

APPENDIX II NON TECHNICAL SUMMARY

ENVIRONMENTAL REPORT OF THE SLIGO AND ENVIRONS DEVELOPMENT PLAN 2010-2016 STRATEGIC ENVIRONMENTAL ASSESSMENT



For:

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&

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Section 1 Introduction and Terms of Reference

This is the Non-Technical Summary of the Environmental Report of the Sligo and Environs Development Plan 2010-2016 Strategic Environmental Assessment (SEA). The purpose of the report is to provide a clear understanding of the likely environmental consequences of decisions regarding the future accommodation of growth in certain areas of Sligo and its Environs.

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 Sligo and Environs. This report should be read in conjunction with the Development Plan.

How does it work?

All of the main environmental issues in Sligo and Environs were assembled and presented to the team who prepared the new Plan. This helped them to devise a plan that protects what is sensitive in the environment. It also helped to identify where there are environmental problems in the Plan area - so that these don't get any worse - and 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 would be 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 the Plan's 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?

After the adoption of the Plan a document is 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 Sligo and Environs Development Plan

2.1 Outline of the Main Content of the Plan

The Development Plan consists of a written statement and maps which give a graphic representation of the proposals of the Plan, indicating land use zoning objectives for the Plan area. The Plan consists of seven separate documents as follows:

1. Main written statement;
2. Joint Sligo City and County Housing Strategy 2010-2017;
3. Joint Sligo City and County Retail Strategy 2010-2017;
4. North Fringe Local Area Plan 2010-2016;
5. Quay Quarter Urban Design Framework;
6. Record of Protected Structures (RPS); and,
7. SEA Environmental Report (this document).

The following policy documents are retained as part of the Plan without any modifications:

- Centre Block Masterplan; and,
- Courthouse Block Urban Design Framework.

The *Overall Sligo Gateway Vision* of the Plan, which shapes the policies and objectives, is as follows:

A Compact City

- enhancement of the urban core through the promotion of higher-density, mixed-use developments capable of expanding on existing city centre qualities, especially the historic urban fabric with key buildings of architectural value; civic, cultural and religious institutions; public squares and market places, pedestrian links and riverside walks;
- consolidation of existing residential and mixed-use areas through appropriate replacements or infill development and enhancement/provision of essential retail, community and recreation facilities within neighbourhood centres and open-space areas;
- regeneration of areas such as Cranmore and the Docklands, through comprehensive, masterplan-based redevelopment with a view to provide high-quality living, working and leisure space;
- plan-led, phased expansion of the city towards the east at Ballinode-Hazelwood; towards the north at Lisnalurg-Rathbraghan-Shannon Oughter; and towards the south-west at Caltragh-Carrowroe

A Liveable City

- creation of a safe, attractive urban environment where residents and visitors can enjoy the historical inheritance, the high-quality design of new buildings and the well-maintained public spaces; artists and traders can give new life to old and new market places; movement is easy and well-managed.

An Accessible City

- offering not only a range of transport options, but also access to affordable homes, healthcare, educational, cultural and recreational facilities, as well as easy access to the exquisite natural environment and archaeological heritage surrounding the city.

A Green City

- making efficient use of natural resources, respecting the natural environment, conserving energy, minimising noxious waste and emissions, maximising the usage of urban open space and encouraging eco-friendly design and construction methods.

An Enterprising City

- supporting entrepreneurship and innovation, and providing a skilled work force to business and industry and ensuring that the spatial strategy and physical infrastructure are conducive to economic growth.

A Creative City

- celebrating the unique heritage, promoting the creative industries and the arts, striving to make culture a growth driver, a catalyst for urban regeneration and a tourist attractor.

2.2 Interactions with Relevant Planning Policy

2.2.1 National Development Plan 2007-2013

The National Development Plan 2007-2013 (NDP) 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'. The need for a National Spatial Strategy was formally recognised by the Government with the publication of the 2000-2006 NDP.

The NDP aims to promote the development of all regions in Ireland within a co-ordinated, coherent and mutually beneficial framework. Balanced regional development is, accordingly, central to the investment strategy of the Plan. The NDP also mentions Sligo as part of the envisaged Atlantic Gateways Corridor.

2.2.2 National Spatial Strategy 2000-2020

The National Spatial Strategy 2000-2020 (NSS) is a twenty year plan for the country which aims to promote a better balance of population, jobs and development between the regions. The NSS identifies Sligo as an urban centre to be developed in an accelerated manner as a Gateway City to drive the overall development of the North-West. Drawing from Sligo Subregional Strategy 2001-2021, the current Sligo and Environs Development Plan (SEDP) 2004-2010 set out the for the first time a growth framework for Sligo Town. The SEDP 2010-2016 refines and consolidates this framework.

2.2.3 Regional Planning Guidelines for the Border Region 2004-2024

Sligo is located within the Border Regional Planning Authority area for which the Regional Planning Guidelines for the Border Region 2004-2024 have been prepared. The RPGs provide a long term planning framework for the development of the Border Region. The principal objective of the RPGs is to put in place a broad planning framework for the region and to provide an overall long term strategy for the making of Development and Local Area Plans for each local authority in the region.

2.2.4 Sligo County Development Plan 2005-2011

The Sligo County Development Plan (CDP) 2005-2011 responds to the call in the NSS for frameworks at county level designed to achieve balanced development in areas outside the gateways. The CDP establishes a hierarchical settlement structure and outlines the growth potential of key settlements, outside the Gateway. The CDP is also a tool for managing urban and rural development in the areas directly influenced by Sligo City.

