induced changes in hydraulic conditions; J03 - Other ecosystem modifications	L - low importance
Calidris alpina schinzii (A466-A) - Breeding	Yes	No	
Calidris canutus (A143) - Winter	Yes	H03 - Marine water pollution; J02 - human induced changes in hydraulic conditions; J03 - Other ecosystem modifications	L - low importance
Calidris maritima maritima (A670-B) - Winter	Yes	H03 - Marine water pollution; J03 - Other ecosystem modifications	L - low importance
Carduelis cabaret (A681) - Breeding	No	Information not available from report	
Carduelis cannabina (A366) - Breeding	No	Information not available from report	
Carduelis carduelis (A364) - Breeding	No	Information not available from report	
Carduelis chloris (A745) - Breeding	No	Information not available from report	
Carduelis flavirostris (A367) - Breeding	No	Information not available from report	
Carduelis spinus (A365) - Breeding	No	Information not available from report	
Catharacta skua (A175) - Breeding	No	Information not available from report	
Cephus grylle (A202) - Breeding	No	Information not available from report	
Certhia familiaris (A334) - Breeding	No	Information not available from report	
Charadrius hiaticula (A137) - Breeding	No	Information not available from report	
Charadrius hiaticula (A137) - Winter	Yes	H03 - Marine water pollution; J02 - human induced changes in hydraulic conditions; J03 - Other ecosystem modifications	L - low importance
Cinclus cinclus (A264) - Breeding	No	Information not available from report	
Circus cyaneus (A082) - Breeding	Yes	J03 - Other ecosystem modifications	M - medium importance

Bird Species	Pressures and Threats listed in Annex 12 report	Pollution and hydrological related pressures and threats	Impact
Circus cyaneus (A082) - Winter	Yes	J03 - Other ecosystem modifications	L - low importance
Clangula hyemalis (A064) - Winter	No	Information not available from report	
Columba livia (A206) - Breeding	No	Information not available from report	
Columba oenas (A207) - Breeding	No	Information not available from report	
Columba palumbus palumbus (A687) - Breeding	No	Information not available from report	
Corvus corax (A350) - Breeding	No	Information not available from report	
Corvus corone cornix (A742) - Breeding	No	Information not available from report	
Corvus frugilegus (A348) - Breeding	No	Information not available from report	
Corvus monedula (A347) - Breeding	No	Information not available from report	
Coturnix coturnix (A113) - Breeding	No	Information not available from report	
Crex crex (A122) - Breeding	Yes	No	
Cuculus canorus (A212) - Breeding	No	Information not available from report	
Cygnus columbianus bewickii (A037) - Winter	Yes	H07 - Other forms of pollution	L - low importance
Cygnus cygnus (A038-B) - Winter	Yes	H07 - Other forms of pollution	L - low importance
Cygnus olor (A036) - Breeding	No	Information not available from report	
Cygnus olor (A036) - Winter	No	Information not available from report	
Delichon urbicum (A738) - Breeding	No	Information not available from report	
Dendrocopos major all others (A658) - Breeding	No	Information not available from report	
Egretta garzetta garzetta (A697) - Breeding	No	Information not available from report	
Egretta garzetta garzetta (A697) - Winter	No	Information not available from report	
Emberiza citrinella (A376) - Breeding	No	Information not available from report	
Emberiza schoeniclus (A381) - Breeding	No	Information not available from report	
Erithacus rubecula (A269) - Breeding	No	Information not available from report	
Falco columbarius (A098) - Breeding	Yes	No	
Falco peregrinus peregrinus (A708) - Breeding	Yes	J03 - Other ecosystem modifications	L - low importance
Falco tinnunculus (A096) - Breeding	No	Information not available from report	

Bird Species	Pressures and Threats listed in Annex 12 report	Pollution and hydrological related pressures and threats	Impact
Fratercula arctica (A204) - Breeding	Yes	H03 - Marine water pollution	M - medium importance
Fringilla coelebs all others (A657) - Breeding	No	Information not available from report	
Fulica atra atra (A723) - Breeding	No	Information not available from report	
Fulica atra atra (A723) - Winter	Yes	H01 - Pollution to surface waters (limnic & terrestrial, marine & brackish)	M - medium importance
Fulmarus glacialis (A009) - Breeding	Yes	No	
Gallinago gallinago (A153) - Breeding	No	Information not available from report	
Gallinula chloropus chloropus (A721) - Breeding	No	Information not available from report	
Garrulus glandarius (A342) - Breeding	No	Information not available from report	
Gavia arctica arctica (A689) - Winter	No	Information not available from report	
Gavia immer (A003) - Winter	Yes	H03 - Marine water pollution	L - low importance
Gavia stellata (A001-A) - Breeding	Yes	J02 - human induced changes in hydraulic conditions; J02.06 - Water abstractions from surface waters	M - medium importance; L - low importance
Gavia stellata (A001-A) - Winter	Yes	H03 - Marine water pollution	L - low importance
Haematopus ostralegus (A130) - Breeding	No	Information not available from report	
Haematopus ostralegus (A130) - Winter	Yes	J02 - human induced changes in hydraulic conditions; H03 - Marine water pollution	L - low importance
Hirundo rustica (A251) - Breeding	No	Information not available from report	
Hydrobates pelagicus pelagicus (A694) - Breeding	Yes	No	
Lagopus lagopus hibernicus (A463) - Breeding	No	Information not available from report	
Larus argentatus (A184) - Breeding	Yes	H03 - Marine water pollution	M - medium importance
Larus argentatus (A184) - Winter	Yes	H03 - Marine water pollution; J03 - Other ecosystem modifications	L - low importance
Larus canus (A182) - Breeding	Yes	No	
Larus canus (A182) - Winter	Yes	H03 - Marine water pollution; J03 - Other ecosystem modifications	L - low importance
Larus fuscus graellsii (A664) - Breeding	Yes	H03 - Marine water pollution	M - medium importance
Larus fuscus graellsii (A664) - Winter	Yes	H03 - Marine water pollution; J03 - Other ecosystem modifications	L - low importance
Larus marinus (A187) - Breeding	No	Information not available from report	



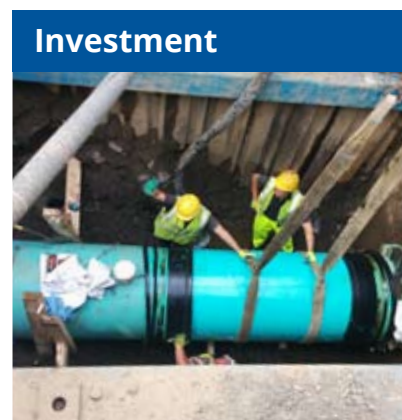
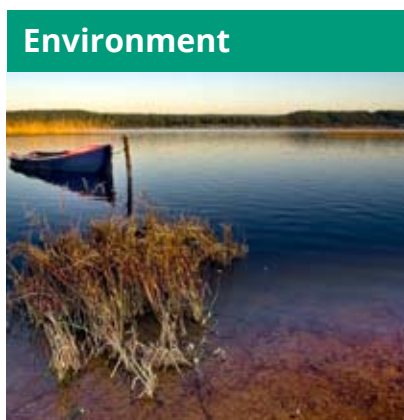
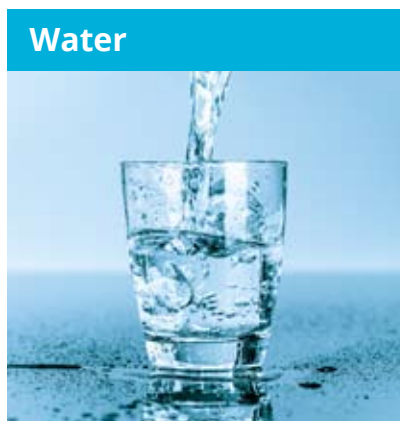
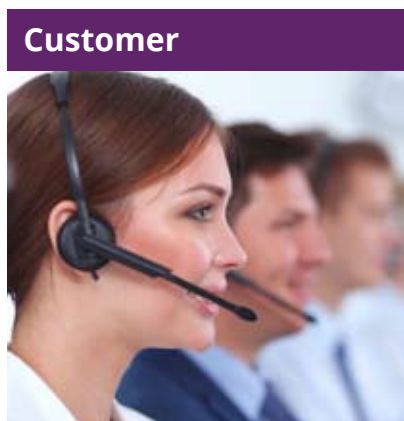
Bird Species	Pressures and Threats listed in Annex 12 report	Pollution and hydrological related pressures and threats	Impact
Larus melanocephalus (A176) - Breeding	No	Information not available from report	
Larus minutus (A177) - Winter	No	Information not available from report	
Larus ridibundus (A179) - Breeding	Yes	No	
Larus ridibundus (A179) - Winter	Yes	H03 - Marine water pollution; J03 - Other ecosystem modifications	L - low importance
Limosa lapponica (A157) - Winter	Yes	H03 - Marine water pollution; J02 - human induced changes in hydraulic conditions; J03 - Other ecosystem modifications	L - low importance
Limosa limosa islandica (A616) - Winter	Yes	H03 - Marine water pollution; J02 - human induced changes in hydraulic conditions; J03 - Other ecosystem modifications	L - low importance
Locustella naevia (A290) - Breeding	No	Information not available from report	
Loxia curvirostra (A369) - Breeding	No	Information not available from report	
Melanitta fusca fusca (A685-B) - Winter	No	Information not available from report	
Melanitta nigra nigra (A706) - Breeding	Yes	H01 - Pollution to surface waters (limnic & terrestrial, marine & brackish)	H - high importance
Melanitta nigra nigra (A706) - Winter	Yes	H03 - Marine water pollution	L - low importance
Mergellus albellus (A767-B) - Winter	No	Information not available from report	
Mergus merganser merganser (A654-B) - Breeding	No	Information not available from report	
Mergus serrator (A069) - Breeding	No	Information not available from report	
Mergus serrator (A069) - Winter	Yes	H03 - Marine water pollution	L - low importance
Miliaria calandra (A746) - Breeding	No	Information not available from report	
Milvus milvus (A074) - Breeding	No	Information not available from report	
Morus bassanus (A016) - Breeding	Yes	H03 - Marine water pollution	M - medium importance
Motacilla alba (A262) - Breeding	No	Information not available from report	
Motacilla cinerea (A261) - Breeding	No	Information not available from report	
Muscicapa striata (A319) - Breeding	No	Information not available from report	
Numenius arquata arquata (A768) - Breeding	No	Information not available from report	
Numenius arquata arquata (A768) - Winter	Yes	H03 - Marine water pollution; J02 - human induced changes in hydraulic conditions; J03 - Other ecosystem modifications	L - low importance
Oceanodroma leucorhoa (A015) - Breeding	Yes	No	

