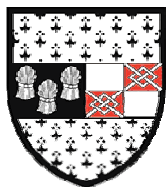


Strategic Environmental Assessment of Kilkenny Draft City & Environs Development Plan 2014-2020



Kilkenny Borough and
Kilkenny County Council
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Appendix 1: Strategic Flood Risk Assessment

Non-technical Summary

Section 1 Introduction and Terms of Reference

This is the Non-Technical Summary of the Environmental Report (ER) of the Kilkenny Draft City & Environs Development Plan. The purpose of the ER is to provide a clear understanding of the likely environmental consequences of decisions regarding the future development of Kilkenny.

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 within Kilkenny. The output of the process is an ER and SEA Statement, both of which should be read in conjunction with the Development Plan.

How does it work?

All of the main environmental issues in Kilkenny 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 are 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?

On 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 County and Borough Councils 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. Demographic and Socio-Economic Trends
3. Core Strategy
4. Economic Development
5. Housing and Community
6. Recreation, Tourism & the Arts
7. Heritage
8. Infrastructure & Environment
9. Renewable Energy Strategy
10. Transport
11. Requirements for Developments

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 and may, in turn, guide lower level strategic plans. The higher level plans include the following:

- [National Climate Change Adaptation Framework](#)¹
- [National Spatial Strategy](#) (NSS)²
- [National Recovery Plan 2011-2014](#)³
- [Our Sustainable Future – A Framework for Sustainable Development for Ireland](#)⁴
- [Smarter Travel, A sustainable Transport Future, A new transport policy for Ireland 2009-2020](#) (2009)
- Ministerial Guidelines on [Architectural Heritage Protection](#), [Childcare Facilities](#), [Development Plans](#), [Landscapes](#), [The Planning System and Flood Risk Management](#), [Retail Planning](#), [Strategic Environmental Assessment](#), [Sustainable Residential Development in Urban Areas](#)
- [Food Harvest 2020, A vision for Irish agri-food and fisheries](#)⁵
- [South East River Basin Management Plan](#)⁶
- [Kilkenny 2002-2012, A Strategy for Economic, Social and Cultural Development](#)⁷
- The [South East Regional Planning Guidelines](#)⁸ (RPGs)

The Plan will set the strategic context for any lower-tier plans, such as Local Area Plans (LAPs) to be prepared in the city. An LAP is in place for Loughmacask. LAPs were also published for the Western Environs and the City Centre, and these LAPs are being incorporated into the Plan.

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

² Department of the Environment and Local Government, [The National Spatial Strategy 2002-2020, People, Places and Potential](#), 2002

³ Stationery Office Dublin, [The National Recovery Plan 2011-2014](#), 2011

⁴ Government of Ireland, [Our Sustainable Future – A Framework for Sustainable Development for Ireland](#), 2012

⁵ Department of Agriculture, Food and the Marine, [Food Harvest 2020, A vision for Irish agri-food and fisheries](#), 2010

⁶ South Eastern River Basin District, [South East River Basin Management Plan](#), 2010

⁷ Kilkenny County Development Board, [Kilkenny 2002-2012, A Strategy for Economic, Social and Cultural Development](#), 2002

⁸ South East Regional Authority, [Regional Planning Guidelines for the South East Region 2010-2022](#), 2010

Section 3 The Environmental Baseline

3.1 Introduction

The environmental baseline of Kilkenny City 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 framework or guidance for development within Kilkenny. 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 zoning 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 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, such as energy infrastructure, that the city requires.

8. Cultural Heritage (architectural and archaeological)

The Plan includes a review of the Record of Protected Structures and Architectural Conservation Areas. If this were not to occur, cultural heritage would not be protected to the fullest extent possible, as additions to either the RPS or ACAs would not be carried out.

9. Landscape

In the absence of protected views, development would occur with no regard for its impact on important linkages between the city's historical and cultural landmarks.

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 Planning Scheme.

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.

Environmental Parameter	International, European, National policy documents/strategies /guidelines	No.	Objective (EPO)	Broad Planning Objective (PPO)	Policy
Biodiversity, fauna and flora	EU Habitats Directive (92/43/EEC) EU Birds Directive (79/409/EEC) UN Convention on Biological Diversity Actions for Biodiversity 2011-2016, Ireland's National Biodiversity Plan (2011)	B1	Protect, and where appropriate, enhance biodiversity, particularly protected areas and protected species.	Protect designated sites: SAC, NHAs and SPA from development. Identify locally important habitats for protection. Provide for green infrastructure. Concentrate development in areas with least sensitivities.	
Population and Human Health	Agenda 21 (1992) Our Sustainable Future: A framework for sustainable development for Ireland (2012) The National Spatial Strategy (2002) Smarter Travel, A sustainable Transport Future, A new transport policy for Ireland 2009-2020 (2009)	P1	Improve people's quality of life based on high-quality residential, working and recreational environments and on sustainable travel patterns.	Provide adequate supply of zoned land for all uses in compliance with the National Spatial Strategy, and Regional Planning Guidelines. Promote higher density residential development in suitable locations. Promote sustainable transport patterns through appropriate zoning and provision for public transport. Require appropriate levels of recreational areas with any residential application.	
	Directive 2002/49/EC of 25 June 2002 relating to the assessment and management of environmental noise Directive 96/62/EC – Air Quality Framework Directive	P2	Minimise noise, vibration and emissions from traffic	Require noise controls with all relevant applications. Promote sustainable transport patterns through appropriate zoning and provision for public transport.	
Soil	A Resource Opportunity, Waste Management Policy in Ireland ⁹ .	S1 S2	Maintain the quality of soils Maximise the sustainable re-use of brownfield lands, and maximise the use of the existing	Direct development to brownfield lands in preference to developing greenfield lands.	

⁹ Department of the Environment, Community and Local Government, [A Resource Opportunity, Waste Management Policy in Ireland](#), 2012

			built environment rather than developing greenfield lands.	
		S3	Minimise the consumption of non-renewable sand, gravel and rock deposits	Encourage rehabilitation of existing housing stock where appropriate.
		S4	Minimise the amount of waste to landfill	Provide appropriate waste disposal facilities, including for composting and recycling in all developments.
Water	EU Water Framework Directive (2000/60/EC) EU Directive on the assessment and management of flood risks [2007/60/EC], The Planning System and Flood Risk Management Guidelines for Planning Authorities (2009)	W1	Protect and enhance the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems.	Provide for appropriate waste water treatment and disposal, in serviced urban areas and from septic tanks. Provide sufficient capacity in water services to serve zoned land. Include Strategic Flood Risk Assessment as part of the Plan.
		W2	Promote sustainable water use based on a long-term protection of available water resources.	
		W3	Reduce progressively discharges of polluting substances to waters	
		W4	To comply as appropriate with the provisions of The Planning System and Flood Risk Management Guidelines for Planning Authorities	
Air	Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive (2008/50/EC)	A1	Reduce all forms of air pollution	Promote energy efficient developments. Promote sustainable transport patterns through appropriate zoning and provision for public transport.
Climatic factors	National Climate Change Adaptation Framework (2012)	C1	Reduce waste of energy, and maximise use of renewable energy sources	Promote energy efficient developments. Promote sustainable transport patterns through appropriate zoning and provision for public

		C2	Minimise emissions of greenhouse gases to contribute to a reduction and avoidance of human-induced global climate change	transport. Include a climate change adaptation strategy.
		C3	Reduce the need to travel	
		C4	Assess, plan and manage adaptation to climate change impacts	
Material Assets	Our Sustainable Future: A framework for sustainable development for Ireland (2012)	M1	Make best of use of existing infrastructure and promote the sustainable development of new infrastructure.	Direct development to brownfield lands in preference to developing greenfield lands. Encourage rehabilitation of existing housing stock/buildings where appropriate.
Cultural Heritage (architectural and archaeological)	European Convention on the Protection of Archaeological Heritage (1992) and Framework and Principles for the Protection of the Archaeological Heritage (1999) and Architectural Heritage Protection Guidelines (2004)	H1	Promote the protection and conservation of the cultural heritage, including architectural and archaeological heritage	To conserve and protect the archaeological heritage with regard to entries on the RMP. To conserve and protect the special interest and character of the architectural heritage with regard to the RPS, the NIAH and ACAs.
Landscape	The European Convention on Landscape, 2000 and A National Landscape Strategy for Ireland Strategy Issues paper for consultation (2011)	L1	Conserve and enhance valued natural and historic landscapes, their character and features within them.	Avoid the loss of designated views.

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 Kilkenny. The [Regional Planning Guidelines](#) have allocated a projected population growth figure for the county, which must be adhered to. This population projection is translated into a housing land requirement, or a ‘pot’ of zoned land, which must be distributed in the county. The RPGs have specified what

allocation must be directed to Kilkenny as a hub. Three alternatives were considered, each focusing on a different distribution of this growth.

Alternative 1: Focus on Loughmacask and Western Environs

Alternative 1 continues to concentrate growth into the two neighbourhoods of Loughmacask and the Western Environs, with no growth being allocated elsewhere. This alternative concentrates populations into locations where there are existing Local Area Plans in place to provide for future residential and commercial development, linked to infrastructural provision. Investment in key infrastructure can be concentrated into these two small areas.

Alternative 2: Dispersed growth

This scenario is one in which the 'pot' of zoned land would be distributed throughout the city, around its fringes, 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.

Alternative 3: Consolidation of city and neighbourhoods

In this alternative, the 'pot' of zoned land is mainly allocated to the Loughmacask and Western Environs neighbourhoods, but growth is also encouraged in small parcels located throughout the remainder of the city. This alternative allows for the creation of new, well-planned neighbourhoods but also allows for infilling and consolidation in the remainder of the city.

4.2 Evaluation of Alternative Scenarios

This section summarises the evaluation of the Alternative Scenarios that is found in Section 5.5 of the Environmental Report.

Alternative 1: Focus on Loughmacask and Western Environs - Likely significant effects

Environmental impacts

This alternative concentrates populations into locations where there are existing Local Area Plans in place to provide for future residential and commercial development, linked to infrastructural provision. Investment in key infrastructure can be concentrated into these two small areas. Sustainable travel is promoted. Valuable natural resources such as water quality are protected through targeted infrastructural measures. The compact nature of development allows for efficient public transport links. The rural environment surrounding the city is protected with a clear demarcation between rural and urban areas.

Planning impacts

This alternative does not support any growth outside of these two neighbourhoods, which may lead to a population decline in the central city area.

Alternative 2: Dispersed growth

Environmental impacts

This piecemeal approach would likely result in an increase in lower density development around the fringes of the city. In the long-term, this would have a negative effect on the viability of public transport provision, with resulting effects on air quality and greenhouse gas emissions. The provision of key social and physical infrastructure such as parks and schools would be costly.

Planning impacts

As this alternative lacks a detailed plan-led approach, the provision of social and physical infrastructure such as schools and parks would not be tied to the development of housing. This may result in a services deficiency in these new residential areas.

Alternative 3: Consolidation of city and neighbourhoods

Environmental impacts

The compact nature of development allows for efficient public transport links. The rural environment surrounding the city is protected with a clear demarcation between rural and urban areas.

To protect the cultural heritage within the city, appropriate mitigation measures are necessary, particularly for infill and renewal sites.

Planning impacts

Population is increased within the Borough boundary as infill sites are utilised.

4.3 Selection of Preferred Alternative

Alternative 3: Consolidation of city and neighbourhoods emerges as the preferred alternative.

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.

4.4 Appropriate Assessment and Flood Risk Assessment

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. A monitoring report will be prepared as part of the Manager's Report on the implementation of the Development Plan, which must be carried out within two years of the making of the Plan.

1 Introduction

A review of the City & Environs Development Plan for Kilkenny (2008-2014) is being carried out by Kilkenny County and Borough Councils. This Plan will cover the City and its environs. A separate Development Plan will cover Kilkenny County. To satisfy the requirements of [European Directive 2001/42/EC](#)¹⁰, the Planning and Development (Strategic Environmental Assessment) (SEA) Regulations 2004 (as amended) require that an SEA is carried out on any development plan where the population (or target population) is more than 10,000 persons. The population of Kilkenny City and Environs is 24,423¹¹ therefore an SEA is required.

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](#)¹².

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
A. 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
B. 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
C. the environmental characteristics of areas likely to be significantly affected;	Chapter 3: Current state of the environment
D. any existing environmental problems which are relevant to the plan including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to the Birds Directive or Habitats Directive;	Chapter 3: Current state of the environment
E. the environmental protection objectives, established at international, European Union or national level, which are relevant to the	Chapter 4: Policy objectives

¹⁰ 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

¹¹ CSO, Census 2011 Population Classified by Area

¹² [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

plan and the way those objectives and any environmental considerations have been taken into account during its preparation;	
F. the likely significant effects ¹³ 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
G. 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
H. 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
I. a description of the measures envisaged concerning monitoring of the significant environmental effects of implementation of the plan;	Chapter 8: Development Plan Monitoring
J. 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 or review of a County Development Plan.

1.2.2 Scoping

A brief scoping report was prepared in July 2012 in accordance with the [SEA Guidelines for Regional and Planning Authorities](#)¹⁴. The purpose of the scoping report was to ensure the identification of relevant environmental issues so they could be addressed appropriately in the Environmental Report. The scoping report also indicated the level of detail necessary for the SEA of the Development Plan.

¹³ These effects should include secondary, cumulative, synergistic, short, medium and long-term, permanent and temporary, positive and negative effects.

¹⁴ 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

1.2.2.1 Consultation

In line with the Planning and Development (SEA) Regulations 2004 as amended¹⁵, the Environmental and Planning Authorities were given notice on the 15th June 2012 of the intention of Kilkenny County Council to carry out an environmental assessment.

A response was received from the EPA on the 12th July 2012, which included an 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, protection of the cSAC and flooding.

A response was received from the Department of Arts, Heritage and the Gaeltacht on the 13th July 2012 in relation to underwater archaeological heritage and to nature conservation.

The comments from both bodies 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

Public consultation regarding the Plan commenced in March 2012 with the publication of “*Our Plan – A Guide to having your say*” which detailed the review process of the Plans. The full pre-draft consultation process is outlined in the *Manager’s Report on the Pre-draft Stage* (November 2012).

Submissions from the public were invited between the 15th June and 24th August 2012. Two submissions were received in relation to the SEA, from An Taisce, ref. P18 and the Heritage Council, ref. P38. These submissions were addressed in the Manager’s Report, and the relevant extracts are summarised below.

¹⁵ Planning and Development Strategic Environmental Assessment (Amendment) Regulations 2011 S.I. 201 of 2011

Submission ref.	Summary	Manager's Opinion and Recommendation
An Taisce, Declan Murphy P18	1) Implement the policies related to heritage & environment which are not fully completed. 2) All policies must be proofed against climate change and biodiversity loss. 3) Proof plans against all national and EU laws & policies. 4) Subject plans to SEA & AA.	1) All policies will be reviewed as part of the new Plans and will be retained where appropriate. 2) This will be done as part of the Strategic Environmental Assessment. 3) This is required by law and will be done as part of SEA. 4) Plans will be subject to SEA & AA.
Heritage Council c/o Colm Murray P38	3) The Strategic Environmental Assessment (SEA) process could be improved by involving stakeholders and including a reporting format which reflects open dialogue. 4) An audit of the environmental performance of the previous development plan should be made available.	3) An SEA will be undertaken in line with the requirements of legislation and the Guidelines, which includes for consultation with the environmental authorities and for public consultation. Every effort will be made to ensure that this is a readable, accessible document. 4) The environmental indicators as included in the previous SEA were generally indicators that are regularly published, such as water quality indicators. Information on these indicators is available from a variety of sources. A review of how the Plan functioned will be carried out as part of the Environmental Report on the Draft.

Taking on board both submissions, this Report aims to be clear and easily accessible. It was found that it was difficult to obtain information on, and therefore monitor the indicators as selected in the previous SEA. In this SEA the indicators are selected with regard their relevance, and also to how practical it is to obtain the information.

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, 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.

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

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 Development Plan

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 SEA is an iterative process that takes place over many months (this stage is from March 2012 to May 2013) 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 used a combination of ‘policies’, ‘objectives’, ‘actions’ and ‘development assessment/management criteria’. This 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. One example from Chapter 8, Infrastructure and Environment is in relation to Section 8.2.7 Control of Major Accident Hazards Directive, where the objective is: “To control the following for the purposes of reducing the risk or limiting the consequences of a major accident:

- The siting of Major Accident Hazard sites
- The modification of an existing Major Accident hazard site

- Development in the vicinity of a major accident hazard site.”

This made the assessment clearer, and should lead to greater clarity in monitoring the effects of the Plan. ‘Development management standards’ were used to clearly set out what would be required to be satisfied as part of any planning application, so for the most part these were used as mitigation measures. An example of one of these in relation to CoMAH sites, is:

“The Councils will consult with the Health and Safety Authority when assessing proposals for development of, in or near sites which are identified under the COMAH (Seveso II) Directive.”

Another overall change, related to the above, is the use of ‘strategic aims’ to set out the overarching aim of each chapter. These strategic aims provide a standard against which every objective within the chapter is measured against.

Furthermore, specific changes to the text were introduced as a result of the SEA process. The detailed assessment of objectives led to the identification and removal of any inconsistencies. This affected objectives which were related to two separate chapters, such as objectives in relation to the Smithwick’s site (the former brewery site which is a major area of redevelopment in the city centre), which were included in Chapter 3 Core Strategy and Chapter 4 Economic Development. Another specific text change which came out of the SEA actually affected the County Plan, and that was the examination of the protected views in the City. As two of these could be significantly affected by development within the County, outside of the City, a reference to these two was included in the County Plan. Another specific change was the examination of the ACAs, which led to the identification of areas of overlap, and subsequent changes to the text and Figures in Chapter 8, Heritage. Finally, the examination in detail of the protected natural heritage sites in the city identified a change that should be made to the text of the Draft Plan in relation to Archersgrove NHA, to recognise that it is outside the development boundary of the City, but may still be affected by developments within the boundary.

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. As outlined in that SFRA, the zoning map for the city was subjected to various changes as a result of the SFRA’s justification test. These changes, and the changes to the text in Section 8.2.4 Flooding, are all documented in detail in the SFRA.

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

The lack of a centralised data source that could make all environmental baseline data for the City available in a consistent format posed a significant difficulty to the SEA process. Each aspect had to be examined in detail individually.

Also, there are some gaps in information available, for instance in relation to complete ecological coverage, e.g. habitats, trees, hedgerows etc. Other gaps include a lack of availability of detailed conservation management plans for the two Natura 2000 sites within the City. 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 County and Borough Councils are currently preparing the Kilkenny City & Environs Development Plan 2014-2020 (hereafter referred to as the Plan) which will replace the existing Development Plan for 2008-2014. The Plan is being prepared under the provisions of the Planning and Development Acts 2000-2010 to develop and improve the City & environs (hereafter referred to as the City) in a sustainable manner.

A separate Development Plan will cover Kilkenny County. The area to be included in the Plan is shown on Figure 2.1. There are four main neighbourhoods in the City; Eastern Environs, Loughboy, Western Environs and Loughmacask. The Eastern Environs and Loughboy are largely built out. There are two large brownfield sites available for redevelopment in the city centre at present; the Smithwick's site west of the River Nore, which was formerly a brewery, and the old mart site, east of the River Nore.

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

1. Introduction
2. Demographic and Socio-Economic Trends
3. Core Strategy
4. Economic Development
5. Housing and Community
6. Recreation, Tourism & the Arts
7. Heritage
8. Infrastructure
9. Renewable Energy Strategy
10. Transport
11. Requirements for Developments

As the Core Strategy included in Chapter 3 of the Plan outlines, the focus for new development will be in the neighbourhoods of Loughmacask and the Western Environs. The estimated population increase for the whole city and environs is 2,077.

2.2 Objectives

The main objectives and ethos of the Plan can be summarised in its Mission Statement (section 1.8) as follows:

“Kilkenny Local Authorities aim to work in partnership with the people of Kilkenny and relevant agencies to deliver quality services and to promote sustainable economic, social and cultural development for current and future generations.”

2.3 Relationship with other relevant plans and programmes

The Plan provides a land use framework for the sustainable development of Kilkenny City and Environs. The Plan will set the strategic context for any lower-tier plans, such as Local Area Plans to be prepared in the city. 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:

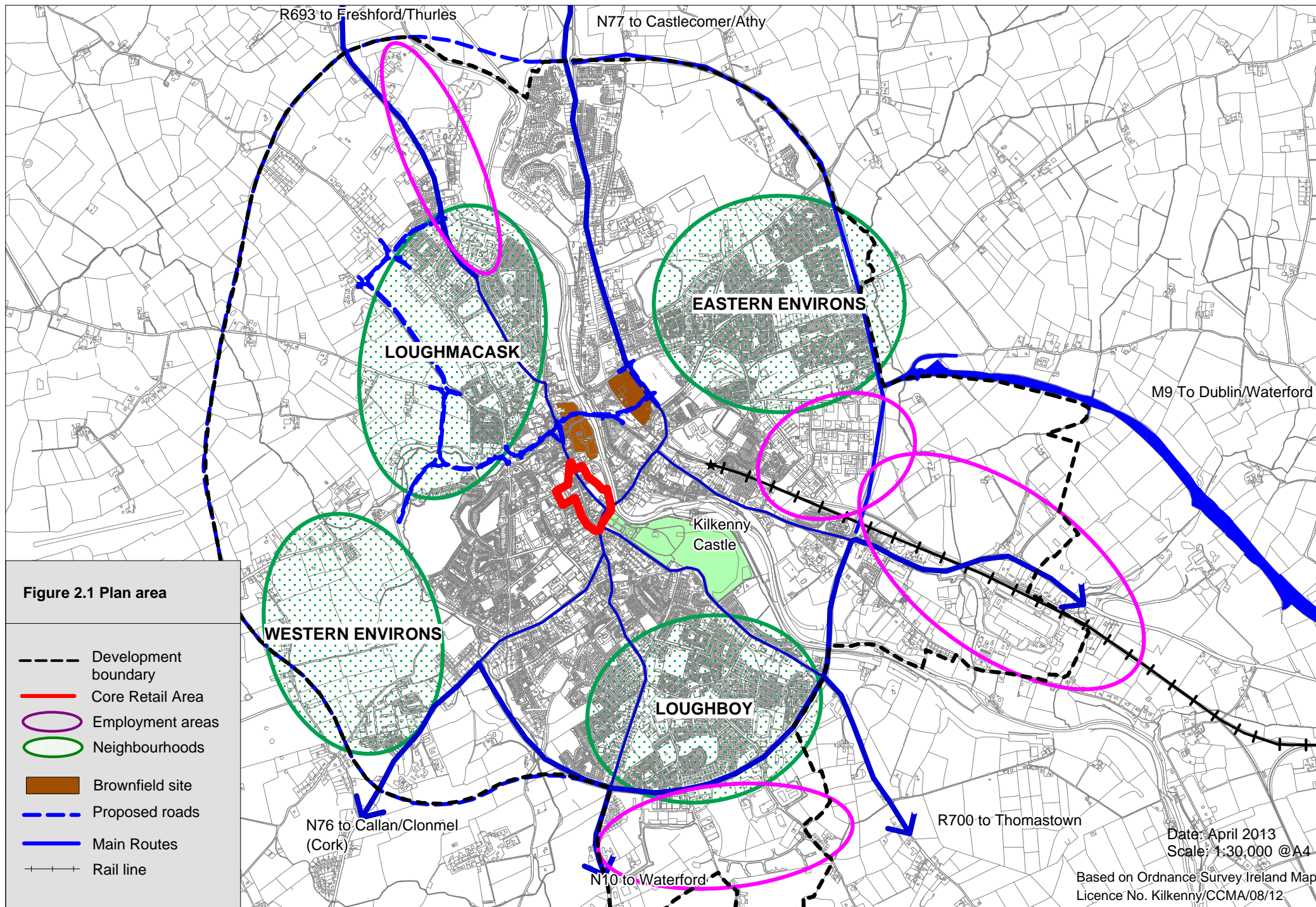


Figure 2.1 Plan area

- Development boundary
- Core Retail Area
- Employment areas
- Neighbourhoods
- Brownfield site
- - - Proposed roads
- Main Routes
- + + + Rail line

Date: April 2013
Scale: 1:30,000 @A4

Based on Ordnance Survey Ireland Map
Licence No. Kilkenny/CCMA/08/12

- [National Climate Change Adaptation Framework](#)¹⁶
- [National Spatial Strategy \(NSS\)](#)¹⁷
- [National Recovery Plan 2011-2014](#)¹⁸
- [Our Sustainable Future – A Framework for Sustainable Development for Ireland](#)¹⁹
- [Smarter Travel, A sustainable Transport Future, A new transport policy for Ireland 2009-2020 \(2009\)](#)
- Ministerial Guidelines on [Architectural Heritage Protection](#), [Childcare Facilities](#), [Development Plans](#), [Landscapes](#), [The Planning System and Flood Risk Management](#), [Retail Planning](#), [Strategic Environmental Assessment](#), [Sustainable Residential Development in Urban Areas](#)
- [Food Harvest 2020, A vision for Irish agri-food and fisheries](#)²⁰
- [South East River Basin Management Plan](#)²¹
- [Kilkenny 2002-2012, A Strategy for Economic, Social and Cultural Development](#)²²

In particular, the [South East Regional Planning Guidelines](#)²³ (RPGs) provide a context for the making of this Plan. The [RPGs](#) allocated a projected population growth figure for the city as a hub, which must be adhered to. This population projection is translated into a housing land requirement, or a 'pot' of zoned land, which must be distributed.