2.3 Environmental Protection Objectives

The Development Plan is subject to a number of high level national, international and regional environmental protection policies and objectives. Examples of Environmental Protection 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 Plan must be consistent with these objectives and implement them at local level in Sligo and Environs.

The Environmental Report identifies a number of *Strategic Environmental Objectives* - methodological measures which are developed from international, national, regional and county policies which generally govern environmental protection objectives and against which the environmental effects of the Plan are tested. The following table lists the *Strategic Environmental Objectives* identified in the Environmental Report.

To avoid loss of relevant habitats, geological features, species or their sustaining resources in designated ecological sites
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 by development within or adjacent to these sites
To sustain, enhance or - where relevant - prevent the loss of ecological networks or parts thereof which provide significant connectivity between areas of local biodiversity
To protect human health from hazards or nuisances arising from exposure to incompatible landuses
Maximise the sustainable re-use of brownfield lands, and maximise the use of the existing built environment rather than developing greenfield lands
To maintain and improve, where possible, the quality of rivers and lakes
To maintain and improve, where possible, the quality of transitional waters
To prevent pollution and contamination of ground water
To prevent pollution and contamination of bathing water
To prevent development on lands which pose - or are likely to pose in the future - a significant flood risk
To minimise increases in travel related greenhouse emissions to air
To serve new development with appropriate waste water treatment
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
To protect the archaeological heritage of Sligo and Environs with regard to entries to the Record of Monuments and Places - including Zones of Archaeological Potential - and the context of the above within the surrounding landscape where relevant
To preserve and protect the special interest and character of Sligo and Environs architectural heritage with regard to entries to the Record of Protected Structures and their context within the surrounding landscape where relevant
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 routes

Table 2.1 Strategic Environmental Objectives (SEOs)

Section 3 Existing Environment

3.1 Introduction

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

Sligo is the largest town in the North-West of Ireland. Situated at the mouth of the Garavogue River, flowing from Lough Gill, it is surrounded by mountains - Benbulbin (526m) and Truskmore (645m) to the north, Knocknaera to the West and the Ox Mountains to the south.

3.1 Biodiversity and Flora and Fauna

3.1.1 Overview of the Habitats

Sligo and its Environs support a wide diversity of natural and semi-natural habitats. These habitats support a wide range of wild plant and animal species, which are coming under threat due to development pressures and the increasing demand for new development land. These lands include significant expanses of fresh and salt water and associated habitats, along the Garvogue River, Lough Gill and Sligo Bay.

The Garavogue River runs east to west through the heart of Sligo Town interacting with both the natural and built heritage to give a unique and distinct character. The Garavogue River flows from Lough Gill into Sligo Harbour and subsequently Sligo Bay which is a candidate Special Area of Conservation (cSAC), a Special Protection Area (SPA) and a proposed National Heritage Area (pNHA). Large areas of mixed and natural woodland are situated on the banks of the Garvogue at Hazelwood Demesne, Cleveragh Demesne, Tobernalt Bay and Aghamore, to the south of Aghamore Bay.

Note that sources for each of the maps provided in this Section are shown in the main body of the Environmental Report.

3.1.2 CORINE Land Cover

The CORINE land cover mapping 1990¹ for the Sligo and Environs Plan area (see Figure 3.1), which classifies land cover under various headings, indicates *pastures* to be the chief land use within the Plan area. Much of the surrounding lands were attributed with this land use also. A region of *continuous urban fabric* exists at the Town Centre surrounded by areas of *discontinuous urban fabric*, particularly to the south, west and north west. Areas of *broad leaved forest* exist along the banks of the Garavogue River at Hazelwood Demesne and Cleveragh Demesne.

The CORINE land cover mapping 2000² for the Sligo and Environs Plan area (see Figure 3.2) indicates that the main land cover for the Plan area is *continuous urban fabric* at the Town Centre and *discontinuous urban fabric* which surrounds it. While it is the predominant land cover outside the Plan area, *pastures* also make up a large portion of the land cover within the Plan area. Small patches of *non-irrigated arable land* lie along the north western and north eastern parts of the boundary. *Broad leaved forests* exist along the banks of the Garavogue River to the east of the Plan area. Lands to the east and south east of the Plan area are predominantly made up of *moors and heath*, *peat bogs*, *inland marshes* and *transitional woodland scrub*. An area of *road and rail networks* traverses the southern Plan boundary.

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

² European Environment Agency Coordination of Information on the Environment (2004) *Ireland's Corine Land Cover 2000 (CLC2000)* Copenhagen: EEA

Land cover differences between the CORINE 1990 data and the data for the year 2000 (see Figure 3.3) show that lands which were used in 1990 as *pastures* are now attributed to *non-irrigated arable land*, *road and rail networks and associated lands*, *complex cultivation patterns* or have undergone *urbanisation*. An area of *broad leaved forest* along the banks of the Garavogue River has been cleared for *pasture*.

3.1.3 Designations

Cummeen Strand/Drumcliff Bay proposed Natural Heritage Area (pNHA), Special Area of Conservation (SAC) and Special Protection Area (SPA) traverse the north west Plan boundary and continues out as far as Coney Island. Cummeen Strand is also a designated Ramsar site. Lough Gill pNHA and cSAC lies to the east of the Plan area. The Garvogue River, which spans the Plan area until it enters the sea at Sligo Harbour, forms part of this designation. Ballysadare Bay pNHA, SAC and SPA lies just outside the Plan boundary to the south east. Drumaskibbole Reedbeds pNHA lies inside the Plan boundary to the south of Sligo Town. These designations are mapped on Figure 3.4.

