

Environmental Report (SEA) of Graiguenamanagh-Tinnahinch Joint Local Area Plan 2021-2027



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Non-technical Summary

Section 1 Introduction and Terms of Reference

This is the Non-Technical Summary of the Environmental Report (ER) of the Graiguenamanagh-Tinnahinch Draft Joint Local Area Plan (LAP). The purpose of the ER is to provide a clear understanding of the likely environmental consequences of decisions regarding the future development of the plan area.

What is an SEA?

SEA is a systematic process of predicting and evaluating the likely environmental effects of implementing a proposed plan, or other strategic action, in order to ensure that these effects are appropriately addressed at the earliest appropriate stage of decision-making on a par with economic, social and other considerations.

Why is it needed?

The SEA is being carried out in order to comply with the provisions of the SEA Regulations and in order to improve planning and environmental management. The output of the process is an ER and SEA Statement, both of which should be read in conjunction with the LAP.

How does it work?

All of the main environmental issues in the plan area are assembled and presented to the team who prepare the Plan. This helped them to devise a Plan that protects whatever is sensitive in the environment. It also helped to identify wherever there are environmental problems in the area and ideally the Plan tries to improve these. To decide how best to make a Plan that protects the environment as much as possible the planners examined alternative versions of the Plan. This helped to highlight the type of Plan that is least likely to harm the environment.

What is included in the Environmental Report which accompanies the Plan?

The ER contains the following information:

- A description of the environment and the key environmental issues;
- A description and assessment of alternatives for the Plan;
- An assessment of the Plan objectives; and,
- Mitigation measures which set out to aid compliance with important environmental protection legislation - e.g. the Water Framework Directive, the Habitats Directive - and which will avoid/reduce the environmental effects of implementing the Plan.

What happens at the end of the process?

Upon the making of the Plan a document will be made public, referred to as the SEA Statement. The SEA Statement includes information on how environmental considerations have been integrated into the Plan and why the preferred alternative was chosen for the Plan in light of the other alternatives.

Section 2 The Plan

2.1 Content of the Plan

The Plan has been prepared by Kilkenny and Carlow County Council and comprises a written document with maps, and appendices. The contents of the Plan (as set out in its chapter headings) are as follows;

1. Introduction
2. Graiguenamanagh-Tinnahinch in Context
3. Vision for Graiguenamanagh-Tinnahinch
4. Core Strategy and Zoning
5. Economic Development and Employment
6. Housing and Community
7. Green Infrastructure and Recreation
8. Built and Natural Heritage
9. Movement and Transport
10. Infrastructure & Environment
11. Implementation

2.2 Interactions with Relevant Policy, Plans or Programmes

The Plan sits within a hierarchy of other plans. The Plan must comply with higher level strategic plans. The higher-level plans include the following:

- [National Climate Change Adaptation Framework](#)¹
- National Planning Framework (NPF)²
- Ministerial Guidelines on [Architectural Heritage Protection](#), [Childcare Facilities, Development Plans, Landscapes](#), Local Area Plans, [The Planning System and Flood Risk Management](#), [Retail Planning](#), [Strategic Environmental Assessment](#), [Sustainable Residential Development in Urban Areas](#) and [Sustainable Rural Housing](#)
- [River Basin Management Plan](#)³
- Regional Spatial & Economic Strategy for the Southern Region⁴
- [Kilkenny County Development Plan 2014-2020](#)
- [Carlow County Development Plan 2015-2021](#)⁵

The Plan will set the strategic context for planning applications within the Plan area.

Section 3 The Environmental Baseline

3.1 Introduction

¹ Department of Environment, Community and Local Government, [National Climate Change Adaptation Framework](#), 2012

² <http://npf.ie/>

³ [River Basin Management Plan 2018-2021](#)

⁴ <https://www.southernassembly.ie/uploads/general-files/Southern%20Regional%20Assembly%20RSES%202020%20FINAL%20Low%20Res.pdf>

⁵ <http://www.carlow.ie/wp-content/documents/uploads/carlow-county-dev-plan-2015-2021.pdf>

The environmental baseline of the plan area is described in this section. This baseline, together with the Strategic Environmental Objectives which are identified in Section 3.3, is used in order to identify, describe and evaluate the likely significant environmental effects of implementing the Plan and to determine appropriate monitoring measures.

The environmental baseline is described in line with the legislative requirements encompassing the following components –

1. Biodiversity, Flora and Fauna
2. Population and Human Health
3. Soil
4. Water
5. Air
6. Climatic factors
7. Material Assets
8. Cultural Heritage (architectural and archaeological)
9. Landscape
10. The inter-relationship between these issues

3.2 Evolution of Environment in the absence of a Plan

Problems were outlined under each heading above and historical trends were presented where possible. In the absence of the new Plan there would be no long-term area-specific framework or guidance for development within the plan area. Specifically, the following could occur:

1. Biodiversity, Flora and Fauna

Although some areas of sensitivity, such as the Natura 2000 sites would continue to be protected under EU law, undesignated habitats such as hedgerows would suffer from a lack of protection.

2. Population and Human Health

In the absence of a Core Strategy and appropriate settlement policies there would be no framework directing development away from the most sensitive areas.

3. Soil

There would be no framework for directing development and growth to appropriate brownfield sites and therefore greenfield development would occur on an increased basis, resulting in a loss of non-renewable soil resources.

4. Water

Water supplies and wastewater treatment would continue to be governed by the Water Framework Directive. However, the Groundwater Protection Scheme would not be implemented and therefore applications would proceed on an ad-hoc basis, without due regard to the potential for affecting a particular aquifer or source.

5. Air

In the absence of detailed Smarter Travel objectives and a coherent approach, development would occur in a dispersed pattern, leading to an increase in unsustainable travel patterns and a subsequent increase in travel related emissions.

6. Climatic factors

With no Strategic Flood Risk Assessment, inappropriate development could take place in areas of flood risk.

7. Material Assets

There would be no detailed framework to provide the infrastructure, such as energy infrastructure, that the area requires.

8. Cultural Heritage (architectural and archaeological)

The Plan includes detail on the Record of Protected Structures and Architectural Conservation Area within the area. If this were not to occur, cultural heritage would not be protected to the fullest extent possible, as additions to the RPS would not be carried out.

9. Landscape

In the absence of the designation of views, which forms an element of the Plan, there would be no framework guiding developments to avoid areas of highest sensitivity.

3.3 Strategic Environmental Objectives

Strategic Environmental Objectives (SEOs) are measures against which the environmental effects of the Plan can be tested. If complied with in full, SEOs would result in an environmentally neutral impact from implementation of the Plan.

The SEA Directive requires that relevant environmental protection objectives (EPOs), established at international, EU or national level are listed in the Environmental Report. The [Guidelines](#) include an indicative list of EPOs, which has been followed here. The [Guidelines](#) also recommend that broad planning policy objectives (PPOs) are defined for the area. Both the EPOs and the PPOs combine to form the SEA objectives, and these are set out in Table NTS1.

Table NTS1 SEA Objectives

Environmental Component & Guiding Principle	Strategic Environmental Objective
<p>BIODIVERSITY FLORA AND FAUNA Guiding Principle: No net contribution to biodiversity losses or deterioration</p>	<ul style="list-style-type: none"> • To preserve, protect, maintain and, where appropriate, enhance the terrestrial, aquatic and soil biodiversity, particularly EU designated sites and protected species. • Ensure no adverse effects on the integrity of any European site, with regard to its qualifying interests, associated conservation status, structure and function. • Safeguard national, regional and local designated sites and supporting features which function as stepping stones for migration,

	<p>dispersal and genetic exchange of wild species.</p> <ul style="list-style-type: none"> • Conserve and restore biodiversity in line with the National Biodiversity Strategy and its targets • To protect, maintain and conserve the County’s Natural Capital
<p>POPULATION AND HUMAN HEALTH Guiding Principle: Improve quality of life for all ages and abilities based on high-quality, serviced, well connected and sustainable residential, working, educational and recreational environments</p>	<ul style="list-style-type: none"> • To create an environment where every individual and sector of society can play their part in achieving a more healthy Ireland. • Consolidate growth and limit urban sprawl. • Enhance human health and promote healthy living through access to active travel opportunities, especially walking and cycling. • Promote economic growth to encourage retention of working age population. • Ensure that existing population and planned growth is matched with the required public infrastructure and the required services. • Safeguard the county’s citizens from environment-related pressures and risks to health and well-being.
<p>WATER Guiding Principle: Protection, improvement and sustainable management of the water resource</p>	<ul style="list-style-type: none"> • Ensure that the status of water bodies is protected, maintained and improved in line with the requirements of the WFD and MSFD. • Ensure that economic growth of the marine resource and its ecosystems are managed sustainably. • Ensure water resources are sustainably managed to deliver proposed growth in the context of existing and projected water supply and wastewater capacity constraints ensuring the protection of receiving environments. • Avoid inappropriate development in areas at risk of flooding and areas that are vulnerable to current and future erosion. • Integrate sustainable water management solutions (such as SuDS, porous surfacing and green roofs) into development proposals.
<p>LAND AND SOILS Guiding Principle: Ensure the long-term sustainable management of land</p>	<ul style="list-style-type: none"> • Protect soils against pollution, and prevent degradation of the soil resource. • Promote the sustainable use of infill and brownfield sites over the use of greenfield. • Safeguard areas of prime agricultural land and designated geological sites.
<p>AIR Guiding Principle: Support clean air policies that</p>	<ul style="list-style-type: none"> • To avoid, prevent or reduce harmful effects on human health and the environment as a whole

<p>reduce the impact of air pollution on the environment and public health</p>	<p>resulting from emissions to air from all sectors with particular reference to emissions from transport, residential heating, industry and agriculture.</p> <ul style="list-style-type: none"> • Maintain and promote continuing improvement in air quality through the reduction of emissions and promotion of renewable energy and energy efficiency. • Promote continuing improvement in air quality. • Reduction of emissions of sulphur dioxide, nitrogen oxides, volatile organic compounds, ammonia and fine particulate matter which are responsible for acidification, eutrophication and ground-level ozone pollution • Meet Air Quality Directive standards for the protection of human health — Air Quality Directive • Significantly decrease noise pollution by 2020 and move closer to WHO recommended levels
<p>CLIMATE Guiding Principle: Achieving transition to a competitive, low carbon, climate-resilient economy that is cognisant of environmental impacts.</p>	<ul style="list-style-type: none"> • To minimise emissions of greenhouse gasses. • Integrate sustainable design solutions into infrastructure (e.g. energy efficient buildings; green infrastructure). • Contribute towards the reduction of greenhouse gas emissions in line with national targets. • Promote development resilient to the effects of climate change. • Promote the use of renewable energy, energy efficient development and increased use of public transport.
<p>MATERIAL ASSETS Guiding Principle: Sustainable and efficient use of natural resources</p>	<ul style="list-style-type: none"> • Optimise existing infrastructure and provide new infrastructure to match population distribution proposals. • Ensure access to affordable, reliable, sustainable and modern energy for all which encourages a broad energy generation mix to ensure security of supply – wind, wave solar, tidal, biomass, energy from waste (EfW), and traditional fossil fuels. • Promote the circular economy, reduce waste, and increase energy efficiencies. • Ensure there is adequate sewerage and drainage infrastructure in place to support new development. • Reduce the energy demand from the transport sector and support moves to electrification of road and rail transport modes.

	<ul style="list-style-type: none"> • Encourage the transition to a zero carbon economy by developing grid infrastructure to support renewables (onshore and offshore), and international connectivity. • Reduce the average energy consumption per capita including promoting energy efficient buildings, retrofitting, smart- buildings, cities and grids.
<p>CULTURAL HERITAGE Guiding Principle: Safeguard cultural heritage features and their settings through responsible design and positioning of development.</p>	<ul style="list-style-type: none"> • Protect places, features, buildings and landscapes of cultural, archaeological or architectural heritage
<p>LANDSCAPE Guiding Principle: Protect and enhance the landscape character</p>	<ul style="list-style-type: none"> • To provide a framework for identification, assessment, protection, management and planning of landscapes having regard to the European Landscape Convention

Section 4 Alternative Scenarios

4.1 Description of the Alternative Plan Scenarios

One of the critical roles of the SEA is to facilitate an evaluation of the likely environmental consequences of a range of alternative scenarios for the future development of the plan area. The population targets for County Kilkenny and County Carlow are set by the National Planning Framework (NPF)⁶ and the Implementation Roadmap for the National Planning Framework (July 2018). Compact Growth is one of the National Strategic Outcomes (NSO's) of the National Planning Framework. The main objective of compact growth is to continue consolidation to streamline and coordinate the development of potential development areas in our existing cities, towns and villages to create more attractive places in which people can live and work. Three scenarios were outlined and evaluated.

4.2 Evaluation of Scenario

This section summarises the evaluation of compact growth that is found in Section 5.5 of the Environmental Report.

Continued Consolidation - Likely significant effects (See Figure 5.1)

Environmental impacts

This alternative concentrates populations into the existing centre of Graiguenamanagh and Tinnahinch, which has existing services and facilities, and access to public transport. Investment in key infrastructure can be concentrated here and sustainable travel is promoted. Valuable natural resources such as water quality are protected through targeted infrastructural measures.

Planning impacts

This alternative does not support the rural population, which may lead to a population decline in rural areas. It has the fewest potentially negative impacts on the planning policy objectives (PPOs) and Environmental Policy Objectives (EPOs).

This scenario contributes towards the protection of the environment and conforms to high level planning objectives.

By complying with appropriate mitigation measures - including those which have been integrated into the Plan - potential adverse environmental effects which could arise as a result of implementing this scenario would be likely to be avoided, reduced or offset.

Section 6 of the Environmental Report evaluates the individual strategic aims and objectives which have been prepared to realise the selected scenario.

4.3 Appropriate Assessment and Flood Risk Assessment

⁶ <http://npl.ie/>

A Strategic Flood Risk Assessment (SFRA) was carried out for the Plan; this forms Appendix 1 to the Environmental Report. An Appropriate Assessment has also been carried out for the Plan; this is produced as a separate Natura Impact Report.

The preparation of the Plan, SEA, AA and SFRA has taken place concurrently and the findings of the AA and SFRA have informed both the Plan and the SEA.

Section 5 Mitigation and Monitoring Measures

5.1 Mitigation

Mitigation measures are measures envisaged to prevent, reduce and, as fully as possible, offset any significant adverse impacts on the environment of implementing the Plan. Potential adverse effects have been and will be avoided, reduced or offset through:

- The consideration of alternatives;
- Through communication of environmental considerations and integration of these considerations into the Plan;
- Through the application of a comprehensive risk-based planning approach to flood management in the Strategic Flood Risk Assessment; and
- Adherence to mitigation measures which have been integrated into the Plan either as Objectives in the case of Natura 2000 sites and flood risk management, or Development Management Standards.

5.2 Monitoring

The SEA Directive requires that the significant environmental effects of the implementation of plans and programmes are monitored. The Environmental Report contains proposals for monitoring the Plan which are adopted alongside the Plan. Monitoring enables the identification of unforeseen adverse effects and the undertaking of appropriate remedial action.

The Environmental Report identifies indicators which allow quantitative measures of trends and progress in the environment over time. Measurements for indicators generally come from existing monitoring sources.

1 Introduction

A review of Graiguenamanagh Local Area Plan (LAP) (2009-2015) (as amended) is being carried out by Kilkenny County Council and a review of Tinnahinch Local Area Plan (LAP) (2010-2016) is being carried out by Carlow County Council to form a new Joint Draft LAP for Graiguenamanagh-Tinnahinch urban area.

To satisfy the requirements of [European Directive 2001/42/EC](#)⁷, the Planning and Development (Strategic Environmental Assessment) (SEA) Regulations 2004 (as amended) require that an SEA is carried out on any Local Area Plan where the planning authority determines under Article 14A(3) or (5) that the implementation of a local area plan, an amended plan or an amendment to a local area plan would be likely to have significant effects on the environment. The Screening for Appropriate Assessment completed for this draft joint local area plan concluded the forthcoming plan may, individually or in combination with other plans, potentially have effects on European Sites and consequently Stage 2 AA is required. In accordance with the Directive, as Stage 2 AA is required, SEA is mandatory for a plan that does more than provide for the use of small areas at local level; and non-minor modifications.

SEA is the formal, systematic evaluation of the likely significant effects of implementing the plan, before a decision is made. The process includes preparing an Environmental Report where the likely significant effects are identified and evaluated.

This report has been prepared in accordance with the [SEA Guidelines for Regional and Planning Authorities](#)⁸.

1.1 Report Structure

Information to be included in the Environmental Report is set out in Schedule 2B to the Planning and Development Regulations 2001. The [SEA Guidelines for Regional and Planning Authorities](#) also include a recommended layout, which this Report follows for the most part. The table below sets out how the layout of this Report satisfies the requirements of the Regulations.

Requirements of SEA Directive	Section of Environmental Report
1. An outline of the contents and main objectives of the plan and relationship with other relevant plans;	Chapter 2: Contents and Description of the Plan
2. The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan;	Chapter 3: Current state of the environment
3. The environmental characteristics of areas likely to be significantly affected;	Chapter 3: Current state of the environment
4. Any existing environmental problems which are relevant to the plan including, in	Chapter 3: Current state of the environment

⁷ EU, [Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment](#), Article 1

⁸ [Implementation of SEA Directive \(2001/42/EC\): Assessment of the Effects of Certain Plans and Programmes on the Environment, Guidelines for Regional and Planning Authorities](#) November 2004

particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to the Birds Directive or Habitats Directive;	
5. The environmental protection objectives, established at international, European Union or national level, which are relevant to the plan and the way those objectives and any environmental considerations have been taken into account during its preparation;	Chapter 4: Policy objectives
6. The likely significant effects ⁹ on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors;	Chapter 6: Likely significant effects on the environment
7. The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan;	Chapter 7: Mitigation measures
8. An outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information;	Chapter 5: Assessment of Alternatives
9. A description of the measures envisaged concerning monitoring of the significant environmental effects of implementation of the plan;	Chapter 8: Development Plan Monitoring
10. A non-technical summary of the information provided under the above headings.	Non-technical Summary

1.2 Methodology

1.2.1 Screening

Screening was not carried out, as SEA is mandatory for the preparation of this LAP.

1.2.2 Scoping

A brief scoping report was prepared in March 2020 in accordance with the [SEA Guidelines for Regional and Planning Authorities](#)¹⁰. The purpose of the scoping report was to ensure the identification of relevant environmental issues so they could be addressed appropriately in the

⁹ These effects should include secondary, cumulative, synergistic, short, medium and long-term, permanent and temporary, positive and negative effects.

¹⁰ Implementation of SEA Directive (2001/42/EC): Assessment of the Effects of Certain Plans and Programmes on the Environment, Guidelines for Regional and Planning Authorities November 2004

Environmental Report. The scoping report also indicated the level of detail necessary for the SEA of the LAP.

1.2.2.1 Consultation

In line with the Planning and Development (SEA) Regulations 2004 as amended¹¹, the Environmental and Planning Authorities were given notice on the 6th March 2020 of the intention of Kilkenny County Council and Carlow County Council to carry out an environmental assessment.

A response was received from the EPA on the 25th March 2020, which included a SEA pack for all Local Authorities to incorporate in carrying out the Environmental Report. The letter listed general topics to be considered, covering issues such as water quality and flooding.

The comments were incorporated within the Scoping Report and are taken into account in the content of this Environmental Report in accordance with the Regulations.

1.2.3 Public Consultation

A pre-draft public consultation period took place during the 16th October to 22nd of November 2019. This period of consultation comprised of a public meeting (held in conjunction with Carlow County Council) on the 7th of November 2019 in the 'Hub' Graiguenamanagh. A total of nine pre-draft submissions were received and were addressed in the Chief Executive's Report. None of these submissions related to the SEA.

1.2.4 Environmental Baseline Data

The baseline data assists in assessing the current state of the environment, facilitating the identification, evaluation and subsequent monitoring of the effects of the plan.

Baseline data was collected based on the various broad environmental topics described in the [SEA Directive](#); i.e. biodiversity, population, human health, fauna, flora, soil, water, air, climate factors, material assets, cultural heritage including architectural and archaeological heritage and landscape. The Directive requires that information be focused upon relevant aspects of the environmental characteristics of the area likely to be significantly affected by the plan and the likely change, in both positive and negative terms where applicable. The baseline data was collated from currently available, relevant data sources, as the [SEA Directive](#) does not require major new research to be carried out. Where deficiencies or gaps in the information were identified, this is noted.

The [SEA Directive](#) requires that information is provided on any existing environmental problems which are relevant to the plan or programme. Environmental problems arise where there is a conflict between current environmental conditions and ideal targets.

1.2.5 Selection of Strategic Environmental Objectives

The [Directive](#) requires that relevant environmental protection objectives (EPOs), established at international, EU or national level are identified and listed. The [Guidelines](#) include an indicative list

¹¹ Planning and Development Strategic Environmental Assessment (Amendment) Regulations 2011 S.I. 2011 of 2011

of EPOs, which was followed, and these are set out in Chapter 4. In addition, the Step-by-Step Guide to the SEA process in the [Guidelines](#) recommends that broad planning policy objectives (PPOs) for the area are defined. Both the EPOs and the PPOs were combined to form the Strategic Environmental Objectives, or SEOs, against which the alternatives and plan provisions were assessed.

1.2.6 Consideration of Alternatives

The SEA Directive (at Article 5) recommends that alternative development scenarios for the plan are included for assessment. Alternatives need to be ‘realistic and capable of implementation’ and should represent a range of different approaches within the statutory and operational requirements of the particular plan. Three alternatives were considered and assessed against the SEOs and one alternative emerged as the preferred plan strategy having satisfied the most SEOs. This is discussed in detail in Chapter 5.

1.2.7 Environmental Assessment of the LAP

The selected alternative forms the basis of the Plan. Detailed objectives were worked up around this Strategy to implement this Plan. This was an iterative process whereby the findings of the SEA were communicated to the plan making team on an ongoing basis in order to be integrated into the Plan.

The development objectives in the Plan were then assessed against the SEOs. The assessment described within this Environmental Report aims to highlight the potential conflicts, if they are present, between the stated development objectives contained in the Plan with the SEOs.

In accordance with SEA [Guidelines](#) the assessment categorised the potential effects of the Plan on the SEOs as follows:

- Significant beneficial impact
- Uncertain impact
- Significant adverse impact
- No relationship, or insignificant impact

1.2.8 Changes to the Plan as a result of SEA

The formulation of the Plan and the preparation of the Environmental Report is an iterative process that takes place over many months and therefore it is difficult to document the evolution of every objective in the Plan. However, there are a number of significant changes for which the SEA is mainly responsible, which are noted here.

In the first place, the entire ethos behind the writing of the Plan was to provide a clarity which could readily be understood, and assessed by the SEA process. This led to a decision from the outset to structure the Plan mainly in terms of ‘objectives’ and ‘development management standards.’ The previous Plan included a ‘Policies and Objectives’ chapter, and a ‘Development Management’ chapter. The inclusion of policies, objectives and development management standards made it more cumbersome for the SEA process. This time around, objectives were used as the main

statement of intent. Objectives had to satisfy the criteria of SMART and be; Specific, Measurable, Attainable, Realistic and Time-sensitive.

This made the assessment clearer, and should lead to greater clarity in monitoring the effects of the Plan. 'Development management standards' were used to set out exactly what would be required to be satisfied as part of any planning application, so for the most part these were used as mitigation measures.

1.2.8.1 Strategic Flood Risk Assessment

A Strategic Flood Risk Assessment (SFRA) has been carried out as part of the SEA process. The SFRA is included as an appendix to this SEA.

1.2.9 Mitigation

Following on from the assessment of the detailed development objectives against the SEOs, if there was any uncertain impact identified, mitigation measures were identified to counter any negative effects. These are outlined in Chapter 7. As stated previously, the formulation of the Plan and the preparation of the SEA is an iterative process and therefore, many of the potential negative aspects of the Plan were removed prior to reaching this stage of the process.

