

# APPENDIX I - NON TECHNICAL SUMMARY

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## ENVIRONMENTAL REPORT OF THE ATHY TOWN DEVELOPMENT PLAN 2012-2018 STRATEGIC ENVIRONMENTAL ASSESSMENT



**for: Athy Town Council**

Rathstewart  
Athy  
County Kildare



**by: CAAS Ltd.**

2nd Floor, The Courtyard  
25 Great Strand Street  
Dublin 1



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## Section 1 Introduction and Terms of Reference

This is the Non-Technical Summary of the Environmental Report of the Athy Town Development Plan 2012-2018. The purpose of the Environmental Report is to provide a clear understanding of the likely environmental consequences of decisions regarding the future accommodation of growth in Athy.

### **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 and social considerations.

### **Why is it needed?**

The SEA was carried out in order to comply with the provisions of the SEA Regulations and in order to improve planning and environmental management within Athy. The output of the process is an Environmental Report which should be read in conjunction with the Development Plan.

### **How does it work?**

All of the main environmental issues in Athy were assembled and presented to the team who prepared 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 - so that these won't get any worse - 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 plans that are least likely to harm the environment.

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

The Environmental Report contains the following information:

- o A description of the environment and the key environmental issues;
- o A description and assessment of alternatives for the Plan;
- o An assessment of Plan policies and objectives; and,
- o Mitigation measures which will 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 adoption of the Plan a document is 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 and Structure of the Plan

The Development Plan consists of a written statement with accompanying maps. It comprises 14 Chapters as follows:

- Chapters 1 and 2 set out the introduction, strategic context and core strategy for the proper planning and sustainable development of Athy;
- Chapters 3-12 set out detailed policies and objectives under a range of headings which the Town Council will seek to achieve over the six-year life of the Plan e.g. economic development, housing, town centre development, retail, movement and transport, infrastructure, social, community, heritage and the development of opportunity areas;
- Chapter 13 sets out development management objectives and standards to be applied to future development proposals. The purpose of these standards and objectives is to guide and assist the preparation of development proposals and to regulate the impact of development on the environment; and,
- Chapter 14 sets out the land use activities referred to under each zoning objective and indicates the acceptability or otherwise of specified land uses within each zone.
- Appendices to the Plan include the SEA Environmental Report (this report), the Appropriate Assessment, the Strategic Flood Risk Assessment, the Housing Strategy and the Record of Protected Structures.

### 2.2 Interactions with Relevant Policy, Plans or Programmes

#### National Development Plan 2007-2013

The National Development Plan 2007-2013 (NDP) is designed to underpin the development of a dynamic competitive economy over the period 2007 - 2013. It envisages a total investment of €184 billion over 7 years to 'secure the further transformation of our country socially and economically within an environmentally sustainable framework'.

It identifies investment funding for significant projects in sectors such as health services, social housing, education, roads, public transport, rural development, industry, and water and waste services. The NDP is designed to strengthen and improve the international competitiveness of the Country so as to support continued, but more balanced, economic and social development in line with the National Spatial Strategy.

#### National Spatial Strategy 2002-2020

The National Spatial Strategy 2002-2020 (NSS) is a 20-year planning framework for the entire Country to guide policies, programmes and investment. It seeks to promote a better balance of social, economic and physical development between the Regions. The NSS is based on a hierarchy of settlement; Gateways, Hubs and county towns along with the need to support the role of smaller towns, villages and diverse rural economies. Athy is neither a gateway nor hub however, with a population of over 5,000 it will act as a focus for a balanced pattern of growth. Athy will have to compete with higher order cities and towns to secure funding for strategic investment opportunities. Notwithstanding this, the Greater Dublin Area is identified for consolidation and in strategic terms the following issues are of particular importance for Kildare:

- Effective integration of land use and transportation;
- Supporting the region's capacity for innovation;

- Facilitating ease of movement of people and goods; and,
- Maintaining a high quality environment.

### **Sustainable Development: A Strategy for Ireland 1997**

This Strategy provides a framework for the achievement of sustainable development at local level and calls on planning authorities to incorporate the principles of sustainability into Development Plans.

### **Regional Planning Guidelines for the Greater Dublin Area 2010-2022**

Ireland is divided into eight regional forward planning regions, Dublin, Midlands, Mid East, Mid West, South East, South West, West and Border, each with its own regional planning authority composed of Elected Members selected by the constituent local government councils. Regional planning authorities are required, under the Planning and Development Act as amended, to draw up regional planning guidelines (RPGs), long term strategic planning frameworks, for their relevant region. County Kildare is located within the Greater Dublin Area for which the RPGs for the Greater Dublin Area 2010-2022 have been prepared.

### **Transport 21 & Smarter Travel, A Sustainable Transport Future**

*Transport 21* is the capital investment framework for the transport system over the period 2006-2015. It addresses the twin challenges of past investment backlogs and continuing growth in transport demand. *Smarter Travel, A Sustainable Transport Future* is the new transport policy for Ireland for the period 2009-2020. The policy recognises the vital importance of continued investment in transport to ensure an efficient economy and continued social development, but it also sets out the necessary steps to ensure that people choose more sustainable transport modes such as walking, cycling and public transport.

### **Transport Strategy for the Greater Dublin Area**

The Dublin Transportation Office (DTO) 'A Platform for Change 2000-2016' seeks the development of an efficient and high quality system of public transport connections within the Greater Dublin Area. It comprises two independent objectives, namely:

- Infrastructure and service improvements to expand the public transport network, strategic road construction and traffic management.
- Demand management to reduce the growth in private travel through the application of land use and other policies while maintaining economic progress.

### **South Eastern River Basin Management Plan**

The Water Framework Directive was adopted in 2000 and requires the preparation of a management plan for all waters in an area called a River Basin District. Athy is located in the South Eastern River Basin District. The Directive's main aim is to maintain all water bodies, rivers, lakes, groundwater and estuaries at high status, to prevent deterioration in the existing status of water, and to achieve at least "good status" in relation to all waters by 2015. The River Basin Management Plan describes in detail the status of all waters and protected areas. A programme of measures will be put in place to provide the works necessary to bring water bodies to good quality status. These measures have informed the preparation of this Plan.

### **Kildare County Development Plan 2011-2017**

The Kildare County Development Plan 2011-2017 has been prepared having regard to the NSS, the RPGs and various Government guidelines. It sets out the context for future development in County Kildare and includes a core strategy, development objectives, a settlement hierarchy, and policies for the protection of the environment.

The settlement strategy for County Kildare ranks settlements from large growth towns to moderate sustainable growth towns consistent with the Regional Planning Guidelines 2012-2022.

Arising from the County Development Plan 2011-2017, the following strategic considerations have informed the preparation of the Plan:

- Athy is to plan for a potential population growth of 2,736 between 2006 and 2018, equating to 1,252 residential units;

- Athy is identified as a secondary economic growth centre providing an important and complementary role in developing economic growth and sectoral interests in tandem with the primary economic growth towns; and,
- Development of sectoral strengths will be promoted comprising high value-added manufacturing and internationally traded sectors in tandem with IDA support around transport corridors and routes such as the rail station supported by continued investment in education and skills development.

### **Athy Integrated Framework Plan for Landuse and Transportation**

In 2004 Kildare County Council and Athy Town Council, in conjunction with the Dublin Transportation Office, prepared an Integrated Framework Plan for Land Use and Transportation for Athy (IFPLUT Study). The purpose of this Integrated Framework Plan is to integrate the strategic and coordinated planning of land use and transport up to 2016 and beyond. The IFPLUT Study has a timeframe until 2020, and will complement the Development Plan for Athy. It sets down the principles for future development, guiding the level, scale and location of development within the wider area of Athy, to provide for a quality living environment.

### **Environmental Protection Objectives**

The Plan is subject to a number of high level national, international and regional environmental protection policies and objectives, including those which have been identified as Strategic Environmental Objectives in Section 3.11.

Examples of Environmental Protection Objectives include the aim of the EU Habitats Directive - which is to contribute towards ensuring biodiversity through the conservation of natural habitats and of wild fauna and flora in the European territory of Member States - and the purpose of the Water Framework Directive - which is to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater which, among other things, prevents deterioration in the status of all water bodies and protects, enhances and restores all waters with the aim of achieving good status by 2015.

The Plan must be consistent with these objectives and implement them in Athy.

## Section 3 The Environmental Baseline

### 3.1 Introduction

The environmental baseline of Athy is described in this section. This baseline together with the Strategic Environmental Objectives, which are outlined in Section 4, is used in order to identify, describe and evaluate the likely significant environmental effects of implementing the Town Development Plan and in order to determine appropriate monitoring measures.

The environmental baseline is described in line with the legislative requirements encompassing the following components – biodiversity, flora and fauna, population, human health, soil, water, air and climatic factors, material assets, cultural heritage, landscape and the interrelationship between these components. A description is also included of the likely effects upon each environmental component under a do-nothing scenario i.e. the likely evolution of the environment without the implementation of the Town Development Plan.

### 3.2 Biodiversity and Flora and Fauna

#### 3.2.1 Introduction

Athy Town supports a wide diversity of natural and semi-natural habitats and a wide range of plant and animal species. Green space, namely the agricultural lands in the Town's Environs, makes up a large part of the Plan area. This open space consists of a variety of habitats and corridors which provide for the movement of wildlife. This green space is clearly visible on the aerial photo (Figure 3.1) below. The Town falls into the catchment of the River Barrow. The Grand Canal also runs through the west of the Plan area. These rivers and their associated tributaries and small lakes support good areas of biodiversity.

#### 3.2.2 CORINE Land Cover Mapping<sup>1</sup>

The most common CORINE<sup>2</sup> land cover in Athy is *Discontinuous Urban Fabric* and *Non-Irrigated Arable Land* of which there are roughly equal amounts. This is followed by *Pastures* which occur along the banks of the River Barrow and the south west of the Plan area.

#### 3.2.3 Ecological Networks

Ecological networks are composed of linear features, such as treelines, hedgerows, rivers and streams, which provide corridors or stepping stones for wildlife species moving within their normal range. They are particularly important for mammals, especially for bats and small birds. Key ecological corridors within the Town include the River Barrow, the Grand Canal, the Cloggorrow Stream, the railway line and the various hedgerows within the Plan area. Open space includes one neighbourhood park, two local parks and small areas of amenity green-space throughout the residential areas of the Town as well as the large amount of agricultural land outside of the Town.

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<sup>1</sup> European Environment Agency Coordination of Information on the Environment (2004) *Ireland's Corine Land Cover 2000 (CLC2000)* Copenhagen: EEA

<sup>2</sup> CORINE Land Cover (CLC) is a map of the European environmental landscape based on interpretation of satellite images. Land cover is the observed physical cover, as seen from the ground or through remote sensing, including for example natural or planted vegetation, water and human constructions which cover the earth's surface. Because of the scale of the CORINE data and the method by which it was collected there are likely to be a number of inaccuracies at the local level. It is noted, however, that the land cover shown on the maps is generally accurate. The European Environment Agency, in conjunction with the European Space Agency, the European Commission and member countries is currently updating the CORINE land cover database.

## 3.2.4 Designations

### 3.2.4.1 Introduction

Figure 3.2 maps the designated ecological sites<sup>3</sup> in Athy. These are the River Barrow and River Nore candidate Special Area of Conservation and the Grand Canal Proposed Natural Heritage Area.

### 3.2.4.2 Candidate Special Areas of Conservation

Candidate Special Areas of Conservation (cSACs) have been selected for protection under the European Council Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC), referred to as the Habitats Directive, by the Department of the Environment, Heritage and Local Government due to their conservation value for habitats and species of importance in the European Union. The sites are *candidate* sites because they are currently under consideration by the Commission of the European Union. The Habitats Directive seeks to establish Natura 2000, a network of protected areas throughout the EU. It is the responsibility of each member state to designate SACs to protect habitats and species, which, together with the SPAs designated under the 1979 Birds Directive, form Natura 2000.

### 3.2.4.3 Natural Heritage Areas

Natural Heritage Areas (NHAs) are designated due to their national conservation value for ecological and/or geological/geomorphological heritage. They cover nationally important semi-natural and natural habitats, landforms or geomorphological features, wildlife plant and animal species or a diversity of these natural attributes. NHAs are designated under the Wildlife (Amendment) Act 2000. Proposed NHAs were published on a non-statutory basis in 1995, but have not since been statutorily proposed or designated.

### 3.2.4.4 Register of Protected Areas

In response to the requirements of the Water Framework Directive, a number of water bodies, or parts of water bodies, which must have extra controls on their quality by virtue of how their waters are used by people and by wildlife, have been listed on Registers of Protected Areas (RPAs) (see Section 3.5.6 and Figure 3.9). The River Barrow is included on the Register as a Water Dependent Habitat.

## 3.2.5 Existing Biodiversity and Flora and Fauna Problems

Changes in land cover indicated by the CORINE data indicate that semi natural areas within the Town have been replaced by uses which generally include impermeable surfaces. These changes are likely to result in losses of biodiversity and flora and fauna.

Aquatic flora and fauna is vulnerable to all forms of pollution. Any existing problems with regard to surface water quality in the Town (see Section 3.5) are likely to be impacting upon aquatic biodiversity and flora and fauna.

With regard to terrestrial flora and fauna, all greenfield development in the area will cause an impact - the replacement of natural and semi natural habitats with artificial surfaces results in loss of flora and fauna and therefore adversely impacts upon this environmental component.

## 3.2.6 Evolution of Biodiversity and Flora and Fauna in the absence of the Plan

In the absence of a Development Plan, development would have no guidance as to where to be directed and planning applications would be assessed on an individual basis with flora and fauna, habitats and ecological connectivity protected under a number of strategic actions relating to

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<sup>3</sup> Site Synopses for SPAs, cSACs and NHAs are available from the National Parks and Wildlife Service at [www.npws.ie](http://www.npws.ie)

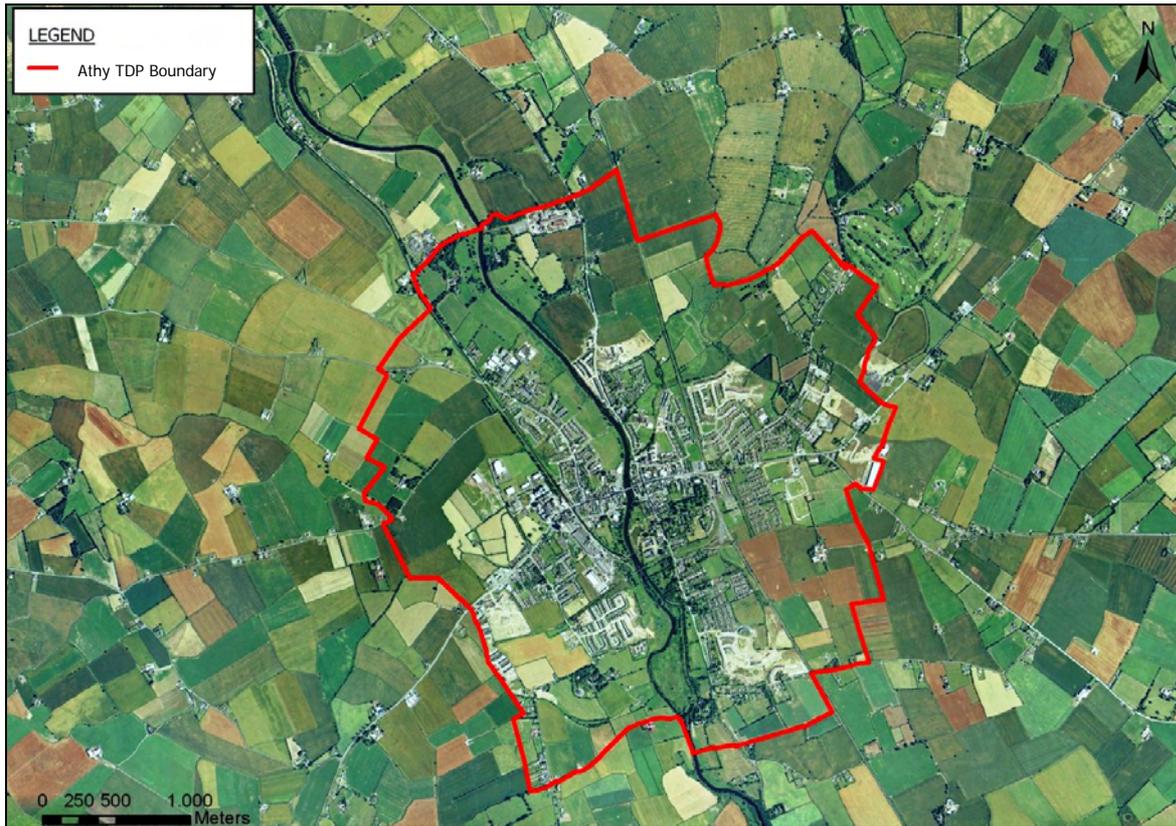
biodiversity and flora and fauna protection. The evolution of biodiversity and flora and fauna would be dependent on the rate and extent of developments which would take place.

In the absence of a Development Plan there would not be an integration of the ecological protection measures required by the Habitats Directive with the planning or development management of vulnerable areas. Therefore, it is likely that there would be less effective protection of ecological resources in the absence of a Plan.

