

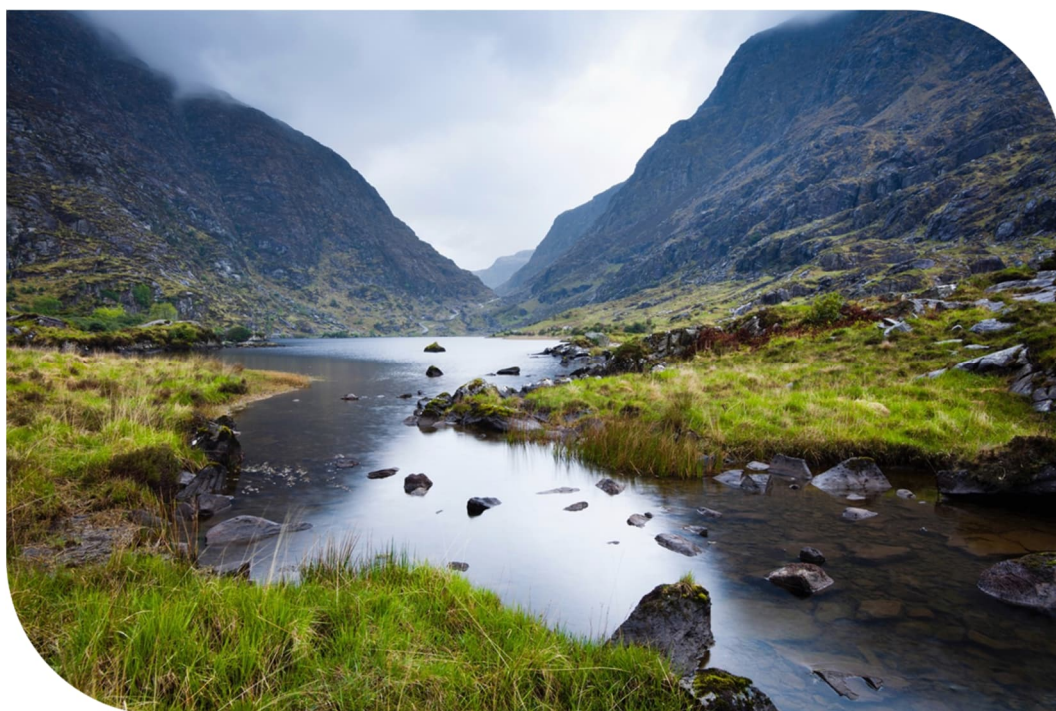
Spring 2023



Regional Water Resources Plan – South West

Strategic Environmental Assessment

Appendix H: Study Area I – Environmental Review



Tionscadal Éireann
Project Ireland
2040

Data disclaimer: This document uses best available data at time of writing. 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. In December 2022, the Water Services (Amendment) (No. 2) Act, 2022 was signed into law. This act legislates that from the 31 December 2022, Irish Water will only be known as Uisce Éireann. It also provides that, from that date, all references in any enactment, legal proceedings or other document to Irish Water shall be construed as references to Uisce Éireann only. Therefore in this Environmental Review, which was developed prior to the name change, all references to Irish Water shall be construed as Uisce Éireann.

Baseline data included in the RWRP-SW 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 RWRP-SW. 2019 was selected as the base year to align with the planning period (2019-2025) of the NWRP.

© Copyright 2023 Jacobs Engineering Ireland Limited. The concepts and information contained in this document are the property of Jacobs. Use or copying of this document in whole or in part without the written permission of Jacobs constitutes an infringement of copyright.

Limitation: This report has been prepared on behalf of, and for the exclusive use of Jacobs' Client (Irish Water), and is subject to, and issued in accordance with, the provisions of the contract between Jacobs and the Client. Jacobs accepts no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this report by any third party.

Table of Contents

1	Introduction and Background	2
1.1	Options Assessment Methodology	2
1.2	Regional Plan Strategic Environmental Assessment	3
1.3	Study Area: Strategic Environmental Assessment	4
1.4	Study Area: Water Framework Directive	5
1.5	Study Area: Appropriate Assessment	6
1.6	Study Area I	6
2	Study Area I Environmental Baseline Context	9
2.1	Population, Economy, Tourism and Recreation, and Human Health	9
2.1.1	Population	9
2.1.2	Economy and Employment	12
2.1.3	Tourism and Recreation	13
2.1.4	Human Health	13
2.2	Water Environment	17
2.2.1	Water Framework Directive	18
2.2.2	Flood Risk	24
2.3	Climate Change	24
2.4	Biodiversity, Flora and Fauna	28
2.4.1	Designated Sites	28
2.4.2	Habitats	31
2.4.3	Species	32
2.5	Material Assets	34
2.6	Landscape and Visual Amenity	36
2.6.1	Landscape and Visual	36
2.6.2	Seascape	39
2.7	Air Quality and Noise	39
2.7.1	Air Quality	39
2.7.2	Noise	39
2.8	Cultural Heritage	40
2.9	Geology and Soils	41
2.10	Summary of Key Issues and Trends over the Plan Period	42
3	Environmental Assessment – Options Appraisal	46
3.1	Overview	46

3.2	Stage 3: Unconstrained Options	46
3.2.1	Existing Groundwater Abstractions	47
3.2.2	New Groundwater Abstractions.....	47
3.2.3	Sustainable Abstraction in Options Assessment.....	47
3.3	Stage 4: Coarse Screening	48
3.4	Stage 5: Fine Screening	60
3.5	Stage 6: Feasible Options List	61
4	Environmental Assessment – Approach Development	63
4.1	Introduction to Approach Development	63
4.2	Stage 7: Approach Development Process	64
4.2.1	Environmental Assessment in the Approach Development process.....	65
4.3	SAI Approach Development Process	67
4.4	Comparison of SAI Approaches	74
4.4.1	SA Approach 1 (SA combination 1) (QD)	77
4.4.2	SA Approach 2 (SA Combination 2) (LC)	77
4.4.3	SA Approach 3 (SA Combination 6) ((LCo, BE, BA, MR).....	78
4.5	SAI Approach Assessment Comparison	78
4.5.1	Selection of the SA Preferred Approach.....	83
5	SAI Preferred Approach Strategic Environmental Assessment	85
5.1	SAI Preferred Approach Options	85
5.2	Additional Measures	128
5.2.1	Leakage Reduction.....	128
5.2.2	Water Conservation.....	128
5.3	Interim Solutions	128
5.4	Approach Uncertainty and Adaptability	128
6	SEA Cumulative Effects for SAI Preferred Approach	132
6.1	Cumulative Effects ‘Within Plan’ for SAI	132
6.1.1	Cumulative Effects during Construction.....	133
6.1.2	Cumulative Effects during Operation.....	135
6.2	Cumulative Effects with Other Developments	138
6.2.1	Cumulative Effects during Construction.....	138
6.2.2	Cumulative Effects during Operation.....	143
7	Strategic Environmental Assessment Summary	145
8	Water Framework Directive Summary	154

9	Appropriate Assessment Summary	156
10	Recommendations for Implementation	158
	References	159
Appendix A	Fine Screening Summaries	A-1
Appendix B	SA Approaches for SAI	B-1
Appendix C	Figure Index Tables	C-1



1

Introduction and Background

1 Introduction and Background

This Study Area Environmental Review forms part of the SEA Environmental Report for the Regional Water Resources Plan (RWRP) for the South West Region (referred to as the Regional Plan). The Regional Plan includes three individual study area reviews (SAH-J) as appendices.

This Study Area I Environmental Review includes:

- Context for the Study Area Environmental Review;
- Environmental baseline;
- Environmental assessment for the options screening process and feasible options;
- Assessment of the alternatives considered and the Preferred Approach;
- Cumulative effects assessment; and
- Recommendations for implementation, including mitigation and monitoring.

This Environmental Review summarises the environmental assessment undertaken for Study Area I within the South West Region for the options and approaches considered and as outlined in the Study Area I Technical Report (RWRP-SW Appendix 2). This Environmental Review applies the Strategic Environmental Assessment (SEA) objectives and environmental assessment methodology set out in the NWRP Framework Plan (Framework Plan).

Environmental Reviews have been undertaken for each study area and form appendices to the SEA Environmental Report for the Regional Plan as part of Phase 2 of the National Water Resources Plan (NWRP). Phase 1 in the development of the NWRP was the preparation of the Framework Plan, which was adopted in Spring 2021 following SEA, Appropriate Assessment (AA) and extensive public consultation. The Framework Plan and supporting documentation are available at <https://www.water.ie/projects/strategic-plans/national-water-resources/>.

Phase 2 of the NWRP comprises development of the four RWRPs. The RWRP for the South West Region (RWRP-SW) was published for consultation in June 2022 with the timeframe for submissions closing on 24th August 2022. Where relevant, submissions received on the RWRP-SW have also informed the development of this Regional Plan, to the extent they had general application. Further, the cumulative impacts of the RWRP-SW along with this Regional Plan have been assessed, and are considered in section 9 of the SEA Environmental report for the RWRP-SW.

1.1 Options Assessment Methodology

The Options Assessment Methodology implemented as part of the RWRP-SW provides a framework to identify potential solutions to address identified need. The key stages of the process are illustrated in Figure 1.1 and summarised below:

- 1) Identifying need – based on SDB and/or Drinking Water Safety Plan Barrier Assessment;
- 2) Scoping of the study area (Water Resource Zones (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 – assessing the unconstrained options and eliminating 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 and scoring assessment update;
- 7) Approach appraisal – comparison and assessment of combinations of options identified to meet the predicted supply demand deficit to determine the Preferred Approach; and
- 8) Monitoring and Feedback – a process for monitoring the implementation of the plan and responding to changes to policy and guidelines and to information changes which will feed into the 5 year plan cycle and includes an annual review to identify actions required within the plan cycle.

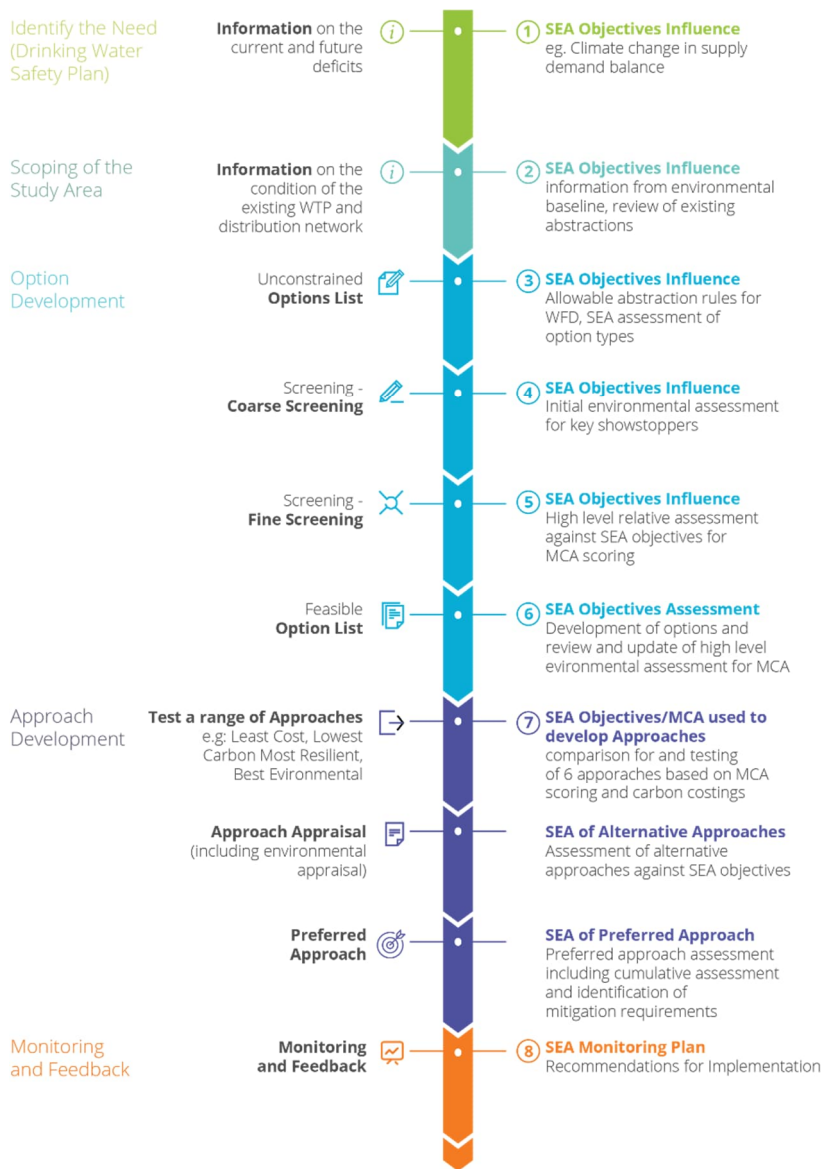


Figure 1.1 Option and Approach Development Process

1.2 Regional Plan Strategic Environmental Assessment

The four RWRPs, implementing Phase 2 of the NWRP, are each subject to a separate SEA process. The study area assessments will follow the outline methodology established by the Framework Plan. The SEA Environmental Reports are being published for consultation alongside the draft Regional Plans for each of the four regions.

Each of the Study Area Environmental Reviews, are presented as appendices to the SEA Environmental Reports, and include:

- Introduction for SEA, Water Framework Directive (Council Directive 2000/60/EC) (WFD) and AA applied at the study area level;
- Environmental baseline context;
- Environmental assessment for the options screening process and feasible options;
- Assessment of the alternatives considered and the Preferred Approach;
- Cumulative effects assessment between options within each study area and with proposed developments in the study area; and
- Recommendations for implementation, including mitigation and monitoring.

1.3 Study Area: Strategic Environmental Assessment

The set of SEA objectives developed at the Phase 1 scoping stage have been refined and finalised following consultation (see Table 1.1). These objectives have been influenced by the plans, policies and programmes review, the baseline trends and pressures identified, and the scope of the assessment as defined and consulted on in the Regional Plan SEA scoping report.

Table 1.1 SEA Objectives

SEA Topic	SEA Objective
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 in providing water services.
Water environment	<p><u>Water quality and resources</u></p> <p>Prevent deterioration of the WFD status of waterbodies with regard to both water quality and quantity due to Irish Water’s activities. Contribute towards the “no deterioration” WFD condition and, where possible, to the improvement of waterbody status for rivers, lakes, transitional and coastal waters, and groundwater to meet WFD objectives.</p>
	<p><u>Flood risk</u></p> <p>Protect and, where possible, reduce risk from ground water and surface water 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 water abstractions.</p>

SEA Topic	SEA Objective
Landscape and visual amenity	Protect and, where possible, enhance designated landscapes in providing water services.
Climate change	<u>Climate change mitigation</u> Minimise contributions to climate change emissions to air (including greenhouse gas emissions) as a result of Irish Water's provision of water services.
	<u>Climate change adaptation</u> Promote the resilience of the environment, water supply and treatment infrastructure to the effects of climate change.
Cultural heritage	Protect and, where possible, enhance cultural heritage resources in providing water services.
Geology and soils	Protect soils and geological heritage sites and, where possible, contribute towards the appropriate management of soil quality and quantity.

The SEA informs the development of the approaches and is undertaken on the various alternative approaches considered and the Preferred Approaches identified, along with cumulative impact assessment and identification of 'in-combination' effects.

The Regional Plan SEA Environmental Report was completed only after all study area reports for the South West region were available. At that point, Irish Water conducted an exercise as part of the development of the overall relevant Regional Plan to assess the cumulative and in-combination impacts of the Preferred Approaches identified for each study area within the South West region. The conclusions of that cumulative assessment are presented in the SEA Environmental Report for the South West region.

If appropriate, the Preferred Approach identified for SAI will have been modified prior to finalisation of the Regional Plan Technical Report and Environmental Review to take into account the conclusions of that cumulative assessment and identification of in-combination effects. The SEA for each of the Regional Plans in turn includes a cumulative assessment of the Preferred Approaches identified in the Regional Plan, in combination with the effects of the Preferred Approaches for each other region (to the extent that data was available and recognising that each Regional Plan is at a different stage of development). An assessment of the cumulative effects of the Preferred Approaches identified in this Regional Plan is set out in section 9 of the RWRP-SW SEA Environmental Report. The assessment includes consideration of the cumulative effects along with the preferred approaches identified in the RWRP-SW.

1.4 Study Area: Water Framework Directive

Requirements under the WFD to avoid deterioration in waterbody status or objectives has been incorporated into the allowable abstraction constraints for new option abstractions. WFD requirements are also included in the SEA objectives for the assessment (see Table 1.1). Baseline data in relation to the WFD is presented in section 2.2 and a summary of the assessment for SAI is provided in chapter 8 of this review.

1.5 Study Area: Appropriate Assessment

An AA was required for the Framework Plan to comply with the EU Habitats Directive (92/43/EEC) and is relevant to development of the Regional Plans, including the component study areas.

AA issues will be addressed in a separate Natura Impact Statement (NIS) for the Regional Plan, which will support the overall AA process that Irish Water is required to carry out. Habitats Directive requirements have been integrated into the options development process and conclusions from the NIS for SAI are provided in chapter 9 of this review.

1.6 Study Area I

The South West Region is subdivided into three study areas based on factors such as:

- Groundwater body boundaries;
- Surface water sub-catchments;
- Geographical features;
- WRZ boundaries;
- Local authority functional areas; and
- Appropriate size for an efficient reporting structure.

This appendix reports on SAI, the location of SAI in relation to the South West Region is shown in Figure 1.2.

Study Area I lies within the counties of Cork City, Cork and Kerry and its total area is approximately 5,920 km². There are four principal settlements (with a population of over 10,000) within SAI, namely Cobh, Midleton, Cork city and suburbs, and Carrigaline (CSO, 2016a), as shown in Figure 1.3.

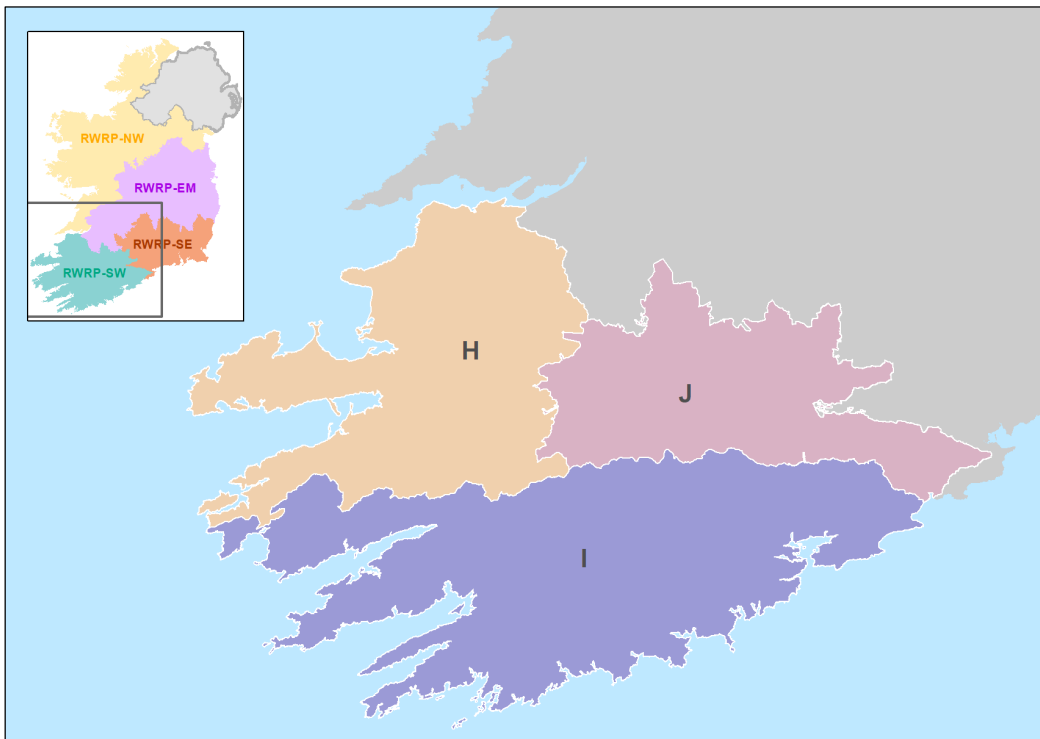


Figure 1.2 South West Region Study Areas

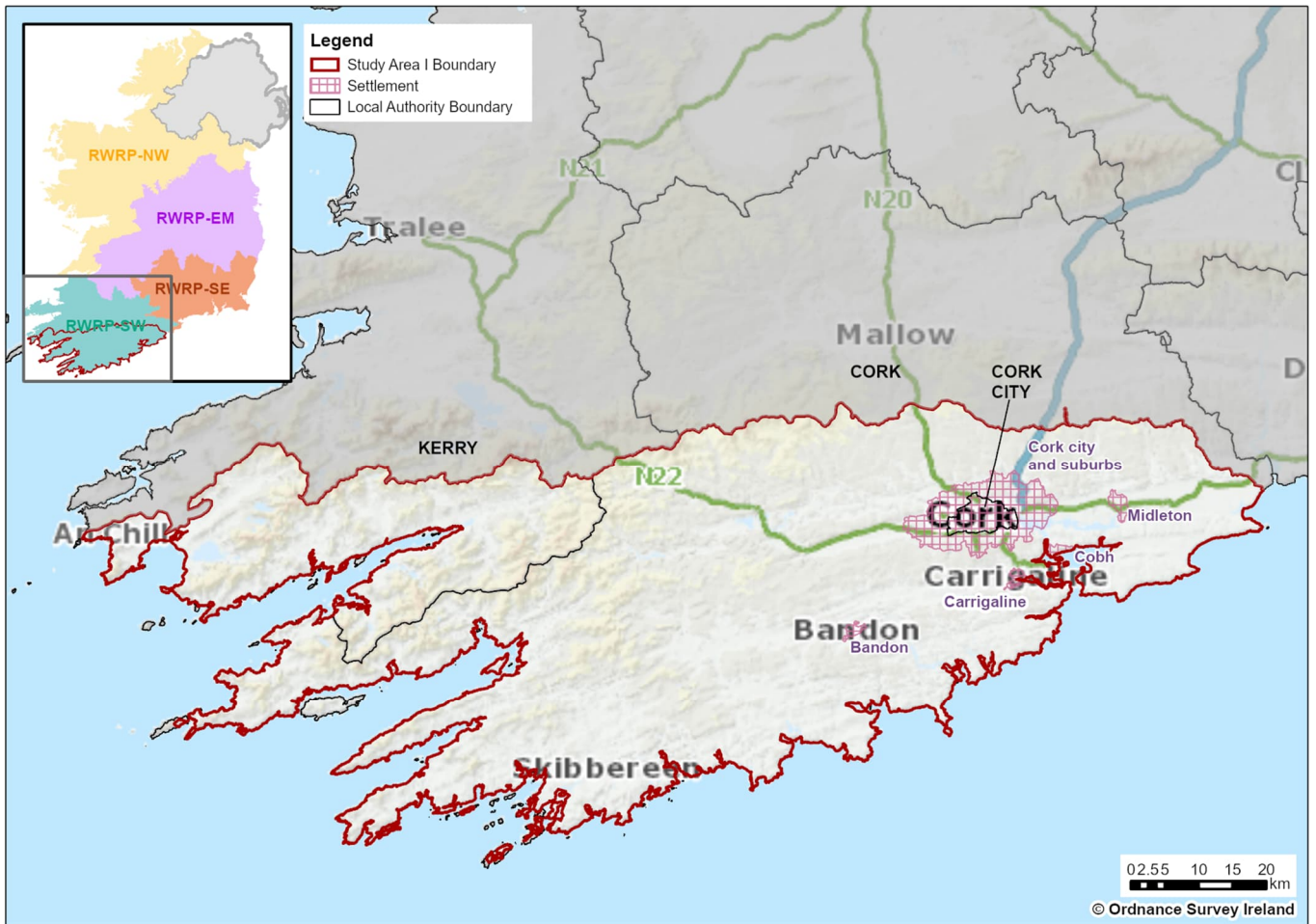


Figure 1.3 Study Area I



2

Study Area I Environmental Baseline Context

2 Study Area I Environmental Baseline Context

This chapter provides environmental baseline information for SAI regarding the following key environmental topics in the SEA:

- 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;
- Geology and Soils; and
- Summary of key issues and trends over the plan period within the study area.

The baseline environment considers key indicators characterising the current situation in the study area and how these aspects are likely to develop over the Framework Plan's planning period. This includes issues relating to pressures on the environment or the sensitivity of the environment to change. This chapter is intended to support and add to the baseline environmental information for the Regional Plan SEA Environmental Report, as context for the option appraisal and programme selection.

The baseline assessment also addresses the environmental aspects of Stages 1 and 2 of the options assessment methodology:

- Stage 1 Identifying need – based on SDB and/or Drinking Water Safety Plan Barrier Assessment; and
- Stage 2 Scoping of the study area (WRZs) – understanding WRZ's within the study area and the existing conditions of assets, supply and demand issues as well as environmental constraints and opportunities.

2.1 Population, Economy, Tourism and Recreation, and Human Health

2.1.1 Population

Table 2.1 provides a general overview of the WRZ's population and the projected percentage change in population between 2019 and 2044. The estimated population currently living in each WRZ has been based on the 2016 Census data. The 2016 population was assigned to District Metering Areas (DMAs) by mapping the Central Statistics Office (CSO) data to DMA boundaries. Irish Water has projected the 2016 population forward to 2019 using the growth projections in the National Planning Framework, updated information from the Regional Spatial and Economic Strategies, and Local Authority Planning sections (where available).

Table 2.1 Overview of the Population within the WRZs of SAI

WRZ Reference Number and Name	Total Population Served (2019)*	% Population Change (2019-2044)*
0500SC0007 - Tarelton	9	+13%
0500SC0008 - Inchigeelagh	140	+13%

WRZ Reference Number and Name	Total Population Served (2019)*	% Population Change (2019-2044)*
0500SC0009 - Ballingearry	243	+13%
0500SC0010 - Carrignadoura	105	+13%
0500SC0012 - Dunmanway	2,049	+13%
0500SC0013 - Newcestown	102	+13%
0500SC0014 - Mossgrove	17	+13%
0500SC0016 - Roberts Cove	55	+13%
0500SC0017 - Nohoval	125	+13%
0500SC0019 - Ard Na Killy Ridge	28	+13%
0500SC0020 - Cullen	10	+13%
0500SC0021 - Skibbereen	2,765	+13%
0500SC0023 - Toormore	34	+13%
0500SC0024 - Goleen	137	+13%
0500SC0025 - Crookhaven	66	+13%
0500SC0026 - Kilcrohane	149	+13%
0500SC0027 - Durrus	367	+13%
0500SC0028 - Caheragh	174	+13%
0500SC0029 - Dromore Bantry	73	+13%
0500SC0030 - Bantry	3,891	+13%
0500SC0031 - Whiddy Island	20	+13%
0500SC0033 - Adrigole	237	+13%
0500SC0034 - Castletownbere	2,341	+13%
0500SC0035 - Allihies	73	+13%
0500SC0036 - Cahermore	15	+13%
0500SC0037 - Dursey Island	3	+13%
0500SC0038 - Drinagh	242	+13%
0500SC0039 - Knockadoon	134	+13%
0500SC0040 - Kilcraheen	40	+13%
0500SC0041 - Ballymacoda	358	+13%
0500SC0042 - Youghal Regional	8,196	+13%
0500SC0043 - Inch	26	+13%
0500SC0044 - Dungourney	132	+13%

WRZ Reference Number and Name	Total Population Served (2019)*	% Population Change (2019-2044)*
0500SC0046 - Walshtown	61	+13%
0500SC0047 - Corbally	206	+13%
0500SC0048 - Clash Leamleara	40	+13%
0500SC0050 - Carrignavar	517	+13%
0500SC0051 - Whitechurch	691	+13%
0500SC0053 - Stoneview Blarney	113	+13%
0500SC0054 - Vicarstown	32	+13%
0500SC0055 - Grenagh	955	+13%
0500SC0057 - Donoughmore	905	+13%
0500SC0058 - Coolineagh	6	+13%
0500SC0059 - Aghabullogue	164	+13%
0500SC0068 - Glengarriff	360	+13%
0500SC0069 - Crosterra	33	+13%
0500SC0070 - Ballymakeera	666	+13%
0500SC0071 - Clondrohid	189	+13%
0500SC0073 - Ballinagree	182	+13%
0500SC0074 - Rylane	387	+13%
0500SC0078 - Kilnamartyra	91	+13%
0500SC0081 - Templemartin & Garranes	74	+13%
0500SC0082 - Cork City	284,940	+32%
0500SC0083 - Minane Bridge	152	+13%
0500SC0084 - Ballykilty	124	+13%
0500SC0085 - Killeagh	1,039	+13%
0500SC0095 - Knockanleigh	13	+13%
0500SC0145 - Bandon Regional	9,188	+13%
0500SC0146 - Clashanamid	18	+13%
0500SC0147 - Ratharoon	11	+13%
0500SC0152 - Bayview	23	+13%
0500SC0153 - Clonakilty	13,584	+17%
0500SC0154 - Lyre Clonakilty	42	+13%
0500SC0155 - Cape Clear	124	+13%

WRZ Reference Number and Name	Total Population Served (2019)*	% Population Change (2019-2044)*
0500SC0157 - Bilberry	17	+13%
0500SC0158 - Cloyne	3,475	+13%
0500SC0159 - Midleton	8,458	+20%
0500SC0161 - Tibbotstown	9,273	+31%
0500SC0162 - Mogeely	2,944	+13%
0500SC0167 - Ballincurrig Lisgoold	243	+13%
0500SC0168 - Coppeen	45	+13%
0500SC0169 - Johnstown	18	+13%
0500SC0170 - Cluain Court Allihies	13	+13%
0500SC0171 - Knockburden	71	+13%
0500SC0172 - Ballyshoneen	74	+13%
0500SC0173 - Skibbereen	7,255	+13%
0500SC0177 - Macroom	4,097	+13%
0500SC0178 - Coolyhane	70	+13%
0500SC0179 - Kilnagurteen (Macroom)	19	+13%
0500SC0180 - Ballyverane	10	+13%
0500SC0181 - Reenmeen West	33	+13%
0500SC0183 - Kealkill	714	+13%
0500SC0184 - Whitegate Regional	9,741	+17%
1300SC0017 - Caherdaniel / Castlecove	342	+13%
1300SC0018 - Sneem PWS 068A	446	+13%
1300SC0019 - Kenmare / Kilgarvan	2,898	+13%
1300SC0023 - Waterville PWS 075H	1,330	+13%
1300SC0027 - Lauragh PWS 051A	72	+13%
1300SC0029 - Kilgarvan	815	+13%

*The estimated population has been based on the 2016 Census data. Irish Water have projected the 2016 population forward to 2019 using the growth projections in the National Planning Framework, Regional Spatial and Economic Strategies, and Local Authority Planning sections

2.1.2 Economy and Employment

SAI had a below average household disposable income per person in 2018 at a regional level, although, at a county level the county of Cork is above average (CSO, 2022a). There is also an unemployment rate of around 3.6% in the South West region of the country of the country for Q3 of 2022 (CSO, 2022b).

Population increase and expected economic growth has meant that housing and sustainable urban development have been made a priority for the National Development Programme; therefore, to supply the demand there is an aim to increase housing stock. The number of new dwellings completed in Q4 2024 was 1,045 for the South West region (CSO, 2022c).

2.1.3 Tourism and Recreation

Tourism in SAI has an important role, particularly in rural areas, with the National Planning Framework (NPF) stating that tourism is a key aspect of rural job creation now and in the future (Government of Ireland, 2018). The county of Cork has been described as “*Ireland's Maritime Haven*”, with emphasis placed on the cultural and historical attractions many of which located along the coastal environments (Pure Cork, n.d.). The county also contains one of Ireland’s UNESCO World Heritage Sites, namely Sceilg Mhichíl and a site on the UNESCO tentative list: Western Stone Forts: Staigue.

Additionally, the study area is located within Ireland’s Ancient East and the Wild Atlantic Way. Ireland’s Ancient East is part of a tourism development strategy that covers the South, East and part of the Midlands and places emphasis on the importance of historic sites in the area (National Tourism Development Authority, 2016). Ireland’s Wild Atlantic Way is a tourism development strategy that aims to achieve greater visibility for the west coast of Ireland and is Ireland’s first long-distance touring route (Fáilte Ireland, 2020).

Ireland’s natural heritage is also recognised as an important tourism asset by the Department of Transport, Tourism and Sport (2019). For SAI, the national park of note in SAI is Killarney National Park. Rivers, loughs and coastal areas all make an important contribution to tourism and recreational opportunities and support important fisheries.

2.1.4 Human Health

Table 2.2 provides well-being indicators for the South West region within Ireland. Improvements in air quality, access to good quality drinking water and participation in recreational activities can all have a positive influence on human health and well-being.

Table 2.2 Well-Being Indicators for the South West Region within Ireland

Region	Life Expectancy (CSO, 2020a)	Participation in Sports, Fitness or Recreational Physical Activities (% of Persons Aged 15+) (CSO, 2020b)	Air Quality (EPA, 2020a)
South West	Male: 79.2 Female: 83.2	47%	Good

A key issue for public health is reliable access to good quality drinking water. Regulated water service providers have to ensure appropriate standards of supply and be able to cope with drought conditions, peak events, and maintenance of assets. This requires adequate reserve capacity in Irish Water’s supplies to provide a 1 in 50 Level of Service. At present, not all supplies within this study area provide the required levels of reserve capacity. Due to the limited historical monitoring of these supplies, particularly in relation to groundwater, this will need to be studied further. Table 2.3 lists the areas supplied by the Water Treatment Plants (WTPs) in SAI.

Table 2.3 Areas Supplied by the WTPs in SAI

Water Treatment Plants	Water Resource Zone	Local Authority Supplied
0500SC0007 - Tarelton	Terelton WTP	Cork
0500SC0008 - Inchigeelagh	Inchigeelagh WTP	Cork
0500SC0009 - Ballingearry	Ballingearry WTP	Cork
0500SC0010 - Carrignadoura	Carrignadoura WTP	Cork
0500SC0012 - Dunmanway	Dunmanway WTP	Cork
0500SC0013 - Newcestown	Newcestown WTP	Cork
0500SC0014 - Mossgrove	Mossgrove WTP	Cork
0500SC0016 - Roberts Cove	Roberts Cove WTP	Cork
0500SC0017 - Nohoval	Nohoval WTP	Cork
0500SC0019 - Ard Na Killy Ridge	Ard Na Killy Ridge WTP	Cork
0500SC0020 - Cullen	Cullen WTP	Cork
0500SC0021 - Skibbereen	Baltimore (Lake Cross) WTP	Cork
0500SC0023 - Toormore	Toormore WTP	Cork
0500SC0024 - Goleen	Goleen WTP	Cork
0500SC0025 - Crookhaven	Crookhaven WTP	Cork
0500SC0026 - Kilcrohane	Kilcrohane WTP	Cork
0500SC0027 - Durrus	Durrus WTP	Cork
0500SC0028 - Caheragh	Caheragh WTP	Cork
0500SC0029 - Dromore Bantry	Dromore WTP	Cork
0500SC0030 - Bantry	Derryginagh WTP and Cahernacrin WTP	Cork
0500SC0031 - Whiddy Island	Whiddy Island WTP	Cork
0500SC0033 - Adrigole	Adrigole WTP	Cork
0500SC0034 - Castletownbere	Castletownbere WTP	Cork
0500SC0035 - Allihies	Ballydonnegan WTP and Allihies WTP	Cork
0500SC0036 - Cahermore	Cahermore WTP	Cork
0500SC0037 - Dursey Island	Dursey Island WTP	Cork
0500SC0038 - Drinagh	Drinagh WTP	Cork
0500SC0039 - Knockadoon	Knockadoon WTP 1 and Knockadoon WTP 2	Cork
0500SC0040 - Kilcraheen	Kilcraheen WTP	Cork
0500SC0041 - Ballymacoda	Ballymacoda WTP	Cork

Water Treatment Plants	Water Resource Zone	Local Authority Supplied
0500SC0042 - Youghal Regional	Glendine WTP and Ballydasoon WTP	Cork and Waterford
0500SC0043 - Inch	Inch Cross WTP	Cork
0500SC0044 - Dungourney	Dungourney WTP	Cork
0500SC0046 - Walshtown	Walshtown Beg WTP	Cork
0500SC0047 - Corbally	Corbally WTP	Cork
0500SC0048 - Clash Leamleara	Clash WTP	Cork
0500SC0050 - Carrignavar	Carrignavar WTP	Cork
0500SC0051 - Whitechurch	Whitechurch WTP	Cork
0500SC0053 - Stoneview Blarney	Stoneview WTP	Cork
0500SC0054 - Vicarstown	Vicarstown WTP	Cork
0500SC0055 - Grenagh	Grenagh WTP	Cork
0500SC0057 - Donoughmore	Donoughmore WTP	Cork
0500SC0058 - Coolineagh	Coolineagh WTP	Cork
0500SC0059 - Aghabullogue	Aghabullogue WTP	Cork
0500SC0068 - Glengarriff	Glengarriff WTP	Cork
0500SC0069 - Crosterra	Crosterra WTP	Cork
0500SC0070 - Ballymakeera	Ballymakeera WTP	Cork
0500SC0071 - Clondrohid	Clondrohid WTP	Cork
0500SC0073 - Ballinagree	Ballinagree WTP	Cork
0500SC0074 - Rylane	Rylane (Creamery) WTP and Rylane (Cross) WTP	Cork
0500SC0078 - Kilnamartyra	Kilnamartyra WTP	Cork
0500SC0081 - Templemartin & Garranes	Templemartin WTP, Garranes WTP, Watergrasshill WTP, Knockraha WTP, Glashaboy WTP, Inniscarra WTP, Innishannon WTP and Lee Road WTP	Cork and Cork City
0500SC0083 - Minane Bridge	Minane Bridge WTP	Cork
0500SC0084 - Ballykilty	Ballykilty WTP	Cork
0500SC0085 - Killeagh	Ballymacoda Road WTP and Killeagh (Youghal Rd) WTP	Cork
0500SC0095 - Knockanleigh	Knockanleigh WTP	Cork
0500SC0145 - Bandon Regional	Carhue WTP	Cork
0500SC0146 - Clashanamid	Clashanamid WTP	Cork
0500SC0147 - Ratharoon	Ratharoon WTP	Cork

Water Treatment Plants	Water Resource Zone	Local Authority Supplied
0500SC0152 - Bayview	Bayview WTP	Cork
0500SC0153 - Clonakilty	Clonakilty (Jones Bridge) WTP	Cork
0500SC0154 - Lyre Clonakilty	Lyre (Clonakilty) WTP	Cork
0500SC0155 - Cape Clear	Cape Clear WTP	Cork
0500SC0157 - Bilberry	Bilberry WTP	Cork
0500SC0158 - Cloyne	Carriglusky WTP	Cork
0500SC0159 - Midleton	Midleton WTP	Cork
0500SC0161 - Tibbotstown	Tibbetstown WTP	Cork
0500SC0162 - Mogeely	Mogeely WTP	Cork
0500SC0167 - Ballincurrig Lisgoold	Ballincurrig WTP	Cork
0500SC0168 - Coppeen	Coppeen WTP	Cork
0500SC0169 - Johnstown	Johnstown WTP	Cork
0500SC0170 - Cluain Court Allihies	Cluain Court (Allihies) WTP	Cork
0500SC0171 - Knockburden	Knockburden WTP	Cork
0500SC0172 - Ballyshoneen	Ballyshoneen WTP	Cork
0500SC0173 - Skibbereen	Ballyhilty WTP	Cork
0500SC0177 - Macroom	Macroom WTP	Cork
0500SC0178 - Coolehane	Coolehane WTP	Cork
0500SC0179 - Kilnagurteen (Macroom)	Kilnagurteen WTP	Cork
0500SC0180 - Ballyverane	Ballyveerane WTP	Cork
0500SC0181 - Reenmeen West	Reenmeen Woods WTP	Cork
0500SC0183 - Kealkill	Kealkill WTP	Cork
0500SC0184 - Whitegate Regional	Kilva WTP	Cork
1300SC0017 - Caherdaniel/Castlecove	Caherdanel WTP and Castlecove (Gowlane) WTP	Kerry
1300SC0018 - Sneem PWS 068A	Sneem WTP	Kerry
1300SC0019 - Kenmare/Kilgarvan	Kenmare WTP	Kerry
1300SC0023 - Waterville PWS 075H	Waterville WTP	Kerry
1300SC0027 - Lauragh PWS 051A	Lauragh WTP	Kerry
1300SC0029 - Kilgarvan	Kilgarvan (Glanlough) WTP	Kerry

Currently for day-to-day operations, fifty-two out of eighty-nine of the WRZs in the area have a current SDB deficit and sixty have a projected SDB deficit (based on a ‘Do Minimum’ approach – see section 4.5 for further clarification).

Poor water quality can be linked to risks to health. The Barrier Assessment identified 65 of the 102 WTPs within the study area to be at high risk of failing to achieve the Irish Water’s conservative Barrier Assessment standards, particularly in relation to bacteria and viruses (Barrier 1) and the effectiveness of Irish Water’s protozoa removal processes (Barrier 3) (see Table 2.1 in the SAI Technical Report (RWRP-SW Appendix 2)).

The “quality need” identified through the Barrier Assessment is not an indicator of compliance with the Drinking Water Regulations. It is an internal Irish Water assessment of the need to invest in areas of the Irish Water asset base through resource planning, to ensure that potential risks or emerging risks to supplies are addressed. Currently, there are six WRZs on the EPA Remedial Action List within SAI, namely, Kilgarvan, Castletownbere, Cork City, Glashaboy, Whiddy Island and Whitegate Regional. Irish Water is currently progressing immediate corrective action in relation to a number of supplies within SAI in advance of the NWRP. Details of these are included in the SAI Technical Report (RWRP-SW Appendix 2).

2.2 Water Environment

This topic covers geomorphology, WFD, flood risk, surface water quality and groundwater receptors. Figure 2.1 shows the water environment, including the WRZs, the WFD water catchment boundaries, the WTPs and the waterbodies in SAI.

Table 2.4 provides a summary of the WFD catchments within SAI.

Table 2.4 Catchments within SAI (EPA, 2020b)

WFD Catchments	Total Catchment Area (km ²)	Catchment Area within SAI (km ²)
Bandon-Ilen	1,800	1,795
Blackwater (Munster)	3,308	1
Dunmanus-Bantry-Kenmare	1,900	1,887
Laune-Maine-Dingle Bay	2,037	3
Lee, Cork Harbour and Youghal Bay	2,182	2,176

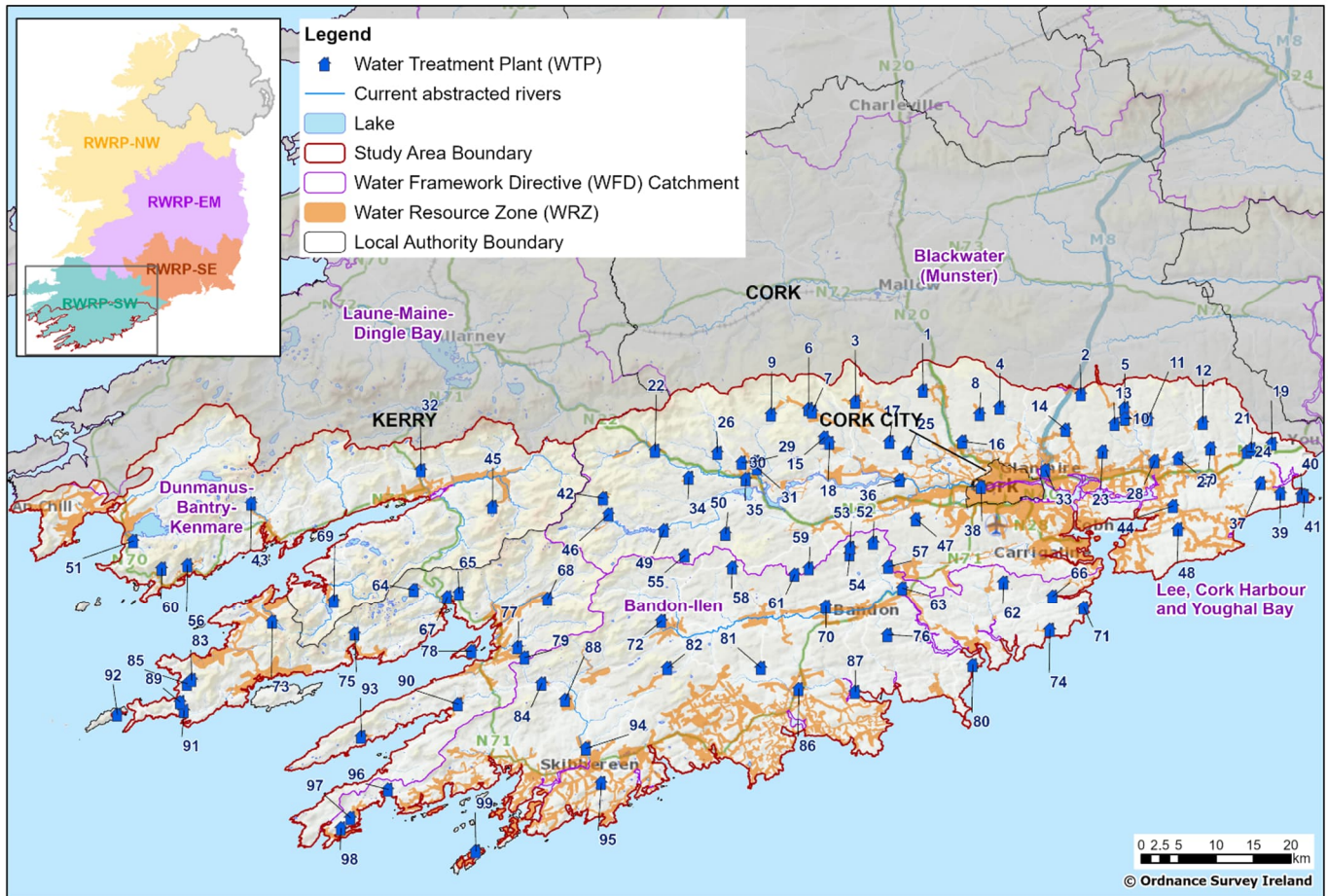


Figure 2.1 Water Environment of SAI

2.2.1 Water Framework Directive

Under the WFD, Ireland must ensure that all waterbodies achieve ‘Good’ status by 2027. In addition, under the legislation, any modification to a WFD waterbody should not lead to deterioration in either the overall status or any of the WFD water quality parameters.

At the end of 2022, the government passed the Water Environment (Abstractions and Impoundments) Act, 2022 (the Abstractions Act) which will ensure that national abstractions align with the requirements of the Water Framework Directive. The Abstractions Act has not yet commenced and the associated regulations and guidelines which will further detail the types of assessment and national methodology to be used are not yet in place.

Whilst the regulations and guidelines for the new abstraction regime are being developed, Irish Water are assessing existing abstractions to identify surface water sites that may exceed future abstraction thresholds. Irish Water have taken a precautionary approach based on their current understanding of how proposed abstraction legislation might be applied. This assessment suggests that certain schemes may be subject to reductions in abstraction under the new legislation; however, this will ultimately be determined by the EPA based on the project level information before them.

As there are very few long duration flow records for Irish Water’s abstractions and for waterbodies within Ireland, Irish Water lacks comprehensive data to fully understand the impact of the new legislation on these sources. Information is not currently stored centrally as it was historically collected and collated by Local Authorities. Irish Water is building a telemetry system which will aid bringing all this data together, but this will take time. Therefore, improved monitoring and gathering better data is a priority.

On an interim basis, Irish Water has developed an initial desktop assessment based on available information (see SAI Technical Report (RWRP-SW Appendix 2). Over the coming years, Irish Water will work with the environmental regulator, the EPA and the Geological Survey of Ireland, to develop desktop and site investigation systems to better understand the sustainability of its groundwater sources.

To understand the potential impact of the Abstraction Legislation on the SAI supplies, Irish Water has assessed its forty-four surface water abstractions (see Tables 2.5 in RWRP-SW Appendix 2: SAI Technical Report). Based on this initial assessment, the volume abstracted at Allihies Impoundment (Allihies), Drombrow Lake Intake (Bantry), Inchilough (Bantry), Lough Bofinna Intake (Bantry), Coonmahorna West River (Caherdaniel/Castlecove), Gowla River (Behaghane) (Caherdaniel/Castlecove), Gowlane Stream (Caherdaniel/Castlecove), Cahermore River (Cahermore), Glenbeg (Castletownbere), Arideen River, Jones Bridge (Clonakilty), Butlerstown River Tributary (Cork City), Coolguerisk (Cork City), Glashaboy River (Cork City), Inishannon (Cork City), Crookhaven Impoundment (Arduslough) (Crookhaven), Coolkellure lake (Dunmanway), Barony River (Glengarriff), Goleen Intake (Goleen), Owengar River (Kealkill), Lough Eirk (stream) (Kenmare/Kilgarvan), Coomclogherane Lake S64 (Kilgarvan), Ahadav stream (Lauragh PWS 051A), Owenacurra River (Midleton), Kiltha River (Mogeely), Lough Abisdealy (Skibbereen), River Ilen (Skibbereen), Tibbotstown Reservoir (Tibbotstown), Owenacurra River (Over Pump) (Tibbotstown), Tourig River Source (Youghal Regional), and Glendine River (Youghal Regional) may not meet sustainability guidelines during dry weather flows. However, under the proposed regulatory regime, sustainable abstraction quantities will be adjudicated by the EPA who will have the benefit of detailed project level information.

Irish Water has taken a conservative approach in identifying sustainable abstractions for new options (described in section 3.2) and has applied a sensitivity assessment that considers proposals against potential for future sustainability related reductions in volume (section 5.4).

The Department of Housing, Planning and Local Government's (2019a) public consultation document, regarding the significant water management issues, has been considered by Irish Water. Therefore, the pressures, and the relevant priority 'Areas for Action' are provided below and in Table 2.7.

There are five WFD catchments in SAI and the total number of surface and groundwater waterbodies within SAI are provided in Table 2.5 below.

Table 2.5 WFD Waterbodies within SAI (EPA, 2022a)

Waterbody Type	Water Catchments	Number of Waterbodies	Number of Waterbodies Rated Below Moderate
Rivers	Bandon-Ilen	87	0
	Blackwater (Munster)	0	0
	Dunmanus-Bantry-Kenmare	91	1
	Laune-Maine-Dingle Bay	1	0
	Lee, Cork Harbour and Youghal Bay	92	3
Lakes	Bandon-Ilen	6	1
	Blackwater (Munster)	0	0

Waterbody Type	Water Catchments	Number of Waterbodies	Number of Waterbodies Rated Below Moderate
	Dunmanus-Bantry-Kenmare	39	0
	Laune-Maine-Dingle Bay	0	0
	Lee, Cork Harbour and Youghal Bay	3	1
Transitional and Coastal	N/A	60	4
Groundwater	N/A	29	1

The predominant pressures, and the percentage of 'at risk' waterbodies impacted by them, in the latest catchment summaries (catchments.ie, 2021a, 2021b, 2021c, 2021d and 2021e) are:

- Bandon Ilen: Agriculture (16%);
- Blackwater (Munster): Agriculture (53%), Other (including abstraction, historically polluted sites, windfarm construction and unknown anthropogenic) (32%) and Forestry (28%);
- Dunmanus-Bantry-Kenmare: Forestry (68%), Hydromorphology (45%) and Agriculture (32%);
- Laune-Maine-Dingle Bay: Agriculture (49%), Hydromorphology (34%) and Other (including abstractions, unknown anthropogenic, golf courses, tourism and windfarm construction) (22%); and
- Lee, Cork Harbour and Youghal Bay: Hydromorphology (33%), Other (including waste and unknown anthropogenic) (29%) and Urban Runoff (27%).

Table 2.6 includes a summary of the 'at risk' waterbodies within SAI.

Table 2.6 Summary of 'At Risk' Waterbodies in SAI (EPA, 2022b)

Waterbody Type	Water Catchments	Number of Waterbodies Identified as 'At Risk'	Surface Waterbodies Status 'At Risk' Due to Abstraction Pressure*
Rivers	Bandon-Ilen	13	29
	Blackwater (Munster)	0	
	Dunmanus-Bantry-Kenmare	22	
	Laune-Maine-Dingle Bay	0	
	Lee, Cork Harbour and Youghal Bay	34	
Lakes	Bandon-Ilen	4	5
	Blackwater (Munster)	0	
	Dunmanus-Bantry-Kenmare	1	

Waterbody Type	Water Catchments	Number of Waterbodies Identified as 'At Risk'	Surface Waterbodies Status 'At Risk' Due to Abstraction Pressure*
	Laune-Maine-Dingle Bay	0	
	Lee, Cork Harbour and Youghal Bay	3	
Transitional and Coastal	N/A	19	0
Groundwater	N/A	5	N/A
Total		101	34

* Based on Irish Water assessment of their current abstractions

To meet WFD objectives, it has been recognised that there is a need to prioritise and focus efforts to address issues through identifying 'Areas for Action'. The reasons for selection of the 'Areas for Action' within the sub-catchments of SAI are listed in Table 2.7.