1.2.10 Monitoring

Article 10 of the SEA Directive sets out the requirement that monitoring is to be carried out of the significant environmental effects of the implementation of the Plan in order to identify at an early stage any unforeseen adverse effects and to be able to undertake appropriate remedial action. Chapter 8 of this Report outlines the monitoring requirements. Methods of monitoring and indicators of change in the environment have been proposed with set targets to be reviewed over the duration of the Plan.

1.2.11 Technical Difficulties Encountered

Also, there are some gaps in information available, for instance in relation to complete ecological coverage, e.g. habitats, trees, hedgerows etc. Gaps are referenced under each relevant heading in Chapter 3.

1.2.12 Report Preparation

This report has been prepared by the Forward Planning Section of Kilkenny County Council.

2 Contents and Description of the Plan

2.1 Contents

Kilkenny and Carlow County Council is currently preparing the Graiguenamanagh-Tinnahinch Local Area Plan 2020-2026 (hereafter referred to as the Plan) which will replace the existing Graiguenamanagh Local Area Plan 2009-2015 (as amended) and Tinnahinch Local Area Plan 2010-2016. This Plan is being prepared under the provisions of the Planning and Development Acts 2000-2010 to develop and improve the area in a sustainable manner. The area to be included in this Plan is shown enclosed by the red boundary line on Figure 2.1.

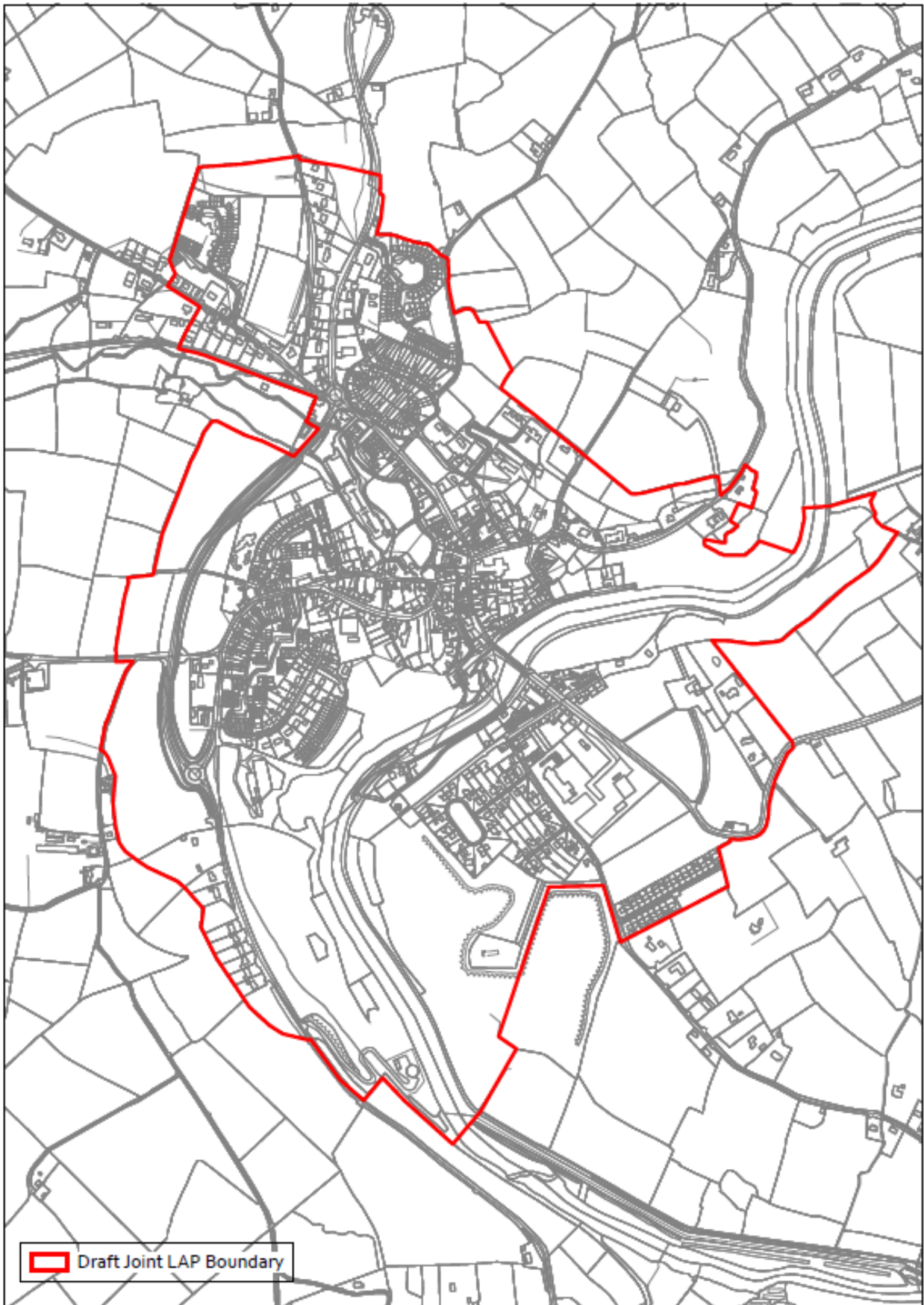


Figure 2.1 Plan area

The contents are best described through a list of the chapter headings:

1. Introduction
2. Graiguenamanagh-Tinnahinch in Context
3. Vision for Graiguenamanagh-Tinnahinch
4. Core Strategy & Zoning
5. Economic Development and Employment
6. Housing and Community
7. Green Infrastructure and Recreation
8. Built and Natural Heritage
9. Movement and Transport
10. Infrastructure and Environment
11. Implementation

As the Core Strategy included in Chapter 4 of the Draft Joint Plan outlines, the focus for new residential development will be within and adjoining the existing built-up area of Graiguenamanagh and Tinnahinch. The estimated population increase for Graiguenamanagh to 2026 is 1,650 persons and 340 persons for Tinnahinch.

2.2 Objectives

The main objectives and ethos of the Plan can be summarised in its Vision (Section 3.2) as follows:

'This Joint Local Area Plan will promote population growth of Graiguenamanagh and Tinnahinch, reversing the recent trends of population decline. The plan envisages a consolidated town centre with enhanced east-west connections for pedestrians and cyclists, combined with a range of traffic management proposals which will improve accessibility to and vitality of the consolidated town centre. The Plan will encourage job creation by capitalising on local strengths, including the towns' unique setting, natural and built heritage and by enhancing the interface with the River Barrow, thereby supporting opportunities to sustainably exploit the river as a visual, recreational and tourism amenity. Development will be encouraged in a sustainable manner that promotes a healthy environment and healthy living and improved public spaces, while protecting the unique built and natural heritage of the settlement.'

2.3 Relationship with other relevant plans and programmes

The Plan provides a land use framework for the sustainable development of the area. In its making, the Plan will have regard to all relevant planning and environmental policy and legislation including European Union directives, Ministerial guidelines and other national, regional and county plans and policies. These include the following:

- [National Climate Change Adaptation Framework](#)¹²
- National Planning Framework (NPF)¹³

¹² Department of Environment, Community and Local Government, [National Climate Change Adaptation Framework](#), 2012

¹³ <http://npf.ie/>

- Ministerial Guidelines on [Architectural Heritage Protection](#), [Childcare Facilities](#), [Development Plans](#), [Landscapes](#), Local Area Plans, [The Planning System and Flood Risk Management](#), [Retail Planning](#), [Strategic Environmental Assessment](#), [Sustainable Residential Development in Urban Areas](#) and [Sustainable Rural Housing](#)
- [River Basin Management Plan](#)¹⁴
- Regional Spatial & Economic Strategy for the Southern Region¹⁵
- [Kilkenny County Development Plan 2014-2020](#)
- Carlow County Development Plan 2015-2021¹⁶

The Kilkenny County Development Plan 2014-2020 and Carlow County Development Plan 2015-2021 provides a context for the making of this Plan. The National Planning Framework and the Implementation Roadmap for the National Planning Framework allocated a projected population growth figure for each County which must be adhered to. This population projection is translated into a housing land requirement, which is then translated into residential zoned land. The Core Strategy of the Plan sets out how the LAP complies with its respective County Core Strategy and how the population allocation is distributed.

The Plan will set the strategic context for any development applications in the area.

¹⁴ [River Basin Management Plan 2018-2021](#)

¹⁵ <https://www.southernassembly.ie/uploads/general-files/Southern%20Regional%20Assembly%20RSES%202020%20FINAL%20Low%20Res.pdf>

¹⁶ <http://www.carlow.ie/wp-content/documents/uploads/carlow-county-dev-plan-2015-2021.pdf>

3 Current state of the environment and do-nothing scenario

3.1 Statistical overview of the area

The Plan area comprises of approximately 150 hectares. Its population in 2016 is estimated at 1,695.

3.2 Description of the physical environment of the area

The baseline environmental data available is analysed under the headings below. Where possible, historical data and trends are outlined in order to provide a picture of the do-nothing scenario; i.e. what would happen if current development trends in a certain area were to continue into the future.

1. Biodiversity, Flora and Fauna
2. Population and Human Health
3. Soil
4. Water
5. Air
6. Climatic factors
7. Material Assets
8. Cultural Heritage (architectural and archaeological)
9. Landscape
10. The inter-relationship between these issues

In accordance with the scoping report, and with the Department's Guidance, each element is only examined where relevant, in areas where the Plan would be likely to result in an impact, if unmitigated. Areas of environmental importance and areas experiencing environmental problems at present are examined in detail.

3.3 Biodiversity, Flora and Fauna

Information on habitats and biodiversity is available from the National Biodiversity Data Centre¹⁷ and on the ESM webtool.¹⁸ Kilkenny also has a Biodiversity Plan which gives details on the types of habitats and species found in Kilkenny. It an aim of Carlow County Development Plan 2015-2021 to carry out a biodiversity plan, to date no plan has been adopted. Information on this topic is compiled in both County Development Plans.

3.3.1 Designated sites

Habitats in the county Kilkenny and Carlow, of international and national importance, are designated under EU and national legislation. The category of designated site in effect in the Plan area is:

- I. Special Areas of Conservation (SAC)
SAC's have been, and are being designated, under the EU Habitats Directive to conserve habitats and species of European importance.

There is one Special Area of Conservation located within the plan area, see Table 3.1 below. This site is illustrated on Figure 3.1.

¹⁷ <http://www.biodiversityireland.ie/>

¹⁸ <https://www.enviromap.ie/>

Table 3.1 Designated Natural Heritage Sites of International and National Importance	
Site Name	SAC Site Code
River Barrow & Nore	002162

Data is available on this site from the NPWS. The SAC site is mapped and has a Site Synopsis, which includes a section on potential threats to the SAC. Threats are outlined in the Site Synopsis as follows:

- River Barrow and River Nore: high inputs of nutrients from agriculture run-off and sewage plants, over-grazing, water quality, fertilisation of the lands, drainage activities, dredging and land reclamation.

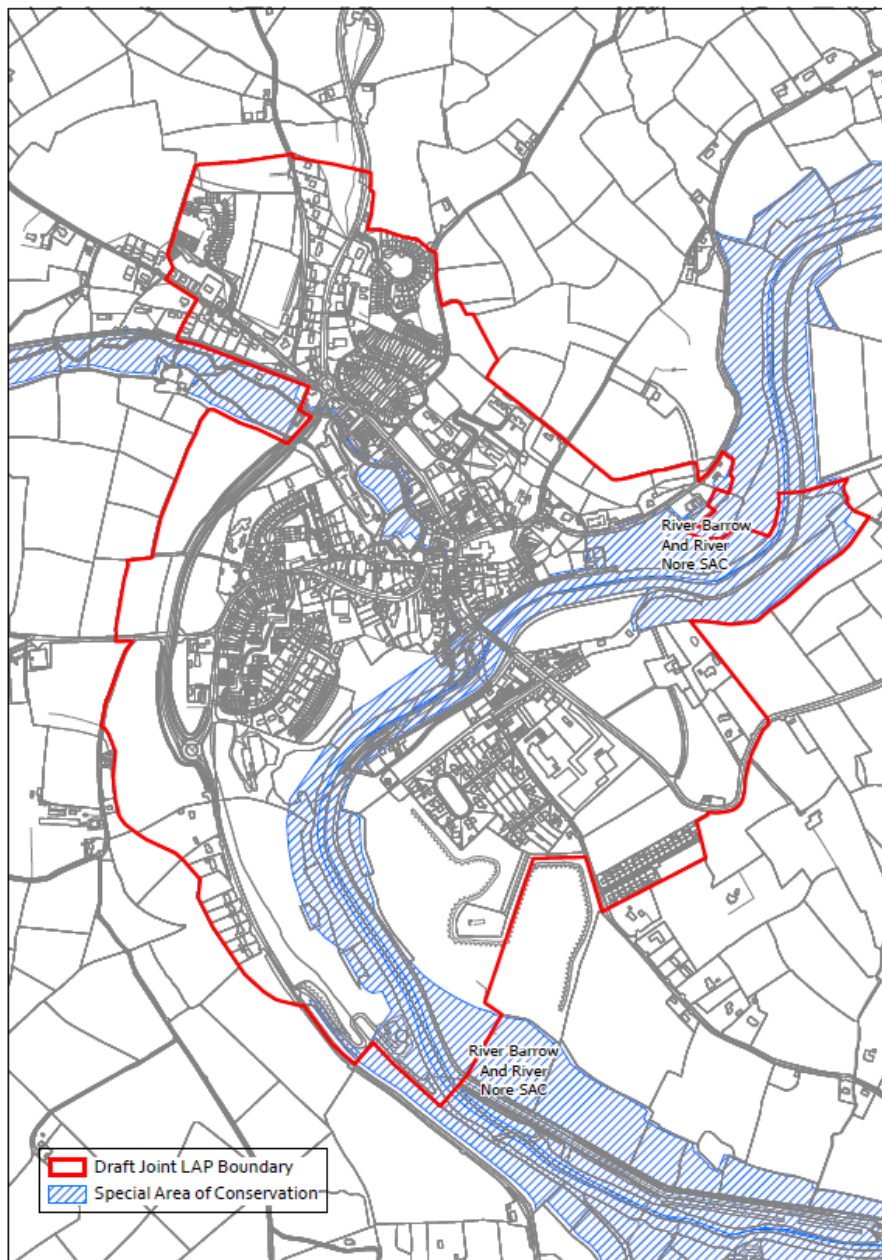


Figure 3.1 SAC within Plan area

Every six years, the NPWS publish a report on the conservation status of habitats and species protected under the Habitats Directive. Reports have been published in 2008¹⁹, 2013 and 2019. Volume 2²⁰ (Habitats) and Volume 3 (Species) contain the detailed reports and relevant scientific information, including the conservation status of each SAC and the SPA by habitats and species. Table 3.2 sets out the conservation status of each SAC by habitats and species for 2008, 2013 and 2019.

¹⁹ NPWS, *The Status of EU Protected Habitats and Species in Ireland*, 2008

²⁰ <https://www.npws.ie/publications/search?title=&keyword=&author=&series=All&year=2019&x=33&y=11>

Environmental Report

Table 3.2 Conservation status of Natura 2000 Sites (habitats and species) in Plan area

Site Name	Site Code/Ref	Habitats *Includes note on whether habitat is mapped in Plan area	Conservation Status			Species*	Conservation Status		
			2008	2013 (Trend)	2019 (Trend)		2008	2013 (Trend)	2019 (Trend)
River Barrow & River Nore SAC	002162	Estuaries [1130]	Poor	Inadequate (improving)	Inadequate (Deteriorating) (Detoriatng)	Vertigo moulinsiana [1016]	Bad	Inadequate (declining)	Inadequate (Deteriorating)
		Mudflats and sandflats not covered by seawater at low tide [1140]	Poor	Inadequate (improving)	Inadequate (Detoriatng)	Margaritifera margaritifera [1029]	Bad	Bad (declining)	Bad (Detoriatng)
		Salicornia and other annuals colonizing mud and sand [1310]	Poor	Inadequate (declining)	Favourable (Stable)	Austropotamobius pallipes [1092]	Poor	Inadequate (stable)	Bad (Detoriatng)
		Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]	Poor	Inadequate (stable)	Inadequate (Detoriatng)	Petromyzon marinus [1095]	Poor	Bad (Stable)	Bad (Stable)
		Mediterranean salt meadows (Juncetalia maritimi) [1410]	Poor	Inadequate (stable)	Inadequate (Detoriatng)	Lampetra planeri [1096]	Good	Favourable (N/A)	Favourable (Stable)
						Lampetra fluviatilis [1099]	Good	Favourable (N/A)	Unknown (N/A)
						Alosa fallax [1103]	Bad	Bad (Stable)	Bad (Stable)
						Salmo salar (only in fresh water) [1106]	Bad	Inadequate (stable)	Inadequate (Stable)
						Lutra lutra [1355]	Poor	Favourable (N/A)	Favourable (Improving)
						Trichomanes speciosum [1421]	Good	Favourable (N/A)	N/A

Environmental Report

					Margaritifera durrovensis (Margaritifera margaritifera) [1990]	Bad	Bad (declining)	N/A
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3.3.2 Flora and Fauna

A number of species are protected under European and national law, under Annex IV of the Habitats Directive and the Wildlife Acts. Data is available from the ESM Webtool, National Biodiversity Data Centre and NPWS Biodiversity Records on the occurrence of species in Co. Kilkenny and Co. Carlow. The NPWS produce a number of plans in relation to some protected species, the distribution of the species in the Plan area is included.

The National Biodiversity Data Centre and NPWS Biodiversity records have been consulted to ascertain the distribution of the following species within the Plan area

- Desmoulin's Whorl Snail (*Vertigo (Vertigo) moulinsiana*)
- Freshwater White-clawed Crayfish (*Austropotamobius pallipes*)
- European Otter (*Lutra lutra*)
- Killarney Fern (*Trichomanes speciosum*)
- NSNW Woodland Habitats 2010
- Margaritifera Sensitive Areas
- All Bats (Suitability Index 31.67)

Threat Response plans have also been issued for particular species. These three-year plans provide detailed information on range, distribution and habitat. They also focus on the particular threats facing each species and identify the measures required to address these threats, as well as identifying who is responsible for implementing them and providing a time frame for delivery.

Threat Response to Kerry Slug May 2010 – none found in Co. Kilkenny/Carlow

Threat Response Plan Otter 2009-2011 – widely found

Threat Response Plan Vesper Bats 2009-2011 – widely found

Conservation Plan for Irish Cetaceans 2009 – none found in Co. Kilkenny/Carlow

3.3.3 Woodlands, Trees and hedgerows

The National Survey of Native Woodlands (NSNW)

The National Survey of Native Woodlands (NSNW) surveyed a total of 58 sites in Kilkenny and a total of 28 sites in Carlow as part of the National Survey (BEC consultants 2003-2008). There are two sites within the Plan area, as shown on Figure 3.2, Site Code 73 and 74 in Tinnahinch.

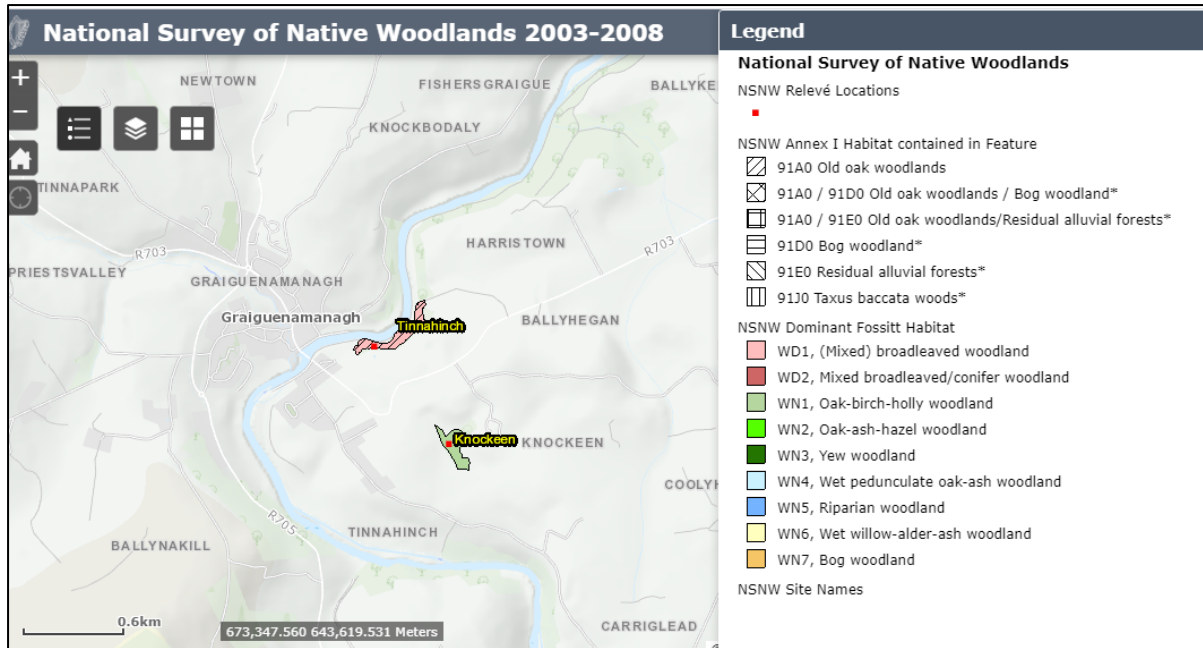


Figure 3.2 Native Woodlands within Plan Area

The TROI identified approx. 180 significant trees in Kilkenny County, numerous trees in Carlow are on the register. No trees are listed on the Register in the Plan area.

Ancient woodlands

Ancient woodlands are defined in Ireland as areas which have been wooded since 1660. Possible ancient woodlands (PAWS) and long-established woodlands (LEWS) were identified from documentary and archaeological evidence by the NPWS. A total of 77 PAWS and LEWS were identified in Co. Kilkenny and 66 PAWS and LEWS²¹ were identified in Co. Carlow. One PAWS and one LEWS was identified adjacent to the Plan area as shown in Figure 3.3.