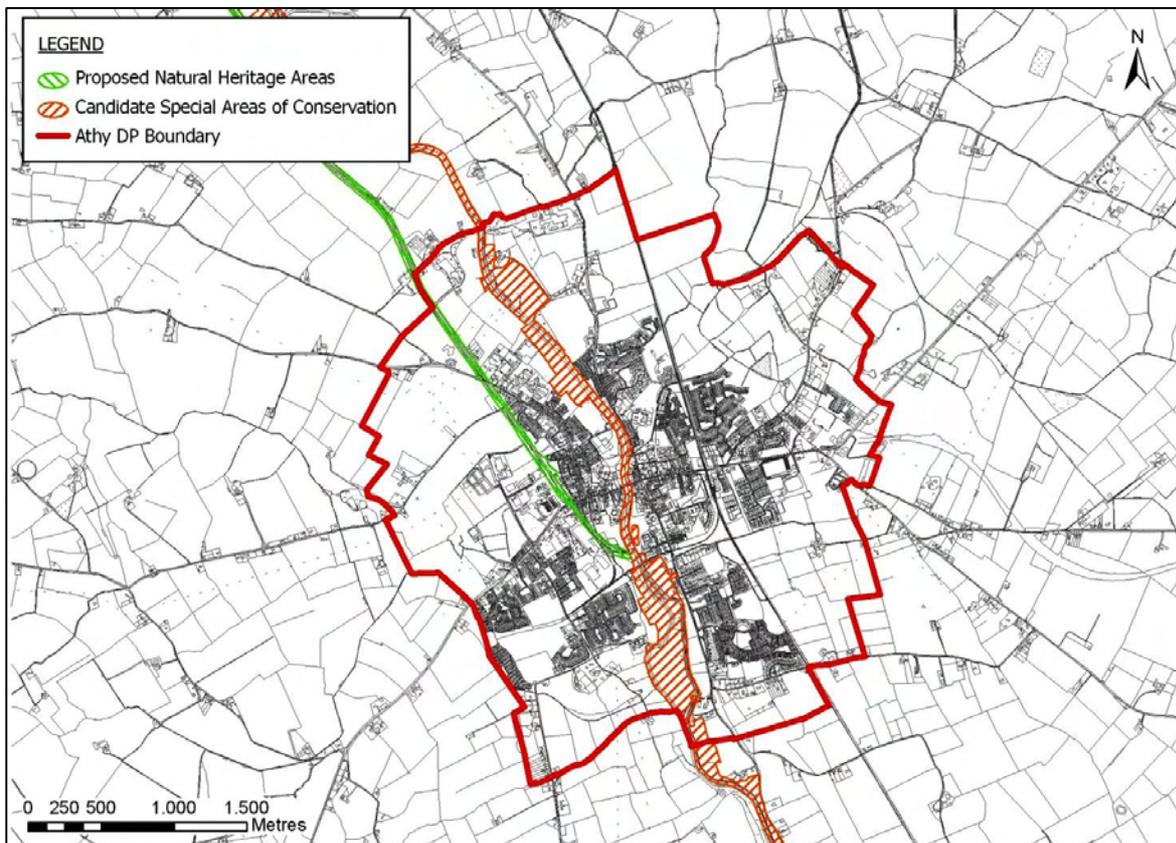
Pollution of water bodies as a result of any poorly planned future development would be likely to adversely impact upon aquatic biodiversity and flora and fauna including salmonid species and other species protected under Annex II of the Habitats Directive. Weakly controlled development along or adjacent to the banks of rivers could result in a reduction in ecological connectivity within and between these and other habitats.

Climate change has the potential to result in the loss of habitats - including those designated as SACs and SPAs - through rising sea levels and increased levels of surface run-off. Some of the coastal habitats which are important to bird populations could eventually be inundated. Increased precipitation may disrupt the salinity gradients within estuarine systems and, coupled with likely increased sedimentation, disrupt spawning and nursery grounds as well as shellfish production and quality in such areas.

In the absence of a Development Plan, any greenfield development would adversely impact upon biodiversity and flora and fauna by replacing natural or semi natural habitats with artificial surfaces. The significance of such impacts would be dependent on whether such developments would result in the loss of habitats or species of importance as well as the cumulative loss and fragmentation of habitats and species as a result of all greenfield developments. It is noted that development of brownfield sites and re-development could also have impacts on terrestrial flora and fauna.



**Figure 3.1 Aerial Photo of Plan area**  
Source: Kildare County Council (Unknown)



**Figure 3.2 cSAC and pNHA in the Athy Plan area**  
Source: NPWS (datasets downloaded Oct. 2010)

## 3.3 Population and Human Health

### 3.3.1 Population<sup>4</sup>

Figure 3.3<sup>5</sup> maps the population of the Town at the most recent (2006) Census. The population of the Plan area stood at 7,943 in 2006, with the main concentration occurring in the Town Centre.

The population in 2006 rose from 5,308 in 1996 representing a 50% increase for the 10 year period. The national population increase was 17% for the same decade.

While most of the population resides in the Town Centre, the Environs experienced increases of 40-80% between 1996 and 2006. The Town Centre experienced an increase of 1-10% over the same period. Much of the growth took place between 2002 and 2006 when the environs of Athy experienced growth of between 50-70%. Population in the west of the Town Centre grew between 20-40% while the east of the Town Centre increased by 8-15%.

Population density within the Town Centre was 1001-2000 persons/km<sup>2</sup> in 2006. Density in the remainder of the Plan area and the environs stood at 20-100 persons/km<sup>2</sup>.

The Preliminary Census Results for 2011 records a population of 9,588 in Athy Town representing an increase of 20.7% since 2006.

### 3.3.2 Human Health

Human health has the potential to be impacted upon by environmental vectors (i.e. environmental components such as air, water or soil through which contaminants or pollutants, which have the potential to cause harm, can be transported so that they come into contact with human beings). Hazards or nuisances to human health can arise as a result of exposure to these vectors arising from incompatible adjacent land uses for example. These factors have been considered with regard to the description of the baseline of each environmental component and the identification and evaluation of the likely significant environmental effects of implementing the Plan and the alternatives.

### 3.3.3 Existing Problems

Although air quality in the Town meets current standards, traffic "hotspots" located along the main roads especially at intersections can give rise to a harsh sensory environment which may impact upon human health (see also Section 3.7.3).

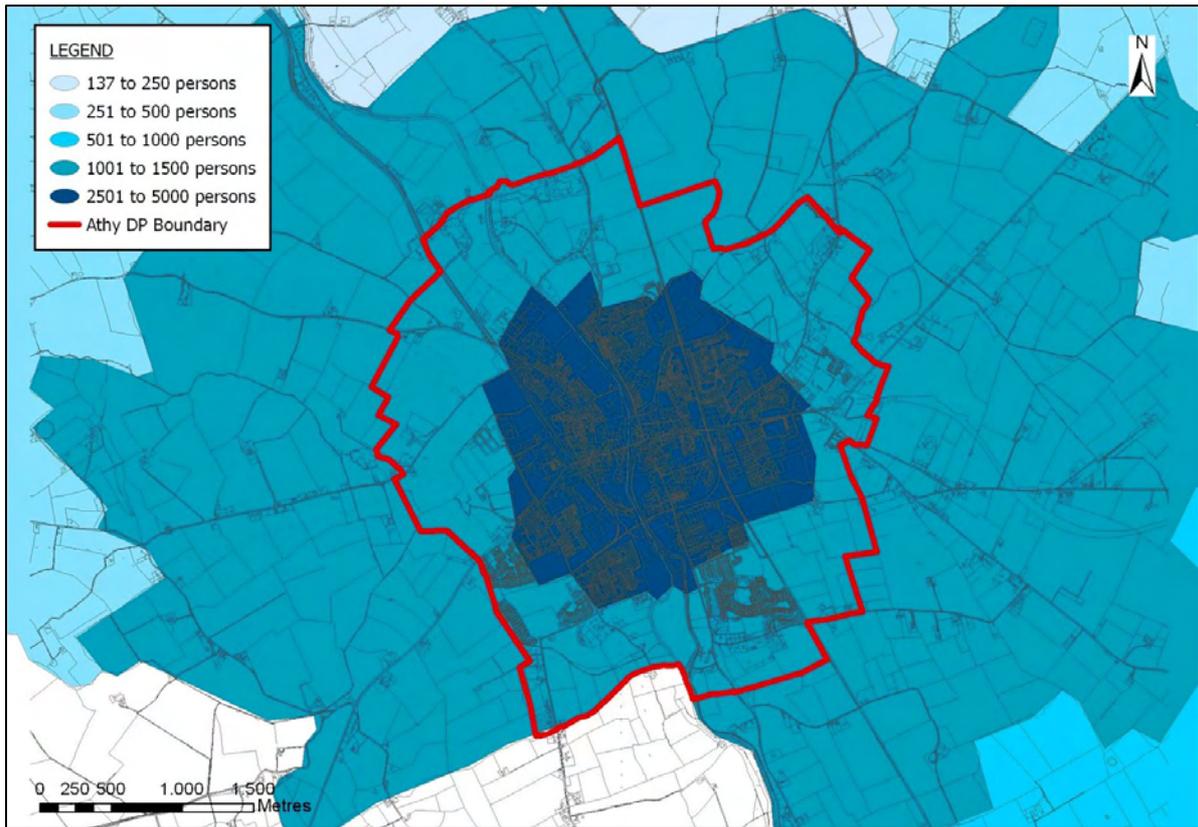
### 3.3.4 Evolution of Population and Human Health in the absence of the Plan

In the absence of a Development Plan there would be no framework for the provision of infrastructure to serve existing and future development. This could delay or hinder the provision of infrastructure and result in impacts on environmental vectors to which humans are exposed. For example, a lack of appropriate waste water treatment infrastructure could adversely impact upon drinking water quality and subsequently upon human health.

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<sup>4</sup> CSO (various) *Census 2006 Volume 1 - Population Classified by Area; Census 2002 Volume 1 - Population Classified by Area; Census 1996 Volume 1 - Population Classified by Area* Cork: CSO.

<sup>5</sup> It is noted that there appears to be data missing to the south east of the Plan area – this area falls with Laois County Council.



**Figure 3.3 Population of Athy 2006**  
Source: CSO (2007)



**Figure 3.4 Population Change in the Town 2002-2006**  
Source: CSO (2007)

## 3.4 Soil

### 3.4.1 Introduction

Soil is the top layer of the earth's crust. It is formed by mineral particles, organic matter, water, air and living organisms. Soil can be considered as a non-renewable natural resource because it develops over very long timescales. Such functions of soil are worthy of protection because of their socio-economic as well as environmental importance. Soils in any area are the result of the interaction of various factors, such as parent material, climate, vegetation and human action.

To date, there is no legislation which is specific to the protection of soil resources. However, there is currently an EU Thematic Strategy on the protection of soil which includes a proposal for a Soil Framework Directive which proposes common principles for protecting soils across the EU.

### 3.4.2 Soil Types<sup>6</sup>

Soil types, as classified by Teagasc in co-operation with the Forest Service, EPA and GSI, are mapped on Figure 3.5.

Much of the Plan area consists of basic mineral soil with shallow well drained basic mineral soil comprising the majority. An area of mineral alluvium runs alongside the Barrow and the Clogorow Bog Stream indicating potential flood risk areas (see Section 3.5.7).

Subsoils in the Plan area consist mainly of limestone sands and gravels and limestone till.

Figure 3.6 maps "soil sealing" in the Town. This map indicates lands that have been built upon, thus sealing off the soil. Urbanised areas within the Town are clearly seen.

### 3.4.3 Geology, Quarries and Minerals

The underlying geology of Athy is mapped on Figure 3.7. The east of the Plan area is underlain with fossiliferous dark-grey muddy limestone while peloidal calcarenitic limestone exists in the west. Beyond that, bedrock comprises Crinoidal wackestone/packstone limestone.

Within the Plan area boundary, there are three mineral location sites, five sites lay outside of the Plan boundary. All of these are to the north west of the Town.

### 3.4.4 Existing Problems

Land cover differences between the CORINE data (see Section 3.2.2) indicate that agricultural lands within the Plan area are being replaced by urban areas - this is likely to be resulting sealing off of soil resources.

Certain parts of the Town are not within the catchment of waste water treatment networks and consequently development in these areas uses septic tanks systems to treat waste water arising - it is likely that local pollution of soil is occurring in certain areas as a result of poorly maintained systems.

Greenfield development involves the building upon and thereby sealing off of soil thus representing an environmental problem.

Soil has the potential to be polluted and contaminated as a result of pollution from agricultural sources.

The Local Authority has identified three areas in Athy which were formerly used as dumps, asbestos is known to exist at these sites. These sites are at Greenhills, Tonlegee Lawns (Kilkenny Rd) and an area

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<sup>6</sup> Teagasc, GSI, Forest Service & EPA (2006) *Soils and Subsoils Class* Dublin: DEHLG

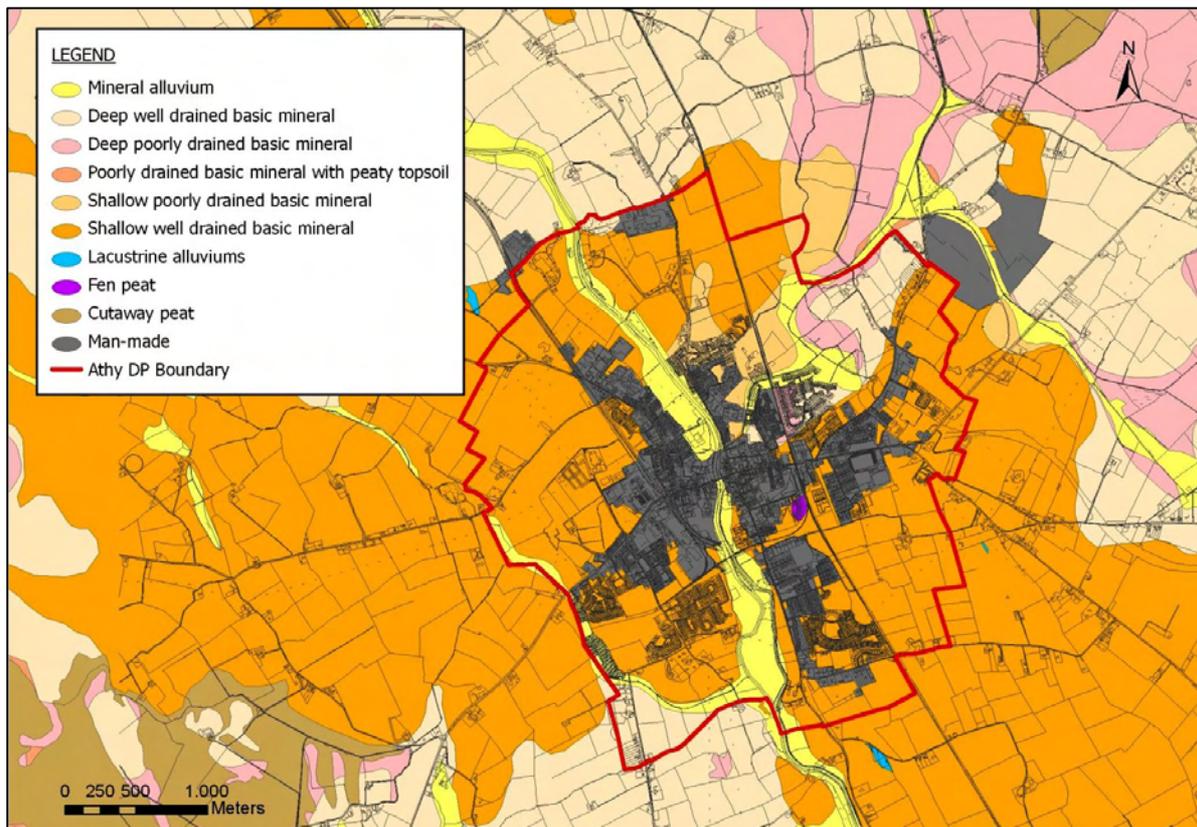
along the old railway line crossing the Carlow Rd. Mapping was not available at the time of writing this report. The exact boundaries of these sites are uncertain.

### 3.4.5 Evolution of Soil in the absence of the Plan

In the absence of the Development Plan, the evolution of soil would be dependent on developments which take place.

