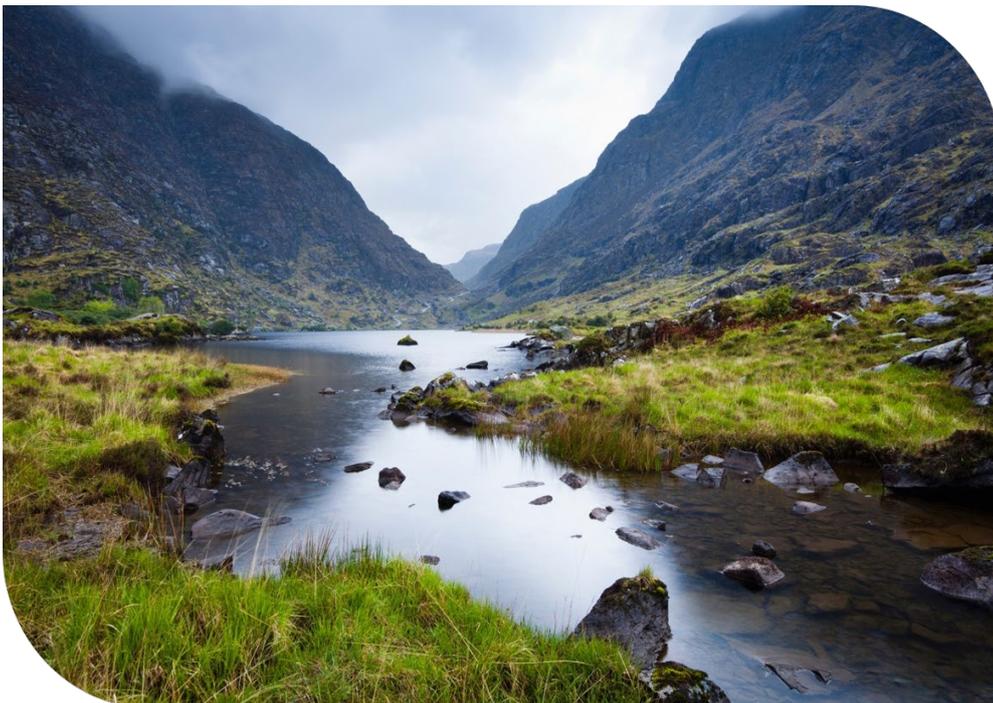


Autumn 2022



Draft Regional Water Resources Plan–North West

Strategic Environmental Assessment
Environmental Report
Non-Technical Summary



Tionscadal Éireann
Project Ireland
2040

Data disclaimer: This document uses best available data at time of writing. Some sources may have been updated in the interim period. As data relating to population forecasts and trends are based on information gathered before the Covid 19 Pandemic, monitoring and feedback will be used to capture any updates. The National Water Resources Plan will also align to relevant updates in applicable policy documentation.

Baseline data included in the draft RWRP-NW has been incorporated from numerous sources including but not limited to; National Planning Framework, Central Statistics Office, Regional Spatial and Economic Strategies, Local Authority data sets, Regional Assembly data sets and Irish Water data sets. Data sources will be detailed in the relevant sections of the draft RWRP-NW. 2019 was selected as the base year to align with the planning period (2019-2025) of the NWRP.

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1 Introduction and Background

On the 1st of January 2014, through the Water Services Act (No. 1) 2013, Irish Water assumed statutory responsibility for the provision of public water services and management of water and wastewater investment. Irish Water’s role is to provide public water and wastewater services throughout the country.

Irish Water is the custodian with the responsibility to manage the precious water resource and, with Local Authority partners, secure it for future generations. It is Irish Water’s responsibility to ensure that all their customers receive a safe and secure supply of drinking water and have their wastewater collected, appropriately treated and returned to the environment. Irish Water support Ireland’s social and economic growth in a sustainable manner through appropriate investment in water services.

1.1 What is the National Water Resources Plan?

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. Being able to understand and estimate how much water is required, where it is required, and the variability of requirements over the course of the year or over time, is essential to plan appropriately for the future of the public water supply.

A Water Resources Plan is a strategic plan used to identify deficiencies and need across a water supply and to develop Plan level solutions to address these issues.

Irish Water’s National Water Resources Plan (NWRP) will be the first resources plan for the public water supply in the Republic of Ireland. It will allow Irish Water to integrate Government Policy, Legislation and external factors that have the potential to impact Irish Water supplies into the planning and operation of its existing and future supply asset base.

The objective of a NWRP is to manage customer and communities needs while meeting their requirements over the short, medium and long term by ensuring safe, secure, sustainable and reliable water supplies. The NWRP will:

- Enable Irish Water to address needs across our water supplies in the most effective way over time, by identifying and in turn, prioritising what needs to be included in regulated investment cycles;
- Ensure that there is a transparent framework to develop the most appropriate projects/programmes to meet statutory obligations in relation to water supply; and
- Provide a framework to track outcomes, allowing interventions to be prioritised to bring the water supply up to the required standards in the shortest possible timeframe.

1.2 Development of the National Water Resources Plan

As this is Irish Water’s first NWRP it has been split into two distinct stages, summarised in Table NTS 1.1. Irish Water is currently in Phase 2.

Table NTS 1.1 National Water Resources Plan Phases

NWRP Phases	NWRP Reports	Content
Phase 1:	NWRP – draft	Need Identification including the Supply Demand Balance (SDB)
Framework Plan	Framework Plan	Calculations
Completed		NWRP Objectives Generic Options Types

NWRP Phases	NWRP Reports	Content
		Options Assessment Methodology Published for consultation with an SEA Environment Report and Natura Impact Statement (NIS).
	Case Study - Study Area	Test of the Options Assessment Methodology against Study Area 5 provided as an example with the draft NWRP Framework to demonstrate the methodology. The outcomes were not part of the draft Framework Plan consultation.
	NWRP - final Framework Plan	Finalisation of the Framework Plan taking account of consultation comments. Framework Plan adopted and published with an SEA Statement and AA Determination in May 2021
Phase 2: RWRPs (Regional Plans)	Draft RWRPs (draft Regional Plans)	Application of Options Assessment Methodology and Identification of the Preferred Approach for the following regions: North West (GA1¹) South West (GA2) South East (GA3) Eastern and Midlands (GA4)
	Final RWRPs (final Regional Plans)	Finalise and adopt each RWRP (Regional Plans) once their individual consultations are completed.

1.3 Strategic Environmental Assessment

This is the Non-Technical Summary (NTS) report of the Strategic Environmental Assessment (SEA) Environmental Report for the draft Regional Water Resources Plan for the North West (RWRP-NW). The report has been prepared having regard to the SEA Directive (2001/42/EC) and its provisions that are transposed into Irish law by European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. No. 435 of 2004 as amended in 2011). The SEA Environmental Report, together with its appendices, this NTS and the supporting information from the appropriate assessment (documented in the Natura Impact Statement (NIS)) are published alongside the Regional Plan and notice given in accordance with Article 16 of the SEA Regulations.

1.3.1 Legislative Requirement

Council Directive 2001/42/EC of the European Parliament and of the Council of 27th June 2001 on the assessment of the effects of certain plans and programmes on the environment (the SEA Directive) established the statutory requirement for SEA as part of the development of certain plans and programmes. The Directive is applicable to the Framework Plan and each of the Regional Plans of the NWRP.

The transposing Irish Regulations are the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. No. 435 of 2004) as amended by the European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011 (S.I. No. 200 of 2011).

¹ Group Area (GA) is an alternative reference for the regional areas

1.3.2 Strategic Environmental Assessment Process

The purpose of SEA is to enable plan-making authorities such as Irish Water to incorporate environmental considerations into decision-making at an early stage and in an integrated way throughout the plan-making process. The SEA process is undertaken in four stages. The progress for each stage of the SEA process for the Draft North West Regional Plan is summarised in Table NTS 1.2. The SEA process for Phase 1 of the NWRP, the Framework Plan, has already been completed.

Table NTS 1.2 Stages of SEA for the North West Regional Plan

Stage	Purpose and Requirements	Progress to Date / Current Status
Stage 1: Screening	Prior to starting the SEA process, a plan or programme undergoes “screening” to determine whether it requires an SEA.	SEA Screening Statement – Irish Water (as the responsible authority) determined that SEA was required for the NWRP when screening was carried out in August 2017 and included with the Regional Plan SEA Scoping Report (May 2021).
Stage 2: Scoping	Consideration of the context and objectives of the SEA provides information on baseline data, identifies relevant environmental issues and trends, and defines the parameters of the scope of the SEA for the purpose of consultation.	SEA Scoping Report – The SEA Scoping Report set the geographical and temporal scope of the Regional Plan and SEA, the baseline environment, and a proposed framework of SEA objectives to inform the Stage 3 assessment. Formal statutory consultation was carried out between 1st June 2022 and 29th June 2022.
Stage 3: Identification, Prediction, Evaluation and Mitigation of Potential Effects	Within the context and parameters identified at the scoping stage. Identification and evaluation of likely significant effects of the Regional Plan is carried out, including consideration of alternatives and determination of measures to mitigate and monitor potential residual effects.	Environmental Report (SEA of the Regional Plan) – this report. Consultation will take place alongside the Regional Plan consultation. <div style="border: 2px solid red; border-radius: 15px; padding: 5px; text-align: center;">Current Stage in the SEA Process</div>
Stage 4: Consultation, Revision and Post-Adoption	Consultation with statutory consultees and the public. This may require changes to the Regional Plan and SEA Environmental Report in light of responses. Implementation of the monitoring plan.	This stage will follow on from stage 3 and involve responding to the consultation comments and incorporating into the Regional Plan, finalisation of the plan and publication of the Post-Adoption SEA Statement

1.3.3 Development of the Regional Plan within the Framework Plan, the SEA and AA

The options development process which Irish Water propose to use to develop the Preferred Approach for all Regional Plans is described within the Framework Plan and was subject to a separate SEA process and finalised in May 2021. The options assessment methodology is outlined in chapter 6, with

further detail available within the Framework Plan and the SEA Statement which accompanies the Framework Plan which can both be found at: <https://www.water.ie/projects/strategic-plans/national-water-resources/>

SEA and AA requirements were incorporated into the development of the Framework Plan and have influenced the development of the options assessment methodology for this Regional Plan and future Regional Plans. Figure NTS 1.1 shows how the SEA and AA reporting will align with each other and with development of the Regional Plan.

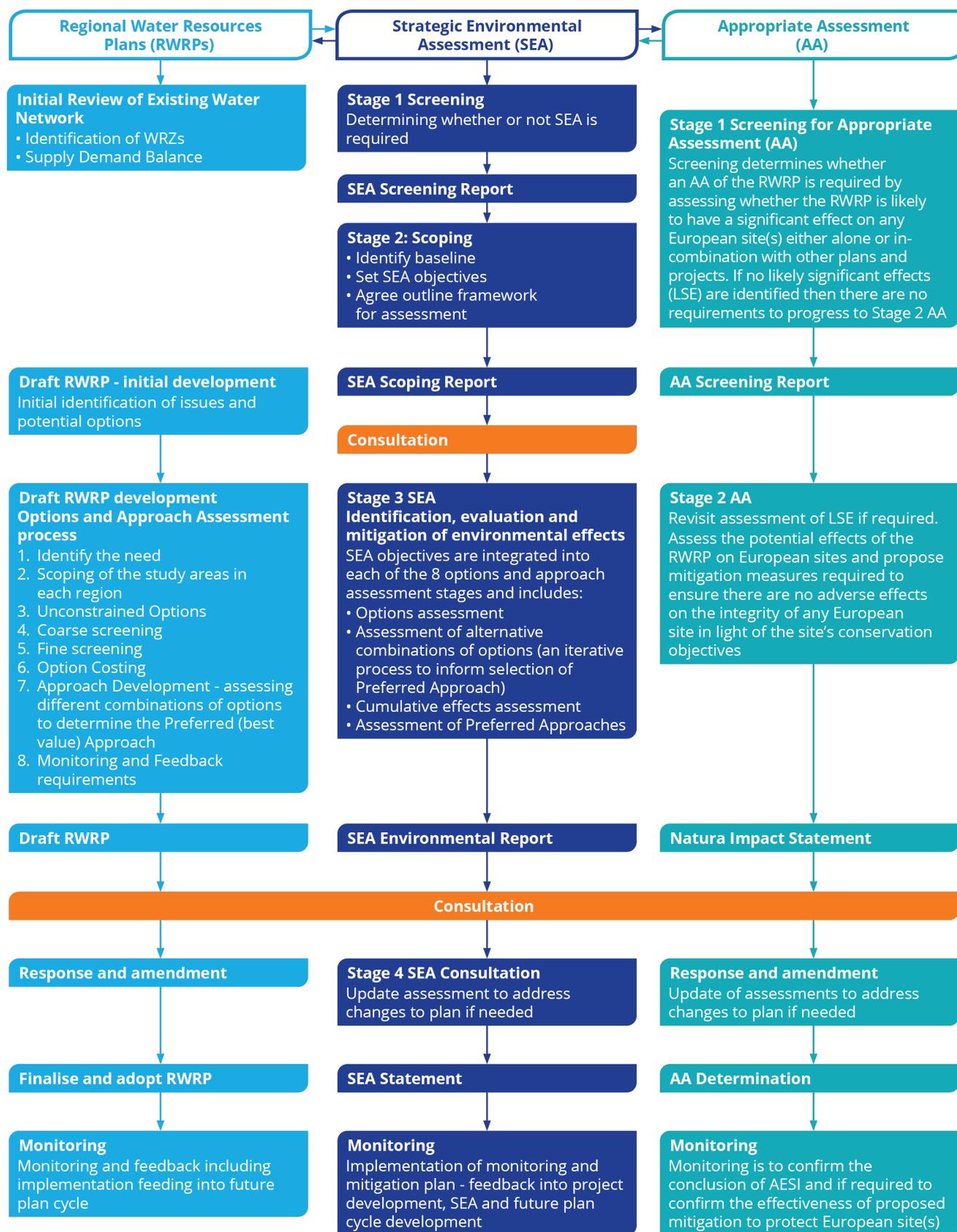


Figure NTS 1.1 Regional Plan and Strategic Environmental Assessment Process

2 Overview of the North West Region

Irish Water is planning to develop a national programme of proposed solutions for reducing and eliminating the SDB deficits for each WRZ, meet water quality requirements and bring greater resilience to the water supply network. The aim of the programme is based around the following three pillars, as shown in Figure NTS 2.1.

- **Lose Less:** reducing water lost to the system through leakage;
- **Use Less:** reducing water use through efficiency measures; and
- **Supply Smarter:** improving the quality, resilience and security of Irish Water's supply through infrastructure improvements.



Figure NTS 2.1 Three Pillars to address the key challenges to the draft Framework Plan

Together these pillars will enable Irish Water to optimise its capital and operational interventions to achieve the best outcomes and react to emerging issues.

Supply Demand Balance (SDB) calculations - Is a way of comparing the available resources to supply customers with their projected water needs over time.

Water Resource Zones (WRZ) - are the management units at which resources planning is undertaken, and the SDB is calculated for each WRZ. The Framework Plan has identified 539 WRZs in Ireland.

Levels of Service - the reliability of supply that Irish Water customers can expect to receive and is expressed as a frequency or return period of supply failure. For example, if the Levels of Service is stated as 1 in 50, as a customer, you would only ever expect to experience a water outage or severe limitations to your supply, on average, once every 50 years

There are 142 WTPs in the North West Region, which collectively serve 732,700 people or 18% of the population of Ireland, via approximately 17,700 kilometres of distribution network. The size of these WTPs varies, with the largest three in the region producing on average 32% of the water supplied and the remaining 139 producing on average about 68% or 251 Ml/d of the total supply.

The WTPs feed water into supply areas known as Water Resources Zones (WRZs). Each WRZ is an independent water supply system serving a region, city, town or village and is governed by topography or the extent of the water distribution network in an area. Within a WRZ most customers receive the same Level of Service (LoS), measured as a probability of interruption to services and the aim of the NWRP is to bring the LoS across the network to a 1 in 50 LoS (one interruption to the supply in 50 years).

The draft RWRP-NW summarises key issues that impact the quality, sustainability and reliability of our existing water supplies, in this region, including:

- Levels of Service;
- Treatment Capacity;
- Water Quality;
- Network Performance;
- Abstractions potentially at risk of exceeding sustainable abstraction thresholds; and
- Constrained Funding.