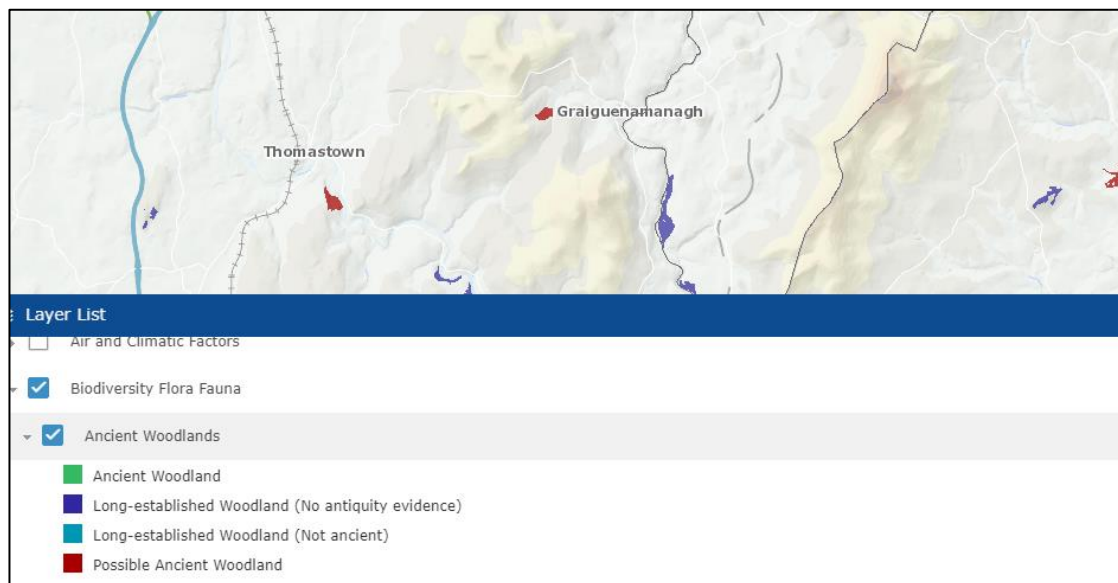
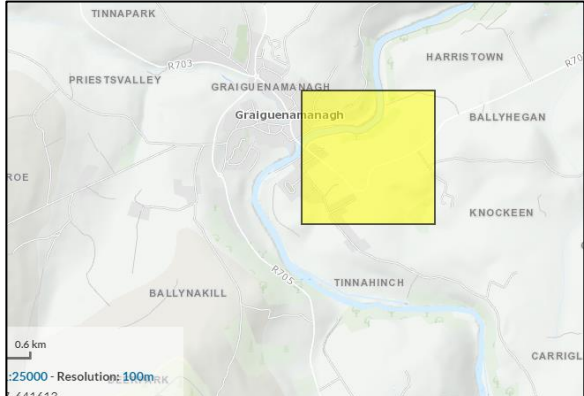
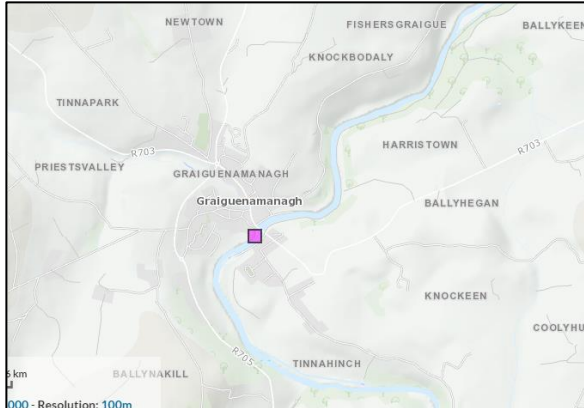
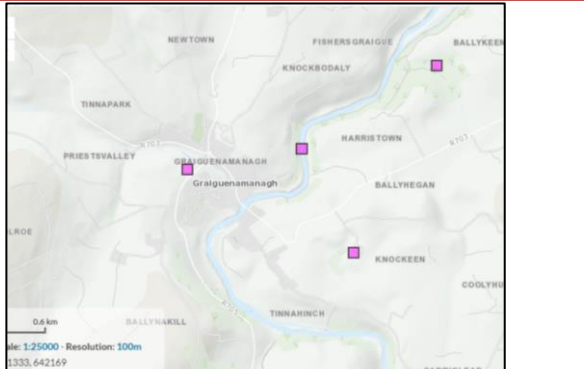


Figure 3.3 Ancient Woodlands adjacent to Plan Area

²¹ <https://data.gov.ie/dataset/ancient-and-long-established-woodland-inventory-2010>

3.3.4 Invasive Species

Invasive species such as Japanese Knotweed, rhododendron, sycamore and laurel can cause major ecological changes and damage to habitats where they become established. Information is available on invasive species from the National Biodiversity Data Centre²² and from Invasive Species Ireland²³, which is a joint venture between the Northern Ireland Environment Agency and the National Parks and Wildlife Service. A list of the top twelve invasive species in the region, known as The Dirty Dozen Report²⁴, was published by the National Biodiversity Data Centre in 2010. This report provides detailed information, including distribution maps and species profiles, for the top twelve invasive species in the region. The species and their broad distribution in the vicinity of the Plan area²⁵ are:

Name	Distribution
Japanese Knotweed (<i>Fallopia japonica</i>)	
Water Fern (<i>Azolla filiculoides</i>)	
Eastern Grey Squirrel (<i>Sciurus carolinensis</i>)	

²² <http://invasives.biodiversityireland.ie/>

²³ <http://invasivespeciesireland.com/>

²⁴ <http://invasives.biodiversityireland.ie/wordpress/wp-content/uploads/Dirty-Dozen-invasive-species-Kilkenny-Co-Co-2010.pdf>

²⁵ Taken from <http://maps.biodiversityireland.ie/#/Map/NbdcTerrestrial/Species/28772> on 23/10/2014

3.3.5 Land Cover

Land cover is the physical description of what is present on the surface of the land. The CORINE map provides a digital map of land cover. CORINE stands for *Coordination of Information on the Environment* and is a map of the European environmental landscape based on interpretation of satellite images. The CORINE Land Cover update of 2018 (from the EPA website) is shown on Figure 3.4.

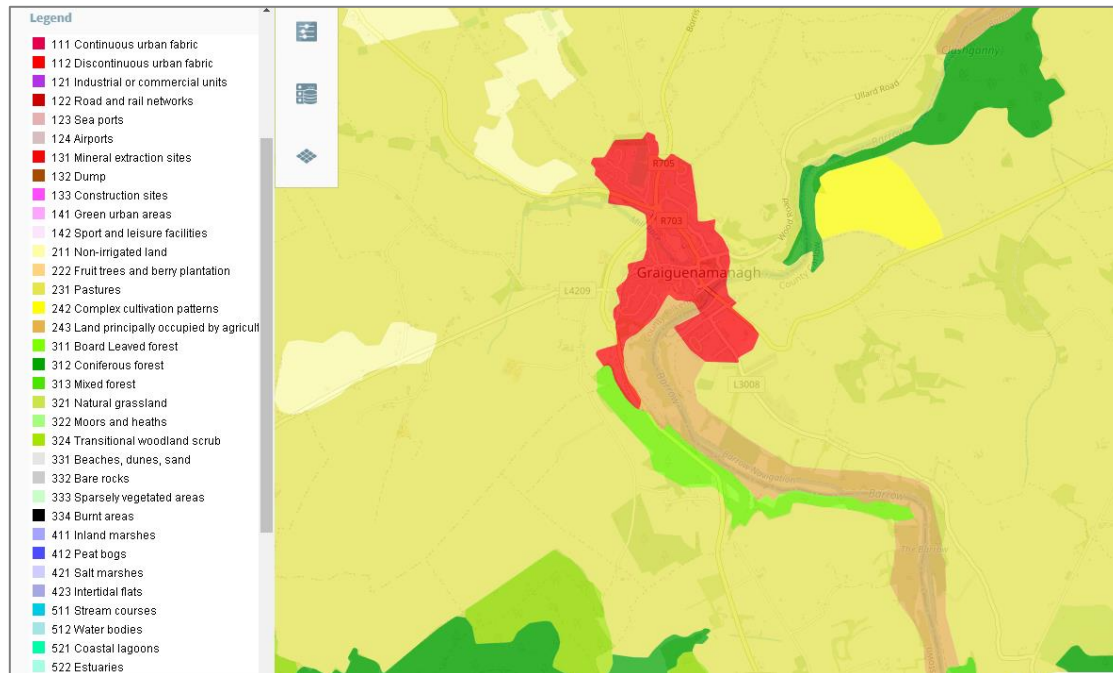


Figure 3.4 CORINE Land Cover in Plan area

3.3.6 Existing Problems

- SACs – the conservation status of most of the habitats and species in the Natura 2000 site in the area is either inadequate or bad
- As the Natura 2000 site is a river, with the conservation status ranging from Poor to Bad, water quality is a hugely significant issue for the plan area.
- Continued replacement of natural and semi-natural habitats with artificial surfaces results in loss of non-designated flora and fauna
- Invasive species pose a threat to biodiversity in the area.

3.4 Population and Human Health

3.4.1 Population Distribution

The Plan area's population has slightly decreased in the past. The Census figures do not relate exactly to the Plan area boundary, but there are seven Small Areas (SAPs) located within the Plan area, see Figure 3.5

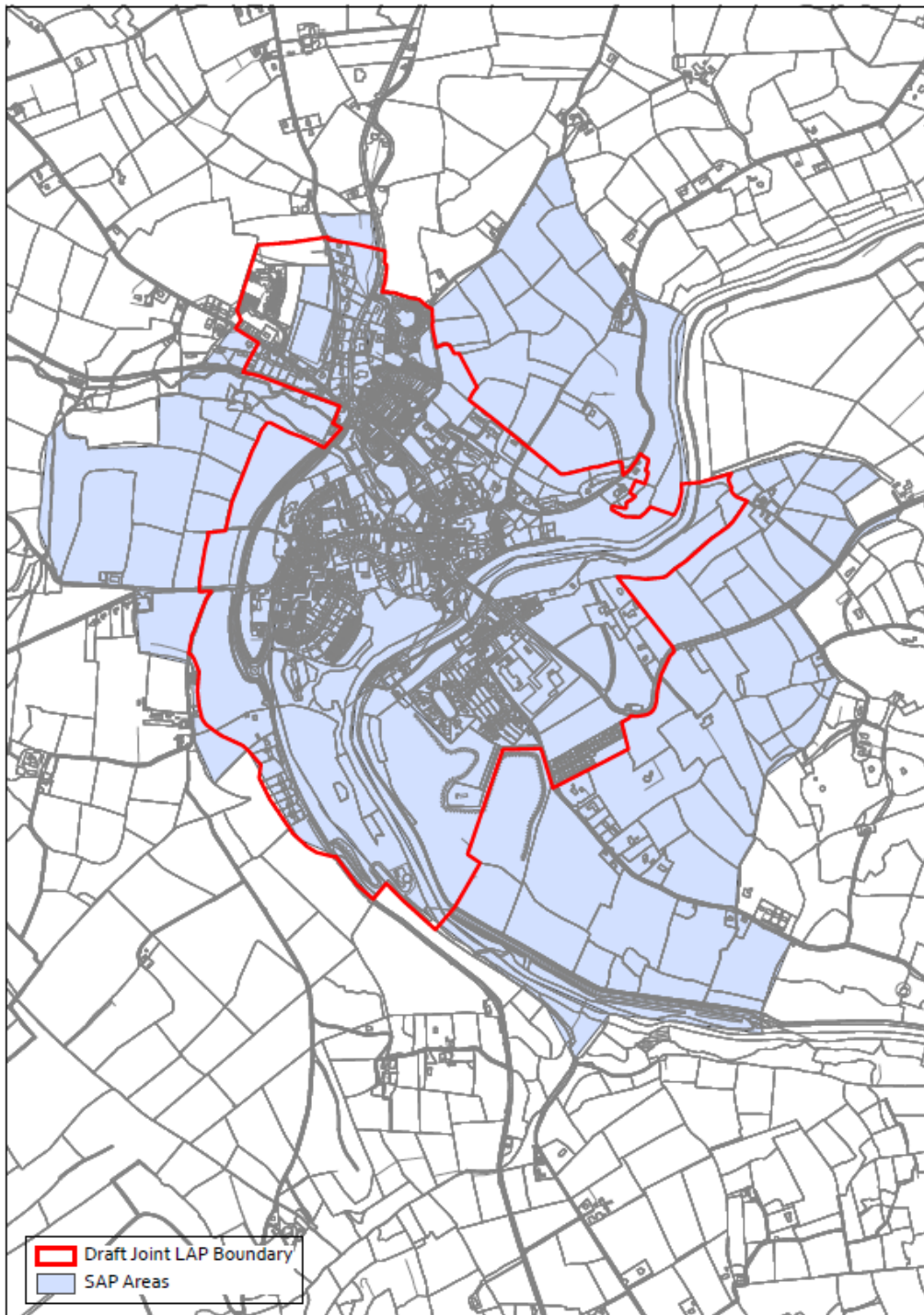


Figure 3.5: SAP Areas relative to Plan Area

Table 3.4 sets out the total population based on the relevant SAP areas contained (wholly or partially) within the Plan area for Graiguenamanagh and Tinnahinch between 1996 and 2016.

Table 3.4 Census of Population 1996 - 2016					
	1996	2002	2006	2011	2016
Graiguenamanagh	1,113	1,166	1,097	1,476	1,389
Tinnahinch	261	269	326	315	306

Source: CSO, 1996-2016

3.4.2 Human health

Availability of spatial data on human health is limited; however, a key area for consideration is the interrelationships of human health and water quality to include drinking water, waste water treatment, fisheries and shellfish waters. There will also be interrelationships between human health and air quality and climatic factors, such as flood risk. These are examined under the relevant headings.

3.4.2.1 Major Accidents Directive

The Major Accidents Directive (EU Directive 96/82/EC, known as the Seveso II Directive), seeks to reduce the risk and to limit the consequences to both man and the environment, of accidents at manufacturing and storage facilities involving dangerous substances. There is no Seveso (Control of Major Accidents Directive) site in or neighbouring the Plan area.

3.4.3 Waste Management

The issue of waste is now dealt with on a regional basis, and there is a Joint Waste Management Plan in place for the Southern Region. Waste management is being reviewed at a national level, and the Government has set out its waste management policy for Ireland entitled “A Resource Opportunity – Waste Management Policy in Ireland”. There is a Litter Management Plan in place for Kilkenny County (2018-2020) and Carlow County (2018-2020). As this issue is addressed by other plans, it is not considered that this requires further detail here.

Local Authorities are required to identify historic waste disposal or recovery sites and to place them on a register. Non-hazardous sites are to be placed on the Section 22 Register and hazardous sites are to be placed on the Section 26 register. In relation to historical closed landfill sites, a total of 13 sites have been identified in Kilkenny and 1 site in Carlow on the EPA’s Section 22 Register. There are no sites located within the Plan area.

3.4.4 Existing Problems

- In terms of population distribution, associated infrastructural and social services must be provided in tandem with the growth.

3.4.5 Soil/Geology

Kilkenny County Development Plan 2014-2020 and Carlow County Development Plan 2015-2021 contains a list of County Geological Sites, which were developed in partnership with the Geological Survey of Ireland, and policies for their protection. There are no sites located in the Plan area.

3.5 Water

This topic can be broken down under various headings, as set out below.

3.5.1 Water Framework Directive

The [Water Framework Directive](#)²⁶ established a framework for the protection of all waters including rivers, lakes, estuaries, coastal waters, groundwater, canals and other artificial bodies for the benefit of everyone.

For the purposes of implementing the WFD, Ireland has been divided into eight river basin districts that are drained by a large river or number of rivers. County Kilkenny and Carlow is located in the South Eastern River Basin District. The River Basin Management Plan for Ireland (2018-2021) outlines the new approach that Ireland will take to protect our waters over the period to 2021.

Water is divided into groundwater, rivers, lakes, estuarine and coastal waters, which are in turn divided into specific waterbodies. Each waterbody is categorised in terms of its water quality status as follows: High, good, moderate, poor, bad, yet to be determined. The Environmental Protection Agency manages the monitoring of all waterbodies, and the latest information on the status of each waterbody is available at <http://gis.epa.ie/Envision/>.

3.5.1.1 Estuarine Water Quality

According to the EPA maps there is no data available for the section of the River Barrow within the Plan area. The area illustrated in Figure 3.7 relates to the Upper Barrow Estuary. According to the EPA, the status of the Upper Barrow Estuary was good (See Figure 3.7 WFD Status 2013-2018)

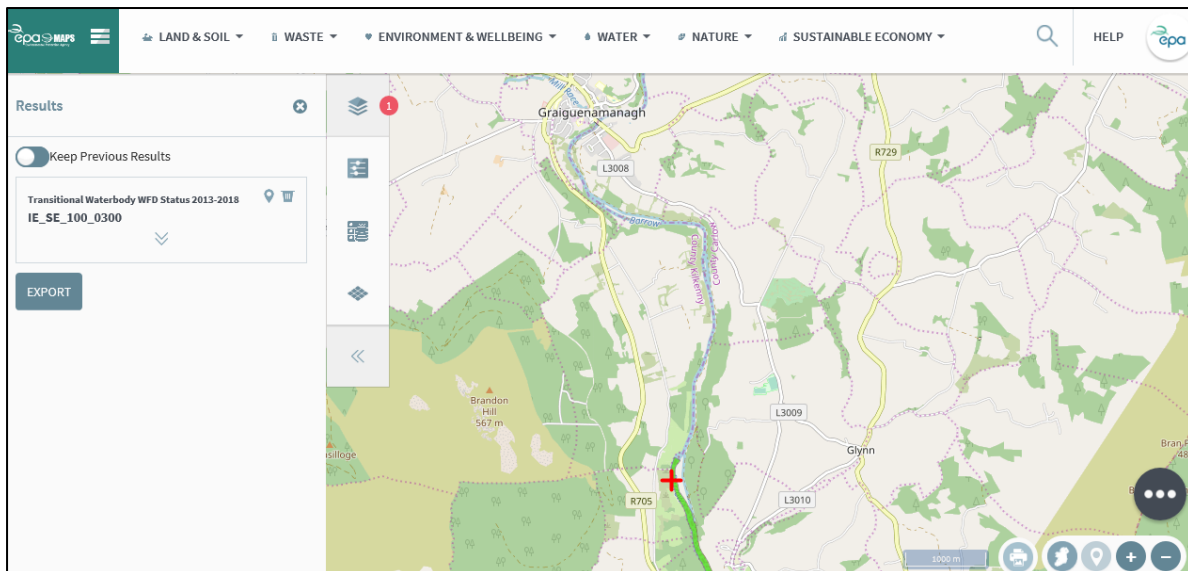


Figure 3.7 Estuarine Water Quality

²⁶[Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy](#)

3.5.1.2 Groundwater quality

According to the EPA (WFD Status 2013-2018), groundwater status in the area was mainly Good, see Figure 3.8.

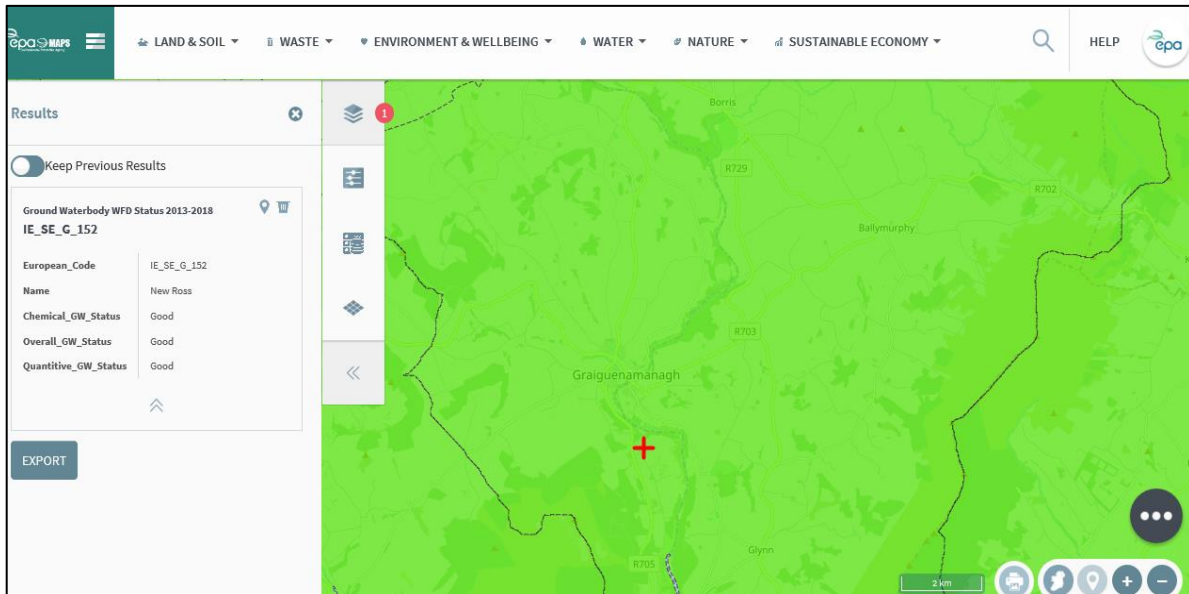


Figure 3.8 Groundwater Quality

3.5.1.3 Surface water quality

According to the EPA (WFD Status 2013-2018), the River Barrow is of poor status and the Duiske River is of moderate status, see Figure 3.9.

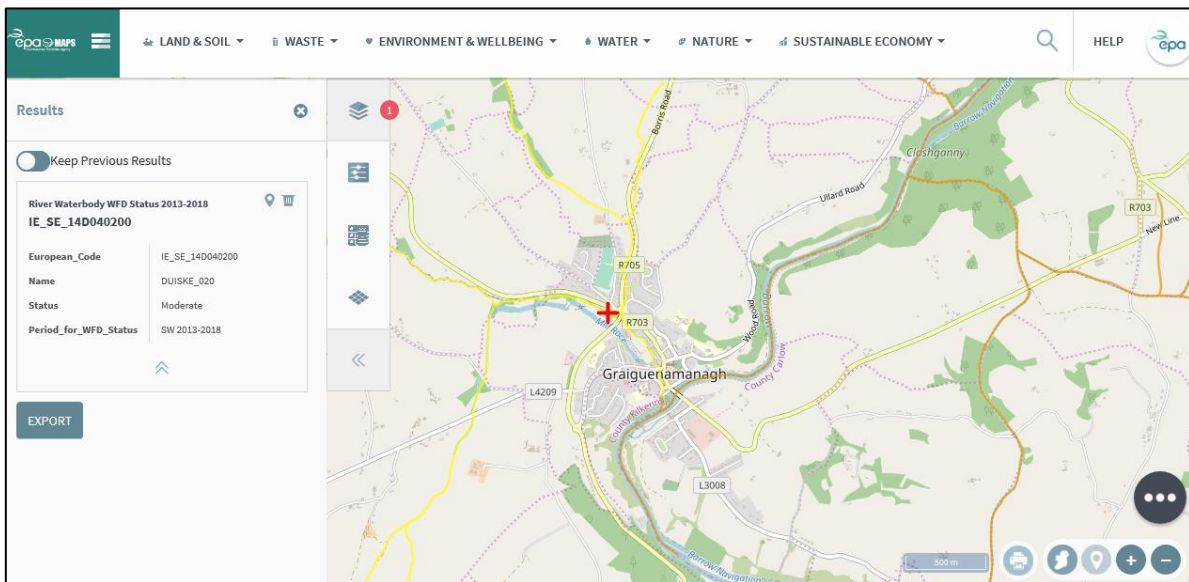


Figure 3.9 Surface Water Quality

According to the EPA website (accessed 9/04/2020), the current water quality in the River Barrow and the Duiske River is Q3-4, moderate status, recorded in 2017. See Figure 3.10.

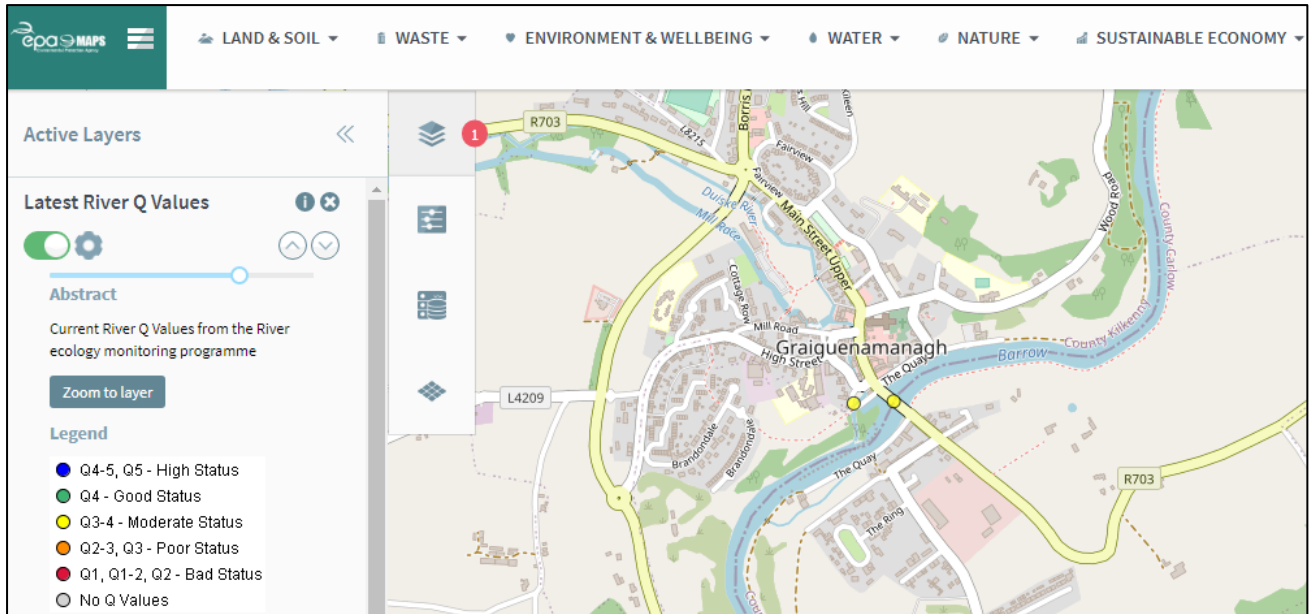


Figure 3.10 Water Quality

3.5.2 Waste Water Treatment

Future development potential of the area will have implications for the capacity of waste water treatment systems. It will be necessary to obtain details for the treatment plant in the area as follows: on the type of system, the existing capacity, the Design P.E. (Population Equivalent), the Current load P.E. and information on any plans for an upgrade.

