

Environmental Report

Non - Technical Summary

Of the
Arklow Town and Environs
Development Plan
2011 – 2017






Prepared by Wicklow County Council in conjunction with Arklow Town Council
April 2011

Non-Technical Summary - Table of Contents

Section 1 Introduction and Terms of Reference

1.1 Introduction

This is the Non-Technical Summary of the Environmental Report of the Arklow Town and Environs Development Plan (2011-2017) Strategic Environmental Assessment (SEA). The purpose of the Environmental Report is to provide a clear understanding of the likely environmental consequences of decisions regarding the future development of Arklow Town and its Environs.

1.2 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.

1.3 Why is it needed?

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

1.4 How does it work?

All of the main environmental issues within Arklow Town and its Environs are assembled and presented to the team who are preparing the new Plan. This helps them to devise a Plan that protects whatever is sensitive in the environment. It also helps 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 possible alternative versions of the Plan. This helps to determine what plan strategy is least likely to harm the environment.

1.5 What is included in the Environmental Report, which accompanies the Development Plan?

The Environmental Report contains the following information:

⇒ A description of the environment and the key environmental issues;
⇒ A description and assessment of alternatives for the Plan;
⇒ An assessment of the Plans policies and objectives; and,
⇒ 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.

1.6 What happens at the end of the process?

When the Development Plan is adopted a document must be made public, referred to as the SEA Statement. The SEA Statement must include 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 - this introduces accountability, credibility and transparency into the Plan-making process.

Section 2 The Development Plan for Arklow Town and Environs

2.1 Legislative Context

The Arklow Town and Environs Development Plan 2011-2017 has been prepared in accordance with the requirements and provisions of the Planning and Development Act 2000 (as amended). It sets out an overall strategy for the proper planning and sustainable development of Arklow Town and its Environs over the period 2011-2017. The Plan relates to the functional areas of both Arklow Town Council and Wicklow County Council.

2.2 Structure of the Plan

The Development Plan consists of a written statement with accompanying maps. The maps give a graphic representation of the proposals of the Plan, indicating land use and other control standards together with various objectives of the Council.

2.3 Relationship of the Plan with other Relevant Plans and Programmes

The Arklow Town and Environs Development Plan and accompanying Environmental Report fit into a hierarchy of strategic legislation, plans and policy documents. A number of higher-level strategic actions including European and Irish frameworks such as the National Spatial Strategy and the Regional Planning Guidelines for the Greater Dublin Area pre-determine the boundaries of the Wicklow County Development Plan which in turn sets the context in terms of population allocations etc for the development of Arklow Town and its environs.

Section 3 Summary of Baseline Environment/Existing Environmental Problems facing the plan area

The Environmental Report contains a range of baseline information on key environmental headings such as Biodiversity (Flora and Fauna), Population and Human Health, Landscape/Geology/Soil, Water Quality, Air and Climatic Factors, Material Assets, Cultural Assets and Climate Change and Sustainability.

3.1 Biodiversity Flora and Fauna

Biological diversity or biodiversity refers to the variety of life on the Earth. It includes flora and fauna and the habitats or places where they live. There are two designated sites of national importance in the plan area - Arklow Marsh proposed Natural Heritage Area (pNHA) and Arklow Rock Askintinny pNHA[1] but there are no EU designated Natura 2000 sites[2] Arklow Sand Dunes to the north and adjoining the boundary of the plan area is also designated as a pNHA.

Local data on flora, fauna and biodiversity is also available from the Arklow Urban Habitat Mapping study which provides baseline information on the flora, fauna and habitats of "green sites" within the Arklow Town Area in order to inform the decision-making processes involved in the future uses of these sites. The study provides information, which alongside management guidelines and recommendations, aims to assist the future planning and management of the identified areas in order to prevent negative impacts to sensitive sites.

Existing Environmental Problems

Infrastructure and water quality – The lack of a waste water treatment facilities to serve the current and projected population if continued will negatively impact on the water quality status of the Avoca River Valley and its tributaries, which is likely to be impacting upon aquatic biodiversity, flora and fauna to the extent where certain fish populations or macro-invertebrates can not be supported as they are not tolerant to serious pollution.
Designated Sites and connectivity - Arklow Marsh acts as a natural flood plain during peak flood periods occurring in the Arklow Town and Environs Area. Development pressures as a result of the growth of the town and environs area may impact upon this site significantly adversely impacting upon the ecological connectivity of the area. The continuous development and further expansion of existing quarrying activities at Arklow Rock also has the potential to
adversely impact on habitats and ecological connectivity in this area.
Terrestrial Biodiversity, Flora and Fauna - Over time, ongoing road and building developments within the study area have impacted upon biodiversity and flora and fauna with semi-natural habitats replaced by artificial surfaces.

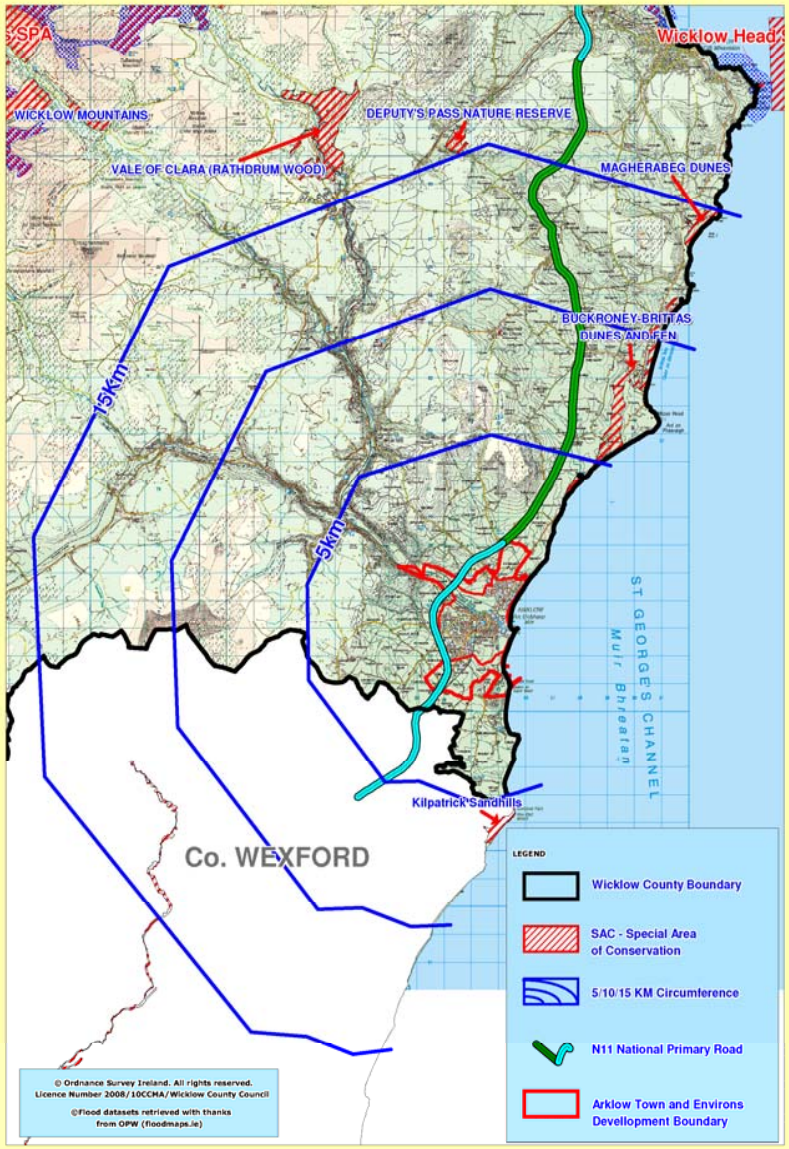
[1] The basic designation for wildlife is the Natural Heritage Area (NHA). This is an area considered important for the habitats present or which holds species of plants and animals whose habitat needs protection. Proposed NHAs (pNHAs) were published on a non-statutory basis in 1995 and have not since been statutorily proposed or designated, but it is intended that designation will proceed on a phased basis over the coming years.
[2] Natura 2000 sites are sites subject to European designations, normally known as SAC (Special Area of Conservation) and SPA (Special Protection Area). These are protected under the Habitats Directive of 1992 (EU directive 92/43/EEC)

Arklow Town and Environs Development Plan Aerial Photograph

Arklow Town Council Boundary

Arklow Environs/Overall Plan Boundary

Natura 2000 Sites surrounding Arklow Town and Environs



3.2 Population and Human Health

This section deals with the population and growth of Arklow during the plan period 2011-2017 and the potential impacts on Human Health. Having regard to Arklow's designation as a Large Growth Town II in the Regional Planning Guidelines for the Greater Dublin Area and the Wicklow County Development Plan, Arklow and its environs is targeted in the Wicklow County Development Plan to grow to 19,000 persons up to 2016 and 23,000 persons up to 2022, at a faster rate than heretofore. In particular, the population target of 19,000 in 2016 will require a growth rate of c. 6% per annum between 2006 and 2016.