3.1.4 Important Issues to be Considered

The changes in land cover between 1990 and 2000 at a number of locations within and adjacent to the Plan area indicate a cumulative loss of regions of natural/agricultural vegetation and associated habitats - and their flora and fauna. These losses are indicated by Figure 3.3 which shows CORINE Land Cover Changes 1990-2000.

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.

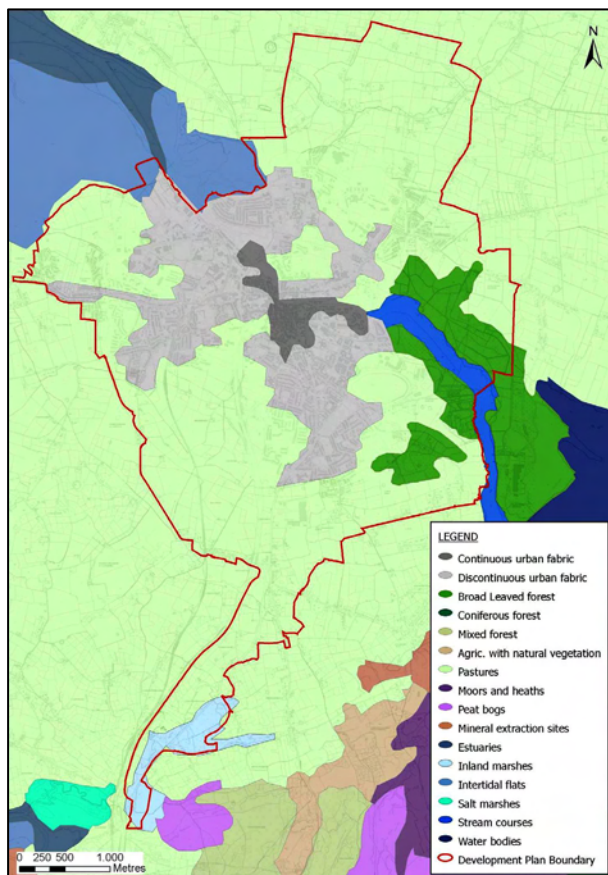


Figure 3.1 CORINE Land Cover 1990

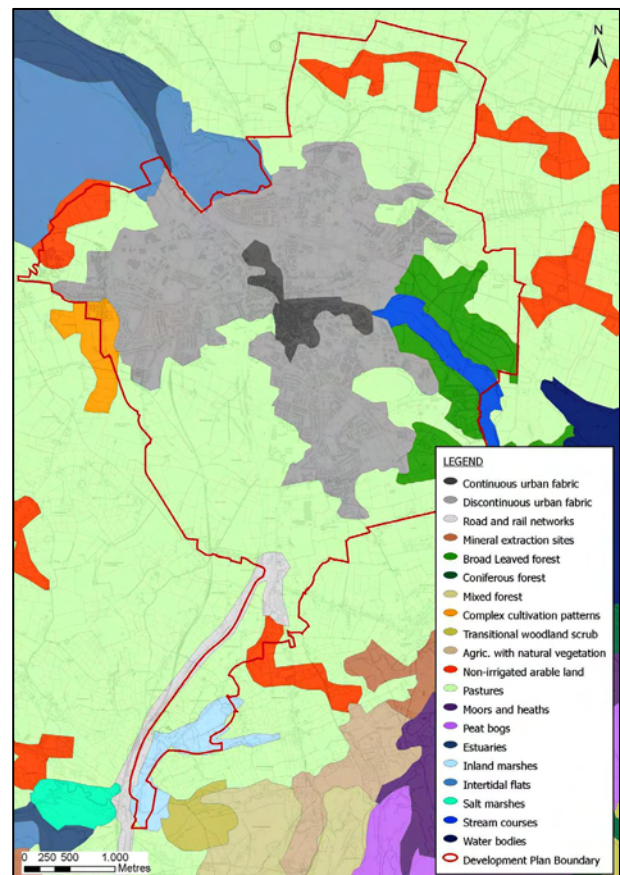


Figure 3.2 CORINE Land Cover 2000

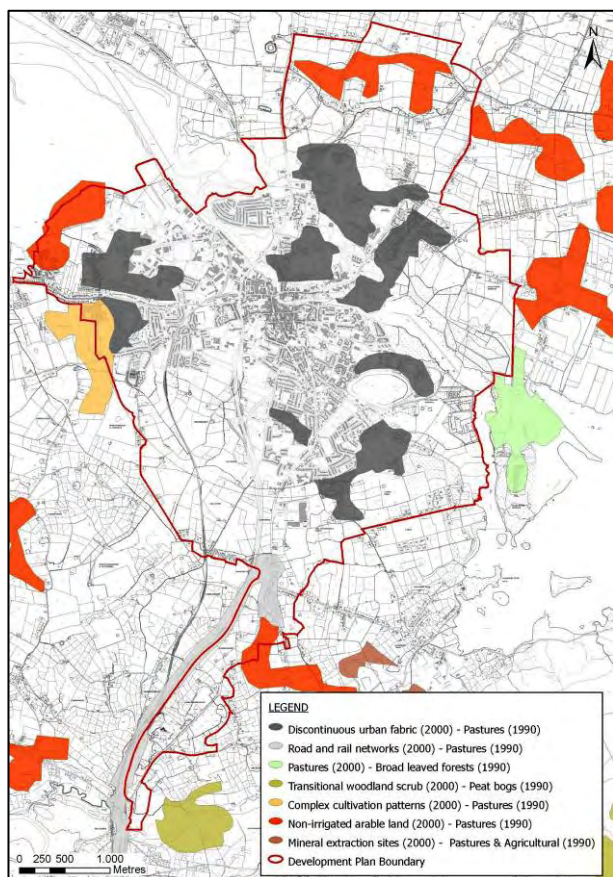


Figure 3.3 CORINE changes 1990-2000

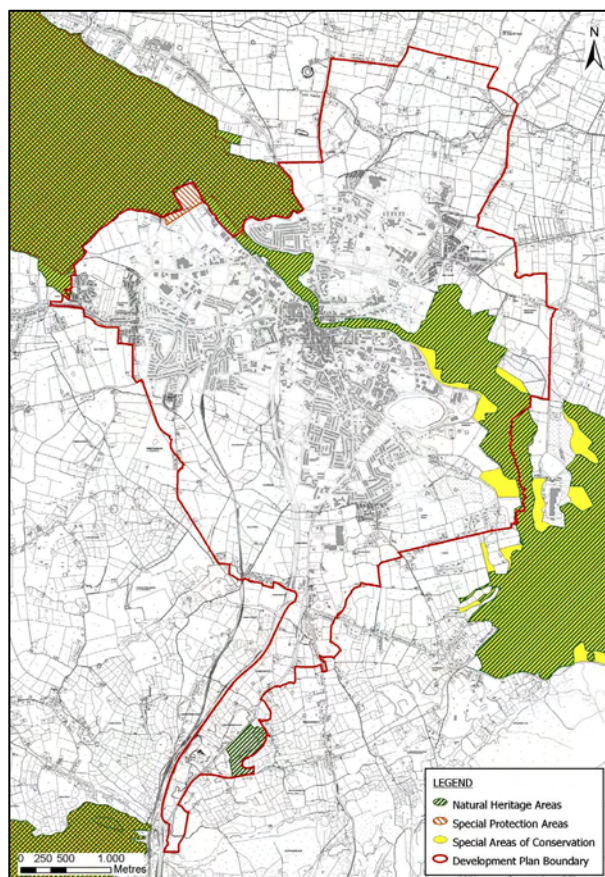


Figure 3.4 Designated Sites in Sligo

3.2 Population and Human Health

3.2.1 Population

The population of the Plan area is approximated by the total population of the Borough and Environs from the Census, plus the population living in the suburban fringes and in the rural areas within the Plan limit. Population for Sligo Borough in 2006 stood at 17,892 having fallen by 581 persons since the previous census carried out in 2002. This decrease shows a change in the pattern as there was an increase experienced over the previous intercensal period from 1996 to 2002 when population rose from 17,786 to 18,473, a growth of 687 persons or 3.9%. This contrasts with statistics for Sligo Environs which has seen increases in population over the last two intercensal periods. Population increased from 723 in 1996 to 1,262 in 2002 which was a 74.5% increase, this rose again to 1,510 in 2006, an increase of 248 persons or 19.7%.

3.2.2 Human Health

With regard to human health, impacts relevant to the SEA are those which arise as a result of interactions with 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).

Human health has the potential to be impacted upon by environmental vectors including water, soil and air. Hazards or nuisances to human health can arise as a result of exposure to these vectors arising from incompatible adjacent landuses 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 Soil