The waste water treatment plant in Graiguenamanagh, operated by Kilkenny County Council serves both Graiguenamanagh and Tinnahinch. The current loading of the Graiguenamanagh WWTP is ca. 3,000 p/e. The 2018 figures from Irish Water indicate that the wastewater treatment plant in Graiguenamanagh has capacity for up to 350 housing units which indicates adequate capacity for the projected growth over the plan period.

The EPA publishes reports on the status of waste water treatment in Ireland. The latest of these is [Urban Waste Water Treatment in 2018](#)²⁷. This sets out which plants have treatment that is not in compliance with the Urban Waste Water Treatment Directive, and the Graiguenamanagh plant is in compliance.

3.5.3 Septic tanks

Septic tank systems vary in age, levels of maintenance and suitability to site-specific conditions. There is a large proportion of existing septic tanks within the counties of Kilkenny and Carlow which were not designed to deal with the quantity and characteristics of the throughput arising from modern lifestyles. Reports by the EPA have identified septic tanks as a potential source of water pollution, particularly of groundwater sources but also of surface waters.

The Government introduced a programme for registration and inspection of septic tanks in 2013. Currently, policies in the Kilkenny and Carlow Development Plans require that septic tanks comply with the EPA’s Code of Practice.

²⁷ EPA, [Urban Waste Water Treatment in 2018](#), 2019

3.5.4 Water supply schemes (WSS)

Public water supplies have the potential to impact hugely on human health. The Plan area is served by the Graiguenamanagh Water Supply Scheme.

The Graiguenamanagh water supply scheme is sourced from the River Duiske and two combined spring sources from Brandon Hill. Raw water from the River Duiske is fed into a package treatment plant comprised of pressure filters and UV disinfection. The water is then pumped to the Coolroe Water Treatment Plant (WTP). Raw water from the spring sources is fed to the Coolroe WTP where it is also treated by pressure filters and UV disinfection.

Graiguenamanagh and Tinnahinch is connected to the Graiguenamanagh water supply scheme. In 2018 Irish Water estimated that there is currently capacity for a maximum of 200 housing units. Irish Water also confirmed that the Graiguenamanagh Water Supply Scheme is not included for upgrading in the Irish Water 2020 to 2024 Investment Plan. There is supply in the existing scheme to accommodate the projected growth over the plan period.

Detail on water quality is provided by Irish Water 'Summary of the drinking water quality results for your Water Supply Zone (WSZ).'²⁸ This reported that during 2018, a boil water notice was in place for the exceedance of colony count, however this restriction was lifted. No public supply in the plan area is listed on the EPA's Remedial Action List (List of public supplies in need of improvement).

3.5.5 Ground water protection scheme

The Geological Survey of Ireland has completed Groundwater Protection Schemes for the country. The overall aim of a Groundwater Protection Scheme is to preserve the quality of groundwater, for drinking water, surface water ecosystems and terrestrial ecosystems, for the benefit of present and future generations. The Groundwater Protection Scheme rates aquifers according to their vulnerability to pollution and groundwater vulnerability is depicted on Figure 3.11²⁹. As can be seen, much of the Plan area is located over an area of high or moderate groundwater vulnerability, however there are area of extreme and rock at or near surface.

²⁸ <https://www.water.ie/water-supply/water-quality/results/summary/>

²⁹ Source: <http://spatial.dcenr.gov.ie/GeologicalSurvey/Groundwater/index.html>

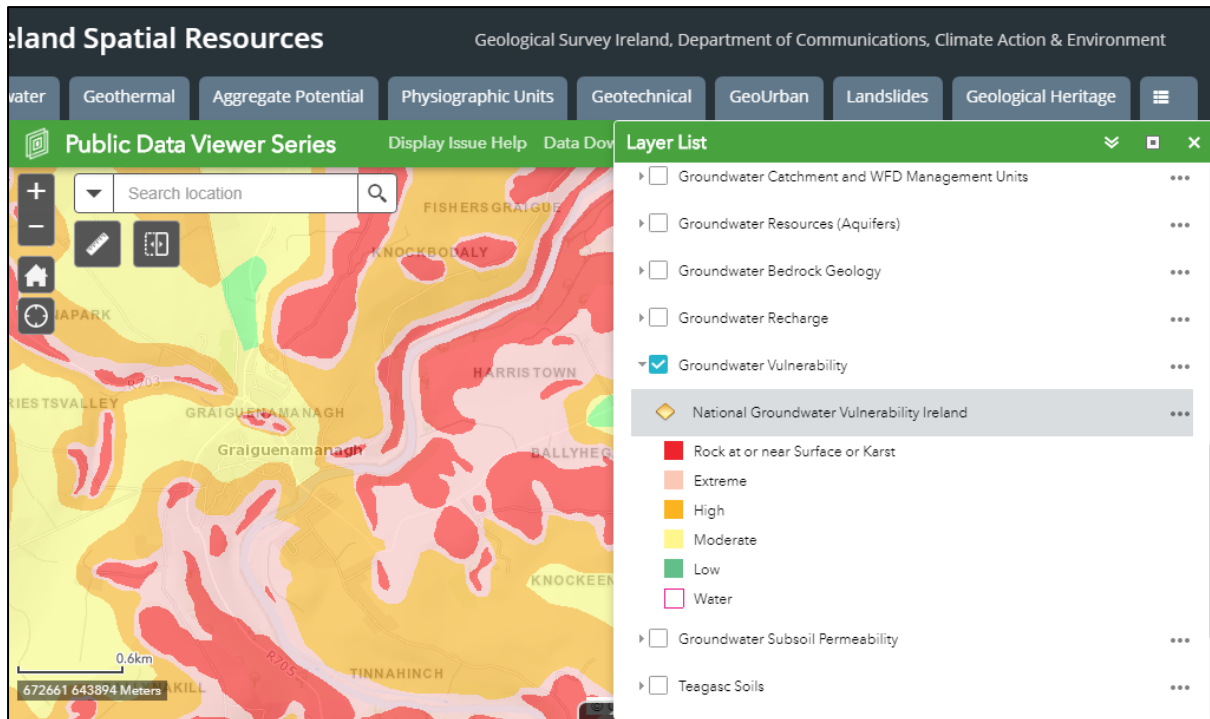


Figure 3.11: Groundwater Protection Scheme

3.5.6 Flooding

A Strategic Flood Risk Assessment has been carried out as part of the Plan review process and forms an appendix to this SEA report.

3.5.7 Existing Problems

- The proliferation of septic tanks can have an impact on the quality of groundwater and surface water.
- There are small proportions of areas within the Plan area’s aquifers rated as either extreme or high vulnerability, which presents challenges to determine appropriate uses.

3.6 Air

Ambient air quality monitoring and assessment in Ireland is carried out in accordance with the requirements of the [Ambient Air Quality and Cleaner Air for Europe \(CAFE\) Directive](#)³⁰, also known as the CAFE Directive. The CAFE Directive has been transposed into national legislation by the [Air Quality Standards Regulations 2011](#).

Data on air quality is available from the EPA. EU legislation on air quality requires that member states divide their territory into zones for the assessment and management of air quality. County Kilkenny and Carlow is located in Zone C (as a centre with a population greater than 15,000).

The last recorded monitoring of air quality in Kilkenny by the EPA was ‘good’. Monitoring commenced at Seville Lodge on the 31st March 2020 and was completed on the 14th April 2020. Levels of Ozone, Nitrogen Dioxide, Particulate Matter and Benzene and Precursor Compounds were assessed.³¹

The last recorded monitoring of air quality in Carlow by the EPA was ‘good’. Monitoring commenced at Carlow Town on the 31st March 2020 and was completed on the 14th April 2020. Levels of Particulate Matter were assessed.³²

The Environmental Protection Agency's Air Quality Index for Health (AQIH) is a number from one to 10 that tells you what the air quality currently is in your region. A reading of 10 means the air quality is very poor and a reading of one to three inclusive means that the air quality is good. The AQIH is calculated every hour. The [AQIH map](#) was accessed on the 14/04/20 and showed that air quality in both Kilkenny and Carlow was good.

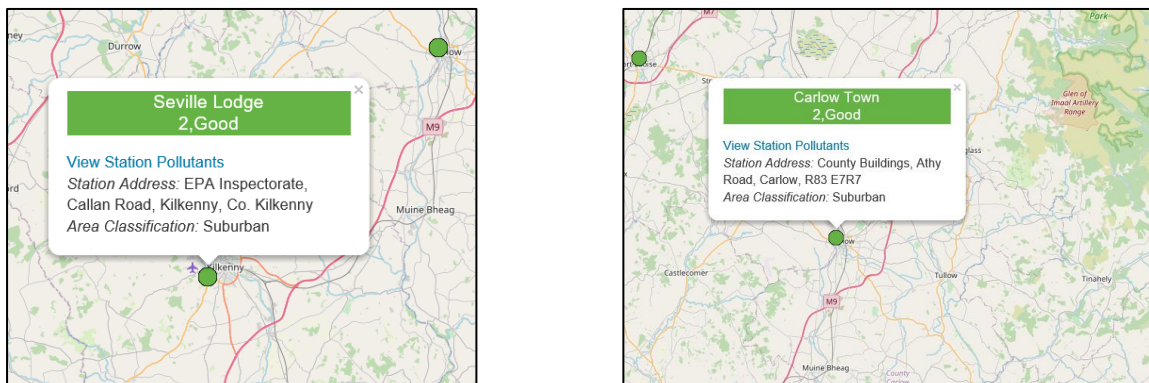


Figure 3.12: Air Quality Index for Health

According to the EPA, emissions from road traffic are the main source of many air pollutants harmful to human health, including nitrogen dioxide, oxides of nitrogen, particulate matter, carbon monoxide, volatile organic compounds (VOC) and heavy metals.

³⁰ EU, [Ambient Air Quality and Cleaner Air for Europe \(CAFE\) Directive](#), 2008

³¹ <http://www.epa.ie/testaqblue/kk/>

³² <http://www.epa.ie/air/quality/data/cw/>

A move towards sustainable modes of transport would reduce emissions from road traffic. According to Census 2016, throughout Co. Kilkenny, a total of 21% of commuters used sustainable means of travel (cycling, walking, bus or train); Co. Carlow also recorded 20%. This is compared to 30% nationally.

The philosophy of “Smarter Travel” involves using sustainable modes of transport, such as public transport, walking or cycling, and reducing overall travel demand. Locating houses close to places of employment and services can contribute to an increase in Smarter Travel. In general, rural housing increases car dependency and contributes to a rise in unsustainable modes of transport.

3.6.1 Existing Problems

- Road traffic is the main source of nitrogen oxides and air pollution generally and there is a need to reduce the level of unsustainable modes of commuting through prioritising sustainable patterns of land use whereby residential areas are located within walking distance of employment and social centres.

3.7 Climatic Factors

The causes and consequences of climate change pose an immense global challenge. The [National Climate Change Adaptation Framework](#)³³ recommends that local authorities incorporate climate change adaptation into their Development Plans. The Draft Joint LAP can have a role in reducing transport related energy consumption, as discussed above.

3.7.1 Noise

In 2006, the Government made regulations relating to Environmental noise ([S.I. 140 of 2006](#)). Environmental noise is defined in the Regulations as unwanted or harmful outdoor sound created by human activities, including noise emitted by means of transport, road traffic, rail traffic, air traffic, and from sites of industrial activity.

The regulations require that a Noise Mapping Action Plan must refer to places near major roads, major railways and major airports, and within any relevant agglomeration. A Noise Action Plan³⁴ for Kilkenny was published in 2019 and in 2018 for Carlow³⁵.

The major noise source meeting the criteria set out in the Regulations are those associated with roads with more than 6 million vehicle passages per year. In the case of the plan area there are no roads within the subject criteria of the Regulations.

As part of the Integrated Pollution Prevention Control (IPPC) and Waste Licensing systems, certain scheduled activities and operations have conditions attached to their licences which effect control over emissions of noise. Noise control measures and limits are generally stipulated by specific licensing conditions. The EPA compile data on the number of licence exceedances due to noise disturbance or odours but in general, noise monitoring has not been carried out widely.

3.7.2 Existing Problems

- Projected impacts of climate change in Ireland include: increasing average temperatures, more extreme weather conditions including rainfall events, increased likelihood of river and coastal flooding, water shortages, changes in the type and distribution of species and the possible extinction of vulnerable species. The main sources of greenhouse gas emissions are Agriculture, Energy and Transport.

³³ Department of Environment, Community and Local Government, [National Climate Change Adaptation Framework](#), 2012

³⁴ <https://www.kilkennycoco.ie/eng/Services/Environment/Noise/Kilkenny-Co-Co-Noise-Action-Plan.pdf>

³⁵ <http://www.carlow.ie/wp-content/documents/uploads/2018%20Noise%20Action%20Plan%20Final.pdf>

3.8 Material Assets

Material assets are taken to include infrastructure and utilities including rail, road and energy/telecommunications infrastructure. It also includes economic/natural assets such as quarries, forests and agriculture.

3.8.1 Transportation

The area's transportation infrastructure is shown on Figure 3.13.



Figure 3.13: Transport Infrastructure

3.8.2 Energy infrastructure

The existing transmission network in the area comprises mostly 110 kV circuits and one 220 kV circuit, see Figure 3.14.



Figure 3.14: Transmission network in Plan area

Source: <http://www.eirgridgroup.com/site-files/library/EirGrid/EirGrid-Group-Transmission-System-Geographic-Map-Sept-2016.pdf>

Eirgrid are currently working on the Grid Link Project, to upgrade the transmission infrastructure in the south and east. This project now comprises a ‘Regional Option’ which uses a technology known as ‘series compensation’. This will be the first time it will be deployed on the Irish transmission grid. It is an advanced, smart grid technology that will enable more power to flow through existing lines.

3.8.3 Existing Problems

- There is a need to upgrade the energy infrastructure in the country, which may affect the plan area.

3.9 Cultural Heritage (architectural and archaeological)

Heritage, by definition, means inherited properties, inherited characteristics and anything transmitted by past ages and ancestors. It covers everything, from objects and buildings to the environment. Cultural heritage includes physical buildings, structures and objects complete or in part, which have been left on the landscape by previous and indeed current generations. The Plan area has a wealth of architectural and archaeological heritage.

3.9.1 Archaeological Heritage

Archaeology in Ireland is protected under the National Monuments Acts.

3.9.1.1 Record of Monuments and Places

A level of universal protection is afforded to all monuments listed in the Record of Monuments and Places (RMP). A lesser number of monuments are accorded a higher level of protection, that is, some are entered on the Register of Historic Monuments, and some are deemed to be of national significance and are National Monuments. The up-to-date RMP is available at the Department of Arts, Heritage and the Gaeltacht's website www.archaeology.ie. See Figure 3.15 for the current distribution of recorded monuments. Development pressure can lead to loss or impairment of a feature of importance. Graiguenamanagh is also designated as a Historic Town, and a Zone of Archaeological Potential was outlined in the *Urban Archaeological Survey of Co. Kilkenny*, 1993.

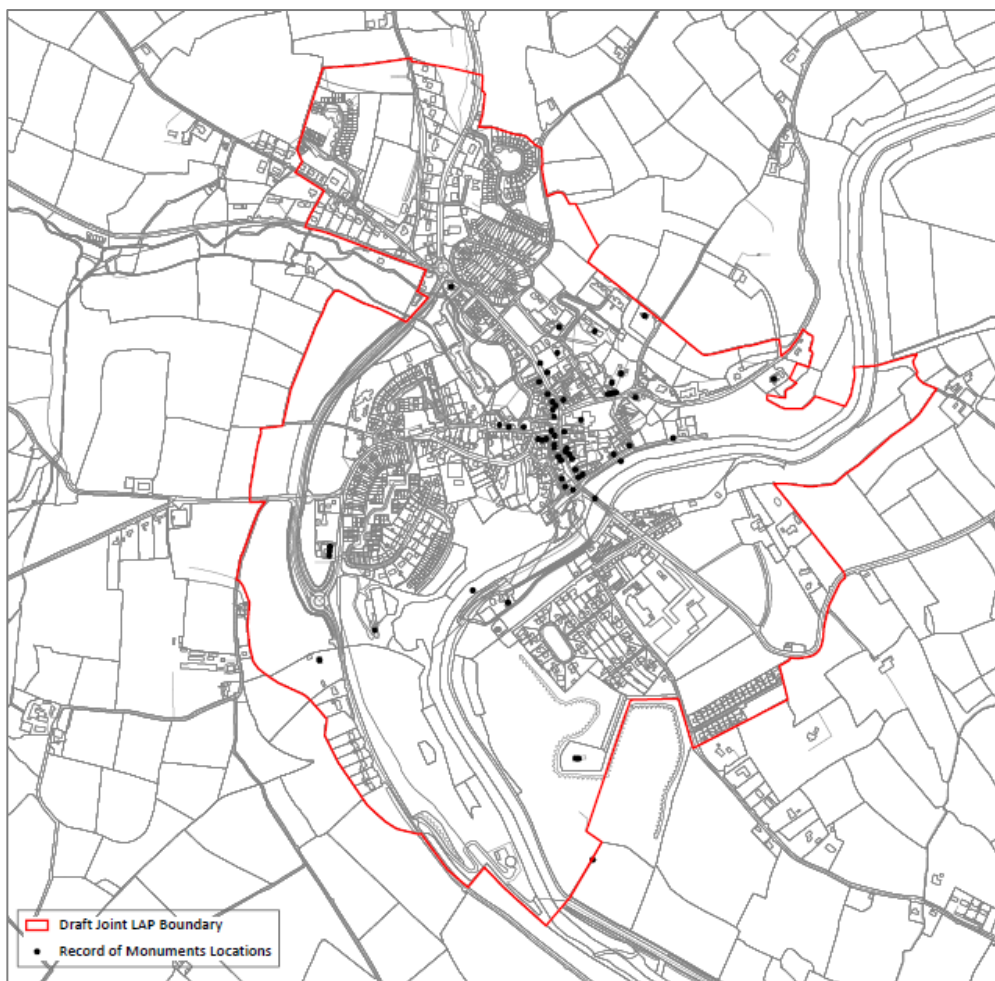


Figure 3.15: Distribution of Recorded Monuments in Plan Area

3.9.1.2 Underwater Archaeology

Section 3 of the National Monuments (Amendment) Act, 1987 makes specific provision for the protection of shipwrecks and underwater archaeological objects. The River Barrow Estuary may contain such objects. Flood relief schemes, dredging, bridge or drainage works may impact on this archaeological heritage.

3.9.2 Architectural Heritage

The Plan area is rich in structures and places of historic and architectural value.

3.9.2.1 Record of Protected Structures

A Protected Structure, unless otherwise stated in the RPS, includes the interior of the structure, the land lying within its curtilage, any other structures lying within that curtilage and their interiors, plus all fixtures and features which form part of the interior or exterior of any of these structures. There are presently 59 protected structures in the plan area. See Figure 3.16 for the current distribution of Protected Structures in the Plan area.

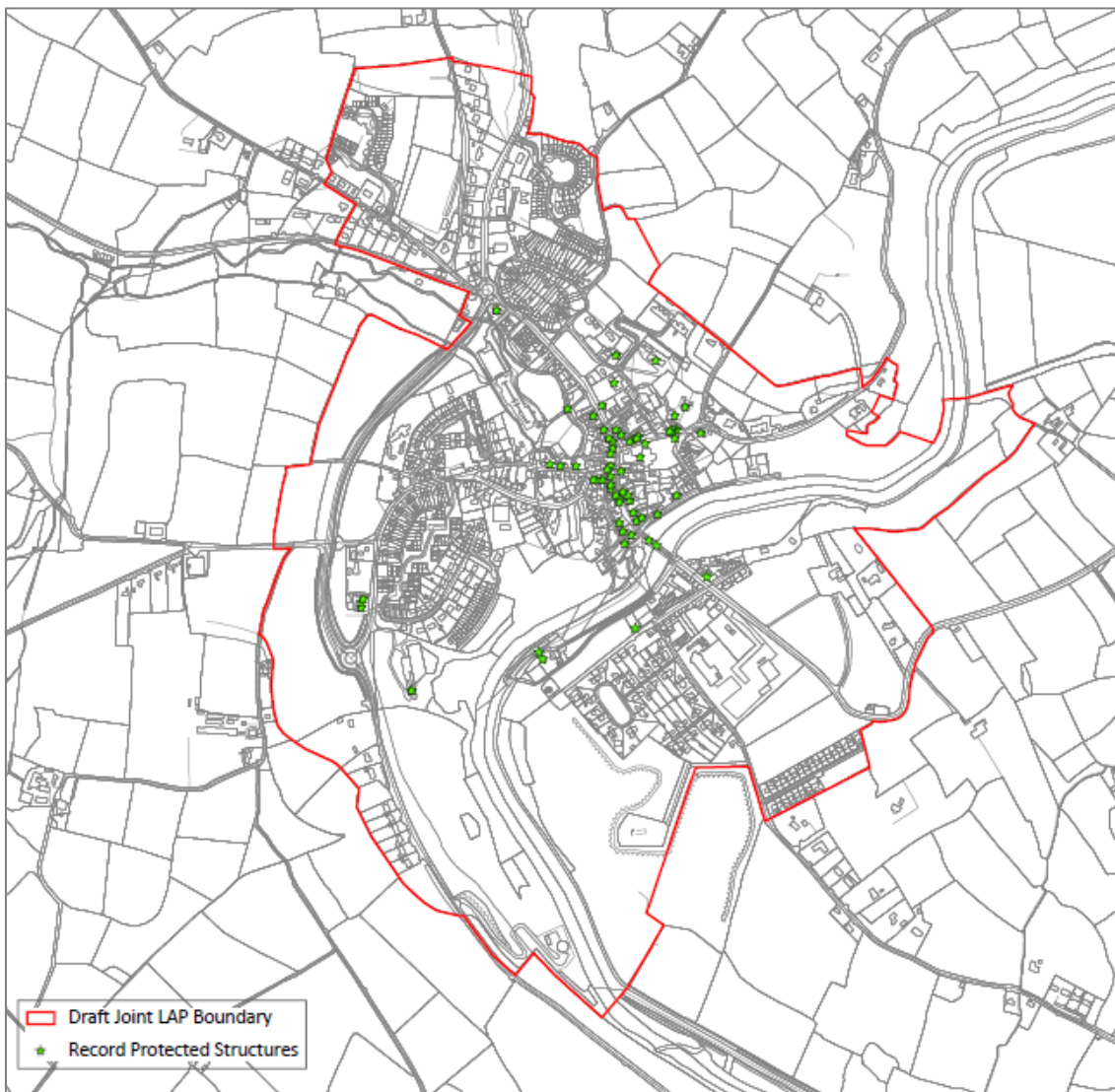


Figure 3.16: Protected Structures in the Plan Area

3.9.2.2 National Inventory of Architectural Heritage

The National Inventory of Architectural Heritage (NIAH) was a national survey of structures of importance, and can be viewed at www.niah.ie. There are 58 NIAH structures in the Plan area (54 in Graiguenamanagh and 4 in Tinnahinch). See Figure 3.17 for the current distribution of NIAH structures in the area.