It is estimated that by 2017 average household size in Wicklow will have declined to 2.52 (in accordance with the Regional Planning Guidelines). Assuming this same household size for Arklow and its environs, there would be a need for 7,800 dwelling units in the settlement by 2017, compared to 4,270 households in 2006.

Human health has the potential to be impacted upon by environmental components (i.e. environmental components such as air, water or soil, through which contaminants or pollutants, which have the potential to cause harm).

These factors were 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.

Existing Environmental Problems

Waste Water - There is a lack of wastewater treatment facilities to serve existing development and granted planning permissions in the Arklow Town and Environs area. This lack of infrastructure is constraining the growth of the settlement in accordance with the role conferred on it in higher-level strategies and results in risk to human health.

Individual Treatment Plans – Outside of the built up parts of the town and particularly in the 'environs' area i.e. that area outside the Town Council boundaries, existing development is in the main served by individual on site septic tanks / treatment plants. Areas which have high numbers of septic tanks, such as Sea Bank and the Kilbride area, alongside the existing outfalls from public network may cumulatively have potential to pollute groundwater, with consequent effects on human health.

3.3 Soil

Soil has a role as a habitat and gene pool, serves as a platform for human activities, landscape and heritage and acts as a provider of raw materials. Such functions of soil are worthy of protection because of their socio-economic as well as environmental importance.

The majority of the northern and southern sections of the plan within the Arklow Environs Area comprise of Surface and Groundwater Gley soils. To the north, south and dotted throughout the plan area, shallow surface and groundwater gleys are located. The coastal areas are classified as beach sand and gravels, which also include Arklow Marsh. Soils underlying the developed areas of Arklow Town and its Environs are man-made or urban soils

Existing Environmental Problems

Waste Water - Soil may be polluted and contaminated as a result of pollution from development not served by an adequate Waste Water Treatment facility.
Soil Erosion - Due mainly to surface erosion resulting from construction works and agricultural /forestry operations has major potential to impact on water quality and fishery resources.

3.4 Water

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

Pressures on Water Quality

Human activities, if not properly managed, can cause deterioration in water quality. Pressures exerted by human activities include discharge of sewage and other effluents to waters,

discharges arising from diffuse or dispersed activities on land; abstractions from waters; and structural alterations to water bodies.

Excessive abstractions from surface waters and groundwater for drinking and industrial purposes can create pressures on the ability of a water body to maintain both chemical and ecological status.

The Water Framework Directive

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.

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. Arklow Town and Environs fall within the Eastern River Basin District.

Surface Waters

The Avoca River and Estuary, which dissects the plan area forms the main water body within the plan area. A number of streams flow through the plan area into the Avoca River, with the Templerainey River located to the north of the town boundary connecting directly into the Irish Sea.

WFD Risk Assessment

In order to achieve the objectives of the WFD it is necessary:

⇒ To assess the risk that water bodies may not achieve good quality status;

⇒ To identify the pressures from human activities causing this risk; and,

⇒ To develop strategies and management plans to minimise the risk.

Arklow's Risk Assessment

In terms of achieving the objectives of the Water Framework Directive the following is of note:

⇒ *The **Avoca River** is classified as being at significant risk of not achieving good status due to Point Source Pollution – Mine Risk and Groundwater Quality Risk.*

⇒ *The **Avoca Estuary** situated in the heart of Arklow Town and is classified as being at significant risk due to the presence of 'OSPAR' Nutrients[3].*

⇒ *The **Templerainy River** situated to the north of the town is classified as being at significant risk due to Point Source pollution – CSO's (Combined Sewer Overflows), Diffuse pollution – EPA diffuse model and Point/Diffuse pollution.*

⇒ *The **Ballyduff River** situated to the south west of the town is classified as being at significant risk due to Diffuse pollution and Point Source pollution (CSO's).*

Eastern River Basin Management Plan

The ERBD Management Plan describes the actions that are proposed to ensure the necessary protection of the district's waters, including Arklow's, over the coming years. It sets out how the aims and objectives of improving and protecting water quality and ecology in the waters of each river basin district could be achieved, by means of a Programme of Measures.

[3] The presence of excessive enrichment of water with nutrients which may cause an increase in the accelerated growth of algae in the water column and higher forms of plants living on the bottom of the sea. This may result in a range of undesirable disturbances in the marine ecosystem, including a shift in the composition of the flora and fauna which affects habitats and biodiversity, and the depletion of oxygen, causing death of fish and other species. (Euthrophication)

Groundwater

The Groundwater body for the Arklow Urban area is defined in the Eastern River Basin District Management Plan as being of good status with an overall objective to protect, while the Wicklow Central water body (Avoca Mine[4]) is defined as being poor with an overall objective to restore to good status.

The ERBD management plan has identified the Wicklow Central (Avoca) groundwater body as a special case and is the only water body in the Eastern District where it is thought that good status cannot be achieved within the timeframes stipulated in the WFD.

Groundwater Risk Assessment

⇒ Arklow Urban – is listed as being of good status but at risk of not achieving good status due to point source pollution (contaminated lands) and general ground water quality.

⇒ Wicklow Central/Avoca Mine – is listed as being of poor status and at risk of not achieving good status due to point source risk (mine risk) and general ground water quality.

Water Supply

The existing water supply serving Arklow Town and Environs is produced in the water treatment works at Ballyduff. Raw water to the treatment works is sourced at two surface water locations. 1) The impounding reservoir at Ballyduff and 2) The Goldmine River at Woodenbridge. Treated water is currently pumped from the treatment works to reservoirs at Lamberton via 3 no. rising mains.

Due to existing problems with yield and the need to accommodate the projected population growth figures for Arklow Town and Environs it is proposed to upgrade the current water supply. A number of production wells, 16 in total, have been proposed to connect into the existing network, which shall be capable of meeting the projected demand. Each of these sources have been assessed for environmental impacts. As part of this process it is intended that the existing treatment works at Ballyduff shall be decommissioned.

Flooding

The Avoca River catchment area and Arklow Town have been subject to periodic flooding over a number of years. Heavy storms in 2000 and 2010 caused severe flooding in Lower Main Street, South Quay and Ferrybank.

Much of the flooding in the Arklow area occurs during adverse weather conditions whereby heavy rainfall causes high river flows. Local conditions within the Arklow area including the nineteen Arch bridge and culverts - which restrict high flows -, debris - which cause blockages - and land use changes also increase the risk of flooding.

Developments in Flood Management in Arklow

Arklow Town Council has undertaken a flood relief study and programme. The map below displays the extent of 100 and 1,000-year fluvial flood / 200 and 1,000-year tidal flood with climate change.

As part of the plan process a flood risk assessment must be carried out in accordance with the DEHLG guidelines “The Planning System and Flood Risk Management”. This is set out in the Development Plan where areas prone to flooding have been identified, assessed and management measures applied through appropriate objectives relating to the development of certain sites.

Future Influences on Flood Risk

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

[4] Data based upon Draft RBMP Report, 22/12/2008

⇒ Changes to geomorphological processes such as sediment transport, siltation and erosion.

Existing Environmental Problems

Surface Waters

The rivers in the town and in the surrounding area are classified by the Risk Assessments contained in the Characterisation Reports of the various River Basin Districts as being either at significant risk or probably at significant risk of failing to achieve the objectives of the Water Framework Directive by 2015.