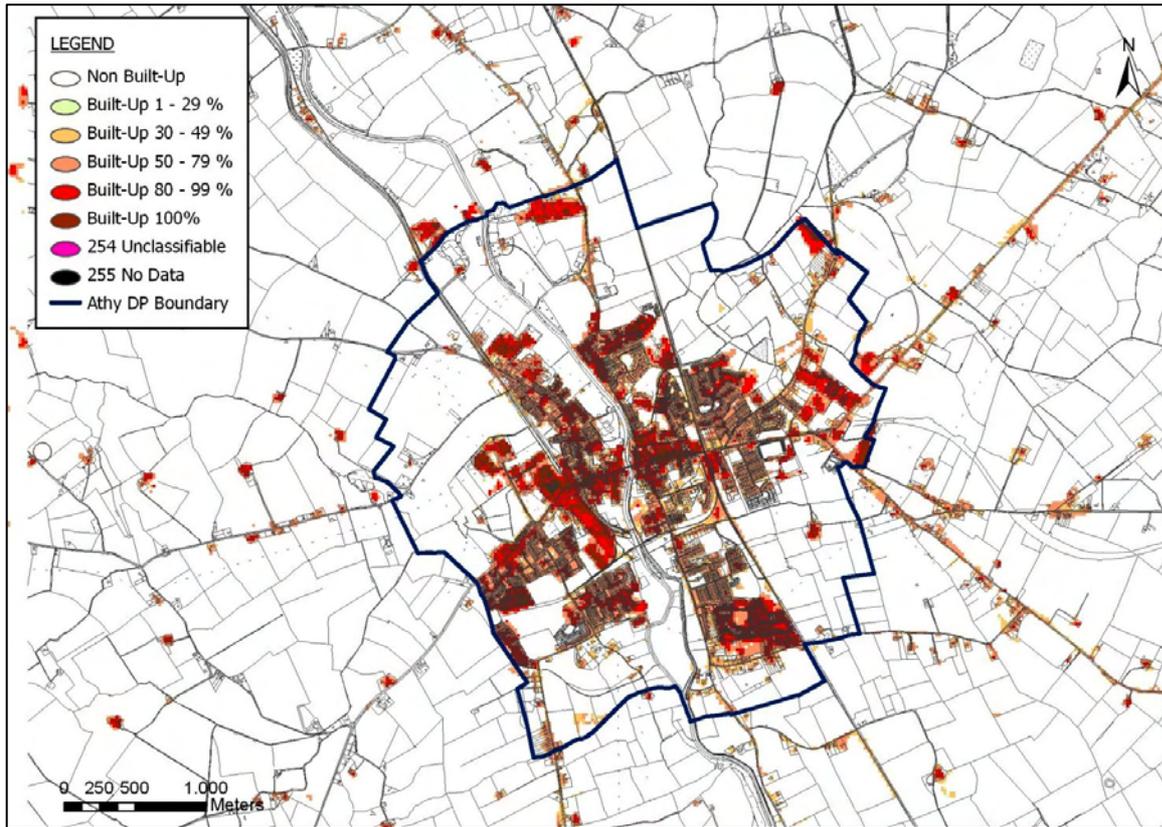
The currently proposed Soil Directive suggests encouraging the rehabilitation of brownfield sites, thus reducing the depletion of greenfield sites. However, in the absence of Plan, there would be no framework for the direction of growth towards brownfield sites, where such direction is appropriate. As a result greenfield development would be likely to occur on an increased basis and would result in the building upon and thereby sealing off of the non-renewable subsoil and soil resources.

In the absence of a Plan, there would be no framework for the provision of infrastructure - such as that relating to waste water treatment - to serve existing and future development and therefore soil would have the potential to be polluted and contaminated as a result of pollution from development which is not serviced by appropriate waste water infrastructure.

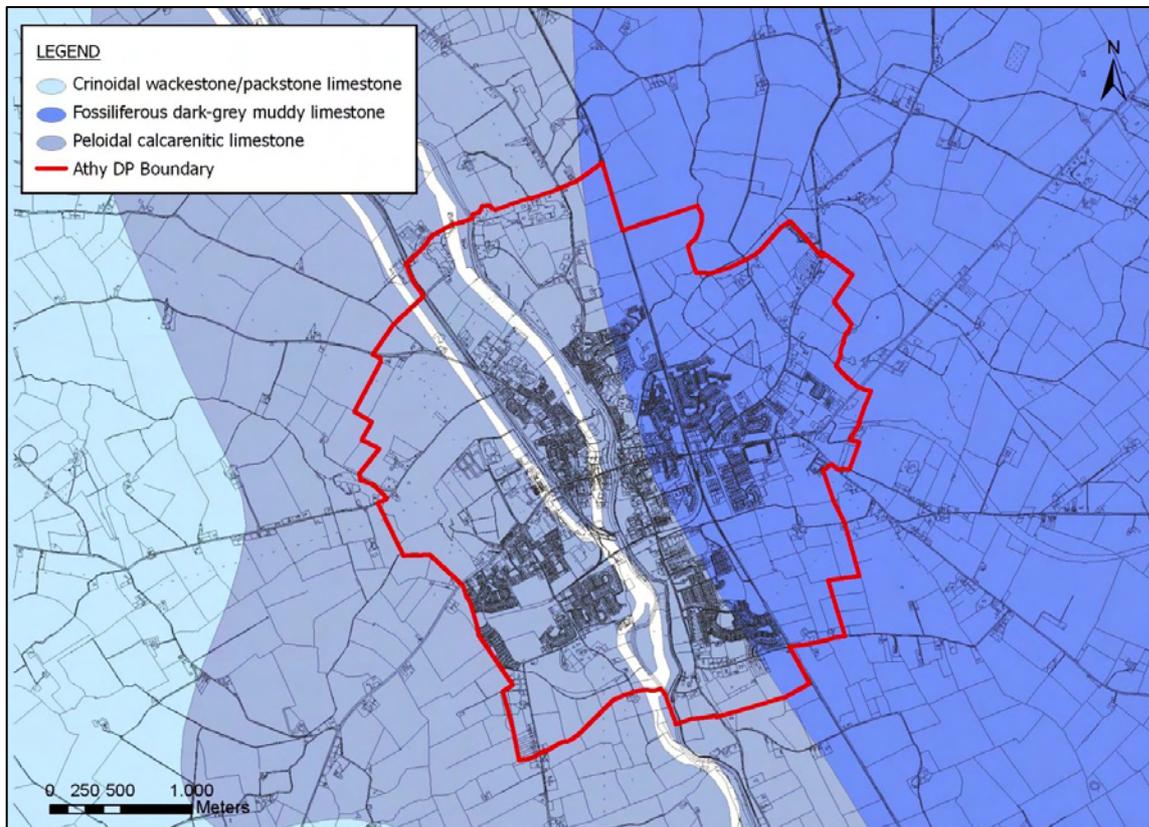


**Figure 3.5 Soil Types**

Source: Teagasc in co-operation with the Forest Service, EPA and GSI (2006)



**Figure 3.6 Soil Sealing**  
Source: EPA (2009)



**Figure 3.7 Geology**  
Source: GSI (2005)

## **3.5 Water**

### **3.5.1 Introduction**

Water within and surrounding the Town has many functions: it provides drinking water to the area's population; it sustains the biodiversity and flora and fauna described under Section 3.2; it provides amenity; and, it is an integral part of the landscape.

### **3.5.2 Potential Pressures on Water Quality**

Human activities, if not properly managed, can cause deterioration in water quality. Pressures exerted by human activities include the following:

- sewage and other effluents discharged to waters from point sources, e.g. pipes from treatment plants;
- discharges arising from diffuse or dispersed activities on land;
- abstractions from waters; and,
- structural alterations to water bodies.

### **3.5.3 The Water Framework Directive**

#### **3.5.3.1 Introduction and Requirements**

Since 2000, Water Management in the EU has been directed by the Water Framework Directive 2000/60/EC (WFD). The WFD requires that all Member States implement the necessary measures to prevent deterioration of the status of all waters - surface, ground, estuarine and coastal - and protect, enhance and restore all waters with the aim of achieving "good status" by 2015. All public bodies are required to coordinate their policies and operations so as to maintain the good status of water bodies which are currently unpolluted and improve polluted water bodies to good status by 2015.

#### **3.5.3.2 River Basin Districts and Water Bodies**

For the purpose of implementing the WFD, Ireland has been divided into eight river basin districts or areas of land that are drained by a large river or number of rivers and the adjacent estuarine / coastal areas. The management of water resources will be on these river basin districts. Athy falls within the South Eastern River Basin District (RBD). Within each river basin district - for the purpose of assessment, reporting and management - water has been divided into groundwater, rivers, lakes, estuarine waters and coastal waters which are in turn divided into specific, clearly defined water bodies.

The Local Authorities located in the RBDs have prepared River Basin Management Plans (RBMPs) which are due to be adopted in the coming months. The Management Plans provide objectives for river basins in order to implement the requirements of the WFD to help protect and improve all waters in the RBDs.

### **3.5.4 Surface Water**

#### **3.5.4.1 EPA Monitoring**

Surface water in the Plan area is made up of the River Barrow, the Clogorow Stream and the Grand Canal. Water quality in the Plan area is no longer monitored by the EPA. The most recent water quality data is mapped on Figure 3.8. Within the Town, there is one old monitoring point with another existing to the east of the Plan area. Downstream of this, there is a monitoring point where quality is Q3-4. The River Barrow is monitored upstream of the Town outside of the Plan area, water quality is Q3-4 moderate status.

The Barrow Main Water Management Unit Action Plan (drawn up as part of the RBMP) identifies the upper reaches of the Clogorow Stream as being heavily silted and weedy and the lower reaches as being heavily calcified. A study carried out as part of the Action Plan didn't identify any sensitive species at either the upper or lower part of the stream. It also cites eutrophication as a problem on the Barrow.

#### **3.5.4.2 WFD Surface Water Status**

The WFD defines "surface water status" as the general expression of the status of a body of surface water, determined by the poorer of its ecological status and its chemical status. Thus, to achieve "good surface water status" both the ecological status and the chemical status of a surface water body need to be at least "good". Generally, surface water in the Town is of good status with an area of moderate status in the north west of the Plan area.

### **3.5.5 Ground Water**

#### **3.5.5.1 Introduction**

Groundwater is stored in the void spaces in underground layers of rock, or aquifers. These aquifers are permeable, allowing both the infiltration of water from the soils above them and the yielding of water to surface and coastal waters. Groundwater is the part of the subsurface water that is in the saturated zone - the zone below the water table, the uppermost level of saturation in an aquifer at which the pressure is atmospheric, in which all pores and fissures are full of water.

#### **3.5.5.2 EPA Groundwater Quality**

The EPA national groundwater-monitoring network includes sampling at some locations that are used for the abstraction of drinking water. Mean Phosphate Concentration, Mean Nitrate Concentration and Maximum Faecal Coliform are measured at Townparks (site code: 09\_001).

#### **3.5.5.3 WFD Groundwater Status**

For groundwater bodies, the approach to classification is different from that for surface water. For each body of groundwater, both the chemical status and the quantitative must be determined. Both have to be classed as either "good" or "poor". The WFD sets out a series of criteria that must be met for a body to be classed as good chemical and quantitative status. Groundwater within and surrounding the Plan area is of Good Status.

#### **3.5.5.4 Groundwater Protection Schemes**

Groundwater Protection Schemes are county-based projects that are undertaken jointly between the GSI and the respective Local Authority. Groundwater sources, particularly public, group scheme and industrial supplies, are of critical importance in many regions. Consequently, the objective of source protection zones is to provide protection by placing tighter controls on activities within all or part of the zone of contribution (ZOC) of the source. A Groundwater Protection Scheme has been carried out for the County. Part of the east of the Town is a Source Protection area.

#### **3.5.5.5 Aquifer Vulnerability**

The Geological Survey of Ireland (GSI) rates aquifers according to their vulnerability to pollution. Aquifer vulnerability refers to the ease with which pollutants of various kinds can enter underground water. The vast majority of the Town is underlain by moderately to highly vulnerable aquifers. Along the western boundary, there are areas of extreme vulnerability with small areas of surface rock or Karst existing within them.

#### **3.5.5.6 Aquifer Productivity**

The GSI rates aquifers based on the hydrogeological characteristics and on the value of the groundwater resource. Ireland's entire land surface is divided into nine aquifer categories, two of which occur in Athy Town. The east of the Plan area is underlain by a locally important sand/gravel aquifer. These types of aquifers are capable of yielding enough water to boreholes or springs to supply domestic, commercial and industrial uses, depending on the nature and scale of the

development. The west of the Plan area is underlain by a regionally important karstified aquifer-dominated by diffuse flow.

### **3.5.6 Register of Protected Areas**

The WFD requires that Registers of Protected Areas (RPAs) are compiled for a number water bodies or part of water bodies which must have extra controls on their quality by virtue of how their waters are used by people and by wildlife.

The WFD requires that these RPAs contain: areas from which waters are taken for public or private water supply schemes; designated shellfish production areas; bathing waters; areas which are affected by high levels of substances most commonly found in fertilizers, animal and human wastes - these areas are considered nutrient sensitive; areas designated for the protection of habitats or species e.g. salmonid areas; Special Areas of Conservation (SACs); and, Special Protection Areas (SPAs).

All groundwater underlying the Town is listed on the RPA for Drinking Water Groundwater. The River Barrow is listed on the RPA as it is a cSAC. It is also listed as a nutrient sensitive river. These are mapped on Figure 3.9.

### **3.5.7 Flooding**

#### **3.5.7.1 Introduction**

Flooding is an environmental phenomenon which, as well have causing economic and social impacts, could in certain circumstances pose a risk to human health. Athy Town is vulnerable to adverse effects which are exacerbated by changes in the occurrence of severe rainfall events, high tides and associated flooding of the Town's rivers. Local conditions such as low-lying lands and inadequate surface water drainage increase the risk of flooding. The risk of flooding has also been increased in the past by human actions including the clearing of vegetation to make way for agriculture, draining of bog and wetland areas and the development of settlements in the flood plains of rivers. Infrastructural development, culverting, forestry operations and all urban development in the floodplain present ongoing flooding hazards. Increased surface water runoff due to construction of new hard surfaced areas is now generally not as significant a problem as it was in the past in terms of its impact on peak flows because of the implementation of Sustainable Urban Drainage Systems (SUDS).

#### **3.5.7.2 EU Floods Directive**

European Directive 2007/60/EC on the assessment and management of flood risks requires Member States to carry out a preliminary assessment by 2011 in order to identify the river basins and associated coastal areas at risk of flooding. For such zones, flood risk maps are required to be drawn up by 2013. Flood risk management plans focused on prevention, protection and preparedness must be established by 2015. The OPW is currently involved in a research project to develop maps with national coverage indicating areas that might be prone to flooding from rivers and streams. Further work is underway to refine the method and outputs, which, if successful, may enable this information to be made available in the near future.

#### **3.5.7.3 DEHLG Flood Risk Management Guidelines**

In November 2009 the DEHLG published *The Planning System and Flood Risk Management Guidelines* for Planning Authorities. These are aimed at ensuring a more consistent, rigorous and systematic approach which will fully incorporate flood risk assessment and management into the planning system. Planning authorities are required to undertake flood risk identification, assessment and management processes as appropriate when preparing or varying development plans and local area plans and in consideration of applications for planning permission.

### **3.5.7.4 OPW's National Flood Hazard Mapping**

Figure 3.10 maps the locations of the most significant flooding events in the Plan area - accessible from the OPW's National Flood Hazard Mapping website. Flood events and flood extents are recorded at various locations along the Town's rivers.

Large scale changes in the Town which could significantly influence flood risk and increase the magnitude and occurrence of flooding in the future may include:

- Climate changes resulting in increased river flows and rising sea levels;
- Large scale land use changes such as increased afforestation and associated clear-cutting, changes in agricultural land use and drainage of upland wetlands;
- Urban development increasing the speed and volume of run-off; and
- Changes to geomorphological processes such as sediment transport, siltation and erosion.

### **3.5.7.5 Strategic Flood Risk Assessment**

Kilgallen and Partners Consulting Engineers have been appointed by Athy Town Council to undertake a Strategic Flood Risk Assessment (SFRA) for the Development Plan. The SFRA provides an appraisal and assessment of available flood risk data for the land-use proposals within the boundaries of the Plan area. This process identifies flood risk indicators in each area and, where it is demonstrated that lands may be at risk of flooding, recommends modifications to land-use proposals or the carrying out of more detailed flood risk assessment as appropriate. Lands which are recommended as requiring further assessment are identified in the SFRA, these occur across the Plan area.

The SFRA established 1 in 100 year and 1 in 1000 year flood event lines for zoned lands within the Plan area and used this map in order to undertake the assessment and facilitate the making of recommendations.

The SFRA has informed the Plan and SEA, however, on foot of a decision by Council on 28<sup>th</sup> February 2012, one of the SFRA recommendations has not been integrated into the Plan- see Section 4.3 of this report.

### **3.5.8 Existing Problems**

The above descriptions identify a number of sensitivities with regard to the status of water bodies within Athy Town. There are environmental problems in Athy with regard to water quality which have the potential for significant adverse impact upon human health, drinking water supplies, biodiversity and flora and fauna.

Water quality data identifies multiple points on rivers throughout Athy Town as being of Moderate, Poor or Bad Status. The Barrow Main Water Management Unit Action Plan identifies water quality problems on the Clogorow Stream and the Barrow.