The Plan will set the strategic context for any lower-tier plans, such as Local Area Plans (LAPs) to be prepared in the city. There is one LAP in place for Loughmacask, and two other LAPs for the Western Environs and the City Centre have been incorporated into this Plan.

¹⁶ Department of Environment, Community and Local Government, [National Climate Change Adaptation Framework](#), 2012

¹⁷ Department of the Environment and Local Government, [The National Spatial Strategy 2002-2020, People, Places and Potential](#), 2002

¹⁸ Stationery Office Dublin, [The National Recovery Plan 2011-2014](#), 2011

¹⁹ Government of Ireland, [Our Sustainable Future – A Framework for Sustainable Development for Ireland](#), 2012

²⁰ Department of Agriculture, Food and the Marine, [Food Harvest 2020, A vision for Irish agri-food and fisheries](#), 2010

²¹ South Eastern River Basin District, [South East River Basin Management Plan](#), 2010

²² Kilkenny County Development Board, [Kilkenny 2002-2012, A Strategy for Economic, Social and Cultural Development](#), 2002

²³ South East Regional Authority, [Regional Planning Guidelines for the South East Region 2010-2022](#), 2010

3 Current state of the environment and do nothing scenario

3.1 Statistical overview of the area

Kilkenny City and Environs has a land area of 1,988 hectares. According to Census 2011, the population of the City and Environs was 24,423 and this is projected to increase to 27,400 during the period of this Plan. (Note: the City & Environs area as defined by the CSO does not correspond exactly with the area defined by the development boundary; however the difference in population is considered to be very minor.)

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 Centre²⁴. Kilkenny also has a Biodiversity Plan which gives details on the types of habitats and species found in Kilkenny.

3.3.1 Designated sites

Habitats in the county, of international and national importance, are designated under EU and national legislation. The three categories of designated site in effect in the City are:

- I. Special Areas of Conservation (SAC)

²⁴ <http://www.biodiversityireland.ie/>

SAC's have been, and are being, designated under the EU Habitats Directive to conserve habitats and species of European importance. The River Nore in Kilkenny is a candidate SAC.

II. Special Protection Area (SPA)

SPAs have been, and are being, designated under the EU Habitats Directive to protect birds which are rare, in danger of extinction or vulnerable to changes in habitat and which need protection. In Kilkenny the River Nore is designated as an SPA due to the presence of kingfishers.

III. Natural Heritage Areas (NHA)

NHA's have been, and are being, designated to conserve habitats and species of national importance and sites of geological interest, under the Wildlife (Amendment) Act, 2000.

At present there are 5 designated natural heritage sites of international and national importance in Kilkenny city, covering approximately 5.3% of the city. One site, Archersgrove, is located adjoining the development boundary. The SAC and SPA form part of the Natura 2000 network of sites and in accordance with the Habitats Directive, the Plan is subject to a separate Appropriate Assessment to determine any effects on the Natura network.

Table 3.1 Protected Natural Heritage Sites of International & National Importance

Site Name	Site Code	cSAC	SPA	pNHA	Area (ha)
River Barrow & River Nore	002162	✓		✓	91.7
River Nore (overlaps with SAC)	004233		✓		0
Archersgrove (outside development boundary but adjoining)	002051			✓	0
Dunmore Complex (consists of 7 sites, one of which is within the City development boundary)	001859			✓	1.7
Lough Macask	001914			✓	2.9
Newpark Marsh	000845			✓	9.9
Total					106.2

Maps and site synopses (to varying levels of detail) are available for all of these sites from the National Parks and Wildlife Service (NPWS), apart from Archersgrove. Conservation management plans (CMPs) have been devised by the NPWS for some SACs in the country, but a CMP has not been completed for the River Barrow and River Nore site to date. All sites are identified on Figure 3.1.

The River Barrow and Nore cSAC Site Synopsis includes a section on potential threats to the SAC. Threats are outlined as follows:

- Fragmentation, abundance of alien invasive species, grazing regimes, fishing, water pollution, Eutrophication, Land reclamation, Afforestation, drainage, sea-level rise, weirs, channel maintenance.

According to the [Habitat Survey and Mapping of Kilkenny City](#)²⁵, the potential threats to the River Nore (SPA Site Code 4233) are as follows: potential developments, particularly on the improved grassland pastures on the river floodplains toward the north, water quality impacts and the spread of invasive species.

²⁵ Kilkenny Local Authorities, [Habitat Survey and Mapping of Kilkenny City Habitat Survey Report](#), 2010

Kilkenny Draft City & Environs Development Plan 2014-2020

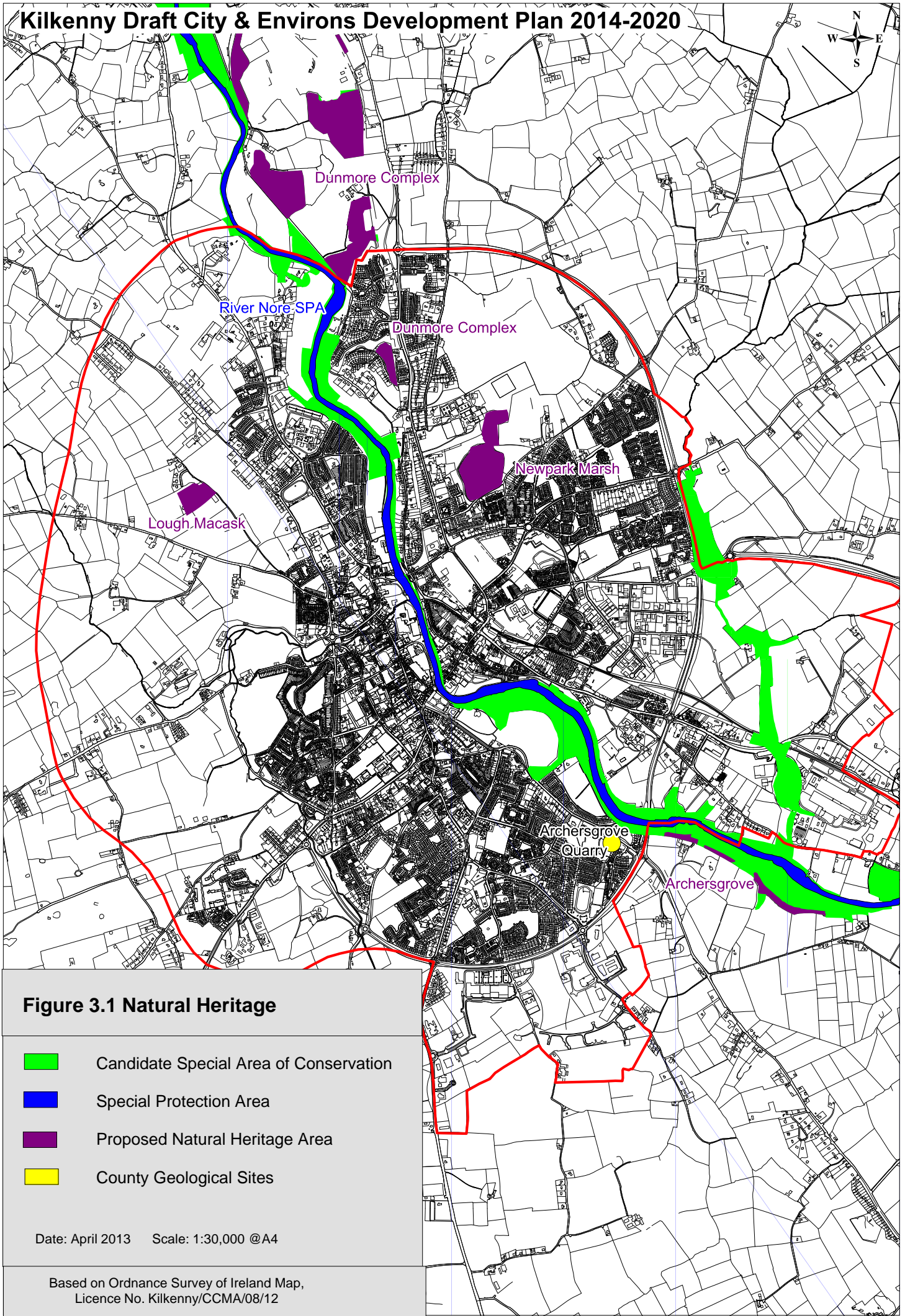


Figure 3.1 Natural Heritage

-  Candidate Special Area of Conservation
-  Special Protection Area
-  Proposed Natural Heritage Area
-  County Geological Sites

Date: April 2013 Scale: 1:30,000 @A4

Based on Ordnance Survey of Ireland Map,
Licence No. Kilkenny/CCMA/08/12

Both of these sites are subject to detailed examination in the accompanying Appropriate Assessment.

Every six years, the NPWS publish a report on the conservation status of habitats and species protected under the Habitats Directive. The last report was published in 2008, as *The Status of EU Protected Habitats and Species in Ireland*. The third assessment report is due for submission in June 2013, and covers the period (2007 – 2012). This report has not been published to date, but some of the information has been released, and this has been incorporated here where available. Table 3.2 sets out the conservation status of each SAC and the SPA by habitats and species.

The Dunmore Complex Site Synopsis also includes reference to threats:

The wetland basins are vulnerable to infilling and careless disposal of waste water also threatens the site.

Site Name	Site Code/Ref	Habitats	Conservation Status		Species	Conservation Status	
River Barrow & River Nore cSAC	002162	Estuaries [1130]	Poor		Vertigo moulinsiana [1016]	Bad	
		Mudflats and sandflats not covered by seawater at low tide [1140]	Poor		Margaritifera margaritifera [1029]	Bad	
		Salicornia and other annuals colonizing mud and sand [1310]	Poor		Austropotamobius pallipes [1092]	Poor	
		Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]	Poor		Petromyzon marinus [1095]	Poor	
		Mediterranean salt meadows (Juncetalia maritimi) [1410]	Lampetra planeri [1096]	Good			
			Lampetra fluviatilis [1099]	Good			
			Alosa fallax [1103]	Bad			
Salmo salar (only in fresh water) [1106]	Bad						
Lutra lutra [1355]	Poor	Good					
Trichomanes speciosum [1421]	Good						
River Nore SPA	004233				<i>Alcedo atthis</i> [breeding] Kingfisher	Amber ²⁶	

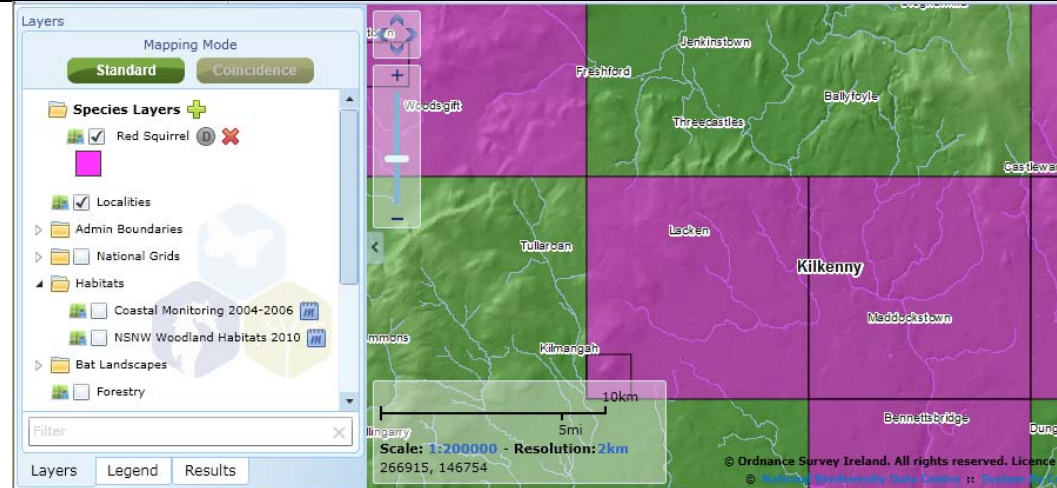
Source: The Status of EU Protected Habitats and Species in Ireland, 2008

²⁶ BirdWatch Ireland and the RSPB NI have agreed a list of priority bird species for conservation action on the island of Ireland. These Birds of Conservation Concern in Ireland are published in a list known as the BoCCI List. In this BoCCI List, birds are classified into three separate lists (Red, Amber and Green), based on the conservation status of the bird and hence conservation priority. The **Red List** birds are of high conservation concern, the **Amber List** birds are of medium conservation concern and the **Green List** birds are not considered threatened.

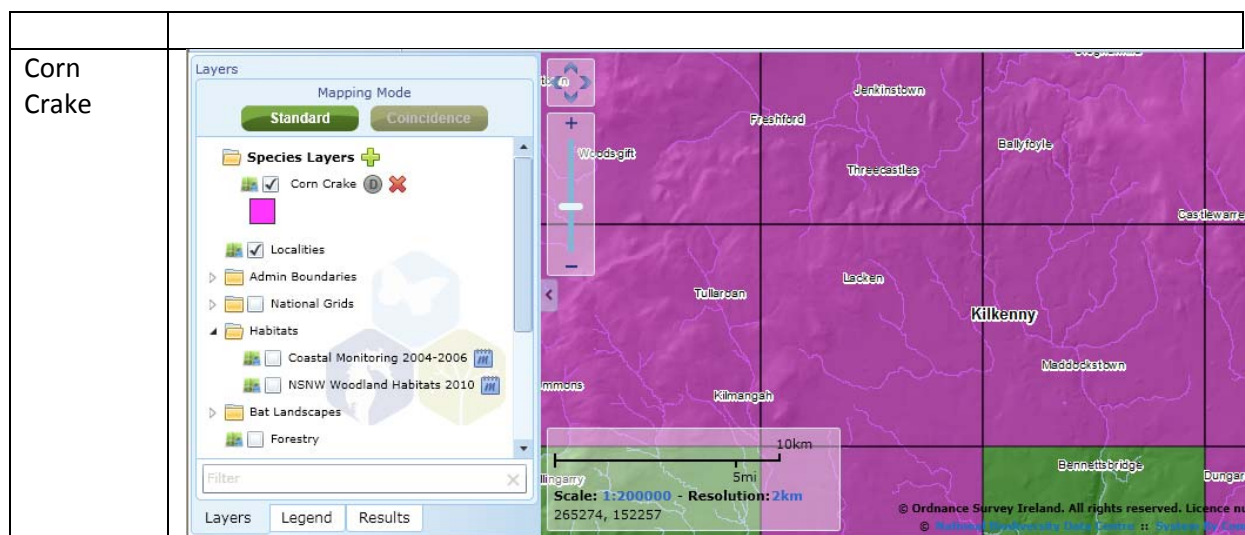
3.3.2 Flora and Fauna

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 National Biodiversity Data Centre on the occurrence of species in Kilkenny city. The NPWS produce a number of plans in relation to some protected species, these are set out below, and the distribution of the species in Kilkenny is included.

The NPWS have produced a number of Species Action Plans for particular species of highest conservation concern as follows;

Table 3.3: Distribution of species of conservation concern in Kilkenny	
Species Action Plan	Distribution in Kilkenny City²⁷
Species Action Plan Bats 2008	Widely found
Species Action Plan Killarney Fern 2008	Not found
Species Action Plan Red Squirrel 2008	
Species Action Plan Irish Lady's-tresses, Pollan, Hare, Corncrake 2005	
Irish Lady's-tresses	None in Kilkenny
Pollan	None in Kilkenny
Hare (Lepus timidus hibernicus)	Widely found

²⁷ [National Biodiversity Data Centre website](#) accessed March 2013



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 Plan Vesper Bats 2009-2011 – widely found

Threat Response Plan Otter 2009-2011 – widely found

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

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

3.3.3 Woodlands, Trees and hedgerows

There are no Tree Preservation Orders in Kilkenny at present.

Kilkenny Local Authorities commissioned a survey of mature trees in the City worthy of preservation²⁸. A total of 916 trees were identified. A map of these is included as Figure 3.2.

The National Survey of Native Woodlands (NSNW)

The NSNW surveyed a total of 58 sites in Kilkenny as part of the National Survey (BEC consultants 2003-2008), however no sites were identified in the City.

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. No PAWS or LEWS have been identified in the City.

Tree Register of Ireland (TROI)

²⁸ Fennell, A. 2007. A Survey of Mature Trees in Kilkenny City and Environs (An unpublished report for Kilkenny County Council.)

Figure 3.2 Survey of Mature Trees in Kilkenny City



● Trees Worthy of Preservation

0 500 1,000
meters

Based on Ordnance Survey of Ireland Map, Licence No. "Kilkenny/CCMA/08/12"

The TROI, carried out in 2005, identified approx. 180 significant trees in the county. These are available to view at:

http://www.kilkennycoco.ie/eng/Services/Digital_Mapping/Tree_Register_of_Ireland_Survey/

3.3.4 Habitats

A report on [Habitat Survey and Mapping of Kilkenny City](#) was completed in 2010²⁹. This included a huge level of detail on the habitats present in Kilkenny city. The study area was slightly different from the Draft development boundary, however they broadly correspond. Table 3.4 below sets out the habitat groups in Kilkenny City as a percentage of the total land area, see Figure 3.3 (Figure 2.2 from the Habitat Survey).

Habitat Group	Area (ha)	Percentage	Comment
Buildings & Gardens	883.0	46.0	Old buildings can be important as habitats for bats. Old stone walls can be a significant biodiversity and wildlife habitat resource. More built up areas provide little or no biodiversity value. Gardens can be of local importance for birds, insects and small mammals.
Intensive Agriculture	610.8	31.8	Little ecological value.
Amenity Grassland	191.0	10.0	Of little ecological value.
Woodland & Scrub	81.7	4.3	Of considerable ecological importance. Threats include invasive species and dumping.
Disturbed Ground	64.7	3.4	Recolonising disturbed ground can be important habitats.
Semi-natural Grassland	48.9	2.5	Of significant nature conservation value Threats include agricultural improvement.
Rivers	26.2	1.4	International and national significance.
Wetlands	9.8	0.5	
Lakes & Ponds	3.1	0.2	
Total	1919.2	100.0	

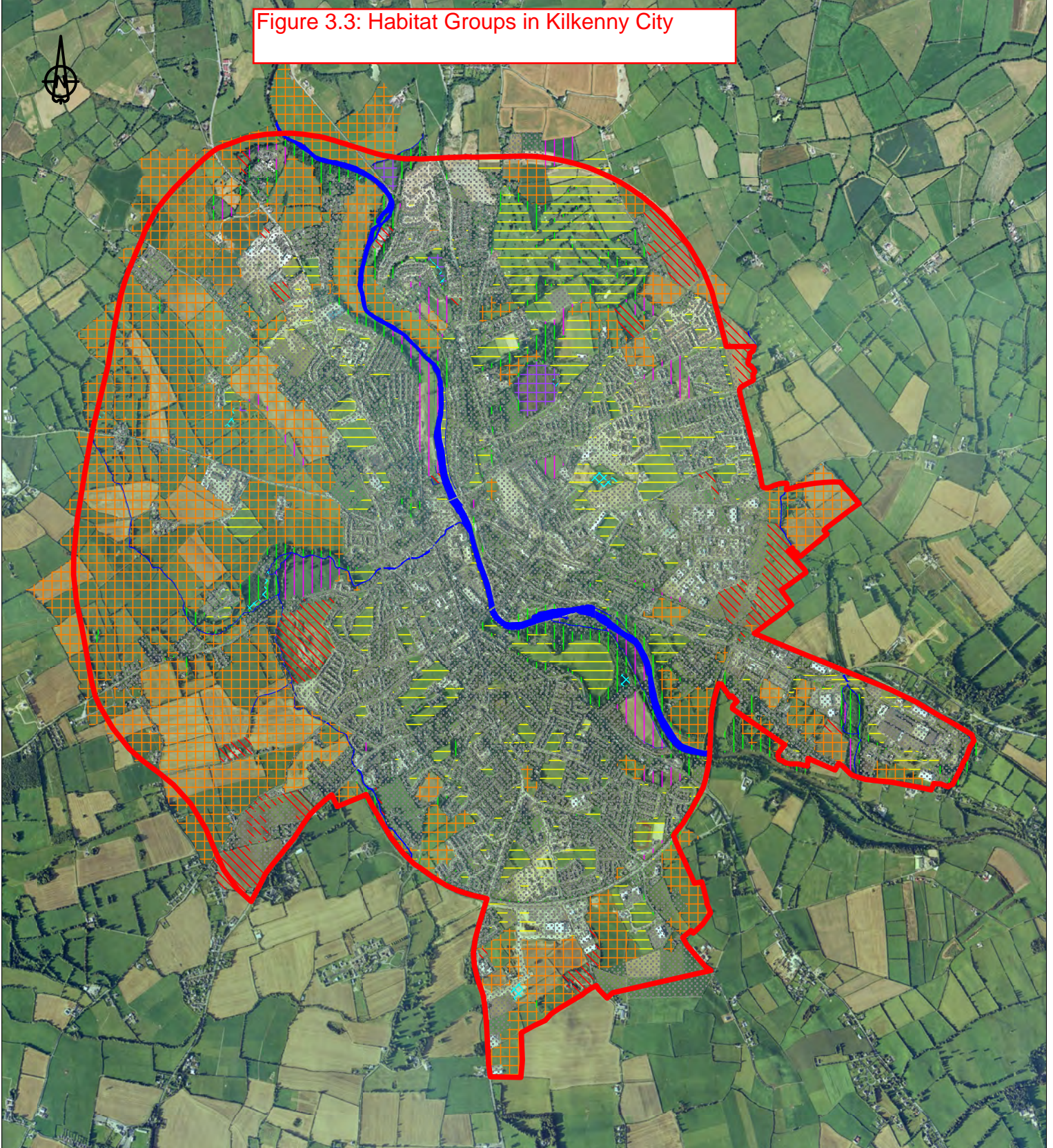
Kilkenny City supports over 104 km of hedgerows and over 13 km of treelines, some of which are shown on Figure 3.4 Green Infrastructure, as key linear green infrastructure. Hedgerows need active management to prevent them becoming gappy and losing their ecological function as wildlife habitats and corridors.