In addition, Irish Water also face key challenges over the coming years, which have the potential to exacerbate the current problems in the region, including:

- A growing population;
- A changing climate;
- Changes in land use and emerging contaminants;
- Legislative changes; and
- An Environment in Need.

Addressing these challenges as part of the overall NWRP, ensures that future infrastructure development is proportionate to the identified need and is sustainable, reliable and resilient.

2.1 North West Study Areas

The North West Region is further subdivided into seven study areas (SAs) based on WFD catchment and WRZ boundaries within the region, as shown in Figure NTS 2.2.

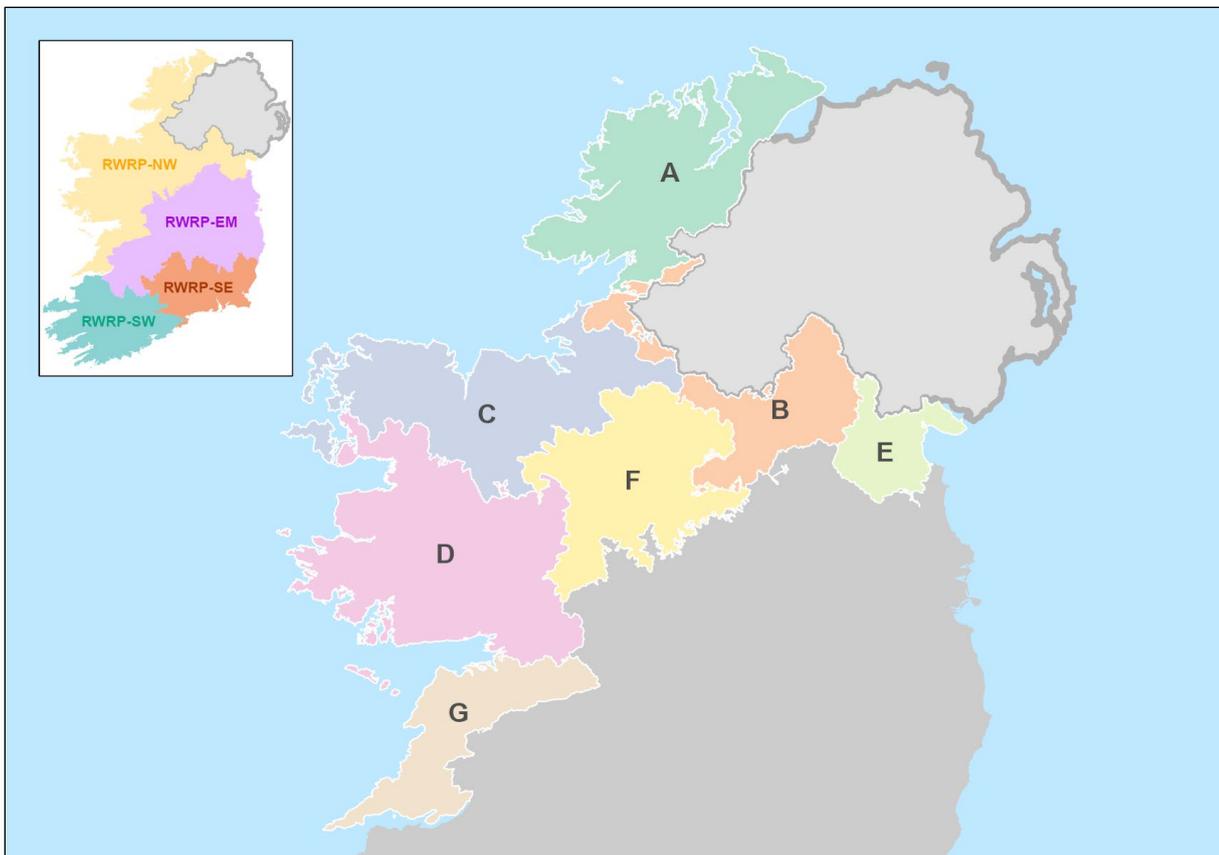


Figure NTS 2.2 North West Region Study Areas

3 Consultation

3.1 Purpose of Consultation and Engagement

Public consultation and stakeholder engagement is a key element in ensuring stakeholders and members of the public have an opportunity to contribute to the development of plans and projects in Ireland. Irish Water is undertaking an accessible, meaningful, and accountable consultation and engagement process with stakeholders and members of the public throughout the development of the NWRP including the Regional Water Resource Plans (RWRPs).

There are two main stages to the engagement and consultation relevant to the draft Regional Water Resource Plan North West (draft RWRP-NW) and the SEA Environmental Report. The overall consultation process for the RWRP-NW is summarised in Figure NTS 3.1 below:

RWRP North West Public Consultation Roadmap

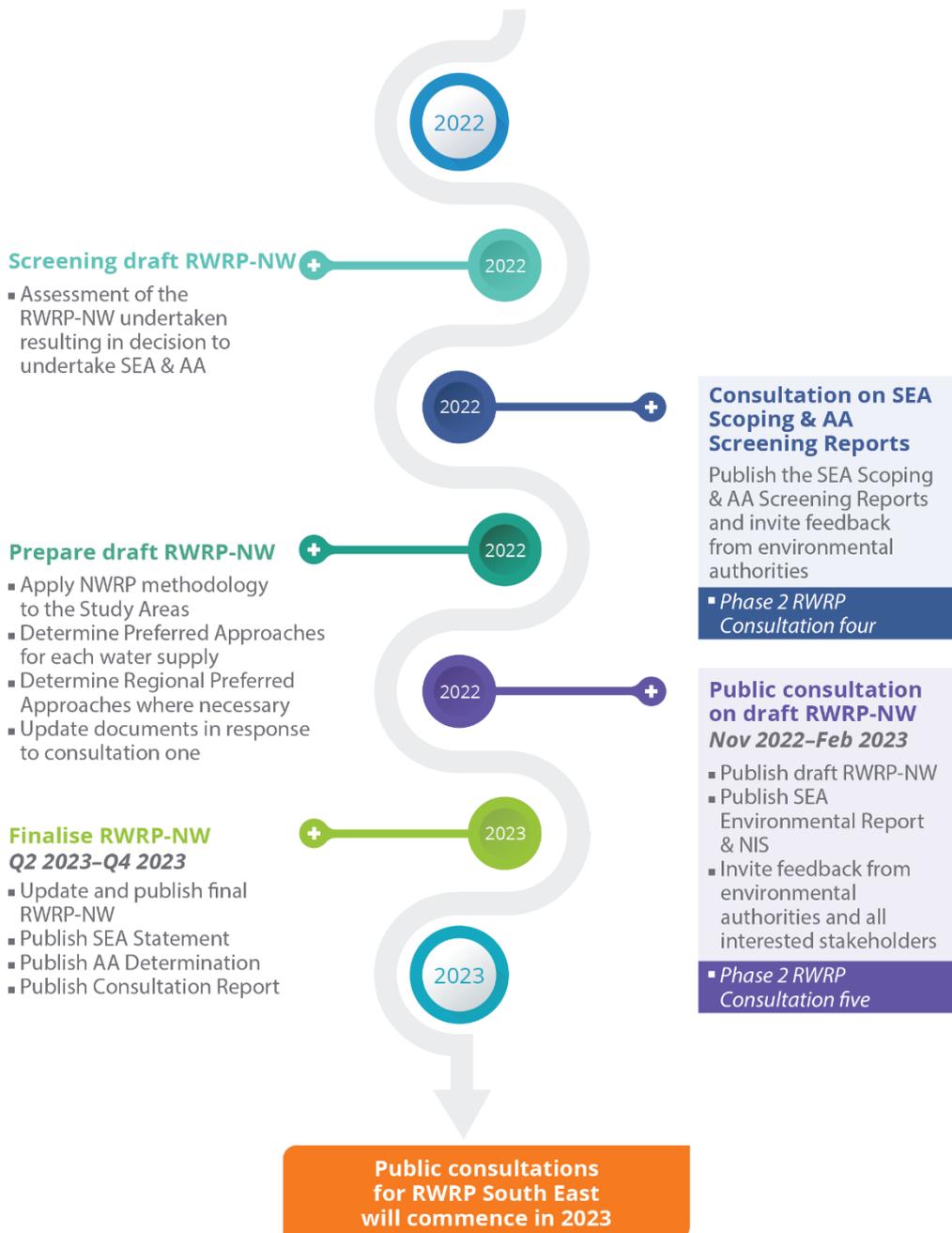


Figure NTS 3.1 Consultation Roadmap

- **Framework Plan SEA process and consultation** – including SEA scoping consultation and wider engagement on the developing options and approach assessment methodology and the publication of the draft Framework Plan and SEA Environmental report for consultation which focused on setting out the methodology to be applied through the Regional Plans. The NWRP Framework Plan Consultation adopted in Spring 2021 and it, along with the SEA Statement and AA Determination, are available on <https://www.water.ie/projects/strategic-plans/national-water-resources/>; and
- **RWRP-NW SEA process and consultation** – these apply the methodology from the adopted Framework Plan and, as part of the SEA process, scoping consultation has been undertaken and responses have informed the SEA and draft RWRP-NW development.

The draft RWRP-NW has been developed applying the methodology from the adopted Framework Plan and SEA taking account of the consultation received through that process so although a separate formal process is followed for each Regional Plan, it is closely linked to the Framework Plan.

3.2 Consultation 1 Scoping Stage

A SEA scoping report was consulted on in line with Article 9 (5) of the SEA Regulations (S.I. No. 435 of 2004), and was issued to the following statutory Environmental Authorities:

- The Environmental Protection Agency;
- Department of Housing, Local Government and Heritage;
- The Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media (DTCAGSM) - Development Applications Unit (DAU);
- The Department of Agriculture, Food and the Marine;
- Department of the Environment, Climate and Communications; and
- Northern Ireland's Department of Agriculture, Environment and Rural Affairs.

This SEA Scoping Report is available online at the following website: <https://www.water.ie/nwrp>.

The scoping consultation commenced on 1st June 2022 and closed on the 29th June 2022, and comments received have been considered.

Responses to the comments for the draft RWRP and SEA are provided in Appendix G to the SEA Environmental Report and range from amendments to include additional policy and legislation in the Policy, Plans and Programme review, provision of additional explanation on how expected legislation will be addressed, provision of additional information the assessment of sustainability of surface and groundwater abstractions, commitments to improve data collection going forward, undertake ongoing monitoring and feedback within the 5 year plan cycle and for involvement in collaborative engagement for the plan development and implementation.

This NTS together with the SEA Environmental Report have been published on the Irish Water (<https://www.water.ie/nwrp>) alongside the Regional Plan and the NIS. The SEA Environmental Report outlines the assessment of the Regional Plan, including effects on the environment and proposed mitigation. In accordance with Article 11 of European Communities (Environmental Assessment of Certain Plans and Programmes (S.I. No. 435 of 2004), SEA environmental authorities, as well as any relevant transboundary authorities (for example, Northern Ireland Environmental Agency), have been notified so that they may make a submission or observation in relation to the SEA Environmental Report or the Regional Plan to Irish Water.

Irish Water has referred to the SEA Environmental Report and the NIS when preparing the Regional Plan of the NWRP. The reports are now on display for a 13-week statutory public consultation. Further information on the consultation on the Regional Plan, SEA Environmental Report and NIS is provided in chapter 4 of this report.

4 Review of Relevant Plans, Policies and Programmes

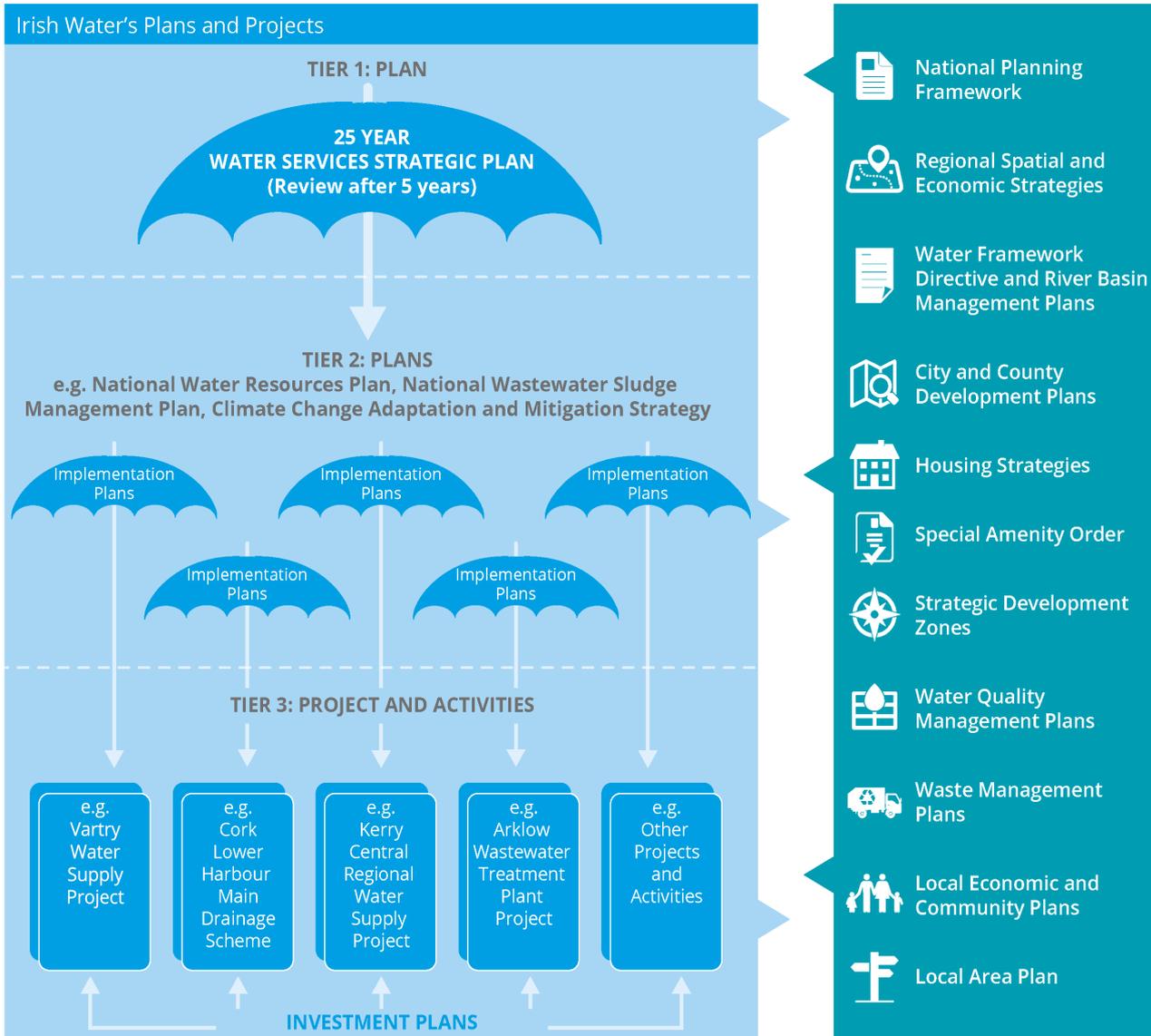
A review of, the relationship with the relevant policy, plan, programme and legislative framework was conducted as part of the SEA Scoping Report for RWRP-NW and has been further refined following that consultation process. This was an important part of setting the context for the SEA. The review process has informed the scope of the SEA, the focus for identifying the baseline environment and the development of the SEA objectives. Key influences identified at the national level which also apply to the Regional Plan include:

- UN Sustainable Development Goals (SDGs);
- EU WFD (Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy);
- EU Drinking Water Directive (Directive 2020/2184 of the European Parliament and of the Council on the quality of water intended for human consumption (recast));
- River Basin Management Plan for Ireland 2018-2021 (the draft 2022-2027 Plan was published for consultation in September 2021);
- National Adaptation Plan & Adaptation Plan for Water Quality and Water Services Infrastructure;
- Climate Action and Low Carbon Development Act 2015 (as amended 2021);
- Climate Action Plan;
- Water Environment (Abstractions and Associated Impoundments) Bill 2022 (as initiated);
- National Planning Framework – Project Ireland 2040;
- National Adaptation Framework Sectoral Adaptation Planning;
- Regional Spatial and Economic Strategy (RSES) for the Eastern and Midlands Region, RSES for the Southern Region and RSES for the Northern and Western Regional Assembly; and
- Related Irish Water plans and strategies including the Water Services Strategic Plan (Tier 1 plan), National Wastewater Sludge Management Plan, Lead in Drinking Water Mitigation Plan, Sustainable Energy Strategy - Climate Change Mitigation and Adaptation Strategy, Leakage Reduction Programme and National Disinfection Programme.