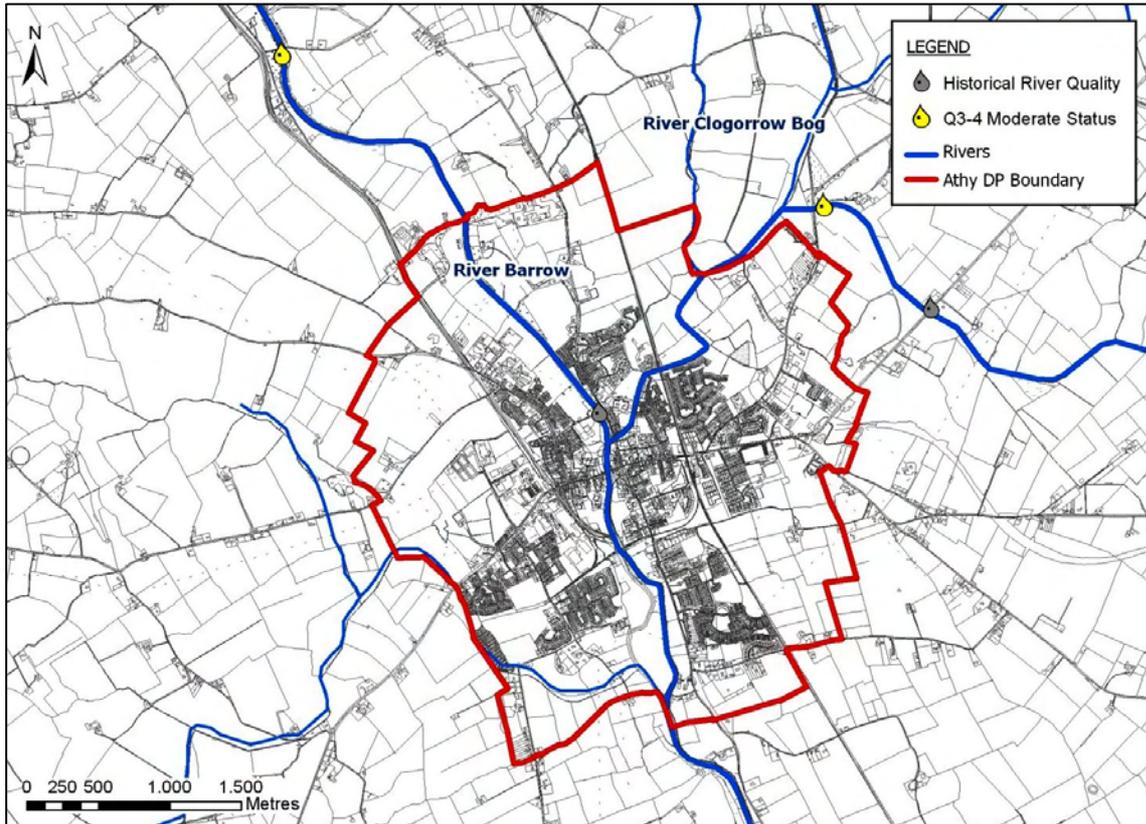
Flooding has occurred at various locations within the Town.

### **3.5.9 Evolution of Water in the absence of the Plan**

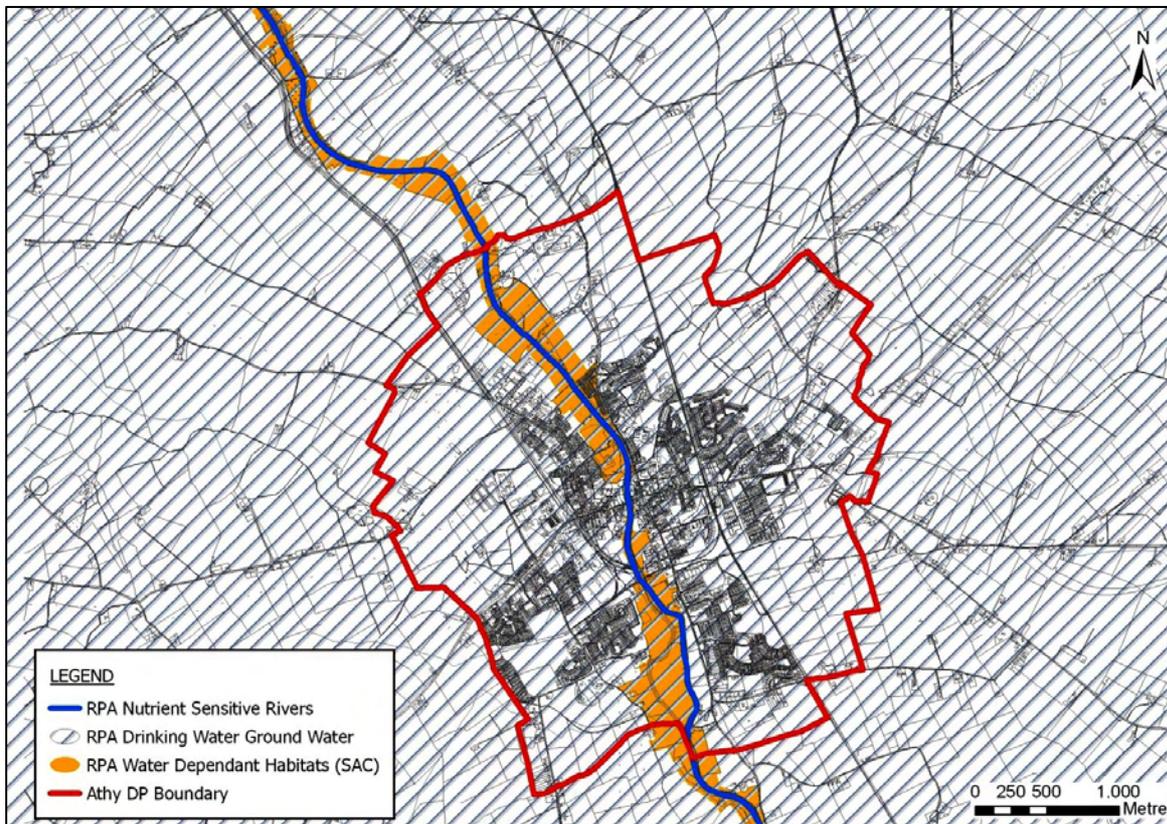
Based on the status data, certain surface and ground water bodies are at a status less than good, which is the standard required by 2015.

If growth is not accompanied by appropriate waste water infrastructure/capacity then it is likely that:

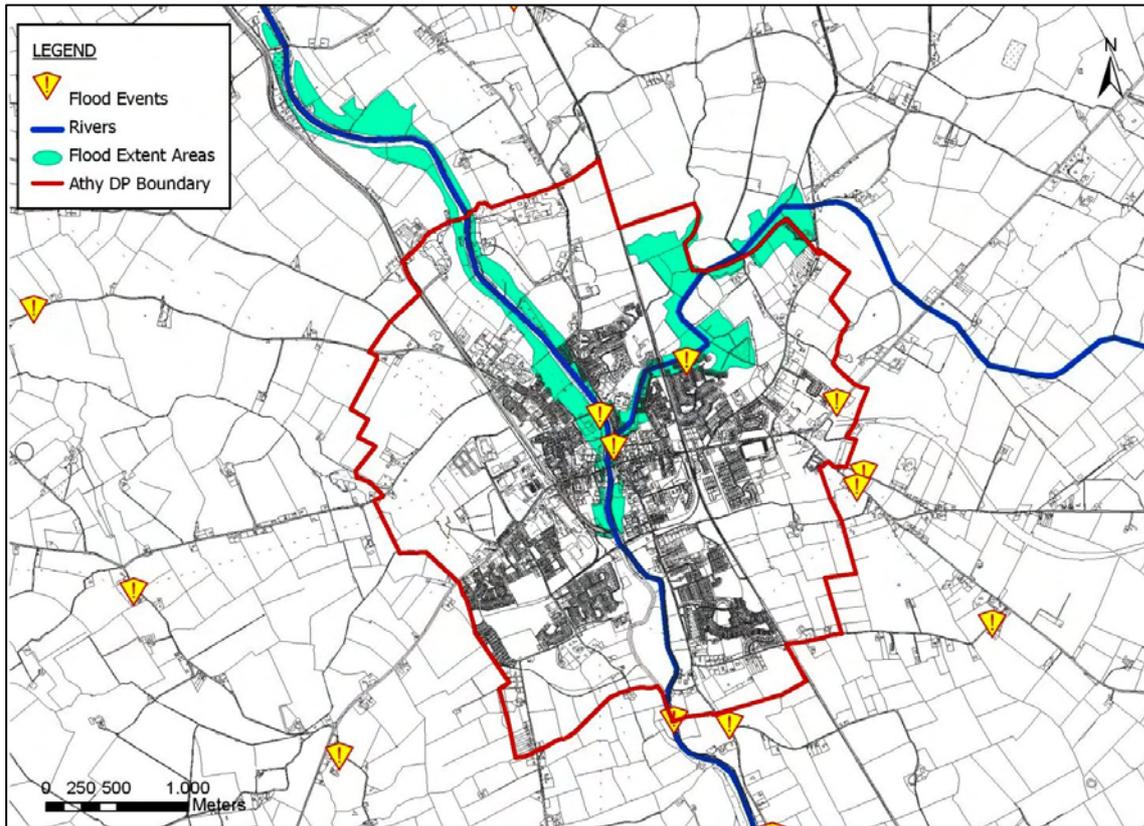
- Certain river and ground water bodies would fail to meet the objectives of the WFD by 2015;
- Significant adverse impacts upon the biodiversity and flora and fauna of the Town could potentially arise.



**Figure 3.8 Q-Values (Biotic Index Ratings) at Points on Rivers**  
Source: EPA (Various)



**Figure 3.9 WFD Register of Protected Areas**  
Source: EPA (2009)



**Figure 3.10 Rivers, Lakes and Flood Events in the Town**  
Source: OPW (Various)

## 3.6 Material Assets

### 3.6.1 Waste Water

#### 3.6.1.1 Relevant Legislation

The treatment of wastewater is governed by the Urban Waste Water Treatment Directive (91/271/EEC) (amended by Directive 98/15/EEC) transposed into Irish law by the Urban Waste Water Treatment Regulations 2001 (SI 254 of 2001). The Directive aims to protect the environment from the adverse effects of the wastewater discharges by ensuring that wastewater is appropriately treated before it is discharged to the environment. The Regulations stipulate that sewage treatment facilities are in place in all towns by 2005. The treatment of wastewater is also relevant to the Water Framework Directive which requires all public bodies, to coordinate their policies and operations so as to maintain the good status of water bodies which are currently unpolluted and bring polluted water bodies up to good status by 2015 (see Section 3.5 *Water*).

#### 3.6.1.2 Current Capacity and Demand and Future Upgrades

Wastewater is treated at the Athy Wastewater Treatment Plant at Boherbui located to the south west of the Town Centre. The plant has an existing design capacity of 15,000 population equivalent (PE)<sup>7</sup> with room for future expansion. The current loading of the treatment plant is approximately 10,000PE resulting in a spare capacity of approximately 5,000PE.

<sup>7</sup> Population equivalent (in waste-water monitoring and treatment) refers to the amount of oxygen-demanding substances whose oxygen consumption during biodegradation equals the average oxygen demand of the waste water produced by one person. PE figures include waste waters from industrial sources, hotels, etc as well as domestic output.

Spare capacity at a waste water treatment plant indicates that plant is likely to be in conformance with the Urban Waste Water Treatment Directive at present. Plants operating over capacity suggest that they are unlikely to be in conformance with the Urban Waste Water Treatment Directive.

It is anticipated that it will be necessary to extend the plant to 11,500 PE before 2014 to meet additional domestic and non-domestic demand. In addition the overall wastewater network requires improvement to facilitate possible future expansion of the Town. In the interim however wastewater improvements under the Athy Sewerage Scheme include the provision of a new trunk foul sewer to the south east of the Town to serve lands located at Prusselstown. Remediation of the existing sewer network to the east of the river Barrow was carried out in 2010 as the first phase of the Athy Sewerage Scheme.

The waste water treatment plant at Athy along with its discharge point on the Barrow as well as the portion of the Plan area which is serviced by the waste water network is mapped on Figure 3.11.

## 3.6.2 Drinking Water

### 3.6.2.1 Drinking Water Quality<sup>8</sup>

Drinking water must be clean and wholesome. That means it must meet the relevant water quality standards and must not contain any other substance or micro-organism in concentrations or numbers that constitute a potential danger to human health.

Under Section 58 of the Environmental Protection Agency Act 1992 the EPA is required to collect and verify monitoring results for all water supplies in Ireland covered by the European Communities (Drinking Water) Regulations, 2000. The EPA publishes their results in annual reports which include Remedial Action Lists (RALs). The RAL identifies water supplies which are not in compliance with the Regulations mentioned above. Athy is not listed on the Remedial Action List. There was a nickel exceedance in the Athy supply in 2007. However, nickel is not present in the untreated or treated water from these supplies and it is likely that this exceedance was due to contamination from tap fittings.

### 3.6.2.2 Status of Water Supply in Athy<sup>9</sup>

At present, Athy's daily water demand is in excess of 4,000m<sup>3</sup> and is supplied from four separate sources within the Town located along the north western bank of the River Barrow. An additional source is also obtained from the Regional Supply from the Poulaphouca Reservoir to supplement the Town's supply. This can be extended into the Town should any of the local sources need to be shut off.

The construction of the Srowland Water Treatment Plant and the Srowland to Ardscull and Srowland to Old Kilcullen Water Rising Mains contracts form part of the River Barrow Abstraction Scheme. The Srowland Water Treatment Plant will supply treated water to Ardscull Reservoir (which will supply Athy) and Old Kilcullen Reservoir. The Water Services Investment Programme 2010 - 2012 approved funding for these contracts.

While there is adequate supply of water to Athy town approx 25% of the total demand is supplied to Athy from outside sources.

Should the main source in Athy i.e. "The Gallery" become unusable, for example due to a reoccurrence of flooding, KCC will increase the amount supplied from both directions. Increase from Dublin road supply will require permission of Dublin City Council. The use of the Monasterevin Wellfield will allow greater flexibility as it is own well supply. Water abstraction points are mapped on Figure 3.11.

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<sup>8</sup> Text in this section is sourced from EPA (2009) *The Provision and Quality of Drinking Water in Ireland: A Report for the Years 2007-2008*, Wexford: EPA

<sup>9</sup> Text in this section is from Kildare County Council Water Services, Oct. 2010.

### **3.6.3 Waste**

The Council is obliged to collect or arrange for the collection of household waste in its jurisdiction. Waste collected is currently transferred to Dublin from the Integrated Waste Management Facility at Silliot Hill, Kilcullen for baling prior to disposal at Arthurstown Landfill Site.

Athy Civic Amenity Centre is located at Gallowshill in the east of the Town. Waste is compacted at the facility and stored in sealed haulage containers prior to disposal off-site. Receptacles are provided for collection/storage of various recyclable wastes such as; glass, plastics, metals, white goods, electronic goods, paper/cardboard, textiles, timber, tyres, household construction and demolition waste, and green waste. Green waste is shredded on-site. The location of the waste transfer station is mapped on Figure 3.11.

### **3.6.4 Vehicular Circulation**

The N78 is the main route through Athy. It connects Dublin, Naas, Kilcullen, Athy/Casteldermot and Kilkenny/Waterford. The R428, R471 and R418 are other roads in the Plan area as well as several local country roads. A number of bus services are also in operation with Bus Eireann providing Expressway Services, Local/Rural/Commuter and City/Town Services in the Town. The Town is also served by the Dublin/Waterford railway line.

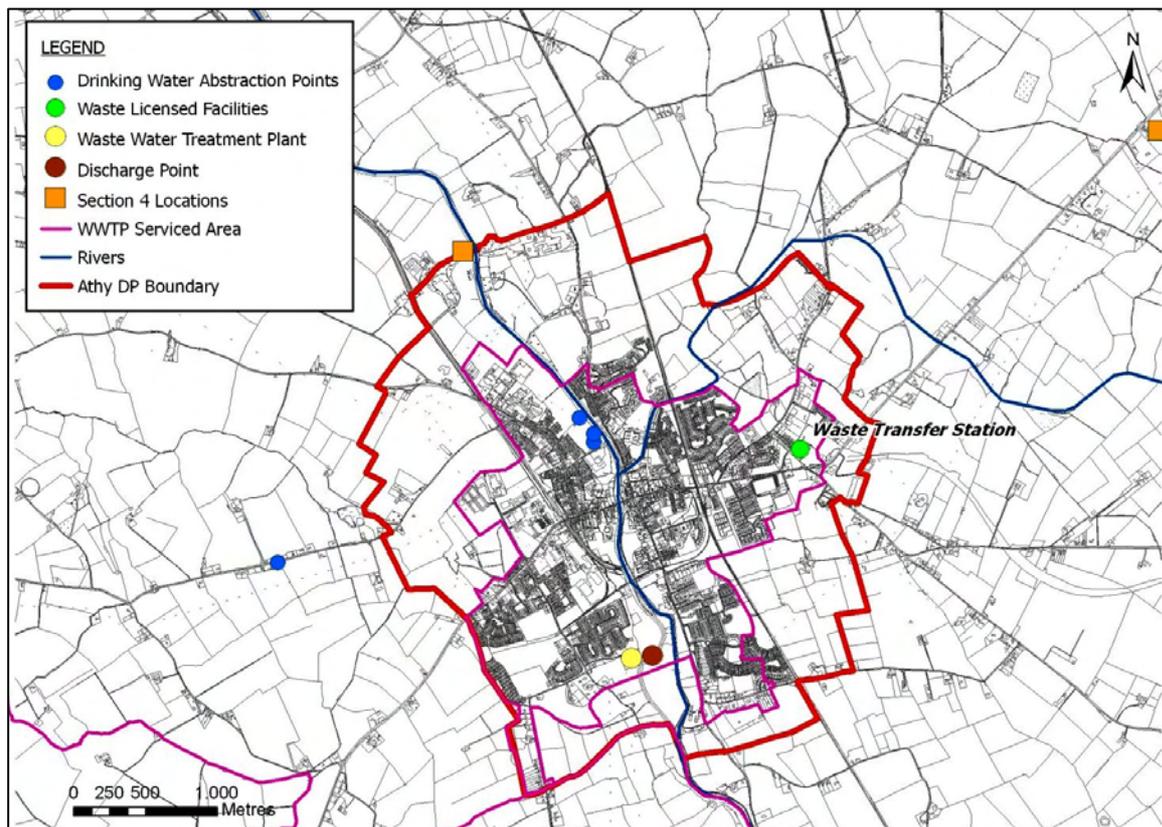
### **3.6.5 Existing Problems relating to Material Assets**

Certain parts of the Town are not within the catchment of the waste water treatment network and consequently development in these areas use septic tanks to treat waste water arising. This has the potential to be a problem for other environmental components where the systems are not properly maintained.

