Strategic Environmental Assessment (SEA) of Kilkenny County Development Plan 2014-2020

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Planning Department
Kilkenny County Council
May 2014

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1. SEA Statement for Kilkenny County Development Plan 2014-2020

Planning Department

Kilkenny County Council

May 2014

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1 Introduction

1.1 Terms of Reference

This is the SEA statement for the Kilkenny County Development Plan 2014-2020.

1.2 SEA Definition

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.

1.3 Legislative Context

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, referred to hereafter as the SEA Directive, introduced the requirement that SEA be carried out on plans and programmes which are prepared for a number of sectors, including land use planning.

The SEA Directive was transposed into Irish Law through the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (Statutory Instrument Number (SI No. 435 of 2004) and the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (SI No. 436 of 2004). Both sets of Regulations became operational on 21 July 2004. The Regulations have been amended by the European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011 (SI No. 200 of 2011) and the Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011 (SI No. 201 of 2011).

The SEA Directive and the instruments transposing it into Irish Law require that after the making of a Development Plan, the plan or programme making authority is required to make a Statement available to the public and the competent environmental authorities. This Statement is referred to as an SEA Statement (DEHLG, 2004).

1.4 Content of the SEA Statement

The SEA Statement is required to include information summarising:

a) How environmental considerations have been integrated into the Development Plan;

b) How the following have been taken into account during the Council's consideration of the draft Development Plan:

- The environmental report,
- Submissions and observations made to the planning authority on the Development Plan and Environmental Report, and
- Any transboundary consultations.

c) The reasons for choosing the Development Plan in the light of the other reasonable alternatives dealt with; and

d) The measures decided upon to monitor the significant environmental effects of implementation of the Development Plan.

1.5 Implications of SEA for the Development Plan

Article 11 of the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (SI No. 436 of 2004) as amended requires that SEA is undertaken for the preparation of Development Plans.

The findings of the SEA are expressed in an Environmental Report, which accompanied the Draft Development Plan on public display and was updated in order to take account of recommendations contained in submissions. The Environmental Report was also updated in order to take account of changes which were made to the original, Draft Development Plan that was placed on public display. Changes which were Material Alterations underwent SEA, the findings of which were placed on public display alongside the Proposed Amendments (Material Alterations).

Members of the planning authority have taken into account the findings of all relevant SEA output during their consideration of the Draft Development Plan before its adoption. On the making of the Development Plan, this SEA Statement was prepared.

2 How Environmental Considerations were integrated into the Development Plan

2.1 Introduction

Environmental considerations were integrated into the Development Plan at all stages through:

- Consultations with environmental authorities;
- Communication within the Development Plan team of environmental considerations and integration of these considerations into the Development Plan;
- Detailing of the baseline situation and identification and mapping of environmental constraints and sensitivities, and
- Integration of environmental measures into the Plan.

2.2 Consultation

In line with the Planning and Development (SEA) Regulations 2004 as amended[1], 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. The bodies notified were:

- The EPA
- Minister for Agriculture, Fisheries and Food.
- Minister for Environment, Community and Local Government.
- Minister of Arts, Heritage and Local Government.
- Minister for Communications, Marine and Natural Resources.
- Carlow County Council.
- Waterford County Council.
- Waterford City Council.
- Wexford County Council.
- New Ross Town Council.

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 and flooding. In addition, one specific comment related to the Waterford Harbour Shellfish Growing Area and the recommendations of the Pollution Reduction Programme and Characterisation Report.

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.
In addition, submissions were made on the Draft Development Plan and Environmental Report while they were on public display.

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

2.3 Communication of environmental considerations and integration into the Plan

The Draft Plan, Environmental Report and Natura Impact Report were prepared by an in-house team of planners. The process was an iterative one. Environmental considerations were 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.

2.4 Integration of Environmental measures into the Development Plan

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 Heritage is: "*To preserve and improve places or areas from which views or prospects of special amenity value exist*."

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.

Another overall change, related to the structure of the Plan, 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. This includes sections on Conservation Management Plans for Natura 2000 sites, the National Survey of Native Woodlands and Ancient Woodlands and peatlands, and also the incorporation of a number of protected views from Local Area Plans.

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 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.

3 Environmental Report and Submissions & Observations

3.1 Introduction

This section details how both the Environmental Report and submissions and observations made to the planning authority on the Environmental Report and SEA process have been taken into account during the preparation of the Development Plan.

3.2 SEA Scoping Submissions

In line with the Planning and Development (SEA) Regulations 2004 as amended[2], 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 indicating that submissions or observations in relation to the scope and level of detail of the information to be included in the environmental report could be made to the Council.

Two submissions on the scope of the SEA were received and these were taken into account during the formulation of the scope of the SEA.

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 and flooding. In addition, one specific comment related to the Waterford Harbour Shellfish Growing Area and the recommendations of the Pollution Reduction Programme and Characterisation Report.

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.

3.3 Submissions and observations on the Environmental Report

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. 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 are set out in Table 1 below.

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

Table 1: Summary of issues raised in Pre-Draft Consultation

Submission ref.	Summary	Manager's Opinion and Recommendation
An Taisce, 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 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.

3.4 Submissions and observations on the Draft Plan and Proposed Amendments

The Draft plan and Environmental Report were published on the 14th June 2013 and remained on public display until the 23rd August 2013. A total of 75 submissions were received in total, of which 3 referred to the SEA. These are summarised in Table 2 below.

Table 2: Summary of Issues raised on Draft Plan stage

Submission ref.	Summary	Manager's Opinion and Recommendation
DOE	The Council should satisfy itself that the Plan is fully compliant with the SEA and Habitats Directive.	Noted. The plan is compliant with all relevant requirements. A Natura Impact Report and SEA Report have been carried out for the Draft Plans.
EPA, D13a	Relationship with other plans/ programmes 25) There would be merit in taking into consideration and including a	25) See point 7 above in relation to the NRDP. The Draft Fresh Water Pearl Mussel Management Plan for the Nore is included in the Natura Impact Report for the County

	reference as relevant to the National Rural Development Plan and the Draft Fresh Water Pearl Mussel Sub-basin Management Plans. Existing Environment 26) There would be merit in amending Table 3.9 to include additional columns for 'capacity of critical service infrastructure' and 'compliance status'. 27) Consideration should be given to the EU guidance in relation to 'Undertaking non-energy extractive activities in accordance with Natura 2000 requirements' in Section 3.5.3.3. Extractive industries. 28) EU's Common implementation strategy for the water framework directive, guidance document no. 20, in particular Section 3.5 should be taken into account. 29) Consideration should be given to including a reference to the Suir CFRAMS and its associated SEA and the Plan should ensure a commitment to integrating the Suir and South East CFRAMS into the plan. Environmental Objectives 30) Consideration should be given to amending Biodiversity objective B1 to take into account the need to protect ecological linkages/corridors. Alternatives Assessment 31) There would be merit in including a summary of the full range of effects including cumulative effects in this assessment. 32) The Plan should seek to avoid ribbon development and ensure development is only permitted where appropriate critical service infrastructure is established. The Plan should promote the EPA's Code of Practice: Wastewater treatment and disposal systems. Mitigation measures 33) Including a reference system for the objectives and development management standards would allow for more clarity.	Plan. Reference will be included to the other Sub-basin management plans as appropriate. A similar reference will be included in the SEA. 26) Detail in relation to the capacity of water services and compliance for all settlements is included in Section 3.6 Water. 27) The appropriate location for a reference to this document would be in the text of the Draft Plan itself, in Section 6.4.2. This reference will be added in. 28) Section 3.5 of this document is in relation to Article 4.7 of the Water Framework Directive. Article 4.7 sets out circumstances in which failure to achieve certain of the WFD objectives are permitted. The Plan states in Section 9.1.6 that it will meet in full all requirements of the WFD. 29) Reference to the Suir and South East CFRAMS is included in the Strategic Flood Risk Assessment. A commitment to integrating the CFRAMS will be included in Section 3.1.2 of the SFRA, and in Section 9.2.9 of the Draft Plan. The timeframe for the CFRAM programme has now been changed; this should be amended in Section 2.2.2 of the SFRA. 30) Objective B1 will be amended. 31) The full range of effects is outlined under each Alternative and summarised under Section 4.2 of the Non Technical Summary. Cumulative effects have been considered by the assessment but there is an opportunity to highlight this further in the SEA Environmental Report. 32) The Plan seeks to achieve this through its Rural Settlement Strategy, Section 3.5. The Plan promotes the EPA's code of practice in Section 9.2.8.4 Water Quality Development Management Standards. 33) A referencing system will be included in the final Plan and final SEA. 34) The influence of the SEA and SFRA is noted in Section 7 of the Environmental Report, however this section will be expanded. The NIR contains detail on how the AA has influenced the plan. 35) The first monitoring deadline will be the preparation of the Manager's Report on the implementation of the Development Plan, which must be carried out within two years

	34) There would be merit in summarising how the SEA, FRA and AA have influenced the plan. Monitoring measures 35) Clarification is needed on how objectives will be monitored to establish if they're having a negative impact. 36) For Table 8.1, consideration should be given to including thresholds for which appropriate action will be taken if adverse effects are identified.	of the making of the Plan. Table 8.1 sets out the monitoring proposals, and these will all be examined as part of the Manager's Report. This will be clarified. 36) Thresholds have been identified as part of the Targets – action will be taken where targets are not met.
DAHG, D23a	11) The planning policy objective for biodiversity should include species, particularly protected species. 12) Amend data source in Table 8.1 as it only includes European sites.	11) The broad planning policy objective in Table 4.1 will be amended to include species. 12) Table 8.1 of the SEA will be amended to include NPWS as a data source for nationally protected areas

The Proposed Amendments to the Draft plan and Environmental Report were published on the 14th February 2014 and remained on public display until the 14th of March 2014. During the 4 week public consultation period, a total of 41 submissions were received of which 2 referred to the SEA. The two submissions were from the Environmental Protection Agency and Inland Fisheries Ireland. These are set out in table 3 below.

Table 3: Summary of Issues raised at Proposed Amendments stage

Submission ref.	Summary	Manager's Opinion and Recommendation
EPA, PA 13	4) DoECLG Circulars (Circular PL 6 of 2011) 'Further Transposition of EU Directive 2001/42/EC on Strategic Environmental Assessment (SEA)' should be taken into account. 5) Following adoption of the amended Plan, an SEA Statement should summarise the following: • How environmental considerations have been integrated into the Plan; • How the Environmental Report, submissions, observations and consultations have been taken into account during the preparation of the Plan; • The reasons for choosing the Plan adopted in the light of other reasonable alternatives dealt with; and, • The measures decided upon to monitor the significant environmental effects of	4) All relevant Circulars (including PL 9/2013 & PSSP 6/2011) have been - and will be - taken into account throughout the Plan-preparation/SEA processes as relevant. 5) This will be done following adoption of the amended Plan.

	implementation of the Plan.	
IFI, PA 18	The IFI is concerned that the removal of 'enhance' and 'enhancement' from the Development Plan and Strategic Environmental Assessment will dilute protection of the aquatic environment, as required under the Water Frameworks Directive. Of particular concern is the amended Strategic Aim in Chapter 8 (Heritage) and the removal of the final paragraph in Section 8.2 (Natural Heritage).	It is not the intention of the Council to dilute protection of the aquatic environment in this regard. The Water Frameworks Directive is addressed specifically in Section 9.2.8.1 of the Plan. A cross reference can be inserted into the Heritage Chapter to reinforce this. The term 'enhancement' is referred to in the Water Frameworks Directive, but is not stated in the Planning & Development or Heritage Acts. Therefore, the term 'enhancement' is more appropriate to natural heritage than it is to built or cultural heritage. It is considered prudent to re-instate the term as it relates to natural heritage by reinstating the final paragraph in Section 8.2 (Natural Heritage).

4 Alternatives and the Development Plan

4.1 Introduction

One of the critical roles of the SEA was to facilitate an evaluation of the likely environmental consequences of a range of alternative scenarios for accommodating future growth in County Kilkenny as a result of the Development Plan. 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. 3 Alternative Scenarios for the County were considered and these are described below.

4.2 Description of Alternative Plan Scenarios

Alternative 1: Continued consolidation

Alternative 1 concentrates growth mainly into the seven main settlements of Kilkenny, Ferrybank, the Environs of New Ross, the District Towns of Callan, Castlecomer, Graiguenamanagh and Thomastown, with little growth being allocated to the smaller level settlements or to rural areas. Access to public transport is a guiding principle of this approach, and Thomastown, as the only District Town served by rail, is prioritised above the level of the other three District towns. Wind energy developments are concentrated only where they exist at present, with no allowance made for new locations.

Alternative 2: Dispersed growth

This scenario is one which places very few restrictions on development throughout the Plan area. No specific targets or limitations on growth would be set in the core strategy of the Plan for settlements within the county at a level lower than the hub and gateway. The 'pot' of zoned land, would be distributed amongst all remaining settlements without prioritisation. Development would be allowed to proceed in an ad hoc manner and would follow market forces to a great extent. Developments such as quarries and wind energy developments would be located where demand is greatest. Most development would occur on greenfield sites.

Alternative 3: Selection of new growth areas

This alternative acknowledges the designation of Kilkenny as a hub, and Waterford as a gateway within the National Spatial Strategy, but redesignates the 'District Towns'. The 2008 District Towns were designated on the basis of the Regional Planning Guidelines, which categorised towns of between 1,500 and 5,000 as 'District Towns'. The 2011 Census shows that Castlecomer and Graiguenamanagh's populations did not reach the 1,500 mark. In this alternative, Piltown and Mooncoin, which have the next highest populations, are designated as District Towns in place of Castlecomer and Graiguenamanagh.

As part of this alternative, new areas for wind energy development would be selected on the basis of viability alone. Only those areas with highest wind speeds would be selected for wind farm development, regardless of landscape sensitivities or the presence or absence of existing wind farms.

4.3 Evaluation of Alternative Plan Scenarios

Alternative 1: Continued consolidation - Likely significant effects

Environmental impacts

This alternative concentrates populations into locations with existing services and facilities, and access to public transport. Investment in key infrastructure can be concentrated into a very small number of settlements. Sustainable travel is promoted. Valuable natural resources such as water quality are protected through targeted infrastructural measures. No allowance is made for additional wind energy developments, which would result in less use of renewable energy sources.

Planning impacts

This alternative does not support the rural population, which may lead to a population decline in rural areas and in smaller settlements.

Alternative 2: Dispersed growth - Likely significant effects

Environmental impacts

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

Planning impacts

The provision of key services such as water supply and wastewater treatment would become costly in both financial and environmental quality terms.

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

Environmental impacts

In this alternative, a large growth area would be formed around Ferrybank, Piltown and Mooncoin in the south of the county. As Piltown's wastewater treatment plant is currently overloaded, any additional loading would negatively affect water quality in Piltown. This may have a resulting negative effect on the conservation status of the Lower River Suir cSAC which is located in close proximity to both settlements. Directing growth into the smaller centres of Piltown and Mooncoin would detract from the emphasis on Ferrybank as part of the Waterford Gateway, and would result in an increase in unsustainable travel patterns and a negative effect on air quality. As Piltown and Mooncoin were not historically large service centres, there are very few opportunities for brownfield redevelopment, and most development in both would take place on the edges of the centres, on greenfield land. This would have negative environmental effects through the increased replacement of agricultural land by artificial surfaces.

As part of this alternative, new areas for wind energy development would be selected on the basis of viability alone. Only those areas with highest wind speeds would be selected for wind farm development, regardless of landscape sensitivities or the presence or absence of existing wind farms.

Planning impacts

From a social and economic perspective, existing services in Castlecomer and Graiguenamanagh would suffer with the removal of their District Town designation.

4.4 Reasons for choosing the Development Plan, as adopted, in light of the other reasonable alternatives dealt with

The preferred alternative which emerged from the evaluation process is Alternative 1, Continued Consolidation, with an element of Alternative 2, Dispersed Growth to encourage some level of growth of the smaller settlements to ensure that these smaller settlements are sustained. This was considered to be the best alternative for the following reasons:

- It concentrates populations into locations with existing services and facilities, and access to public transport.
- Investment in key infrastructure can be concentrated into a very small number of settlements.
- Sustainable travel is promoted.
- Valuable natural resources such as water quality are protected through targeted infrastructural measures.

The preferred settlement hierarchy is set out in Table 4.

Table 4: Core Strategy Population Allocation	
Settlement	Additional Population to 2020
County Kilkenny	10,021
Kilkenny City	2,200
Ferrybank/Belview (Part Gateway)	1,125
District Towns Callan Castlecomer Graiguenamanagh Thomastown	 2.4% (240) 1.5% (150) 1.3% (130) 2.38% (238)
Remainder area to include smaller towns and villages and environs of New Ross and the rural area of the county	5,885
Total	10,021

In relation to wind energy, the best solution is the recognition of areas of highest viability (as set out in Alternative 3) whilst taking account of landscape sensitivities (as set out in Alternative 1). It was considered prudent to incorporate a wind energy development strategy based on areas of highest viability, taking environmental sensitivities into account which borrows from both alternatives.

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.

5 Monitoring Measures

5.1 Introduction

The SEA Directive requires that the significant environmental effects of the implementation of plans and programmes are monitored. This section contains proposals for monitoring the likely significant effects of implementing the Development Plan.

Monitoring enables, at an early stage, the identification of unforeseen adverse effects and the undertaking of appropriate remedial action. In addition to this, monitoring can also play an important role in assessing whether the Development Plan is achieving its environmental objectives and targets - measures which the Plan can help work towards - whether these need to be re-examined and whether the proposed mitigation measures are being implemented.

5.2 Indicators and Targets

Monitoring is based around indicators which allow quantitative measures of trends and progress over time relating to the Strategic Environmental Objectives identified in the SEA Environmental Report and used in the assessment. Each indicator to be monitored is accompanied by the target(s) which were identified with regard to the relevant strategic actions.

Table 5 overleaf shows the indicators and targets which have been selected for monitoring the likely significant environmental effects of implementing the Development Plan, if unmitigated. The Monitoring Programme may be updated to deal with specific environmental issues - including unforeseen effects - as they arise. Such issues may be identified by the Council or identified to the Council by other agencies.

5.3 Sources

Measurements for indicators generally come from existing monitoring sources. Existing monitoring sources include those maintained by the Council and the relevant authorities e.g. the Environmental Protection Agency, the National Parks and Wildlife Service and the Central Statistics Office.

The Development Management Process in the Council will provide passive monitoring of various indicators and targets on an application by application basis. Where significant adverse effects - including positive, negative, cumulative and indirect - have the potential to occur upon, for example, entries to the RMP, entries to the RPS or ecological networks as a result of the undertaking of individual projects or multiple individual projects such instances should be identified and recorded and should feed into the monitoring evaluation.

5.4 Reporting

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. The indicators are based on the Strategic Environmental Objectives presented in Chapter 6 of the Environmental Report. 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.

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. The Manager's Report on the implementation of the Development Plan will include a review of the indicators.

5.5 Thresholds

Thresholds at which corrective action will be considered include:

- The occurrence of flood events;
- Court cases taken by the Department of Arts, Heritage and the Gaeltacht regarding impacts upon archaeological heritage including entries to the RMP;
- Complaints received from statutory consultees regarding avoidable environmental impacts resulting from development which is granted permission under the Development Plan;
- Boil notices on drinking water; and
- Fish kills.

Table 5 Monitoring proposals for environmental categories				
Environmental Category	**Targets**	**Selected indicators**	**Data Sources**	**Monitoring frequency**
Biodiversity -Flora and Fauna	No loss of important and/or designated habitats	Number of sites.	Kilkenny County Council/National Parks and Wildlife Service/Fisheries Board (depending on available information from relevant statutory authorities).	At monitoring evaluation
	No deterioration in the quality of protected areas	Overall conservation status of habitats in Co. Kilkenny	The NPWS; For all European sites: Report on Overall Conservation Status of Habitats in Ireland listed under the Habitats Directive (NPWS).	Every 6 years
	No loss of protected species	Overall conservation status of species in Co. Kilkenny, distribution of protected species in Co. 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 evaluation
	No spread of invasive species within the County	Numbers of new cases identified over 2013 levels	National Biodiversity Data Centre	At monitoring evaluation
Population and Human health	No further loss of population within Kilkenny Borough boundary and Castlecomer; total population within Kilkenny Borough boundary and Castlecomer not to decrease on 2011 levels.	Total population within Kilkenny Borough boundary and Castlecomer.	Census	Next Census
Soil	No significant increase in number of landslides	Total number of landslides	National Landslide Database	At monitoring evaluation

	No significant reduction in peatland; total area not to reduce by 20% over 2013 level.	Total area of peatland	Corine mapping resurvey	Unknown
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 evaluation
	No decline in estuarine water quality; no decline in status of estuarine waters from current status (good or moderate)	Status of estuarine waters	EPA	At monitoring evaluation
	No decline in surface water quality; no decline in status of surface waters from current status	Status of surface water	EPA	At monitoring evaluation
	No decline in groundwater quality; no decline in status of groundwater from current status	Status of groundwater	EPA	At monitoring evaluation
	No reduction in processing of waste water and treated effluent quality; no increase in number of waste water treatment plants that fail recommended EPA limits.	Number of waste water treatment plants that fail recommended EPA limits.	EPA	At monitoring evaluation
	Improvement in treatment of waste water; Reduction in number of waste water treatment plants with no secondary treatment, which was 6 in 2013.	Number of waste water treatment plants with no secondary treatment	Kilkenny County Council Water Services/ Irish Water	At monitoring evaluation
	Improvement in quality of drinking water; Reduction in numbers of public water supplies on the EPA's Remedial Action List, from 2 in 2012.	Numbers of public water supplies on the EPA's Remedial Action List.	EPA	At monitoring evaluation
	Improvement of application of ground water protection scheme.	Number of source protection areas that have been mapped.	GSI & Kilkenny County Council Environment	At monitoring evaluation

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 evaluation
Climatic factors	Improved Climate Change Adaptation measures.	Completion of Climate Change Adaptation Strategy.	Kilkenny County Council.	At monitoring evaluation
Material Assets	Increase in afforestation of appropriate woodlands; increase in proportion of mixed and deciduous forest cover over coniferous forestry, as compared to 2006.	Proportion of mixed and deciduous forest cover.	Corine mapping resurvey	Unknown
Cultural Heritage (architectural and archaeological)	Addition in number of structures listed on the RPS; increase in number of protected structures over that listed in 2008 Plan.	Number of protected structures.	Kilkenny County Council	At monitoring evaluation
Landscape	No decrease in sensitive land cover; proportion of county comprising sensitive land cover should not decrease from 2006 level of 10%.	Proportion of county comprising sensitive land cover.	Corine mapping resurvey	Unknown

2. Environmental Report (SEA) of Kilkenny County Development Plan 2014-2020

Planning Department

Kilkenny County Council

May 2014

Contents

Appendix 1: Strategic Flood Risk Assessment (separate document)

Non-technical Summary

Section 1 Introduction and Terms of Reference

This is the Non-Technical Summary of the Environmental Report (ER) of the Kilkenny County 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 Council and comprises a written document with maps, and appendices. The contents of the Plan (as set out in its chapter headings) are as follows;

1. Introduction
2. Demographic and Socio-Economic Trends
3. Core Strategy
4. Economic Development
5. Housing and Community
6. Rural Development
7. Recreation, Tourism & the Arts
8. Heritage
9. Infrastructure & Environment
10. Renewable Energy Strategy
11. Transport
12. 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 and Sustainable Rural Housing
- Food Harvest 2020, A vision for Irish agri-food and fisheries[5]
- South East River Basin Management Plan[6]
- Waterford Planning and Land Use Transportation Study (PLUTS)[7]
- *Kilkenny 2002-2012, A Strategy for Economic, Social and Cultural Development*[8]

[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] Atkins, *Waterford Planning and Land Use Transportation Study 2004-2020,* 2004

- The South East Regional Planning Guidelines[9] (RPGs)

The Plan will set the strategic context for any lower-tier plans, such as Local Area Plans (LAPs) to be prepared in the county. LAPs are in place for Callan, Castlecomer, Fiddown, Ferrybank/Belview, Gowran, Graiguenamanagh, Piltown, Thomastown and Woodstock. The LAPs for Ferrybank and the District Towns will be reviewed following on from adoption of the Plan. LAPs are also in place for Bennettsbridge and Kilmacow and these LAPs are being superseded by the provisions contained in the Plan.

Section 3 The Environmental Baseline

3.1 Introduction

The environmental baseline of Kilkenny 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 settlement policies there would be no framework directing development away from the most sensitive areas.

[8] Kilkenny County Development Board, *Kilkenny 2002-2012, A Strategy for Economic, Social and Cultural Development*, 2002

[9] South East Regional Authority, *Regional Planning Guidelines for the South East Region 2010-2022*, 2010

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 county 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 a Landscape Character Assessment, which forms part of the Plan, there would be no framework guiding developments to avoid areas of highest sensitivity. There would be no Wind Energy Development Strategy and new wind farm developments would be assessed on an individual basis, with no clear strategy.

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 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, protected species including ecological linkages/corridors.	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.
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 sustainable high-quality residential, working and recreational environments and 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. Sustain the viability of services in smaller towns and villages. 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*[10].	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.

[10] 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 (2000/0/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 (DEHLG, 2009)	
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	Promote energy efficient developments. Promote sustainable transport

			renewable energy sources	patterns through appropriate 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. Sustain the viability of services in smaller towns and villages.
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. Protect designated landscapes.

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. Three alternatives were considered, each focusing on a different distribution of the growth as allocated by the RPGs. One other element that was included in the alternatives was the development of wind energy. National policy and guidelines recommend that a Strategy is undertaken, but the form this strategy takes is determined at local level through the plan process.

Alternative 1: Continued consolidation
Alternative 1 concentrates growth mainly into the seven main settlements of Kilkenny, Ferrybank, the Environs of New Ross, the District Towns of Callan, Castlecomer, Graiguenamanagh and Thomastown, with little growth being allocated to the smaller level settlements or to rural areas. Access to public transport is a guiding principle of this approach, and Thomastown, as the only District Town served by rail, is prioritised above the level of the other three District towns. Wind energy developments are concentrated only where they exist at present, with no allowance made for new locations.

Alternative 2: Dispersed growth
This scenario is one which places very few restrictions on development throughout the Plan area. No specific targets or limitations on growth would be set in the core strategy of the Plan for settlements within the county at a level lower than the hub and gateway. The 'pot' of zoned land, would be distributed amongst all remaining settlements without prioritisation. Development would be allowed to proceed in an ad hoc manner and would follow market forces to a great extent. Developments such as quarries and wind energy developments would be located where demand is greatest. Most development would occur on greenfield sites.

Alternative 3: Selection of new growth areas
This alternative acknowledges the designation of Kilkenny as a hub, and Waterford as a gateway within the National Spatial Strategy, but redesignates the 'District Towns'. The 2008 District Towns were designated on the basis of the Regional Planning Guidelines, which categorised towns of between 1,500 and 5,000 as 'District Towns'. The 2011 Census shows that Castlecomer and Graiguenamanagh's populations did not reach the 1,500 mark. In this alternative, Piltown and Mooncoin, which have the next highest populations, are designated as District Towns in place of Castlecomer and Graiguenamanagh.

As part of this alternative, new areas for wind energy development would be selected on the basis of viability alone. Only those areas with highest wind speeds would be selected for wind farm development, regardless of landscape sensitivities or the presence or absence of existing wind farms.

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: Continued consolidation - Likely significant effects

Environmental impacts
This alternative concentrates populations into locations with existing services and facilities, and access to public transport. Investment in key infrastructure can be concentrated into a very small number of settlements. Sustainable travel is promoted. Valuable natural resources such as water

quality are protected through targeted infrastructural measures. No allowance is made for additional wind energy developments, which would result in less use of renewable energy sources.

Planning impacts
This alternative does not support the rural population, which may lead to a population decline in rural areas and in smaller settlements.

Alternative 2: Dispersed growth - Likely significant effects

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

Planning impacts
The provision of key services such as water supply and wastewater treatment would become costly in both financial and environmental quality terms.

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

Environmental impacts
In this alternative, a large growth area would be formed around Ferrybank, Piltown and Mooncoin in the south of the county. As Piltown's wastewater treatment plant is currently overloaded, any additional loading would negatively affect water quality in Piltown. This may have a resulting negative effect on the conservation status of the Lower River Suir cSAC which is located in close proximity to both settlements. Directing growth into the smaller centres of Piltown and Mooncoin would detract from the emphasis on Ferrybank as part of the Waterford Gateway, and would result in an increase in unsustainable travel patterns and a negative effect on air quality. As Piltown and Mooncoin were not historically large service centres, there are very few opportunities for brownfield redevelopment, and most development in both would take place on the edges of the centres, on greenfield land. This would have negative environmental effects through the increased replacement of agricultural land by artificial surfaces.

As part of this alternative, new areas for wind energy development would be selected on the basis of viability alone. Only those areas with highest wind speeds would be selected for wind farm development, regardless of landscape sensitivities or the presence or absence of existing wind farms.

Planning impacts
From a social and economic perspective, existing services in Castlecomer and Graiguenamanagh would suffer with the removal of their District Town designation.

4.3 Selection of Preferred Alternative

The preferred alternative which emerged from the evaluation process is Alternative 1, Continued Consolidation, with an element of Alternative 2, Dispersed Growth to encourage some level of growth of the smaller settlements to ensure that these smaller settlements are sustained. In relation to wind energy, the best solution is the recognition of areas of highest viability (Alternative 3) whilst taking account of landscape sensitivities (Alternative 1).

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 County Development Plan for Kilkenny (2008-2014) is being carried out by Kilkenny County Council. This Plan will cover the county as a whole and also a number of settlements in detail (Ballyhale, Ballyragget, Bennettsbridge, Freshford, Goresbridge, Inistioge, Kells, Kilmacow, Knocktopher, Mooncoin, Mullinavat, Slieverue, Stoneyford, New Ross Environs and Urlingford). A separate Development Plan will cover Kilkenny City & Environs. To satisfy the requirements of European Directive 2001/42/EC[11], 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 County is 95,419[12] 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[13].

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	Chapter 4: Policy objectives

[11] 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

[12] CSO, Census 2011 Population Classified by Area

[13] 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

or national level, which are relevant to the plan and the way those objectives and any environmental considerations have been taken into account during its preparation;	
F. the likely significant effects[14] 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[15]. 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.

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

[15] 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 amended[16], 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 and flooding. In addition, one specific comment related to the Waterford Harbour Shellfish Growing Area and the recommendations of the Pollution Reduction Programme and Characterisation Report.

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. (See Section 3.6 for the Waterford Harbour Shellfish growing area and Section 3.10 for reference to underwater archaeology.)

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.

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	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

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

	previous development plan should be made available.	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.

The SEA Directive requires that information is provided on any existing environmental problems which are relevant to the plan or programme. In previous Environmental Reports, threats were included in this discussion, however, in this report, only actual problems are listed in order to present a more accurate picture of environmental quality in the county. Environmental problems arise where there is a conflict between current environmental conditions and ideal targets.

1.2.5 Selection of Strategic Environmental Objectives

The Directive requires that relevant environmental protection objectives (EPOs), established at international, EU or national level are identified and listed. The Guidelines include an indicative list 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 Heritage is: "*To preserve and improve places or areas from which views or prospects of special amenity value exist*."

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 from Chapter 8, related to views, is:

"*To ensure that development in upland areas or on steep slopes will not have a disproportionate or dominating visual impact (due to excessive bulk, scale or inappropriate siting) and will not significantly interfere or detract from protected views, see Section 8.2.9.6*."

Another overall change, related to the structure of the Plan, 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. This includes sections on Conservation Management Plans for Natura 2000 sites, the National Survey of Native Woodlands and Ancient Woodlands and peatlands, and also the incorporation of a number of protected views from Local Area Plans.

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 three zoning maps for Bennettsbridge, Kilmacow and New Ross Environs were subjected to various changes as a result of the SFRA's justification test. In addition, the development boundaries for a number of settlements were modified as a result of the SFRA. These changes, and the changes to the text in Section 9.2.9 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 County 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 most of the Natura 2000 sites within the County. 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 Council is currently preparing the Kilkenny County Development Plan 2014-2020 (hereafter referred to as the Plan) which will replace the existing Development Plan for 2008-2014. This Plan is being prepared under the provisions of the Planning and Development Acts 2000-2010 to develop and improve the county in a sustainable manner.

The Plan will cover the county as a whole, and also a number of settlements in detail. Twelve settlements will be subject to a development boundary with associated policies: Ballyhale, Ballyragget, Freshford, Goresbridge, Inistioge, Kells, Knocktopher, Mooncoin, Mullinavat, Slieverue, Stoneyford, and Urlingford. Three settlements will be subject to a zoning map under this Plan: Bennettsbridge, Kilmacow and New Ross Environs. A separate Development Plan will cover Kilkenny City & Environs. The areas to be included in this Plan are shown on Figure 2.1.

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

13. Introduction
14. Demographic and Socio-Economic Trends
15. Core Strategy
16. Economic Development
17. Housing and Community
18. Rural Development
19. Recreation, Tourism & the Arts
20. Heritage
21. Infrastructure & Environment
22. Renewable Energy Strategy
23. Transport
24. Requirements for Developments

As the Core Strategy included in Chapter 3 of the Plan outlines, the focus for new development will be in the main settlements of Kilkenny City, Ferrybank (as part of the Waterford Gateway) and the four District Towns (Callan, Castlecomer, Graiguenamanagh and Thomastown). The estimated population increase amongst those settlements is 4,136. The estimated population increase for the remainder of the county (all other settlements plus rural areas) is 5,885.

2.2 Objectives

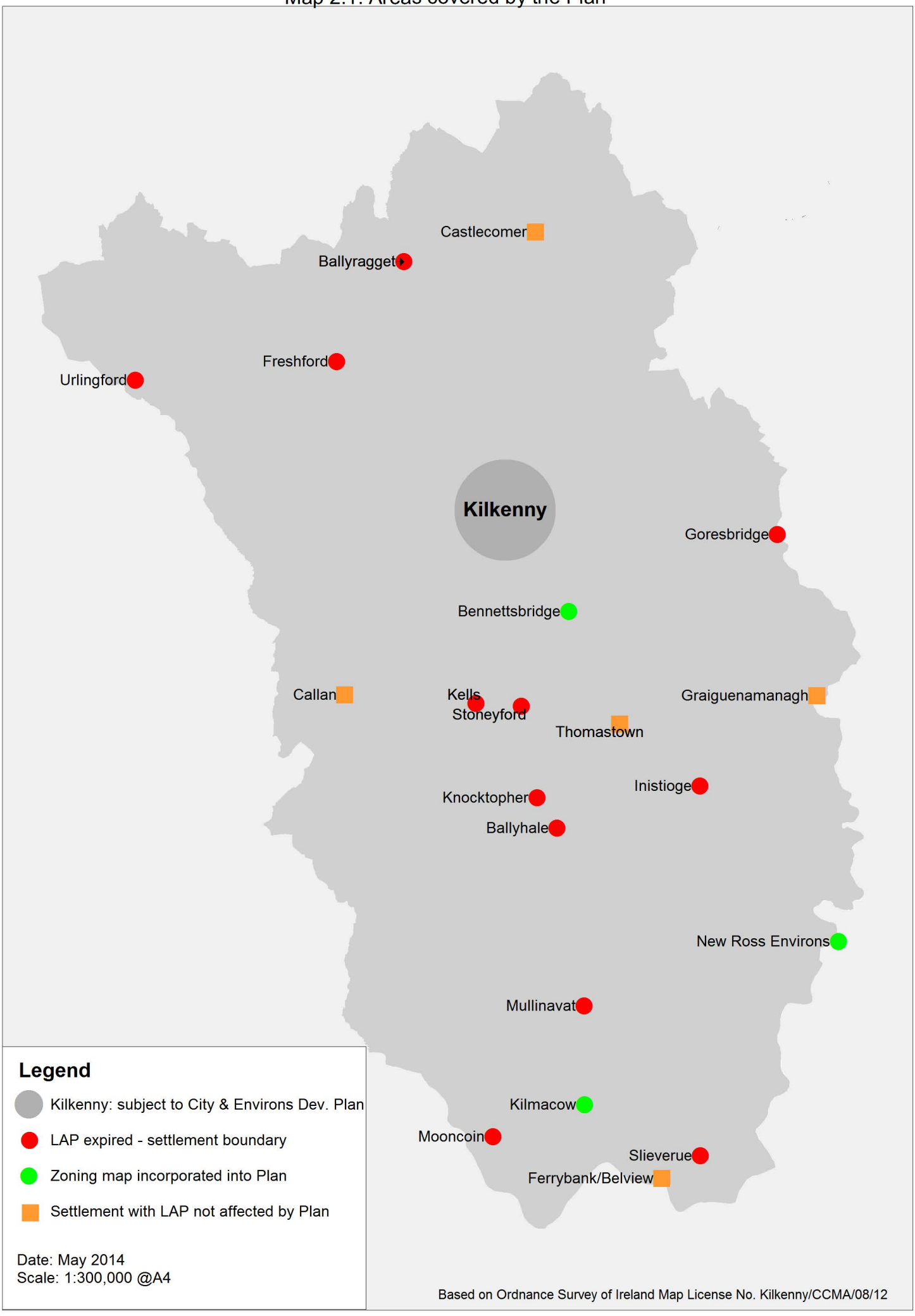
The main objectives and ethos of the Plan can be summarised in its Mission Statement (section 1.7) as follows:

"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 County Kilkenny. 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:

Kilkenny County Development Plan - Strategic Environmental Assessment
Map 2.1: Areas covered by the Plan



- National Climate Change Adaptation Framework[17]
- National Spatial Strategy (NSS)[18]
- National Recovery Plan 2011-2014[19]
- Our Sustainable Future – A Framework for Sustainable Development for Ireland[20]
- 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 and Sustainable Rural Housing
- Food Harvest 2020, A vision for Irish agri-food and fisheries[21]
- South East River Basin Management Plan[22]
- Waterford Planning and Land Use Transportation Study (PLUTS)[23]
- *Kilkenny 2002-2012, A Strategy for Economic, Social and Cultural Development*[24]

In particular, the South East Regional Planning Guidelines[25] (RPGs) provide a context for the making of this Plan. The RPGs 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 and Ferrybank as part of the Waterford gateway, but other than that the Council has discretion to distribute the remainder. The Core Strategy of the Plan sets out how all of the population allocation is distributed.

The Plan will set the strategic context for any lower-tier plans, such as Local Area Plans (LAPs) to be prepared in the county. LAPs are in place for Callan, Castlecomer, Fiddown, Ferrybank/Belview, Gowran, Graiguenamanagh, Piltown, Thomastown and Woodstock. The LAPs for Ferrybank and the District Towns will be reviewed following on from adoption of the Plan. LAPs are also in place for Bennettsbridge and Kilmacow and these LAPs are being superseded by the provisions contained in the Plan.