Bird Species	Pressures and Threats listed in Annex 12 report	Pollution and hydrological related pressures and threats	Impact
Oenanthe oenanthe (A277) - Breeding	No	Information not available from report	
Parus ater all others (A656) - Breeding	No	Information not available from report	
Parus caeruleus (A329) - Breeding	No	Information not available from report	
Parus major (A330) - Breeding	No	Information not available from report	
Passer domesticus (A620) - Breeding	No	Information not available from report	
Passer montanus (A356) - Breeding	No	Information not available from report	
Perdix perdix all others (A644) - Breeding	No	Information not available from report	
Phalacrocorax aristotelis aristotelis (A684) - Breeding	Yes	H03 - Marine water pollution	M - medium importance
Phalacrocorax carbo carbo (A683) - Breeding	Yes	H03 - Marine water pollution	M - medium importance
Phalacrocorax carbo carbo (A683) - Winter	Yes	H03 - Marine water pollution	L - low importance
Phasianus colchicus (A115-X) - Breeding	No	Information not available from report	
Philomachus pugnax (A151) - Winter	No	Information not available from report	
Phoenicurus phoenicurus (A274) - Breeding	No	Information not available from report	
Phylloscopus collybita (A315) - Breeding	No	Information not available from report	
Phylloscopus sibilatrix (A314) - Breeding	No	Information not available from report	
Phylloscopus trochilus (A316) - Breeding	No	Information not available from report	
Pica pica (A343) - Breeding	No	Information not available from report	
Pluvialis apricaria (A140) - Breeding	Yes	No	
Pluvialis apricaria (A140) - Winter	Yes	H03 - Marine water pollution	L - low importance
Pluvialis squatarola (A141) - Winter	Yes	H03 - Marine water pollution; J02 - human induced changes in hydraulic conditions; J03 - Other ecosystem modifications	L - low importance
Podiceps auritus auritus (A642-A) - Winter	No	Information not available from report	
Podiceps cristatus cristatus (A691) - Breeding	No	Information not available from report	
Podiceps cristatus cristatus (A691) - Winter	Yes	H01 - Pollution to surface waters (limnic & terrestrial, marine & brackish); H03 - Marine water pollution	L - low importance
Prunella modularis (A266) - Breeding	No	Information not available from report	
Puffinus puffinus (A013) - Breeding	Yes	H03 - Marine water pollution	M - medium importance

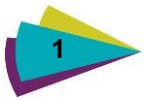
Bird Species	Pressures and Threats listed in Annex 12 report	Pollution and hydrological related pressures and threats	Impact
Pyrrhocorax pyrrhocorax (A346) - Breeding	Yes	No	
Pyrrhula pyrrhula (A372) - Breeding	No	Information not available from report	
Rallus aquaticus aquaticus (A718) - Breeding	No	Information not available from report	
Regulus regulus (A317) - Breeding	No	Information not available from report	
Riparia riparia (A249) - Breeding	No	Information not available from report	
Rissa tridactyla (A188) - Breeding	Yes	H03 - Marine water pollution	M - medium importance
Saxicola rubetra (A275) - Breeding	No	Information not available from report	
Saxicola torquatus (A276) - Breeding	No	Information not available from report	
Scolopax rusticola (A155) - Breeding	No	Information not available from report	
Somateria mollissima (A063) - Breeding	No	Information not available from report	
Somateria mollissima (A063) - Winter	Yes	H03 - Marine water pollution	L - low importance
Sterna albifrons albifrons (A631-A) - Breeding	Yes	No	
Sterna dougallii dougallii (A733) - Breeding	Yes	No	
Sterna dougallii dougallii (A733) - Passage	Yes	No	
Sterna hirundo (A193) - Breeding	Yes	No	
Sterna hirundo (A193) - Passage	Yes	No	
Sterna paradisaea (A194) - Breeding	Yes	No	
Sterna paradisaea (A194) - Passage	Yes	No	
Sterna sandvicensis (A191) - Breeding	Yes	No	
Streptopelia decaocto (A209) - Breeding	No	Information not available from report	
Sturnus vulgaris (A351) - Breeding	No	Information not available from report	
Sylvia atricapilla (A311) - Breeding	No	Information not available from report	
Sylvia borin (A310) - Breeding	No	Information not available from report	
Sylvia communis (A309) - Breeding	No	Information not available from report	
Tachybaptus ruficollis ruficollis (A690) - Breeding	No	Information not available from report	

Bird Species	Pressures and Threats listed in Annex 12 report	Pollution and hydrological related pressures and threats	Impact
Tachybaptus ruficollis ruficollis (A690) - Winter	Yes	H01 - Pollution to surface waters (limnic & terrestrial, marine & brackish); H03 - Marine water pollution; J02 - human induced changes in hydraulic conditions	M - medium importance; L - low importance
Tadorna tadorna (A048) - Breeding	No	Information not available from report	
Tadorna tadorna (A048) - Winter	Yes	H03 - Marine water pollution	L - low importance
Tringa erythropus (A161) - Winter	No	Information not available from report	
Tringa nebularia (A164) - Winter	Yes	H03 - Marine water pollution; J02 - human induced changes in hydraulic conditions	L - low importance
Tringa totanus (A162) - Breeding	No	Information not available from report	
Tringa totanus (A162) - Winter	Yes	H03 - Marine water pollution; J02 - human induced changes in hydraulic conditions; J03 - Other ecosystem modifications	L - low importance
Troglodytes troglodytes all others (A676) - Breeding	No	Information not available from report	
Turdus merula (A283) - Breeding	No	Information not available from report	
Turdus philomelos (A285) - Breeding	No	Information not available from report	
Turdus torquatus (A282) - Breeding	No	Information not available from report	
Turdus viscivorus (A287) - Breeding	No	Information not available from report	
Tyto alba (A213) - Breeding	No	Information not available from report	
Uria aalge albionis (A662) - Breeding	Yes	H03 - Marine water pollution	M - medium importance
Vanellus vanellus (A142) - Breeding	No	Information not available from report	
Vanellus vanellus (A142) - Winter	Yes	H03 - Marine water pollution	L - low importance

# SEA Statement for the Water Services Strategic Plan







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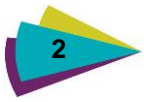


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# 1. Introduction

## 1.1 Purpose of this SEA Statement

This report forms the Strategic Environmental Assessment (SEA) Statement to accompany the final version of Irish Water's Water Services Strategic Plan (WSSP). The report describes the way in which Irish Water has taken environmental consideration and the views of consultees into account in the WSSP and fulfils the plan and programme adoption requirements of European Union Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (the SEA Directive) and Statutory Instrument (SI) No. 435 of 2004 European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (as amended) (the SEA Regulations).

This SEA Statement is the final output of the Strategic Environmental Assessment (SEA) of the WSSP and follows the publication of, and consultation on, the SEA Environmental Report concerning the Draft Water Services Strategic Plan (the draft WSSP).

## 1.2 The Water Services Strategic Plan

### Development of the WSSP

Irish Water was incorporated in July 2013 under the Water Services (No.2) Act of 2013 (the Water Services Act) and in January 2014 assumed responsibility for the provision of public water services from local authorities. Irish Water has responsibility for the supply of drinking water and wastewater treatment to over 80% of the population and has taken over a large portfolio of assets including pumping stations, approximately 60,000 km of water pipelines, 25,000 km of wastewater pipelines, around 900 water treatment plants and over 1,000 wastewater treatment plants.

Section 33 of the Water Services Act requires Irish Water to prepare a WSSP that sets out the objectives of Irish Water over a 25 year period and outlines the strategies to achieve these objectives. Work on the WSSP began in early 2014 and included the publication of the WSSP Issues Paper in July 2014 which was subject to public consultation for a period of five weeks. Taking into account responses to the WSSP Issues Paper and consultation with statutory bodies and key stakeholders, Irish Water prepared the draft WSSP that was published for consultation between 19<sup>th</sup> February 2015 and the 17<sup>th</sup> April 2015.

The final WSSP was adopted by the Irish Water and Ervia Boards in June 2015 and submitted to the Minister of the Environment, Community and Local Government (the Minister) for approval in July 2015. The WSSP is available to view via Irish Water's website at <http://www.water.ie>.

### WSSP Scope and Content

Irish Water's vision for water services in the future is that:

*"Through responsible stewardship, efficient management and strong partnerships, Ireland has a world-class water infrastructure that ensures secure and sustainable water services, essential for our health, our communities, the economy and the environment."*

To achieve Irish Water's vision for future water services, the WSSP sets out six strategic objectives which in-turn are underpinned by a series of aims relevant to the various aspects of water services identified in the Water Services Act. The strategic objectives and associated aims of the WSSP are reproduced in **Table 1.1**.