### **3.6.6 Evolution of Material Assets in the absence of the Plan**

In the absence of a Development Plan, there would be no framework to provide the infrastructure which is necessary in Athy to serve existing and proposed development such as waste water treatment plants and networks, water supply infrastructure, transport infrastructure and powerlines etc.

Failure to provide sufficient infrastructure for development would be likely to result in significant adverse impacts. For example, failure to upgrade and provide new waste water infrastructure would be likely to adversely impact upon water quality and indirectly significantly adversely impact upon biodiversity and flora and fauna, drinking water supplies and human health.



**Figure 3.11 Water Treatment Plants, Waste Water Treatment Plants, Discharge Points and Serviced Areas and Section 4 Licenses**

Source: KCC (Various)

## 3.7 Air and Climatic Factors

### 3.7.1 Ambient Air Quality

#### 3.7.1.1 Introduction and Legislation

In order to protect human health, vegetation and ecosystems, EU Directives set down air quality standards in Ireland and the other Member States for a wide variety of pollutants. These pollutants are generated through fuel combustion, in space heating, traffic, electricity generation and industry and, in sufficient amounts, could affect the well being of the areas inhabitants. The EU Directives include details regarding how ambient air quality should be monitored, assessed and managed.

The principles to this European approach are set out under the Air Quality Framework Directive 1996 as transposed into Irish law under the Environmental Protection Agency Act 1992 (Ambient Air Quality Assessment and Management) Regulations 1999 (SI No. 33 of 1999).

Four daughter Directives lay down limits or thresholds for specific pollutants. The first two of these directives cover: sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead; and, carbon monoxide and benzene. Two more daughter directives deal with: ozone; and polycyclic aromatic hydrocarbons, arsenic, nickel, cadmium and mercury in ambient air.

In order to comply with these directives, the EPA measures the levels of a number of atmospheric pollutants. For the purposes of monitoring in Ireland, four zones are defined in the Air Quality Standards Regulations 2002 (SI No. 271 of 2002). The main areas defined in each zone are:

- Zone A: Dublin Conurbation.
- Zone B: Cork Conurbation.

- Zone C: 21 Other cities and large towns comprising Galway, Limerick, Waterford, Clonmel, Kilkenny, Athy, Drogheda, Wexford, Athlone, Ennis, Bray, Naas, Carlow, Tralee and Dundalk.
- Zone D: Rural Ireland, i.e. the remainder of the State - small towns and rural areas of the country - excluding Zones A, B and C. Athy falls with Zone D.

### 3.7.1.2 Coal Restriction Areas

A ban on the marketing, sale and distribution of bituminous coal applies in Athy and fifteen other towns and cities around the country including Dublin (since 1990), Cork (since 1995), Arklow, Drogheda, Dundalk, Limerick and Wexford (since 1998), Celbridge, Galway, Leixlip, Naas and Waterford (since 2000), Bray, Kilkenny, Athy and Tralee (since 2003).

## 3.7.2 Potential Point Sources of Emissions to Air

### 3.7.2.1 IPPC Licensed Facilities

The EPA has been licensing certain large-scale industrial and agriculture activities since 1994. IPPC licences aim to prevent or reduce emissions to air, water and land, reduce waste and use energy/resources efficiently. An IPPC license is a single integrated license which covers all emissions from the facility and its environmental management. All related operations that the license holder carries in connection with the activity are controlled by this license. Before a license is granted, the EPA must be satisfied that emissions from the activity do not cause a significant adverse environmental impact.

There is one active IPPC licence in Athy. Peerless Rug Europe Limited (P0261-01) is located in the Industrial Estate at Townspark. Crown Packaging Ltd. (P0098-01) in Woodstock Industrial Estate was licensed up to Map 2009.

## 3.7.3 Noise

Noise is unwanted sound. It can seriously harm human health and interfere with daily activities at school, at work, at home and during leisure time. Areas within the Town which are commonly affected by noise are urban areas and areas along roadsides.

Generally, the main noise source in the Town is from traffic. Streets in low lying areas that have high traffic counts as well as enclosing taller buildings are likely to have harsh sensory environments with regard to noise levels with regard to this source. *Traffic hotspots* within the Town are likely to have elevated levels of air pollution and noise due to traffic congestion compared to surrounding rural areas. These hotspots are located along the main road routes - especially at intersections - and provide for a harsh sensory environment which may impact upon human health. In addition, there are localised noise sources which include train movements, air conditioning equipment and bars.

## 3.7.4 Climatic Factors

### 3.7.4.1 Greenhouse Gases

In order to reduce greenhouse gas emissions the internationally agreed Kyoto Protocol established emissions reduction targets for developing countries. Ireland's emission target for greenhouse gases is to limit the increase in their combined emissions during the five-year period 2008-2012 to 13 per cent above 1990 levels.

Based on the inventory figures for 2006<sup>10</sup>, the EPA estimates that Ireland's emissions in 2006 were 25.5 per cent higher than the baseline estimate that underlies Ireland's allowable emissions for the period 2008-2012, as agreed in the peer review of Ireland's 2006 submission to the United Nations Framework Convention on Climate Change.

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<sup>10</sup> EPA (2008) *Ireland's Emissions of Greenhouse Gases for the period 1990-2006* Wexford: EPA

### 3.7.4.2 Climate Change

Climate change refers to any change in climate over time, whether due to natural variability or as a result of human activity. The release of greenhouse gases into the atmosphere as a result of human activities adds to natural climate variability by increasing the naturally occurring greenhouse effect. This greenhouse effect occurs in the atmosphere and is caused by greenhouse gases which exist naturally in the atmosphere. The greenhouse gases retain the radiation which is released from the earth as a result of heating by the sun. This retention maintains a global temperature which is suitable for ecosystems and life.

### 3.7.4.3 Potential Effects of Changed Climate

The EPA's 'Climate Change: Regional Climate Model Predictions for Ireland' (2005)<sup>11</sup> report provides an analysis of future Irish climate conditions for the period 2021–2060 based on the outputs from a new regional climate modelling facility located in Met Éireann. As increased temperatures will lead to greater amounts of water vapour in the atmosphere and an accelerated global water cycle, it is reasonable to expect that river catchment areas will be exposed to a greater risk of flooding. The increase in winter precipitation will be likely to produce a significant increase in the more intense discharge episodes, raising the risk of future flooding.

The report identifies that although it is not possible to comment on changes in flood magnitude and frequency, the increase in winter runoff indicated for many parts of the west of the country, especially under the scenario for the period 2061–2090, is likely to have significant implications. River flooding tends to be more common during the wetter winter months when soils are near saturation and can be exacerbated in coastal areas when interactions occur between high tides and high flows. Many of the rivers draining upland areas have a rapid or "flashy" response to rainfall enhanced by rising topography. Steep slopes and thin soils favour rapid flow pathways and water is rapidly transmitted to the channel network especially in urbanised catchments with extensive areas of impermeable surfaces.

### 3.7.5 Existing Problems

*Traffic hotspots* within the Plan area are likely to have elevated levels of air pollution and noise due to traffic congestion, this is particularly the case along the N78 through the Town.

Localised air pollution incidences with regard to PM10 and PM2.5 and noise pollution are both likely to occur when demolition/construction takes place - especially in relation to PM10 if suppression techniques are not introduced - and when traffic is queuing for long periods of time.

Ireland's current emissions are exceeding targets agreed in the peer review of Ireland's 2006 submission to the United Nations Framework Convention on Climate Change. It is unlikely that Ireland will meet these targets and it is likely therefore that financial penalties will be incurred. Transport related emissions continue to be the dominant growth sector.

Changes in sea level and/or changes in the occurrence of severe rainfall events as a result of climate change could adversely impact upon the area's human beings, its biodiversity and its economy (see also Section 3.5.7 Flooding).

### 3.7.6 Evolution of Air and Climatic Factors in the absence of the Plan

Increases in the use of catalytic converters, cleaner fuels, better engine technology and maintenance is generally reducing the pollution omitted per motor vehicle, however, this reduction is probably being offset by the increase in the number of cars as well as the increase in the volume and

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<sup>11</sup> Community Climate Change Consortium for Ireland (2005) *Environmental RTDI Programme 2000–2006 Climate Change: Regional Climate Model Predictions for Ireland (2001-CD-C4-M2) Final Report* Wexford: Environmental Protection Agency

incidences of traffic congestion. Increases in the number of cars as well as the increase in the volume and incidences of traffic congestion may lead to increases in air and noise pollution in the future.

In the absence of the Plan, the realisation of objectives relating to energy efficiency, renewable energy and a reduction in local transport related emissions to air contained within the Plan would be missed.

## **3.8 Cultural Heritage**

### **3.8.1 Introduction**

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.

Athy developed as part of the Anglo-Norman settlement in Ireland. Woodstock Castle was built in the early years of the thirteenth century near an ancient river crossing. The Priory of St Thomas and Hospital of St John was founded in the thirteenth century on rising ground above the river on its west side while, on the east bank, just south of the crossing, a Dominican friary was established in 1253 in the area known as the Abbey.

### **3.8.2 Archaeological Heritage**

#### **3.8.2.1 Introduction**

Archaeology is the study of past societies through the material remains left by those societies and the evidence of their environment. Archaeological heritage consists of such material remains (whether in the form of sites and monuments or artefacts in the sense of moveable objects) and environmental evidence. As archaeological heritage can be used to gain knowledge and understanding of the past it is of great cultural and scientific importance.

Archaeological finds dating to the Neolithic and the Bronze Age attest to the importance of the crossing over the River Barrow from prehistoric times. Two stone-axe heads were found in the Rathstewart area of the Town. The archaeological record also includes churches and graveyards, gatehouses, mills and the bridge in the Town.

#### **3.8.2.2 Record of Monuments and Places**

Athy's archaeological heritage is protected under the National Monuments Acts (1930-2004), Natural Cultural Institutions Act 1997 and the Planning Acts. The Record of Monuments and Places (RMP) is an inventory, put on a statutory basis by amendment to the National Monuments Act 1994, of sites and areas of archaeological significance, numbered and mapped.

There is a number of entries to the Record of Monuments and Places within the Town. The historic core of Athy was identified as a Zone of Archaeological Potential, see Figure 3.12.

### **3.8.3 Architectural heritage**

#### **3.8.3.1 Introduction**

The term architectural heritage is defined in the Architectural Heritage (National Inventory) and Historic Monuments Act 1999 as meaning all: structures and buildings together with their settings and attendant grounds, fixtures and fittings; groups of structures and buildings; and, sites which are of technical, historical, archaeological, artistic, cultural, scientific, social, or technical interest.

The town retains many buildings of significance, including Whites Castle (a prominent feature in the Town), Market House (Heritage Centre and Library), The Model Farm and School, the Dominican Church and the Presbyterian Church.

### **3.8.3.2 Record of Protected Structures**

The Record of Protected Structures (RPS) is legislated for under Section 51 of the Planning and Development Act 2000. Protected Structures are defined as structures, or parts of structures that are of special interest from an architectural, historical, archaeological, artistic, cultural, scientific, social or technical point of view. There are eight structures listed on the RPS. Structures listed on the Record of Protected structures are mapped on Figure 3.12 along with additions proposed under the Kildare CDP 2011-2017.

### **3.8.3.3 National Inventory of Architectural Heritage**

The National Inventory of Architectural Heritage (NIAH) is a state initiative under the administration of the Department of the Environment, Heritage and Local Government and established on a statutory basis under the provisions of the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999. The purpose of the NIAH is to identify, record, and evaluate the post-1700 architectural heritage of Ireland, uniformly and consistently as an aid in the protection and conservation of the built heritage. Spatial distribution of monuments listed on the NIAH is mapped on Figure 3.13.

### **3.8.4 Existing Cultural Heritage Problems**

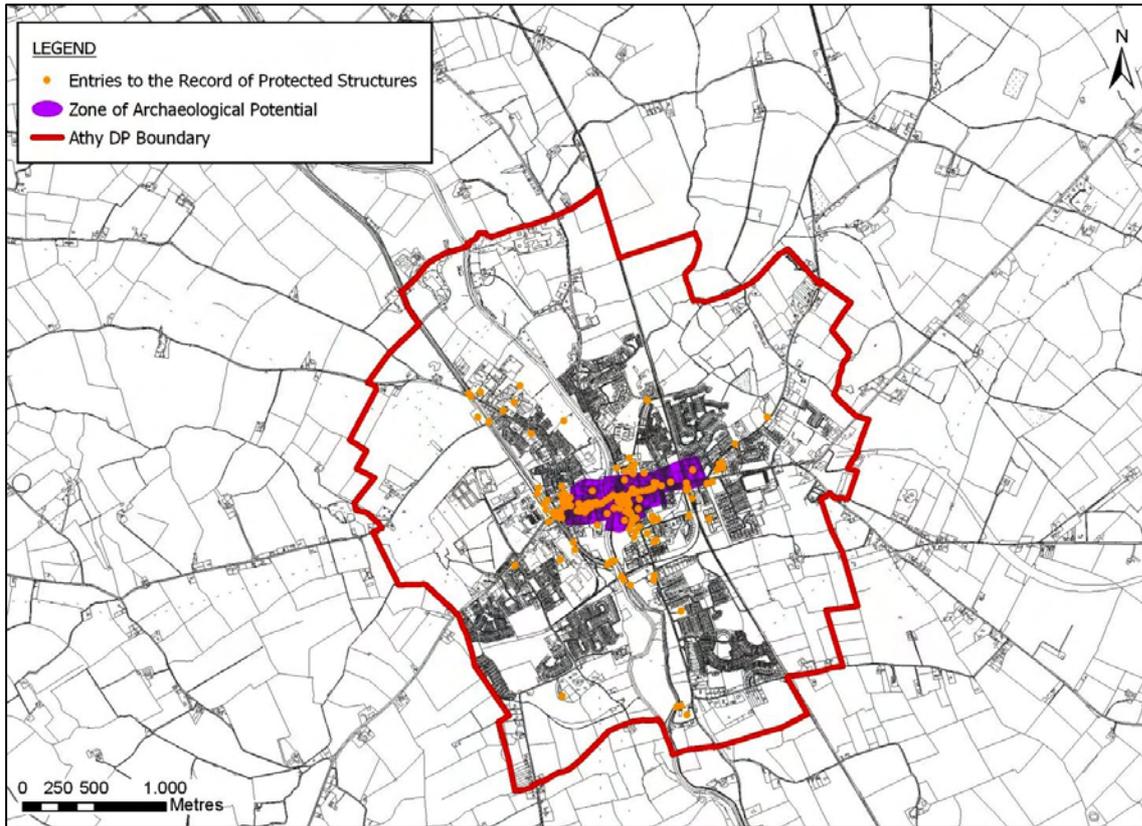
Threats to cultural heritage might include the cumulative accommodation of large scale development in the Town, development which involves material alteration or additions to protected structures, brownfield development and development on sites adjoining protected monuments, places or structures.