3.3.1 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. It is an extremely complex, variable and living medium and performs many vital functions including: food and other biomass production, storage, filtration and transformation of many substances including water, carbon, and nitrogen. 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.

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.

3.3.2 Soil Types

The majority of soils within and surrounding Plan area are *acidic mineral soils*. A large portion of the Plan areas soil is identified as being *man made*. These *urban soils* are soils which have been disturbed, transported or manipulated by man's activities in the urban environment and are often overlain by a non-agricultural, man-made surface layer that has been produced by mixing, filling, or by contamination of land surfaces in urban and suburban areas. There is an amount *alluvium* dispersed throughout the Plan area, particularly along the floodplains of the Garavogue River and the Willsborough Stream to the north. There is a large area of *cutaway peatland* to the south west of the Town. Peats are characterised by high content of organic matter, over 30%, and by being at least 30 cm in depth. Soils are mapped on Figure 3.5.

3.3.3 Geology

The habitats of the Plan area are influenced by it's underlying geology (see Figure 3.6). The majority of the Plan area is underlain with *dark fine-grained cherty limestone* with a band of *dark fine limestone and calcareous shale* to the north. There are a four mineral extraction sites to the south east and south west the Plan area. Two quarry sites exist to the south east of the Plan area.

3.3.4 Important Issues to be Considered

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 and development which is not serviced by appropriate waste water infrastructure.

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.

In addition to water quality and fishery impacts, these can impact on infrastructure and can have health and safety implications.