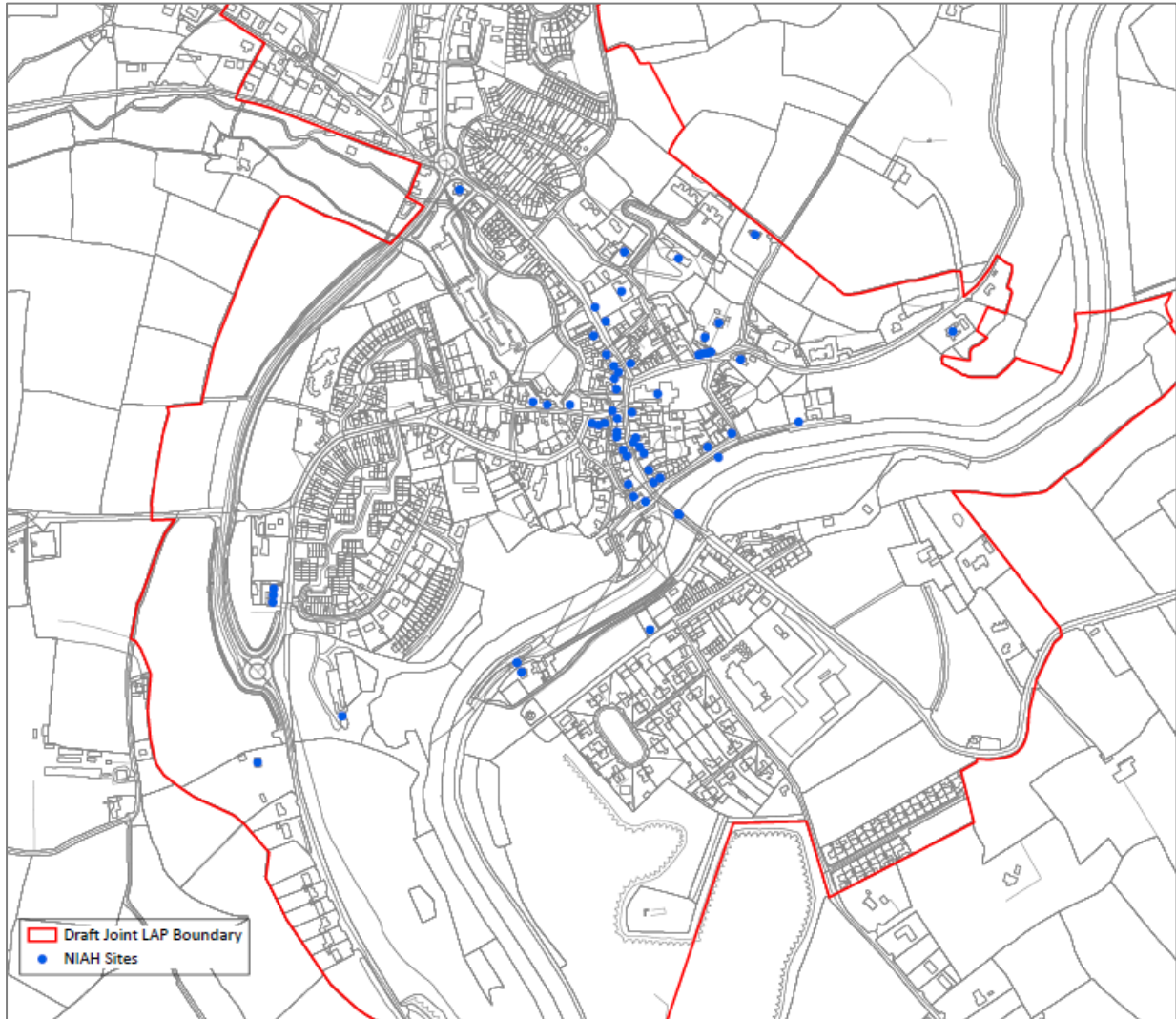


Figure 3.17: NIAH Structures in the Plan Area

3.9.2.3 Architectural Conservation Areas

The Planning and Development Act, 2000 provides for the inclusion of objectives for preserving the character of places, areas, groups of structures or townscapes where the planning authority is of the opinion that such an area:

- a) is of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest or value, or
- b) contributes to the appreciation of protected structures.

There is an ACA identified in Graiguenamanagh as shown in Figure 3.18

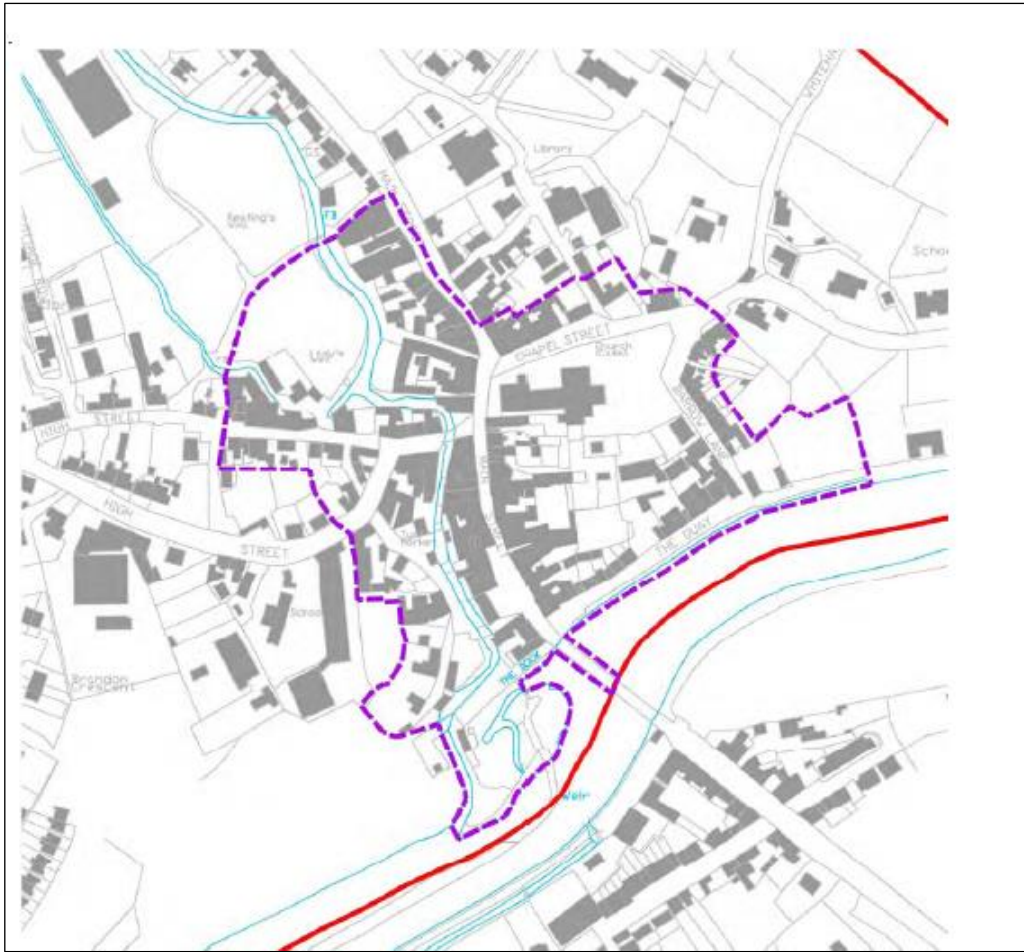


Figure 3.18: Graiguenamanagh ACA

Existing Problems

- There are three NIAH structures adjacent to the boundary of the LAP area which have not been added to the RPS.

3.10 Landscape

A Landscape Character Assessment for Carlow and Kilkenny is contained within its respective County Development Plan. Each of the assessments divides the County into four landscape character unit types, each with associated policies. This is addressed at County level, therefore will not be addressed in this Environmental Report.

As the plan is a Joint Plan, the policies in both adjoining authorities' Development Plans were reviewed in order to establish any possible effects.

There are no protected views in Tinnahinch. Five protected views are designated in the Kilkenny County Plan within the plan area; Views 1 – 5 as follows;

V1. View east and south over the Barrow valley on the Thomastown/Graigenamanagh Road, R703 from Coppengh Hill between the junctions with road numbers LP 4203 and LT 82152.

V2. View East over the Barrow Valley on the Graigenamanagh / New Ross Road and in particular the views overlooking St. Mullins, between the junctions with road numbers LP 4209 and LT 82463.

V3. View east over the Barrow Valley on the Graigenamanagh / Ullard Road just North of Graigenamanagh, Road No. LS8221 between the junctions with road numbers 438 and LS 8222.

V4. View to the south east over Brandon Hill on the Inistioge/Graigenamanagh Road (LP 4209) between the junctions with road numbers LS8241 and R705.

V5. View to the south west over Inistioge and the Nore Valley on the Inistioge/Graigenamanagh Road (LP4210) overlooking the LS8237 (between its junctions with road numbers LS8238 and the R700).

3.10.1 Existing Problems

- Removal of hedgerows has caused dilution of inherent landscape character.

3.11 Inter-relationship between these issues

Environmental factors as outlined above cannot be considered in isolation from each other. Many of the topics as outlined above have inter-relationships, such as that between human health and drinking water quality and waste water treatment and water quality.

This environmental report has approached each of the environmental receptors on an individual basis, at a 'root' level. Where interactions are likely, they have been identified under each topic.

To highlight the extent of the relationship between the various elements of the environment Table 3.6 provides an indication of the interactions present between environmental receptors.

Is this aspect of the environment likely to interact with other aspects of the environment?	Biodiversity -Flora and Fauna	Population and Human Health	Soil	Water	Air	Climatic factors	Material Assets	Cultural Heritage	Landscape
Biodiversity -Flora and Fauna	Y	Y	Y	Y	Y	Y	Y	Y	Y
Population and Human Health	Y	Y	Y	Y	Y	Y	Y	Y	Y
Soil	Y	Y	Y	Y			Y	Y	
Water	Y	Y	Y	Y		Y	Y		
Air	Y	Y			Y				
Climatic factors	Y	Y		Y		Y	Y	Y	Y
Material Assets	Y	Y	Y	Y		Y	Y	Y	Y
Cultural Heritage	Y	Y	Y			Y	Y	Y	Y
Landscape	Y	Y				Y	Y	Y	Y

3.12 Evolution of Environment without implementation of the Plan

Problems have been outlined under each heading and historical trends presented where possible. There are many plans and guidance documents at European, National and local level, which aim to guide development in order to ensure that the environment is protected. It is acknowledged that some areas of environmental sensitivity, such as the Natura sites, are protected under EU law and this protection would continue in the absence of a Plan. However, there are many areas and issues for which the Local Area Plan provides the main guidance document. Such areas include undesignated habitats such as hedgerows and protected views, other than those identified in the County Development Plan.

In the absence of a Plan, environmental protection for these components would be reduced and the occurrence and magnitude of adverse impacts would likely increase. In the absence of the new Plan there would be no long-term framework or guidance for development within this specific area. As a result, each planning application in the plan area would be determined in isolation and there would be no assessment of long term, cumulative or causal impacts on sensitive areas. In general, future investment in key infrastructure would not be targeted appropriately to key development areas. The result would be a haphazard, un-coordinated delivery of service, resulting in negative environmental impacts.

Specifically, the following could occur:

1. Biodiversity, Flora and Fauna

Although some areas of sensitivity, such as the Natura 2000 sites would continue to be protected under EU law, undesignated habitats such as hedgerows would suffer from a lack of protection.

2. Population and Human Health

In the absence of a Core Strategy and appropriate settlement policies there would be no framework directing development away from the most sensitive areas.

3. Soil

There would be no framework for directing development and growth to appropriate brownfield sites and therefore greenfield development would occur on an increased basis, resulting in a loss of non-renewable soil resources.

4. Water

Water supplies and wastewater treatment would continue to be governed by the Water Framework Directive.

5. Air

In the absence of detailed Smarter Travel objectives and a settlement hierarchy, development would occur in a dispersed pattern, leading to an increase in unsustainable travel patterns and a subsequent increase in travel related emissions.

6. Climatic factors

With no Strategic Flood Risk Assessment, inappropriate development could take place in areas of flood risk.

7. Material Assets

There would be no framework to provide the infrastructure that the area requires.

8. Cultural Heritage (architectural and archaeological)

The Plan includes detail on the Record of Protected Structures in the area, and considers them and their settings in the land use plan. If this were not to occur, cultural heritage would not be protected to the fullest extent possible.

9. Landscape

The Plan includes detail of protected views in the area, and considers them in the land use plan and policies. In the absence of this, there would be no framework guiding developments to avoid areas of highest sensitivity.

4 Policy Objectives

The SEA Directive requires that relevant environmental protection objectives (EPOs), established at international, EU or national level are listed in the Environmental Report. The [Guidelines](#) include an indicative list of EPOs. Given the position of a Local Area Plan in the land use planning hierarchy beneath the Southern RSES and County Development Plan, the measures identified in the RSES SEA have been used here, with some modification where appropriate.

The SEA of the RSES was based on a set of overarching principles. Falling out of these principles, specific Strategic Environmental Objectives (SEOs) were devised. These were used to assess the objectives included in the RSES. The SEO's are aligned with the environmental topics listed in the SEA Directive. Each SEO specifies a desired outcome e.g. reduce CO² emissions, against which the future impacts of the plans can be measured. These high-level SEOs are paired with specific targets which can be monitored using indicators (see Chapter 8).

The Guiding Principles and SEOs for this SEA are set out below.

Table 4.1 SEA Objectives

Environmental Component & Guiding Principle	No.	Strategic Environmental Objective
<p>BIODIVERSITY FLORA AND FAUNA Guiding Principle: No net contribution to biodiversity losses or deterioration</p>	B1	<ul style="list-style-type: none"> • To preserve, protect, maintain and, where appropriate, enhance the terrestrial, aquatic and soil biodiversity, particularly EU designated sites and protected species.
	B2	<ul style="list-style-type: none"> • Ensure no adverse effects on the integrity of any European site, with regard to its qualifying interests, associated conservation status, structure and function.
	B3	<ul style="list-style-type: none"> • Safeguard national, regional and local designated sites and supporting features which function as stepping stones for migration, dispersal and genetic exchange of wild species.
	B4	<ul style="list-style-type: none"> • Conserve and restore biodiversity in line with the National Biodiversity Strategy and its targets
	B5	<ul style="list-style-type: none"> • To protect, maintain and conserve the County's Natural Capital
<p>POPULATION AND HUMAN HEALTH Guiding Principle: Improve quality of life for all ages and abilities based on high-quality, serviced, well connected and sustainable residential, working, educational and recreational environments</p>	P1	<ul style="list-style-type: none"> • To create an environment where every individual and sector of society can play their part in achieving a more healthy Ireland.
	P2	<ul style="list-style-type: none"> • Consolidate growth and limit urban sprawl.
	P3	<ul style="list-style-type: none"> • Enhance human health and promote healthy living through access to active travel opportunities, especially walking and cycling.
	P4	<ul style="list-style-type: none"> • Promote economic growth to encourage retention of working age population.
	P5	<ul style="list-style-type: none"> • Ensure that existing population and planned growth is matched with the required public infrastructure and the required services.
	P6	<ul style="list-style-type: none"> • Safeguard the county's citizens from environment-related pressures and risks to health and well-being.
<p>WATER Guiding Principle: Protection, improvement and sustainable management of the water resource</p>	W1	<ul style="list-style-type: none"> • Ensure that the status of water bodies is protected, maintained and improved in line with the requirements of the WFD and MSFD.
	W2	<ul style="list-style-type: none"> • Ensure that economic growth of the marine resource and its ecosystems are managed sustainably.
	W3	<ul style="list-style-type: none"> • Ensure water resources are sustainably managed to deliver proposed growth in the context of existing and projected water supply and wastewater capacity constraints ensuring the protection of receiving environments.
	W4	<ul style="list-style-type: none"> • Avoid inappropriate development in areas at risk of flooding and areas that are vulnerable to current and future erosion.

	W5	<ul style="list-style-type: none"> Integrate sustainable water management solutions (such as SuDS, porous surfacing and green roofs) into development proposals.
<p>LAND AND SOILS</p> <p>Guiding Principle: Ensure the long-term sustainable management of land</p>	LS1	<ul style="list-style-type: none"> Protect soils against pollution, and prevent degradation of the soil resource.
	LS2	<ul style="list-style-type: none"> Promote the sustainable use of infill and brownfield sites over the use of greenfield.
	LS3	<ul style="list-style-type: none"> Safeguard areas of prime agricultural land and designated geological sites.
<p>AIR</p> <p>Guiding Principle: Support clean air policies that reduce the impact of air pollution on the environment and public health</p>	A1	<ul style="list-style-type: none"> To avoid, prevent or reduce harmful effects on human health and the environment as a whole resulting from emissions to air from all sectors with particular reference to emissions from transport, residential heating, industry and agriculture.
	A2	<ul style="list-style-type: none"> Maintain and promote continuing improvement in air quality through the reduction of emissions and promotion of renewable energy and energy efficiency.
	A3	<ul style="list-style-type: none"> Promote continuing improvement in air quality.
	A4	<ul style="list-style-type: none"> Reduction of emissions of sulphur dioxide, nitrogen oxides, volatile organic compounds, ammonia and fine particulate matter which are responsible for acidification, eutrophication and ground-level ozone pollution
	A5	<ul style="list-style-type: none"> Meet Air Quality Directive standards for the protection of human health — Air Quality Directive
	A6	<ul style="list-style-type: none"> Significantly decrease noise pollution by 2020 and move closer to WHO recommended levels
<p>CLIMATE</p> <p>Guiding Principle: Achieving transition to a competitive, low carbon, climate-resilient economy that is cognisant of environmental impacts.</p>	C1	<ul style="list-style-type: none"> To minimise emissions of greenhouse gasses.
	C2	<ul style="list-style-type: none"> Integrate sustainable design solutions into infrastructure (e.g. energy efficient buildings; green infrastructure).
	C3	<ul style="list-style-type: none"> Contribute towards the reduction of greenhouse gas emissions in line with national targets.
	C4	<ul style="list-style-type: none"> Promote development resilient to the effects of climate change.
	C5	<ul style="list-style-type: none"> Promote the use of renewable energy, energy efficient development and increased use of public transport.
<p>MATERIAL ASSETS</p> <p>Guiding Principle: Sustainable and efficient use of natural resources</p>	M1	<ul style="list-style-type: none"> Optimise existing infrastructure and provide new infrastructure to match population distribution proposals.
	M2	<ul style="list-style-type: none"> Ensure access to affordable, reliable, sustainable and modern energy for all which encourages a broad energy generation mix to ensure security of supply – wind, wave solar, tidal, biomass, energy from waste (EfW), and traditional fossil fuels.
	M3	<ul style="list-style-type: none"> Promote the circular economy, reduce waste, and

		increase energy efficiencies.
	M4	<ul style="list-style-type: none"> • Ensure there is adequate sewerage and drainage infrastructure in place to support new development.
	M5	<ul style="list-style-type: none"> • Reduce the energy demand from the transport sector and support moves to electrification of road and rail transport modes.
	M6	<ul style="list-style-type: none"> • Encourage the transition to a zero carbon economy by developing grid infrastructure to support renewables (onshore and offshore), and international connectivity.
	M7	<ul style="list-style-type: none"> • Reduce the average energy consumption per capita including promoting energy efficient buildings, retrofitting, smart- buildings, cities and grids.
<p>CULTURAL HERITAGE</p> <p>Guiding Principle: Safeguard cultural heritage features and their settings through responsible design and positioning of development.</p>	CH1	<ul style="list-style-type: none"> • Protect places, features, buildings and landscapes of cultural, archaeological or architectural heritage
<p>LANDSCAPE</p> <p>Guiding Principle: Protect and enhance the landscape character</p>	L1	<ul style="list-style-type: none"> • To provide a framework for identification, assessment, protection, management and planning of landscapes having regard to the European Landscape Convention

5 Assessment of Alternatives

5.1 Introduction

The [SEA Directive](#)³⁶ requires the Environmental Report to consider reasonable alternatives taking into account the objectives and geographical scope of the plan or programme and the significant environmental effects of the alternatives selected.

The alternative plan scenarios were considered at an early stage of the process and through an iterative process, the most appropriate plan scenario was selected.

In accordance with the [Guidelines](#) the alternatives put forward should be reasonable, realistic and capable of implementation. They should also be in line with the appropriate strategic level at which the Plan will be implemented within the national planning hierarchy. The Plan will be framed within a policy context set by a hierarchy of National, Regional and County level strategic plans as well as the Irish and European legislative framework. Therefore, the options for alternatives are limited, and a scenario such as the 'do nothing' scenario has not been included as it is the Council's policy to prepare Local Area Plans for all District Towns and as such this scenario is not reasonable nor realistic.

As set out under Section 2.3 of the Kilkenny County Development Plan and Section 2.4 of the Carlow County Development Plan a projected population growth figure for both Graiguenamanagh and Tinnahinch has been allocated, which the Plan must adhere to. This population projection is translated into a housing land requirement, or a 'pot' of zoned land, which must be distributed in the area. Therefore, it is alternative distributions of this growth that are examined here.

5.2 Alternative 1: Continued consolidation

Alternative 1 concentrates growth mainly into the existing urban centre of Graiguenamanagh and Tinnahinch, with little growth being allocated to rural areas. Access to public transport is a guiding principle of this approach. See Figure 5.1.

³⁶ EU, [Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment](#)

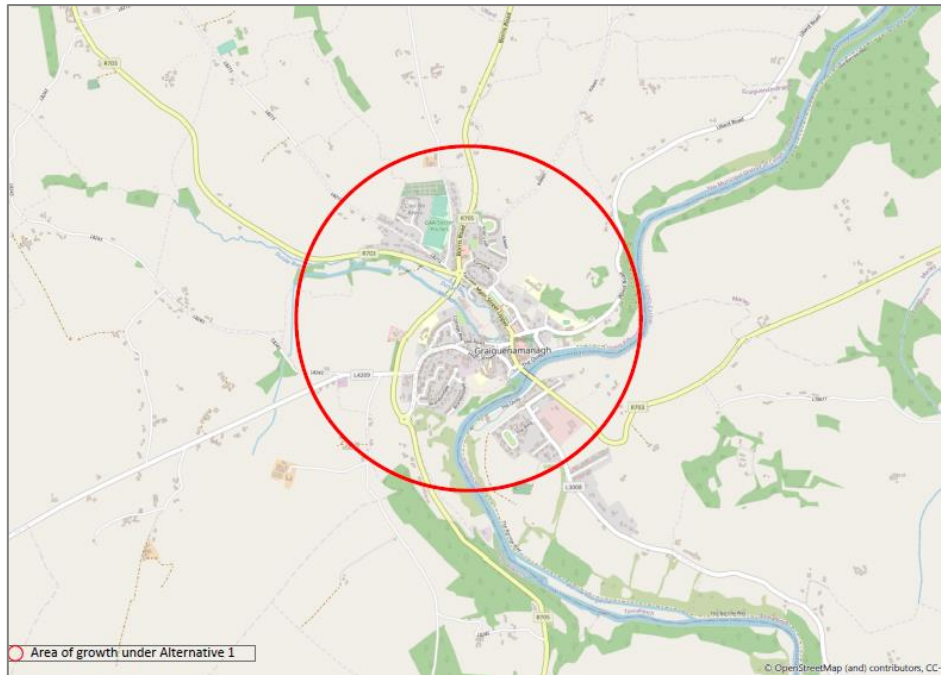


Figure 5.1: Alternative 1

5.3 Alternative 2: Dispersed growth

This scenario is one which places very few restrictions on development throughout the Plan area. The 'pot' of zoned land would be distributed throughout the area, without prioritisation. Development would be allowed to proceed in an ad hoc manner and would follow market forces to a great extent. Most development would occur on greenfield sites at a remove from the existing urban centre. See Figure 5.2.



Figure 5.2: Alternative 2

Alternative 2 envisages potentially inappropriate lands zoned for development without truly assessing the overall implications. Significant levels of ribbon development along roads in the plan area would result. Development would occur in unserved or in insufficiently serviced areas. It would most likely lead to a highly dispersed settlement pattern.

This would lead to a weakening of the urban centre of Graiguenamanagh-Tinnahinch. Whilst this alternative would allow for a freedom of development, it is not sustainable. It would lead to a significant shift towards rural rather than urban development. Ultimately it could lead to a loss of population base within Graiguenamanagh-Tinnahinch and consequently a loss of critical mass for the development of key services and facilities. Furthermore, urban generated housing within the transport corridors would have long term implications for future road development and would compromise re-alignments, or road geometry with adverse risks to road users. The proliferation of one-off housing would have negative effects on water quality (which is identified as a key EPO for the Plan) and a rise in unsustainable travel patterns with resulting effects on air quality and greenhouse gas emissions. The provision of key services such as water supply and wastewater treatment would become costly in both financial and environmental quality terms.