### **3.8.5 Evolution of Cultural Heritage in the absence of the Plan**

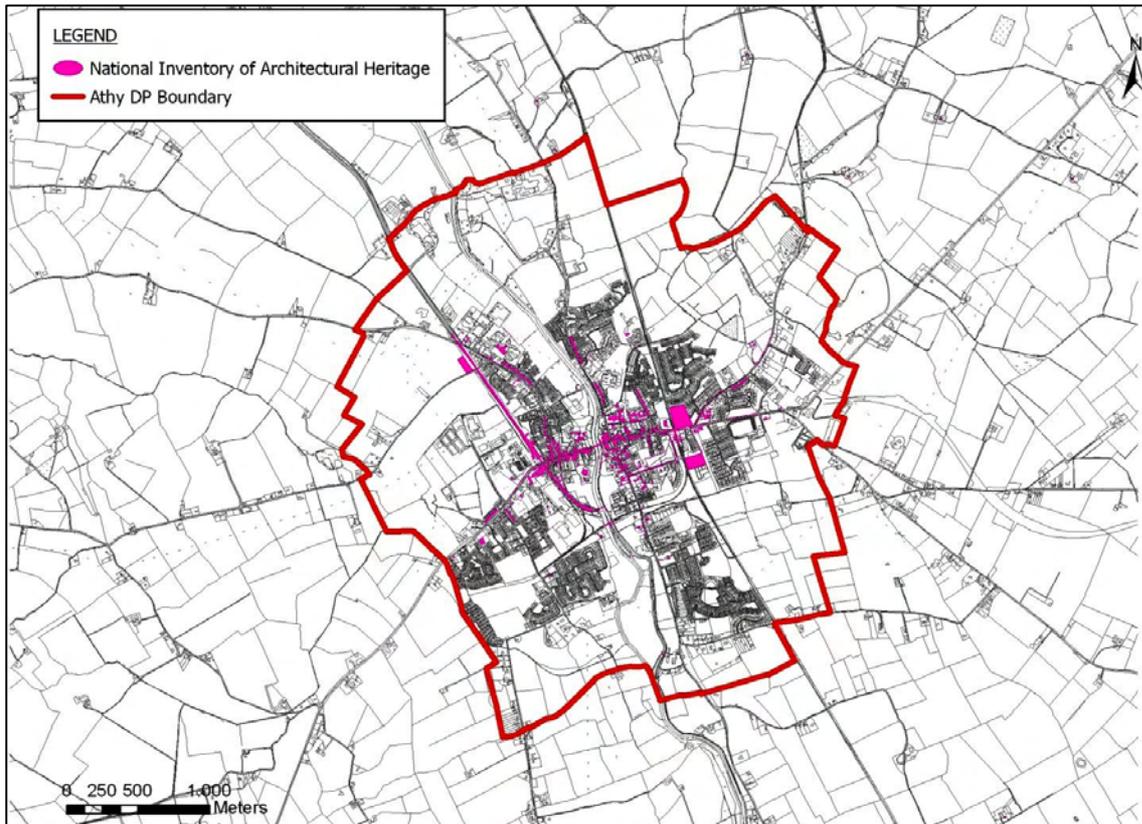
In the absence of the Plan, the evolution of cultural heritage would be dependent on developments which take place.

Such development would have no guidance as to where to be directed and planning applications would be assessed on an individual basis with cultural heritage protected under a number of strategic actions relating to archaeological and architectural protection.

Beneficial impacts upon the protection of cultural heritage which would be likely to arise as a result of the Plan provisions would not necessarily occur.



**Figure 3.12 Entries to the Record of Protected Structures**  
Source: Athy TDP (2006-2012)



**Figure 3.13 National Inventory of Architectural Heritage**  
Source: DEHLG (2006)

## **3.9 Landscape**

### **3.9.1 Introduction**

Landscapes are areas which are perceived by people and are made up of a number of layers:

- landform, which results from geological and geomorphological history;
- land cover, which includes vegetation, water, human settlements;
- human values which are a result of historical, cultural, religious and other understandings and interactions with landform and land cover.

The population is concentrated in Athy Town with houses and farms dispersed in the rural hinterland. Whites Castle is a prominent feature of the Town and is visible from the N78. The River Barrow and the Grand Canal are also important features of the Town's landscape.

### **3.9.2 Landscape Character Areas**

A Landscape Character Assessment was carried out for County Kildare in 2004. This is contained in an appendix to the Kildare County Development Plan 2011-2017 and it identifies fifteen landscape classifications, three of which occur in the Plan area; Southern Lowlands, River Valley and Grand Canal. These are mapped on Figure 3.14. The River Barrow Valley and The Grand Canal Corridors are also classified as "Areas of High Amenity".

### **3.9.3 Scenic Routes and Protected Views**

Scenic Routes and Protected Views consist of important and valued views and prospects within the County. A Scenic Route with views of Moat and Ardscull, N78 from Russelstown Cross Roads to Kilmead is designated to the east of the Town.

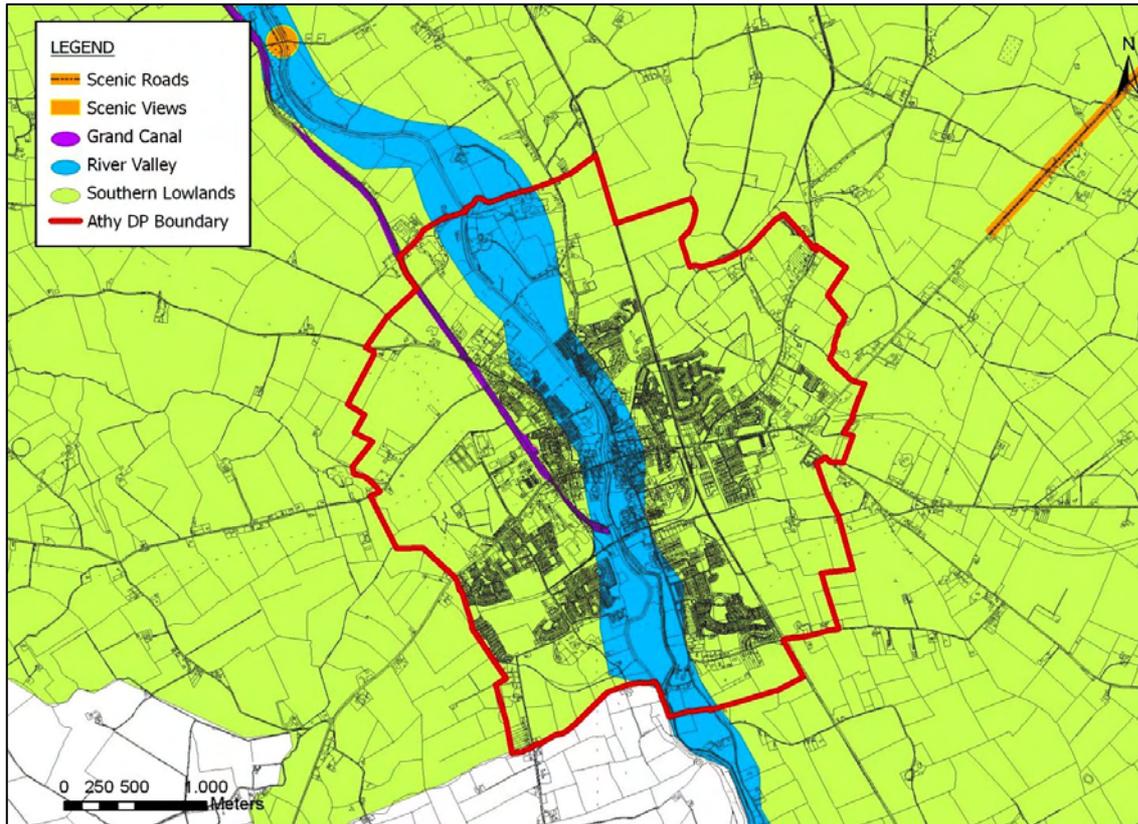
In addition to Scenic Routes there are a number of Protected Views, throughout the County. These are often located along water corridors and to and from the hills in the countryside. There are two Protected Views to the north west of Athy. One of these can be seen on Figure 3.14, the other lies just north of this.

### **3.9.4 Existing Landscape Problems**

Generalised landscape problems include the cumulative visual impact resulting from developments such as one off houses. Such developments, which individually often do not have significant adverse impacts, have the potential to cumulatively and adversely significantly impact upon sensitive landscapes.

### **3.9.5 Evolution of Landscape in the absence of the Plan**

In the absence of a Development Plan, development would be likely to occur on a one-off, dispersed basis. This could have cumulative impacts on the landscape. However, Development Management would continue to safeguard the landscape resources that have been highlighted above.



**Figure 3.14 Scenic Roads and Views, Sensitive Landscape Areas and Views and Prospects**  
Source: Kildare County Council (2011)

## 3.10 Overlay Mapping of Environmental Sensitivities

### 3.10.1 Introduction and Methodology

In order to identify where most sensitivities within the Town occur, a number of the environmental sensitivities described above were weighted and mapped overlapping each other. Figure 3.15 provides an overlay of environmental sensitivities in Athy Town.

Environmental sensitivities are indicated by colours which range from acute vulnerability (brown) extreme vulnerability (red) to high vulnerability (dark orange) to elevated vulnerability (light orange) to moderate vulnerability (yellow) to low vulnerability (green). Where the mapping shows a concentration of environmental sensitivities there is an increased likelihood that development will conflict with these sensitivities and cause environmental deterioration.

A weighting system applied through Geographical Information System (GIS) software was used in order to calculate the vulnerability of all areas in the Town. Equal value is given to all environmental components (landscape, water, biodiversity etc.) with the following environmental sensitivity factors each attributed weighting of 5 points:

- Ecological designations (candidate Special Areas of Conservation, Proposed Natural Heritage Areas and Nutrient Sensitive Rivers)
- Landscape Character Areas, scenic roads and protected views;
- Heritage designations (entries to Records of Protected Structures, entries to the Record of Monuments and Places, Zone of Archaeological Potential and entries to the National Inventory of Architectural Heritage);
- Water resources (drinking groundwater protection, surface waters, flood risk areas, extreme and high vulnerability aquifers and source protection areas)

**Table 3.1 Overall Vulnerability Classes**

Score	Vulnerability Class
10-15	<b>Low</b>
20-25	<b>Moderate</b>
30-35	<b>Elevated</b>
40-45	<b>High</b>
50-60	<b>Extreme</b>
>60	<b>Acute</b>

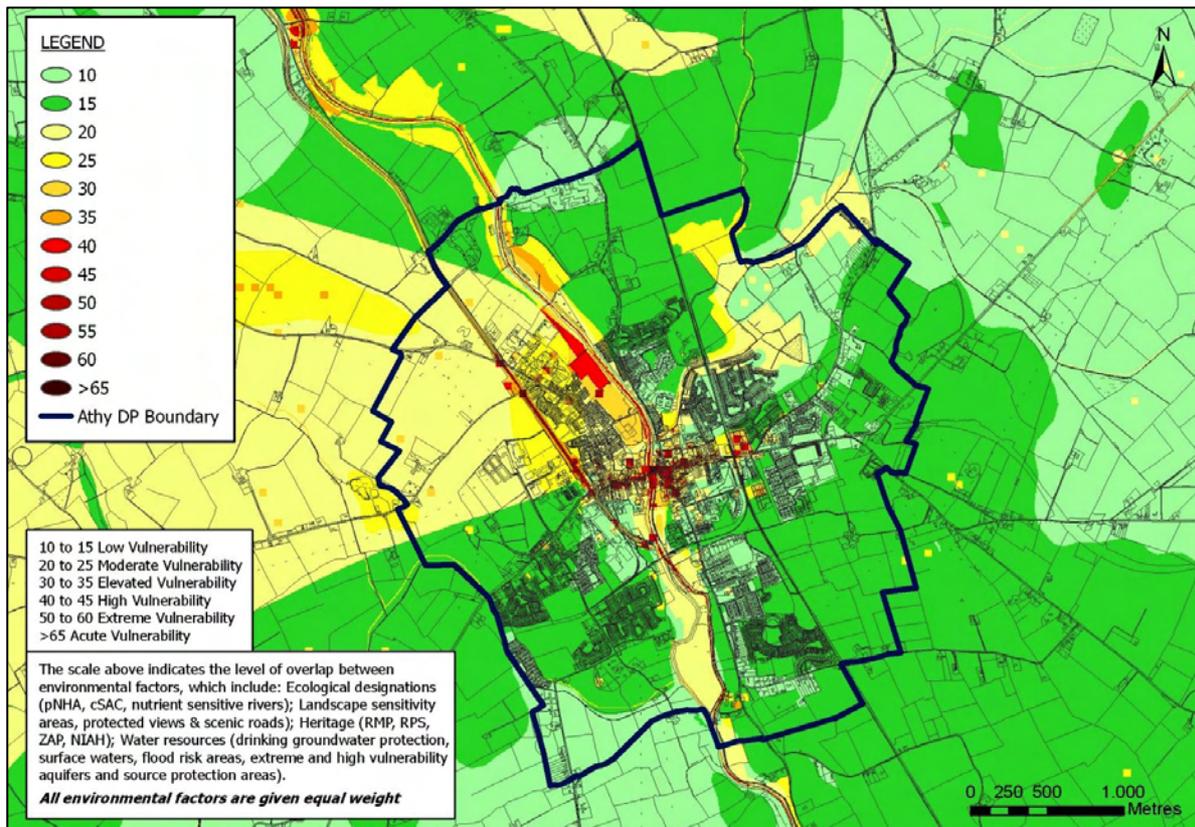
### 3.10.2 Conclusions

Generally, the Plan area and the surrounding lands are of low vulnerability. An area of moderate vulnerability traverses the western Plan boundary where an Inner Source Protection for ground water occurs.

The Glogorow Stream is of moderate vulnerability where flood extent areas overlap with other environmental sensitivities. The River Barrow is of moderate vulnerability, increasing to extreme in places. This is due to an overlap in many environmental factors including flood risk areas, landscape sensitivity and its designation as a cSAC and a nutrient sensitivity river.

The Grand Canal is acutely vulnerable in places owing to landscape designations and its designation as a proposed Natural Heritage Area.

The areas of highest vulnerability occur in the Town Centre where archaeology is the main contributor.



**Figure 3.15 Overlay of Environmental Sensitivities**

Source: CAAS (2010)

### 3.11 Strategic Environmental Objectives

Strategic Environmental Objectives (SEOs) are methodological measures against which the environmental effects of the Plan can be tested. If complied with in full, SEOs would result in an environmentally neutral impact from implementation of the Plan. The SEOs are set out under a range of topics and are used as standards against which the provisions of the Plan can be evaluated in order to help identify areas in which potential adverse impacts may occur. SEOs are distinct from the objectives of the Plan and are developed from international and national policies which generally govern environmental protection objectives. Such policies include those of various European Directives which have been transposed into Irish law and which are intended to be implemented within the Plan area.

SEO Topic	SEO
Biodiversity and Flora and Fauna	To ensure compliance with the Habitats Directive with regard to the protection of Natura 2000 Sites and Annexed habitats and species <sup>12</sup>
Biodiversity and Flora and Fauna	To ensure compliance with Article 10 of the Habitats Directive with regard to the protection of corridors, stepping stones and contiguous areas of habitat <sup>13</sup> which are important at Town and environs level for wild fauna and flora and essential for the migration, dispersal and genetic exchange of wild species and to protect protected species
Human Health	To protect human health from hazards or nuisances arising from exposure to incompatible landuses
Brownfield Development	Maximise the sustainable re-use of brownfield lands, and maximise the use of the existing built environment rather than developing greenfield lands
Surface Water Status	To maintain and improve, where possible, the status of surface waters
Ground Water Status	To prevent pollution and contamination of ground water
Flood Risk	To manage areas that are currently at risk of flooding or are likely to pose a significant flood risk in the future in compliance with The Planning System and Flood Risk Management Guidelines for Planning Authorities and Floods Directive ultimately
Waste Water Treatment	To serve new development with adequate and appropriate waste water treatment
Drinking Water Provision	To serve users of public water supplies with drinking water that is both wholesome and clean
Transport related Emissions	To reduce travel related greenhouse emissions to air
Transport Mode	To encourage modal change from car to more sustainable forms of transport
Archaeological Heritage	To protect the archaeological heritage of the Town including entries to the Record of Monuments and Places and/or their context
Architectural Heritage	To preserve and protect the special interest and character of the Town's architectural heritage
Landscape	To avoid significant adverse impacts on the landscape, especially with regard to landscapes which are most valuable and most sensitive to change and protected views and prospects

<sup>12</sup> 'Annexed habitats and species' refers to those listed under Annex I, II & IV of the EU Habitats Directive and Annex I of the EU Birds Directive.

<sup>13</sup> Important corridors, stepping stones and contiguous areas of habitat include the River Barrow and the Grand Canal. It is recommended that important corridors, stepping stones and contiguous areas of habitat are identified as part of the monitoring programme and that time resources are spent in the monitoring of these rather than in the monitoring of corridors or areas of habitat which are not important at Town and environs level.

## 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 accommodating future growth in Athy.

#### 4.1.1 Alternative Scenario 1: *Consolidation and Western Expansion*

Alternative Scenario 1 (see Figure 4.1) provides for the consolidation of the town centre and the development of additional lands to the west of the town centre and Grand Canal. It:

- Concentrates mixed high density development on available sites in the town centre;
- Concentrates additional mixed Residential and Employment uses to the west of the town centre and Grand Canal; and,
- Provides for the potential relocation of the Tegral and Greencore companies and the redevelopment of these sites for mixed uses thereby extending the town centre and bringing higher density employment uses closer to the residential area of Ardrew to the west of the town.

#### 4.1.2 Alternative Scenario 2: *Consolidation and Eastern Expansion*

Alternative Scenario 2 (see Figure 4.2) provides for the consolidation of the town centre and the development of additional lands to the east of the town centre and the railway line. It:

- Concentrates mixed high density development on available sites in the town centre; and,
- Concentrates additional mixed Residential and Employment uses to the east of the town centre and the railway line.

#### 4.1.3 Alternative Scenario 3: *Peripheral Expansion*

Alternative Scenario 3 (see Figure 4.3) provides for the peripheral expansion of the Town. It:

- Applies Residential and Employment land use zoning objectives from areas beyond the existing development envelope to lands bordering the administrative boundary of the Town Council.
- Provides for development which is led by market demand, with planning applications would be evaluated on a case by case basis.