3.3.5 Green Infrastructure











Ecological networks are important as corridors and stepping stones for wildlife, including for migration, dispersal and genetic exchange. Green infrastructure (GI) has been studied as part of the

²⁹ Kilkenny Local Authorities, [Habitat Survey and Mapping of Kilkenny City Habitat Survey Report](#), 2010

Figure 3.3: Habitat Groups in Kilkenny City



LEGEND:

-  Amenity Grassland
-  Buildings & Gardens
-  Disturbed Ground
-  Intensive Agriculture
-  Lakes & Ponds
-  Study Boundary
-  Rivers
-  Semi-natural Grassland
-  Wetlands
-  Woodland & Scrub

Client: Kilkenny County Council		
Project: Habitat Survey and Mapping of Kilkenny City		
Title: Broad Habitat Groups		
Designed/Drawn: KOH	Checked: GS	Authorised: JN
Date: 23.11.10	Date: 23.11.10	Date: 23.11.10
Drawing No: 2954 Figure 2.2		Rev: 1



An Chomhairle Clochrasaithe
The Heritage Council





report on [Habitat Survey and Mapping of Kilkenny City](#), which was completed in 2010. Figure 3.4 illustrates the Green Infrastructure network in the City.

3.3.6 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 Centre³⁰ and from Invasive Species Ireland³¹, 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 Report³², 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 twelve species and their broad distribution within the city³³ are:

Table 3.5 Invasive species distribution 2013	
Name	Distribution (2013)
Japanese Knotweed (Falopia Japonica)	
Himalayan Balsam (Impatiens Glandulifera)	

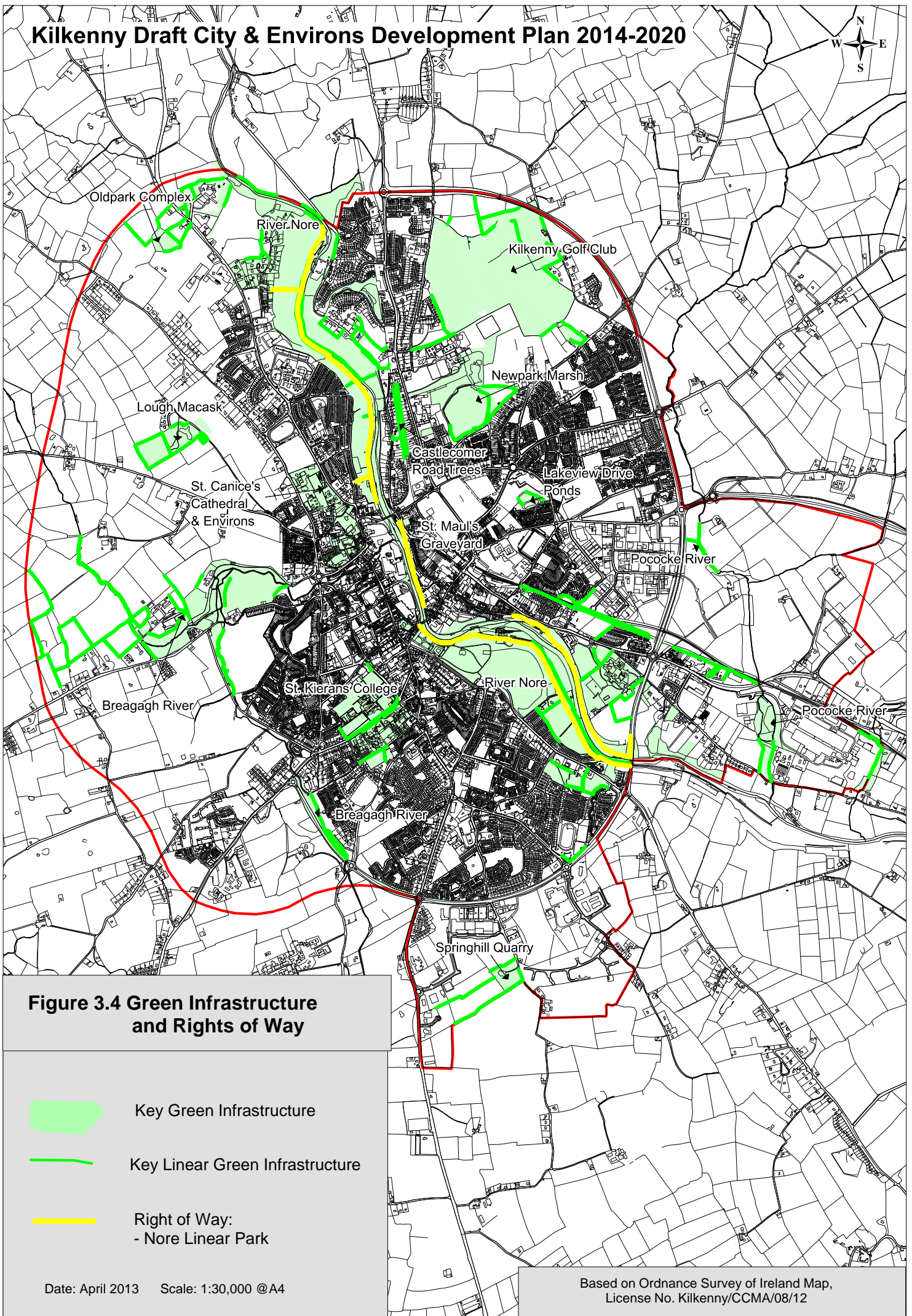
³⁰ <http://invasives.biodiversityireland.ie/>

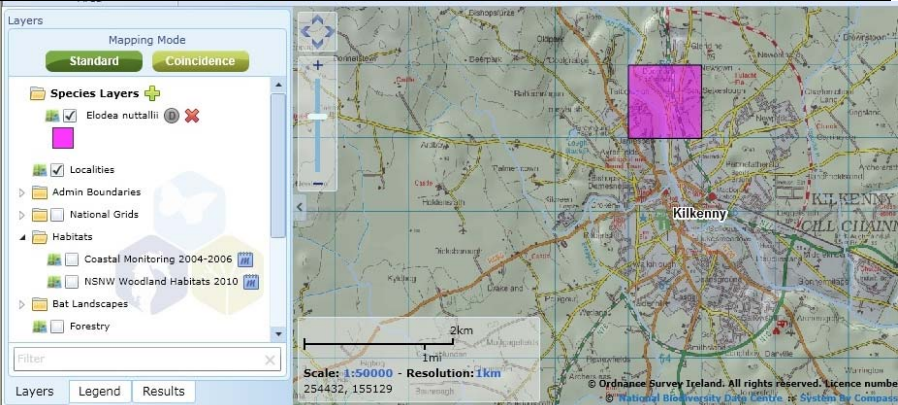
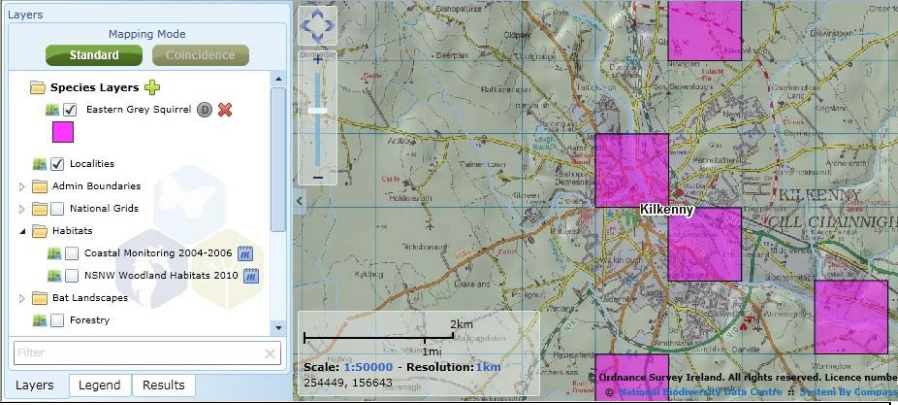
³¹ <http://invasivespeciesireland.com/>

³² <http://invasives.biodiversityireland.ie/wp-content/uploads/Dirty-Dozen-invasive-species-Kilkenny-Co-Co-2010.pdf>

³³ Taken from <http://maps.biodiversityireland.ie/#/Map/NbdcTerrestrial/Species/28772> on 9/1/2013

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Giant Hogweed (Heracleum Mantegazzianum)	None in Kilkenny city
Rhododendron (Rhododendron Ponticum)	None in Kilkenny city
Water fern (Azolla Filiculoides)	None in Kilkenny city
Nuttall's Waterweed (Elodea Nuttallii)	
Least Duckweed (Lemna Minuta)	None in Kilkenny city
Common Cord-Grass (Spartina Anglica)	None in Kilkenny city
Asian Clam (Corbicula Fluminea)	None in Kilkenny city
Dace (Leusiscus Leusiscus)	None in Kilkenny city
Grey Squirrel (Sciurus Carolinensis)	
Wild Boar (Sus Scrofa)	None in Kilkenny city

3.3.7 Land Cover

Land cover is the physical description of what is present on the surface of the land. The CORINE map for Co. Kilkenny 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 2006 is shown on Figure 3.5. This shows that

Kilkenny Draft City & Environs Development Plan

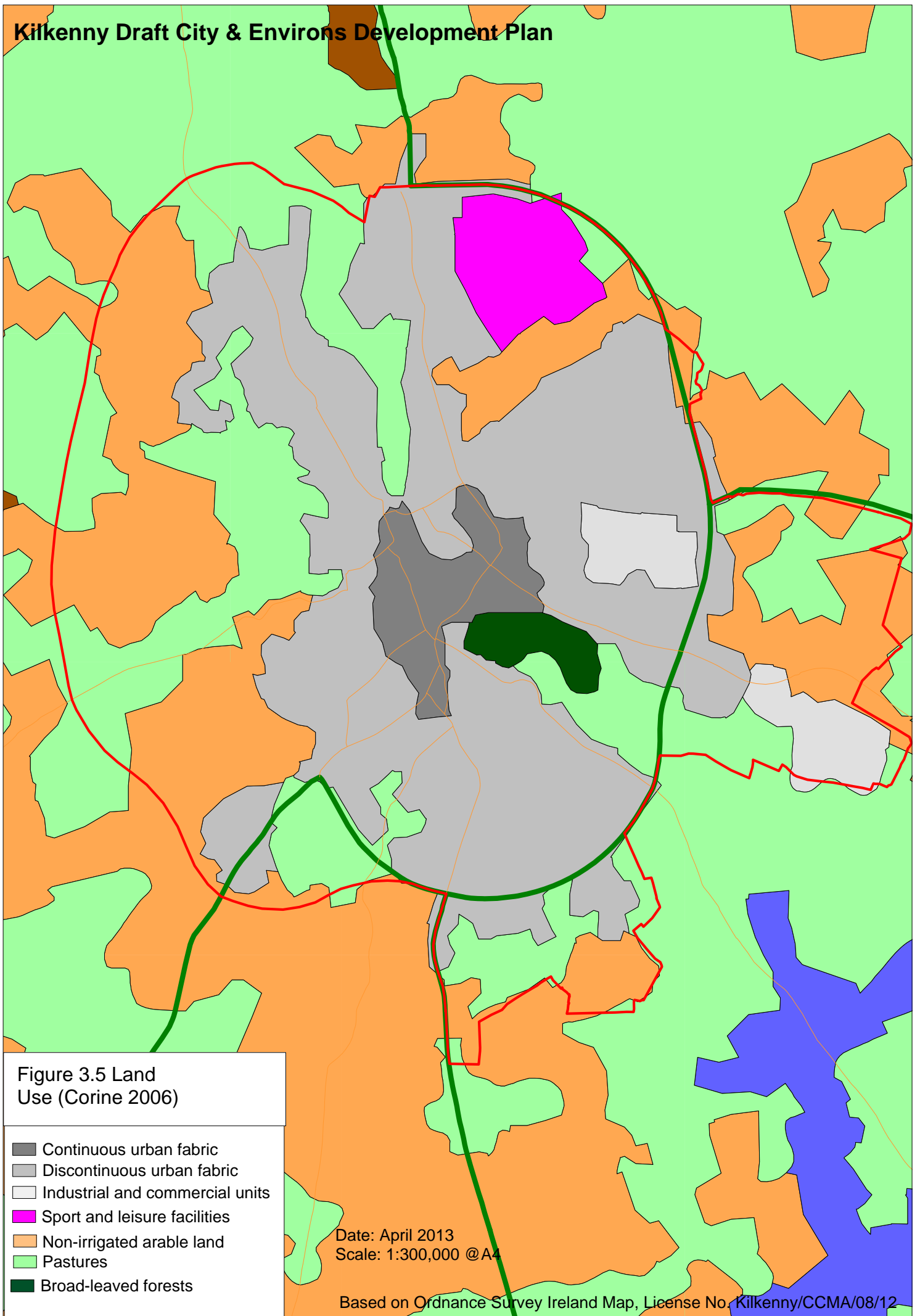


Figure 3.5 Land Use (Corine 2006)

- Continuous urban fabric
- Discontinuous urban fabric
- Industrial and commercial units
- Sport and leisure facilities
- Non-irrigated arable land
- Pastures
- Broad-leaved forests

Date: April 2013
Scale: 1:300,000 @A4

Based on Ordnance Survey Ireland Map, License No. Kilkenny/CCMA/08/12

the majority of land in Kilkenny is covered with continuous urban fabric, discontinuous urban fabric or Industrial and commercial units pasture (grey). There are areas of non-irrigated arable land (orange) and pastures (light green). Kilkenny Castle Park is shown in dark green as a broad-leaved forest and Kilkenny golf club is categorised as a sport and leisure facility (pink).

3.3.8 Existing Problems

- River Barrow and Nore cSAC – the conservation status of most of the habitats and species is poor or bad.
- River Nore SPA – the status of the kingfisher in this location is at Amber (medium conservation concern)
- As two of the city's main rivers (Nore and Pococke) are designated Natura 2000 sites, with the conservation status of species ranging from Poor to Bad, water quality is a hugely significant issue for Kilkenny.
- Continued replacement of natural and semi-natural habitats with artificial surfaces results in loss of non-designated flora and fauna and disturbance to protected species.
- Woodlands and Scrub habitats in the city are of considerable ecological importance but invasive species and dumping are a problem.
- Lack of management of hedgerows can result in an increase in gappiness and a loss of their ecological function.
- Invasive species pose a threat to biodiversity in the city.

3.4 Population and Human Health

3.4.1 Population Distribution

Kilkenny's population continues to grow, from 22,179 in 2006 to 24,423 in 2011, a 10.1% increase. There are four Electoral Divisions in Kilkenny city; Kilkenny No. 1 Urban, No. 2 Urban, part of Kilkenny Rural and part of Dunmore. Figure 3.6 shows the rates of population change for these EDs over the period 2006 to 2011.

As can be seen, Kilkenny Rural ED, outside the Borough boundary grew by 10.22%, whereas Kilkenny No. 2, to the west of the city centre, decreased by 0.2%. For Kilkenny No. 2 Urban this population loss is a continuing trend, and in total it has experienced a 12% decrease since 1996, see Table 3.6.

Electoral Division		1996	2002 Persons	2006 Persons	2011 Persons	% change '06-11
Kilkenny Borough	Kilkenny No. 1 Urban	4,546	4,857	5,154	5,211	1.11
	Kilkenny No. 2 Urban	3,961	3,734	3,507	3,500	-0.2
Kilkenny Borough Sub-total		8,507	8,591	8,661	8,711	0.57
Environs of Kilkenny			12,144	13,518	15,712	16.2
Total Borough and Environs			20,735	22,179	24,423	10.1

Source: CSO 1996-2011

The Core Strategy of the current Plan, as set out in Chapter 3, identifies the neighbourhoods of Western Environs and Loughmacask for expansion. Both of these are located mainly within the Environs of Kilkenny ED.

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 1 Seveso (Control of Major Accident Hazards Directive) site in the city; Grassland Fertilisers (Kilkenny) Ltd. Palmerstown on the Tullaroan Road.

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 South East Region. Waste management is being reviewed at a national level,

Kilkenny City & Environs Draft Development Plan 2014-2020

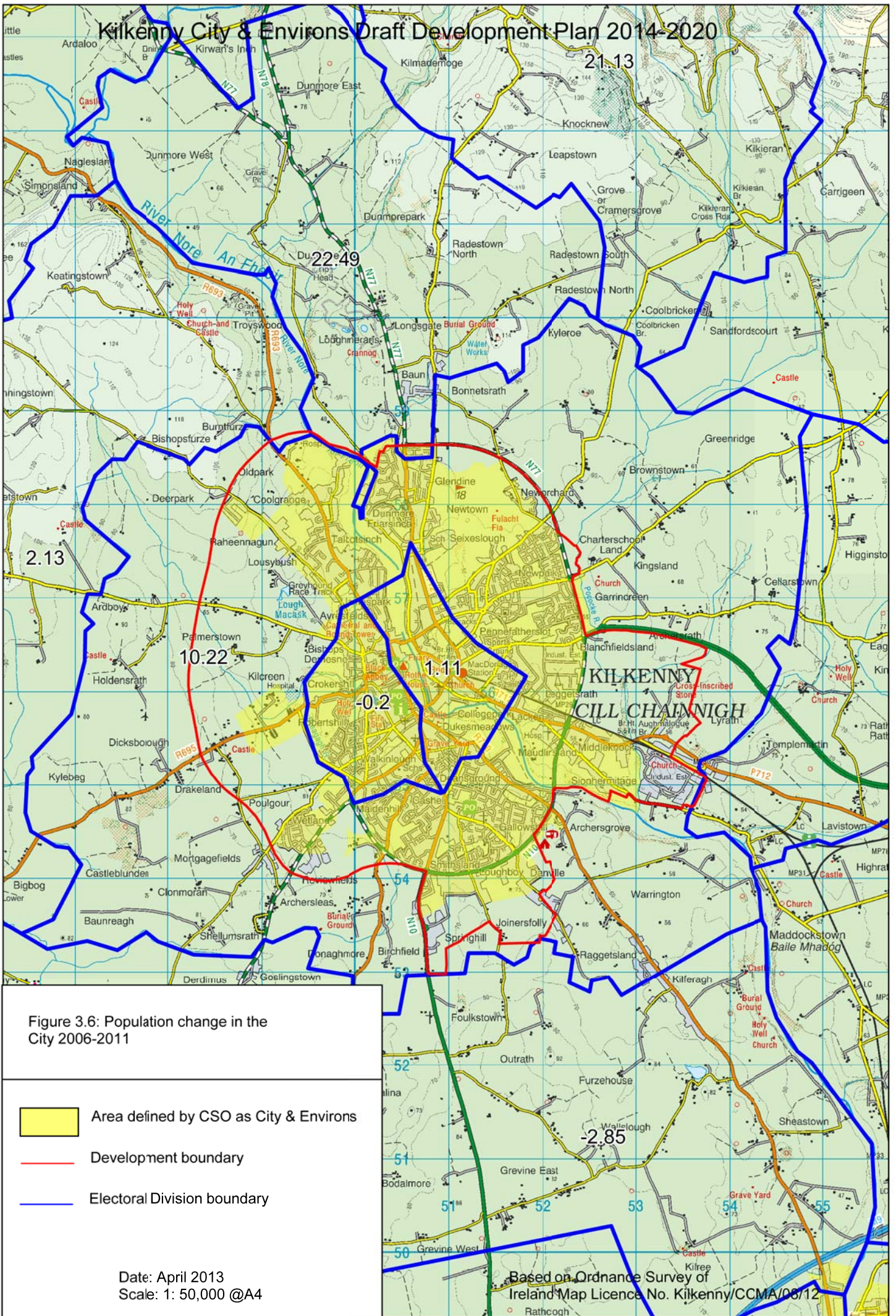


Figure 3.6: Population change in the City 2006-2011

- Area defined by CSO as City & Environs
- Development boundary
- Electoral Division boundary

Date: April 2013
Scale: 1: 50,000 @A4

Based on Ordnance Survey of Ireland Map Licence No. Kilkenny/CCMA/06/12

and the Government recently introduced its new waste management policy for Ireland entitled [A Resource Opportunity, Waste Management Policy in Ireland](#)³⁴. There is also a Litter Management Plan in place for the County (2012-2014). 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. Once sites are on the registers, there is a requirement to carry out risk assessments. A total of 13 sites have been identified in County Kilkenny³⁵, but none are located within the City's development boundary.

3.4.4 Existing Problems

- In terms of population distribution, the decline in population in Kilkenny city's inner area is of concern.
- The Seveso (COMAH) site must be provided for in the land use zoning map

3.5 Soil

There is no national soil protection strategy. The EU Commission set up the Thematic Group for Soil Strategy in 2004 to identify the potential threats to soil function. Its analysis identified six soil degradation processes that impact on soils; soil sealing, erosion, organic matter decline, compaction, salination and landslides. While a number of these processes are naturally occurring, human activity can be an additional driver of degradation through poor land management. Protection of soils is not a significant issue in the City.

3.5.1 Landslides

The GSI maintain a [National Landslide Database](#). According to the GSI, it is likely that in the future there will be increased landslide activity as development increases and expands into potentially hazardous areas. It is also predicted that climate change will result in increased landslide hazard. To date, two landslides have been recorded in Co. Kilkenny; in Rossinan, Mullinavat and in Forestalstown, Glenmore. None have occurred in the City.

Landslide susceptibility mapping has not yet been produced for Ireland.

³⁴ Department of the Environment, Community and Local Government, [A Resource Opportunity, Waste Management Policy in Ireland](#), 2012

³⁵ South Tipperary County Council, [Report on the Evaluation of the Joint Waste Management Plan for the South East Region, 2006](#), November 2012

3.5.2 Peatland

Peatlands are important ecosystems sustaining a range of animal and plant species. There are no peatlands located within the city.

3.5.3 Geology

According to the GSI, the underlying bedrock geology of Kilkenny is dominated by Lower Carboniferous rocks, mostly of limestone, which were formed at a time when Ireland was almost completely submerged in tropical waters. To the south of this main body of limestone are older sedimentary and igneous rocks that have formed in a variety of geological environments over the past 500 million years. Some of the last sediments in Kilkenny accumulated during the Quaternary period (1.6 million years ago to present) when a series of large ice sheets moved over Ireland, depositing glacial till (clay, sand and gravel) and scouring the underlying bedrock to give Kilkenny much of its present day geomorphological characteristics³⁶.

3.5.3.1 County Geological Sites

A list of County Geological Sites was developed in partnership with the Geological Survey of Ireland and designated in 2007. One site has been identified in the City, Archersgrove Quarry, see Figure 3.1.

3.5.3.2 Aggregate Potential Mapping

As part of a National Development Plan funded programme, Aggregate Potential Mapping (APM) has been carried out by the GSI for County Kilkenny³⁷. Aggregate consists of any hard, inert material, used in variously-sized fragments, either loose or in bound form, in the building of roads and other construction. Aggregate in Ireland is acquired from (a) sands and gravels, known as granular, and (b) bedrock which is blasted and crushed in quarries. The APM has identified both the Granular Aggregate Potential (GAP) and the Crushed Rock Aggregate Potential (CRP).

The GAP map, Figure 3.7, shows very high potential along the River Nore. The CRP map, Figure 3.8 shows most of the city has either very high, high or moderate levels of potential.

3.5.3.3 Extractive Industries

The Geological Survey of Ireland maintains a record of all pits (sand and gravel) and quarries (crushed rock) in the country, see Figure 3.9.

3.5.4 Existing Problems

- Landslide susceptibility mapping has not been produced.