5.4 Alternative 3: Selection of new growth areas

This alternative prioritises areas outside the existing urban centre of Graiguenamanagh-Tinnahinch for growth, such as Mooneen and Ballymurphy see Figure 5.3. Both these small places would be subject to large levels of zoning in this Plan to accommodate the proposed population increase. There are no services in either of these areas to serve such a population increase and this approach would result in an increase in unsustainable travel patterns.



Figure 5.3: Alternative 3

5.5 Assessment of Alternatives

These three alternatives are assessed against the Strategic Environmental Objectives (SEOs) as identified in Chapter 4. Each alternative is assessed as to whether it would have a potentially **positive**, **neutral** or potentially **negative** impact on each objective. These effects include secondary, cumulative, synergistic, short, medium and long-term permanent and temporary, positive and negative effects.

Cumulative effects have been considered in both the assessment of the alternatives and Plan provisions. Cumulative effects can be described as the addition of many small impacts to create one larger, more significant, impact. Two types of potential cumulative effects have been considered, namely:

- Potential intra-Plan cumulative effects - these arise from the interactions between different types of potential environmental effects resulting from the Plan; and,
- Potential inter-Plan cumulative effects - these arise when the effects of the implementation of one plan occur in combination with those of other plans or developments.

A variety of potential intra-Plan cumulative environmental effects occur when considering the implementation of the alternatives and/or the Plan. The interrelationships between environmental components that determine these potential effects are identified on Table 3.6 e.g. interrelationships between human health and water quality and human health and air quality.

With regard to potential inter-Plan cumulative environmental effects, these occur as a result of the combination of potential environmental effects which are identified by the assessment as arising from the alternatives and/or Plan measures; and the effects arising from other plans or developments. Other Plans and developments which have been considered by the assessment of environmental effects include those which are detailed under Section 2.3: Relationship with other Plans and Programmes. These plans and programmes are subject to their own environmental assessment requirements as relevant.

Taking into account available information, the key potential inter-Plan cumulative environmental effects that are considered in the assessment relate to effects upon the status of surface and ground waters and associated interactions (in combination with RSES for the Southern Region, Development Plans and River Basin Management Plans).

Potential cumulative/in combination effects include:

- Contributions towards reductions in travel related greenhouse gas and other emissions to air, (in combination with plans and programmes from all sectors, including energy, transport and land use planning) as a result of facilitating:
 - sustainable compact growth;
 - sustainable mobility/a shift from motorised transport modes to more sustainable and non-motorised transport modes;
 - renewable energy development

- Facilitation of new development that is accompanied by appropriate levels of water services thereby contributing towards environmental protection;
- Need for and use of water and wastewater treatment capacity arising from new developments and associated potential adverse effects;
- Potential cumulative effects upon surface and ground water status as a result of housing, employment, agricultural and forestry – loadings and abstractions;
- Potential cumulative effects (habitat damage, enhancing ecological connectivity, contributing towards sustainable mobility) arising from linear developments, such as those relating to Green Infrastructure;
- Potential cumulative effects on flood risk by, for example, development of greenfield lands or obstruction of flood paths; and
- In combination with plans and programmes from all sectors potential adverse effects on environmental components arising from all types of development in greenfield and brownfield areas (e.g. infrastructural, residential, economic, agricultural etc.). These plans and programmes are required to comply with environmental legislation and undergo SEA and AA as relevant comply with environmental legislation while projects are subject to EIA and AA, as relevant.

A description of the various impacts of each alternative is set out below.

5.5.1 Alternative 1: Continued Consolidation - Likely Significant Effects

Environmental impacts

This alternative concentrates populations into the existing centre of Graiguenamanagh-Tinnahinch, which has existing services and facilities, and access to public transport. Investment in key infrastructure can be concentrated here and sustainable travel is promoted. Valuable natural resources such as water quality are protected through targeted infrastructural measures.

Planning impacts

This alternative does not support the rural population, which may lead to a population decline in rural areas i.e. Mooneen, Ballymurphy

5.5.2 Alternative 2: Dispersed Growth - Likely Significant Effects

Environmental impacts

The environmental consequences of this alternative are potentially severe. The dispersal of rural housing and other non-agriculture related development in the countryside would lead to unsustainable transport patterns; it could lead to a deterioration in ground water quality through the proliferation of septic tanks; surface water quality could be affected through contaminated ground water, habitats and areas of natural interest could be lost or fragmented; and finally, a deterioration in landscape quality could ensue.

Planning impacts

The provision of key services such as water supply and wastewater treatment would become costly in both financial and environmental quality terms. The settlement of Graiguenamanagh-Tinnahinch would suffer from the dilution of its population base.

5.5.3 Alternative 3: Selection of new growth areas - Likely significant effects

Environmental impacts

In this alternative, large growth areas would be formed around both Mooneen and Ballymurphy. Directing growth into these smaller centres would detract from the emphasis on Graiguenamanagh-Tinnahinch as a sustainable urban centre and would result in an increase in unsustainable travel patterns and a negative effect on air quality. As Mooneen and Ballymurphy were not historically large service centres, there are very few opportunities for brownfield redevelopment, and most development in both would take place on the edges of the centres, on greenfield land. This would have negative environmental effects through the increased replacement of agricultural land by artificial surfaces.

Planning impacts

From a social and economic perspective, existing services in Graiguenamanagh-Tinnahinch would suffer with the dispersal of population.

5.5.4 Assessment against each SEA Objective

Table 5.1 below assesses each Alternative against each of the SEA objectives.

Table 5.1 Assessment of Alternatives			
Environmental Parameter – SEA Objective	Alternative		
	1: Continued Consolidation	2: Dispersed Growth	3: Selection of New Growth Areas
Biodiversity, Flora and Fauna			
To preserve, protect, maintain and, where appropriate, enhance the terrestrial, aquatic and soil biodiversity, particularly EU designated sites and protected species.			
Ensure no adverse effects on the integrity of any European site, with regard to its qualifying interests, associated conservation status, structure and function.			
Safeguard national, regional and local designated sites and supporting features which function as stepping stones for migration, dispersal and genetic exchange of wild species.			
Conserve and restore biodiversity in line with the National Biodiversity Strategy and its targets			
To protect, maintain and conserve the County’s Natural Capital			
Population and Human Health			
To create an environment where every individual and sector of society can play their part in achieving a more healthy Ireland.			
Consolidate growth and limit urban sprawl.			
Enhance human health and promote healthy living through access to active travel opportunities, especially walking and cycling.			
Promote economic growth to encourage retention of working age			

population.			
Ensure that existing population and planned growth is matched with the required public infrastructure and the required services.			
Safeguard the county's citizens from environment-related pressures and risks to health and well-being.			
Water			
Ensure that the status of water bodies is protected, maintained and improved in line with the requirements of the WFD and MSFD.			
Ensure that economic growth of the marine resource and its ecosystems are managed sustainably.			
Ensure water resources are sustainably managed to deliver proposed growth in the context of existing and projected water supply and wastewater capacity constraints ensuring the protection of receiving environments.			
Avoid inappropriate development in areas at risk of flooding and areas that are vulnerable to current and future erosion.			
Integrate sustainable water management solutions (such as SuDS, porous surfacing and green roofs) into development proposals.			
Land and Soils			
Protect soils against pollution, and prevent degradation of the soil resource.			
Promote the sustainable use of infill and brownfield sites over the use of greenfield.			
Safeguard areas of prime agricultural land and designated geological sites.			
Air			
To avoid, prevent or reduce harmful effects on human health and the environment as a whole resulting from emissions to air from all sectors with particular reference to emissions from transport, residential heating, industry and agriculture.			
Maintain and promote continuing improvement in air quality through the reduction of emissions and promotion of renewable energy and energy efficiency.			
Promote continuing improvement in air quality.			
Reduction of emissions of sulphur dioxide, nitrogen oxides, volatile organic compounds, ammonia and fine particulate matter which are responsible for acidification, eutrophication and ground-level ozone pollution			
Meet Air Quality Directive standards for the protection of human health — Air Quality Directive			
Significantly decrease noise pollution by 2020 and move closer to WHO recommended levels			
Climate			
To minimise emissions of greenhouse gasses.			
Integrate sustainable design solutions into infrastructure (e.g. energy efficient buildings; green infrastructure).			
Contribute towards the reduction of greenhouse gas emissions in line with national targets.			
Promote development resilient to the effects of climate change.			

Promote the use of renewable energy, energy efficient development and increased use of public transport.	Green	Red	Red
Material Assets			
Optimise existing infrastructure and provide new infrastructure to match population distribution proposals.	Green	Red	Red
Ensure access to affordable, reliable, sustainable and modern energy for all which encourages a broad energy generation mix to ensure security of supply – wind, wave solar, tidal, biomass, energy from waste (EfW), and traditional fossil fuels.	Green	Grey	Grey
Promote the circular economy, reduce waste, and increase energy efficiencies.	Green	Red	Red
Ensure there is adequate sewerage and drainage infrastructure in place to support new development.	Green	Red	Red
Reduce the energy demand from the transport sector and support moves to electrification of road and rail transport modes.	Green	Red	Red
Encourage the transition to a zero carbon economy by developing grid infrastructure to support renewables (onshore and offshore), and international connectivity.	Green	Red	Red
Reduce the average energy consumption per capita including promoting energy efficient buildings, retrofitting, smart- buildings, cities and grids.	Green	Red	Red
Cultural Heritage			
Protect places, features, buildings and landscapes of cultural, archaeological or architectural heritage	Green	Red	Green
Landscape			
To provide a framework for identification, assessment, protection, management and planning of landscapes having regard to the European Landscape Convention	Green	Red	Green

5.6 Selection of Preferred Alternative

Having considered the three alternatives, Alternative 1: Continued Consolidation emerges as the preferred alternative, as this has the fewest potentially negative impacts on the Strategic Environmental Objectives (SEOs).

6 Likely significant effects on the Environment

6.1 Introduction

The preferred Plan strategy was selected based on an assessment of the three alternatives. This section evaluates the preferred Plan strategy in detail. It would be unworkable to evaluate every line of text in the Plan; therefore, to provide an overview, this evaluation focuses on the objectives of each chapter.

In order to distinguish between the SEA objectives, as outlined in Chapter 4, and the Plan objectives, the Plan objectives are referred to as 'Development objectives'. All development objectives are subjected to assessment in the context of each of the SEA Objectives as selected in Chapter 4.

The purpose of this section of the Environmental Report is to highlight any potential conflicts between the development objectives contained in the Plan and the SEA Objectives. Furthermore, the assessment examines the potential impact arising from the implementation of the development objectives on sensitive environmental receptors.

In accordance with the [Guidelines](#), the potential effects of the Plan are categorised as follows:

- Significant beneficial impact
- Uncertain impact (the impact will need mitigation to ensure that no significant adverse impacts occur.)
- Significant adverse impact
- No relationship, or insignificant impact

Where a development objective has a significant adverse impact, this is discussed in more detail.

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Chapter	Development objective	Assessment of impact on SEA objectives (See Chapter 4)			
		Significant beneficial impact	Uncertain impact	Significant adverse impact	No relationship or insignificant impact
1	AAO1.1: To ensure that any plan or project within the functional area of the Planning Authority is subject to an Appropriate Assessment in accordance with legislative requirements, the Guidance Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities, 2009 and is assessed in accordance with Article 6 of the Habitats Directive in order to avoid adverse impacts on the integrity and conservation objectives of the site.	B1 B2 B3 B4 B5 W1 W2 W3			P1 P2 P3 P4 P5 P6 LS2 LS1 LS3 W5 W4 A3 A4 C1 C3 M1 M3 M4 M5 CH1 L1 A2 A1 A5 A6 C2 C4 C5 M2 M6 M7
4	CSO1.1: To support and facilitate development on zoned lands at appropriate locations and deliver at least 30% of all new homes within the existing built-up footprints in Graiguenamanagh and Tinnahinch to satisfy the housing needs of the settlement over the period of the Plan.	B1 B2 B3 B4 B5 P2 W4 M1	P5 LS2 LS3		P1 P3 P4 P6 W1 W2 W3 W5 LS1 A1 A2 A3 A4 A5 A6 C1 C2 C3 C4 C5 M2 M3 M4 M5 M6 M7 CH1 L1
	CSO1.2: To provide for serviced sites with appropriate infrastructure in accordance with Objective 18(b) of the National Planning Framework (ca.3.52ha of land has been identified in the settlement to facilitate such a proposal).	P2 LS3			B1 B2 B3 B4 B5 P1 P3 P4 P5 P6 W1 W2 W3 W4 W5 LS1 LS2 A1 A2 A3 A4 A5 A6 C1 C2 C3 C4 C5 M1 M2 M3 M4 M5 M6 M7 CH1 L1
	CSO1.3: To implement the zoning objectives set out in Appendix A of this Draft Joint LAP	P2	LS2 LS3		B1 B2 B3 B4 B5 P1 P3 P4 P5 P6 W1 W2 W3 W4 W5 LS1 A1 A2 A3 A4 A5 A6 C1 C2 C3 C4 C5 M1 M2 M3 M4 M5 M6 M7 CH1 L1
	CSO1.4: To manage the provision of one-off housing on lands zoned as 'Agriculture'. Limited one-off housing will be permitted in accordance with the policy set out under Section 6.4 of Kilkenny County Development Plan 2014-2020 and	CH1	LS3 L1		B1 B2 B3 B4 B5 P1 P2 P3 P4 P5 P6 W1 W2 W3 W4 W5 LS1 LS2 M1 M2 M3 M4 M5 M6 M7

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	Section 2.7 of Carlow County Development Plan 2015-2021 or as maybe amended in any subsequent reviews.				
	CSO1.5: It is an objective of this plan to review the housing allocation / requirement as provided in this Joint LAP to the settlement of Graiguenamanagh-Tinnahinch following the adoption of the Housing Demand Need Assessment and Core Strategies of the Kilkenny County Development Plan 2021-2027 and Carlow County Development Plan 2022-2026. Where deemed necessary an amendment to the Joint LAP will be commenced within one year following the adoption of the Carlow County Development Plan 2022-2028 and Kilkenny County Development Plan 2021-2027.	CH1	LS3 L1		B1 B2 B3 B4 B5 P1 P2 P3 P4 P5 P6 W1 W2 W3 W4 W5 LS1 LS2 M1 M2 M3 M4 M5 M6 M7
5	EDO1.1: To ensure that there is a sufficient supply of appropriately zoned lands at suitable locations in the settlement to accommodate and promote a wide range of enterprise and employment development types.	P1 P6 A3 A4 C1 C3 P2 LS2			B1 B2 B3 B4 B5 LS2 LS1 W1 W2 W5 W4 M1 M3 M4 M5 CH1 L1 P3 P4 P5 LS1 A1 A2 A5 A6 C2 C4 M7 W3 LS3 C5 M2 M6
	EDO1.2: To support the provision of Incubation Space and Hot-Desking facilities within the settlement with work station/areas for start-up businesses and remote workers, particularly those in the creative/digital sphere and start-up companies that can contribute to the tourism or arts economy.	P1 P6 C1 C3 P4			B1 B2 B3 B4 B5 LS2 LS1 W1 W2 W4 W5 A3 A4 M1 M3 M4 M5 CH1 L1 P2 P3 P5 P6 W3 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7
	TCO1.1: To support the delivery of projects for town centre regeneration which comply with the provisions of the relevant CDP and this Joint LAP submitted as funding applications to the Rural Regeneration and Development Fund. a) The preparation of an architectural design/brief is required for the following sites to ensure the character of the area is maintained and that any potential flood defence proposals are appropriate to its location	P1 P6 LS2 M1 M3 M4 M5			B1 B2 B3 B4 B5 W1 W2 W5 W4 A3 A4 C1 C3 M1 M3 M4 M5 CH1 L1 P2 P3 P4 P5 W3 LS3 LS1 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7

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<ul style="list-style-type: none"> • The Quays Graiguenamanagh and Tinnahinch • The stone buildings/sheds located on the back lanes of Graiguenamanagh 				
<p>TCO1.2: To encourage and facilitate the re-use and regeneration of vacant or underused buildings for appropriate town centre uses through incentives such as Small Business Vacant Premises Scheme.</p>	P1 P2 P6 LS2 LS1 A3 A4 C1 C3 M1 M3 M4 M5 L1	P5		B1 B2 B3 B4 B5 W5 W4 P4 W3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7 W2 W1 CH1 P3 LS3
<p>TCO1.3: To improve the accessibility of the town centre with particular emphasis on creating an environment that is accessible to pedestrians and cyclists through improved parking and pedestrian facilities.</p>	P1 P6 A3 A4 C1 C3 M1 M3 M4 M5 P2 P3 A6 C5	P5		B1 B2 B3 B4 B5 LS2 LS1 W2 W1 W5 W4 CH1 L1 W3 LS3 A2 C2 C4 M2 M6 M7 P4 A1 A5
<p>TCO1.4: To facilitate enhancement and improvement of the physical fabric and environment of the town centre through public realm initiatives including footpath and public lighting improvements to assist in making the town centre a more pedestrian friendly place.</p>	P1 P6 A3 A4 C1 C3 M1 M3 M4 M5 P3			B1 B2 B3 B4 B5 LS2 LS1 W2 W1 W5 W4 P4 P5 W3 LS3 A2 A5 A6 C2 C4 M2 M6 M7 P2 A1 C5
<p>TCO1.5: To investigate traffic managements options for strengthening the pedestrian links across the River Barrow to better integrate the town centres of Graiguenamanagh and Tinnahinch and maximise access to local shops, schools and other amenities.</p>	P1 P6 A3 A4 C1 C3 M1 M3 M4 M5 P3			B1 B2 B3 B4 B5 LS2 LS1 W2 W1 W5 W4 CH1 L1 P2 P4 P5 W3 LS3 A2 A5 A6 C5 M2 M6 M7 A1 C2 C4
<p>REO1.1: To promote the town centre for retail development and restrict further significant retail development (convenience and comparison) outside of the lands zoned 'Mixed Use' within the Plan.</p>	P1 P6 A3 A4 C1 C3 P2 LS3			B1 B2 B3 B4 B5 LS2 LS1 W2 W1 W5 W4 M1 M3 M4 M5 CH1 L1 P3 P4 P5 W3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7
<p>SFO1.1: To ensure that new signage contributes positively to and enhances the streetscape in accordance with the guidance set out in Kilkenny County Council Guidance on Shopfronts and Advertising Signs and Section 11.13 of Carlow County Development Plan 2015-2021 and to avoid clutter of</p>	CH1 L1			B1 B2 B3 B4 B5 P1 P6 LS2 LS1 W2 W1 W5 W4 A3 A4 C1 C3 M1 M3 M4 M5 P2 P3 P4 P5 W3 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7

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<p>over advertising. New signage that negatively impacts or obscures shopfronts recognised as being of special interest will be discouraged.</p>				
<p>ACCE1.1: To support, where appropriate, the continued growth of the craft and creative economy in Graiguenamanagh-Tinnahinch.</p>	<p>CH1 L1 P1 P6</p>			<p>B1 B2 B3 B4 B5 LS2 LS1 W2 W1 W5 W4 A3 A4 C1 C3 M1 M3 M4 M5 P2 P3 P4 P5 W3 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7</p>
<p>ACCE1.2: To enhance the role of venues within the town to facilitate events associated with some of the County's signature festivals and other festivals.</p>	<p>CH1 L1 P1 P6</p>			<p>B1 B2 B3 B4 B5 LS2 LS1 W2 W1 W5 W4 A3 A4 C1 C3 M1 M3 M4 M5 P2 P3 P4 P5 W3 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7</p>
<p>ACCE1.3: To support the development of linkages between historical sites within and around Graiguenamanagh-Tinnahinch and the amenity sites in its hinterland</p>	<p>P1 P6 M1 M3 M4 M5 CH1 L1</p>			<p>B1 B2 B3 B4 B5 LS2 LS1 W2 W1 W5 W4 A3 A4 C1 C3 P2 P3 P4 P5 W3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7 LS3</p>
<p>ACCE1.4: To support the continued success of high-quality cultural events and festivals which celebrate Graiguenamanagh-Tinnahinch and support its community and tourism product.</p>	<p>L1 P1 P6 CH1</p>			<p>B1 B2 B3 B4 B5 M1 M3 M4 M5 LS2 LS1 W2 W1 W5 W4 A3 A4 C1 C3 P2 P3 P4 P5 W3 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7</p>
<p>TO2.1: To support the implementation of the Graiguenamanagh-Tinnahinch Tourism and Recreational Project Concept Study, and the development of tourism infrastructure (in particular at The Hub), overnight accommodation (in particular Brandondale House), attractions and facilities at appropriate locations subject to the appropriate protection of architectural heritage and</p>	<p>P1 P6 LS2 M1 M3 M4 M5</p>			<p>B1 B2 B3 B4 B5 LS1 W2 W1 W5 W4 A3 A4 CH1 L1 C1 C3 P2 P3 P4 P5 W3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7 LS3</p>

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natural amenities and appropriate statutory processes required by the European Habitats Directive				
TO2.2: To support the implementation of the Graiguenamanagh-Tinnahinch Tourism and Recreational Project Concept Study, and the development of outdoor leisure activities and a River Park and associated uses on lands that are designated as open space, subject to the protection of landscape character and natural heritage (Natura 2000 conservation objectives) and inclusion of construction management plans and appropriate statutory processes required by the European Habitats Directive	B1 B2 B3 B4 B5 P1 P6 W5 W4 CH1 L1			LS2 LS1 W2 W1 A3 A4 C1 C3 M1 M3 M4 M5 P2 P4 P5 W3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7 P3 LS3
TO2.3: To support the promotion of strategic tourist sites, the sensitive restoration/conservation of heritage buildings and sites including Tinnahinch Castle and operate flexibly with regard to the use of converted buildings to facilitate heritage tourism/social enterprise.	P1 P6 LS2 M1 M3 M4 M5 CH1 L1			B1 B2 B3 B4 B5 LS1 W2 W1 W5 W4 A3 A4 C1 C3 P2 P3 P4 P5 W3 LS3 A1 A2 A5 A6 C5 M2 M6 M7 C2 C4
TO2.4: To facilitate tourism activities such as waterways activities, eco-tourism, niche retailing, food markets, local and other craft type activities so as to diversify the tourism product in Graiguenamanagh-Tinnahinch, subject to relevant environmental assessments.	B1 B2 B3 B4 B5 M1 M3 M4 M5 P1 P6 CH1 W5 W4			LS2 LS1 W2 W1 L1 A3 A4 C1 C3 P2 P3 P4 P5 W3 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7
TO2.5: To support the development of linkages between historical sites within and around Graiguenamanagh-Tinnahinch including pedestrian access to St. Michaels Well in Tinnahinch.	L1 P1 P6 CH1 M1 M3 M4 M5			B1 B2 B3 B4 B5 W2 W1 W5 W4 LS2 LS1 A3 A4 C1 C3 P2 P3 P4 P5 W3 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7
TO2.6: To encourage and facilitate the delivery of a mix of appropriate uses including tourism, commercial, retailing and leisure, community related developments on lands zoned 'Mixed Use' within Tinnahinch.	B1 B2 B3 B4 B5 M1 M3 M4 M5 P1 P6 CH1 W5 W4			LS2 LS1 W2 W1 L1 A3 A4 C1 C3 P2 P3 P4 P5 W3 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7
TO2.7: To facilitate the expansion of additional overnight tourism accommodation in association with the expansion of	P1 P6 LS2 M1 M3 M4 M5			B1 B2 B3 B4 B5 LS1 W2 W1 W5 W4 A3 A4 CH1 L1 C1 C3