Table 1.1 WSSP Strategic Objectives and Aims

Strategic Objective	Aim
<b>Meet Customer Expectations</b>	<ul style="list-style-type: none"> <li>CE1: Establish both customer trust and a reputation for excellent service.</li> </ul>
<b>Ensure a Safe and Reliable Water Supply</b>	<ul style="list-style-type: none"> <li>WS1: Manage the sustainability and quality of drinking water from source to tap to protect human health.</li> <li>WS2: Manage the availability, sustainability and reliability of water supply now and into the future.</li> <li>WS3: Manage water supplies in an efficient and economic manner.</li> </ul>
<b>Provide Effective Management of Wastewater</b>	<ul style="list-style-type: none"> <li>WW1: Manage the operation of wastewater facilities in a manner that protects environmental quality.</li> <li>WW2: Manage the availability and resilience of wastewater services now and into the future.</li> <li>WW3: Manage wastewater services in an efficient and economic manner.</li> </ul>
<b>Protect and Enhance the Environment</b>	<ul style="list-style-type: none"> <li>EN1: Ensure that Irish Water services are delivered in a sustainable manner that contributes to the protection of the environment.</li> <li>EN2: Operate our water services infrastructure to support the achievement of water body objectives under the Water Framework Directive and our obligations under the Birds and Habitats Directives.</li> <li>EN3: Manage all our residual waste in a sustainable manner.</li> </ul>
<b>Support Social and Economic Growth</b>	<ul style="list-style-type: none"> <li>SG1: Support national, regional and local economic and spatial planning policy.</li> <li>SG2: Facilitate growth in line with national and regional economic and spatial planning policy.</li> <li>SG3: Ensure that water services are provided in a timely and cost effective manner.</li> </ul>
<b>Invest in Our Future</b>	<ul style="list-style-type: none"> <li>IF1: Manage our assets and investments in accordance with best practice asset management principles to deliver a high quality secure and sustainable service at lowest cost.</li> <li>IF2: Invest in our assets while maintaining a sustainable balance between meeting customer standards, protecting the environment and supporting the economic development and growth of the country.</li> <li>IF3: Establish a sustainable funding model to ensure that Irish Water can deliver the required capital investment in order to achieve the required outcomes.</li> <li>IF4: Promote research and develop proven, innovative technical solutions to meet standards set by our regulators including our objectives for cost and energy efficiency.</li> </ul>

The WSSP contains a range of strategies that are intended to support the delivery of each strategic objective and their associated aims. In total, 68 strategies are included within the WSSP across the following chapters:

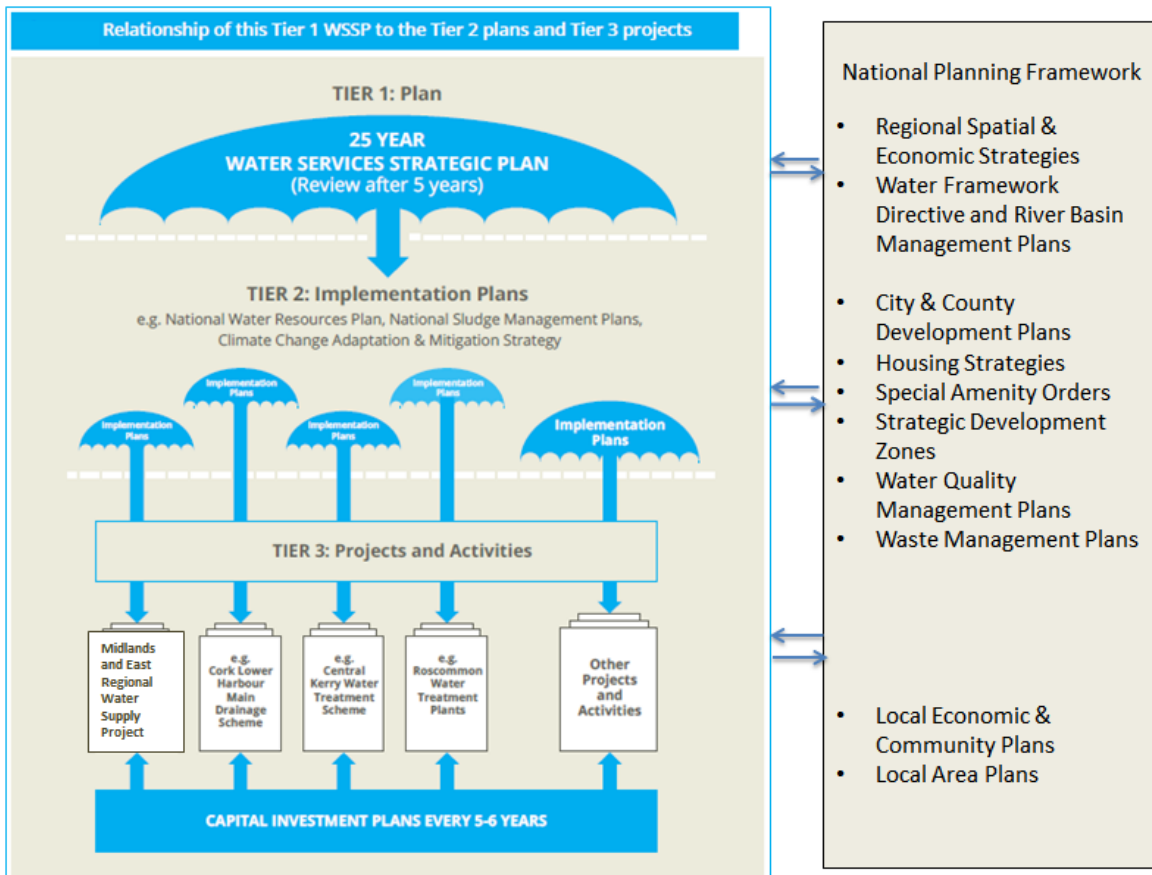
- ▶ Meet Customer Expectations: which contains six strategies;
- ▶ Ensure a Safe and Reliable Water Supply: which contains seventeen strategies;
- ▶ Provide Effective Management of Wastewater: which contains fourteen strategies;
- ▶ Protect and Enhance the Environment: which contains ten strategies;
- ▶ Support Social and Economic Growth: which contains nine strategies; and
- ▶ Invest in Our Future: which contains twelve strategies.

The WSSP sets the context for subsequent implementation plans, some of which are identified in the Plan strategies. These implementation plans will detail the programmes of works to be completed in specific water service areas, for example, water resource planning, sludge management planning, climate change

adaptation and mitigation and wastewater compliance. Each implementation plan will ensure that Irish Water complies with its legal obligations, meets the objectives of the WSSP and Irish Water's performance targets. The implementation plans will also take into account the findings of other relevant national, regional and local plans (e.g. river basin management plans and regional development plans).

The relationship of the (Tier 1) WSSP to the (Tier 2) implementation plans and the future (Tier 3) projects is illustrated in **Figure 1.1**.

Figure 1.1 Relationship of the Tier 1 WSSP to the Tier 2 Plans and Tier 3 Projects and to national planning policy



### 1.3 Strategic Environmental Assessment and the Water Services Strategic Plan

SEA became a statutory requirement following the adoption of the SEA Directive which is implemented in Ireland by the SEA Regulations. The objective of SEA, as defined in Directive 2001/42/EC, is: “*To provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to contributing to sustainable development.*”

As the WSSP is a statutory requirement, has been prepared by a semi-state company (Irish Water) and concerns the management of water, Irish Water determined that the WSSP requires SEA. SEA of the WSSP has been subsequently undertaken in compliance the SEA Directive and SEA Regulations. Throughout the course of the development of the WSSP, the SEA has sought to identify, describe and evaluate the likely significant effects on the environment of implementing the WSSP and to propose measures to avoid, manage or mitigate any significant adverse effects and to enhance any beneficial effects.

The main requirements and stages of the SEA are:

- ▶ Setting the context and objectives, reviewing other relevant policies, plans and programmes, establishing the baseline, developing the assessment framework and deciding on the scope of the SEA in consultation with statutory bodies (**Stage A**);
- ▶ Developing and refining alternatives, assessing the likely direct, indirect and cumulative effects of the WSSP and identifying mitigating and monitoring measures (**Stage B**);
- ▶ Completing an Environmental Report to present the predicted environmental effects of the WSSP, including alternatives, in a form suitable for public consultation and use by decision-makers (**Stage C**);
- ▶ Consulting on the draft WSSP and Environmental Report (**Stage D**);
- ▶ Assessing the environmental implications of any significant changes to the draft WSSP (**Stage D**);
- ▶ Providing information in an SEA Statement on how the Environmental Report and the consultees' opinion on it have been taken into account when deciding the final form of the WSSP (**Stage D**); and
- ▶ Undertaking periodic monitoring of the associated effects of the WSSP (**Stage E**).

This SEA Statement has been prepared in completion of **Stage D** above. It follows consultation on the scope of the SEA, which comprised initial consultation with the SEA statutory consultees in May 2014 and publication of a Draft Scoping Report for consultation alongside the WSSP Issues Paper in July 2014. The assessment of the draft WSSP was recorded in the Environmental Report published alongside the draft WSSP for consultation between 19<sup>th</sup> February 2015 and the 17<sup>th</sup> April 2015.

In accordance with Article 8 of the SEA Directive, and Regulation 15 of the SEA Regulations, Irish Water has taken into account the findings of the Environmental Report and the consultation responses in coming to its decision on the final form of the WSSP and its adoption.