³⁶ Aaron Clarke, Matthew Parkes and Sarah Gatley. GSI, *The Geological Heritage of Kilkenny An audit of County Geological Sites in Kilkenny*, 2007

³⁷ <http://spatial.dcenr.gov.ie/APM/index.html>

Kilkenny Draft City & Environs Development Plan

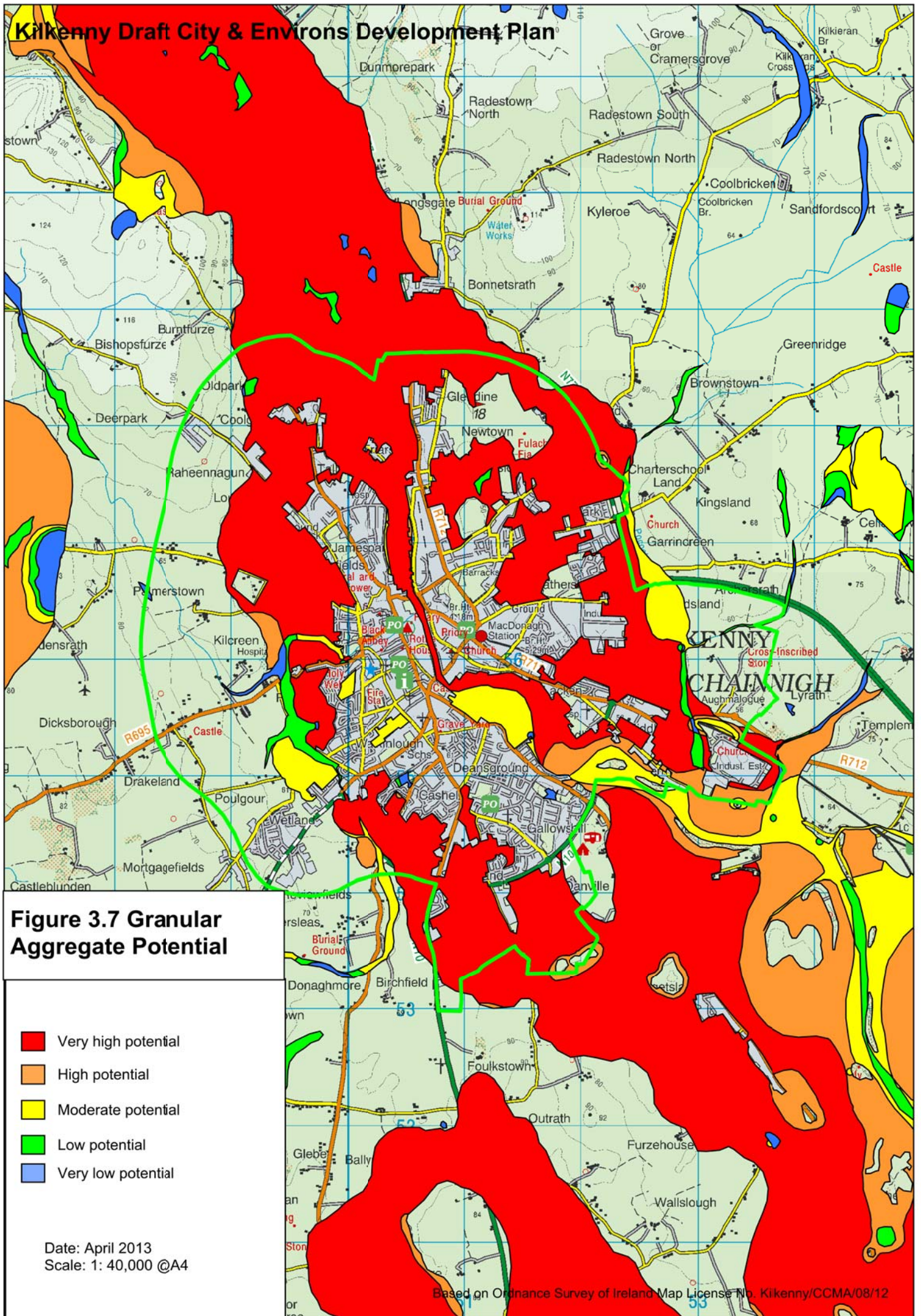


Figure 3.7 Granular Aggregate Potential

- Very high potential
- High potential
- Moderate potential
- Low potential
- Very low potential

Date: April 2013
Scale: 1: 40,000 @A4

Kilkenny Draft City & Environs Development Plan

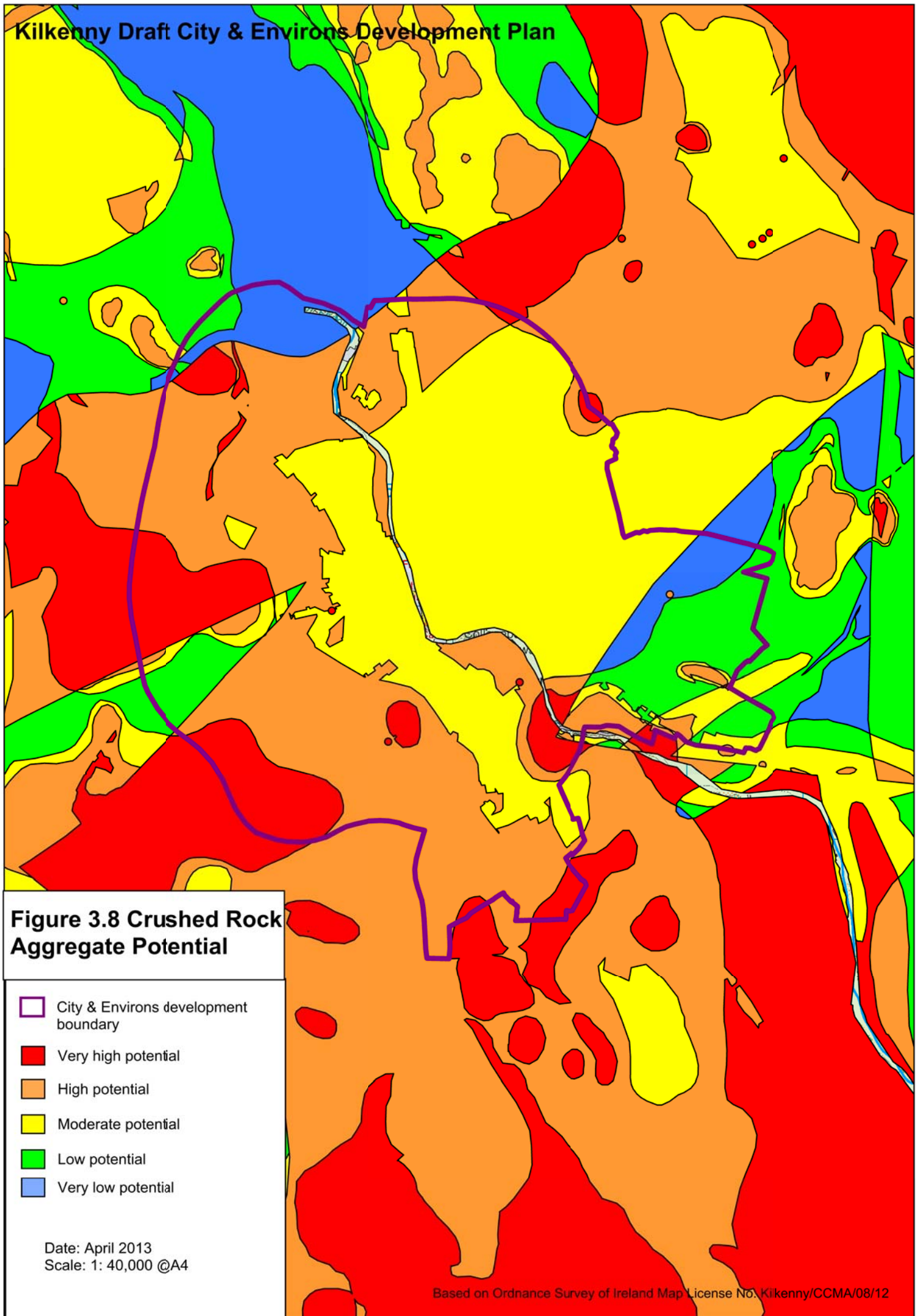






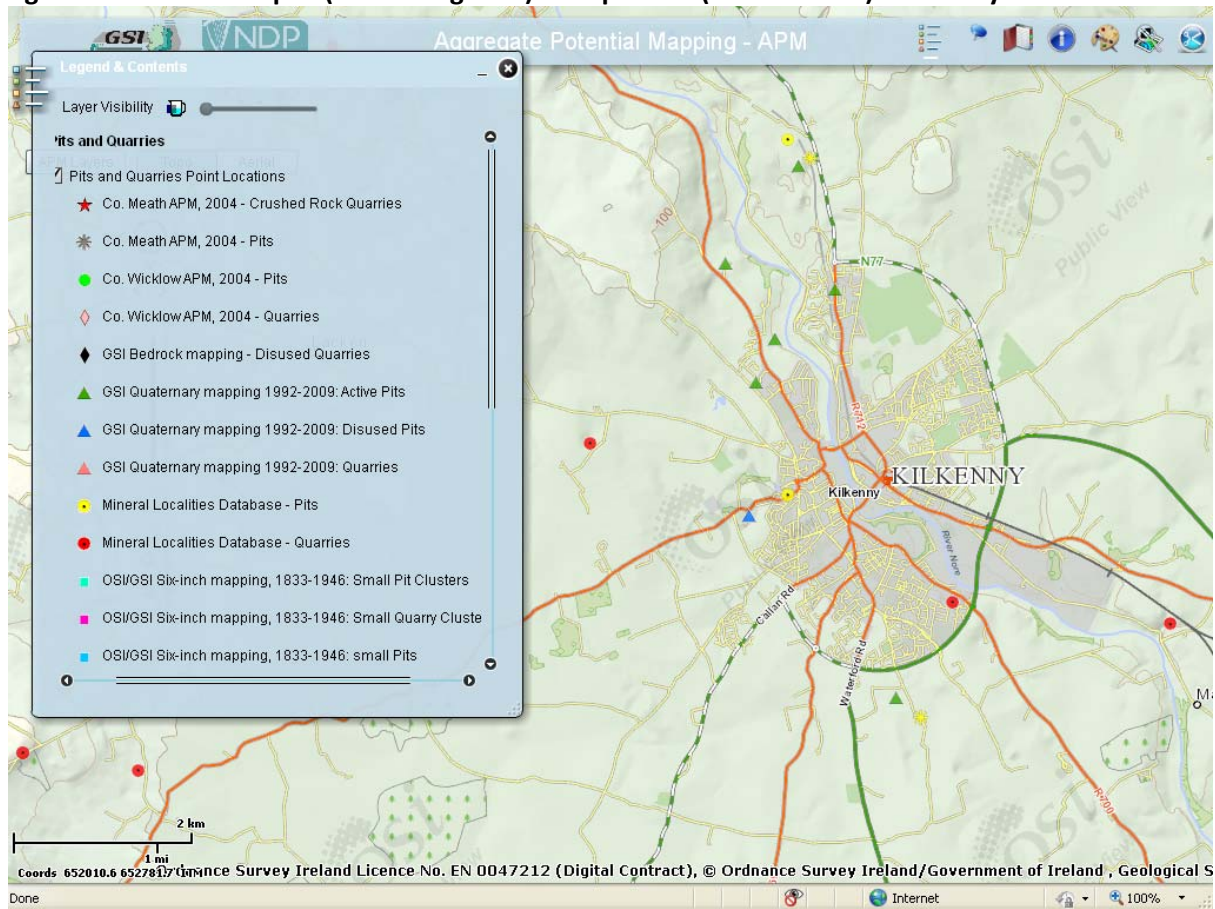


Figure 3.8 Crushed Rock Aggregate Potential

-  City & Environs development boundary
-  Very high potential
-  High potential
-  Moderate potential
-  Low potential
-  Very low potential

Date: April 2013
Scale: 1: 40,000 @A4

Figure 3.9 Location of pits (sand and gravel) and quarries (crushed rock) in the city



Source: <http://spatial.dcenr.gov.ie/APM/index.html>

3.6 Water

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

3.6.1 Water Framework Directive

The [Water Framework Directive](#)³⁸ 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 is located in the South Eastern River Basin District. The [South East River Basin Management Plan \(Water Matters\) 2009-2015](#) was published in 2010³⁹.

Water in the District has been 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/>.

3.6.1.1 Groundwater quality

Groundwater is categorised as good status throughout the city.

3.6.1.2 Surface water quality

The [South East River Basin Management Plan](#) noted that two rivers in the county were classified as Bad status, the River Nore south of Thomastown IE_SE_15_1994_7 and the River Gowran (IE_SE_14_1879), which is a tributary of the Barrow, neither of which are located within the city. As at 9/5/2013, no river in the city is classified as Bad status, but the Nore at Brewery bridge is classified as Poor, see Figure 3.10.

Information on trends in river water quality is available from the EPA [Report on River Water Quality in County Kilkenny](#)⁴⁰. This shows that since 2008, river water quality has remained relatively stable, with a decrease in the number of unpolluted rivers, but also a decrease in the number of seriously polluted rivers.

³⁸ [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](#)

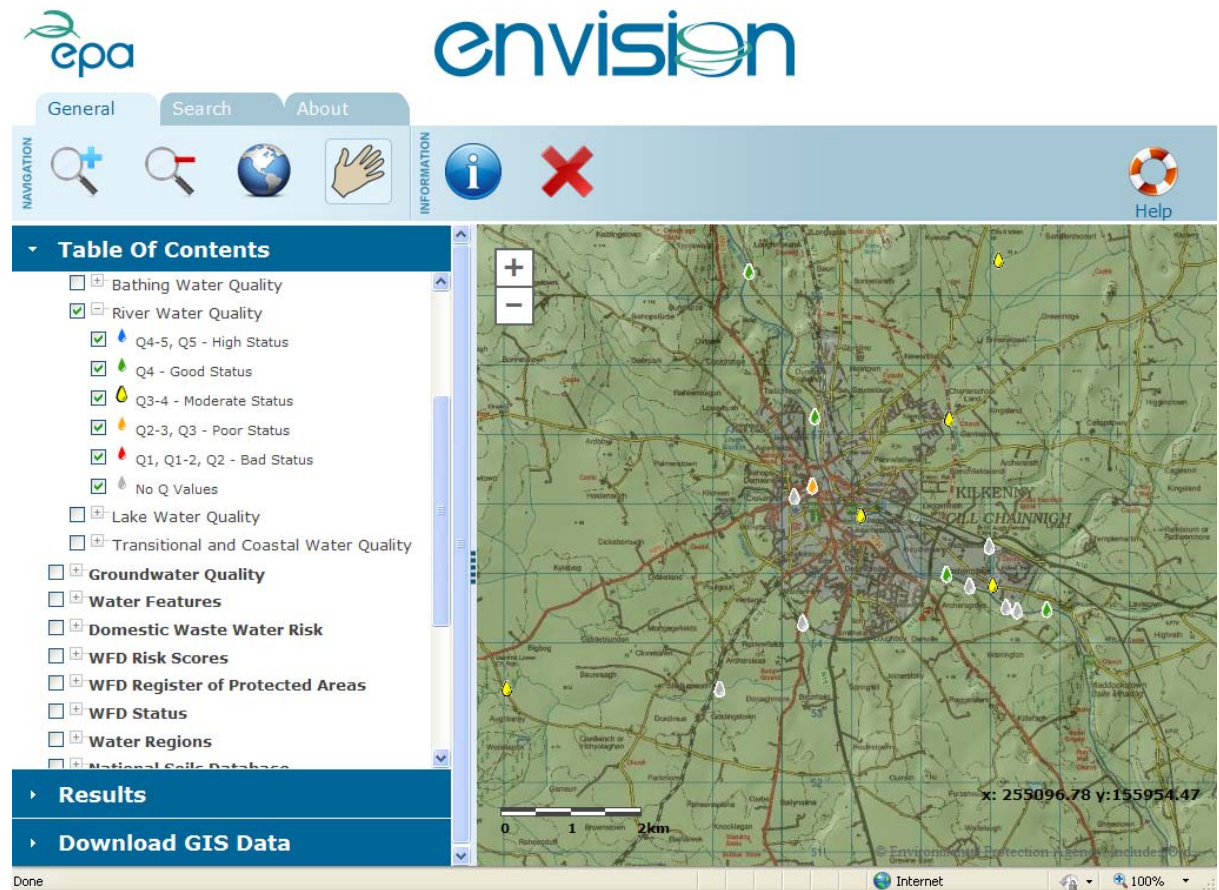
³⁹ South Eastern River Basin District, [South East River Basin Management Plan \(Water Matters\) 2009-2015](#), 2010

⁴⁰ Environmental Protection Agency, [Integrated Water Quality Report 2011 – South East Ireland Report on River Water Quality in County Kilkenny](#) 2011

Table 3.7: Water quality in Co. Kilkenny 2008-2011

Year	Number of Rivers Monitored	Total Number of Sample Stations	Number of Sample Stations in each category			Percent of Sample Stations in each Category		
			Polluted	Moderately Polluted	Seriously Polluted	Un-Polluted	Moderately Polluted	Seriously Polluted
2008	27	76	54	21	1	71.1%	27.6%	1.3%
2009	25	82	57	23	2	69.5%	28.0%	2.4%
2010	25	73	45	27	1	61.6%	37.0%	1.4%
2011	25	70	48	22	0	68.6%	31.4%	0.0%

Figure 3.10: Surface Water quality in Co. Kilkenny from EPA Envision website



3.6.2 Waste Water Treatment

There are two public wastewater treatment schemes within the city, of varying size and complexity, see Table 3.8 below.

Table 3.8: Waste Water Treatment plants in Kilkenny

Name of plant	WWTP Type	Design P.E. (Population Equivalent)	Current load P.E. (Population Equivalent) 9/2/2012	P.E. as at	Comment on upgrade
Kilkenny City Purcellsinch	Secondary	107,650	54,504		Purcellsinch. EIS application for major upgrade given approval by An Bord Pleanála.
Kilkenny Sion Road	Primary	21	21		

The EPA publishes reports on the status of waste water treatment in Ireland. The latest of these is an [Update Report](#)⁴¹ to the [Focus on Urban Waste Water Discharges in Ireland, Urban Waste Water Treatment](#)⁴². This sets out which plants have treatment that is not appropriate based on the effluent results and/or have taken less than the recommended numbers of samples. The plants are categorised into Pass or Fail.

- *Pass* – the results met the standards set in the Directive for effluent quality, and a sufficient number of effluent samples were collected, analysed and reported to the EPA.
- *Fail* – the results did not meet the standards set in the Directive for effluent quality and/or an insufficient number of effluent samples was collected, analysed and reported to the EPA.
- *No secondary* – waste water received no treatment or a basic level of treatment (i.e. preliminary treatment or primary treatment) prior to discharge and consequently the effluent could not achieve the quality standards specified in the Directive.

In both 2010 and 2011, Purcellsinch passed. This compares favourably to 2009 when it failed.

3.6.3 Septic tanks

A small number of houses within the City area are served by on-site treatment systems. These systems vary in age, levels of maintenance and suitability to site-specific conditions. There is a large proportion of existing septic tanks within the county 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.

In 2009, the European Court of Justice ruled against Ireland in relation to septic tanks and other on-site wastewater treatment systems. The Court found that by failing to adopt the necessary legislation to comply with Articles 4 and 8 of Council Directive 75/442/EEC (The Waste Directive) as regards domestic waste waters disposed of in the countryside through septic tanks and other individual waste water treatment systems, Ireland has failed to fulfil its obligations under that directive. In 2012 the Department of Environment published the Water Services (Amendment) Act,

⁴¹ EPA, [Second Update Report on data presented in the EPA Report "Focus on Urban Waste Water Discharges in Ireland" Urban Waste Water Treatment](#), 2012

⁴² EPA, [Focus on Urban Waste Water Discharges in Ireland, Urban Waste Water Treatment](#), 2012

to regulate discharges from all homes that are not connected to the public sewer network. Measures to enforce this will be introduced nationally in 2013.

3.6.4 Water supply schemes

There are 2 public water supplies serving the city. Public water supplies have the potential to impact hugely on human health.

Water Supply Name	Source	Comment on capacity	Upgrade
Kilkenny City (Radestown) Ws 1010	Gaulstown impoundment and River Dinin	Capacity Available	Prioritised for upgrade
Kilkenny City (Troyswood) Ws 1011	River Nore	Capacity Available	

The EPA publishes annual reports on the quality of drinking water in Ireland which utilises the data collected by the local authorities.

<http://www.epa.ie/downloads/advice/drinkingwater/drinkingwatersupplies/Kilkenny%20Scheme%20Details.pdf>

Detail on water quality is contained in the EPA Report [The Provision and Quality of Drinking Water in Ireland – A Report for the Year 2011](#)⁴³.

The Radestown supply is listed on the Remedial Action List (RAL)⁴⁴ currently. The RAL is a list of public water supplies where remedial action was required to ensure compliance with drinking water standards and is used to focus attention on resolving any deficiencies in public water supplies. The reason it was included was for elevated levels of trihalomethanes above the standard in the Drinking Water Regulations. The remedial action is the development of a new wellfield which is due to be complete by 2016.

3.6.5 Ground water protection scheme

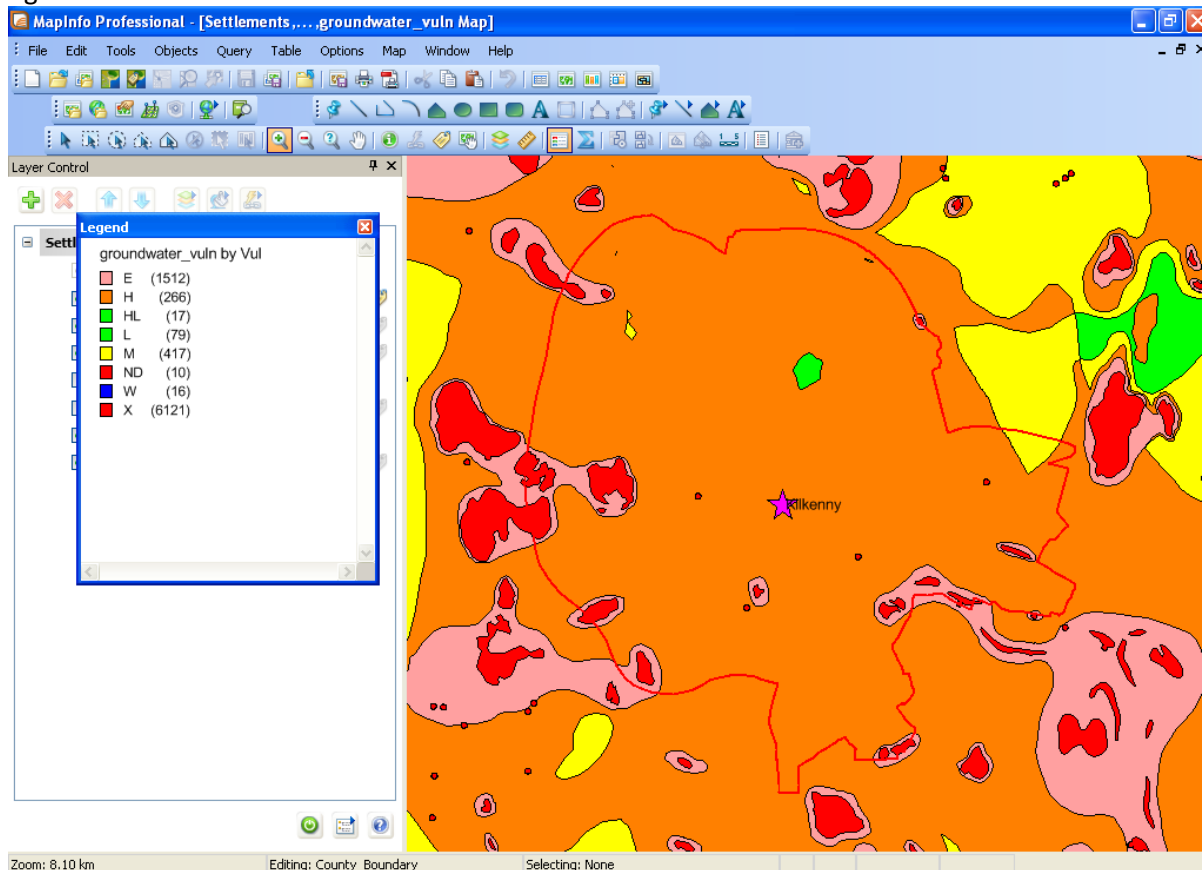
The Geological Survey of Ireland has completed a Groundwater Protection Scheme for County Kilkenny. The overall aim of a Groundwater Protection Scheme is to preserve the quality of groundwater, for drinking water, surface water ecosystems and terrestrial ecosystems, for the benefit of present and future generations. The Groundwater Protection Scheme rates aquifers according to their vulnerability to pollution and groundwater vulnerability is depicted on Figure 3.11. In the main, the City's aquifers are of high vulnerability.