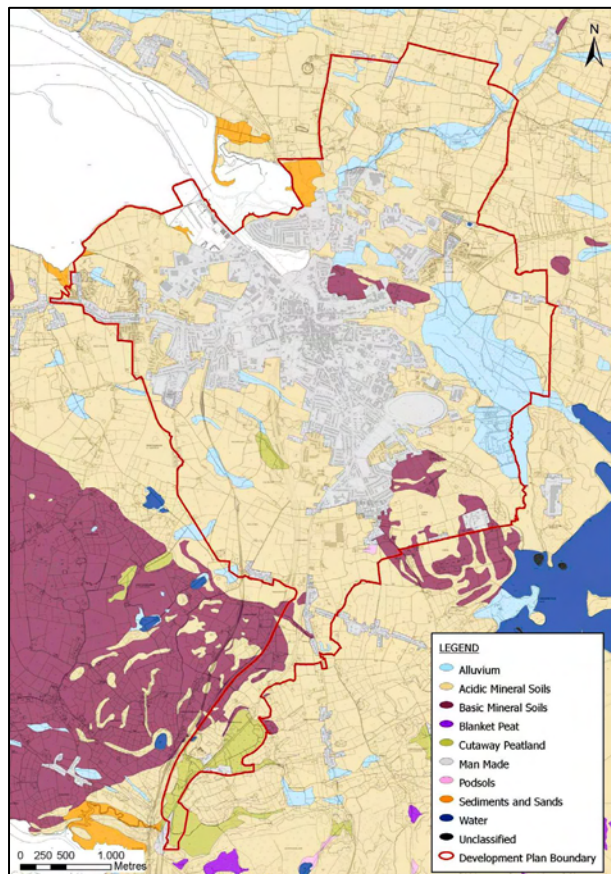


Figure 3.5 Soil in the Plan area

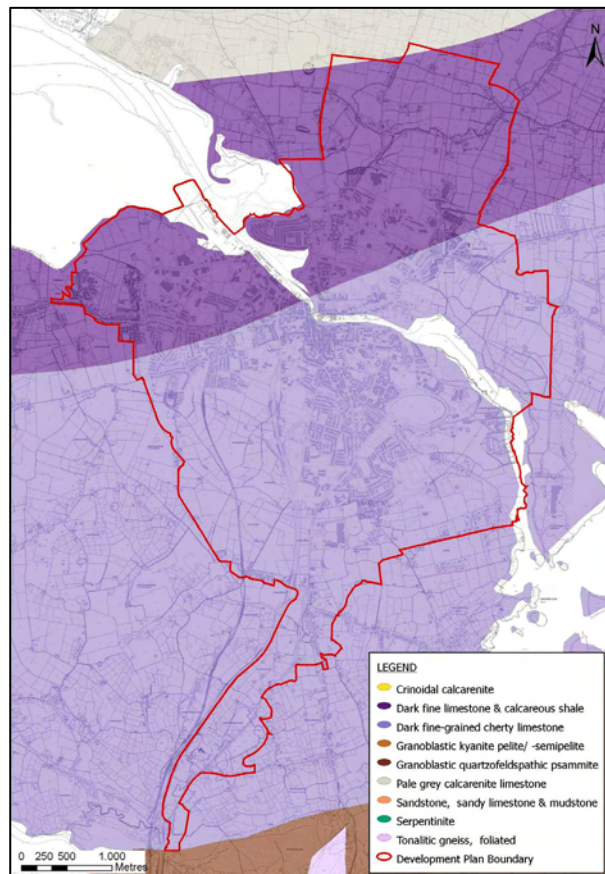


Figure 3.6 Underlying Geology of the area

3.4 Water

3.4.1 Introduction

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.

3.4.2 The Water Framework Directive

The Water Framework Directive (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, including Sligo County Council and Sligo Borough Council, 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 Sligo and Environs area is located in the Western River Basin District (WRBD).

For the purposes of assessment, reporting and management, water in the RBDs has been divided into groundwater, rivers, lakes, estuarine waters and coastal waters which are in turn divided into specific, clearly defined water bodies. Each water body has been assessed, on the basis of human activity, whether it is *at risk* or *not at risk* of failing to achieve the WFD's objectives by 2015.

In order to facilitate this assessment, a four-class risk classification scheme was applied using the following terminology:

- Not at Significant Risk
- Probably Not at Significant Risk
- Probably at Significant Risk (these are likely to need improvement in order to achieve the required status)
- At Significant Risk (these will need improvement to achieve the required status)

In addition to these assessments, the WFD requires that Registers of Protected Areas (RPAs) are compiled for a number of 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.

Local Authorities located in the WRBD, including Sligo Borough Council and Sligo County Council, have prepared a draft management plan which will be implemented in order to help protect and improve all waters in the WRBD. This Management Plan will provide specific policies for individual river basins in order to implement the requirements of the WFD. The Draft River Basin Management Plan for the Western RBD was published in 2008 and will be adopted in December 2009.

3.4.3 Risk Assessments

Waterbodies classified as being *(1a) at significant risk of not achieving good status* by 2015 include Lough Gill, Sligo Harbour/the Garavogue Estuary and the coastal waters off Sligo.

The Willsborough Stream, the Garavogue River, Ballysadare Estuary and groundwater bodies underlying the majority of the Sligo and Environs Plan area are currently classified as being *(1b) possibly at significant risk* of failing to achieve the WFD's objectives by 2015.

Groundwater bodies underlying the north and west of the Plan Area are classified as *(2a) probably not at significant risk*.

Figures 3.7-3.11 map the Water Framework Directive Risk Assessment score for each of the waterbodies within and surrounding the Plan area.

3.4.4 Water Quality

Figure 3.12 indicates the water quality of rivers at two locations within the Plan area, one on the Garavogue River and the other on Willsborough Stream. The status of water quality is higher on the Garavogue River, which achieves "High Status Q4-5" as opposed to the status of Willsborough Stream which reaches "Moderate Status Q3-4". Figure 3.13 maps the water quality of lakes for the Plan area. Lough Gill is classified as being oligotrophic/mesotrophic. Figure 3.14 shows the quality of the estuarine waters for the Plan area. Sligo Harbour/Garavogue Estuary has been classified as "*Intermediate*". Ballysadare Bay and Sligo Bay are classified as being "*Unpolluted*".