## 1.4 This SEA Statement

Article 9 of the SEA Directive and regulation 16 (2) of the SEA Regulations require that when a plan or programme is adopted, in this case the WSSP, the consultation bodies, the public and any other Member States consulted on the Environmental Report, are informed and the following specific information is made available:

- ▶ The plan as adopted;
- ▶ A statement summarising:
  - How environmental considerations have been integrated into the WSSP (**Section 2** of this document);
  - How the Environmental Report has been taken into account (**Section 3**);
  - How submissions and observations received in response to the consultation on the Environmental Report have been taken into account (**Section 4**);
  - The reasons for choosing the WSSP, as adopted, in the light of the other reasonable alternatives dealt with (**Section 5**); and
  - The measures that are to be taken to monitor the significant environmental effects of the implementation of the WSSP (**Section 6**).

The purpose of this SEA Statement is to provide the specific information outlined under each of the points listed above and which is presented in the following sections of this report. A table demonstrating how this SEA Statement complies with the SEA Regulation is included in **Appendix A**.

## 2. How Environmental Considerations have been Integrated into the Water Services Strategic Plan and SEA

### 2.1 Environmental Considerations in the Water Services Strategic Plan

Environmental considerations are a central component of Irish Water's vision for future water services in Ireland (as set out in **Section 1.2** of this SEA Statement). In this context, the WSSP includes a specific strategic objective to protect and enhance the environment and which is underpinned by the following strategic aims:

- ▶ EN1: Ensure that Irish Water services are delivered in a sustainable manner that contributes to the protection of the environment.
- ▶ EN2: Operate our water services infrastructure to support the achievement of water body objectives under the Water Framework Directive and our obligations under the Birds and Habitats Directives.
- ▶ EN3: Manage all our residual waste in a sustainable manner.

Those strategies of the WSSP that have been identified to deliver these aims are reproduced in **Table 2.1**.

Table 2.1 Aims and Strategies Under the Strategic Objective: Protect and Enhance the Environment

Ref	Strategy	Purpose
<b>Aim EN1 – Ensure that Irish Water services are delivered in a sustainable manner which contributes to the protection of the environment.</b>		
EN1a	Implement a Sustainability Policy and Sustainability Framework	To ensure that Irish Water services are delivered in a sustainable manner balancing the need to support the social and economic development of the country with the need to protect water resources and the water environment.
EN1b	Prepare and implement a Sustainable Energy Strategy.	To meet our obligations under the National Energy Efficiency Plan (2009-20).
EN1c	Prepare and implement a Climate Change Adaptation and Mitigation Strategy.	To support national objectives for climate change mitigation and to meet our obligations under the National Climate Change Adaptation Framework to ensure the resilience and sustainability of water services.
EN1d	Adopt a Green Procurement Approach and drive efficient use of all our resources.	To ensure that we utilise resources efficiently in our management of water and wastewater services.
EN1e	Adhere to environmental and planning legislation when planning and developing water services assets.	To ensure that all future Irish Water infrastructure meets national planning and environmental legislation and to protect sites of natural and cultural importance.
<b>Aim EN2 - Operate our water services infrastructure to support the achievement of water body objectives under the Water Framework Directive and our obligations under the Birds and Habitats Directives</b>		
EN2a	Work effectively with other stakeholders to support a catchment based approach.	To contribute to the achievement of water body objectives under the Water Framework Directive.
EN2b	Manage the operation of our water and wastewater infrastructure towards the achievement of water body objectives and the conservation of protected sites and species.	To ensure that the operation of our water and wastewater infrastructure assists the achievement of water body objectives under the WFD and the conservation of protected sites and species under the Birds and Habitats Directives.

Ref	Strategy	Purpose
<b>Aim EN3 – Manage all our Residual Waste in a Sustainable Manner</b>		
EN3a	Develop and implement a Corporate Waste Management Strategy.	To ensure Irish Water meets its corporate sustainability responsibilities.
EN3b	Develop and implement a National Wastewater Sludge Management Plan.	To reduce the environmental impacts from wastewater treatment by re-use and renewable energy generation, where feasible.
EN3c	Develop and implement a National Water Sludge Management Plan.	To reduce the environmental impacts from water treatment processes.

Many of the other WSSP strategies are also expected to deliver substantial environmental benefit through the sustainable management of water resources and the delivery of infrastructure to support the achievement of Water Framework Directive (WFD) water body objectives and compliance under the Urban Waste Water Treatment Directive (UWWTD). In this regard, the assessment of the draft WSSP strategies presented in the Environmental Report found that the implementation of the WSSP is likely to have either positive or significant positive effects on the majority of the Strategic Environmental Objectives (SEOs) used to assess the effects of draft WSSP (as described in **Section 2.2** below) whilst no significant negative environmental effects were identified. Further detail regarding the findings of the SEA of the draft WSSP is provided in **Section 3.2**.

### Assessment

To ensure that environmental considerations were taken into account during the development of the WSSP, the plan has been informed by SEA and Appropriate Assessment (AA)<sup>1</sup>. Together, the SEA and AA have assessed the likely environmental effects of the WSSP as well as reasonable alternatives to it. This has helped to ensure that the potential environmental effects of the WSSP's implementation are understood and that opportunities to mitigate adverse effects and enhance positive effects are incorporated into it where appropriate.

Further information in respect of the influence of the SEA on the development of the WSSP is provided in **Section 3** of this SEA Statement.

### Consultation

Irish Water has undertaken extensive stakeholder engagement during the preparation of the WSSP which culminated in consultation on a draft version of the Plan between 19<sup>th</sup> February 2015 and the 17<sup>th</sup> April 2015. Importantly, this has helped to ensure that opportunities to enhance the environmental performance of the WSSP have been realised.

**Section 4** of this SEA Statement provides further information in relation to the consultation undertaken in developing the WSSP.

## 2.2 Environmental Considerations in the SEA

It is important that any plan takes into account the environmental circumstances in which it is to be implemented. This is to ensure that unintended effects are avoided as well as to identify the potential for contributions towards other complementary public strategic objectives.

<sup>1</sup> In recognition of the potential for the WSSP to affect European sites, Irish Water undertook an Appropriate Assessment (AA) under Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna, enacted through the Republic of Ireland (ROI) by the European Communities (Birds and Natural Habitats) Regulations 2011. The findings of the AA are reported in a Natura Impact Statement (NIS) that has been published alongside the WSSP. The NIS concludes that the WSSP will have no significant and adverse effects on any European sites, alone or 'in combination' with other plans and programmes.



To provide the context for the SEA of the WSSP, and in compliance with the SEA Directive, the relevant aspects of the current state of the environment and its evolution without the WSSP were considered, along with the environmental characteristics likely to be significantly affected.

The key environmental issues relevant to Irish Water's activities and the WSSP as identified through the analysis of baseline conditions are summarised in **Table 2.2** by topic area. It should be noted that the environmental issues identified are in most cases wide ranging and do not relate solely to Irish Water's activities or the WSSP. The issues identified will be influenced by a range of factors including the activities of other sectors.

**Table 2.2 Key Environmental Issues Relevant to Irish Water's Activities and the Water Services Strategic Plan**

Topic Area	Key Environmental Issues
<b>Biodiversity</b>	<ul style="list-style-type: none"> <li>• The need to contribute to the protection and improvement of the condition of sites that have been designated for nature conservation purposes;</li> <li>• The need to help improve the status of protected habitats and species;</li> <li>• The need to help maintain/enhance ecological connectivity; and</li> <li>• The need to support the protection and enhancement of non-designated sites.</li> </ul>
<b>Population and human health</b>	<ul style="list-style-type: none"> <li>• The need to accommodate for a rising population and growing economy through the associated delivery of water supply and wastewater services without placing undue pressure on the environment;</li> <li>• The need to support the protection of the health of the Irish population through the provision of affordable water and wastewater services; and</li> </ul>
<b>Soil</b>	<ul style="list-style-type: none"> <li>• The need to contribute to the protection and enhancement of geodiversity and sites designated for their geological importance;</li> <li>• The need to support the protection and enhancement of soil quality, particularly in peatland areas which have been degraded or are at risk of degradation; and</li> <li>• The need to help maintain the hydrogeological and ecological function of the soil resource.</li> </ul>
<b>Water</b>	<ul style="list-style-type: none"> <li>• The need to help maintain and improve the status and quality of surface and ground waters including bathing waters;</li> <li>• The need to help reverse the decline in the number of high-status waterbodies; and</li> <li>• The need to reduce pollution from wastewater treatment works.</li> </ul>
<b>Air Quality and Noise</b>	<ul style="list-style-type: none"> <li>• The need to avoid detrimental impacts on air quality;</li> <li>• The need to adopt fuel efficiency and minimise transport use; and</li> <li>• The need to avoid causing noise nuisance.</li> </ul>
<b>Climatic Factors</b>	<ul style="list-style-type: none"> <li>• The need to reduce emissions of greenhouse gases from Irish Water's activities;</li> <li>• The need to take into account, and where possible mitigate for, the potential effects of climate change on water resources and infrastructure;</li> <li>• The need to ensure the resilience of water supply and treatment infrastructure to the impacts of climate change; and</li> <li>• The need to manage the impact of climate change on water resource availability.</li> </ul>
<b>Material Assets</b>	<ul style="list-style-type: none"> <li>• The need to account for the growth in urban populations across Ireland and their potential water and wastewater needs;</li> <li>• The need to reduce waste generated from Irish Water's activities and the proportion of that waste which is sent to landfill; and</li> <li>• The need to reduce the consumption of non-renewable resources related to Irish Water's activities through measures such as improved energy efficiency and enhanced uptake of renewable energy.</li> </ul>
<b>Water Services</b>	<ul style="list-style-type: none"> <li>• The need to maintain or improve the quality of drinking water supplies;</li> <li>• The need to improve standards of wastewater treatment and reduce pollution events; and</li> <li>• The need to ensure sufficient water and wastewater capacity is available to meet demand.</li> </ul>
<b>Cultural Heritage</b>	<ul style="list-style-type: none"> <li>• The need to contribute to the protection and enhancement of features and sites of archaeological importance and cultural heritage interest in relation to Irish Water activities;</li> <li>• The need to help protect and enhance sites of architectural cultural heritage; and</li> <li>• The need to help ensure the protection of unknown archaeology.</li> </ul>
<b>Landscape</b>	<ul style="list-style-type: none"> <li>• The need to contribute to the protection and enhancement of the landscape and natural beauty</li> </ul>

Topic Area	Key Environmental Issues
	<ul style="list-style-type: none"> <li>of Ireland including designated sites;</li> <li>• The need to help protect and maintain the landscape distinctiveness across Ireland; and</li> <li>• The need to help protect visual amenity.</li> </ul>

The key environmental issues listed above helped to inform the scope of the assessment of the draft WSSP in terms of the extent to which the 12 environmental topics identified in the SEA Directive should be considered. In this instance, none of the SEA topics were scoped out of the assessment.