Table 2.7 'Areas for Action' within SAI (catchments.ie, 2021e)

Areas for Action	Key Reasons for Selection
Adrigole	<ul style="list-style-type: none"> • Amenity value • Important oyster, lobster and crab fisheries • Adrigole Harbour is failing to meet protected area objectives for Shellfish • One At Risk High Ecological Status objective waterbody
Allua	<ul style="list-style-type: none"> • Building on proposed improvements at Ballingearry WwTP • Opportunity to examine how to address water quality issues arising from agricultural practices on steep sloping rivers • Active community groups that mentioned Lough Allua during public consultations • Heritage: pre-Christian and monastic sites • One deteriorated waterbody • Lough Allua is failing to meet its protected area objectives for salmonids
Bandon Estuary	<ul style="list-style-type: none"> • Potential estuary project • Lower Bandon estuary is failing to meet protected area objectives for Shellfish (Kinsale) • Building on proposed improvements at Bandon and Innishannon WwTP • Headwater streams to Bandon estuary
Bride (Cork City)	<ul style="list-style-type: none"> • Cork city

Areas for Action	Key Reasons for Selection
	<ul style="list-style-type: none"> • Cork city council have completed work and have a good idea of issues - potential 'easy wins' • Pilot project in urban diffuse issues • Invasive species • Office of Public Works flood relief scheme on the bridge
Clonakilty	<ul style="list-style-type: none"> • Potential estuary project • Building on proposed improvements for WwTP • Small catchment discharging into estuary • Headwaters flowing into Clonakilty harbour • The coastal waterbody is failing to meet protected area objectives for bathing water • One deteriorated waterbody
Cork	<ul style="list-style-type: none"> • Failing to meet protected area objectives for Freshwater Pearl Mussel (19 of 27 catchments of S.I. 296 2009) • Bandon rivers trust in the area • Deteriorated High Ecological Status objective waterbody
Glan	<ul style="list-style-type: none"> • Building on upcoming work by Cork County Council • One deteriorated waterbody
Inny	<ul style="list-style-type: none"> • Discharges into designated bathing area (Trá na hUíne (Inny Strand), Waterville) • Opportunity to work with Waterville rivers trust and interested local community • Four deteriorated waterbodies • Two waterbodies are failing to meet their protected area objectives for salmon
Keel Foherish	<ul style="list-style-type: none"> • Multi agency approach between Forestry Service, Coillte and Cork County Council • Potential to examine impacts from wind farms • Two deteriorated waterbodies • One of the deteriorated waterbodies is a High Ecological Status objective waterbody
Kilkeran Lagoon	<ul style="list-style-type: none"> • Failing to meet protected area objectives for a Natura habitat (1150 coastal lagoon) • Active community group • Manageable area • High amenity area • Heritage: close to Castlefreke castle

Areas for Action	Key Reasons for Selection
Lough Currane	<ul style="list-style-type: none"> • Two waterbodies are failing to meet protected area objectives for Priority 8 Freshwater Pearl Mussels • Opportunity to work with Waterville rivers trust and interested local community • Major sea trout and salmon fishery (unique sea trout) • One deteriorated waterbody • Two At Risk High Ecological Status objective waterbodies • One potential 'quick win'
Lough Fadda/Ownagepe	<ul style="list-style-type: none"> • Priority 8 Freshwater Pearl Mussel waterbodies • Upcoming European Innovation Partnership scheme that could lead the project with support from Cork County Council • Building on existing work completed by National Parks and Wildlife Services • Building on current work by Forest Service and Coillte • Two potential 'quick wins'
Martin	<ul style="list-style-type: none"> • Building on improvements as a result of the removal of pressures (completion of railway line improvement works) in the headwaters • Headwaters and tributary to the main channel of the river Lee • One deteriorated waterbody
Middleton	<ul style="list-style-type: none"> • Potential pilot project to examine links between groundwater in a karst aquifer to the overlying streams • Important to address intermittent phytoplankton blooms in the estuary • Headwaters to designated Shellfish Areas in Owenacurra Estuary and North Channel Great Island • Middleton area is flagged for significant development • One deteriorated waterbody • One waterbody (Owenacurra_040) is failing to meet protected area objectives for drinking water
Owenboy	<ul style="list-style-type: none"> • Building on existing work completed by Cork County Council • Opportunity to develop appropriate measures for dealing with diffuse agriculture • Two deteriorated waterbodies • Headwaters to Owenboy estuary which is At Risk
Owenshagh	<ul style="list-style-type: none"> • One deteriorated High Ecological Status objective deteriorated waterbody • One potential 'quick win' • Headwaters to Kilmakiloge Harbour shellfish area

Areas for Action	Key Reasons for Selection
Rosscarbery	<ul style="list-style-type: none"> Rosscarbery harbour is unassigned but algal blooms have increased in size and frequency Building on proposed improvements at Cortmascherry and Timoleague WwTP Headwater streams flowing directly into Rosscarbery Harbour and Bay

2.2.2 Flood Risk

Flood risk is considered as part of the options appraisal; however, many options are at a conceptual stage and there is insufficient information to differentiate between options on the basis of flood risk when design details, siting and routing are still to be determined. Both surface water and ground water flood risk will need to be considered further as part of the development of option design and for assessment at project level.

The Office of Public Works (OPW) has been implementing the European Communities (Assessment and Management of Flood Risks) Regulations 2010 mainly through the Catchment Flood Risk Assessment and Management (CFRAM) Programme, through which draft Flood Risk Management Plans have been developed. Approximately 300 'Areas for Further Assessment' have been established along with a range of measures to reduce or manage the flood risk within each catchment. CRFAMS mapping for all Areas for Further Assessment is available to view on the CFRAMS website (OPW, 2018). Figure 5.4 in the SEA Environmental Report (Appendix A) provides a summary of surface water and groundwater flood risk from the OPW CFRAMS data for the region including SAI.

For existing water infrastructure assets such as WTPs, flood risk vulnerability is considered in decisions on need to rationalise and decommission assets.

Any options which are progressed and require planning permission will require a Flood Risk Assessment to be completed in accordance with The Planning System and Flood Risk Management Guidelines for Planning Authorities (2009).

2.3 Climate Change

Ireland's climate is heavily influenced by the Atlantic Ocean. Consequently, Ireland has a milder climate that has less extreme temperature variation compared with other countries at a similar latitude. The hills and mountains, many of which are near the coasts, provide shelter from strong winds and from the direct oceanic influence. Winters tend to be cool and windy, while summers are generally mild and less windy (Met Éireann, 2019).

In June 2019, the government agreed to support the adoption of a net zero greenhouse gas emissions target by 2050 at EU level, and to pursue a trajectory of emissions reduction nationally which is in line with reaching net zero in Ireland by 2050.

Section 15 of the Climate Action and Low Carbon Development Act 2015 (as amended in 2021) sets a new "national climate objective" for Ireland, which provides that:

"The State shall, so as to reduce the extent of further global warming, pursue and achieve, by no later than the end of the year 2050, the transition to a climate resilient, biodiversity rich, environmentally sustainable and climate neutral economy".

Section 1 of the 2015 Act in turn defines 'climate neutral economy' as "*a sustainable economy and society where greenhouse gas emissions are balanced or exceeded by the removal of greenhouse gases*".

The amended Act requires public authorities, including Irish Water, to so far as practicable, perform their functions in a manner consistent with the furtherance of the national climate objective and the relevant national and sectoral plans and strategies to mitigate greenhouse gas emissions and adapt to the effects of climate change.

The Department of the Environment, Climate and Communications' Climate Action Plan (CAP) 2023 published December 2022, replacing CAP 2021, commits to achieving a 51% reduction in overall greenhouse gas emissions by 2030 and reaching net zero carbon emissions by 2050. The aim is for more sustainable growth and to create a resilient, vibrant and sustainable country. The CAP defines a roadmap to this goal and initiates a set of policy actions to achieve this. A detailed sectoral roadmap has also been set out, which is designed to deliver a cumulative reduction in emissions, over the period 2023 to 2030. CAP 2023 updates existing targets with renewable energy to provide 80% of electricity by 2030 and sets targets for sectors, including a target of 9 GW from onshore wind, 8 GW from solar, and at least 5 GW of offshore wind energy by 2030 (Department of the Environment, Climate and Communications, 2023).

In addition, Ireland has a sectoral climate adaptation plan for the 'Water Quality and Water Services Infrastructure' sector. A summary of the report's findings is included in Table 2.8.

Table 2.8 Summary of Key Points from the 'Water Quality and Water Services Infrastructure' Sectoral Climate Change Plan (Department of Housing, Planning and Local Government, 2019b)

Summary	
Key Points	<ul style="list-style-type: none"> Protecting and improving water quality and improving water services infrastructure are major challenges in Ireland Climate change-induced threats will increase the scale of these challenges Risks to water quality and water infrastructure arise from changing rainfall patterns and different annual temperature profiles. The frequency and intensity of storms and sea level rise are also considered
The challenges: Water services infrastructure	<ul style="list-style-type: none"> Increased surface and sewer flooding leading to pollution, water and wastewater service interruptions Reduced availability of water resources Hot weather increasing the demand for water Increased drawdown from reservoirs in the autumn/winter for flood capacity, leading to resource issues Business continuity impacts or interruptions for water services providers
Primary adaptive measures	<ul style="list-style-type: none"> Fully adopt the 'integrated catchment management' approach

Summary

- Improve treatment capacity and network functions for water services infrastructure
- Water resource planning and conservation – on both supply and demand sides
- Include climate measures in monitoring programmes and research
- Many of these proposed adaptation actions are already underway through existing and scheduled water sector plans and programmes

There are four aims that local authorities are required to include in their climate adaptation strategies (Department of Communications, Climate Action and Environment, 2018):

- **Mainstream Adaptation:** That climate change adaptation is a core consideration and is mainstreamed in all functions and activities across the local authority. In addition, ensure that local authority is well placed to benefit from economic development opportunities that may emerge due to a commitment to proactive climate change adaptation and community resilience;
- **Informed decision making:** That effective and informed decision making is based on a reliable and robust evidence base of the key impacts, risks and vulnerabilities of the area. This will support long term financial planning, effective management of risks and help to prioritise actions;
- **Building Resilience:** That the needs of vulnerable communities are prioritised and addressed, encourage awareness to reduce and adapt to anticipated impacts of climate change, and promote a sustainable and robust action response; and
- **Capitalising on Opportunities:** Projected changes in climate may result in additional benefits and opportunities for the local area and these should be explored and capitalised upon to maximise the use of resources and influence positive behavioural changes.

In addition to these high-level aims, each local authority is required to identify the key risks to their area; these are provided in Table 2.9.

Table 2.9 Climate Change Risks Identified by Local Authorities in SAI

County	Key Risk Areas
Cork (Cork County Council, 2019)	<ul style="list-style-type: none"> • Flooding (Pluvial, Fluvial, Groundwater or Coastal or Marine) • Extreme Rainfall • Rising Sea Levels and Storm Surges • Storm Frequency and Intensity • Extreme Heat/Drought Conditions • Coastal Erosion • Wind Speeds
Cork City (Cork City County Council, 2019)	<ul style="list-style-type: none"> • Flooding (Pluvial, Fluvial, Groundwater or Coastal or Marine) • Extreme Rainfall • Rising Sea Levels and Storm Surges

County	Key Risk Areas
	<ul style="list-style-type: none"> • Storm Frequency and Intensity • Extreme Heat/Drought Conditions • Coastal Erosion • Wind Speeds
Kerry (Kerry County Council, 2019)	<ul style="list-style-type: none"> • Flooding (Pluvial, Fluvial, Groundwater or Coastal or Marine) • Extreme Rainfall • Rising Sea Levels and Storm Surges • Storm Frequency and Intensity • Extreme Cold/Heavy Snowfall and Ice • Extreme Heat/Drought Conditions • Bog, Sand, Dune, Gorse or Forest Fires • Coastal Erosion • Wind Speeds

Climate change is expected to influence weather conditions, such as frequency of droughts and extreme events such as storms, and is likely to affect habitats and species, water availability for supply and water demand and water quality. For SAI, not all supplies within the study area meet the required levels of reserve capacity. As evidenced in the 2018 drought, there is the potential for this deficit to affect access to water in the future. This situation could further deteriorate over time due to climate change driven reductions in water resources.

A key aspect of Irish Water’s strategy is to ‘Supply Smarter’, by improving the quality, resilience and security of supply through infrastructural improvements. One of the high-level goals taken from the national level is building resilience, with water services being a key factor.

Supporting environmental resilience to climate change will also be an important consideration for the future with additional benefits for supply resilience.

2.4 Biodiversity, Flora and Fauna

2.4.1 Designated Sites

Within SAI there are a number of European, national and locally designated sites, including Special Protected Areas (SPAs), Special Areas of Conservation (SACs), National Parks, Nature Reserves, and proposed Natural Heritage Areas (see Table 2.10 and Figure 2.2 - note that an index key for Figure 2.2 is provided in Appendix C). Proposed Marine Conservation Zones (MCZs) for the Republic of Ireland are also undergoing consultation. The European sites (SPAs and SACs), and the potential impacts on them, are discussed in more detail in the NIS.

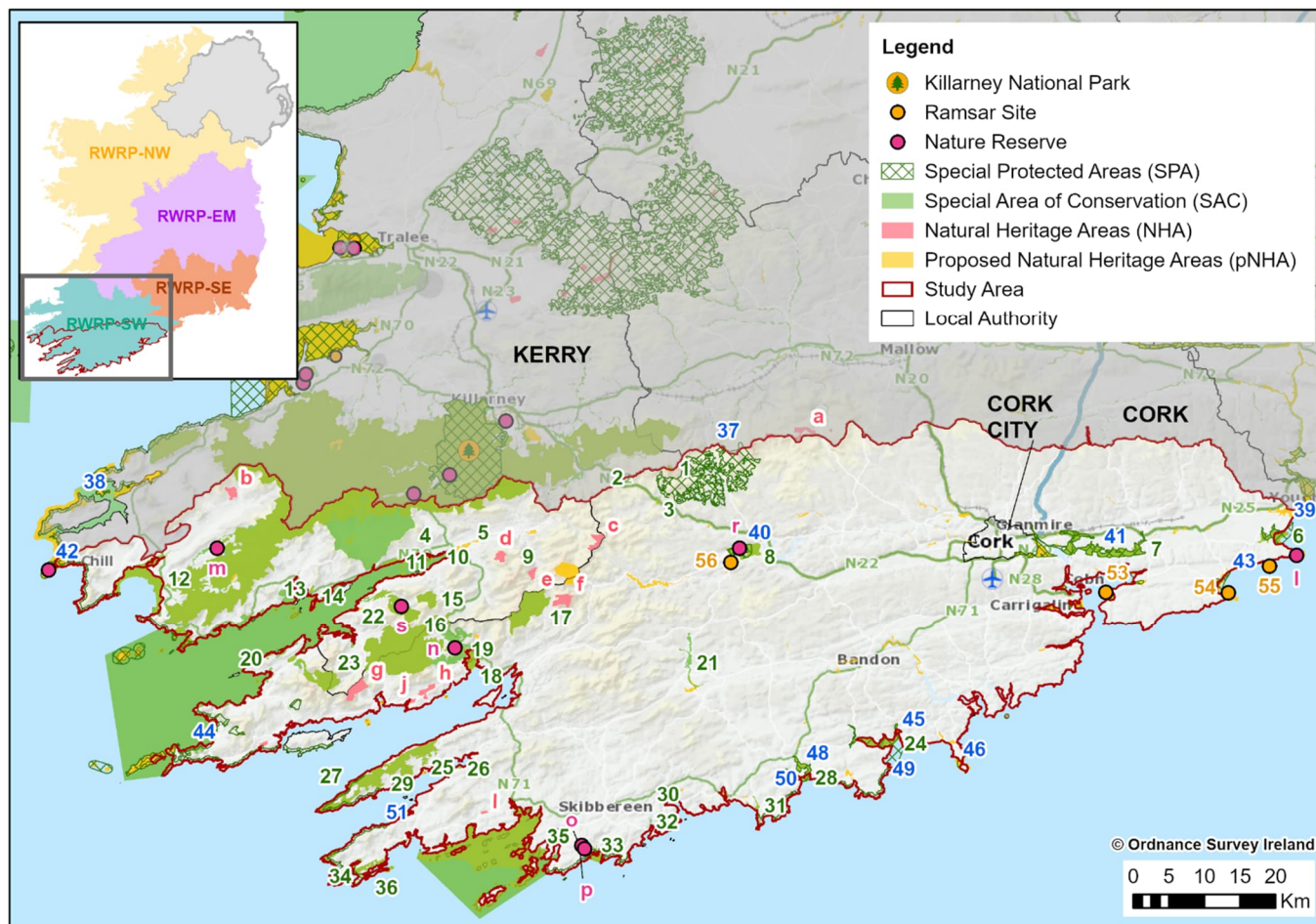


Figure 2.2 Designated Sites in SAI

Table 2.10 Designated Sites within SAI (NPWS, 2019a)

Receptor	Name	Total Number
Special Protected Area (SPA)	Ballycotton Bay SPA	16
	Ballymacoda Bay SPA	
	Beara Peninsula SPA	
	Clonakilty Bay SPA	
	Cork Harbour SPA	
	Courtmacsherry Bay SPA	
	Deenish Island and Scariff Island SPA	

Receptor	Name	Total Number
	Galley Head to Duneen Point SPA	
	Iveragh Peninsula SPA	
	Killarney National Park SPA	
	Mullaghanish to Musheramore Mountains SPA	
	Old Head of Kinsale SPA	
	Puffin Island SPA	
	Seven Heads SPA	
	Sheep's Head to Toe Head SPA	
	The Gearagh SPA	
Special Area of Conservation (SAC)	Ballinskelligs Bay and Inny Estuary SAC	36
	Ballymacoda (Clonpriest and Pillmore) SAC	
	Bandon River SAC	
	Barley Cove to Ballyrisode Point SAC	
	Blackwater River (Kerry) SAC	
	Caha Mountains SAC	
	Castletownshend SAC	
	Cleanderry Wood SAC	
	Clonakilty Bay SAC	
	Cloonee And Inchiquin Loughs, Uragh Wood SAC	
	Courtmacsherry Estuary SAC	
	Derryclogher (Knockboy) Bog SAC	
	Drongawn Lough SAC	
	Dunbeacon Shingle SAC	
	Farranamanagh Lough SAC	
	Glanlough Woods SAC	
	Glanmore Bog SAC	
	Glengarriff Harbour and Woodland SAC	
	Great Island Channel SAC	
	Kenmare River SAC	
Kilgarvan Ice House SAC		
Kilkeran Lake and Castlefreke Dunes SAC		

Receptor	Name	Total Number
	Killarney National Park, Macgillycuddy's Reeks And Caragh River Catchment SAC	
	Lough Hyne Nature Reserve And Environs SAC	
	Maulagowna Bog SAC	
	Mucksna Wood SAC	
	Mullaghanish Bog SAC	
	Myross Wood SAC	
	Old Domestic Building, Askive Wood SAC	
	Old Domestic Building, Dromore Wood SAC	
	Reen Point Shingle SAC	
	Roaringwater Bay And Islands SAC	
	Sheep's Head SAC	
	St. Gobnet's Wood SAC	
	The Gearagh SAC	
	Three Castle Head to Mizen Head SAC	
Ramsar Sites	Ballycotton Bay	4
	Ballymacoda	
	Cork Harbour	
	The Gearagh	
Nature Reserves	Capel Island and Knockadoon Head	9
	Cummeragh River Bog	
	Eirk Bog	
	Glengarriff Wood	
	Knockomagh Wood	
	Lough Hyne	
	Puffin Island	
	The Gearagh	
	Uragh Wood	
National Parks	Killarney National Park	1
Natural Heritage Areas (NHAs)	Boggeragh Mountains NHA	11
	Conigar Bog NHA	
	Derreenatra Bog NHA	

Receptor	Name	Total Number
	Doughill Bog NHA	
	Hungry Hill Bog NHA	
	Knockroe Bog NHA	
	Leahill Bog NHA	
	Pulleen Harbour Bog NHA	
	Sillahertane Bog NHA	
	Slaheny River Bog NHA	
	Trafrask Bog NHA	
Proposed Natural Heritage Areas (pNHAs)	See Figure 2.2	120

2.4.2 Habitats

Table 2.11 lists the percentage of the study area, and the number of hectares, covered by each habitat within SAI; as reported in the Corine land use dataset¹.

Table 2.11 Habitat Areas for SAI (EPA, 2018)

Habitat	Ha	% of Study Area
Agricultural Land		
Complex cultivation patterns	9,802	1.66%
Land principally occupied by agriculture, with significant areas of natural vegetation	58,709	9.93%
Non-irrigated arable land	27,393	4.63%
Pastures	294,004	49.73%
Natural Habitats		
Bare rocks	2,761	0.47%
Beaches, dunes, sands	265	0.04%
Coastal lagoons	182	0.03%
Estuaries	1,605	0.27%
Intertidal flats	1,779	0.30%
Moors and heathland	26,890	4.55%
Natural grasslands	3,490	0.59%
Peat bogs	79,878	13.51%
Salt marshes	289	0.05%

¹ The EPA land use dataset will be used once this is available

Habitat	Ha	% of Study Area
Sparsely vegetated areas	13,325	2.25%
Water bodies	2,205	0.37%
Water courses	999	0.17%
Forest		
Broad-leaved forest	5,570	0.94%
Coniferous forest	22,471	3.80%
Mixed forest	6,805	1.15%
Transitional woodland-shrub	16,634	2.81%
Urban		
Airports	226	0.04%
Continuous urban fabric	214	0.04%
Discontinuous urban fabric	10,407	1.76%
Green urban areas	133	0.02%
Road and rail networks and associated land	270	0.05%
Sport and leisure facilities	1,695	0.29%
Industry		
Construction sites	27	>0.01%
Industrial or commercial units	1,905	0.32%
Mineral extraction sites	672	0.11%
Port areas	301	0.05%
Other		
Burnt areas	301	0.05%

Particularly relevant habitats that depend on the water quality and/or quantity in SAI are:

- Oligotrophic waters containing very few minerals of sandy plains;
- Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea*;
- Groundwater dependant terrestrial habitats, such as blanket bogs; and
- Northern Atlantic wet heaths with *Erica tetralix*.

2.4.3 Species

The key species (Nelson et al, 2019) of concern within SAI include:

- Otter (*Lutra lutra*);
- Bat species – Lesser Horseshoe Bat (*Rhinolophus hipposideros*);
- Fish species - Atlantic Salmon (*Salmo salar*), Lamprey species;
- Fresh-water pearl mussel (*Margaritifera margaritifera*);

- Killarney Fern (*Trichomanes speciosum*);
- Kerry Slug (*Geomalacus maculosus*);
- Marsh Fritillary (*Euphydryas aurinia*);
- Slender Naiad (*Najas flexilis*);
- Killarney Shad (*Alosa fallax killarnensis*);
- Narrow-mouthed Whorl Snail (*Vertigo angustior*);
- ‘Qualifying interest’ bird species e.g. peregrine falcon (*Falco peregrinus*), merlin (*Falco columbarius*); and hen harrier (*Circus cyaneus*); and
- Waterbirds of ‘qualifying interest’ e.g. Greenland white-fronted goose (*Anser albifrons flavirostris*) and winter migratory waders.

The key invasive animal and plant species to consider (National Biodiversity Data Centre, 2021) for developing options within SAI are detailed below.

Animals:

- American mink (*Neovison vison*);
- Common carp (*Cyprinus carpio*);
- Coypu (*Myocastor coypus*);
- Grey squirrel (*Sciurus carolinensis*);
- Harlequin ladybird (*Harmonia axyridis*);
- Japanese skeleton shrimp (*Caprella mutica*);
- Muntac deer (*Muntiacus reevesi*);
- Muskrat (*Ondatra zibethicus*);
- Ruddy duck (*Oxyura jamaicensis*); and
- Slipper limpet (*Crepidula fornicata*).

Plants:

- American skunk-cabbage (*Lysichiton americanus*);
- Brazilian giant-rhubarb (*Gunnera manicata*);
- Curly waterweed (*Lagarosiphon major*);
- Fringed water-lily (*Nymphoides peltata*);
- Giant hogweed (*Heracleum mantegazzianum*);
- Giant knotweed (*Fallopia sachalinensis*);
- Giant-rhubarb (*Gunnera tinctoria*);
- Himalayan/Indian balsam (*Impatiens glandulifera*);
- Himalayan knotweed (*Persicaria wallichii*);
- Hottentot-fig (*Carpobrotus edulis*);
- Japanese knotweed (*Fallopia japonica*);
- New Zealand pigmyweed (*Crassula helmsii*);
- Parrot's feather (*Myriophyllum aquaticum*);
- Rhododendron (*Rhododendron ponticum*);
- Salmonberry (*Rubus spectabilis*);
- Sea-buckthorn (*Hippophae rhamnoides*);
- Three-cornered leek (*Allium triquetrum*);
- Water fern (*Azolla filiculoides*);
- Water-primrose (*Ludwigia* spp.);
- Waterweeds (*Elodea* spp.); and

- Wireweed (*Sargassum muticum*).

2.5 Material Assets

Material assets are considered to be the natural and built assets (non-cultural assets) required to enable a society to function as a place to live and work, in giving them material value.

Some of the natural assets within SAI are listed in Table 2.12, such as agricultural land and bog areas.

Built assets include transport and communications infrastructure, and other developed areas, including existing water supply infrastructure (see Figure 2.1 and Figure 2.3). These assets all need to be taken into account in new water resource developments.

In addition, water resources and water quality are influenced by urban, agricultural and forestry activity within river and groundwater catchments. This can affect the availability and quality of water for supply.

Irish Water has 102 WTPs in SAI, meeting the demand of 184.2 MI/d in 2019.

There are no canals but there is a port of national/regional significance in SAI, namely Cork Port. There is one airport of national/regional significance (Cork Airport) and one of local significance (Bantry Aerodrome). Other significant transport infrastructure includes the main road network (particularly the R600, N22, N71, N20, N25, N8, N40, N27, N28, and the M8).

Any new infrastructure considered for SAI will need to take existing as well as planned land zoning and local development into consideration.

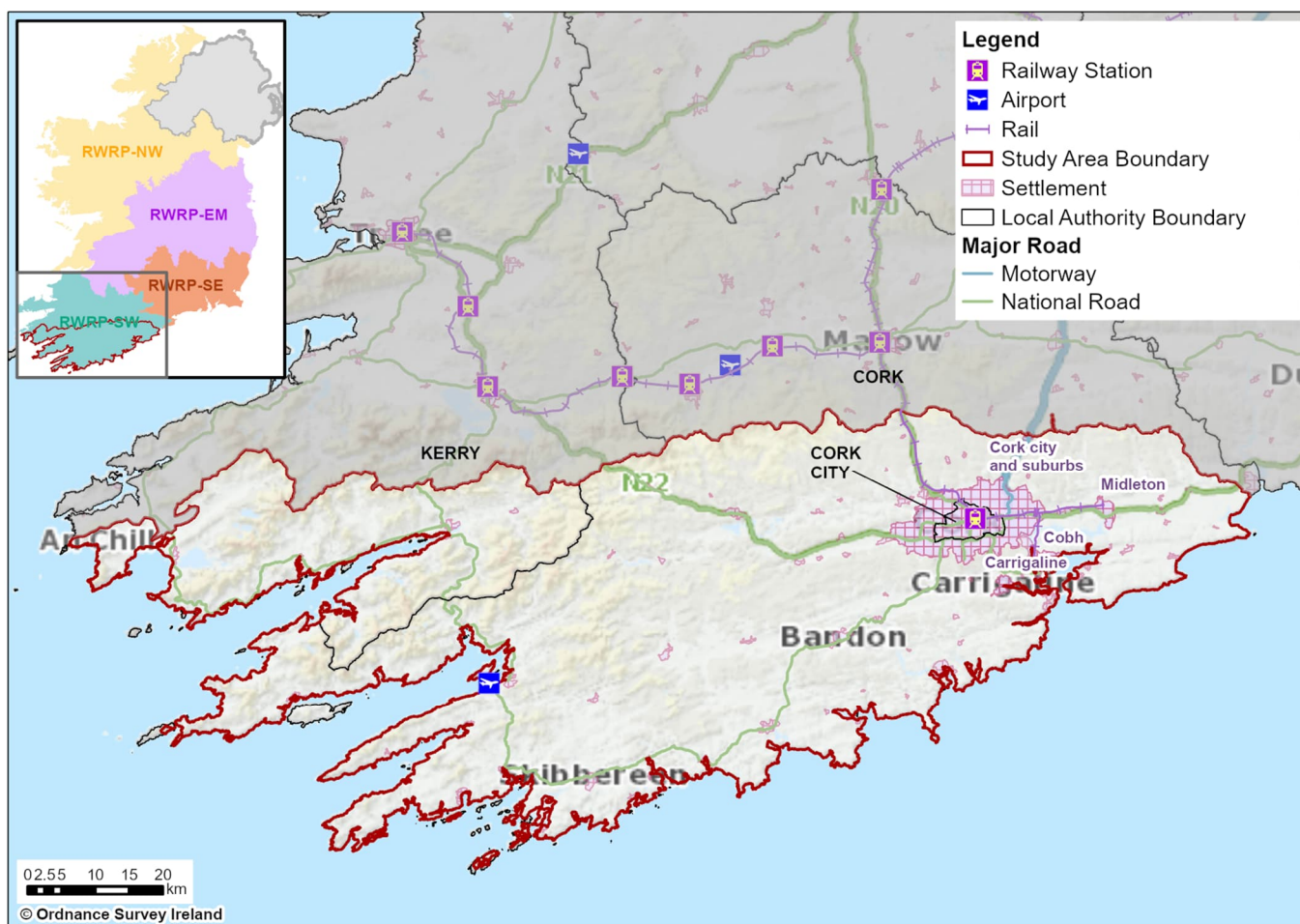


Figure 2.3 Transport Infrastructure in SAI

Table 2.12 Land Use within SAI (EPA, 2018)²

Land use	Ha	% of Study Area	Comparison to Overall South West Region %
Agriculture	389,908	65.95%	66.37%
Urban	12,945	2.19%	1.57%
Natural Habitats	133,668	22.61%	20.73%
Forest	51,480	8.71%	10.97%
Industry	2,904	0.49%	0.29%
Other	301	0.05%	0.08%

Proposals for other strategic developments within SAI are considered for the assessment. These are primarily identified from the National Planning Framework and from myProjectIreland, where any relevant projects for the study area are included (other local developments may also be included that are not listed in myProjectIreland if they are considered to be of an appropriate scale). Small scale housing and business development are not considered for this plan level assessment.

Table 2.13 gives an overview of the project developments which are available from myProjectIreland (2021) for SAI³. The myProjectIreland map focuses mainly on major projects with costs over €20 million. The map also includes all projects supported to date under the Government’s Urban and Rural Regeneration Funds and reflects the full portfolio of projects in the pipeline at present.

Table 2.13 Proposed New Developments

Development		
Beamish and Crawford/Grand Parade Quarter	Grand Parade Quarter	N22 Baile Bhuirne to Macroom Road Development
Blackpool Flood Relief Scheme	Green Lane, Blackpool, Cork City	N25 Carrigtohill to Midleton Upgrade Scheme
Carrigaline Public Realm	Grousemount Wind Farm	N28 Cork to Ringaskiddy Road
Carrigaline Western Relief Road	Kent Station Yard (site enabling)	N70 Sneem to Blackwater Bridge
Carrigtwohill	Lower Lee (Cork City) Flood Relief Scheme	N70/71 Gortamullen
Clonakilty Flood Relief Scheme	M8/N25 Dunkettle Interchange	Passage West Ringaskiddy Carrigaline Harbour Cluster
Cork City Docklands	Macroom Garda Station - PPP: Garda Station Bundle	Regeneration of Town Centre and the Development of a future vision for the disused former Courthouse
Cork City Docklands 2	Midleton Wastewater Network	Remediation of Haulbowline Island

² The EPA land use dataset will be used once it has been made available

³ Note that the myProjectIreland dataset was taken at a fixed point in time to allow for assessment of cumulative effects. The date for SAI being the 17/01/22.

Development		
Cork Metropolitan Area Transport Strategy	Midleton Flood Relief Scheme	Ringaskiddy Redevelopment
Cork North Ring Road	Midleton Main Street Public Realm Improvements	Skibbereen Regional Water Supply Scheme - Water Treatment Plant & Network
Digital Innovation Hub Strategy	Midleton Permeability Package of Proposals	Tivoli Docks
Douglas Flood Relief Scheme	Midleton Wastewater Transfer Project	Úibh Ráthach Action Plan
Dursey Island Cable Car and Visitor Centre	Midleton Water Supply Scheme - Interconnection to Inniscarra Regional Water Supply Scheme and Additional storage	
Glashaboy Flood Relief Scheme	N/M20 Cork to Limerick Road Improvement Scheme.	

2.6 Landscape and Visual Amenity

2.6.1 Landscape and Visual

The National Landscape Strategy 2015-2025 is in the process of being implemented and will be Ireland's vehicle for complying with the EU Landscape Convention. Landscape assessment guidance is also available from the local authorities. This will be taken into account when identifying landscape character areas and protected areas at the project level in the future. Table 2.14 shows the sensitivity and value of the Landscape Character Areas (LCAs) within each of the counties listed within the study area⁴. There is no LCA data available from Cork City council.

The value of the landscape in SAI is reflected in baseline data sections 2.1.3 (Tourism and Recreation), 2.4 (Biodiversity, Flora and Fauna) and 2.8 (Cultural Heritage).

Water supply infrastructure development will need to take account of sensitive landscapes and views. This will need to include culturally important areas, townscapes, natural areas and areas and views of importance for tourism and recreation.

Table 2.14 Value and Sensitivity of Landscape Character Areas in the Counties of SAI (Ordnance Survey Ireland. n.d.)

Landscape Character Area	Value	Sensitivity
County: Cork (Cork County Council, 2007)		
City Harbour and Estuary	Very High	Very High
Broad Bay Coast	Very High	Very High
Indented Estuarine Coast	Very High	Very High

⁴ As with all the baseline information, the LCA information will be updated as part of regular reviews

Landscape Character Area	Value	Sensitivity
Rugged Ridge Peninsula	Very High	Very High
Fertile Plain with Moorland Ridge	Very High	Very High
Broad Fertile Lowland Valleys (Blarney-Ballincollig-Carrigaline-West to Dunmanway)	High	High
Broad Fertile Lowland Valleys (Cloyne, Castlemartyr, Killeagh and Environs)	Medium	Medium
Broad Fertile Lowland Valleys (Castlelyons-Rathcormack)	Medium	Medium
Rolling Patchwork Farmland (Bandon-Clonakilty-Leap Environs)	Medium	Medium
Rolling Patchwork Farmland (Dunderrow-Belgooly and Environs)	Medium	Medium
Hilly River and Reservoir Valleys	High	High
Broad Marginal Middleground and Lowland Basin	Low	Medium
Fissured Fertile Middleground (South of the Gearagh)	Low	Low
Fissured Fertile Middleground (Rylane east to Waterford)	Medium	High
Broad Marginal Middleground Valley	High	High
Rolling Marginal and Forested Middleground (BallyvourneyGaeltacht)	High	High
Rolling Marginal and Forested Middleground (South)	Medium	Medium
Valleyed Marginal Middleground (Macroom and Environs)	High	High
Valleyed Marginal Middleground (Glenville and Environs)	Medium	Medium
Fissured Marginal and Forested Rolling Upland (NorthwestRockchapel)	Medium	Medium
Fissured Marginal and Forested Rolling Upland (Lyre and Nad)	Medium	Medium
Ridged and Peaked Upland (Mullaghanish to Millstreet)	High	High
Ridged and Peaked Upland (Millstreet)	Medium	Medium
Glaciated and Forested Cradle Valley (Gougane Barra)	High	High
County: Kerry (Kerry County Council, 2021)		
Beal Hill and Ballybunion	-	High
The Shannon Estuary	-	Medium / High

Landscape Character Area	Value	Sensitivity
Bunnaruddee Bog and Galey River	-	Low / Medium
Kerry Head and Ballyduff	-	Medium / High
Listowel and The Cashen River	-	Medium
Banna and Ardfert	-	Medium / High
Smearlagh River Valley	-	Low / Medium
River Feale Valley	-	Medium
Stack's and Glanaruddery Mountains	-	Low / Medium
Mount Eagle and Owveg River Valley	-	Low / Medium
Tralee and Castleisland	-	Medium
Blasket Islands, Smerwick Harbour and Mount Brandon	-	High
Ventry and Dingle Harbours	-	High
Brandon Bay	-	High
Garfinny and Owenalondrig River Valleys	-	Medium / High
Tralee Bay, The Maharees and Northern Slieve Mish Mountains	-	High
Annascaul, Inch and Southern Slieve Mish Mountains	-	Medium / High
Milltown and Castlemaine	-	Medium
Gweestin River Valley	-	Medium
Deenagh and Glanoragh River Valleys	-	Medium
The Brown Flesk River Valley	-	Medium
Quagmire and Owneyskeagh Rivers	-	Medium
River Blackwater and Rathmore	-	Medium
Rossbeigh and Cromane	-	Medium / High
Killorglin and Beaufort	-	Medium / High
Lower Leane and Killarney National Park	-	High
Clydagh River, The Paps and the Derrynasaggart Mountains	-	Medium / High
Coomasaharan Lake and Mountain Stage	-	Medium / High
Glencar, Caragh Lake and The Bridia Valley	-	High
MacGillycuddy Reeks and The Black Valley	-	High
Cahersiveen	-	Medium / High
Valentia Island and Saint Finan's Bay	-	High

Landscape Character Area	Value	Sensitivity
Lough Currane and Máistir Gaoithe	-	Medium / High
Derrynane and Castlecove	-	High
Sneem and Ardsheelhane River Valley	-	Medium / High
Blackwater and Ballaghbeama	-	Medium / High
Kenmare	-	Medium / High
Kilgarvan and Roughty River Valley	-	Medium / High
Healy Pass, Kilmakilloge Harbour and Lough Inchiquin	-	High
Bonane and Sheen River Valley	-	Medium / High

2.6.2 Seascape

The Regional Seascape Character Assessment for Ireland 2020 presents the Regional Seascape Character Areas (SCAs) for the entire Republic of Ireland. An SCA is defined as “*an area of sea, coastline and land, as perceived by people, whose character results from the actions and interactions of land with sea, by natural and/or human factors*”. The assessment identifies three SCAs in SAI; the Atlantic Southwest Rias, Atlantic Celtic Bays & Estuaries, and Cork Harbour Estuary. There are also three SPAs hydrologically connected to SAI that are within the SCAs; The Bull and The Cow Rocks SPA and Skelligs SPA within Atlantic South West Rias, Bays and Islands, and Sovereign Islands SPA within Atlantic Celtic Bays and Estuaries.

2.7 Air Quality and Noise

2.7.1 Air Quality

Air quality is monitored and managed using Air Quality Zones and air monitoring sites, the air quality index rating of the area within SAI is rated as ‘good’.

In general, the water industry is not a major contributor to air quality issues, although there is potential for local pollution through Irish Water vehicles, generator plants and drinking water residuals treatment facilities. There is a requirement to comply with air pollution regulations and also to identify potential opportunities for reducing emissions. Air quality will be a consideration at the project level, for example, through scheme construction management and scheme design and operation.

2.7.2 Noise

The main areas that experience noise pollution are likely to be areas along the main roads, particularly around Cork, Carrigaline, Cork Airport and the R600, N22, N71, N20, N25, N8, N40, N27, N28 and M8.

Water infrastructure development is not expected to add significantly to noise pollution. Construction noise will be considered through scheme construction management and design for local receptors and for sensitive receptors in close proximity. Noise pollution will also be managed through the planning process with conditions included in planning permissions.

2.8 Cultural Heritage

Within SAI, there are numerous designated and non-designated cultural heritage assets inventoried in the Record of Monuments and Places, the Sites and Monuments Record, the Record of Protected Structures, and the National Inventory of Architectural Heritage (NIAH) (see Table 2.15).

Figure 2.4 shows the location of the individual cultural heritage records from the National Monuments Service and the NIAH. Given the number of small sites, these can be better viewed on the Department of Culture, Heritage and the Gaeltacht's (2020) 'Historic Environment Viewer' website.

There are also potentially unknown, undesignated archaeological and architectural remains throughout Ireland. Water supply can affect cultural heritage through, direct loss or construction of infrastructure involving disturbance of soils, above ground structures close to existing heritage sites affecting setting or changes due abstraction changing drainage and affecting interests within wetland sites.

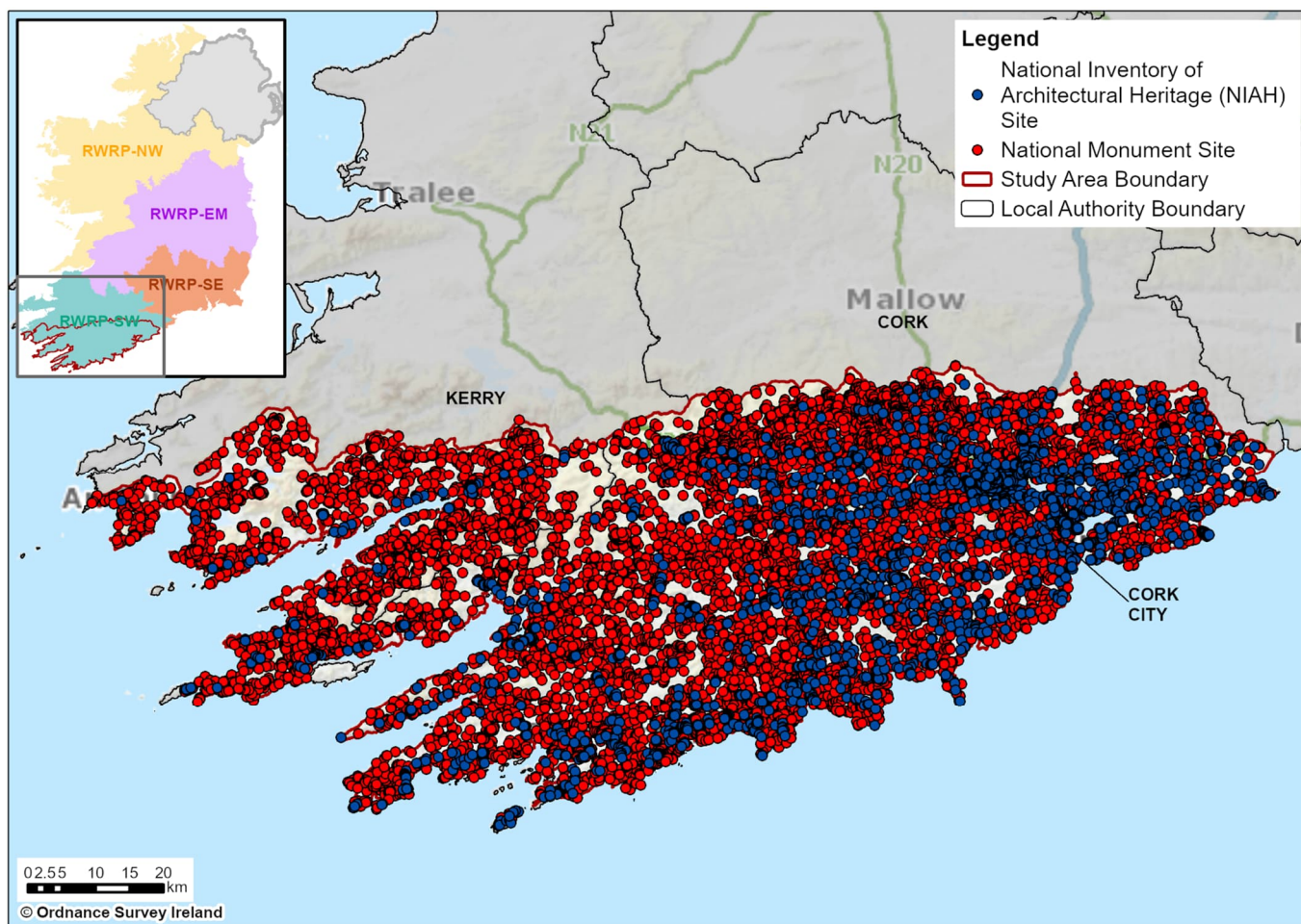


Figure 2.4 SAI Cultural Heritage Assets

Table 2.15 Cultural Heritage Assets within SAI

Assets	Total Number
National Monuments Service Sites	14,461
National Inventory of Architectural Heritage Sites	7,273
Sites and Monuments Record Zones	8,997

2.9 Geology and Soils

Table 2.12 lists the land uses within SAI. SAI predominantly has a coarse loamy soil type to the east and peat to the west of the study area (EPA, 2019a).

The geology and soils in the environment are fundamental for the quality and quantity of water in the area through differences in drainage, chemical composition, filtration and soil type, topography and resultant land use. Land use has significant impact on water quantity and quality. Groundwater supply depends on the type of aquifers in the area, as they determine the system's ability to store and transmit groundwater. The regionally and locally important aquifers with resource potential for SAI are shown in Figure 2.5.

For SAI the Devonian Old Red Sandstone (ORS), along with the Dinantian Mudstones and Sandstones, make up the dominant bedrock geology. The ORS consist mainly of coarse and fine sandstones, siltstones, shales, and conglomerates. These rocks are predominantly of a poorly productive bedrock flow regime and are assumed to be generally devoid of intergranular permeability, with groundwater flow occurring predominantly through fractures and faults.

The karst forms a key regionally important aquifer in some areas, namely around the low-lying valleys, stretching from Ballincollig west of Cork city eastwards to Youghal. The Southern Region is predominantly characterised by a more diffuse network of flow pathways (Rkd type aquifers). There are also a number of locally important sand and gravel aquifers (Lg) in the region, namely at Brinny and along the River Lee.

Important geological and geomorphological sites could be identified for protection as NHAs, however, until designation is confirmed, these sites are classified as Irish Geological Heritage Sites (IGHS). There are over 900 IGHS identified around Ireland, 28 of which have the potential to constrain water resource options in SAI.

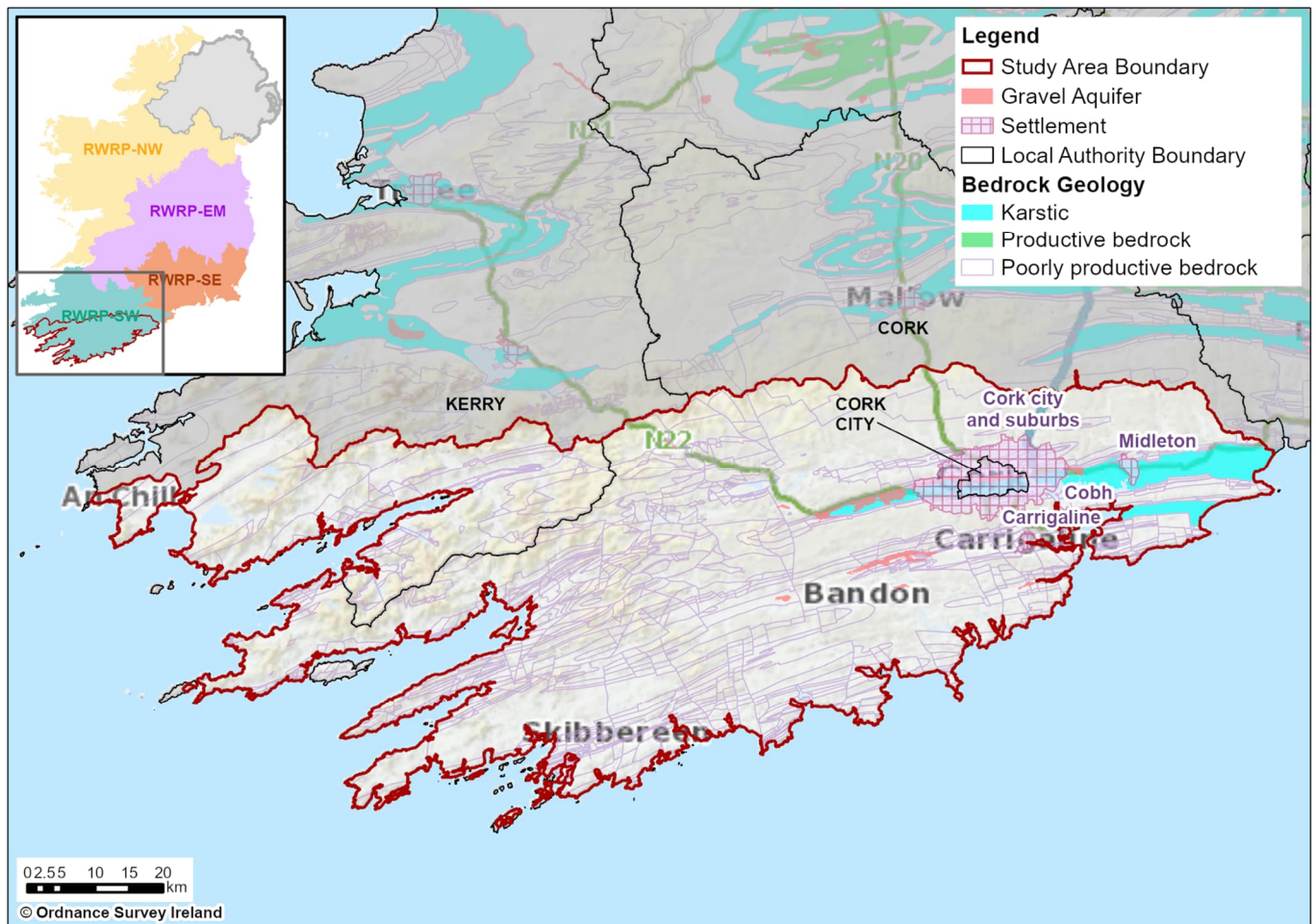


Figure 2.5 SAI Hydrogeology

2.10 Summary of Key Issues and Trends over the Plan Period

All aspects of the environment will need to be considered as individual schemes are taken forward for further design and implementation. However, the key issues relevant for strategic water planning identified within SAI are listed in Table 2.16.

Table 2.16 Summary of Key Issues and Trends Over the Plan Period

SEA Topic	Issues and Opportunities	Interrelated Topics
Population, Economy, Tourism and Recreation, and Human Health	<p>Issues: Increasing population and the increased stress of climate change on water quality and water resources could affect health and well-being.</p> <p>Opportunities: Irish Water will put in place plans to assess water quality and measures to address risks as part of the Regional Plan</p> <p>Irish Water has ongoing activities to improve the Supply Demand Balance in SAI, including, leakage management and water conservation measures.</p>	Climate change, biodiversity, water environment, material assets and landscape and visual amenity

SEA Topic	Issues and Opportunities	Interrelated Topics
	<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.</p> <p>Valuing the importance of access to the environment for recreation.</p>	
Water Environment	<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 being imposed at associated sites. For SAI, some of the existing abstractions may not meet sustainability guidelines in the medium term; specifically, during drought periods. On an interim basis, Irish Water has developed an initial conservative assessment based on available information (see SAI Technical Report). This has been used to inform options identification and appraisal.</p> <p>Irish Water will update its sustainability analysis and impact on its baseline Supply Demand Balance (SDB) calculations when regulatory assessment for the new legislation is undertaken.</p> <p>Opportunities: To take account of identified pressure on the water environment in the selection of solutions for SAI.</p>	Biodiversity and climate change
Biodiversity, Flora and Fauna	<p>Issues: Some of the surface water sources in the western parts of SA are within designated areas. These designations include the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC, the Glanmore Bog SAC, the Cahra Mountains SAC, and the Maulagowna Bog SAC. In addition, two surface water sources are within designated Freshwater Pearl Mussel SAC catchments.</p> <p>It is considered especially important to avoid the loss of irreplaceable or rare habitats and increasing pressure on vulnerable species; potentially through direct land take or indirect such as through increased abstraction pressure</p>	Water resources, water quality and climate change
Material Assets	<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>	Health and wellbeing
Landscape and Visual Amenity	<p>Issues: Potential for climate change to affect land use and habitats and influencing landscape quality and amenity.</p>	Biodiversity and geology and soils, climate change, health and wellbeing

SEA Topic	Issues and Opportunities	Interrelated Topics
Air Quality and Noise	No specific issues identified for the baseline for SAI.	Health and wellbeing
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>	Biodiversity and water environment
Cultural Heritage	<p>Issues: Known cultural heritage and archaeological assets and potential unknown archaeological assets.</p>	Health and wellbeing
Geology and Soils	<p>Issues: General need for good soil conservation and retention of nutrients and carbon in soil resources</p> <p>Opportunities: Potential benefits from soil conservation for biodiversity, water quality and water retention also.</p>	Biodiversity, water quality, landscape and climate change
Additional interrelated aspects	<p>Issues: Poor water quality requiring additional water treatment and affecting aquatic biodiversity.</p> <p>Opportunities: Potential for catchment management initiatives leading to habitat, water retention, water quality enhancement and soil quality have the potential to provide wider benefits for environmental resilience and water supply; although this has not been specifically studied in this study area.</p>	



3

Environmental Assessment – Options Appraisal

3 Environmental Assessment – Options Appraisal

This chapter provides a summary of the environmental assessment of options considered in the study area, including the option identification and screening process, and assessment of options used in approach development.