The GSI will be updating the vulnerability mapping for the County in 2013.

⁴³ Office of Environment Enforcement, EPA [The Provision and Quality of Drinking Water in Ireland – A Report for the Year 2011](#), 2009

⁴⁴ [EPA Drinking Water Remedial Action List Q1 of 2013](#)

Figure 3.11: Groundwater Protection Scheme

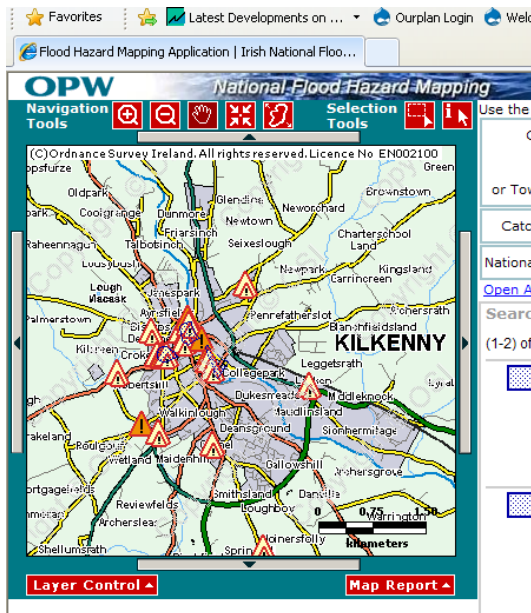


3.6.6 Flooding

The OPW record flood events throughout the country⁴⁵. The locations of all recorded flood events in the city are shown on Figure 3.12. A Strategic Flood Risk Assessment has been carried out as part of the Development Plan review process and forms an appendix to this SEA report.

Figure 3.12: Location of flood events in the City

⁴⁵ <http://www.floodmaps.ie/View/Default.aspx>



3.6.7 Existing Problems

- The River Nore is classified as being of Poor status under the Water Framework Directive, and this is of particular concern as this Poor status overlaps with the cSAC and SPA.
- The Radestown Water supply scheme is on the Remedial Action List and requires upgrading.
- In general, the City's aquifers are rated as high vulnerability, which presents challenges to determine appropriate uses.
- Flooding continues to occur in a number of locations in the city.

3.7 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](#)⁴⁶, 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. Kilkenny city is located in Zone C (as a centre with a population greater than 15,000) and the rest of Co. Kilkenny is located within Zone D. As of 29/1/2013, air quality was categorised as Good in Zone C, and Very Good in Zone D.

Air quality is monitored at the EPA Regional Inspectorate at Seville Lodge on the Callan Road. The data published on the EPA website is real-time data⁴⁷. The ambient air quality pollutants of most importance on an EU-wide level are nitrogen dioxide, particulate matter and ozone. They can impact on human health and are at levels approaching the relevant limit value or long-term objective. Nitrogen dioxide (NO₂) and Ozone (O₃) are monitored at this site. The NO₂ hourly limit of 200 microgrammes per cubic metre is deemed breached if more than 18 exceedances have occurred. There were no exceedances at this site in 2012. The O₃ information threshold is 180 microgrammes per cubic metre. There were no exceedances at this site in 2012.

There has been no update to the Ambient Air Monitoring in Kilkenny report of 2005⁴⁸, as quoted in the previous SEA on the 2008 Development Plan. This recorded that no limit values were exceeded during the measurement period; concentrations of sulphur dioxide, nitrogen dioxide and lead were below their respective lower assessment thresholds while levels of PM10 exceeded the upper assessment threshold.

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.

Air pollution has a transboundary aspect meaning that emissions in one country can cause pollution in a different country. National emissions ceilings are in place across Europe to control emissions of four key transboundary pollutants: sulphur dioxide (SO₂), oxides of nitrogen (NO_x), volatile organic compounds (VOC) and ammonia (NH₃). These pollutants can contribute to acidification, eutrophication and ozone formation. Strategies implemented in Ireland in recent years have substantially reduced emissions of SO₂, VOC and NH₃, but levels of NO_x are expected to remain high in the short term. Large increases in road transport are responsible for high NO_x emissions levels.

A move towards sustainable modes of transport would reduce emissions from road traffic. According to Census 2011, a total of 12% of commuters used sustainable means of travel (cycling, walking, bus or train). This compared to 21% nationally⁴⁹. 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

⁴⁶ EU, [Ambient Air Quality and Cleaner Air for Europe \(CAFE\) Directive](#), 2008

⁴⁷ <http://www.epa.ie/whatwedo/monitoring/air/data/kk/>

⁴⁸ EPA, [Ambient Air Monitoring in Kilkenny 29th April 2005 to 25th October 2005](#), 2005

⁴⁹ Census 2011, [Profile 10 Door to Door](#)

contribute to an increase in Smarter Travel. In general, rural housing increases car dependency and contributes to a rise in unsustainable modes of transport.

3.7.1 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.

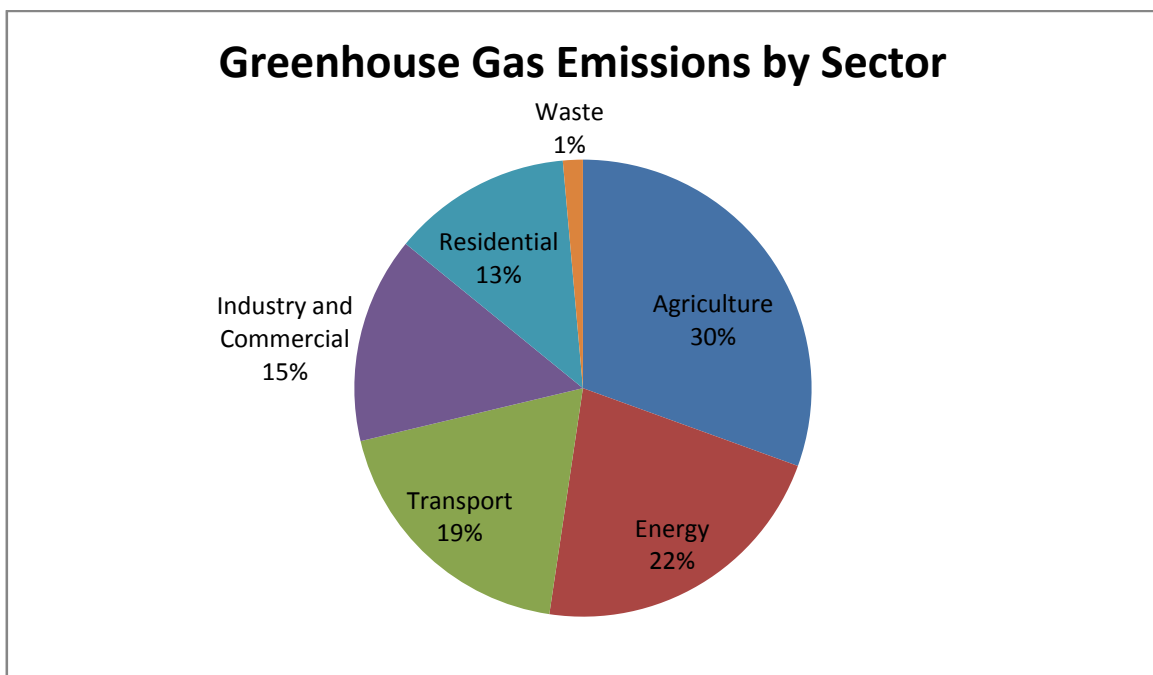
3.8 Climatic Factors

The causes and consequences of climate change pose an immense global challenge. The [National Climate Change Adaptation Framework](#)⁵⁰ recommends that local authorities incorporate climate change adaptation into their Development Plans.

3.8.1 Greenhouse gases

Increased atmospheric concentrations of greenhouse gases such as carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O), released by human activities, trap additional energy in the Earth's climate system. This gives rise to a range of system changes, broadly referred to as climate change.

The single largest contributor to overall emissions in Ireland is Agriculture, at 30.5% of the total, see below⁵¹. This is proportionally higher than for most other EU member states. Transport is also a big contributor at 19%.



There is a necessity to reduce greenhouse gas emissions and to adapt to climate change impacts. The EPA is part of an International Carbon observational system, which has three monitoring sites in Ireland; Carnsore Point, Malin Head and Mace Head⁵². Limited data is available on emissions per county.

3.8.2 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.

⁵⁰ Department of Environment, Community and Local Government, [National Climate Change Adaptation Framework](#), 2012

⁵¹ EPA, [Ireland's Environment, An Assessment](#), 2012

⁵² <http://www.icos-infrastructure.eu/>

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 Plan](#)⁵³ was finalised for Kilkenny in 2009. 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 Kilkenny the following areas are within the subject criteria of the Regulations:

- The Section of the N76 National Secondary Route from the Waterford Road Roundabout on the Kilkenny Ring Road to its junction with the R692 Kilbride Junction south of Callan
- The Section of the N77 National Secondary Route from its junction with the N78 at Hennebry's Cross to the Hebron Road Roundabout on the N77 Kilkenny Ring Road.

The following Sections of Regional Roads located within and in the vicinity of Kilkenny City:

- The R693 Regional Route from its junction with the L2647 local road at Talbot's Inch to its junction with St. Kieran's Street;
- The R695 Regional Route from its junction with the R693 at Irishtown to its junction with the Kennyswell Road;
- The R712 Regional Route from its junction with the N77 Castlecomer Road Roundabout on the N77 Kilkenny Ring Road to its junction with the L6704 local road at Lavistown;
- The R886 Regional Route from its junction with the R693 at Green Street to its junction with the R712 Castlecomer Road;
- The R887 Regional Route (John St and Rose Inn Street) from its junction with the R712 at the old Dublin Road to its junction with the R693 at The Parade;
- The R909 Regional Route from its junction with the N76 Callan Road Roundabout on the N76 Kilkenny Ring Road to its junction with the R950 at the Old Callan Road;
- The R910 Regional Route from its junction with the R693 at The Parade to its junction with the Bohernatounish Road (L2610);
- The R950 Regional Route from its junction with the R909 at College Road to its junction with Walkin Street

The Action Plan is therefore designed with the twin aims of;

- Avoiding significant adverse health impacts from noise and
- Preserving environmental noise quality where it is good

This Noise Action Plan is being updated at present.

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 compiles data on the number of licence exceedances due to noise disturbance or odours but in general, noise monitoring has not been carried out widely. Data is not available by county on exceedances.

3.8.3 Existing Problems

⁵³ Kilkenny County and Borough Councils, [Noise Action Plan 2008](#), 2009

- 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.
- Several locations in the city may be affected by environmental noise levels from roads.



3.9 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.

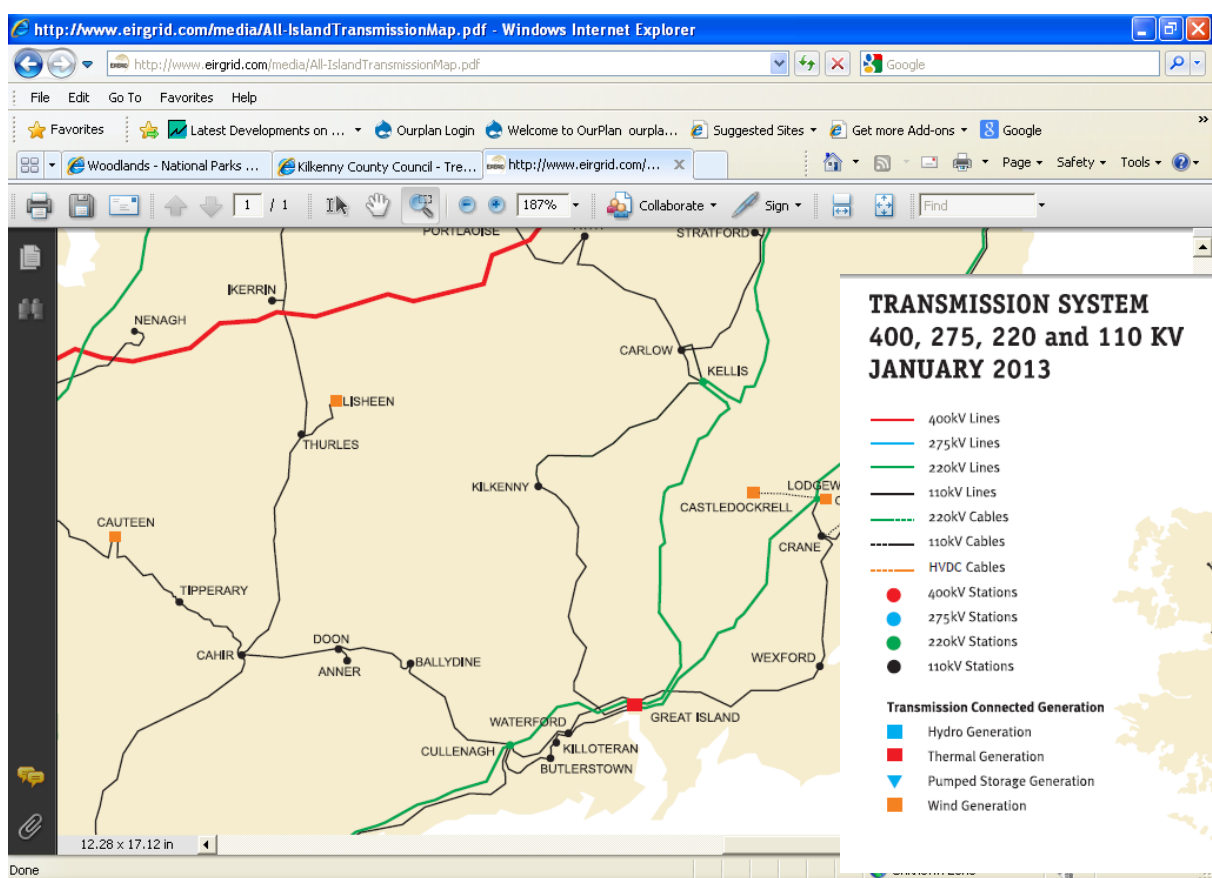
3.9.1 Transportation

The City's transportation infrastructure is shown on Figure 3.13, Street hierarchy.

3.9.2 Energy infrastructure

The existing transmission network in County Kilkenny comprises mostly 110 kV circuits and one 220 kV circuit in the south of the county. A transmission substation is located in Kilkenny city, which is served by two 110 kV overhead lines, see Figure 3.14.

Figure 3.14: Transmission network in Co. Kilkenny



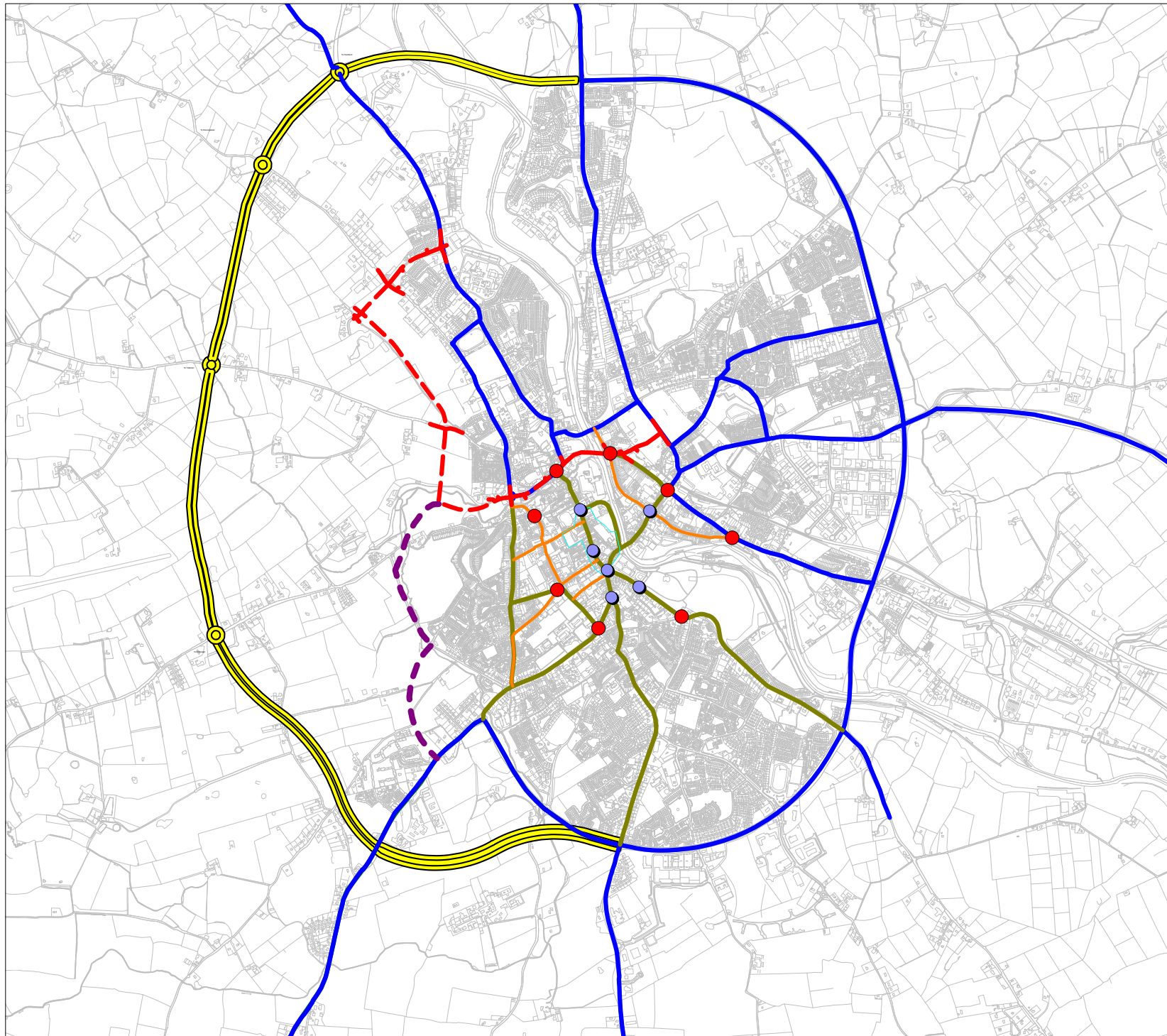
Source: <http://www.eirgrid.com/media/All-IslandTransmissionMap.pdf>











Eirgrid are currently developing the Laois – Kilkenny Reinforcement Project to increase the quality and security of supply to the area. This will involve the uprating (upgrading) of the existing Ballyragget - Kilkenny overhead line from 38 kV standard to 110 kV standard.

3.9.3 Quarries

Figure 3.9 shows the location of pits (sand and gravel) and quarries (crushed rock) in the city. Remediation of quarries is governed under the planning application for each quarry, and will not be

Figure 3.13 Street hierarchy



-  Distributor Road
-  Primary Street
-  Secondary Street
-  Central Access Scheme short-term
-  North Link Road medium term
-  Western Environs Road medium term
-  Western bypass (Long-term)
-  Gateway
-  Pedestrian portal
-  Core Retail area

Date: April 2013

Scale 1:32,000 @A4

Based on Ordnance Survey
Ireland Map License No.
Kilkenny CCMA/08/12

addressed as part of the Development Plan. The Aggregate Potential of the county has been discussed under Section 3.5.3 Geology.

3.9.4 Existing Problems

- There is a need to upgrade the energy infrastructure in the county, including upgrading the 38kv line to 110 kv line between Kilkenny City and Ballyragget.

3.10 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. Kilkenny has a wealth of architectural and archaeological heritage.

3.10.1 Archaeological Heritage

Archaeology in Ireland is protected under the National Monuments Acts.

3.10.1.1 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.

3.10.1.2 Underwater Archaeology

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

3.10.2 Architectural Heritage

Kilkenny is rich in structures and places of historic and architectural value that are symbols of the social, economic and cultural development of the county and which contribute to its essential character.

3.10.2.1 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. See Figure 3.16 for the current distribution of Protected Structures (Note: mapping of the RPS is still underway, but is almost complete).

3.10.2.2 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. See Figure 3.17 for the current distribution of NIAH structures in the city. The Council is responding to the Ministerial recommendation made in 2006 to consider structures included in the survey and rated Regional and above for inclusion in the RPS and additions are being made to the RPS on a phased basis.