[17] Department of Environment, Community and Local Government, National Climate Change Adaptation Framework, 2012
[18] Department of the Environment and Local Government, *The National Spatial Strategy 2002-2020, People, Places and Potential,* 2002
[19] Stationery Office Dublin, *The National Recovery Plan 2011-2014*, 2011
[20] Government of Ireland, Our Sustainable Future – A Framework for Sustainable Development for Ireland, 2012
[21] Department of Agriculture, Food and the Marine, Food Harvest 2020, A vision for Irish agri-food and fisheries, 2010
[22] South Eastern River Basin District, South East River Basin Management Plan, 2010
[23] Atkins, *Waterford Planning and Land Use Transportation Study 2004-2020,* 2004
[24] Kilkenny County Development Board, *Kilkenny 2002-2012, A Strategy for Economic, Social and Cultural Development,* 2002
[25] 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

County Kilkenny has a land area of 206,300 hectares. Its population in 2011 was 95,419 and this is projected to increase to 109,802 during the period of this Plan. The populations of the settlements being included in this Plan are as follows:

Table 3.1 Population 2011

Settlement	Population 2011
Ballyhale	137
Ballyragget	1,089
Freshford	685
Goresbridge	361
Inistioge	260
Kells	281
Knocktopher	144
Mooncoin	1,166
Mullinavat	259
Slieverue	499
Stoneyford	355
Urlingford	973
Bennettsbridge	729
Kilmacow	627
New Ross	264

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.

11. Biodiversity, Flora and Fauna
12. Population and Human Health
13. Soil
14. Water
15. Air
16. Climatic factors
17. Material Assets
18. Cultural Heritage (architectural and archaeological)
19. Landscape
20. 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 Centre[26]. 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 five categories of designated site in effect in County Kilkenny are:

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

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.

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.

IV. Statutory Nature Reserve
Nature reserves, designated under the Wildlife Act 1976 and Wildlife (Amendment) Act, 2000, are wildlife habitats which meet certain scientific criteria, are worthy of conservation, and where nature conservation is the primary objective and takes precedence over all other activities.

V. Wildfowl Sanctuary
Wildfowl Sanctuaries are designated under the Wildlife Act 1976 and Wildlife (Amendment) Act, 2000 to protect ducks, geese and waders from hunting.

At present there are 36 designated natural heritage sites of international and national importance in County Kilkenny, covering approximately 4.5% of the county. Data is available on all of these sites from the National Parks and Wildlife Service (NPWS), to varying degrees.

All cSAC sites are mapped and have a Site Synopsis, which includes a section on potential threats to the SAC. Threats are outlined in the various Site Synopses as follows:

- Cullahill Mountain: Abandonment of traditional agricultural practices or land reclamation, Intensive or very low grazing levels, use of artificial fertiliser.
- Hugginstown Fen: Draining for cropland, Infilling, Fertiliser pollution, Eutrophication.
- Galmoy Fen: Peat mining, Draining for cropland, Infilling, Fertiliser pollution, Eutrophication
- Spa Hill & Clomantagh Hill: Abandonment of traditional agricultural practices or land reclamation, Intensive or very low grazing levels, use of artificial fertiliser.

[26] http://www.biodiversityireland.ie/

- The Loughans: Nutrient enrichment, Inappropriate grazing regimes.
- Thomastown Quarry: Land reclamation, Drainage, Abandonment
- Lower River Suir: Fragmentation, abundance of alien invasive species, grazing regimes, drainage, eutrophication, infilling and reclamation, weirs, water pollution.
- River Barrow and River Nore: Fragmentation, abundance of alien invasive species, grazing regimes, fishing, water pollution, Eutrophication, Land reclamation, Afforestation, drainage, sea-level rise, weirs, channel maintenance.

SPAs - River Nore Site Code 4233 – threats are outlined as follows: Disturbance, Water Quality, Invasive Species.

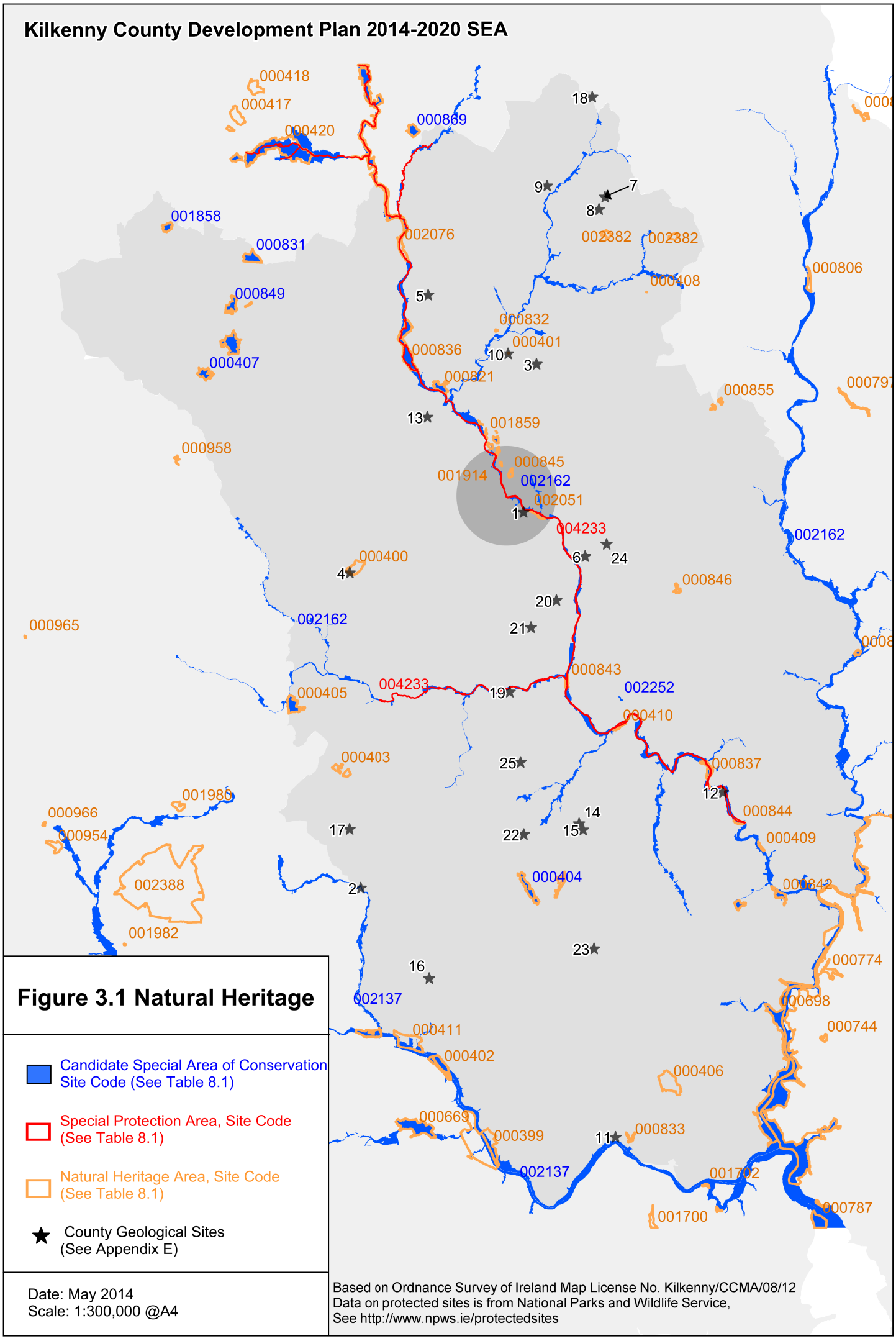
Conservation management plans (CMPs) have been devised by the NPWS for some of SACs. For Kilkenny, only one CMP has been completed, for Cullahill Mountain[27].

In 2010 a Freshwater Pearl Mussel (Second Draft) Nore Sub-basin management plan was published which gives further information on the pearl mussel in the River Nore.

All sites are identified on Figure 3.1 (which is the same as Figure 8.1 from the Plan).

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.

[27] NPWS, *Conservation Plan for 2005-2010, Cullahill Mountain cSAC, Site Code 831*, 2005


Kilkenny County Development Plan 2014-2020 SEA
000418
000417
000420
000869
18
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7
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001858
002076
002382
002382
000831
000806
000849
000408
5
000832
000836
000401
10
3
000407
000855
000797
13
001859
000958
000845
001914
002162
002051
1
004233
002162
6
24
000400
4
000846
20
000965
002162
21
000843
004233
19
002252
000405
000410
000403
25
000837
12
001980
000966
000844
14
17
22
15
000954
000409
002388
000404
2
000842
001982
23
000774
16
002137
000698
000411
000744
000402
000406
000669
000399
11
000833
002137
001702
001700
000787
Figure 3.1 Natural Heritage
Candidate Special Area of Conservation Site Code (See Table 8.1)
Special Protection Area, Site Code (See Table 8.1)
Natural Heritage Area, Site Code (See Table 8.1)
County Geological Sites (See Appendix E)
Date: May 2014
Scale: 1:300,000 @A4
Based on Ordnance Survey of Ireland Map License No. Kilkenny/CCMA/08/12
Data on protected sites is from National Parks and Wildlife Service,
See http://www.npws.ie/protectedsites

Table 3.2 Conservation status of Natura 2000 sites in Co. Kilkenny							
Site Name	Site Code/Ref	Habitats	Conservation Status		Species	Conservation Status	
			2008	2013		2008	2013
Cullahill Mountain cSAC	000831	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco Brometalia)(* important orchid sites) [6210]	Bad				
Hugginstown Fen cSAC	000404	Alkaline fens [7230]	Bad				
Galmoy Fen cSAC	001858	Alkaline fens [7230]	Bad				
Lower River Suir cSAC	002137	Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]	Poor		Margaritifera margaritifera [1029]	Bad	
		Mediterranean salt meadows (Juncetalia maritimi) [1410]	Poor		Austropotamobius pallipes [1092]	Poor	
		Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260]	Bad		Petromyzon marinus [1095]	Poor	
		Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430]	Poor		Lampetra planeri [1096]	Good	
		Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]	Bad	If current levels of planting and non-native species removal are maintained, the overall condition of	Lampetra fluviatilis [1099]	Good	

				sessile oak woodlands will continue to improve.			
		Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)[91E0]	Bad		Alosa fallax [1103]	Bad	
		* Taxus baccata woods of the British Isles [91J0]	Bad		Salmo salar (only in fresh water) [1106]	Bad	
					Lutra lutra [1355]	Poor	Good
River Barrow & River Nore/ Barrow Estuary/ Abbeyleix Wood Complex 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]	Poor		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	
					Margaritifera durrovensis (Margaritifera margaritifera) [1990]	Bad	

River Nore SPA	004233				*Alcedo atthis* [breeding] Kingfisher	Amber[28]	
Spa Hill & Clomantagh Hill cSAC	000849	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco Brometalia)(* important orchid sites) [6210]	Bad				
The Loughans cSAC	000407	Turloughs [3180]	Poor				
Thomastown Quarry cSAC	002252	Petrifying springs with tufa formation (Cratoneurion) [7220]	Bad	Stable			

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

[28] 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.

Table 3.3 Protected Natural Heritage sites in Co. Kilkenny						
Site Name	**Site Code/Ref**	**cSAC**	**SPA**	**pNHA**	**SNR**	**WF**
Cullahill Mountain	000831	✓				
Hugginstown Fen	000404	✓		✓		
Galmoy Fen	001858	✓		✓		
Lower River Suir	002137	✓				
River Barrow & River Nore/ Barrow Estuary/ Abbeyleix Wood Complex	002162	✓		000698 002076		✓
River Nore	004233		✓			
Spa Hill & Clomantagh Hill	000849	✓				
The Loughans	000407	✓				
Thomastown Quarry	002252	✓				
Archersgrove	002051			✓		
Ardaloo Fen	000821			✓		
Ballykeeffe Woodland	000400			✓	✓	
Barrow River Estuary	000698			✓		
Brownstown Wood	000827			✓		
Clohastia	000830			✓		
Coan Bogs (Designated NHA)	002382			✓		
Dunmore Cave	000401			✓		
Dunmore Complex	001859			✓		
Esker Pits	000832			✓		
Fiddown Island	000402			✓	✓	
Garryrickin Nature Reserve	000403			✓	✓	
Grannyferry	000833			✓		
Ice House near Inistioge	002094			✓		
Inchbeg	000836			✓		
Inistioge	000837			✓		
Kilkeasy Bog	000839			✓		
Kyleadohir Wood Nature Reserve	000405			✓	✓	
Kylecorragh Wood	000842			✓		
Lough Cullin	000406			✓		✓
Lough Macask	001914			✓		
Mothel Church, Coolcullen	000408			✓		
Mount Juliet	000843			✓		
Murphy's of the River	000844			✓		
Newpark Marsh	000845			✓		
Rathsnagadan Wood	000409			✓		
Red Bog, Dungarvan	000846			✓		
Thomastown	000410			✓		
Tibberaghny Marshes	000411			✓		
Whitehall Quarries	000855			✓		

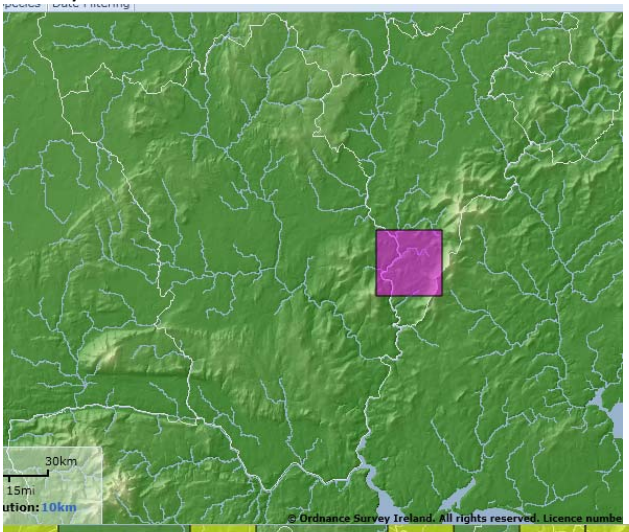
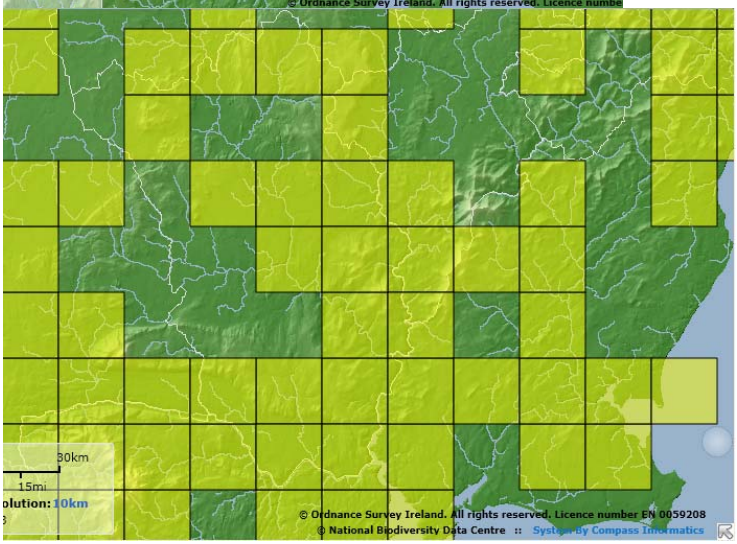
3.3.2 Flora and Fauna

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 Co. Kilkenny. 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.

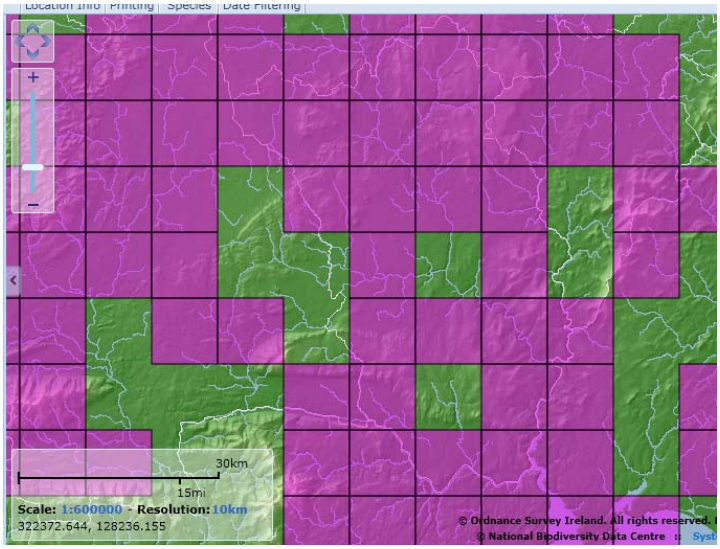
The NPWS have produced a number of Species Action Plans for particular species of highest conservation concern as follows;

Table 3.4: Distribution of species of conservation concern in Kilkenny

Species Action Plan	**Distribution in Kilkenny[29]**
Species Action Plan Bats 2008	Widely found
Species Action Plan Killarney Fern 2008	
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

[29] National Biodiversity Data Centre website accessed March 2013

Corncrake



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

Aquatic flora and fauna is addressed also under Section 3.6.

3.3.3 Woodlands, Trees and hedgerows

There are five Tree Preservation Orders in Co. Kilkenny, as follows:

Table 3.5: Tree Preservation Orders in County Kilkenny

Site	TPO Ref No.
Oldcourt, Inistioge	1/85
Keatingstown	1/84
Barna, Freshford	1/92
Sawney's Wood, Castlecomer	1/67
Christendom Wood, Ferrybank	1/2008

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), see Figure 3.2. A range of data types from both the general site survey (e.g. area, occurrence of rare species, presence of hydrological features) and a sample dataset of the trees (e.g. structural diversity, regeneration status) was used to produce a conservation score for each of the woodlands surveyed. Eight sites in Kilkenny were categorised as "Very Good" or "Excellent" quality, scoring over 60%, see Table 3.6.

Kilkenny County Development Plan SEA

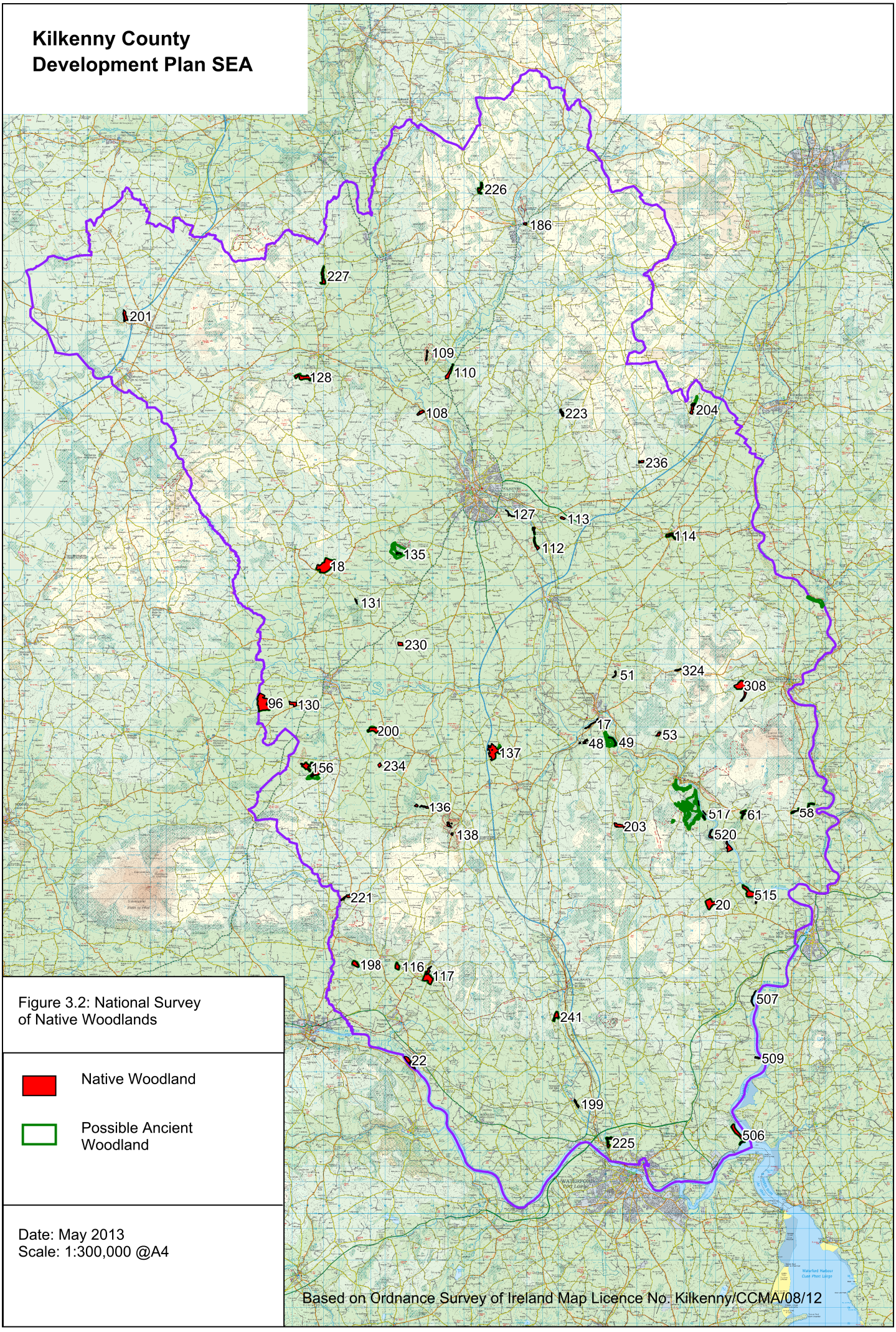


Figure 3.2: National Survey of Native Woodlands

Native Woodland

Possible Ancient Woodland

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

Table 3.6: NSNW sites scoring over 60%		
Site No.	**Woodland Name**	**%Score**
20	Brownstown Wood	60.6
49	Grenan Wood	63.6
96	Kyleadohir Wood	60.6
128	Brown's Wood	60.6
137	Knockadrina	63.6
156	Garryricken North	63.6
200	Ballytobin/Ballaghtobin	63.6
515	Kylecorragh	66.7

A threat score was also produced to give an indication of the threats posed to woodlands from primarily internal sources, such as invasive species infestation. These threat scores should be regarded as the minimum threat potential to Irish woodlands as, for example, sites at which invasive species are a major problem may have failed to meet the criteria for survey. Threat scores above 40% are considered high, and two sites in Kilkenny scored higher than 40%; Maddockstown/Nore Cottage and Greatwood.

Table 3.7: NSNW sites with high threat scores			
Site No.	**Woodland Name**	**%Threat Score**	**%Conservation Score**
112	Maddockstown/Nore Cottage	41.7	54.5
131	Greatwood	50	42.4

Ancient woodlands

Ancient woodlands are defined in Ireland as areas which have been wooded since 1660. Possible ancient woodlands (PAWS) and long established woodlands (LEWS) were identified from documentary and archaeological evidence by the NPWS. A total of 28 PAWS and LEWS were identified in Co. Kilkenny. These are illustrated on Figure 3.2.

Tree Register of Ireland (TROI)

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 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 Habitat studies carried out for Ballyragget, Ballyhale, Fiddown, Gowran, Johnstown, Kilkenny, Knocktopher, Mooncoin, Piltown and Urlingford. Hedgerows are an important component of GI and are under threat from farming practices and development in rural areas.

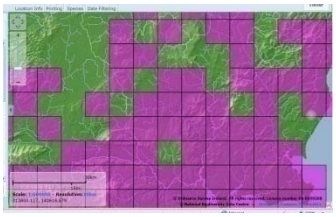
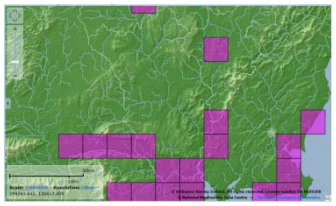
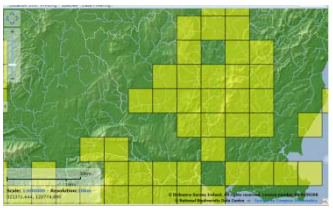
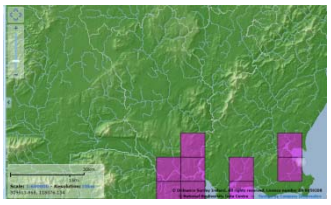
3.3.5 Habitats

A report on Habitat Survey and Mapping of Kilkenny City was completed in 2010[30].
In 2011 a number of habitat and green infrastructure studies were carried out for various smaller settlements in Co. Kilkenny. These studies classified habitats on the Fossitt[31] habitat classification system. They include Ballyragget, Ballyhale, Fiddown, Gowran, Johnstown, Knocktopher, Mooncoin, Piltown and Urlingford. This information was published for Fiddown, Gowran and Piltown as part of the Local Area Plans for those settlements. For the remaining settlements, further work is required to map the habitats and green infrastructural networks.

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 Centre[32] and from Invasive Species Ireland[33], 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 Report[34], 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 county[35] are:

Table 3.8: Invasive Species Distribution 2013

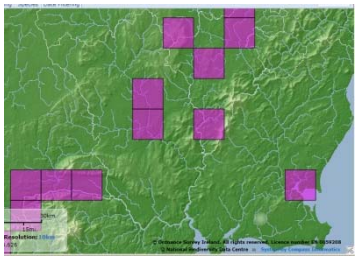
Name	Distribution (2013)	Name	Distribution (2013)
Japanese Knotweed (Falopia Japonica)		Least Duckweed (Lemna Minuta)	
Himalayan Balsam (Impatiens Glandulifera)		Common Cord-Grass (Spartina Anglica)	

[30] Kilkenny Local Authorities, Habitat Survey and Mapping of Kilkenny City Habitat Survey Report, 2010
[31] Fossitt, J. A. (2000) *A Guide to Habitats in Ireland*. Heritage Council, Kilkenny.
[32] http://invasives.biodiversityireland.ie/
[33] http://invasivespeciesireland.com/

[34] http://invasives.biodiversityireland.ie/wp-content/uploads/Dirty-Dozen-invasive-species-Kilkenny-Co-Co-2010.pdf

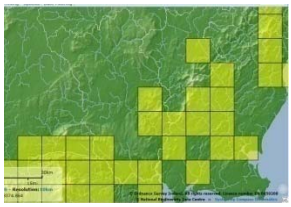
[35] Taken from http://maps.biodiversityireland.ie/#/Map/NbdcTerrestrial/Species/28772 on 9/1/2013

Giant Hogweed (Heracleum Mantegazzianum)

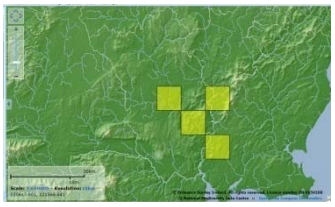


Asian Clam (Corbicula Fluminea)

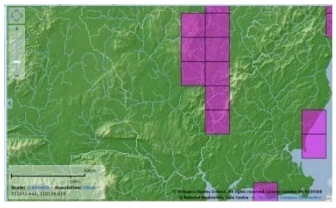
Rhododendron (Rhododendron Ponticum)



Dace (Leusiscus Leusiscus)

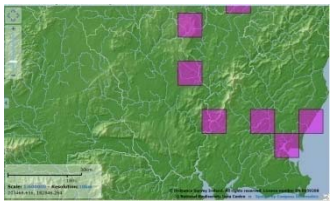


Water fern (Azolla Filiculoides)



Grey Squirrel (Sciurus Carolinensis)

Nuttall's Waterweed (Elodea Nuttallii)



Wild Boar (Sus Scrofa)

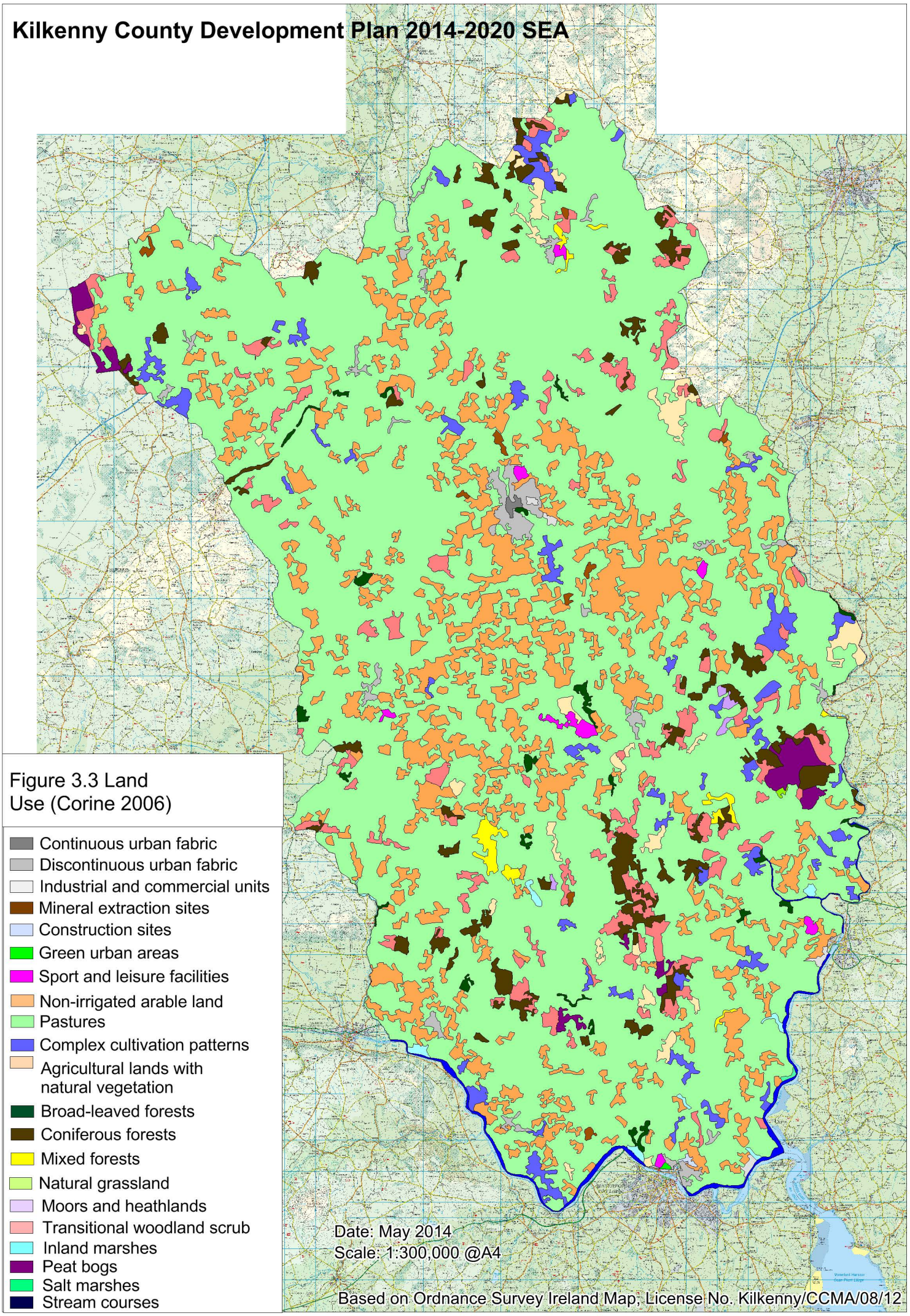
3.3.7 Land Cover

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 3.3. This shows that the majority of land in County Kilkenny is covered with pasture (light green) and arable land (orange). There are areas of forestry (darker greens), scrub (pink), bogs and moors and peatlands (purple) dispersed throughout the county. In general, there have not been any significant changes in land use since the last Plan, and the CORINE 2000 data. In 2006, artificial surfaces comprised a total of 1.23% of the entire land cover of the county.

3.3.8 Existing Problems

- SACs & SPAs – the conservation status of most of the habitats and species in the Natura 2000 sites in the county is either poor or bad.
- As three of the county's main rivers are designated Natura 2000 sites, with the conservation status ranging from Poor to Bad, water quality is a hugely significant issue for Co. Kilkenny.
- Continued replacement of natural and semi-natural habitats with artificial surfaces results in loss of non-designated flora and fauna
- Removal of hedgerows results in a loss of GI and connections
- Invasive species pose a threat to biodiversity in the county.

Kilkenny County Development Plan 2014-2020 SEA



3.4 Population and Human Health

3.4.1 Population Distribution

County Kilkenny's population continues to grow, from 87,558 in 2006 to 95,419 in 2011, a 9% increase. The Core Strategy in the 2008-2014 Plan sets out the settlement hierarchy for the county. This is shown on Figure 3.4.

Figure 3.5 shows the rates of population change over the period 2006 to 2011. The northern part of the county is the area with the lowest growth. The highest growth rates have been occurring to the northwest of Kilkenny city, and also in the south, in Ferrybank and north of Glenmore.

In general, the Core Strategy of the last Plan aimed to direct population growth into the urban settlements where services and infrastructure are available. Although in general this aim was successful, some urban areas experienced population decline, such as in Castlecomer and Kilkenny No. 2 Urban, which is within the Borough boundary in Kilkenny city.

For Kilkenny No. 2 Urban this population loss is a continuing trend, and in total it has experienced a 12% decrease since 1996.

In contrast, some rural EDs, particularly those surrounding Kilkenny city, experienced very high rates of increase, despite having no designated settlement.

The urban area with the highest growth over this period was the area of Kilculliheen in Ferrybank, which experienced a growth of 198% between 1996 and 2011.

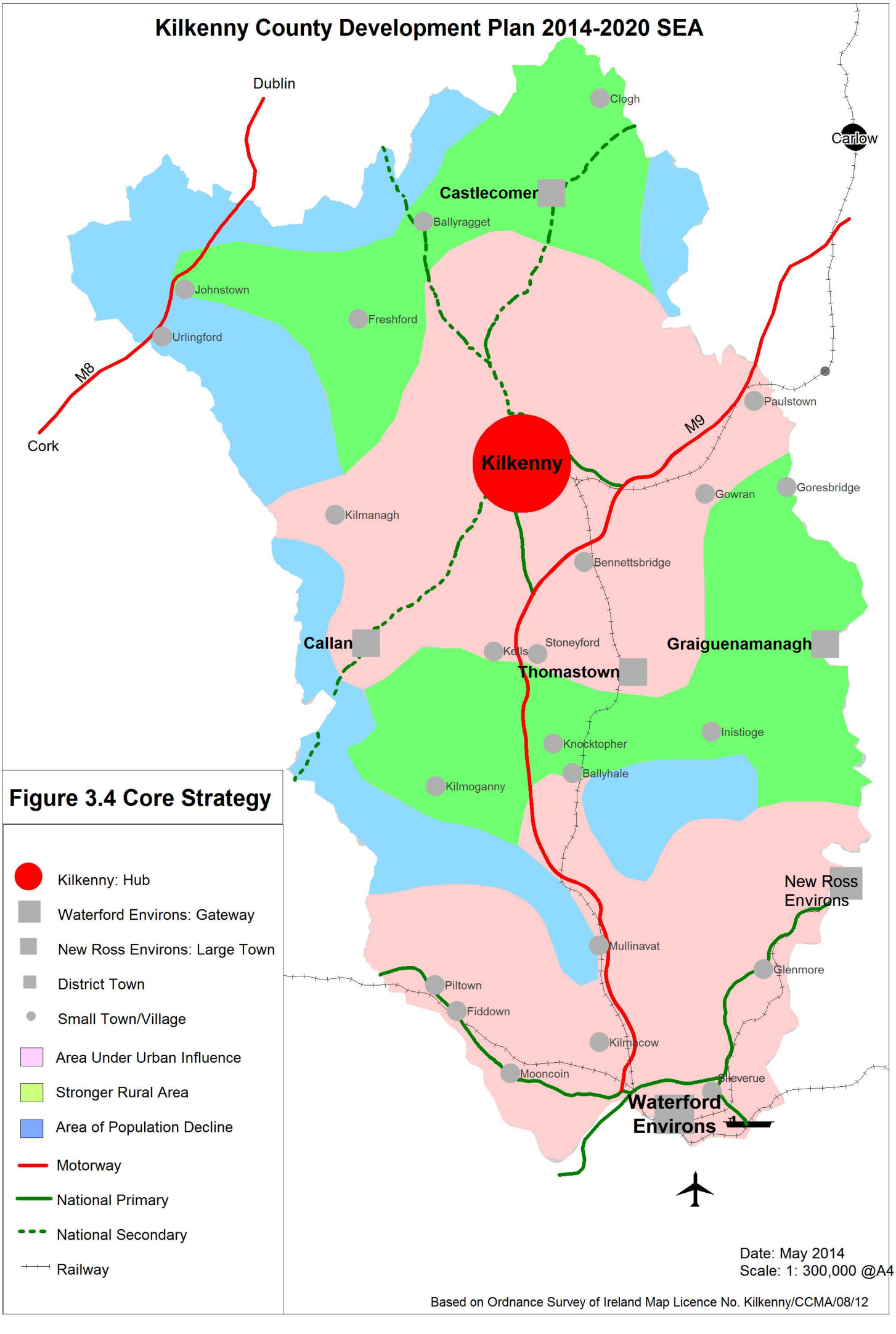
The Core Strategy of the current Plan, as set out in Chapter 3, is shown in Table 3.9.

Table 3.9: Core Strategy Population Allocation

Settlement	Core strategy population allocation
County Kilkenny	8,726
Kilkenny City	1,800
Ferrybank/Belview (Part Gateway)	1,000
District Towns Callan Castlecomer Graiguenamanagh Thomastown	 2% (174) 1.7% (148) 1.3% (113) 2.1% (183)
Remainder area to include smaller towns and villages and environs of New Ross and the rural area of the county	5,602
Total	8,726

3.4.2 Human health

Availability of spatial data on human health on a county basis 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.