3.1 Overview

Irish Water applied its Options Assessment Methodology from the Framework Plan to identify potential solutions to meet the needs identified in the SAI WRZs.

The general methodology, and how environmental assessment is included, is outlined in the SEA Environmental Report prepared in relation to the Framework Plan. That report identifies SEA objectives and assessment criteria and provides a framework for integrating the environmental assessment of options and combinations of options into a phased appraisal process which also takes account of other criteria such as feasibility, deliverability, resilience and cost.

The Options Assessment Methodology covers eight stages. Stages 1 and 2 are covered through the needs and baseline assessments addressed in chapter 2 of this review. The key stages considered in this chapter for SAI are Stages 3-6:

- Stage 3 Unconstrained options – to identify all the potential options to be considered to resolve water quality or quantity requirements;
- Stage 4 Coarse screening – to assess the unconstrained options and eliminate any that will not be viable and collect information to inform the next stage;
- Stage 5 Fine screening – options assessment and scoring against the key criteria to verify option feasibility and understand key risks and constraints; and
- Stage 6 Feasible option list – further option development encompassing costing and SEA assessment of options.

3.2 Stage 3: Unconstrained Options

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 an internal 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 for the purposes of this plan 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 5 or 10% of Q50 in line with this guidance (the NIS prepared in relation to the Framework Plan, sets out the approach in relation to Appropriate Assessment).

As mentioned previously, these are estimates applied for the purpose of strategic planning and are based on a conservative approach to what the new regulatory regime might require. The EPA will be the authority adjudicating the sustainability or otherwise of abstractions, once the regulations and guidelines for the new abstraction regime have been developed there will be more detailed site specific information.

For groundwater sources, the assessment includes a high level assessment taking account of a range of information available for existing site and in many cases limited information for new abstraction options. This desktop assessment undertaken aimed to identify potential yield and the impact of the yield, including the steps described below.

3.2.1 Existing Groundwater Abstractions

Site specific data is taken into account where possible in assessing potential sustainable yield for increasing abstraction at existing sources. In some cases, however location, abstraction rate(s) and site configuration are often the minimum information available. The operational data provides useful information on the yield, and assumptions can be made around the average production from each site. It can be assumed the average abstraction value is an initial estimate of the yield. Most local authorities in the case of development of groundwater sources, would likely have drilled and sought the maximum yield possible through 72 hours pumping tests. This provides an initial yield. Additional information on performance in prolonged dry weather periods provides supporting information on yields. Data collected on site is used to improve the yield and impact estimates.

3.2.2 New Groundwater Abstractions

The Zone of Contribution (ZOC), the land area that contributes water to the well or spring, is defined and used to calculate a preliminary water balance for the source using the average abstraction rate and the annual average recharge rate as estimated from the Geological Survey Ireland (GSI) recharge maps. The water balance estimates the area needed to supply the yield and is then compared to the delineated ZOC. A WFD >20% recharge is applied as a guide for assessment in the fine screening assessment but is recognised to apply more to catchment scale abstraction impact assessments so at a very local abstraction scale it can overestimate the impacts for some sources.

Additional assessment is undertaken on potential preferred groundwater options to inform the SEA, taking into account site specific information and consideration of likely impacts on WFD and cumulative effects with existing groundwater abstractions.

Further work will need to be undertaken for groundwater options taken forward as part of abstraction licensing and the development of Drinking Water Safety Plans. This will include establishing detailed geoscientifically robust zones of contribution in line with GSI's Groundwater Protection Schemes (Department of Environment, Community and Local Government, GSI and EPA, 1999) and the EPA Advice Note Number 7, Source Protection and Catchment Management (EPA, 2013). This work will provide in-depth hydrogeological information on the source that will establish reliable and sustainable yields.

3.2.3 Sustainable Abstraction in Options Assessment

At the end of 2022, the government passed the Water Environment (Abstractions and Impoundments) Act, 2022 (the Abstractions Act) which will ensure that national abstractions align with the requirements of the Water Framework Directive. The Abstractions Act has not yet commenced and the associated regulations and guidelines which will further detail the types of assessment and national methodology to be used are not yet in place. Therefore, Irish Water does not have full visibility of the future regulatory

regime. As the objective of the plan is to achieve safe, secure, reliable and sustainable supplies, any new abstractions proposed to be developed by Irish Water as part of this plan will be based on conservative assessments of sustainable abstraction. This will ensure that water supplies continually improve in terms of environmental sustainability.

Based on initial desk-based assessments outlined above, 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.

3.3 Stage 4: Coarse Screening

A total of 947 unconstrained options were identified for SAI and subjected to coarse screening. The coarse screening process assessed the options against the criteria outlined in Table 3.1. This process is summarised in chapter 9 of the SEA Environmental Report for the Framework Plan. The process allows the assessment of the unconstrained options to eliminate any that will not be viable. The focus at this stage is on options that would be difficult to mitigate, those with likely significant effects on European or nationally important sites, or options likely to lead to deterioration of waterbody WFD status.

Table 3.1 Coarse Screening Assessment Criteria

Criteria	Unconstrained Option Assessment Questions	
Resilience	Q1	Does the option address the supply-demand problem?
Deliverability and Flexibility	Q2	Is the option technically feasible?
	Q3	Can the risks and uncertainties associated with the option be mitigated to avoid failure of the option?
Sustainability (Environmental and Social Impacts)	Q4	Can significant impacts on known high level environmental constraints for example European/ international or nationally designated biodiversity, landscape, cultural heritage sites, WFD objectives or community assets, be avoided or minimised? If not, is mitigation likely to be possible?

Of the 947 unconstrained options, 416 were rejected after being analysed against the coarse screening criteria of resilience, deliverability and environment.

Sustainability reasons for rejecting options were identified for 148 options. Table 3.2 provides the options that were rejected on a sustainability basis and not considered suitable to address the deficit for the WRZs located in SAI. The full rejection register, including both the coarse and fine screening (where applicable) is provided in Appendix A of the SAI Technical Report (RWRP-SW Appendix 2).

Table 3.2 Coarse Screening Rejection Register

Option Reference	Option Description	Rejection Reasoning
SAI-368	New impoundment at Clanbanoo to supply deficit in Bantry, to feed deficit full demand taken from Drombow Lake and rationalise Drombow Lake source.	This is a WFD high status waterbody and the volume of water required to make this a feasible option is considered likely to result in the waterbody not achieving high WFD status, and result in a greater risk of having adverse effects on this European site. Therefore, this option did not meet the

Option Reference	Option Description	Rejection Reasoning
		requirements of the Environmental, Resilience or Deliverability criteria.
SAI-158	Increase surface water (SW) abstraction from Bandon River and upgrade Innishannon WTP.	Bandon River Q4 - good water quality. Partially designated NHA. Bandon River is SAC from Dunmanway upstream for Freshwater Pearl Mussel. Parts of the Bandon River have high water quality status objective (EPA). The River Bandon is nationally important for salmon and Lamprey (aquatic species). Therefore, [an abstraction from this water body in the quantity required] did not meet the requirements of the Environmental, Resilience or Deliverability criteria.
SAI-045	Increase groundwater (GW) abstraction Bayview borehole (BH) and upgrade WTP.	No yield available to increase GW abstraction at Bayview BH. The option is therefore considered unviable and did not meet the requirements of Deliverability, Environmental and Resilience criteria.
SAI-331	New SW abstraction from Curraghlicky Lake and new WTP.	Option does not address full deficit. The sustainable allowable abstraction for this option is 1,714m ³ /d, however 4,999m ³ /d is required to address the supply demand problem. Therefore, this option did not meet the Resilience, Deliverability or Environmental criteria and as there were other viable options for these WRZs this option was not considered feasible at coarse screening stage.
SAI-337	New SW abstraction from Batesmans Lough to partly supply deficit.	Option does not address full deficit. The sustainable allowable abstraction for this option is 193m ³ /d, which is too low to partly address the deficit of 4,999m ³ /d. Therefore, this option did not meet the requirements of the Environmental, Resilience or Deliverability criteria. Other versions of the option that meet full deficit are considered.
SAI-049	Rationalise Bayview to Clonakilty WRZ.	Option does not address full deficit.
SAI-053	Rationalise Ard Na Killy Ridge to Cork City WRZ (Innishannon WTP).	Therefore, this option did not meet the requirements of the Environmental, Resilience or Deliverability criteria. Other
SAI-157	Increase SW abstraction from Glendine River.	

Option Reference	Option Description	Rejection Reasoning
SAI-158	Increase SW abstraction from Glendine River.	versions of the option that meet full deficit are considered.
SAI-159	Increase SW abstraction from Glendine River.	
SAI-160	Increase SW abstraction from Glendine River.	
SAI-161	Increase SW abstraction from Glendine River.	
SAI-162	Increase SW abstraction from Glendine River.	
SAI-247	Increase existing GW abstraction to supply deficit.	
SAI-249	Rationalise Ballymacoda WRZ to Youghal WRZ (Glendire River source).	
SAI-267	Rationalise Ballykilty WRZ to Youghal WRZ (Glendire River source).	
SAI-301	Rationalise Kilcraheen to Youghal WRZ (Glendire River source).	
SAI-316	Interconnect Knockadoon WRZ with Ballymacoda WRZ.	
SAI-319	Rationalise Knockadoon WRZ to Youghal WRZ (Glendire River source).	
SAI-327	Rationalise Inch WRZ to Youghal (Glendire River source).	
SAI-330	Increase abstraction from Arideen River, Jones Bridge and supply deficit.	
SAI-332	New SW abstraction from Curraghlicky Lake and new WTP.	
SAI-333	New SW abstraction from Curraghlicky Lake and new WTP.	
SAI-335	Increase abstraction from Bandon River (Bandon Regional WRZ) and supply deficit to Clonakilty.	
SAI-340	New SW abstraction from Lough Atarriff to partly supply deficit.	
SAI-342	New SW abstraction from Ballin Lough and upgrade WTP to supply locally.	

Option Reference	Option Description	Rejection Reasoning
SAI-354	Interconnect Skibbereen 1 - Ballyhilty and Drimoleague and Skibbereen (0500SC0021) and supply deficit.	
SAI-361	Increase SW abstraction from Lough Abisdealy and Lakecross WTP.	
SAI-362	Increase SW abstraction from Lough Abisdealy and upgrade Lakecross WTP	
SAI-365	Interconnect Skibbereen 2 - Baltimore and Schull and Skibbereen 1 - Ballyhilty and Drimoleague and supply deficit (River Ilen source).	
SAI-369	New impoundment at Clanbanoo to supply deficit in Bantry.	
SAI-370	New impoundment at Clanbanoo to supply deficit in Bantry to feed deficit full demand taken from Drombow Lake and rationalise Drombow Lake source.	
SAI-371	New impoundment at Clanbanoo to supply deficit in Bantry to feed deficit full demand taken from Drombow Lake and rationalise Drombow Lake source.	
SAI-377	Increase existing SW abstraction from Inchilough and supply deficit. Upgrade existing Cahernancin WTP.	
SAI-378	Increase existing SW abstraction from Drombow Lake and supply deficit. Upgrade existing Cahernancin WTP.	
SAI-379	Increase impoundment at Lough Bofinna.	
SAI-380	Abandon Kealkill WTP and feed from Bantry Derryginagh	
SAI-381	Increase SW abstraction from Glenbeg and upgrade Castletownbere WTP.	
SAI-382	Increase SW abstraction from Glenbeg and upgrade Castletownbere WTP.	
SAI-383	New SW abstraction from Lough Fadda and upgrade WTP.	
SAI-384	New SW abstraction from Drimminboy River and upgrade WTP.	

Option Reference	Option Description	Rejection Reasoning
SAI-386	Supply deficit to Castletownbere from new impoundment at Bantry.	
SAI-392	Increase SW abstraction Coolkellure Lake and upgrade WTP.	
SAI-396	New SW abstraction from Mohona Lough.	
SAI-397	New SW abstraction from Dunmanway Lake.	
SAI-402	Increase existing SW abstraction from Barony River and supply deficit.	
SAI-403	Increase existing SW abstraction from Barony River and supply deficit.	
SAI-406	New SW abstraction from Loughavaul Lake and new WTP onsite.	
SAI-409	Increase SW abstraction from Owengar River and upgrade Kealkill WTP.	
SAI-413	New SW abstraction from Cappnaboul Lough and new WTP	
SAI-414	New SW abstraction from Atooreen Lough and new WTP.	
SAI-415	Abandon Kealkill WTP and feed from Bantry Derryginagh.	
SAI-418	Interconnect Kealkill and Bantry WRZs and supply deficit from new Bantry impoundment.	
SAI-419	Interconnect Kealkill and Bantry WRZs and supply deficit from new Bantry impoundment.	
SAI-420	Increase SW abstraction from Clashduff River and upgrade Adrigole WTP to supply deficit.	
SAI-435	Rationalise Drinagh to Clonakilty (new SW abstraction from Curraghlicky Lake)	
SAI-445	Increase SW abstraction from Kilmore Lake and update WTP.	
SAI-456	Rationalise Dromore Bantry to Skibbereen WRZ for increased resilience (River Ilen source).	

Option Reference	Option Description	Rejection Reasoning
SAI-458	Interconnect Goleen with Crookhaven to feed deficit.	
SAI-463	Rationalise Goleen to Skibbereen WRZ for increased resilience (River Ilen source).	
SAI-469	Increase SW abstraction and upgrade Allihies WTP.	
SAI-477	Increase existing SW abstraction from Cahermore River and supply deficit.	
SAI-485	Rationalise Caheragh to Skibbereen WRZ for increased resilience (River Ilen source).	
SAI-496	Rationalise Reenmeen to Glengarriff WRZ (Barony River source).	
SAI-501	Rationalise Toormore to Skibbereen WRZ for increased resilience (River Ilen source).	
SAI-503	Increase SW abstraction and increase height of Crookhaven Impoundment (Arduslough).	
SAI-506	Rationalise Crookhaven to Skibbereen WRZ for increased resilience (River Ilen source).	
SAI-514	Connect Cape Clear to mainland to Skibbereen WRZ (River Ilen source).	
SAI-520	Interconnect Lyre Clonakilty and Clonakilty WRZs and supply deficit (new SW abstraction from Curraghlicky Lake).	
SAI-521	Rationalise Lyre Clonakilty to Clonakilty (new SW abstraction from Curraghlicky Lake).	
SAI-569	Increase SW abstraction from Bandon River and upgrade Innishannon WTP.	
SAI-570	Increase SW abstraction from Bandon River and upgrade Innishannon WTP.	
SAI-586	Increase SW abstraction at Knockraha WTP.	
SAI-587	Rationalise Watergrasshill WTP to Knockraha WTP (maintain spring source).	
SAI-588	Recommission impoundment in Ballyshoneen to feed Ballincollig.	

Option Reference	Option Description	Rejection Reasoning
SAI-594	New SW abstraction from the River Stick and upgrade Belgooly WTP.	
SAI-601	Rationalise Lauragh to Castletownbere WRZ.	
SAI-631	Increase abstraction at Kilgarvan from lake.	
SAI-636	Increase SW abstraction from Coonmahorna West River and upgrade Caherdaniel WTP.	
SAI-637	Increase SW abstraction from Coonmahorna East River and upgrade Caherdaniel WTP.	
SAI-638	Increase SW abstraction from Gowlane Intake and upgrade Castlecove WTP.	
SAI-639	Increase SW abstraction from Behaghane Intake and upgrade Castlecove WTP.	
SAI-640	Increase GW abstraction from Castlecove WTP BH1 (poorly productive aquifer) and upgrade Castlecove WTP.	
SAI-644	Increase SW abstraction at Coomclogherane Lake and upgrade Kilgarvan WTP.	
SAI-646	Recommission abandoned stream source in Kilgarvan.	
SAI-651	New Surface water abstraction from the Ahadav stream plus increase abstraction from the BH.	
SAI-654	Interconnect to GWS nearby (Tuosist).	
SAI-666	Interconnect Skibbereen 1 - Ballyhilty and Drimoleague and Dunmanway WRZs and supply deficit (Garranes Lakes source).	
SAI-676	New impoundment at Derryfadda to supply deficit.	
SAI-677	New impoundment at Derryfadda - Kealkill and interconnect with Bantry to supply deficit.	
SAI-684	New impoundment at Clanbanoo to supply deficit in Bantry to feed deficit full demand	

Option Reference	Option Description	Rejection Reasoning
	taken from Drombow Lake and rationalise Drombow Lake source.	
SAI-360	Increase SW abstraction from Lough Abisdealy and Lakecross WTP.	The current abstraction is 1,249m ³ /d which is already over the UKTAG Guidance for sustainable allowable abstraction. LA comments also note that the water level in the lake has dropped in recent years and would not recommend increasing abstraction. Therefore, this option did not meet the requirements of the Deliverability, Resilience and Environmental criteria and was not considered feasible at coarse screening stage.
SAI-589	New GW abstraction in Meenane Spring and upgrade Watergrasshill Tower WTP to partly supply deficit.	The local geography is unsuitable for planned works and as a result, did not meet the requirements of the Environmental, Resilience or Deliverability criteria would not be taken forward to the fine screening stage.
SAI-431	New GW abstraction to supply deficit and upgrade WTP.	The yield associated with this option is limited and would not meet deficit. Therefore, it did not meet the requirements of the Environmental, Resilience and Deliverability and as there were other viable options for the WRZ this option was not considered feasible at coarse screening stage.
SAI-451	Increase GW abstraction from BH and upgrade Kilchrone WTP.	
SAI-317	Interconnect Knockadoon WRZ with Ballymacoda WRZ.	The yield associated with this option is limited and would require long pipelines. Transferring small quantities of water over long distances can affect the quality of water. Therefore, this option did not meet the Deliverability, Resilience or Environmental criteria and as there were other viable options for these WRZs this option was not considered feasible at coarse screening stage.
SAI-243	New GW abstraction in the karstic region north of Ballymacoda WTP.	The yield associated with this option is limited. Therefore, this option did not meet the requirements of the Environmental, Resilience or Deliverability criteria. Other versions of the option that meet full deficit are considered.
SAI-244	New GW abstraction in the karstic region north of Ballymacoda WTP.	
SAI-246	Increase existing GW abstraction to supply deficit.	

Option Reference	Option Description	Rejection Reasoning
SAI-295	Increase existing GW abstraction to supply deficit.	
SAI-484	Rationalise Caheragh WTP to Drimoleague WTP.	There are already two existing abstractions on the River Ilen for Drimoleague WTP which are abstracting 164m ³ /d in total. There is unlikely to be above this therefore, this option did not meet the requirements of the Environmental, Resilience or Deliverability criteria.
SAI-110	Increase GW abstraction from Knockburden and upgrade Knockburden WTP.	There is a great uncertainty around available yield and as a result, this option is not considered feasible at coarse screening stage and would not be taken forward to the fine screening stage.
SAI-115	New GW abstraction at Cullen and upgrade WTP.	
SAI-297	Interconnect Kilcraheen with Ballymacoda WRZ and supply deficit.	
SAI-298	Interconnect Kilcraheen with Ballymacoda WRZ and supply deficit.	
SAI-314	Increase existing GW abstraction and supply deficit.	
SAI-428	Increase GW abstraction to supply deficit and upgrade WTP.	
SAI-487	New GW abstraction in Coppeen and upgrade Coppeen WTP.	
SAI-497	Increase GW abstraction and upgrade Toormore WTP to supply deficit.	
SAI-592	Increase GW abstraction in Belgooly and upgrade Belgooly WTP.	
SAI-593	New GW abstraction in Belgooly and upgrade Belgooly WTP to partly supply deficit.	
SAI-472	Increase GW abstraction at Cluain Court WTP and supply deficit.	There is insufficient yield to supply deficit. Therefore, this option did not meet the requirements of the Environmental, Resilience or Deliverability criteria. Other options that meet full deficit are considered.
SAI-473	Increase GW abstraction at Cluain Court WTP and supplement to Allihies.	
SAI-524	Rationalise Cluain Court Allihies to Allihies WRZ for increased resilience (Allihies impoundment).	

Option Reference	Option Description	Rejection Reasoning
SAI-525	Rationalise Cluain Court Allihies to Allihies WRZ for increased resilience (GW).	
SAI-582	Interconnect City with Conna Regional to feed local deficit at Glashaboy (Surplus of ~0.5Ml/d in Conna).	This option can fulfil only <7% of the total deficit of Cork city. Therefore, this option did not meet the requirements of the Environmental, Resilience or Deliverability criteria. Other versions of the option that meet full deficit are considered.
SAI-629	Increase SW abstraction at Eirk Lough and upgrade Kenmare WTP.	This abstraction is currently abstracting above estimated sustainable limit. Therefore, this option did not meet the requirements of Resilience, Deliverability and Environmental and was not considered feasible at coarse screening stage.
SAI-156	Develop raw water storage from large disused quarries in vicinity of Carrigtohill. New WTP on site.	This abstraction is currently over abstracting and there is no feasible way to fill up quarry. Therefore, this option did not meet the Resilience, Environment and Deliverability criteria and was not considered feasible at coarse screening stage.
SAI-346	Relocate intake on Argideen further downstream (Inchy Bridge, Burrane, Timoleague) and upgrade Clonakilty (Jones Bridge) WTP.	This abstraction is currently over abstracting from source. Therefore, this option did not meet the Deliverability, Resilience and Environmental criteria and was not considered feasible at coarse screening stage.
SAI-583	Increase SW abstraction from Butlerstown River and upgrade WTP.	This Option address only <0.5% of the total deficit. Therefore, this option did not meet the requirements of the Environmental, Resilience or Deliverability criteria. Other versions of the option that meet full deficit are considered.
SAI-585	Increase SW abstraction at Knockraha WTP.	
SAI-591	Interconnect with Conna Regional to feed deficit at Watergrasshill (Surplus of ~0.5Ml/d in Conna).	This option does not address deficit. 70,527m ³ /d is required to address the deficit, however only 4,958m ³ /d is available. Therefore, this option did not meet the requirements of the Environmental, Resilience or Deliverability criteria. Other versions of the option that meet full deficit are considered.
SAI-002	Increase SW abstraction from Bandon River and upgrade WTP.	This option does not address full deficit. Therefore, this option did not meet the

Option Reference	Option Description	Rejection Reasoning
SAI-003	New SW abstraction from Ballymahane River and upgrade existing Carhue WTP.	requirements of the Environmental, Resilience or Deliverability criteria. Other versions of the option that meet full deficit are considered.
SAI-004	Interconnect Bandon Regional WRZ with Innishannon to supply deficit from Innishannon WTP.	
SAI-006	New SW abstraction from Castlenalact Lake and upgrade Carhue WTP.	
SAI-584	Increase GW abstraction in Meenane Spring and upgrade Watergrasshill Tower WTP to partly supply deficit.	This option has issues with the current supply. The supply is currently switched off. Therefore, this option did not meet the requirements of the Environmental, Resilience or Deliverability criteria.
SAI-089	New GW abstraction to supply deficit and upgrade WTP.	This option includes a new GW abstraction to supply deficit. There are issues around available yield and water quality. Therefore, this option did not meet the requirements of Environmental, Deliverability and Resilience criteria.
SAI-590	New SW abstraction from Barnetstown River and upgrade Watergrasshill Tower WTP.	This option includes a new SW abstraction from Barnetstown River. There are issues around available yield and as a result, did not meet the requirements of the Environmental, Resilience or Deliverability criteria and would not be taken forward to the fine screening stage.
SAI-255	Interconnect Ballymacoda WRZ with Kilcredon GWS (GW source) and supply deficit.	This option includes interconnecting Ballymacoda WRZ with Kilcredon GWS to supply deficit. There are issues around available yield and water quality. As a result, this option did not meet the requirements of Resilience, Environmental and Deliverability criteria.
SAI-256	Interconnect Ballymacoda WRZ with Clonpriest/Ballymadog GWS (GW) and supply deficit.	
SAI-152	Interconnect Tibbotstown and Midleton WRZs and supply deficit from Midleton.	This option is currently abstracting 5,402m ³ /d at this location, which is above the UKTAG Guidance. Therefore, it was not feasible to increase this abstraction and this option did not meet the requirements of the Environmental, Deliverability and Resilience criteria.
SAI-197	Increase SW abstraction from Owenacurra River and supply deficit.	

Option Reference	Option Description	Rejection Reasoning
SAI-329	Increase abstraction from Arideen River, Jones Bridge and supply deficit.	This option is currently abstracting 7,883m ³ /d at this location, which is above the UKTAG Guidance. Therefore, this option did not meet the Resilience, Deliverability and Environmental criteria and as there were other viable options for these WRZs this option was not considered feasible at coarse screening stage.
SAI-259	New GW abstraction to supply deficit.	This option recommends a new GW abstraction to supply deficit. There are issues around available yield and as a result, this option did not meet the requirements of Resilience, Environmental and Deliverability criteria
SAI-278	New GW abstraction in Clash Leamleara to supply deficit.	
SAI-284	New GW abstraction to supply deficit.	
SAI-288	New GW abstraction and supply deficit.	
SAI-292	Increase GW abstraction and supply deficit.	
SAI-476	New GW abstraction to supply deficit.	
SAI-490	New GW abstraction at Reenmeen West and upgrade Reenmeen Woods WTP.	
SAI-567	New SW abstraction from the Blackwater River and new WTP - Connection to City.	
SAI-259	New GW abstraction to supply deficit.	
SAI-500	New SW abstraction from Toormore Lake and upgrade Toormore WTP.	
SAI-574	New SW abstraction from Owenaboy River and new WTP.	This option recommends a new SW abstraction from Bride River. This abstraction only addresses only 3.7% of the total deficit. Therefore, this option did not meet the requirements of the Environmental, Resilience or Deliverability criteria.
SAI-575	New SW abstraction from Bride River and new WTP.	This option recommends a new SW abstraction from Bride River. Already abstracted for Conna RWSS, located d/s of Rothcormac. The total abstraction including the already abstracted volume fulfils only 5% of the total deficit. Therefore, it did not meet the requirements of Resilience, Deliverability or Environmental.

Option Reference	Option Description	Rejection Reasoning
SAI-470	Increase SW abstraction and upgrade Allihies WTP.	This option recommends an increasing existing SW abstraction. The existing abstraction already over the 10% limit. Therefore, the option is not taken forward to fine screening as no further abstraction is possible from the small Lough.
SAI-263	Increase GW abstraction and upgrade Ballykilty WTP.	This option recommends increasing the GW abstraction to supply deficit. There are issues around available yield and as a result, this option did not meet the requirements of Resilience, Environmental and Deliverability criteria.
SAI-438	Increase existing SW abstraction from Four Mile Water River and upgrade Durrus WTP to supply deficit.	This recommends increasing the abstraction at Four Mile Water River to partly supply deficit. There are issues around available yield and water quality. A full water treatment plant would be required. As a result, this option did not meet Deliverability, Resilience and Environmental and is not considered feasible at coarse screening stage and would not be taken forward to the fine screening stage.

3.4 Stage 5: Fine Screening

A total of 531 options passed the coarse screening stage; these options were subjected to further consideration as part of a multi-criteria assessment (MCA) at the fine screening stage.

The objective of the MCA and the fine screening process is to determine the potential benefits and impacts of the options across a range of key criteria. The MCA process allows a combination of issues to be considered together. This process can help indicate if one option will be overall more cost effective, environmentally sustainable, progressible, resilient or feasible when compared with other options. This process requires a desk-based analysis of the options and their potential benefits and impacts against the key criteria.

The environmental criteria are based on the SEA objectives in the form of screening questions. These questions have been developed to allow the performance of each option to be assessed against the SEA objectives. The list of questions developed to assess the environmental and social effects of the options and guidance on the MCA scoring for the fine screening is provided in the SEA Environmental Report Appendix B.

Summaries of the environmental assessment for options that passed the fine screening stage are grouped by option type and are included in Appendix A. These summaries combine the assessments against individual criteria to give an overall environmental topic score; this overall score is based on the worst score across each of the topic's criteria.

This is a high-level risk based assessment intended to support a comparison of options. Likely beneficial effects are represented by positive scores and likely adverse effects are represented by negative scores based on a seven-point scale.

No further options were rejected at fine screening in SAI.

3.5 Stage 6: Feasible Options List

A total of 531 options were included as feasible options and were taken forward for Approach Development. The next step was to use the information collected for the fine screening assessment to inform the development of approaches to resolve the SDB deficit within each WRZ and across the study area.

Details of the feasible options identified for this study area, and the Preferred Approach selected, are provided in the SAI Technical Report (RWRP-SW Appendix 2).



4

Environmental Assessment – Approach Development

4 Environmental Assessment – Approach Development

This chapter describes how the SEA was integrated into the development of potential approaches/combinations for meeting the SDB deficit at the WRZ level, then at the study area level, and how alternative approaches were considered and assessed.

4.1 Introduction to Approach Development

After the feasible options for the study area were identified the next step was to assess a range of possible SA combinations to resolve the supply deficit within each WRZ and across the study area as a whole. This chapter addresses Stage 7 in the assessment methodology.

An SA combination is a way of configuring an option, or options, to meet either an SDB deficit or water quality requirements. As set out in the Framework Plan, Irish Water considers six SA approaches, which are the combinations rated as the best within the six categories summarised in Table 4.1. This process contributes to assessment of alternatives to meet plan objectives. Consideration of reasonable alternatives is an important part of meeting SEA regulatory requirements.

Table 4.1 The Six SA Approaches

SA Approaches Tested	Description	Policy Driver
Least Cost (LCo)	Lowest Net Present Value (NPV) cost in terms of Capital, Operational, Environmental and Social, and Carbon Costs	Public Spending Code
Best Appropriate Assessment (Best AA) (BA)	Lowest score against the European Sites (Biodiversity) sub criteria question based on assessing the option as having either no LSEs, LSEs that can be addressed with general/standard mitigation measures or LSEs that may be more difficult to mitigate. For options scoring -3, potential alternative higher scoring options are sought where possible.	Habitats Directive
Quickest Delivery (QD)	Based on an estimate of the time taken to bring an option into operation (including typical feasibility, consent, construction and commissioning durations) as identified at Fine Screening. This is particularly relevant where an option might be required to address an urgent Public Health issue (potential benefit for SEA Objective on population and public health).	Statutory Obligations under the Water Supply Act and Drinking Water Regulations
Best Environmental (BE)	This is the option or combination of options with the highest total score across the SEA objective criteria MCA questions. In addition, high risk -3 issues are considered against individual criteria focusing on long term operational effects.	SEA Directive and WFD
Most Resilient (MR)	This is the option or combination of options with the highest total score against the resilience criteria. (Link	National Adaptation Plan

SA Approaches Tested	Description	Policy Driver
	to SEA Objective for climate change adaptation for environment)	
Lowest Carbon (LC)	This is the option or combination of options with the lowest embodied and operational carbon cost	Climate Change Strategy

These six SA approaches focus on different plan or environmental objectives. Three of the six SA approaches address environmental objectives;

- Best AA;
- Best Environmental; and
- Lowest Carbon approaches.

These are all focused on environmental criteria and are based on the environmental information and scoring undertaken for the MCA.

4.2 Stage 7: Approach Development Process

There are three stages in the Approach Development Process, these are summarised below and provided in more detail in section 7 of the RWRP-SW:

The **First Stage** is the Approach Appraisal at WRZ level. This stage assesses the feasible options for each WRZ and identifies the best performing option within each of the six Approach Types for the relevant WRZ. For example, the option or combination of options that would be classified as the Lowest Carbon Approach, would be that with the lowest carbon cost, based on comparative outline design. The best performing options within each Approach Category are then compared against one another using the 7-step process outlined in Figure 4.1. This process develops an initial Preferred Approach at WRZ level for all of the individual WRZs in the study area (the "WRZ Level Preferred Approach").

For the Best AA Approach, the scoring on the European Sites (Biodiversity) sub-criteria question refers to the possibility for Likely Significant Effects (LSEs). A Score of 0 equates to no LSEs. If an option is identified that meets the "Objectives of the Plan" and is assessed as having no potential impact on a European Site (zero or neutral score based on desktop assessment), it is automatically adopted as the Preferred Approach at WRZ level. Furthermore, because it is possible that all of the potential impacts identified at Plan level can be entirely ruled out through project level investigation and analysis or avoided through project level mitigation, options with potential for LSEs (score of -1 to -3 for biodiversity) may be progressed as the Preferred Approach. If potential impacts cannot be ruled out or avoided, then mitigation in the form of avoidance is provided for within the NWRP to protect European site(s). Should potential adverse effects on European sites be identified at the project level from a given option/Preferred Approach the NWRP will have identified other options⁵ that could be progressed at the project level if required. Therefore, no project arising from the NWRP, with Adverse Effects on Site Integrity (AESI) identified at the project stage would be implemented. Scores of -1 to -3 equates to LSEs being identified. Scores of -1 to -2 are LSEs that will not result in AESI with standard best practice

⁵ These options may not have progressed as the Preferred Approach initially as they may have scored significantly worse against other environmental, resilience or feasibility criteria (e.g. the best AA approach may identify an option that results in four times more carbon being produced or is twice as expensive).

project specific mitigation applied as these can be addressed with general/standard mitigation measures. Scores of -3 equates to LSEs that may be difficult to mitigate or where uncertainty remains.

The NIS provides more detail in the LSE and the AESI Tables: Appendices C-D. Any option with a score of -1 to -3 is taken forward to AA (Stage 2 of the AA process) and assessed within the NIS for the Regional Plan.

The **Second Stage** assesses whether there are any larger options (SA options also referred to as ‘group’ options) that might resolve deficits across multiple WRZs within a study area. Combinations are then developed using these SA options and WRZ Preferred options to create “SA Combinations”.

The **Third Stage** compiles the SA Combinations that rank highest for each of the Six Approach Types to generate SA Approaches. The WRZ Level Approach and SA Approaches are then compared against each other using the 7-Step process in Figure 4.1 to generate the SA Preferred Approach.

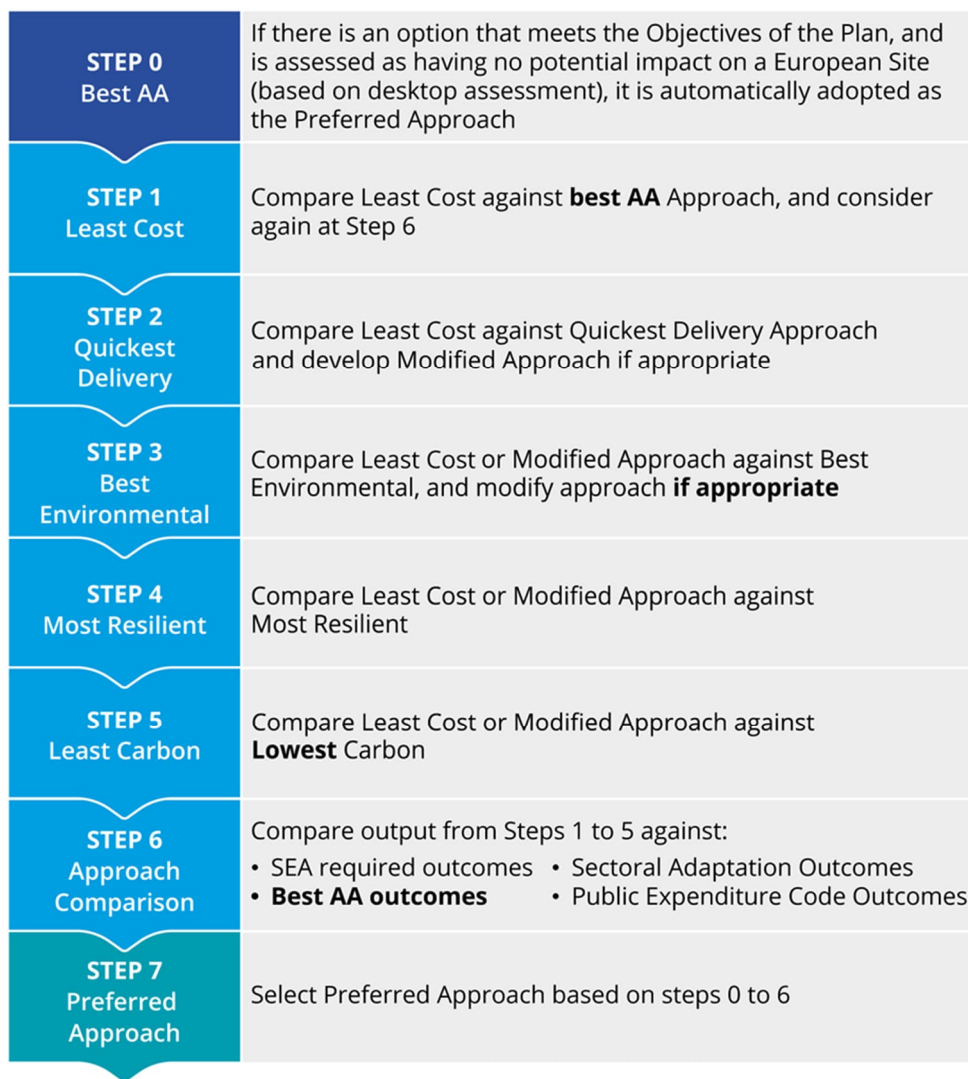


Figure 4.1 The 7 Step Process

4.2.1 Environmental Assessment in the Approach Development process

Combinations of feasible options are identified to balance the water demand and predicted baseline supply and address the remaining deficit over the plan period. The Approach Development process allows Irish Water to compare and optimise the options against different elements to create a range of approaches capable of meeting the deficit.

There are two strands of environmental information and assessment used in the Approach Development process. These are:

Environmental and social costs: these were based on a natural capital/ecosystems services framework and scoped to be relevant and achievable with the information available and to add to, rather than duplicate, the qualitative environmental assessment of the options. This included:

- i. Climate regulation – woodland;
- ii. Traffic impacts – opportunity cost of time due to road congestion from roadworks;
- iii. Food – crops and livestock; and
- iv. Carbon equivalent emissions tonnes (note total greenhouse gas emissions are expressed in terms of carbon equivalent emissions) including embodied and operational carbon were also calculated and costed.

The approach for calculating the elements i, ii, iii and iv are explained in the SEA Environmental Report Appendix E.

Carbon emissions (tCO₂e) and carbon costs are calculated alongside construction and operational costs. As part of the environmental assessment carbon efficiency has also been calculated to identify carbon emissions per ML of water supply.

Environmental assessment: this is qualitative assessment against the SEA objective for each option as part of the MCA scoring for the fine screening. These scores are based on assessing options in terms of potential adverse or beneficial effects and a seven-point scale is used from Major, Moderate or Minor Adverse, Neutral, to Minor, Moderate or Major Beneficial. These are reflected in numeric scores -3 to 0 to +3 and are used to assess option performance against the MCA scores. The scoring applied at fine screening is reviewed and updated based on the developed option descriptions and additional environmental analysis.

Carbon emissions (tCO₂e) were initially assessed through qualitative assessment for fine screening as this preceded option costing, however in the approach development process the carbon emissions as total Net Present Value (NPV) costs have been used to inform the Approach Development Process. Total life- time carbon emissions and carbon efficiency per ML have been used to inform the SEA assessment.

The general process is illustrated in Figure 4.2 below.

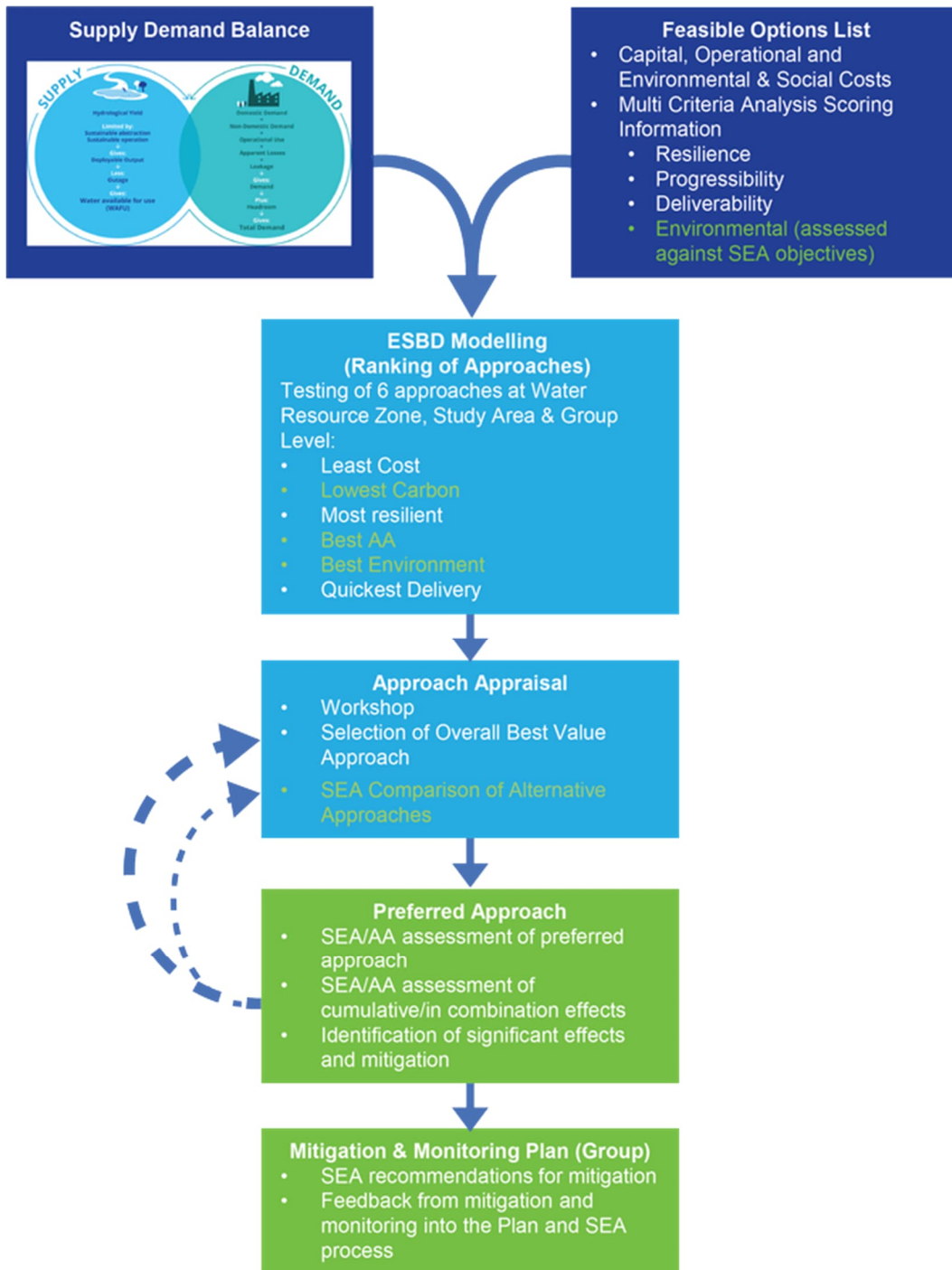


Figure 4.2 Approach Development Process

4.3 SAI Approach Development Process

The approach assessment process was undertaken through structured workshops and reviews involving relevant environmental expertise (including ecologists, hydrogeologists, hydrologists and environmental scientists) and included Local Authority involvement and feedback. This process was supported by information on the feasible options; including the environmental assessment against SEA criteria in the MCA and the option costings. The options were then taken through the sequential testing (the 7 step process detailed in section 4.2, Figure 4.1 above) against the six SA categories (lowest carbon, best environmental, best AA, least cost, quickest delivery and most resilient) to identify the best overall options and combinations at WRZ and study area levels applying the three stages:

Stage 1 - comparing WRZ options and identify the preferred WRZ level approach. For SAI there are 158 WRZ options and these are listed in Table 5.2 in the SAI Technical Report (RWRP-SW Appendix 2), providing option reference numbers and the relevant WRZ. These options were taken through the 7 step process to identify the preferred WRZ approach.

Stage 2 - creating combinations of WRZ options and SA options (group options) for comparison. These are the possible SA combinations and are presented and ranked against the approach categories (see Table 4.4).

Stage 3 - selecting the Preferred Approach at study area level – this stage compares the WRZ level preferred approach and the SA combinations to determine the Preferred Approach that provides the best outcome for the study area. The best performing SA combinations under each of the six approach categories are identified and then compared using the 7 step process applied in the workshop to establish the Preferred Approach at study area level.

Performance ranking against the assessment criteria was based on the MCA scoring, including the fine screening environmental assessments, and costings. Further environmental assessment has also been undertaken to compare the alternative approaches in line with SEA requirements and this assessment is presented in Table 4.7 and Table 4.9 below.

For SAI, a total of 6 combinations were compared and are presented in Table 4.2. The WRZ level preferred approach cannot meet the deficit for the study area as a whole, therefore, it has not been assessed and assigned a score in Table 4.2 for the purposes of determining the best performing alternative within each approach category. Note that the Preferred Approach selected at the end of the process has been outlined in red throughout this section.

Table 4.2 SAI Summary of SA Combination of Performance against Approach Category

Category	WRZ Level Approach (Cannot meet the deficit)	SA Combination 1 (SA Option 123, 170a)	SA Combination 2 (SA Option 56, 123, 139, 162, 172)	SA Combination 3 (SA Option 50, 56, 123, 162, 172)	SA Combination 4 (SA Option 56, 126, 129, 139, 162, 172)	SA Combination 5 (SA Option 50, 56, 123, 129, 162, 172)	SA Combination 6 (SA Option 20, 77, 97, 123, 149, 150, 152, 155, 160, 162, 163, 171)
Least Cost						Worst	Best
Quickest Delivery		Best			Worst		
Number of -3 Biodiversity Scores		Three -3 Scores	Three -3 Scores	Four -3 Scores	Three -3 Scores	Four -3 Scores	One -3 Score
Lowest Carbon		Worst	Best				
Most Resilient		Worst					Best
Best Environmental			Worst				Best



Through comparing the potential SA combinations, the best SA approach for each of the six approach categories was identified (also see section 5 of the Study Area Technical Report in the RWRP-SW Appendix 2); these aligned as three approaches (see Table 4.3).

Table 4.3 Study Area Approach Categories

Category	SA Approach 1 (SA Combination 1) (SA Option 123, 170a)	SA Approach 2 (SA Combination 2) (SA Option 56, 123, 139, 162, 172)	SA Approach 3 (SA Combination 6) (SA Option 20, 77, 97, 123, 149, 150, 152, 155, 160, 162, 163, 171)
Least cost (LCo)	-	-	✓
Quickest Delivery (QD)	✓	-	-
Best Environmental (BE)	-	-	✓
Most Resilient (MR)	-	-	✓
Lowest Carbon (LC)	-	✓	-
Best AA (BA)	-	-	✓

The WRZ options and SA options (group options) that make up each SA approach are listed in Table 4.4. More detailed descriptions of the options are provided in Appendix A and a full list of options for each approach is given in Appendix B of this report.

Table 4.4 Study Area Approaches

Options included	Do Minimum	Least Cost (SA Approach 3) (SA Combination 6)	Best Appropriate Assessment (SA Approach 3) (SA Combination 6)	Quickest Delivery (SA Approach 1) (SA combination 1)	Best Environmental (SA Approach 3) (SA Combination 6)	Most Resilient (SA Approach 3) (SA Combination 6)	Lowest Carbon (SA Approach 2) (SA combination 2)
SA options (Group options)	No options	SA option 20: 83, 105 SA option 77: 231, 293	SA option 20: 83, 105 SA option 77: 231, 293	SA option 123: 641, 642 SA option 170a: 926, 927, 928, 929, 930, 931,	SA option 20: 83, 105 SA option 77: 231, 293	SA option 20: 83, 105 SA option 77: 231, 293	SA option 56: 177, 227 SA option 123: 641, 642

Options included	Do Minimum	Least Cost (SA Approach 3) (SA Combination 6)	Best Appropriate Assessment (SA Approach 3) (SA Combination 6)	Quickest Delivery (SA Approach 1) (SA combination 1)	Best Environmental (SA Approach 3) (SA Combination 6)	Most Resilient (SA Approach 3) (SA Combination 6)	Lowest Carbon (SA Approach 2) (SA combination 2)
		SA option 97: 399, 434	SA option 97: 399, 434	932, 933, 934, 935, 936, 937, 938	SA option 97: 399, 434	SA option 97: 399, 434	SA option 139: 744, 745
		SA option 123: 641, 642	SA option 123: 641, 642		SA option 123: 641, 642	SA option 123: 641, 642	SA option 162: 887, 888
		SA option 149: 830, 831, 832, 833	SA option 149: 830, 831, 832, 833		SA option 149: 830, 831, 832, 833	SA option 149: 830, 831, 832, 833	SA option 172: 961, 962, 963
		SA option 150: 836, 837	SA option 150: 836, 837		SA option 150: 836, 837	SA option 150: 836, 837	
		SA option 152: 851, 852, 853, 854, 855	SA option 152: 851, 852, 853, 854, 855		SA option 152: 851, 852, 853, 854, 855	SA option 152: 851, 852, 853, 854, 855	
		SA option 155: 861, 862, 863, 864, 865	SA option 155: 861, 862, 863, 864, 865		SA option 155: 861, 862, 863, 864, 865	SA option 155: 861, 862, 863, 864, 865	
		SA option 160: 882, 883	SA option 160: 882, 883		SA option 160: 882, 883	SA option 160: 882, 883	
		SA option 162: 887, 888	SA option 162: 887, 888		SA option 162: 887, 888	SA option 162: 887, 888	
		SA option 163: 889, 890, 964	SA option 163: 889, 890, 964		SA option 163: 889, 890, 964	SA option 163: 889, 890, 964	

Options included	Do Minimum	Least Cost (SA Approach 3) (SA Combination 6)	Best Appropriate Assessment (SA Approach 3) (SA Combination 6)	Quickest Delivery (SA Approach 1) (SA combination 1)	Best Environmental (SA Approach 3) (SA Combination 6)	Most Resilient (SA Approach 3) (SA Combination 6)	Lowest Carbon (SA Approach 2) (SA combination 2)
		SA option 171: 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960	SA option 171: 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960		SA option 171: 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960	SA option 171: 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960	
WRZ options	No options	011 050 060 102 146 176 193 212 239 & 240 273a 324 410 768 442 450 455 457 468 480 486	011 050 060 102 146 176 193 212 239 & 240 273a 324 410 768 442 450 455 457 468 480 486	011 031 035 040 050 054 060 068 085 088 094 102 103 107 111 114 123 140 146 150	011 050 060 102 146 176 193 212 239 & 240 273a 324 410 768 442 450 455 457 468 480 486	011 050 060 102 146 176 193 212 239 & 240 273a 324 410 768 442 450 455 457 468 480 486	011 031 035 040 050 054 060 068 085 088 094 102 103 107 111 114 123 140 146 163

Options included	Do Minimum	Least Cost (SA Approach 3) (SA Combination 6)	Best Appropriate Assessment (SA Approach 3) (SA Combination 6)	Quickest Delivery (SA Approach 1) (SA combination 1)	Best Environmental (SA Approach 3) (SA Combination 6)	Most Resilient (SA Approach 3) (SA Combination 6)	Lowest Carbon (SA Approach 2) (SA combination 2)
		508	508	163	508	508	193
		630	630	176	630	630	212
		643	643	193	643	643	216
		645	645	212	645	645	230
		652	652	216	652	652	239 & 240
		660	660	222a	660	660	245
		771	771	230	771	771	257
		498	498	239 & 240	498	498	264
		784	784	245	784	784	273a
		772	772	257	772	772	277
		774	774	264	774	774	283
		778	778	273a	778	778	286
		779	779	277	779	779	291
		780	780	283	780	780	294
		781	781	286	781	781	303
		526	526	291	526	526	307
				294			315
				303			324
				307			376
				315			390
				324			393
				393			708
				768			410
				433			423
				442			768
				450			433
				455			442
				457			450
				468			455
				475			457
				480			468

Options included	Do Minimum	Least Cost (SA Approach 3) (SA Combination 6)	Best Appropriate Assessment (SA Approach 3) (SA Combination 6)	Quickest Delivery (SA Approach 1) (SA combination 1)	Best Environmental (SA Approach 3) (SA Combination 6)	Most Resilient (SA Approach 3) (SA Combination 6)	Lowest Carbon (SA Approach 2) (SA combination 2)
				486			475
				508			480
				630			486
				643			489
				645			508
				652			630
				660			643
				769			645
				770			652
				771			660
				784			769
				772			770
				773			771
				774			498
				775			784
				776			772
				778			773
				779			774
				780			775
				781			776
				782			778
				526			779
				523			780
							781
							782
							526
							523

* For the option references - all options are part of SAI e.g. SAI-011 is shown as 011 above

For the purposes of the Approach Development Process as set out in the SA Technical Report (RWRP-SW Appendix 2) and for the purpose of the SEA comparison as set out in this Environmental Review, Irish Water has only considered the options that were identified as the "best" performing options for each

approach category. The identification of the approaches and 7 step process are outlined in detail in section 5 of the SAI Technical Report (RWRP-SW Appendix 2).