Groundwaters

The potential for groundwater pollution would be increased with the developments being served by individual wastewater treatment plants, which may not have been constructed properly or managed sufficiently to prevent groundwater pollution.

Flooding:

Inappropriate development on land prone to flooding would increase the effects and extent of flooding potentially causing pollution of groundwater sources (as above) impacting on water supplies.

Water Related Mapping

Figure 3.5 Rivers, Transitional and Coastal Water Quality

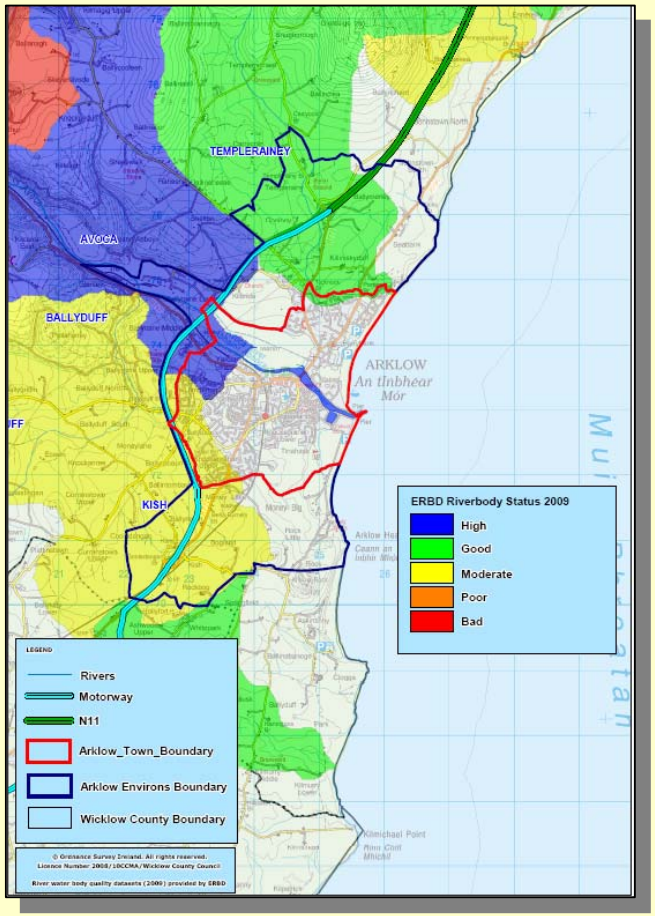


Figure 3.6 WFD Risk Assessment for Rivers, Transitional and Coastal Waters risk assessment

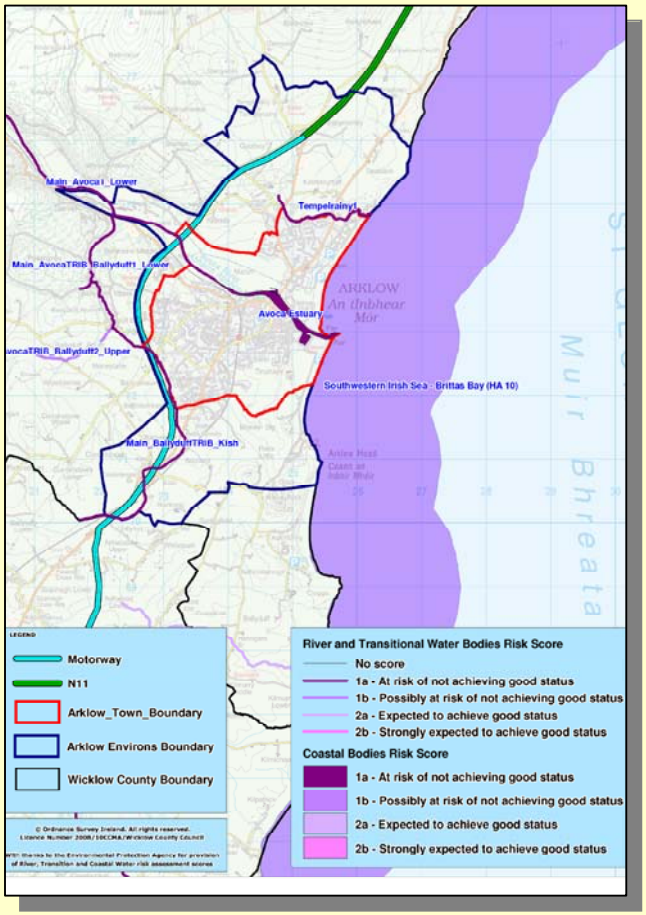
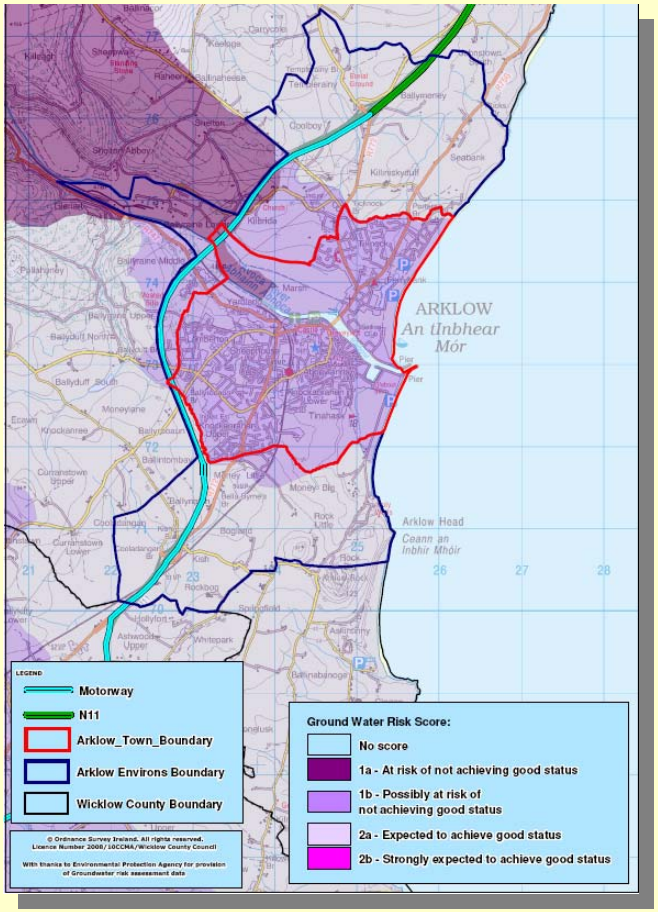