Kilkenny County Development Plan 2014-2020 SEA
Dublin
Clogh
Carlow
Castlecomer
Ballyragget
Johnstown
Freshford
Urlingford
M8
Cork
Paulstown
M9
Kilkenny
Gowran
Goresbridge
Kilmanagh
Bennettsbridge
Callan
Kells
Stoneyford
Graiguenamanagh
Thomastown
Inistioge
Knocktopher
Ballyhale
Kilmoganny
New Ross Environs
Mullinavat
Glenmore
Piltown
Fiddown
Kilmacow
Mooncoin
Slieverue
Waterford Environs
Figure 3.4 Core Strategy
Kilkenny: Hub
Waterford Environs: Gateway
New Ross Environs: Large Town
District Town
Small Town/Village
Area Under Urban Influence
Stronger Rural Area
Area of Population Decline
Motorway
National Primary
National Secondary
Railway
Date: May 2014
Scale: 1: 300,000 @A4
Based on Ordnance Survey of Ireland Map Licence No. Kilkenny/CCMA/08/12

Kilkenny County Development Plan 2014-2020 SEA

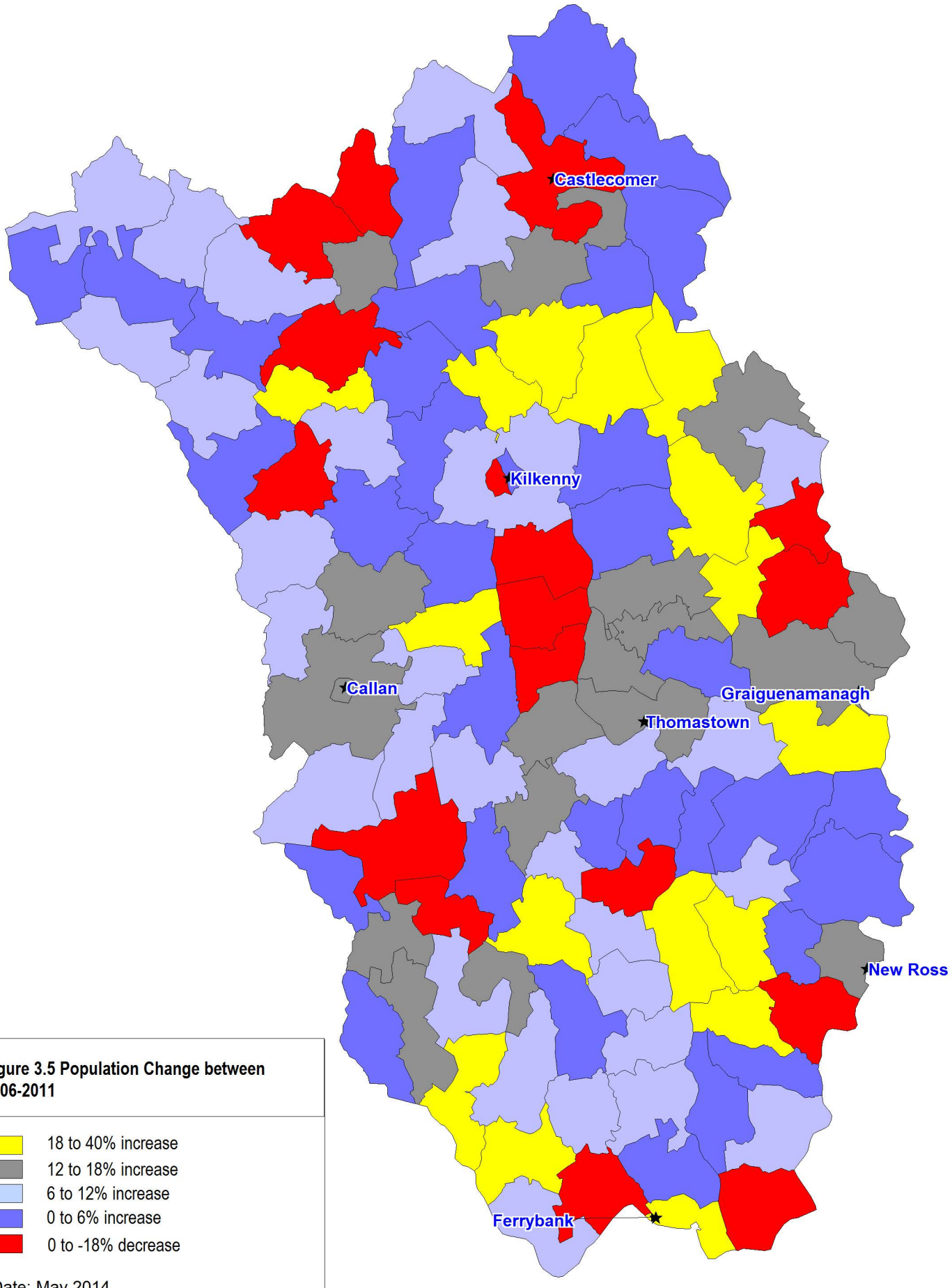


Figure 3.5 Population Change between 2006-2011

- 18 to 40% increase
- 12 to 18% increase
- 6 to 12% increase
- 0 to 6% increase
- 0 to -18% decrease

Date: May 2014
Scale: 1: 300,000 @A4

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 are a total of 3 Seveso (Control of Major Accident Hazards Directive) sites in the county; Grassland Fertilisers (Kilkenny) Ltd. Palmerstown on the Tullaroan Road in Kilkenny City, Nitrofert Ltd, Raheen, near New Ross and Trans-Stock Warehousing and Cold Storage in Christendom, Ferrybank. As the City Development Plan will cover the Grasslands site, and the Ferrybank Local Area Plan covers the Trans-Stock site, the Nitrofert site is the one of most relevance to this Plan.

There are also two sites in Co. Wexford's administrative area, which are in close proximity to Co. Kilkenny. These sites (Goulding Chemicals Ltd, Stokestown, New Ross and SEE Generation Ireland Ltd., Campile) must be also taken into account in land use planning.

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, and the Government recently introduced its new waste management policy for Ireland entitled A Resource Opportunity, Waste Management Policy in Ireland[36]. 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 Kilkenny[37] (See Figure 3.6). Phase 1 risk assessments have been carried out and the sites have been classified as follows: 1 at high risk, 6 at medium risk, and 6 at low risk. A Phase 2 Risk Assessment has been carried out for the high risk site, and a Phase 3 assessment will be carried out later this year. It is intended that further phases of risk assessments will be carried out for the remainder of the sites as resources allow.

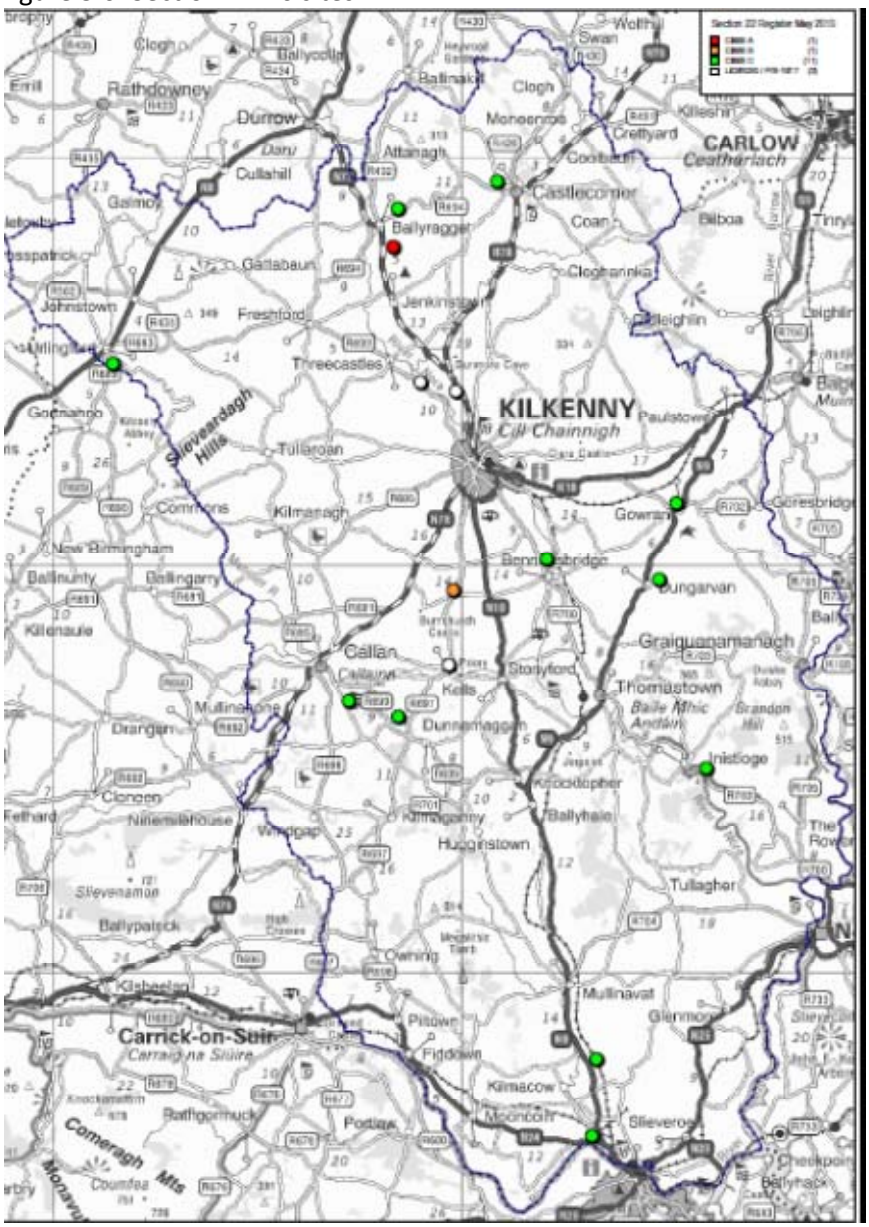
3.4.4 Existing Problems

- In terms of population distribution, the Settlement hierarchy, and Core Strategy of the last Plan has not succeeded in focusing most of the growth into urban areas. The decline in population in some urban areas, like Kilkenny city's inner area and Castlecomer, is of concern. The large level of increase in population growth in some rural areas is also of concern, as these areas are not serviced by social or physical infrastructure. Also, rapid population growth, such as that in Kilculliheen, may cause problems if the associated infrastructural and social services are not provided in tandem with the growth.
- Seveso (COMAH) sites in New Ross must be provided for in the land use zoning map for New Ross Environs.
- Risk assessments have not been completed for sites on the EPA Section 22 Register of non-licensed closed landfills (i.e. historic unregulated waste disposal sites).

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

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

Figure 3.6: Section 22-26 sites



3.5 Soil

Soils and subsoils maps for the country were created by the Spatial Analysis Unit, Teagasc. The project was completed in May 2006 and was a collaboration between Teagasc, Geological Survey of Ireland, Forest Service and the EPA[38]. Soil maps are available on the EPA's website.

The soils map for Kilkenny, Figure 3.7, shows that the south of the county is dominated by AminDW, which is in the Acid Brown Earths/Brown Podzolics soil group. The centre and northwest of the county contains a swathe of BminDW - Grey Brown Podzolics/ Brown Earths Basic and BminPD - Surface water Gleys / Ground water Gleys. Along the county's rivers are found BminSW - Renzinas / Lithosols. The north of the county is dominated by AminPD - Surface water Gleys / Ground water Gleys. The general properties of the main soil groups found in Co. Kilkenny are set out in the Table 3.10 below.

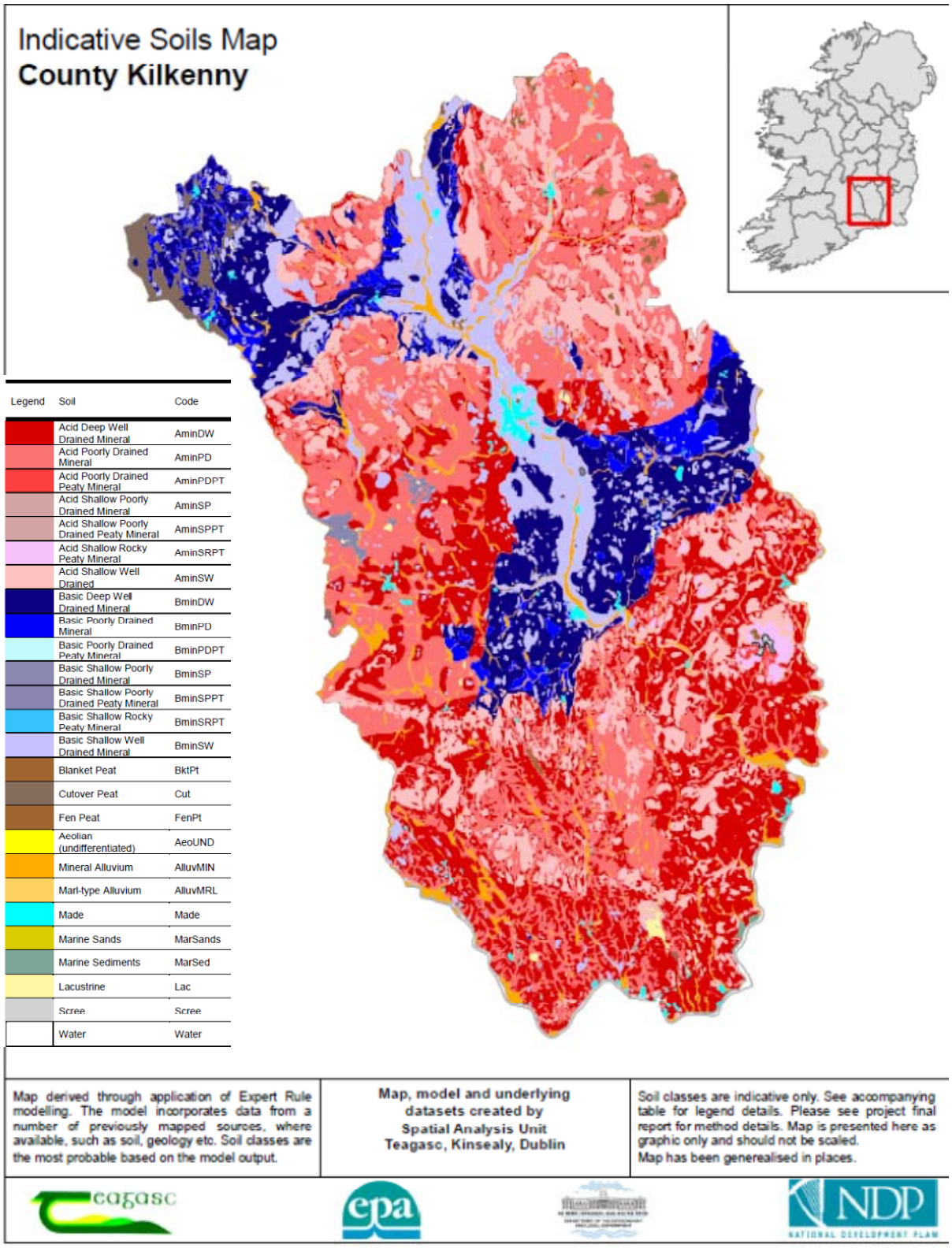
Table 3.10: Soil Groups in Co. Kilkenny

Soil Description	Code	Included Great Soil Groups	General Properties
Deep well drained mineral			
Derived from mainly non-calcareous parent materials	AminDW	Acid Brown Earths	Most occur on lime-deficient parent materials, therefore acidic in nature, relatively mature and well drained
		Brown Podzolics	Good physical characteristics
Derived from mainly calcareous parent materials	BminDW	Grey Brown Podzolics	Usually formed from calcareous parent material which counteracts the effects of leaching, can be light to heavy textured
		Brown Earths (medium-high base status)	Most occur on lime-deficient parent materials, therefore acidic in nature, relatively mature and well drained
Shallow well drained mineral			
Derived from mainly calcareous parent materials	BminSW	Renzinas	Shallow soils, usually no more than 50cm depth, usually derived from limestone parent material, use limited by shallow depth
		Lithosols	Skeletal stony soils usually overlying solid or shattered bedrock, use limited to rough grazing and forestry
Deep poorly drained mineral			
Derived from mainly non-calcareous parent materials	AminPD	Surface water Gleys Ground water Gleys	Developed under the influence of permanent or intermittent waterlogging, impervious with poor physical structure, unsuitable for cultivation or intensive grazing
Derived from mainly calcareous parent materials	BminPD	Surface water Gleys Ground water Gleys	Developed under the influence of permanent or intermittent waterlogging, impervious with poor physical structure, unsuitable for cultivation or intensive grazing

Source: Spatial Analysis Group, Teagasc, EPA Soil and Subsoil Mapping Project, 2006

[38]Teagasc Spatial Analysis Unit, EPA Soils and Subsoils Mapping project Final Report

Figure 3.7: Indicative Soils Map, Co. Kilkenny



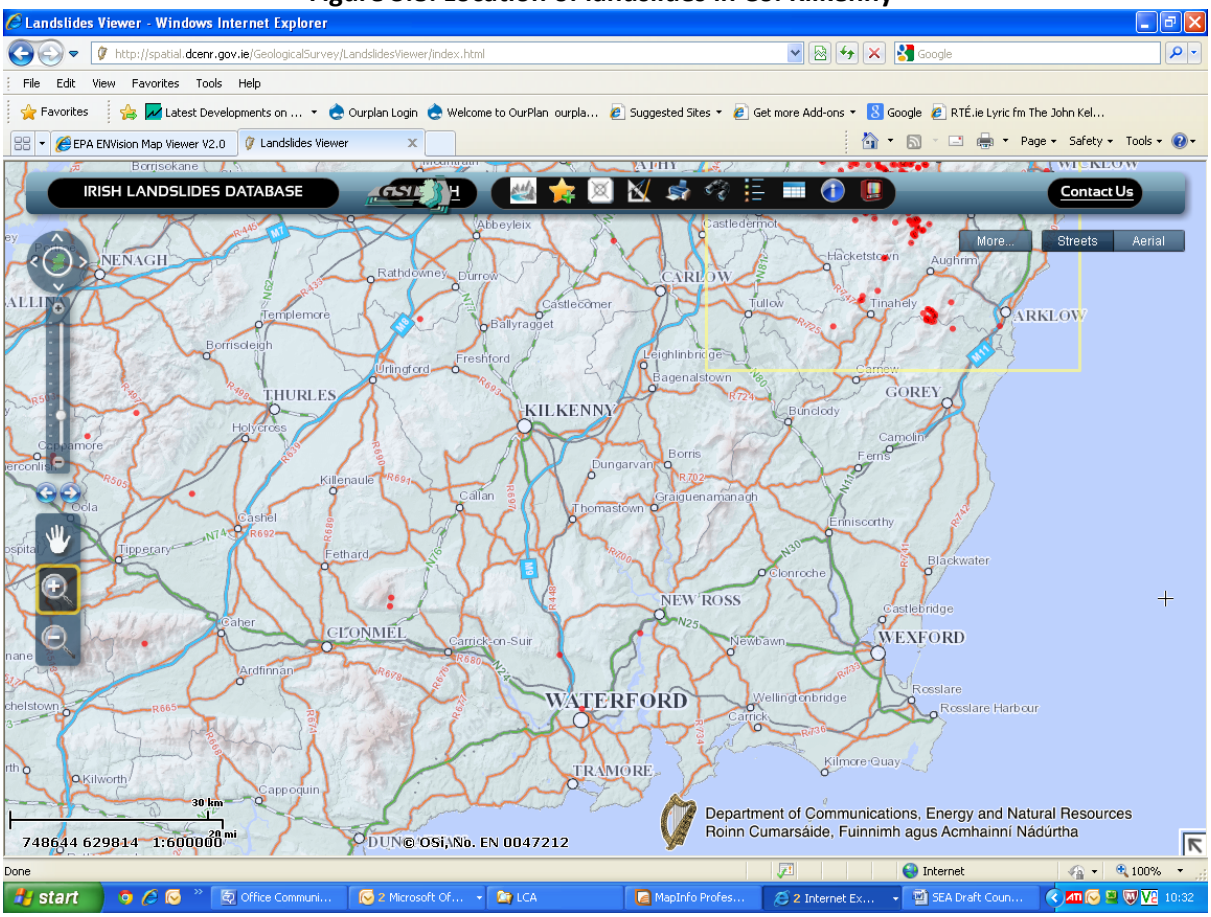
There is no national soil protection strategy. The EU Commission set up the Thematic Group for Soil Strategy in 2004 to identify the potential threats to soil function. Its analysis identified six soil degradation processes that impact on soils; soil sealing, erosion, organic matter decline, compaction, 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.

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. In addition, two more have occurred near the county boundary, one in Sally Park in Waterford City and one in Cullahill, Co. Laois, see Figure 3.8 below.

Landslide susceptibility mapping has not yet been produced for Ireland.

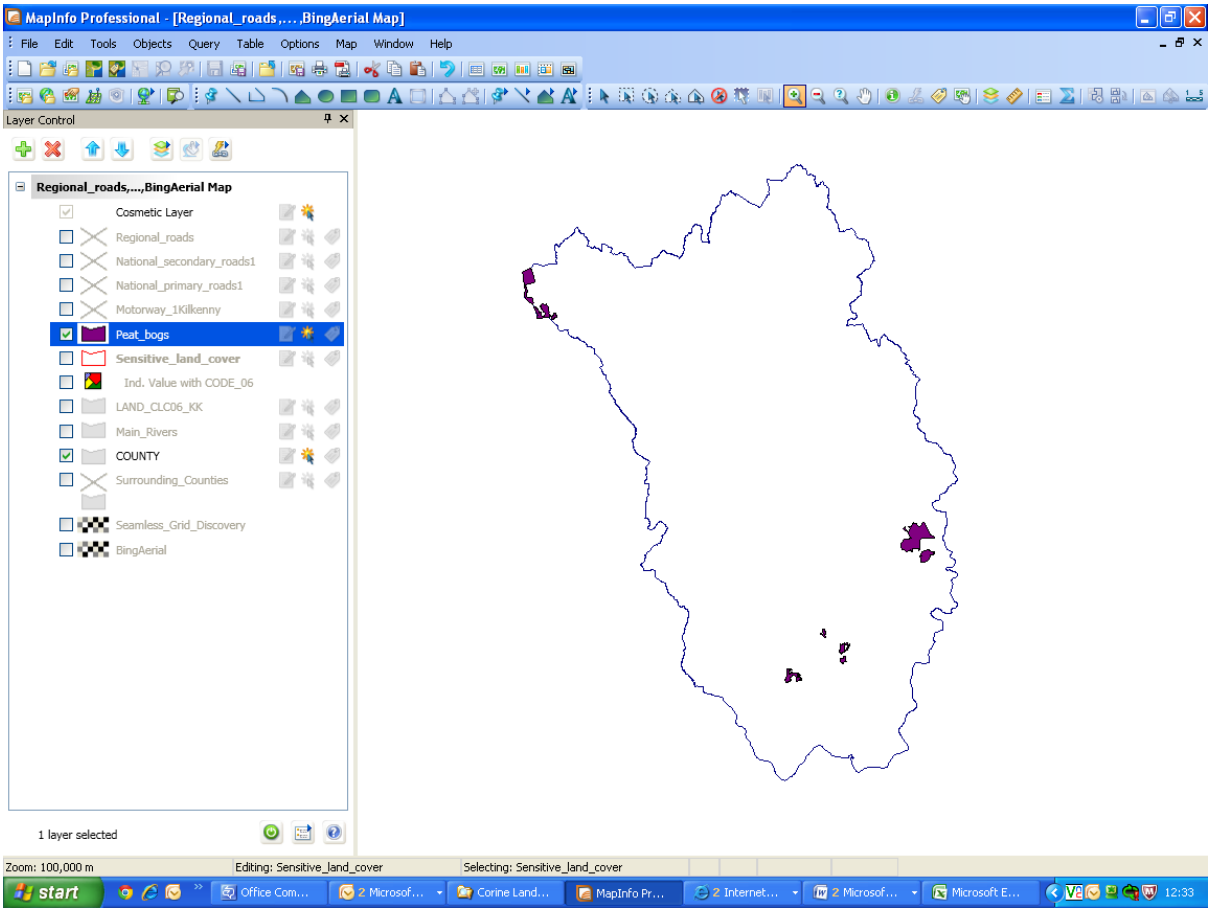
Figure 3.8: Location of landslides in Co. Kilkenny



3.5.2 Peatland

Peatlands are important ecosystems sustaining a range of animal and plant species. The distribution of peatland in Kilkenny is shown on Figure 3.9 below. This amounted to approximately 1.3% of the total land area of Co. Kilkenny in 2006. There is no industrial extraction of peat for energy and horticulture in Kilkenny, however damage to peatland can occur from domestic peat extraction, afforestation, wind farms, recreational activities and invasive species.

Figure 3.9: Location of Peatlands in Co. Kilkenny



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 characteristics[39].

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, these are shown on 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 Kilkenny[40]. 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 3.10, shows very high potential in the north of the county, along the Rivers Nore, Dinin and Nuenna. The CRP map, Figure 3.11 shows great variation throughout the county in levels of potential.

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

[40] http://spatial.dcenr.gov.ie/APM/index.html

Figure 3.10: Granular Aggregate Potential (GAP)

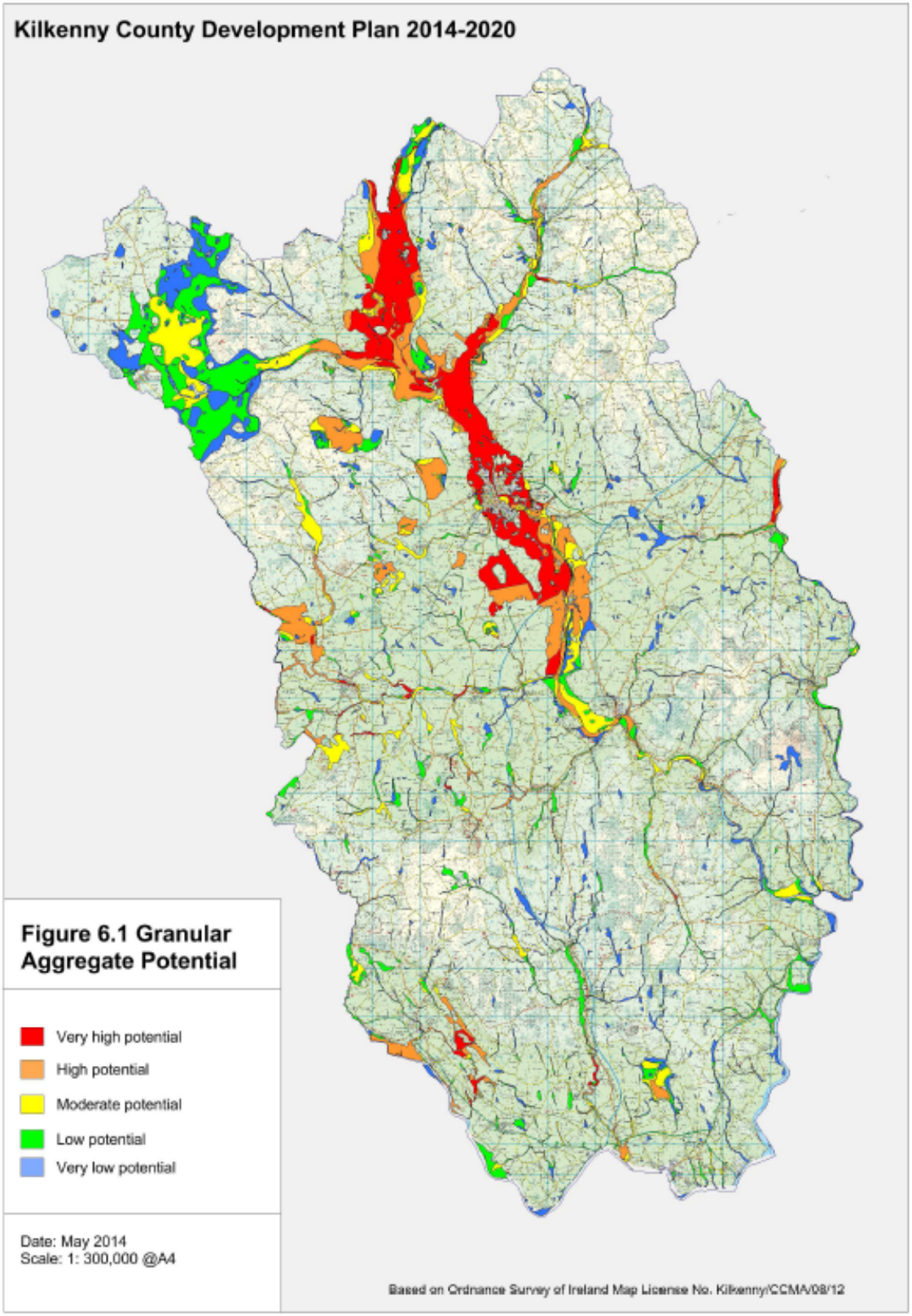
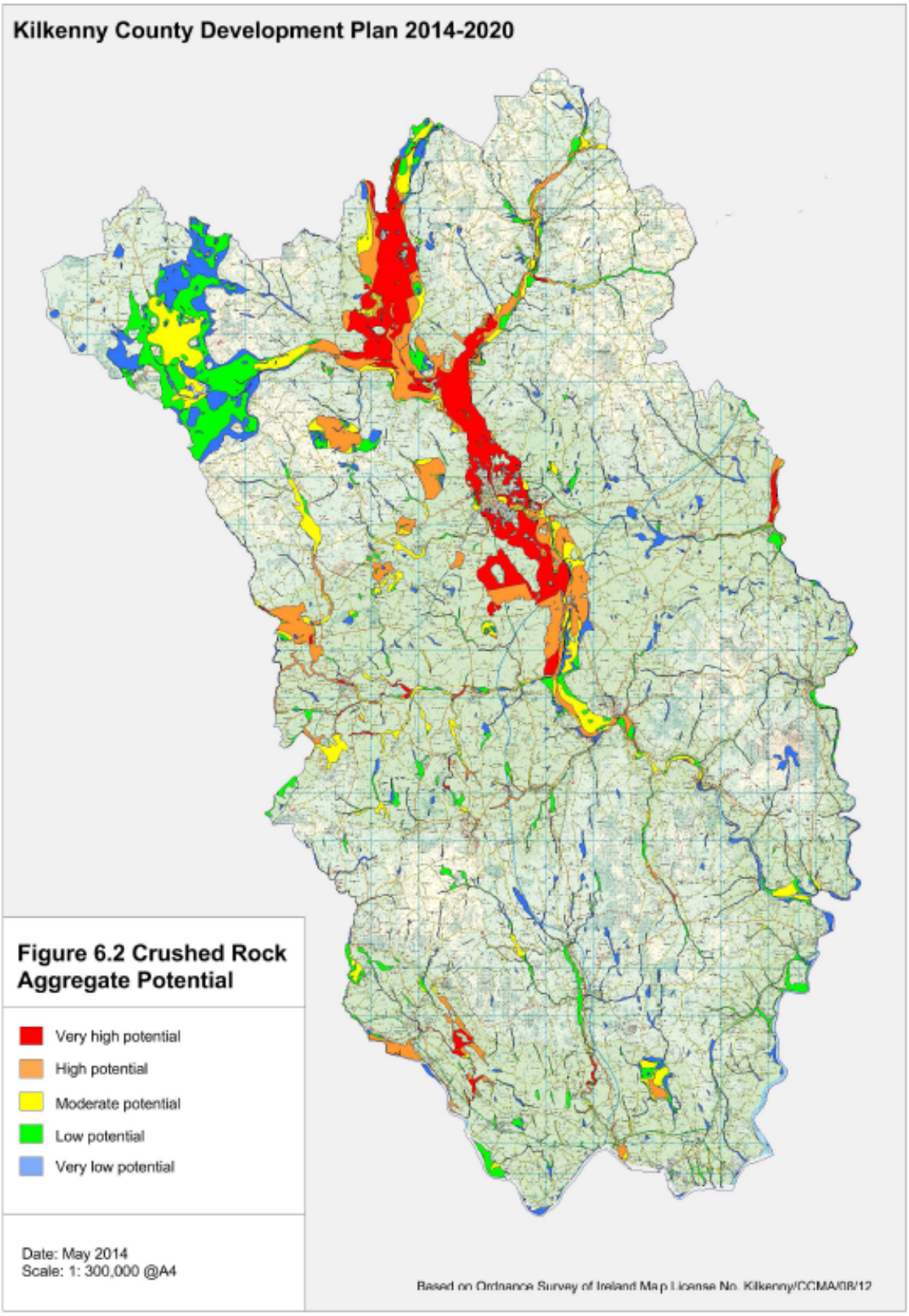


Figure 3.11: Crushed Rock Aggregate Potential (CRP)

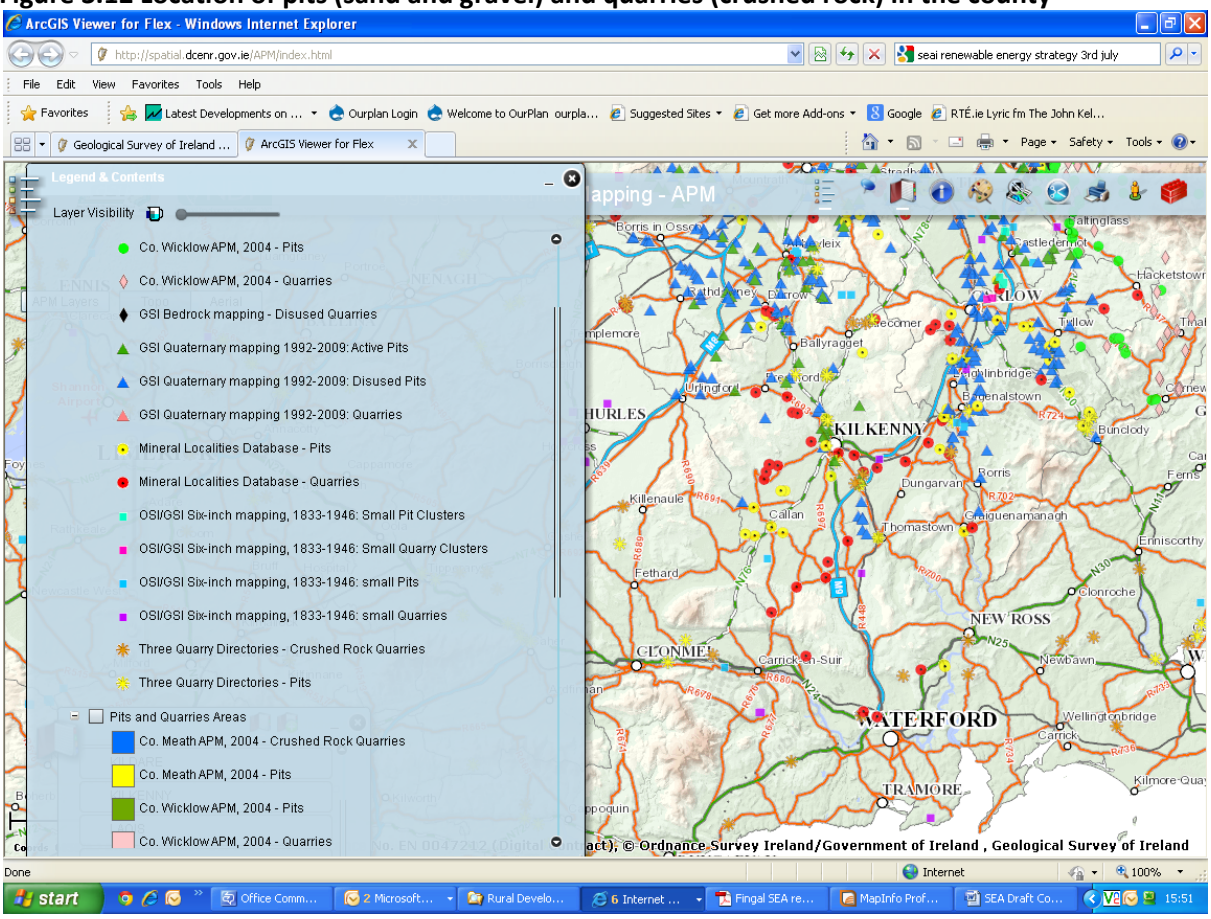


3.5.3.3 Extractive Industries

The Geological Survey of Ireland maintains a record of all pits (sand and gravel) and quarries (crushed rock) in the country, see Figure 3.12.

There is one mine in Kilkenny, at Galmoy. This was an underground zinc mine and operated from for over a twenty year period, however production has now ceased at the site and the mine is in closure mode.

Figure 3.12 Location of pits (sand and gravel) and quarries (crushed rock) in the county



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

3.5.4 Existing Problems

- Landslides have occurred in two sites in Co. Kilkenny, landslide susceptibility mapping has not been produced.
- Peatland continues to be disturbed by various activities and invasive species.

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[41] 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 2010[42].

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 county. This is an improvement from the South East River Basin Management Plan in 2010, when two groundwater bodies, Waterbody IE_SE_G_059 on the Laois border and the area around Newrath, Waterbody IE_SE_G_150, were classified as Poor.

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. As at 24/1/2013, no river in the county is classified as Bad status, but a number of rivers are classified as Poor, see Figure 3.13. Two sections of the River Nore, forming part of the cSAC and SPA, are classified as Poor.

Information on trends in river water quality is available from the EPA Report on River Water Quality in County Kilkenny[43]. 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.