Within SAI, this resulted in three approaches being selected from the six SA combinations identified in Table 4.2, as they were identified as the best performing against the six approach categories - Least Cost, Best Environmental, Quickest Delivery, Most Resilient, Best AA and Lowest Carbon. This means that when comparing the three identified approaches against each other (representing the Stage 3 analysis for the selection of the Preferred Approach used in the workshop - see Table 4.5), their relative performance against categories they were not identified as “best” in Table 4.2. This is because Table 4.2 compares all of the combinations to give a wider ranking, whereas Table 4.5 only compares the best performing combinations that have been selected as approaches. For example, an option identified as the "worst" performer against a particular approach category in Table 4.5 may not be the overall worst performing option when considered alongside all of the combinations in Table 4.2.

Table 4.5 includes a summary of the MCA scoring and cost comparison used in the approach development for the each of the SA approaches identified as performing best against at least one of the approach categories.

The three stages identified above were applied through a final workshop with all of the background MCA and option costing information available for each option and the ranking from the Economic Balance of Supply and Demand (EBSD) tool.

Table 4.5 Summary of the MCA Scoring Costing for the SA Approaches

Category Criteria	SA Approach 1 (QD) (SA Combination 1)	SA Approach 2 (LC) (SA Combination 2)	SA Approach 3 (LCo, BE, BA, MR) (SA Combination 6)
Least Cost Score	Worst		Best
Quickest Delivery Score	Best		Worst
Best AA Score	Three -3 Biodiversity Scores	Three -3 Biodiversity Scores	One -3 Biodiversity Score
Lowest Carbon Score	Worst	Best	
Most Resilient Score	Worst		Best
Best Environmental Score		Worst	Best

Key			
Ranked order (best to worst) within the three selected approaches			
<table border="1"> <tr> <td>Worst</td> <td></td> <td>Best</td> </tr> </table>	Worst		Best
Worst		Best	

4.4 Comparison of SAI Approaches

An overall summary of the infrastructure components and abstractions for each of the SA approaches identified for SAI is provided below in Table 4.6 and has been used to inform the environmental assessment.

Table 4.6 Study Area Approach Components Summary

Infrastructure Summary	Do Minimum	SA Approach 1 (QD) (SA Combination 1)	SA Approach 2 (LC) (SA Combination 2)	SA Approach 3 (LCo, BE, BA, MR) (SA Combination 6)
New pipeline network (km)	0	280	165	326
New WTPs	0	10	14	9
Upgrade WTPs (Quality)	0	48	49	37
Upgrade WTPs (Quantity)	0	41	44	22
New abstractions	0	20	25	15
Increased abstractions	0	33	33	19
WTPs decommissioned	0	13	9	43
Abstractions abandoned	0	14	11	43
Raw Water Storage	0	1	1	1
Treated Water Storage	0	36	31	41

A comparative assessment of the three SA approaches based on the environmental option scores is summarised in Table 4.7 below. This covers:

- Scores across the options summed for all the sub-criteria against each SEA objective topic heading;
- Total numbers of -3 scores representing higher risk of effect, or likely greater requirement for mitigation, against each SEA objective topic heading; and
- Indication of the extent of difference in performance across the options to help identify if the differences between the SA approaches are small or large.

Table 4.7 Study Area Approach Comparison Summary

Topic	Total No. of	SA Approach 1 (QD) (SA Combination 1)	SA Approach 2 (LC) (SA Combination 2)	SA Approach 3 (LCo, BE, BA, MR) (SA Combination 6)	Range (Difference between Lowest and Highest Score)
Population, health, economy and recreation	-3 scores	Best		Worst	3
	MCA score		Worst	Best	66
Water Environment	-3 scores	Worst		Best	14

Topic	Total No. of	SA Approach 1 (QD) (SA Combination 1)	SA Approach 2 (LC) (SA Combination 2)	SA Approach 3 (LCo, BE, BA, MR) (SA Combination 6)	Range (Difference between Lowest and Highest Score)
Water quality and resources	MCA score		Worst	Best	57
Biodiversity, Flora and Fauna	-3 scores	Worst	Worst	Best	2
	MCA score		Worst	Best	144
Material Assets	-3 scores	No Difference			0
	MCA score		Worst	Best	42
Landscape and Visual	-3 scores	Best	Worst	Best	1
	MCA score		Worst	Best	31
Climate Change	-3 scores	No Difference			0
	MCA Score		Worst	Best	30
Culture, Heritage and Archaeology	-3 scores	No Difference			0
	MCA Score		Worst	Best	2
Geology and Soils	-3 scores	No Difference			0
	MCA Score		Worst	Best	4

Key		
MCA/No. of -3 scores against each criterion		
Worst		Best

Key

*approaches are showing similar level of risk on climate change adaptation and therefore represented as no difference. However, carbon mitigation is covered separately based on estimated emissions and carbon cost (NPV). See lowest carbon approach.

** approaches are showing similar level of risk on culture, heritage and archaeology. Routing and siting is only indicative at this stage. Most options involving new construction include a level of risk to buried unknown archaeology, this would need to be investigated further at the project level.

4.4.1 SA Approach 1 (SA combination 1) (QD)

SA approach 1, key comparison points:

- Identified as the quickest delivery approach overall;
- Option types included:
 - SA options (group options): 1 surface water abstraction and interconnection option, and 1 surface water abstraction option;
 - WRZ options: 41 groundwater abstraction options, 1 group water scheme and interconnection option, 1 raw water storage option, 8 surface water abstraction options, and 24 WTP upgrade options;
- Three -3 biodiversity scores relating to:
 - SAI-150: Further assessment required for the potential impact of groundwater abstraction on groundwater dependent habitats in the Great Island SAC;
 - SAI-294: Further assessment required for the potential impact of groundwater abstraction on groundwater dependent habitats in the Ballymacoda SPA/SAC;
 - SAI-315: Potential impact from groundwater abstraction on groundwater dependent habitats in the Ballymacoda SAC and Ballymacoda Bay SPA;
- SA approach 1 and SA approach 2 are the most similar in terms of infrastructure development. The key differences between these two approaches being that SA approach 1 requires:
 - Approximately 115 km more pipeline;
 - Fewer new WTPs; and
 - Fewer new abstractions.

4.4.2 SA Approach 2 (SA Combination 2) (LC)

SA approach 2, key comparison points:

- Identified as the lowest carbon approach overall;
- Option types included:
 - SA options (group options): 1 surface water abstraction and interconnection option, 2 surface water abstraction and rationalisation options, 1 groundwater abstraction option, and 1 surface water abstraction option;
 - WRZ options: 40 groundwater abstraction options, 1 group water scheme and interconnection option, 1 raw water storage option, 13 surface water abstraction options, and 24 WTP upgrade options;
- Three -3 biodiversity scores relating to:

- SAI-294: Further assessment required to determine the potential impact of groundwater abstraction on groundwater dependent habitats in the Ballymacoda SPA/SAC;
- SAI-315: Potential impact from groundwater abstraction on groundwater dependent habitats in the Ballymacoda SAC and Ballymacoda Bay SPA;
- SAI-708: Potential impact from new surface water abstraction and pipeline within the Glengarriff Harbour and Woodland SAC.
- SA approach 2 is similar to SA approach 1 in terms of infrastructure development as explained above. Additionally, compared against all three approaches, SA approach 2 has the:
 - Shortest amount of pipeline;
 - Largest number of new WTPs;
 - Largest number of WTP upgrades;
 - Largest number of new abstractions;
 - Fewest number of WTPs decommissioned;
 - Fewest number of abstractions abandoned; and
 - Fewest number of treated water storage facilities.

4.4.3 SA Approach 3 (SA Combination 6) ((LCo, BE, BA, MR)

SA approach 3, key comparison points:

- Identified as the best in the following categories: least cost, best environmental, most resilient and best AA;
- Option types included:
 - SA options (group options): 2 surface water abstraction and interconnection options, 2 groundwater abstraction and rationalisation options, 3 groundwater abstraction options, 1 group water scheme and rationalisation option, and 4 surface water abstraction options;
 - WRZ options: 15 groundwater abstraction options, 1 raw water storage option, 7 surface water abstraction options, and 14 WTP upgrade options;
- One -3 biodiversity scores relating to SA option 149 and the potential impact on Blackwater Estuary SPA, Blackwater River (Cork/Waterford) SAC;
- SA approach 3 is very different to the other approaches in terms of infrastructure development and includes the:
 - Longest length of pipeline;
 - Lowest number of WTP upgrades;
 - Lowest number of increased abstractions;
 - Approximately four times the number of WTPs decommissioned and abstractions abandoned; and
 - Largest number of treated water storage facilities.

4.5 SAI Approach Assessment Comparison

The 'Do Minimum' approach is the 'without plan' approach, meaning that this is the approach that would occur without the NWRP. As a result, the 'Do Minimum' approach would only include reactive, unplanned interim measures to address failures in infrastructure.

The SDB shows a current deficit, applying the level of service in the area with the corresponding requirements for reserves, indicating operation of supplies with an SDB ranging from -46,601 m³/d in 2019, to a projected maximum of -78,372 m³/d in 2044 during dry conditions under a 'Do Minimum'

scenario. As a result, public water supplies in this area are vulnerable, particularly under drought conditions. In addition, there may be 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. Table 4.8 shows the SDB for the WRZs in SAI.

Table 4.8 Supply Demand Balance for SAI

WRZ Name	WRZ Code	Population	Maximum Deficit m ³ /day*	
			2019	2044
Kilgarvan	1300SC0029	815	No Deficit	-13
Lauragh PWS 051A	1300SC0027	72	-57	-60
Waterville PWS 075H	1300SC0023	1,330	No Deficit	No Deficit
Kenmare / Kilgarvan	1300SC0019	2,898	-1,114	-1,270
Sneem PWS 068A	1300SC0018	446	-340	-360
Caherdaniel / Castlecove	1300SC0017	342	-857	-879
Whitegate Regional	0500SC0184	9,741	-1,915	-2,441
Kealkill	0500SC0183	714	-205	-226
Reenmeen West	0500SC0181	33	-5	-6
Ballyverane	0500SC0180	10	-1	-1
Kilnagurteen (Macrooom)	0500SC0179	19	No Deficit	No Deficit
Coolyhane	0500SC0178	70	-54	-57
Macrooom	0500SC0177	4,097	No Deficit	No Deficit
Skibbereen	0500SC0173	7,255	No Deficit	No Deficit
Ballyshoneen	0500SC0172	74	-26	-28
Knockburden	0500SC0171	71	No Deficit	No Deficit
Cluain Court Allihies	0500SC0170	13	No Deficit	No Deficit
Johnstown	0500SC0169	18	No Deficit	No Deficit
Coppeen	0500SC0168	45	-9	-10
Ballincurraig Lisgoold	0500SC0167	243	-1	-6
Mogeely	0500SC0162	2,944	-1	-85
Tibbotstown	0500SC0161	9,273	-2,463	-3,370
Midleton	0500SC0159	8,458	No Deficit	No Deficit
Cloyne	0500SC0158	3,475	-663	-799
Bilberry	0500SC0157	17	No Deficit	No Deficit
Cape Clear	0500SC0155	124	No Deficit	No Deficit
Lyre Clonakilty	0500SC0154	42	No Deficit	No Deficit

WRZ Name	WRZ Code	Population	Maximum Deficit m ³ /day*	
			2019	2044
Clonakilty	0500SC0153	13,584	-3,770	-4,898
Bayview	0500SC0152	23	-55	-56
Ratharoon	0500SC0147	11	No Deficit	No Deficit
Clashanamid	0500SC0146	18	-1	-2
Bandon Regional	0500SC0145	9,188	-1,579	-1,887
Knockanleigh	0500SC0095	13	No Deficit	No Deficit
Cork City	0500SC0082	284,940	-27,774	-54,996
Killeagh	0500SC0085	1,039	-183	-211
Ballykilty	0500SC0084	124	-13	-16
Minane Bridge	0500SC0083	152	No Deficit	No Deficit
Templemartin & Garranes	0500SC0081	74	No Deficit	No Deficit
Kilnamartyra	0500SC0078	91	No Deficit	No Deficit
Rylane	0500SC0074	387	No Deficit	No Deficit
Ballinagree	0500SC0073	182	-12	-15
Clondrohid	0500SC0071	189	-61	-66
Ballymakeera	0500SC0070	666	-143	-164
Crostera	0500SC0069	33	No Deficit	No Deficit
Glengarriff	0500SC0068	360	-247	-292
Aghabullogue	0500SC0059	164	-63	-68
Coolineagh	0500SC0058	6	No Deficit	-1
Donoughmore	0500SC0057	905	-155	-194
Grenagh	0500SC0055	955	-297	-329
Vicarstown	0500SC0054	32	No Deficit	No Deficit
Stoneview Blarney	0500SC0053	113	-1	-6
Whitechurch	0500SC0051	691	-704	-731
Carrignavar	0500SC0050	517	No Deficit	-4
Clash Leamleara	0500SC0048	40	-12	-13
Corbally	0500SC0047	206	-47	-53
Walshtown	0500SC0046	61	-7	-9
Dungourney	0500SC0044	132	-11	-16
Inch	0500SC0043	26	-12	-13

WRZ Name	WRZ Code	Population	Maximum Deficit m ³ /day*	
			2019	2044
Youghal Regional	0500SC0042	8,196	-1,171	-1,446
Ballymacoda	0500SC0041	358	-49	-62
Kilcraheen	0500SC0040	40	-33	-35
Knockadoon	0500SC0039	134	-85	-92
Drinagh	0500SC0038	242	-11	-19
Dursey Island	0500SC0037	3	No Deficit	No Deficit
Cahermore	0500SC0036	15	-12	-13
Allihies	0500SC0035	73	No Deficit	No Deficit
Castletownbere	0500SC0034	2,341	-665	-791
Adrigole	0500SC0033	237	-169	-180
Whiddy Island	0500SC0031	20	-40	-41
Bantry	0500SC0030	3,891	-705	-937
Dromore Bantry	0500SC0029	73	No Deficit	No Deficit
Caheragh	0500SC0028	174	No Deficit	No Deficit
Durrus	0500SC0027	367	-23	-40
Kilcrohane	0500SC0026	149	-9	-13
Crookhaven	0500SC0025	66	No Deficit	No Deficit
Goleen	0500SC0024	137	No Deficit	-4
Toormore	0500SC0023	34	-3	-5
Skibbereen	0500SC0021	2,765	-697	-811
Cullen	0500SC0020	10	No Deficit	-1
Ard Na Killy Ridge	0500SC0019	28	-41	-43
Nohoval	0500SC0017	125	-29	-33
Roberts Cove	0500SC0016	55	No Deficit	-1
Mossgrove	0500SC0014	17	No Deficit	No Deficit
Newcestown	0500SC0013	102	No Deficit	No Deficit
Dunmanway	0500SC0012	2,049	No Deficit	-154
Carrignadoura	0500SC0010	105	No Deficit	No Deficit
Ballingeary	0500SC0009	243	No Deficit	-2
Inchigeelagh	0500SC0008	140	No Deficit	No Deficit
Tarelton	0500SC0007	9	No Deficit	No Deficit

WRZ Name	WRZ Code	Population	Maximum Deficit m ³ /day*	
			2019	2044

*Based on the Dry Year Critical Period (DYCP) weather event planning scenario

An overall assessment and comparison of the SA approaches considered along with the 'Do Minimum' approach (a continuation of the current situation) is provided in Table 4.9 below.

Table 4.9 Assessment of the SA Approaches and the 'Do Minimum' Approach

SEA Objectives	Phase (Construction (C) / Operation (O))	Do Minimum	SA Approach 1 (QD) (SA Combination 1)	SA Approach 2 (LC) (SA Combination 2)	SA Approach 3 (LCo, BE, BA, MR) (SA Combination 6)
1. Protect public health and promote wellbeing	C	0	--	--	-
	O	---	++	++	++
2. Protect and enhance biodiversity and contribute to resilient ecosystems	C	0	-	--	-
	O	--	--	--	-
3. To protect landscapes, townscapes and visual amenity	C	0	-	--	-
	O	0	++	+	+++
4. Protect and where appropriate enhance, built and natural assets and reduce waste	C	0	--	--	-
	O	-	-	-	-
5. Reduce greenhouse gas emissions	C	0	-	-	-
	O	-	-	-	-
6. Contribute to environmental climate change resilience	C	0	--	--	-
	O	--	--	--	-
7. Protect and improve surface water and groundwater status	C	0	0	0	0
	O	--	--	--	-
8. Avoid flood risk	C	0	-	-	-
	O	0	-	-	-
9. Protect and where appropriate, enhance cultural heritage assets	C	0	--	--	--
	O	0	0	0	0

SEA Objectives	Phase (Construction (C) / Operation (O))	Do Minimum	SA Approach 1 (QD) (SA Combination 1)	SA Approach 2 (LC) (SA Combination 2)	SA Approach 3 (LCo, BE, BA, MR) (SA Combination 6)
10. Protect quality and function of soils	C	0	--	--	--
	O	0	0	0	0

Key			
Major beneficial	+++	Minor adverse	-
Moderate beneficial	++	Moderate adverse	--
Minor beneficial	+	Major adverse	---
Neutral	0		

The overall assessment of the approaches against the SEA objectives indicates that SA approach 3 (identified as the Preferred Approach) is likely to have more beneficial landscape impact as it requires less above ground infrastructure and decommissions approximately four times more WTPs. Due to SA approach 3 having less above ground infrastructure there is also less impact long term impact from pipelines but due to greater length of pipeline greater short term impacts due to disturbance during construction on biodiversity, landscape, public health and materials. SA approach 3 also has the potential to be more resilient due to more sustainable levels of abstraction from potential sources. SA approach 2 scores the worst against biodiversity as it requires more infrastructure to be built within designated areas which could result in an increased risk of construction impacts; it also has the potential for impacts to designated sites in the long term through abstraction requirements.

Mitigation for the Preferred Approach is taken into account in the individual options assessments presented in chapter 5, identified in chapter 6 in terms of cumulative assessment and in chapter 7 for the SEA summary. All the approaches address the identified water supply quantity and quality requirements to secure a level of service important for public health and wellbeing compared with the 'Do Minimum'.

4.5.1 Selection of the SA Preferred Approach

SA approach 3 has been selected through the 7 step process as the best performing approach overall across the different categories.

The SA Preferred Approach includes one -3 Biodiversity score option. This means that there is one higher risk option for effects on European Sites that is included in the Preferred Approach. For options identified as having some level of risk for LSEs, mitigation measures to address these are set out in the NIS and no AESI are identified.



5

**SAI Preferred
Approach:
Strategic
Environmental
Assessment**

5 SAI Preferred Approach Strategic Environmental Assessment

5.1 SAI Preferred Approach Options

This chapter provides an environmental assessment of the proposed SA Preferred Approach as required by the SEA Directive and implementing Irish regulations. The environmental effects are considered for each option individually. Additional measures proposed to be taken forward along with these options are also considered. Cumulative effects for both the 'within plan' SA Preferred Approach and the cumulative effects with other proposed developments outside the Framework Plan are addressed in chapter 6.

The SA Preferred Approach consists of WRZ options for thirty-six of the eighty-nine WRZs in the study area. This reflects the small scale of the supplies and difficulties in transporting small volumes of water over long distances. The Preferred Approach will result in the reduction of WRZs from eighty-nine to forty-eight through rationalising and interconnecting the WRZs. Forty-two of the existing abstractions in SAI are proposed to be decommissioned, six of these abstractions (Tibbotstown, Castletownbere, Glengarrif, Allihies, Cahermore and Caherdaniel/Castlecove) are currently considered at risk and have the potential to not meet sustainability guidelines during dry weather flows, therefore decommissioning these abstractions can provide significant environmental benefit by reducing abstraction pressure and this will support WFD objectives.

Table 5.1 gives a breakdown of the options in SAI and the associated abstractions.

Table 5.1 Preferred Approach Breakdown

WRZ Name and Option Reference*	Option Description	Demand (DYCP 2044)
SAI-011 0500SC0070 Ballymakeera	<p>New SW abstraction from River Sullane and upgrade Ballymakeera WTP</p> <ul style="list-style-type: none"> Ballymakeera WRZ in deficit. New surface SW abstraction to meet WRZ future deficit. Existing GW abstraction maintained Ballinhassig West groundwater body (GWB) (Existing source) WFD status 2016-2021 – Good Sullane river waterbody (RWB) (New source) WFD status 2016-2021 – High 	494 m ³ /d
SAI-050 0500SC0019 Ard Na Killy Ridge	<p>Increase GW abstraction and upgrade Ard na Killy WTP</p> <ul style="list-style-type: none"> Ard na Killy WRZ in deficit. Increase existing GW abstraction to meet WRZ future deficit. Existing GW maintained Bandon GWB (Existing source) WFD status 2016-2021 – Good 	59 m ³ /d
SAI-060 0500SC0009 Ballingeary	<p>Increase SW from Bunsheelin River and upgrade WTP</p> <ul style="list-style-type: none"> Ballingeary WRZ in deficit. Increase existing SW abstraction to meet WRZ future deficit. Existing SW maintained 	106 m ³ /d

WRZ Name and Option Reference*	Option Description	Demand (DYCP 2044)
	<ul style="list-style-type: none"> Lee (Cork) RWB (Existing source) WFD status 2016-2021 – Good 	
SAI-102 0500SC0010 Carrignadoura	<p>Upgrade existing WTP for water quality improvements. The WRZ is not in deficit</p> <ul style="list-style-type: none"> Carrignadoura WRZ in projected surplus so WTP upgrade works only Existing GW maintained Ballinhassig West GWB (Existing source) WFD status 2016-2021 – Good 	N/A
SAI-146 0500SC0095 Knockanleigh	<p>Upgrade existing WTP for water quality improvements. The WRZ is not in deficit</p> <ul style="list-style-type: none"> Knockanleigh WRZ in projected surplus so WTP upgrade works only Existing GW maintained Bandon GWB (Existing source) WFD status 2016-2021 – Good 	N/A
SAI-176 0500SC0184 Whitegate Regional	<p>Increase GW abstraction from Dower Springs and supply deficit. New WTP</p> <ul style="list-style-type: none"> Whitegate Regional WRZ in deficit so increase existing GW abstraction and build new WTP to meet WRZ future deficit. Existing GW maintained Bandon GWB (Existing source) WFD status 2016-2021 – Good 	8,858 m ³ /d
SAI-193 0500SC0158 Cloyne	<p>New GW abstraction (karstic region) and new WTP to supply deficit</p> <ul style="list-style-type: none"> Cloyne WRZ in deficit so new GW abstraction and new WTP to meet WRZ future deficit Existing GW maintained White GWB (Existing source) WFD status 2016-2021 – Good Cloyne GWB (New source) WFD status 2016-2021 – Good 	2,475 m ³ /d
SAI-214 0500SC0057 Donoughmore	<p>Donoughmore WRZ in deficit so increase existing GW abstraction and new WTP to meet WRZ future deficit</p> <ul style="list-style-type: none"> Donoughmore WRZ in deficit so increase existing GW abstraction and new WTP to meet WRZ future deficit Existing GW maintained 	5,814 m ³ /d

WRZ Name and Option Reference*	Option Description	Demand (DYCP 2044)
	<ul style="list-style-type: none"> Ballinhassig East GWB (Existing source) WFD status 2016-2021 – Good 	
SAI-239 0500SC0051 Whitechurch	<p>Increase GW abstraction to partly supply deficit</p> <ul style="list-style-type: none"> Whitechurch WRZ in deficit so increase existing GW abstraction to partially meet WRZ future deficit Existing GW maintained Ballinhassig East GWB (Existing source) WFD status 2016-2021 – Good 	850 m ³ /d
SAI-240 0500SC0051 Whitechurch	<p>New GW abstraction in Whitechurch to partly supply deficit</p> <ul style="list-style-type: none"> Whitechurch WRZ in deficit so new GW abstraction to partially meet WRZ future deficit Existing GW maintained Ballinhassig East GWB (Existing source) WFD status 2016-2021 – Good Ballinhassig East GWB (New source) WFD status 2016-2021 – Good 	850 m ³ /d
SAI-273 0500SC0050 Carrignavar	<p>Increase existing GW abstraction and supply deficit</p> <ul style="list-style-type: none"> Carrignavar WRZ in deficit so increase existing GW abstraction to meet WRZ future deficit Existing GW maintained Ballinhassig East GWB (Existing source) WFD status 2016-2021 – Good 	174 m ³ /d
SAI-324 0500SC0043 Inch	<p>Increase existing GW abstraction from spring and supply deficit</p> <ul style="list-style-type: none"> Inch WRZ in deficit so increase existing GW abstraction to meet WRZ future deficit Existing GW maintained Glenville GWB (Existing source) WFD status 2016-2021 – Good 	23 m ³ /d
SAI-410 0500SC0183 Kealkill	<p>New SW abstraction from Coomhola River and new WTP</p> <ul style="list-style-type: none"> Kealkill WRZ in deficit so new SW abstraction to meet WRZ future deficit Existing SW maintained Owngar (Cork) RWB (Existing source) WFD status 2016-2021 – High 	470 m ³ /d

WRZ Name and Option Reference*	Option Description	Demand (DYCP 2044)
	<ul style="list-style-type: none"> Coomhola_020 (RWB) (New source) WFD status 2016-2021 – High 	
SAI-442 0500SC0027 Durrus	<p>Increase GW abstraction to supply deficit and upgrade WTP</p> <ul style="list-style-type: none"> Durrus WRZ in deficit so increase existing GW abstraction to meet WRZ future deficit Existing GW maintained Beara Sneem GWB (Existing source) WFD status 2016-2021 – Good 	180 m ³ /d
SAI-450 0500SC0031 Whiddy Island	<p>New GW abstraction on the island to supply deficit</p> <ul style="list-style-type: none"> Whiddy Island WRZ in deficit so new GW abstraction to meet WRZ future deficit Existing SW maintained Kilmore LWB (Existing source) WFD status 2016-2021 – Unassigned Beara Sneem Islands GWB (New source) WFD status 2016-2021 – Good 	49 m ³ /d
SAI-455 0500SC0029 Dromore Bantry	<p>Upgrade existing WTP for water quality improvements. The WRZ is not in deficit</p> <ul style="list-style-type: none"> Dromore Bantry WRZ in projected surplus WTP upgrade works only Existing GW maintained Skibbereen-Clonakilty GWB (Existing source) WFD status 2016-2021 – Good 	49 m ³ /d
SAI-457 0500SC0024 Goleen	<p>Increase SW abstraction from Goleen Intake and upgrade Goleen WTP</p> <ul style="list-style-type: none"> Goleen WRZ in deficit so increase existing SW abstraction to meet WRZ future deficit Existing SW maintained Castlemehigan LWB (Existing source) WFD status 2016-2021 – Unassigned 	94 m ³ /d
SAI-468 0500SC0069 Crosterra	<p>Upgrade existing WTP for water quality improvements. The WRZ is not in deficit</p> <ul style="list-style-type: none"> Crosterra WRZ in projected surplus WTP upgrade works only Existing SW maintained Glengarriff RWB (Existing source) WFD status 2016-2021 – High 	31 m ³ /d

WRZ Name and Option Reference*	Option Description	Demand (DYCP 2044)
SAI-480 0500SC0036 Cahermore	<p>New GW abstraction to supply deficit and upgrade WTP. Abandon existing SW source</p> <ul style="list-style-type: none"> • Cahermore WRZ in deficit so new GW abstraction to meet WRZ future full demand. • Existing GW/SW to be decommissioned • Existing sources: Beara Sneem GWB WFD status 2016-2021 – Good and Hill Loughanemore RWB WFD status 2016-2021 – Good • Beara Sneem GWB (New source) WFD status 2016-2021 – Good 	21 m ³ /d
SAI-486 0500SC0168 Copeen	<p>Increase GW abstraction at Coppeen Source to supply deficit and upgrade Coppeen WTP</p> <ul style="list-style-type: none"> • Coppeen WRZ in deficit so increase existing GW abstraction to meet WRZ future deficit • Existing GW maintained • Beara Sneem GWB (Existing source) WFD status 2016-2021 – Good 	18 m ³ /d
SAI-498 0500SC0023 Toormore	<p>New GW abstraction and upgrade Toormore WTP to supply deficit.</p> <ul style="list-style-type: none"> • Toormore WRZ in deficit so new GW abstraction to meet deficit. New GW proposal at the existing site. • Existing GW maintained • Skibbereen-Clonakilty GWB (Existing source) WFD status 2016-2021 – Good • Skibbereen-Clonakilty GWB (New source) WFD status 2016-2021 – Good 	7 m ³ /d
SAI-508 0500SC0007 Tareltan	<p>Upgrade existing WTP for water quality improvements. The WRZ is not in deficit</p> <ul style="list-style-type: none"> • Tareltan WRZ in projected surplus so WTP upgrade works only • Existing GW maintained • Ballinhassig West GWB (Existing source) WFD status 2016-2021 – Good 	N/A
SAI-630 1300SC0019 Kenmare/Kilgarvan	<p>New SW abstraction from Kenmare River and new WTP</p> <ul style="list-style-type: none"> • Kenmare/Kilgarvan WRZ in deficit so new SW abstraction and new WTP to meet WRZ future deficit • Existing SW maintained • Inner Kenmare River RWB (New source) WFD status 2016-2021 – Good 	1,778 m ³ /d

WRZ Name and Option Reference*	Option Description	Demand (DYCP 2044)
SAI-643 1300SC0018 Sneem PWS	<p>Increase SW abstraction from Lough Dromtine</p> <ul style="list-style-type: none"> • Sneem PWS WRZ in deficit so increase existing SW abstraction to meet WRZ future deficit • Existing SW maintained • Dromtine LWB (Existing source) WFD status 2016-2021 – Good 	888 m ³ /d
SAI-526 0500SC0169 Johnstown	<p>Upgrade existing WTP for water quality improvements. The WRZ is not in deficit</p> <ul style="list-style-type: none"> • Johnstown WRZ in projected surplus so WTP upgrade works only • Existing GW maintained • Bandon GWB (Existing source) WFD status 2016-2021 – Good 	N/A
SAI-645 1300SC0029 Kilgarvan	<p>New GW abstraction - Karstic Geology - Upgrade WTP</p> <ul style="list-style-type: none"> • Kilgarvan WRZ in deficit so increase existing SW abstraction to meet WRZ future deficit • Existing SW maintained • Coomclogherane LWB (Existing source) WFD status 2016-2021 – High • Kenmare GWB (New source) WFD status 2016-2021 – Good 	541 m ³ /d
SAI-652 1300SC0027 Lauragh PWS	<p>New SW abstraction from Glenmore Lake and upgrade WTP</p> <ul style="list-style-type: none"> • Lauragh PWS WRZ in deficit so new SW abstraction to meet WRZ future deficit • Existing SW maintained • Croanshagh RWB (Existing source) WFD status 2016-2021 – Good • Glanmore LWB (New source) WFD status 2016-2021 – Good 	126 m ³ /d
SAI-660 0500SC0026 Kilcrohane	<p>New GW abstraction and abandon existing GW source. New WTP</p> <ul style="list-style-type: none"> • Kilgarvan WRZ in deficit so new GW abstraction to meet WRZ future deficit • Existing GW decommissioned • Beara Sneem GWB (Existing source) WFD status 2016-2021 – Good 	96 m ³ /d

WRZ Name and Option Reference*	Option Description	Demand (DYCP 2044)
	<ul style="list-style-type: none"> Beara Sneem GWB (New source) WFD status 2016-2021 – Good 	
SAI-768 0500SC0037 Durse Island	<p>New raw water storage for this WRZ</p> <ul style="list-style-type: none"> Durse Island WRZ in projected surplus. WTP upgrade works and new raw water storage. Existing GW maintained Beara Sneem GWB (Existing source) WFD status 2016-2021 – Good 	14 m ³ /d
SAI-771 0500SC0008 Inchigeelagh	<p>Upgrade existing WTP for water quality improvements. The WRZ is not in deficit</p> <ul style="list-style-type: none"> Inchigeelagh WRZ in projected surplus so WTP upgrade works only Existing GW maintained Ballinhassig West GWB (Existing source) WFD status 2016-2021 – Good 	N/A
SAI-772 0500SC0028 Caheragh	<p>Upgrade existing WTP for water quality improvements. The WRZ is not in deficit</p> <ul style="list-style-type: none"> Caheragh WRZ in projected surplus so WTP upgrade works only Existing GW maintained Skibbereen-Clonakilty GWB (Existing source) WFD status 2016-2021 – Good 	N/A
SAI-774 0500SC0078 Kilnamartyra	<p>Upgrade existing WTP for water quality improvements. The WRZ is not in deficit</p> <ul style="list-style-type: none"> Kilnamartyra WRZ in projected surplus so WTP upgrade works only Existing GW maintained Ballinhassig West GWB (Existing source) WFD status 2016-2021 – Good 	N/A
SAI-778 0500SC0147 Ratharoon	<p>Upgrade existing WTP for water quality improvements. The WRZ is not in deficit</p> <ul style="list-style-type: none"> Ratharoon WRZ in projected surplus so WTP upgrade works only Existing GW maintained Bandon GWB (Existing source) WFD status 2016-2021 – Good 	N/A
SAI-779 0500SC0154	<p>Upgrade existing WTP for water quality improvements. The WRZ is not in deficit</p>	N/A

WRZ Name and Option Reference*	Option Description	Demand (DYCP 2044)
Lyre Clonakilty	<ul style="list-style-type: none"> Lyre Clonakilty WRZ in projected surplus so WTP upgrade works only Existing GW maintained Skibbereen-Clonakilty GWB (Existing source) WFD status 2016-2021 – Good 	
SAI-784 0500SC0025 Crookhaven	<p>Upgrade existing WTP for water quality improvements. The WRZ is not in deficit</p> <ul style="list-style-type: none"> Crookhaven WRZ in projected surplus so WTP upgrade works only Existing SW maintained Tooreen LWB (Existing source) WFD status 2016-2021 – Good 	N/A
SAI-780 0500SC0155 Cape Clear	<p>Upgrade existing WTP for water quality improvements. The WRZ is not in deficit</p> <ul style="list-style-type: none"> Cape Clear WRZ in projected surplus so WTP upgrade works only Existing GW maintained Bandon Islands (Existing source) WFD status 2016-2021 – Good 	N/A
SAI-781 0500SC0157 Bilberry	<p>Upgrade existing WTP for water quality improvements. The WRZ is not in deficit</p> <ul style="list-style-type: none"> Bilberry WRZ in projected surplus so WTP upgrade works only Existing GW maintained Midleton GWB (Existing source) WFD status 2016-2021 – Good 	N/A
SA Option 20	<p>Increase GW abstraction and rationalise Mossgrove to Newcestown WRZ for increased resilience.</p> <p>Rationalise Mossgrove to Newcestown WRZ for increased resilience.</p>	Detailed per WRZ below
SAI-083 0500SC0013 Newcestown	<p>SA Option 20</p> <ul style="list-style-type: none"> Newcestown WRZ in projected surplus. Increase existing GW abstraction to meet WRZ future demand from rationalisation. Existing GW maintained Ballinhassig East GWB (Existing source) WFD status 2016-2021 – Good 	18 m ³ /d
SAI-105	SA Option 20	3 m ³ /d

WRZ Name and Option Reference*	Option Description	Demand (DYCP 2044)
0500SC0014 Mossgrove	<ul style="list-style-type: none"> Mossgrove WRZ in projected surplus but is to be rationalised to Newcestown WRZ. Existing GW is to be decommissioned Ballinhassig East GWB (Existing source) WFD status 2016-2021 – Good 	
SA Option 77	<p>Increase existing GW abstraction from infiltration gallery and supply deficit.</p> <p>Rationalise Dungourney WTP to Mogeely WRZ.</p>	Detailed per WRZ below
SAI-231 0500SC0162 Mogeely	<p>SA Option 77</p> <ul style="list-style-type: none"> Mogeely WRZ in deficit. Increase existing GW abstraction to meet WRZ future deficit. Existing GW maintained Ballinhassig East GWB (Existing source) WFD status 2016-2021 – Good 	1,139 m ³ /d
SAI-293 0500SC0044 Dungourney	<p>SA Option 77</p> <ul style="list-style-type: none"> Dungourney WRZ in deficit but is to be rationalised to Mogeely WRZ. Existing GW to be decommissioned Ballinhassig East GWB (Existing source) WFD status 2016-2021 – Good 	54 m ³ /d
SA Option 97	<p>Increase SW abstraction from Curraghlicky Lake and upgrade WTP.</p> <p>Interconnect Dunmanway and Drinagh WRZ. Supply deficit from Curraghlicky Lake.</p>	Detailed per WRZ below
SAI-399 0500SC0012 Dunmanway	<p>SA Option 97</p> <ul style="list-style-type: none"> Dunmanway WRZ in deficit but is to be interconnected with Drinagh WRZ Existing SW maintained Coolkellure LWB (Existing source) WFD status 2016-2021 – Moderate 	1,032 m ³ /d
SAI-434 0500SC0038 Drinagh	<p>SA Option 97</p> <ul style="list-style-type: none"> Drinagh WRZ in deficit so increase existing SW abstraction to supply WRZ future deficit Existing SW maintained Curraghlicky LWB (Existing source) WFD status 2016-2021 – Poor 	245 m ³ /d
SA Option 123	<p>Increase abstraction from Lough Currane and supply Caherdaniel.</p>	Detailed per WRZ below

WRZ Name and Option Reference*	Option Description	Demand (DYCP 2044)
	Supplement Caherdaniel from Waterville.	
SAI-641 1300SC0017 Caherdaniel/ Castlecove	SA Option 123 <ul style="list-style-type: none"> Caherdaniel/Castlecove WRZ in deficit. Supplement Caherdaniel/Castlecove WRZ from Waterville PWS 075H WRZ to supply WRZ future deficit. Existing SW maintained Currane LWB (Existing source) WFD status 2016-2021 – Moderate 	935 m ³ /d
SAI-642 1300SC0023 Waterville PWS 075H	SA Option 123 <ul style="list-style-type: none"> Waterville PWS 075H WRZ in projected surplus. Increase existing SW abstraction to supply WRZ future deficit in Caherdaniel/Castlecove WRZ. Existing SW maintained Currane LWB (Existing source) WFD status 2016-2021 – Moderate 	935 m ³ /d
SA Option 149	New GW abstraction (karstic) and new WTP to supply deficit. Rationalise Knockadoon, Ballymacoda and Kilcraheen to Youghal (new GW source).	Detailed per WRZ below
SAI-830 0500SC0042 Youghal Regional	SA Option 149 <ul style="list-style-type: none"> Youghal Regional WRZ in deficit. New GW abstraction and new WTP to supply WRZ future deficit. Existing SW and GW maintained Glenville GWB (New source) WFD status 2016-2021 – Good 	4,242 m ³ /d
SAI-831 0500SC0039 Knockadoon	SA Option 149 <ul style="list-style-type: none"> Knockadoon WRZ in deficit and is to be rationalised to Youghal Regional WRZ Existing GW abandoned Knockadoon East GWB (Existing source) WFD status 2016-2021 – Good Glenville GWB (New source) WFD status 2016-2021 – Good 	157 m ³ /d
SAI-832 0500SC0041 Ballymacoda	SA Option 149 <ul style="list-style-type: none"> Ballymacoda WRZ in deficit and is to be rationalised to Youghal Regional WRZ Knockadoon East GWB (Existing source) WFD status 2016-2021 – Good 	172 m ³ /d

WRZ Name and Option Reference*	Option Description	Demand (DYCP 2044)
	<ul style="list-style-type: none"> Glenville GWB (New source) WFD status 2016-2021 – Good 	
SAI-833 0500SC0040 Kilcraheen	SA Option 149 <ul style="list-style-type: none"> Kilcraheen WRZ in deficit and is to be rationalised to Youghal Regional WRZ Existing GW abandoned Midleton GWB (Existing source) WFD status 2016-2021 – Good Glenville GWB (New source) WFD status 2016-2021 – Good 	47 m ³ /d
SA Option 150	Increase GW abstraction (karstic) and supply deficit. Rationalise Ballykilty to Killeagh WRZ.	Detailed per WRZ below
SAI-836 0500SC0084 Ballykilty	SA Option 150 <ul style="list-style-type: none"> Ballykilty WRZ in deficit and is to be rationalised to Killeagh WRZ Existing GW abandoned Ballinhassig East GWB (Existing source) WFD status 2016-2021 – Good 	54 m ³ /d
SAI-837 0500SC0085 Killeagh	SA Option 150 <ul style="list-style-type: none"> Ballykilty WRZ in deficit and is to be rationalised to Killeagh WRZ Existing GW maintained Midleton GWB (Existing source) WFD status 2016-2021 – Good 	422 m ³ /d
SA Option 152	Increase SW abstraction from Sullane River and new WTP Macroom WTP for full demand. Rationalise Kilnagurteen (Macroom), Coolyhane, Ballyverane and Clondrohid to Macroom WRZ.	Detailed per WRZ below
SAI-851 0500SC0177 Macroom	SA Option 152 <ul style="list-style-type: none"> Macroom WRZ in projected surplus. Increase existing SW abstraction and new WTP to supply WRZ future deficit. Existing SW abstraction maintained Sullane RWB (Existing source) WFD status 2016-2021 – Good 	2,005 m ³ /d
SAI-852 0500SC0179	SA Option 152 <ul style="list-style-type: none"> Kilnagurteen (Macroom) WRZ in projected surplus but is to be rationalised to Macroom WRZ 	10 m ³ /d

WRZ Name and Option Reference*	Option Description	Demand (DYCP 2044)
Kilnagurteen (Macroom)	<ul style="list-style-type: none"> Existing GW abstraction is to be decommissioned Ballinhassig West GWB (Existing source) WFD status 2016-2021 – Good 	
SAI-853 0500SC0180 Ballyverane	SA Option 152 <ul style="list-style-type: none"> Ballyverane WRZ in deficit and is to be rationalised to Macroom WRZ Existing GW abstraction is to be decommissioned Ballinhassig West GWB (Existing source) WFD status 2016-2021 – Good 	116 m ³ /d
SAI-854 0500SC0178 Coolyhane	SA Option 152 <ul style="list-style-type: none"> Coolyhane WRZ in deficit and is to be rationalised to Macroom WRZ Existing GW abstraction is to be decommissioned Ballinhassig West GWB (Existing source) WFD status 2016-2021 – Good 	81 m ³ /d
SAI-855 0500SC0071 Clondrohid	SA Option 152 <ul style="list-style-type: none"> Clondrohid WRZ in deficit and is to be rationalised to Macroom WRZ Existing GW abstraction is to be decommissioned Ballinhassig West GWB (Existing source) WFD status 2016-2021 – Good 	116 m ³ /d
SA Option 155	New Inchybegga Impoundment (Cullomane) and new WTP to supply Bantry deficit and transfer west to supply WRZs full demands. Rationalise Castletownbere, Glengarriff, Adrigole and Reenmeen West to Bantry.	Detailed per WRZ below
SAI-861 0500SC0030 Bantry	SA Option 155 <ul style="list-style-type: none"> Bantry WRZ in deficit. New Impoundment and new WTP to meet WRZ future deficit and rationalised WRZs future full demands. Existing SW maintained Owennashingaun (New source) WFD status 2016-2021 – High 	2,138 m ³ /d
SAI-862 0500SC0068 Glengarriff	SA Option 155 <ul style="list-style-type: none"> Glengarriff WRZ in deficit and is to be rationalised to Bantry WRZ Owennashingaun (New source) WFD status 2016-2021 – High 	514 m ³ /d

WRZ Name and Option Reference*	Option Description	Demand (DYCP 2044)
SAI-863 0500SC0033 Adrigole	SA Option 155 <ul style="list-style-type: none"> Adrigole WRZ in deficit and is to be rationalised to Bantry WRZ Owennashingaun (New source) WFD status 2016-2021 – High 	346 m ³ /d
SAI-864 0500SC0181 Reenmeen West	SA Option 155 <ul style="list-style-type: none"> Reenmeen West WRZ in deficit and is to be rationalised to Bantry WRZ Owennashingaun (New source) WFD status 2016-2021 – High 	23 m ³ /d
SAI-865 0500SC0034 Castletownbere	SA Option 155 <ul style="list-style-type: none"> Castletownbere WRZ in deficit and is to be rationalised to Bantry WRZ Owennashingaun (New source) WFD status 2016-2021 – High 	514 m ³ /d
SA Option 160	Rationalise Allihies to Ballydonegan GWS. Rationalise Cluain Court Allihies to Allihies.	Detailed per WRZ below
SAI-882 0500SC0170 Cluain Court Allihies	SA Option 160 <ul style="list-style-type: none"> Cluain Court Allihies WRZ in projected surplus but is to be rationalised to Allihies WRZ Existing GW to be abandoned Beara Sneem GWB (Existing source) WFD status 2016-2021 – Good 	6 m ³ /d
SAI-883 0500SC0035 Allihies	SA Option 160 <ul style="list-style-type: none"> Allihies WRZ in deficit and is to be rationalised to Ballydonegan GWS Existing SW and GW to be abandoned Existing sources: Beara Sneem GWB WFD status 2016-2021 – Good and Allihies Reservoir WFD status 2016-2021 – Unassigned 	63 m ³ /d
SA Option 162	Upgrade Ballyhilty WTP and supply spare capacity to Skibbereen 2 - Baltimore and Schull WRZ. Upgrade Lake Cross WTP and supply deficit from Skibbereen 1 WRZ.	Detailed per WRZ below
SAI-887 0500SC0173	SA Option 162 <ul style="list-style-type: none"> Skibbereen 1 WRZ in projected surplus so WTP upgrade works and interconnect with Skibbereen 2 WRZ 	6,496 m ³ /d

WRZ Name and Option Reference*	Option Description	Demand (DYCP 2044)
Skibbereen 1 (Ballyhilty and Drimoleague)	<ul style="list-style-type: none"> Existing SW maintained Ilen RWB (Existing source) WFD status 2016-2021 – High 	
SAI-888 0500SC0021 Skibbereen 2 (Baltimore and Schull)	SA Option 162 <ul style="list-style-type: none"> Skibbereen 2 WRZ in deficit so interconnect with Skibbereen 1 WRZ and WTP upgrade works Existing SW maintained Existing sources: Skeagh LWB WFD status 2016-2021 – Moderate and Abisdealy LWB WFD status 2016-2021 – Moderate 	1,816 m ³ /d
SA Option 163	New GW abstraction and upgrade Minane Bridge WTP. Rationalise Roberts Cove and Nohoval WRZs to Minane Bridge WRZ.	Detailed per WRZ below
SAI-889 0500SC0017 Nohoval	SA Option 163 <ul style="list-style-type: none"> Nohoval WRZ in deficit and is to be rationalised to Minane Bridge WRZ Existing GW to be abandoned Bandon GWB (Existing source) WFD status 2016-2021 – Good Bandon GWB (New source) WFD status 2016-2021 – Good 	61 m ³ /d
SAI-890 0500SC0083 Minane Bridge	SA Option 163 <ul style="list-style-type: none"> Minane Bridge WRZ in projected surplus Existing GW abandoned Bandon GWB (Existing source) WFD status 2016-2021 – Good Bandon GWB (New source) WFD status 2016-2021 – Good 	44 m ³ /d
SAI-964 0500SC0016 Roberts Cove	SA Option 163 <ul style="list-style-type: none"> Roberts Cove WRZ in deficit and is to be rationalised to Minane Bridge WRZ Existing GW to be abandoned Bandon GWB (Existing source) WFD status 2016-2021 – Good Bandon GWB (New source) WFD status 2016-2021 – Good 	43 m ³ /d
SA Option 171	Increase abstraction at Inniscarra and upgrade WTP. Interconnect with Bandon Regional and Clonakilty.	Detailed per WRZ below

WRZ Name and Option Reference*	Option Description	Demand (DYCP 2044)
	<p>Maintain allowable abstraction from Owenacurra River and supply deficit from Inniscarra for Midleton WRZ.</p> <p>Rationalise Knockburden, Templemartin & Garranes, Aghabullogue, Coolineagh, Corbally, Clash Leamleara, Ballincurrig Lisgoold, Walshtown, Grenagh, Stoneview Blarney, Cullen, Ballyshoneen, Vicarstown, Ballinagree, Rylane, Bayview, Tibbotstown and Clashanamid WRZs.</p>	
SAI-957 0500SC0145 Bandon Regional	<p>SA Option 171</p> <ul style="list-style-type: none"> • Bandon WRZ in deficit and is to be interconnected with Inniscarra • Existing surface water abstraction maintained • Inniscarra Lake Waterbody (LWB) (Existing source) WFD status 2016-2021 – Good 	6,397 m ³ /d
SAI-942 0500SC0059 Aghabullogue	<p>SA Option 171</p> <ul style="list-style-type: none"> • Aghabullogue WRZ in deficit and is to be rationalised to Cork City WRZ • Existing groundwater abstraction to be decommissioned. • Ballinhassig East Groundwater Body (GWB) (Existing source) WFD status 2016-2021 – Good 	101 m ³ /d
SAI-954 0500SC0073 Ballinagree	<p>SA Option 171</p> <ul style="list-style-type: none"> • Ballinagree WRZ in deficit and is to be rationalised to Cork City WRZ • Existing GW abstraction decommissioned • Ballinhassig West GWB (Existing source) WFD status 2016-2021 – Good 	54 m ³ /d
SAI-955 0500SC0074 Rylane	<p>SA Option 171</p> <ul style="list-style-type: none"> • Rylane WRZ in projected surplus but is to be rationalised to Cork City WRZ • Existing GW abstraction decommissioned • Ballinhassig East GWB (Existing source) WFD status 2016-2021 – Good 	235 m ³ /d
SAI-960 0500SC0146 Clashanamid	<p>SA Option 171</p> <ul style="list-style-type: none"> • Clashanamid WRZ in deficit and is to be rationalised to Cork City WRZ • Existing GW abstraction decommissioned • Bandon GWB (Existing source) WFD status 2016-2021 – Good 	13 m ³ /d

WRZ Name and Option Reference*	Option Description	Demand (DYCP 2044)
SAI-940 0500SC0171 Knockburden	SA Option 171 <ul style="list-style-type: none"> Knockburden WRZ not in projected surplus and is to be rationalised to Cork City WRZ Existing GW abstraction decommissioned Ballinhassig East GWB (Existing source) WFD status 2016-2021 – Good 	6,397 m ³ /d
SAI-951 0500SC0020 Cullen	SA Option 171 <ul style="list-style-type: none"> Cullen WRZ in deficit and is to be rationalised to Cork City WRZ Existing GW abstraction decommissioned Bandon GWB (Existing source) WFD status 2016-2021 – Good 	10 m ³ /d
SAI-943 0500SC0058 Coolineagh	SA Option 171 <ul style="list-style-type: none"> Coolineagh WRZ in deficit and is to be rationalised to Cork City WRZ Existing GW abstraction decommissioned Ballinhassig East GWB (Existing source) WFD status 2016-2021 – Good 	5 m ³ /d
SAI-959 0500SC0161 Tibbotstown	SA Option 171 <ul style="list-style-type: none"> Tibbotstown WRZ in deficit and is to be rationalised to Cork City WRZ Existing surface water (SW) abstraction decommissioned Existing sources: Tibbotstown Reservoir WFD status 2016-2021 – Unassigned and Owennacurra river waterbody (RWB) WFD status 2016-2021 – Good 	5,150 m ³ /d
SAI-949 0500SC0055 Grenagh	SA Option 171 <ul style="list-style-type: none"> Grenagh WRZ in deficit and is to be rationalised to Cork City WRZ Existing GW abstractions to be decommissioned Ballinhassig East GWB (Existing source) WFD status 2016-2021 – Good 	442 m ³ /d
SAI-944 0500SC0047 Corbally	SA Option 171 <ul style="list-style-type: none"> Corbally WRZ in deficit and is to be rationalised to Cork City WRZ Existing GW abstraction to be decommissioned Ballinhassig East GWB (Existing source) WFD status 2016-2021 – Good 	90 m ³ /d

WRZ Name and Option Reference*	Option Description	Demand (DYCP 2044)
SAI-945 0500SC0048 Clash Leamleara	SA Option 171 <ul style="list-style-type: none"> Clash Leamleara WRZ in deficit and is to be rationalised to Cork City WRZ Existing GW abstractions to be decommissioned Ballinhassig East GWB (Existing source) WFD status 2016-2021 – Good 	33 m ³ /d
SAI-952 0500SC0172 Ballyshoneen	SA Option 171 <ul style="list-style-type: none"> Ballyshoneen WRZ in deficit and is to be rationalised to Cork City WRZ Existing GW abstraction to be decommissioned Ballinhassig East GWB (Existing source) WFD status 2016-2021 – Good 	39 m ³ /d
SAI-946 0500SC0167 Ballincurrig Lisgoold	SA Option 171 <ul style="list-style-type: none"> Ballincurrig Lisgoold WRZ in deficit and is to be rationalised to Cork City WRZ Existing GW abstraction to be decommissioned Ballinhassig East GWB (Existing source) WFD status 2016-2021 – Good 	94 m ³ /d
SAI-947 0500SC0046 Walshtown	SA Option 171 <ul style="list-style-type: none"> Walshtown WRZ in deficit and is to be rationalised to Cork City WRZ Existing GW abstraction to be decommissioned Ballinhassig East GWB (Existing source) WFD status 2016-2021 – Good 	22 m ³ /d
SAI-950 0500SC0053 Stoneview Blarney	SA Option 171 <ul style="list-style-type: none"> Stoneview Blarney WRZ in deficit and is to be rationalised to Cork City WRZ Existing GW abstraction to be decommissioned Ballinhassig East GWB (Existing source) WFD status 2016-2021 – Good 	46 m ³ /d
SAI-939 0500SC0082 Cork City	SA Option 171 <ul style="list-style-type: none"> Cork City WRZ in deficit. Increase existing GW abstraction to meet WRZ future deficit. Existing SW abstractions maintained Existing sources: Inniscarra LWB WFD status 2016-2021 – Good, Lee (Cork) RWB) WFD status 2016-2021 – Good, Bandon RWB WFD status 2016-2021 – Good, Butlerstown RWB WFD status 2016-2021 – 	186,880 m ³ /d

WRZ Name and Option Reference*	Option Description	Demand (DYCP 2044)
	Good, Glashaboy (Lough Mahon) WFD status 2016-2021 – Good and Ballinhassig East GWB WFD status 2016-2021 – Good	
SAI-958 0500SC0153 Clonakilty	SA Option 171 <ul style="list-style-type: none"> Clonakilty WRZ in deficit and is to be interconnected with Inniscarra Existing SW abstraction maintained Existing sources: Bride RWB WFD status 2016-2021 – Unassigned and Leap Stream RWB WFD status 2016-2021 – Good 	11,249 m ³ /d
SAI-953 0500SC0054 Vicarstown	SA Option 171 <ul style="list-style-type: none"> Vicarstown WRZ is in projected surplus but is to be rationalised to Cork City WRZ Existing GW abstraction decommissioned Ballinhassig East GWB (Existing source) WFD status 2016-2021 – Moderate 	8 m ³ /d
SAI-941 0500SC0153 Templemartin & Garranes	SA Option 171 <ul style="list-style-type: none"> Templemartin & Garranes WRZ in projected surplus but is to be rationalised to Cork City WRZ Existing GW abstraction to be decommissioned Bandon GWB (Existing source) WFD status 2016-2021 – Good 	35 m ³ /d
SAI-956 0500SC0152 Bayview	SA Option 171 <ul style="list-style-type: none"> Bayview WRZ in deficit and is to be rationalised to Cork City WRZ Existing GW abstraction is to be decommissioned Skibbereen-Clonakilty GWB (Existing source) WFD status 2016-2021 – Good 	56 m ³ /d
SAI-941 0500SC0159 Midleton	SA Option 171 <ul style="list-style-type: none"> Midleton WRZ in projected surplus and is to be interconnected with Inniscarra Z Existing SW abstraction maintained Owenacurra RWB (Existing source) WFD status 2016-2021 – Moderate 	4,796 m ³ /d

*SA Options are the same as Group Options

The SA Preferred Approach options are shown in Figure 5.1 and Figure 5.2, in relation to key environmental designations. Note that the SA options are labelled as the following in Figure 5.1 and Figure 5.2: SA option 20 (SAI-820), SA option 77 (SAI-877), SA option 97 (SAI-897), SA option 123

(SAI-923), SA option 149 (SAI-949), SA option 150 (SAI-950), SA option 152 (SAI-952), SA option 155 (SAI-955), SA option 160 (SAI-960), SA option 162 (SAI-962), SA option 163 (SAI-963) and SA option 171 (SAI-971).