A focussed list of additional local level plans policies and strategies relevant to Regional Plan for the North West specifically is provided in the SEA Environmental Report, Appendix F, section F.2. Regional and local level plans likely to be key for the purposes of the SEA for the Regional Plan fall under five main groups as follows:

- County Development Plans, Local Area Plans and Town Development Plans – Planning Authorities are legally required to make County and City Development Plans which sets an agenda for development to make adequate provision for the scale of population growth projected. Where appropriate, the latest draft plans have been used;
- County Heritage Plans and County Biodiversity Action Plans – these plans help ensure targets for species and habitat conservation in the National Biodiversity and Heritage Plans are effective at a local level;
- County Climate Change Adaptation Strategies and Climate Action Plans – these strategies and plans establish future climate risks at a local level and propose actions to adapt to currently observed and future climatic changes;

- County Landscape Character Assessments – these assessments classify and describe the landscape in a county; and
- Regional Waste Management Plans.



It should be noted that the listing of the documents on the right of the graphic is not intended to show a hierarchy of plans or an alignment of the plans with the Irish Water Tier 1, Tier 2 and Tier 3 plans/ projects.

Figure NTS 4.1 Interaction between the Planning System and Irish Water's Plans and Programs

5 Baseline Environment

This section sets the proposed geographical and temporal scope of the SEA for the Regional Plan, and provides environmental baseline information on key environmental topics including:

- Population, Economy, Tourism and Recreation, and Human Health;
- Water Environment;
- Biodiversity, Flora and Fauna;
- Material Assets;
- Landscape and Visual Amenity;
- Air Quality and Noise;
- Climate Change;
- Cultural Heritage; and

- Geology and Soils.

5.1 Scope of the Assessment

5.1.1 SEA Geographical Scope

At this stage of the assessment the core baseline area for the SEA of the Regional Plan for the North West is the area covered by the seven study areas which comprise the North West Region (see Figure NTS 5.1) and sites designated for nature conservation that are hydrologically connected to waterbodies in the core baseline area. The assessment process undertaken for the SEA and AA during evolution of the Plan will consider the potential for linkages of this type, and where necessary, the geographic scope of the core baseline area will be extended accordingly.

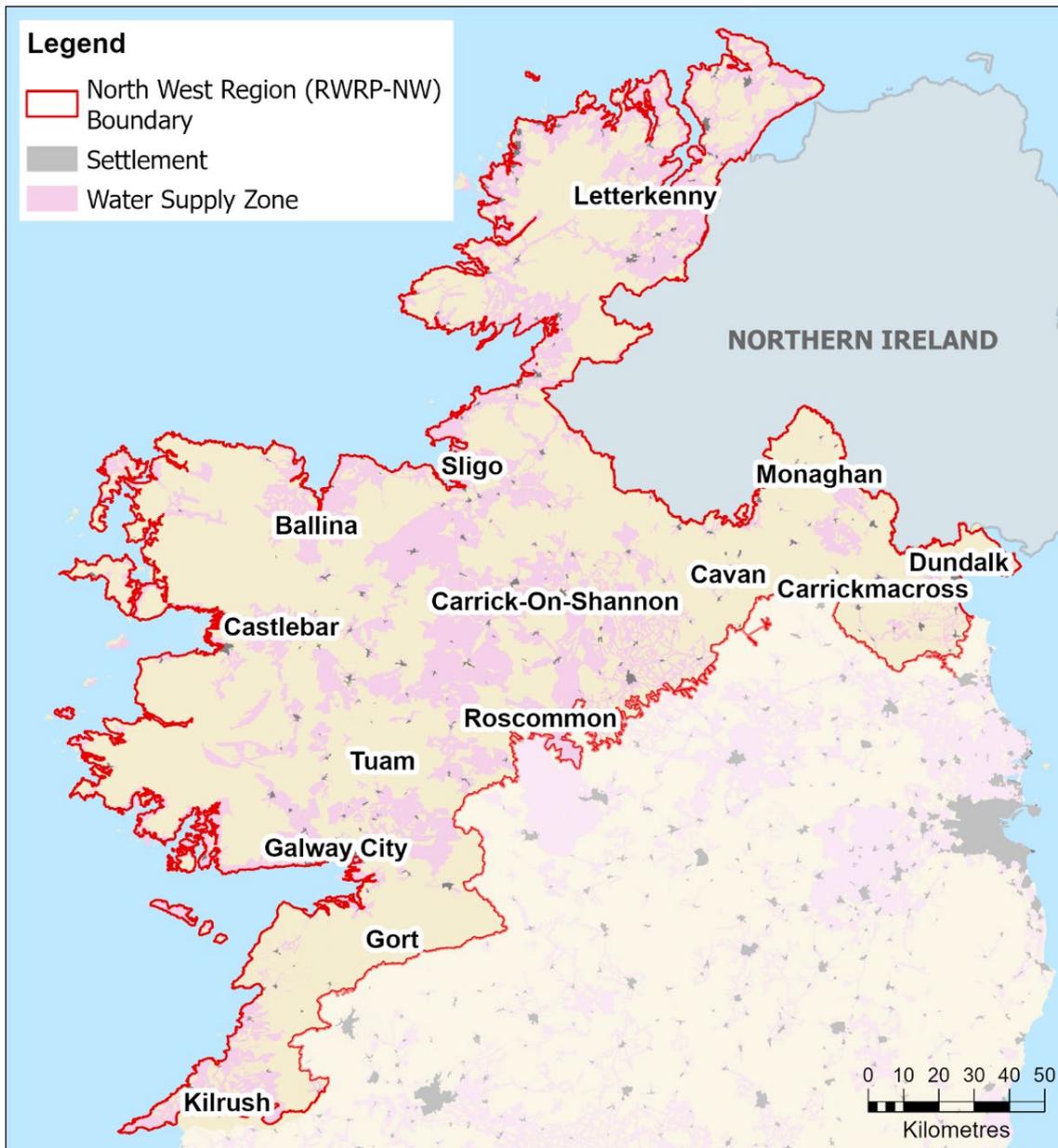


Figure NTS 5.1 Water Supply Zones and Key Settlements in the North West Region

5.1.2 Transboundary Effects

The draft RWRP-NW covers Irish Water’s operational area for the North West which has a long border with Northern Ireland (see Figure NTS 5.1). There is potential for transboundary effects on the

basis of proximity of the border with Northern Ireland, shared WFD catchment units, waterbodies and other pathways for effects. Therefore, transboundary effects are scoped in for the RWRP-NW and will be considered further as part of assessing the proposals for the draft RWRP-NW.

Transboundary policies and plans have been reviewed as listed in Appendix F of the SEA Environmental Report and the potential for transboundary effects associated with plan proposals have been considered through the assessment process and findings are included in the Environmental Report. Where there are any new proposals for new construction works or schemes that are in close proximity to the border and thus may have an impact, we will include consideration of local landscape designations. The draft RWRP-NW, SEA Environmental Report and NIS will be provided to the relevant Northern Ireland agencies as part of the consultation process.

5.1.3 SEA Temporal Scope

The proposed temporal scope for the SEA is the 25-year period between 2019 and 2044 that is covered by the Framework Plan and draft RWRP-NW.

5.2 High Level Environmental Trends in the North West Region and Across Ireland

The EPA's latest State of the Environment Report (SOER 2020) (EPA, 2020) provides:

- An assessment of the overall quality of Ireland's environment;
- An outline of the pressures being placed on this environment; and
- The key actions that can address these pressures.

The following areas identified as challenges to address across Ireland within the SOER 2020 are particularly pertinent to development of the RWRP-NW:

- **Climate:** high greenhouse gas (GHG) emissions continue, and the scale and pace of GHG reductions must accelerate to meet 2019 Climate Action Plan targets;
- **Water:** deteriorating water quality trends over the last 20 years, particularly for rivers; and
- **Nature:** deteriorating protected habitat trends, with 85% of EU protected habitats having unfavourable status. Trends for EU protected species are mixed, however freshwater species are most at risk and some freshwater species are under threat.

Waste and the circular economy and air quality are also areas where further action is needed to meet long-term objectives and targets.

These three key challenges of relevance to the RWRP-NW are directly linked to the following UN SDGs:

- **SDG 13 Climate Action:** Take urgent action to combat climate change and its impacts;
- **SDG 14 Life Below Water:** Conserve and sustainably use the oceans, seas and marine resources for sustainable development; and
- **SDG 15 Life On Land:** Protect and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

Significant population increase is anticipated over the coming two decades, which is an important consideration for water demand, and subsequently for the water environment and compliance with the WFD Directive and SDG 14.

5.3 Baseline Topic Interactions, Issues and Opportunities

5.3.1 Interrelationships between SEA topics

In accordance with the SEA Directive, it is a requirement to recognise the interrelationships between environmental topics, as changes to one environmental aspect can directly or indirectly influence others. Table NTS 5.1 below indicates the potential interrelationships between SEA topics demonstrating most topics interact to some level in a range in some circumstances. Key interactions are highlighted.

Table NTS 5.1 Interrelated SEA topics

Water environment								
Biodiversity,								
Material assets								
Landscape and visual amenity								
Air quality and noise *								
Climate change								
Cultural heritage								
Geology and soils								
SEA topics	Population, local economy, tourism and recreation, and human health	Water environment	Biodiversity	Material assets	Landscape and visual amenity	Air quality and noise*	Climate change	Cultural heritage
Key	Interaction		Key areas of interaction		No interaction			

Legend

- Preferred Approach - WTPs*
- ▲ Preferred Approach - Abstractions*
- Preferred Approach - Mains*
- National Park
- Ramsar Site
- Nature Reserve
- ▨ Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Natural Heritage Area (NHA)
- Proposed Natural Heritage Area (pNHA)
- ▭ Study Area Boundary
- ▭ Local Authority Boundary
- River
- Lake

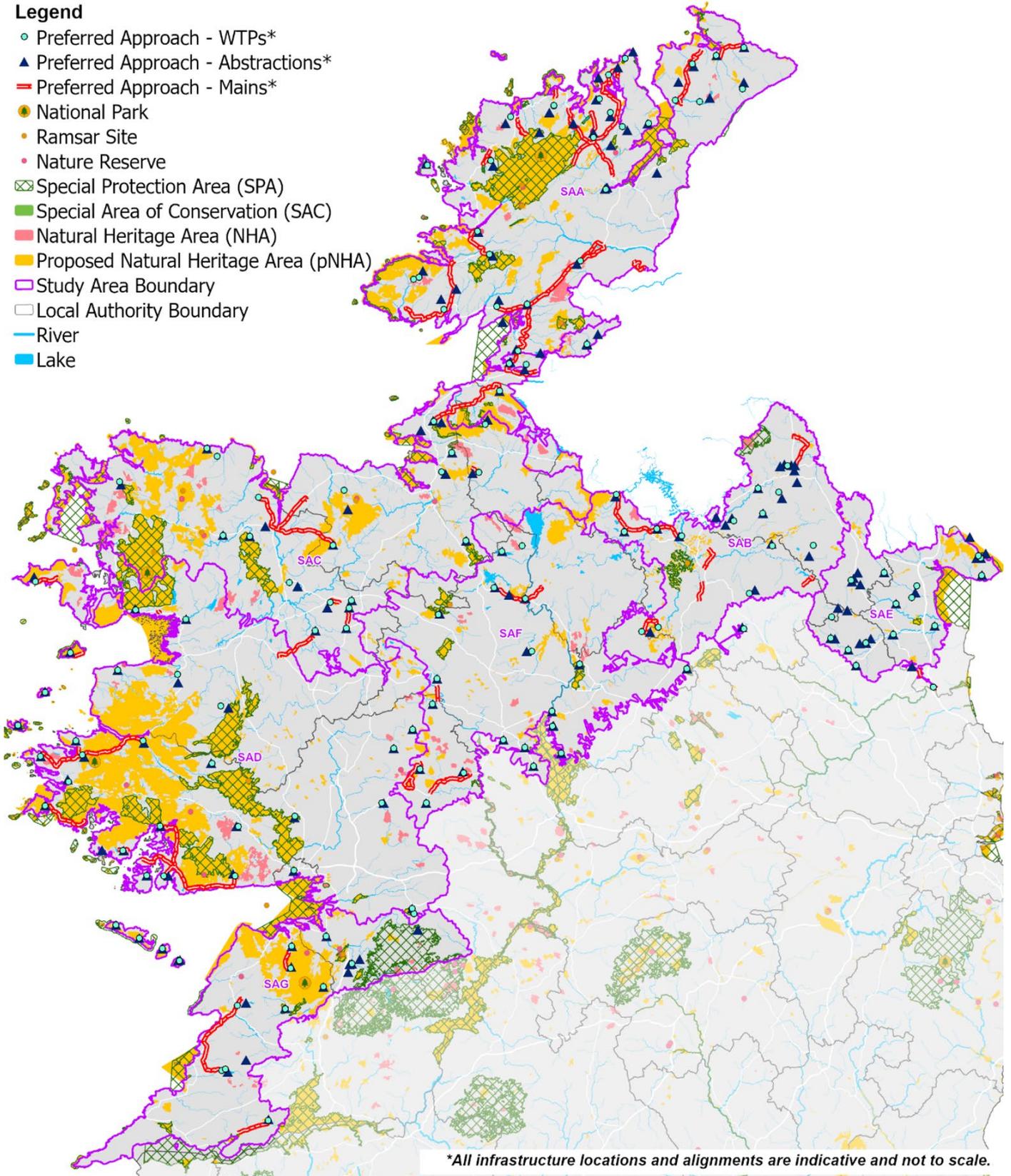


Figure NTS 5.2 Environmental Designations for the North West Region

Table NTS 5.2 Key Issues and Opportunities

SEA Topic	Issues and Opportunities
<p>Population, Economy, Tourism and Recreation, and Human Health</p>	<p>Issues: Increasing population and the increased stress of climate change on water quality and water resources could affect health and wellbeing.</p> <p>Opportunities: Irish Water will put in place plans to assess water quality and put in place measures to address risks as part of the NWRP.</p> <p>Irish Water has ongoing activities to improve the SDB across the North West Region, including, leakage management and water conservation measures.</p> <p>Raising awareness of the importance of water conservation and efficiency measures, and the value of the environment for health and wellbeing, can play an important part in water planning along with valuing water as part of access to environment for recreation.</p>
<p>Water Environment</p>	<p>Issues: The proposed abstraction licensing, aligned to WFD requirements, will require many current abstractions to be licensed and may limit future abstraction or involve significant conditions at associated sites. Across the North West Region some of the existing abstractions are potentially unsustainable in the medium term; specifically, during drought periods.</p> <p>Irish Water will need to update their sustainability analysis and impact on their baseline SDB calculations when regulatory assessment for new legislation is undertaken.</p> <p>Groundwater and flood risks and vulnerability are potential issues for water supply and environment but detailed siting and design through the more project development stages is expected to take account although the plan assessment aims to identify strategic level risk.</p> <p>Opportunities: To take account of identified pressure on the water environment in the selection of solutions for individual study areas and opportunities for reducing pressures on resource and improving water quality.</p>
<p>Biodiversity, Flora and Fauna</p>	<p>Issues: It is considered especially important to avoid the loss of irreplaceable or rare terrestrial and aquatic habitats and increasing pressure on vulnerable species; potentially through direct land take or indirect such as through increased abstraction pressure.</p> <p>Opportunities: Potential for enhancement through reducing pressure on sensitive sites or building in requirements such as habitat enhancement in to schemes and identifying potential for nature-based solutions and catchment management.</p>
<p>Material Assets</p>	<p>Issues: WTP assets and network infrastructure requiring improvement or replacement.</p> <p>Opportunities: Improvements to support reliability of access to good quality water.</p>
<p>Landscape and Visual Amenity</p>	<p>Issues: Potential for climate change to affect land use and influencing landscape character, quality and amenity and potential for construction and infrastructure development to result in landscape and visual amenity change and loss of features.</p> <p>Opportunities: Potential to include enhancements in resintatement through appropriate planting schemes and screening.</p>
<p>Air Quality and Noise</p>	<p>No specific issues identified for the baseline for the North West Region related to the types of options and combinations under consideration for the draft Regional Plan.</p>

SEA Topic	Issues and Opportunities
	Disturbances related to construction impacts are addressed in terms of receptors within the population and health topic.
Climate Change	<p>Issues: Climate change issues regarding sea level rise, flooding, extreme weather events and changes in seasonal weather patterns. Climate change has been taken into account in supply forecasts and additional risks to infrastructure and operations will need to be taken into account in planning for drought and freeze/thaw events and in detailed scheme design and network operation.</p> <p>Opportunities: Additional management to minimise impact on supply and the environment, vulnerability to climate change and drought is required.</p>
Cultural Heritage	<p>Issues: Known cultural heritage, architectural heritage and archaeological assets and potential unknown archaeological assets could be affected by construction works or change to setting or access. Potential for hydrological changes to affect heritage and archaeological assets.</p>
Geology and Soils	<p>Issues: Potential loss of soils or pollution from runoff - general need for good soil conservation and retention of nutrients and carbon in soil resources.</p> <p>Opportunities: Improve soil carbon and retention of nutrients contributing to improving water quality.</p>
Interactions between topics	Key interactions include links between biodiversity and water resources and climate change and between soils, land management, water quality, biodiversity, flood risk, and climate change.