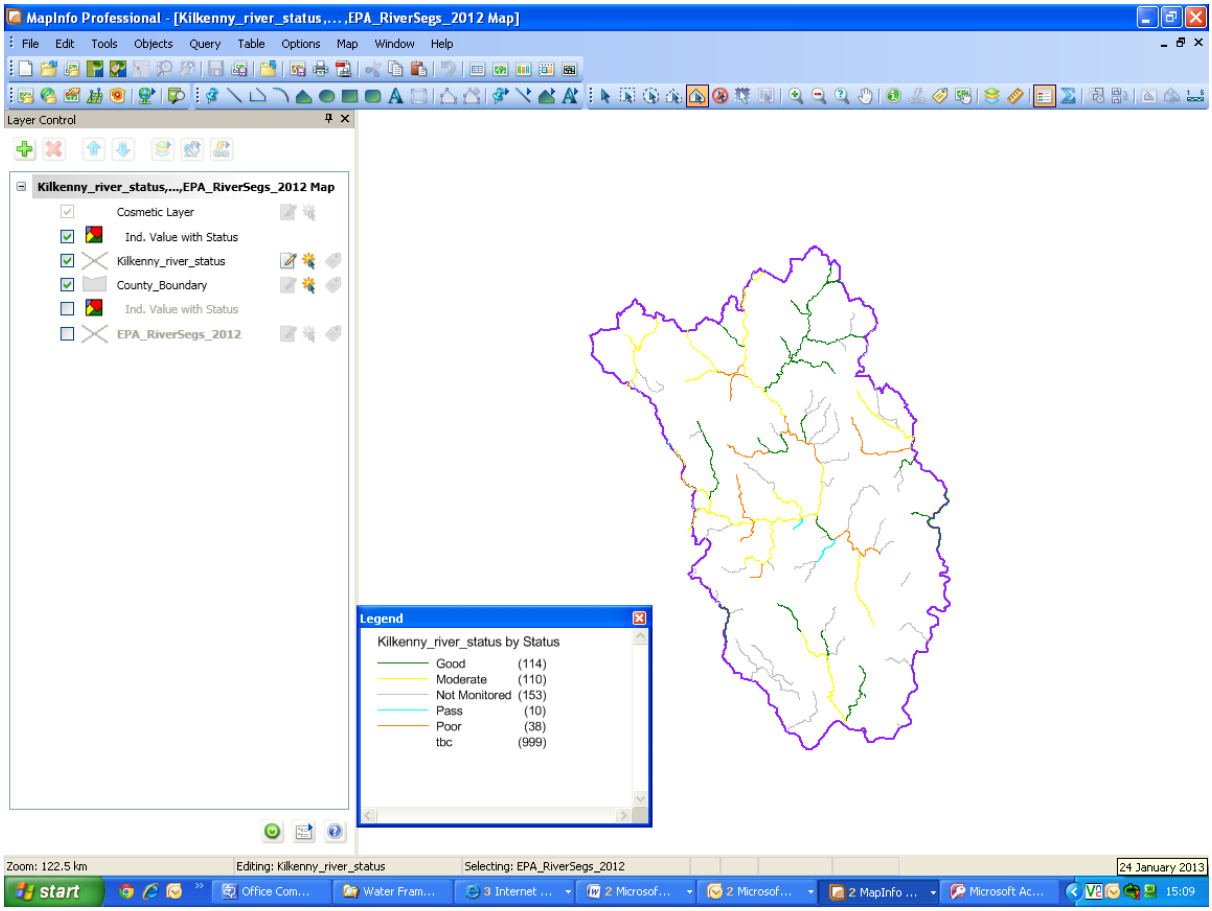
[41] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy

[42] South Eastern River Basin District, *South East River Basin Management Plan (Water Matters) 2009-2015*, 2010

[43] Environmental Protection Agency, *Integrated Water Quality Report 2011 – South East Ireland Report on River Water Quality in County Kilkenny* 2011

Table 3.11: 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%

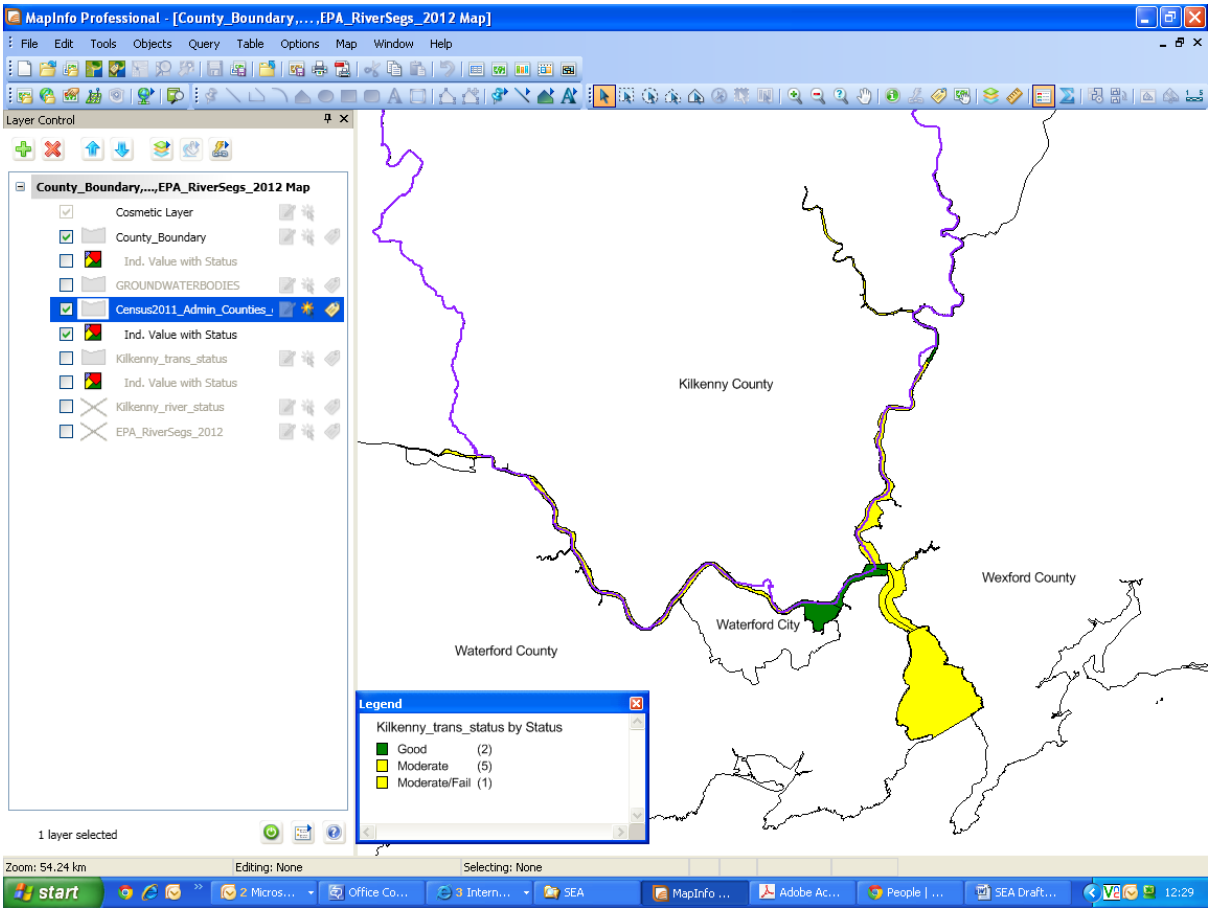
Figure 3.13: Surface Water quality in Co. Kilkenny



3.6.1.3 Estuarine waters

Estuarine waters include the Upper River Suir, Upper River Barrow and the River Nore. As of 24/1/2013, all estuarine waters were either at good or moderate status, see Figure 3.14 below.

Figure 3.14: Estuarine Water quality in Co. Kilkenny



3.6.1.3.1 Waterford Harbour Shellfish Growing Area

The Waterford Harbour Shellfish Growing Area was designated in 2009. A Pollution Reduction Programme was prepared based on the Characterisation Report[44]. This found that the key pressures on the site were urban wastewater systems, on-site waste water treatment systems and agriculture. The pressure arising from the urban wastewater systems was alleviated in 2010 with the opening of the upgraded Waste Water Treatment plant in Belview. On site waste water treatment systems such as septic tanks are addressed in section 3.6.3.

3.6.2 Waste Water Treatment

There are a total of 35 public wastewater treatment schemes within the county, of varying size and complexity, see Table 3.12 below.

[44] Department of Environment, Heritage and Local Government, *Waterford Harbour Pollution Reduction Programme,* 2009

The EPA publishes reports on the status of waste water treatment in Ireland. The latest of these is an Update Report[45] to the *Focus on Urban Waste Water Discharges in Ireland, Urban Waste Water Treatment*[46]. 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 2011 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 2011 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.

Of the 21 plants listed, 8 passed, 7 failed and 6 had no secondary treatment. This compares to 2010[47], where 8 plants failed, 6 passed, 6 had no secondary treatment and 1 had no result.

[45] EPA, *Second Update Report on data presented in the EPA Report "Focus on Urban Waste Water Discharges in Ireland" Urban Waste Water Treatment*, 2012

[46] EPA, *Focus on Urban Waste Water Discharges in Ireland, Urban Waste Water Treatment*, 2012

[47] EPA, *Update Report on data presented in the EPA Report "Focus on Urban Waste Water Discharges in Ireland" Urban Waste Water Treatment in 2010*, 2012

Table 3.12: Waste Water Treatment plants in Co. Kilkenny

Name of plant	WWTP Type	Design P.E. (Population Equivalent)	Current load P.E. (Population Equivalent) as at 9/2/2012	Comment on upgrade
Ballyhale/Knocktopher	Secondary	400	505	Overloaded. Upgrade planned.
Ballyragget	Secondary	1,920	983	Capacity available
Bennettsbridge	Primary	500	1,425	Overloaded. Upgrade planned.
Callan	Secondary	4,000	5,280	Overloaded
Castlecomer	Secondary	2,540	1,311	Upgrade planned.
Clogh-Mooneenroe	Secondary	1,740	755	Upgrade planned.
Coan	Primary	75	30	Capacity available
Deerpark, Moneenroe	Primary	65	54	Capacity available
Dunamaggin	Secondary	150	100	Capacity available
Dungarvan	Primary	65	150	Overloaded. No immediate plans for upgrade.
Fiddown	Primary	300	608	Overloaded. Upgrade planned.
Freshford	Primary	400	1,000	Overloaded. Upgrade planned – funding dependant
Glenmore	Primary	250	220	Capacity available
Goresbridge	Primary	400	1,837	Overloaded. Upgrade funding dependant.
Gowran	Secondary	1,600	701	Capacity available
Graiguenamanagh	Secondary	3,000	1,270	Capacity available
Inistioge	Primary	400	330	Overloaded. Upgrade funding dependant.
Johnstown	Primary	900	990	Overloaded. Upgrade funding dependant.
Kells	Secondary	300	320	Overloaded. No immediate plans for 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	
Kilmacow	Secondary	2,500		New plant. Capacity available.
Kilmaganny	Primary	245	275	
Kilmanagh	Primary	50	30	
Ballyhale/Knocktopher	Secondary	400	505	Overloaded. Upgrade planned.
Mooncoin	Secondary	2,800	612	Capacity available
Ballygriffin, Mooncoin	Primary	30	30	
Mullinavat	Primary	280	520	Overloaded. Upgrade post 2013 & funding dependant.
New Ross (Environs)	Secondary	1,900	200	New plant in Co. Wexford. Design PE represents capacity reserved for Kilkenny County Council. Capacity available. Total Design PE 16,000, PE used 10,013)

Paulstown	Secondary	1,000	665	Upgrade planned.
Piltown	Secondary	1,500	2,096	Overloaded. Upgrade funding dependant.
Skeaghvosteen	Primary	27	27	
Slieverue	Secondary	19,500	5,100	New Waterford City plant at Belview. Design PE represents capacity reserved for Kilkenny County Council for Waterford City Environs and Slieverue. Capacity available. (Total PE 190,600, used 122,588)
Stoneyford	Secondary	500	614	Overloaded. Upgrade funding dependant.
Thomastown	Secondary	7,500	2,049	Capacity available
Tullaroan	Primary	150		
Urlingford	Secondary	1,500	2,015	Overloaded. Upgrade planned.
Windgap	Primary	27	27	

3.6.3 Septic tanks

A total of 15,163 housing units in the county were served by septic tanks, or other individual sewerage treatment systems according to the 2011 Census. This was an increase of 1,149 from the 2006 total of 14,014[48]. In 2002, there were 12,821 septic tanks in the county.

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, 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.

[48] www.cso.ie

3.6.4 Water supply schemes

There are a total of 20 public water supplies serving various settlements in the county. Public water supplies have the potential to impact hugely on human health.

Table 3.13: Water Supply Schemes

Water Supply Name	Comment on capacity	Upgrade
Ballyragget Ws 1001	Capacity Available	
Bennettsbridge Regional Ws 1002	Capacity Limited	
Callan Ws 1003	Capacity Available	
Castlecomer (Old) Ws 1004	Capacity Limited	
Clogh-Castlecomer Ws 1005	Capacity Limited	Prioritised for upgrade
Glenmore Ws 1006	Capacity Limited	
Gorteen Ws 1016	Capacity Limited	
Gowran-Goresbridge-Paulstown Ws 1007	Capacity Limited	Prioritised for upgrade
Graiguenamanagh Ws 1008	Capacity Limited	
Inistioge Ws 1009	Capacity Limited	
Kilkenny City (Radestown) Ws 1010	Capacity Available	Prioritised for upgrade
Kilkenny City (Troyswood) Ws 1011	Capacity Available	
Kilmaganny Ws 1019	Capacity Limited	
Lois Na Si Ws 1018	Closed	
Mooncoin Regional Ws 1012	Capacity Available	Prioritised for upgrade
Piltown Ws 1013	Capacity Limited	
Silversprings Ws 1017	Closure proposed	
South Kilkenny Environs Ws 1020	Capacity Available	
Thomastown Ws 1014	Capacity Limited	Prioritised for upgrade
Urlingford-Johnstown Ws 1015	Capacity Limited	

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*[49]. Of the 19 operational public water supply schemes, five were listed on the Remedial Action List (RAL) at the end of 2011. 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 primary issues addressed by the RAL include disinfection for *E. coli*, *Cryptosporidium* barriers, adequate treatment for trihalomethanes and operational controls for managing aluminium, and turbidity levels. In 2008, 7 schemes were listed on the RAL, by 2012 this was reduced to 2; Inistioge and Kilkenny City (Radestown). The remedial actions are due to be complete by 2014.

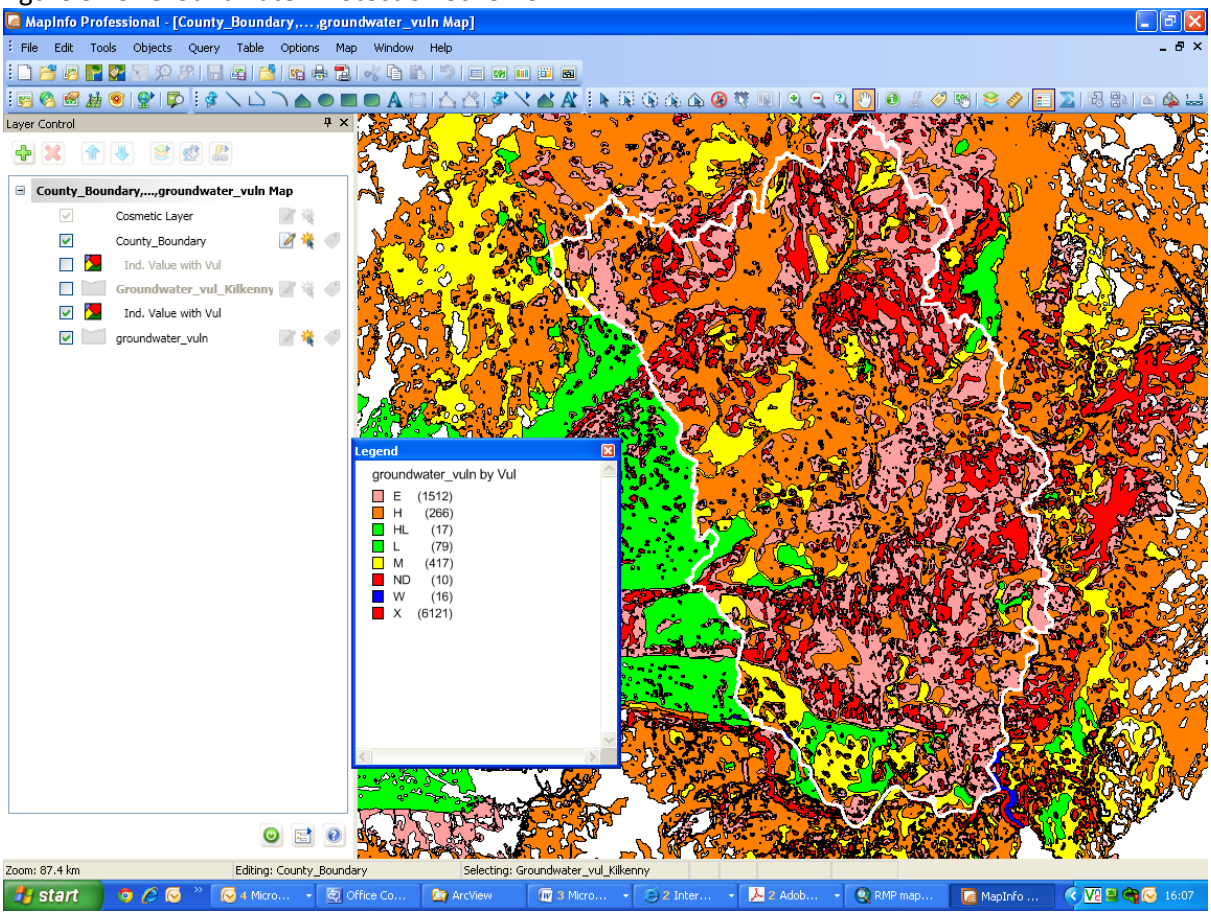
[49] Office of Environment Enforcement, EPA *The Provision and Quality of Drinking Water in Ireland – A Report for the Year 2011*, 2009

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 3.15. Aquifers of extreme vulnerability are dominant in the south of the county and aquifers of high vulnerability are dominant in the low lying central areas. As can be seen the majority of the county's ground waters are classified as either extreme or high vulnerability.

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

Figure 3.15: Groundwater Protection Scheme

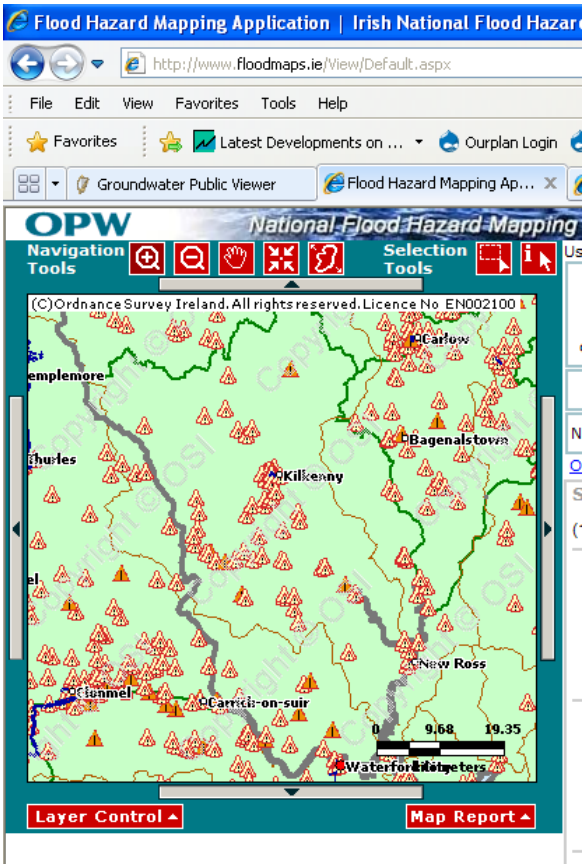


3.6.6 Flooding

The OPW record flood events throughout the country[50]. The locations of all recorded flood events are shown on Figure 3.16. 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 3.16: Location of flood events in the County

[50] http://www.floodmaps.ie/View/Default.aspx



3.6.7 Existing Problems

- A number of the County's rivers are classified as being of Poor status under the Water Framework Directive, this is of particular concern where this Poor status overlaps with the cSAC or SPA.
- There are continuing pressures on the Waterford Harbour Shellfish growing area arising from on-site wastewater treatment systems.
- Waste water treatment plants require upgrading in a number of settlements
- The proliferation of septic tanks can have an impact on the quality of groundwater and surface water.
- Water supply schemes require upgrading in a number of settlements and two schemes are on the Remedial Action List
- In general, the County's aquifers are rated as either extreme or high vulnerability, which presents challenges to determine appropriate uses.
- Flooding continues to occur in a number of locations in the county.

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[51], 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 data[52]. 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 (NO_2) and Ozone (O_3) are monitored at this site. The NO_2 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 O_3 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 2005[53], 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 (SO_2), oxides of nitrogen (NO_x), volatile organic compounds (VOC) and ammonia (NH_3). These pollutants can contribute to acidification, eutrophication and ozone formation. Strategies implemented in Ireland in recent years have substantially reduced emissions of SO_2, VOC and NH_3, 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% nationally[54]. The philosophy of "Smarter Travel" involves using sustainable modes of transport, such as public transport, walking or cycling, and reducing overall travel demand. Locating houses close to places of employment and services can contribute to an increase in Smarter Travel. In general, rural housing increases car dependency and contributes to a rise in unsustainable modes of transport.

[51] EU, Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive, 2008
[52] http://www.epa.ie/whatwedo/monitoring/air/data/kk/
[53] EPA, *Ambient Air Monitoring in Kilkenny 29th April 2005 to 25th October 2005*, 2005
[54] Census 2011, Profile 10 Door to Door

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 area located within walking distance of employment and social centres.

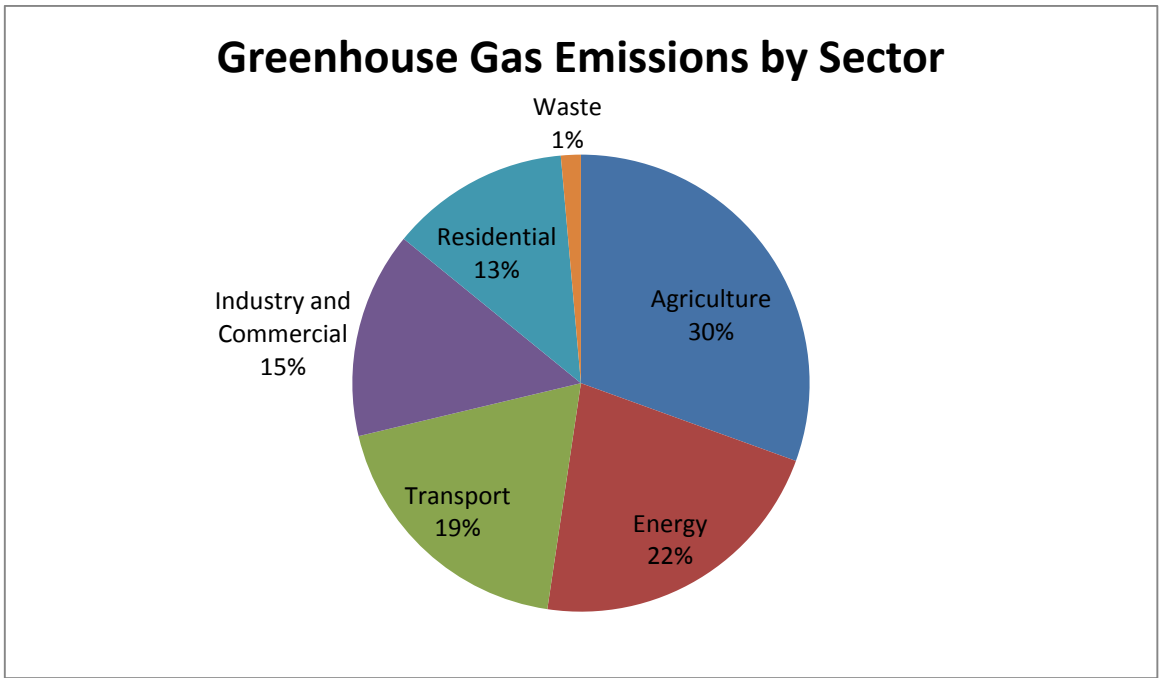
3.8 Climatic Factors

The causes and consequences of climate change pose an immense global challenge. The National Climate Change Adaptation Framework[55] 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 (CO_2), methane (CH_4) and nitrous oxide (N_2O), 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 below[56]. 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 Head[57]. 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.

[55] Department of Environment, Community and Local Government, National Climate Change Adaptation Framework, 2012
[56] EPA, *Ireland's Environment, An Assessment*, 2012
[57] 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[58] 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 the Kilkenny the following areas are within the subject criteria of the Regulations:

- Sections of the N9 in the Environs of Waterford City
- Sections of the N10 in the Environs of Kilkenny City
- Sections of the N25 in the Environs of Waterford City and New Ross
- Sections of the N77 in the Environs of Kilkenny City

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

- 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 county may be affected by environmental noise levels from roads.

[58] Kilkenny County and Borough Councils, *Noise Action Plan 2008*, 2009

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, forests and agriculture.

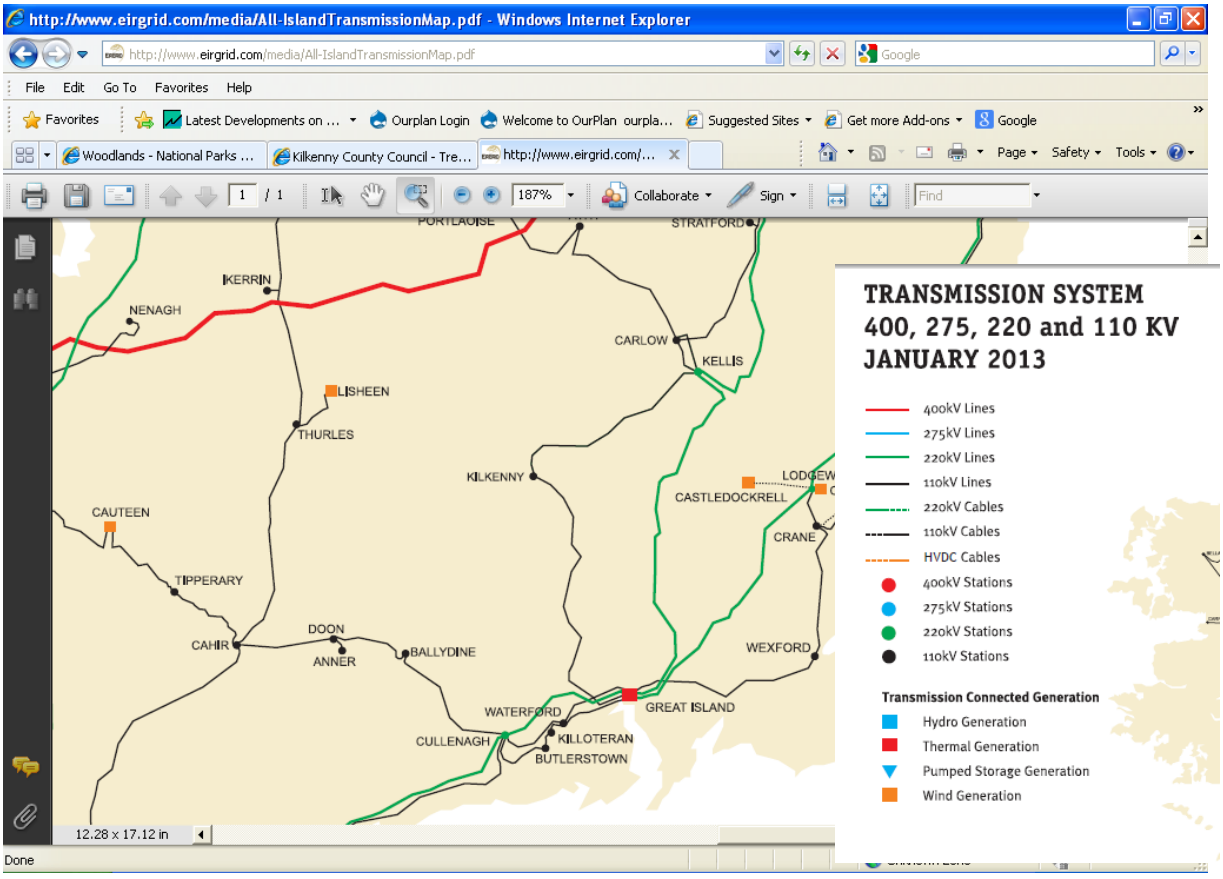
3.9.1 Transportation

The County's transportation infrastructure is shown on Figure 3.4, Core Strategy.

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. There is one transmission substation, Kilkenny, which is served by two 110 kV overhead lines, see Figure 3.17.

Figure 3.17 Transmission network in Co. Kilkenny



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

Two projects are being developed by Eirgrid in or affecting Kilkenny; the Laois – Kilkenny Reinforcement Project to increase the quality and security of supply to the area, and GridLink, which will link Cork and Kildare via Great Island in Wexford with a 400 kV line.

3.9.3 Quarries

A database of all quarries in the county (active and closed) has been prepared by the Planning Section. Figure 3.12 shows the location of pits (sand and gravel) and quarries (crushed rock) in the county. Remediation of quarries is governed under the planning application for each quarry, and

will not be 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 Forestry

According to the Forest Service, 7.8% of the county was in forest cover in 2007[59]. This has increased since then to 9.98% which is a total of 20,573ha in 2011[60]. Nationally, 10.92% of land is under forest cover. According to Corine 2006 data, the breakdown in forestry amongst broad-leaved and coniferous forests was as follows:

Table 3.14: Forestry cover in County by type in 2006

Site code	Forestry type	% of total
311	Broad-leaved forests	14.2%
312	Coniferous forests	76.1%
313	Mixed forests	9.7%

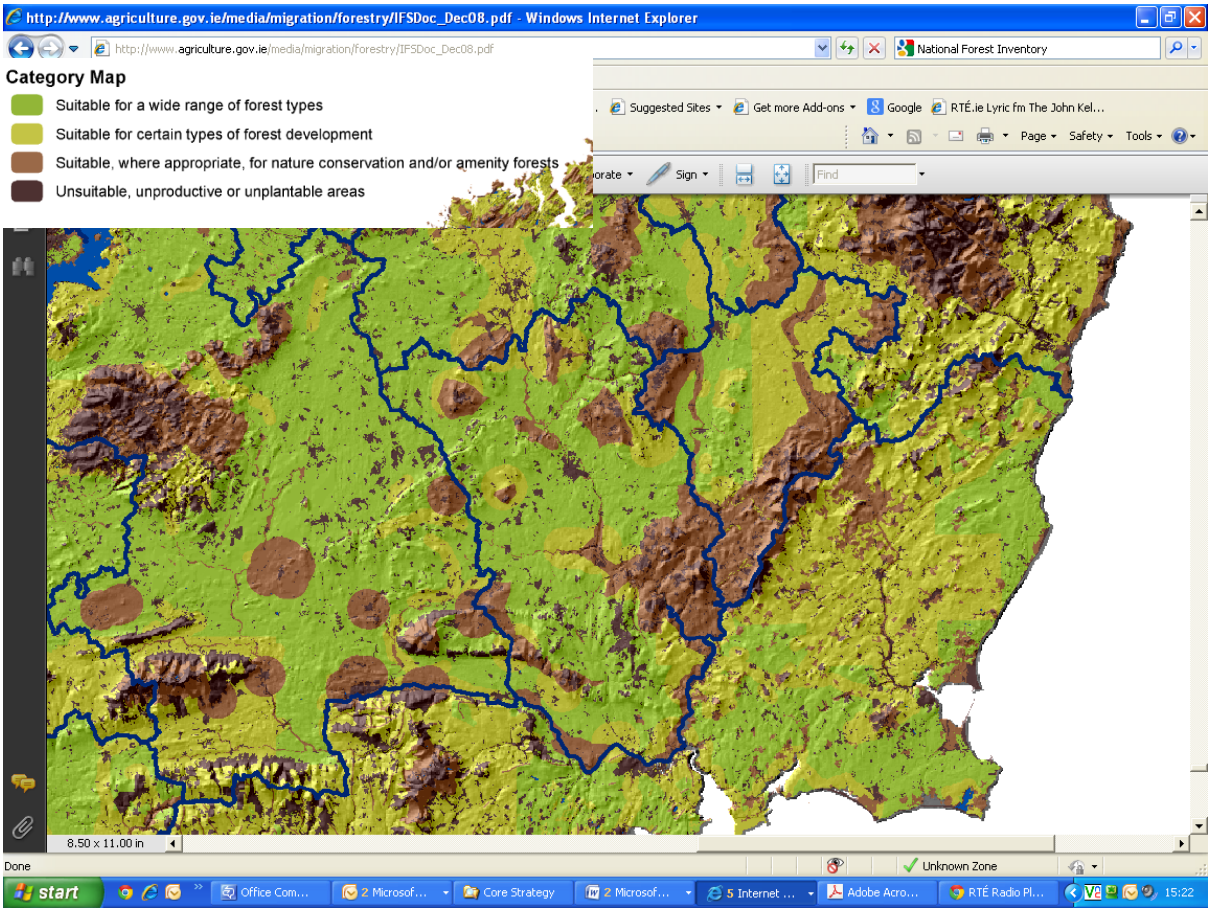
The Department of Agriculture, Fisheries and Food, Forest Service published an *Indicative Forest Statement* in 2008[61]. This Forestry Statement provides high-level, national guidance in relation to the suitability of land for afforestation. This statement divides the country into four mapped category areas according to its suitability as follows:

Category 1: Suitable for a range of forest types (38% nationally)
Category 2: Suitable for certain types of forest development (27%)
Category 3: Suitable, where appropriate, for nature conservation and/or amenity forests (20%)
Category 4: Unsuitable, unproductive or unplantable (15%)

The IFS map is primarily related to the consultation system for the processing of Forest Service grants. All areas are categorised by reference to the level of consultation required, their varying silvicultural suitability or whether or not the areas are plantable or there is existing forest cover. County Kilkenny falls mainly within Category 1, but also has areas within each of the other three categories, see Figure 3.18.

[59] Forest Service, National Forest Inventory, 2007
[60] Forest Service, Afforestation Statistics, 2011
[61] Department of Agriculture, Fisheries and Food, Forest Service, *Indicative Forest Statement*, 2008

Figure 3.18: Indicative Forestry Statement Map



3.9.5 Agriculture

Agriculture, forestry and fishing accounted for approximately 2% of Gross Value Added nationally in 2011[62]. (GVA is equal to the sum of the values of goods and services produced, including depreciation and subsidies on production, but excluding taxes on production.) The strategy document, Food Harvest 2020[63] sets out that milk production will increase by 50% by 2020. This may have environmental effects in terms of greenhouse gas emissions and water quality. The environmental issues arising from this are mainly addressed at EU level, through the Common Agriculture Policy (CAP), which requires that farmers are cross compliant. Applicants must maintain their land in 'good agricultural and environmental condition'.

3.9.6 Existing Problems

- There is a need to upgrade the energy infrastructure in the county.

[62] EPA, *Ireland's Environment, An Assessment*, 2012, p.11

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

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. Co. 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 3.19 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 and the Barrow Estuary may contain such objects. Flood relief schemes, dredging, bridge or drainage works may impact on this archaeological heritage.