Figure 3.7 Groundwater Risk Assessment



Water Related Mapping

Figure 3.8 Groundwater Vulnerability

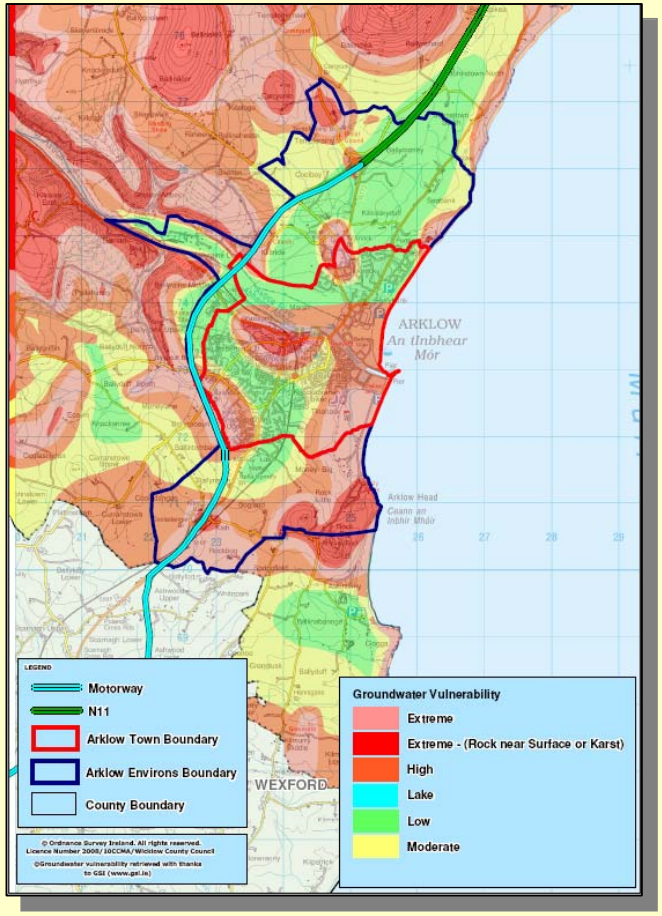
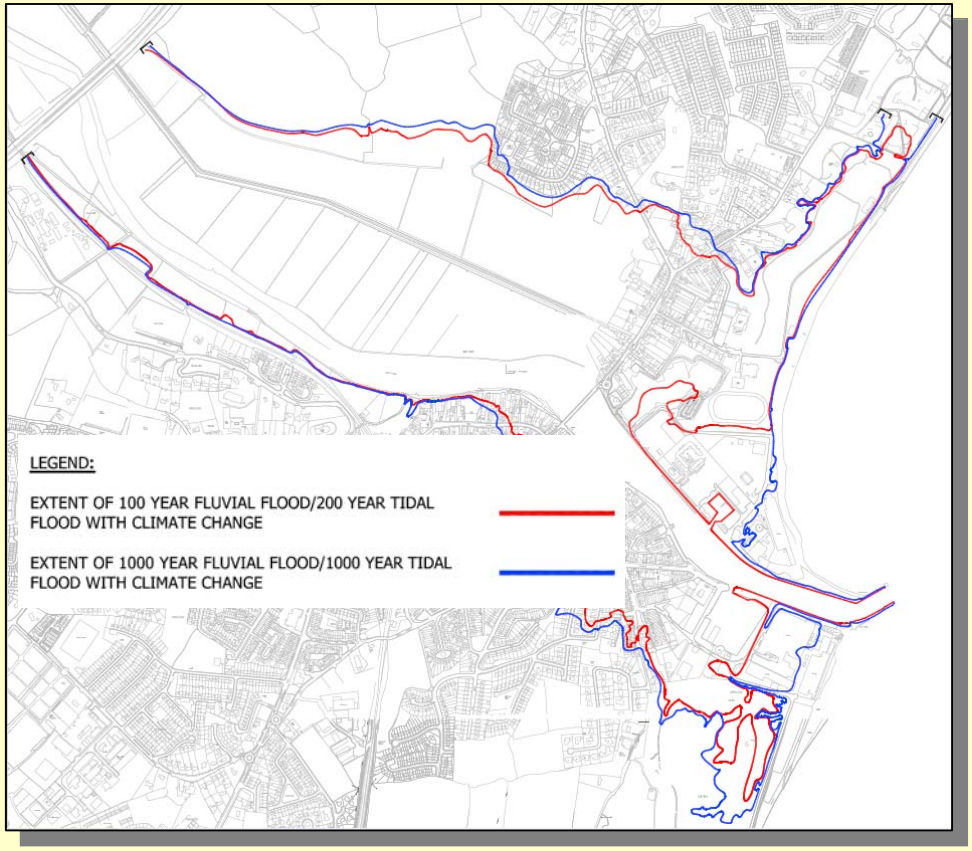


Figure 3.9 Flooding



3.5 Air and Climatic Factors

Emissions from vehicles, extractive industries and intensive industries can reduce the quality of air and thus have a negative affect on the quality of life of residents of the plan area. Noise pollution is considered to be one of the most damaging and prevalent forms of nuisance and pollution within urban areas. High levels of traffic noise especially can have a detrimental effect on the quality of life, and on human health.

In order to monitor the levels of atmospheric pollutants, four zones were defined in the Air Quality Standards Regulations 2002. The main areas defined in each zone are: Zone A: Dublin Conurbation, Zone B: Cork Conurbation, Zone C: Other cities and large towns and 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. The Arklow Town and Environs area is located in Zone D. There are currently no ambient air quality monitoring in the Arklow Area with past monitoring stations being situated in Avondale and Bray.

Air quality in the general study area is not considered to be a significant issue. There are five active IPPC licensed facilities located within the Arklow and Environs Area. These are Holfeld Plastics Limited, Power and Energy Holdings (ROI) Limited, Servier International B.V, Sigma-Aldrich Ireland Limited, Vitra (Ireland) Limited.

In terms of the impact of various licensed industrial facilities on future development, the development of brownfield sites for mixed use development will need to have regard to any health and safety constraints imposed by existing industrial uses.

Existing Environmental Problems

Traffic Emissions - Traffic hotspots within the urban parts of the plan area and along the main arterial routes off the N11 are likely to have elevated levels of air pollution and noise due to traffic congestion.

Demolition/construction - Localised air pollution incidences with regard to PM10 and PM2.5 and noise pollution from new development.

Regeneration projects - The development of brownfield sites for mixed use development will need to have regard to any health and safety constraints imposed by existing IPPC licensed industrial uses.

Flooding - 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 plan areas human beings, its biodiversity and its economy *(see also previous section on Flooding).*

3.6 Material Assets

Waste Water

Arklow Town and its Environs does not currently benefit from the use of a wastewater treatment plant (WTP). The current treatment demand for the plan area is identified as being 16,997 with domestic demand being 14,447 and non-domestic demand being 2,550. The proposed WTP (stage 1) for the settlement will cater for a population equivalent of 18,000. The immediate provision of this facility is a vital requirement in the fulfilment of the area's development requirements.

Drinking Water

Water for Arklow is currently sourced from the Goldmine River (maximum capacity of 4.5Ml/day) but the proposed replacement scheme will see most of the water being sourced from 16 wells (each with source protection plans), with water being treated at the Ballyduff Drinking Water Treatment Plant, which is due to be completed and upgraded by 2010. This upgrade will meet the drinking water needs of the settlement throughout and beyond the plan period.

Flooding

The Avoca River catchment area and Arklow Town have been subject to periodic flooding over a number of years. The flood relief study undertaken by the Town Council has identified the measures required to address the risks and consequences on material assets, such as property and infrastructure, from flooding. The strategies and objective of the development plan will support the achievement of these measures.

Transport

Arklow is by-passed by the M11 / N11 national primary route. The old N11 road running through the centre of the town still provides the main route for local traffic and joins the N11 bypass to the north and south of the town. The Wicklow County Development Plan and Arklow Town and Environs Plan provides for the provision of a third interchange along this national route to the serve the population of Arklow.

The regional R747 link forms the main route west to Aughrim, Tinahely and west Wicklow, , whilst the R750 coastal road provides an alternative route to Wicklow in the north. To the south west of the town, Coolgreaney Road, Cemetery Road and Emoclew Road form a distributor ring to the west of Wexford Road. To the east of the N11, Main Street, Abbey Street and Yellow Lane form a similar loop to the east of Wexford Road.

Public transport to Arklow town is provided by a train service through the station located to the south west of the town centre and a Bus Éireann bus service that runs approximately every two hours, connecting to Dublin and southerly towns such as Arklow and Waterford. The limited availability of public transport services is reflected in the dominance of car use as the main transportation mode.

Existing Environmental Problems

Wastewater Treatment – The lack of the Wastewater Treatment Plant represents a significant existing environmental problem that is likely to be adversely impacting upon the Council's ability to meet its commitments under the Water Framework Directive (see section on WFD).

Infrastructure – New projects such as a new wastewater treatments plant, upgraded water supply and transport infrastructure are likely to have significant adverse impacts on the environment if not mitigated.

Flooding - In the designation of lands for certain uses a strong recognition of the findings of the flood risk assessment must be carried out in order to ensure compliance with the Flood Risk Management Guidelines 'The Planning System and Flood Risk Management'.

3.7 Cultural Assets

Archaeological Heritage

Archaeology is the study of past societies through the material remains left by those societies and the evidence of their environment. Within the plan area, there are 7 entries to the Record of Monuments and Places and one Zone of Archaeological Potential.

Architectural Heritage

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.

There are 38 existing entries to the RPS, which have been carried forward in the Development Plan. There is no Architectural Conservation Area (ACA) designated within the plan area.

Existing Environmental Problems

⇒ The accommodation of large-scale development within the plan area has the potential to cumulatively impact upon cultural heritage.