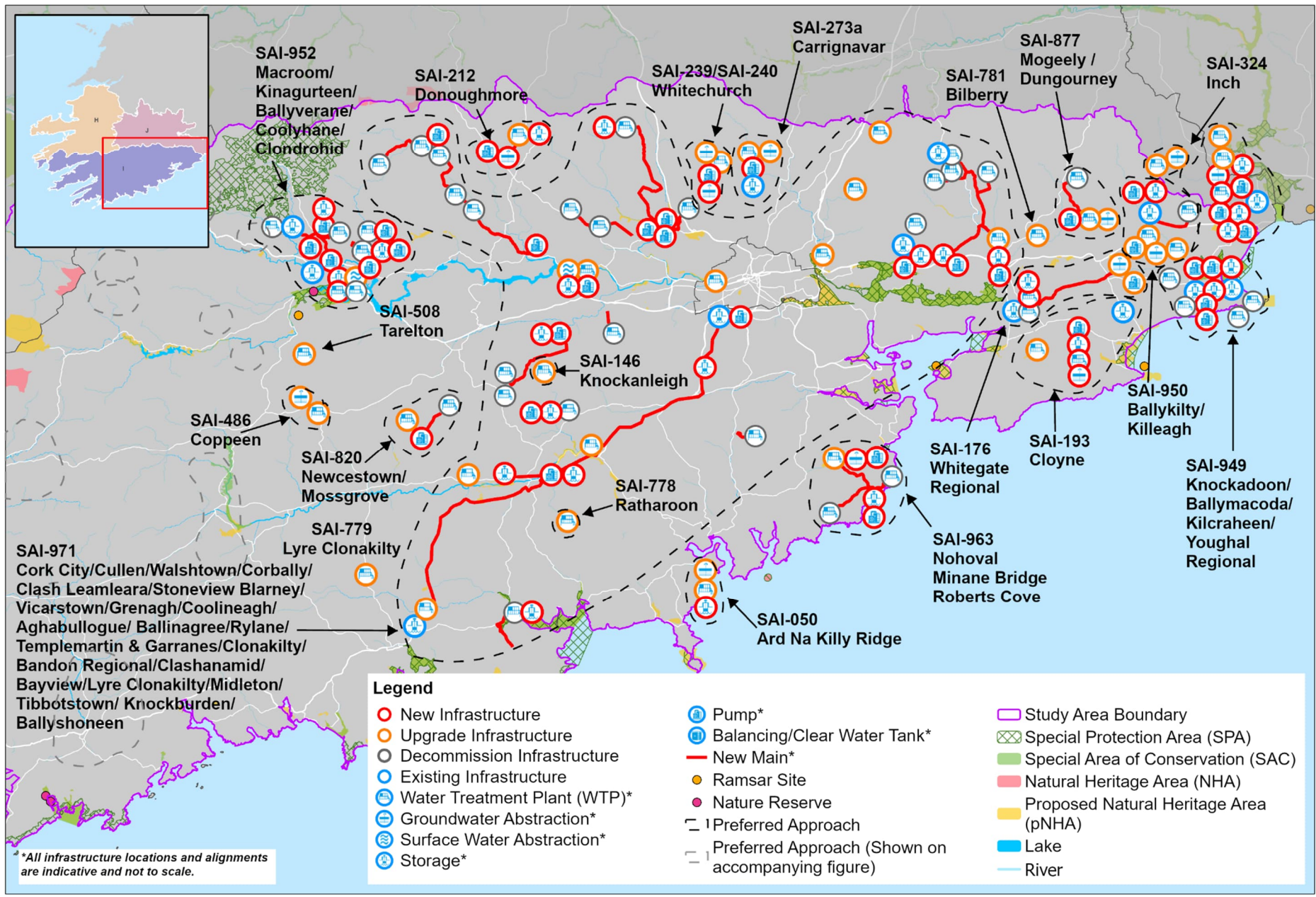


Figure 5.1 SA Preferred Approach East and Key Environmental Designations

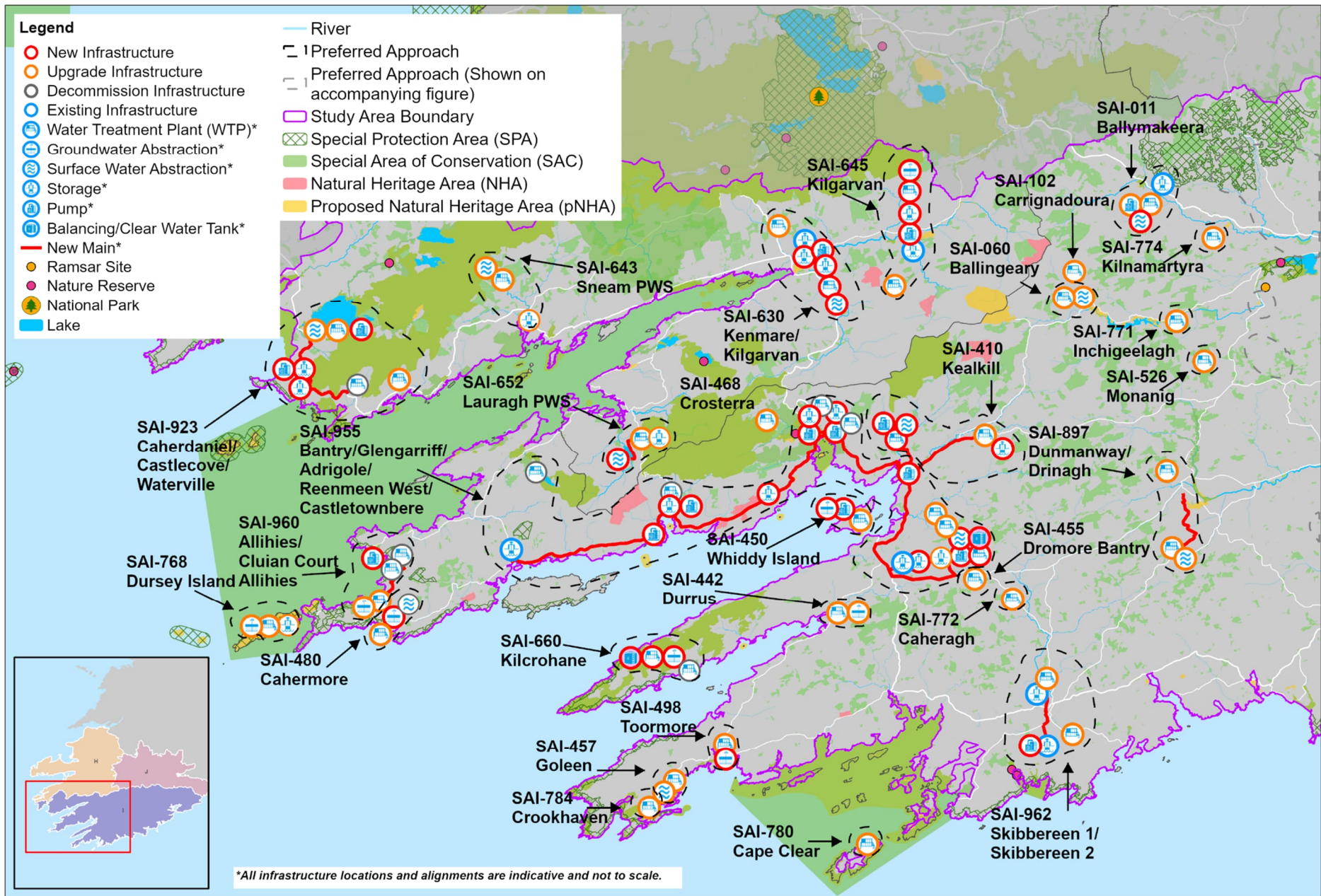


Figure 5.2 SA Preferred Approach West and Key Environmental Designations

The SA Preferred Approach options have each been assessed against the SEA objectives, taking account of construction and operational phases, long term and short term, permanent and temporary, and indirect and direct impacts. Mitigation requirements to avoid or reduce effects have also been taken into consideration. Table 5.2 provides a breakdown of the infrastructural components and Table 5.3 provides an assessment summary of the options included in the SA Preferred Approach. Individual options assessments are available on request. The overall Preferred Approach assessment, including all the options combined, is summarised in Table 7.1.

Table 5.2 Component Table

Option Reference*	New / Refurbished Pipeline	New WTP	Upgrade WTPs (Quality)	Upgrade WTPs (Quantity)	WTPs Decommissioned	New Abstractions	Increased Abstractions	Abstractions Abandoned	Raw Water Storage	Treated Water Storage
SAI-011	✓	-	-	✓	-	✓	-	-	-	-
SAI-050	-	-	-	✓	-	-	✓	-	-	✓
SAI-060	-	-	-	✓	-	-	✓	-	-	-
SAI-102	-	-	✓	-	-	-	-	-	-	-
SAI-146	-	-	✓	-	-	-	-	-	-	-
SAI-176	✓	✓	-	-	✓	-	✓	-	-	✓
SAI-193	✓	✓	✓	-	-	✓	-	-	-	✓
SAI-212	✓	-	-	✓	-	✓	-	-	-	✓
SAI-239	✓	-	-	✓	-	-	✓	-	-	-
SAI-240	✓	-	-	-	-	✓	-	-	-	-
SAI-273a	✓	-	-	✓	-	-	✓	-	-	-
SAI-324	-	-	-	✓	-	-	✓	-	-	-
SAI-410	✓	✓	✓	-	-	✓	-	-	-	✓
SAI-442	-	-	-	✓	-	-	✓	-	-	-
SAI-450	✓	-	-	✓	-	✓	-	-	-	-
SAI-455	-	-	✓	-	-	-	-	-	-	-
SAI-457	-	-	✓	-	-	-	✓	-	-	-
SAI-468	-	-	✓	-	-	-	-	-	-	-
SAI-480	-	-	-	✓	-	✓	-	✓	-	-
SAI-486	-	-	-	✓	-	-	✓	-	-	-
SAI-498	-	-	-	✓	-	✓	-	-	-	-

Option Reference*	New / Refurbished Pipeline	New WTP	Upgrade WTPs (Quality)	Upgrade WTPs (Quantity)	WTPs Decommissioned	New Abstractions	Increased Abstractions	Abstractions Abandoned	Raw Water Storage	Treated Water Storage
SAI-508	-	-	✓	-	-	-	-	-	-	-
SAI-526	-	-	✓	-	-	-	-	-	-	-
SAI-630	✓	✓	✓	-	-	✓	-	-	-	✓
SAI-643	-	-	-	✓	-	-	✓	-	-	✓
SAI-645	✓	✓	✓	-	-	✓	-	-	-	✓
SAI-652	✓	-	-	✓	-	✓	-	-	-	✓
SAI-660	✓	✓	-	-	✓	✓	-	✓	-	✓
SAI-768	✓	-	-	✓	-	-	✓	-	✓	-
SAI-771	-	-	✓	-	-	-	-	-	-	-
SAI-772	-	-	✓	-	-	-	-	-	-	-
SAI-774	-	-	✓	-	-	-	-	-	-	-
SAI-778	-	-	✓	-	-	-	-	-	-	-
SAI-779	-	-	✓	-	-	-	-	-	-	-
SAI-780	-	-	✓	-	-	-	-	-	-	-
SAI-781	-	-	✓	-	-	-	-	-	-	-
SAI-784	-	-	✓	-	-	-	-	-	-	-
SA Option 20	✓	-	✓	-	✓	-	✓	✓	-	-
SA Option 77	✓	-	-	✓	✓	-	✓	✓	-	-
SA Option 97	✓	-	✓	✓	-	-	✓	-	-	-
SA Option 123	✓	-	✓	✓	✓	-	✓	✓	-	✓
SA Option 149	✓	✓	✓	-	✓	✓	-	✓	-	✓
SA Option 150	✓	-	✓	✓	✓	-	✓	✓	-	✓

Option Reference*	New / Refurbished Pipeline	New WTP	Upgrade WTPs (Quality)	Upgrade WTPs (Quantity)	WTPs Decommissioned	New Abstractions	Increased Abstractions	Abstractions Abandoned	Raw Water Storage	Treated Water Storage
SA Option 152	✓	✓	-	-	✓	-	✓	✓	-	✓
SA Option 155	✓	✓	✓	-	✓	✓	-	✓	-	✓
SA Option 160	✓	-	-	✓	✓	-	✓	✓	-	-
SA Option 162	✓	-	✓	-	-	-	-	-	-	-
SA Option 163	✓	-	✓	✓	✓	✓	✓	✓	-	✓
SA Option 171	✓	-	✓	✓	✓	-	✓	✓	-	✓

Table 5.3 Options Assessment Summary

Option Reference*	Option Description	Phase	Protect Public Health and Promote Wellbeing (P1, P2, P3)	Protect and Enhance Biodiversity and Contribute to Resilient Ecosystems (B1, B2, B3, B4, B5)	To Protect Landscapes, Townscapes and Visual Amenity (L1)	Protect and Where Appropriate Enhance, Built and Natural Assets and Reduce Waste (M1, M2)	Reduce Greenhouse Gas Emissions (C1)	Contribute to Environmental Climate Change Resilience (R1, R2, R5)	Protect and Improve Surface Water and Groundwater Status (W1, W2, W3)	Avoid Flood Risk (W5)	Protect and Where Appropriate, Enhance Cultural Heritage Assets (CH1)	Protect Quality and Function of Soils (G1)
SA Option 20 (SAI-083 and SAI-105)	Increase GW abstraction and rationalise Mossgrove to Newcestown WRZ for increased resilience. Rationalise Mossgrove to Newcestown WRZ for increased resilience.	Construction	-	-	-	-	0	-	0	0	-	-
		Operation	+	0	+	0	0	-	-	0	0	0
SA Option 77 (SAI-231 and SAI-293)	Increase existing GW abstraction from infiltration gallery and supply deficit. Rationalise Dungourney WTP to Mogeely WRZ.	Construction	-	-	-	-	0	-	0	0	-	-
		Operation	+	0	+	0	0	-	-	0	0	0

Option Reference*	Option Description	Phase	Protect Public Health and Promote Wellbeing (P1, P2, P3)	Protect and Enhance Biodiversity and Contribute to Resilient Ecosystems (B1, B2, B3, B4, B5)	To Protect Landscapes, Townscapes and Visual Amenity (L-1)	Protect and Where Appropriate Enhance, Built and Natural Assets and Reduce Waste (M1, M2)	Reduce Greenhouse Gas Emissions (C1)	Contribute to Environmental Climate Change Resilience (R1, R2, R5)	Protect and Improve Surface Water and Groundwater Status (W1, W2, W3)	Avoid Flood Risk (W5)	Protect and Where Appropriate, Enhance Cultural Heritage Assets (CH1)	Protect Quality and Function of Soils (G1)
SA Option 97 (SAI-399 and SAI-434)	Increase SW abstraction from Curraghlicky Lake and upgrade WTP. Interconnect Dunmanway and Drinagh WRZ. Supply deficit from Curraghlicky Lake.	Construction	-	-	-	-	-	--	0	-	-	-
		Operation	+	-	0	0	-	--	--	0	0	0
SA Option 123 (SAI-641 and SAI-642)	Increase abstraction from Lough Currane and supply	Construction	-	--	--	--	--	-	0	-	-	-

Option Reference*	Option Description	Phase	Protect Public Health and Promote Wellbeing (P1, P2, P3)	Protect and Enhance Biodiversity and Contribute to Resilient Ecosystems (B1, B2, B3, B4, B5)	To Protect Landscapes, Townscapes and Visual Amenity (L-1)	Protect and Where Appropriate Enhance, Built and Natural Assets and Reduce Waste (M1, M2)	Reduce Greenhouse Gas Emissions (C1)	Contribute to Environmental Climate Change Resilience (R1, R2, R5)	Protect and Improve Surface Water and Groundwater Status (W1, W2, W3)	Avoid Flood Risk (W5)	Protect and Where Appropriate, Enhance Cultural Heritage Assets (CH1)	Protect Quality and Function of Soils (G1)
	Caherdaniel. Supplement Caherdaniel from Waterville.	Operation	+	-	+	0	-	-	-	0	0	0
SA Option 149 (SAI-830, SAI-831, SAI-832 and SAI-833)	New GW abstraction (karstic) and new WTP to supply deficit.	Construction	-	-	-	-	-	-	0	-	-	-
	Rationalise Knockadoon, Ballymacoda and Kilcraheen to Youghal (new GW source).	Operation	-	-	-	-	-	-	-	0	0	0
	Increase GW abstraction (karstic) and	Construction	-	-	-	-	-	-	0	-	-	-

Option Reference*	Option Description	Phase	Protect Public Health and Promote Wellbeing (P1, P2, P3)	Protect and Enhance Biodiversity and Contribute to Resilient Ecosystems (B1, B2, B3, B4, B5)	To Protect Landscapes, Townscapes and Visual Amenity (L1)	Protect and Where Appropriate Enhance, Built and Natural Assets and Reduce Waste (M1, M2)	Reduce Greenhouse Gas Emissions (C1)	Contribute to Environmental Climate Change Resilience (R1, R2, R5)	Protect and Improve Surface Water and Groundwater Status (W1, W2, W3)	Avoid Flood Risk (W5)	Protect and Where Appropriate, Enhance Cultural Heritage Assets (CH1)	Protect Quality and Function of Soils (G1)
SA Option 150 (SAI-836 and SAI-837)	supply deficit. Rationalise Ballykilty to Killeagh WRZ.	Operation	+	-	+	0	-	-	-	0	0	0
SA Option 152 (SAI-851, SAI-852, SAI-853, SAI-854 and SAI-855)	Increase SW abstraction from Sullane River and new WTP Macroom WTP for full demand. Rationalise Kilnagurteen (Macroom), Coolyhane, Ballyverane and Clondrohid to Macroom WRZ	Construction	-	-	-	-	-	-	0	-	-	-
		Operation	-	0	+	-	-	-	-	0	0	0

Option Reference*	Option Description	Phase	Protect Public Health and Promote Wellbeing (P1, P2, P3)	Protect and Enhance Biodiversity and Contribute to Resilient Ecosystems (B1, B2, B3, B4, B5)	To Protect Landscapes, Townscapes and Visual Amenity (L1)	Protect and Where Appropriate Enhance, Built and Natural Assets and Reduce Waste (M1, M2)	Reduce Greenhouse Gas Emissions (C1)	Contribute to Environmental Climate Change Resilience (R1, R2, R5)	Protect and Improve Surface Water and Groundwater Status (W1, W2, W3)	Avoid Flood Risk (W5)	Protect and Where Appropriate, Enhance Cultural Heritage Assets (CH1)	Protect Quality and Function of Soils (G1)
SA Option 155 (SAI-861, SAI-862, SAI-863, SAI-864 and SAI-865)	New Inchybegga Impoundment (Cullomane) and new WTP to supply Bantry deficit and transfer west to supply WRZs full demands.	Construction	-	--	--	--	---	--	0	-	-	-
	Rationalise Castletownbere, Glengarriff, Adrigole and Reenmeen West to Bantry.	Operation	++	-	++	-	---	--	---	0	0	0
	Rationalise Allihies to Ballydonegan GWS.	Construction	-	--	-	-	0	--	0	0	-	-

Option Reference*	Option Description	Phase	Protect Public Health and Promote Wellbeing (P1, P2, P3)	Protect and Enhance Biodiversity and Contribute to Resilient Ecosystems (B1, B2, B3, B4, B5)	To Protect Landscapes, Townscapes and Visual Amenity (L1)	Protect and Where Appropriate Enhance, Built and Natural Assets and Reduce Waste (M1, M2)	Reduce Greenhouse Gas Emissions (C1)	Contribute to Environmental Climate Change Resilience (R1, R2, R5)	Protect and Improve Surface Water and Groundwater Status (W1, W2, W3)	Avoid Flood Risk (W5)	Protect and Where Appropriate, Enhance Cultural Heritage Assets (CH1)	Protect Quality and Function of Soils (G1)
SA Option 160 (SAI-882 and SAI-883)	Rationalise Cluain Court Allihies to Allihies.	Operation	+	-	+	0	0	-	---	0	0	0
SA Option 162 (SAI-887 and SAI-888)	Upgrade Ballyhilty WTP and supply spare capacity to Skibbereen 2 - Baltimore and Schull WRZ.	Construction	-	-	-	-	-	0	0	0	-	-
	Upgrade Lake Cross WTP and supply deficit from Skibbereen 1 WRZ.	Operation	++	0	0	0	-	0	0	0	0	0

Option Reference*	Option Description	Phase	Protect Public Health and Promote Wellbeing (P1, P2, P3)	Protect and Enhance Biodiversity and Contribute to Resilient Ecosystems (B1, B2, B3, B4, B5)	To Protect Landscapes, Townscapes and Visual Amenity (L1)	Protect and Where Appropriate Enhance, Built and Natural Assets and Reduce Waste (M1, M2)	Reduce Greenhouse Gas Emissions (C1)	Contribute to Environmental Climate Change Resilience (R1, R2, R5)	Protect and Improve Surface Water and Groundwater Status (W1, W2, W3)	Avoid Flood Risk (W5)	Protect and Where Appropriate, Enhance Cultural Heritage Assets (CH1)	Protect Quality and Function of Soils (G1)
SA Option 163 (SAI-889, SAI-890 and SAI-964)	New GW abstraction and upgrade Minane Bridge WTP. Rationalise Roberts Cove and Nohoval WRZs to Minane Bridge WRZ.	Construction	-	-	-	-	-	--	0	0	--	-
		Operation	+	-	+	0	-	--	-	0	0	0

Option Reference*	Option Description	Phase	Protect Public Health and Promote Wellbeing (P1, P2, P3)	Protect and Enhance Biodiversity and Contribute to Resilient Ecosystems (B1, B2, B3, B4, B5)	To Protect Landscapes, Townscapes and Visual Amenity (L1)	Protect and Where Appropriate Enhance, Built and Natural Assets and Reduce Waste (M1, M2)	Reduce Greenhouse Gas Emissions (C1)	Contribute to Environmental Climate Change Resilience (R1, R2, R5)	Protect and Improve Surface Water and Groundwater Status (W1, W2, W3)	Avoid Flood Risk (W5)	Protect and Where Appropriate, Enhance Cultural Heritage Assets (CH1)	Protect Quality and Function of Soils (G1)
SA Option 171 (SAI-939, SAI-940, SAI-941, SAI-942, SAI-943, SAI-944, SAI-945, SAI-946, SAI-947, SAI-	Increase abstraction at Inniscarra and upgrade WTP. Interconnect with Bandon Regional and Clonakilty. Maintain allowable abstraction from Owenacurra River and supply deficit from Inniscarra for Midleton WRZ. Rationalise Knockburden,	Construction	0	--	--	---	---	-	0	-	--	-

Option Reference*	Option Description	Phase	Protect Public Health and Promote Wellbeing (P1, P2, P3)	Protect and Enhance Biodiversity and Contribute to Resilient Ecosystems (B1, B2, B3, B4, B5)	To Protect Landscapes, Townscapes and Visual Amenity (L-1)	Protect and Where Appropriate Enhance, Built and Natural Assets and Reduce Waste (M1, M2)	Reduce Greenhouse Gas Emissions (C1)	Contribute to Environmental Climate Change Resilience (R1, R2, R5)	Protect and Improve Surface Water and Groundwater Status (W1, W2, W3)	Avoid Flood Risk (W5)	Protect and Where Appropriate, Enhance Cultural Heritage Assets (CH1)	Protect Quality and Function of Soils (G1)
948, SAI-949, SAI-950, SAI-951, SAI-952, SAI-953, SAI-954, SAI-955, SAI-956, SAI-957, SAI-958, SAI-959 and SAI-960)	Templemartin & Garranes, Aghabullogue, Coolineagh, Corbally, Clash Leamleara, Ballincurrig Lisgoold, Walshtown, Grenagh, Stoneview Blarney, Cullen, Ballyshoneen, Vicarstown, Ballinagree, Rylane, Bayview, Tibbotstown and Clashanamid WRZs.	Operation	++	-	++	-	--	-	-	0	0	0
SAI-011		Construction	-	-	-	-	0	-	0	0	-	-

Option Reference*	Option Description	Phase	Protect Public Health and Promote Wellbeing (P1, P2, P3)	Protect and Enhance Biodiversity and Contribute to Resilient Ecosystems (B1, B2, B3, B4, B5)	To Protect Landscapes, Townscapes and Visual Amenity (L-1)	Protect and Where Appropriate Enhance, Built and Natural Assets and Reduce Waste (M1, M2)	Reduce Greenhouse Gas Emissions (C1)	Contribute to Environmental Climate Change Resilience (R1, R2, R5)	Protect and Improve Surface Water and Groundwater Status (W1, W2, W3)	Avoid Flood Risk (W5)	Protect and Where Appropriate, Enhance Cultural Heritage Assets (CH1)	Protect Quality and Function of Soils (G1)
	New SW abstraction from River Sullane and upgrade Ballymakeera WTP.	Operation	0	0	-	-	0	-	-	0	0	0
SAI-050	Increase GW abstraction and upgrade Ard na Killy WTP.	Construction	-	-	-	-	-	+	0	0	0	0
		Operation	0	0	0	0	-	+	+	0	0	0
SAI-060	Increase SW from Bunsheelin River and upgrade WTP.	Construction	-	-	0	0	0	-	0	-	0	0
		Operation	0	0	0	0	0	-	-	0	0	0
SAI-102	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit.	Construction	-	-	0	0	0	0	0	0	0	0
		Operation	+	0	0	0	0	0	0	0	0	0

Option Reference*	Option Description	Phase	Protect Public Health and Promote Wellbeing (P1, P2, P3)	Protect and Enhance Biodiversity and Contribute to Resilient Ecosystems (B1, B2, B3, B4, B5)	To Protect Landscapes, Townscapes and Visual Amenity (L1)	Protect and Where Appropriate Enhance, Built and Natural Assets and Reduce Waste (M1, M2)	Reduce Greenhouse Gas Emissions (C1)	Contribute to Environmental Climate Change Resilience (R1, R2, R5)	Protect and Improve Surface Water and Groundwater Status (W1, W2, W3)	Avoid Flood Risk (W5)	Protect and Where Appropriate, Enhance Cultural Heritage Assets (CH1)	Protect Quality and Function of Soils (G1)
SAI-146	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit.	Construction	-	-	0	0	0	0	0	0	0	0
		Operation	+	0	0	0	0	0	0	0	0	0
SAI-176	Increase GW abstraction from Dower Springs and supply deficit. New WTP.	Construction	-	-	-	-	-	-	0	0	-	-
		Operation	+	0	-	0	-	-	-	0	0	0
SAI-193	New GW abstraction (karstic region) and new WTP to supply deficit.	Construction	-	-	-	-	-	-	0	0	-	-
		Operation	+	0	-	-	-	-	-	0	0	0
SAI-212	New GW abstraction and upgrade WTP to supply deficit.	Construction	-	-	-	-	-	-	0	0	-	-
		Operation	0	0	0	0	-	-	-	0	0	0

Option Reference*	Option Description	Phase	Protect Public Health and Promote Wellbeing (P1, P2, P3)	Protect and Enhance Biodiversity and Contribute to Resilient Ecosystems (B1, B2, B3, B4, B5)	To Protect Landscapes, Townscapes and Visual Amenity (L1)	Protect and Where Appropriate Enhance, Built and Natural Assets and Reduce Waste (M1, M2)	Reduce Greenhouse Gas Emissions (C1)	Contribute to Environmental Climate Change Resilience (R1, R2, R5)	Protect and Improve Surface Water and Groundwater Status (W1, W2, W3)	Avoid Flood Risk (W5)	Protect and Where Appropriate, Enhance Cultural Heritage Assets (CH1)	Protect Quality and Function of Soils (G1)
SAI-273	Increase existing GW abstraction and supply deficit.	Construction	-	-	-	-	0	--	0	0	-	-
		Operation	0	0	0	0	0	--	--	0	0	0
SAI-324	Increase existing GW abstraction from spring and supply deficit.	Construction	-	-	-	0	-	--	0	0	0	0
		Operation	0	0	0	0	-	--	--	0	0	0
SAI-410	New SW abstraction from Coomhola River and new WTP	Construction	-	-	-	-	--	-	0	0	-	-
		Operation	+	0	-	-	--	-	-	0	0	0
SAI-768	New raw water storage for this WRZ.	Construction	-	--	-	-	0	-	0	0	-	-
		Operation	0	0	0	0	0	-	-	0	0	0
SAI-442		Construction	-	-	-	0	-	--	0	0	0	0

Option Reference*	Option Description	Phase	Protect Public Health and Promote Wellbeing (P1, P2, P3)	Protect and Enhance Biodiversity and Contribute to Resilient Ecosystems (B1, B2, B3, B4, B5)	To Protect Landscapes, Townscapes and Visual Amenity (L-1)	Protect and Where Appropriate Enhance, Built and Natural Assets and Reduce Waste (M1, M2)	Reduce Greenhouse Gas Emissions (C1)	Contribute to Environmental Climate Change Resilience (R1, R2, R5)	Protect and Improve Surface Water and Groundwater Status (W1, W2, W3)	Avoid Flood Risk (W5)	Protect and Where Appropriate, Enhance Cultural Heritage Assets (CH1)	Protect Quality and Function of Soils (G1)
	Increase GW abstraction to supply deficit and upgrade WTP.	Operation	0	0	0	0	-	--	---	0	0	0
SAI-450	New GW abstraction on the island to supply deficit.	Construction	-	--	-	-	-	--	0	0	-	-
		Operation	0	0	0	0	-	--	---	0	0	0
SAI-455	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit.	Construction	-	-	0	0	0	0	0	0	0	0
		Operation	+	0	0	0	0	0	0	0	0	0
SAI-457	Increase SW abstraction from Goleen	Construction	-	-	-	0	0	-	0	0	0	0

Option Reference*	Option Description	Phase	Protect Public Health and Promote Wellbeing (P1, P2, P3)	Protect and Enhance Biodiversity and Contribute to Resilient Ecosystems (B1, B2, B3, B4, B5)	To Protect Landscapes, Townscapes and Visual Amenity (L-1)	Protect and Where Appropriate Enhance, Built and Natural Assets and Reduce Waste (M1, M2)	Reduce Greenhouse Gas Emissions (C1)	Contribute to Environmental Climate Change Resilience (R1, R2, R5)	Protect and Improve Surface Water and Groundwater Status (W1, W2, W3)	Avoid Flood Risk (W5)	Protect and Where Appropriate, Enhance Cultural Heritage Assets (CH1)	Protect Quality and Function of Soils (G1)
	Intake and upgrade Goleen WTP. Significant reduction in yield in 2018.	Operation	+	0	0	0	0	--	--	0	0	0
SAI-468	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit.	Construction	-	-	0	0	0	0	0	0	0	0
		Operation	+	0	0	0	0	0	0	0	0	0
SAI-480	New GW abstraction to supply deficit and upgrade WTP. Abandon existing SW source.	Construction	-	-	-	-	0	--	0	0	0	0
		Operation	+	0	+	0	0	--	--	0	0	0
SAI-486	Increase GW abstraction at Coppeen	Construction	-	--	-	0	0	--	0	0	0	0

Option Reference*	Option Description	Phase	Protect Public Health and Promote Wellbeing (P1, P2, P3)	Protect and Enhance Biodiversity and Contribute to Resilient Ecosystems (B1, B2, B3, B4, B5)	To Protect Landscapes, Townscapes and Visual Amenity (L1)	Protect and Where Appropriate Enhance, Built and Natural Assets and Reduce Waste (M1, M2)	Reduce Greenhouse Gas Emissions (C1)	Contribute to Environmental Climate Change Resilience (R1, R2, R5)	Protect and Improve Surface Water and Groundwater Status (W1, W2, W3)	Avoid Flood Risk (W5)	Protect and Where Appropriate, Enhance Cultural Heritage Assets (CH1)	Protect Quality and Function of Soils (G1)
	Source to supply deficit and upgrade Coppeen WTP.	Operation	0	-	0	0	0	-	-	0	0	0
SAI-508	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit.	Construction	-	-	0	0	-	0	0	0	0	0
		Operation	+	0	0	0	-	0	0	0	0	0
SAI-630	New SW abstraction from Kenmare River and new WTP.	Construction	-	-	-	-	-	-	0	0	-	-
		Operation	-	0	-	-	-	-	-	0	0	0
SAI-643	Increase SW abstraction from lough Dromtine.	Construction	-	-	-	0	-	-	0	0	0	0
		Operation	0	0	0	0	-	-	-	0	0	0
SAI-645		Construction	-	-	-	-	-	-	0	0	-	-

Option Reference*	Option Description	Phase	Protect Public Health and Promote Wellbeing (P1, P2, P3)	Protect and Enhance Biodiversity and Contribute to Resilient Ecosystems (B1, B2, B3, B4, B5)	To Protect Landscapes, Townscapes and Visual Amenity (L1)	Protect and Where Appropriate Enhance, Built and Natural Assets and Reduce Waste (M1, M2)	Reduce Greenhouse Gas Emissions (C1)	Contribute to Environmental Climate Change Resilience (R1, R2, R5)	Protect and Improve Surface Water and Groundwater Status (W1, W2, W3)	Avoid Flood Risk (W5)	Protect and Where Appropriate, Enhance Cultural Heritage Assets (CH1)	Protect Quality and Function of Soils (G1)
	New GW abstraction - Karstic Geology - Upgrade WTP.	Operation	+	0	-	0	-	-	-	0	0	0
SAI-652	New SW abstraction from Glenmore Lake and upgrade WTP.	Construction	-	-	-	-	-	-	0	0	-	-
		Operation	0	0	0	0	-	-	-	0	0	0
SAI-660	New GW abstraction and abandon existing GW source. New WTP.	Construction	-	-	-	-	-	-	0	0	-	-
		Operation	+	-	-	-	-	-	-	0	0	0
SAI-771	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit.	Construction	-	-	0	0	0	0	0	-	0	0
		Operation	+	0	0	0	0	0	0	0	0	0
SAI-498		Construction	-	-	-	-	-	-	0	0	0	0

Option Reference*	Option Description	Phase	Protect Public Health and Promote Wellbeing (P1, P2, P3)	Protect and Enhance Biodiversity and Contribute to Resilient Ecosystems (B1, B2, B3, B4, B5)	To Protect Landscapes, Townscapes and Visual Amenity (L-1)	Protect and Where Appropriate Enhance, Built and Natural Assets and Reduce Waste (M1, M2)	Reduce Greenhouse Gas Emissions (C1)	Contribute to Environmental Climate Change Resilience (R1, R2, R5)	Protect and Improve Surface Water and Groundwater Status (W1, W2, W3)	Avoid Flood Risk (W5)	Protect and Where Appropriate, Enhance Cultural Heritage Assets (CH1)	Protect Quality and Function of Soils (G1)
	New GW abstraction and upgrade Toormore WTP to supply deficit.	Operation	0	0	0	0	-	-	-	0	0	0
SAI-784	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit.	Construction	-	-	0	0	0	0	0	0	0	0
		Operation	+	0	0	0	0	0	0	0	0	0
SAI-772	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit.	Construction	-	-	0	0	-	0	0	0	0	0
		Operation	+	0	0	0	-	0	0	0	0	0
SAI-774	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit.	Construction	-	-	0	0	0	0	0	0	0	0
		Operation	+	0	0	0	0	0	0	0	0	0

Option Reference*	Option Description	Phase	Protect Public Health and Promote Wellbeing (P1, P2, P3)	Protect and Enhance Biodiversity and Contribute to Resilient Ecosystems (B1, B2, B3, B4, B5)	To Protect Landscapes, Townscapes and Visual Amenity (L1)	Protect and Where Appropriate Enhance, Built and Natural Assets and Reduce Waste (M1, M2)	Reduce Greenhouse Gas Emissions (C1)	Contribute to Environmental Climate Change Resilience (R1, R2, R5)	Protect and Improve Surface Water and Groundwater Status (W1, W2, W3)	Avoid Flood Risk (W5)	Protect and Where Appropriate, Enhance Cultural Heritage Assets (CH1)	Protect Quality and Function of Soils (G1)
SAI-778	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit.	Construction	-	-	0	0	0	0	0	0	0	0
		Operation	+	0	0	0	0	0	0	0	0	0
SAI-779	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit.	Construction	-	-	0	0	0	0	0	0	0	0
		Operation	+	0	0	0	0	0	0	0	0	0
SAI-780	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit.	Construction	-	-	0	0	0	0	0	0	0	0
		Operation	+	0	0	0	0	0	0	0	0	0
SAI-781		Construction	-	-	0	0	0	0	0	0	0	0

Option Reference*	Option Description	Phase	Protect Public Health and Promote Wellbeing (P1, P2, P3)	Protect and Enhance Biodiversity and Contribute to Resilient Ecosystems (B1, B2, B3, B4, B5)	To Protect Landscapes, Townscapes and Visual Amenity (L-1)	Protect and Where Appropriate Enhance, Built and Natural Assets and Reduce Waste (M1, M2)	Reduce Greenhouse Gas Emissions (C1)	Contribute to Environmental Climate Change Resilience (R1, R2, R5)	Protect and Improve Surface Water and Groundwater Status (W1, W2, W3)	Avoid Flood Risk (W5)	Protect and Where Appropriate, Enhance Cultural Heritage Assets (CH1)	Protect Quality and Function of Soils (G1)
	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit.	Operation	+	0	0	0	0	0	0	0	0	0
SAI-526	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit.	Construction	-	-	0	0	0	0	0	0	0	0
		Operation	+	0	0	0	0	0	0	0	0	0

*SA Options are the same as Group Options

**Total lifetime tCO₂e categories: minor beneficial = -ve negligible/neutral = <1000 minor = 1000 to <10,000, Moderate = 10,000 to <50,000, Major = 50,000+

5.2 Additional Measures

In addition to the SA Preferred Approach supply options, Irish Water is already implementing measures across the three pillars of Lose Less, Use Less and Supply Smarter to improve the level of service to its customers in this study area. These are described in the SAI Technical Report (RWRP-SW Appendix 2) and include leakage reduction and water conservation.

5.2.1 Leakage Reduction



The leakage reduction measures across the public water supply are based on what Irish Water assesses to be both achievable and sustainable and include:

- Ongoing leakage management including active leakage control, pressure management, and find and fix activities to offset Natural Rate of Leakage Rise; and
- Further net leakage reductions, to move towards achieving the national SELL target by 2034, in the WRZs: Cork City and Clonakilty.

5.2.2 Water Conservation



At present, Irish Water is conducting pilot studies in relation to water conservation stewardship in businesses and is actively progressing water conservation messaging campaigns. During drought conditions in 2018, a Water Conservation Order was implemented, in order to protect water supplies and reduce pressure on the natural environment during this period. Irish Water will continue to promote 'Water Conservation Activities', collecting and monitoring data over a number of years to assess the benefits. As part of the Framework Plan, Irish Water has not applied reductions to the SDB for unquantifiable water conservation gains. However, Irish Water does assume that any gain will offset consumer usage growth factors.

5.3 Interim Solutions

The SAI Technical Report (RWRP-SW Appendix 2) identifies potential interim solutions that allow shorter term interventions to be identified and prioritised, when needed. These are expected to be small scale, within site works and are not likely to give rise to significant environmental effects. However, they would need to be subject to relevant assessments, including AA screening as and when they are required.

5.4 Approach Uncertainty and Adaptability

A summary of the adaptability criteria and sensitivity analysis Irish Water have undertaken for the SA Preferred Approach is provided in the SAI Technical Report (RWRP-SW Appendix 2). A high-level assessment of what this could mean for the SEA is shown in Table 5.4.

Table 5.4 SAI Sensitivity Analysis and Environmental Impacts

Uncertainty	Likelihood	Increase/ Decrease in Deficit	Environmental Impacts Relative to Assessment of Preferred Approach Key: Green - Positive Amber - Negative
Sustainability	Moderate/High (as Irish Water's current)	+30,000 m ³ /d	The impact of sustainability reductions would reduce the volumes that can be abstracted from Irish Water's existing sources, therefore, increasing the SDB deficit. There are

Uncertainty	Likelihood	Increase/ Decrease in Deficit	Environmental Impacts Relative to Assessment of Preferred Approach Key: Green - Positive Amber - Negative
	abstractions are large compared to the waterbodies from which they abstract)		<p>several surface water sources in SAI that would be impacted through sustainability reductions. However, the Preferred Approach is designed to relieve pressure on these sources by supplementing from new, more resilient surface water and groundwater sources.</p> <p>Groundwater sustainability is more difficult to assess at desktop level, however, as the abstractions in SAI are small in scale they do not appear to be problematic.</p> <p>The Preferred Approach allows for the decommissioning of six abstractions that could be impacted through sustainability reductions (Tibbotstown, Castletownbere, Glengarrif, Allihies, Cahermore and Caherdaniel/Castlecove) so could contribute to sustainability improvements. Other sources that could be impacted are to be supplemented by other sources to increase their resilience.</p>
Climate Change	High (international climate change targets have not been met)	+3,000 m ³ /d	<p>Higher climate change scenarios would impact Irish Water's existing supplies and result in decreased water availability at certain times of year. Although the likelihood of this scenario is high based on climate change adaptation to date, potential impacts may be mitigated against by optimising Irish Water's operations on a more environmentally sustainable basis across the range of supplies.</p> <p>Within SAI, there are several surface water abstractions that would be vulnerable to increased climate change impacts scenarios. However, these sources are to be decommissioned or supplemented as part of the Preferred Approach.</p> <p>Regarding the existing and proposed new groundwater abstractions, there is more difficulty and uncertainty in assessing increased climate change impacts. However, it is generally understood that groundwater will be more resilient than surface water sources.</p> <p>Although the Preferred Approach provides more operational flexibility to use less sensitive water sources, this could still result in more pressure on sources.</p>

Uncertainty	Likelihood	Increase/ Decrease in Deficit	Environmental Impacts Relative to Assessment of Preferred Approach Key: Green - Positive Amber - Negative
Demand Growth	Low/Moderate (growth has been based on policy)	-50,366 m ³ /d	The impact of lower than expected growth would reduce the SDB deficit and the overall need requirement. The SDB deficit is currently spread across fifty-two of the eighty-nine WRZs in the area and is projected to spread across sixty. This is driven by quality as well as quantity issues.
			This could allow lower than expected energy and carbon costs and lower increased abstraction requirements
Leakage Targets	Low (Irish Water is focused on sustainability and aggressive leakage reduction)	+2,294 m ³ /d	The impact of lower than expected leakage savings would increase the SDB deficit and the overall need requirement. Due to the length and condition of Irish Water's networks, Irish Water could potentially fail to achieve target leakage reductions within the timeframes set out. However, as Irish Water is committed to achieving leakage reductions, the likely scenario would be an extension in the period of time taken to achieve leakage targets as opposed to accepting lower targets.
			This could increase carbon and the effects of abstraction pressure on the environment
	Moderate/High (Irish Water is focused on sustainability and aggressive leakage reduction)	-40,994 m ³ /d	Increased leakage savings beyond SELL would reduce the SDB deficit and the overall need requirement. The need drivers span across the WRZs in SAI and are driven by quality as well as availability issues.
			This could allow lower than expected energy and carbon emissions and lower increased abstraction requirements.



6

SEA Cumulative Effects for SAI Preferred Approach

6 SEA Cumulative Effects for SAI Preferred Approach

Secondary, cumulative and the synergistic nature of the effects of the SAI Preferred Approach proposals are required to be considered as part of SEA. These include:

- 'Within plan' or 'in-combination' effects; and
- Interaction with other plans and programmes.

Cumulative effects are also considered for the proposals across the three study areas within the South West Region and reported in the SEA Environmental Report of the Regional Plan. Further consideration of any inter regional cumulative effects will be addressed in each Regional Plan SEA sequentially.

6.1 Cumulative Effects 'Within Plan' for SAI

The potential 'within plan' cumulative effects for SAI are considered at the following different levels:

- Option level: Identification of mutually exclusive or dependent options – this was considered through the options screening and approach development process;
- SA approaches: Cumulative effects are taken into account in the selection of approaches for key aspects such as abstraction from the same waterbody through the sustainability rules applied for Irish Water abstractions (see section 3.2);
- SA Preferred Approach: The combined effect of options within the SA Preferred Approach – these are addressed in this chapter; and
- The South West Region level: Considering combined effects from proposals in the three study areas (see the SEA Environmental Report of the Regional Plan).

For cumulative effects to occur, there needs to be an overlap of temporal periods in some way for the impact and/or the effect. For example, two schemes being constructed at the same time could result in cumulative traffic movements, while two schemes being operated together could result in additional drawdown of groundwater levels. A precautionary approach has been taken for the cumulative effect's assessment, which assumes that all options could be constructed at the same time and then all options would be operated at the same time (Table 6.1). However, this is very unlikely to be the case for construction impacts due to budget resources and regulatory constraints. Note that SAI covers a large area and has many options. Therefore, although all options were assessed, Table 6.1 does not include the options that were determined to have no pathways for cumulative impacts. These options being: SA option 20, SA option 97, SA option 152, and SAI-011, 050, 102, 146, 176, 193, 212, 273, 324, 410, 442, 450, 455, 486, 508, 526, 660, 772, 774, 778, 780 and 781.

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

- Biodiversity – for example, a cumulative loss of habitats or changes to a habitat's quality through changes in water quality or groundwater levels;
- Water environment (surface water and groundwater WFD status) – for example, changes to water flow due to combined abstraction pressure;
- People and health – for example, disruption due to multiple construction works taking place at the same time;
- Landscape and visual – for example, if there are a number of options located close together that could alter the landscape character or views;
- Cultural heritage – for example if the same cultural heritage features are affected by above ground infrastructure in close proximity or the combined effect of loss to undesignated

archaeological assets or from combined impacts resulting in additional changes to water levels affecting archaeological resources; and

- Climate change – combined carbon emissions for the approach as a whole have been considered through the approach selection process and are also reported here to identify potential requirements for mitigation. Combined effects on climate change adaptation are also considered.

6.1.1 Cumulative Effects during Construction

In general, the SA Preferred Approach options are geographically spaced out and most are small scale construction works. Therefore, there are unlikely to be many cumulative effect interactions during construction.

There could be cumulative effects associated with construction in terms of traffic, noise and dust for the options located along the N71 road (indicated by N71 in Table 6.1). These could be mitigated by standard mitigation measures such as planning of construction traffic routes and movements and engaging with local residents about the disruption. With these standard good practice measures in place, there are unlikely to be significant cumulative effects.

There could be cumulative effects from spread of invasive non-native species, disturbance and pollution impacts on Caha Mountains SAC and Glengarriff Harbour and Woodland SAC given that SAI-468, 652 (Caha Mountains SAC only) and SA option 155 all have potential for impacts to the sites (see 'CM' and 'GHW' in Table 6.1). If construction of SAI-630, 643, 645, 652 and 768 and SA options 123 and 160 are concurrent, there could be cumulative effects from spread of invasive non-native species (SAI-768 and SA options 123 and 160 only), disturbance (SAI-630, 768 and SA options 123 and 160 only) and pollution (all options) on Kenmare River SAC (KR). Cumulative effects from spread of non-invasive species, disturbance and pollution could also occur if construction of SAI-643 and SA option 123 are concurrent (identified as KNP in Table 6.1).

There could be cumulative effects from disturbance and pollution impacts on Beara Peninsula SPA if construction of options SAI-480, 768 and SA option 160 are concurrent (see 'BP' in Table 6.1). There could be cumulative effects from pollution impacts on The Gearagh SAC and SPA and The Barley Cove to Ballyrisode Point SAC if construction of options SAI-060 and 771, and SAI-457, 498 and 784 are concurrent, respectively (these are identified as 'G' and 'BBP' in Table 6.1). There could also be cumulative effects from pollution impacts on The Gearagh SAC and SPA and The Barley Cove to Ballyrisode Point SAC if construction of options SAI-060 and 771, and SAI-457, 498 and 784 are concurrent, respectively (these are identified as 'G' and 'BBP' in Table 6.1). Similarly, if construction of option SAI-498, SA option 155 and SA option 162; SAI-779 and SA option 171; SA options 77, 149 and 150; and SA options 163 and 171 are concurrent, there could be cumulative effects from pollution impacts on Roaringwater Bay and Islands SAC; Courtmacsherry SAC and SPA; Ballymacoda SAC and SPA; and Cork Harbour SPA, respectively. These are represented in Table 6.1 as 'RBI', 'CC', 'BB' and 'CH', respectively. Cumulative effects to European designated sites during construction could be mitigated with good practice mitigations, such as having buffers along the edge of the river and having an emergency plan in place during construction. The impacts on the European designations are provided in the NIS and also summarised in chapter 9 of this review.