3.10.2 Architectural Heritage

County 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 3.20 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 3.21 for the current distribution of NIAH structures in the county. 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 County Development Plan 2014-2020 SEA

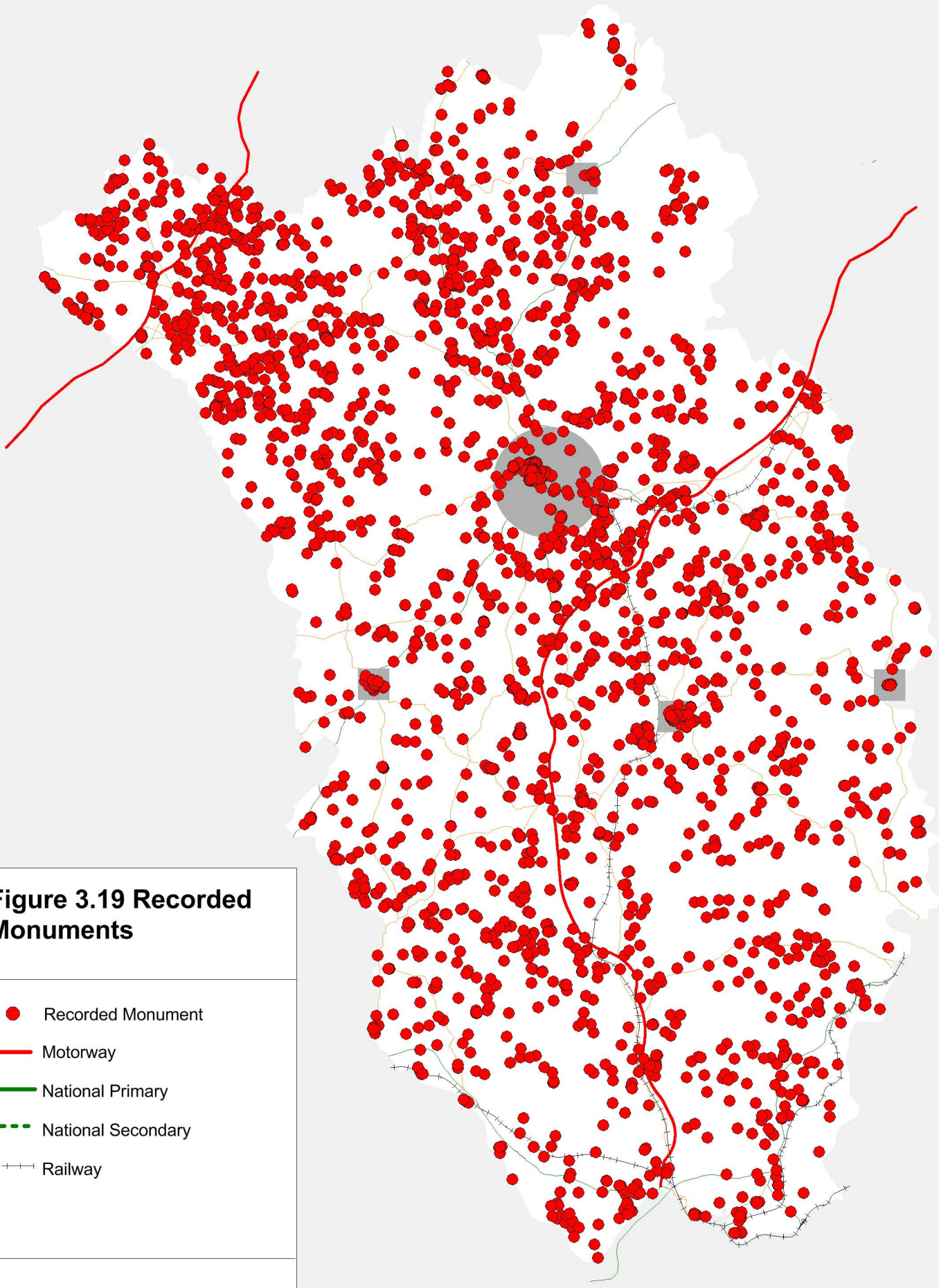


Figure 3.19 Recorded Monuments

- Recorded Monument
- Motorway
- National Primary
- National Secondary
- Railway

Date: May 2014
Scale: 1: 300,000 @A4

Kilkenny County Development Plan 2014-2020 SEA

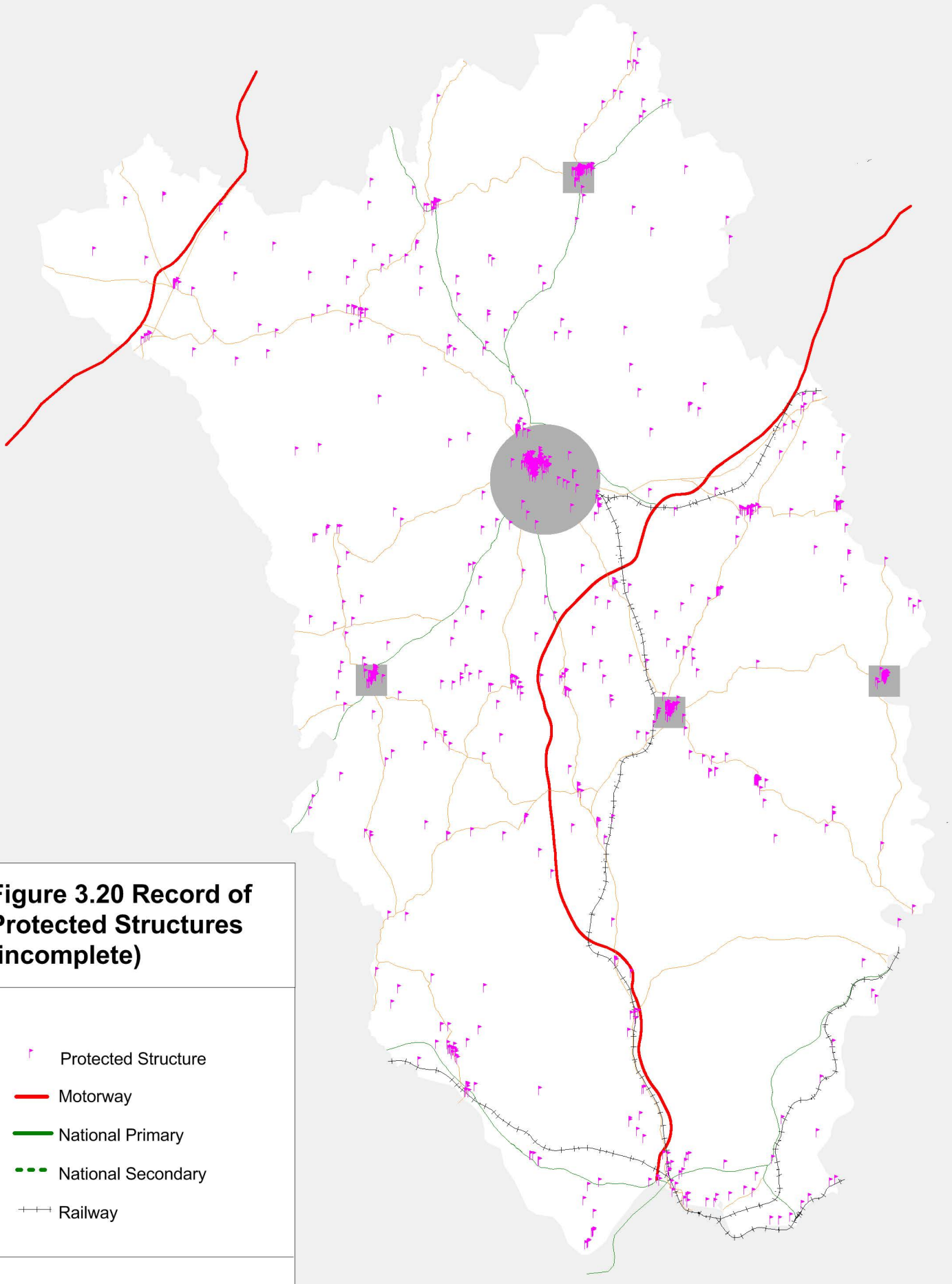


Figure 3.20 Record of Protected Structures (incomplete)

Protected Structure
Motorway
National Primary
National Secondary
Railway

Date: May 2014
Scale: 1: 300,000 @A4

Kilkenny County Development Plan 2014-2020 SEA

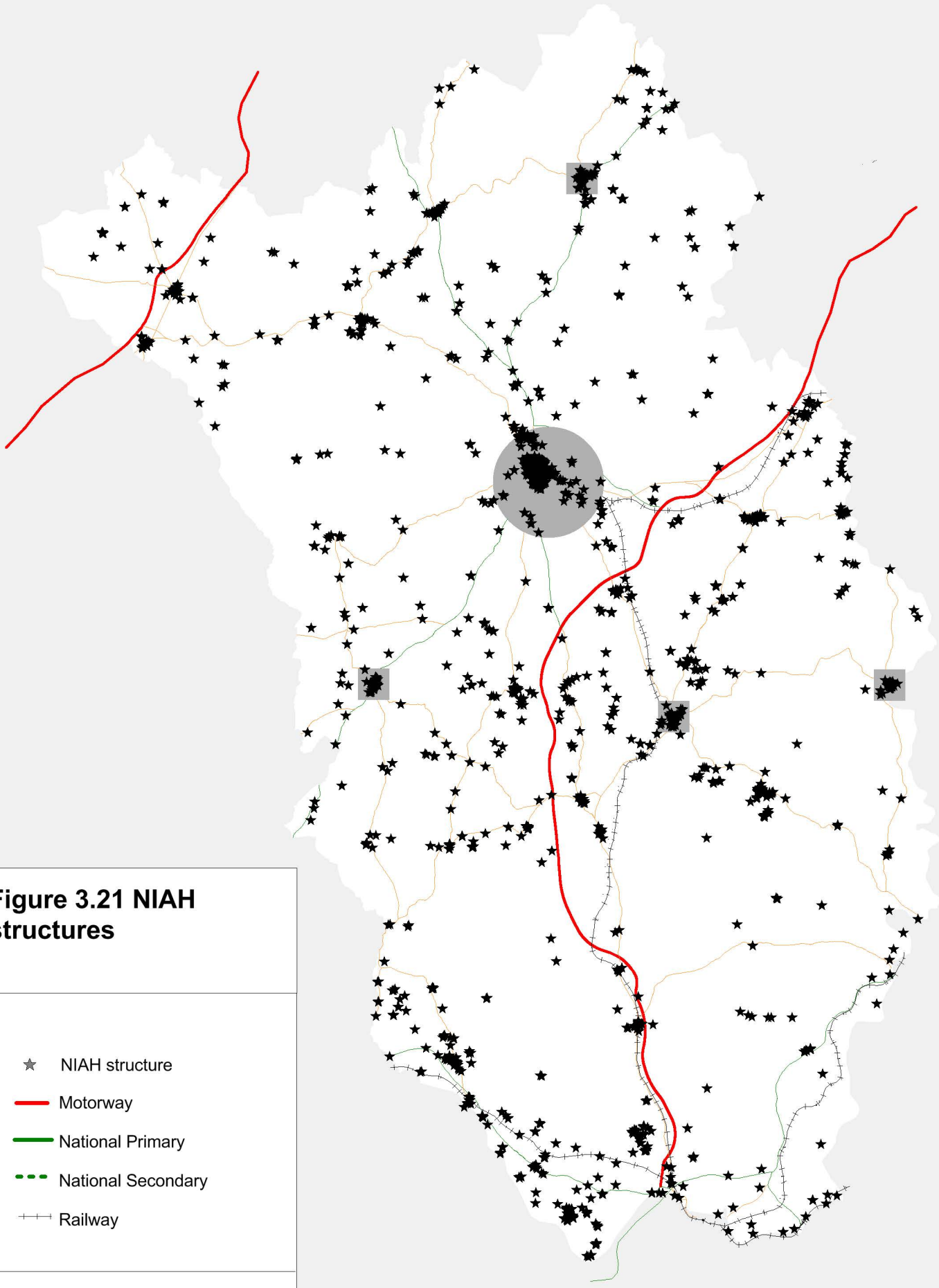


Figure 3.21 NIAH structures

NIAH structure
Motorway
National Primary
National Secondary
Railway

Date: May 2014
Scale: 1: 300,000 @A4

(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 ACA's within Ballyragget, Callan, Castlecomer, Freshford, Gowran, Graiguenamanagh, Inistioge and Thomastown and an ACA is proposed for Johnstown. Maps of the ACAs are contained within the Development 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

A Landscape Character Assessment for the County is contained within the 2008 Plan. This divides the County into four landscape character unit types. There are also a number of protected views within the 2008 Plan. The landscape character areas and protected views are shown on Figure 3.22.

In addition to the designated views in the current Plan, there were also a number of views designated as part of the Kells and Woodstock Local Area Plans. These should be incorporated into the Plan to ensure their continued protection.

Population growth can be a threat to the landscape quality, depending on the type and nature of new housing distribution. The dereliction of farms and stone cottages and their replacement by modern dwellings not reflective of traditional vernacular styles can have an impact on the area. Farming practices may also pose a threat, where hedgerows are being removed and replaced with post and wire fencing resulting in an open and more diminished landscape condition. In upland areas, masts in prominent high points threaten the visual quality of the landscape. The development of access roads for communication masts and forestry can also impact adversely on sensitive upland habitats which exist within this area.

A review of the policies in adjoining Development Plans is necessary in order to establish any possible effects on adjoining authorities' landscape designations. This is set out in the table below.

Table 3.15: Review of adjoining Development Plans in relation to landscape sensitivity

Plan	Views/scenic routes	Special sensitivity
Carlow County Development Plan 2009-2015	Scenic routes and views just east of Castlecomer	No area of sensitivity adjoining Co. Kilkenny boundary
Laois County Development Plan 2011-2017	Map 1.13.4, views into Kilkenny south of Cullahill and Durrow	No area of sensitivity adjoining Co. Kilkenny boundary
Waterford County Development Plan 2011-2017 –	No scenic routes adjoining Co. Kilkenny boundary	No area of sensitivity adjoining Co. Kilkenny boundary
Waterford City Development Plan 2013-2019	No protected views adjoining Co. Kilkenny boundary.	
Wexford County Development Plan 2013 – 2019		Map 13: No landscapes of greater sensitivity adjoining Co. Kilkenny boundary
South Tipperary County Development Plan	V51, V61	Map 9: Slieveardagh Hills – secondary amenity area Map 11: Slievenamon Primary & secondary amenity areas

3.11.1 Existing Problems

- Removal of hedgerows has caused dilution of inherent landscape character
- Visually prominent communications structures has detracted from the scenic quality of upland areas

Kilkenny County Development Plan 2014-2020 SEA

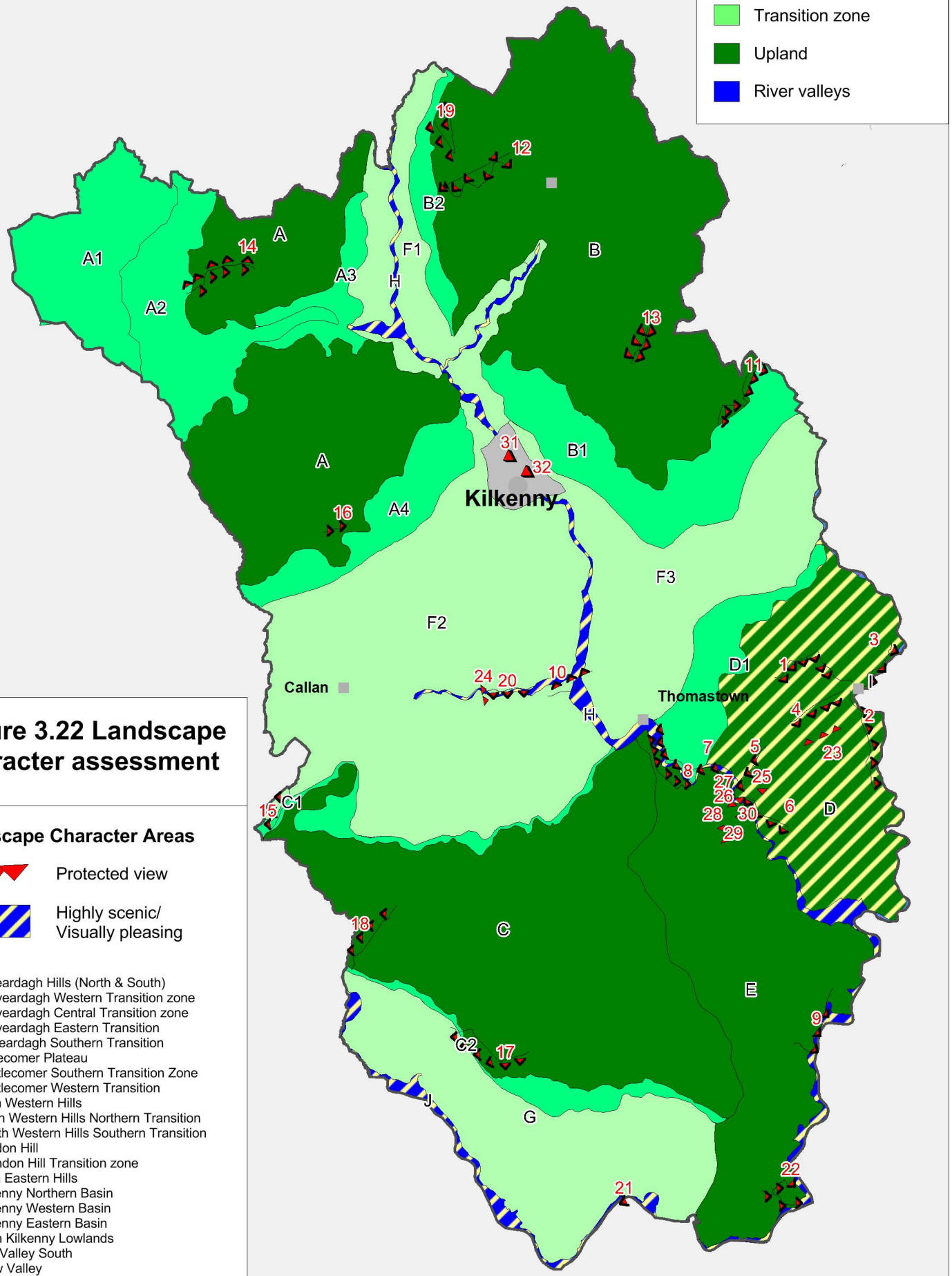


Figure 3.22 Landscape character assessment

Landscape Character Areas

Protected view

Highly scenic/
Visually pleasing

A - Slieveardagh Hills (North & South)
A1 - Slieveardagh Western Transition zone
A2 - Slieveardagh Central Transition zone
A3 - Slieveardagh Eastern Transition
A4- Slieveardagh Southern Transition
B - Castlecomer Plateau
B1 - Castlecomer Southern Transition Zone
B2 - Castlecomer Western Transition
C - South Western Hills
C1- South Western Hills Northern Transition
C2 - South Western Hills Southern Transition
D - Brandon Hill
D1 - Brandon Hill Transition zone
E - South Eastern Hills
F1 - Kilkenny Northern Basin
F2 - Kilkenny Western Basin
F3 - Kilkenny Eastern Basin
G - South Kilkenny Lowlands
H - Nore Valley South
I - Barrow Valley
J- Suir Valley

Date: May 2014
Scale: 1: 300,000 @A4

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 3.16 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
Soil	Y	Y		Y			Y	Y	
Water	Y	Y	Y			Y	Y		
Air	Y	Y							
Climatic factors	Y	Y		Y			Y	Y	Y
Material Assets	Y	Y	Y	Y		Y		Y	Y
Cultural Heritage	Y	Y	Y			Y	Y		Y
Landscape	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. 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 the Landscape Character Assessment.

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. In general, future investment in key infrastructure would not be targeted appropriately to key development areas. The result would be a haphazard, un-coordinated delivery of service, resulting in negative environmental impacts.

Specifically, the following could occur:

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 settlement policies 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 county 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 a Landscape Character Assessment, which forms part of the Plan, there would be no framework guiding developments to avoid areas of highest sensitivity. There would be no Wind Energy Development Strategy and new wind farm developments would be assessed on an individual basis, with no clear strategy.

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 including ecological linkages/corridors.	Protect designated sites (SACs, NHAs and SPAs) and species 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 sustainable high-quality residential, working and recreational environments and 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. Sustain the viability of services in smaller towns and villages. 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*[64].	S1	Maintain the quality of soils	Direct development to brownfield lands in preference to developing greenfield lands.
		S2	Maximise the sustainable re-use of	

[64] Department of the Environment, Community and Local Government, *A Resource Opportunity, Waste Management Policy in Ireland*, 2012

			brownfield lands, and maximise the 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 (2000/0/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	C1	Reduce waste of energy, and	Promote energy efficient developments.

	Framework (2012)		maximise use of renewable energy sources	Promote sustainable transport patterns through appropriate zoning and provision for public transport. Include a climate change adaptation strategy.
		C2	Minimise emissions of greenhouse gases to contribute to a reduction and avoidance of human-induced global climate change	
		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. Sustain the viability of services in smaller towns and villages.
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. Protect designated landscapes.

5 Assessment of Alternatives

5.1 Introduction

The SEA Directive[65] 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 and Ferrybank as part of the Waterford gateway, but other than that the Council has discretion with its Core Strategy. Therefore, it is alternative distributions of this growth that are examined here.

One other element that was included in the alternatives was the development of wind energy. National policy and guidelines recommend that a Strategy is undertaken, but the form this strategy takes is determined at local level through the plan process.

5.2 Alternative 1: Continued consolidation

The 2008 settlement hierarchy, as set out in Section 3.4.1, prioritises the following settlements:

- Kilkenny City as the hub,
- Ferrybank as part of the Waterford City Gateway,
- The Environs of New Ross as a large town, and
- Callan, Castlecomer, Graiguenamanagh and Thomastown as the four District towns.

Alternative 1 concentrates growth mainly into these seven settlements, with little growth being allocated to the smaller level settlements or to rural areas. Access to public transport is a guiding principle of this approach, and Thomastown, as the only District Town served by rail, is prioritised above the level of the other three District towns. Wind energy developments are concentrated only where they exist at present, with no allowance made for new locations.

[65] 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

5.3 Alternative 2: Dispersed growth

This scenario is one which places very few restrictions on development throughout the Plan area. No specific targets or limitations on growth would be set in the core strategy of the Plan for settlements within the county at a level lower than the hub and gateway. The 'pot' of zoned land, would be distributed amongst all remaining settlements without prioritisation. Development would be allowed to proceed in an ad hoc manner and would follow market forces to a great extent. Developments such as quarries and wind energy developments would be located where demand is greatest. Most development would occur on greenfield sites.

Alternative 2 envisages potentially inappropriate lands around settlements zoned for development without truly assessing the overall need for, or scale of development in those settlements. Significant levels of ribbon development along roads between settlements would result. Development would occur in unserviced or in insufficiently serviced areas. It would most likely lead to a highly dispersed settlement pattern, with severe development pressure in the rural areas adjacent to Kilkenny city and Ferrybank.

This would lead to a weakening of town and village structures throughout the county. While this alternative would allow for a freedom of development and would provide some short term economic benefits to the settlements in the plan area and their surrounding hinterlands, it is not sustainable. It would lead to a deterioration of the settlement structures of the county, with a significant shift towards rural rather than urban development. Ultimately it could lead to a loss of population base within key centres and consequently a loss of critical mass for the development of key services and facilities within those centres. Furthermore, urban generated housing within the transport corridors would have long term implications for future road development and would compromise re-alignments, or road geometry with adverse risks to road users. The proliferation of one-off housing would have negative effects on water quality (which is identified as a key EPO for the Plan) and a rise in unsustainable travel patterns with resulting effects on air quality and greenhouse gas emissions. The provision of key services such as water supply and wastewater treatment would become costly in both financial and environmental quality terms.

5.4 Alternative 3: Selection of new growth areas

This alternative acknowledges the designation of Kilkenny as a hub, and Waterford as a gateway within the National Spatial Strategy, but redesignates the 'District Towns'. The 2008 District Towns were designated on the basis of the Regional Planning Guidelines, which categorised towns of between 1,500 and 5,000 as 'District Towns'. The 2011 Census shows that Castlecomer and Graiguenamanagh's populations did not reach the 1,500 mark. In this alternative, Piltown and Mooncoin, which have the next highest populations, are designated as District Towns in place of Castlecomer and Graiguenamanagh.

Table 5.1: Population of urban centres (2011)

Town	2011 Population
Callan	2,330
Thomastown	2,273
Castlecomer	1,456
Graiguenamanagh	1,252
Piltown	1,187
Mooncoin	1,166

Piltown and Mooncoin would benefit from this designation, with the concentration of resources and additional population into these centres. Both would be subject to large levels of zoning in this Plan to accommodate the proposed increase. A large growth area would be formed around Ferrybank, Piltown and Mooncoin in the south of the county.

As part of this alternative, new areas for wind energy development would be selected on the basis of viability alone. Only those areas with highest wind speeds would be selected for wind farm development, regardless of landscape sensitivities or the presence or absence of existing wind farms.

In terms of water services, Piltown has capacity in water supply, but not in wastewater services. Mooncoin has capacity in both water and wastewater. Castlecomer and Graiguenamanagh have capacity available in both water and wastewater. In this alternative therefore, water quality in Piltown could be adversely affected.

Castlecomer and Graiguenamanagh were subject to a Flood Risk Assessment as part of Amendments to their Local Area Plans[66]. Both have areas of flood risk within the town centres. Mooncoin was included in the Strategic Flood Risk Assessment carried out for Variation 2 to the County Development Plan 2008. Mooncoin also contains an area of flood risk within the town centre. The Piltown Local Area Plan (2011)[67] includes a Stage 1 and Stage 2 Flood Risk Assessment which indicates that the central area of the town is subject to flooding.

Castlecomer was designated as a District Town in 2008 as it had surpassed the 1,500 population threshold. Graiguenamanagh was designated as a District Town on the basis of existing services and historical context. Both were historically significant market towns which have grown in population since 1966, as shown in Table 5.2 below. Both have good levels of services including a range of commercial services and secondary schools. In both cases, there are numerous brownfield, centrally located sites which would benefit from redevelopment. The Council has invested in both towns over the years, with libraries, fire stations, and Area Offices being situated in each.

This is in contrast to Piltown and Mooncoin, both of which have experienced recent rapid population growth. For the most part, development in either settlement would take place on greenfield land. These settlements are both located in the south of the county, in close proximity to the designated gateway of Waterford. Development in this area should be directed into Ferrybank, which has a large area of zoned land, and the services, to accommodate such an increase. Waterford and Belview are the largest employment and service centres in this area and in order to encourage sustainable transport patterns, most residential development should be directed into Ferrybank. Designating Piltown and Mooncoin as growth centres would result in less development for Ferrybank and an increase in unsustainable travel patterns.

From a social and economic perspective, existing services in Castlecomer and Graiguenamanagh would suffer with the removal of their District Town designation.

[66] http://www.kilkennycoco.ie/eng/Services/Planning/Local%20Area%20Plans/Adopted_Local_Area_Plans/

[67] http://www.kilkennycoco.ie/eng/Services/Planning/Local%20Area%20Plans/Adopted_Local_Area_Plans/Piltown_.html

Table 5.2: Comparison of Population Growth							
Town	**Population**						**Rate of growth 1966-2011**
	2011	**2006**	**2002**	**1996**	**1991**	**1966**	
Castlecomer	1,456	1,531	1,482	1,380	1,396	1,141	28%
Graiguenamanagh	1,252	1,097	1,166	1,113	1,112	1,177	6%
Piltown	1,187	968	778	716	717	418	184%
Mooncoin	1,166	1,002	854	855	810	505	131%

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.

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

- Potential intra-Plan cumulative effects - these arise from the interactions between different types of potential environmental effects resulting from the Plan; and,

- Potential inter-Plan cumulative effects - these arise when the effects of the implementation of one plan occur in combination with those of other plans or developments.

A variety of potential intra-Plan cumulative environmental effects occur when considering the implementation of the alternatives and/or the Plan. The interrelationships between environmental components that determine these potential effects are identified on Table 3.16 e.g. interrelationships between human health and water quality and human health and air quality.

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

The assessment of the likely inter-Plan cumulative environmental effects requires knowledge of the likely effects of all plans/developments under consideration. The assessment is limited in this instance as, other than for a small number of plans/developments (e.g. Regional Planning Guidelines, Development Plans, Local Area Plans and River Basin Management Plans), there has been very limited assessment of the likely types of developments provided for by other policies, plans and programmes (including those detailed under Section 2.3) that could occur in combination with the implementation of the County Development Plan.

Taking into account available information, the key potential inter-Plan cumulative environmental effects that are considered in the assessment relate to effects upon the status of surface and ground waters and associated interactions (in combination with Regional Planning Guidelines, Development Plans, Local Area Plans and River Basin Management Plans). Other potential inter-Plan cumulative environmental effects include those occurring on various environmental components within the county settlements where lower-tier Local Area Plans are in force and the potential cumulative visual impact of development in county boundary areas.

Effects that may arise as a result of implementing the Plan have been mitigated to the extent that no likely significant adverse effects as a result of implementation of the Plan have been identified.

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

5.5.1 Alternative 1: Continued consolidation - Likely significant effects

Environmental impacts
This alternative concentrates populations into locations with existing services and facilities, and access to public transport. Investment in key infrastructure can be concentrated into a very small number of settlements. Sustainable travel is promoted. Valuable natural resources such as water quality are protected through targeted infrastructural measures. No allowance is made for additional wind energy developments, which would result in less use of renewable energy sources.

Planning impacts
This alternative does not support the rural population, which may lead to a population decline in rural areas and in smaller settlements.

5.5.2 Alternative 2: Dispersed growth - Likely significant effects

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

Planning impacts
The provision of key services such as water supply and wastewater treatment would become costly in both financial and environmental quality terms.

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

Environmental impacts
In this alternative, a large growth area would be formed around Ferrybank, Piltown and Mooncoin in the south of the county. As Piltown's wastewater treatment plant is currently overloaded, any additional loading would negatively affect water quality in Piltown. This may have a resulting negative effect on the conservation status of the Lower River Suir cSAC which is located in close proximity to both settlements. Directing growth into the smaller centres of Piltown and Mooncoin

would detract from the emphasis on Ferrybank as part of the Waterford Gateway, and would result in an increase in unsustainable travel patterns and a negative effect on air quality. As Piltown and Mooncoin were not historically large service centres, there are very few opportunities for brownfield redevelopment, and most development in both would take place on the edges of the centres, on greenfield land. This would have negative environmental effects through the increased replacement of agricultural land by artificial surfaces.

As part of this alternative, new areas for wind energy development would be selected on the basis of viability alone. Only those areas with highest wind speeds would be selected for wind farm development, regardless of landscape sensitivities or the presence or absence of existing wind farms.

Planning impacts
From a social and economic perspective, existing services in Castlecomer and Graiguenamanagh would suffer with the removal of their District Town designation.

5.5.4 Assessment against each SEA Objective

Table 5.3 below assesses each Alternative against each of the SEA objectives.

Table 5.3: Assessment of Alternatives

Environmental Parameter – SEA objectives	Alternative		
	1: Continued Consolidation	2: Dispersed Growth	3: Selection of new growth areas
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.			
Sustain the viability of services in smaller towns and villages.			
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.			
Sustain the viability of services in smaller towns and villages.			
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.			
Protect designated landscapes.			

5.6 Selection of Preferred Alternative

Alternative 1: Continued Consolidation emerges as the preferred alternative, however an element of Alternative 2: Dispersed Growth, in relation to encouraging some level of growth of the smaller settlements should be incorporated to ensure that these smaller settlements are sustained.

In relation to the Wind energy development strategy, each alternative has downsides. Alternative 1: Consolidation, makes no allowance for new areas in order to protect the landscape from any negative visual impacts. Alternative 2: Dispersed growth imposes no restrictions on the development of wind energy, and therefore doesn't take account of any potentially negative effect on the landscape. Alternative 3: new growth areas, directs developments into areas of highest viability, but does not take account of locations of existing windfarms, or landscape impacts. The best solution is the recognition of areas of highest viability, whilst taking account of landscape sensitivities.

Therefore the final preferred alternative is consolidation of the existing settlement hierarchy with reinforcement of smaller settlements, with a Wind energy development strategy based on areas of highest viability, taking environmental sensitivities into account. The preferred settlement hierarchy is set out in Table 5.4.

Table 5.4: Core Strategy Population Allocation

Settlement	Additional Population to 2020
County Kilkenny	10,021
Kilkenny City	2,200
Ferrybank/Belview (Part Gateway)	1,125
District Towns	
Callan	2.4% (240)
Castlecomer	1.5% (150)
Graiguenamanagh	1.3% (130)
Thomastown	2.38% (238)
Remainder area to include smaller towns and villages and environs of New Ross and the rural area of the county	5,885
Total	10,021

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 any potential conflicts 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 *Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities*, 2009 and is assessed in accordance with Article 6 of the Habitats Directive in order to avoid adverse impacts on the integrity and conservation objectives of the site.	B1 W1 W3			P1 P2 S1 S2 S3 S4 W2 W4 A1 C1 C2 C3 C4 M1 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 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
3	*Strategic Aim: To implement the provisions of the Regional Planning Guidelines and to target the growth of Kilkenny City, Ferrybank/Belview, the District Towns, the other settlements in the hierarchy and rural areas to advance sustainable development.*	B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1			
	To promote the redevelopment and renewal of areas in need of regeneration.	P1 P2 S1 S2 S3 S4 A1 C1C2 C3 M1 L1	B1 W1 H1		W2 W3 W4 C4
	To implement the NSS and South East Regional Planning Guidelines by encouraging developments into the designated Hub of Kilkenny and the environs of the Waterford Gateway.	P1 P2 S2 W1 W2 W3 A1 C1 C2 C3 M1 L1			B1 S1 S3 S4 W4 C4 H1

	To review the County Development Plan in the light of any emerging replacement to the NSS and South East Regional Planning Guidelines and vary the Development Plan accordingly if necessary.	P1	P2 S2 W1 W2 W3 A1 C1 C2 C3 C4 M1 H1 L1		B1 S1 S3 S4 W4
	To support the strengthening of critical mass within the catchment of the Waterford Gateway by implementing a co-ordinated approach to the development of New Ross and its environs within County Kilkenny between Kilkenny County Council, New Ross Town Council and Wexford County Council.	P1 P2 S2 W1 W2 W3 A1 C1 C2 C3 M1 L1			B1 S1 S3 S4 W4 C4 H1
	To ensure that the District Towns will in so far as practical be self-sufficient incorporating employment activities, sufficient retail services and social and community facilities.	P1 P2 S2 W2 W3 A1 C1 C2 C3 M1 L1	B1 W1		S1 S3 S4 W4 C4 H1
	Promote enterprise and economic development in Graiguenamanagh in line with the Graiguenamanagh-Tinnahinch Development and Economic Study, 2006	P1 P2 S2 W2 W3 A1 M1 L1	B1 W1		S1 S3 S4 W4 C1 C2 C3 C4 H1
	To facilitate development of housing, economic development, services and infrastructure in the smaller towns and villages of the county at a scale and character which is appropriate in order to sustain and renew populations and services in these areas.	P1 P2 S2 W1 W2 W3	A1 C1 C2 C3 C4 M1 L1		B1 S1 S3 S4 W4 H1
	To monitor the trends in rural housing and population during the lifetime of the plan to ascertain if further rural housing policy responses are required during the plan period.		P1 P2 S1 S2 W1 W2 W3 A1 C1 C2 C3 C4 M1 H1 L1		B1 S3 S4 W4
4	*Strategic Aim: To provide a framework for the implementation of the Council's economic strategy and the protection of the environment and heritage, to position the county for sustainable economic growth and employment.*	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	B1 P2 S1 W1 W2			P1 S3 S4 W4 C1 C3 C4 M1

	in the assessment of planning applications for all development proposals.	W3 A1 C2 H1 L1			
	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 continue the development of major flagship tourism projects within the county to enhance the tourism product for the 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 infrastructure is provided.	P1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
	To deliver high speed broadband to the Belview port area within the lifetime of the Plan.	P1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
	To assist in the provision of natural gas supply to the port area within the life time of the plan	P1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
	To review the Ferrybank Belview Local Area Plan in 2015 continuing with the policy of partnership with the local community.		B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 A1 C1 C2 C3 C4 M1 H1 L1		W4
	To ensure the sustainable development of the District towns in the County to achieve their target populations and enhance their capacity to attract new investment in employment, services and public transport for the benefit of their own populations and that of their rural hinterlands.	P1 M1 P2 S2			B1 S1 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 H1 L1
	To promote a diverse and sustainable local economy through the designation of sufficient lands for employment related	P1 M1 P2 S2			B1 S1 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 H1 L1

	uses, including facilities, to promote SME growth through the local area plans for the District towns.				
	To review the local area plans for the District towns in 2015 following the adoption of the county development plan.		B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 A1 C1 C2 C3 C4 M1 H1 L1		W4
	The Local Authority will prepare an urban framework document to assist in the development of the Smithwick's site and adjacent lands including lands along Bateman Quay	P1 S2 C2 C3 M1 H1	B1 W1		P2 S1 S3 S4 W2 W3 A1 C1 C4 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 engage with the other relevant local authorities within the region in the preparation of a joint retail strategy for the greater Waterford City area.				B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
	To sustain and enhance the vitality and viability of the role and potential of the four District Towns.	P1 M1 P2 S2			B1 S1 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 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	*Strategic Aim: To integrate the planning and sustainable development of the county with regard to the housing, social, community and cultural requirements of the county and its population.*	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	P1			B1 P2 S1 S2 S3 S4 W1 W2

	mixture of residential and other uses, be made available for the provision of social housing.				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	Strategic Aim: To manage rural change and guide development to ensure vibrant and sustainable rural areas whilst conserving and sustainably managing our environment and heritage.	B1 P1 P2 S1 W1 W2 W3 W4 H1 L1	S2 A1 C1 C2 C3		S3 S4 C4 M1
6	*Strategic Aim: To manage rural change and guide development to ensure vibrant and sustainable rural areas.*	B1 P1 P2 S1 W1 W2 W3 W4	S2 A1 C1 C2 C3		S3 S4 C4 M1 H1 L1
7	*Strategic Aim: To protect and improve recreational, tourism and arts facilities for the benefit of residents and for the promotion of tourism.*	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 county 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
	The Council will continue to assist with & support the development of the Nore Valley Walk and protect its route from encroachment by unsympathetic development	P1 L1	B1 W1		P2 S1 S2 S3 S4 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
	To develop a walking and cycling strategy within the life of this plan	P1 P2 A1 C2 C3			B1 S1 S2 S3 S4 W1 W2 W3 W4 C1 C4 M1 H1 L1
	To protect the New Ross to Waterford railway line from encroachment by development and to retain its continuity.	P1			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
	To protect the Kilkenny to Portlaoise former railway line and spur line to Castlecomer from encroachment by development and support the development of a trail if feasible.	P1			B1 P2 S1 S2 S3 S4 W1 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
	Complete the development of the River Nore Linear Park	P1 L1	B1 W1		P2 S1 S2 S3 S4 W2 W3 W4

	within the lifetime of the Plan				A1 C1 C2 C3 C4 M1 H1 L1
	To establish an environmental management plan for the River Nore Linear Park.	B1 P1 L1			P2 S1 S2 S3 S4 W2 W3 A1 C1 C2 C3 C4 M1 H1 W1
	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
8	*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*	B1 P1 W1 W2 W3 W4 H1 L1			P2 S1 S2 S3 S4 A1 C1 C2 C3 C4 M1
	To prepare and implement, in partnership with the Kilkenny Heritage Forum and all relevant stakeholders, a County Heritage Plan and County Biodiversity Plan	B1 W1 H1 L1			P1 P2 S1 S2 S3 S4 W2 W3 W4 A1 C1 C2 C3 C4 M1
	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	M1		P1 P2 S1 S2 S3 S4 W2 W3 W4 A1 C1 C2 C3 C4 H1 L1
	To prepare and support the implementation of a Green Infrastructure Strategy for County Kilkenny, as resources allow	B1 P1 S1 W1 W2 W3 C4 L1			P2 S2 S3 S4 W4 A1 C1 C2 C3 M1 H1
	To protect wildlife habitats and landscape features which act as ecological corridors/networks and stepping stones, such as river corridors, hedgerows and road verges, and to discourage the loss of habitats and features of the wider countryside (such as ponds, wetlands, trees) which are not within designated sites. Appropriate mitigation and/or	B1 P1 S1 W1 W2 W3 C4 L1			P2 S2 S3 S4 W4 A1 C1 C2 C3 M1 H1

	compensation measures to conserve biodiversity, landscape character and green infrastructure networks will be required where habitats are at risk or lost as part of a development.				
	Kilkenny County 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	B1			P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
	To protect and sustainably manage the landscape character of County Kilkenny, having regard to the findings of the landscape character assessment and the development management standards as set out in this chapter for the sustainable development of the county and appropriate conservation of its landscape character.	L1			B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1
	To ensure that development within the Landscape Character Areas of Brandon Hill Uplands and the River Valleys of the Nore, Barrow and Suir, which are highly scenic and visually pleasing, and of significant visual amenity value, are carefully sited and designed and can be successfully assimilated into the landscape.	L1			B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1
	To preserve and improve places or areas from which views or prospects of special amenity value exist, as identified in Appendix I and on Figure 8.2.	L1			B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 H1
	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.	H1			B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 L1
	To facilitate and support the implementation of existing (and any further) conservation plans.	H1			B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 L1
	To ensure the protection of the architectural heritage of County Kilkenny by including all structures considered to be of	H1			B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4

	special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest in the Record of Protected Structures.				M1 L1
	• To complete digital mapping of the Record of Protected Structures. • To promote principles of best practice in conservation and the use of appropriate materials and repair techniques through the administration of the Conservation Grants Scheme and the Structures at Risk Fund, funded by the Department of Arts Heritage and the Gaeltacht. • To provide assistance to owners of protected structures in undertaking essential repairs and maintenance by the provision of relevant information.	H1			B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 L1
	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, and to consider for inclusion those rated of local significance.	H1			B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 L1
	To carry out a review of the Record of Protected Structures.	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.	H1			B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 M1 L1
9	*Strategic Aim: To provide a framework for the protection of*	B1 P1 P2 S1 S2			S3 S4 H1 L1

	the environment, including water quality, the avoidance of flood risk and the provision of a high quality telecommunications infrastructure.	W1 W2 W3 W4 A1 C1 C2 C3 C4 M1			
	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
	"Meet in full the requirements of the E.U. Urban Waste Water Treatment and Water Framework Directives *and the Drinking Water Regulations*."	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 supplies.	B1 P1 W1 W2 W3 M1			P2 S1 S2 S3 S4 W4 A1 C1 C2 C3 C4 H1 L1
	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	P1			B1 P2 S1 S2 S3 S4 W1 W2