3.10.2.3 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:

Kilkenny Draft City & Environs Development Plan 2014-2020

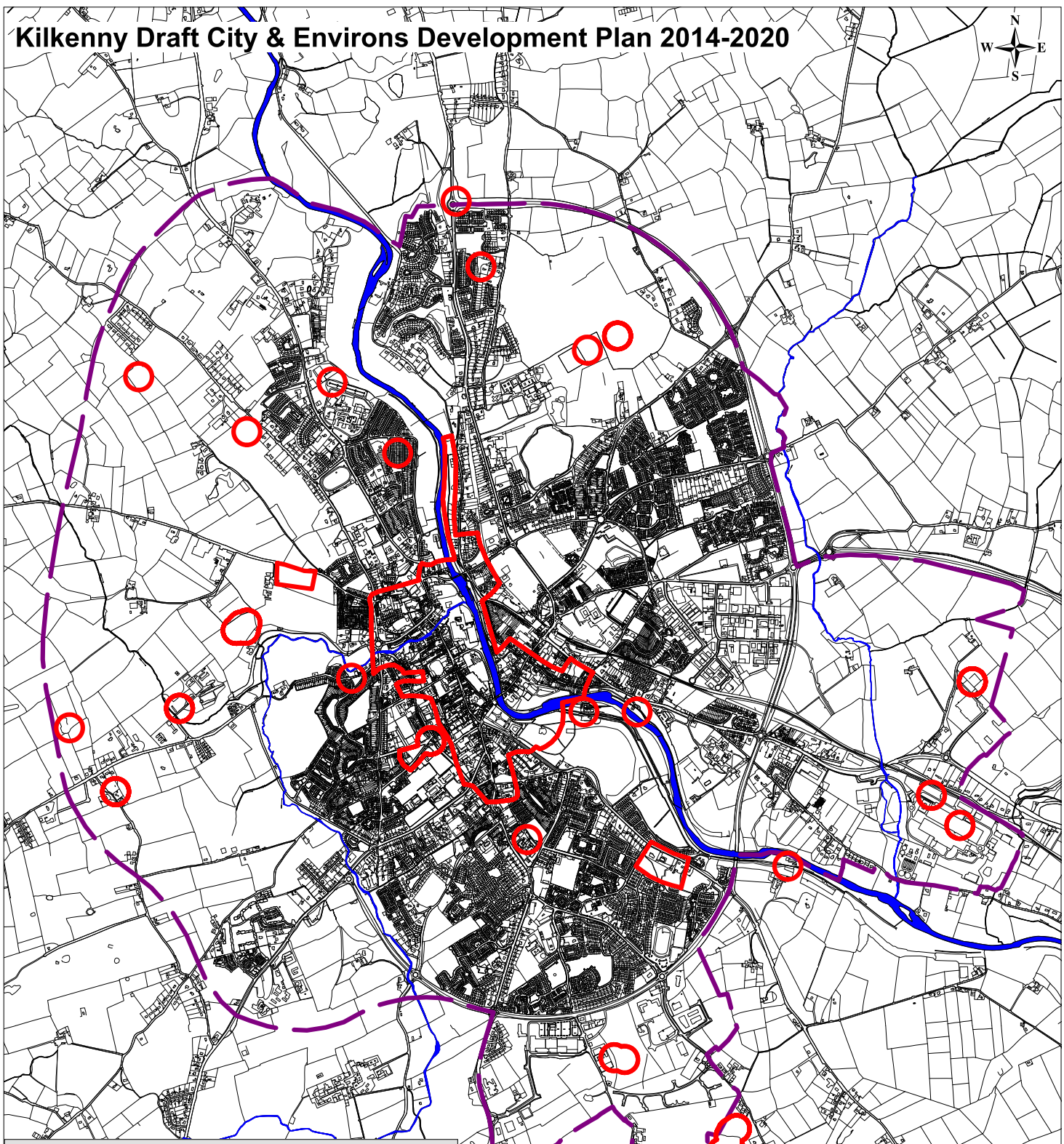




Figure 3.15 Zones of Notification of Recorded Monuments in Kilkenny City & Environs

Legend

-  Zones of Notification of Recorded Monuments
-  Kilkenny City and Environs Development Boundary

Refer to www.archaeology.ie for exact extent of zone of notification and most up to date records

Date: April 2013

Scale: 1: 31,000 @A4

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Kilkenny Draft City & Environs Development Plan 2014-2020

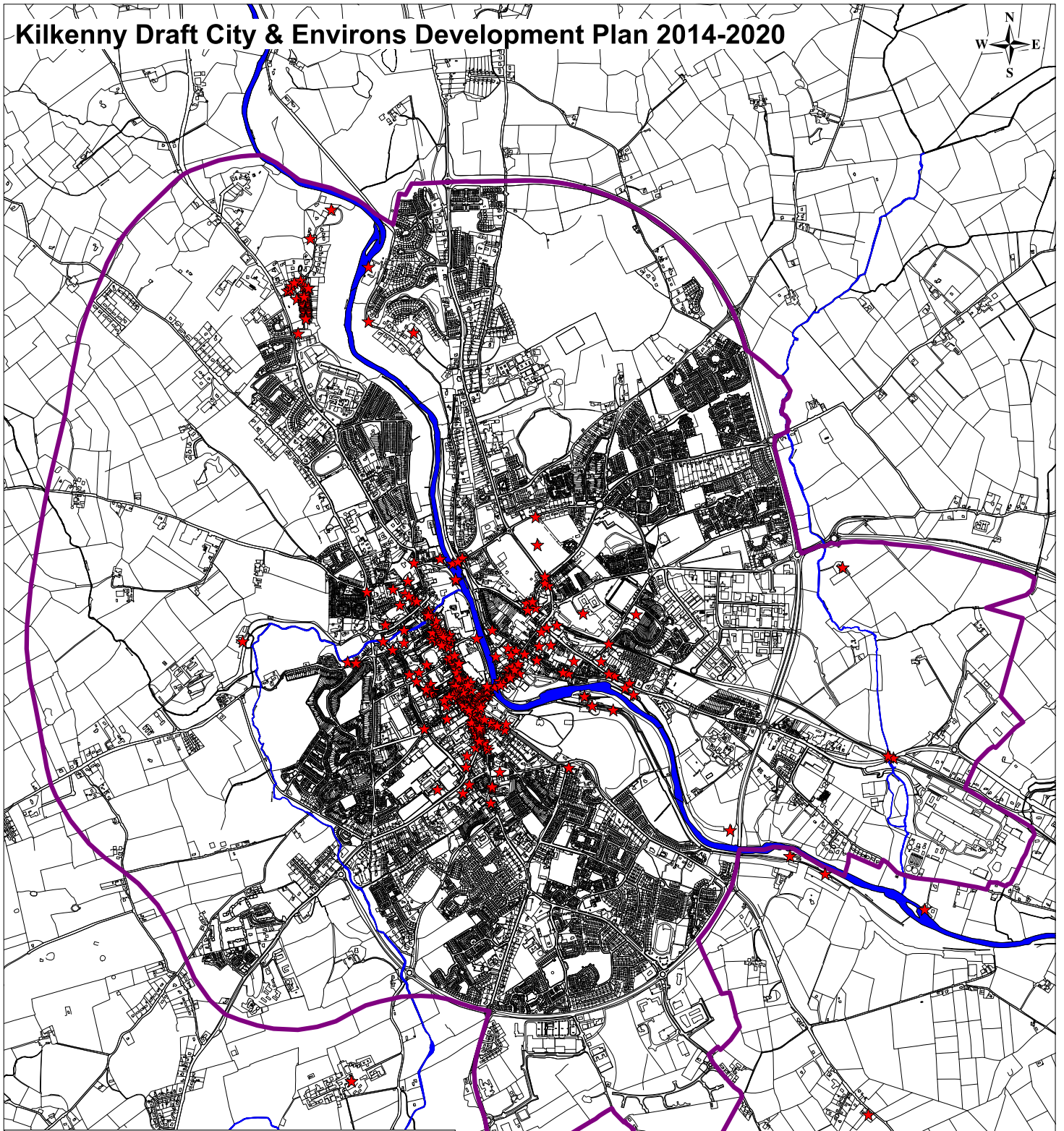


Figure 3.16 Protected Structures (incomplete)

Legend

★ Protected Structure

— Kilkeny City and Environs Development Boundary

Refer to www.archaeology.ie for exact extent of zone of notification and most up to date records

Date: April 2013

Scale: 1: 30,000 @A4

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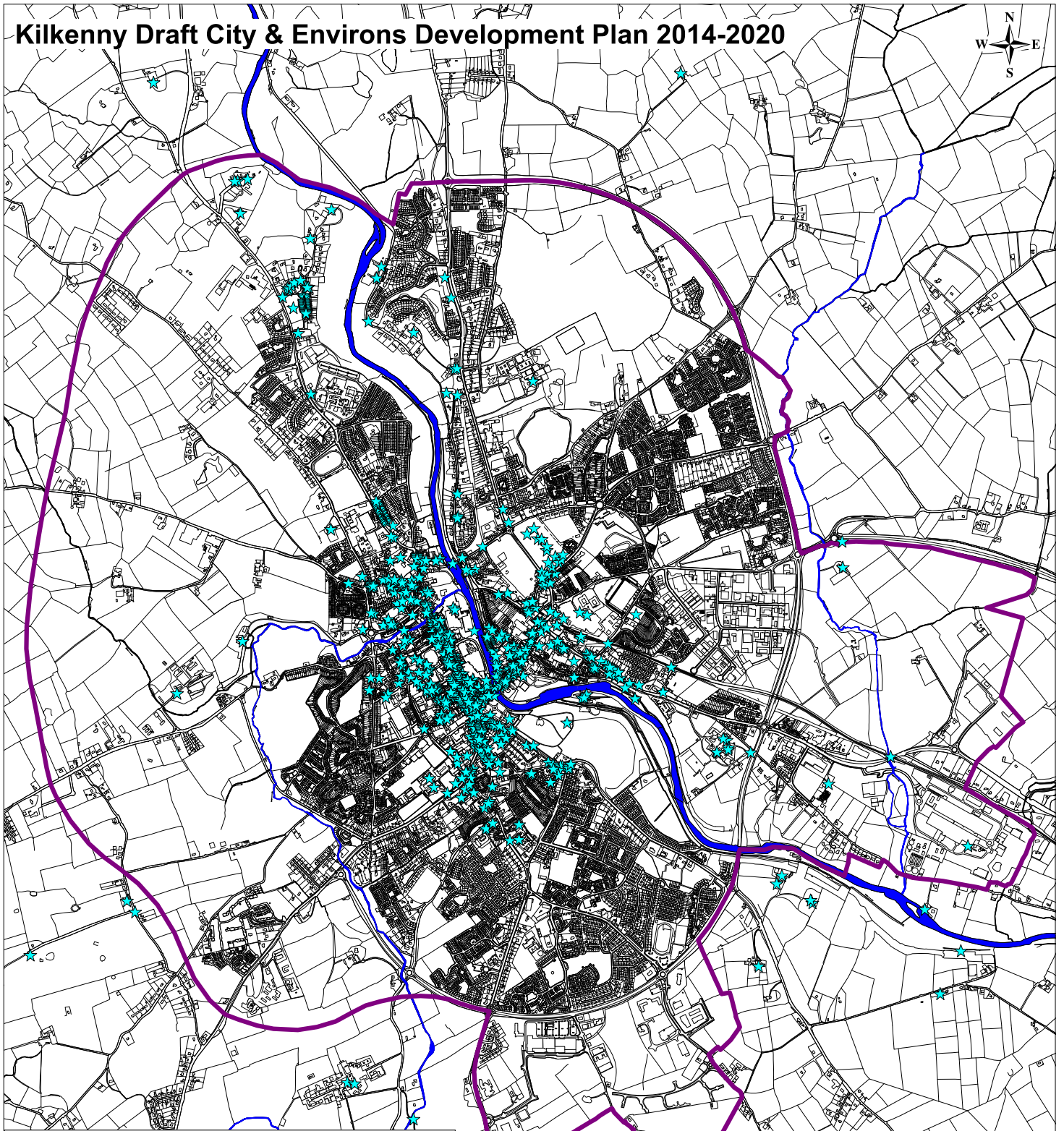




Figure 3.17 NIAH structures

Legend

 NIAH Structure

 Kilkenny City and Environs Development Boundary

Refer to www.archaeology.ie for exact extent of zone of notification and most up to date records

Date: April 2013

Scale: 1: 30,000 @A4

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- (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 are 9 ACA's in the City, see Figure 3.18. In examining this composite map of all ACAs, it was found that there were some areas of overlap between the ACAs, which may lead to confusion in the implementation of objectives. These areas of overlap will be removed in the production of the Draft Plan.

3.10.3 Existing Problems

- The process of adding NIAH structures, rated Regional and above, to the RPS has yet to be completed

3.11 Landscape

The character of Kilkenny is the result of a combination of the natural features such as the river, topography, trees, the street spaces, as well as the City's cultural heritage including its various buildings. These elements have already been addressed under Sections 3.3 and 3.10.

There are also a number of protected views within the Plan, which are shown on Figure 3.19. The development of the Smithwick's site has the potential to open up new views around the city, which were previously blocked by the brewery buildings.

3.11.1 Existing Problems

- Removal of hedgerows & trees causes dilution of natural landscape character

Kilkenny Draft City & Environs Development Plan 2014-2020

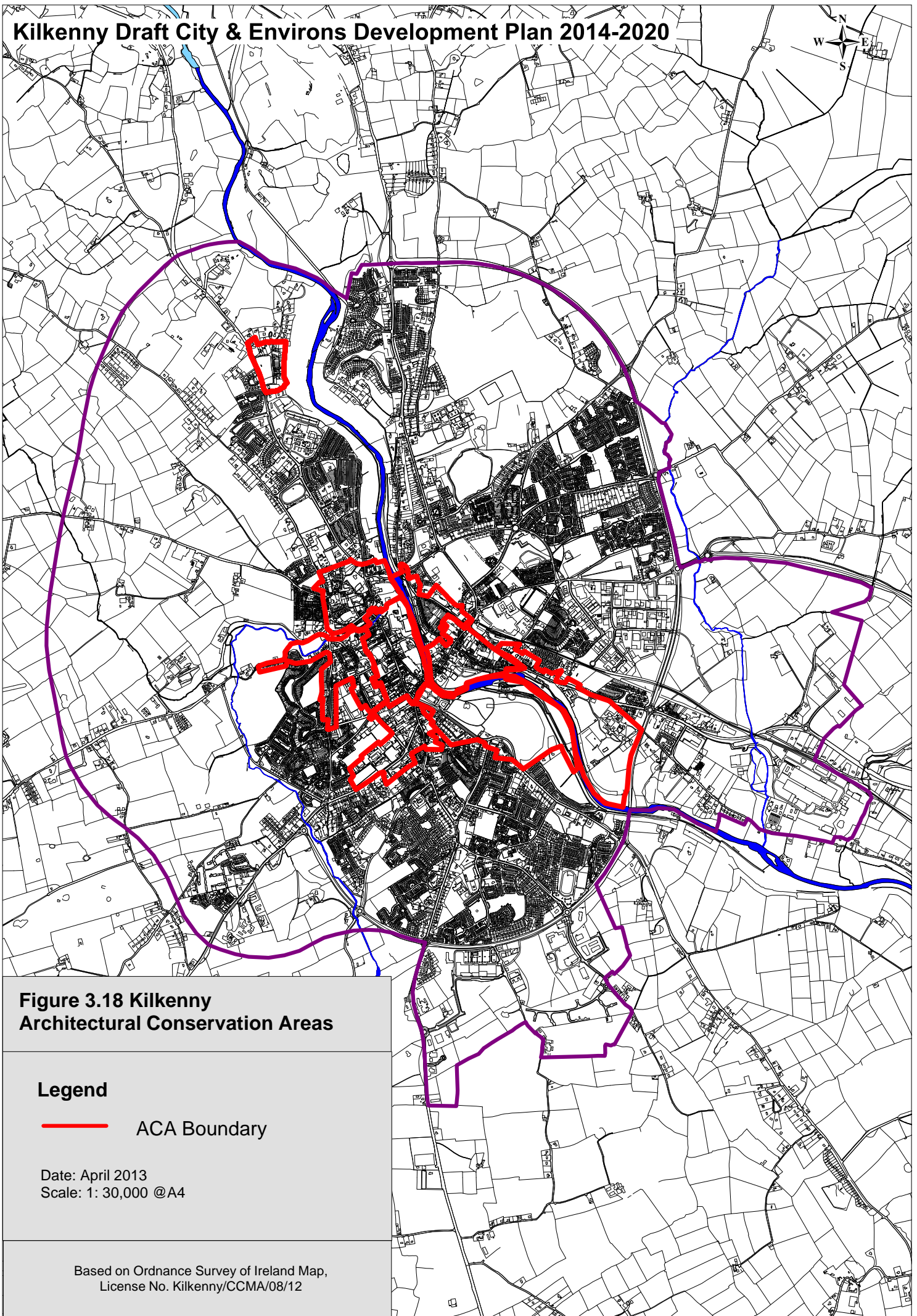
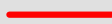


Figure 3.18 Kilkenny Architectural Conservation Areas

Legend

 ACA Boundary

Date: April 2013
Scale: 1: 30,000 @A4

Based on Ordnance Survey of Ireland Map,
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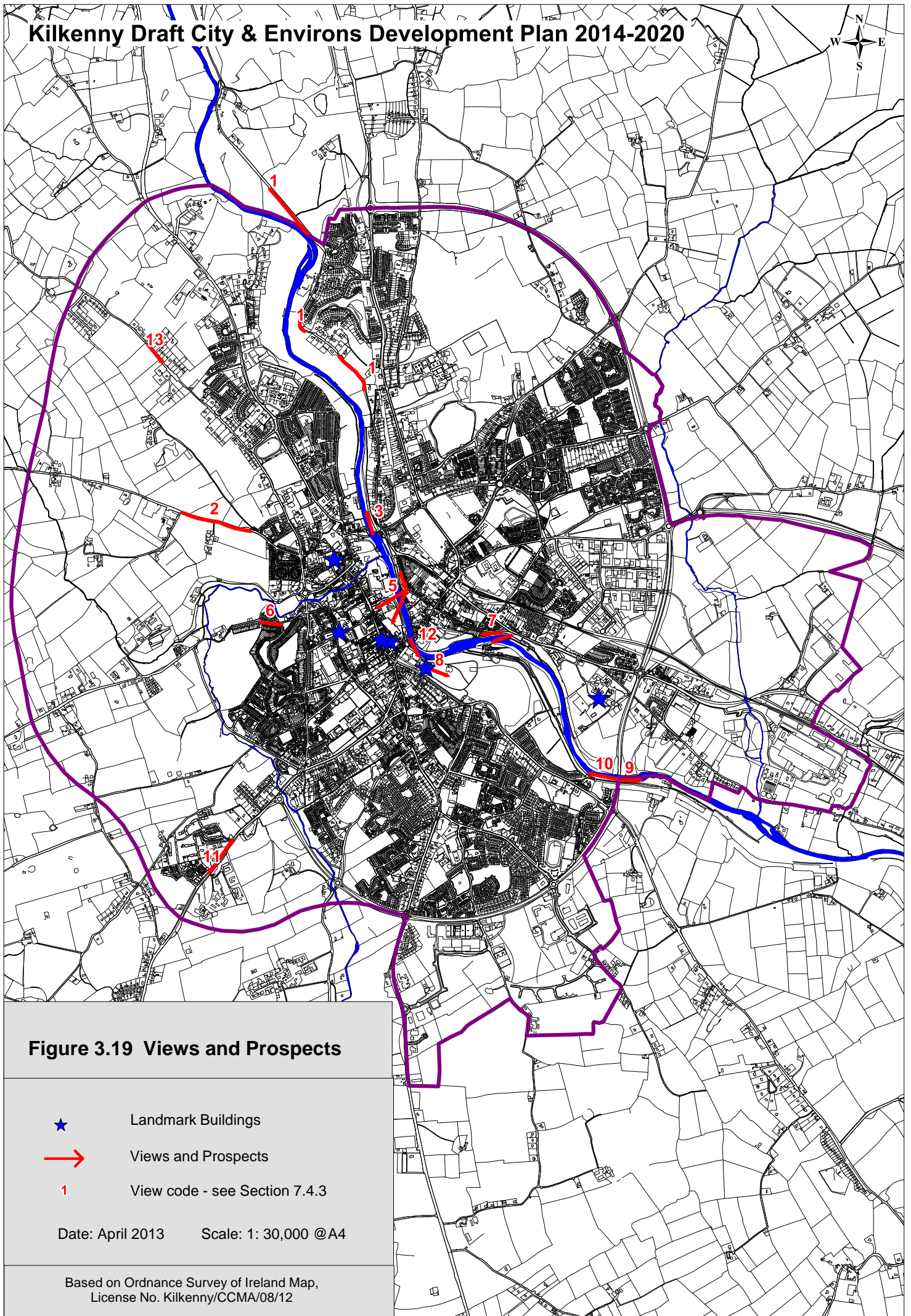





Figure 3.19 Views and Prospects

-  Landmark Buildings
-  Views and Prospects
-  View code - see Section 7.4.3

Date: April 2013 Scale: 1: 30,000 @A4

Based on Ordnance Survey of Ireland Map,
License No. Kilkenny/CCMA/08/12

3.12 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 3.10 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
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				
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

3.13 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 and 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 Development Plan provides the main guidance document. Such areas include undesignated habitats such as hedgerows, County Geological sites, the Groundwater Protection scheme, the Record of Protected Structures, Architectural Conservation Areas, and Protected views.

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 Kilkenny. 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.

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:

10. 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.

11. Population and Human Health

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

12. 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.

13. 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.

14. 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.

15. Climatic factors

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

16. Material Assets

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

17. Cultural Heritage (architectural and archaeological)

The Plan includes a review of the Record of Protected Structures and Architectural Conservation Areas. If this were not to occur, cultural heritage would not be protected to the fullest extent possible, as additions to either the RPS or ACAs would not be carried out.

18. Landscape

In the absence of protected views, development would occur with no regard for its impact on important linkages between the city's historical and cultural landmarks.

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, 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 4.1.

Table 4.1 SEA Objectives

Environmental Parameter	International, European, National policy documents/strategies /guidelines	No.	Objective (EPO)	Broad Planning Policy Objective (PPO)
Biodiversity, fauna and flora	EU Habitats Directive (92/43/EEC) EU Birds Directive (79/409/EEC) UN Convention on Biological Diversity Actions for Biodiversity 2011-2016, Ireland's National Biodiversity Plan (2011)	B1	Protect, and where appropriate, enhance biodiversity, particularly protected areas and protected species.	Protect designated sites: SAC, NHAs and SPA from development. Identify locally important habitats for protection. Provide for green infrastructure. Concentrate development in areas with least sensitivities.
Population and Human Health	Agenda 21 (1992) Our Sustainable Future: A framework for sustainable development for Ireland (2012) The National Spatial Strategy (2002) Smarter Travel, A sustainable Transport Future, A new transport policy for Ireland 2009-2020 (2009)	P1	Improve people's quality of life based on high-quality residential, working and recreational environments and on sustainable travel patterns.	Provide adequate supply of zoned land for all uses in compliance with the National Spatial Strategy, and Regional Planning Guidelines. Promote higher density residential development in suitable locations. Promote sustainable transport patterns through appropriate zoning and provision for public transport. Require appropriate levels of recreational areas with any residential application.
	Directive 2002/49/EC of 25 June 2002 relating to the assessment and management of environmental noise – Directive 96/62/EC – Air Quality Framework Directive	P2	Minimise noise, vibration and emissions from traffic	Require noise controls with all relevant applications. Promote sustainable transport patterns through appropriate zoning and provision for public transport.
Soil	A Resource Opportunity, Waste Management Policy in Ireland ⁵⁴ .	S1 S2	Maintain the quality of soils Maximise the sustainable re-use of brownfield lands, and maximise the	Direct development to brownfield lands in preference to developing greenfield lands.

⁵⁴ Department of the Environment, Community and Local Government, [A Resource Opportunity, Waste Management Policy in Ireland](#), 2012

			use of the existing built environment rather than developing greenfield lands.	
		S3	Minimise the consumption of non-renewable sand, gravel and rock deposits	Encourage rehabilitation of existing housing stock where appropriate.
		S4	Minimise the amount of waste to landfill	Provide appropriate waste disposal facilities, including for composting and recycling in all developments.
Water	EU Water Framework Directive (2000/60/EC) EU Directive on the assessment and management of flood risks [2007/60/EC], The Planning System and Flood Risk Management Guidelines for Planning Authorities (2009)	W1	Protect and enhance the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems.	Provide for appropriate waste water treatment and disposal, in serviced urban areas and from septic tanks. Provide sufficient capacity in water services to serve zoned land. Include Strategic Flood Risk Assessment as part of the Plan.
		W2	Promote sustainable water use based on a long-term protection of available water resources.	
		W3	Reduce progressively discharges of polluting substances to waters	
		W4	To comply as appropriate with the provisions of The Planning System and Flood Risk Management Guidelines for Planning Authorities	
Air	Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive (2008/50/EC)	A1	Reduce all forms of air pollution	Promote energy efficient developments. Promote sustainable transport patterns through appropriate zoning and provision for public transport.
Climatic factors	National Climate Change Adaptation Framework (2012)	C1	Reduce waste of energy, and maximise use of renewable energy	Promote energy efficient developments. Promote sustainable transport patterns through appropriate

			sources	zoning and provision for public transport.
		C2	Minimise emissions of greenhouse gases to contribute to a reduction and avoidance of human-induced global climate change	Include a climate change adaptation strategy.
		C3	Reduce the need to travel	
		C4	Assess, plan and manage adaptation to climate change impacts	
Material Assets	Our Sustainable Future: A framework for sustainable development for Ireland (2012)	M1	Make best of use of existing infrastructure and promote the sustainable development of new infrastructure.	Direct development to brownfield lands in preference to developing greenfield lands. Encourage rehabilitation of existing housing stock/buildings where appropriate.
Cultural Heritage (architectural and archaeological)	European Convention on the Protection of Archaeological Heritage (1992) Framework and Principles for the Protection of the Archaeological Heritage (1999) Architectural Heritage Protection Guidelines (2004)	H1	Promote the protection and conservation of the cultural heritage, including architectural and archaeological heritage	To conserve and protect the archaeological heritage with regard to entries on the RMP. To conserve and protect the special interest and character of the architectural heritage with regard to the RPS, the NIAH and ACAs.
Landscape	The European Convention on Landscape, 2000 A National Landscape Strategy for Ireland Strategy Issues paper for consultation (2011)	L1	Conserve and enhance valued natural and historic landscapes, their character and features within them.	Avoid the loss of designated views.

5 Assessment of Alternatives

5.1 Introduction

The [SEA Directive](#)⁵⁵ 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 development 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 and Regional 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 the Council is required to prepare a Plan and as such this scenario is not reasonable nor realistic.

As set out under Section 2.3, the [RPGs](#) have allocated a projected population growth figure for the county, which must be adhered to. This population projection is translated into a housing land requirement, or a 'pot' of zoned land, which must be distributed in the county. The RPGs have specified what allocation must be directed to Kilkenny as a hub. Therefore, it is alternative distributions of this growth that are examined here.