Table 6.1 Potential In-Combination Effects between Preferred Options in SAI*

SAI-457																						
SAI-468																						
SAI-480																						
SAI-498		BBP																				
SAI-630																						
SAI-643						KR																
SAI-645						KR	KR															
SAI-652			CM			KR	KR	KR														
SAI-768				BP		KR	KR	KR	KR													
SAI-771	G																					
SAI-779																						
SAI-784		BBP			BBP																	
SA Option 77																						
SA Option 123						KR	KR KNP	KR	KR	KR												
SA Option 149																			BB			
SA Option 150																		BB		BB		
SA Option 155			CM GHW		RBI				CM													
SA Option 160				BP		KR	KR	KR	KR	BP KR											KR	
SA Option 162					RBI																RBI N71	
SA Option 163																						
SA Option 171												CC									N71 N71 CH	
Preferred Approach	SAI-060	SAI-457	SAI-468	SAI-480	SAI-498	SAI-630	SAI-643	SAI-645	SAI-652	SAI-768	SAI-771	SAI-779	SAI-784	SA Option 77	SA Option 123	SA Option 149	SA Option 150	SA Option 155	SA Option 160	SA Option 162	SA Option 163	SA Option 171

Key	
*SAI covers a large area and has many options. Therefore, although all options were assessed, this table only contains the options that were determined to have potential for cumulative impacts	
Construction Phase	
Operation Phase	
Construction and Operation	
The Gearagh SAC and SPA	G
The Barley Cove to Ballyrisode Point SAC	BBP
Caha Mountains SAC	CM
Glengarriff Harbour and Woodland SAC	GHW
Beara Peninsula SPA	BP
Roaringwater Bay and Islands SAC	RBI
Kenmare River SAC	KR
Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC	KNP
Courtmacsherry Estuary SAC and Courtmacsherry Bay SPA	CE
Ballymacoda (Clonpriest and Pilmore) SAC and Ballymacoda Bay SPA	BB
Cork Harbour SPA	CH
N71 road	N71

6.1.2 Cumulative Effects during Operation

The SEA has not identified, at a plan level, any potential for cumulative effects during the operational phase of the SAI Preferred Approach.

The potential for cumulative effects on groundwater bodies has been considered in a hydrogeological assessment of the groundwater abstractions commissioned by Irish Water (Irish Water, 2022). See Table 6.1 for the Preferred Approach abstractions in SAI. The hydrogeological assessment considers the abstraction quantities and proximities and concludes that all of the WFD groundwater bodies (Ballinhassig East; Bandon; Beara Sneem; Beara Sneem Islands; Cloyne; Glenville; Kenmare; Middleton; Skibbereen-Clonakilty and Tourig Group 1) affected cumulatively by the proposed and existing abstractions have a good quantitative status, therefore, the likelihood of affecting their WFD objectives is low, and no interaction was identified with existing Irish Water abstractions.

The proposed increase abstraction at Inniscarra will not impact existing compensation flow as the additional volume of water will be obtained from storage. It is envisaged that the existing compensation flow regime will reviewed through the proposed license application process and IW is committed to working with ESB to provide mitigation measures such as increased flow variability. There are therefore no cumulative effects identified from the increase in abstraction and there is recognised to be potential to improve compensation flow variability to benefit aquatic ecology requirements.

The potential for cumulative effects on European designated sites has been considered in the NIS. The NIS concluded that there will be no operational cumulative effects to the sites.

There could also be cumulative effects in terms of carbon emissions across the SA Preferred Approach. The whole life carbon estimate (including construction and operation) for the SA Preferred Approach indicates increased contribution to carbon emissions related to carbon embodied in materials used for construction and through operational energy use and water treatment. Generally, in terms of carbon emissions, increases in carbon emissions can be considered a significant effect, as these increases add cumulatively across all developments and contribute to carbon emissions at a national level. However, consideration also needs to be given to the additional water supply provided from the options and therefore the overall carbon efficiency in terms of carbon emissions per ML of supply is an appropriate metric and for SAI this averages as 327 tCO₂e/ML (lifetime sum). Mitigation for carbon emissions could include increased sourcing of energy from renewable sources and improving energy efficiency. This could be undertaken alongside leakage reduction and campaigns to raise awareness of measures to reduce water consumption (which in turn would reduce energy consumption). This could include the promotion of water efficient devices and working with planning authorities and developers to encourage new development to be water efficient.

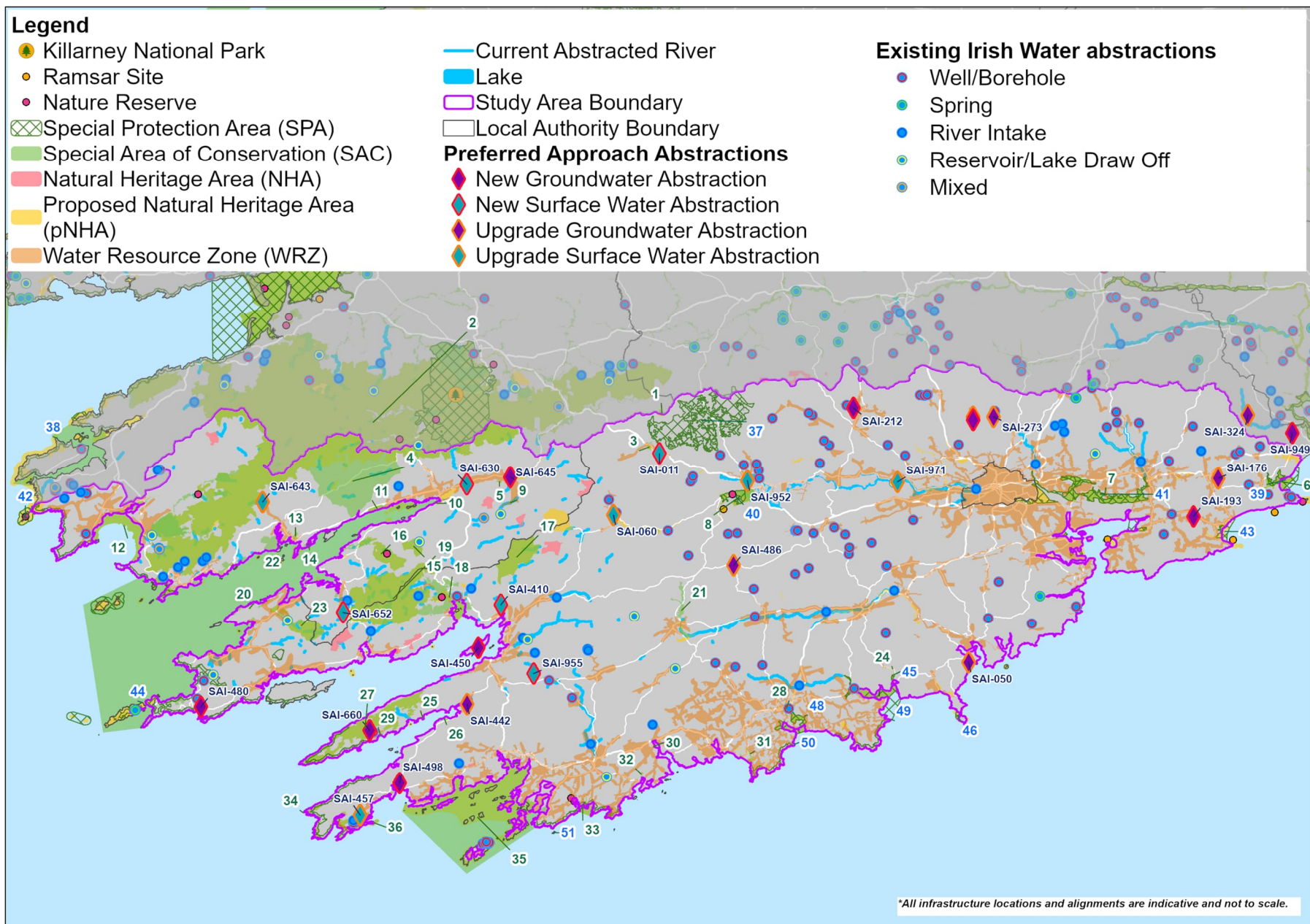


Figure 6.1 SA Preferred Approach Abstraction in SAI

6.2 Cumulative Effects with Other Developments

The SAI Preferred Approach has been assessed alongside other developments that could occur within the plan area. Proposals for other strategic developments within SAH are primarily identified from the National Planning Framework and from myProjectIreland, where any relevant projects for the study area are included (other local developments may also be included that are not listed in myProjectIreland if they are considered to be of an appropriate scale). Small scale housing and business development are not considered for this plan level assessment. Potential cumulative effects could include increased traffic and noise. These could be mitigated by standard mitigation measures, such as planning of construction traffic routes and informing local residents about the works. With these standard good practice measures in place, there are unlikely to be significant cumulative effects.

Table 6.2 shows that within SAI there are a number of regeneration and construction projects in and near Cork and Midleton and along N25 and N70 routes. In addition to these, there are numerous other developments that could cause cumulative effects with the SA Preferred Approach within the study area. Note that SAI covers a large area and has many options. Therefore, although all options were assessed, Table 6.2 does not include the options that were determined to have no pathways for cumulative impacts. These options being: SA option 20, SA option 77, SA option 97, SA option 150, SA option 152, SAI-050, 060, 102, 146, 176, 193, 212, 273, 324, 410, 442, 450, 455, 457, 468, 486, 498, 508, 526, 660, 771, 772, 774, 778, 779, 780, 781 and 784.

6.2.1 Cumulative Effects during Construction

The projects near or in Cork and Midleton and along N25, N70 and N71 roads could result in cumulative effects with the SA Preferred Approach if they were to be constructed at the same time (represented in Table 6.2 as 'C', 'M', 'N25', 'N70' and 'N71', respectively). Potential effects could include increased traffic and noise to the residential and commercial properties in Cork and Midleton or along the three roads. These could be mitigated by standard mitigation measures, such as planning of construction traffic routes and informing local residents about the works. With these standard good practice measures in place, there are unlikely to be significant cumulative effects. The plan level assessment indicates that there is potential for cumulative effects on cultural heritage assets including archaeological resources related to the total extent of the ground works required, this will need to be considered further as detailed route alignments and site locations are determined along with approaches for more detailed desk studies, investigation and mitigation.

There is potential for cumulative effects from disturbance impacts on Mullaghanish to Musheramore Mountains SPA and Beara Peninsula SPA if the construction phase of N22 Baile Bhuirne to Macroom Road Development and Dursey Island Cable Car and Visitor Centre are concurrent with the SA Preferred Approach, respectively (identified as 'MMM' and 'BP' in Table 6.2). If construction of N/M20 Cork to Limerick Road Improvement Scheme is concurrent with the SA Preferred Approach, there is potential for cumulative effects from spread of non-native species and disturbance impacts on Blackwater River SAC (see 'BR' in Table 6.2). There is potential for cumulative effects from pollution impacts on Kenmare River SAC if the construction phase of Dursey Island Cable Car and Visitor Centre, Úibh Ráthach Action Plan and N70 Sneem to Blackwater Bridge are concurrent with the SA Preferred Approach (identified as 'KR' in Table 6.2). Similarly, if construction of Carrigaline Western Relief Road, Blackpool Flood Relief Scheme, Glashaboy Flood Relief Scheme, N28 Cork to Ringaskiddy Road, N/M20 Cork to Limerick Road Improvement Scheme, N25 Carrigtohill to Midleton Upgrade Scheme, Remediation of Haulbowline Island and projects within and near Midleton are concurrent with the SA Preferred Approach, there could be cumulative effects from pollution impacts to Cork Harbour SPA and

Great Island Channel SAC (identified as 'CH' and 'GIC' in Table 6.2). Projects in and near Midleton include: Midleton Flood Relief Scheme; Midleton Main Street Public Realm Improvements; Midleton Permeability Package of Proposals and Midleton Water Supply Scheme. There is also potential cumulative effects from pollution impacts on the Sovereign Channel SAC if construction phase of Carrigaline Western Relief Road works is concurrent with the SA Preferred Approach (represented in Table 6.2 as 'S'). With the implementation of mitigation measures as outlined in section 6.3.3 of the NIS, there will be no adverse cumulative effects on the integrity of any of the SACs or SPAs mentioned.

Table 6.2 Potential Cumulative Effects between Preferred Options and Other Developments in SAI*

Preferred Approach	SAI-011	SAI-480	SAI-630	SAI-643	SAI-645	SAI-652	SAI-768	SA Option 123	SA Option 149	SA Option 150	SA Option 155	SA Option 160	SA Option 162	SA Option 163	SA Option 171
Beamish and Crawford/Grand Parade Quarter															
Blackpool Flood Relief Scheme														CH	CH / GIC
Carrigaline Public Realm															
Carrigaline Western Relief Road														CH	CH / GIC / S
Carrigtwohill															
Clonakilty Flood Relief Scheme															
Cork City Docklands															C
Cork City Docklands 2															C
Cork Metropolitan Area Transport Strategy															C
Cork North Ring Road															C
Digital Innovation Hub Strategy															
Douglas Flood Relief Scheme															
Dursey Island Cable Car and Visitor Centre		BP	KR	KR	KR	KR	KR / BP	KR				KR / BP			
Glashaboy Flood Relief Scheme														CH	CH / GIC
Grand Parade Quarter															
Green Lane, Blackpool, Cork City															C
Grousemount Wind Farm															
Kent Station Yard (site enabling)															
Lower Lee (Cork City) Flood Relief Scheme															C
M8/N25 Dunkettle Interchange									N25	N25					
Macroom Garda Station - PPP: Garda Station Bundle															
Midleton Wastewater Network															M

Preferred Approach	SAI-011	SAI-480	SAI-630	SAI-643	SAI-645	SAI-652	SAI-768	SA Option 123	SA Option 149	SA Option 150	SA Option 155	SA Option 160	SA Option 162	SA Option 163	SA Option 171
Midleton Flood Relief Scheme														CH	CH / GIC / M
Midleton Main Street Public Realm Improvements														CH	CH / GIC / M
Midleton Permeability Package of Proposals														CH	CH / GIC / M
Midleton Wastewater Transfer Project															M
Midleton Water Supply Scheme - Interconnection to Inniscarra Regional Water Supply Scheme and Additional storage														CH	CH / GIC / M
N/M20 Cork to Limerick Road Improvement Scheme									BR					CH	CH / GIC / C
N22 Baile Bhuirne to Macroom Road Development	MMM														
N25 Carrigtohill to Midleton Upgrade Scheme									N25	N25				CH	CH / GIC / M
N28 Cork to Ringaskiddy Road														CH	CH / GIC / C
N70 Sneem to Blackwater Bridge			KR	KR	KR	KR	KR	KR / N70				KR			
N70/71 Gortamullen								N70			N71		N71		N71
Passage West Ringaskiddy Carrigaline Harbour Cluster															
Regeneration of Town Centre and the Development of a future vision for the disused former Courthouse															
Remediation of Haulbowline Island														CH	CH / GIC
Ringaskiddy Redevelopment															

Preferred Approach	SAI-011	SAI-480	SAI-630	SAI-643	SAI-645	SAI-652	SAI-768	SA Option 123	SA Option 149	SA Option 150	SA Option 155	SA Option 160	SA Option 162	SA Option 163	SA Option 171
Skibbereen Regional Water Supply Scheme - Water Treatment Plant & Network															
Tivoli Docks															
Úibh Ráthach Action Plan			KR	KR	KR	KR	KR	KR / BE				KR			

Key	
*SAI covers a large area and has many options. Therefore, although all options were assessed, this table only contains the options that were determined to have potential for cumulative impacts.	
Construction Phase	
Operation Phase	
Construction and Operation	
Beara Peninsula SPA	BP
Kenmare River SAC	KR
Cork Harbour SPA	CH
Mullaghanish to Musheramore Mountains SPA	MMM
Blackwater River SAC	BR
Great Island Channel SAC	GIC
Sovereign Islands SPA	S
Cork	C
Midleton	M
N70 road	N70
N71 road	N71
N25 road	N25

6.2.2 Cumulative Effects during Operation

There could be cumulative effects on Blackwater River SAC if operation of the SAH Preferred Approach is concurrent with N/M20 Cork to Limerick Road project (identified as 'BR' in Table 6.2). However, with the implementation of standard good practice measures, there will be no adverse effects on the integrity of this European site.

The plan level assessment indicates that there could be cumulative effects in terms of carbon emissions, as all developments will generate carbon emissions from operation whether this is from routine maintenance activities to water treatment and the energy required for moving water. As outlined in section 6.1.2, any increase in carbon can be considered a significant effect, as these increases add cumulatively across all developments and contribute to carbon emissions at a national level. The same mitigation measures suggested for the SAI Preferred Approach apply, including increased sourcing of energy from renewable sources and raising awareness of measures to reduce water consumption (which in turn would reduce energy consumption). Working with third parties, including planning authorities and other developers, to identify water efficient measures and joint promotion of water issues would also further mitigate this effect.



7

Strategic Environmental Assessment Summary

7 Strategic Environmental Assessment Summary

SEA objectives have been taken into account at each stage of the approach development process for SAI and a range of options and SA approaches have been considered and assessed, including a 'Do Minimum' approach.

Key beneficial impacts assessed include moderate beneficial impacts for options associated with increasing resilience and the quality of water supply for local communities; and the subsequent benefits of this for public health. There are also moderate long-term beneficial impacts associated with the decommissioning of WTPs for landscape and visual amenity.

Key potential adverse impacts identified at plan level include:

- Moderate adverse effects during construction for option SAI-630, SA option 152 and SA option 171, due to potential short-term adverse impacts to public health and/or quality of life from dust, noise and/traffic in the urban and rural areas. There would also be temporary amenity area loss/loss of access to amenity area during construction for SA 171, and potential permanent amenity area loss for SA option 152;
- Moderate adverse effects during construction against biodiversity for options SAI-176, 450, 486, 768, and SA option 171, SA option 123, 149, 150, 155 and 160 being located within or being hydrologically linked to European and nationally designated sites. This has the potential to cause short-term disturbance and/or pollution which could affect QI species and hydrologically connected habitats;
- Major adverse effects to the water environment during operation due to high level groundwater assessments indicating the potential for long term abstraction impacts for options SAI-050, 176, 212, 324, 442, 450, 457, 480, 486, 498, SA options 20, 77, 149, 150, 155, 160. However, further studies are required to understand impacts and develop mitigation;
- Moderate adverse effects during construction of options SAI-630 and 660, and SA option 163 and 171 are associated with cultural heritage, as the options are located in a known archaeological site; and
- Moderate adverse effects to environmental climate change resilience for SA options 155 due to the requirement of new surface water abstractions, and options SAI-212, 450, 480, 498, SA option 149 and 163 due to the requirement of a new groundwater abstraction. Options SAH-050, 176, 273, 324, 442, 486, SA option 20, 77, 150 and 160 also have potential for moderate adverse effects due to the level of increase in their existing groundwater abstractions. Option SAI-457 and SA option 97 have potential for moderate adverse effects due to the level of increase in their existing surface water abstractions.

Cumulative effects assessment identified potential significant adverse effects in relation to carbon emissions, although the individual options are assessed as only neutral to moderate in relation to this SEA objective. This is because potential increases in carbon emissions contribute to national emissions. The average carbon intensity from the individual options provides an indicator for the new options in SAI but does not provide a complete picture as it does not fully take account of efficiencies from replacement of failing infrastructure, treatment technology or potential for mitigation, such as use of renewable energy sources in relation to the whole network. Insufficient information is available for the cumulative effects assessment to consider how total study area carbon emissions will change overall and per ML of water.

SEA mitigation identified to address the key adverse impacts identified above includes further hydrological or hydrogeological modelling (as appropriate) to further inform understanding of potential impacts on the European and national designated sites identified as potentially affected by increased

abstractions from existing surface and groundwater sources (see the NIS of the Framework Plan for further information). Other mitigation identified includes development of construction environmental management plans, public consultation with local residents on disruption during construction and consideration of the waste hierarchy in design. Measures to address the cumulative impact for carbon emissions include sourcing the energy supply from renewable sources. All developments will aim to achieve as far as possible requirements for no net loss in biodiversity or enhancement, as set out in the Biodiversity Action Plan (Irish Water, 2021). There may be potential to also provide opportunities for carbon sequestration with biodiversity enhancement. In addition, there are opportunities to reduce water demand (which in turn would reduce energy and carbon) by raising awareness of water issues, promoting water efficient devices and through leakage reduction.

In general, these are standard mitigation measures with some specific measures and additional requirements for further assessment or monitoring (see the SEA Appendix and the NIS Appendix for AA and SEA standard mitigation measures respectively).

An overall summary assessment, including potential for cumulative and in-combination effects and other measures, identified to be progressed alongside the supply side options is provided in Table 7.1. Key mitigation and proposed monitoring measures are also shown.

Table 7.1 SEA Summary

SEA Objectives	SA Preferred Approach (PA) (SA Approach 1) Residual Effects Including Mitigation C – Construction (Short Term) O – Operational (Long Term)	Mitigation	Monitoring	
			Study Area Level	Scheme Level
SA Preferred Approach with interim measures as required and a programme of leakage reduction and water conservation measures, taking an adaptive approach to address uncertainty				
1. Protect public health and promote wellbeing	<p>C Minor Adverse to Moderate Adverse</p> <p>O Moderate Beneficial to Moderate Adverse</p> <p>The PA is expected to improve overall drinking water quality reliability and sustainability through the decommissioning of failing WTPs and the replacement of abstractions vulnerable to drought conditions. The PA is expected to reduce risks to access of good quality water supply across different conditions and over the plan period.</p>	<p>Standard good construction practice and consultation</p> <p>Further assessment of risks to water quality and consideration of catchment management initiatives to improve water quality and reduce treatment cost. For example, working with landowners and managers on practices to reduce levels of sediment and pollution from entering water courses through run off.</p>	<ul style="list-style-type: none"> Level of service, and the frequency and duration of drought orders Number of days/hours when water supply to people is disrupted due to drought, freeze-thaw or other service/infrastructure issues Number of public rights of way closures/diversions and length of paths created compared to loss 	<ul style="list-style-type: none"> Duration of construction works, and number of complaints received regarding construction works Duration of temporary closures of footpaths and other recreational assets Number of days where recreational uses of amenities are impeded
2. Protect and enhance biodiversity and	<p>C Minor Adverse to Moderate Adverse</p> <p>O Neutral to Moderate Adverse</p>	<p>Routing/siting to avoid impacts.</p> <p>Standard good construction practice and specific measures as</p>	<ul style="list-style-type: none"> Temporary and permanent habitats lost vs habitats created/enhanced 	<ul style="list-style-type: none"> Monitor construction activities to ensure compliance

SEA Objectives	SA Preferred Approach (PA) (SA Approach 1) Residual Effects Including Mitigation C – Construction (Short Term) O – Operational (Long Term)	Mitigation	Monitoring	
			Study Area Level	Scheme Level
contribute to resilient ecosystems	Impacts from construction works for pipelines and service reservoirs on biodiversity. These can be minimised through careful routing and siting. Potential for construction and operational impacts on European and National designated sites.	identified in the NIS of the Framework Plan. Design to meet no net loss biodiversity or achieve enhancement, where possible, on or off site and in line with the Biodiversity Action Plan objectives. Further hydrological/hydrogeological assessments to determine impacts on designated sites. Operating rules to limit impacts on European and National sites.	<ul style="list-style-type: none"> Site condition and population data for QI of European and National designated sites. 	
3. To protect landscapes, townscapes and visual amenity	C Minor Adverse to Moderate Adverse O Minor Adverse to Moderate Beneficial Construction landscape impacts and long term impacts from above ground structures, such as new WTPs.	Routing and siting to reduce tree loss and appropriate location and design of above ground structures with landscape planting. Reinstatement of land use and vegetation.	<ul style="list-style-type: none"> Total working area of pipelines in sensitive landscapes Land use/landscape features re-established for schemes over appropriate period – areas/km successfully restored to meet requirements 	<ul style="list-style-type: none"> Duration of construction works Number of complaints received regarding visual impact of construction works

SEA Objectives	SA Preferred Approach (PA) (SA Approach 1) Residual Effects Including Mitigation C – Construction (Short Term) O – Operational (Long Term)	Mitigation	Monitoring	
			Study Area Level	Scheme Level
4. Protect and where appropriate enhance, built and natural assets and reduce waste	C Minor Adverse to Major Adverse O Neutral to Minor Adverse New resources required for construction works, including extensive lengths of pipeline, service reservoirs and new/upgraded WTPs. Ongoing maintenance requirements.	Materials management to be integrated into design to optimise use of existing resources and minimise waste from construction and operation.	<ul style="list-style-type: none"> Loss of greenfield land, including agricultural, forestry or other land uses Disruptions to strategic infrastructure/services Use of waste management plans Volume of drinking water treatment residuals sent to landfill 	<ul style="list-style-type: none"> Construction wastes sent to landfill
5. Reduce greenhouse gas emissions	C Neutral to Major Adverse O Neutral to Major Adverse Embodied and operational carbon contribute to national level carbon emission targets. Leakage and water efficiency can contribute to reducing carbon.	Design to minimise embodied carbon emissions and optimise operational efficiency. Seek renewable energy supply sources and optimise use of leakage and water efficiency measures to reduce carbon. Consider offsetting approaches with multiple benefits for water quality, carbon sequestration and linking with other objectives.	<ul style="list-style-type: none"> Percentage of energy supply from renewable sources or reduced energy use Carbon footprint (total tonnes) per year, predicted over plan period, lifetime of schemes and carbon intensity of water resource options (tonnes/ML/d) 	<ul style="list-style-type: none"> Carbon footprint (total tonnes) during construction Operational Carbon Intensity kgsCO₂equic/ML

SEA Objectives	SA Preferred Approach (PA) (SA Approach 1) Residual Effects Including Mitigation C – Construction (Short Term) O – Operational (Long Term)	Mitigation	Monitoring	
			Study Area Level	Scheme Level
6. Contribute to environmental climate change resilience	<p>C Neutral to Moderate Adverse</p> <p>O Neutral to Moderate Adverse</p> <p>Abstractions generally reduce environmental resilience but overall improved flexibility for operation using regional schemes has the potential to reduce pressure on at risk local resources. WRZ options SAI-050, SAI-176, SAI-212, SAI-273, SAI-324, SAI-442, SAI-450, SAI-480, SAI-486 and SAI-498 require further assessment to understand their sustainability in the longer term.</p>	<p>Consider how operation can further reduce climate change pressure on at risk sources and associated designations, particularly for SAI-050, SAI-176, SAI-212, SAI-273, SAI-324, SAI-442, SAI-450, SAI-480, SAI-486 and SAI-498.</p> <p>Sustainability review of sources taking account of groundwater and surface water interconnections.</p>	<ul style="list-style-type: none"> WFD waterbody status objectives at risk and designated site condition status Frequency of drought orders requiring change to normal abstractions/ compensation releases 	<ul style="list-style-type: none"> None identified
7. Protect and improve surface water and groundwater status	<p>C Neutral</p> <p>O Neutral to Major Adverse</p> <p>Generally, new/increased abstractions are limited to allowable limits and have a low risk of adverse effect on WFD waterbody status objectives.</p>	<p>Further investigation to consider effects on groundwater abstraction on the surface water environment.</p>	<ul style="list-style-type: none"> WFD waterbody status objectives at risk 	<ul style="list-style-type: none"> Pollution incidents during construction

SEA Objectives	SA Preferred Approach (PA) (SA Approach 1) Residual Effects Including Mitigation C – Construction (Short Term) O – Operational (Long Term)	Mitigation	Monitoring	
			Study Area Level	Scheme Level
8. Avoid flood risk	C Neutral to Minor Adverse O Neutral Potential loss of flood plain increasing flood risk from construction and location of above ground structures for SAI-060, 771, SA option 97, 123, 149, 150, 152, 155 and 171.	Siting and design of schemes to take account of flood risk and design for flood risk resilience.	<ul style="list-style-type: none"> Number of options at risk of flooding at each AEP level 	<ul style="list-style-type: none"> Lost time to flooding Lost time to power supply interruptions
9. Protect and where appropriate, enhance cultural heritage assets	C Neutral to Moderate Adverse O Neutral Potential construction impacts on unknown archaeological interest. Impacts on known interests are expected to be avoided.	Standard good practice approaches to minimise potential impacts.	<ul style="list-style-type: none"> Number of archaeological assets adversely affected by water resource options Number of options that are rerouted to avoid cultural heritage impacts Number of schemes including improvements to access recording of archaeological assets or communication/interpretation of interest features 	<ul style="list-style-type: none"> Number of archaeological finds recorded during construction
10. Protect quality and	C Neutral to Moderate Adverse O Neutral	Standard good practice to conserve and reinstate soils.	<ul style="list-style-type: none"> Soil Management Plans implemented 	<ul style="list-style-type: none"> Total volume of soil removed or reused on site

SEA Objectives	SA Preferred Approach (PA) (SA Approach 1) Residual Effects Including Mitigation C – Construction (Short Term) O – Operational (Long Term)	Mitigation	Monitoring	
			Study Area Level	Scheme Level
function of soils	Potential for loss and damage to valuable soils during construction but impacts to geological assets are expected to be avoided.		<ul style="list-style-type: none"> Volume of contaminated land restored, or soils removed 	



8

Water Framework Directive Summary

8 Water Framework Directive Summary

Through the options identification and assessment process new options considered have been restricted to those expected to meet estimated sustainability requirements and all options have been assessed based on conservative allowable abstraction constraints. The options identified in SAI are also expected to be sustainable, based on additional plan-level desk-based assessment, in terms of avoiding deterioration of WFD status or avoiding conflict with meeting WFD objectives.

All groundwater bodies used for the SAI abstractions have good quantitative status (Irish Water, 2022), therefore, the likelihood of affecting their WFD objectives in terms of quantitative status is low. In addition, there are no GWB's currently 'at risk' of failing the above objectives. However, impacts, including cumulative effects with non-Irish Water abstractions, will need to be considered in further detail as part of project level consenting to demonstrate both sustainability for any connected surface waterbodies and groundwater dependent habitats and protected areas.



9

Appropriate Assessment Summary

9 Appropriate Assessment Summary

The NIS of the Regional Plan's conclusions for SAI, regarding 'In-combination effects with other plans and projects' and 'In-combination effects between Preferred Options', as set out below, and are included in more detail in Appendix E of the NIS for the Regional Plan.

Potential in-combination effects with other projects and plans were identified for the preferred options on several SACs and SPAs. The potential effects include:

- Pollution, spread of invasive non-native species and disturbance on the Kenmare River SAC;
- Pollution, spread of invasive non-native species, disturbance, habitat degradation and water table/availability on the Blackwater River SAC;
- Pollution and disturbance on the Roaringwater Bay and Islands SAC;
- Pollution on the Cork Harbour SPA, Great Island Channel SAC, Sovereign Islands SPA, The Gearagh SAC, The Gearagh SPA and the Ballinskelligs Bay and Inny Estuary SAC; and
- Disturbance on the Mullaghanish to Musheramore Mountains SPA and the Beara Peninsula SPA.

The assessment concluded that with the mitigation identified there will be no adverse effects on the integrity of the European sites in-combination with other plans or projects.

Potential in-combination effects between preferred options were identified for several SACs and SPAs. The potential impacts include:

- Pollution impacts on The Gearagh SAC, The Gearagh SPA, Cork Harbour SPA, Ballymacoda (Clonpriest and Pilmore) SAC, Ballymacoda Bay SPA, Roaringwater Bay and Islands SAC, Barley Cove to Ballyrisode Point SAC, Courtmacsherry Estuary SAC, and Courtmacsherry Bay SPA;
- Pollution, disturbance and spread of invasive non-native species impacts on Cahra Mountains SAC, Glengarriff Harbour and Woodland SAC, Kenmare River SAC, and Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC; and
- Habitat loss, pollution, disturbance and spread of invasive non-native species impacts on Beara Peninsula SPA.

With the implementation of mitigation as detailed in Appendix E of the NIS, there will be no adverse effects on the integrity of European sites.



10

Recommendations for Implementation

10 Recommendations for Implementation

Environmental actions for the implementation plan and the monitoring plan are identified in:

- SEA Environmental Report of the Framework Plan – this includes general proposals and standard mitigation requirements (also see SEA Environmental Report Appendix); and
- SEA Environmental Report of the Regional Plan - this includes specific mitigation and monitoring requirements for the South West Region options and cumulative effects.

References

- Catchments.ie. 2021a. *3rd Cycle Draft Bandon Ilen Catchment Report*. [Online]. [Accessed: 21/09/2021]. Available from: <https://catchments.ie/wp-content/files/catchmentassessments/20%20Bandon-Ilen%20Catchment%20Summary%20WFD%20Cycle%203.pdf>
- Catchments.ie. 2021b. *3rd Cycle Draft Blackwater (Munster) Catchment Report*. [Online]. [Accessed: 21/09/2021]. Available from: [https://catchments.ie/wp-content/files/catchmentassessments/18%20Blackwater%20\(Munster\)%20Catchment%20Summary%20WFD%20Cycle%203.pdf](https://catchments.ie/wp-content/files/catchmentassessments/18%20Blackwater%20(Munster)%20Catchment%20Summary%20WFD%20Cycle%203.pdf)
- Catchments.ie. 2021c. *3rd Cycle Draft Dunmanus-Bantry-Kenmare Catchment Report*. [Online]. [Accessed: 21/09/2021]. Available from: <https://catchments.ie/wp-content/files/catchmentassessments/21%20Dunmanus-Bantry-Kenmare%20Catchment%20Summary%20WFD%20Cycle%203.pdf>
- Catchments.ie. 2021d. *3rd Cycle Draft Laune Maine Dingle Bay Catchment Report*. [Online]. [Accessed: 21/09/2021]. Available from: <https://catchments.ie/wp-content/files/catchmentassessments/22%20Laune-Maine-Dingle%20Bay%20Catchment%20Summary%20WFD%20Cycle%203.pdf>
- Catchments.ie. 2021e. *3rd Cycle Draft Lee, Cork Harbour and Youghal Bay Catchment Report*. [Online]. [Accessed: 21/09/2021]. Available from: <https://catchments.ie/wp-content/files/catchmentassessments/19%20Lee,%20Cork%20Harbour%20and%20Youghal%20Bay%20Catchment%20Summary%20WFD%20Cycle%203.pdf>
- Catchments.ie. 2021f. *RBMP 2018-2021 Areas for Action - reasons for selection*. [Online]. [Accessed: 21/09/2021]. Available from: https://www.catchments.ie/data/#/areafraction?_k=taa8b6
- Central Statistics Office (CSO). 2016a. *E2014: Population Density and Area Size 2016 by Towns by Size, Census Year and Statistic*. [Online]. [Accessed: 06/01/20]. Available from: <https://www.cso.ie/en/releasesandpublications/ep/p-cp2tc/cp2pdm/pd/>
- Central Statistics Office (CSO). 2020a. *Irish Life Tables 2015-2017*. [Online]. [Accessed: 18/01/22]. Available from: <https://www.cso.ie/en/releasesandpublications/er/ilt/irishlifetablesno172015-2017/>
- Central Statistics Office (CSO). 2020b. *Physical activity of persons aged 15 years and over*. [Online]. [Accessed: 21/12/20]. Available from: <https://data.cso.ie/table/IH292>
- Central Statistics Office (CSO). 2022a. *County Incomes and Regional GDP 2019*. [Online]. [Accessed: 06/05/22]. Available from: <https://www.cso.ie/en/releasesandpublications/er/cirgdp/countyincomesandregionalgdp2019/>
- Central Statistics Office (CSO). 2022b. *Labour Force Survey Quarter 3 2022*. [Online]. [Accessed: 15/11/22]. Available from: <https://www.cso.ie/en/releasesandpublications/ep/p-lfse/lfsemploymentseriesq32022/>
- Central Statistics Office (CSO). 2022c. *New Dwelling Completions: Quarter 4 2022*. [Online]. Accessed: 16/02/23. Available at: <https://www.cso.ie/en/releasesandpublications/ep/p-ndc/newdwellingcompletionsq42022/>
- Cork City County Council. 2019. *Cork City Council Climate Change Adaptation Strategy 2019-2024*. [Online]. [Accessed: 01/10/21]. Available from: <https://www.corkcity.ie/en/media-folder/environment/final-cork-city-council-climate-change-adaptation-strategy-30-sept-2019-.pdf>

Cork County Council 2007. *Cork County Draft Landscape Strategy*. [Online]. [Accessed: 03/08/21]. Available from: <http://corkcocoplans.ie/wp-content/uploads/bsk-pdf-manager/2016/07/Draft-Landscape-Strategy-2007.pdf>

Cork County Council. 2019. *Cork County Council Climate Adaptation Strategy 2019-2024*. [Online]. [Accessed: 01/12/21]. Available from: <https://www.corkcoco.ie/sites/default/files/2020-09/cork-county-council-climate-adaptation-strategy-2019-2024.pdf>

Council Directive 2000/60/EC of 23rd October 2000 on the European Parliament and of the Council establishing a framework for the Community action in the field of water policy. [Online]. [Accessed: 21/12/20]. Available from: https://ec.europa.eu/environment/water/water-framework/index_en.html

Department of Culture, Heritage and the Gaeltacht. 2020. *Historic Environment Viewer*. [Online]. [Accessed: 06/01/20]. Available from: <http://webgis.archaeology.ie/historicenvironment/>

Department of Environment, Community and Local Government, GSI and EPA. 1999. *Groundwater Protection Schemes*. [Online]. [Accessed: 05/11/21]. Available from: <https://www.gsi.ie/en-ie/publications/Pages/Groundwater-Protection-Schemes.aspx>

Department of Housing, Planning and Local Government. 2019a. *Public Consultation on the Significant Water Management Issues for the third cycle River Basin Management Plan for Ireland 2022-2027*. [Online]. [Accessed: 06/01/20]. Available from: <https://www.housing.gov.ie/water/water-quality/water-framework-directive/public-consultation-significant-water-management>

Department of Housing, Planning and Local Government. 2019b. *Water Quality and Water Services Infrastructure: Climate Change Sectoral Adaptation Plan*. [Online]. [Accessed: 06/01/20]. Available from: https://www.dccae.gov.ie/documents/Water_Quality_and_Water_Services_Infrastructure_Climate_Adaptation_Plan.pdf

Department of the Environment, Climate and Communications. 2018. *Local Authority Adaptation Strategy Development Guidelines*. [Online]. [Accessed: 06/01/20]. Available from: <https://www.gov.ie/en/publication/41066-local-authority-adaptation-strategy-development-guidelines/>

Department of the Environment, Climate and Communications. 2023. *Climate Action Plan*. [Online]. [Accessed: 26/01/23]. Available from: <https://www.gov.ie/en/publication/7bd8c-climate-action-plan-2023>.

Department of Transport, Tourism and Sport. 2019. *People, Place and Policy - Growing Tourism to 2025*. [Online]. [Accessed: 06/01/20]. Available from: <https://assets.gov.ie/15792/8b462712683748e7bce6c7d5c7ecd2a.pdf>

Environmental Protection Agency (EPA). 2018. *Corine Landcover - EPA Geoportal*. [Online]. [Accessed: 06/01/20]. Available from: <http://gis.epa.ie/GetData/Download>

Environmental Protection Agency (EPA). 2019a. *Teagasc Soils Map*. [Online]. [Accessed: 06/01/20]. Available from: <http://gis.teagasc.ie/soils/map.php>

Environmental Protection Agency (EPA). 2020a. *Air Quality in Ireland 2019*. [Online]. [Accessed: 21/12/20]. Available from: <https://www.epa.ie/pubs/reports/air/quality/>

EPA. 2020b. *Water Framework Directive Water Catchments*. [Online]. [Accessed: 29/01/21]. Available at: <https://gis.epa.ie/geonetwork/srv/eng/catalog.search#/metadata/78b8def6-16fd-4934-bc2a-1d52380a2b34>

Environmental Protection Agency (EPA). 2022a. *WFD Status Tables (excel) (All Waterbodies) 2016-2021 – December 2022* [Online]. [Accessed: 05/02/23]. Available at: <https://gis.epa.ie/GetData/Download>

Environmental Protection Agency (EPA). 2022b. *WFD Risk Data Excel - Uploaded August 2022* [Online]. [Accessed: 05/02/23]. Available at: <https://gis.epa.ie/GetData/Download>

Fáilte Ireland. 2020. *Ireland's Hidden Heartlands*. [Online]. [Accessed: 06/01/20]. Available from: <https://www.failteireland.ie/IrelandsHiddenHeartlands.aspx>

Government of Ireland. 2018. *Project Ireland 2040: National Planning Framework*. [Online]. [Accessed: 06/01/20]. Available from: <http://npf.ie/wp-content/uploads/Project-Ireland-2040-NPF.pdf>

Government of Ireland. 2021. *myProjectIreland: Project Ireland 2040*. [Online]. [Accessed: 17/01/22]. Available from: <https://geohive.maps.arcgis.com/apps/MapSeries/index.html?appid=f05a07c5a0324b1a887cd9d5d7103e22>

Irish Water. 2021. *Irish Water's Biodiversity Action Plan: Embedding Biodiversity into Water Services*. [Online]. [Accessed: 25/06/21]. Available from: https://www.water.ie/docs/21668_Ervia_IrishWaterBiodiversityActionPlan_v7.pdf

Irish Water. 2022. Technical Note: Groundwater Summary Report – Potential impacts on GW Bodies due to Irish Water Groundwater Abstraction Scheme.

Kerry County Council. 2019. *Kerry County Council Climate Change Adaptation Strategy 2019-2024*. [Online]. [Accessed: 01/12/21]. Available from: <https://www.kerrycoco.ie/kcc-climate-change-adaption-strategy-2019-2024-adopted-16th-sept-2019/>

Kerry County Council. 2021. *Draft Kerry County Development Plan 2022-2028*. Kerry: Kerry County Council.

Met Éireann. 2019. *Climate of Ireland*. [Online]. [Accessed: 06/01/20]. Available from: <https://www.met.ie/climate/climate-of-ireland>

National Biodiversity Data Centre. 2021. *National Invasive Species Database*. [Online]. [Accessed 13/12/21]. Available from: <https://maps.biodiversityireland.ie/Dataset/66>

National Parks and Wildlife Service (NPWS). 2011. *Red Lists*. [Online]. [Accessed: 06/01/20]. Available from: <https://www.npws.ie/research-projects/animal-species/invertebrates/red-lists>

National Parks and Wildlife Service (NPWS). 2019a. *Protected Sites in Ireland*. [Online]. [Accessed: 06/01/20]. Available from: <https://www.npws.ie/protected-sites>

National Parks and Wildlife Service (NPWS). 2019b. *Article 17 Reports 2019*. [Online]. [Accessed: 06/01/20]. Available from: <https://www.npws.ie/publications/article-17-reports/article-17-reports-2019>

National Tourism Development Authority. 2016. *Tourism Development & Innovation: A strategy for investment 2016-2022*. [Online]. [Accessed: 06/01/20]. Available from: <https://www.failteireland.ie/FailteIreland/media/WebsiteStructure/Documents/Irelands%20Ancient%20East/FI-Tourism-Investment-Strategy-Final-07-06-16.pdf>

Nelson, B., Cummins, S., Fay, L., Jeffrey, R., Kelly, S., Kingston, N., Lockhart, N., Marnell, F., Tierney, D. and Wyse Jackson, M. 2019. *Checklists of protected and threatened species in Ireland*. Irish Wildlife Manuals, No. 116. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland. [Online]. [Accessed: 06/12/21]. Available from: <https://www.npws.ie/sites/default/files/publications/pdf/IWM%20116%20Checklists%20Protected%20and%20Threatened%20Species%202019.pdf>

Office of Public Works. 2009. *The Planning System and Flood Risk Management Guidelines for Planning Authorities*. [Online]. [Accessed: 06/01/20]. Available from: <https://www.opr.ie/wp-content/uploads/2019/08/2009-Planning-System-Flood-Risk-Mgmt-1.pdf>

Office of Public Works. 2018. *Catchment Flood Risk Assessment and Management Programme*. [Online]. [Accessed: 06/01/20]. Available from: <https://www.floodinfo.ie/map/floodplans/>

Ordnance Survey Ireland. n.d. *GeoHive Environmental Sensitivity Mapping*. [Online]. [Accessed: 03/08/21]. Available from: <https://airomaps.geohive.ie/ESM/>

Pure Cork. n.d. *Official tourism website for Cork, Ireland*. [Online]. [Accessed: 01/10/21]. Available from: <https://purecork.ie/>

The Marine Institute. 2020. *Definition and Classification of Ireland's Seascapes*. [Online]. [Accessed: 08/02/21]. https://emff.marine.ie/sites/default/files/bluegrowth/PDFs/final_seascape_character_assessment_report_with_annexes.pdf

UKTAG. 2013. *UK Technical Advisory Group on the Water Framework Directive Final recommendations on new and updated biological standards*. [Online]. [Accessed: 06/01/20]. Available from: http://www.wfduk.org/sites/default/files/Media/UKTAG%20Final%20recommendations%20on%20biological%20stds_20131030.PDF

Appendix A Fine Screening Summaries

Key				
0 Neutral	-1 Minor adverse		-2 Moderate Adverse	-3 Major adverse
	1 Minor beneficial		2 Moderate Beneficial	3 Major Beneficial

Table A.1 Fine Screening Summary of Surface Water Options in SAI

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-001	Increase SW abstraction from Bandon River and upgrade WTP									0	1	-15
SAI-011	New SW abstraction from River Sullane and upgrade Ballymakeera WTP									0	0	-16
SAI-012	New SW abstraction from River Douglas and upgrade Ballymakeera WTP									0	0	-18

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-013	New SW abstraction from River Finnow and new Ballymakeera WTP									0	1	-19
SAI-017	Increase SW abstraction from Sullane River and new WTP Macroom WTP for full demand									0	0	-13
SAI-019	Increase SW abstraction from Sullane River and new WTP Macroom WTP for full demand									0	1	-15
SAI-020	Increase SW abstraction from Sullane River and new WTP Macroom WTP for full demand									0	0	-11
SAI-021	Increase SW abstraction from Sullane River and new WTP Macroom WTP for full demand									0	1	-15

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-022	Increase SW abstraction from Sullane River and new WTP Macroom WTP for full demand									0	0	-11
SAI-037	New SW from Delehinagh River and new WTP									0	1	-15
SAI-060	Increase SW from Bunsheelin River and upgrade WTP									0	0	-11
SAI-064	New SW abstraction from Lough Allua and new WTP. Abandon existing WTP									0	1	-15
SAI-090	New SW abstraction from Doonavanig River and new WTP. Abandon existing WTP									0	1	-14

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-154	New SW abstraction from the River Blackwater and new WTP									1	0	-20
SAI-166	New SW abstraction from Womanagh River and new WTP to partly supply deficit									1	1	-24
SAI-167	New SW abstraction from Womanagh River and new WTP to partly supply deficit									0	1	-19
SAI-169	New SW abstraction from the River Blackwater and new WTP									0	1	-21
SAI-170	New SW abstraction from the River Blackwater and new WTP									1	1	-23
SAI-171	New SW abstraction from the River Blackwater and new WTP									0	1	-22

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-172	New SW abstraction from the River Blackwater and new WTP									0	1	-23
SAI-173	New SW abstraction from the River Blackwater and new WTP									1	1	-24
SAI-174	New SW abstraction from the River Blackwater and new WTP									0	1	-23
SAI-175	New SW abstraction from the River Blackwater and new WTP									0	1	-22
SAI-198	Supply spare capacity in Midleton [Owenacurra River] to nearby scheme in deficit									0	0	-11
SAI-199	Supply spare capacity in Midleton [Owenacurra River] to nearby scheme in deficit									0	0	-11

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-200	Supply spare capacity in Midleton [Owenacurra River] to nearby scheme in deficit									0	0	-11
SAI-201	Supply spare capacity in Midleton [Owenacurra River] to nearby scheme in deficit									0	0	-11
SAI-202	Supply spare capacity in Midleton [Owenacurra River] to nearby scheme in deficit									0	0	-11
SAI-203	Maintain allowable abstraction from Owenacurra River and supply deficit from Inniscarra									1	0	-21
SAI-213	New SW abstraction from Shournagh River									0	0	-18

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-218	New SW abstraction from Manin River									0	0	-21
SAI-224	New SW abstraction from Womanagh River									0	1	-15
SAI-238	New SW abstraction from Womanagh River and new WTP									0	1	-15
SAI-248	New SW abstraction from Womanagh River									0	1	-15
SAI-299	New SW abstraction from Womanagh River to supply deficit									0	0	-17
SAI-363	New SW abstraction from Rathruane River and new WTP									0	0	-18
SAI-375	New SW abstraction from Coomhola River and new WTP									0	0	-17

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-376	New SW abstraction from Owvane River and new WTP									0	0	-16
SAI-385	New SW abstraction from Barley lake and new WTP. Supply deficit to Castletownbere WRZ									2	0	-26
SAI-390	New SW abstraction at Glenmore Lake and new WTP									0	0	-16
SAI-393	New SW abstraction from Cullenagh Lake									0	0	-15
SAI-394	New SW abstraction from Garranes Lake									0	0	-16
SAI-395	New SW abstraction from Ballynacarriga Lough									0	0	-16
SAI-398	Increase SW abstraction from Curraghlickly Lake and treat at Drinagh WTP									0	0	-8

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-401	New SW abstraction from Bandon River and upgrade WTP									1	0	-25
SAI-404	New SW abstraction from Glengarriff River and new WTP onsite									3	0	-26
SAI-405	New SW abstraction from Glengarriff River and new WTP onsite									1	0	-25
SAI-410	New SW abstraction from Coomhola River and new WTP									0	0	-16
SAI-423	New SW abstraction from Trafask (Stream) and new WTP									0	0	-16
SAI-424	New SW abstraction from Coomadayallig Lake and new WTP									1	0	-18

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-425	New SW abstraction from Coomarkane Lake and new WTP									1	0	-20
SAI-426	New SW abstraction from Adrigole River and upgrade WTP									0	0	-18
SAI-433	Increase SW abstraction from Curraghlicky Lake and upgrade WTP									0	0	-8
SAI-434	Increase SW abstraction from Curraghlicky Lake and upgrade WTP									0	0	-16
SAI-439	New SW abstraction from Glan Lough and new WTP									0	0	-12
SAI-457	Increase SW abstraction from Goleen Intake and upgrade Goleen WTP. Significant reduction in yield in 2018									2	0	-17

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-459	New SW abstraction from Konockeennagearagh lough and upgrade WTP									0	0	-11
SAI-466	Increase SW abstraction from Barley Lake and supply deficit to Glengarriff WRZ									1	0	-18
SAI-478	New SW abstraction from Cloghane River and upgrade WTP									0	0	-16
SAI-527	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									0	0	-12
SAI-528	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									0	0	-14
SAI-529	Increase abstraction at Inniscarra impoundment									0	0	-18

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	and upgrade Inniscarra WTP											
SAI-535	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									0	1	-15
SAI-536	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									0	0	-17
SAI-541	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									0	0	-9
SAI-542	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									0	0	-9
SAI-543	Increase abstraction at Inniscarra impoundment									0	0	-15

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	and upgrade Inniscarra WTP											
SAI-544	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									0	1	-15
SAI-545	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									0	0	-9
SAI-546	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									2	0	-25
SAI-547	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									0	0	-10
SAI-548	Increase abstraction at Inniscarra impoundment									0	0	-10

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	and upgrade Inniscarra WTP											
SAI-537	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									0	0	-13
SAI-550	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									0	0	-10
SAI-551	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									0	0	-21
SAI-552	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									0	0	-9
SAI-553	Increase abstraction at Inniscarra impoundment									0	0	-10

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	and upgrade Inniscarra WTP											
SAI-556	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									0	0	-9
SAI-558	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									0	0	-16
SAI-560	Increase SW abstraction from River Lee and upgrade Lee Road WTP									0	0	-11
SAI-572	Increase SW abstraction from Bandon River and upgrade Innishannon WTP									0	0	-17
SAI-613	Increase abstraction at Inniscarra impoundment									1	0	-20

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	and upgrade Inniscarra WTP											
SAI-531	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									1	0	-17
SAI-617	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									0	0	-9
SAI-630	New SW abstraction from Kenmare River and new WTP									2	0	-25
SAI-632	New abstraction at River Sheen									0	0	-14
SAI-642	Increase abstraction from Lough Currane and supply Caherdaniel									0	0	-15
SAI-643	Increase SW abstraction from lough Dromtine									0	0	-6