	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				W3 W4 A1 C1 C2 C3 C4 M1 H1 L1
	To facilitate the delivery of high quality broadband to the District towns in the county	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
10	*Strategic Aim:* To promote and facilitate all forms of renewable energies and energy efficiency improvements in a sustainable manner as a response to climate change.	C1 C2 C4 A1 M1 P1 P2 B1 S2 S3 W1 W3 H1 L1	P1 P2 H1 L1		S1 S4 W2 W4 C3
	Amend Figure 10.2 Wind Energy Development Strategy to include an expansion area in Area 5	C1 C2 C4 A1 M1	P1 P2 B1 S2 S3 W1 W3 H1 L1		S1 S4 W2 W4 C3
	Amend Figure 10.2 Wind Energy Development Strategy to omit part of Cullohill SAC, Area 1	P1 P2 B1 S2 S3 W1 W3 H1 L1	C1 C2 C4 A1 M1		S1 S4 W2 W4 C3
	Facilitate the development of projects that convert biomass to energy.	A1 C1 C2 C4			B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 C3 M1 H1 L1
	In general, direct commercial bioenergy plants to locate on brownfield sites which are adjacent to industrial areas or on lands which are reserved for industrial uses in any development plan. Brownfield sites in rural areas may also be considered.	P1 S2 A1 C1 C2 C3 C4 M1	L1		B1 P2 S1 S3 S4 W1 W2 W3 W4 H1
	Ensure that any commercial bioenergy plant is close to the point of demand and is served by public roads with sufficient capacity to absorb increased traffic flows and adjacent to transport corridors.	P1 P2 A1 C1 C2 C3 C4 M1			B1 S1 S2 S3 S4 W1 W2 W3 W4 H1 L1
	Seek to respond positively to applications for waste to energy	A1 C1 C2 C4			B1 P1 P2 S1 S2 S3 S4 W1

	projects.				W2 W3 W4 C3 M1 H1 L1
	Facilitate the development of appropriate projects that convert hydro power to energy.	A1 C1 C2 C4	B1 W1 H1		P1 P2 S1 S2 S3 S4 W2 W3 W4 C3 M1 L1
	Have regard to the provisions of the *Guidelines on the Planning, Design, Construction and Operation of Small Scale Hydro-Electric Schemes and Fisheries*	B1 W1 A1 C1 C2 C4			P1 P2 S1 S2 S3 S4 W2 W3 W4 C3 M1 H1 L1
	The Planning Authority will support and facilitate the development of passive solar design proposals for the development of houses in rural and urban areas, and will draw on the recommendations of the *Kilkenny Rural House Design Guide*, and the Guidelines on *Sustainable Residential Development in Urban Areas*.	P1 A1 C1 C2 C4			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 C3 M1 H1 L1
	The Planning Authority will make available advice on Passive Solar Design in preplanning consultations for domestic and commercial buildings.	P1 A1 C1 C2 C4			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 C3 M1 H1 L1
	Consider impacts of overshadowing on the efficiency of existing solar technologies when assessing planning applications.	P1 A1 C1 C2 C4			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 C3 M1 H1 L1
	Support applications to install solar panels on public buildings and schools within the county should the opportunity arise.	P1 A1 C1 C2 C4			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 C3 M1 H1 L1
	Support the development of geothermal energy and heat pumps	P1 A1 C1 C2 C4			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 C3 M1 H1 L1
	To review the progress of the *Climate Change Strategy*, 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
	Encourage high standards of energy efficiency in all building developments and encourage developers, owners and tenants to improve the environmental performance of the building stock, including the deployment of renewable energy	P1 A1 C1 C2 C4			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 C3 M1 H1 L1
	Require a provisional BER certificate as part of any planning application, showing how the proposal will comply with Part L of the Building Regulations.	P1 A1 C1 C2 C4			B1 P2 S1 S2 S3 S4 W1 W2 W3 W4 C3 M1 H1 L1
	To require that planning applications for large buildings as	P1 A1 C1 C2 C4			B1 P2 S1 S2 S3 S4 W1 W2

	defined by the Energy Performance of Building Regulations, demonstrate that due consideration has been given to the technical, environmental and economic feasibility of installing alternative energy systems in the proposed building, and that the use of such systems has been taken into account, as far as practicable, in the design of that building. This shall also apply to applications for ten or more housing units.				W3 W4 C3 M1 H1 L1
11	Strategic Aim: to co-ordinate transport and land use planning, reducing the demand for travel and the reliance on the private car in favour of public transport, cycling and walking.	P1 P2 A1 C2 C3 M1			B1 S1 S2 S3 S4 W1 W2 W3 W4 C1 C4 H1 L1
	The Council will implement the provisions of the National Cycle Policy Framework where possible.	P2 A1 C1 C2 C3 C4			B1 P1 S1 S2 S3 S4 W1 W2 W3 W4 M1 H1 L1
	To facilitate the provision of bus shelters as appropriate.	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 towns and villages and at tourist attractions.	P1 P2 A1 C1 C2 C3 C4			B1 S1 S2 S3 S4 W1 W2 W3 W4 M1 H1 L1
	To develop and agree an appropriately planned policy response to access for Glanbia and the Leggetsrath roundabout in conjunction with the National Roads Authority.	M1			B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 H1 L1
	To develop and agree an appropriately planned policy response to access from the N29 Port road to industrial zoned lands in the Belview area in conjunction with the National Roads Authority.	M1			B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 H1 L1
	To support the implementation of the NRA projects as outlined.	P1	B1 P2 S3 W1 A1 H1 L1		S1 S2 S4 W2 W3 W4 C1 C2 C3 C4 M1
	To reserve the proposed line of the western bypass for the city from the Castlecomer Road to the Waterford Road free from development, including for a river crossing and seek approval from An Bord Pleanála for Phase 1 of the Western By-pass, the Kilkenny Northern Ring Road Extension.	P1 M1	B1 P2 S3 W1 A1 H1 L1		S1 S2 S4 W2 W3 W4 C1 C2 C3 C4
	Complete the R697 Kells Road Improvement Scheme.	P1 M1			S1 S2 S4 W2 W3 W4 C1 C2 C3 C4 B1 P2 S3 W1 A1 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 County Council plans.	M1			B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 H1 L1
	To seek an upgrade of the R700 between New Ross and Kilkenny to National Secondary status and to provide a relief road for Thomastown.	P1 P2 A1 C2	B1 S2 S3 W1 H1		S1 S4 W2 W3 W4 C1 C3 C4 M1 L1
	To seek an upgrade of the Kilkenny to Urlingford Road (R693) to National Secondary status and to improve the road realignment in its entirety.	M1			B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 H1 L1
	To improve substandard sections of regional roads throughout the County, in particular those most heavily trafficked, and those providing access to existing or proposed industrial, residential or commercial developments.	P1 M1			S1 S2 S4 W2 W3 W4 C1 C2 C3 C4 B1 P2 S3 W1 A1 H1 L1
	To seek an upgrade of the New Ross to Mullinavat Regional Road (R704)	M1			B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 W4 A1 C1 C2 C3 C4 H1 L1
12	*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.*	B1 P1 P2 W1 W2 W3 W4 C1 C2 C3 C4 M1 H1 L1			S1 S2 S3 S4 A1

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 where land was rezoned to ensure no inappropriate uses would be considered on land which was subject to flood risk. A detailed description of all the zoning changes as a result of the SFRA is included in Section 2 of the SFRA, see Appendix 1.

Environmental considerations were also communicated to the Planning team throughout the plan-making process. This allowed the team to integrate these considerations into the text and maps of the Plan. A key decision from the outset was for the most part, that mitigation measures would be incorporated into each section of the Plan as "Development Management Standards", 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 9.2.9.1 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 objectives will be protected through mitigation of any uncertain effects.

7.1 Mitigation of environmental problems as identified

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

- 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 8.2.1.1 of the 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 County Kilkenny.

- A section was included in 8.2.5 Woodlands, Trees and Hedgerows in relation to the National Survey of Native Woodlands and Ancient Woodlands.

- A section was included in 8.2.7 on peatlands, and a development management standard was added to protect them from inappropriate development.

- A number of protected views from Local Area Plans were added to the list of Protected views in the County Plan, to strengthen their protection, and also as it was identified that development outside the LAP boundary may impact on the view.

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
Mitigation included in Plan: See Section 9.2.9.1 The avoidance of land at risk from flooding may include the avoidance of significant brownfield lands in central areas. As stated in Section 9.2.9.1, 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.	
Chapter 3: Core Strategy	
Development Objective	**Uncertain effects on SEA objectives**
To promote the redevelopment and renewal of areas in need of regeneration.	B1 W1 H1
Mitigation included in Plan: See Chapters 1,8 &9 The promotion of areas in need of regeneration may lead to conflicts with environmental considerations. There are numerous mitigation measures included in the Plan however to ensure no negative effects. This includes objectives and development management standards in relation to natural heritage (Chapter 1 and Chapter 8), cultural heritage (Chapter 8) and water quality (Chapter 9). Therefore any adverse effects are unlikely.	
Development Objective	**Uncertain effects on SEA objectives**
To review the County Development Plan in the light of any emerging replacement to the NSS and South East Regional Planning Guidelines and vary the Development Plan accordingly if necessary.	P2 S2 W1 W2 W3 A1 C1 C2 C3 C4 M1 H1 L1
Mitigation included in Plan: See Chapters 1,8,9 & 11 As the Plan must adhere to any higher level Plans such as the NSS and South East Regional Planning Guidelines, the Plan will be varied as necessary. There are numerous mitigation measures included in the Plan however to ensure no negative effects. This includes objectives and development management standards in relation to natural heritage (Chapter 1 and Chapter 8), cultural heritage, landscape (Chapter 8) and water quality (Chapter 9). The Plan also includes a "Strategic aim to co-	

ordinate transport and land-use planning, reducing the demand for travel and reliance on the private car in favour of public transport, cycling and walking" (Chapter 11). Therefore any adverse effects are unlikely.	
Development Objective	**Uncertain effects on SEA objectives**
To ensure that the District Towns will in so far as practical be self-sufficient incorporating employment activities, sufficient retail services and social and community facilities.	B1 W1
Mitigation included in Plan: See Chapters 1,8,9 The creation of additional employment activities, retail services and social and community facilities 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 8), cultural heritage, landscape (Chapter 8) and water quality (Chapter 9). Therefore any adverse effects are unlikely. Also, each District Town is subject to its own Local Area Plan, and associated SEA process, therefore any adverse effects will be assessed and mitigated through that process.	
Development Objective	**Uncertain effects on SEA objectives**
Promote enterprise and economic development in Graiguenamanagh in line with the Graiguenamanagh-Tinnahinch Development and Economic Study, 2006.	B1 W1
Mitigation included in Plan: See Chapters 1,8 & 9 As above, 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 8), cultural heritage, landscape (Chapter 8) and water quality (Chapter 9). Therefore any adverse effects are unlikely. Also, each District Town is subject to its own Local Area Plan, and associated SEA process therefore any adverse effects will be assessed and mitigated through that process.	
Development Objective	**Uncertain effects on SEA objectives**
To facilitate development of housing, economic development, services and infrastructure in the smaller towns and villages of the county at a scale and character which is appropriate in order to sustain and renew populations and services in these areas.	A1 C1 C2 C3 C4 M1 L1
Mitigation included in Plan: See Chapters 1,8,9 & 11 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 8), cultural heritage, landscape (Chapter 8) and water quality (Chapter 9). The Plan also includes a "Strategic aim to co-ordinate transport and land-use planning, reducing the demand for travel and reliance on the private car in favour of public transport, cycling and walking" (Chapter 11). Therefore any adverse effects are unlikely.	
Development Objective	**Uncertain effects on SEA objectives**
To monitor the trends in rural housing and population during the lifetime of the plan to ascertain if further rural housing policy responses are required during the plan period.	P1 P2 S1 S2 W1 W2 W3 A1 C1 C2 C3 C4 M1 H1 L1
Mitigation:	

As noted in the discussion of Alternative 2 in Chapter 5, a proliferation in rural housing has the potential to negatively affect water quality, and results in unsustainable transport patterns. This objective allows for a review. Any variation to the plan would require a Strategic Environmental Assessment therefore any negative effects from a change in rural housing policy would be assessed at that stage.	
Chapter 4: Economic Development	
Development Objective	**Uncertain effects on SEA objectives**
Strategic Aim: To provide a framework for the implementation of the Council's economic strategy and the protection of the environment and heritage, to position the county for sustainable economic growth and employment.	P2 S2
Mitigation included in Plan: See Chapters 1,8 & 9 The implementation of the Council's 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 9) and the promotion of areas in need of regeneration (Chapter 3). Therefore any adverse effects are unlikely.	
Development Objective	**Uncertain effects on SEA objectives**
To review the Ferrybank Belview Local Area Plan in 2015 continuing with the policy of partnership with the local community.	B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 A1 C1 C2 C3 C4 M1 H1 L1
Mitigation: Any review of the LAP will require a Strategic Environmental Assessment therefore any negative effects would be assessed at that stage.	
Development Objective	**Uncertain effects on SEA objectives**
To review the local area plans for the District towns in 2015 following the adoption of the county development plan.	B1 P1 P2 S1 S2 S3 S4 W1 W2 W3 A1 C1 C2 C3 C4 M1 H1 L1
Mitigation: Any review of an LAP will require a Strategic Environmental Assessment therefore any negative effects would be assessed at that stage.	
Development Objective	**Uncertain effects on SEA objectives**
The Local Authority will prepare an urban framework document to assist in the development of the Smithwick's site and adjacent lands including lands along Bateman Quay	B1 W1
Mitigation included in Plan: See Chapters 1,8 and 9 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 8), cultural heritage, landscape (Chapter 8) and water quality	

(Chapter 9). Therefore any adverse effects are unlikely.	
Chapter 6: Rural Development	
Development Objective	**Uncertain effects on SEA objectives**
Strategic Aim: To manage rural change and guide development to ensure vibrant and sustainable rural areas.	S2 A1 C1 C2 C3
Mitigation included in Plan: See Chapter 3 The development of rural areas may be at the expense of brownfield sites, and may result in an increasing need to travel, with resulting effects on air pollution. However, the rural housing policies as set out in Chapter 3 seek to restrict the proliferation of urban-generated rural housing and an objective is also included to monitor the trends in rural housing over the lifetime of the Plan.	
Chapter 7: Recreation, Arts and Tourism	
Development Objective	**Uncertain effects on SEA objectives**
Strategic Aim: To protect and improve recreational, tourism and arts facilities for the benefit of residents and for the promotion of tourism.	B1 W1 H1 L1
Mitigation included in Plan: See Chapters 1,8 and 9 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 heritage (Chapter 1 and Chapter 8), cultural heritage, landscape (Chapter 8) and water quality (Chapter 9). Therefore any adverse effects are unlikely.	
Development Objective	**Uncertain effects on SEA objectives**
The Council will continue to assist with & support the development of the Nore Valley Walk and protect its route from encroachment by unsympathetic development.	B1 W1
Mitigation included in Plan: See Chapter 1 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 Guidance *Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities*, 2009, therefore any potential adverse effects will be dealt with in that assessment.	
Development Objective	**Uncertain effects on SEA objectives**
Complete the development of the River Nore Linear Park within the lifetime of the Plan	B1 W1
Mitigation included in Plan: See Chapter 1 As above, 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 Guidance *Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities*, 2009, therefore any potential adverse effects will be dealt with in that assessment.	
Development Objective	**Uncertain effects on SEA objectives**
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
Mitigation included in Plan: See Chapter 3	

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 Chapter 3 includes an objective for the promotion of areas in need of regeneration, but that any such regeneration must be in accordance with the protection of natural heritage as required by legislation.	
Development Objective	**Uncertain effects on SEA objectives**
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
Mitigation included in Plan: See Chapter 3 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 Chapter 3 includes an objective for the promotion of areas in need of regeneration, but that any such regeneration must be in accordance with the protection of natural heritage as required by legislation.	
Chapter 9: Infrastructure and Environment	
Development Objective	**Uncertain effects on SEA objectives**
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
Mitigation included in Plan: See Chapter 9 The avoidance of land at risk from flooding may include the avoidance of significant brownfield lands in central areas. As stated in Section 9.2.9.1, 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 will be mitigated.	
Chapter 10: Renewable Energy Strategy	
Development Objective	**Uncertain effects on SEA objectives**
Strategic Aim: *To promote and facilitate all forms of renewable energies and energy efficiency improvements in a sustainable manner as a response to climate change.*	H1 L1 P1 P2
Mitigation included in Plan: See Chapter 8 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 8 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.	
Development Objective	**Uncertain effects on SEA objective**
Amend Figure 10.2 Wind Energy Development Strategy to include an expansion	P1 P2 B1 S2 S3 W1 W3 H1 L1

of Area 5.	
Mitigation included in Plan: See Chapter 8 By enlarging the area of Area 5, the impact from potential wind farm development has also been enlarged. In some cases, wind farms could cause adverse effects on nearby houses, biodiversity, cultural & natural heritage and landscape through adverse visual impacts and impacts on important habitats. Mitigation measures are included in Chapter 8 as development management standards in relation to cultural heritage and landscape to ensure that no development will have a negative effect on heritage or landscape. The construction of access road and/or other structures to facilitate wind farm development could also have an impact on soils, cause additional run-off or place a demand on gravel/rock deposits. While the impact is uncertain, the potential area for development of wind farms in the County relative to the extent of aggregate resources would not be significant.	
Development Objective	**Uncertain effects on SEA objective**
Amend Figure 10.2 Wind Energy Development Strategy to omit part of Area 1 - Cullohill SAC.	C1 C2 C4 A1 M1
Mitigation included in Plan: See Chapter 8 Area 1 is being reduced in size to take account of the Culahill SAC and therefore the potential for wind farm development has also been reduced while the protection of the SAC has been increased. In some cases, wind farms could cause adverse effects on nearby houses, cultural & natural heritage and landscape through adverse visual impacts and impacts on important habitats. Mitigation measures are included in Chapter 8 as development management standards in relation to cultural heritage and landscape to ensure that no development will have a negative effect on heritage or landscape. Ministerial Guidelines on Wind Energy also include mitigation measures. The potential impact on reducing the ability to deliver sustainable energy facilities such as wind farms is offset by the increase of Area 5.	
Development Objective	**Uncertain effects on SEA objectives**
In general, direct commercial bioenergy plants to locate on brownfield sites which are adjacent to industrial areas or on lands which are reserved for industrial uses in any development plan. Brownfield sites in rural areas may also be considered.	L1
Mitigation included in Plan: See Chapter 8 Commercial scale bioenergy plants may have an adverse impact on landscape. Mitigation measures are included in Chapter 8 (Section 8.2.9) as development management standards to ensure that no development will have a negative effect on landscape.	
Development Objective	**Uncertain effects on SEA objectives**
Facilitate the development of appropriate projects that convert hydro power to energy.	B1 W1 H1
Mitigation included in Plan: See Chapters 1,8 & 9 Hydro power projects may have an adverse effect on species, water quality and cultural heritage, if unmitigated. Mitigation measures are included in Chapters 1 and 8 as development management standards in relation to natural and cultural heritage and in Chapter 9 in relation to water quality, to ensure that no development will have a negative effect on natural, cultural heritage or water quality.	
Chapter 11: Transport	
Development Objective	**Uncertain effects**

	on SEA objectives
To support the implementation of the NRA projects as outlined.	B1 P2 S3 W1 A1 H1 L1
Mitigation included in Plan: See Chapters 1,8 &9: The planning of any road project is subject to environmental assessment to ensure no adverse effects on the environment. Mitigation measures are also included in Chapters 1 and 8 as development management standards in relation to natural and cultural heritage to ensure that no development will have a negative effect on natural/cultural heritage or landscape. Development management standards are also included in Chapter 9 in relation to air and noise pollution.	
Development Objective	**Uncertain effects on SEA objectives**
Reserve the proposed line of the western bypass for the city from the Castlecomer Road to the Waterford Road free from development, including for a river crossing and seek approval from An Bord Pleanála for Phase 1 of the Western By-pass, the Kilkenny Northern Ring Road Extension.	B1 P2 S3 W1 A1 H1 L1
Mitigation included in Plan: See Chapters 1 & 8: No detailed design work has been carried out for the western bypass to date. The Plan is merely reserving the line free from development. The implementation of any such project will require environmental assessment and Chapters 1 & 8 contain mitigation measures in relation to the protection of natural and cultural heritage. In relation to Phase 1 of the Kilkenny Northern Ring Road Extension, an Environmental Impact Statement has been prepared by Kilkenny County Council and this will be submitted to ABP under Strategic Infrastructure legislation in 2013. This EIS includes mitigation measures in relation to heritage.	
Development Objective	**Uncertain effects on SEA objectives**
To seek an upgrade of the R700 between New Ross and Kilkenny to National Secondary status and to provide a relief road for Thomastown.	B1 S2 S3 W1 H1
Mitigation: The provision of a relief road for Thomastown was subject to a Part 8 process in 2007, and as part of this, a *Route Selection and Environmental Report* was compiled by Clifton Scannell Emerson Associates Consulting Engineers. This Report included mitigation measures to offset any adverse environmental effects, which will be incorporated into the scheme.	

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. The Manager's Report on the implementation of the Development Plan will include a review of the indicators, as set out in Table 8.1.

Table 8.1 Monitoring proposals for environmental categories				
Environmental Category	**Targets**	**Selected indicators**	**Data Sources**	**Monitoring frequency**
Biodiversity -Flora and Fauna	No loss of important and/or designated habitats	Number of sites.	Kilkenny County Council/National Parks and Wildlife Service/Fisheries Board (depending on available information from relevant statutory authorities).	At monitoring evaluation
	No deterioration in the quality of protected areas	Overall conservation status of habitats in Co. Kilkenny	The NPWS; For all European sites: Report on Overall Conservation Status of Habitats in Ireland listed under the Habitats Directive (NPWS).	Every 6 years
	No loss of protected species	Overall conservation status of species in Co. Kilkenny, distribution of protected species in Co. 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 evaluation
	No spread of invasive species within the County	Numbers of new cases identified over 2013 levels	National Biodiversity Data Centre	At monitoring evaluation
Population and Human health	No further loss of population within Kilkenny Borough boundary and Castlecomer; total population within Kilkenny Borough boundary and Castlecomer not to decrease on 2011 levels.	Total population within Kilkenny Borough boundary and Castlecomer.	Census	Next Census
Soil	No significant increase in number of landslides	Total number of landslides	National Landslide Database	At monitoring evaluation

	No significant reduction in peatland; total area not to reduce by 20% over 2013 level.	Total area of peatland	Corine mapping resurvey	Unknown
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 evaluation
	No decline in estuarine water quality; no decline in status of estuarine waters from current status (good or moderate)	Status of estuarine waters	EPA	At monitoring evaluation
	No decline in surface water quality; no decline in status of surface waters from current status	Status of surface water	EPA	At monitoring evaluation
	No decline in groundwater quality; no decline in status of groundwater from current status	Status of groundwater	EPA	At monitoring evaluation
	No reduction in processing of waste water and treated effluent quality; no increase in number of waste water treatment plants that fail recommended EPA limits.	Number of waste water treatment plants that fail recommended EPA limits.	EPA	At monitoring evaluation
	Improvement in treatment of waste water; Reduction in number of waste water treatment plants with no secondary treatment, which was 6 in 2013.	Number of waste water treatment plants with no secondary treatment	Kilkenny County Council Water Services/ Irish Water	At monitoring evaluation
	Improvement in quality of drinking water; Reduction in numbers of public water supplies on the EPA's Remedial Action List, from 2 in 2012.	Numbers of public water supplies on the EPA's Remedial Action List.	EPA	At monitoring evaluation
	Improvement of application of ground water protection scheme.	Number of source protection areas that have been mapped.	GSI & Kilkenny County Council Environment	At monitoring evaluation

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 evaluation
Climatic factors	Improved Climate Change Adaptation measures.	Completion of Climate Change Adaptation Strategy.	Kilkenny County Council.	At monitoring evaluation
Material Assets	Increase in afforestation of appropriate woodlands; increase in proportion of mixed and deciduous forest cover over coniferous forestry, as compared to 2006.	Proportion of mixed and deciduous forest cover.	Corine mapping resurvey	Unknown
Cultural Heritage (architectural and archaeological)	Addition in number of structures listed on the RPS; increase in number of protected structures over that listed in 2008 Plan.	Number of protected structures.	Kilkenny County Council	At monitoring evaluation
Landscape	No decrease in sensitive land cover; proportion of county comprising sensitive land cover should not decrease from 2006 level of 10%.	Proportion of county comprising sensitive land cover.	Corine mapping resurvey	Unknown

3. Strategic Flood Risk Assessment

Appendix 1 to the Environmental Report on the Strategic Environmental Assessment of the Kilkenny County Development Plan 2014-2020

Planning Department

Kilkenny County Council

May 2014

Contents

1 Introduction

The *Planning System and Flood Risk Management – Guidelines for Planning Authorities*[1] were published in November 2009. These Guidelines were issued under Section 28 of the Planning and Development Act 2000 as amended, and require Planning Authorities to introduce flood risk assessment as an integral and leading element of their development planning functions. This is achieved by ensuring that the various steps in the process of making a development plan, together with the associated Strategic Environmental Assessment (SEA), are supported by an appropriate Strategic Flood Risk Assessment (SFRA).

This SFRA forms Appendix 1 to the Environmental Report for the Kilkenny County Development Plan (DCDP) and should be read in conjunction with that Environmental report. The purpose of this SFRA is to inform the Strategic Environmental Assessment (SEA) of the Plan plan, and in this way inform the policies and objectives of the plan. A separate SEA, and SFRA, will be carried out of the City & Environs Development Plan.

1.1 County Development Plan

As set out in the Environmental Report, the Development Plan applies to the entire county. The Plan is strategic in nature, and sets out broad strategies, including a settlement strategy, on a County-wide basis. The Plan includes a development framework for a total of 15 settlements. Three settlements are dealt with in detail and include zoning maps (Bennettsbridge, Kilmacow and New Ross Environs). These settlements were previously subject to Local Area Plans, but were incorporated into the Development Plan as a result of Variation 2, Core Strategy (2011). In addition, twelve settlements (Ballyhale, Ballyragget, Freshford, Goresbridge, Kells, Knocktopher, Inistioge, Mooncoin, Mullinavat, Slieverue, Stoneyford and Urlingford) are subject to a development boundary in the Development Plan.

There are other Local Area Plans covering settlements in the county, which are not affected by this Plan. These Plans are scheduled for review on a rolling six-year basis over the life of the CDP (Callan, Castlecomer, Ferrybank/Belview, Fiddown, Gowran, Graiguenamanagh, Piltown, Thomastown and Woodstock).

1.2 Disclaimer

It is important to note that compliance with the requirements of *The Planning System and Flood Risk Management – Guidelines for Planning Authorities*, and the Floods' Directive[2] is a work in progress and is currently based on emerging and incomplete data as well as estimates of the locations and likelihood of flooding. In particular, the assessment and mapping of areas of flood risk awaits the publication of the Catchment-based Flood Risk Assessment and Management Plans [CFRAMs]. As a result, this Strategic Flood Risk Assessment for County Kilkenny is based on available information.

Accordingly, all information in relation to flood risk is provided for general policy guidance only. It may be substantially altered in light of future data and analysis. As a result, all landowners and developers are advised that Kilkenny County Council and its agents can accept no responsibility for losses or damages arising due to assessments of the vulnerability to flooding of lands, uses and developments. Owners, users and developers are advised to take all reasonable measures to assess the vulnerability to flooding of lands in which they have an interest prior to making planning or development decisions.

[1] Department of Environment, *The Planning System and Flood Risk Management – Guidelines for Planning Authorities*, 2009

[2] EC, Directive 2007/ 60/ EC of the European Parliament and of the Council of 23rd October 2007 on the assessment and management of flood risk: Official Journal L288/ 27-34, 2007

1.3 Structure of a Flood Risk Assessment (FRA)

The Guidelines recommend that a staged approach is adopted when undertaking a Flood Risk Assessment (FRA). The recommended stages are briefly described below:

• Stage 1 ~ Flood Risk Identification
To identify whether there may be any flooding or surface water management issues that will require further investigation. This stage mainly comprises a comprehensive desk study of available information to establish whether a flood risk issue exists or whether one may exist in the future.

• Stage 2 ~ Initial Flood Risk Assessment
If a flood risk issue is deemed to exist arising from the Stage 1 Flood Risk Identification process, the assessment proceeds to Stage 2 which confirms the sources of flooding, appraises the adequacy of existing information and determines the extent of additional surveys and the degree of modelling that will be required. Stage 2 must be sufficiently detailed to allow the application of the sequential approach (as described in Section 1.5) within the flood risk zone.

• Stage 3 ~ Detailed Flood Risk Assessment
A detailed FRA is carried out where necessary to assess flood risk issues in sufficient detail and to provide a quantitative appraisal of potential flood risk.

1.4 Scales of Flood Risk Assessments

Flood Risk Assessments are undertaken at different scales by different organisations for many different purposes. The scales are as follows:

• Regional Flood Risk Appraisal (RFRA): A Regional Flood Risk Appraisal provides a broad overview of the source and significance of all types of flood risk across a region and highlights areas where more detailed study will be required. These appraisals are undertaken by regional authorities.

• Strategic Flood Risk Assessment (SFRA): A Strategic Flood Risk Assessment provides a broad (area-wide or county-wide) assessment of all types of flood risk to inform strategic land use planning decisions. The SFRA allows the Planning Authority to undertake the sequential approach (described below) and identify how flood risk can be reduced as part of the development plan process.

• Site Flood Risk Assessment (Site FRA): A Site FRA is undertaken to assess all types of flood risk for a new development. This requires identification of the sources of flood risk, the effects of climate change on the flood risk, the impact of the proposed development, the effectiveness of flood mitigation and management measures and the residual risks that then remain.

This assessment is for a County Development Plan and therefore is at SFRA scale.

1.5 The Sequential Approach

The sequential approach in terms of flood risk management is based on the following principles: AVOID - SUBSTITUTE - JUSTIFY - MITIGATE – PROCEED.

The primary objective of the sequential approach is that development is primarily directed towards land that is at low risk of flooding (AVOID). The next stage is to ensure that the type of development proposed is not especially vulnerable to the adverse impacts of flooding (SUBSTITUTION).

The Justification Test is designed to rigorously assess the appropriateness, or otherwise, of particular developments that, for various reasons, are being considered in areas of moderate or high flood risk (JUSTIFICATION). The test is comprised of two processes, namely the Plan-Making Justification Test and the Development Management Justification Test. Only the

former (Plan-Making Justification Test) is relevant to a Strategic Flood Risk Assessment for a Plan, and this is described as follows.

Justification Test for Development Plans (See p.37 of the Guidelines)
"Where, as part of the preparation and adoption or variation or amendment of a development/local area plan, a planning authority is considering the future development of areas in an urban settlement that are at moderate or high risk of flooding, for uses or development vulnerable to flooding that would generally be inappropriate as set out in Table 3.2 of the Guidelines, all of the following criteria must be satisfied:

1) The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act 2000, as amended.
2) The zoning or designation of the lands for the particular use or development type is required to achieve the proper and sustainable planning of the urban settlement and in particular:
    a. Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement
    b. Comprises significant previously developed and/or under-utilised lands;
    c. Is within or adjoining the core of an established or designated urban settlement;
    d. Will be essential in achieving compact or sustainable urban growth;
    e. There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.
3) A flood risk assessment to an appropriate level of detail has been carried out as part of the Strategic Environmental Assessment as part of the development plan preparation process, which demonstrates that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere.

N.B. The acceptability or otherwise of levels of any residual risk should be made with consideration for the proposed development and the local context and should be described in the relevant flood risk assessment."

MITIGATION is the process where the flood risk is reduced to acceptable levels by means of land use strategies or by means of detailed proposals for the management of flood risk and surface water, all as addressed in the Flood Risk Assessment. The decision to PROCEED should only be taken after the Justification Test has been passed.

1.6 Purpose of Strategic Flood Risk Assessment

The purpose of this SFRA is to integrate an assessment of flood risk into the planning process, specifically to:

- Provide for an improved understanding of flood risk issues within the County Development Plan,
- Identify whether flood risk is an issue in the settlements for which the development management framework (e.g. zoning map or settlement boundary) is being altered.

This SFRA presents available flood related data to identify areas within which a detailed Flood Risk Assessment will be required. It also reviews the existing text and policies in the Development Plan in relation to flooding and proposes changes where necessary. The concluding section discusses the approach to monitoring and review of this SFRA.

2 Strategic Flood Risk Assessment

2.1 Stages

The Strategic Flood Risk Assessment for the plan area is based on two stages:

- Stage 1 Flood Risk Identification
- Stage 2 Initial Flood Risk Assessment

2.2 Stage 1 Flood Risk Identification

This purpose of this stage is to identify whether there are any flooding or surface water management issues relating to the plan area that may warrant further investigation. Sources which were consulted are outlined below.

2.2.1 Regional Flood Risk Appraisal

A Regional FRA was carried out and published as Appendix 3 to the Strategic Environmental Assessment of the South East Regional Planning Guidelines[3]. This document provided guidance on the issues to be addressed in any SFRA.

The Regional FRA referred to the Suir Catchment Flood Risk Management Plan, which identified areas of potential significant flood risk within the Suir Catchment in Co. Kilkenny as Fiddown, Mullinavat and Piltown. In relation to other areas that have experienced flooding, the RFRA noted that Callan, Graiguenamanagh and Thomastown will benefit from Flood Risk Management Studies which are being undertaken by Kilkenny County Council. These studies have been completed and have proposed a range of mitigation measures.

The Summary and Recommendations of the RFRA state that at pre-review stage of County Development Plans, local authorities should consult with the OPW on the SFRA at least 3-6 months in advance of commencement of review. A meeting was held with the OPW on the 20th July 2012 to discuss the approach to the SFRA. The broad approach to the SFRA was agreed. The OPW will be consulted at every stage of the Development Plan process.

2.2.2 OPW Publications

To comply with the 'Floods' Directive[4], the OPW commenced a CFRAM (Catchment Flood Risk Assessment and Management) programme in Ireland in 2011. The South East Catchment Flood Risk Management Plan (SECFRAM) is being produced at present and is scheduled for completion in 2016. When finalized, the findings of this will be integrated into the Development Plan Strategic Flood Risk Assessment.

The CFRAM Programme comprises three phases:

1. The Preliminary Flood Risk Assessment (PFRA): 2011
2. The CFRAM Studies and parallel activities: 2011-2015
3. Implementation and Review: 2016 onwards

The Programme provides for three main consultative stages:

1. 2011 Preliminary Flood Risk Assessments
2. 2013 Flood Hazard Mapping
3. 2015 Flood Risk Management Plans

[3] South East Regional Authority, South East Regional Planning Guidelines, 2010

[4] Directive 2007/ 60/ EC of the European Parliament and of the Council of 23rd October 2007 on the assessment and management of flood risk: Official Journal L288/ 27-34.

2.2.2.1 Preliminary Flood Risk Management

The 'Floods' Directive[5] required Member States to undertake a national preliminary flood risk assessment by 2011 to identify areas where significant flood risk exists or might be considered likely to occur. In August 2011, the OPW published the National Preliminary Flood Risk Assessment, Draft for Public Consultation[6] which comprised a Report and a set of maps.

This national screening exercise identified where there may be a significant risk associated with flooding, based on available and easily derivable information. The objective of the PFRA is to identify Areas for Further Assessment (AFA's) and this further assessment will take place through Catchment Flood Risk Assessment and Management Studies (CFRAMS).

Of the 15 settlements included in the DCDP, five settlements are identified as Areas of Further Assessment[7]; Ballyhale, Ballyragget, Freshford, Inistioge and Mullinavat.

Maps of the County have been published as part of the Draft PFRA. The OPW have stated that the maps, although draft and indicative, may be of use to the Local Authorities in a number of areas of activity, particularly in the performance of their planning function in relation to the implementation of the Flooding Guidelines.

These maps indicate flood extents – for fluvial flooding they indicate the 100 year event and the extreme event, or 1 in 1000 year event. They also indicate coastal, pluvial and groundwater flood extents. This mapping is now an important and primary input into flood risk assessment studies. Fluvial flooding is flooding from a river or other watercourse. Pluvial flooding is a result of rainfall-generated overland flows which arise before run-off enters any watercourse or sewer.

2.2.2.2 Catchment Based Management Plans

Phase 2 of the CFRAM programme is the production of CFRAM studies. The OPW in co-operation with various Local Authorities are producing Catchment Flood Risk Assessment and Management Studies. These CFRAMS aim to map out current and possible future flood risk areas and develop risk assessment plans. They will also identify possible structural and non-structural measures to improve the flood risk of the area.

The two CFRAMS that will affect the DCDP are the Suir and South Eastern CFRAMS.

A scoping of the CFRAMS for the Suir Catchment identified Fiddown, Mullinavat and Piltown as areas of potential significant flood risk, however the study is on-going.

The South Eastern River Basin District (SERBD) CFRAMS will cover the rest of County Kilkenny, and this study commenced in summer 2011 and is scheduled for completion in 2016. The South Eastern district is one of Ireland's largest river basin districts covering about one fifth of the country with an area of nearly 13,000km^2.

The main aims of the South Eastern CFRAM Study are to:

- assess flood risk, through the identification of flood hazard areas and the associated impacts of flooding;
- identify viable structural and non-structural measures and options for managing the flood risks for localised high-risk areas and within the catchment as a whole;
- prepare a strategic Flood Risk Management Plan (FRMP) and associated Strategic Environmental Assessment (SEA) that sets out the measures and policies that should

[5] Directive 2007/ 60/ EC of the European Parliament and of the Council of 23rd October 2007 on the assessment and management of flood risk: Official Journal L288/ 27-34.
[6] http://www.cfram.ie/pfra/
[7] See http://www.cfram.ie/wordpress/wp-content/uploads/2011/06/AFA-Designation-Report-120514-Final-2.pdf

be pursued to achieve the most cost effective and sustainable management of flood risk;
- ensure that full and thorough public and stakeholder consultation and engagement is achieved.

For these risk areas, flood risk maps and flood hazard maps will be drawn up later in 2013.

In the absence of finalised flood zone maps from the OPW and in the absence of completed CFRAM studies, a combination of the PFRA maps and alternative available sources of information will be used.

2.2.3 Alternative available sources

The data listed below is available for the county and provides information on the historical occurrence of flooding. This data was mapped for each of the 15 settlements included under this DCDP. Flooding and surface water issues in the county were also identified through consultation with the Area Engineers and from any other relevant sources.

i) OPW Flood Events Mapping

As part of the National Flood Risk Management Policy, the OPW developed the www.floodmaps.ie web based data set, which contains information concerning historical flood data, displays related mapped information and provides tools to search for and display information about selected flood events.

ii) OPW Benefitting Lands mapping

These maps were prepared to identify areas that would benefit from land drainage schemes, and typically indicate low-lying land near rivers and streams that might be expected to be prone to flooding.

iii) Mineral Alluvial Soil Mapping

The soils and subsoils maps were created by the Spatial Analysis Unit, Teagasc. The project was completed in May 2006 and was a collaboration between Teagasc, the Geological Survey of Ireland, Forest Service and the EPA. The presence of alluvial soils can indicate areas that have flooded in the past (the source of the alluvium).

iv) Ordnance Survey “Lands liable to floods” mapping (6” OS maps)

These maps have been studied to see if there are any areas marked as being “Liable to Floods” in or in the vicinity of the 15 settlements. It is noted that the OS maps simply show the text “Liable to Floods” without delineating the extent of these areas.

It should be noted that some of this data is historically derived, not prescriptive in relation to flood return periods and not yet predictive or inclusive for climate change analysis. Many of these maps were based on survey work carried out from 1833-1844 with many updated in the 1930s and 1940s. Therefore they do not show or take account of recent changes in surface drainage, such as development in floodplains, road realignments or drainage works for forestry or agriculture. So there is significant potential that flood risk in some areas may have changed since they were prepared.

2.2.3.1 **Flood Studies, Reports and Flood Relief Schemes**

Flood reports have been completed for a number of areas within the county. Studies have been undertaken in respect of Callan, Graiguenamanagh and Thomastown. These three towns are subject to separate Local Area Plans and are not addressed in the DCDP.