⇒ Development which involves material alteration or additions to protected structures can detract from the special character of the structure and its setting and has the potential to result in the loss of features of architectural or historic interest and the historic form and structural integrity of the structure are retained.

⇒ Development on sites adjoining protected monuments; places or structures can also impact upon the setting of these cultural heritage items.

3.8 Climate Change

Climate change is an important challenge facing society today, an issue which affects all citizens at a local, national and international level. It is important that the Council, and its residents, act responsibly at a local level in order to assist in the reduction of greenhouse gas emissions. 'Agenda 21' and the 'Kyoto Protocol' set out visions for sustainable future development. Both frameworks require that local plans and procedures are established and implemented which allow for requisite reductions in greenhouse gas emissions.

Potential Effects of Climate Change

Climate change is not limited to changes in temperatures or weather - it can also mean changes in the occurrence of extreme and unstable weather conditions, storms and floods, droughts and coastal erosion.

⇒ Increased Temperatures = increased water vapour = accelerated water cycle = greater risk of flooding.
⇒ More extreme weather conditions increase risk of flash flooding
⇒ Sea level rise on estuaries will tend to enlarge their vertical and horizontal extent, resulting in the penetration of tides further upstream
⇒ Changes to habitats arising from the flow conditions in rivers and lakes.

Existing Environmental Problems

Traffic Emissions - At a micro level in Arklow itself the design and incorporation of walkable and cycle friendly urban developments needs to be accommodated in order to facilitate a modal shift away from car-based trips.

Flooding - The accommodation of works to address flood risks in Arklow must be considered at this stage, prior to the onset of major flooding events.

3.9 Landscape

Wicklow County Council's Landscape Characterisation section as set out in Chapter 17 Section 17.8 of the County Development Plan classifies landscapes in Wicklow according to their sensitivity – their ability to accommodate change or intervention without suffering unacceptable effects to character and values. Arklow Town and its Environs fall within the category of an Urban Area.

Arklow Town and Environs fall within Cell 11 of the Coastal Zone Management plan of the County Development Plan. The plan sets out objectives for Cell 11 including the enhancement of visual, recreational and natural amenities, the development of tourist and recreations facilities and the future development of marine and shipping activities.

The Wicklow County Development Plan identifies one prospect in the plan area of special amenity/special interest as follows:

Prospect No.	Origin	Feature
30	R750 – regional road	Wicklow to Arklow Prospect towards the sea from the coast road

This prospect of special amenity enters the plan boundary along the R750 regional road to the north of the plan area only.

Existing Environmental Problems

Given the relatively low lying topography of the Arklow area the issue of visual impact is not considered to be significant, however the cumulative visual impact of development such as single rural dwellings to the north of the plan area along the R750 regional road at Seabank has the potential to cumulatively and adversely significantly impact upon the above listed prospect of special amenity/special interest.

3.10 The likely evolution of the environment without the implementation of the Development Plan

Biodiversity - In the absence of a Development Plan for the Arklow Town and Environs area development would have no guidance as to where to be directed and planning applications would be assessed on an ad-hoc/individual basis with flora and fauna, habitats and ecological connectivity only being protected by a number of generic strategic actions relating to biodiversity flora and fauna with no local level focus.
Population and Human Health - In the absence of a Development Plan for the area there would be no framework for the provision of infrastructure to serve existing and future development and this would be likely to delay or hinder the provision of infrastructure which would have the potential to result in impacts on environmental components to which humans are exposed e.g. a lack of appropriate waste water treatment infrastructure could adversely impact upon drinking water quality and subsequently upon human health.

Soil - There would be no framework for the direction of growth towards brownfield sites in the Arklow Town and Environs area, 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.

Water -
Surface Waters
Based on the above findings from the Risk Assessment characterisation reports the main surface water bodies located within Arklow Town and its Environs would be unlikely to meet the objectives of the Water Framework Directive.

Groundwaters
The potential for groundwater pollution would be increased with the developments being served by individual wastewater treatment plants, which may not have been constructed properly or managed sufficiently to prevent groundwater pollution.

Flooding:
Inappropriate development on land prone to flooding would increase the effects and extent of flooding potentially causing pollution of groundwater sources (as above) impacting on water supplies.

Air and Climatic Factors – sprawled development patterns would lead to increased travel related emissions. There would be no guidance or objectives regarding energy efficiency and renewable energy. The regeneration of areas within the town centre would not be achieved and the opportunity to prevent the generation of future transport related greenhouse gas emissions would be missed.

Material Assets – the provision of a waste water treatment and water supply network serving all lands within the plan area would become unfeasible with sprawled development increasing the costs and feasibility of providing such services. Lands prone to flooding in the absence of relevant guidance and infrastructure would be likely to increase the occurrences and extent of flooding within the plan area. The provisions of the Arklow Land Use and Transportation Study would not have been taken into consideration in the provisions for the future development of the plan area.

Cultural Assets - In the absence of a development plan, protection of buildings and archaeological heritage would still take place due to the continued protection afforded by the RMP and RPS. It should be noted however, that development in general would be more widely spread out, impacting on intact landscapes and protected structures and their curtilage. Retention and active use of protected structures would probably be less widespread, as development incorporating the monuments and structures on the RPS and RMP could not be easily enforced or policed.

Climate Change - If new dispersed development occurs in the Town and its environs (increasing emissions), adverse impacts upon air quality and noise levels, and resultant impacts upon human health, would be likely to arise if unmitigated. There would be no guidance or objectives encouraging and facilitating more sustainable options relating to energy consumption and production.

3.11 Overlay Mapping of Environmental Sensitivities

Introduction:

In order to identify the sensitivity of lands within the plan area overlay mapping was used.

Methodology:

This process involved placing a value on each of the environmental components as listed above i.e. Heritage Areas, Urban Habitats, Water etc and overlaying each of these environmental factors on top of each other using Geographical Information Systems in order to identify how environmentally sensitive each area within the plan area actually is. This computer program multiplies the values of each environmental component in order to provide a value identifying how sensitive a particular area of the plan is. The most sensitive areas as demonstrated in the map below are those where a number of environmental components were located on the same lands. The values/weightings applied to each environmental component are listed in the tables below.

Key Environmental Components	Description	Arklow's Context	Risk Weighting
Ecological Designations	NHA designations	Marsh/Arklow Rock/ Avoca River Valley	10
Surface Waters	Rivers and Estuaries	Templerainy – Significant Risk Ballyduff – Significant Risk Avoca River – Significant Risk	10

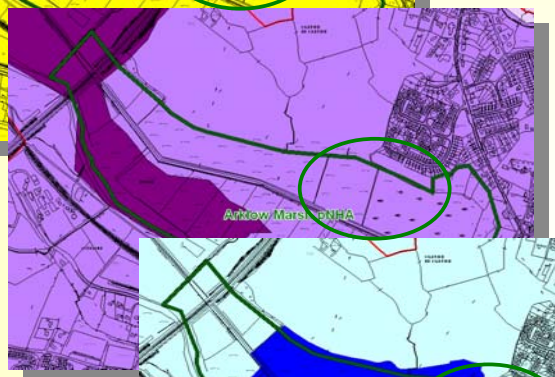
Landscape Category	Sensitivity	Risk Weighting
Urban Area	Low	1
Coastal Area	High	10
Corridor Area	Medium	5

Groundwater	Drinking Supplies	Low Vulnerability – Northern Section of the plan area High Vulnerability – Town Centre and Surrounding Area Extreme Vulnerability – South of Environs	1A at risk of not achieving good status = 10 1B possibly at risk of not achieving good status = 5
Cultural Heritage	NIAH, RPS, RMP, Zone of Archaeological Potential		10
Urban Habitat Mapping Study (Town Centre)	High Value and Locally Important Habitats	Located within the Arklow Town boundary of the plan area.	5
Flood extents	Extent of 1000yr fluvial flood/1000 year tidal flood with climate change	Lands Adjoining and in the immediate vicinity of the Avoca River and Estuary	5

A working example of this process is provided below relating to lands within Arklow Marsh.

Working example of overlay mapping for lands located within the Arklow Marsh Area

Arklow Marsh pNHA boundary Area without overlay landscape category map – Urban Area Weighting of (1).