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-650	New surface water abstraction from Ahadav stream - Was original source now WRZ is fed from single BH - 5m3/hr - Disused Source									0	0	-16
SAI-652	New SW abstraction from Glenmore Lake and upgrade WTP									0	0	-11
SAI-656	Relocate intake on Ardigeem further downstream (Kilmalooda Bridge, old intake site) and upgrade Clonakitly (Jones Bridge) WTP									0	0	-14
SAI-657	Relocate intake on Ardigeem further downstream (Proposed Kilmalooda - downstream of river junction) and									0	0	-13

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	upgrade Clonakitly (Jones Bridge) WTP											
SAI-658	New banksite storage at Cambells Pit (local quarry) and upgrade Clonakitly (Jones Bridge) WTP									0	0	-24
SAI-758	New SW abstraction from Corran lake and new SW abstraction from Ballin Lough to partly supply deficit in Clonakitly. Upgrade Leap WTP									0	0	-25
SAI-659	Relocate intake on Ardigeem further downstream (existing old Kilmalooda abstraction - original intake position) and upgrade Clonakitly (Jones Bridge) WTP									1	0	-14

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-539	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									0	0	-13
SAI-661	New Inchybegga Impoundment (Cullomane) and new WTP									1	1	-19
SAI-662	New Inchybegga Impoundment (Cullomane) and new WTP									1	1	-20
SAI-667	Increase SW abstraction from Barley Lake and supply deficit to Glengarriff, Castletownbere and Adrigole WRZs									2	0	-21

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-672	New SW abstraction from Glenceel Lough to supply deficit									1	0	-17
SAI-561	Increase SW abstraction from Inniscarra and upgrade WTP									1	0	-14
SAI-678	New SW abstraction from Mealagh River, New WTP to supply deficit to Bantry WRZ									0	0	-15
SAI-679	New SW abstraction from Mealagh River and supply deficit to Bantry WRZ									2	0	-25
SAI-680	New impoundment at Mealagh River to supply deficit in Bantry									2	0	-25
SAI-708	New SW abstraction and new WTP on the Glengarriff River and									2	0	-25

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	abandon existing WTP on Barony River											
SAI-718	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									1	0	-21
SAI-738	Interconnect Bandon Regional, Bantry and Skibbereen 1 with Inniscarra. Rationalise Whiddy Island, Durrus and Kilcrohane to Inniscarra									1	3	-13
SAI-745	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									1	0	-18
SAI-746	New SW abstraction from the River Blackwater and new WTP. Rationalise Tibbotstown, Whitegate									0	0	-21

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	Regional, Midleton and Cloyne											
SAI-747	New SW abstraction from the River Blackwater and new WTP. Rationalise Tibbotstown, Whitegate Regional, Midleton and Cloyne									0	0	-21
SAI-748	New SW abstraction from the River Blackwater and new WTP. Rationalise Tibbotstown, Whitegate Regional, Midleton and Cloyne									0	0	-21
SAI-749	New SW abstraction from the River Blackwater and new WTP. Rationalise Tibbotstown, Whitegate Regional, Midleton and Cloyne									0	0	-21

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-759	New SW abstraction from Corran lake and new SW abstraction from Ballin Lough to partly supply deficit in Clonakilty. Upgrage Leap WTP									0	0	-25
SAI-760	New SW abstraction from Curraghlicky Lake and Ballynacarriga Lough and new WTP at Curraghlicky Lake to partly supply deficit									0	0	-25
SAI-761	New SW abstraction from Curraghlicky Lake and Ballynacarriga Lough and new WTP at Curraghlicky Lake to partly supply deficit									0	0	-25
SAI-764	New abstraction at Carrigdrohid Reservoir, gravity main to Inniscarra									2	0	-26

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	and upgrade Inniscarra WTP to supply deficit. Also upgrade existing abstraction at Inniscarra Reservoir											
SAI-767	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									0	0	-20
SAI-786	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									1	0	-15
SAI-787	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									1	0	-15
SAI-802	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									2	0	-24

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-803	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									2	0	-25
SAI-851	Increase SW abstraction from Sullane River and new WTP Macroom WTP for full demand									1	0	-21
SAI-857	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									0	0	-14
SAI-858	Increase abstraction at Inniscarra impoundment and upgrade Inniscarra WTP									0	0	-13
SAI-861	New Inchybegga Impoundment (Cullomane) and new WTP. To supply Bantry deficit and transfer west									3	0	-27

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	to supply WRZs full demands											
SAI-866	Regional Inncarra Option to supply west									2	0	-22
SAI-876	New SW abstraction and new WTP on the Glengarriff River and abandon existing WTP on Barony River									0	0	-20
SAI-877	Rationalise to Glengarriff WRZ (new Glengarriff River source)									0	0	-20
SAI-878	New SW abstraction from Glenmore Lake and new WTP to supply Lauragh and Castletownbere									0	0	-19
SAI-880	New SW abstraction from Owvane River and new WTP									1	0	-20

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-887	Upgrade Ballyhilty WTP and supply spare capacity to Skibbereen 2 - Baltimore and Schull WRZ									0	0	-7
SAI-895	Increase abstraction at Inniscarra									1	0	-17
SAI-896	Increase abstraction at Inniscarra									1	0	-21
SAI-900	Increase abstraction at Inniscarra									1	0	-21
SAI-905	Increase abstraction at Inniscarra									2	0	-22
SAI-911	Increase abstraction at Inniscarra									2	0	-22
SAI-918	Increase abstraction at Inniscarra									2	0	-22
SAI-926	Increase abstraction at Inniscarra									2	0	-22

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-939	Increase abstraction at Inniscarra									2	0	-22
SAI-950	Rationalise Stoneview to Cork City WRZ (Inniscarra WTP)									2	0	-22

Table A.2 Fine Screening Summary of Surface Water and Interconnection Options in SAI

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-005	Interconnect Bandon Regional and Inniscarra via Innishannon. Supply deficit from Inniscarra									0	0	-13
SAI-151	Interconnect Tibbotstown with Cork City WRZ (Inniscarra WTP) and supply deficit									0	0	-9
SAI-164	Interconnect Youghal Regional with Cork City WRZ (Inniscarra WTP) via Middleton									0	0	-15
SAI-165	Interconnect Youghal Regional with Cork City WRZ (Inniscarra WTP) via Middleton									0	0	-21
SAI-185	Interconnect Whitegate Regional with Cork City									0	1	-15

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	WRZ (Inniscarra WTP) via Midleton											
SAI-195	Interconnect Cloyne with Cork City WRZ (Inniscarra WTP) via Whitegate Regional									0	1	-15
SAI-207	Interconnect Midleton and Cork City WRZ (Inniscarra WTP) and supply deficit									0	0	-9
SAI-208	Interconnect Midleton and Cork City WRZ (Inniscarra WTP) and supply deficit									0	0	-15
SAI-209	Interconnect Midleton and Cork City WRZ (Inniscarra WTP) and supply deficit									0	2	-15
SAI-276	Interconnect Carrignavar and Cork City (Inniscarra									0	0	-10

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	WTP) WRZs and supply deficit											
SAI-334	Interconnect Clonakilty and Cork City WRZ (Inniscarra WTP) and supply deficit									0	0	-9
SAI-366	Interconnect Bandon Regional, Bantry and Skibbereen 1 with Inniscarra. Rationalise Castletownbere, Dunmanway, Glengarriff, Kealkill, Whiddy Island, Adrigole, Dromore Bantry, Crosterra, Allihies, Cahermore and Reenmeen West to Inniscarra									0	0	-16
SAI-399	Interconnect Dunmanway and Drinagh WRZ.									0	0	-16

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	Supply deficit from Curraghlicky Lake											
SAI-616	Interconnect Clonakilty and Cork City WRZ (Inniscarra WTP) and supply deficit									0	0	-9
SAI-618	Interconnect Skibbereen and Cork City WRZ (Inniscarra WTP) and supply deficit									0	0	-9
SAI-619	Interconnect Skibbereen and Cork City WRZ (Inniscarra WTP) and supply deficit									0	0	-9
SAI-641	Supplement Caherdaniel from Waterville									0	0	-15
SAI-663	Interconnect Skibbereen 1 - Ballyhilty and Drimoleague and Bamtry and supply deficit from									1	1	-20

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	new Inchybegga Impoundment											
SAI-668	Interconnect Adrigole with Crossterra WRZs via Glengarriff and supply deficit									2	0	-21
SAI-701	Interconnect Glengarriff with Crossterra WRZs and supply deficit									1	0	-18
SAI-702	Interconnect Glengarriff with Crossterra WRZs and supply deficit									2	0	-21
SAI-711	Interconnect Youghal Regional with Cork City WRZ (Inniscarra WTP)									1	0	-21
SAI-719	Interconnect Castletownbere and Crossterra [Barley Lake] and supply deficit									2	0	-21

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-720	Interconnect Bandon Regional, Bantry and Skibbereen 1 with Inniscarra. Rationalise Castletownbere, Dunmanway, Glengarriff, Kealkill, Whiddy Island, Adrigole, Dromore Bantry, Crosterra, Allihies, Cahermore and Reenmeen West to Inniscarra									0	0	-16
SAI-731	Interconnect Bandon Regional, Bantry and Skibbereen 1 with Inniscarra. Rationalise Castletownbere, Dunmanway, Glengarriff, Kealkill, Whiddy Island, Adrigole, Dromore Bantry, Crosterra, Allihies, Cahermore and									0	0	-16

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	Reenmeen West to Inniscarra											
SAI-732	Interconnect Bandon Regional, Bantry and Skibbereen 1 with Inniscarra. Rationalise Whiddy Island, Durrus and Kilcrohane to Inniscarra									1	3	-13
SAI-733	Interconnect Bandon Regional, Bantry and Skibbereen 1 with Inniscarra. Rationalise Whiddy Island, Durrus and Kilcrohane to Inniscarra									1	3	-13
SAI-739	Interconnect Bandon Regional, Bantry and Skibbereen 1 with Inniscarra. Rationalise Whiddy Island, Durrus									1	3	-13

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	and Kilcrohane to Inniscarra											
SAI-757	Interconnect Macroom WRZ and Inniscarra									0	0	-20
SAI-868	Regional Inncarra Option to supply west									2	0	-22
SAI-869	Regional Inncarra Option to supply west									2	0	-22
SAI-870	Regional Inncarra Option to supply west									2	0	-22
SAI-888	Upgrade Lake Cross WTP and supply deficit from Skibbereen 1 WRZ									0	0	-7
SAI-898	Interconnect with Cork City via Inniscarra									1	0	-21
SAI-899	Interconnect with Cork City via Inniscarra									1	0	-21
SAI-902	Interconnect with Cork City via Inniscarra									1	0	-21

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-903	Interconnect with Cork City via Inniscarra									1	0	-21
SAI-907	Interconnect with Cork City via Inniscarra									2	0	-22
SAI-908	Interconnect with Cork City via Inniscarra									2	0	-22
SAI-909	Interconnect with Cork City via Inniscarra									2	0	-22
SAI-910	Interconnect with Cork City via Inniscarra									2	0	-22
SAI-913	Interconnect with Cork City via Inniscarra									2	0	-22
SAI-914	Interconnect with Cork City via Inniscarra									2	0	-22
SAI-915	Interconnect with Cork City via Inniscarra									2	0	-22
SAI-916	Interconnect with Cork City via Inniscarra									2	0	-22

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-920	Interconnect with Cork City via Inniscarra									2	0	-22
SAI-921	Interconnect with Cork City via Inniscarra									2	0	-22
SAI-922	Interconnect with Cork City via Inniscarra									2	0	-22
SAI-923	Interconnect with Cork City via Inniscarra									2	0	-22
SAI-928	Interconnect with Cork City via Inniscarra									2	0	-22
SAI-929	Interconnect with Cork City via Inniscarra									2	0	-22
SAI-930	Interconnect with Cork City via Inniscarra									2	0	-22
SAI-931	Interconnect with Cork City via Inniscarra									2	0	-22
SAI-948	Maintain allowable abstraction from Owenacurra River and									2	0	-22

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	supply deficit from Inniscarra											
SAI-957	Interconnect with Cork City via Inniscarra									2	0	-22
SAI-958	Interconnect with Cork City via Inniscarra									2	0	-22
SAI-962	Interconnect with Cork City via Inniscarra									2	0	-22
SAI-963	Interconnect with Cork City via Inniscarra									2	0	-22

Table A.3 Fine Screening Summary of Surface Water and Rationalisation Options in SAI

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-014	Rationalise Ballymakeera to Macroom WRZ									0	0	-13
SAI-033	Rationalise Clondrohid to Macroom WRZ									0	1	-15
SAI-038	Rationalise Aghabullogue to Cork City WRZ									0	1	-17
SAI-043	Rationalise Coolyhane to Macroom WRZ									0	0	-11
SAI-058	Rationalise Nohoval to Cork City WRZ (Inniscarra WTP)									0	1	-15
SAI-087	Rationalise Roberts Cove to Cork City WRZ (Inniscarra WTP)									0	1	-15
SAI-109	Rationalise Clashanamid to Cork City WRZ (Innishannon WTP)									0	0	-17

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-113	Rationalise Knockburden to Cork City WRZ (Inniscarra WTP) via Cloughduv									0	0	-17
SAI-127	Rationalise Ballyverane to Macroom WRZ									0	1	-15
SAI-134	Rationalise Minane Bridge to Cork City WRZ (Inniscarra WTP)									0	1	-15
SAI-138	Rationalise Kilnagurteen (Macroom) to Macroom WRZ									0	0	-11
SAI-214	Rationalise Donoughmore WRZ to Cork City WRZ (Inniscarra WTP)									0	0	-9
SAI-219	Rationalise Grenagh WRZ to Cork City WRZ (Inniscarra WTP)									2	0	-25

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-220	Rationalise Grenagh WRZ and Cork City WRZ (Inniscarra WTP) via Blarney									0	0	-10
SAI-241	Rationalise Whitechurch WRZ to Cork City WRZ (Inniscarra WTP)									0	0	-10
SAI-250	Rationalise Ballymacoda WRZ to Youghal WRZ (Womanagh River)									0	1	-19
SAI-251	Rationalise Ballymacoda WRZ to Youghal WRZ (River Blackwater)									1	1	-23
SAI-252	Rationalise Ballymacoda WRZ to Youghal WRZ (River Blackwater)									1	1	-24
SAI-253	Rationalise Ballymacoda WRZ to Youghal WRZ (Inniscarra Impoundment)									0	0	-21

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-261	Rationalise Corbally to Midleton WRZ									0	0	-11
SAI-262	Rationalise Corbally to Inniscarra WTP									1	0	-21
SAI-268	Rationalise Ballykilty WRZ to Youghal WRZ (Womanagh River)									1	1	-24
SAI-269	Rationalise Ballykilty WRZ to Youghal WRZ (River Blackwater)									0	1	-22
SAI-270	Rationalise Ballykilty WRZ to Youghal WRZ (River Blackwater)									1	1	-24
SAI-271	Rationalise Ballykilty WRZ to Youghal WRZ (Inniscarra Impoundment)									0	0	-21
SAI-275	Rationalise Carrignavar to Cork City WRZ (Inniscarra WTP)									0	0	-10

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-280	Rationalise Clash Leamleara to Midleton WRZ via Corbally									0	0	-11
SAI-281	Rationalise Clash Leamleara to Inniscarra WTP via Corbally									1	0	-21
SAI-289	Rationalise Ballincurrig Lisgoold WRZ to Midleton WRZ									0	1	-10
SAI-290	Rationalise Ballincurrig Lisgoold WRZ to Inniscarra WTP									1	0	-21
SAI-302	Rationalise Kilcraheen to Youghal WRZ (Blackwater River source)									0	1	-23
SAI-305	Rationalise Walshtown to Midleton WRZ									0	0	-11
SAI-306	Rationalise Walshtown to Inniscarra WTP									1	0	-21

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-308	Rationalise Stoneview to Cork City WRZ (Inniscarra WTP)									0	0	-10
SAI-309	Rationalise Stoneview to Cork City WRZ (Inniscarra WTP)									0	0	-9
SAI-312	Rationalise Bilberry WRZ to Midleton WRZ									0	0	-11
SAI-320	Rationalise Knockadoon WRZ to Youghal WRZ (Womanagh River)									1	1	-24
SAI-321	Rationalise Knockadoon WRZ to Youghal WRZ (River Blackwater)									0	1	-23
SAI-322	Rationalise Knockadoon WRZ to Youghal WRZ (River Blackwater)									1	1	-24
SAI-323	Rationalise Knockadoon WRZ to Youghal WRZ									0	0	-21

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	(Inniscarra Impoundment)											
SAI-328	Rationalise Inch WRZ to Youghal (Blackwater River source)									0	1	-22
SAI-494	Rationalise Reenmeen to Crosterra WRZ (Barley Lake source)									1	0	-18
SAI-495	Rationalise Reenmeen to Glengarriff WRZ (Glengarriff River source)									1	0	-25
SAI-121	Rationalise Templemartin & Garranes to Cork City WRZ (Inniscarra WTP)									0	0	-13
SAI-070	Rationalise Ballinagree to Cork City WRZ (Innishcarra WTP)									1	0	-17
SAI-097	Rationalise Rylane to Cork City WRZ (Innishcarra WTP)									1	0	-17

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-039	Rationalise Aghabullogue to Cork City WRZ (Inniscarra WTP)									0	0	-13
SAI-225	Rationalise Killeagh to Cork City WRZ									1	0	-14
SAI-144	Rationalise Coolineagh to Cork City WRZ (Inniscarra WTP)									0	0	-13
SAI-681	Rationalise Goleen, Toormore, Durrus and Crookhaven to Bantry (Mealagh River & impoundment)									2	0	-25
SAI-682	Rationalise Goleen, Toormore, Durrus and Crookhaven to Bantry (Mealagh River & impoundment)									2	0	-25
SAI-683	Rationalise Goleen, Toormore, Durrus and									2	0	-25

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	Crookhaven to Bantry (Mealagh River & impoundment)											
SAI-712	Rationalise Killeagh to Inniscarra									1	0	-21
SAI-713	Rationalise Killeagh to Inniscarra									0	0	-21
SAI-714	Rationalise Mogeely with Cork City WRZ (Inniscarra WTP)									1	0	-21
SAI-715	Interconnect Mogeely with Cork City WRZ (Inniscarra WTP) via Midleton									0	0	-21
SAI-716	Rationalise Ballykilty WRZ Inniscarra Impoundment									1	0	-21
SAI-717	Rationalise Kilcraheen to Inniscarra via Youghal									0	0	-21

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-721	Interconnect Bandon Regional, Bantry and Skibbereen 1 with Inniscarra. Rationalise Castletownbere, Dunmanway, Glengarriff, Kealkill, Whiddy Island, Adrigole, Dromore Bantry, Crosterra, Allihies, Cahermore and Reenmeen West to Inniscarra									0	0	-16
SAI-722	Interconnect Bandon Regional, Bantry and Skibbereen 1 with Inniscarra. Rationalise Castletownbere, Dunmanway, Glengarriff, Kealkill, Whiddy Island, Adrigole, Dromore Bantry, Crosterra, Allihies, Cahermore and									0	0	-16

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	Reenmeen West to Inniscarra											
SAI-723	Interconnect Bandon Regional, Bantry and Skibbereen 1 with Inniscarra. Rationalise Castletownbere, Dunmanway, Glengarriff, Kealkill, Whiddy Island, Adrigole, Dromore Bantry, Crosterra, Allihies, Cahermore and Reenmeen West to Inniscarra									0	0	-16
SAI-724	Interconnect Bandon Regional, Bantry and Skibbereen 1 with Inniscarra. Rationalise Castletownbere, Dunmanway, Glengarriff, Kealkill, Whiddy Island, Adrigole, Dromore									0	0	-16

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	Bantry, Crosterra, Allihies, Cahermore and Reenmeen West to Inniscarra											
SAI-725	Interconnect Bandon Regional, Bantry and Skibbereen 1 with Inniscarra. Rationalise Castletownbere, Dunmanway, Glengarriff, Kealkill, Whiddy Island, Adrigole, Dromore Bantry, Crosterra, Allihies, Cahermore and Reenmeen West to Inniscarra									0	0	-16
SAI-726	Interconnect Bandon Regional, Bantry and Skibbereen 1 with Inniscarra. Rationalise Castletownbere, Dunmanway, Glengarriff,									0	0	-16

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	Kealkill, Whiddy Island, Adrigole, Dromore Bantry, Crosterra, Allihies, Cahermore and Reenmeen West to Inniscarra											
SAI-727	Interconnect Bandon Regional, Bantry and Skibbereen 1 with Inniscarra. Rationalise Castletownbere, Dunmanway, Glengarriff, Kealkill, Whiddy Island, Adrigole, Dromore Bantry, Crosterra, Allihies, Cahermore and Reenmeen West to Inniscarra									0	0	-16
SAI-728	Interconnect Bandon Regional, Bantry and Skibbereen 1 with Inniscarra. Rationalise									0	0	-16

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	Castletownbere, Dunmanway, Glengarriff, Kealkill, Whiddy Island, Adrigole, Dromore Bantry, Crosterra, Allihies, Cahermore and Reenmeen West to Inniscarra											
SAI-729	Interconnect Bandon Regional, Bantry and Skibbereen 1 with Inniscarra. Rationalise Castletownbere, Dunmanway, Glengarriff, Kealkill, Whiddy Island, Adrigole, Dromore Bantry, Crosterra, Allihies, Cahermore and Reenmeen West to Inniscarra									0	0	-16
SAI-730	Interconnect Bandon Regional, Bantry and									0	0	-16

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	Skibbereen 1 with Inniscarra. Rationalise Castletownbere, Dunmanway, Glengarriff, Kealkill, Whiddy Island, Adrigole, Dromore Bantry, Crosterra, Allihies, Cahermore and Reenmeen West to Inniscarra											
SAI-734	Interconnect Bandon Regional, Bantry and Skibbereen 1 with Inniscarra. Rationalise Whiddy Island, Durrus and Kilcrohane to Inniscarra									1	3	-13
SAI-735	Interconnect Bandon Regional, Bantry and Skibbereen 1 with Inniscarra. Rationalise Whiddy Island, Durrus									1	3	-13

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	and Kilcrohane to Inniscarra											
SAI-736	Interconnect Bandon Regional, Bantry and Skibbereen 1 with Inniscarra. Rationalise Whiddy Island, Durrus and Kilcrohane to Inniscarra									1	3	-13
SAI-737	Interconnect Bandon Regional, Bantry and Skibbereen 1 with Inniscarra. Rationalise Whiddy Island, Durrus and Kilcrohane to Inniscarra									1	3	-13
SAI-740	Rationalise Goleen, Toormore, Durrus and Crookhaven to Bantry (Mealagh River & impoundment)									2	0	-25

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-742	Interconnect Bandon Regional, Bantry and Skibbereen 1 with Inniscarra. Rationalise Castletownbere, Dunmanway, Glengarriff, Kealkill, Whiddy Island, Adrigole, Dromore Bantry, Crosterra, Allihies, Cahermore and Reenmeen West to Inniscarra									0	0	-16
SAI-743	Interconnect Bandon Regional, Bantry and Skibbereen 1 with Inniscarra. Rationalise Whiddy Island, Durrus and Kilcrohane to Inniscarra									1	3	-13

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-744	Rationalise Tibbotstown to Cork City WRZ (Inniscarra WTP)									1	0	-18
SAI-753	Rationalise Ballymacoda WRZ to Youghal WRZ (conjunctive use of new GW abstraction and Womanagh River)									1	0	-22
SAI-754	Rationalise Ballykilty WRZ to Youghal WRZ (conjunctive use of new GW abstraction and Womanagh River)									1	0	-22
SAI-755	Rationalise Kilcraheen WRZ to Ballykilty (conjunctive use of new GW abstraction and Womanagh River)									1	0	-22
SAI-756	Rationalise Knockadoon WRZ to Youghal WRZ (conjunctive use of new									1	0	-22

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	GW abstraction and Womanagh River)											
SAI-785	Rationalise Bayview to Clonakilty WRZ (new SW abstraction from surrounding lakes)									0	0	-23
SAI-762	Rationalise Toormore to Skibbereen WRZ (Inniscarra source)									0	0	-9
SAI-763	Rationalise Bayview to Clonakilty WRZ (Inniscarra source)									0	0	-9
SAI-788	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2 and Bantry to Inniscarra WTP									1	0	-15
SAI-789	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1,									1	0	-15

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	Skibbereen 2, Bantry, Clonakilty and Bayview to Inniscarra WTP											
SAI-790	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2 and Bantry to Inniscarra WTP									1	0	-15
SAI-791	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty and Bayview to Inniscarra WTP									1	0	-15
SAI-792	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2 and Bantry to Inniscarra WTP									1	0	-15
SAI-793	Rationalise Ballinagree, Rylane, Tibbotstown,									1	0	-15

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	Skibbereen 1, Skibbereen 2, Bantry, Clonakilty and Bayview to Inniscarra WTP											
SAI-794	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2 and Bantry to Inniscarra WTP									1	0	-15
SAI-795	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty and Bayview to Inniscarra WTP									1	0	-15
SAI-796	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2 and Bantry to Inniscarra WTP									1	0	-15

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-797	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty and Bayview to Inniscarra WTP									1	0	-15
SAI-798	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2 and Bantry to Inniscarra WTP									1	0	-15
SAI-799	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty and Bayview to Inniscarra WTP									1	0	-15
SAI-800	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry,									1	0	-15

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	Clonakilty and Bayview to Inniscarra WTP											
SAI-801	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty and Bayview to Inniscarra WTP									1	0	-15
SAI-804	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty, Bywview, Durrus, Kilcrohane and Castletownbere to Inniscarra WTP									2	0	-24
SAI-806	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty, Bywview,									2	0	-24

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	Durrus, Kilcrohane and Castletownbere to Inniscarra WTP											
SAI-808	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty, Bywview, Durrus, Kilcrohane and Castletownbere to Inniscarra WTP									2	0	-24
SAI-810	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty, Bywview, Durrus, Kilcrohane and Castletownbere to Inniscarra WTP									2	0	-24
SAI-812	Rationalise Ballinagree, Rylane, Tibbotstown,									2	0	-24

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	Skibbereen 1, Skibbereen 2, Bantry, Clonakilty, Bywview, Durrus, Kilcrohane and Castletownbere to Inniscarra WTP											
SAI-814	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty, Bywview, Durrus, Kilcrohane and Castletownbere to Inniscarra WTP									2	0	-24
SAI-816	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty, Bywview, Durrus, Kilcrohane and									2	0	-24

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	Castletownbere to Inniscarra WTP											
SAI-818	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty, Bywview, Durrus, Kilcrohane and Castletownbere to Inniscarra WTP									2	0	-24
SAI-820	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty, Bywview, Durrus, Kilcrohane and Castletownbere to Inniscarra WTP									2	0	-24
SAI-822	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1,									2	0	-24

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	Skibbereen 2, Bantry, Clonakilty, Bywview, Durrus, Kilcrohane and Castletownbere to Inniscarra WTP											
SAI-824	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty, Bywview, Durrus, Kilcrohane and Castletownbere to Inniscarra WTP									2	0	-24
SAI-805	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty, Bayview, Durrus, Kilcrohane, Castletownbere, Glengarriff, Reenmeen									2	0	-25

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	West and Adrigole to Inniscarra WTP											
SAI-807	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty, Bayview, Durrus, Kilcrohane, Castletownbere, Glengarriff, Reenmeen West and Adrigole to Inniscarra WTP									2	0	-25
SAI-809	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty, Bayview, Durrus, Kilcrohane, Castletownbere, Glengarriff, Reenmeen									2	0	-25

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	West and Adrigole to Inniscarra WTP											
SAI-811	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty, Bayview, Durrus, Kilcrohane, Castletownbere, Glengarriff, Reenmeen West and Adrigole to Inniscarra WTP									2	0	-25
SAI-813	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty, Bayview, Durrus, Kilcrohane, Castletownbere, Glengarriff, Reenmeen									2	0	-25

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	West and Adrigole to Inniscarra WTP											
SAI-815	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty, Bayview, Durrus, Kilcrohane, Castletownbere, Glengarriff, Reenmeen West and Adrigole to Inniscarra WTP									2	0	-25
SAI-817	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty, Bayview, Durrus, Kilcrohane, Castletownbere, Glengarriff, Reenmeen									2	0	-25

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	West and Adrigole to Inniscarra WTP											
SAI-819	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty, Bayview, Durrus, Kilcrohane, Castletownbere, Glengarriff, Reenmeen West and Adrigole to Inniscarra WTP									2	0	-25
SAI-821	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty, Bayview, Durrus, Kilcrohane, Castletownbere, Glengarriff, Reenmeen									2	0	-25

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	West and Adrigole to Inniscarra WTP											
SAI-823	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty, Bayview, Durrus, Kilcrohane, Castletownbere, Glengarriff, Reenmeen West and Adrigole to Inniscarra WTP									2	0	-25
SAI-825	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty, Bayview, Durrus, Kilcrohane, Castletownbere, Glengarriff, Reenmeen									2	0	-25

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	West and Adrigole to Inniscarra WTP											
SAI-826	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty, Bayview, Durrus, Kilcrohane, Castletownbere, Glengarriff, Reenmeen West and Adrigole to Inniscarra WTP									2	0	-25
SAI-827	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty, Bayview, Durrus, Kilcrohane, Castletownbere, Glengarriff, Reenmeen									2	0	-25

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	West and Adrigole to Inniscarra WTP											
SAI-828	Rationalise Ballinagree, Rylane, Tibbotstown, Skibbereen 1, Skibbereen 2, Bantry, Clonakilty, Bayview, Durrus, Kilcrohane, Castletownbere, Glengarriff, Reenmeen West and Adrigole to Inniscarra WTP									2	0	-25
SAI-852	Rationalise Kilnagurteen (Macroom) to Macroom WRZ									1	0	-21
SAI-853	Rationalise Ballyverane to Macroom WRZ									1	0	-21
SAI-854	Rationalise Coolyhane to Macroom WRZ									1	0	-21

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-855	Rationalise Clondrohid to Macroom WRZ									1	0	-21
SAI-856	Rationalise Cullen to Cork City WRZ (Inniscarra WTP)									0	0	-14
SAI-859	Rationalise Ballyshoneen and Vicarstown to Inniscarra WTP									0	0	-13
SAI-860	Rationalise Ballyshoneen and Vicarstown to Inniscarra WTP									0	0	-13
SAI-862	Rationalise to Bantry (new Inchybegga Impoundment source)									3	0	-27
SAI-863	Rationalise to Bantry (new Inchybegga Impoundment source)									3	0	-27
SAI-864	Rationalise to Bantry (new Inchybegga Impoundment source)									3	0	-27

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-865	Rationalise to Bantry (new Inchybegga Impoundment source)									3	0	-27
SAI-867	Regional Inncarra Option to supply west									2	0	-22
SAI-871	Regional Inncarra Option to supply west									2	0	-22
SAI-872	Regional Inncarra Option to supply west									2	0	-22
SAI-873	Regional Inncarra Option to supply west									2	0	-22
SAI-874	Regional Inncarra Option to supply west									2	0	-22
SAI-875	Regional Inncarra Option to supply west									2	0	-22
SAI-879	New SW abstraction from Glenmore Lake and new WTP to supply Lauragh and Castletownbere									0	0	-19

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-881	Rationalise Kealkill to Bantry									1	0	-20
SAI-891	Rationalise to Cork City WRZ									1	0	-17
SAI-892	Rationalise to Cork City WRZ									1	0	-17
SAI-893	Rationalise to Cork City WRZ									1	0	-17
SAI-894	Rationalise to Cork City WRZ									1	0	-17
SAI-897	Rationalise to Cork City									1	0	-21
SAI-901	Rationalise to Cork City									1	0	-21
SAI-904	Rationalise to Cork City									1	0	-21
SAI-906	Rationalise to Cork City									2	0	-22
SAI-912	Rationalise to Cork City									2	0	-22
SAI-917	Rationalise to Cork City via Skibbereen									2	0	-22
SAI-919	Rationalise to Cork City									2	0	-22

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-924	Rationalise to Cork City via Skibbereen									2	0	-22
SAI-925	Rationalise to Cork City									2	0	-22
SAI-927	Rationalise to Cork City									2	0	-22
SAI-932	Rationalise to Cork City via Skibbereen									2	0	-22
SAI-933	Rationalise to Cork City									2	0	-22
SAI-934	Rationalise to Cork City									2	0	-22
SAI-935	Rationalise to Cork City									2	0	-22
SAI-936	Rationalise to Cork City									2	0	-22
SAI-937	Rationalise to Cork City									2	0	-22
SAI-938	Rationalise to Cork City via Bantry									2	0	-22
SAI-940	Rationalise Knockburden to Cork City WRZ (Inniscarra WTP) via Cloughduv									2	0	-22

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-941	Rationalise Templemartin & Garranes to Cork City WRZ (Inniscarra WTP)									2	0	-22
SAI-942	Rationalise to Cork City WRZ									2	0	-22
SAI-943	Rationalise to Cork City WRZ									2	0	-22
SAI-944	Rationalise Corbally to Inniscarra WTP									2	0	-22
SAI-945	Rationalise Clash Leamleara to Inniscarra WTP via Corbally									2	0	-22
SAI-946	Rationalise Ballincurrig Lisgoold WRZ to Inniscarra WTP									2	0	-22
SAI-947	Rationalise Walshtown to Inniscarra WTP									2	0	-22
SAI-949	Rationalise Grenagh WRZ and Cork City WRZ									2	0	-22

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	(Inniscarra WTP) via Blarney											
SAI-951	Rationalise Cullen to Cork City WRZ (Inniscarra WTP)									2	0	-22
SAI-952	Rationalise Ballyshoneen and Vicarstown to Inniscarra WTP									2	0	-22
SAI-953	Rationalise Ballyshoneen and Vicarstown to Inniscarra WTP									2	0	-22
SAI-954	Rationalise to Cork City WRZ									2	0	-22
SAI-955	Rationalise to Cork City WRZ									2	0	-22
SAI-956	Rationalise to Cork City									2	0	-22
SAI-959	Rationalise Tibbotstown to Cork City WRZ (Inniscarra WTP)									2	0	-22

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-960	Rationalise Clashanamid to Cork City WRZ (Innishannon WTP)									2	0	-22
SAI-961	Rationalise to Cork City									2	0	-22

Table A.4 Fine Screening Summary of Groundwater Options in SAI

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-009	Increase GW abstraction (infiltration gallery) and upgrade Ballymakeera WTP									1	0	-14

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-010	New GW abstraction and upgrade Ballymakeera WTP									0	0	-12
SAI-030	Increase GW abstraction and upgrade Clondrohid WTP									1	0	-12
SAI-031	New GW abstraction and upgrade Clondrohid WTP									1	0	-12
SAI-035	Increase GW abstraction and upgrade Aghabullogue WTP									1	0	-10
SAI-036	New GW abstraction in the karstic region south of Aghabullogue WTP									0	0	-14
SAI-040	Increase GW abstraction and upgrade Coolehane WTP									1	0	-8
SAI-050	Increase GW abstraction and upgrade Ard na Killy WTP									1	0	-8

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-051	New GW abstraction and upgrade WTP									1	1	-9
SAI-054	Increase GW abstraction and upgrade Nohoval WTP									1	1	-8
SAI-063	New trial well at Ballingearry and new WTP									0	0	-16
SAI-068	Increase GW abstraction and upgrade Ballinagree WTP									1	0	-16
SAI-069	New GW abstraction and upgrade Ballinagree WTP									0	0	-16
SAI-095	Upgrade WTP for water quality improvements. Currently not in deficit									1	0	-10
SAI-106	Increase GW abstraction and upgrade Clashnamid WTP									0	0	-14

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-107	New GW abstraction and upgrade Clashnamid WTP									0	0	-12
SAI-111	New GW abstraction in Knockburden and upgrade Knockburden WTP									0	0	-9
SAI-114	Increase GW abstraction from Cullen BH and upgrade WTP									1	0	-15
SAI-123	Increase GW abstraction and upgrade WTP									1	0	-11
SAI-124	New GW abstraction at Ballyveerane and upgrade WTP									1	0	-12
SAI-140	Increase GW abstraction and upgrade WTP									1	0	-9
SAI-150	New GW abstraction in Tibbotstown (karstic) to supply deficit									2	0	-18

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-163	New GW abstraction (karstic) and new WTP to partly supply deficit									1	0	-18
SAI-176	Increase GW abstraction from Dower Springs and supply deficit. New WTP									1	0	-21
SAI-177	Increase GW abstraction from Dower Springs - Karstic Geology - Regionally Important Aquifer. New WTP									1	0	-19
SAI-178	Increase GW abstraction from Dower Springs - Karstic Geology - Regionally Important Aquifer. New WTP									1	0	-21
SAI-179	Increase GW abstraction from Dower Springs - Karstic Geology -									1	0	-21

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	Regionally Important Aquifer. New WTP											
SAI-180	Increase GW abstraction from Dower Springs - Karstic Geology - Regionally Important Aquifer. New WTP									1	0	-22
SAI-182	New GW abstraction and new WTP to supply deficit									2	0	-23
SAI-183	New GW abstraction and new WTP to supply deficit.									1	0	-21
SAI-184	New GW abstraction and new WTP to supply deficit									1	0	-21
SAI-192	Increase GW abstraction and supply deficit									1	2	-16

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-193	New GW abstraction (karstic region) and new WTP to supply deficit									0	0	-13
SAI-212	New GW abstraction and upgrade WTP to supply deficit									1	0	-12
SAI-216	Increase GW abstraction to partly supply deficit									1	2	-17
SAI-217	New GW abstraction to partly supply deficit									1	0	-17
SAI-222	Increase GW abstraction (karstic) and supply deficit									1	0	-15
SAI-230	Increase existing GW abstraction from infiltration gallery and supply deficit									0	0	-10
SAI-231	Increase existing GW abstraction from									1	0	-13

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	infiltration gallery and supply deficit											
SAI-232	New GW abstraction in Mogeely and new WTP									0	0	-12
SAI-239	Increase GW abstraction to partly supply deficit									1	0	-16
SAI-240	New GW abstraction in Whitechurch to partly supply deficit									1	0	-12
SAI-242	New GW abstraction in the karstic region north of Ballymacoda WTP									1	0	-18
SAI-245	Increase existing GW abstraction to supply deficit									1	0	-13
SAI-257	Increase GW abstraction to supply deficit									1	0	-23
SAI-258	Increase GW abstraction to supply deficit									1	0	-10

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-264	New GW abstraction in the karstic region south of Ballykilty WTP to supply deficit									0	0	-16
SAI-273	Increase existing GW abstraction and supply deficit									1	0	-11
SAI-277	Increase GW abstraction from Clash Borewell to supply deficit									1	0	-16
SAI-283	Increase existing GW abstraction at Ballyshoneen and supply deficit									1	0	-9
SAI-286	Increase GW abstraction to supply deficit									1	0	-16
SAI-287	Increase GW abstraction and supply deficit									1	0	-9
SAI-291	New GW abstraction to supply deficit									1	0	-11

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-294	New GW abstraction in the karstic region to supply deficit									1	0	-15
SAI-303	Increase existing GW abstraction and supply deficit									1	0	-8
SAI-304	New GW abstraction to supply deficit									1	0	-13
SAI-307	Increase GW abstraction and supply deficit									1	0	-16
SAI-315	New GW abstraction in the karstic region north of Knockadoon WTP and supply deficit									2	0	-19
SAI-324	Increase existing GW abstraction from spring and supply deficit									1	0	-12
SAI-325	New GW abstraction to supply deficit									1	0	-15

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-442	Increase GW abstraction to supply deficit and upgrade WTP									1	0	-12
SAI-450	New GW abstraction on the island to supply deficit									1	0	-20
SAI-083	Increase GW abstraction and rationalise Mossgrove to Newcestown WRZ for increased resilience									1	0	-10
SAI-088	Increase GW abstraction and upgrade Roberts Cove WTP									1	0	-13
SAI-480	New GW abstraction to supply deficit and upgrade WTP. Abandon existing SW source									1	0	-14
SAI-486	Increase GW abstraction at Coppeen Source to									1	0	-12

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	supply deficit and upgrade Coppeen WTP											
SAI-489	Increase GW abstraction from Reenmen West and upgrade Reenmeen Woods WTP									0	0	-10
SAI-563	New GW abstraction in karstic region around Ballincollig. New WTP required to partly supply deficit									1	0	-23
SAI-564	New GW abstraction in sand and gravel region west of Ballincollig to partly supply deficit									1	0	-15
SAI-565	New GW abstraction in Karstic region around Carrigtohill and new WTP to partly supply deficit									0	0	-17

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-576	New GW abstraction and new WTP in the area of Curraheen Spring									0	0	-20
SAI-577	New GW abstraction in the karstic region in Ringaskiddy and new WTP to partly supply deficit									2	0	-24
SAI-628	New GW abstraction - Karstic Geology - New WTP required									0	0	-15
SAI-645	New GW abstraction - Karstic Geology - Upgrade WTP									0	0	-13
SAI-647	Increase GW abstraction from source Lauragh WTP BH1 (poorly productive aquifer) and upgrade existing Lauragh WTP to supply deficit									1	0	-12

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-649	New GW onsite as resilience									1	0	-16
SAI-655	New GW source on existing site									1	0	-20
SAI-660	New GW abstraction and abandon existing GW source. New WTP									1	0	-19
SAI-750	New GW abstraction (karstic) and new WTP to partly supply deficit									2	0	-20
SAI-765	New GW abstraction form Dungarvan GWB to supply deficit in Youghal WRZ and new WTP									0	0	-18
SAI-766	New GW abstraction form Tallow GWB to supply deficit in Youghal WRZ and new WTP									0	0	-17

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-498	New GW abstraction and upgrade Toormore WTP to supply deficit									1	0	-11
SAI-830	New GW abstraction (karstic) and new WTP to supply deficit									3	0	-24
SAI-837	Increase GW abstraction (karstic) and supply deficit									1	0	-15
SAI-838	New GW abstraction (karstic) and new WTP to supply deficit									3	0	-24
SAI-890	New GW abstraction and upgrade Minane Bridge WTP									1	0	-19

Table A.5 Fine Screening Summary of Groundwater and Interconnection Options in SAI

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-071	Interconnect Ballinagree and Rylane and supply deficit from Rylane									1	0	-11
SAI-236	Interconnect and supply deficit from Whitegate WRZ									1	0	-21
SAI-260	Interconnect Corbally and Ballincurrig Lisgoold WRZs. Increase GW at Ballincurrig BH and supply deficit to Corbally									1	0	-9
SAI-279	Interconnect Clash Leamleara and Corbally WRZs and supply deficit									1	0	-10

Table A.6 Fine Screening Summary of Groundwater and Rationalisation Options in SAI

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-145	Rationalise Coolineagh to Aghabullogue WRZ									0	0	-14
SAI-227	Rationalise to Whitegate Regional									1	0	-19
SAI-234	Rationalise and feed from Whitegate Regional WRZ									1	0	-21
SAI-272	Rationalise Ballykilty to Whitegate Regional WRZ									1	0	-23
SAI-293	Rationalise Dungourney WTP to Mogeely WRZ									1	0	-13
SAI-105	Rationalise Mossgrove to Newcestown WRZ for increased resilience									1	0	-10
SAI-614	Rationalise and feed from Whitegate Regional WRZ									1	0	-23

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-615	Rationalise to Whitegate Regional									1	0	-23
SAI-831	Rationalise Knockadoon, Ballymacoda and Kilcraheen to Youghal (new GW source)									2	1	-21
SAI-832	Rationalise Knockadoon, Ballymacoda and Kilcraheen to Youghal (new GW source)									2	1	-21
SAI-833	Rationalise Knockadoon, Ballymacoda and Kilcraheen to Youghal (new GW source)									2	1	-21
SAI-836	Rationalise Ballykilty to Killeagh WRZ									1	0	-15
SAI-839	Rationalise Knockadoon, Ballymacoda and Kilcraheen and Ballykilty									3	0	-24

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	to Youghal (new GW source)											
SAI-840	Rationalise Knockadoon, Ballymacoda and Kilcraheen and Ballykilty to Youghal (new GW source)									3	0	-24
SAI-841	Rationalise Knockadoon, Ballymacoda and Kilcraheen and Ballykilty to Youghal (new GW source)									3	0	-24
SAI-842	Rationalise Knockadoon, Ballymacoda and Kilcraheen and Ballykilty to Youghal (new GW source)									3	0	-24
SAI-889	Rationalise Nohoval and Minane Bridge WRZs and supply deficit from Minane WRZ									1	0	-19

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-964	Rationalise Roberts Cove and Minane Bridge WRZs and supply deficit from Minane WRZ									1	0	-19

Table A.7 Fine Screening Summary of Groundwater Source and Interconnection Options in SAI

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-221	Interconnect Grenagh WRZ with Ballyglass GWS (GW source) to partly supply deficit									1	0	-7
SAI-475	Interconnect Allihies WRZ with Ballydonegan									0	0	-14

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	GWS (GW) and supply deficit											

Table A.8 Fine Screening Summary of Groundwater Source and Rationalisation Options in SAI

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-741	Rationalise Allihies WRZ to Ballydonegan GWS (GW)									1	0	-11
SAI-882	Rationalise Cluain Court Allihies to Allihies									1	2	-11
SAI-883	Rationalise Allihies to Ballydonegan GWS									1	2	-11

Table A.9 Fine Screening Summary of Raw Water Storage Options in SAI

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-768	New raw water storage for this WRZ. Based on requiring 100 days supply of 13m ³ /d deficit									0	0	-18

Table A.10 Fine Screening Summary of Water Treatment Plants Options in SAI

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-085	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit									0	0	-5

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-094	Upgrade WTP for water quality improvements. Currently not in deficit									0	0	-5
SAI-102	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit									0	0	-5
SAI-103	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit									0	0	-4
SAI-146	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit									0	0	-5
SAI-455	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit									0	0	-5

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-468	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit									0	0	-8
SAI-508	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit									0	0	-5
SAI-523	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit									0	0	-3
SAI-526	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit									0	0	-4
SAI-769	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit									0	0	-9

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-770	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit									0	0	-9
SAI-771	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit									0	0	-12
SAI-772	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit									0	0	-7
SAI-773	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit									0	0	-6
SAI-774	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit									0	0	-5

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-775	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit									0	0	-5
SAI-776	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit. New infiltration gallery recommended									1	0	-12
SAI-778	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit									0	0	-6
SAI-779	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit									0	0	-7
SAI-780	Upgrade existing WTP for water quality									0	0	-8

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	improvements. The WRZ is not in deficit											
SAI-781	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit									0	0	-7
SAI-782	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit									0	0	-9
SAI-783	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit									0	0	-9
SAI-784	Upgrade existing WTP for water quality improvements. The WRZ is not in deficit									0	0	-12

Table A.11 Fine Screening Summary of Conjunctive Use Options in SAI

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-751	Conjunctive use of new GW abstraction (karstic) and Womanagh River									2	0	-20
SAI-752	Conjunctive use of new GW abstraction (karstic) and Womanagh River									2	0	-23

Table A.12 Fine Screening Summary of Desalination Options in SAI

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-155	Desalination plant to supply Cork City,									3	1	-21

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	Tibbotstown, Youghal Regional, Whitegate Regional and Midleton WRZs											
SAI-168	Desalination plant to supply Cork City, Tibbotstown, Youghal Regional, Whitegate Regional and Midleton WRZs									3	1	-21
SAI-186	Desalination plant to supply Cork City, Tibbotstown, Youghal Regional, Whitegate Regional and Midleton WRZs									3	1	-21
SAI-205	Desalination plant to supply Cork City, Tibbotstown, Youghal Regional, Whitegate									3	1	-21

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
	Regional and Midleton WRZs											
SAI-579	Desalination plant to supply Cork City, Tibbotstown, Youghal Regional, Whitegate Regional and Midleton WRZs									3	1	-22
SAI-580	Desalination plant for Cokr City at Ringaskiddy									3	0	-20
SAI-581	New desalination plant and use incinerator as engery source for Cork City (location TBC)									3	0	-20
SAI-685	Desalination plant at Castletownbere WRZ									4	0	-22
SAI-698	Desalination plant ane new raw water storage to supply Whiddy Island									3	0	-23

Option Reference	Name	Environmental								Total -3 Scores	Environmental Scoring	
		Population, Health, Economy and Recreation	Water Environment: Quality and Resources	Biodiversity, Flora and Fauna	Material Assets	Landscape and Visual	Climate Change	Culture, Heritage and Archaeology	Geology and Soils		Positive Score - Potential Beneficial Effects	Negative Scores - Potential Adverse Effects
SAI-705	New Desalination plant to supply clonakilty and Skibbereen									2	1	-24
SAI-706	New Desalination plant to supply clonakilty and Skibbereen									2	1	-24

Appendix B SA Approaches for SAI

Note: SA Options are also referred to as Group Options

WRZ	Preferred Approach - SA Approach 3		Least Cost - SA Approach 3		Best Environmental - SA Approach 3	
	Option Description	SA Option	Option Description	SA Option	Option Description	SA Option
0500SC0145: Bandon Regional	SAI-957 Interconnect with Cork City via Inniscarra	171	SAI-957 Interconnect with Cork City via Inniscarra	171	SAI-957 Interconnect with Cork City via Inniscarra	171
0500SC0070: Ballymakeera	SAI-011 New SW abstraction and upgrade WTP	-	SAI-011 New SW abstraction and upgrade WTP	-	SAI-011 New SW abstraction and upgrade WTP	-
0500SC0071: Clondrohid	SAI-855 Rationalise Clondrohid to Macroom WRZ	152	SAI-855 Rationalise Clondrohid to Macroom WRZ	152	SAI-855 Rationalise Clondrohid to Macroom WRZ	152
0500SC0059: Aghabullogue	SAI-942 Rationalise to Cork City WRZ	171	SAI-942 Rationalise to Cork City WRZ	171	SAI-942 Rationalise to Cork City WRZ	171
0500SC0178: Coolyhane	SAI-854 Rationalise Coolyhane to Macroom WRZ	152	SAI-854 Rationalise Coolyhane to Macroom WRZ	152	SAI-854 Rationalise Coolyhane to Macroom WRZ	152
0500SC0019: Ard Na Killy Ridge	SAI-050 Increase GW abstraction and upgrade WTP	-	SAI-050 Increase GW abstraction and upgrade WTP	-	SAI-050 Increase GW abstraction and upgrade WTP	-
0500SC0017: Nohoval	SAI-889 Rationalise Nohoval and Minane	163	SAI-889 Rationalise Nohoval and Minane	163	SAI-889 Rationalise Nohoval and Minane	163

WRZ	Preferred Approach - SA Approach 3		Least Cost - SA Approach 3		Best Environmental - SA Approach 3	
	Option Description	SA Option	Option Description	SA Option	Option Description	SA Option
	Bridge WRZs		Bridge WRZs		Bridge WRZs	
0500SC0009: Ballingearry	SAI-060 Increase SW and upgrade WTP	-	SAI-060 Increase SW and upgrade WTP	-	SAI-060 Increase SW and upgrade WTP	-
0500SC0073: Ballinagree	SAI-954 Rationalise to Cork City WRZ	171	SAI-954 Rationalise to Cork City WRZ	171	SAI-954 Rationalise to Cork City WRZ	171
0500SC0013: Newcestown	SAI-083 Increase GW abstraction and rationalise Mossgrove to Newcestown WRZ	20	SAI-083 Increase GW abstraction and rationalise Mossgrove to Newcestown WRZ	20	SAI-083 Increase GW abstraction and rationalise Mossgrove to Newcestown WRZ	20
0500SC0016: Roberts Cove	SAI-964 Rationalise Roberts Cove and Minane Bridge WRZs	163	SAI-964 Rationalise Roberts Cove and Minane Bridge WRZs	163	SAI-964 Rationalise Roberts Cove and Minane Bridge WRZs	163
0500SC0074: Rylane	SAI-955 Rationalise to Cork City WRZ	171	SAI-955 Rationalise to Cork City WRZ	171	SAI-955 Rationalise to Cork City WRZ	171
0500SC0010: Carrignadoura	SAI-102 Upgrade existing WTP	-	SAI-102 Upgrade existing WTP	-	SAI-102 Upgrade existing WTP	-
0500SC0014: Mossgrove	SAI-105 Rationalise Mossgrove to Newcestown WRZ	20	SAI-105 Rationalise Mossgrove to Newcestown WRZ	20	SAI-105 Rationalise Mossgrove to Newcestown WRZ	20