6 SEA Assessment Methodology

6.1 Strategic Environmental Assessment objectives

The set of SEA objectives developed for the Framework Plan SEA Phase 1 scoping stage have been refined and finalised following consultation (see Table NTS 6.1). These have been influenced by the plans, policies and programmes review, the baseline trends and pressures identified, and the scope of the assessment as defined in chapter 6 of the SEA Environment Report for the Framework Plan and the SEA Scoping Report for RWRP-NW and consultation comments.

The methodology for the assessment was developed in accordance with the following EPA guidance:

- Developing and Assessing Alternatives in Strategic Environmental Assessment (SEA);
- Guidance on SEA Statements and Monitoring;
- Integrating Climatic Factors into SEA in Ireland - A Guidance Note;
- Good practice guidance on Cumulative Effects Assessment in SEA; and
- Guidance on the Authorisation of Direct Discharges to Groundwater².

² Guidance on the authorisation of direct discharges to groundwater (2014) added in response to a EPA scoping comments although none of the options considered for the North West include groundwater discharges.

Table NTS 6.1 SEA Objectives

SEA Topic	SEA Objectives*
Population, economy, tourism and recreation, and human health	Protect and, where possible, contribute to enhancement of human health and wellbeing and to prevent restrictions to recreation and amenity facilities relating to the provision of water services.
Water environment	<p><u>Water quality and quantity</u></p> <p>Prevent deterioration of the WFD status of waterbodies with regard to quality and quantity due to Irish Water’s activities. Contribute towards the “no deterioration” WFD condition and, where possible, to restore and improve waterbody status for rivers, lakes, transitional and coastal waters, and groundwater to meet WFD objectives related to the provision of water services.</p>
	<p><u>Flood risk</u></p> <p>Protect and, where possible, reduce risk from flooding as a result of Irish Water’s provision of water services.</p>
Biodiversity	Protect and, where possible, enhance terrestrial, aquatic and soil biodiversity; particularly regarding European sites and protected species in providing water services.
Material assets	<p>Minimise resource use and waste generation from, new or upgraded, existing water services infrastructure and management of residuals from drinking water treatment - to protect human health and the ecological status of waterbodies.</p> <p>Minimise impacts on other material assets and existing as well as future water abstractions.</p>
Landscape and visual amenity	Protect and, where possible, enhance designated landscapes in relation to the provision of water services.
Climate change	<p><u>Climate change mitigation</u></p> <p>Minimise contributions to climate change emissions to air (including greenhouse gas emissions) as a related to the provision of water services.</p>
	<p><u>Climate change adaptation</u></p> <p>Promote the resilience of the environment, water supply and treatment infrastructure to the effects of climate change.</p>
Cultural heritage	Protect and, where possible, enhance cultural heritage resources related to provision of water services.
Geology and soils	Protect soils and geological heritage sites and, where possible, contribute towards the appropriate management of soil quality and quantity.

*In response to scoping consultation comments, clarifications have been made to the Framework Plan SEA objectives to refer to ‘water services’ rather than activities provided by Irish Water and also to the water environment objective to broaden this objective to include supporting WFD objectives where possible.

These high-level SEA objectives are used as the framework for the assessment of likely significant effects from the draft RWRP-NW compared to ‘Without Plan’ alternatives and also for each of the

potential water supply and demand options (construction and operational phases). The potential for mitigation of effects during plan implementation and for the different option types are considered.

6.2 Options and Approach Assessment Summary

The methodology applied and how the SEA objectives and environmental assessment has been integrated into the application of the methodology, is summarised below.

The methodology is based around an option development process consulted upon and finalised in the Framework Plan. The process aligns with the seven standard steps set out in the Department of Public Expenditure and Reform (2019) guidance document “Public Spending Code: A Guide to Evaluating, Planning and Managing Current Expenditure”. For the NWRP methodology, there are eight key stages to the options assessment methodology which is applied:

- 1) Identifying need - based on SDB and/or Drinking Water Safety Plan Barrier Assessment.
- 2) Scoping of the Study Area (WRZs) – understanding the Study Area and the existing conditions of assets, supply and demand issues as well as environmental constraints and opportunities.
- 3) Identifying potential options for consideration relevant to the Study Area.
- 4) Coarse screening – assess the unconstrained options and eliminate any that will not be viable
- 5) Further option definition, information collection and preliminary costing.
- 6) Fine screening – options assessment and scoring against the key criteria with further removal of options identified as unviable and development of feasible options for costing (including environmental and social costs and benefits) and scoring assessment update.
- 7) Approach appraisal – comparison and assessment of combinations of options identified to meet the predicted supply demand deficit at WRZ, Study Area and Regional Group area level using Multi-Criteria Analysis (MCA) to determine the Preferred Approach. Approaches tested include:
 - Least Cost;
 - Best Appropriate Assessment (Best AA);
 - Quickest Delivery;
 - Best Environmental;
 - Most Resilient; and
 - Lowest Carbon.
- 8) Monitoring and Feedback into Plan – a feedback mechanism to ensure that the Framework Plan continuously adapts to changes such as evolving scientific data, understanding, and policy change in relation to the natural environment.

The SEA process has been applied across each of these steps as identified in Figure NTS 6.1 below.

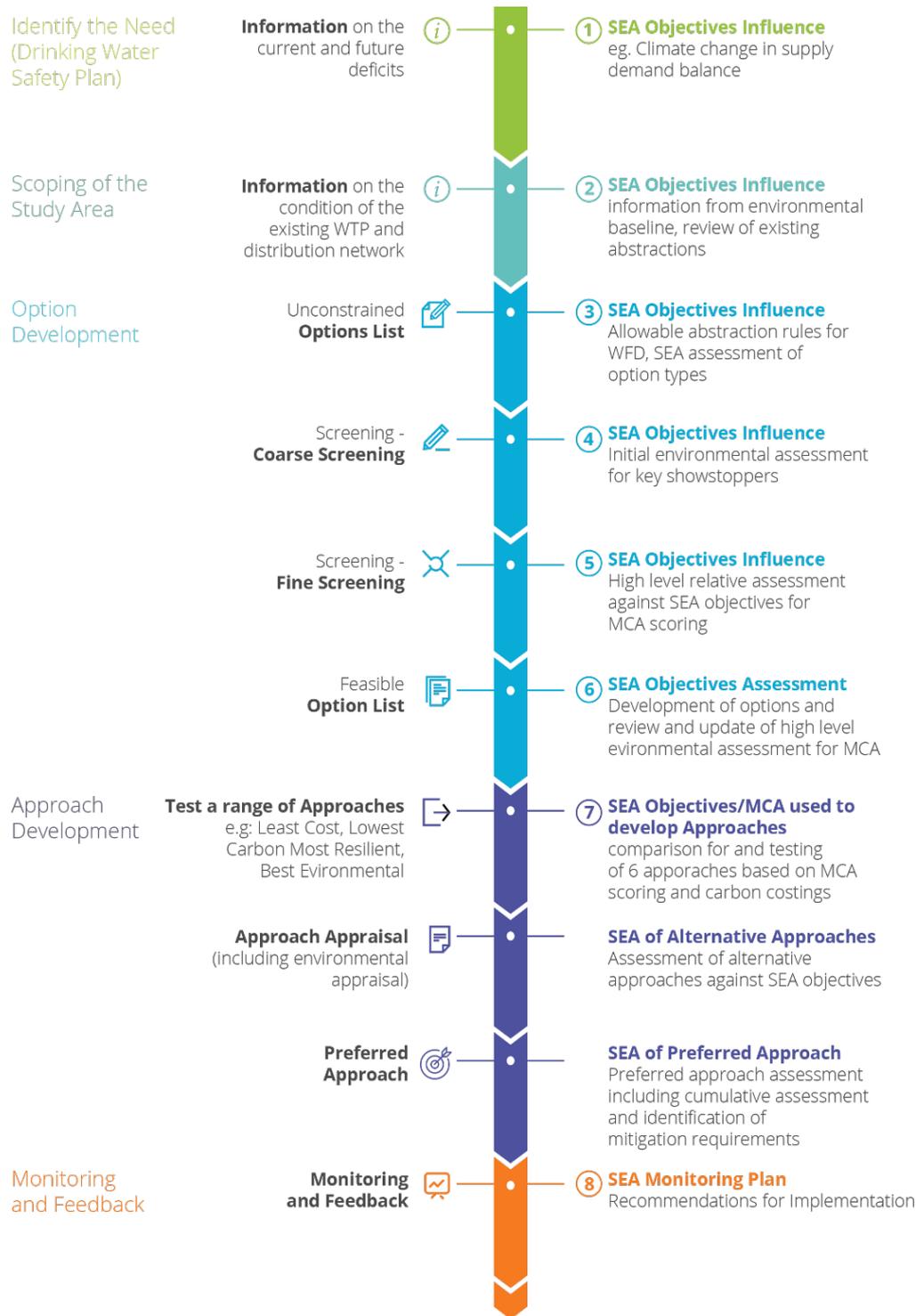


Figure NTS 6.1 Options Assessment and Preferred Approach

The methodology is focused on ensuring that Irish Water promote solutions that are resilient, environmentally and socially sustainable, and flexible to the changing environment and demands.

6.3 Stages 1, 2 and 3 – Option identification



The SDB and the Barrier Assessment inform the type and scale of options that Irish Water must consider. Key option types are shown in Figure NTS 6.2. Sub-variants of each option type are also considered.

Environmental and social assessment criteria are included at the earliest stages of the screening process. At the outset of the process, some fundamental rules are applied as part of option identification. For example, inter-catchment raw water transfers are excluded due to the high risk of transferring invasive non-native species (INNS) between catchments and potential conflict with WFD objectives.

WFD objectives have also been a key consideration at this stage through a sustainable abstraction risk review. This was a specialist review of groundwater bodies and surface water catchments that was undertaken as part of the option identification stage. UK Technical Advisory Group on the Water Framework Directive (UKTAG) guidance (UKTAG, 2013) on baseflows have been used until Ireland specific standards come into place.

The application of these conservative abstraction standards to new options ensures that any new or increased abstractions from rivers are likely to support conservation objectives for the most sensitive environmental sites. For surface waterbodies, the allowable abstraction standard of 10% of Q95 has been applied, with the exception of waterbodies requiring 'High' status where a higher threshold of 5% of Q95 has been applied. Allowable abstraction standards for lakes are set at 10% or 5% of Q50 in line with this guidance (the NIS sets out the approach in relation to Appropriate Assessment).

In the future, Irish Water are likely to have to reduce or remove their unsustainable existing abstractions.

Based on these desk assessments, Irish Water developed an initial list of unconstrained options for new supplies, increases and upgrades to existing supplies. An Unconstrained Options review workshop was held with Irish Water's Local Authority Water Services Partners to identify any additional unconstrained options that might be available based on local knowledge.

6.3.1 Option Scale

Options to address the water supply deficits are developed at three different spatial scales:

- **WRZ Options** comprised of single or multiple options that can resolve the water supply deficit of a **single WRZ only**.
- **SA Options (Grouped Options)** comprised of single or multiple options that can resolve the water supply deficit of more than one WRZ within a single Study Area.
- **Regional Level Feasible Options** are assessed at the Regional Area level to see if there are any options, or combination of options, that can be applied across the entire Region.

The approach to developing options at the three different scales is described in further detail in Section 6.1 of the draft RWRP-NW



Figure NTS 6.2 Option

6.4 Stages 4, 5 and 6 - Option Screening

The SDB and Barrier Assessment (outlined in Section 3 of the draft RWRP-NW) inform the type and scale of options that Irish Water must consider.

Irish Water identified ,1355 unconstrained options for the draft RWRP-NW.

The unconstrained options list was refined using a coarse screening assessment, which enables Irish Water to rule out any non-viable options. This included removing options that could be identified at this stage as unsustainable or where significant environment impacts were considered likely and un-mitigatable. The remaining options known as “Constrained Options” were then carried forward for more detailed Multi Criteria Assessment (MCA) at the Fine Screening stage.

The options were assessed against the SEA objectives options and this was used as the basis for the MCA scoring. The fine screening assessment could identify additional showstoppers and reasons for removing options.

Options passing through the fine screening were identified as Feasible Options were taken forward, with the MCA, for further assessment in the Approach Development phase.

No options were rejected after Fine Screening. A total of 544 options were rejected based on multiple criteria, including environmental sustainability issues.

6.5 Stage 7 Approach Development



The purpose of the Plan is to examine all potential options that could be used to meet the need and then to eliminate those that are not feasible or that have identifiable environmental issues (at a desktop level).

After fine screening the feasible options are assessed individually or as option combinations forming different potential approaches to identify the preferred option or combination of options to meet the need for each WRZ, study area and regional area.

A defined process has been identified to develop the Preferred Approach at the three spatial scales shown in Figure NTS 6.3.

The final stage is to assess any inter-regional options and potential cumulative or in combination effects and determine if any adjustment is required (this will be addressed sequentially in each of the Regional Plans in turn).

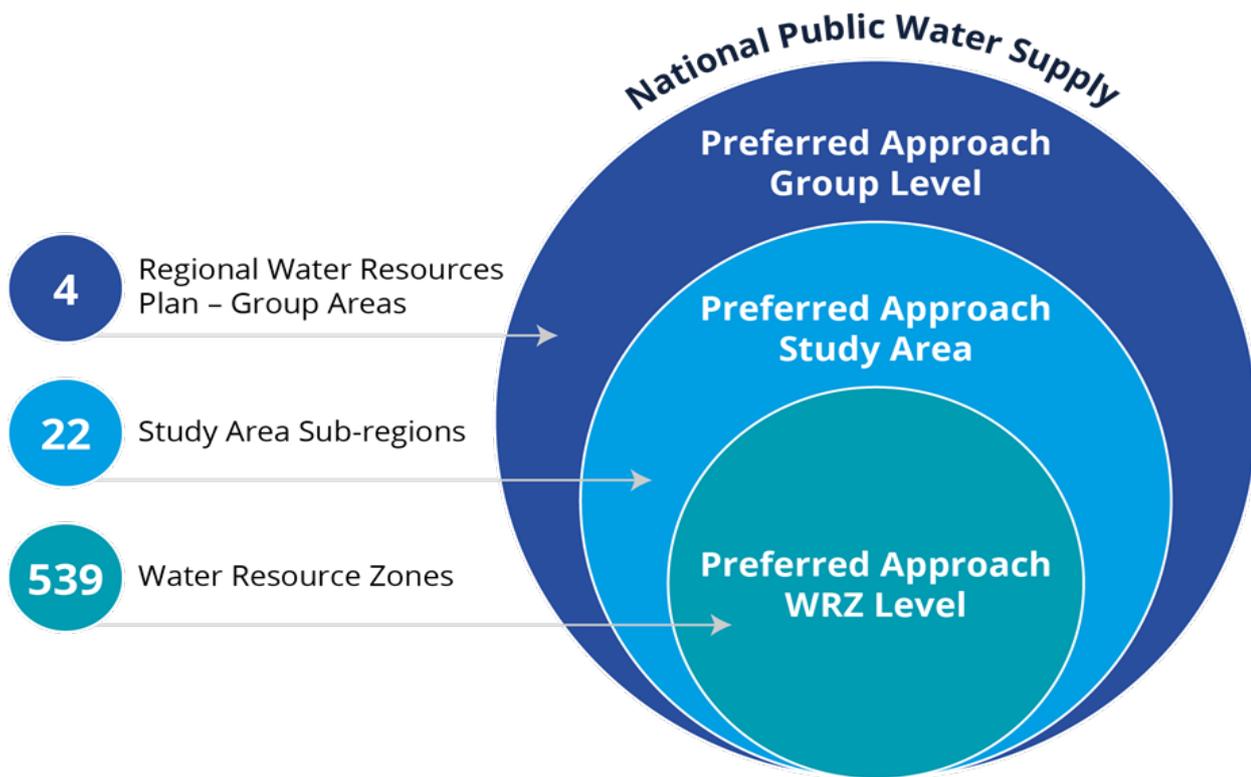


Figure NTS 6.3 National Water Resources Plan Spatial Scale of Assessment

7 Study Area SEA Summaries

Table NTS 7.1 gives an overview for each Study Area of how options numbers were reduced from the unconstrained long list to the feasible options list through the screening process. The table also sets out the number of potential combinations that were identified that could meet the study area need for supply and water quality over the plan period.