3.4.5 Groundwater Vulnerability

Aquifer vulnerability refers to the ease with which pollutants of various kinds can enter underground water. Extreme aquifer vulnerability which can be found underlying land to the south and south east of the plan area is the classification of aquifers which is most sensitive to an imposed contaminant load. The Geological Survey of Ireland (GSI) rates aquifers according to their vulnerability to pollution. Figure 3.15 maps these ratings for the Plan area. High to low aquifer vulnerability which is the most common vulnerability to be found throughout the Plan area, though only an interim study took place.

3.4.6 Groundwater Productivity

The (GSI) rates aquifers based on the hydrogeological characteristics and on the value of the groundwater resource. The Republic of Ireland's entire land surface is divided into nine aquifer categories. Two of these classifications apply to the groundwater underlying the Plan area. The majority of the Plan area is underlain by a regionally important aquifer and the remainder of the Plan area being underlain by a locally important aquifer as seen in Figure 3.16.

3.4.7 Register of Protected Areas

In addition to the assessments mentioned above, 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).

A number of water bodies within and surrounding Sligo have been listed on the WFD Register of Protected Areas (RPAs) and are as follows (see Figure 3.17 and Figure 3.18):

- Sligo Bay has been listed on the RPA for *Species SPA* and *Recreational Waters*
- The Garavogue River is listed on the RPA for *Drinking Water Rivers*
- Groundwater underlying and surrounding the Plan Area is listed on the RPA for *Drinking Water GW*

3.4.8 Important Issues to be Considered

The above descriptions identify a number of sensitivities with regard to the status of water bodies within the Sligo and Environs Plan area. By virtue of how they are used by people and by wildlife, Sligo Harbour, the Garavogue River and the groundwater underlying the area are listed on the Registers of Protected Areas under the Water Framework Directive.

Sligo Harbour, the Garavogue Estuary and Lough Gill are *at significant risk of failing* to achieve the WFD's objectives of good status by 2015.