The environmental issues also informed the SEOs used to guide the assessment of the draft WSSP and which are reproduced in **Table 2.3**. By assessing the draft WSSP against the SEOs it was more apparent where the WSSP will contribute to environmental sustainability, where it might have a negative effect, and where a positive effect could be improved.

**Table 2.3 Strategic Environmental Objectives Used in the SEA of the Water Services Strategic Plan**

SEA Topic	Strategic Environmental Objective(s)
<b>Biodiversity and flora and fauna</b>	1. Prevent damage to terrestrial, aquatic and soil biodiversity, particularly EU designated sites and protected species resulting from Irish Water's activities.
<b>Population and Human Health</b>	2. Protect and reduce risk to human health in undertaking water services.
<b>Water</b>	3. Prevent deterioration of the status of water bodies with regard to quality and quantity due to Irish Water activities and contribute towards the improvement of water body status for rivers, lakes, transitional and coastal waters and groundwaters to at least good status, as appropriate to the Water Framework Directive.
	4. Minimise increases in flood risk resulting from Irish Water's activities.
<b>Air and Climatic Factors</b>	5. Minimise contributions to climate change and emissions to air (including greenhouse gas emissions) as a result of Irish Water activities and ensure the resilience of water supply and treatment infrastructure to the effects of climate change.
<b>Material Assets</b>	6. Provide new, and upgrade existing, water and wastewater management infrastructure to protect human health and ecological status of water bodies.
	7. Protect water as an economic resource.
<b>Soil</b>	8. Avoid conflicts with, and contribute towards, where possible, the appropriate management of soils.
<b>Cultural Heritage</b>	9. Avoid damage to cultural heritage resources resulting from Irish Water's activities.
<b>Landscape</b>	10. Avoid damage to designated landscapes resulting from Irish Water's activities.

Following a high level review of the draft WSSP, it was considered necessary to apply SEA to the strategic objectives (in terms of their supporting aims) and strategies of the plan. The reasonable alternatives to the preferred option for the WSSP were also assessed.

The assessment of the draft WSSP aims was undertaken by testing their compatibility with the SEOs using a compatibility matrix. This helped to identify potential synergies or inconsistencies between the aims and the SEOs and whether refinement of the aims was required.

The following two-stage approach was adopted to assess the draft WSSP strategies:

1. A screening assessment to identify those strategies that would not have any significant effects against the SEOs. These strategies were 'screened out' from further assessment; and
2. A more detailed assessment of those strategies identified in the screening assessment that may result in significant effects against the SEOs. This required the identification of the likely changes to the baseline conditions as a result of implementing the strategies. The changes were described (where possible) in terms of their geographic scale, the timescale over which they could occur, whether the effects would be temporary or permanent, positive or negative, or likely or unlikely, frequent or rare.

In addition, an assessment of cumulative effects was undertaken in order to clearly identify areas where strategies across the different aims of the draft WSSP work together and to consider where the draft WSSP may have effects in-combination with other plans and programmes.

One alternative to the draft WSSP was also identified and assessed as part of the SEA using the SEOs. This alternative ('Successional WSSP') was based on the principle that the management of water services would continue with previous management practices with the retention of around 900 water treatment plants and investment on large capital works including major improvements at larger wastewater treatment plants.

Further detail relating to the findings of the assessment of the draft WSSP and the reasonable alternative is provided in **Section 3** whilst **Section 5** sets out the reasons for choosing the WSSP as adopted in light of the reasonable alternative considered.

The Environmental Report documented the findings of the assessment of the draft WSSP and reasonable alternative, outlining where any likely significant effects were identified and proposing, where appropriate, mitigation measures. This was subject to consultation between 19<sup>th</sup> February 2015 and the 17<sup>th</sup> April 2015, alongside the draft WSSP.

## 3. How the Findings of the Environmental Report have been Taken into Account

### 3.1 Development of the Water Services Strategic Plan and the SEA Process

The SEA and development of the WSSP have been undertaken in tandem. **Table 3.1** details the key stages of the SEA and its relationship with the development of the WSSP.

Table 3.1 Key Stages in the SEA and its Relationship with the WSSP

SEA	WSSP	Relationship
<p><b>Scoping</b> The scoping stage of the SEA identified other relevant plans, programmes and environmental protection objectives which could be affected by, or which could affect, the WSSP.</p> <p>The scoping stage also characterised the relevant aspects of the current state of the environment and its evolution without the WSSP.</p>	<p>The key issues to be addressed by the WSSP were identified.</p>	<p>The WSSP used the plans and programmes identified to ensure that it was in compliance with local, national and international legislation.</p> <p>Baseline information supported early plan development and in particular the identification of the challenges to be addressed by the WSSP.</p>
<p><b>Assessment</b> The aims of the draft WSSP were tested for their compatibility with the SEOs.</p> <p>The draft WSSP strategies were screened to identify those with the potential for significant environmental effects.</p> <p>Reasonable alternatives to the WSSP were assessed.</p>	<p>The draft WSSP aims and strategies were developed.</p>	<p>The Environmental Report and the draft WSSP were developed together.</p> <p>The findings of the screening assessment helped to identify those strategies that may give rise to significant environmental effects thereby enabling amendment or alternatives to be implemented if appropriate.</p> <p>The findings of the detailed assessment of the strategies informed the development of the WSSP.</p> <p>The assessment of reasonable alternatives helped to confirm the approach taken in the draft WSSP.</p>
<p><b>Reporting</b> The Environmental Report and draft WSSP were finalised. The key findings of the Environmental Report and how the SEA has informed the final WSSP is detailed in <b>Table 3.2</b>.</p>		
<p><b>Consultation</b> The draft WSSP and Environmental Report were published for consultation. Responses to the consultation on the Environmental Report are presented along with the conclusions of the submissions in <b>Section 4</b>.</p>		
<p><b>Finalising the WSSP and Adoption</b> Following consultation, the WSSP has been finalised. Changes to the WSSP since consultation have been considered in order to determine whether further assessment is required. This is discussed further in <b>Section 3.4</b>.</p>		
<p><b>Monitoring</b> Proposals for monitoring identified in <b>Section 6</b> of this SEA Statement will be implemented by the Irish Water.</p>		

As demonstrated in **Table 3.1** above, the SEA process has played an important role in the development of the WSSP. **Section 3.2** below summarises the key findings of the SEA whilst **Section 3.3** describes how the resulting recommendations contained in the Environmental Report have informed the final WSSP.

## 3.2 Key Findings of the Environmental Report

### Assessment of the Draft WSSP

Overall, the assessment identified that the implementation of the draft WSSP would be likely to have positive effects on the majority of the SEOs used in the assessment to help characterise the environmental effects of the plan. Significant positive effects were identified in respect of the following SEOs: Biodiversity; Population and Human Health; Water Quality and Quantity; Food Risk; Air and Climatic Factor; Water Management Infrastructure; and Water as an Economic Resource. This reflected the emphasis of the draft WSSP aims and strategies on the sustainable management of water resources and the delivery of infrastructure through Tier 2 plans and Tier 3 projects to support the achievement of WFD water body objectives and compliance under the Drinking Water Directive (DWD) and UWWTD.

No significant negative effects were identified during the assessment. The assessment did identify that minor negative effects on some SEOs are likely to arise as a result of the implementation of the WSSP. In this respect, the potential for negative effects was identified in respect of SEOs relating to: Biodiversity; Population and Human Health; Water Quality and Quantity; Air and Climatic Factors; Soil; and Landscape. Whilst the upgrade of existing, and provision of new, infrastructure and services identified in Tier 2 plans are expected to generate long term environmental benefits, the assessment found that, like other types of development, the construction of new infrastructure arising from the implementation of the WSSP could also have short term and local adverse environmental effects due to, for example, land take, emissions to air and disturbance. The assessment highlighted that the probability/magnitude of these effects is subject to the number, type, scale and location of future proposals as well as the sensitivity of the receiving environments which are currently unknown. Notwithstanding, it is expected that the potential for adverse environmental effects would be identified and, where possible, addressed during the preparation of Tier 2 plans and through the SEA and AA process of the respective plans. Similarly, at the project stage (Tier 3 projects), environmental impacts would be considered as part of the environmental permitting and planning application process (which may require Environmental Impact Assessment (EIA) and AA depending on the scale, location and nature of development proposed).