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	facilities at Brandondale house on the lands to the South West of Brandondale house subject to development management criteria.				P2 P3 P4 P5 W3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7 LS3
6	COMO1.1: To support and facilitate the provision of multi-functional community facilities to meet the needs of the population of Graiguenamanagh-Tinnahinch.	P1 P6 P5			B1 B2 B3 B4 B5 A3 A4 LS2 LS1 W2 W1 W5 W4 M1 M3 M4 M5 CH1 L1 C1 C3 P2 P3 P4 W3 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7
	COM1.1: To support and facilitate improvements to existing educational, childcare and community facilities within the Graiguenamanagh-Tinnahinch LAP area.	P1 P6 P5	P3		B1 B2 B3 B4 B5 LS2 L CH1 S1 W2 W1 W5 W4 A3 A4 C1 C3 M1 M3 M4 M5 CH1 L1 P2 P4 W3 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7
	COM1.2: To support and facilitate the refurbishment of the existing Parish Hall in Graiguenamanagh during the Plan period.	P1 P6 LS2 M1 M3 M4 M5	C2		B1 B2 B3 B4 B5 LS1 W2 W1 W5 W4 A3 A4 C1 C3 CH1 L1 P2 P3 P4 W3 LS3 A1 A2 A5 A6 C4 C5 M2 M6 M7 P5
	COMO1.3: To support and facilitate the refurbishment and expansion of the existing library facility in Graiguenamanagh during the Plan period.	P1 P6 LS2 M1 M3 M4 M5	C2		B1 B2 B3 B4 B5 LS1 W2 W1 W5 W4 A3 A4 C1 C3 CH1 L1 P2 P3 P4 W3 LS3 A1 A2 A5 A6 C4 C5 M2 M6 M7 P5
	COM1.4: A Social Infrastructure Assessment (SIA) shall be prepared for the development of this site to ensure that new community facilities where deficit exists are provided on a phased basis in this new residential community in tandem with the provision of housing. The SIA shall include quantitative and spatial assessment of the existing infrastructure provision, and recommendations for future services based on demographic and area-based analysis in relation to services such as; education, childcare; other	P1 P2 P5			B1 B2 B3 B4 B5 P3 P4 P6 W1 W2 W3 W4 W5 LS1 LS2 LS3 A1 A2 A3 A4 A5 A6 M1 M2 M3 M4 M5 M6 M7 CH1 L1

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community services; open space; sports and other amenities.				
RDO1.1: To ensure that sufficient zoned land is available at appropriate locations in Graiguenamanagh-Tinnahinch to satisfy the housing needs of the settlement over the period of the plan.	P1 P6 W4 P2	P5		B1 B2 B3 B4 B5 W2 W1 LS2 LS1 W5 A3 A4 M1 M3 M4 M5 CH1 L1 C1 C3 P3 P4 A1 A2 A5 A6 C2 C4 M7 LS3 W3 C5 M2 M6
RDO1.2: To require that all new residential development has regard to the character of the settlement(s), is of a high standard and provides for a sustainable mix of house types, sizes and tenures.	P1 P6			B1 B2 B3 B4 B5 A3 A4 W2 W1 W5 W4 CH1 L1 C1 C3 M1 M3 M4 M5 LS2 LS1 P2 P3 P4 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7 P5 W3
RDO1.3: To apply a 10% social housing requirement, pursuant to Part V of the Planning and Development Act 2000 (as amended) to all sites that are zoned solely for residential use or for a mixture of residential and other uses (save where the development is exempt from the provisions of Part V).	P1 P6			B1 B2 B3 B4 B5 LS2 LS1 W2 W1 W5 W4 A3 A4 CH1 L1 C1 C3 M1 M3 M4 M5 P2 P3 P4 P5 W3 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7
RDO1.4: To facilitate the development of low density serviced sites on lands to the east of Graiguenamanagh Ring Road, as an alternative to rural housing and to stimulate future growth within the town.	P1 P6 W5 P2 P5 W3 LS3			B1 B2 B3 B4 B5 LS2 LS1 W2 W1 W4 M1 M3 M4 M5 CH1 L1 C1 C3 A3 A4 P3 P4 A2 C2 C4 M2 M6 M7 A1 A5 A6 C5
VS01.1: To identify vacant sites in the settlement for regeneration and housing and establish and maintain a register of vacant sites (entitled the vacant sites register) in the plan area for the purpose of the Vacant Site Levy (Urban Regeneration and Housing Act 2015).	P1 P6 LS2 LS1 A3 A4 M1 M3 M4 M5 L1 C1 C3	P2		W5 W4 P3 P4 P5 W3 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7 B1 B2 B3 B4 B5 W2 W1 CH1
VS01.2: To promote the sustainable development of vacant residential and regeneration sites in Graiguenamanagh-Tinnahinch through the application of the Derelict Sites Act 1990 and Urban Regeneration and Housing Act 2015, Vacant Site Levy, on lands zoned 'Mixed Use' for Regeneration and	P1 P6 M1 M3 M4 M5 A3 A4 L1 LS2 LS1 C1 C3 P2 C2			W5 W4 P3 P4 LS3 A1 A2 A5 A6 M2 M6 M7 B1 B2 B3 B4 B5 CH1 W2 W1 P5 W3 C4 C5

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	'New Residential', 'Low Density Residential' and 'Existing Residential' for housing.			
7	GIO 1.1: To carry out, as resources allow, Habitat and Green Infrastructure Mapping for Graiguenamanagh-Tinnahinch in order to reduce and avoid fragmentation or deterioration of the Green Infrastructure network and strengthen ecological links within Graiguenamanagh-Tinnahinch and to the wider regional network.	B1 B2 B3 B4 B5 P1 P6 W2 W1 LS2 W5 L1 LS3		LS1 W4 A3 A4 C1 C3 M1 M3 M4 M5 CH1 P2 P3 P4 P5 W3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7
	GIO 1.2: To preserve, protect and augment trees, groups of trees, woodlands and hedgerows within the settlement by increasing, where appropriate, tree canopy coverage and tree planting using locally native species by incorporating them within design proposals and supporting their integration into the existing Green Infrastructure network.	B1 B2 B3 B4 B5 P1 P6 LS2 W2 W1 W5 L1 LS3		LS1 W4 A3 A4 C1 C3 CH1 M1 M3 M4 M5 P2 P3 P4 P5 W3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7
	OSO2.1: To support and facilitate the provision of open spaces with ecological and recreational corridors to aid the movement of biodiversity and people, subject to appropriate environmental assessment.	B1 B2 B3 B4 B5 P1 P6 LS2 W2 W1 W5 L1		LS1 W4 A3 A4 C1 C3 CH1 M1 M3 M4 M5 P2 P3 P4 W3 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7 P5
	OSO2.2: To promote a network of paths and cycle tracks (Refer to Map 1) to enhance the use of the strategic open spaces in the town, while ensuring that the design and operation of the routes responds to the ecological protection needs of each site.	B1 B2 B3 B4 B5 P1 P6 LS2 L1 W2 W1 W5 P3 A1 C5		LS1 W4 A3 A4 C1 C3 CH1 M1 M3 M4 M5 P2 P4 W3 LS3 C2 C4 M2 M6 M7 P5 A2 A5 A6
	OSO2.3: New residential development is required to be consistent with standards set out in the Kilkenny and Carlow County Development Plans where playable space is to be provided as an integral part of each new development. This playable space can form part of the overall open space provision of a development but must be dedicated to play and must be accessible in accordance with the standards in the relevant County Development Plan.	P1 P6 P3	P5	B1 B2 B3 B4 B5 C1 C3 M1 M3 M4 M5 LS2 LS1 W2 W1 W5 W4 A3 A4 CH1 L1 P2 P4 W3 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7
8	PSO1.1: To ensure the protection and preservation of all	CH1 L1		B1 B2 B3 B4 B5 P1 P6 W2

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protected structures, (or parts of structures) and their immediate surroundings including the curtilage and attendant grounds of structures contained in the Record of Protected Structures (refer to Appendix B of this plan).				W1 W5 W4 LS2 LS1 A3 A4 C1 C3 M1 M3 M4 M5 P2 P3 P4 P5 W3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7 LS3
PSO1.2: To support the sensitive conservation and restoration of protected structures and their attendant grounds and operate flexibility with regard to the use of these buildings to facilitate their ongoing use, subject to good conservation principles.	CH1			B1 B2 B3 B4 B5 P1 P6 LS2 LS1 W2 W1 W5 W4 A3 A4 C1 C3 L1 M1 M3 M4 M5 P2 P3 P4 P5 W3 A1 A2 A5 A6 C4 C5 M2 M6 M7 LS3 C2
PSO1.3: To encourage and support creative approaches to adaptive reuse, which adhere to conservation principles and practice. Such restoration or conservation proposals will include Architectural Heritage Impact Statements.	CH1			B1 B2 B3 B4 B5 A3 A4 P1 P6 M1 M3 M4 M5 W5 LS2 LS1 W1 W2 W4 C1 C3 L1 P2 P3 P4 P5 W3 C4 C5 M2 M6 M7 LS3 C2
PSO1.4: To address dereliction and vacancy in the settlement and promote appropriate uses and the sensitive conservation and restoration of historic buildings and to request Architectural Heritage Impact statements as part of planning proposals.	CH1			B1 B2 B3 B4 B5 P1 P6 W1 W2 W5 W4 C1 C3 M1 M3 M4 M5 L1 A3 A4 LS2 LS1 P2 P3 P4 P5 W3 A1 A2 A5 A6 C4 C5 M2 M6 M7 LS3 C2
PSO1.5: Encourage sensitive repair of historic fabric while adhering to recognised conservation principles.	CH1			B1 B2 B3 B4 B5 P1 P6 A3 A4 LS2 LS1 W1 W2 W5 W4 C1 C3 L1 M1 M3 M4 M5 P2 P3 P4 P5 A1 A2 A5 A6 C4 C5 M2 M6 M7 LS3 C2
ACA01.1: To ensure that new development, including infill development, extensions and renovation works within or adjacent to the ACAs preserve and enhance the special character and visual setting of the ACA including views and vistas, streetscapes, building lines, fenestration patterns and architectural features and to seek visual impact assessments where appropriate for such development.	L1 CH1 M1 M3 M4 M5			B1 B2 B3 B4 B5 P1 P6 W1 W2 W4 C1 C3 A3 A4 LS2 LS1 W5 P2 P3 P4 P5 W3 LS3 A1 A2 A5 A6 C4 C5 M2 M6 M7 C2

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<p>ACAO1.2: To ensure retention of traditional shopfronts that are of special interest, while focusing on repair instead of replacement. Inappropriately detailed signage, such as plastic and internally illuminated signs will be discouraged.</p>	L1 CH1			P1 P6 W1 W2 W5 W4 C1 C3 B1 B2 B3 B4 B5 M1 M3 M4 M5 A3 A4 LS2 LS1 P2 P3 P4 P5 W3 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7
<p>ACAO1.3: To encourage contemporary design where new buildings are introduced in the ACA</p>	L1 CH1			B1 B2 B3 B4 B5 P1 P6 W1 W2 W5 W4 C1 C3 M1 M3 M4 M5 A3 A4 LS2 LS1 P2 P3 P4 P5 W3 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7
<p>ACAO1.4: To support the sensitive restoration and reuse of heritage buildings, to address dereliction and vacancy in the town centre and promote appropriate uses subject to good conservation principles.</p>	L1 LS2 LS1 P1 P6 A3 A4 C1 C3 M1 M3 M4 M5 P2 CH1			W4 W5 P3 P4 P5 W3 A1 A2 A5 A6 C4 C5 M2 M6 M7 B1 B2 B3 B4 B5 LS3 C2
<p>ARCO1.1: To protect and preserve all archaeological objects within the meaning of the National Monuments Act from inappropriate development that would adversely affect and/or detract from the interpretation and setting of these historic sites.</p>	L1 CH1			B1 B2 B3 B4 B5 P1 P6 A3 A4 LS2 LS1 W2 W1 W5 W4 C1 C3 M1 M3 M4 M5 P2 P3 P4 P5 W3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7 LS3
<p>ARCO1.2: To promote awareness of Graiguenamanagh’s Zone of Archaeological Potential and notable archaeological sites within Graiguenamanagh and Tinnahinch and to facilitate access and understanding of key historical assets.</p>	L1 CH1			P1 P6 W1 W2 W5 W4 A3 A4 C1 C3 B1 B2 B3 B4 B5 M1 M3 M4 M5 LS2 LS1 P2 P3 P4 P5 W3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7 LS3
<p>ARCO1.3: To require an Archaeological (including underwater) Impact Assessment of proposals for developments, where appropriate, due to their location, size, or nature that may have implications for the archaeological heritage of the town.</p>	L1 CH1			B1 B2 B3 B4 B5 P1 P6 LS2 LS1 W1 W2 W5 W4 A3 A4 C1 C3 M1 M3 M4 M5 P2 P3 P4 P5 W3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7 LS3

9	<p>MTO1.1: To require all new developments to comply with the recommendations of the Design Manual for Urban Roads and Streets (DMURS) and National Cycle Manual, or any subsequent relevant publication.</p>	P1 P6 A3 A4 C1 C3 M1 M3 M4 M5 P3 C5			B1 B2 B3 B4 B5 LS2 LS1 W1 W2 W5 W4 CH1 L1 P2 P4 P5 W3 LS3 A2 C2 M2 M6 M7 A5 A6 C4 A1
	<p>MTO1.2: To undertake a Mobility Management Plan for Graiguenamanagh/Tinnahinch which will include investigation of the appropriate interventions for the provision of upgrades to footpaths and public lighting throughout the town. Particular consideration shall be given to the following locations (Map 1):</p> <p>a) Approaches on both sides to and across the George Semple Bridge</p> <p>b) The Quay Graiguenamanagh and Tinnahinch</p>	P1 P6 A3 A4 C1 C3 M1 M3 M4 M5			B1 B2 B3 B4 B5 LS2 LS1 W1 W2 W5 W4 CH1 L1 P2 P4 W3 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7 P3 P5
	<p>MTO1.3: To improve the pedestrian and cyclist environment and promote ease of movement within the settlement to include facilities for older people. Direct, attractive, well-lit and overlooked linkages between community, education, retail and recreational facilities will encourage the residents and visitors to the settlement to walk rather than using unsustainable modes of transport.</p>	P1 P6 A3 A4 C1 C3 M1 M3 M4 M5 P3	A1		B1 B2 B3 B4 B5 LS2 LS1 W1 W2 W5 W4 CH1 L1 P2 P4 P5 W3 LS3 A2 C2 C4 C5 M2 M6 M7 A5 A6
	<p>MTO1.4: To provide an enhanced pedestrian and cycle network in Graiguenamanagh-Tinnahinch including the provision of footpath improvements to ensure ease of access to public transport, the town centre, heritage sites and other recreational / community facilities.</p>	P1 P6 A3 A4 C1 C3 M1 M3 M4 M5 P3	A1		B1 B2 B3 B4 B5 LS2 LS1 W1 W2 W5 W4 CH1 L1 P2 P4 P5 W3 LS3 A2 C2 C4 C5 M2 M6 M7 A5 A6
	<p>MTO1.5: To require the co-location of pedestrian and cycle routes on all new infrastructure connecting key destinations within the settlement, particularly between the schools, community centre and heritage sites such as Duiske Abbey etc.</p>	P1 P6 A3 A4 C1 C3 M1 M3 M4 M5 P3 A1 P5			B1 B2 B3 B4 B5 LS2 LS1 W1 W2 W5 W4 CH1 L1 P4 W3 LS3 A2 C2 C4 M2 M6 M7 P2 A5 A6 C5

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<p>MTO1.6: To support the provision of age friendly bus shelters at appropriate locations in Graiguenamanagh-Tinnahinch and to facilitate and support the provision of electric car charging stations at appropriate locations across the Draft Joint LAP area.</p>	P1 P6			B1 B2 B3 B4 B5 LS2 LS1 W1 W2 W5 W4 A3 A4 CH1 L1 M1 M3 M4 M5 C1 C3 P2 P4 P5 W3 LS3 A2 C2 C4 C5 M2 M6 M7 P3 A1 A5 A6
<p>MTO1.7: To ensure all footpaths in the settlement provide adequate access for persons with a disability or who have impaired mobility.</p>	P1 P6 P3 P5			B1 B2 B3 B4 B5 LS2 LS1 W2 W1 W5 W4 A3 A4 C1 C3 M1 M3 M4 M5 CH1 L1 P2 P4 W3 LS3 A2 C2 C4 C5 M2 M6 M7 A1 A5 A6
<p>MTO1.8: To undertake a mobility management plan that will consider the feasibility of all options for improving pedestrian and cyclist mobility between Graiguenamangh and Tinnahinch and to implement the recommendations of the plan.</p>	B1 B2 B3 B4 B5 P1 P6 P3 P5	C2		LS2 LS1 CH1 L1 M1 M3 M4 M5 W2 W1 W5 W4 A3 A4 C1 C3 P2 P4 W3 LS3 A2 C4 C5 M2 M6 M7 A1 A5 A6
<p>MTO1.9: Dependent upon the success of other public realm projects the Draft LAP will provide for a high-quality shared surface area along 'The Quay' Graiguenamanagh and Tinnahinch to further facilitate recreational use of the River Barrow.</p>	P1 P6 W5			B1 B2 B3 B4 B5 LS2 LS1 CH1 L1 M1 M3 M4 M5 W2 W1 W4 A3 A4 C1 C3 P2 P4 P5 W3 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7 P3
<p>MTO1.10 To investigate and implement the best practise solution for the provision low level lighting on the George Semple bridge</p>	B1 B2 B3 B4 B5 P1 P6 P3 P5	C2		LS2 LS1 CH1 L1 M1 M3 M4 M5 W2 W1 W5 W4 A3 A4 C1 C3 P2 P4 W3 LS3 A2 C4 C5 M2 M6 M7 A1 A5 A6
<p>CPO1.1: To provide distinctly identifiable disabled and Age Friendly car parking spaces at appropriate locations throughout Graiguenamangh-Tinnahinch</p>	P1 P6			B1 B2 B3 B4 B5 CH1 L1 LS2 LS1 M1 M3 M4 M5 W2 W1 W5 W4 A3 A4 C1 C3 P2 P3 P4 P5 W3 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7
<p>CPO1.2: To ensure that adequate and secure bicycle parking facilities are provided at appropriate locations throughout Graiguenamangh-Tinnahinch.</p>	P1 P6 P3			B1 B2 B3 B4 B5 LS2 LS1 CH1 L1 M1 M3 M4 M5 W2 W1 W5 W4 A3 A4 C1 C3 P2 P4

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					P5 W3 LS3 A2 C2 C4 C5 M2 M6 M7 A1 A5 A6
	CPO1.3: To require parking provision for new development in accordance with the standards set out in the Kilkenny and Carlow County Development Plan.	P1 P6			B1 B2 B3 B4 B5 A3 A4 LS2 LS1 CH1 L1 M1 M3 M4 M5 W2 W1 W5 W4 C1 C3 P2 P3 P4 P5 W3 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7
	CPO1.4: To provide for the development of parking facilities for car and coach at the Turf Market area, adjacent to the town centre of Graiguenamanagh.	P1 P6			B1 B2 B3 B4 B5 LS2 LS1 CH1 L1 M1 M3 M4 M5 A3 A4 W2 W1 W5 W4 C1 C3 P2 P3 P4 P5 W3 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7
10	INFO1.1: To work with Irish Water to protect, manage and optimise water services infrastructure in Graiguenamanagh-Tinnahinch.	W2 W1 M1 M3 M4 M5 LS1 W3			B1 B2 B3 B4 B5 P1 P6 C1 C3 W4 CH1 L1 A3 A4 LS2 P2 P3 P4 P5 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7
	INFO1.2: To have regard to the suite of development objectives from Irish Water set out in Appendix D of this Draft Joint LAP in assessing applications for new development	W2 W1 M1 M3 M4 M5 LS1 W3			B1 B2 B3 B4 B5 P1 P6 CH1 L1 C1 C3 W4 A3 A4 LS1 P2 P3 P4 P5 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7
	INFO 1.3: Where a private water supply is proposed for development the Council will require the cumulative impacts of a private water supply on the hydrological regime of the River Barrow SAC to be addressed as part of any project assessment.	B2, B3, B4, B5, W1, W2, W3, B1, LS1, L1			W5, LS2, LS3, A1, A2, A3, A4, A5, A6, C1, C2, C3, C4, C5, C6, M1, M2, M3, M4, M5, M6, M7, CH1
	INFO2.1: To carry out surface water infrastructure improvement works as required, subject to relevant environmental assessments.	B1 B2 B3 B4 B5 P1 P6 L1 W2 W1 LS2 W3			W4 C1 C3 CH1 A3 A4 M1 M3 M4 M5 LS1 P2 P3 P4 P5 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7
	INFO2.2: To maintain, improve and enhance, where possible, the environmental and ecological quality of surface waters	B1 B2 B3 B4 B5 W2 W1 P1 P6 L1			W4 CH1 A3 A4 M1 M3 M4 M5 C1 C3 LS1 P2 P3 P4 P5

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and groundwater in Graiguenamanagh-Tinnahinch in accordance with the South Eastern River Basin District River Basin Management Plan and in conjunction with the EPA.	LS2 W3			LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7
INFO3.1: To support and co-operate with the OPW and other stakeholders in delivering Graiguenamanagh-Tinnahinch Flood Relief Scheme under the South Eastern CFRAM Programme, whilst ensuring heritage considerations inform the design of proposed works and to ensure development maximises the protection of the integrity of the historical settlement.	W4 W2 W1			B1 B2 B3 B4 B5 P1 P6 LS2 LS1 W2 W1 C1 C3 CH1 L1 A3 A4 M1 M3 M4 M5 P2 P3 P4 P5 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7 W3
INFO3.2: To manage flood risk in Graiguenamanagh-Tinnahinch in accordance with the requirements of the Planning System and Flood Risk Management Guidelines for Planning Authorities, DECLG and OPW (2009) and Circular PL02/2014 (August 2014).	W4 W2 W1			B1 B2 B3 B4 B5 P1 P6 LS2 LS1 C1 C3 CH1 L1 A3 A4 M1 M3 M4 M5 P2 P3 P4 P5 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7 W3
INFO3.3: To ensure development proposals within the areas outlined on the Flood Risk Map are the subject of Site-Specific Flood Risk Assessment, appropriate to the nature and scale of the development being proposed.	W4 W2 W1			B1 B2 B3 B4 B5 P1 P6 LS2 LS1 C1 C3A3 A4 CH1 L1 M1 M3 M4 M5 P2 P3 P4 P5 W3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7 LS3
INFO3.4: To require the preparation of Drainage Impact Assessments, in line with the SFRA for this Draft Joint LAP, for all development proposals within the plan area and to consider sustainable drainage and natural water retention measures. To identify any measures, such as natural water retention measures that can have benefits for Water Framework Directive, flood risk management and biodiversity objectives.	W2 W1 W5 W4			B1 B2 B3 B4 B5 LS2 LS1 P1 P6 C1 C3 CH1 L1 A3 A4 M1 M3 M4 M5 P2 P3 P4 P5 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7 W3
INFO4.1 To support and facilitate the provision of telecommunications infrastructure, including broadband, in Graiguenamanagh-Tinnahinch, subject to safety,	B1 B2 B3 B4 B5 P1 P6 L1 M1 M3 M4 M5			W2 W1 W5 W4 C1 C3 CH1 A3 A4 LS2 LS1 P2 P3 P4 P5 LS3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7 W3