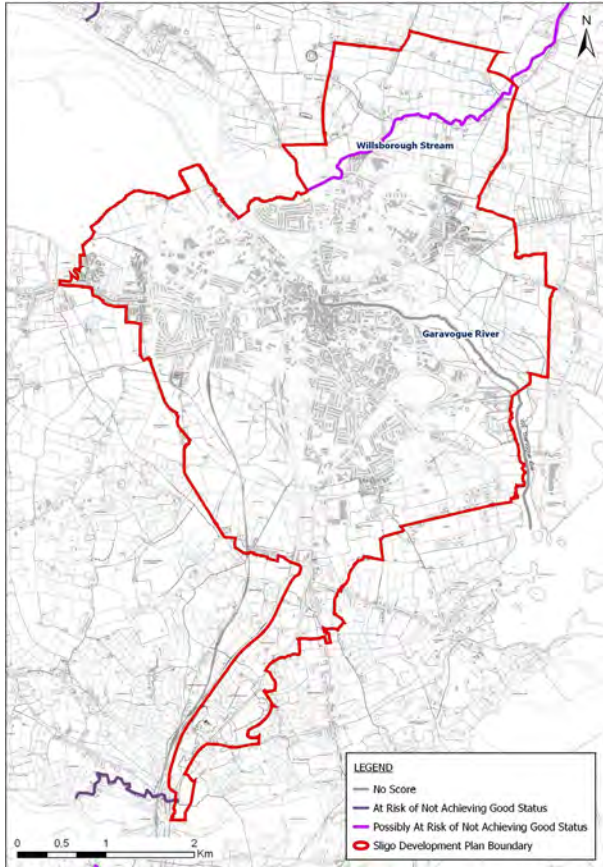


Figure 3.7 WFD RA Rivers

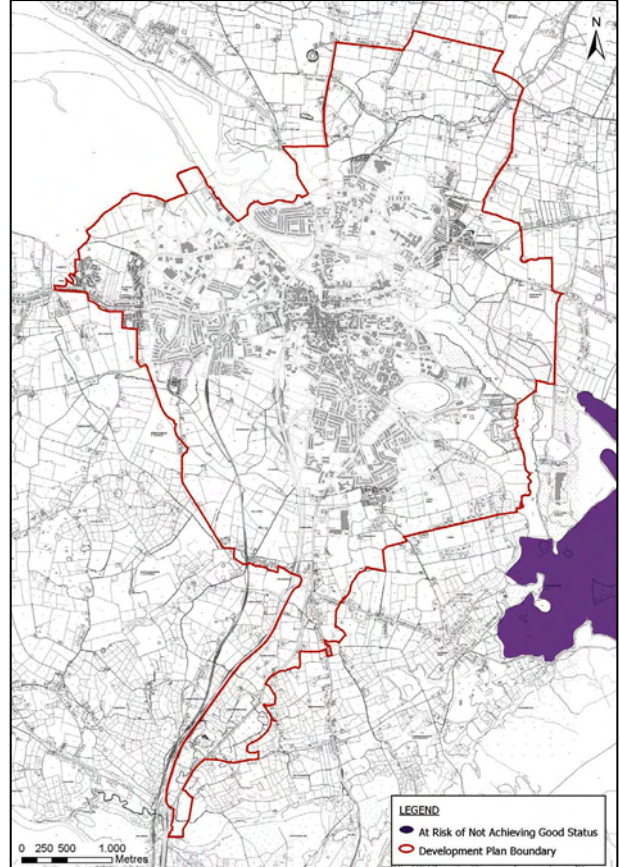


Figure 3.8 WFD RA Lakes

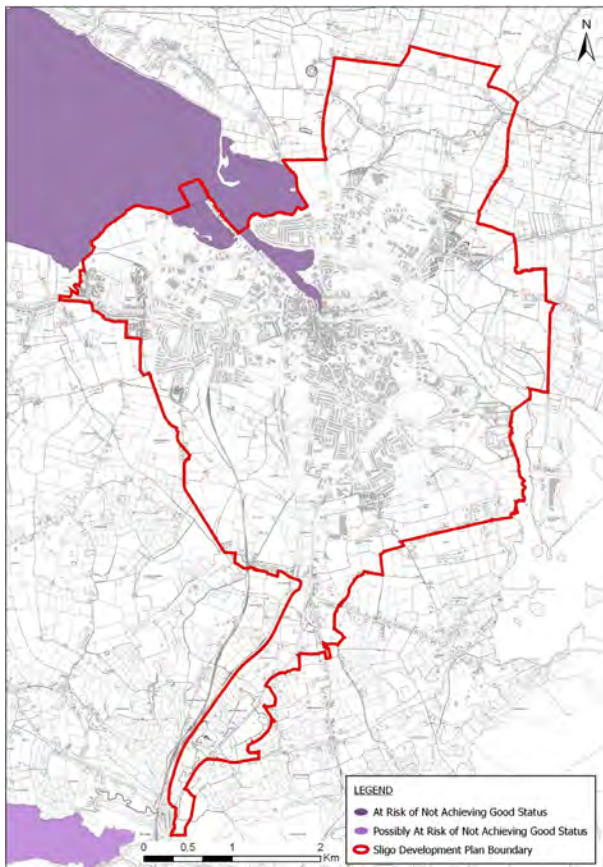


Figure 3.9 WFD RA Estuarine Waters



Figure 3.10 WFD RA Coastal Waters

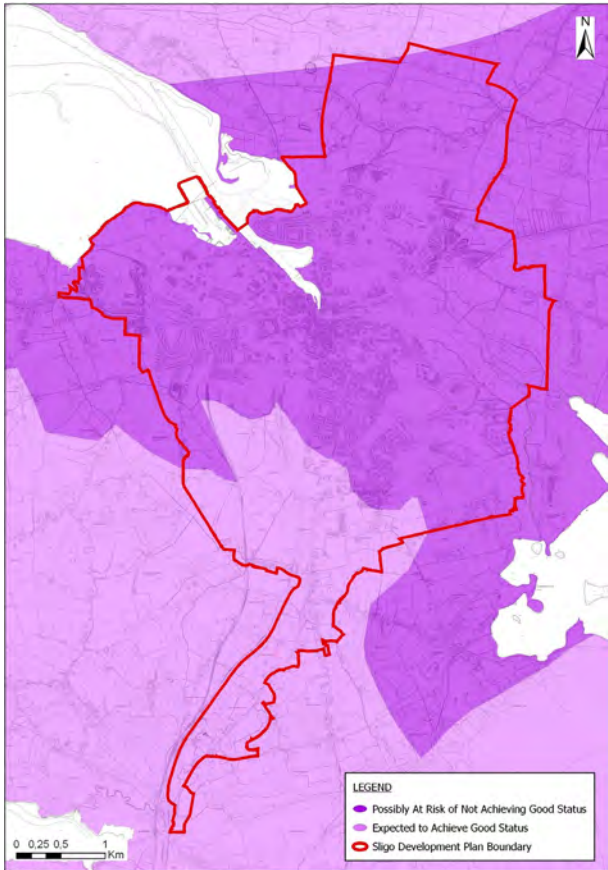


Figure 3.11 WFD RA Ground Waters