### Assessment of Reasonable Alternatives

In accordance with the SEA Regulations 'requirements to consider reasonable alternatives to the WSSP', one reasonable alternative, a 'Successional WSSP', was identified and assessed as part of the SEA with the findings of this assessment recorded in the Environmental Report.

As set out in **Section 2.2**, the 'Successional WSSP' alternative was based on the principle that the management of water services would continue with previous management practices with the retention of around 900 water treatment plants and investment on large capital works including major improvements at larger wastewater treatment plants.

The assessment of this alternative found that whilst investment in large capital works would be expected to enhance water quality and drinking water supply in some areas (with associated benefits in terms of aquatic ecology and human health), these positive effects would not be uniform. Some areas of Ireland would continue to receive substandard drinking water supply whilst the status of some water bodies would not be improved. Further, the approach would restrict the potential for Irish Water to adopt a strategic approach to the management of its assets which could mean that investment, operational improvements and maintenance would not be targeted where greatest benefit would be delivered.

Further detail relating to the reasons for choosing the WSSP as adopted in light of the 'Successional WSSP' alternative is provided in **Section 5**.

### 3.3 Environmental Report Recommendations

The assessment of the draft WSSP identified a range of measures to avoid or minimise potential negative effects, and to enhance positive effects, arising from the implementation of the plan. The measures identified can be broadly categorised as:

- ▶ measures that could be considered to enhance the performance of the WSSP (for example, amendments to strategy wording);
- ▶ measures that could be considered in the development of proposals contained in Tier 2 plans to avoid adverse effects arising from, for example, the delivery of new infrastructure; and
- ▶ measures that could be considered at the individual project stage (Tier 3) to avoid, in particular, adverse effects arising from the construction and operation of new infrastructure.

**Table 3.2** highlights those measures identified during the assessment that cut across a number of the strategies together with the SEO(s) to which they relate and at what level they should be implemented (i.e. through the development of the WSSP, in the preparation of Tier 2 plans or at the Tier 3 project stage, reflecting the mitigation categories listed above).

**Table 3.2 Environmental Report Recommendations**

Measure	Strategic Environmental Objective	Category / Level (Draft WSSP, Tier 2 Plans, Tier 3 Projects)
Consider the inclusion of specific wording in the draft WSSP relating to the avoidance of adverse effects on biodiversity, human health, air quality, cultural heritage and landscape and visual amenity as a result of the upgrade to / construction of new infrastructure. Alternatively, this commitment could be made as part of any future Sustainability Policy and Sustainability Framework (as proposed under Strategy EN1a of the draft WSSP).	SEO 1: Biodiversity, Flora and Fauna SEO 2: Population and Human Health SEO 5: Air and Climatic Factors SEO 9: Cultural Heritage SEO 10: Landscape	Draft WSSP or Tier 2 (Sustainability Policy and Sustainability Framework)
Where possible, future proposals for the provision of new infrastructure should avoid designated nature conservation sites.	SEO 1: Biodiversity, Flora and Fauna	Tier 2 Plans, Tier 3 Projects
Specific mitigation plans may be required to ensure that any adverse effects on designated sites from Irish Water's activities are avoided and localised effects on biodiversity minimised.	SEO 1: Biodiversity, Flora and Fauna	Tier 3 Projects
Where possible, future proposals should be located so as to minimise the potential for adverse effects on human receptors.	SEO 2: Population and Human Health	Tier 2 Plans, Tier 3 Projects
Construction activities should be undertaken in accordance with relevant best practice pollution prevention guidance and appropriate mitigation implemented (such as dust suppression, spill containment and emergency response procedures) to avoid adverse impacts on water quality.	SEO 3: Water Quality and Quantity	Tier 3 Projects
Where possible, vulnerable infrastructure should be located so as to avoid areas of high flood risk. Where infrastructure is located in areas of flood risk, appropriate flood protection measures should be	SEO 4: Flood Risk	Tier 2 Plans, Tier 3 Projects



Measure	Strategic Environmental Objective	Category / Level (Draft WSSP, Tier 2 Plans, Tier 3 Projects)
implemented by Irish Water. New infrastructure should not increase flood risk of other development located downstream within a catchment.		
Measures to reduce emissions to air during construction and operation of infrastructure should be considered including, for example, the use of low emission plant and dust suppression.	SEO 5: Air and Climatic Factors	Tier 3 Projects
Where possible, future proposals for the provision of new infrastructure should avoid locations of cultural heritage value.	SEO 9: Cultural Heritage	Tier 2 Plans, Tier 3 Projects
Where possible, future proposals for the provision of new infrastructure should avoid locations within, or in close proximity to, designated landscapes or sensitive visual receptors.	SEO 10: Landscape	Tier 2 Plans, Tier 3 Projects
At the project stage, construction activity should be screened where possible so as to avoid/minimise adverse landscape/visual impacts.	SEO 10: Landscape	Tier 3 Projects
Where possible, new above ground infrastructure should adopt high quality design principles with landscaping / screening measures utilised to minimise adverse landscape / visual amenity impacts.	SEO 10: Landscape	Tier 3 Projects

As highlighted in **Table 3.2**, the majority of the measures identified through the assessment related to Tier 2 plans and Tier 3 projects. However, one overarching mitigation measure was identified in respect of the draft WSSP itself and which sought to ensure that potential adverse environmental effects arising from new infrastructure are avoided. This recommendation has been accepted by Irish Water and Strategies EN1a and EN1e of the WSSP have been revised to include wording relating to the avoidance of significant adverse effects on biodiversity, human health, water, air quality, cultural heritage, soil and landscape and visual amenity as a result of the upgrade to/construction of new infrastructure.

### 3.4 Changes Made to the WSSP Since Consultation

The final WSSP has taken into account the submissions received during consultation, the findings of the Environmental Report and AA, further discussion with key stakeholders and new information. This has resulted in changes to the draft WSSP which include:

- Further emphasis on sustainability in delivery of water services;
- Commitments to timelines for delivery of the Tier 2 Implementation Plans;
- Inclusion of explicit references to meeting the requirements of the Birds and Habitats Directives in Irish Water's activities; and
- Updates to Irish Water's commitments in the management of septic tank sludges.

The amendments to the draft WSSP have been reviewed in order to determine the extent to which they are significant and therefore require assessment as part of the SEA process. In this instance, the amendments made to the draft WSSP are not substantive. No additional Aims or Strategies have been included within the final WSSP and changes principally comprise minor amendments to wording that were considered not material to the outcome of the assessment contained in the Environmental Report. In consequence, further assessment is not considered to be necessary.



## 4. How the Opinions Expressed in Response to Consultation on the SEA have been taken into Account

### 4.1 Overview

Consultation has been an integral part of the SEA of the WSSP and has comprised three key stages:

- ▶ Initial consultation with the SEA statutory consultees on the scope of the SEA;
- ▶ Consultation on a Draft Scoping Report, alongside the WSSP Issues Paper; and
- ▶ Formal public consultation on the Environmental Report, alongside the draft WSSP.

A summary of the consultation undertaken at each stage of the SEA process and the outcomes is provided in the sections that follow.

### 4.2 SEA Scoping Consultation

A consultation on the proposed scope of the SEA was held with the SEA statutory consultees in May 2014. Subsequently, a Draft Scoping Report was prepared and consulted on alongside the WSSP Issues Paper for a five week period between July and September 2014. The environmental bodies specified under the SEA Regulations<sup>2</sup> as well as the relevant trans-boundary authority in Northern Ireland and other key stakeholders were notified of the publication of the Draft Scoping Report. A total of 14 submissions and observations to the consultation were received. A detailed summary of the submissions received, Irish Water's response and the amendments to the Draft Scoping Report were collated into a Public Consultation Report (PC1) which is available from [www.water.ie](http://www.water.ie). Broadly, the responses received to the consultation concerned:

- ▶ requests for additional baseline information and inclusion of further plans and programmes;
- ▶ amendments to the environmental sensitivities identified in the Draft Scoping Report;
- ▶ consultation on the WSSP and SEA;
- ▶ the scope/content of the WSSP (as opposed to the SEA thereof); and
- ▶ the impact of unconventional oil and gas exploration and production on water resources.

### 4.3 Public Consultation on the Environmental Report

The draft WSSP was subsequently published on the 19<sup>th</sup> February 2015 for public consultation. A total of 58 responses were received with many respondents supportive of the Plan. A Public Consultation Report (PC2) has been prepared by Irish Water and which provides a summary of the responses received. This is available via Irish Water's website at <http://www.water.ie>

Public consultation on the Environmental Report also ran from 19<sup>th</sup> February 2015 to the 17<sup>th</sup> April 2015. Comments on any aspect of the Environmental Report were welcomed, but in particular views were sought to the following questions:

- (i) Do you think that the Environmental Report has identified the significant environmental effects of the draft WSSP? If not, what other significant effects do you think we have missed?

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<sup>2</sup> The following authorities were notified: Department of Agriculture, Food and the Marine; Department of Arts, Heritage and the Gaeltacht; Department of Communications, Energy and Natural Resources; Department of the Environment, Community and Local Government; and Environmental Protection Agency.

- (ii) Do you agree with the conclusions of the Environmental Report and the recommendations for avoiding, reducing or off-setting the significant effects of implementing the WSSP? If not, what do you think the key recommendations should be and why?
- (iii) Do you agree with the proposed arrangements for monitoring the significant effects of the WSSP, as detailed in the Environmental Report? If not, what measures do you propose?

Responses to the Environmental Report were received from the following nine bodies:

- ▶ Environment Protection Agency;
- ▶ Department of Communications, Energy and Natural Resources (Geological Survey of Ireland);
- ▶ Department of Communications, Energy and Natural Resources (Inland Fisheries Ireland);
- ▶ Department of Arts, Heritage and the Gaeltacht;
- ▶ Eastern and Midlands Regional Assembly;
- ▶ Northern and Western Regional Assembly;
- ▶ Southern Regional Assembly;
- ▶ Sustainable Water Network;
- ▶ Northern Ireland Environment Agency.