Table NTS 7.1 SA Summary of Assessment

Study Area Description							
<p>Study Area A - lies within the county of Donegal, including Arranmore Island, and has a total area of approximately 4,650 km². The principal settlement (with a population of over 10,000) within SAA is Letterkenny (CSO, 2016).</p>							
<p>Study Area B - total area is approximately 2,780 km² and lies within the counties of Cavan, Monaghan, Leitrim, Longford, Donegal and Sligo. The principal settlement (with a population of over 10,000) within SAB is Cavan (CSO, 2016).</p>							
<p>Study Area C - total area is approximately 5,150 km² and lies within the counties of Mayo (including Achill Island), Sligo, Leitrim, Cavan, and Roscommon. There are three principal settlements (with a population of over 10,000) within SA-C, namely Sligo, Castlebar and Ballina (CSO, 2016).</p>							
<p>Study Area D - lies within the counties of Galway, Galway City, Mayo and Roscommon, including several islands off of the coast of Ireland such as the Aran Islands (Inishmore, Inishmean, Inishere), Inisboffin, Inishturk and Clare Island, and has a total area of approximately 6,720 km². There are two principal settlements (with a population of over 10,000) within SAD, namely Galway city and suburbs, and Castlebar (CSO, 2016).</p>							
<p>Study Area E - lies within the counties of Louth, Monaghan, Meath, and Cavan, and has a total area of approximately 1,260 km². There are two principal settlements (with a population of over 10,000) within SAE, namely Drogheda, and Dundalk (CSO, 2016).</p>							
<p>Study Area F - lies within the counties of Roscommon, Leitrim, Longford, Galway, Sligo, Cavan, Mayo and Westmeath, and has a total area of approximately 3,990 km². There is one principal settlement (with a population of over 10,000) within SAF, namely Longford (CSO, 2016).</p>							
<p>Study Area G - lies within the counties of Clare and Galway, and has a total area of approximately 2,390 km². The largest settlement is Gort, with a population of 2,994 settlement (CSO, 2016).</p>							
Study Area	SAA	SAB	SAC	SAD	SAE	SAF	SAG
Unconstrained	350 options	193 options	214 options	281 options	63 options	174 options	80 options
Coarse & Fine Screening	159 rejected; 138 rejected on sustainability reasons	75 rejected; 19 rejected on sustainability reasons	79 rejected; 54 rejected on sustainability reasons	108 rejected; 33 rejected on sustainability reasons	25 rejected; 14 rejected on sustainability reasons	54 rejected; 16 rejected on sustainability reasons	44 rejected; 19 rejected on sustainability reasons
Feasible Options	191 options	118 options	135 options	173 options	38 options	120 options	36 options
No. of approach Combinations	13 combinations	6 combinations	12 combinations	22 combinations	12 combinations	13 combinations	9 combinations

Preferred Approach Assessment

SEA objectives	Potential Construction Impact SAA - SAG	Potential Operational Impact SAA - SAG
1) Public Health	Neutral to Major Adverse	Moderate Adverse to Moderate Beneficial
2) Biodiversity	Minor Adverse to Major Adverse	Neutral to Moderate Adverse
3) Landscape and Visual	Minor Adverse to Major Adverse	Minor Adverse to Moderate Beneficial
4) Materials	Neutral to Major Adverse	Neutral to Moderate Adverse
5) Greenhouse Gas	Neutral to Major Adverse	Neutral to Major Adverse
6) Climate Change	Neutral to Moderate Adverse	Moderate Adverse to Moderate Beneficial
7) Surface Water/ Groundwater	Neutral	Neutral to Major Adverse
8) Flood Risk	Minor Adverse to Minor Beneficial	Neutral to Minor Adverse
9) Cultural Heritage	Neutral to Moderate Adverse	Neutral to Minor Adverse
10) Geology and Soils	Neutral to Moderate Adverse	Neutral to Minor Adverse

Cumulative effects and mitigation

Potential significant impacts identified for specific options for public health, biodiversity, landscape and visual and water environment reflect uncertainty and need for further investigation and mitigation to ensure significant effects are avoided. Cumulative effects identified include combined carbon emissions from embodied and operational carbon. A range of mitigation measures and additional studies and investigations are recommended for individual options and cumulative effects are set out in the SEA Environmental Report, Appendix D, and section 10: Environmental Action Plan and draft Monitoring Plan

The MCA scoring and cost information was used to test the combinations against each of the six categories (including the best environmental, lowest carbon and best AA categories) to identify the best performing approaches. Some combinations performed best across more than one category, hence the number of approaches identified for each Study Area can be less than six.

The approaches were compared through the 7 step process (See Figure NTS 7.1) applied through a workshop to identify the overall best value approach identified as the Preferred Approach. This used the MCA scoring and cost information and took account of how significant the differences were between approaches.

STEP 0 Best AA	If there is an option that meets the Objectives of the Plan, and is assessed as having no potential impact on a European Site (based on desktop assessment), it is automatically adopted as the Preferred Approach
STEP 1 Least Cost	Compare Least Cost against best AA Approach, and consider again at Step 6
STEP 2 Quickest Delivery	Compare Least Cost against Quickest Delivery Approach and develop Modified Approach if appropriate
STEP 3 Best Environmental	Compare Least Cost or Modified Approach against Best Environmental, and modify approach if appropriate
STEP 4 Most Resilient	Compare Least Cost or Modified Approach against Most Resilient
STEP 5 Least Carbon	Compare Least Cost or Modified Approach against Lowest Carbon
STEP 6 Approach Comparison	Compare output from Steps 1 to 5 against: <ul style="list-style-type: none"> • SEA required outcomes • Best AA outcomes • Sectoral Adaptation Outcomes • Public Expenditure Code Outcomes
STEP 7 Preferred Approach	Select Preferred Approach based on steps 0 to 6

Figure NTS 7.1 The 7 Step Process

The application of the three stage Approach Development Process resulted in the Preferred Approach at Study Area Level comprising 24 SA Grouped Options that collectively supply 119 WRZs across the North West Region (Table NTS 7.2). This creates an interconnected network and allows Irish Water to rationalise infrastructure providing a more resilient supply to customers. There is also the benefit of moving away from some potentially unsustainable abstractions by reducing abstraction points. The assessment of supplies at a Study Area Level allows consideration of regional sustainability of the abstractions. This rationalisation is described further in section 7.3 of the draft RWRP-NW.

Table NTS 7.2 SA Preferred Approach

Study Area	Number of WRZs	SA Preferred Approach		Number of WRZs benefitting from an SA Option
		WRZ Option	SA Option	
SAA	21	5	3	16
SAB	23	9	6	14
SAC	17	11	3	6
SAD	25	14	4	11
SAE	9	7	2	2
SAF	15	11	3	4
SAG	9	4	3	5
Region Total	119*	61	24	58

* Includes 10 Group Water Schemes and three imports from Northern Ireland (Alt Raws (SAA), Meeneragh/Cronalaghey (SAA) and Derrykillew (SAB)).

Option types include new and/or increased groundwater (GW) and surface water (SW) abstractions, rationalisations (connection of WTPs and/or WRZs, usually accompanied by decommissioned abstractions and WTPs), Group Water Scheme imports, desalination, transboundary imports (from Northern Ireland), and/or transfers from sources within or outside of the Study Area. The number of options that only comprise a water treatment plant water quality upgrade is also presented for those WRZs that are not in deficit and therefore do not require a new or upgraded resource supply.

Table NTS 7.3 SA Level Preferred Approach Selection

Study Area	SA Preferred Approach Selection Summary
SAA	<p>The PA is the Best Environmental Approach.</p> <ul style="list-style-type: none"> The PA for SAA includes 3 SA Options and 5 WRZ Options that supply the deficit across all WRZs. The WRZ Level Approach can meet the deficit for only 17 of the 21 WRZs, as there are no feasible WRZ Options for four WRZs. The PA decommissions 10 abstraction sources compared with three decommissioned abstractions under the WRZ Level Approach. The PA has the advantage of requiring 6 fewer new or increased abstractions and therefore has a lower impact on biodiversity and the water environment.

Study Area	SA Preferred Approach Selection Summary
	<ul style="list-style-type: none"> • The interconnected Options of the PA will require an estimated 132 km more pipeline than the WRZ Options and will reduce the number of WRZs from 21 to 9. • The PA has an estimated NPV cost that is 11% higher than WRZ Level Approach. The increased costs are associated with the additional pipeline length and water storage infrastructure and the additional works required to secure supply to four more WRZs. • The PA has one high-risk Option under the Appropriate Assessment that will require further assessment at project level to confirm mitigation opportunities. This includes the rationalisation and interconnection of seven WRZs to Letterkenny, which involves an increased abstraction from the River Crana and new abstractions from Gartan Lough and Glen Lough. • The high environmental score for the PA is associated with the lower materials and waste impacts due to the rationalisation of assets. The PA is also likely to have a lower landscape impact as it requires less abstractions and WTPs. Benefits to the water environment are also achieved through the abandonment of 10 abstractions (nine of which may not meet sustainability guidelines during dry weather flows). Cessation of abstractions from these surface water sources has potential to improve water quality and benefit water dependent biodiversity including aquatic ecology.
SAB	<p>The PA is the Lowest Carbon, Best Environmental and Best AA Approach.</p> <ul style="list-style-type: none"> • The PA for SAB comprises 6 SA Options and 9 WRZ Options compared with 23 WRZ Options for the WRZ Level Approach. Both approaches can meet the deficit across all WRZs in the study area. • The PA provides the following advantages compared to the WRZ Level Approach: three fewer new or upgraded abstractions, three more decommissioned WTPs and three more decommissioned abstractions. Additionally, the PA Approach requires two fewer new WTPs and three fewer upgraded WTPs. • The interconnected Options of the PA will require an estimated 46 km more pipeline than the WRZ Options and will reduce the number of WRZs from 23 to 15. The PA will require one less water storage. • The PA has been selected as the Lowest Carbon, Best Environmental and Best AA Approach due to the reduced infrastructure requirements. The Best AA score is based on the PA having the least number of -1 AA impacts. • The NPV cost is estimated to be 21% less than the WRZ Level Approach. This cost benefit is the result of lower capital expenditure due to fewer new and increased WTPs; as well as lower operational costs associated with the reduced number of WTPs • The PA has no high-risk Option that could impact on European sites, which will require further assessment at project level. • The high environmental score for the PA is associated with the lower materials and waste impacts due to the rationalisation of assets. The PA is also likely to have a lower landscape impact as it requires less water storage and abstractions. Benefits to the water environment are also achieved through the abandonment of four abstractions (one of which may not meet sustainability guidelines during dry weather flows). Cessation of abstractions from this surface water sources has potential to improve water quality and benefit water dependent biodiversity including aquatic ecology. • The PA has a relatively long delivery timescale when compared across all 12 SA Combinations; however, the low score in this category is outweighed by the significant gains in overall environmental improvement. • The SA Grouped Options of the PA merge WRZs through interconnections and rationalisation. This improves the resilience score of the PA compared with the independent local solutions that make up the WRZ Level Approach.
SAC	<p>The PA is the Least Cost and Lowest Carbon Approach.</p> <ul style="list-style-type: none"> • The PA for SAC includes 3 SA Options and 11 WRZ Options that supply the deficit across all WRZs. The WRZ Level Approach can meet the deficit for 16 of the 17 WRZs, as there are no feasible WRZ Options for one of the WRZs. • The PA decommissions two additional abstraction sources and one additional WTP. It also has the advantage of requiring 10 fewer new or increased abstractions and two fewer new WTPs.

Study Area	SA Preferred Approach Selection Summary
	<p>The PA Approach therefore has a lower impact on biodiversity and the water environment. The PA requires only 7 km additional pipeline compared to the WRZ Level Approach.</p> <ul style="list-style-type: none"> The PA has been selected as the Least Cost Approach. The NPV cost is estimated to be 6% lower than the WRZ Level Approach. This is mostly attributed to the lower capital expenditure, due to the PA requiring fewer new and upgraded WTPs and abstractions. The PA has only two high-risk Options that could impact on European sites, which will require further assessment at project level to confirm mitigation opportunities. The first Option involves an increased groundwater abstraction from Belmullet groundwater body to supply the deficit in Ceide Fields WRZ. The second Option involves a new surface water abstraction from Keel Lough to supplement Accorymore Lake during dry periods. The high environmental score for the PA is associated with the lower materials and waste impacts due to the reduction in water storage requirement and reduced requirement for new abstractions. Benefits to the water environment are also achieved through the abandonment of six abstractions, particularly as three of these abstractions may not meet sustainability guidelines during dry weather flows. Cessation of abstractions from these surface water sources has potential to improve water quality and benefit water dependent biodiversity, including aquatic ecology.
SAD	<p>The PA is the Least Cost and Lowest Carbon Approach.</p> <ul style="list-style-type: none"> The PA for SAD includes 4 SA Options and 14 WRZ Options that supply the deficit across all WRZs. The WRZ Level Approach can meet the deficit for 24 of the 25 WRZs, as there were no feasible WRZ Options for one of the WRZs. The PA requires seven fewer WTP upgrades and two fewer new WTPs and decommissions an extra eight WTPs and four additional abstraction sources. It also has the advantage of requiring five fewer new or increased abstractions and therefore has a lower impact on biodiversity and the water environment. The PA has been selected as the Least Cost Approach compared with other study area Option combinations. Compared with the WRZ Level Approach, the estimated NPV cost is 6% higher. The increased costs are associated with the 106 km additional pipeline length and water storage infrastructure and the additional works required to secure supply for one more WRZ. The PA has five high-risk Options that could impact on European sites, which will require further assessment at project level to confirm mitigation opportunities. This is associated with four new/increased abstractions which could impact SAC's/SPA's and the construction of a desalination plant which could have impacts on mobile marine mammals. The high environmental score for the PA is associated with the lower materials and waste impacts due to the rationalisation of assets. Substantial benefits to the water environment are also achieved through the abandonment of 12 abstractions, particularly as 10 of these abstractions may not meet sustainability guidelines during dry weather flows. Cessation of abstractions from these surface water sources has potential to improve water quality and benefit water dependent biodiversity including aquatic ecology. The PA has increased risks due to the number of high-risk Options when compared across all 21 SA Combinations; however, all combinations were associated with at least two -3 Scores and the risk of the PA SA Combination is outweighed by the significant benefits relating to reduced carbon, cost and delivery time.
SAE	<p>The PA is the Least Cost, Quickest Delivery and Best AA Approach.</p> <ul style="list-style-type: none"> The PA for SAE, includes 2 SA Options and 7 WRZ Options, that supply the deficit across all WRZs. The WRZ Level Approach can meet the deficit for 8 of the 9 WRZs, as there are no feasible WRZ Options for one of the WRZs. The PA provides the following advantages compared to the WRL Level Approach: it requires approximately 4 km less of pipeline, decommissions two additional WTPs and abstraction sources and requires 2 less WTP upgrades. The PA has been selected as the Least Cost Approach overall when performance against other Approach Categories is also considered. Although the NPV is higher than WRZ Level Approach, it is within 5% and the PA secure the supply to one additional WRZ.