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<p>environmental and amenity requirements.</p>				
<p>INFO4.2 To promote and encourage the use of renewable energy technologies in existing and proposed building stock within the Draft Joint LAP area subject to consideration of environmental, conservation and visual requirements.</p>	<p>B1 B2 B3 B4 B5 P1 P6 LS2 C1 C3 L1 M1 M3 M4 M5 A2 C5 M6 C2 C4 M2 M7</p>			<p>LS1 W2 W1 W5 W4 A3 A4 CH1 P2 P3 P4 P5 W3 LS3 A1 A5 A6</p>
<p>INFO 4.3: It is an objective of the Council that future development proposals/initiatives within Graiguenamanagh-Tinnahinch will seek to comply with Climate Action Policies and Objectives in the Kilkenny and Carlow Development Plans, to facilitate the transition to a low carbon and climate resilient society through the encouragement and integration of appropriate mitigation and adaptation considerations and measures into all development.</p>	<p>A1 A2 A3 A4 A5 A6 C1 C2 C3 C4 C5</p>			<p>P1 P2 P3 P4 P5 P6 W1 W2 W3 W4 W5 LS1 LS2 LS3 M1 M2 M3 M4 M5 M6 CH1 L1 B1 B2 B3 B4 B5</p>
<p>NHO1.1: To identify, protect, conserve and enhance wherever possible, wildlife habitats and species of local importance, not otherwise protected by legislation. Such habitats would include woodland, river, grassland areas and field boundaries (hedgerows, stone walls and ditches). Such features form part of a network of habitats and corridors, which allow wildlife to exist and flourish and contribute to compliance with Article 10 of the Habitats Directive.</p>	<p>B1 B2 B3 B4 B5 P1 P6 LS2 W1 W2 W5 L1</p>			<p>LS1 W4 C1 C3 CH1 M1 M3 M4 M5 A3 A4 P2 P3 P4 P5 W3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7</p>
<p>NHO 1.2: Support the protection of biodiversity and ecological connectivity within the plan area including woodlands, trees, hedgerows, roadside verge vegetation, rivers, streams, natural springs, wetlands, stonewalls, fens, geological and geomorphological systems, other landscape features and associated wildlife, where these form part of the ecological network. Seek to retain and incorporate these natural features into developments, in order to avoid ecological fragmentation and maintain ecological corridors or stepping</p>	<p>B1 B2 B3 B4 B5 P1 P6 L1 LS2 W1 W2 W5 LS3</p>			<p>CH1 A3 A4 M1 M3 M4 M5 W4 C1 C3 LS1 P2 P3 P4 P5 W3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7</p>

<p>stones in the context of Article 10 of the Habitats Directive:</p> <p>a) Seek to retain and incorporate these natural features into developments, in order to avoid ecological fragmentation and maintain ecological corridors and stepping stones.</p> <p>b) Protect and enhance the water quality and ecology of the River Barrow, in the plan area and their function as ecological corridors, by maintaining the existing banks and channel.</p> <p>c) Maintain and enhance biodiversity through the appropriate planting of native trees, shrubs and hedgerows indigenous to the area and of Irish provenance in public and private areas and in new developments.</p> <p>d) Seek to prevent inappropriate development along the banks of the river which would negatively impact on the ecological quality and biodiversity of the waters and ecological corridor.</p> <p>e) Seek to prevent the introduction of imported ash trees/plants or other such species into the plan area in line with the Plant Health Directive and any updated legislation.</p> <p>f) In order to protect light sensitive species such as crayfish, lighting fixtures should provide only the amount of light necessary for personal safety and should be designed so as to avoid creating glare or emitting light above a horizontal plane.</p>				
<p>NHO1.3: To ensure the protection of water quality due to the implementation of this Draft Joint LAP.</p>	<p>B1 B2 B3 B4 B5 LS2 W1 W2 W5 L1 W3</p>			<p>LS1 W4 A3 A4 CH1 M1 M3 M4 M5 C1 C3 P2 P3 P4 P5 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7 LS3</p>
<p>NHO1.4: To limit the removal of vegetation and/or alteration of bank characteristics by reserving land along the river bank</p>	<p>B1 B2 B3 B4 B5 W1 LS1</p>			<p>P1 P2 P3 P4 P5 P6 W2 W3 W4 W5 LS2 LS3 A1 A2 A3</p>

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<p>for ecological corridors and maintain them free from inappropriate development and discourage culverting or realignment. The Planning Authorities shall consult with Inland Fisheries Ireland and other statutory bodies as required by the planning regulations in respect of this and shall have regard to their comments in the making of any planning decision.</p>				<p>A4 A5 A6 C1 C2 C3 C4 C5 M1 K2 M3 M4 M5 M6 M7 CH1 L1</p>
<p>NHO1.5: To work with Inland Fisheries Ireland and the OPW to, subject to appropriately considering implications for flood risk and complying with the Habitats Directive, remove barriers to fish movement as part of any instream development works in the Duiske River</p>	<p>B1 B2 B3 B4 B5 W1 W 2 W4 W3</p>			<p>P1 P2 P3 P4 P5 W5 LS1 LS2 LS3 A1 A2 A3 A4 A5 A6 C1 C2 C3 C4 C5 M1 M2 M3 M4 M5 M6 M7 CH1 L1</p>
<p>NHO1.6: It is an objective to consider guidance by Inland Fisheries Ireland on planning for watercourses in the urban environment, particularly in relation to riparian buffer zones.</p>	<p>B1 B2 B3 B4 B5 W1 W2 W3 W4 W5 LS1</p>			<p>P1 P2 P3 P4 P5 P6 LS2 LS3 A1 A2 A3 A4 A5 A6 C1 C2 C3 C4 C5 C6 M1 M2 M3 M4 M5 M6 M7 CH1 L1</p>
<p>SRVO1.1: To protect the visual amenity and character of scenic routes and views in Graiguenamanagh-Tinnahinch and its hinterland as identified in the Kilkenny and Carlow County Development Plans.</p>	<p>L1</p>			<p>B1 B2 B3 B4 B5 P1 P6 LS2 LS1 W1 W2 W5 W4 A3 A4 C1 C3 CH1 M1 M3 M4 M5 P2 P3 P4 P5 W3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7 LS3</p>
<p>SRVO1.2: To require a Visual Impact Assessment of proposals for development that may impact the special character and visual amenity of scenic routes and views as part of the planning application process. Prohibit development that will block or interfere with a significant view or prospect. Where it is considered that a development may impact on views or prospects, have regard to the significance of any such impact and any appropriate mitigation measures that should be incorporated.</p>	<p>L1</p>			<p>B1 B2 B3 B4 B5 P1 P6 LS2 LS1 W1 W2 W5 W4 A3 A4 C1 C3 CH1 M1 M3 M4 M5 P2 P3 P4 P5 W3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7 LS3</p>
<p>SRVO1.3: Protect the landscape character in the plan area</p>	<p>L1 LS3</p>			<p>B1 B2 B3 B4 B5 P1 P6 LS2</p>

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	included in the Landscape Character Assessment for County Kilkenny and Carlow. Ensure that new developments are responsive to the high and special sensitivity landscapes within the plan area, visually vulnerable areas, elevated areas or locally important townscape contexts.				LS1 W4 W1 W2 W5 C1 C3 CH1 M1 M3 M4 M5 P2 P3 P4 P5 W3 A1 A2 A5 A6 C2 C4 C5 M2 M6 M7
11	MPO1.1: To prepare a masterplan for the lands within the ownership of 'The Hub' Activity Centre, Graiguenamanagh in co-operation with relevant stakeholders, and to actively secure the implementation of these plans and the achievement of specific objectives.	P1			B1 B2 B3 B4 B5 P2 P3 P4 P5 P6 W1 W2 W3 W4 W5 LS1 LS2 LS3 A1 A2 A3 A4 A5 A6 C1 C2 C3 C4 C5 M1 M2 M3 M4 M5 M6 M7 CH1 L1
	MPO1.2: To require the preparation of a masterplan for the lands identified 'Masterplan 2' along the River Barrow, Tinnahinch in co-operation with all stakeholders and to actively secure the implementation of these plans and the achievement of specific objectives.	P1			B1 B2 B3 B4 B5 P2 P3 P4 P5 P6 W1 W2 W3 W4 W5 LS1 LS2 LS3 A1 A2 A3 A4 A5 A6 C1 C2 C3 C4 C5 M1 M2 M3 M4 M5 M6 M7 CH1 L1
12	DEVO1.1: To encourage the appropriate development and redevelopment of lands within the Draft Joint LAP area subject to compliance with the relevant development management standards of the Kilkenny CDP and Carlow CDP.	B1 B2 B3 B4 B5 P1 P6 CH1 L1 M1 M3 M4 M5 A3 A4 LS2 LS1 C1 C3 W2 W1 W5 W4 P2 LS3			P3 P4 W3 C2 C4 C5 M2 M6 M7 P5 A1 A2 A5 A6

6.2 Summary of assessment

It is worth reiterating that the process of SEA and Plan formulation is an iterative one and as such environmental considerations have informed all stages of plan preparation carried out to date in order for the potential for significant adverse effects arising from implementation of the development objectives to be minimised.

Therefore, as can be seen, no development objectives are predicted to have a significant adverse impact. However, a number of development objectives are predicted to have an uncertain impact. Mitigation measures to lessen any possible impacts are outlined in Chapter 7 of this report.

7 Mitigation Measures

Mitigation measures are measures envisaged to prevent, reduce and, as fully as possible, offset any significant adverse impacts on the environment of implementing the development objectives. Mitigation has taken place throughout the plan-making process.

Mitigation took place through the consideration of alternatives, as environmental considerations (as outlined in Chapter 3) were communicated to the Planning team to enable them to make an informed choice as to which alternative was put before the Members of both Councils. Mitigation also took place through the Strategic Flood Risk Assessment where land was rezoned to ensure no inappropriate uses would be considered on land which was subject to flood risk. A detailed description of all the zoning changes as a result of the SFRA is included in Section 2 of the SFRA, see Appendix 1.

Environmental considerations were also communicated to the Planning team throughout the plan-making process. This allowed the team to integrate these considerations into the text and maps of the Plan. A key decision from the outset was for the most part, that mitigation measures would be incorporated into each section of the Plan as “Development Management Standards”.

The two main exceptions to this are the Objectives in relation to the Habitats Directive and Flooding. The objective for European sites is set out in Section 1.5 Appropriate Assessment of the Plan. This objective ensures that any plan or project is subject to appropriate assessment in order to avoid adverse impacts on any European sites. The objective in relation to flooding is set out in Chapter 10 of the Plan and this ensures that a comprehensive risk-based planning approach to flood management will take place to prevent or minimise flood risk.

As outlined in Chapter 6, no development objectives have been identified as having significant adverse impacts, and given this, the requirement for specific mitigation measures is largely unnecessary. However, a number of development objectives are predicted to have uncertain impacts. Uncertain impacts require mitigation to ensure that significant adverse impacts do not occur. Therefore, this section of the Environmental Report will focus on and discuss how the SEA objectives will be protected through mitigation of any uncertain effects.

7.1 Mitigation of environmental problems as identified

Section 3 of this report set out the current state of the environment, and a number of environmental problems were identified. As a result of the process of SEA, specific mitigation measures have been included in the Plan to address these problems as follows:

- A section was included in Chapter 8 Heritage in relation to the National Survey of Native Woodlands and Ancient Woodlands and the site is identified on Figure 7.2 Natural Heritage of the Plan as a site of local conservation interest.

7.2 Development objectives

A number of development objectives have been identified as having uncertain impacts on the SEA objectives. These are outlined below, with a discussion of the possible effects, and how the mitigation measures to be included in the Plan will ensure no significant adverse impact.

Chapter 4	
Development Objective	Uncertain effects on SEA objective
To support and facilitate development on zoned lands at appropriate locations and deliver at least 30% of all new homes within the existing built-up footprints in Graiguenamanagh and Tinnahinch to satisfy the housing needs of the settlement over the period of the Plan.	P5, LS2, LS3
Mitigation included in Plan: See Chapters 1, 8 and 10 The promotion of sites in need of regeneration may lead to conflicts with environmental considerations. There are numerous mitigation measures included in the Plan however to ensure no negative effects. This includes objectives and development management standards in relation to natural and cultural heritage (Chapter 8) and water quality (Chapter 10). Therefore, any adverse effects are unlikely.	
Chapter 4	
Development Objective	Uncertain effects on SEA objective
To implement the zoning objectives set out in Appendix A of this Draft Joint LAP	LS2, LS3
Mitigation included in Plan: See Chapters 1, 8 and 10 The promotion of sites in need of regeneration may lead to conflicts with environmental considerations. There are numerous mitigation measures included in the Plan however to ensure no negative effects. This includes objectives and development management standards in relation to natural and cultural heritage (Chapter 8) and water quality (Chapter 10). Therefore, any adverse effects are unlikely.	
Chapter 4	
Development Objective	Uncertain effects on SEA objective
To manage the provision of one-off housing on lands zoned as 'Agriculture'. Limited one-off housing will be permitted in accordance with the policy set out under Section 6.4 of Kilkenny County Development Plan 2014-2020 and Section 2.7 of Carlow County Development Plan 2015-2021 or as maybe amended in any subsequent reviews.	LS1, LS3
Mitigation included in Plan: See Chapters 1, 8 and 10 The promotion of sites in need of regeneration may lead to conflicts with environmental considerations. There are numerous mitigation measures included in the Plan however to ensure no negative effects. This includes objectives and development management standards in relation to natural and cultural heritage (Chapter 8) and water quality (Chapter 10). Therefore, any adverse effects are unlikely.	
Chapter 5	
Development Objective	Uncertain effects on SEA objective
To encourage and facilitate the re-use and regeneration of vacant or underused buildings for appropriate town centre uses through incentives such as Small Business Vacant Premises Scheme.	P5
Mitigation included in Plan: See Chapters 1, 8 and 10 The promotion of sites in need of regeneration may lead to conflicts with environmental considerations. There are numerous mitigation measures included in the Plan however to ensure no negative effects. This includes objectives and development management standards in relation to natural and cultural heritage	

(Chapter 8) and water quality (Chapter 10). Therefore, any adverse effects are unlikely.	
Chapter 5	
Development Objective	Uncertain effects on SEA objectives
To improve the accessibility of the town centre with particular emphasis on creating an environment that is accessible to pedestrians and cyclists through improved parking and pedestrian facilities.	P5
Mitigation included in Plan: See Chapters 1, 8 and 10 Improvements to the existing settlement may lead to conflicts with environmental considerations. There are numerous mitigation measures included in the Plan however to ensure no negative effects. This includes objectives and development management standards in relation to natural and cultural heritage (Chapter 8) and water quality (Chapter 10). Therefore, any adverse effects are unlikely.	
Chapter 6	
Development Objective	Uncertain effects on SEA objectives
To support and facilitate improvements to existing educational, childcare and community facilities within the Graiguenamanagh-Tinnahinch LAP area.	P3
Mitigation included in Plan: See Chapters 1, 8 and 10 The need to improve/provide additional facilities may lead to conflicts with environmental considerations. There are numerous mitigation measures included in the Plan however to ensure no negative effects. This includes objectives and development management standards in relation to natural and cultural heritage (Chapter 8) and water quality (Chapter 10). Therefore, any adverse effects are unlikely.	
Chapter 6	
Development Objective	Uncertain effects on SEA objectives
To support and facilitate the refurbishment of the existing Parish Hall in Graiguenamanagh during the Plan period.	C2
Mitigation included in Plan: See Chapters 1, 8 and 10 The promotion of sites in need of regeneration may lead to conflicts with environmental considerations. There are numerous mitigation measures included in the Plan however to ensure no negative effects. This includes objectives and development management standards in relation to natural and cultural heritage (Chapter 8) and water quality (Chapter 10). Therefore, any adverse effects are unlikely.	
Chapter 6	
Development Objective	Uncertain effects on SEA objectives
To support and facilitate the refurbishment and expansion of the existing library facility in Graiguenamanagh during the Plan period.	C2
Mitigation included in Plan: See Chapters 1, 8 and 10 The promotion of sites in need of regeneration may lead to conflicts with environmental considerations. There are numerous mitigation measures included in the Plan however to ensure no negative effects. This includes objectives and development management standards in relation to natural and cultural heritage (Chapter 8) and water quality (Chapter 10). Therefore, any adverse effects are unlikely.	
Chapter 6	
Development Objective	Uncertain effects

	on SEA objectives
To ensure that sufficient zoned land is available at appropriate locations in Graiguenamanagh-Tinnahinch to satisfy the housing needs of the settlement over the period of the plan.	P5
Mitigation included in Plan: See Chapters 1, 8 and 10 The development of additional land may lead to conflicts with environmental considerations. There are numerous mitigation measures included in the Plan however to ensure no negative effects. This includes objectives and development management standards in relation to natural and cultural heritage (Chapter 8) and water quality (Chapter 10). Therefore, any adverse effects are unlikely.	
Chapter 6	
Development Objective	Uncertain effects on SEA objectives
To identify vacant sites in the settlement for regeneration and housing and establish and maintain a register of vacant sites (entitled the vacant sites register) in the plan area for the purpose of the Vacant Site Levy (Urban Regeneration and Housing Act 2015).	P2
Mitigation included in Plan: See Chapters 1, 8 and 10 The promotion of sites in need of regeneration may lead to conflicts with environmental considerations. There are numerous mitigation measures included in the Plan however to ensure no negative effects. This includes objectives and development management standards in relation to natural and cultural heritage (Chapter 8) and water quality (Chapter 10). Therefore, any adverse effects are unlikely.	
Chapter 7	
Development Objective	Uncertain effects on SEA objectives
New residential development is required to be consistent with standards set out in the Kilkenny and Carlow County Development Plan where playable space is to be provided as an integral part of each new development. This playable space can form part of the overall open space provision of a development but must be dedicated to play and must be accessible in accordance with the standards in the relevant County Development Plan.	P5
Mitigation included in Plan: See Chapters 1, 8 and 10 The development of additional land may lead to conflicts with environmental considerations. There are numerous mitigation measures included in the Plan however to ensure no negative effects. This includes objectives and development management standards in relation to natural and cultural heritage (Chapter 8) and water quality (Chapter 10). Therefore, any adverse effects are unlikely.	
Chapter 9	
Development Objective	Uncertain effects on SEA objectives
To improve the pedestrian and cyclist environment and promote ease of movement within the settlement to include facilities for older people. Direct, attractive, well-lit and overlooked linkages between community, education, retail and recreational facilities will encourage the residents and visitors to the settlement to walk rather than using unsustainable modes of transport.	A1
Mitigation included in Plan: See Chapters 1, 8 and 10 The need to improve/provide additional facilities may lead to conflicts with environmental considerations. There are numerous mitigation measures included in the Plan however to ensure no negative effects. This includes objectives and development management standards in relation to natural and cultural heritage (Chapter 8)	

and water quality (Chapter 10). Therefore, any adverse effects are unlikely	
Chapter 9	
Development Objective	Uncertain effects on SEA objectives
To provide an enhanced pedestrian and cycle network in Graiguenamanagh-Tinnahinch including the provision of footpath improvements to ensure ease of access to public transport, the town centre, heritage sites and other recreational facilities.	A1
Mitigation included in Plan: See Chapters 1, 8 and 10 The need to improve/provide additional facilities may lead to conflicts with environmental considerations. There are numerous mitigation measures included in the Plan however to ensure no negative effects. This includes objectives and development management standards in relation to natural and cultural heritage (Chapter 8) and water quality (Chapter 10). Therefore, any adverse effects are unlikely	
Chapter 9	
Development Objective	Uncertain effects on SEA objectives
To support the delivery of local permeability improvements and provide for the development of an independent footbridge between Graiguenamanagh and Tinnahinch to maximise access to local shops, schools, public transport services and other amenities in consultation with local stakeholders, subject to relevant environmental assessments, in accordance with best practice guidance from the NTA	C2
Mitigation included in Plan: See Chapters 1, 8 and 10 The need to improve/provide additional facilities may lead to conflicts with environmental considerations. There are numerous mitigation measures included in the Plan however to ensure no negative effects. This includes objectives and development management standards in relation to natural and cultural heritage (Chapter 8) and water quality (Chapter 10). Therefore, any adverse effects are unlikely	

8 Plan Monitoring

The SEA Directive requires Member states to monitor the significant environmental effects of the implementation of plans. This section puts forward proposals for monitoring the Plan. Monitoring of the Plan enables the identification of unforeseen adverse effects and the undertaking of appropriate remedial action. Existing monitoring arrangements may be used if appropriate, to avoid duplication of monitoring. The Councils are responsible for monitoring and if necessary, the carrying out of corrective action.

The SEA [Guidelines](#) state that monitoring must be linked to earlier stages in the SEA process, in particular to the environmental objectives and issues identified during the preparation of the Environmental Report. It is proposed to base monitoring on a series of indicators which measure changes in the environment, especially changes which are critical in terms of environmental quality, for example water or air pollution levels.

The indicators aim to simplify complex interrelationships and provide information about environmental issues which is easy to understand. A list of environmental indicators and targets is provided in Table 8.1. The indicators are based on the Strategic Environmental Objectives presented in Chapter 4. Measurements for indicators generally come from existing monitoring sources. Existing monitoring sources include those maintained by the Councils and the relevant authorities e.g. the Environmental Protection Agency, the National Parks and Wildlife Service and the Central Statistics Office. The sources of information are also identified in Table 8.1.

Environmental indicator assessment during monitoring can show positive/neutral impacts or negative impacts on the environment. Where an indicator value highlights a positive/neutral impact on the environment, it is likely that the objectives of the Plan are well defined with regard to the environment. Conversely where the objectives of the Plan have a negative impact on the environment, it may be necessary to review the objectives of the Plan or to take some other form of intervention. For example, if an objective is having a significant adverse impact, an amendment may be considered during the lifetime of the Plan.

The Monitoring Programme focuses on issues relating to the potential significant environmental effects identified by the SEA. Furthermore, as the mitigation has been integrated into the Plan, it must be implemented. In addition to addressing each of the indicators as they relate to the potential significant environmental effects identified by the SEA, reporting on SEA Monitoring will also address the implementation of mitigation measures.

Table 8.1 Monitoring proposals for environmental categories

Environmental Category	Targets	Selected indicators	Data Sources	Monitoring frequency
Biodiversity -Flora and Fauna	No loss of important and/or designated habitats	Number of sites.	Kilkenny County Council/Carlow County Council/National Parks and Wildlife Service/Fisheries Board	Ongoing depending on available information from relevant statutory authorities
	No deterioration in the quality of protected areas	Overall conservation status of habitats in Co. Kilkenny and Co. Carlow	The NPWS; For all European sites: Report on Overall Conservation Status of Habitats in Ireland listed under the Habitats Directive (NPWS).	Every 6 years
	No loss of protected species	Overall conservation status of species in Co. Kilkenny and Co. Carlow, distribution of protected species in Co. Kilkenny and Co. Carlow	NPWS, Report on Overall Conservation Status of Habitats in Ireland listed under the Habitats Directive. National Biodiversity Data Centre	Every 6 years
	No spread of invasive species within the Plan area	Numbers of new cases identified over 2014 levels	National Biodiversity Data Centre	Ongoing depending on available information
Population and Human health	No loss of population within Plan area	Total population within settlement boundary	Census	Next Census
Water	No decline in river water quality; no increase in percentage of sample stations in seriously polluted rivers.	Percentage of sample stations in seriously polluted rivers.	EPA Reports on River water quality	Ongoing depending on available information
	No decline in estuarine water quality; no decline in status of estuarine waters from current status (good or moderate)	Status of estuarine waters	EPA	Ongoing depending on available information
	No decline in surface water quality; no decline in status of surface waters from current status	Status of surface water	EPA	Ongoing depending on available information
	No decline in groundwater quality; no decline in status of groundwater from current status	Status of groundwater	EPA	Ongoing depending on available information

	No reduction in processing of waste water and treated effluent quality; no failure of Graiguenamanagh plant in EPA reports.	Pass or Fail status of Graiguenamanagh plant in EPA reports on Urban Waste Water Treatment.	EPA	Ongoing depending on publication of reports
	Improvement in quality of drinking water; no Scheme being included on the EPA's Remedial Action List.	Inclusion/not being included on the EPA's Remedial Action List.	EPA	Publication of EPA's Remedial Action List
	Improvement in application of groundwater protection scheme	No significant increase in number of septic tanks permitted within the Plan area	Kilkenny County Council/Carlow County Council	Periodic review
Air	Increase in proportion of people using sustainable transport	Proportion of people walking, cycling or using public transport to get to school or work.	Census	Next Census
	No decrease in air quality; no exceedances in Nitrogen Dioxide and Ozone.	Exceedances in Nitrogen Dioxide and Ozone.	EPA	Ongoing depending on publication of reports
Cultural Heritage (architectural and archaeological)	Increase, or maintenance of the number of structures listed on the RPS; no reduction of the number of protected structures over that listed in 2009 Graiguenamanagh Plan and 2010 Tinnahinch Plan	Number of protected structures.	Kilkenny County Council/Carlow County Council	Periodic review