Arklow Marsh pNHA boundary Area with overlay of pNHA weighting score of 10.

1

(x)

10

Arklow Marsh pNHA boundary Area with overlay of Water Framework Directive Groundwater Risk Assessment Weighting of (5) (5 – 1B at possibly at risk of not achieving good status (WFD)).

(x)

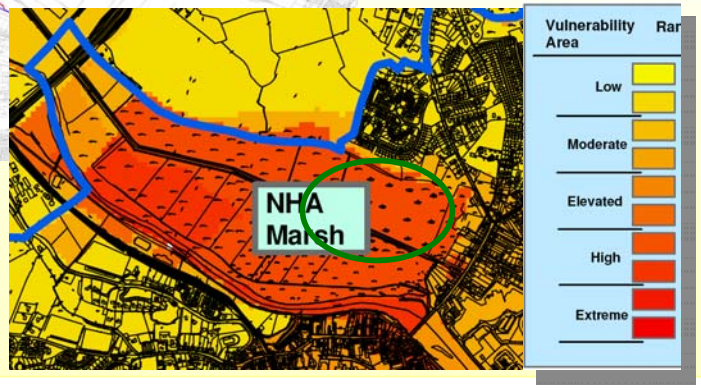
5

1000 year flood extent of the Avoca River and Avoca Estuary (5)

(x)

5

= 250



Total Sensitivity of lands highlighted within Arklow Marsh

250 = High Sensitivity

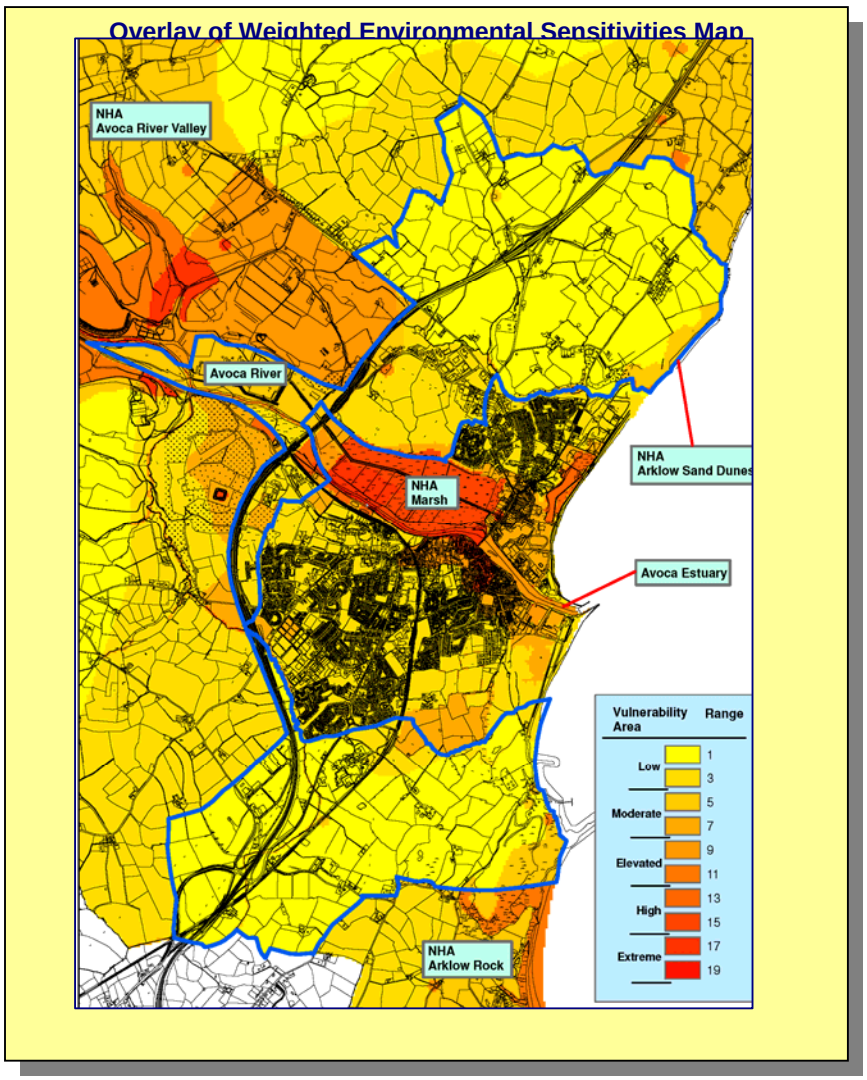
Re-Classification of Values

Given the wide range of values derived in carrying out this process it was decided for convenience purposes to scale back the values derived in order to fall within a simpler range of 1-20. As can be seen in the table below the value derived for Arklow Marsh as set out in the working example above was scaled down/re-classified in order to fall within the 12-15-sensitivity range of high sensitivity.

Re-Classified Sensitivity Range

Sensitivity Range prior to Re-classification	Re-classified sensitivity Range	Sensitivity
1 – 10	0-3	Low
10 – 50	4-7	Moderate
50 – 100	8-11	Elevated
100 – 500	12-15	High
500 - 1000	16-19+	Extreme

As can be seen from the map below the distribution of the most sensitive areas relate to the locations where a number of the environmental components fall within the same area as set out above in the working example of overlay mapping.



4. 0 Strategic Environmental Objectives "SEO's"

The Development Plan is subject to a number of high level national, international and regional environmental protection policies and objectives. A series of Strategic Environmental Objectives (SEO's), see table below, have been derived from these sources, which cover the range of environmental aspects and reflect a local dimension.

Examples of Strategic Environmental Objectives include the aim of the EU Habitats Directive - which is to contribute towards ensuring bio-diversity 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. The strategy and policies in the Development Plan must be consistent with these objectives and the Plan must be capable of implementing these objectives at a local level for Arklow Town and its Environs.

Code	SEO
B1 Biodiversity	To ensure compliance with the Habitats Directive and National Biodiversity Plan with regard to protected species and habitats both within and outside of designated sites in accordance with the provisions of Articles 6 and 10 of the Habitats Directive.
B2 Biodiversity	To avoid significant adverse impacts, including direct, cumulative and indirect impacts, to relevant habitats, geological features, species or their sustaining resources in designated ecological sites such as Arklow Marsh, Arklow Rock Askintinny and Arklow Sand Dunnes, by development within or adjacent to these sites
B3 Biodiversity	To ensure compliance with Article 10 of the Habitats Directive with regard to the management of features of the landscape – by sustaining, enhancing or - where relevant - preventing the loss of ecological networks or parts thereof which provide significant connectivity between areas of local biodiversity
HH1 Human Health	To protect human health from hazards or nuisances arising from exposure to incompatible land uses in particular from the re-use of brown field lands in areas where previous uses may have contaminated lands such as the Water front Development Zone in Arklow.
R1 Regeneration	Maximise the sustainable re-use of brownfield lands, and maximise the use of the existing built environment rather than developing greenfield lands
S1	To prevent pollution and/or contamination of soil.
WS Water Surface	To maintain and improve, where possible, the quality of Rivers, Lakes and other surface waters
WG Water Ground	To prevent pollution and contamination of ground water
WF Water Flooding	To prevent development on lands which pose - or are likely to pose in the future - a significant flood risk
AQ1 Air Quality 1	To reduce travel related greenhouse emissions to air
AQ2 Air Quality 2	To reduce car dependency within the plan area by way of, inter alia, encouraging modal change from car to more sustainable forms of public transport and encouraging development which will not be dependent on private transport
WW Waste Water	To serve new development with appropriate waste water treatment
DW Drinking Water	To serve development within the Plan area with drinking water that is both wholesome and clean
AH1 Archaeological Heritage	To protect the archaeological heritage of Arklow including entries to the Record of Monuments and Places – including the towns Zone of Archaeological Potential - and the context of the above within the surrounding landscape where relevant
AH2 Architectural Heritage	To preserve and protect the special interest and character of Arklow's architectural heritage including entries to the Record of Protected Structures, and their context within the surrounding landscape where relevant
L1	To protect and avoid significant adverse impacts on the landscape of Arklow, including landscape features such as the coastal region, Arklow Sand Dunes and designated views and prospects within the plan area.