Study Area	SA Preferred Approach Selection Summary
SAF	<ul style="list-style-type: none"> • There are no high-risk Options that could impact on European sites associated with the PA. Four of the Options have a -1 AA score while the remaining five Options have been assessed to have no AA impacts. For this reason, when compared with the other Option combinations, the PA was selected as the Best AA Approach. • The approach is comparable to the WRZ Level Approach in terms of numbers of new and decommissioned abstractions/WTPs but the Approach can be delivered on a shorter timescale at less cost. Substantial benefits to the water environment are also achieved through the abandonment of four abstractions. One of these abstractions may not meet sustainability guidelines during dry weather flows. Cessation of abstractions from these surface water sources has potential to improve water quality and benefit water dependent biodiversity including aquatic ecology. • The PA is less resilient when compared across all 12 SA Combinations; however, the low score in this category is outweighed by the significant gains in terms of environmental benefits, delivery and cost. <p>The PA is the Least Cost and Quickest Delivery Approach.</p> <ul style="list-style-type: none"> • The PA for SAF includes 3 SA Options and 11 WRZ Options that supply the deficit across all WRZs. The WRZ Level Approach can meet the deficit for 14 of the 15 WRZs, as there are no feasible WRZ Options for one of the WRZs. • The PA decommissions one more WTP and one more abstraction than the WRZ Level Approach. It requires one less WTP upgrade and three fewer new/upgraded abstractions and therefore has a lower impact on biodiversity and the water environment. It also requires one less water storage. The PA requires a similar length of pipeline as the WRZ Level Approach. • Given the similar infrastructure requirements, the NPV costs of the PA and WRZ Level Approach are estimated to be within 5% • The PA has only two high-risk Options that could impact on European sites, which will require further assessment at project level to confirm mitigation opportunities. This is associated with the increased groundwater abstraction at Gortgarrow Spring and the rationalisation for Kilkerrin/Moylough and Dunmore/Glenmaddy P.S, as well as the construction of a new intake from the middle Lake to meet the demand in North Roscommon RWSS.
SAG	<p>The PA is the Least Cost and Quickest Delivery Approach.</p> <ul style="list-style-type: none"> • The PA for SAG, includes 3 SA Options and 4 WRZ Options, compared with 9 WRZ Options for the WRZ Level Approach. Both approaches can meet the deficit across all WRZs in the study area. • The PA decommissions two additional WTPs and two additional abstraction points. It requires two fewer new WTPs, two fewer WTP upgrades, four fewer new/upgraded abstractions and one less water storage. The PA therefore has a lower impact on biodiversity and the water environment. The PA requires approximately 39 km more of pipeline compared to the WRZ Level Approach. • The PA has been selected as the Least Cost Approach overall. The total NPV cost is estimated to be 16% less than WRZ Level Approach due to the smaller infrastructure requirements. • The PA has no high-risk Options that could impact on European sites. • The PA has a slightly lower environmental score than the Best AA Approach, however, the Best AA Approach would require boring through rock over a long distance and so the PA was maintained as this was considered more problematic than the increased cost and carbon. The PA is also likely to have a lower landscape impact as it requires less abstractions and decommissions more existing abstractions. Benefits to the water environment are achieved through the abandonment of three abstractions, particularly as two of these abstractions may not meet sustainability guidelines during dry weather flows. Cessation of abstractions from these surface water sources has potential to improve water quality and benefit water dependent biodiversity including aquatic ecology.

7.1 Leakage proposals

Leakage reduction measures are a key component of the Preferred Approach to addressing Need across the North West Region. Irish Water's current leakage targets are to reduce leakage in supplies with demand greater than 1.5MI/day. Supplies of greater than 1.5MI/day are found in various locations around the North West Region and the leakage targets equates to a total leakage reduction of 102 MI/day, which will reduce leakage to 26% of demand across the entire region.

The leakage reductions are assessed as contributing to meeting SEA objectives, especially for climate change and carbon through energy and treatment savings and through reducing water required for abstraction. Construction impacts for works such as mains replacement can include traffic disruption, community disturbance and temporary land take, landscape and biodiversity impacts and water pollution risks but these are generally short term and mitigatable with appropriate construction management and reinstatement commitments.

7.2 WFD and Surface Water Abstractions

Irish Water's assessment identified 54 existing surface water sites where potential abstraction reductions may be required in the future, based on conservative estimates of what a future regime may require.

Legend

- City
- Regional Centre
- Town
- ◇ Surface water abstractions that may not meet sustainability guidelines during dry weather flows
- ◆ Maintain abstraction
- ◇ Upgrade abstraction
- ◆ Decommission abstraction
- ◆ New abstraction
- ▭ Study area boundary
- ▭ Local authority boundary
- River
- Lake

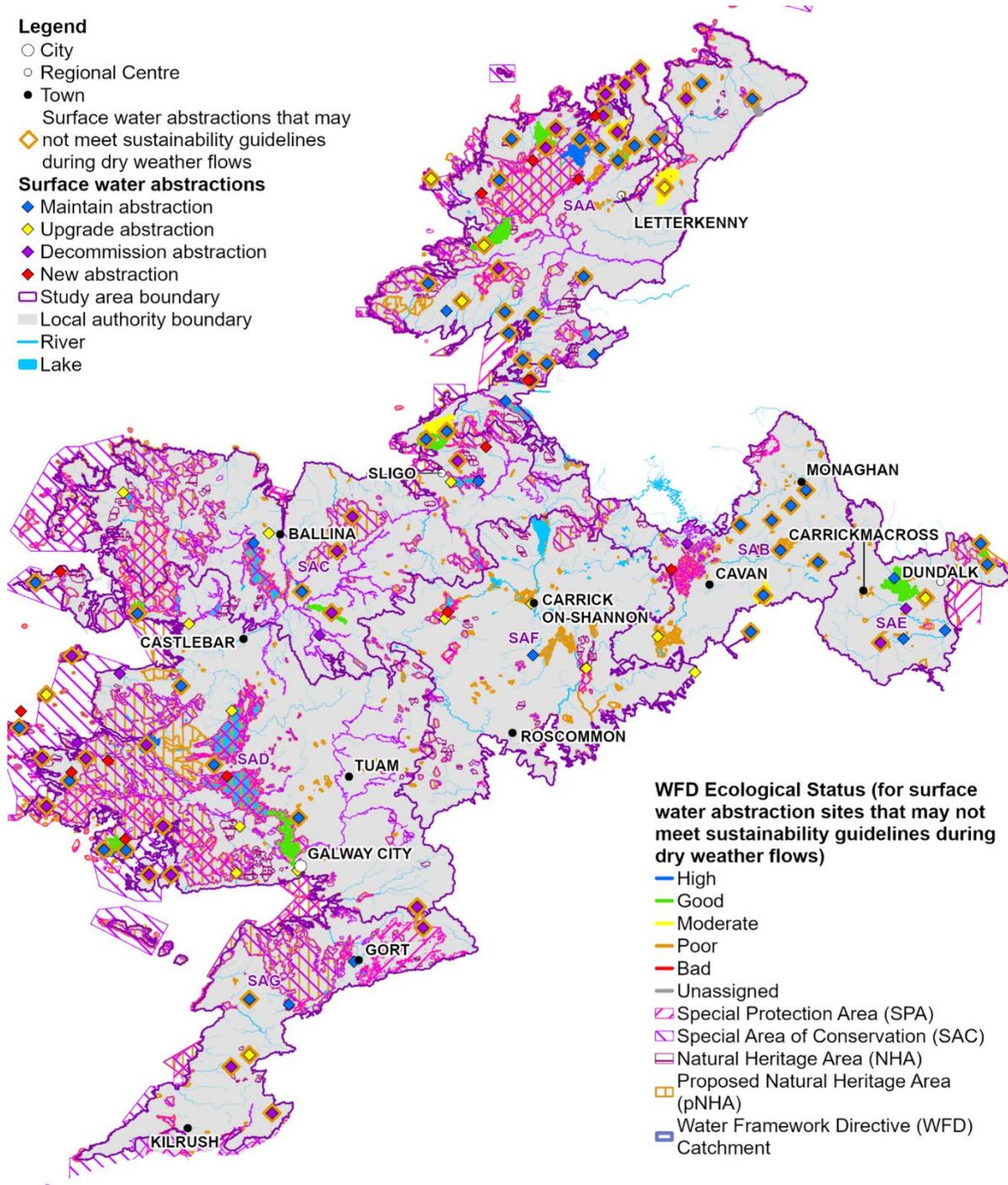


Figure NTS 7.2 Preferred Approach – Surface Water Abstractions

Table NTS 7.4 Preferred Approach – Existing Surface Water Abstractions Potentially Exceeding Sustainable Abstraction Thresholds

Preferred Approach Outcome	Abstraction Sites						
	SAA	SAB	SAC	SAD	SAE	SAF	SAG
Decommission	9	1	3	10	1	0	2
Maintain	21	8	5	10	3	0	2

Groundwater abstractions will need to conform to the proposed new abstraction licencing regime as well. Due to the limited long-term records on pumping and drawdown of water levels for many of Irish Water's groundwater supplies, it is difficult to present robust desktop assessments of water availability for their existing groundwater abstractions. Until site-specific studies of groundwater availability are completed, Irish Water have developed an initial assessment for existing abstractions based on best available information.

Figure NTS 7.3 shows the groundwater abstraction sites in the Preferred Approaches that will benefit from proposed decommissioning.

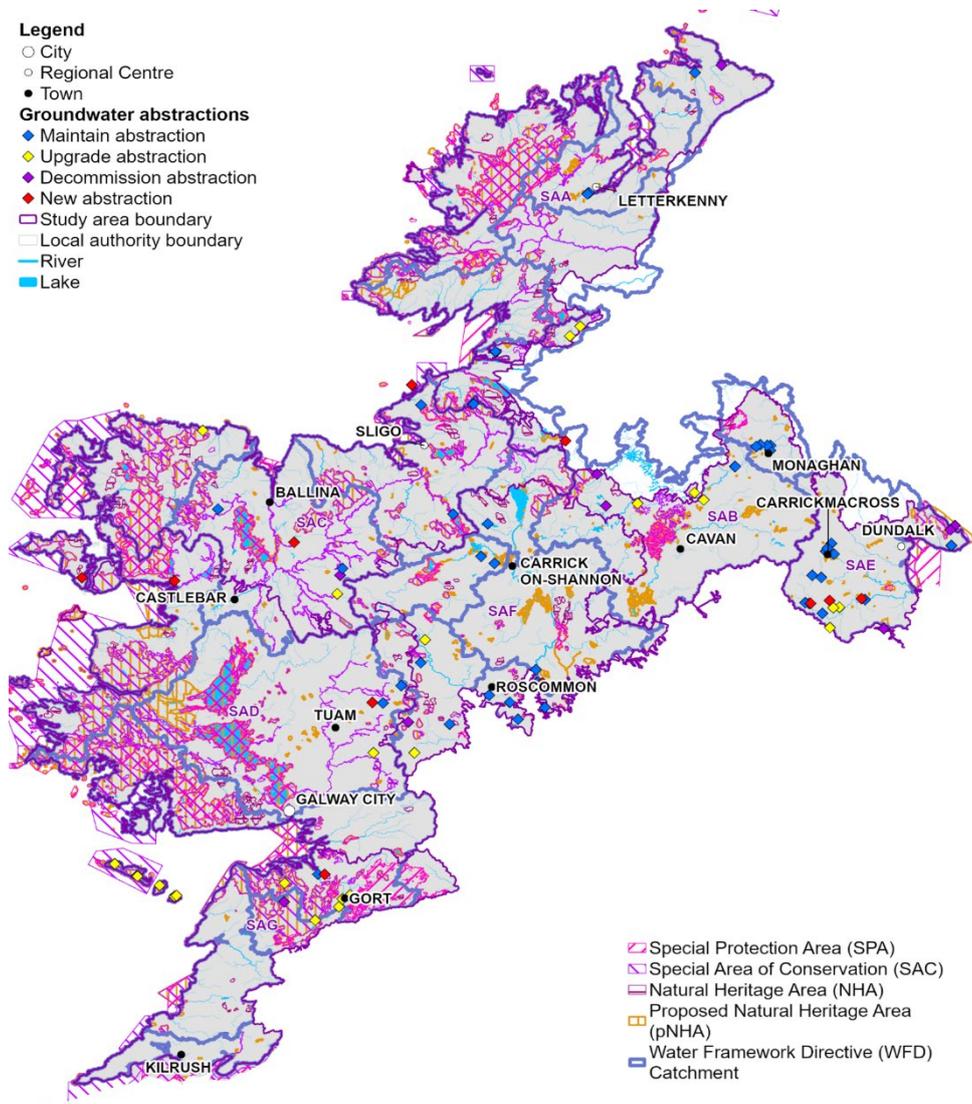


Figure NTS 7.3 Preferred Approach – Groundwater Abstractions

8 Regional Approach for the draft RWRP

The identification of a Regional Preferred Approach is considered, at a Plan Level in terms of what projects/solutions might work best to meet the overall Deficit in the North West Region. Taking a holistic view of the region presents opportunities to improve the sustainable water resources management and increase operational flexibility and resilience.

While some small Cross Study Area Transfers have been identified, including three inter-regional supplies, the potential for a large feasible option with the capability to provide regional interconnectivity (across Study Area boundaries) is limited by the terrain across the North West Region and constrained

by the location of environmentally sensitive site and the sustainability of the water sources. However, the Approach Development Process at Study Area Level, has identified large, interconnected supplies within the Study Area boundaries which will ultimately increase resilience of supply for customers and support environmental sustainability in the long term. These works are associated with extensive construction works for which will have environmental impacts and risks. These have been assessed for each option and mitigation measures identified in the Study Area Environmental Reviews in Appendix H of the SEA Environmental Report.

9 Cumulative assessment for draft RWRP-NW

A cumulative effects assessment for a water resource management plan should include:

- Effects of measures/options proposed within a plan or programme; and
- Effects between the measures/options proposed within the plan or programme and other projects, plans and programmes.

At the Regional Level, cumulative effects need to be considered in relation to the combined effects from proposals in the seven component study areas of the North West regional group area 'within plan' and includes consideration of the transfers across study areas and inter regional transfers.

For cumulative effects to occur, there needs to be an overlap of temporal periods in some way for the impacts and/or the effect. For example, two strategic-level schemes being constructed at the same time could result in cumulative traffic movements, while two schemes being operated together could result in a drawdown of groundwater levels. A precautionary approach has been taken for the cumulative effects assessment, which assumes that all options could be constructed at the same time and then all options would be operated at the same time.

The assessment has considered the cumulative effects across all SEA topics to identify those interactions that are likely to generate significant effects. These are likely to be related to:

- Biodiversity;
- Water environment;
- People and health;
- Landscape and visual;
- Cultural heritage; and
- Climate change.