A Strategic Flood Risk Assessment was carried out for the Wexford County Development Plan by JBA Consulting. As part of this, flood zone mapping was produced for both sides of the River Barrow in New Ross, and Wexford County Council kindly made this information available to Kilkenny County Council.

A flood relief scheme has been completed in Kilkenny city, this will be addressed in the City & Environs SFRA.

2.2.3.2 **Local Authority Personnel**

The Area Engineers were consulted regarding historical flooding and flood relief works in the areas under consideration.

2.2.4 Flood Risk Indicators

Having regard to all of the information sources as outlined above, the occurrence of flood risk indicators for each settlement included in the DCDP is identified in a Flood Risk Indicator Matrix. Of the 15 settlements included in the DCDP, only one, Slieverue shows no fluvial Flood Risk indicators but does show indicative pluvial flooding. As all of the settlements could be subject to a potential flood risk issue, the assessment proceeds to Stage 2.

Flood Risk Indicator Matrix

Town/ village	Available Data by source					
	www.floodmaps.ie	**Alluvial Soils**	**Benefitting lands**	**6" OS maps**	**Local Authority information**	**Other/PFRA Maps 2013**
Ballyhale	Recurring Flood Points recorded at Main Street. Road liable to flooding and properties affected	Alluvial Soils mapped to north and west	Benefitting lands mapped in village	No indication of flooding occurrences shown	Flooding experienced to the rear of properties on Main St in the past – bridge on Station road replaced approx. 2003 – this has helped to alleviate the flooding. Collapsed walls in the area of the church replaced in recent years and river banks in area of church cleared in 2010 by church.	Identified as Area for further assessment
Ballyragget	Recurring Flood Points recorded at River Nore	Alluvial soils along River Nore	Benefitting lands mapped along River Nore	Lands adjacent to the River on both banks are described as "Liable to Flooding" west of the town	Flooding has occurred on several occasions in 2008, 2009 and 2010 during spell of prolonged heavy rain, affecting a commercial property at the bridge.	Identified as Area for further assessment

Bennetts-bridge	Recurring Flood points recorded at Ennisnag Road	Alluvial soils along River Nore and stream to east of town	Benefitting lands mapped along River Nore	Lands adjacent to the River on both banks are described as "Liable to Flooding" west of the town	In severe events Annamult/Ennisnag road (LP4201) can become impassable as area is part of flood plain of River Nore. Worst affected from Mosses Mill to road leading to Danesfort (LP4200) Frequency/severity of events increasing.	Possible Area for Further Assessment – not selected as AFA.
Freshford	Recurring flood points recorded at New Bridge Street, damage to shops and dwellings	Alluvial soils along Nuenna River to the east of the town	Benefitting lands mapped along Nuenna River through most of the town	No indication of flooding occurrences shown	Severe flooding occurred on the 29th October 2010 at Creel Street from the junction with Old Bridge Street to the junction with Bohergloss Street, on the lower part of New Bridge Street and at Bohergloss Street. Flooding caused by a tributary of the Nuenna River.	Identified as Area for further assessment
Gores-bridge	No flood incident points recorded.	Alluvial soils along River Barrow, and Gowran stream to the north of the village.	No benefitting lands mapped in village.	Lands adjacent to the River Barrow north and south of the town are described as "Liable to Flooding"	No knowledge of properties being flooded.	Indicative pluvial & fluvial flooding shown

Inistioge	Recurring flood points at GAA pitch on R700 (Thomastown Road)	Alluvial soils mapped along River Nore	Benefitting lands mapped along River Nore	No indication of flooding occurrences shown	Recurring flooding in the area from the GAA pitch to the bridge over the river Nore on the R700 (western bank of river). Properties fronting onto the river (between the square and the bridge) have been badly flooded on a number of occasions.	Identified as Area for further assessment
Kells	Recurring flood points recorded at King's River Kells Bridge	Alluvial soils mapped along King's River	Benefitting lands mapped along King's River	Lands adjacent to the King's River east and west of the village are described as "Liable to Flooding"	R697 near Glory Cottage floods, road impassable on occasions. LP1023 Kells-Stoneyford road also floods circa 750m east of Kells Priory and road can be impassable. Frequency/severity of events increasing.	Indicative pluvial & fluvial flooding shown
Kilmacow	No flood incident points recorded in village.	Alluvial soils mapped along River Blackwater and in two other locations to the west of the Upper village	Benefitting lands mapped along River Blackwater	No indication of flooding occurrences shown	Flooding occurred in 2007 and 2008 on Upper Street in the village. Also flooding affected Dunkitt two houses flooded. Report by Ryan Hanley. Works for alleviation of flooding are proposed.	Suir CFRAM Possible Area for further assessment – not selected as AFA.

Knocktopher	Recurring flood incident recorded to west of Knocktopher on R699 road and recurring incident to northwest on N10 road near Barretstown.	Alluvial soils mapped along stream to west and through village	Benefitting lands mapped along stream through centre of village	No indication of flooding occurrences shown	Regular flooding events on R699 link road from R448 (Old N10) to Knocktopher village and R448 in vicinity of Moanrue X. Floods from Little Arrigle River. Road generally always passable.	Indicative pluvial & fluvial flooding shown
Mooncoin	Flood incident recorded to the northwest of the village	Alluvial soils mapped either side of New Road.	No benefitting lands mapped in village.	No indication of flooding occurrences shown	Local information - surface-water/ storm-water run-off along the New Road and Ballytarsna Crossroads Ballytarsna Cross and Chapel St 2009/2010 Drainage measures completed.	Possible Area for further assessment – not selected.
Mullinavat	Flood incident recorded on Main street in November 2000	Alluvial soils mapped along River Blackwater to west and Mill Stream to east	Benefitting lands mapped along the River Blackwater to the west of the town.	No indication of flooding occurrences shown	Flooding of Glen Crescent in 2008 and 2009. Works were undertaken in conjunction with the OPW to eliminate flood risk to houses.	Included in OPW Minor Flood Mitigation Works & Studies Scheme Approved Projects 2010

New Ross Environs	Flood incident recorded at the Quay, in Wexford's administrative area	Alluvial soils mapped in Raheen in the south and to the north	No benefitting lands mapped	No indication of flooding occurrences shown	Flooding occurred on the N24 west of New Ross in 2009. Road closed to all but HGV's for a period of time.	Possible Area for further assessment – not selected.
Slieverue	No flood incident points recorded in village	No alluvial soils mapped in village	No benefitting lands mapped in village.	No indication of flooding occurrences shown	No occurrences of flooding to the village over the past number of years.	Indicative pluvial flooding shown
Stoneyford	Two recurring flood incident points recorded on the Main Street	Alluvial soils mapped along the King's River and along the stream in the centre of the village	Benefitting lands mapped along the stream through the centre of the village.	No indication of flooding occurrences shown in the village, lands to the southwest are described as "Liable to Flooding"	Improved drainage works in the town and its environs in 2009/2010/2011 have eased drainage issues significantly in the main area of the town. No incidents of note have occurred since this work was completed.	Indicative fluvial flooding shown

Urlingford	No flood incident points recorded in village	Alluvial soils mapped along River Goul to north of town	Benefitting lands mapped along River Goul to north, along stream through centre and on lands to southwest of town.	Large area of lands to west described as “Liable to Floods”	No flooding issues in town.	Indicative pluvial & fluvial flooding shown

2.3 Stage 2 Initial Flood Risk Assessment

The purpose of this stage is to ensure that all relevant flood risk issues are assessed in relation to the decisions to be made and potential conflicts between flood risk and development are addressed to the appropriate level of detail. As there are two different development frameworks proposed under this Development Plan, there are two different approaches to this stage, depending on whether a settlement boundary or zoning framework is proposed.

2.3.1 Settlements with settlement boundaries

Under this Development Plan, twelve settlements will be subject to settlement boundaries, within which the following objective will apply:

"**To facilitate development of housing, economic development, services and infrastructure in the smaller towns and villages of the county at a scale and character which is appropriate in order to sustain and renew populations and services in these areas**".

Using a combination of the PRFA mapping and the flood risk indicators as described earlier, an area of flood risk was mapped for each of these settlements, see Maps 1-12. The map illustrates the proposed settlement boundary under the Development Plan. The proposed settlement boundary was devised having regard to a number of factors, including a consideration of flood risk.

In cases where land contains any flood risk indicators within the settlement boundary, the full extent of any indicators present are amalgamated and enclosed by a dashed line. Although these mapped areas of flood risk indicators are not reliable as a flood extent, they do provide an indication that further assessment of flood potential may be required. Therefore, these areas are identified on the maps as "Areas within which development proposals will be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed". Section 9.2.9 of the Development Plan contains text referring to this requirement. As this land is not zoned, it is not necessary to proceed to the Justification Test.

2.3.2 Zoned settlements: Bennettsbridge, Kilmacow and New Ross Environs

For each of the three settlements which include zoning under this Development Plan, an iterative process of flood risk assessment has been undertaken.

This has involved the refinement of the zoning objective maps, which have been reviewed and amended according to the Flood Zones and the vulnerability of the proposed development.

2.3.2.1 Flood zone mapping

Flood zones are geographical areas within which the likelihood of flooding is in a particular range. There are three types of flood zones defined:

- Flood zone A – where the probability of flooding from rivers and the sea is highest (greater than 1% or 1 in 100 for river flooding)
- Flood Zone B – where the probability of flooding from rivers and the sea is moderate (greater than 1% or 1 in 1000 for river flooding)
- Flood Zone C – where the probability of flooding from rivers and the sea is low (less than 1% or 1 in 1000 for river flooding). Flood Zone C covers all areas of the plan which are not in zones A or B.

The PFRA maps included delineation of both flood zones A and B. For each of these three settlements, Flood Zone A was taken directly as Flood Zone A as identified in the PFRA mapping. Flood Zone B however was defined as Flood Zone B from the PFRA mapping combined with any other area of flood risk indicators. Flood Zone B therefore is in general larger than the Flood Zone B as identified in the PFRA mapping.

2.3.3 Application of the Sequential Approach

Having identified the area of flood risk within the plan areas the next step is to apply the sequential approach to land use planning. The areas of flood risk were overlaid on the current zoning/boundary for each settlement. (This was taken from Variation 2, Core Strategy (2011) which provided the most recent development framework for the 3 settlements.) This identified where flood risk management and future development may cause a conflict.

The Guidelines have categorised land uses into three vulnerability classes and have also specified which vulnerability class would be appropriate in each flood zone, or where the Justification Test would be required.

The table of vulnerability classes (Table 3.1 of the Guidelines) is as follows:

Table 1: Classification of vulnerability of different types of development

Vulnerability Class	Land uses and types of development which include*:
Highly vulnerable development (including essential infrastructure)	Garda, ambulance and fire stations and command centres required to be operational during flooding; Hospitals; Emergency access and egress points; Schools;
	Dwelling houses, student halls of residence and hostels;
	Residential institutions such as residential care homes, children's homes and social services homes;
	Caravans and mobile home parks;
	Dwelling houses designed, constructed or adapted for the elderly or, other people with impaired mobility; and
	Essential infrastructure, such as primary transport and utilities distribution, including electricity generating power stations and sub-stations, water and sewage treatment, and potential significant sources of pollution (SEVESO sites, IPPC sites, etc.) in the event of flooding.
Less vulnerable development	Buildings used for: retail, leisure, warehousing, commercial, industrial and non-residential institutions; Land and buildings used for holiday or short-let caravans and camping, subject to specific warning and evacuation plans;
	Land and buildings used for agriculture and forestry;
	Waste treatment (except landfill and hazardous waste);
	Mineral working and processing; and
	Local transport infrastructure.
Water-compatible development	Flood control infrastructure; Docks, marinas and wharves; Navigation facilities;
	Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location;
	Water-based recreation and tourism (excluding sleeping accommodation);
	Lifeguard and coastguard stations;
	Amenity open space, outdoor sports and recreation and essential facilities such as changing rooms; and
	Essential ancillary sleeping or residential accommodation for staff required by uses in this category (subject to a specific warning and evacuation plan).
*Uses not listed here should be considered on their own merits	
Source: Table 3.1 of the Flooding Guidelines	

Table 3.2 of the Guidelines sets out how the vulnerability classes interact with the flood zones and when the Justification Test is required.

Table 2: Interaction of vulnerability classes and flood zones

Development	Flood Zone A	Flood Zone B	Flood Zone C
Highly vulnerable	Justification Test	Justification Test	Appropriate
Less vulnerable	Justification Test	Appropriate	Appropriate
Water-compatible	Appropriate	Appropriate	Appropriate

Source: Table 3.2 of the Flooding Guidelines

Where some of the settlement is within either Flood Zone A or B, the need for a further review of flood risk, and the specific zoning objectives, is required. If the proposed zoning was found to be water compatible and located within either Flood Zone A or B, there was no requirement to apply the Justification Test. If, however, less vulnerable uses were proposed for Flood Zone A, or highly vulnerable uses were proposed for Flood Zones A or B, the Justification Test was applied, and if necessary, the zoning objective revised. This process is detailed below.

Note: Vulnerability to pluvial flood risk should not be a limitation to development, but should be incorporated into the local drainage strategy, therefore areas of pluvial flooding were not subjected to the Sequential approach.

2.3.4 Bennettsbridge Zoning Proposals

The Flood Zones in Bennettsbridge were overlain on the current Zoning Map, as taken from the County Development Plan, Core Strategy Variation (2011).

A large proportion of the land located within the flood zones is zoned for Open Space. This is a water compatible use, therefore no Justification Test is required.

A total of seven areas of potential conflict between flood risk and future development were identified. These are shown on Map 13a. The Sequential approach was used and this resulted in the avoidance of three sites and rezoning as follows:

i. From Residential to Open space at Kilree Park
ii. From Residential to Open Space east of the River Nore
iii. Parcels of land zoned for Agricultural use were removed from the zoning map and the settlement boundary was adjusted.

The amended zoning map, and development boundary, is shown on Map 13b. Four parcels of zoned land remain, which must be subjected to the Justification Test, as follows:

iv. Land to the west of the main street is zoned for Village Centre. This land is presently developed, however some of the parcels may have potential for redevelopment.
v. A parcel of land west of the River is zoned for Industrial/Employment. This parcel is in current use as Nicholas Mosse's pottery mill and shop.
vi. A parcel of land west of the River, currently vacant is zoned for Industrial/Employment
vii. The Esso service station, located to the south of the village is zoned for Industrial/Employment, and an adjoining house is zoned Residential.

In order for this land to remain zoned for the uses as outlined, the zoning must satisfy the Justification Test. The criteria are outlined in Section 1.5 and the test is set out below.

1) The urban settlement is targeted for growth....

Bennettsbridge is identified as a Smaller Town or Village in the County Development Plan, with an existing LAP. The Development Plan states "Towns with existing LAPs are targeted for growth having regard to their position within the settlement hierarchy of the County and the scale and character of the individual settlement".

2) The zoning or designation of the lands for the particular use or development type is required to achieve the proper and sustainable planning of the urban settlement ....
   a. The zoning of this area for a number of uses (Industrial/employment, residential and village centre) is intended mainly to reflect the existing uses in operation. The continued zoning of the land will facilitate the regeneration and/or expansion of the centre.
   b. All of the land is currently in use, apart from one Industrial/Employment zoned parcel at the bridge, which is under-utilised as it contains a vacant building.
   c. All of the land is either in, or adjoins the core of Bennettsbridge (as core is defined in the Flooding Guidelines).
   d. The continued development of this land is essential in achieving compact and sustainable urban growth as it will provide employment and services to this settlement.
   e. The zoning of this land reflects the existing uses on the sites, and is intended to facilitate their appropriate expansion. Therefore this land is the most suitable for this purpose.

3) A flood risk assessment to an appropriate level of detail has been carried out....

In the main, this land is built out and the opportunities for future development are limited. In this context, this FRA contains sufficient information appropriate to the scale and nature of the development potential. Mitigation measures are included in the Development Plan and an objective will state that any development within Flood Zone A or B will be subject to a site specific Flood Risk Assessment appropriate to the scale and type of the development being proposed. This mitigation measure will ensure that any development taking place will not exacerbate any flooding issue. Any vulnerable development proposed will have to satisfy the development management Justification Test.

2.3.5 Kilmacow Zoning Proposals

The Flood Zones in Kilmacow were overlain on the Zoning Map, taken from the County Development Plan, Core Strategy Variation (2011). A large proportion of the land within the area of flood risk is zoned for Rural Conservation. This zoning is intended primarily as a conservation zone, to protect the amenity value and rural character of the area. Therefore this zone is considered to be water-compatible, and does not require the application of the Justification Test. A small area of land is zoned for Open Space, which is a water-compatible use.

A total of four areas of potential conflict were identified. These are shown on Map 14a. The Sequential approach was used and this resulted in the avoidance of sites in Dangan and rezoning as follows:

i. From Residential, General development and Phase 2 to Open Space.

The amended zoning map is shown on Map 14b. Three parcels of zoned land remain, which require the Justification Test, as follows:

ii. An area in the village centre is zoned for General Development. This land is presently developed, however some of the parcels may have potential for redevelopment.
iii. A parcel of land east of the River is zoned for Community Facilities. This parcel contains the Sports Complex.
iv. Parcels of land in the centre of Lower Kilmacow are zoned for General Development.

In order for this land to remain zoned for the uses as outlined, the zoning must satisfy the Justification Test. The criteria are outlined in Section 1.5 and the test is set out below.

1) The urban settlement is targeted for growth....
Kilmacow is identified as a Smaller Town or Village in the County Development Plan, with an existing LAP. Section 3.3.5.2 of Development Plan states "Towns with existing LAPs are targeted for growth having regard to their position within the settlement hierarchy of the County and the scale and character of the individual settlement".

2) The zoning or designation of the lands for the particular use or development type is required to achieve the proper and sustainable planning of the urban settlement ....

a. The zoning of this area for a number of uses (General development and community facilities) is intended mainly to reflect the existing uses in operation. The continued zoning of the land will facilitate the regeneration and/or expansion of the centre.
b. All of the land is currently in use.
c. All of the land is either in, or adjoins the core of Kilmacow (as core is defined in the Flooding Guidelines).
d. The continued development of this land is essential in achieving compact and sustainable urban growth as it will provide employment and services to Kilmacow.
e. The zoning of this land reflects the existing uses on the sites, and is intended to facilitate their appropriate expansion. Therefore this land is the most suitable for this purpose.

3) A flood risk assessment to an appropriate level of detail has been carried out....
In the main, this land is built out and the opportunities for future development are limited. In this context, this FRA contains sufficient information appropriate to the scale and nature of the development potential. Mitigation measures are included in the Development Plan and an objective will state that any development within Flood Zone A or B will be subject to a site specific Flood Risk Assessment appropriate to the scale and type of the development being proposed. This mitigation measure will ensure that any development taking place will not exacerbate any flooding issue. Any vulnerable development proposed will have to satisfy the development management Justification Test.

2.3.6 Environs of New Ross Zoning Proposals

The Flood Zones in the Environs of New Ross were overlain on the Zoning Map, taken from the County Development Plan, Core Strategy Variation (2011).

Two areas of possible conflict between flood risk and future development were identified;

i) the industrial zoning in the south and
ii) agricultural zoning to the north of the N25

These are shown on Map 15a. The Sequential approach was used and this resulted in the alteration of the settlement boundary and the exclusion of the agricultural zoning within the area of flood risk.

The amended zoning map is shown on Map 15b. One area of industrially zoned land remains, and in accordance with the Guidelines, a Justification test will be carried out for the land. In order for this land to remain zoned, the zoning must satisfy the Justification Test. The criteria are outlined in Section 1.5 and the test is set out below.

1) The urban settlement is targeted for growth....
New Ross is identified as a Larger Town in the Regional Planning Guidelines 2010, and in the County Development Plan. According to the RPGs, "New Ross, Carrick-on-Suir and Tipperary Town have been targeted for growth having regard to their strategic locations, capacity for growth and potential to deliver on the core objectives of critical mass and balanced regional development"[8].

[8] South-East Regional Authority, South Eastern Regional Planning Guidelines, 2010, p.53

2) The zoning or designation of the lands for the particular use or development type is required to achieve the proper and sustainable planning of the urban settlement ....

a. The zoning of this area for industrial development is intended mainly to reflect the existing uses in operation. The continued zoning of the land will facilitate the regeneration and/or expansion of the centre.
b. Most of the land is currently in use.
c. The land adjoins the core of New Ross (as core is defined in the Flooding Guidelines).
d. The continued development of this land is essential in achieving compact and sustainable urban growth as it provides employment and services to New Ross.
e. The zoning of this land reflects the existing uses on the sites, and is intended to facilitate their appropriate expansion. Therefore this land is the most suitable for this purpose.

3) A flood risk assessment to an appropriate level of detail has been carried out....
In the main, this land is built out and the opportunities for future development are limited. In this context, this FRA contains sufficient information appropriate to the scale and nature of the development potential. Mitigation measures are included in the Development Plan and an objective will state that any development within Flood Zone A or B will be subject to a site specific Flood Risk Assessment appropriate to the scale and type of the development being proposed. This mitigation measure will ensure that any development taking place will not exacerbate any flooding issue. Any vulnerable development proposed will have to satisfy the development management Justification Test.

3 Recommendations

This SFRA considers Kilkenny county, and towns and villages for which a specific development framework is included in the Development Plan.

For those functional areas where strategic land-use decisions will be made through any Local Area Plans, it is recommended that detailed flood risk assessments are carried out in respect of each such areas.

For the areas identified through this SFRA that contain flood risk indicators, text will be included in Chapter 9 of the Development Plan to ensure that development proposals shall be the subject of a site-specific Flood Risk Assessment, appropriate to the type and scale of the development being proposed and shall be carried out in line with the Flooding Guidelines.

3.1.1 Surface Water Drainage

This SFRA has also included a review of the current text in relation to flooding and surface water drainage. In line with the recommendations of the Guidelines, changes are proposed to the surface water drainage text to encourage the use of Sustainable Drainage Systems.

The proposed text is set out below.

Surface Water Drainage
Surface water drainage systems are designed to channel stormwater (rainwater) to the nearest suitable river. Rain falling on impervious surfaces is usually directed into surface water drainage systems. Best practice is to separate the surface water drainage system from the foul drainage system to maximise the efficiency of our waste water treatment plants.

Surface water drainage systems are effective at transferring surface water quickly, but they can cause the volume of water in the receiving watercourse to increase more rapidly thereby increasing flood risk. Sustainable Drainage Systems (SuDS) can play a role in reducing and managing run-off to surface water drainage systems as well as improving water quality.

Development Management Standards

- *Development must so far as is reasonably practicable incorporate the maximum provision to reduce the rate and quantity of runoff. e.g.:-*
    - *Hard surface areas (car parks, etc.), should be constructed in permeable or semi-permeable materials,*
    - *On site storm water ponds to store and/or attenuate additional runoff from the development should be provided,*
    - *Soak-aways or french drains should be provided to increase infiltration and minimise additional runoff.*
- *Individual developments shall be obliged, in all cases where surface water drainage measures are required, to provide a surface water drainage system separated from the foul drainage system.*
- *In the case of one-off rural dwellings or extensions, except in circumstances where an existing surface water drainage system is available to the proposed site for development, and which in the opinion of the planning authority has adequate capacity to accommodate the identified surface water loading, surface water shall be disposed of, in its entirety within the curtilage of the development site by way of suitably sized soak holes.*
- *In the case of driveways, drainage measures shall be provided to a detail acceptable to the planning authority so as to avoid run-off from the site to the adjoining public road.*
- *For all other green-field developments in general the limitation of surface water run-off to pre-development levels will be required. Where a developer can clearly demonstrate that capacity exists to accommodate run-off levels in excess of green-field levels then the planning authority shall give consideration to such proposals on a case by case basis.*
- *In the case of brown-field development, while existing surface water drainage measures will be taken into account, some attenuation measures for surface water may be required at the discretion of the planning authority in the interests of balanced and sustainable development.*
- *In line with the above Kilkenny County Council will consider all drainage proposals consistent with SuDS (Sustainable Drainage Systems).*
- *For developments adjacent to watercourses of a significant conveyance capacity any structures (including hard landscaping) must be set back from the edge of the watercourse to allow access for channel clearing/maintenance. A setback of 5m-10m is required depending on the width of the watercourse. Development consisting of construction of embankments, wide bridge piers, or similar structures will not normally be permitted in or across flood plains or river channels.*
- *All new development must be designed and constructed to meet the following minimum flood design standards:-*
    - *Where streams, open drains or other watercourses are being culverted - the minimum permissible culvert diameter is 900mm. (Access should be provided for maintenance as appropriate.)*
- *To give adequate allowance for climate change in designing surface water proposals a multiplication factor of 1.2 shall be applied to all river return periods up to 100 years except in circumstances where the OPW have provided advice specifying the particular multiplication factor for return periods up to 100 years. In the case of rainfall a multiplication factor of 1.1 shall be applied to rainfall intensities to make allowance for climate change requirements.*
- *In the design of surface water systems, regard shall be had to the Greater Dublin Regional Code of Practice for Drainage Works[9] and associated GDSDS technical documents.*

[99] Greater Dublin Local Authorities, Greater Dublin Regional Code of Practice for Drainage Works, 2006

3.1.2 Monitoring and Review

The South East Catchment Flood Risk Management Plan (SECFRAM) is being produced at present, and is scheduled for completion in 2016. When finalised, the findings of this will be integrated into the Development Plan Strategic Flood Risk Assessment. As outlined in Section 2, additional information, in the form of CFRAM mapping, will be made available from the OPW that will inform flood risk assessments in the County.

It is recommended that the OPW be consulted and that their progress in implementation of the requirements of the EU Flood Directive is reviewed at that time.

This SFRA is based on currently available data and in accordance with its status as a "living document" it will be subject to modification by these emerging datasets of maps and plans as they become available. In the interim any development proposal in the areas identified in this SFRA shall be subject to detailed flood risk assessment.

4 Maps of Flood Risk Indicators

Maps are included for the following settlements:

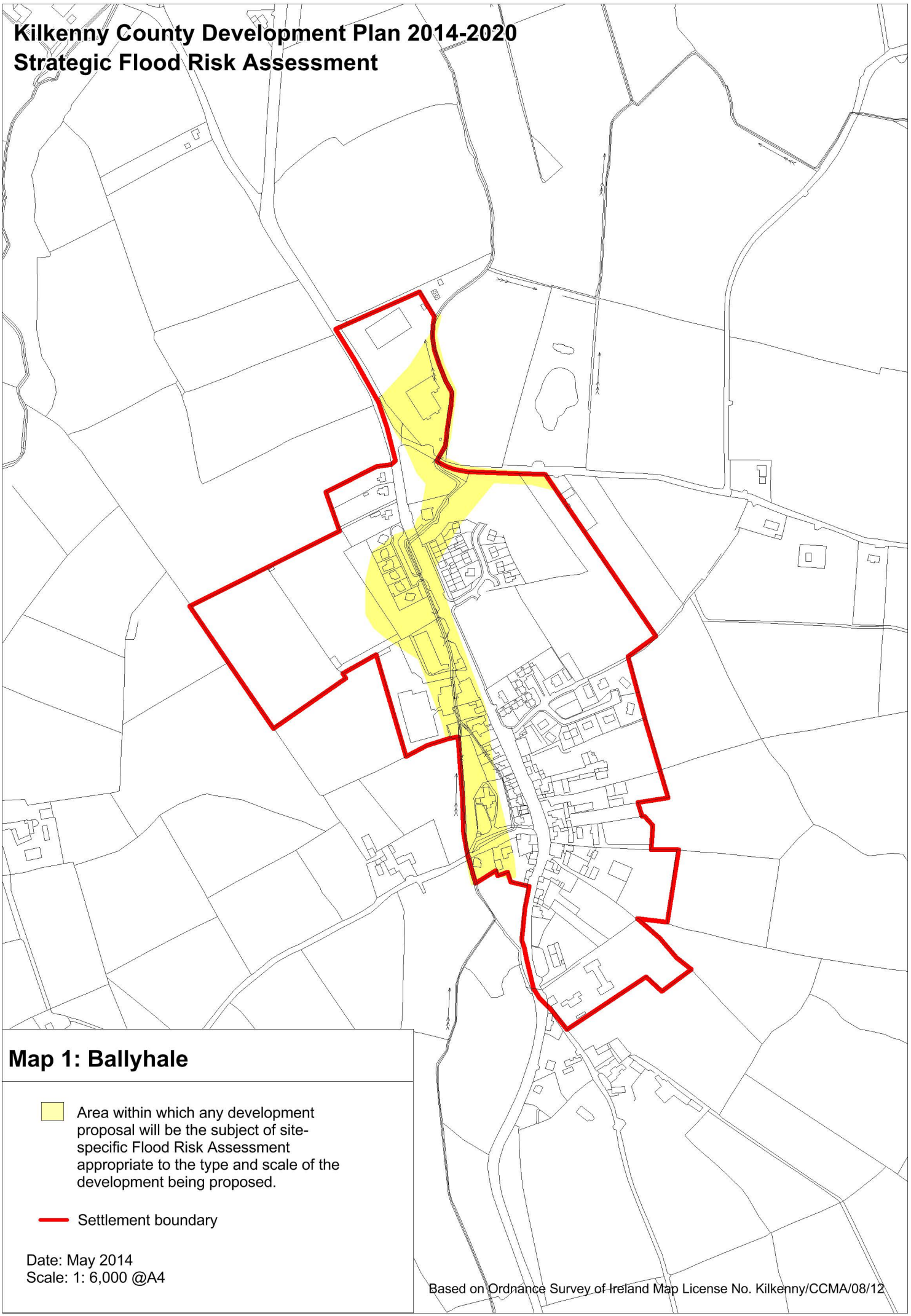
Settlement boundary maps:

1) Ballyhale
2) Ballyragget
3) Freshford
4) Goresbridge
5) Inistioge
6) Kells
7) Knocktopher
8) Mooncoin
9) Mullinavat
10) Slieverue
11) Stoneyford
12) Urlingford

Zoning maps:

13a) Bennettsbridge – Areas of flood risk on Variation 2 Zoning Map
13b) Bennettsbridge – Areas of flood risk on zoning map
14a) Kilmacow– Areas of flood risk on Variation 2 Zoning Map
14b) Kilmacow – Areas of flood risk on zoning map
15a) New Ross Environs – Areas of flood risk on Variation 2 Zoning Map
15b) New Ross Environs – Areas of flood risk on zoning map

Kilkenny County Development Plan 2014-2020
Strategic Flood Risk Assessment



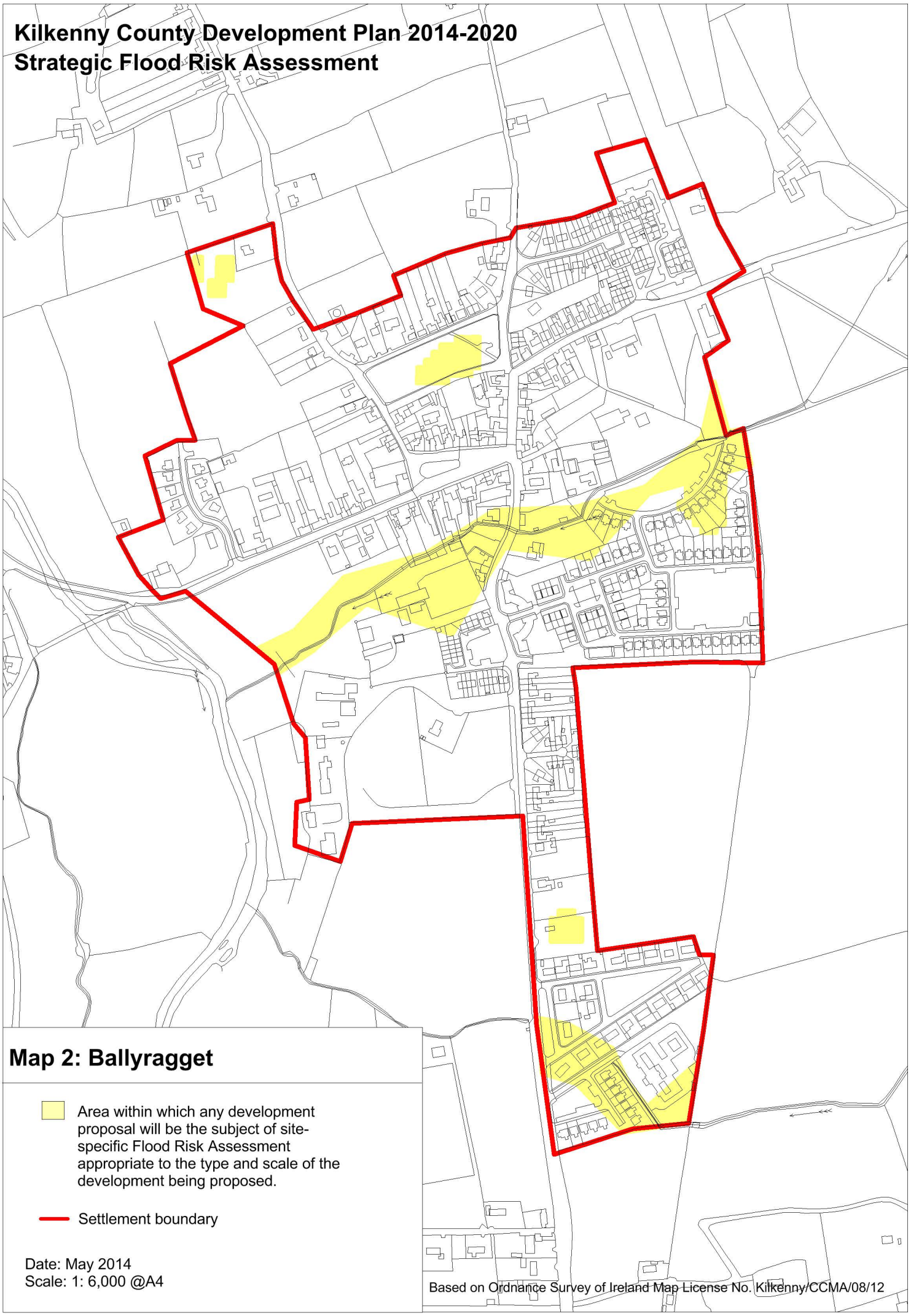
Map 1: Ballyhale

Area within which any development proposal will be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

Settlement boundary

Date: May 2014
Scale: 1: 6,000 @A4

Kilkenny County Development Plan 2014-2020
Strategic Flood Risk Assessment



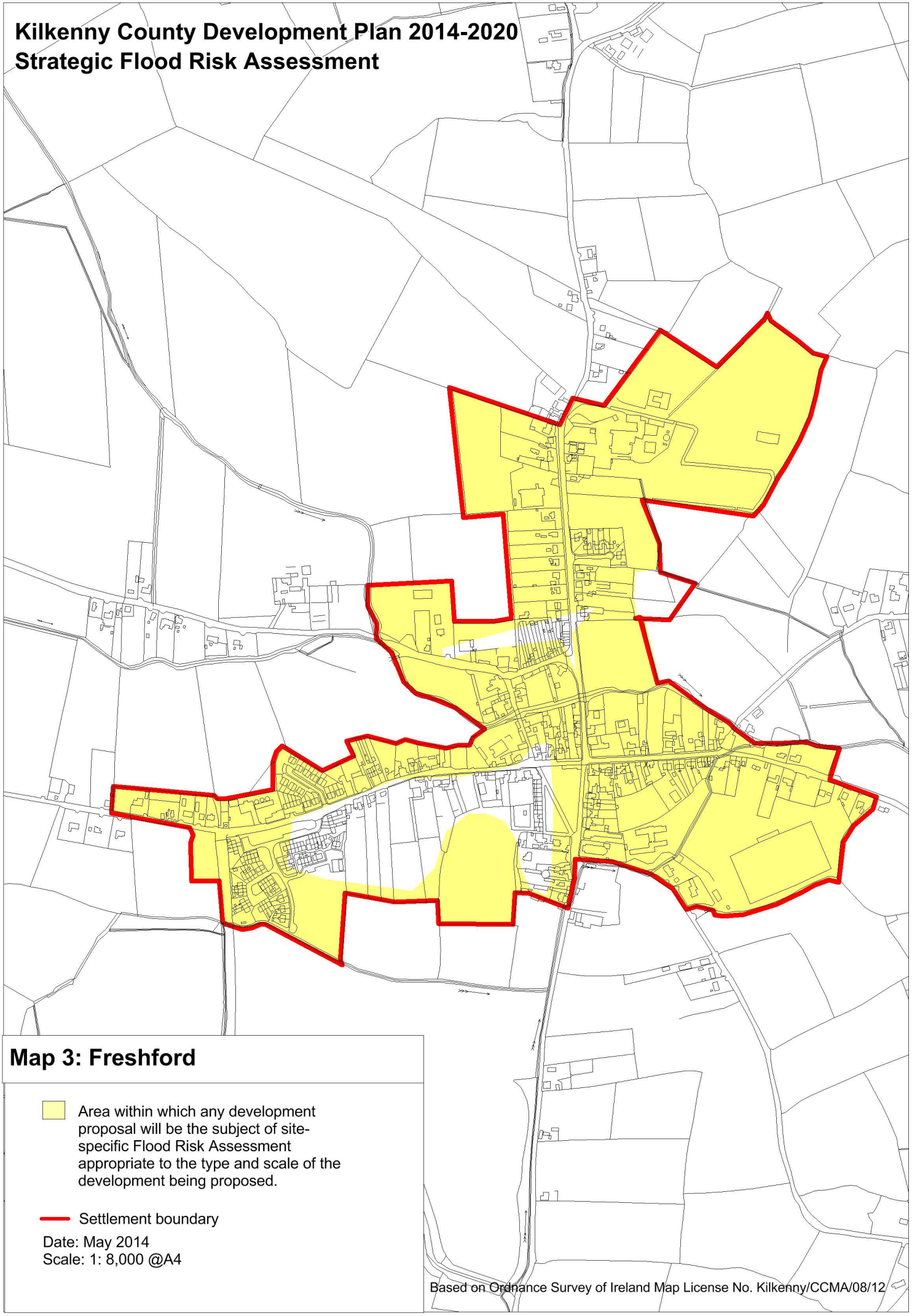
Map 2: Ballyragget

Area within which any development proposal will be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