WRZ	Preferred Approach - SA Approach 3		Least Cost - SA Approach 3		Best Environmental - SA Approach 3	
	Option Description	SA Option	Option Description	SA Option	Option Description	SA Option
0500SC0146: Clashanamid	SAI-960 Rationalise Clashanamid to Cork City WRZ (Innishannon WTP)	171	SAI-960 Rationalise Clashanamid to Cork City WRZ (Innishannon WTP)	171	SAI-960 Rationalise Clashanamid to Cork City WRZ (Innishannon WTP)	171
0500SC0171: Knockburden	SAI-940 Rationalise Knockburden to Cork City WRZ (Inniscarra WTP) via Cloughduv	171	SAI-940 Rationalise Knockburden to Cork City WRZ (Inniscarra WTP) via Cloughduv	171	SAI-940 Rationalise Knockburden to Cork City WRZ (Inniscarra WTP) via Cloughduv	171
0500SC0020: Cullen	SAI-951 Rationalise Cullen to Cork City WRZ (Inniscarra WTP)	171	SAI-951 Rationalise Cullen to Cork City WRZ (Inniscarra WTP)	171	SAI-951 Rationalise Cullen to Cork City WRZ (Inniscarra WTP)	171
0500SC0180: Ballyverane	SAI-853 Rationalise Ballyverane to Macroom WRZ	152	SAI-853 Rationalise Ballyverane to Macroom WRZ	152	SAI-853 Rationalise Ballyverane to Macroom WRZ	152
0500SC0058: Coolineagh	SAI-943 Rationalise to Cork City WRZ	171	SAI-943 Rationalise to Cork City WRZ	171	SAI-943 Rationalise to Cork City WRZ	171
0500SC0095: Knockanleigh	SAI-146 Upgrade existing WTP	-	SAI-146 Upgrade existing WTP	-	SAI-146 Upgrade existing WTP	-
0500SC0161: Tibbotstown	SAI-959 Rationalise Tibbotstown to Cork City WRZ (Inniscarra WTP)	171	SAI-959 Rationalise Tibbotstown to Cork City WRZ (Inniscarra WTP)	171	SAI-959 Rationalise Tibbotstown to Cork City WRZ (Inniscarra WTP)	171
0500SC0042: Youghal Regional	SAI-830 New GW abstraction and new WTP	149	SAI-830 New GW abstraction and new WTP	149	SAI-830 New GW abstraction and new WTP	149

WRZ	Preferred Approach - SA Approach 3		Least Cost - SA Approach 3		Best Environmental - SA Approach 3	
	Option Description	SA Option	Option Description	SA Option	Option Description	SA Option
0500SC0184: Whitegate Regional	SAI-176 Increase GW abstraction and new WTP	-	SAI-176 Increase GW abstraction and new WTP	-	SAI-176 Increase GW abstraction and new WTP	-
0500SC0158: Cloyne	SAI-193 New GW abstraction and new WTP	-	SAI-193 New GW abstraction and new WTP	-	SAI-193 New GW abstraction and new WTP	-
0500SC0057: Donoughmore	SAI-212 New GW abstraction and upgrade WTP	-	SAI-212 New GW abstraction and upgrade WTP	-	SAI-212 New GW abstraction and upgrade WTP	-
0500SC0055: Grenagh	SAI-949 Rationalise Grenagh WRZ and Cork City WRZ (Inniscarra WTP) via Blarney	171	SAI-949 Rationalise Grenagh WRZ and Cork City WRZ (Inniscarra WTP) via Blarney	171	SAI-949 Rationalise Grenagh WRZ and Cork City WRZ (Inniscarra WTP) via Blarney	171
0500SC0085: Killeagh	SAI-837 Increase GW abstraction	150	SAI-837 Increase GW abstraction	150	SAI-837 Increase GW abstraction	150
0500SC0162: Mogeely	SAI-231 Increase existing GW abstraction	77	SAI-231 Increase existing GW abstraction	77	SAI-231 Increase existing GW abstraction	77
0500SC0051: Whitechurch	SAI-239 & SAI-240 Increase GW abstraction & new GW abstraction	-	SAI-239 & SAI-240 Increase GW abstraction & new GW abstraction	-	SAI-239 & SAI-240 Increase GW abstraction & new GW abstraction	-
0500SC0041: Ballymacoda	SAI-832 Rationalise Knockadoon,	149	SAI-832 Rationalise Knockadoon,	149	SAI-832 Rationalise Knockadoon,	149

WRZ	Preferred Approach - SA Approach 3		Least Cost - SA Approach 3		Best Environmental - SA Approach 3	
	Option Description	SA Option	Option Description	SA Option	Option Description	SA Option
	Ballymacoda and Kilcraheen to Youghal (new GW source)		Ballymacoda and Kilcraheen to Youghal (new GW source)		Ballymacoda and Kilcraheen to Youghal (new GW source)	
0500SC0047: Corbally	SAI-944 Rationalise Corbally to Inniscarra WTP	171	SAI-944 Rationalise Corbally to Inniscarra WTP	171	SAI-944 Rationalise Corbally to Inniscarra WTP	171
0500SC0084: Ballykilty	SAI-836 Rationalise Ballykilty to Killeagh WRZ	150	SAI-836 Rationalise Ballykilty to Killeagh WRZ	150	SAI-836 Rationalise Ballykilty to Killeagh WRZ	150
0500SC0050: Carrignavar	SAI-273a Increase existing GW abstraction	-	SAI-273a Increase existing GW abstraction	-	SAI-273a Increase existing GW abstraction	-
0500SC0048: Clash Leamleara	SAI-945 Rationalise Clash Leamleara to Inniscarra WTP via Corbally	171	SAI-945 Rationalise Clash Leamleara to Inniscarra WTP via Corbally	171	SAI-945 Rationalise Clash Leamleara to Inniscarra WTP via Corbally	171
0500SC0172: Ballyshoneen	SAI-952 Rationalise Ballyshoneen and Vicarstown to Inniscarra WTP	171	SAI-952 Rationalise Ballyshoneen and Vicarstown to Inniscarra WTP	171	SAI-952 Rationalise Ballyshoneen and Vicarstown to Inniscarra WTP	171
0500SC0167: Ballincurrig Lisgoold	SAI-946 Rationalise Ballincurrig Lisgoold WRZ to Inniscarra WTP	171	SAI-946 Rationalise Ballincurrig Lisgoold WRZ to Inniscarra WTP	171	SAI-946 Rationalise Ballincurrig Lisgoold WRZ to Inniscarra WTP	171
0500SC0044: Dungourney	SAI-293 Rationalise Dungourney WTP to Mogeely WRZ	77	SAI-293 Rationalise Dungourney WTP to Mogeely WRZ	77	SAI-293 Rationalise Dungourney WTP to Mogeely WRZ	77

WRZ	Preferred Approach - SA Approach 3		Least Cost - SA Approach 3		Best Environmental - SA Approach 3	
	Option Description	SA Option	Option Description	SA Option	Option Description	SA Option
0500SC0040: Kilcraheen	SAI-833 Rationalise Knockadoon, Ballymacoda and Kilcraheen to Youghal (new GW source)	149	SAI-833 Rationalise Knockadoon, Ballymacoda and Kilcraheen to Youghal (new GW source)	149	SAI-833 Rationalise Knockadoon, Ballymacoda and Kilcraheen to Youghal (new GW source)	149
0500SC0046: Walshstown	SAI-947 Rationalise Walshstown to Inniscarra WTP	171	SAI-947 Rationalise Walshstown to Inniscarra WTP	171	SAI-947 Rationalise Walshstown to Inniscarra WTP	171
0500SC0053: Stoneview Blarney	SAI-950 Rationalise Stoneview to Cork City WRZ (Inniscarra WTP)	171	SAI-950 Rationalise Stoneview to Cork City WRZ (Inniscarra WTP)	171	SAI-950 Rationalise Stoneview to Cork City WRZ (Inniscarra WTP)	171
0500SC0039: Knockadoon	SAI-831 Rationalise Knockadoon, Ballymacoda and Kilcraheen to Youghal (new GW source)	149	SAI-831 Rationalise Knockadoon, Ballymacoda and Kilcraheen to Youghal (new GW source)	149	SAI-831 Rationalise Knockadoon, Ballymacoda and Kilcraheen to Youghal (new GW source)	149
0500SC0043: Inch	SAI-324 Increase existing GW abstraction	-	SAI-324 Increase existing GW abstraction	-	SAI-324 Increase existing GW abstraction	-
0500SC0021: Skibbereen 2 - Baltimore and Schull	SAI-888 Upgrade WTP	162	SAI-888 Upgrade WTP	162	SAI-888 Upgrade WTP	162
0500SC0030: Bantry	SAI-861 New Inchybegga Impoundment (Cullomane) and new WTP	155	SAI-861 New Inchybegga Impoundment (Cullomane) and new WTP	155	SAI-861 New Inchybegga Impoundment (Cullomane) and new WTP	155

WRZ	Preferred Approach - SA Approach 3		Least Cost - SA Approach 3		Best Environmental - SA Approach 3	
	Option Description	SA Option	Option Description	SA Option	Option Description	SA Option
0500SC0034: Castletownbere	SAI-865 Rationalise to Bantry	155	SAI-865 Rationalise to Bantry	155	SAI-865 Rationalise to Bantry	155
0500SC0012: Dunmanway	SAI-399 Interconnect Dunmanway and Drinagh WRZ	97	SAI-399 Interconnect Dunmanway and Drinagh WRZ	97	SAI-399 Interconnect Dunmanway and Drinagh WRZ	97
0500SC0068: Glengarriff	SAI-862 Rationalise to Bantry	155	SAI-862 Rationalise to Bantry	155	SAI-862 Rationalise to Bantry	155
0500SC0183: Kealkill	SAI-410 New SW abstraction and new WTP	-	SAI-410 New SW abstraction and new WTP	-	SAI-410 New SW abstraction and new WTP	-
0500SC0033: Adrigole	SAI-863 Rationalise to Bantry	155	SAI-863 Rationalise to Bantry	155	SAI-863 Rationalise to Bantry	155
0500SC0037: Durseys Island	SAI-768 New raw water storage for this WRZ	-	SAI-768 New raw water storage for this WRZ	-	SAI-768 New raw water storage for this WRZ	-
0500SC0038: Drinagh	SAI-434 Increase SW abstraction and update WTP	97	SAI-434 Increase SW abstraction and update WTP	97	SAI-434 Increase SW abstraction and update WTP	97
0500SC0027: Durrus	SAI-442 Increase GW abstraction and upgrade WTP	-	SAI-442 Increase GW abstraction and upgrade WTP	-	SAI-442 Increase GW abstraction and upgrade WTP	-
0500SC0031: Whiddy Island	SAI-450 New GW abstraction	-	SAI-450 New GW abstraction	-	SAI-450 New GW abstraction	-

WRZ	Preferred Approach - SA Approach 3		Least Cost - SA Approach 3		Best Environmental - SA Approach 3	
	Option Description	SA Option	Option Description	SA Option	Option Description	SA Option
0500SC0029: Dromore Bantry	SAI-455 Upgrade existing WTP	-	SAI-455 Upgrade existing WTP	-	SAI-455 Upgrade existing WTP	-
0500SC0024: Goleen	SAI-457 Increase SW abstraction and updgage WTP	-	SAI-457 Increase SW abstraction and updgage WTP	-	SAI-457 Increase SW abstraction and updgage WTP	-
0500SC0069: Crosterra	SAI-468 Upgrade existing WTP	-	SAI-468 Upgrade existing WTP	-	SAI-468 Upgrade existing WTP	-
0500SC0035: Allihies	SAI-883 Rationalise Allihies to Ballydonegan GWS	160	SAI-883 Rationalise Allihies to Ballydonegan GWS	160	SAI-883 Rationalise Allihies to Ballydonegan GWS	160
0500SC0036: Cahermore	SAI-480 New GW abstraction and upgrade WTP	-	SAI-480 New GW abstraction and upgrade WTP	-	SAI-480 New GW abstraction and upgrade WTP	-
0500SC0168: Coppeen	SAI-486 Increase GW abstraction and upgrade WTP	-	SAI-486 Increase GW abstraction and upgrade WTP	-	SAI-486 Increase GW abstraction and upgrade WTP	-
0500SC0181: Reenmeen West	SAI-864 Rationalise to Bantry (new Inchybegga Impoundment source)	155	SAI-864 Rationalise to Bantry (new Inchybegga Impoundment source)	155	SAI-864 Rationalise to Bantry (new Inchybegga Impoundment source)	155
0500SC0007: Tareltan	SAI-508 Upgrade existing WTP	-	SAI-508 Upgrade existing WTP	-	SAI-508 Upgrade existing WTP	-

WRZ	Preferred Approach - SA Approach 3		Least Cost - SA Approach 3		Best Environmental - SA Approach 3	
	Option Description	SA Option	Option Description	SA Option	Option Description	SA Option
0500SC0082: Cork City	SAI-939 Increase abstraction and upgrade WTP	171	SAI-939 Increase abstraction and upgrade WTP	171	SAI-939 Increase abstraction and upgrade WTP	171
1300SC0019: Kenmare / Kilgarvan	SAI-630 New SW abstraction and new WTP	-	SAI-630 New SW abstraction and new WTP	-	SAI-630 New SW abstraction and new WTP	-
1300SC0018: Sneam PWS	SAI-643 Increase SW abstraction	-	SAI-643 Increase SW abstraction	-	SAI-643 Increase SW abstraction	-
1300SC0029: Kilgarvan	SAI-645 New GW abstraction and upgrade WTP	-	SAI-645 New GW abstraction and upgrade WTP	-	SAI-645 New GW abstraction and upgrade WTP	-
1300SC0027: Lauragh PWS	SAI-652 New SW abstraction and upgrade WTP	-	SAI-652 New SW abstraction and upgrade WTP	-	SAI-652 New SW abstraction and upgrade WTP	-
0500SC0153: Clonakilty	SAI-958 Interconnect with Cork City via Inniscarra	171	SAI-958 Interconnect with Cork City via Inniscarra	171	SAI-958 Interconnect with Cork City via Inniscarra	171
0500SC0026: Kilcrohane	SAI-660 New GW abstraction and new WTP	-	SAI-660 New GW abstraction and new WTP	-	SAI-660 New GW abstraction and new WTP	-
0500SC0179: Kilnagurteen Macroom	SAI-852 Rationalise Kilnagurteen (Macroom) to Macroom WRZ	152	SAI-852 Rationalise Kilnagurteen (Macroom) to Macroom WRZ	152	SAI-852 Rationalise Kilnagurteen (Macroom) to Macroom WRZ	152

WRZ	Preferred Approach - SA Approach 3		Least Cost - SA Approach 3		Best Environmental - SA Approach 3	
	Option Description	SA Option	Option Description	SA Option	Option Description	SA Option
0500SC0177: Macroon	SAI-851 Increase SW abstraction and new WTP	152	SAI-851 Increase SW abstraction and new WTP	152	SAI-851 Increase SW abstraction and new WTP	152
0500SC0008: Inchigeelagh	SAI-771 Upgrade existing WTP	-	SAI-771 Upgrade existing WTP	-	SAI-771 Upgrade existing WTP	-
0500SC0023: Toormore	SAI-498 New GW abstraction and upgrade WTP	-	SAI-498 New GW abstraction and upgrade WTP	-	SAI-498 New GW abstraction and upgrade WTP	-
0500SC0025: Crookhaven	SAI-784 Upgrade existing WTP	-	SAI-784 Upgrade existing WTP	-	SAI-784 Upgrade existing WTP	-
0500SC0028: Caheragh	SAI-772 Upgrade existing WTP	-	SAI-772 Upgrade existing WTP	-	SAI-772 Upgrade existing WTP	-
0500SC0054: Vicarstown	SAI-953 Rationalise Ballyshoneen and Vicarstown to Inniscarra WTP	171	SAI-953 Rationalise Ballyshoneen and Vicarstown to Inniscarra WTP	171	SAI-953 Rationalise Ballyshoneen and Vicarstown to Inniscarra WTP	171
0500SC0078: Kilnamartyra	SAI-774 Upgrade existing WTP	-	SAI-774 Upgrade existing WTP	-	SAI-774 Upgrade existing WTP	-
0500SC0081: Templemartin & Garranes	SAI-941 Rationalise Templemartin & Garranes to Cork City WRZ (Inniscarra WTP)	171	SAI-941 Rationalise Templemartin & Garranes to Cork City WRZ (Inniscarra WTP)	171	SAI-941 Rationalise Templemartin & Garranes to Cork City WRZ (Inniscarra WTP)	171

WRZ	Preferred Approach - SA Approach 3		Least Cost - SA Approach 3		Best Environmental - SA Approach 3	
	Option Description	SA Option	Option Description	SA Option	Option Description	SA Option
0500SC0083: Minane Bridge	SAI-890 New GW abstraction and upgrade WTP	163	SAI-890 New GW abstraction and upgrade WTP	163	SAI-890 New GW abstraction and upgrade WTP	163
0500SC0147: Ratharoon	SAI-778 Upgrade existing WTP	-	SAI-778 Upgrade existing WTP	-	SAI-778 Upgrade existing WTP	-
0500SC0152: Bayview	SAI-956 Rationalise to Cork City	171	SAI-956 Rationalise to Cork City	171	SAI-956 Rationalise to Cork City	171
0500SC0154: Lyre Clonakilty	SAI-779 Upgrade existing WTP	-	SAI-779 Upgrade existing WTP	-	SAI-779 Upgrade existing WTP	-
0500SC0155: Cape Clear	SAI-780 Upgrade existing WTP	-	SAI-780 Upgrade existing WTP	-	SAI-780 Upgrade existing WTP	-
0500SC0157: Bilberry	SAI-781 Upgrade existing WTP	-	SAI-781 Upgrade existing WTP	-	SAI-781 Upgrade existing WTP	-
0500SC0159: Midleton	SAI-948 Maintain allowable abstraction from Owenacurra River and supply deficit from Inniscarra	171	SAI-948 Maintain allowable abstraction from Owenacurra River and supply deficit from Inniscarra	171	SAI-948 Maintain allowable abstraction from Owenacurra River and supply deficit from Inniscarra	171
0500SC0169: Johnstown	SAI-526 Upgrade existing WTP	-	SAI-526 Upgrade existing WTP	-	SAI-526 Upgrade existing WTP	-
0500SC0170: Cluain Court Allihies	SAI-882 Rationalise Cluain Court Allihies to Allihies	-	SAI-882 Rationalise Cluain Court Allihies to Allihies	-	SAI-882 Rationalise Cluain Court Allihies to Allihies	-

WRZ	Preferred Approach - SA Approach 3		Least Cost - SA Approach 3		Best Environmental - SA Approach 3	
	Option Description	SA Option	Option Description	SA Option	Option Description	SA Option
0500SC0173: Skibbereen	SAI-887 Upgrade WTP and supply spare capacity	162	SAI-887 Upgrade WTP and supply spare capacity	162	SAI-887 Upgrade WTP and supply spare capacity	162
1300SC0017: Caherdaniel / Castlecove	SAI-641 Supplement Caherdaniel from Waterville	123	SAI-641 Supplement Caherdaniel from Waterville	123	SAI-641 Supplement Caherdaniel from Waterville	123
1300SC0023: Waterville PWS 075H	SAI-642 Increase abstraction	123	SAI-642 Increase abstraction	123	SAI-642 Increase abstraction	123

WRZ	Quickest Delivery - SA Approach 1		Most Resilient - SA Approach 3		Lowest Carbon - SA Approach 2	
	Option Description	SA Option	Option Description	SA Option	Option Description	SA Option
0500SC0145: Bandon Regional	SAI-928 Interconnect with Cork City via Inniscarra	170a	SAI-957 Interconnect with Cork City via Inniscarra	171	SAI-962 Interconnect with Cork City via Inniscarra	172
0500SC0070: Ballymakeera	SAI-011 New SW abstraction and upgrade WTP	-	SAI-011 New SW abstraction and upgrade WTP	-	SAI-011 New SW abstraction and upgrade WTP	-

WRZ	Quickest Delivery - SA Approach 1		Most Resilient - SA Approach 3		Lowest Carbon - SA Approach 2	
	Option Description	SA Option	Option Description	SA Option	Option Description	SA Option
0500SC0071: Clondrohid	SAI-031 New GW abstraction and upgrade WTP	-	SAI-855 Rationalise Clondrohid to Macroom WRZ	152	SAI-031 New GW abstraction and upgrade WTP	-
0500SC0059: Aghabullogue	SAI-035 Increase GW abstraction and upgrade WTP	-	SAI-942 Rationalise to Cork City WRZ	171	SAI-035 Increase GW abstraction and upgrade WTP	-
0500SC0178: Coolyhane	SAI-040 Increase GW abstraction and upgrade WTP	-	SAI-854 Rationalise Coolyhane to Macroom WRZ	152	SAI-040 Increase GW abstraction and upgrade WTP	-
0500SC0019: Ard Na Killy Ridge	SAI-050 Increase GW abstraction and upgrade WTP	-	SAI-050 Increase GW abstraction and upgrade WTP	-	SAI-050 Increase GW abstraction and upgrade WTP	-
0500SC0017: Nohoval	SAI-054 Increase GW abstraction and upgrade WTP	-	SAI-889 Rationalise Nohoval and Minane Bridge WRZs	163	SAI-054 Increase GW abstraction and upgrade WTP	-
0500SC0009: Ballingeary	SAI-060 Increase SW and upgrade WTP	-	SAI-060 Increase SW and upgrade WTP	-	SAI-060 Increase SW and upgrade WTP	-
0500SC0073: Ballinagree	SAI-068 Increase GW abstraction and upgrade WTP	-	SAI-954 Rationalise to Cork City WRZ	171	SAI-068 Increase GW abstraction and upgrade WTP	-

WRZ	Quickest Delivery - SA Approach 1		Most Resilient - SA Approach 3		Lowest Carbon - SA Approach 2	
	Option Description	SA Option	Option Description	SA Option	Option Description	SA Option
0500SC0013: Newcestown	SAI-085 Upgrade existing WTP	-	SAI-083 Increase GW abstraction and rationalise Mossgrove to Newcestown WRZ	20	SAI-085 Upgrade existing WTP	-
0500SC0016: Roberts Cove	SAI-088 Increase GW abstraction and upgrade WTP	-	SAI-964 Rationalise Roberts Cove and Minane Bridge WRZs	163	SAI-088 Increase GW abstraction and upgrade WTP	-
0500SC0074: Rylane	SAI-094 Upgrade WTP	-	SAI-955 Rationalise to Cork City WRZ	171	SAI-094 Upgrade WTP	-
0500SC0010: Carrignadoura	SAI-102 Upgrade existing WTP	-	SAI-102 Upgrade existing WTP	-	SAI-102 Upgrade existing WTP	-
0500SC0014: Mossgrove	SAI-103 Upgrade existing WTP	-	SAI-105 Rationalise Mossgrove to Newcestown WRZ	20	SAI-103 Upgrade existing WTP	-
0500SC0146: Clashanamid	SAI-107 New GW abstraction and upgrade WTP	-	SAI-960 Rationalise Clashanamid to Cork City WRZ (Innishannon WTP)	171	SAI-107 New GW abstraction and upgrade WTP	-
0500SC0171: Knockburden	SAI-111 New GW abstraction and upgrade WTP	-	SAI-940 Rationalise Knockburden to Cork City WRZ (Inniscarra WTP) via Cloughduv	171	SAI-111 New GW abstraction and upgrade WTP	-

WRZ	Quickest Delivery - SA Approach 1		Most Resilient - SA Approach 3		Lowest Carbon - SA Approach 2	
	Option Description	SA Option	Option Description	SA Option	Option Description	SA Option
0500SC0020: Cullen	SAI-114 Increase GW abstraction and upgrade WTP	-	SAI-951 Rationalise Cullen to Cork City WRZ (Inniscarra WTP)	171	SAI-114 Increase GW abstraction and upgrade WTP	-
0500SC0180: Ballyverane	SAI-123 Increase GW abstraction and upgrade WTP	-	SAI-853 Rationalise Ballyverane to Macroom WRZ	152	SAI-123 Increase GW abstraction and upgrade WTP	-
0500SC0058: Coolineagh	SAI-140 Increase GW abstraction and upgrade WTP	-	SAI-943 Rationalise to Cork City WRZ	171	SAI-140 Increase GW abstraction and upgrade WTP	-
0500SC0095: Knockanleigh	SAI-146 Upgrade existing WTP	-	SAI-146 Upgrade existing WTP	-	SAI-146 Upgrade existing WTP	-
0500SC0161: Tibbotstown	SAI-150 New GW abstraction	-	SAI-959 Rationalise Tibbotstown to Cork City WRZ (Inniscarra WTP)	171	SAI-959 Rationalise Tibbotstown to Cork City WRZ (Inniscarra WTP)	171
0500SC0042: Youghal Regional	SAI-163 New GW abstraction and new WTP	-	SAI-830 New GW abstraction and new WTP	149	SAI-163 New GW abstraction and new WTP	-
0500SC0184: Whitegate Regional	SAI-176 Increase GW abstraction and new WTP	-	SAI-176 Increase GW abstraction and new WTP	-	SAI-177 Increase GW abstraction and new WTP	56
0500SC0158: Cloyne	SAI-193 New GW abstraction and new WTP	-	SAI-193 New GW abstraction and new WTP	-	SAI-193 New GW abstraction and new WTP	-

WRZ	Quickest Delivery - SA Approach 1		Most Resilient - SA Approach 3		Lowest Carbon - SA Approach 2	
	Option Description	SA Option	Option Description	SA Option	Option Description	SA Option
0500SC0057: Donoughmore	SAI-212 New GW abstraction and upgrade WTP	-	SAI-212 New GW abstraction and upgrade WTP	-	SAI-212 New GW abstraction and upgrade WTP	-
0500SC0055: Grenagh	SAI-216 Increase GW abstraction	-	SAI-949 Rationalise Grenagh WRZ and Cork City WRZ (Inniscarra WTP) via Blarney	171	SAI-216 Increase GW abstraction	-
0500SC0085: Killeagh	SAI-222a Increase GW abstraction	-	SAI-837 Increase GW abstraction	150	SAI-227 Rationalise to Whitegate Regional	56
0500SC0162: Mogeely	SAI-230 Increase existing GW abstraction	-	SAI-231 Increase existing GW abstraction	77	SAI-230 Increase existing GW abstraction	-
0500SC0051: Whitechurch	SAI-239 & SAI-240 Increase GW abstraction & New GW abstraction	-	SAI-239 & SAI-240 Increase GW abstraction & new GW abstraction	-	SAI-239 & SAI-240 Increase GW abstraction & New GW abstraction	-
0500SC0041: Ballymacoda	SAI-245 Increase existing GW abstraction	-	SAI-832 Rationalise Knockadoon, Ballymacoda and Kilcraheen to Youghal (new GW source)	149	SAI-245 Increase existing GW abstraction	-
0500SC0047: Corbally	SAI-257 Increase GW abstraction	-	SAI-944 Rationalise Corbally to Inniscarra WTP	171	SAI-257 Increase GW abstraction	-

WRZ	Quickest Delivery - SA Approach 1		Most Resilient - SA Approach 3		Lowest Carbon - SA Approach 2	
	Option Description	SA Option	Option Description	SA Option	Option Description	SA Option
0500SC0084: Ballykilty	SAI-264 New GA abstraction	-	SAI-836 Rationalise Ballykilty to Killeagh WRZ	150	SAI-264 New GA abstraction	-
0500SC0050: Carrignavar	SAI-273a Increase existing GW abstraction	-	SAI-273a Increase existing GW abstraction	-	SAI-273a Increase existing GW abstraction	-
0500SC0048: Clash Leamleara	SAI-277 Increase GW abstraction	-	SAI-945 Rationalise Clash Leamleara to Inniscarra WTP via Corbally	171	SAI-277 Increase GW abstraction	-
0500SC0172: Ballyshoneen	SAI-283 Increase existing abstraction	-	SAI-952 Rationalise Ballyshoneen and Vicarstown to Inniscarra WTP	171	SAI-283 Increase existing abstraction	-
0500SC0167: Ballincurrig Lisgoold	SAI-286 Increase GW abstraction	-	SAI-946 Rationalise Ballincurrig Lisgoold WRZ to Inniscarra WTP	171	SAI-286 Increase GW abstraction	-
0500SC0044: Dungourney	SAI-291 New GW abstraction	-	SAI-293 Rationalise Dungourney WTP to Mogeely WRZ	77	SAI-291 New GW abstraction	-
0500SC0040: Kilcraheen	SAI-294 New GW abstraction	-	SAI-833 Rationalise Knockadoon, Ballymacoda and Kilcraheen to Youghal (new GW source)	149	SAI-294 New GW abstraction	-

WRZ	Quickest Delivery - SA Approach 1		Most Resilient - SA Approach 3		Lowest Carbon - SA Approach 2	
	Option Description	SA Option	Option Description	SA Option	Option Description	SA Option
0500SC0046: Walshtown	SAI-303 Increase existing GW abstraction	-	SAI-947 Rationalise Walshtown to Inniscarra WTP	171	SAI-303 Increase existing GW abstraction	-
0500SC0053: Stoneview Blarney	SAI-307 Increase GW abstraction	-	SAI-950 Rationalise Stoneview to Cork City WRZ (Inniscarra WTP)	171	SAI-307 Increase GW abstraction	-
0500SC0039: Knockadoon	SAI-315 New GW abstraction	-	SAI-831 Rationalise Knockadoon, Ballymacoda and Kilcraheen to Youghal (new GW source)	149	SAI-315 New GW abstraction	-
0500SC0043: Inch	SAI-324 Increase existing GW abstraction	-	SAI-324 Increase existing GW abstraction	-	SAI-324 Increase existing GW abstraction	-
0500SC0021: Skibbereen 2 - Baltimore and Schull	SAI-931 Interconnect with Cork City via Inniscarra	170a	SAI-888 Upgrade WTP	162	SAI-888 Upgrade WTP	162
0500SC0030: Bantry	SAI-937 Rationalise to Cork City	170a	SAI-861 New Inchybegga Impoundment (Cullomane) and new WTP	155	SAI-376 New SW abstraction and new WTP	-
0500SC0034: Castletownbere	SAI-933 Rationalise to Cork City	170a	SAI-865 Rationalise to Bantry	155	SAI-390 New SW abstraction and new WTP	-

WRZ	Quickest Delivery - SA Approach 1		Most Resilient - SA Approach 3		Lowest Carbon - SA Approach 2	
	Option Description	SA Option	Option Description	SA Option	Option Description	SA Option
0500SC0012: Dunmanway	SAI-393 New SW abstraction	-	SAI-399 Interconnect Dunmanway and Drinagh WRZ	97	SAI-393 New SW abstraction	-
0500SC0068: Glengarriff	SAI-935 Rationalise to Cork City	170a	SAI-862 Rationalise to Bantry	155	SAI-708 New SW abstraction and new WTP	-
0500SC0183: Kealkill	SAI-938 Rationalise to Cork City via Bantry	170a	SAI-410 New SW abstraction and new WTP	-	SAI-410 New SW abstraction and new WTP	-
0500SC0033: Adrigole	SAI-934 Rationalise to Cork City	170a	SAI-863 Rationalise to Bantry	155	SAI-423 New SW abstraction and new WTP	-
0500SC0037: Durseys Island	SAI-768 New raw water storage for this WRZ	-	SAI-768 New raw water storage for this WRZ	-	SAI-768 New raw water storage for this WRZ	-
0500SC0038: Drinagh	SAI-433 Increase SW abstraction and upgrade WTP	-	SAI-434 Increase SW abstraction and update WTP	97	SAI-433 Increase SW abstraction and upgrade WTP	-
0500SC0027: Durrus	SAI-442 Increase GW abstraction and upgrade WTP	-	SAI-442 Increase GW abstraction and upgrade WTP	-	SAI-442 Increase GW abstraction and upgrade WTP	-
0500SC0031: Whiddy Island	SAI-450 New GW abstraction	-	SAI-450 New GW abstraction	-	SAI-450 New GW abstraction	-
0500SC0029: Dromore Bantry	SAI-455 Upgrade existing WTP	-	SAI-455 Upgrade existing WTP	-	SAI-455 Upgrade existing WTP	-

WRZ	Quickest Delivery - SA Approach 1		Most Resilient - SA Approach 3		Lowest Carbon - SA Approach 2	
	Option Description	SA Option	Option Description	SA Option	Option Description	SA Option
0500SC0024: Goleen	SAI-457 Increase SW abstraction and upgrade WTP	-	SAI-457 Increase SW abstraction and upgrade WTP	-	SAI-457 Increase SW abstraction and upgrade WTP	-
0500SC0069: Crostera	SAI-468 Upgrade existing WTP	-	SAI-468 Upgrade existing WTP	-	SAI-468 Upgrade existing WTP	-
0500SC0035: Allihies	SAI-475 Interconnect Allihies WRZ with Ballydonegan GWS	-	SAI-883 Rationalise Allihies to Ballydonegan GWS	160	SAI-475 Interconnect Allihies WRZ with Ballydonegan GWS	-
0500SC0036: Cahermore	SAI-480 New GW abstraction and upgrade WTP	-	SAI-480 New GW abstraction and upgrade WTP	-	SAI-480 New GW abstraction and upgrade WTP	-
0500SC0168: Coppeen	SAI-486 Increase GW abstraction and upgrade WTP	-	SAI-486 Increase GW abstraction and upgrade WTP	-	SAI-486 Increase GW abstraction and upgrade WTP	-
0500SC0181: Reenmeen West	SAI-936 Rationalise to Cork City	170a	SAI-864 Rationalise to Bantry (new Inchybegga Impoundment source)	155	SAI-489 Increase GW abstraction and upgrade WTP	-
0500SC0007: Tareyton	SAI-508 Upgrade existing WTP	-	SAI-508 Upgrade existing WTP	-	SAI-508 Upgrade existing WTP	-
0500SC0082: Cork City	SAI-926 Increase abstraction at Inniscarra	170a	SAI-939 Increase abstraction and upgrade WTP	171	SAI-745 Increase abstraction and upgrade WTP	139

WRZ	Quickest Delivery - SA Approach 1		Most Resilient - SA Approach 3		Lowest Carbon - SA Approach 2	
	Option Description	SA Option	Option Description	SA Option	Option Description	SA Option
1300SC0019: Kenmare / Kilgarvan	SAI-630 New SW abstraction and new WTP	-	SAI-630 New SW abstraction and new WTP	-	SAI-630 New SW abstraction and new WTP	-
1300SC0018: Sneam PWS	SAI-643 Increase SW abstraction	-	SAI-643 Increase SW abstraction	-	SAI-643 Increase SW abstraction	-
1300SC0029: Kilgarvan	SAI-645 New GW abstraction and upgrade WTP	-	SAI-645 New GW abstraction and upgrade WTP	-	SAI-645 New GW abstraction and upgrade WTP	-
1300SC0027: Lauragh PWS	SAI-652 New SW abstraction and upgrade WTP	-	SAI-652 New SW abstraction and upgrade WTP	-	SAI-652 New SW abstraction and upgrade WTP	-
0500SC0153: Clonakilty	SAI-929 Interconnect with Cork City via Inniscarra	170a	SAI-958 Interconnect with Cork City via Inniscarra	171	SAI-963 Interconnect with Cork City via Inniscarra	172
0500SC0026: Kilcrohane	SAI-660 New GW abstraction and new WTP	-	SAI-660 New GW abstraction and new WTP	-	SAI-660 New GW abstraction and new WTP	-
0500SC0179: Kilnagurteen Macrooom	SAI-769 Upgrade existing WTP	-	SAI-852 Rationalise Kilnagurteen (Macrooom) to Macrooom WRZ	152	SAI-769 Upgrade existing WTP	-
0500SC0177: Macrooom	SAI-770 Upgrade existing WTP	-	SAI-851 Increase SW abstraction and new WTP	152	SAI-770 Upgrade existing WTP	-

WRZ	Quickest Delivery - SA Approach 1		Most Resilient - SA Approach 3		Lowest Carbon - SA Approach 2	
	Option Description	SA Option	Option Description	SA Option	Option Description	SA Option
0500SC0008: Inchigeelagh	SAI-771 Upgrade existing WTP	-	SAI-771 Upgrade existing WTP	-	SAI-771 Upgrade existing WTP	-
0500SC0023: Toomore	SAI-932 Rationalise to Cork City via Skibbereen	170a	SAI-498 New GW abstraction and upgrade WTP	-	SAI-498 New GW abstraction and upgrade WTP	-
0500SC0025: Crookhaven	SAI-784 Upgrade existing WTP	-	SAI-784 Upgrade existing WTP	-	SAI-784 Upgrade existing WTP	-
0500SC0028: Caheragh	SAI-772 Upgrade existing WTP	-	SAI-772 Upgrade existing WTP	-	SAI-772 Upgrade existing WTP	-
0500SC0054: Vicarstown	SAI-773 Upgrade existing WTP	-	SAI-953 Rationalise Ballyshoneen and Vicarstown to Inniscarra WTP	171	SAI-773 Upgrade existing WTP	-
0500SC0078: Kilnamartyra	SAI-774 Upgrade existing WTP	-	SAI-774 Upgrade existing WTP	-	SAI-774 Upgrade existing WTP	-
0500SC0081: Templemartin & Garranes	SAI-775 Upgrade existing WTP	-	SAI-941 Rationalise Templemartin & Garranes to Cork City WRZ (Inniscarra WTP)	171	SAI-775 Upgrade existing WTP	-
0500SC0083: Minane Bridge	SAI-776 Upgrade existing WTP	-	SAI-890 New GW abstraction and upgrade WTP	163	SAI-776 Upgrade existing WTP	-

WRZ	Quickest Delivery - SA Approach 1		Most Resilient - SA Approach 3		Lowest Carbon - SA Approach 2	
	Option Description	SA Option	Option Description	SA Option	Option Description	SA Option
0500SC0147: Ratharoon	SAI-778 Upgrade existing WTP	-	SAI-778 Upgrade existing WTP	-	SAI-778 Upgrade existing WTP	-
0500SC0152: Bayview	SAI-927 Rationalise to Cork City	170a	SAI-956 Rationalise to Cork City	171	SAI-961 Rationalise to Cork City	172
0500SC0154: Lyre Clonakilty	SAI-779 Upgrade existing WTP	-	SAI-779 Upgrade existing WTP	-	SAI-779 Upgrade existing WTP	-
0500SC0155: Cape Clear	SAI-780 Upgrade existing WTP	-	SAI-780 Upgrade existing WTP	-	SAI-780 Upgrade existing WTP	-
0500SC0157: Bilberry	SAI-781 Upgrade existing WTP	-	SAI-781 Upgrade existing WTP	-	SAI-781 Upgrade existing WTP	-
0500SC0159: Midleton	SAI-782 Upgrade existing WTP	-	SAI-948 Maintain allowable abstraction from Owenacurra River and supply deficit from Inniscarra	171	SAI-782 Upgrade existing WTP	-
0500SC0169: Johnstown	SAI-526 Upgrade existing WTP	-	SAI-526 Upgrade existing WTP	-	SAI-526 Upgrade existing WTP	-
0500SC0170: Cluain Court Allihies	SAI-523 Upgrade existing WTP	-	SAI-882 Rationalise Cluain Court Allihies to Allihies	-	SAI-523 Upgrade existing WTP	-
0500SC0173: Skibbereen	SAI-930 Interconnect with Cork City via Inniscarra	170a	SAI-887 Upgrade WTP and supply spare capacity	162	SAI-887 Upgrade WTP and supply spare capacity	162

WRZ	Quickest Delivery - SA Approach 1		Most Resilient - SA Approach 3		Lowest Carbon - SA Approach 2	
	Option Description	SA Option	Option Description	SA Option	Option Description	SA Option
1300SC0017: Caherdaniel / Castlecove	SAI-641 Supplement Caherdaniel from Waterville	123	SAI-641 Supplement Caherdaniel from Waterville	123	SAI-641 Supplement Caherdaniel from Waterville	123
1300SC0023: Waterville PWS 075H	SAI-642 Increase abstraction	123	SAI-642 Increase abstraction	123	SAI-642 Increase abstraction	123

WRZ	Best Appropriate Assessment - SA Approach 3	
	Option Description	SA Option
0500SC0145: Bandon Regional	SAI-957 Interconnect with Cork City via Inniscarra	171
0500SC0070: Ballymakeera	SAI-011 New SW abstraction and upgrade WTP	-
0500SC0071: Clondrohid	SAI-855 Rationalise Clondrohid to Macroom WRZ	152
0500SC0059: Aghabullogue	SAI-942 Rationalise to Cork City WRZ	171
0500SC0178: Coolyhane	SAI-854 Rationalise Coolyhane to Macroom WRZ	152

WRZ	Best Appropriate Assessment - SA Approach 3	
	Option Description	SA Option
0500SC0019: Ard Na Killy Ridge	SAI-050 Increase GW abstraction and upgrade WTP	-
0500SC0017: Nohoval	SAI-889 Rationalise Nohoval and Minane Bridge WRZs	163
0500SC0009: Ballingearry	SAI-060 Increase SW and upgrade WTP	-
0500SC0073: Ballinagree	SAI-954 Rationalise to Cork City WRZ	171
0500SC0013: Newcestown	SAI-083 Increase GW abstraction and rationalise Mossgrove to Newcestown WRZ	20
0500SC0016: Roberts Cove	SAI-964 Rationalise Roberts Cove and Minane Bridge WRZs	163
0500SC0074: Rylane	SAI-955 Rationalise to Cork City WRZ	171
0500SC0010: Carrignadoura	SAI-102 Upgrade existing WTP	-
0500SC0014: Mossgrove	SAI-105 Rationalise Mossgrove to Newcestown WRZ	20
0500SC0146: Clashanamid	SAI-960 Rationalise Clashanamid to Cork City WRZ (Innishannon WTP)	171

WRZ	Best Appropriate Assessment - SA Approach 3	
	Option Description	SA Option
0500SC0171: Knockburden	SAI-940 Rationalise Knockburden to Cork City WRZ (Inniscarra WTP) via Cloughduv	171
0500SC0020: Cullen	SAI-951 Rationalise Cullen to Cork City WRZ (Inniscarra WTP)	171
0500SC0180: Ballyverane	SAI-853 Rationalise Ballyverane to Macroom WRZ	152
0500SC0058: Coolineagh	SAI-943 Rationalise to Cork City WRZ	171
0500SC0095: Knockanleigh	SAI-146 Upgrade existing WTP	-
0500SC0161: Tibbotstown	SAI-959 Rationalise Tibbotstown to Cork City WRZ (Inniscarra WTP)	171
0500SC0042: Youghal Regional	SAI-830 New GW abstraction and new WTP	149
0500SC0184: Whitegate Regional	SAI-176 Increase GW abstraction and new WTP	-
0500SC0158: Cloyne	SAI-193 New GW abstraction and new WTP	-
0500SC0057: Donoughmore	SAI-212 New GW abstraction and upgrade WTP	-

WRZ	Best Appropriate Assessment - SA Approach 3	
	Option Description	SA Option
0500SC0055: Grenagh	SAI-949 Rationalise Grenagh WRZ and Cork City WRZ (Inniscarra WTP) via Blarney	171
0500SC0085: Killeagh	SAI-837 Increase GW abstraction	150
0500SC0162: Mogeely	SAI-231 Increase existing GW abstraction	77
0500SC0051: Whitechurch	SAI-239 & SAI-240 Increase GW abstraction & new GW abstraction	-
0500SC0041: Ballymacoda	SAI-832 Rationalise Knockadoon, Ballymacoda and Kilcraheen to Youghal (new GW source)	149
0500SC0047: Corbally	SAI-944 Rationalise Corbally to Inniscarra WTP	171
0500SC0084: Ballykilty	SAI-836 Rationalise Ballykilty to Killeagh WRZ	150
0500SC0050: Carrignavar	SAI-273a Increase existing GW abstraction	-
0500SC0048: Clash Leamleara	SAI-945 Rationalise Clash Leamleara to Inniscarra WTP via Corbally	171
0500SC0172: Ballyshoneen	SAI-952 Rationalise Ballyshoneen and Vicarstown to Inniscarra WTP	171

WRZ	Best Appropriate Assessment - SA Approach 3	
	Option Description	SA Option
0500SC0167: Ballincurrig Lisgoold	SAI-946 Rationalise Ballincurrig Lisgoold WRZ to Inniscarra WTP	171
0500SC0044: Dungourney	SAI-293 Rationalise Dungourney WTP to Mogeely WRZ	77
0500SC0040: Kilcraheen	SAI-833 Rationalise Knockadoon, Ballymacoda and Kilcraheen to Youghal (new GW source)	149
0500SC0046: Walshtown	SAI-947 Rationalise Walshtown to Inniscarra WTP	171
0500SC0053: Stoneview Blarney	SAI-950 Rationalise Stoneview to Cork City WRZ (Inniscarra WTP)	171
0500SC0039: Knockadoon	SAI-831 Rationalise Knockadoon, Ballymacoda and Kilcraheen to Youghal (new GW source)	149
0500SC0043: Inch	SAI-324 Increase existing GW abstraction	-
0500SC0021: Skibbereen 2 - Baltimore and Schull	SAI-888 Upgrade WTP	162
0500SC0030: Bantry	SAI-861 New Inchybegga Impoundment (Cullomane) and new WTP	155
0500SC0034: Castletownbere	SAI-865 Rationalise to Bantry	155

WRZ	Best Appropriate Assessment - SA Approach 3	
	Option Description	SA Option
0500SC0012: Dunmanway	SAI-399 Interconnect Dunmanway and Drinagh WRZ	97
0500SC0068: Glengarriff	SAI-862 Rationalise to Bantry	155
0500SC0183: Kealkill	SAI-410 New SW abstraction and new WTP	-
0500SC0033: Adrigole	SAI-863 Rationalise to Bantry	155
0500SC0037: Dursey Island	SAI-768 New raw water storage for this WRZ	-
0500SC0038: Drinagh	SAI-434 Increase SW abstraction and update WTP	97
0500SC0027: Durrus	SAI-442 Increase GW abstraction and upgrade WTP	-
0500SC0031: Whiddy Island	SAI-450 New GW abstraction	-
0500SC0029: Dromore Bantry	SAI-455 Upgrade existing WTP	-
0500SC0024: Goleen	SAI-457 Increase SW abstraction and update WTP	-

WRZ	Best Appropriate Assessment - SA Approach 3	
	Option Description	SA Option
0500SC0069: Crosterra	SAI-468 Upgrade existing WTP	-
0500SC0035: Allihies	SAI-883 Rationalise Allihies to Ballydonegan GWS	160
0500SC0036: Cahermore	SAI-480 New GW abstraction and upgrade WTP	-
0500SC0168: Coppeen	SAI-486 Increase GW abstraction and upgrade WTP	-
0500SC0181: Reenmeen West	SAI-864 Rationalise to Bantry (new Inchybegga Impoundment source)	155
0500SC0007: Tarelton	SAI-508 Upgrade existing WTP	-
0500SC0082: Cork City	SAI-939 Increase abstraction and upgrade WTP	171
1300SC0019: Kenmare / Kilgarvan	SAI-630 New SW abstraction and new WTP	-
1300SC0018: Sneam PWS	SAI-643 Increase SW abstraction	-
1300SC0029: Kilgarvan	SAI-645 New GW abstraction and upgrade WTP	-

WRZ	Best Appropriate Assessment - SA Approach 3	
	Option Description	SA Option
1300SC0027: Lauragh PWS	SAI-652 New SW abstraction and upgrade WTP	-
0500SC0153: Clonakilty	SAI-958 Interconnect with Cork City via Inniscarra	171
0500SC0026: Kilcrohane	SAI-660 New GW abstraction and new WTP	-
0500SC0179: Kilnagurteen Macroom	SAI-852 Rationalise Kilnagurteen (Macroom) to Macroom WRZ	152
0500SC0177: Macroom	SAI-851 Increase SW abstraction and new WTP	152
0500SC0008: Inchigeelagh	SAI-771 Upgrade existing WTP	-
0500SC0023: Toormore	SAI-498 New GW abstraction and upgrade WTP	-
0500SC0025: Crookhaven	SAI-784 Upgrade existing WTP	-
0500SC0028: Caheragh	SAI-772 Upgrade existing WTP	-
0500SC0054: Vicarstown	SAI-953 Rationalise Ballyshoneen and Vicarstown to Inniscarra WTP	171

WRZ	Best Appropriate Assessment - SA Approach 3	
	Option Description	SA Option
0500SC0078: Kilnamartyra	SAI-774 Upgrade existing WTP	-
0500SC0081: Templemartin & Garranes	SAI-941 Rationalise Templemartin & Garranes to Cork City WRZ (Inniscarra WTP)	171
0500SC0083: Minane Bridge	SAI-890 New GW abstraction and upgrade WTP	163
0500SC0147: Ratharoon	SAI-778 Upgrade existing WTP	-
0500SC0152: Bayview	SAI-956 Rationalise to Cork City	171
0500SC0154: Lyre Clonakilty	SAI-779 Upgrade existing WTP	-
0500SC0155: Cape Clear	SAI-780 Upgrade existing WTP	-
0500SC0157: Bilberry	SAI-781 Upgrade existing WTP	-
0500SC0159: Midleton	SAI-948 Maintain allowable abstraction from Owenacurra River and supply deficit from Inniscarra	171
0500SC0169: Johnstown	SAI-526 Upgrade existing WTP	-

WRZ	Best Appropriate Assessment - SA Approach 3	
	Option Description	SA Option
0500SC0170: Cluain Court Allihies	SAI-882 Rationalise Cluain Court Allihies to Allihies	-
0500SC0173: Skibbereen	SAI-887 Upgrade WTP and supply spare capacity	162
1300SC0017: Caherdaniel / Castlecove	SAI-641 Supplement Caherdaniel from Waterville	123
1300SC0023: Waterville PWS 075H	SAI-642 Increase abstraction	123

Appendix C Figure Index Tables

Designated Site	Label	Designated Site	Label	Designated Site	Label
SACs (Figure 2.2 and Figure 6.1)					
Mullaghanish Bog SAC	1	Old Domestic Building, Askive Wood SAC	13	Reen Point Shingle SAC	25
Killarney National Park, Macgillycuddy's Reeks, Caragh River Catchment SAC	2	Drongawn Lough SAC	14	Dunbeacon Shingle SAC	26
St. Gobnet's Wood SAC	3	Maulagowna Bog SAC	15	Sheep's Head SAC	27
Blackwater River (Kerry) SAC	4	Cloonee And Inchiquin Loughs, Uragh Wood SAC	16	Clonakilty Bay SAC	28
Kilgarvan Ice House SAC	5	Derryclogher (Knockboy) Bog SAC	17	Farranamanagh Lough SAC	29
Ballymacoda (Clonpriest and Pillmore) SAC	6	Glengarriff Harbour and Woodland SAC	18	Myross Wood SAC	30
Great Island Channel SAC	7	Caha Mountains SAC	19	Kilkeran Lake and Castlefreke Dunes SAC	31
The Gearagh SAC	8	Cleanderry Wood SAC	20	Castletownshend SAC	32
Glanlough Woods SAC	9	Bandon River SAC	21	Lough Hyne Nature Reserve And Environs SAC	33
Mucksna Wood SAC	10	Kenmare River SAC	22	Three Castle Head to Mizen Head SAC	34
Old Domestic Building, Dromore Wood SAC	11	Glanmore Bog SAC	23	Roaringwater Bay And Islands SAC	35
Ballinskelligs Bay and Inny Estuary SAC	12	Courtmacsherry Estuary SAC	24	Barley Cove to Ballyrisode Point SAC	36
SPAs (Figure 2.2 and Figure 6.1)					

Designated Site	Label	Designated Site	Label	Designated Site	Label
Mullaghanish to Musheramore Mountains SPA	37	Ballycotton Bay SPA	43	Seven Heads SPA	49
Iveragh Peninsula SPA	38	Beara Peninsula SPA	44	Galley Head to Duneen Point SPA	50
Ballymacoda Bay SPA	39	Courtmacsherry Bay SPA	45	Sheep's Head to Toe Head SPA	51
The Gearagh SPA	40	Old Head of Kinsale SPA	46	Killarney National Park SPA	52
Cork Harbour SPA	41	Deenish Island and Scariff Island SPA	47		
Puffin Island SPA	42	Clonakilty Bay SPA	48		
Ramsar Sites (Figure 2.2 Only)					
Cork Harbour Ramsar Site	53	Ballycotton Bay Ramsar Site	54	Ballymacoda Ramsar Site	55
The Gearagh Ramsar Site	56				
NHAs (Figure 2.2 Only)					
Boggeragh Mountains NHA	a	Slaheny River Bog NHA	e	Trafrask Bog NHA	i
Knockroe Bog NHA	b	Conigar Bog NHA	f	Pulleen Harbour Bog NHA	j
Sillahertane Bog NHA	c	Hungry Hill Bog NHA	g	Derreenatra Bog NHA	k
Doughill Bog NHA	d	Leahill Bog NHA	h		
Nature Reserves (Figure 2.2 Only)					
Capel Island and Knockadoon Head	l	Knockomagh Wood	o	The Gearagh	r
Cummeragh River Bog	m	Lough Hyne	p	Uragh Wood	s
Glengarriff Wood	n	Puffin Island	q		