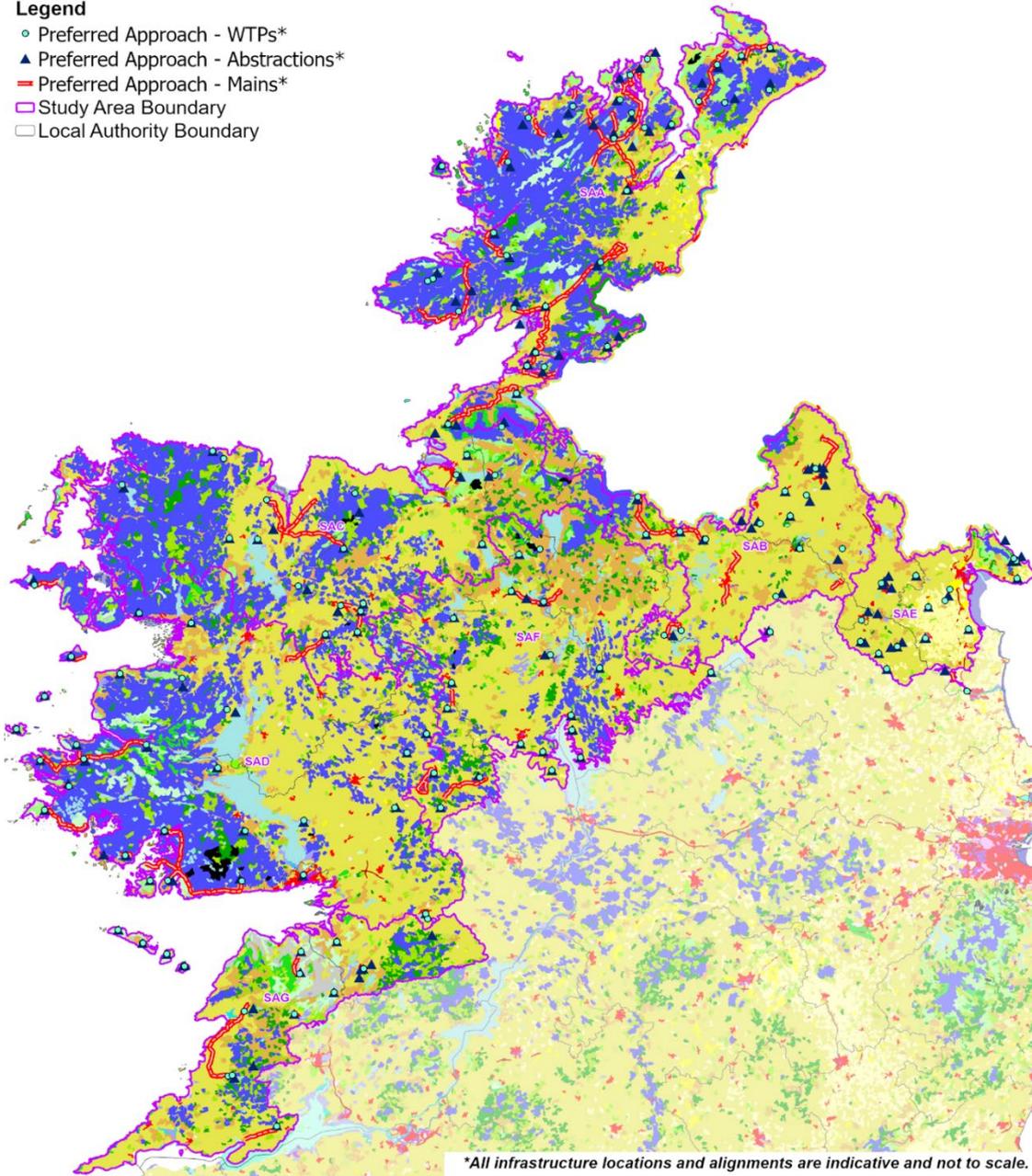
9.1 Cumulative Effects 'Within Plan'

9.1.1 Overview

The Preferred Approaches across the seven study areas are shown in relation to environmental constraints in Figure NTS 9.1 and Figure NTS 9.2. Option locations and transfer routes are identified.

Legend

- Preferred Approach - WTPs*
- ▲ Preferred Approach - Abstractions*
- Preferred Approach - Mains*
- Study Area Boundary
- Local Authority Boundary



**All infrastructure locations and alignments are indicative and not to scale.*

Corine Landcover Type

- | | | |
|------------------------------------|---|------------------------------|
| 111 Continuous urban fabric | 211 Non-irrigated land | 331 Beaches dunes sand |
| 112 Discontinuous urban fabric | 231 Pastures | 332 Bare rocks |
| 121 Industrial or commercial units | 242 Complex cultivation patterns | 333 Sparsely vegetated areas |
| 122 Road and rail networks | 243 Land principally occupied by agriculture with areas of natural vegetation | 334 Burnt areas |
| 123 Sea ports | 311 Broad-leaved forest | 411 Inland marshes |
| 124 Airports | 312 Coniferous forest | 412 Peat bogs |
| 131 Mineral extraction sites | 313 Mixed forest | 421 Salt Marshes |
| 132 Dump | 321 Natural grassland | 423 Intertidal flats |
| 133 Construction sites | 322 Moors and heaths | 511 Stream courses |
| 141 Green urban sites | 324 Transitional woodland scrub | 512 Water bodies |
| 142 Sport and leisure facilities | | 521 Coastal lagoons |
| | | 522 Estuaries |

Figure NTS 9.1 Corine Land Cover Analysis for the North West Region

The Corine land analysis, as shown on Figure NTS 9.1, shows that the largest land uses across the North West Region potentially affected by options within the Study Area Preferred Approaches are pastures, and peat bogs. All of these land uses and habitats could be temporarily disturbed, for example, through vegetation clearance within the 15m construction buffer zone around pipelines and site areas. For pipelines this will depend on route alignment and location within or alongside roads. Some land uses will also be permanently lost within construction footprints for infrastructure such as WTPs.

Once available, the EPA OSI national land cover map, currently under development, will be considered for land use information and analysed for potential effects as Preferred Approach options are taken forward for further study.

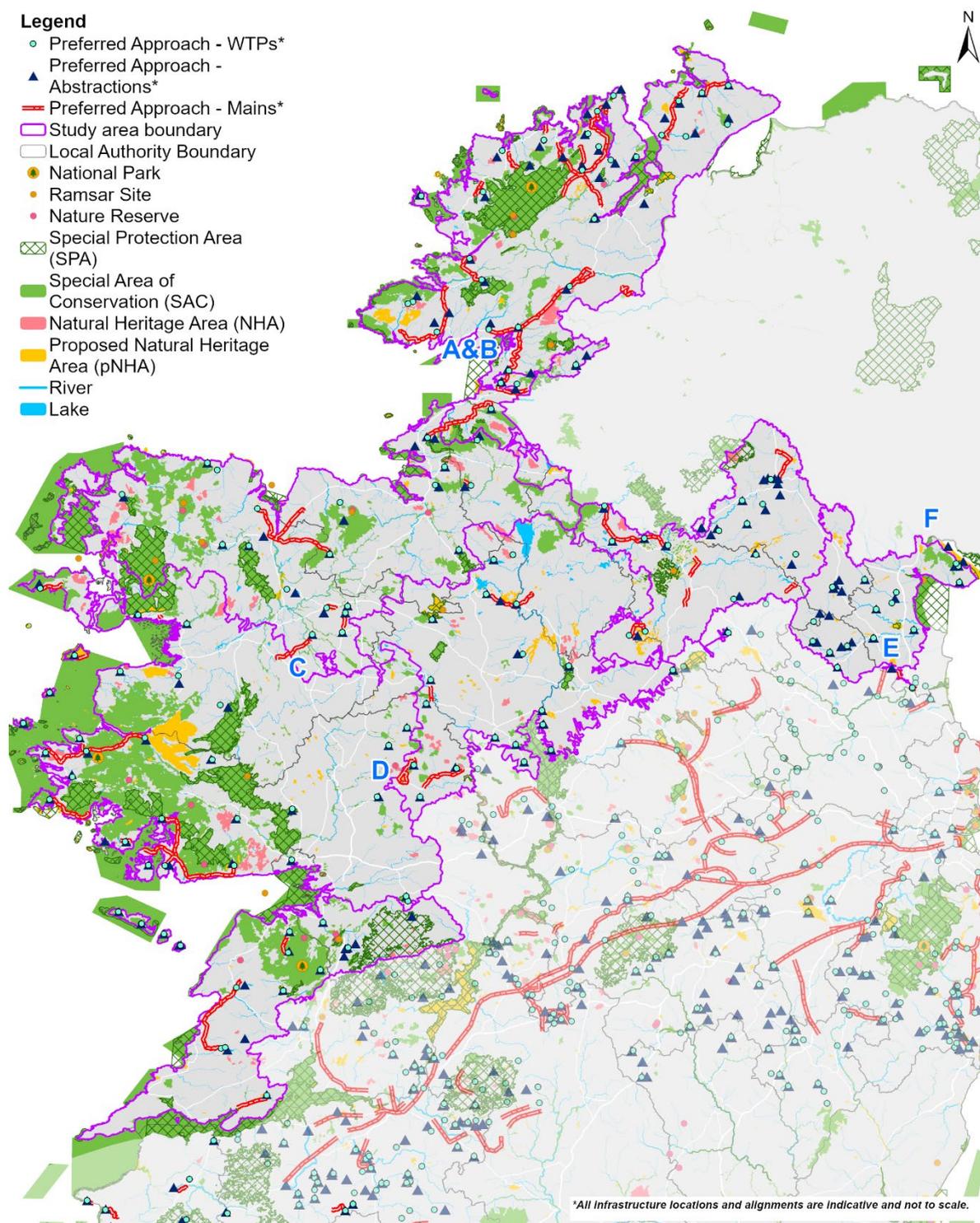


Figure NTS 9.2 Preferred approach with Cross Study Area Transfers and designations

Sustainability analysis for groundwater and surface water abstraction has already taken account of combined effects from other Irish Water abstractions within and across study area or region boundaries. Therefore, the components of Preferred Approaches most likely to lead to within-plan cumulative effects are the construction of pipelines and associated works, such as new WTPs and pumping stations. The pipelines for smaller water transfers are likely to be road-based. The pipelines will vary in size but there are five small SA Options that involve interconnections across Study Area boundaries (Cross Study Area Transfer) within the North West Region and one of which is within the Eastern and Midlands Region. There is also one WRZ option that maintains an existing import from Northern Ireland as a transboundary transfer (SAE-050 - see F in Figure NTS 9.2). The largest Cross Study Area Transfer is within the Eastern and Midlands Region, from the New Shannon source (South Louth East Meath) in SA3 to the Drybridge Collon/Ardee WRZs in SAE; transferring water at approximately 3,800 MI/d. The five cross study transfers and the Northern Ireland transboundary transfer are identified in Figure NTS 9.2 below:

- A - SAA to SAB (North West)
- B - SAA to SAB (North West)
- C - SAD to SAC (North West)
- D - SAD to SAF (North West)
- E - SA3 to SAE (Eastern & Midlands)
- F - Northern Ireland to SAE (Northern Ireland Import)

The ‘within-plan’ cumulative effects across the seven study areas are summarised in Table NTS 9.1 below.

Table NTS 9.1 ‘Within-Plan’ Cumulative Effects Across the Study Areas

Study Area	Population, Economy, Tourism and Recreation, and Human Health	Water Environment	Biodiversity, Flora and Fauna	Material Assets	Landscape and visual amenity	Climate change	Cultural heritage	Geology and soils
SAA								
SAB								
SAC								
SAD								
SAE								
SAF								
SAG								

Key	
Construction Phase	
Operation Phase	

Key

Construction and Operation

The potentially most significant cumulative effects (positive and negative) identified in Table NTS 9.1, in relation to each SEA topic, are:

- Population, Economy, Tourism and Recreation, and Human Health (+/-);
- Water Environment (+/-);
- Biodiversity, Flora and Fauna (+/-);
- Climate Change (-);
- Landscape (-); and
- Cultural Heritage (-).

9.2 Cumulative Effects with Other Plans and Programmes

The strategic plans and programmes assessed for significant cumulative effects (positive and negative) are shown in Table NTS 9.2.

Table NTS 9.2 Cumulative Effects with Other Plans and Programmes

Plan/Project	Population, economy, tourism and recreation and human health	Water environment (quality and resources)	Water environment (flood risk)	Biodiversity	Material assets and waste	Landscape and visual amenity	Climate change (mitigation)	Climate change (adaptation)	Cultural heritage	Geology and soils
Ireland 2040: Our Plan, National Planning Framework (Government of Ireland, 2018)	+	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
Regional Spatial and Economic Strategies	+	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
River Basin Management Plan (RBMP) (2018-2021) and draft RBMP 2022-2027		+		+			+/-	+/-		
Climate Action Plan 2021		+		+			+	+/-		
Forestry Programme 2014-2020: IRELAND (as extended for 2021)		+		+			+	+/-		
National Marine Planning Framework (NMPF) Consultation	No direct interaction with the Regional Preferred Approach - potential for draft RWRP to support in the future with catchment management measures to improve water quality									
County and City Development Plans	+	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
Local Area Plans	+	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-

Plan/Project	Population, economy, tourism and recreation and human health	Water environment (quality and resources)	Water environment (flood risk)	Biodiversity	Material assets and waste	Landscape and visual amenity	Climate change (mitigation)	Climate change (adaptation)	Cultural heritage	Geology and soils
Food Wise 2025	+	+/-		+/-			+/-			+/-
Draft Agri-Food Strategy 2030	+	+/-		+/-			+/-			+/-
EU Biodiversity Strategy for 2030	+	+		+						
National Biodiversity Action Plan	+	+		+		+	+	+		+
All Ireland Pollinator Plan 2021 – 2025	+	+		+		+	+			+
National Waste Action Plan for a Circular Economy 2020-2025					+	+				
Catchment Flood Risk Management (CFRAM) Programme (2011 onwards)	+		+							
Flood Risk Management Plans (2016)	+		+							
Offshore Renewable Energy Development Plan							+			
National Adaptation Framework (NAF)							+	+		
Tourism Development and Innovation 2016-2022	+	+/-		+/-		+			+	
Water Services Strategic Plan (WSSP)	+	+/-								
National Wastewater Sludge Management Plan (NWSMP) 2016-2021		+			+					+/-
Lead in Drinking Water Mitigation Plan (LDWMP)	+									
Northern Ireland Water (NI Water) Water Resource and Supply Resilience Plan and all other NI plans and strategies included in the PPP review list	Continuation of the existing import associated with SAE-050 is unlikely to result in changes in the interaction between the Regional Preferred Approach and the NI WRSRP									

Plan/Project	Population, economy, tourism and recreation and human health	Water environment (quality and resources)	Water environment (flood risk)	Biodiversity	Material assets and waste	Landscape and visual amenity	Climate change (mitigation)	Climate change (adaptation)	Cultural heritage	Geology and soils
Northern Ireland Marine Plan	The only option with potential for impact on the marine environment is the SAD-055 which is a small scale island desalination option. This is distant to NI waters and is not considered likely to conflict with the plan objectives.									
draft National Policy Statement on Geothermal Energy for a Circular Economy		+/-		+/-	+		+	+/-		+/-

There are no additional mitigation measures identified from the assessment of interactions with other plans. The requirement to review and take account of relevant plans and policies in the implementation and future iterations of the RWRP-NW, is built into the monitoring and feedback step and embedded in the Environmental Action Plan provided in section 10.1 of the SEA Environmental Report.

9.3 SEA Summary for the Regional Preferred Approach

An overall assessment summary of the Preferred approach compared to the do minimum against SEA objectives is provided in Table NTS 9.3 below.

Table NTS 9.3 Regional Preferred Approach and Do Minimum Comparison

Population, economy, tourism and recreation and human health	Water environment (quality and resources)	Water environment (flood risk)	Biodiversity	Material assets	Landscape and visual amenity	Climate change (mitigation)	Climate change (adaptation)	Cultural heritage	Geology and soils
Do Minimum Approach									
-	-	0	-	-	0/-	0/-	-	0/-	0

- The 'Do Minimum' approach is the 'without plan' approach, meaning that this is the approach that would occur without the RWRP-NW. As a result, the 'Do Minimum' approach would only include reactive, unplanned interim measures to address likely failures in infrastructure.
- Ongoing reliability issues with the supplies and the situation is expected to further deteriorate due to climate change driven reductions in water resources and increased demand growth within the area.

- While there would not be major construction works there would likely to be increased pressure on existing abstractions including abstractions likely to be currently above sustainable levels and increasing issues with unreliable or inefficient network infrastructure.
- Currently 73 surface water bodies are identified by Irish Water as not meeting sustainability guidelines during dry weather flows. These are likely to be subject to continued or increased abstraction pressure and other existing sources may also be subject to increased abstraction pressure in the future.

Population, economy, tourism and recreation and human health	Water environment (quality and resources)	Water environment (flood risk)	Biodiversity	Material assets	Landscape and visual amenity	Climate change (mitigation)	Climate change (adaptation)	Cultural heritage	Geology and soils
--	---	--------------------------------	--------------	-----------------	------------------------------	-----------------------------	-----------------------------	-------------------	-------------------

Regional Preferred Approach

+	+/-	0/+	+/-	0/-	+/-	-	+	0/-	0/-
---	-----	-----	-----	-----	-----	---	---	-----	-----

- Focus on three pillars of using less, losing less, and supplying smarter and a planned rather than a reactive approach and a resilient system with more reliable sources
- Implementation of the Regional Preferred Approach, which is the combination of Study Area Preferred Approaches for SAA-SAG, with the mitigation identified in the SEA Environmental Report Appendix D Environmental Action Plan and the Monitoring Plan and the Study Area Environmental Reviews SAs A-G.
- Construction impacts from pipelines and associated infrastructure, but will be mitigated by reinstatement of land uses and mitigation and enhancement to minimise long term landscape, land use and biodiversity effects.
- Network improvements adding flexibility and resilience.
- Decommissioning of inefficient infrastructure and abstractions including from 40 groundwater and surface water abstractions including twenty-six surface water sources identified by Irish Water as not meeting sustainability guidelines during dry weather flows. Reduced pressure on 47 maintained surface water abstractions identified by Irish Water as not meeting sustainability guidelines during dry weather flows. Irish Water has applied sustainability guidelines to all new surface water sources; however, further investigations will be undertaken to confirm sustainable yields for new and increased groundwater sources and these will be subject to assessments under the new abstraction legislation. Overall these will provide potential benefits for water dependent biodiversity including aquatic ecology and support for meeting WFD objectives through more sustainable abstractions.
- Recognition that existing abstractions that will be upgraded and have been identified by Irish Water as currently not meeting sustainability guidelines during dry weather flows will be supported by compensation flow releases.
- Carbon emissions associated with construction and moving and treating water.
- Improving Irish Water's understanding of future risks, including climate change and efficient water use.
- Increasing routine monitoring and operational planning allowing Irish Water to proactively manage and forecast resourcing and operational trends.
- Process put in place for monitoring implementation of the plan and reviewing and feeding back on a regular basis within the plan development cycle.