#### 4.1.4 Alternative Scenario 4: *Consolidation and Limited Expansion around Existing Development Envelope*

Alternative Scenario 4 (see Figure 4.4) provides for the consolidation of the town centre and limited expansion of lands generally adjacent to the existing development envelope. It:

- Concentrates mixed high density development on available sites in the town centre
- Limits the zoning of lands to the quantity required to fulfil the relevant targets for Athy as set out in the Regional Planning Guidelines and the Kildare County Development Plan.
- Decisions with regard to which lands are dezoned from the current 2006-2012 Plan are made according to the presence or absence of key environmental considerations including:
  - The River Barrow candidate Special Area of Conservation (cSAC);
  - Flood Risk; and,
  - Proximity to the town centre and public transport links.

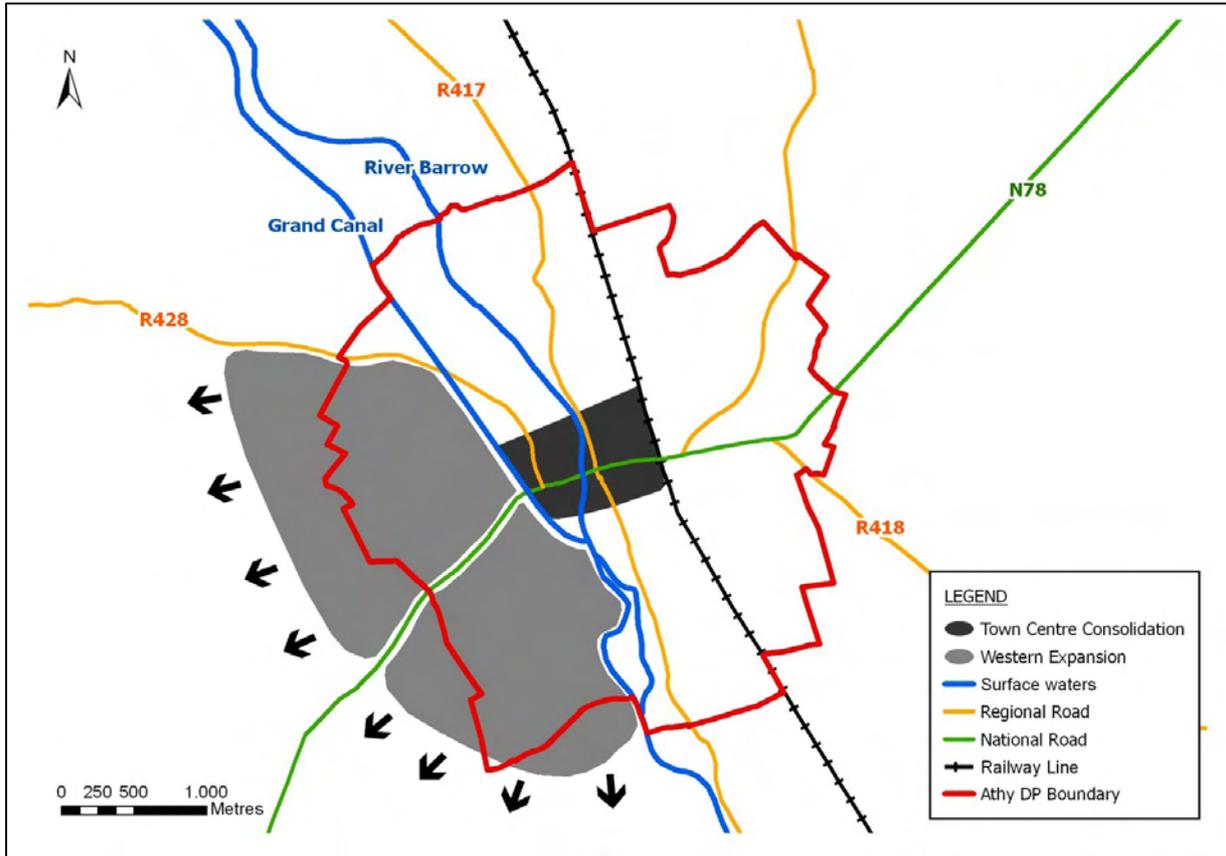


Figure 4.1 Scenario 1: Consolidation and Western Expansion

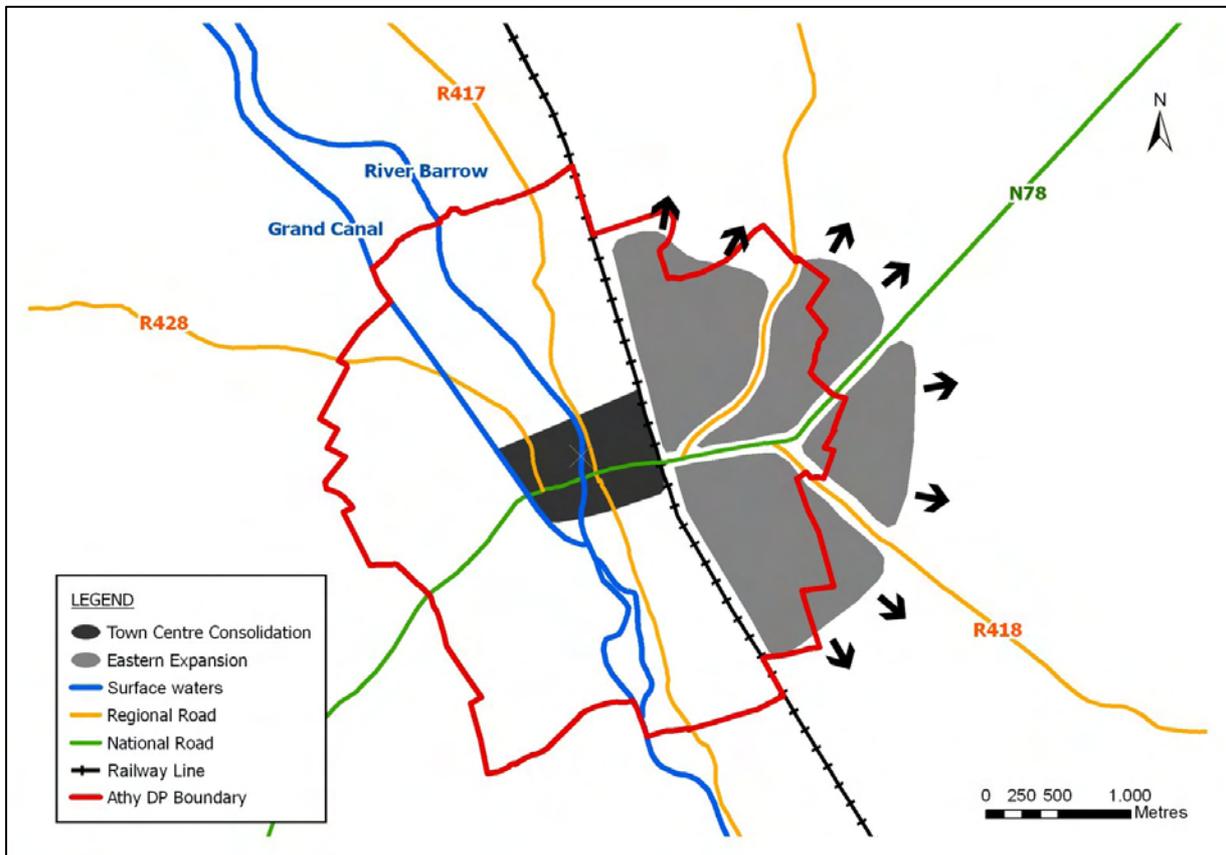


Figure 4.2 Scenario 2: Consolidation and Eastern Expansion

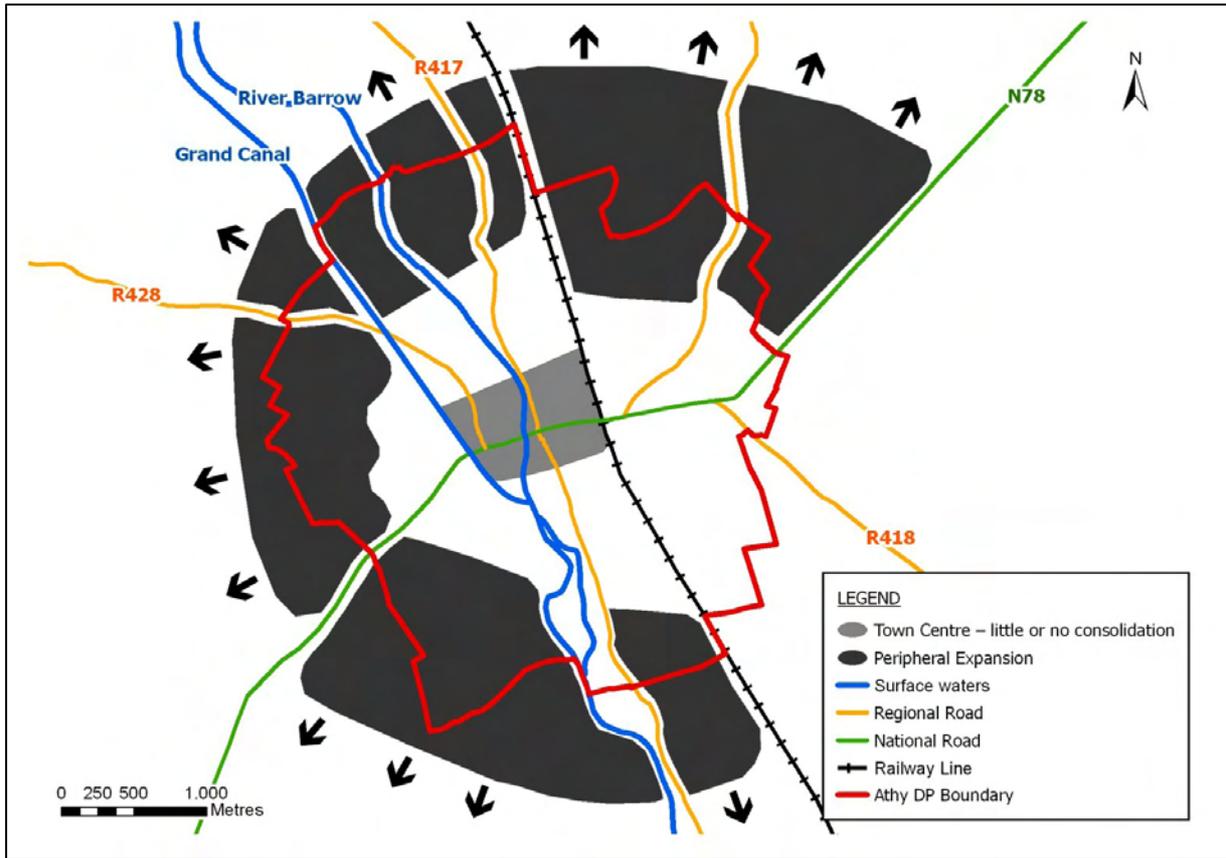


Figure 4.3 Scenario 3: *Peripheral Expansion*

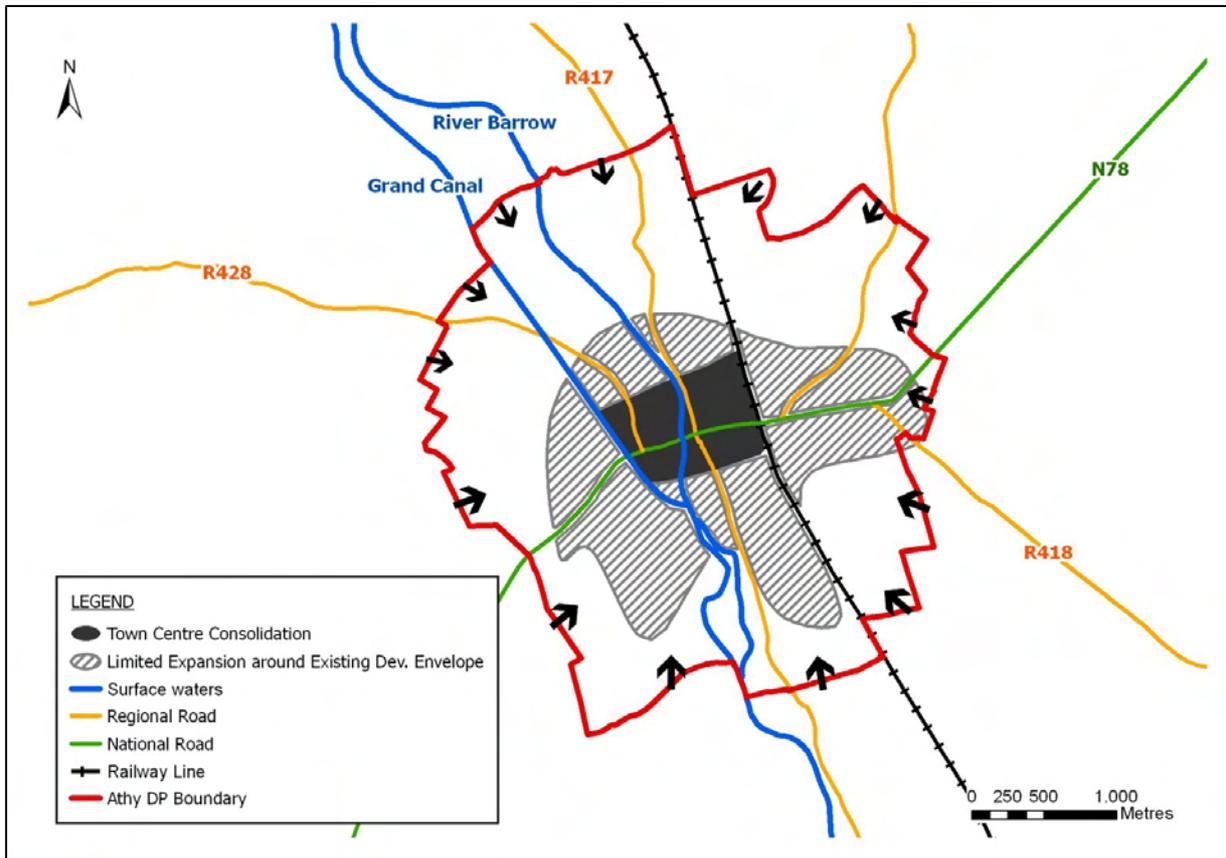


Figure 4.4 Scenario 4: *Consolidation and Limited Expansion around Existing Development Envelope*

## 4.2 Evaluation of the Alternative Scenarios

### 4.2.1 Methodology

This section summarises the evaluation of the Alternative Scenarios which is found in Section 7 of the Environmental Report. Scenarios are evaluated in a succinct and focused way for both planning and environmental impacts against both the existing environment and the Strategic Environmental Objectives (both of which are summarised within Section 3).

### 4.2.2 Alternative Scenario 1: *Consolidation and Western Expansion*

#### **Car Dependency, Travel Related Greenhouse Gas Emissions & Brownfield vs. Greenfield Development**

By providing for the consolidation of the town centre thereby encouraging brownfield development, Scenario 1 would be likely to contribute towards an uptake in more sustainable modes of transport. Contributing towards this uptake would contribute towards efforts to minimise:

- energy usage for transport;
- travel related emissions to air; and,
- increases in car dependency.

However, by providing for significant additional zoning to the west of the town centre, this scenario could dilute the consolidation of the town centre and limit associated brownfield development and increases in sustainable mobility.

#### **Water Services, Water Resources and Human Health**

Development within the town centre provided for by this Scenario would be conveniently served by drinking water services and by the existing waste water treatment plant - thereby contributing to the protection of water resources and human health. Although there is waste water treatment capacity available, an upgrade of the collection network is required. An upgrade of drinking water supply would also be needed.

It would be more difficult to serve the western expansion of the town with water services; consequently, this expansion would potentially conflict with the protection of water resources, drinking water and human health.

A potential conflict between this scenario and the minimisation of flood risk and consequently human health could occur.

A potential conflict between this scenario and human health could arise as a result of the development of potentially contaminated sites.

#### **Flood Risk**

A potential conflict between this scenario and the minimisation of flood risk and consequently human health could occur.

#### **Biodiversity and Flora and Fauna**

Town centre consolidation potentially conflicts with sensitivities including the River Barrow cSAC and ecologically sensitive non-designated sites. The western expansion provided for by this scenario potentially conflicts with ecological connectivity - including that of the Grand Canal pNHA.

## **Landscape**

Town centre consolidation provided for by this scenario potentially conflicts with protected views along Leinster Street and along the River Barrow while the western expansion potentially conflicts with protected views along the Grand Canal.

## **Cultural Heritage**

Potential conflicts between archaeological - including the Zone of Archaeological Potential - and architectural heritage and the consolidation of the town centre would be likely to occur. Conflicts between cultural heritage and the western expansion would also be likely to occur.

### **4.2.3 Alternative Scenario 2: *Consolidation and Eastern Expansion***

#### **Car Dependency, Travel Related Greenhouse Gas Emissions & Brownfield vs. Greenfield Development**

By providing for the consolidation of the town centre thereby encouraging brownfield development, Scenario 2 would be likely to contribute towards an uptake in more sustainable modes of transport. Contributing towards this uptake would contribute towards efforts to minimise:

- energy usage for transport;
- travel related emissions to air; and,
- increases in car dependency.

However, by providing for significant additional zoning to the east of the town centre, this scenario could dilute the consolidation of the town centre and limit associated brownfield development and increases in sustainable mobility.