5.2 Alternative 1: Focus on Loughmacask and Western Environs

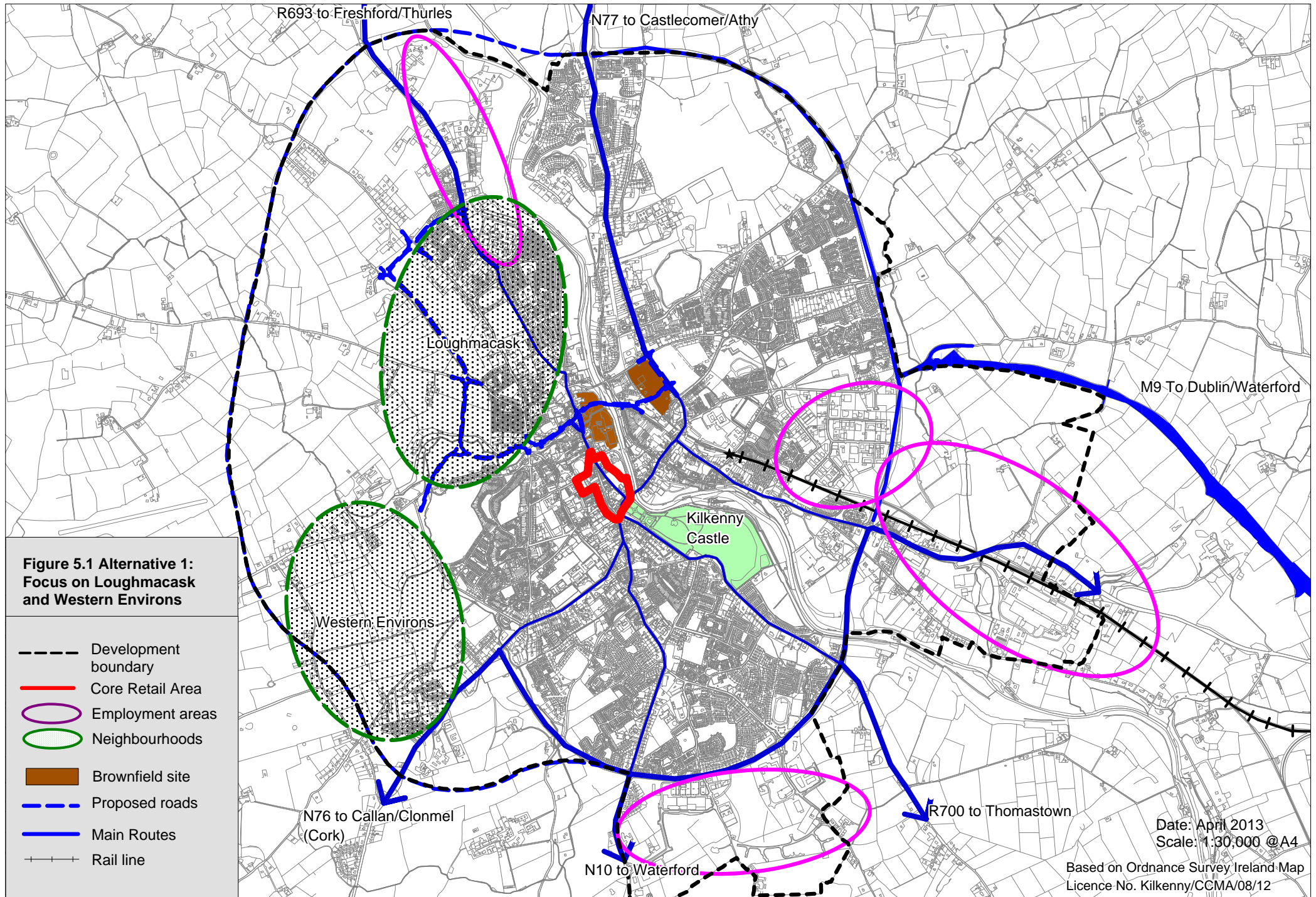
The currently adopted Core Strategy, as set out in Section 3.4.1 prioritises the neighbourhoods of Loughmacask and the Western Environs.

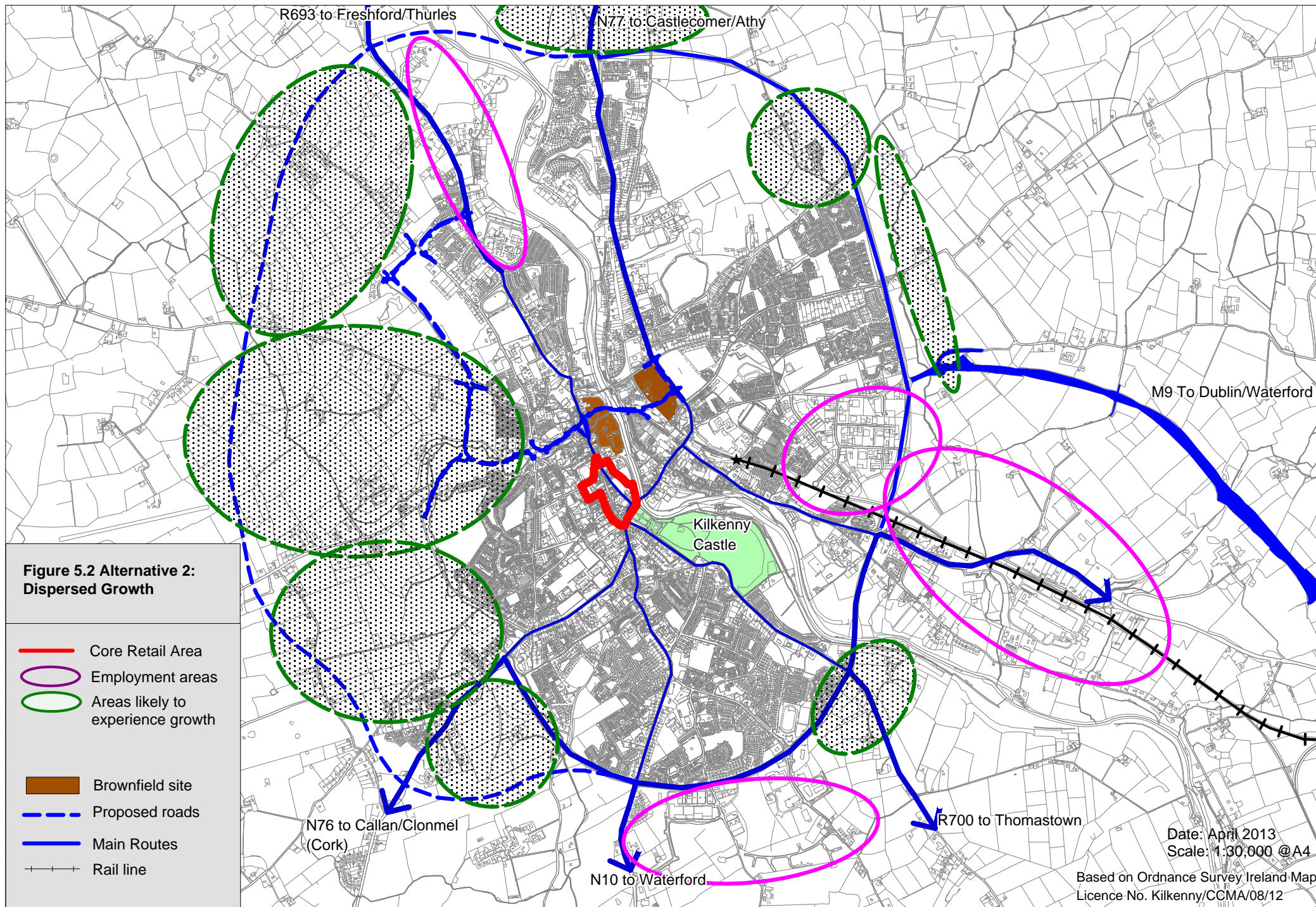
Alternative 1 continues to concentrate growth into these two neighbourhoods, with no growth being allocated elsewhere, see Figure 5.1. This alternative concentrates populations into locations where there are existing Local Area Plans in place to provide for future residential and commercial development, linked to infrastructural provision. Investment in key infrastructure can be concentrated into these two small areas.

5.3 Alternative 2: Dispersed growth

This scenario is one in which the 'pot' of zoned land would be distributed throughout the city, around its fringes, without prioritisation, see Figure 5.2. 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.

⁵⁵ 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 5.2 Alternative 2:
Dispersed Growth**

- Core Retail Area
- Employment areas
- Areas likely to experience growth
- Brownfield site
- - - Proposed roads
- Main Routes
- + - + Rail line

Date: April 2013
Scale: 1:30,000 @A4

Based on Ordnance Survey Ireland Map
Licence No. Kilkenny/CCMA/08/12

Alternative 2 envisages potentially inappropriate lands around the city zoned for low-density development. The city would grow in a piecemeal fashion, extending further out in all directions simultaneously, in some locations extending beyond the ring-road.

5.4 Alternative 3: Consolidation of city and neighbourhoods

In this alternative, the 'pot' of zoned land is mainly allocated to the Loughmacask and Western Environs neighbourhoods, but growth is also encouraged in small parcels located throughout the remainder of the city, see Figure 5.3. This alternative allows for the creation of new, well-planned neighbourhoods but also allows for infilling and consolidation in the remainder of the city.

5.5 Assessment of Alternatives

These three alternatives are assessed against the chosen planning policy objectives (PPOs) and Environmental Policy Objectives (EPOs) 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. A short description of the impacts is set out below.

5.6 Alternative 1: Focus on Loughmacask and Western Environs

Environmental impacts

This alternative concentrates populations into locations where there are existing Local Area Plans in place to provide for future residential and commercial development, linked to infrastructural provision. Investment in key infrastructure can be concentrated into these two small areas. Sustainable travel is promoted. Valuable natural resources such as water quality are protected through targeted infrastructural measures. The compact nature of development allows for efficient public transport links. The rural environment surrounding the city is protected with a clear demarcation between rural and urban areas.

Planning impacts

This alternative does not support any growth outside of these two neighbourhoods, which may lead to a population decline in the central city area.

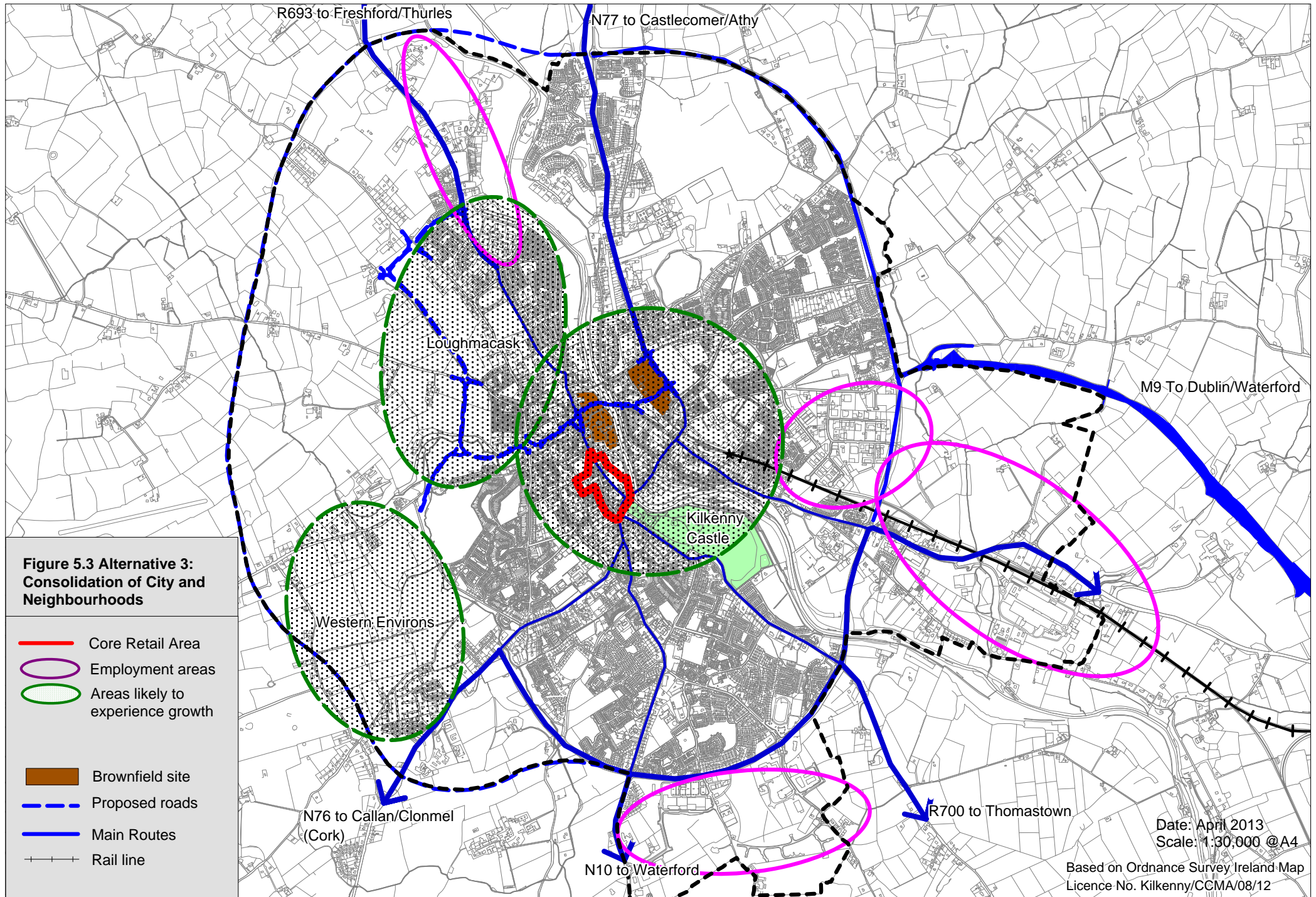
5.7 Alternative 2: Dispersed growth

Environmental impacts

This piecemeal approach would likely result in an increase in lower density development around the fringes of the city. In the long-term, this would have a negative effect on the viability of public transport provision, with resulting effects on air quality and greenhouse gas emissions. The provision of key social and physical infrastructure such as parks and schools would be costly.

Planning impacts

As this alternative lacks a detailed plan-led approach, the provision of social and physical infrastructure such as schools and parks would not be tied to the development of housing. This may result in a services deficiency in these new residential areas.



5.8 Alternative 3: Consolidation of city and neighbourhoods

Environmental impacts

The compact nature of development allows for efficient public transport links. The rural environment surrounding the city is protected with a clear demarcation between rural and urban areas.

To protect the cultural heritage within the city, appropriate mitigation measures are necessary, particularly for infill and renewal sites.

Planning impacts

Population is increased within the Borough boundary as infill sites are utilised.

5.8.1 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 objectives

Alternative

1: Loughmacask and Western Environs
2: Dispersed Growth
3: Consolidation of City and neighbourhoods

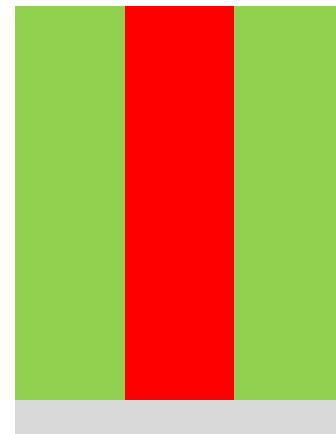
Biodiversity, fauna and flora

Protect designated sites: SACs, NHAs and SPAs from development.
Identify locally important habitats for protection.
Provide for green infrastructure.
Concentrate development in areas with least sensitivities.
Protect, and where appropriate, enhance biodiversity, particularly protected areas and protected species.



Population and Human Health

Improve people’s quality of life based on high-quality residential, working and recreational environments and on sustainable travel patterns.
Provide adequate supply of zoned land for all uses in compliance with the National Spatial Strategy, and Regional Planning Guidelines.
Promote higher density residential development in suitable locations.
Promote sustainable transport patterns through appropriate zoning and provision for public transport.
Require appropriate levels of recreational areas with any residential application.
Minimise noise, vibration and emissions from traffic
Require noise controls with all relevant applications.



Soil

Maintain the quality of soils
Maximise the sustainable re-use of brownfield lands, and maximise the use of the existing built environment rather than developing greenfield



lands.

Minimise the consumption of non-renewable sand, gravel and rock deposits

Minimise the amount of waste to landfill

Direct development to brownfield lands in preference to developing greenfield lands.

Encourage rehabilitation of existing housing stock where appropriate.

Provide appropriate waste disposal facilities, including for composting and recycling in all developments.

Water

Protect and enhance the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems.

Promote sustainable water use based on a long-term protection of available water resources.

Reduce progressively discharges of polluting substances to waters

Mitigate the effects of floods and droughts including vulnerability to climate change.

Provide for appropriate waste water treatment and disposal, in serviced urban areas and from septic tanks.

Provide sufficient capacity in water services to serve zoned land.

Include Strategic Flood Risk Assessment as part of the Plan.

Air

Reduce all forms of air pollution

Promote energy efficient developments.

Promote sustainable transport patterns through appropriate zoning and provision for public transport.

Climatic Factors

Reduce waste of energy, and maximise use of renewable energy sources

Minimise emissions of greenhouse gases to contribute to a reduction and avoidance of human-induced global climate change

Reduce the need to travel

Assess, plan and manage adaptation to climate change impacts

Promote energy efficient developments.

Promote sustainable transport patterns through appropriate zoning and provision for public transport.

Include a climate change adaptation strategy.

Material Assets

Make best of use of existing infrastructure and promote the sustainable development of new infrastructure.

Direct development to brownfield lands in preference to developing greenfield lands.

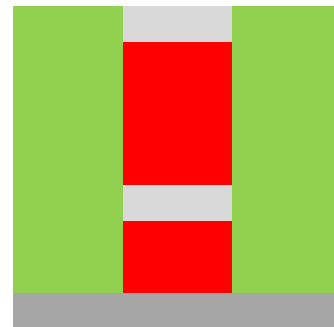
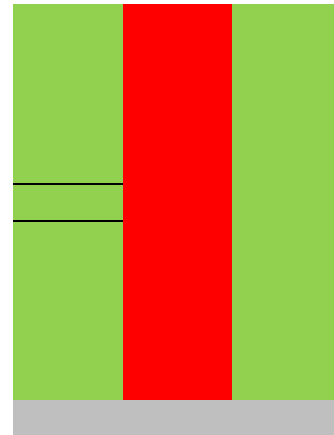
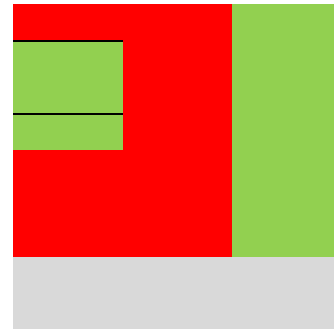
Encourage rehabilitation of existing housing stock/buildings where appropriate.

Cultural Heritage

Promote the protection and conservation of the cultural heritage, including architectural and archaeological heritage

To conserve and protect the archaeological heritage with regard to entries on the RMP.

To conserve and protect the special interest and character of the



architectural heritage with regard to the RPS, the NIAH and ACAs.



Landscape

Conserve and enhance valued natural and historic landscapes, their character and features within them.



Avoid the loss of designated views.

5.9 Selection of Preferred Alternative

Alternative 3: Consolidation of city and neighbourhoods emerges as the preferred alternative.

The preferred distribution of zoned land – Phase 1 land - is set out in Table 5.2.

Table 5.2: Core Strategy Areas of Phase 1 land	
Area	Total land in Phase 1 (hectares)
Western Environs	14.9
Loughmacask	23.5
Infill/Brownfield	21.63
Total	63.63



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 each chapter's Strategic Aim, which sets out the main priorities and emphases of the chapter. The evaluation then moves to the objectives of each chapter.

In line with the requirements of Section 10 of the Planning and Development Acts 2000-2010, the Plan must include a number of mandatory objectives. In addition, a number of elective objectives have been devised. 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 the potential conflicts, if they are present, between the strategic aims and 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.

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	To implement the provisions of Articles 6(3) and 6(4) of the EU Habitats Directive.	B1 W1 W3			P1 P2 S1 S2 S3 S4 W2 W4 A1 C1 C2 C3 C4 M1 H1 L1
	To ensure that any plan or project within the functional area of the Planning Authority is subject to appropriate assessment in accordance with the Guidance <i>Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities</i> , 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 W1 W3			P1 P2 S1 S2 S3 S4 W2 W4 A1 C1 C2 C3 C4 M1 H1 L1
	To prepare a Climate Change Adaptation plan following the adoption of the Development Plan.	B1 P1 S3 S4 W1 W2 W4 A1 C1 C2 C3 C4 M1	S2		P2 W3 H1 L1
	To implement the Development Management Standards as set out in the Plan as appropriate.	B1 P1 P2 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1			S1
	To develop a consultation process for plans and projects proposed by the local authority.				B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
	To restore and conserve St. Mary’s Church using eco restoration practices and methodologies.	S2 S3 S4 C1 M1 H1			B1 P1 P2 S1 W1 W2 W3 W4 A1 C2 C3 C4 L1
3	<i>Strategic Aim: To implement the provisions of the Regional Planning Guidelines and to target the growth of Kilkenny City in a compact urban form to advance sustainable development.</i>	B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1			

	To implement the vision, policy and objectives of the Western Environs Local Area Plan 2004 for the development of the area.	P1 P2 S2 W1 W2 W3 A1 C1 C2 C3 M1 H1 L1			B1 S1 S3 S4 W4 C4
	To prepare a master plan/urban design framework for the Smithwick’s site and Bateman Quay during the lifetime of the development plan.	P1 S2 A1 C2 C3 M1 H1	B1 W1		P2 S1 S3 S4 W2 W3 W4 C1 C4 L1
	To implement the provisions of sections 2 of the City Centre LAP relating to transport, car parking, urban design and land uses.	P1 P2 S2 W1 W2 W3 A1 C1 C2 C3 M1 L1			B1 S1 S3 S4 W4 C4 H1
	To implement the provisions of Section 3 of the City Centre LAP relating to the urban design frameworks and land uses for specific sites.	P1 P2 S2 W1 W2 W3 A1 C1 C2 C3 M1 L1			B1 S1 S3 S4 W4 C4 H1
4	<i>Strategic Aim: To provide a framework for the implementation of the economic strategy and the protection of the environment and heritage, to position the city for sustainable economic growth and employment.</i>	B1 P1 W1 W2 W3 H1 L1	P2 S2		S1 S3 S4 W4 A1 C1 C2 C3 C4 M1
	To increase co-operation between Kilkenny Local Authorities, existing third level institutions and the proposed Technological University for the South East to support employment creation, innovation and lifelong learning.	P1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
	To ensure the highest standards of environmental protection in the assessment of planning applications for all development proposals.	B1 P2 S1 W1 W2 W3 A1 C2 H1 L1			P1 S3 S4 W4 C1 C3 C4 M1
	To ensure an adequate amount of employment land on a campus type environment is available within the County for ICT and technology office based industry at the appropriate strategic locations.	P1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
	To deliver and implement the 6 projects associated with the Medieval Mile proposals during the lifetime of the Plan 2014 – 2020 for the city and county.	P1 M1 H1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 L1
	To ensure that an adequate quantity and range of land is available for enterprise development and that the appropriate	P1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1

	infrastructure is provided.				H1 L1
	No further retail parks will be granted permission in and around the City and Environs over the period 2014 – 2020	C2 C3			B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C4 M1 H1 L1
	To improve convenience market share retained within the county to 80% post 2020 To improve comparison market share retained within the county to 75% post 2020 To increase convenience trade draw from 8% to 15% post 2020 To maintain comparison trade draw at 58% post 2020				B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
5	<i>Strategic Aim: To integrate the planning and sustainable development of the city with regard to the housing, social, community and cultural requirements of the city and its population</i>	P1 P2			B1 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
	To implement the Housing Strategy contained in Appendix B.	P1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
	To require 20% of the land zoned for residential use, or for a mixture of residential and other uses, be made available for the provision of social housing.	P1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
	To require that a mixture of residential unit types and sizes are developed to reasonably match the requirements of different categories of households within the city and county.	P1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
	Complete the review of the Traveller Accommodation programme.	P1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
	To implement the Kilkenny Travellers Horse project	P1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
	To redevelop the Wetlands halting site as a group housing scheme.	P1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1