A brief overview of the areas of the Environmental Report commented on by these bodies is set out in **Table 4.1**. Detailed responses to the consultation and Irish Water's response are also published in the second Public Consultation Report (PC2) which is available from [www.water.ie](http://www.water.ie).

**Table 4.1 Summary of Comments Received on the Environmental Report**

Consultee	Plans and Programmes	Baseline Information	SEOs	Assessment	Mitigation	Monitoring	Alternatives	The WSSP /Tier 2 Plans/Tier 3 Projects	Other
Environment Protection Agency		✓			✓	✓	✓	✓	✓
Department of Communications, Energy and Natural Resources (Geological Survey of Ireland)		✓	✓					✓	
Department of Communications, Energy and Natural Resources (Inland Fisheries Ireland)								✓	
Department of Arts, Heritage and the Gaeltacht;		✓	✓	✓		✓		✓	✓
Eastern and Midlands Regional Assembly		✓				✓			
Northern and Western Regional Assembly					✓				

Consultee	Plans and Programmes	Baseline Information	SEOs	Assessment	Mitigation	Monitoring	Alternatives	The WSSP /Tier 2 Plans/Tier 3 Projects	Other
Southern Regional Assembly	✓	✓							
Sustainable Water Network				✓				✓	
Northern Ireland Environment Agency				✓				✓	

## 4.4 Overview of Submissions

No substantive concerns were raised by consultees in respect of the findings of the SEA. Generally, the responses to consultation focused on the baseline information presented in Appendix C to the Environmental Report and the SEOs.

A number of amendments to the WSSP document were requested, for example, the EPA asked for information on how the SEA informed the preparation of the WSSP and this has been included in this SEA statement. The EPA also requested that the monitoring programme within the SEA be linked with WSSP implementation and monitoring. The monitoring framework presented in the Environmental Report has been updated in response to this submission and is presented in **Section 6** of this SEA Statement.

The submission from the Department of Arts, Heritage and the Gaeltacht requested reference to the recent Article 17 reports and improved integration of the ecological issues between the Environmental Report and the Natura Impact Statement (NIS). The NIS has been updated to reflect this. Further information on the timelines for the implementation of the Tier 2 plans was requested and this has been included within the WSSP. Corrections to minor inaccuracies in the Environmental Report and NIS were also noted.

## 4.5 Conclusion on Submissions

The submissions received to consultation on the Environmental Report would not be expected to materially affect the outcome of the assessment and in consequence, Irish Water has determined that no further assessment of the WSSP is necessary. Notwithstanding, Irish Water will take account of the comments in any future SEA of Tier 2 plans.

Where comments have been received in relation to additional mitigation, these have been considered by Irish Water in preparing the final WSSP. In particular, the following amendments have been made to the WSSP as a result of the responses received:

- ▶ the text of Strategy EN1e has been expanded to include reference to archaeology; and
- ▶ a statement has been included in the WSSP in relation to the environment in Northern Ireland in order to avoid or minimise trans-boundary negative effects (see Strategy EN1e).

Additionally, comments made in relation to monitoring the implementation of the WSSP have been considered in finalising the monitoring framework which is detailed in **Section 6** of this SEA Statement.

## 5. The Reasons for Choosing the Water Services Strategic Plan as Adopted, in Light of the Other Reasonable Alternatives Dealt With

The findings of the assessment of the draft WSSP contained in the Environmental Report confirmed that the implementation of the plan is likely to have positive environmental effects. This principally reflects the emphasis of the WSSP aims and strategies on the sustainable management of water resources, compliance with the UWWTD and support for measures to achieve WFD water body objectives. No significant negative environmental effects are anticipated, although the assessment identified the potential for the WSSP to have minor negative effects on Biodiversity; Population and Human Health; Water Quality and Quantity; Air and Climatic Factors; Soil; and Landscape (potential effects on Cultural Heritage are considered to be uncertain at this stage) principally due to short term effects related to the construction of new infrastructure identified in Tier 2 plans. The Natura Impact Statement has also concluded that the WSSP will have no significant and adverse effects on any European sites, alone or 'in combination' with other plans and programmes. The potential for Tier 2 plans and Tier 3 projects to have significant and adverse effects on any European sites, alone or 'in combination' with other plans and programmes will be considered within the environmental assessments for these plans and projects when required and appropriate mitigation will be proposed.

The 'Successional WSSP' alternative is based on the principle that the management of water services would continue with previous management practices. This would include the retention of existing water treatment plants managed on an individual basis and investment on large capital works including major improvements at larger wastewater treatment plants. The assessment of this alternative contained in the Environmental Report found that, similar to the WSSP, a 'Successional WSSP' would be expected to have minor negative effects across a number of the SEOs due to construction-related environmental effects. However, the assessment also revealed that whilst investment in large capital works would be expected to enhance water quality and drinking water supply in some areas (with associated benefits in terms of aquatic ecology and human health), these positive effects would not be uniform. Some areas of Ireland would continue to receive substandard drinking water supply whilst the status of some water bodies would not be improved. Furthermore, the approach would restrict the potential for Irish Water to adopt a strategic approach to the management of its assets which could mean that investment, operational improvements and maintenance would not be targeted where greatest benefit would be delivered. In consequence, the 'Successional WSSP' has been determined through the SEA as not the preferred alternative from an environmental perspective.

More broadly, Irish Water currently operates a fragmented network of water and wastewater services. The assets are wide ranging in their type, operation, efficiency and effectiveness. The origins of this position lie in the dispersed and rural nature of a significant part of the Irish population and the development of water and wastewater services along local authority boundaries.

Drinking water quality in many supplies does not meet the standard required by the European Drinking Water Directive and Irish Drinking Water Regulations. This is due to the quality of the water source and the performance of the treatment plant and network. Water abstractions have in many areas been sourced from smaller water bodies (lakes, rivers or groundwater) which are not capable of meeting future growth in demand. Likewise, smaller water bodies have a lower capacity to accept discharges from wastewater treatment plants without significant impact to the ecology (fish, invertebrates and plants).

The resilience (i.e. reliability, security and ability to cope with change) of water and wastewater services is weak in many areas with networks reliant on a single source, treatment plant or storage reservoir and low headroom (additional capacity above that required to deliver its service).

Cost effective provision of water and wastewater services becomes more possible as Irish Water consolidate toward resilient, interconnected regional supply networks, served by larger treatment plants, where an actual emerging need for water, or wastewater capacity, can be planned, and readily delivered from a capacity reserve, subsequently replenished.

The adopted WSSP is based on consolidation and interconnection of water assets, so that constructed capacity is more regionally deployable and cost effective offers a number of advantages. It will improve



security of supply of services through interconnection and enable national planning for future provision of water services. It aims to be safe, sustainable and affordable.

A continuity of the current local scale provision of water and wastewater services under a 'Successional WSSP' would not be as cost effective as a regionally planned business model and will result in some water services continuing to struggle to meet standards for drinking water quality and wastewater discharges and measures required under the WFD.

## 6. The Measures Decided Concerning Monitoring

The SEA Directive requires the significant environmental effects of implementing a plan to be monitored. Monitoring the environmental effects of the WSSP can help to answer questions such as:

- ▶ Were the SEA predictions of effects accurate?
- ▶ Is the WSSP contributing to the achievement of the SEOs?
- ▶ Are mitigation measures performing as well as expected?
- ▶ Are there any adverse effects? Are these within acceptable limits, or is remedial action desirable?

Monitoring the effects of the implementation of the WSSP will focus on:

- ▶ Significant effects that may give rise to irreversible damage, with a view to identifying trends before such damage is caused; and
- ▶ Significant effects where there was uncertainty in the SEA and where monitoring would enable preventative or mitigation measures to be undertaken.

Consistent with the proposals in the Environmental Report, potential effects against all of the SEOs have been included in the monitoring framework, which is set out in **Table 6.1**. The proposed indicators are integrated into, and consistent with, those in the WSSP to ensure that they are carried through into further stages of implementation. The sources are also consistent with: the River Basin Management Plans and their associated SEAs; data which is monitored to comply with the WFD; and EPA drinking water quality monitoring data.

Table 6.1 Monitoring Indicators

Strategic Environmental Objectives (SEOs)	SEO Targets	SEA Indicators	Data Source
1. Prevent damage to terrestrial, aquatic and soil biodiversity, particularly EU designated sites and protected species resulting from Irish Water's activities.	Maintenance of favourable conservation status for all habitats and species protected under national and international legislation to be unaffected by implementation of WSSP <sup>3</sup> .	The Status of EU Protected Habitats and Species (Article 17 Conservation Status Assessments reports due every 6 years, current reports published in 2013). (Ire and NI)  WSSP indicators in relation to "operating water services infrastructure in a manner that facilitates the achievement of the water body objectives under the WFD and IW's obligations under the Birds and Habitats Directives".	NPWS/NIEA  Irish Water

<sup>3</sup> Except as provided for in Section 6(4) of the Habitats Directive, viz. There must be: (a) no alternative solution available; (b) imperative reasons of overriding public interest for the plan to proceed; and, (c) adequate compensatory measures in place.