#### **Water Services, Water Resources and Human Health**

Development within the town centre provided for by this Scenario would be conveniently served by drinking water services and by the existing waste water treatment plant - thereby contributing to the protection of water resources and human health. Although there is waste water treatment capacity available, an upgrade of the collection network is required. An upgrade of drinking water supply would also be needed.

It would be more difficult to serve the eastern expansion of the town with water services; consequently, this expansion would potentially conflict with the protection of water resources, drinking water and human health.

A potential conflict between this scenario and the minimisation of flood risk and consequently human health could occur.

A potential conflict between this scenario and human health could arise as a result of the development of potentially contaminated sites.

#### **Flood Risk**

A potential conflict between this scenario and the minimisation of flood risk and consequently human health could occur.

## **Biodiversity and Flora and Fauna**

Town centre consolidation potentially conflicts with sensitivities including the River Barrow cSAC and ecologically sensitive non-designated sites. The eastern expansion provided for by this scenario potentially conflicts with ecological connectivity.

## **Landscape**

Town centre consolidation provided for by this scenario potentially conflicts with protected views along Leinster Street and along the River Barrow.

## **Cultural Heritage**

Potential conflicts between archaeological - including the Zone of Archaeological Potential - and architectural heritage and the consolidation of the town centre would be likely to occur. Conflicts between cultural heritage and the eastern expansion would also be likely to occur.

### **4.2.4 Alternative Scenario 3: *Peripheral Expansion***

#### **Car Dependency, Travel Related Greenhouse Gas Emissions & Brownfield vs. Greenfield Development**

By not consolidating the existing town centre, not encouraging brownfield development and providing for new development on peripheral greenfield sites, away from the town centre and public transport nodes, Scenario 3 would be likely to result in more unsustainable modes of transport and would increase:

- energy usage for transport;
- travel related emissions to air; and,
- levels of car dependency.

These environmental conflicts associated with these increases would not be likely to be mitigated.

#### **Water Services, Water Resources and Human Health**

Peripheral development would be not be served by public waste water treatment or drinking water services thereby conflicting with water resources, drinking water and human health - these conflicts would be unlikely to be fully mitigated.

A potential conflict between this scenario and the minimisation of flood risk and consequently human health could occur.

A potential conflict between this scenario and human health could arise as a result of the development of potentially contaminated sites.

#### **Flood Risk**

A potential conflict between this scenario and the minimisation of flood risk and consequently human health could occur.

## **Biodiversity and Flora and Fauna**

Peripheral development potentially conflicts directly and cumulatively with sensitivities including the River Barrow cSAC and the Grand Canal pNHA. Peripheral development would also cumulatively conflict with ecological connectivity - these conflicts would be unlikely to be fully mitigated.

## **Landscape**

Peripheral development would result in significant change to the landscape surrounding the existing development envelope of the town.

## **Cultural Heritage**

Potential conflicts between archaeological in the peripheries of the Plan area and potential conflicts architectural heritage in the town centre (in the long term, arising from a lack of development and subsequent decay) would be likely to occur. By not providing for the consolidation of the town centre this scenario would be likely indirectly contribute towards the protection of the Zone of Archaeological Protection.

### **4.2.5 Alternative Scenario 4: *Consolidation and Limited Expansion around Existing Development Envelope***

#### **Car Dependency, Travel Related Greenhouse Gas Emissions & Brownfield vs. Greenfield Development**

By providing for the consolidation of the town centre thereby encouraging brownfield development and only allowing limited expansion, Scenario 4 would be likely to help to maximise the uptake in more sustainable modes of transport. Maximising this uptake would help to minimise:

- energy usage for transport;
- travel related emissions to air; and,
- increases in car dependency.

#### **Water Services, Water Resources and Human Health**

Development within the town centre and limited development generally adjacent to the existing development envelope provided for by this Scenario would be conveniently served by drinking water services and by the existing waste water treatment plant - thereby contributing to the protection of water resources and human health. Although there is waste water treatment capacity available, an upgrade of the collection network is required. An upgrade of drinking water supply would also be needed.

A potential conflict between this scenario and the minimisation of flood risk and consequently human health could occur.

Potential conflict between this scenario and human health could arise as a result of the development of potentially contaminated sites.

#### **Flood Risk**

A potential conflict between this scenario and the minimisation of flood risk and consequently human health could occur.

#### **Biodiversity and Flora and Fauna**

Town centre consolidation potentially conflicts with sensitivities including the River Barrow cSAC and ecologically sensitive non-designated sites. The limited expansion provided for by this scenario potentially conflicts with ecological connectivity - including that of the Grand Canal pNHA.

## Landscape

Town centre consolidation and limited expansion provided for by this scenario potentially conflicts with protected views along Leinster Street, the River Barrow and the Grand Canal.

## Cultural Heritage

Potential conflicts between archaeological - including the Zone of Archaeological Potential - and architectural heritage and the consolidation of the town centre would be likely to occur.

### 4.2.6 Evaluation of Alternative Scenarios against SEOs

The main Environmental Report provides an evaluation of each of the alternative development scenarios for the Plan against the Strategic Environmental Objectives (SEOs).

Scenario 3 *Peripheral Expansion* would be likely to conflict the most with SEOs, having 9 probable conflicts which would unlikely to be mitigated. This is because consolidation of the existing town centre would be unlikely to occur under this Scenario, with development provided for at the periphery of the town and on greenfield sites.

Scenario 4 *Consolidation and Limited Expansion around Existing Development Envelope* would be likely to: improve the status of SEOs the most, more than Scenarios 1, 2 and 3; and, potentially conflict with SEOs the least, less than Scenarios 1, 2 and 3. This is because this Scenario provides for the consolidation of the town centre and only provides limited expansion of lands which are generally adjacent to the existing development envelope.

## 4.3 The Adopted Development Plan

The Alternatives that were examined were produced and evaluated at an earlier - more embryonic - stage to facilitate the evaluation and selection of a plan - having regard, *inter alia* to environmental consequences.

The scenario that was adopted for the Development Plan is similar to, but not the same as, Scenario 4 (*Consolidation and Limited Expansion around Existing Development Envelope*) – Scenario 4 achieves a good balance between potential environmental impact and conformance with relevant higher level planning objectives including the County Development Plan 2011-2017. The difference is that the adopted Plan does not conform with higher level planning objectives and provides for more zoning for built development purposes than was originally envisaged by Scenario 4.

This means that potential conflicts related to Scenario 4, identified in the previous subsections, would be more numerous and more likely to occur. They would, however, be mitigated - avoided, reduced or offset - by complying with the measures which have been integrated into the Plan, including those which are identified in Section 5 of this report.

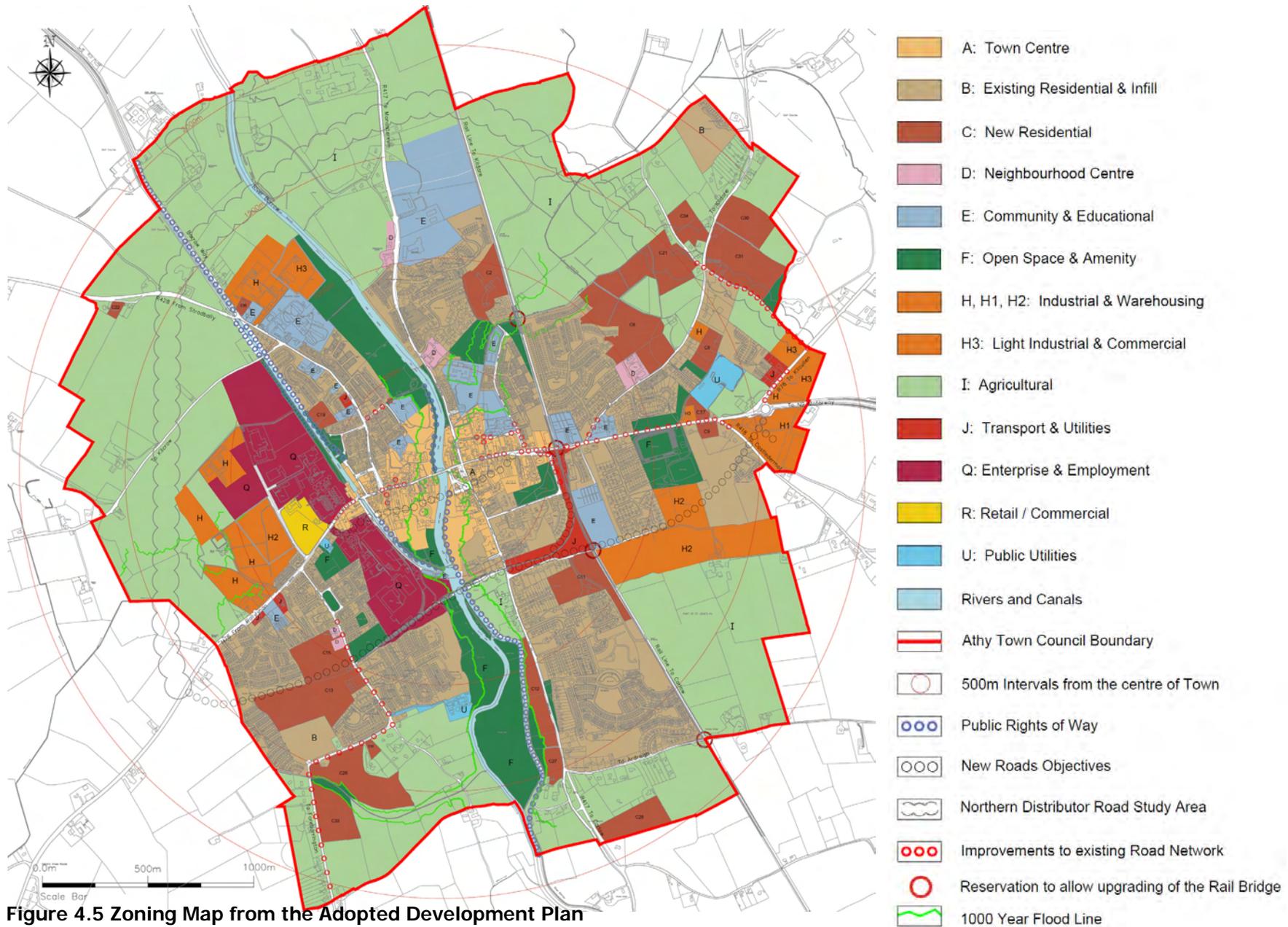
Residual effects likely to occur are detailed on Table 4.1 overleaf. In addition to the effects identified on this table it is noted that, on foot of a decision by Council on 28<sup>th</sup> February 2012, one of the Strategic Flood Risk Assessment recommendations has not been integrated into the Plan. This recommendation relates to the zoning of lands as New Residential at Woodstock South (in the western fringes of the town). Although mitigation measures integrated into the Plan were retained and would mitigate some effects, significant increases in flood risk and associated potential impacts upon human health could occur.

<b>Residual Negative Effects</b>	<b>Cumulative</b>	<b>Short, Medium or Long term</b>	<b>Temporary or Permanent</b>
Car dependency, travel related greenhouse gas emissions, brownfield development	Yes as a result of factors including amounts of development over an extent of zoned lands, some of which are located in peripheral areas	All	Permanent
Ecological connectivity and non-designated habitats	As above	All	Permanent
Provision of appropriate water Services and interaction with water resources, drinking water and human health (in the absence of significant extra investment)	As above	All (in the absence of significant extra investment)	Permanent (in the absence of significant extra investment)
Conflict with minimisation of flood risk	As above	All	Permanent

**Table 4.1 Residual Negative Effects**

The Development Plan (land use zoning map shown on Figure 4.5) was adopted by the Elected Members having regard to both:

1. The environmental effects which were identified by the Strategic Environmental Assessment; and,
2. Planning - including social and economic - effects.



## 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 Development Plan.

Likely significant beneficial effects of implementing the Plan have been and will be maximised and potential adverse effects have been and will be avoided, reduced or offset through:

- The consideration of alternatives for the Plan;
- Mitigation by Addition of Policies and Objectives; and,
- Mitigation measures arising from the findings of the Appropriate Assessment (AA) and Strategic Flood Risk Assessment (SFRA) (note that on foot of a decision by Council on 28<sup>th</sup> February 2012, one of the SFRA recommendations has not been integrated into the Plan- see Section 4.3 of this report).

The mitigation measures may be incorporated into the briefing of design teams as well as the subsequent design, specification and development management of the landuses to be accommodated within the Plan area.

Overleaf is a summary table outlining likely significant effects and corresponding mitigation and monitoring measures.

### 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, 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 Development Plan can help work towards - whether these need to be re-examined and whether the proposed mitigation measures are being implemented.

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 preliminary monitoring evaluation report on the effects of implementing the Development Plan will be prepared within two years of the making of the plan. The Council is responsible for collating existing relevant monitored data, the preparation of a monitoring report, the publication of this report and, if necessary, the carrying out of corrective action.

The following summary table shows indicators which were selected for monitoring the various environmental components. Also identified on the table are the likely significant effects - if unmitigated - and corresponding mitigation measures.

**Table 5.1 SEA Summary Table: Likely Significant Effects, Mitigation Measures and Indicators for Monitoring**

Likely Significant Effect, if unmitigated	Mitigation Measure Reference(s) from Plan	Primary Indicator(s) for Monitoring
Loss of biodiversity with regard to Natura 2000 Sites and habitats and species listed under Annexes I and II of the Habitats Directive	Policies: CS 14, GT 15, NH 1, NH 2, NH 6, and NH 7 and NH9..  Objective NHO 7.	B1: Conservation status of habitats and species as assessed under Article 17 of the Habitats Directive
Loss of biodiversity with regard to ecological connectivity and stepping stones	Policies: CS 13, NH 12 and NH 21.  Objective NHO 8.	B2: Percentage loss of functional connectivity to macro-corridors, stepping stones and contiguous areas of habitat which are important on a Town and environs level without remediation as a result of implementation of the Plan – as evidenced from a resurvey of CORINE mapping
Spatially concentrated deterioration in human health arising from exposure to incompatible land uses	Policies: MA1, N 1, N 2 and WM 5.  Objective ENO 4.  See also measures which have been included under Water Services (Waste Water) and Water Services (Drinking Water).	HH1: Occurrence (any) of a spatially concentrated deterioration in human health arising from environmental factors as identified by the Health Service Executive and Environmental Protection Agency
Failure to maximise the sustainable reuse of brownfield lands	Policies: CS 8, EDP6, HP6, UR 1 and UR 2.	S1: Area of brownfield lands developed over the Development Plan's lifespan
Adverse impacts upon the status of surface and ground water bodies	Policies: WQ 1, WQ2, WQ 4 and WQ6.  Objective: WDO4.  Also see measures in this section under Water Services (Waste Water).	W1: Classification of Overall Status (comprised of ecological and chemical status) under the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (SI No. 272 of 2009) W2: Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC
Flooding	Policies: HP28, SW1, SW3 and LU4.  Objectives: WDO13 and WDO14.	W3i: Number of developments granted permission on lands which pose - or are likely to pose in the future - a significant flood risk W3ii: Compliance with the recommendations contained in the Strategic Flood Risk Assessment being undertaken for the Plan
Inadequate waste water treatment for new populations	Policies WW3, WW4, WW5 and WS1.  Objectives: WDO2, WDO3 and WDO8.	M1i: Number of new developments granted permission which can be adequately served with waste water treatment over the lifetime of the Plan M1ii: Preparation of a Water Services Strategic Plan - in compliance with the Water Services Act - for the functional area of the Council

Likely Significant Effect, if unmitigated	Mitigation Measure Reference(s) from Plan	Primary Indicator(s) for Monitoring
Inadequate drinking water supply for new populations & Reduction in water quality which would present a potential danger to human health	Policies: WS1, WS2, WS3, WS4, WS6, WS10, WS12 and WQ7.  Objective: WDO5.	M2i: Number of non-compliances with the 48 parameters identified in the European Communities (Drinking Water) Regulations (No. 2) 2007 which present a potential danger to human health  M2ii: Preparation of a Water Services Strategic Plan - in compliance with the Water Services Act - for the functional area of the Council
Increases in travel related greenhouse gas emissions and increases in car dependency	Policies: TM 3, WC 1, WC 4 and WC 7.	C1i: Percentage of population within the Plan area travelling to work or school by public transport or non-mechanical means  C1ii: Average distance travelled to work or school by the population within the Plan area
Effects on archaeological heritage including entries to the Record of Monuments and Places, including Zones of Archaeological Potential	Policies: CS 12, AH1, AH 3, AH 4 and AH 6.	CH1: Percentage of entries to the Record of Monuments and Places - including Zones of Archaeological Potential - (and their context of the above within the surrounding landscape where relevant) protected
Effects on architectural heritage including entries to the Records of Protected Structures and Architectural Conservation Areas	Policies: CS 12, PS 1, PS 7 and ACA1.  Objective AHO1.	CH2i: Percentage of entries to the Record of Protected Structures (and/or their context within the surrounding landscape where relevant) protected  CH2ii: Number of additions to the Record of Protected Structures and the number of additional ACAs
Visual impacts	Policies: TE 5, VP 1 and VP 2.	L1: Number of complaints received from statutory consultees regarding avoidable impacts on the landscape resulting from development which is granted permission under the Plan