	To implement the provisions of the Traveller Accommodation programme	P1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
	The Council will facilitate the provision of childcare and early childhood education facilities in a sustainable manner in appropriate locations which include the following: larger new housing estates, industrial estates and business parks, in the vicinity of schools, neighbourhood and district centres and adjacent to public transport facilities.	P1 P2 A1 C2 C3 M1			B1 S1 S2 S3 S4 W1 W2 W3 W4 C1 C4 H1 L1
	The Council will liaise with the Department of Education and Skills, and all providers of education, to assist where possible in the development of adequate education centres, and to identify and facilitate of suitable sites for new educational facilities.	P1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
	To integrate the planning and sustainable development of the county with regard to the social, community and cultural requirements of the county and its population.	P1 H1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 L1
	To progress and achieve the completion and opening of the new City Library at County Hall.	P1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
6	<i>Strategic Aim: To protect and improve recreational, tourism and arts facilities for the benefit of residents and for the promotion of tourism</i>	P1	B1 W1 H1 L1		P2 S1 S2 S3 S4 W2 W3 W4 A1 C1 C2 C3 C4 M1
	The Council shall seek the preservation and improvement of amenities and recreational amenity facilities, and shall facilitate and provide for the extension of recreational amenities in the city where appropriate, subject to environmental, heritage and financial considerations	B1 P1 H1			P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 L1
	Complete the development of the River Nore Linear Park within the lifetime of the Plan	P1 L1	B1 W1		P2 S1 S2 S3 S4 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
	The Council shall preserve and protect existing public rights of way which give access to seashore, uplands, riverbank or other places of natural beauty or recreational use.	P1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1

	To undertake a survey of existing public rights of way in the county and establish a register within the life of the Plan	P1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
	To develop an arts venue within the county to fulfil a multiplicity artistic uses.	P1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
	To implement the Kilkenny Local Authorities Arts Strategy	P1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
7	<i>Strategic Aim: To seek the protection, sustainable management and where possible, enhancement of heritage for the benefit of current and future generations and to promote increased awareness of heritage through policies and actions.</i>	B1 P1 W1 W2 W3 W4 H1 L1			P2 S1 S2 S3 S4 A1 C1 C2 C3 C4 M1
	To implement, in partnership with the Kilkenny Heritage Forum and all relevant stakeholders, a County Heritage Plan and County Biodiversity Plan	B1 W1 H1			P1 P2 S1 S2 S3 S4 W2 W3 W4 A1 C1 C2 C3 C4 M1 L1
	To protect and, where possible, enhance the plant and animal species and their habitats that have been identified under European legislation (EU Habitats Directive, EU Birds Directive).	B1 W1	S2 M1		P1 P2 S1 S3 S4 W2 W3 W4 A1 C1 C2 C3 C4 H1 L1
	To protect and where possible enhance the natural heritage sites designated in National legislation (the Wildlife Acts and the Flora Protection Order). This protection will extend to any additions or alterations to sites that may arise during the lifetime of this plan.	B1 W1	S2 M1		P1 P2 S1 S3 S4 W2 W3 W4 A1 C1 C2 C3 C4 H1 L1
	To prepare and support the implementation of a Green Infrastructure Strategy for Kilkenny City and Environs, as resources allow	B1 P1 S1 W1 W2 W3 C4 L1			P2 S2 S3 S4 W4 A1 C1 C2 C3 M1 H1
	To protect and where possible enhance wildlife habitats and landscape features which act as ecological corridors/networks and stepping stones, such as river corridors, hedgerows and road verges, and to minimise the loss of habitats and features	B1 P1 S1 W1 W2 W3 C4 L1			P2 S2 S3 S4 W4 A1 C1 C2 C3 M1 H1

<p>of the wider countryside (such as ponds, wetlands, trees) which are not within designated sites. Where the loss of habitats and features of the wider countryside is unavoidable as part of a development, to ensure that appropriate mitigation and/or compensation measures are put in place, to conserve and enhance biodiversity and landscape character and green infrastructure networks.</p>				
<p>The Council will promote the planting of native tree and shrub species, by committing to using native species (of local provenance wherever possible) in its landscaping work and on County Council property</p>	B1			P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
<p>Protect archaeological sites and monuments (including their setting), underwater archaeology, and archaeological objects, including those that are listed in the Record of Monuments and Places, and in the Urban Archaeological Survey of County Kilkenny or newly discovered sub-surface and underwater archaeological remains.</p>	H1			B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 L1
<p>To facilitate and support the implementation of existing (and any further) conservation plans as resources allow.</p>	H1			B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 L1
<p>To ensure the protection of the architectural heritage of Kilkenny City & Environs by including all structures considered to be of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest in the Record of Protected Structures.</p>	H1			B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 L1
<p>To respond to the Ministerial recommendation to include in the Record of Protected Structures, structures which have been identified as being of Regional, National or International significance in the National Inventory of Architectural Heritage survey of the city and county published in 2006.</p>	H1			B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 L1
<p>To carry out a review of the Record of Protected Structures for the functional area of Kilkenny City and Environs.</p>	H1			B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 L1

	To ensure the preservation of the special character of each ACA listed (Table 8.3)above and within the county particularly with regard to building scale, proportions, historical plot sizes, building lines, height, general land use, building materials, historic street furniture and paving.	H1			B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 L1
	To designate ACAs where appropriate and provide a local policy framework for the preservation of the character of these areas.				
8	<i>Strategic Aim: To provide a framework for the protection of the environment, including water quality, the avoidance of flood risk and the provision of a high quality telecommunications infrastructure.</i>	B1 P1 P2 S1 S2 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1			S3 S4 H1 L1
	Implement the programme as outlined in the Water Services Investment Programme.	B1 P1 W1 W2 W3 M1			P2 S1 S2 S3 S4 W4 A1 C1 C2 C3 C4 H1 L1
	Prioritise the upgrading of the Purcellsinch wastewater treatment plant.	B1 W1 W2 W3			P1 P2 S1 S2 S3 S4 W4 A1 C1 C2 C3 C4 M1 H1 L1
	Meet in full the requirements of the E.U. Urban Waste Water Treatment and Water Framework Directives.	B1 P1 W1 W2 W3 M1			P2 S1 S2 S3 S4 W4 A1 C1 C2 C3 C4 H1 L1
	To update Noise Mapping in accordance with revised or updated thresholds for Noise Mapping.	P1 P2			B1 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
	To promote compliance with environmental standards and objectives established— for bodies of surface water, by the European Communities (Surface Waters) Regulations 2009; for groundwater, by the European Communities (Groundwater) Regulations 2010; which standards and objectives are included in the South East River Basin Management Plan	B1 P1 W1 W2 W3 M1			P2 S1 S2 S3 S4 W4 A1 C1 C2 C3 C4 H1 L1
	To complete the mapping of source protection areas and to map Source Protection Areas for any new public water supply schemes as appropriate.	B1 P1 W1 W2 W3 M1			P2 S1 S2 S3 S4 W4 A1 C1 C2 C3 C4 H1 L1
	To ensure that Source Protection Areas are identified for any multiple unit housing developments with private water	B1 P1 W1 W2 W3 M1			P2 S1 S2 S3 S4 W4 A1 C1 C2 C3 C4 H1 L1

	supplies.				
	To adopt a comprehensive risk-based planning approach to flood management to prevent or minimise future flood risk. In accordance with the Guidelines , the avoidance of development in areas where flood risk has been identified shall be the primary response	P1 W4 C4	S2 M1		B1 P2 S1 S3 S4 W1 W2 W3 A1 C1 C2 C3 H1 L1
	To implement the Joint Waste Management Plan for the South East Region.	P1 S4			B1 P2 S1 S2 S3 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
	To control the following for the purposes of reducing the risk or limiting the consequences of a major accident: <ul style="list-style-type: none"> • The siting of Major Accident Hazard sites • The modification of an existing Major Accident Hazard site • Development in the vicinity of a Major Accident Hazard site 	P1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
	To set up and maintain a register of approved telecommunications structures which will provide a useful input to the assessment of future telecommunications developments and would also be useful from the point of view of maximising the potential for future mast sharing and co-location.	M1 L1			B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 H1
9	<i>Strategic Aim: To promote and facilitate all forms of renewable energies and improvements in energy efficiencies as a response to climate change.</i>	P1 P2 A1 C1 C2 C4 M1	H1 L1		B1 S1 S2 S3 S4 W1 W2 W3 W4 C3
	Investigate the feasibility of installing anaerobic digestion facilities at the Purcellsinch wastewater treatment plant.	C1 C2			B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C3 C4 M1 H1 L1
	The Planning Authority will make available advice on Passive Solar Design in preplanning consultations for domestic and commercial buildings.	P1 C1 C2			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C3 C4 M1 H1 L1
	To review the progress of the <i>Climate Change Strategy</i> , report on the progress to date and thereafter develop a new strategy and action plan in line with national policy.	B1 W4 A1 C1 C2 C3 C4			P1 P2 S1 S2 S3 S4 W1 W2 W3 M1 H1 L1
10	<i>Strategic Aim: To co-ordinate transport and land use planning,</i>	P1 P2 A1 C2 C3			B1 S1 S2 S3 S4 W1 W2 W3

<i>reducing the demand for travel and the reliance on the private car in favour of public transport, cycling and walking.</i>	M1			W4 C1 C4 H1 L1
To review the Mobility Management Plan (2009) and adopt a new MMP for the period 2015-2020	P1 P2 A1 C1 C2 C3 C4			B1 S1 S2 S3 S4 W1 W2 W3 W4 M1 H1 L1
Complete the demarcation of the Gateways as depicted on the map and prioritise pedestrian and cyclist movement within the Gateways.	P1 P2 A1 C1 C2 C3 C4			B1 S1 S2 S3 S4 W1 W2 W3 W4 M1 H1 L1
To re-examine options for pedestrian prioritisation in the city centre following implementation of the Central Access Scheme.	P1 P2 A1 C1 C2 C3 C4			B1 S1 S2 S3 S4 W1 W2 W3 W4 M1 H1 L1
Complete the improvements to the back lanes, including the lane from Fr. Murphy Square to Robertshill.	P1 P2 A1 C1 C2 C3 C4			B1 S1 S2 S3 S4 W1 W2 W3 W4 M1 H1 L1
Provide the Quay Link bridge over the River Nore at the Carnegie Library.	P1 P2 A1 C1 C2 C3 C4			B1 S1 S2 S3 S4 W1 W2 W3 W4 M1 H1 L1
Plan for the provision of the Greensbridge Way and the Ossory Bridge connection.	P1 P2 A1 C1 C2 C3 C4			B1 S1 S2 S3 S4 W1 W2 W3 W4 M1 H1 L1
To facilitate the provision of approved bus stops and shelters within the City and Environs as the need arises.	P1 P2 A1 C1 C2 C3 C4			B1 S1 S2 S3 S4 W1 W2 W3 W4 M1 H1 L1
To facilitate parking provision for tourist buses in the city.	P1 P2 A1 C1 C2 C3 C4			B1 S1 S2 S3 S4 W1 W2 W3 W4 M1 H1 L1
To preserve free from development proposed road realignment/improvement lines and associated corridors where such development would prejudice the implementation of National Roads Authority or Council plans (See Figure 10.2 of Plan, Road hierarchy).	P1 M1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 H1 L1
Reserve the line of Phase 2 and Phase 3 of proposed Central Access Scheme free from development and to complete Phase 1 of the Central Access Scheme within the plan period. (See Figure 3.3 of Plan, R1).	P1 M1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 H1 L1
To widen the Castlecomer Road to provide for two lanes south bound and one lane north bound carriageway (See Figure 3.3 of Plan, R2).	P1 M1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 H1 L1
Reserve the proposed line of the western by-pass for the city	P1 M1			B1 P2 S1 S2 S3 S4 W1 W2

	from the Castlecomer Road to the Callan Road free from development, including for a river crossing (See Figure 3.3 of Plan, R3).				W3 W4 A1 C1 C2 C3 C4 H1 L1
	Reserve the proposed line of a new road link from the Callan Road to the Waterford Road roundabout free from development (See Figure 3.3 of Plan, R4).	P1 M1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 H1 L1
	Provide a second entrance to the Hebron Industrial Estate from the Hebron Road (See Figure 3.3 of Plan, R5).	P1 M1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 H1 L1
	Complete the R697 Kells Road Improvement Scheme from Upper Patrick St. to the Kells Road Roundabout (R6)	P1 M1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 H1 L1
	Complete the N10 Road Improvement Scheme from the Dublin Road Roundabout to the Leggettsrath Roundabout (R7)	P1 M1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 H1 L1
	The development of the lands located on the Waterford Road (known as the Murphy machinery lands, see Figure 3.3 of Plan, R8) to be dependent on an alternative access to the national route	P1 M1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 H1 L1
	Prepare and implement traffic management and calming schemes for the City & Environs in line with the 3 year Roads Programmes.	P1 C1 C2 C3 C4 A1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 M1 H1 L1
11	<i>Strategic Aim: To encourage the creation of living and working environments of the highest quality by ensuring a high quality of design, layout and function for all development under the Planning Acts and Regulations, to conserve and build upon positive elements in the built and natural environment, and to protect amenities.</i>	B1 P1 P2 W1 W2 W3 W4 C1 C2 C3 C4 M1 H1 L1			S1 S2 S3 S4 A1
	To restrict non essential advertising structures, or any advertising structure which would impact injuriously on amenity, the built environment or road safety.	P1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1

6.2 Summary of assessment

It is worth reiterating that the process of SEA and Development 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 the Council. Mitigation also took place through the Strategic Flood Risk Assessment, see Appendix 1, where land was rezoned to ensure no inappropriate uses would be considered on land which was subject to flood risk.

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”, see Section 1.2.8.

The two main exceptions to this are the Objectives in relation to the Habitats Directive and Flooding. The objective for Natura 2000 sites is set out in Section 1.3 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 Natura 2000 sites. The objective in relation to flooding is set out in Section 8.2.4.1 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 objective 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. Specific mitigation measures have been included in the Plan to address these problems as follows:

- It was noted that there is only one Conservation Management Plan (CMP) in place for a Natura 2000 sites in Co. Kilkenny. A CMP can help protect whatever is important in Natura 2000 sites whilst enabling appropriate development. Section 7.2.1.1 of the Draft Plan states that the National Parks and Wildlife Service will be requested to prioritise the preparation of Conservation Management Plans for Natura 2000 Sites which are located in Kilkenny.

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 1: Introduction	
Development Objective	Uncertain effects on SEA objective
To prepare a Climate Change Adaptation plan following the adoption of the Development Plan.	S2
<p>Mitigation included in Plan: See Section 8.2.4.1</p> <p>The avoidance of land at risk from flooding may include the avoidance of significant brownfield lands in central areas. As stated in Section 8.2.4.1, the Plan will “adopt a comprehensive risk-based planning approach to flood management to prevent or minimise future flood risk”, in accordance with the Guidelines. The Guidelines include for a justification test to be carried out where land is centrally located and is well situated for sustainable development reasons. If the justification test is satisfied, the land can be zoned. As the Plan will follow the Guidelines, adverse effects on sustainable and sequential development, from any Climate Change Adaptation Plan will be mitigated.</p>	
Chapter 3: Core Strategy	
Development Objective	Uncertain effects on SEA objective
To prepare a master plan/urban design framework for the Smithwick’s site and Bateman Quay during the lifetime of the development plan.	B1 W1
<p>Mitigation included in Plan: See Chapters 1,7 and 8</p> <p>The development of this site may have an effect on natural heritage and water quality. There are numerous mitigation measures included in the Plan to ensure no negative effects from this objective. This includes objectives and development management standards in relation to natural heritage (Chapter 1 and Chapter 7), cultural heritage, landscape (Chapter 7) and water quality (Chapter 8). Therefore any adverse effects are unlikely.</p>	
Chapter 4: Economic Development	
Development Objective	Uncertain effects on SEA objectives
Strategic Aim: To provide a framework for the implementation of the economic strategy and the protection of the environment and heritage, to position the city for sustainable economic growth and employment.	P2 S2
<p>Mitigation included in Plan: See Chapters 8 and 3</p> <p>The implementation of the Councils’ economic strategy may have numerous effects. The protection of environment and heritage however is built into this Strategic Aim. Protection of other environmental effects, such as noise and emissions and maximising brownfield land must be mitigated also. There are numerous mitigation measures included in the Plan to ensure no negative effects from this objective. This includes objectives and development management standards in relation to noise and air pollution (Chapter 8) and the promotion of areas in need of regeneration (Chapter 3). Therefore any adverse effects are unlikely.</p>	
Chapter 6: Recreation, Arts and Tourism	
Development Objective	Uncertain effects on SEA objectives
<i>Strategic Aim: To protect and improve recreational, tourism and arts facilities for the benefit of residents and for the promotion of tourism.</i>	B1 W1 H1 L1
<p>Mitigation included in Plan: See Chapters 1,7 and 8</p> <p>The development of such facilities may have impacts on natural and cultural heritage. There are numerous mitigation measures included in the Plan to ensure no negative effects from this objective. This includes objectives and development management standards in relation to natural</p>	

heritage (Chapter 1 and Chapter 7), cultural heritage, landscape (Chapter 7) and water quality (Chapter 8). Therefore any adverse effects are unlikely.	
Development Objective	Uncertain effects on SEA objective
Complete the development of the River Nore Linear Park within the lifetime of the Plan	B1 W1
<p>Mitigation included in Plan: See Chapter 1</p> <p>The River Nore is a designated SPA and cSAC. Section 1.3 of the Plan sets out that any development must be subject to appropriate assessment in accordance with the <i>Guidance Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities, 2009</i>, therefore any potential adverse effects will be dealt with in that assessment.</p>	
Chapter 7: Heritage	
Development Objective	Uncertain effects on SEA objective
To protect and, where possible, enhance the plant and animal species and their habitats that have been identified under European legislation (EU Habitats Directive, EU Birds Directive).	S2 M1
<p>Mitigation included in Plan: See Chapter 3</p> <p>This objective may lead to the avoidance of centrally located sites with access to existing infrastructure due to the requirements for protection of plant and animal species. The mitigation measure for this is that Section 3.4 includes an objective for the promotion of areas in need of regeneration, but other measures in the Plan, as set out above, will ensure that any such regeneration must be in accordance with the protection of natural heritage as required by legislation.</p>	
Development Objective	Uncertain effects on SEA objective
To protect and where possible enhance the natural heritage sites designated in National legislation (the Wildlife Acts and the Flora Protection Order). This protection will extend to any additions or alterations to sites that may arise during the lifetime of this plan.	S2 M1
<p>Mitigation included in Plan: See Chapter 3</p> <p>This objective may lead to the avoidance of centrally located sites with access to existing infrastructure due to the requirements for protection of plant and animal species. The mitigation measure for this is that Section 3.4 includes an objective for the promotion of areas in need of regeneration, but other measures in the Plan, as set out above, will ensure that any such regeneration must be in accordance with the protection of natural heritage as required by legislation.</p>	
Chapter 8: Infrastructure and Environment	
Development Objective	Uncertain effects on SEA objective
To adopt a comprehensive risk-based planning approach to flood management to prevent or minimise future flood risk. In accordance with the Guidelines , the avoidance of development in areas where flood risk has been identified shall be the primary response.	S2 M1
<p>Mitigation included in Plan: See Chapter 8</p> <p>The avoidance of land at risk from flooding may include the avoidance of significant brownfield lands in central areas. As stated in Section 8.2.4.1, the Plan will “adopt a comprehensive risk-based planning approach to flood management to prevent or minimise future flood risk”, in accordance with the Guidelines. The Guidelines include for a justification test to be carried out where land is centrally located and is well situated for sustainable development reasons. If the justification test is</p>	

satisfied, the land can be zoned. As the Plan will follow the Guidelines, adverse effects on sustainable and sequential development will be mitigated.

Chapter 9: Renewable Energy Strategy

Development Objective

**Uncertain effects
on SEA objectives**

Strategic Aim: To promote and facilitate all forms of renewable energies and improvements in energy efficiencies as a response to climate change.

H1 L1

Mitigation included in Plan: See Chapter 7

In some cases the promotion of renewable energies may cause adverse effects on cultural heritage and landscape through adverse visual impacts. Mitigation measures are included in Chapter 7 as development management standards in relation to cultural heritage and landscape to ensure that no development will have a negative effect on cultural heritage or landscape.

8 Development 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 Council is responsible for monitoring and the preparation of monitoring evaluation report(s), the publication of these reports and, if necessary, the carrying out of corrective action. The Manager's Report on the implementation of the Development Plan, which must be carried out within two years of the making of the Plan, will include detail on the monitoring of the indicators.

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 6. While considerable environmental data is directly available to the Council such as water quality, and information on the RPS etc, other sources of information may need to be accessed to provide a comprehensive view of the impact of the Plan. 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, a variation may be considered during the lifetime of the Plan.

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 Local Authorities/National Parks and Wildlife Service/Fisheries Board (depending on available information from relevant statutory authorities).	At monitoring ev
	No deterioration in the quality of protected areas	Overall conservation status of habitats in Kilkenny	NPWS, Report on Overall Conservation Status of Habitats in Ireland listed under the Habitats Directive.	Every 6 years
	No loss of protected species	Overall conservation status of species in Kilkenny, distribution of protected species in Kilkenny	NPWS, Report on Overall Conservation Status of Habitats in Ireland listed under the Habitats Directive. National Biodiversity Data Centre	Every 6 years
	All actions contained within the Biodiversity Plan to be achieved during the lifetime of the County Development Plan.	Number of actions achieved.	Heritage Officer	At monitoring ev
	No spread of invasive species within the City	Numbers of new cases identified over 2013 levels	National Biodiversity Data Centre	At monitoring ev
Population and Human health	No further loss of population within Kilkenny Borough boundary; total population within Kilkenny Borough boundary not to decrease on 2011 levels.	Total population within Kilkenny Borough boundary.	Census	Next Census
Soil	No significant increase in number of landslides	Total number of landslides	National Landslide Database	At monitoring ev
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	At monitoring ev
	No decline in surface water quality; no decline in status of surface waters from current status	Status of surface water	EPA	At monitoring ev
	No decline in groundwater quality; no decline	Status of groundwater	EPA	At monitoring ev

	in status of groundwater from current status			
	No reduction in processing of waste water and treated effluent quality; Purcellsinch WWTP to continue to meet recommended EPA limits.	Status of Purcellsinch WWTP in relation to recommended EPA limits.	EPA	At monitoring ev
	Improvement in quality of drinking water; Radestown WSS to be removed from EPA's Remedial Action List.	Status of Radestown WSS on the EPA's Remedial Action List.	EPA	At monitoring ev
	Improvement of application of ground water protection scheme.	Number of source protection areas that have been mapped.	GSI & Kilkenny County Council Environment	At monitoring ev
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	At monitoring ev
Climatic factors	Improved Climate Change Adaptation measures.	Completion of Climate Change Adaptation Strategy.	Kilkenny Local Authorities	At monitoring ev
Material Assets	Improvements in energy infrastructure; upgrading of the Kilkenny city to Ballyragget line from 38 kv to 11 kv.	Status of the upgrade of the Kilkenny city to Ballyragget line	Eirgrid	At monitoring ev
Cultural Heritage and (architectural and archaeological)	Increase in number of protected structures over that listed in 2008 Plan.	Number of protected structures.	Kilkenny Local Authorities	At monitoring ev
Landscape	No reduction in number of protected views. Increase or no change in the number of protected views over that listed in the 2008 Plan – 13 views.	Number of protected views.	Kilkenny Local Authorities	At monitoring ev