Strategic Environmental Objectives (SEOs)	SEO Targets	SEA Indicators	Data Source
<p>2. Protect and reduce risk to human health in undertaking water services.</p>	<p>WSSP to contribute to the achievement of:</p> <ul style="list-style-type: none"> <li>All drinking water areas (including groundwater), as identified on the register of protected areas, to achieve good status, or maintain high status.</li> <li>All bathing waters, as identified on the register of protected areas, to achieve good status, or maintain high status.</li> <li>All economic shellfish waters, as identified on the register of protected areas, to achieve good status, or maintain high status.</li> <li>All water bodies designated for salmonids, as identified on the register of protected areas, to achieve good status, or maintain high status.</li> <li>Long term reduction in drinking water restriction notices.</li> </ul>	<p>WSSP indicators and targets in the 'Ensure a Safe and Reliable Water Supply' Strategic Objective.</p> <p>WSSP indicators and targets in the 'Provide Effective Wastewater Management' Strategic Objective.</p>	<p>Irish Water &amp; EPA</p> <p>Irish Water &amp; EPA</p>
<p>3. Prevent deterioration of the status of water bodies with regard to quality and quantity due to Irish Water activities and contribute towards the improvement of water body status for rivers, lakes, transitional and coastal waters and groundwaters to at least good status, as appropriate to the Water Framework Directive.</p>	<p>WSSP to contribute to the achievement of:</p> <ul style="list-style-type: none"> <li>No deterioration in status of waters currently with high or good status (WFD Objective).</li> <li>Restoration to good status of waters currently at moderate, poor or bad status (WFD Objective).</li> <li>Progressively reduce chemical pollution in waters (WFD).</li> <li>Limit pollution inputs to groundwaters and prevent deterioration (WFD Objective).</li> </ul>	<p>WSSP indicators and targets in the 'Ensure a Safe and Reliable Water Supply' Strategic Objective.</p> <p>WSSP indicators and targets in the 'Provide Effective Wastewater Management' Strategic Objective.</p>	<p>Irish Water &amp; EPA</p>
<p>4. Minimise increases in flood risk resulting from Irish Water's activities.</p>	<p>No increase in properties at risk from flooding as a result of Irish Water's activities.</p>	<p>WSSP indicator and target under Aim WW2 (Number of incidents of sewer flooding of properties).</p> <p>WSSP Strategy EN1e with completion of Flood Risk Assessments to planning requirements (where required).</p>	<p>Irish Water</p> <p>Irish Water</p>



Strategic Environmental Objectives (SEOs)	SEO Targets	SEA Indicators	Data Source
5. Minimise contributions to climate change and emissions to air (including greenhouse gas emissions) as a result of Irish Water activities and ensure the resilience of water supply and treatment infrastructure to the effects of climate change.	Improve energy efficiency by 33% by 2020 (from the 2009 baseline).	Preparation and implementation of the Sustainable Energy Strategy [EN1b]. Report % increase in overall energy efficiency at Irish Water facilities.	Irish Water
	Compliance with odour criteria to prevent deterioration in amenity beyond the site boundary as set out in license for new or upgraded wastewater infrastructure.	Number of complaints received related to odour.	Irish Water
	Ensure resilience of infrastructure to the effects of climate change	Preparation and implementation of the Climate Change Adaptation and Mitigation Strategy [EN1c]	Irish Water
6. Provide new, and upgrade existing, water and wastewater management infrastructure to protect human health and ecological status of water bodies.	Interim Target: Increase investment in water services infrastructure.	Interim Indicator: Water services investment expenditure per annum.	Irish Water
	Long Term Target: Full compliance with the requirements of the Drinking Water Directive and Urban Waste Water Treatment Directive and their associated regulations.	Long Term Indicator: Number of exceedances of the Emission Limit Values (ELVs) for Wastewater Treatment Discharge consents set by the EPA.	EPA
7. Protect water as an economic resource.	Achieve a reduction in leakage.	Meet the leakage targets set in WSSP Aim WS3.	Irish Water
	Achieve sustainable use of water in the context of maintaining its economic benefit.	Change in economic value of water relative to the baseline report The Economic Analysis of Water Use in Ireland.	EPA economic studies for the 2nd cycle of RBMP.
8. Avoid conflicts with, and contribute towards, where possible, the appropriate management of soils.	Avoid conflicts with, and contribute towards, where possible, the appropriate management of peatlands as per the National Peatlands Strategy.	The status of raised bogs as reported to the EU (report due every 6 years, latest report in 2013).	NPWS
9. Avoid damage to cultural heritage resources resulting from Irish Water's activities.	No unauthorised physical damage or alteration of the context of cultural heritage features due to Irish Water activities.	Implementation of Strategy EN1e [Adherence to environmental and planning legislation]	Irish Water
		Any change in the condition of monuments on the Record of Monuments and Places due to Irish Water activities.	Archaeological Survey of Ireland Sites and Monuments Record

Strategic Environmental Objectives (SEOs)	SEO Targets	SEA Indicators	Data Source
10. Avoid damage to designated landscapes resulting from Irish Water's activities.	Avoid damage to designated landscapes as a result of WSSP implementation.	Compliance with WSSP Strategy EN1e [Adherence to environmental and planning legislation]	Irish Water

It should be noted that the indicators and targets that comprise the monitoring framework represent high level and wide ranging environmental parameters derived from existing plans and programmes and are not the sole responsibility of Irish Water. The indicators and the achievement of associated targets will be influenced by a range of factors including the activities of other sectors and Irish Water will need to take a broad view of the findings of ongoing monitoring processes to identify whether the WSSP has any significant unforeseen effects. Where these are identified, Irish Water may need to put in place specific monitoring arrangements and will consider how best to mitigate or avoid the adverse consequences.

Irish Water recognises that there is some uncertainty relating to the outcomes of the WSSP which reflects the high level nature of the Plan. However, as set out in **Section 3.2**, it is anticipated that more detailed assessments (i.e. SEA and AA and, at a project level, EIA) of outcomes from the WSSP (e.g. Tier 2 plans and Tier 3 projects) will be undertaken as appropriate. These assessments will help to identify any potentially unforeseen or unknown effects arising from the WSSP and, further, will define more specific/detailed monitoring indicators. In this context, detailed monitoring programmes (including environmental monitoring) will be developed for the national Tier 2 plans, as appropriate.

# Appendix A

## Compliance with SEA Regulations

**Table A.1** details the SEA Regulations’ requirements of the post adoption procedures and indicates where relevant information required can be found in this report.

Table A.1 Compliance of this Report with the Requirements of the SEA Regulations

SEA Regulations Requirement	Location in this SEA Statement (where appropriate)
<b>Information on decision (SEA regulation 16)</b>	
<p>1. As soon as practicable after the adoption of a plan or programme, or modification to a plan or programme, the competent authority shall—</p> <p>(a) send notice of adoption of, and a copy of, the plan or programme, or modification to a plan or programme, and a copy of the statement referred to in sub-article (2)(b) to the environmental authorities specified in article 9(5), as appropriate, and</p> <p>(b) publish notice of the adoption of the plan or programme, or modification to a plan or programme, in at least one newspaper with a sufficiently large circulation in the area covered by the plan or programme, or modification to a plan or programme.</p> <p>2. A notice under sub-article (1)(b) shall state that</p> <p>(a) a copy of the plan or programme, or modification to a plan or programme, is available for inspection at a stated place or places and at stated times and a copy shall be kept available for inspection accordingly, and</p> <p>(b) a statement is also available for inspection (which summarises the matters outlined below)..</p>	<p>Irish Water, as the competent authority, will send notice of the adoption of the WSSP, the WSSP itself and this SEA Statement to the environmental authorities subsequent to the Ministers approval of the WSSP.</p> <p>Irish Water will publish notice of the adoption subsequent to the Ministers approval..</p> <p>A copy of the WSSP and accompanying reports and documentation are available at: <a href="http://www.water.ie/">http://www.water.ie/</a></p> <p>A paper copy of the WSSP, Environmental Report and this SEA Statement are available for public viewing at: Colvill House, Talbot Street, Dublin 1.</p> <p>The office is open from 9 am until 5 pm Monday to Friday</p> <p>This SEA Statement addresses 2(b) and contains particulars specified in the Regulations as outlined below.</p>
<p>The particulars under 2(b) are:</p> <p>(i) how environmental considerations have been integrated into the plan or programme, or modification to a plan or programme,</p> <p>(ii) how:</p> <p>(I) the environmental report prepared pursuant to article 12,</p> <p>(II) submissions and observations made to the competent authority in response to a notice under article 13, and</p> <p>(III) any consultations under article 14,</p> <p>have been taken into account during the preparation of the plan or programme, or modification to a plan or programme,</p> <p>(iii) the reasons for choosing the plan or programme, or modification to a plan or programme, in the light of the other reasonable alternatives dealt with, and</p> <p>(iv) the measures decided upon to monitor, in accordance with article 17, the significant environmental effects of implementation of the plan or programme, or modification to a plan or programme.</p>	<p>Section 2</p> <p>Section 3 and Section 4. Further detail is provided in the second Public Consultation Report (PC2) which is available from <a href="http://www.water.ie">www.water.ie</a>.</p> <p>Section 5</p> <p>Section 6</p>

SEA Regulations Requirement	Location in this SEA Statement (where appropriate)
<p><b>Monitoring (SEA regulation 17)</b></p> <p>The competent authority shall monitor the significant environmental effects of implementation of the plan or programme, or modification to a plan or programme in order, inter alia, to identify at an early stage unforeseen adverse effects and to be able to undertake appropriate remedial action and, for this purpose, existing monitoring arrangements may be used, if appropriate, with a view to avoiding duplication of monitoring.</p>	<p>Monitoring procedures are set out in Section 6. Irish Water will identify effects and undertake remedial action (as necessary) as the WSSP is implemented.</p> <p>The monitoring procedures set out in Section 6 will complement existing monitoring arrangements where possible.</p>