5.0 Alternative Plan Scenarios

One of the critical roles of a SEA is to facilitate an evaluation of the likely environmental consequences of a range of alternative strategies for facilitating the future development of the Arklow Town and Environs area within the constraints imposed by intrinsic environmental conditions. The SEA Directive requires that reasonable alternatives, taking into account the objectives and the geographical scope of the plan or programme, are identified, described and evaluated for their likely significant effects on the environment. For the purposes of the environmental assessment of the Arklow Town and Environs Development Plan, three alternative Plan scenarios were developed.

Scenario 1 Minimal Development Envelope

Characteristics of this scenario include:

⇒ Extensive green buffers along local green corridors
⇒ A strong recognition of ecological designations within the plan area
⇒ A strong recognition of the 1000m-consultation zone from the designated Seveso site
⇒ A strict implementation of the Flood Management Guidelines
⇒ Protection of local important habitats identified by the Arklow Town Urban Habitat Study

Scenario 2 Moderate Development Envelope

Characteristics of this scenario are similar to scenario 1 with the following exceptions:

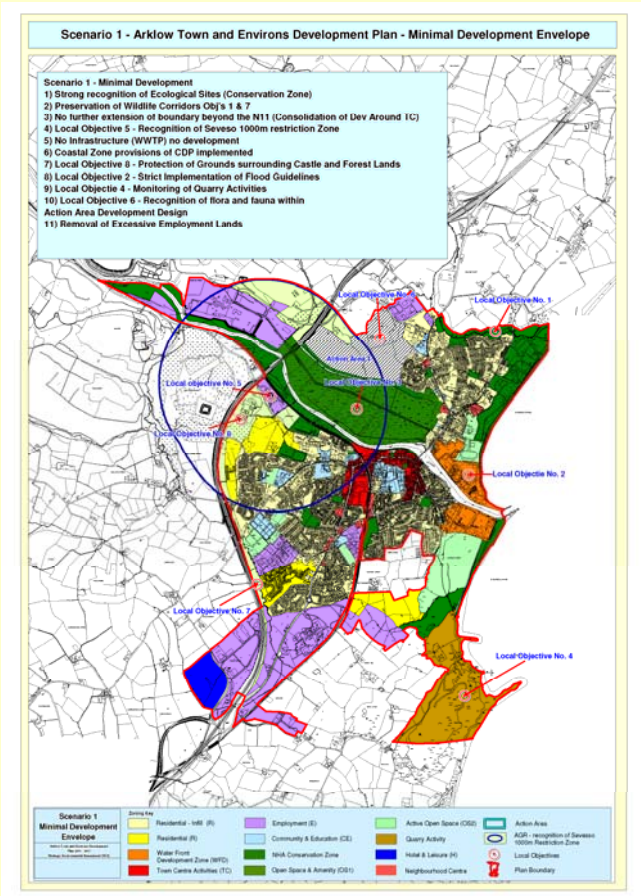
⇒ Extensive employment lands are included to the north and south of the plan area
⇒ An action area plan at Tinahask is included providing for residential, educational and community uses in the form of playing fields.

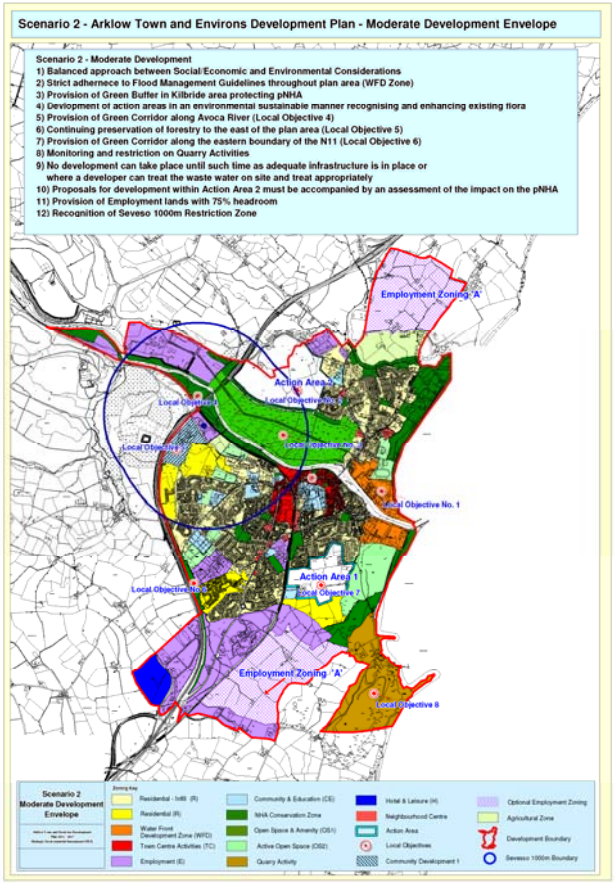
Scenario 3 Maximum Development Envelope

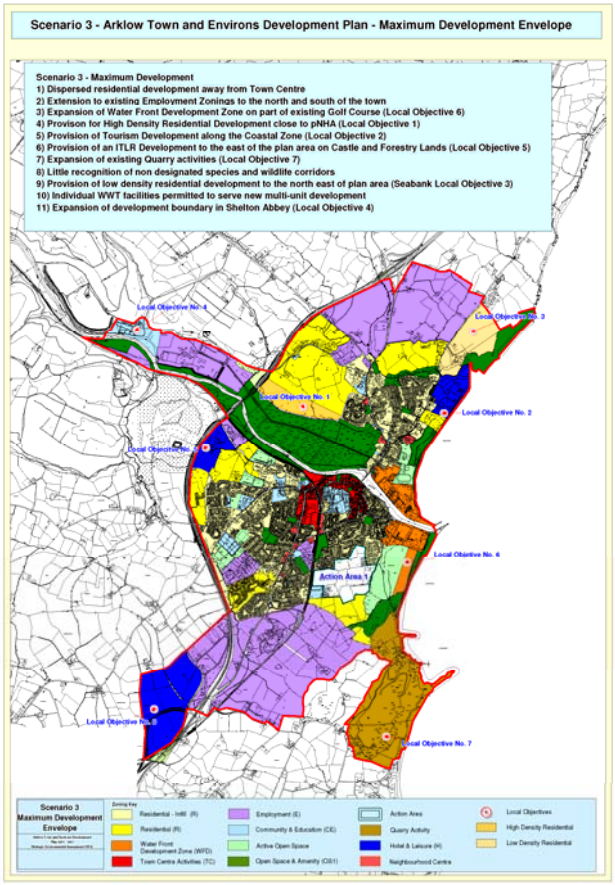
Characteristics of this scenario include:

⇒ A further intensification of development
⇒ Encroachment of development into virgin/rural lands to the north and south
⇒ Facilitation of coastal zone development
⇒ A high density zoning adjoining Arklow Marsh at Kilbride
⇒ Extensive employment lands with limited restrictions on types of uses
⇒ Further zoning is proposed beyond the N11 at Shelton Abbey

Alternative Plan Scenarios







5.1 Evaluation of Alternative Plan Scenarios

The processes carried out indicates the following:

⇒ Scenario three would be likely to result in more adverse environmental impacts than each of the other two Scenarios arising from increases; in land take/development of greenfield lands, in air emissions arising from increased car based trips due to the extent of the plan area, loading on infrastructure given the extent of development this scenario provides etc.
⇒ If mitigated, Scenarios 1 and 2 would be likely to result in a lesser frequency and magnitude of impacts than Scenario 3.
⇒ Scenario 3 is the scenario with the greatest amount of high and acute vulnerability areas covered by development pressure areas and the only scenario for which extremely vulnerable areas are covered by development pressure areas.

Comparison of Scenarios 1 and 2:

While Scenarios one and two have very similar attributes, scenario 1 represents a more conservative and consolidated plan format with limited expansion to the existing developed area within the plan boundary. This scenario represents the most environmentally friendly plan format with limited development of greenfield lands, preservation and expansion of green corridors and a strict restriction on development in the absence of adequate infrastructure.