Settlement boundary

Date: May 2014
Scale: 1: 6,000 @A4

Kilkenny County Development Plan 2014-2020
Strategic Flood Risk Assessment



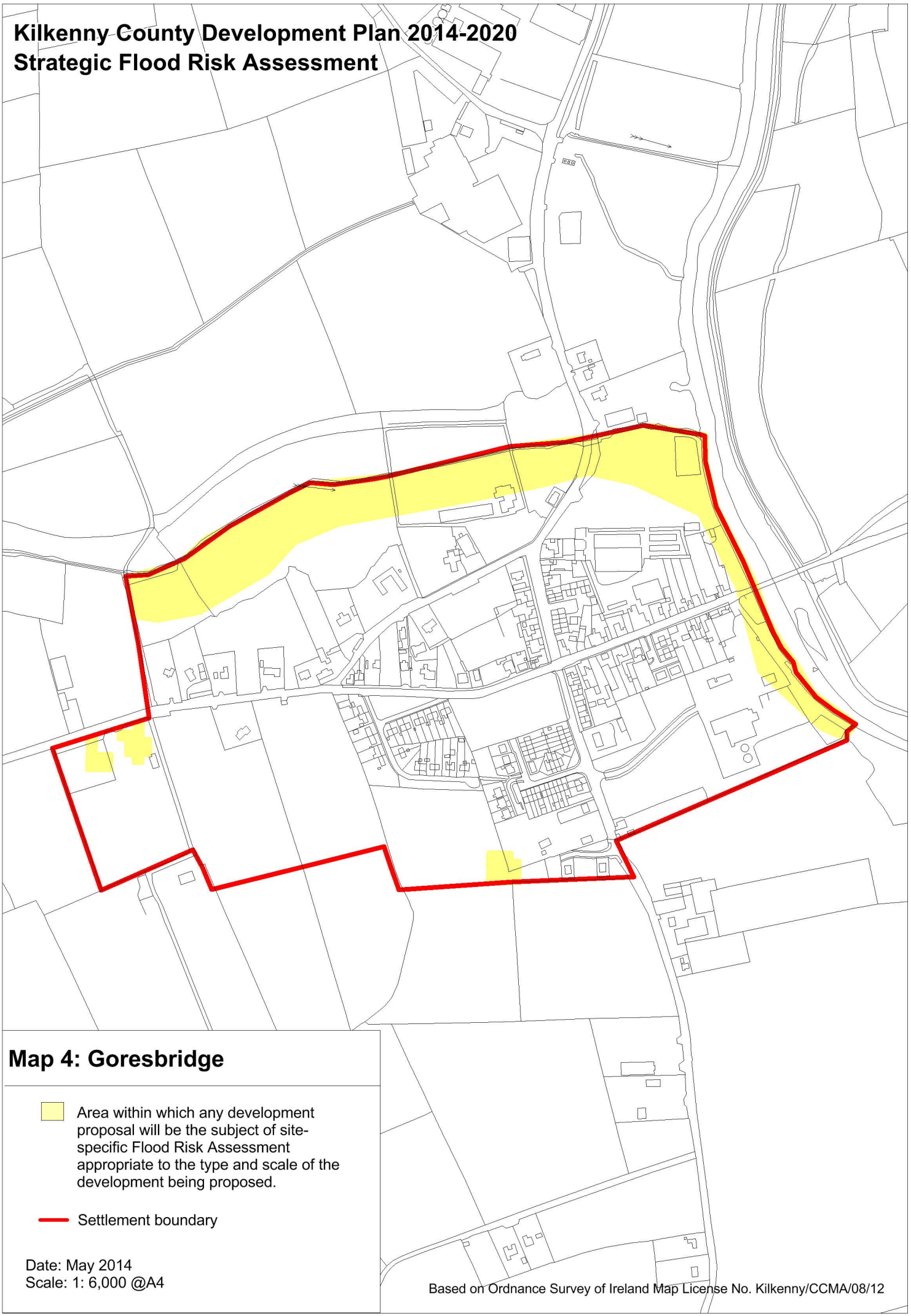
Map 3: Freshford

Area within which any development proposal will be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

Settlement boundary

Date: May 2014
Scale: 1: 8,000 @A4

Kilkenny County Development Plan 2014-2020
Strategic Flood Risk Assessment



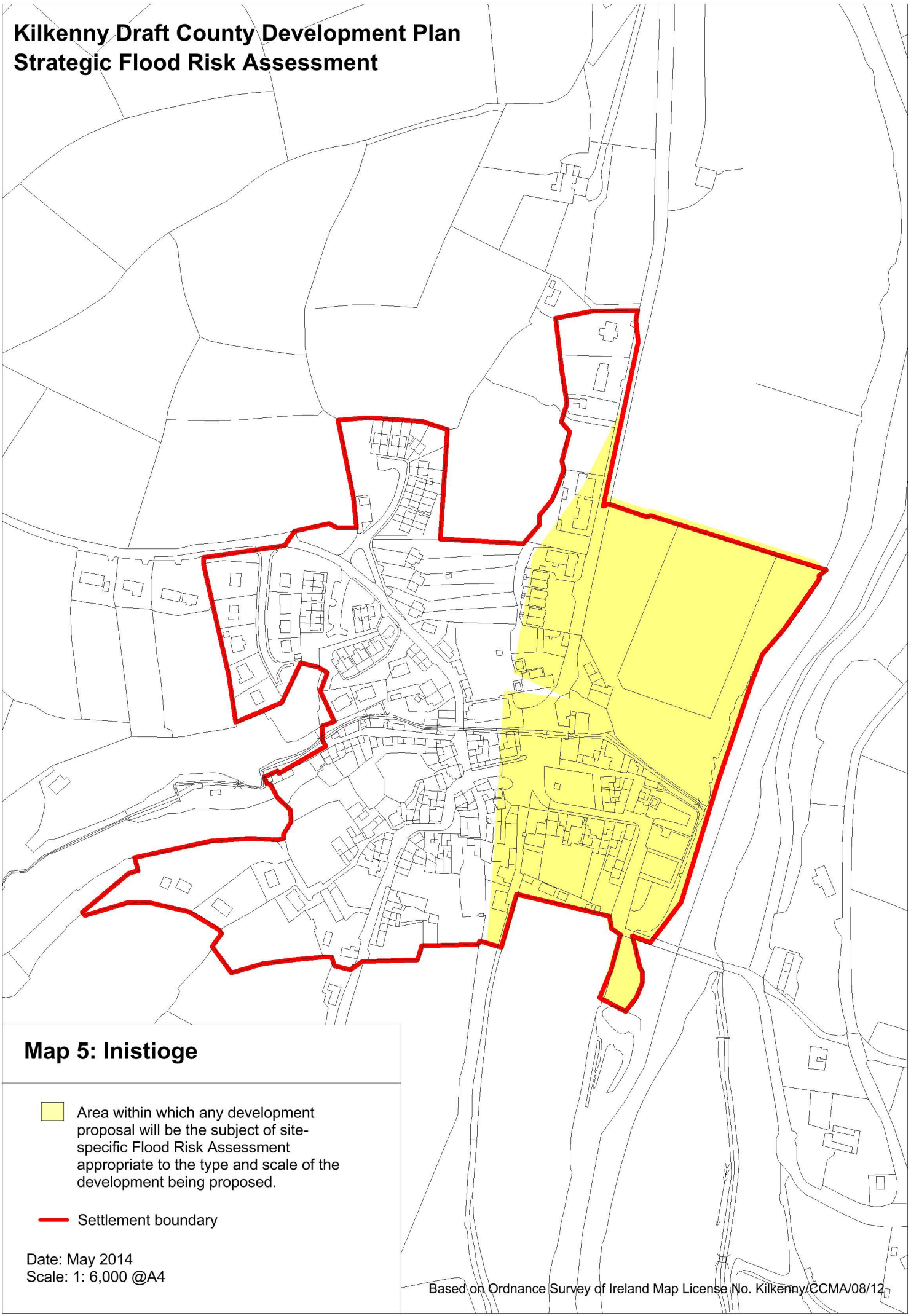
Map 4: Goresbridge

Area within which any development proposal will be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

Settlement boundary

Date: May 2014
Scale: 1: 6,000 @A4

Kilkenny Draft County Development Plan
Strategic Flood Risk Assessment



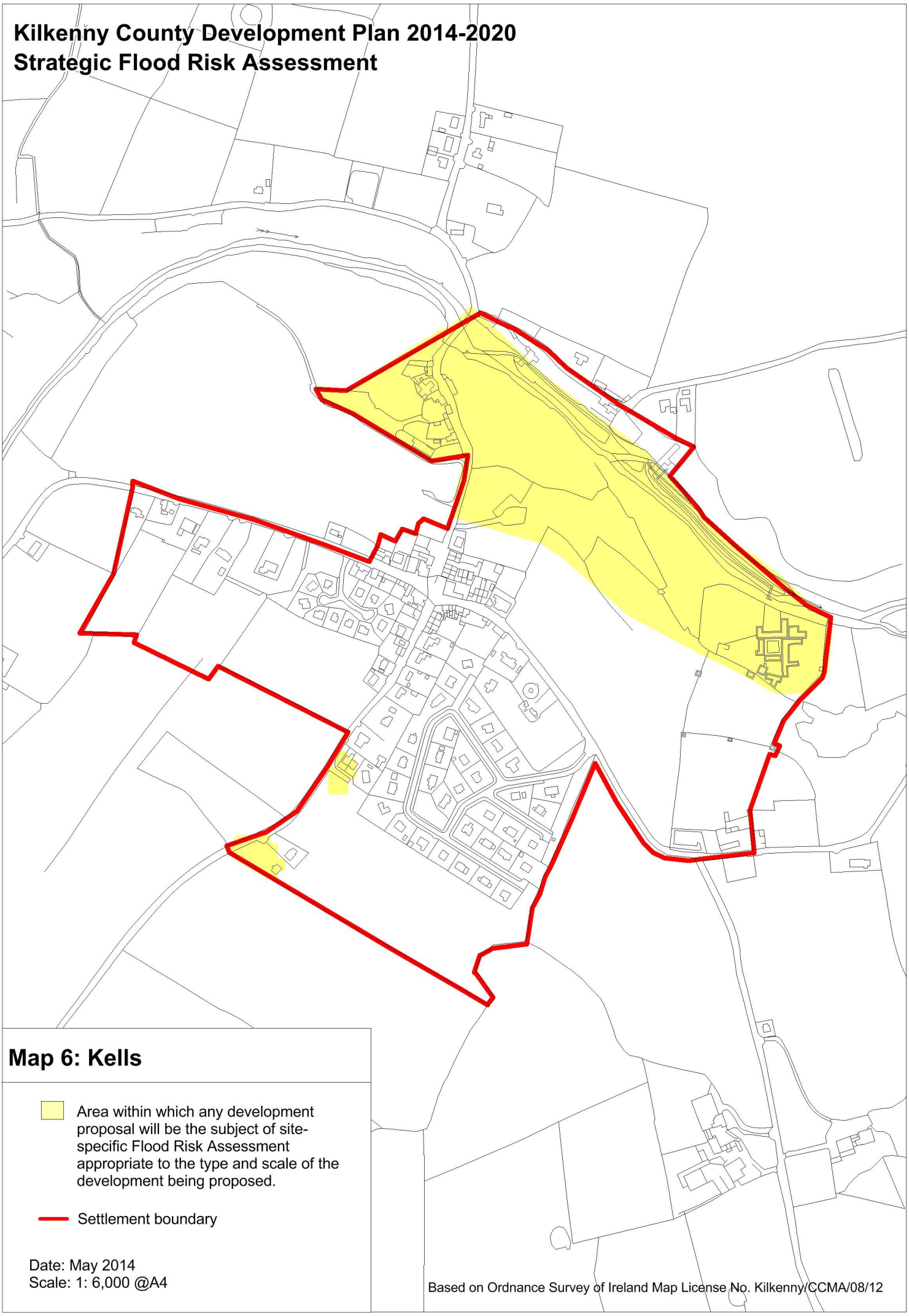
Map 5: Inistioge

Area within which any development proposal will be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

Settlement boundary

Date: May 2014
Scale: 1: 6,000 @A4

Kilkenny County Development Plan 2014-2020
Strategic Flood Risk Assessment



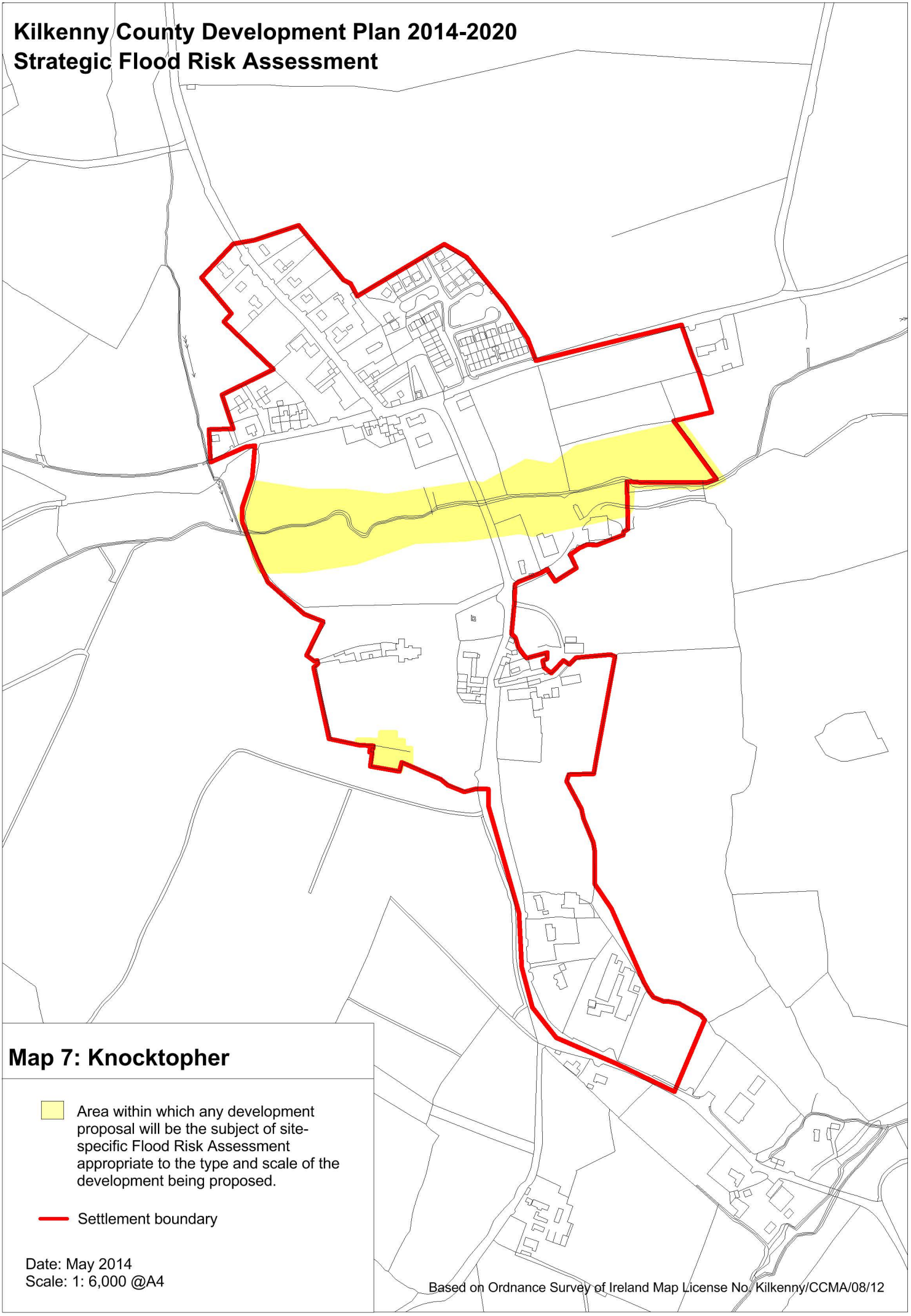
Map 6: Kells

Area within which any development proposal will be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

Settlement boundary

Date: May 2014
Scale: 1: 6,000 @A4

Kilkenny County Development Plan 2014-2020
Strategic Flood Risk Assessment



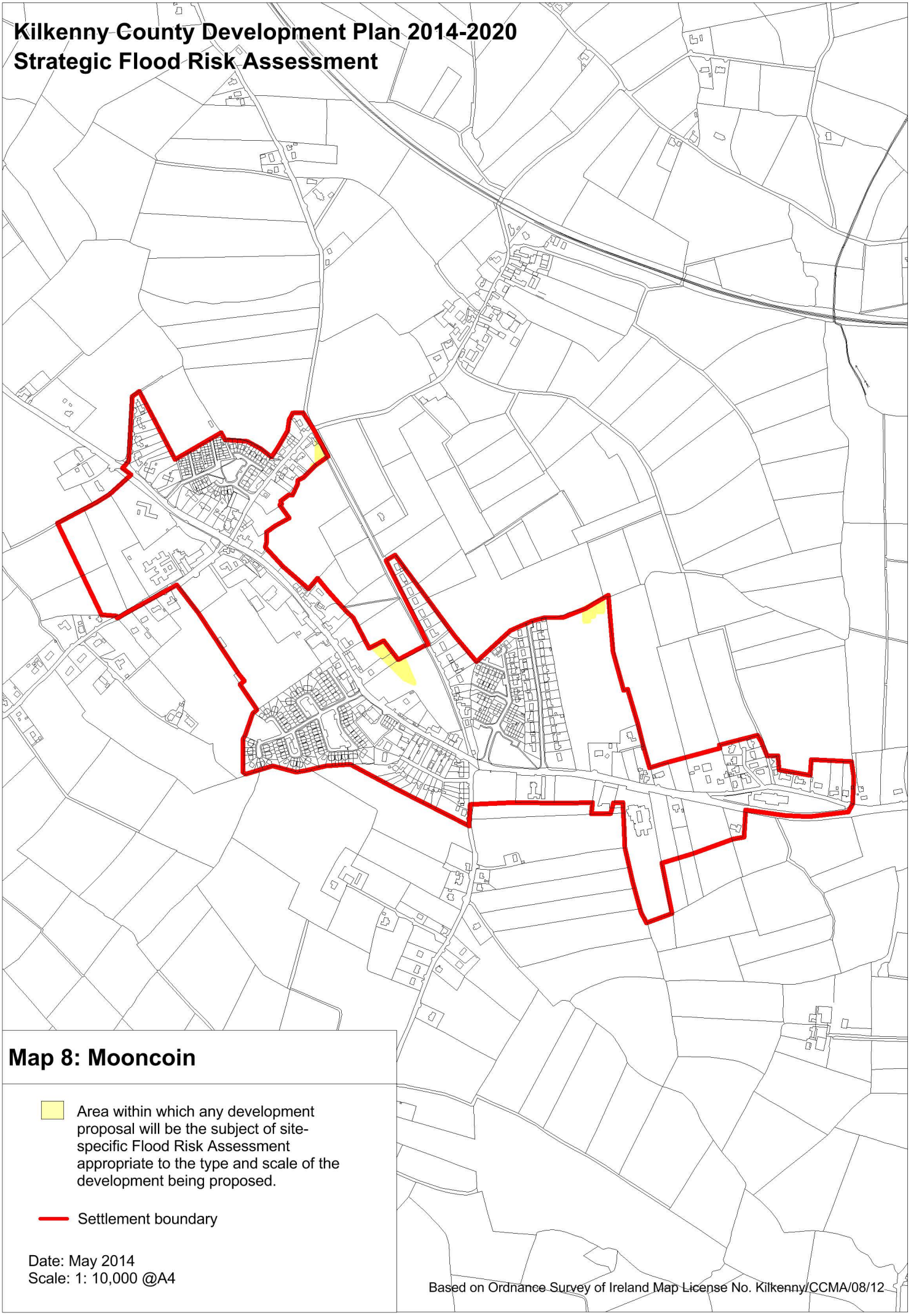
Map 7: Knocktopher

Area within which any development proposal will be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

Settlement boundary

Date: May 2014
Scale: 1: 6,000 @A4

Kilkenny County Development Plan 2014-2020
Strategic Flood Risk Assessment



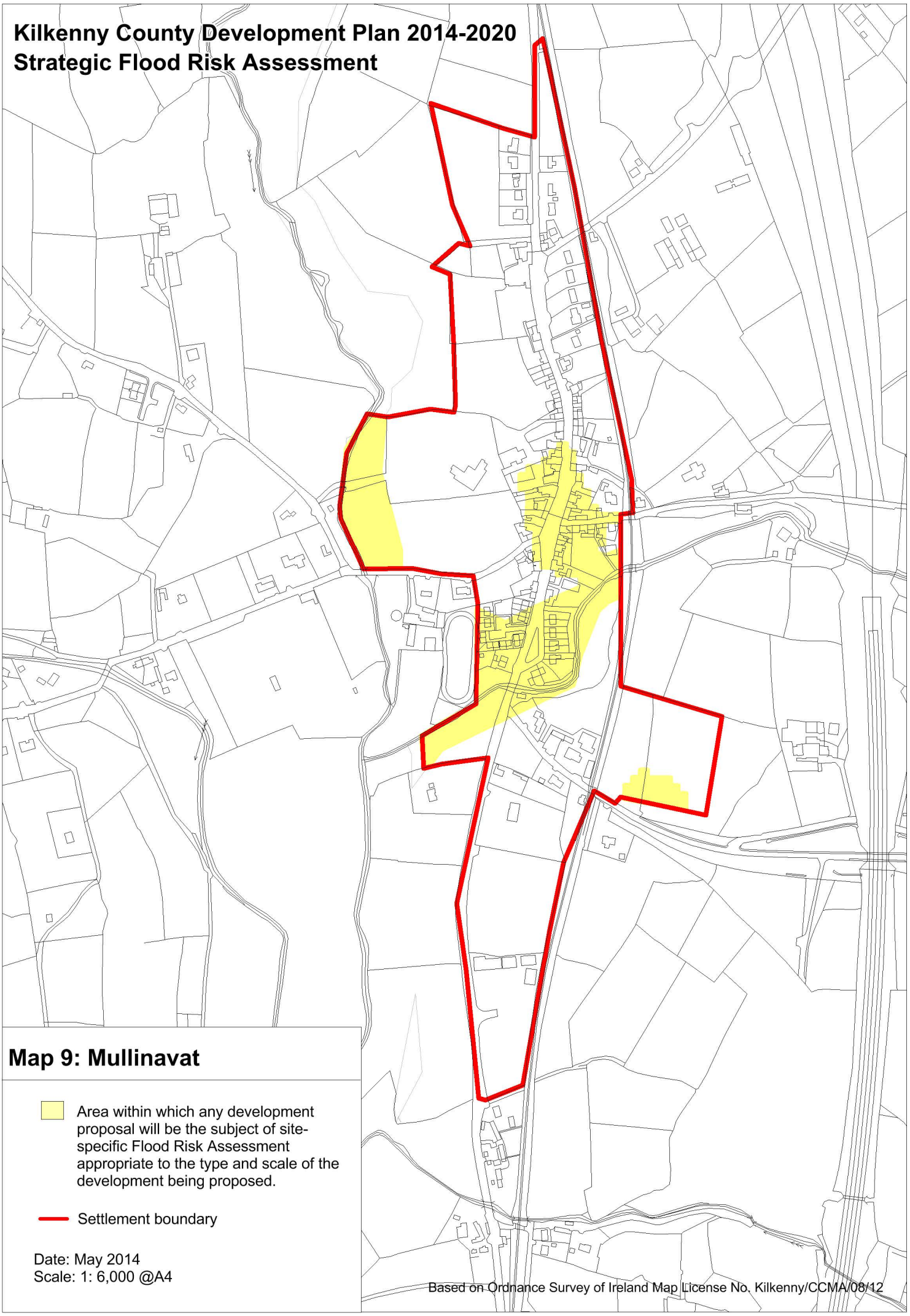
Map 8: Mooncoin

Area within which any development proposal will be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

Settlement boundary

Date: May 2014
Scale: 1: 10,000 @A4

Kilkenny County Development Plan 2014-2020
Strategic Flood Risk Assessment



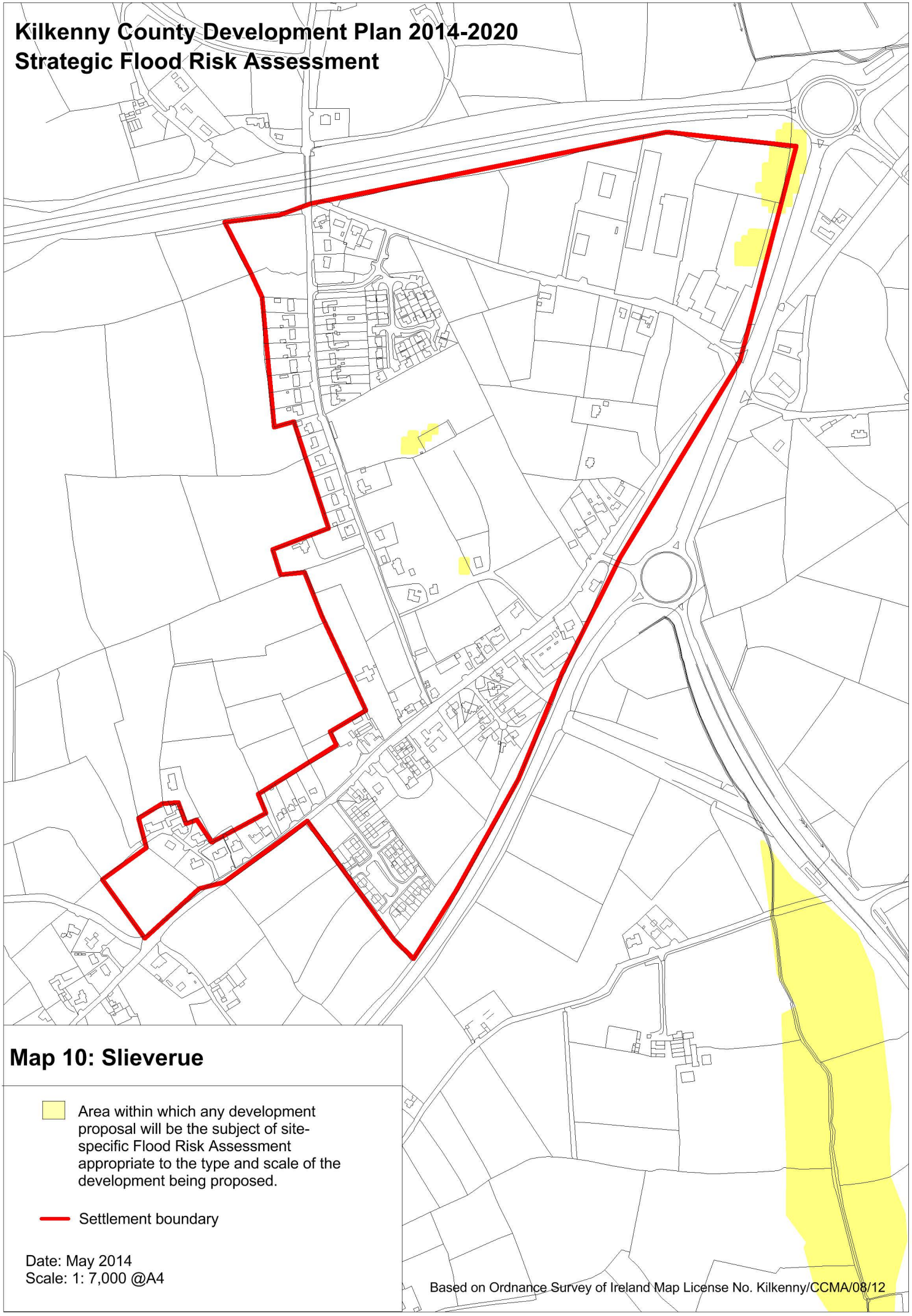
Map 9: Mullinavat

Area within which any development proposal will be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

Settlement boundary

Date: May 2014
Scale: 1: 6,000 @A4

Kilkenny County Development Plan 2014-2020
Strategic Flood Risk Assessment



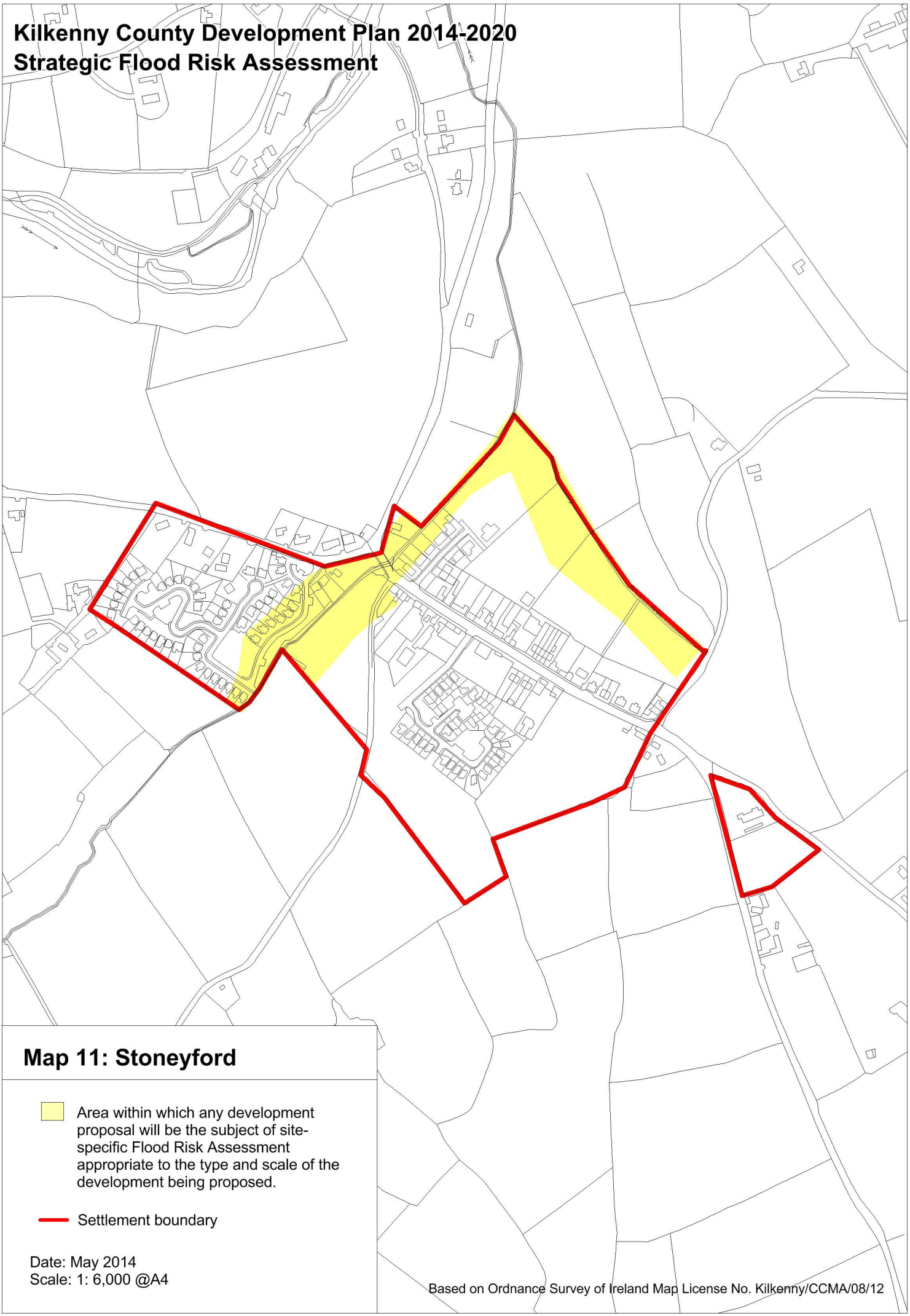
Map 10: Slieverue

Area within which any development proposal will be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

Settlement boundary

Date: May 2014
Scale: 1: 7,000 @A4

Kilkenny County Development Plan 2014-2020
Strategic Flood Risk Assessment



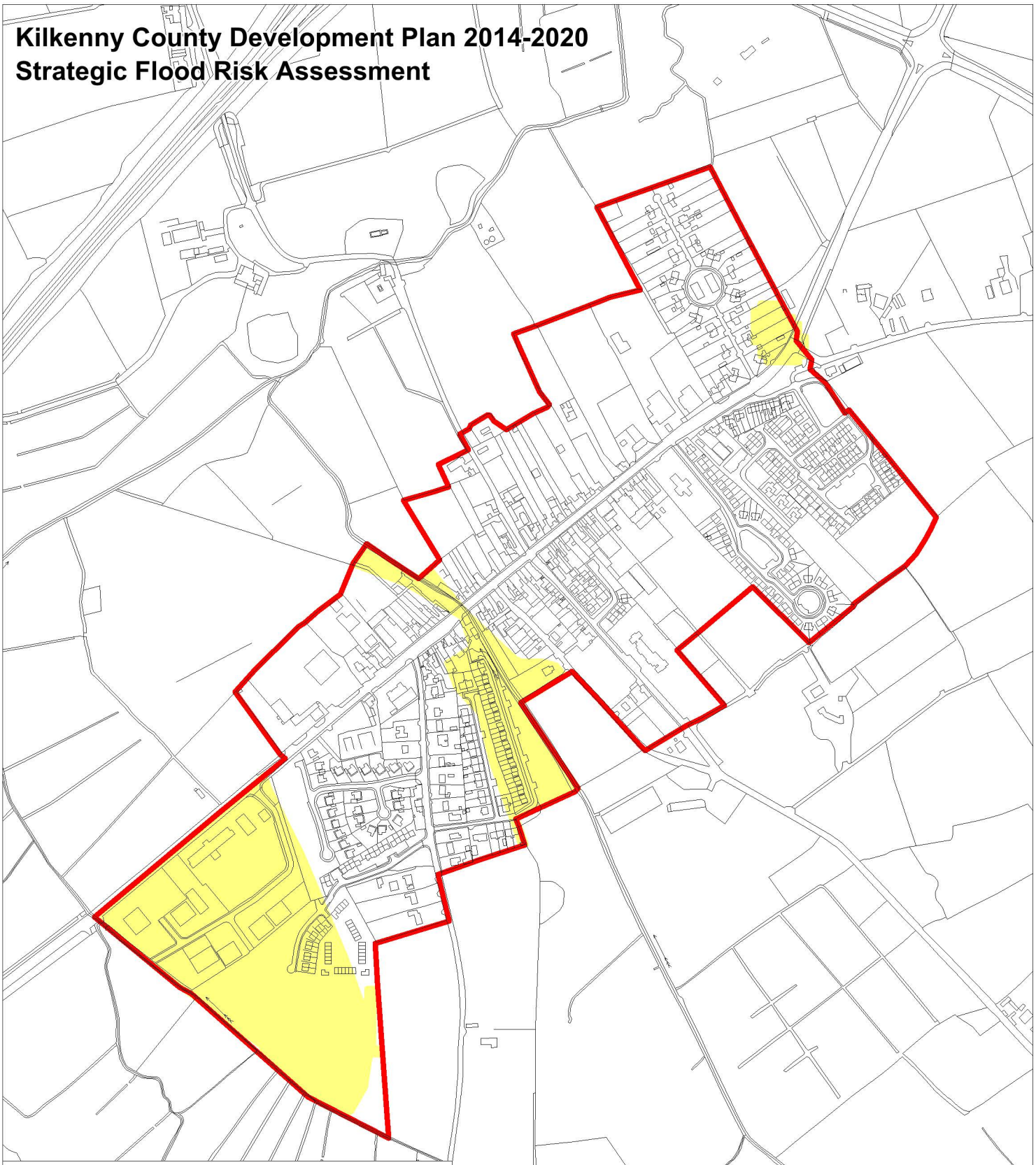
Map 11: Stoneyford

Area within which any development proposal will be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

Settlement boundary

Date: May 2014
Scale: 1: 6,000 @A4

Kilkenny County Development Plan 2014-2020
Strategic Flood Risk Assessment



Map 12: Urlingford

Area within which any development proposal will be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed.

Settlement boundary

Date: May 2014
Scale: 1: 6,000 @A4

Kilkenny County Development Plan 2014-2020
Strategic Flood Risk Assessment
Figure 13a Bennettsbridge
Flood risk areas superimposed on
current Zoning Map (Variation 2, 2011)
(as at April 2013)

- Plan Boundary
- Residential
- Existing Residential
- Village Centre
- Community Facilities
- Open Space
- Phase 2
- Industrial/Employment
- Agricultural
- Flood Zone A
- Flood Zone B
- Area of potential conflict between flood risk and zoning

Date: May 2014
Scale: 1: 6,000 @A3

Kilkenny County Development Plan 2014-2020
Strategic Flood Risk Assessment
Figure 13b Bennettsbridge
Flood risk areas superimposed on
Zoning Map

- Plan Boundary
- Phase 1 Residential
- Existing Residential
- Village Centre
- Community Facilities
- Open Space
- Phase 2
- Industrial/Employment
- Agricultural
- Flood Zone A
- Flood Zone B
- Area of potential conflict between flood risk and zoning

Date: May 2014
Scale: 1: 6,000 @A3

Kilkenny County Development Plan
Strategic Flood Risk Assessment
Figure 14a Kilmacow
Flood Risk Areas superimposed
on Zoning Map as at April 2013

- Plan Boundary
- Existing Residential
- New Residential
- General development
- Community Facilities
- Open Space
- Phase 2
- Rural Conservation Area
- Flood Zone A
- Flood Zone B
- Pluvial flooding
- Area of potential conflict between flood risk and zoning

Date: May 2014
Scale: 1: 9,000 @A3

i
ii
iii
iv

Kilkenny County Development Plan 2014-2020
Strategic Flood Risk Assessment
Figure 14b Kilmacow
Flood Risk Areas superimposed
on Zoning map

- Plan Boundary
- Existing Residential
- Phase 1 Residential
- General development
- Community Facilities
- Open Space
- Phase 2
- Rural Conservation Area
- Flood Zone A
- Flood Zone B
- Pluvial flooding
- Area of potential conflict between flood risk and zoning

Date: May 2014
Scale: 1: 10,000 @A3

i
ii
iii
iv

Kilkenny County Development Plan 2014-2020
Strategic Flood Risk Assessment
Figure 15a: New Ross Environs
Areas of flood risk superimposed on
Zoning map in April 2013 (Variation 2, 2011)

Legend

- Plan Boundary
- Residential
- Mixed Use
- Community Facilities
- Open Space
- Phase 2
- Industrial
- Residential (Low density)
- General Development
- Agricultural
- Flood Zone A
- Flood Zone B
- Pluvial
- Area of potential conflict between zoning and flood risk

Date: May 2914
Scale: 1: 10,000 @A3

Kilkenny County Development Plan 2014-2020
Strategic Flood Risk Assessment
Figure 15b: New Ross Environs
Areas of flood risk superimposed on
Zoning map

i

ii

Legend

- Existing Residential
- Phase 1 Residential
- Mixed Use
- Community Facilities
- Open Space
- Phase 2
- Industrial
- Residential (Low density)
- General Development
- Agricultural
- Flood Zone A
- Flood Zone B
- Pluvial
- Area of potential conflict between zoning and flood risk
- Plan Boundary

Date: May 2014
Scale: 1: 10,000 @A3