Key			
Likely to have a positive effect	+	Likely to have a mixed positive and negative effect	+/-
Likely to have a negative effect	-	Likely to have mixed neutral and negative effect	0/-
Effects are uncertain or not applicable	? or N/A	Likely to have mixed neutral and positive effect	0/+
Likely to have a neutral effect	0		

9.4 AA Summary for the North West Region

There were -3 scores for the Preferred Approaches, three for SAA, SA-C, SAD and SAF. One for SAA (Cloghernagore Bog and Glenveagh National Park SAC, and Leannan River SAC), two for SA-C (Glenamoy Bog Complex SAC and Keel/Menaun Cliffs SAC), five for SAD (Lough Corrib SAC and SPA, Inishbofin SAC and SPA, Connemara Bog Complex SAC, and Twelve Bens/Garraun Complex SAC), and two for SAF (Lough Corrib SAC and Callow Bog SAC). All Likely Significant Effects (LSE) on European Sites can be addressed by mitigation measures as set out in full in the NIS. No Adverse Effects on Site Integrity (AESI) are identified at Plan level.

9.4.1 AA In-Combination Summary

In summary, potential in-combination impacts were identified at the North West Region's level for the following European sites:

- Donegal Bay SPA
- Galway Bay Complex SAC
- Inner Galway Bay SPA
- Lough Carra/Mask Complex SAC
- Lough Gill SAC
- Lough Mask SPA
- Lough Oughter and Associated Loughs SAC
- Lough Oughter Complex SAC
- Upper Lough Erne SAC

However, potential in-combination effects (construction and/or operational) would only occur where options within each Study Area are progressed concurrently with one another or with projects, and in the absence of mitigation. With the implementation of mitigation as outlined in the NIS section 6.3 and Appendix E there will be no adverse effects on the integrity of the European sites, either alone or in-combination with other plans or projects as a result of progressing the Preferred Approach options associated with the draft RWRP-NW.

The conclusion of the NIS for the draft RWRP-NW is that, based on a plan-level assessment, and with implementation of appropriate mitigation for protecting European sites, there will be no adverse effects on the integrity of any European site(s), either alone or in-combination with other plans or projects as a result of progressing Preferred Approach options within the draft RWRP-NW.

9.5 WFD Summary for the North West Region

Application of estimated allowable abstraction constraints on new options means that only options that are expected to meet sustainability requirements are considered. Individual options within the Regional Preferred Approach have been assessed and are expected to be sustainable, based on Plan Level desk-based assessment, in terms of avoiding deterioration of WFD status or avoiding conflict with meeting WFD objectives.

All surface water abstractions proposed within Preferred Approaches are within the expected sustainable abstraction limits of 10% or 5% of Q95 for good and high WFD river waterbody status sources and 10% or 5% of Q50 for good and high WFD lake waterbody sources respectively. Abstraction impacts on groundwater bodies have been assessed through a separate technical study which considered cumulative effects on WFD groundwater quantitative status. Based on the available information this concluded that there is no indication of cumulative impact or impact on WFD quantitative status of the groundwater bodies (Irish Water, 2022).

However, cumulative effects also need to be considered, in terms of both sustainability for connected surface waterbodies and groundwater dependent habitats and protected areas. Further studies are identified in the Study Area Environmental Reviews for specific options where risks are identified.

9.6 Transboundary effects for the Regional Preferred Approach

The types of options and their location, proximity and pathways for environmental effects have been considered through the process in relation to possible environmental effects for the Northern Ireland environment including any shared groundwater and river catchments and the marine environment. None of the options identified in proximity to the border are considered likely to have transboundary effects due to construction or operation taking into account standard good practice mitigation measures. Option identified as SAE-050 involves the maintenance of an existing water transfer from Northern Ireland which is not considered to result in a change to the current baseline..

10 Mitigation and Monitoring Plans

The Mitigation and Monitoring Plans for the draft RWRP-NW are based on the plan outlined in section 8.3.8 of the Framework Plan and include three elements:

- Mitigation Measures including recommendations to incorporate into project development as options are taken forward through feasibility assessments, design, consenting and implementation;
- Environmental Action Plan (EAP) identifying actions to be taken to integrate environmental requirements into process and related areas so that mitigation recommendations implemented; and
- Monitoring Plan identifying the targets and indicators to be measured or recorded to determine progress to meeting SEA objectives.

The approach to monitoring takes account of the EPA report '*The Tiering of Environmental Assessment – The influence of Strategic Environmental Assessment on Project-level Environmental Impact Assessment*' (EPA, 2021).

The Monitoring Plan has therefore been provided in two parts; the first to address plan level monitoring and second to provide a framework for project level monitoring. The EAP also include a task to review and update the monitoring indicators and targets to allow new conditions to be taken into account and to ensure the plan is sufficiently flexible to take account of environmental issues arising and any unforeseen adverse impacts. The plan level monitoring covers combined and cumulative effects. The indicators include both those aimed at positive as well as covering potential negative effects and sources, frequency and responsibilities are identified.

10.1 Environmental Action Plan

The EAP set out in Table NTS 10.1 below, summarises the actions for mitigation and areas of further study identified in the SEA Environmental Report. The EAP provides a basis for tracking recommendations from the SEA during the NWRP implementation.

Table NTS 10.1 Environmental Action Plan

Ref no.	Recommended Action for Mitigation / Further Study	Target	North West Region Progress summary: Completed: Y In progress: P Recommended: R
Identifying the Need – Quantity, Quality and Reliability			
Quantity – Supply Demand Balance			
Abstractions and Supply Side Yield Assessments			
EAP1	EAP1.1 Link investigation on supply risks to environmental resilience and avoiding damage to vulnerable habitats and protected areas; especially European designated sites, and threats to WFD water body objectives.	Environmental issues to be included in risk assessments for supply shortages or drinking water quality issues.	Y - completed for the draft RWRP-NW
Demand Side Data Improvements: Planning for Future Developments			
EAP2	EAP2.1 Reviews of WRZ configuration can consider potential environmental benefits from rationalisation opportunities to improve operational efficiency for waste and energy use and also reduce need for developing new sources.	Optimised WRZs/study areas	Y – completed for the draft RWRP-NW
	EAP2.2 Feed information on potential for water efficiency improvements to provide savings into future options identification		
Linking SEA and Future Development of Schemes			
EAP3	EAP3.1 Understanding causes of water quality issues for drinking water can support catchment management actions. Link clean water element (RC3) on water quality compliance and ongoing programmes on improving drinking water quality to potential for long term solutions through to long term catchment management opportunities to reduce pollution in groundwater and surface waters and water treatment issues.	Source risk assessments and drinking water safety plans linked to the NWRP process.	Y Plan level assessment completed for the draft RWRP-NW R project level assessments for water sources

Ref no.	Recommended Action for Mitigation / Further Study	Target	North West Region Progress summary: Completed: Y In progress: P Recommended: R
	EAP3.2 Link Drinking Water Safety Plans to scoping of study areas, prioritisation and options development process including consideration of catchment management opportunities.		R
	EAP3.3 Link ongoing projects with the supply demand assessments, scoping area studies and prioritisation for new investment. Consider as part of investment proposals for water treatment works – wider rationalisation opportunities with opportunities to reduce abstraction pressure on stressed sources and potential for improvements to residuals management (see also EAP 11.1)	Existing programmes and projects coordinated with the NWRP	Y completed for the draft RWRP-NW.
	EAP3.4 Value environmental and social benefits as well as costs in options development process (using environmental economics tools such as natural capital / ecosystems services and social value assessments) which can also value nature based solutions and catchment management benefits.	CBA and MCA supported by environmental/social valuation as well as qualitative assessment	R
Delivering Solutions – Approach			
Climate Change			
EAP4	EAP4.1 Take account of effects of climate change effects on protected areas and WFD objectives as well as water supply.	Environmental resilience as part of the climate change risk assessment informing long-term solutions.	R
	EAP4.2 Results completed, and ongoing climate change studies should be used to inform future scoping of study areas/WRZs, and the types of solutions considered and prioritisation for investment.		R
	EAP4.3 Long term actions to improve water retention in upper catchments as well as catchment wide water quality initiatives could be considered as responses. Catchment		R

Ref no.	Recommended Action for Mitigation / Further Study	Target	North West Region Progress summary: Completed: Y In progress: P Recommended: R
	management benefits linking improvements to water quality reducing treatment and opportunities for improving carbon sequestration in soils and through woodland planting (also linking to biodiversity objectives)		
	EAP4.4 Investigate opportunities to reduce carbon emissions in construction and operational phases reflecting importance of energy efficient and low carbon emission considerations in design and construction methods and considering opportunities for use of renewable energy sources.	Identify how construction and operational carbon can be reduced across project development, construction and operation including potential for including renewable energy sources, such as solar panels, in project design	R
Lose less: Leakage Reduction			
EAP5	EAP 5.1 Take forward studies and actions supporting meeting leakage targets and include consideration of relieving pressure on existing deficit areas and abstractions with sustainability issues and drought risks.	Develop information to support and improving leakage reduction	R
Use Less: Water Conservation			
EAP6	EAP6.1 Link to raising awareness on environmental benefits of water conservation.	Improved awareness of benefits of conserving water (day to day and during extreme events)	R
	EAP6.2 Consider customer research on the water supply and demand management including water efficiency options development along with local community and stakeholder views.		R
	EAP6.3 As data is developed to support understanding on water conservation, develop water conservation/water efficiency options to be considered as part of the Options Assessment Methodology for future plan cycles.	Monitoring and feedback stage 8 of the options assessment methodology	R

Ref no.	Recommended Action for Mitigation / Further Study	Target	North West Region Progress summary: Completed: Y In progress: P Recommended: R
Supply Smarter: Capital Investment and Improved Operations			
See EAP3, 4 and 5 in relation to linking ongoing programmes and future water resource planning and EAP10, 11 and 12 on implementing options and approach assessment methodology.			
Drought Planning			
Information for Assessing Drought Risks			
EAP7	EAP7.1 Identify the risks from potential drought actions for water sources designated for nature conservation value and supporting protected species - include lessons learned from the 2018 drought.	Drought - sources at risk identified	R
Environmental Mitigation of Drought Measures			
EAP8	EAP8.1 Assess potential impacts of drought restrictions on customers, especially vulnerable groups, to identify both communication requirements and exemptions on restrictions relevant for each management area.	Drought management avoiding causing temporary or long-term impacts on protected habitats and species as well as minimising restrictions to customers	R
	EAP8.2 Develop drought communication plans and identify approaches to avoid impacts on vulnerable water users, for example, through exemptions – plan to provide customers with information early so that voluntary measures can be effective in avoiding the need for additional measures in most cases and taking forward the approaches from the 2018 summer drought and 2020 spring drought.		R
	EAP8.3 Prepare environmental assessments (including AA) for sensitive water sources at risk from drought management actions. These should be available in advance of measures being needed. They should include consultation on the assessments with environmental authorities and identify specific monitoring or mitigation measures.		R

Ref no.	Recommended Action for Mitigation / Further Study	Target	North West Region Progress summary: Completed: Y In progress: P Recommended: R
Residuals Approach			
EAP9	EAP9.1 Include consideration of residuals management in the options development process involving WTPs or rationalisation opportunities	Residuals approach linked to options development process	Y
	EAP9.2 Apply the waste management hierarchy with any solid waste disposal limited to appropriate licensed sites.		R
Delivering Solutions: Options and Approach Assessment Methodology			
Integration of Environmental and Sustainability Considerations			
EAP10	EAP10.1 Study area scoping to include analysis of environmental baseline issues, risks, constraints and opportunities to inform identification of initial options as providing context for the option development process.	Context for identifying and assessment options is provided	Y
	EAP10.2 Further development of the environmental and social impact valuation methodology as a tool for the approach appraisal process, based on ecosystems services assessment/natural capital assessment principles, can support cost benefit analysis and MCA methodologies and provide quantitative information supporting SEA in the future.	CBA and MCA supported by environmental valuation based on natural capital/ecosystems services approaches as well as qualitative assessment	R R
	EAP10.3 Comparison of combinations of options (or approach) should include assessment of cumulative effects for each Study Area (groups of WRZs) and be considered in determining the best value approach. Justification for the approach selected will need to be provided.	Best environmental solutions considered in selection of preferred solutions with mitigation built into design and costing. Opportunities for enhancement to contribute to objectives to be considered	Y
Transboundary Issues			
EAP11	EAP11.1 Ensure potential for transboundary impacts are considered during options	Transboundary effects avoided	Y

Ref no.	Recommended Action for Mitigation / Further Study	Target	Nouth West Region Progress summary: Completed: Y In progress: P Recommended: R
	assessment and early consultation is undertaken to inform the assessment process.		R
Delivering Sustainable Solutions			
EAP12	<p>EAP12.1 Link the options development information and SEA mitigation recommendations into the initial studies and designs for selected project level schemes so that assumptions and mitigation recommendations are taken forward.</p> <p>Develop a monitoring information template to capture key environmental information at key project development stages recording:</p> <ul style="list-style-type: none"> • Project design/implementation stage and environmental assessment process applied and link to SEA and NIS recommendations • Data review and update at each key stage including reviewing current and draft policies and plans • Report on Monitoring Plan indicators • Identify potential for cumulative effects 	<p>Template developed and applied</p> <p>Preferred approach options taken to project stage subject to initial environmental review linking to information from the options development and assessment process and to good practice procedures and Monitoring Plan criteria.</p>	P
	<p>EAP12.2 Development of procedures to integrate good practice approaches for avoiding/mitigating environmental impacts and identifying enhancement opportunities in future scheme design and development.</p>		P
	<p>EAP12.3 Ensure environmental mitigation and study requirements are covered in option costing and risk aspects are taken into account in scheme development.</p>		P
	<p>EAP12.4 Review monitoring framework and update to ensure environmental mitigation and study requirements are covered in option costing and risk aspects are taken into account in scheme development.</p>		R

11 Next Steps

This SEA Environmental Report (including the Study Area Environmental Review appendices), along with the NIS and draft Regional Plan are available for comment and review during the current consultation period. The process and deadline for submitting observations are set out on the Irish Water website.

Following the completion of the consultation period, all comments will be reviewed and considered as part of finalising the Regional Plan. Responses to the consultation comments will be reported in a Consultation Report.

SEA requirements and consultation comments will be taken into account in finalising the Regional Plan. Consultation responses and how the SEA has been taken into account will be reported in the SEA Statement published with the final Regional Plan.

11.1 Further information

For more information, please refer to one or more of the communication channels below:

- Draft RWRP-NW webpage on the Irish Water website in English and Irish;
- Information leaflet available in English and Irish;
- Draft RWRP-NW infographic;
- Press release to national and local media;
- Newspaper advert;
- Hard copies of the draft Regional Plan, environmental reports, Non-technical Summary and consultation leaflet made available at planning counters nationally;
- FAQs;
- Freephone number 1800 46 36 76;
- Social media; and
- Correspondence and briefings to:
 - Elected representatives;
 - Local authorities;
 - Environmental authorities;
 - Interested parties; and
 - Media.

This SEA Environmental Report has been prepared on behalf of Irish Water and is available online at the following website:

<https://www.water.ie/nwrp>

Further information requests and written submissions or observations can be sent to Irish Water:

By post:

National Water Resources Plan,
Irish Water,
PO Box 13216,
Glenageary,
Co. Dublin.

By email:

nwrp@water.ie