While this may appear to be the ideal plan format to follow, the provisions of this scenario fail to adequately provide for a balanced approach towards the future development of Arklow. Restrictions on the future development of greenfield lands will impose serious implications on the plan being capable of meeting its population requirements as set out in the County Development Plan with the knock on effect of limiting the potential for new community/social infrastructure. Failure to facilitate the projected future population may also have implications for the provision of new or improved infrastructure such as roads and public transport.

Scenario 2 on the other hand, extends the development boundary for the plan area to the north and south quite significantly in order to accommodate stand-alone large-scale employment developments and also provides for a new action area at Tinahask facilitating the development of residential, community and recreational uses. The designation of such lands aims to ensure that the plan area is capable of meeting the needs of the projected population with the knock on effect of facilitating the potential for the expansion of existing infrastructure.

While both scenarios represent 'green ideology's for Arklow Town and its Environs by facilitating and aiming to enhance existing green corridors, scenario two through the zoning of additional lands to the north and south of the plan area has the potential to conflict with this overarching theme.

In terms of sustainable development however, while scenario 1 represents the least potential environmental impact, scenario 2 provides for a balanced approach in terms of social economic and environmental sustainability for the future development of the plan area while also meeting the higher overarching national/regional planning strategies including the National Spatial Strategy and the Regional Planning Guidelines for the Greater Dublin Area.

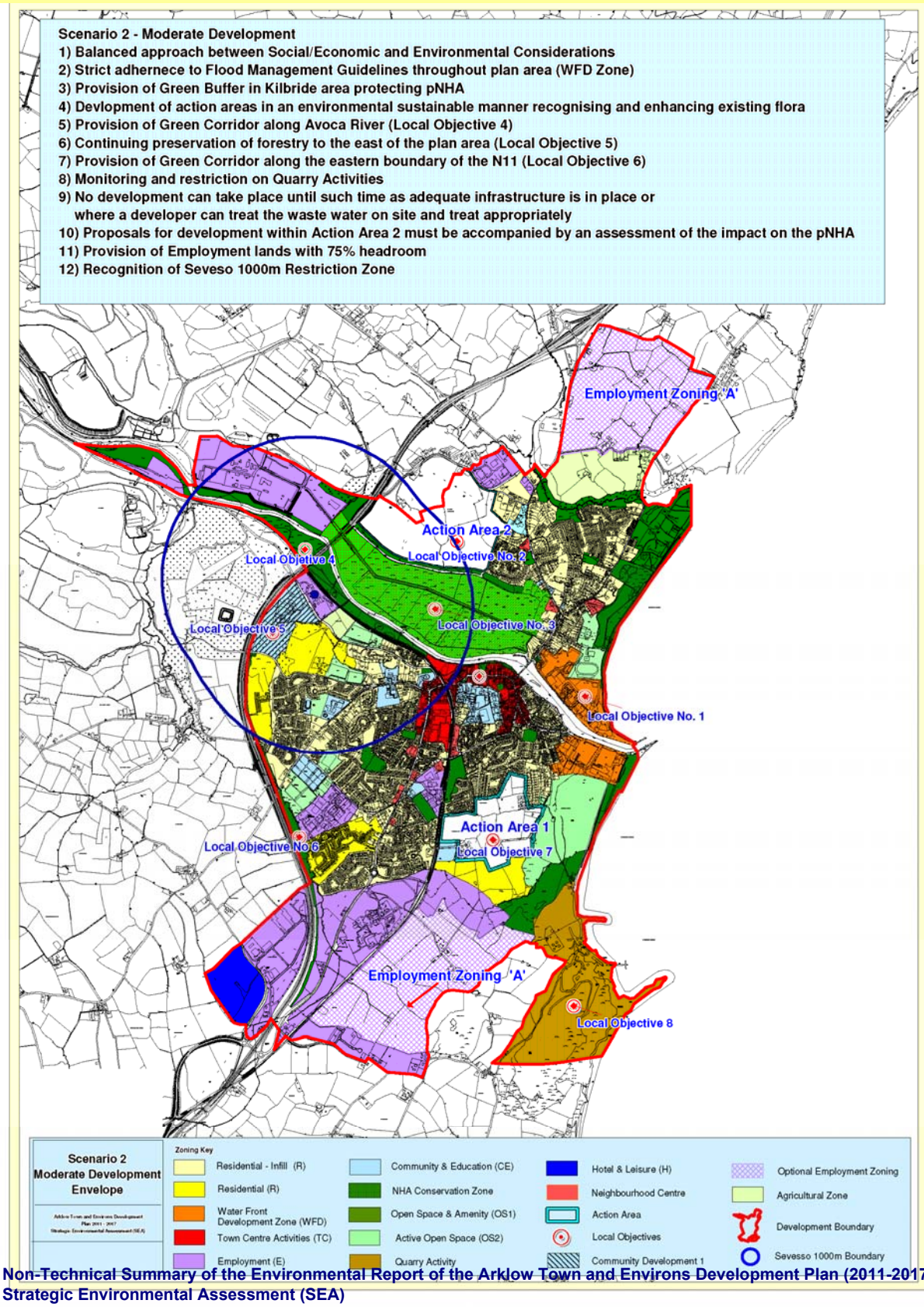
The preferred Alternative:

On the basis of the above analysis Scenario 1 would be likely to improve the status of a number of the SEO's and emerges as the most environmentally friendly option. If unmitigated, Scenarios 2 and 3 would be likely to result in a number of adverse environmental impacts.

Having regard to planning considerations, Scenario 2 provides a better balance between environmental protection and economic and social development while also meeting the higher overarching national/regional planning strategies including the National Spatial Strategy and the Regional Planning Guidelines for the Greater Dublin Area. Under Scenario 2, potential conflicts with environmental objectives can largely be offset by appropriate mitigation measures and therefore this scenario provides for the most sustainable option.

The Development Plan that has emerged from the Plan preparation process most closely corresponds to Scenario 2.

Scenario 2 - Moderate Development Envelope – Chosen Development Plan Scenario



5.2 Limitation to Methodologies:

1) Arklow Marsh: Baseline data collection comprised a thorough review of all relevant data to the plan area however a lack of existing detailed information relating to the Arklow Marsh pNHA in the form of specific conservation objectives required further analysis to be carried out and the use of generic objectives to ensure the protection of this wetland habitat.

2) Overlay Mapping: While it is noted that there are elements of subjectivity to the weighting systems used to form the baseline and land use zoning mapping, efforts were made to be as objective as possible in order to provide what would be considered to be reasonable alternatives.

3) Conservation Management Plans on Natura 2000 sites: Data collection comprised of a thorough review of all relevant data however the lack of comprehensive and up to date conservation management plans for designated sites surrounding the plan area required the use of generic conservation objectives for the protection of these sites.

4) Data Collection: The lack of a single data source relating to all environmental components relevant to the plan area required the use of a number of varying sources of information which extended the timeframe for data collection. It is considered that the provision of a primary stand alone source containing real time data relevant to the preparation of EIA and SEA projects would help reduce the time requirements for the preparation of this section and help produce more comprehensive and consistent analysis for all plans and projects.

6.0 Mitigation Measures

Mitigation measures are measures envisaged to prevent, reduce and, as fully as possible, offset any significant adverse impacts on the environment of implementing the Development Plan. Mitigation involves ameliorating significant negative effects.

Where there are significant negative effects, consideration is given in the first instance to preventing such effects or, where this is not possible for stated reasons, to lessening or offsetting those effects. Mitigation measures can be roughly divided into those that: avoid effects; reduce the magnitude or extent, probability and/or severity of effects; repair effects after they have occurred, and compensate for effects, balancing out negative impacts with other positive ones. 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.

Mitigation measures are recommended in the Environmental Report for the following topics:

- ⇒ Biodiversity and Flora and Fauna
- ⇒ Water Protection
- ⇒ Waste Water
- ⇒ Drinking Water
- ⇒ Flooding
- ⇒ Soil and Contamination
- ⇒ Cultural Heritage
- ⇒ Landscape
- ⇒ Air and Noise
- ⇒ Transportation
- ⇒ Waste Management

7.0 Monitoring

The SEA Directive requires that the significant environmental effects of the implementation of plans and programmes are monitored. The Environmental Report puts forward 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 come from a range of existing monitoring sources and from a series of meaningful indicators that could be derived from the Development Management system. 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.