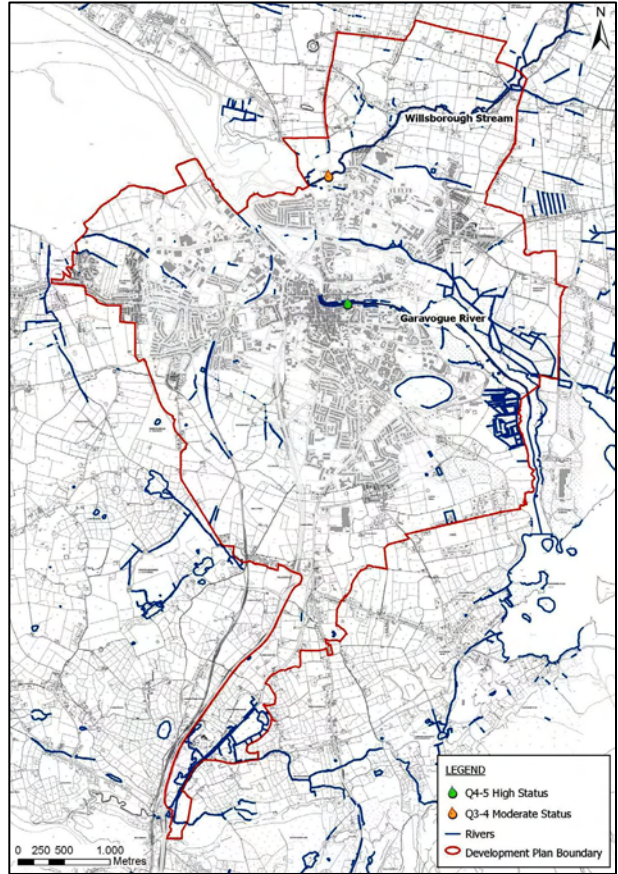


Figure 3.12 Water Quality of Rivers

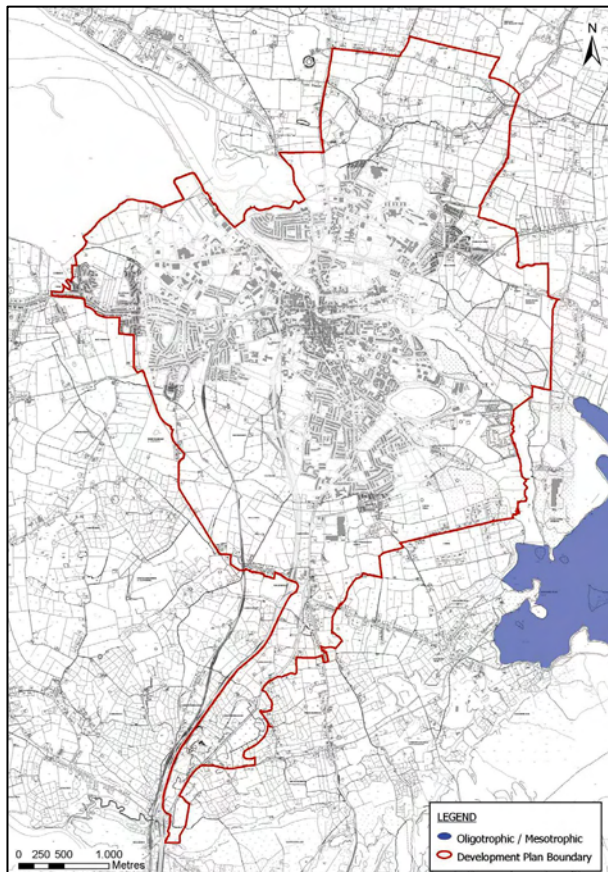


Figure 3.13 Water Quality of Lakes

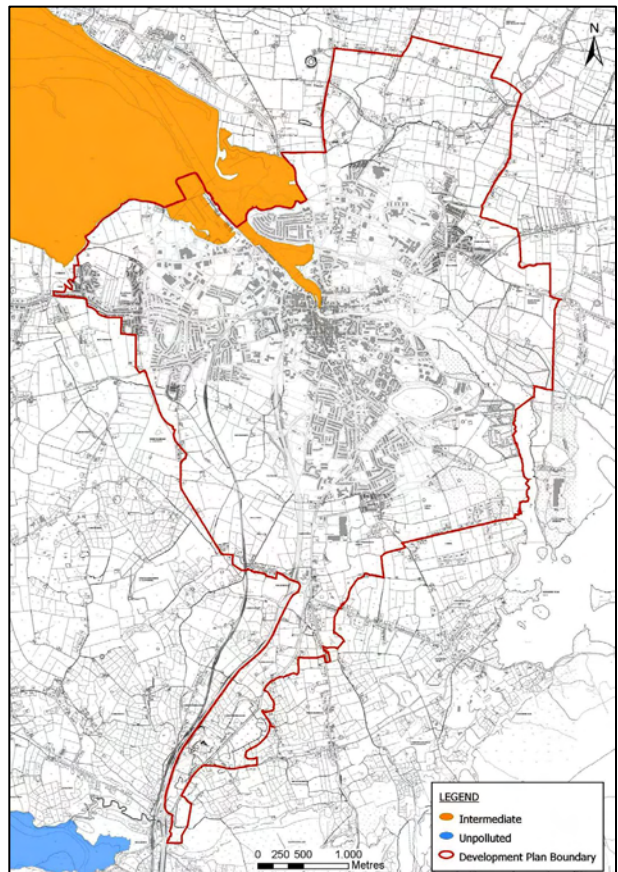


Figure 3.14 Water Quality of Estuarine Water

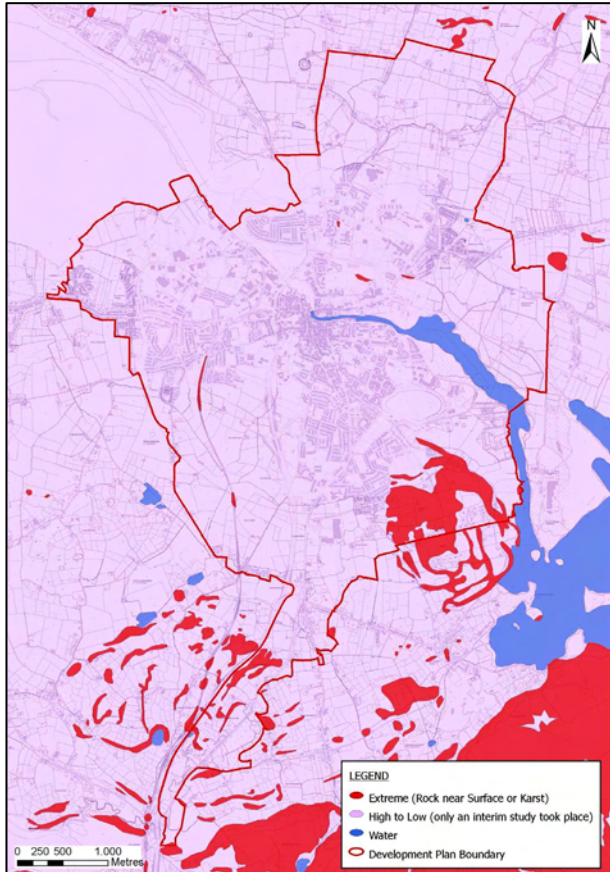


Figure 3.15 Aquifer Vulnerability

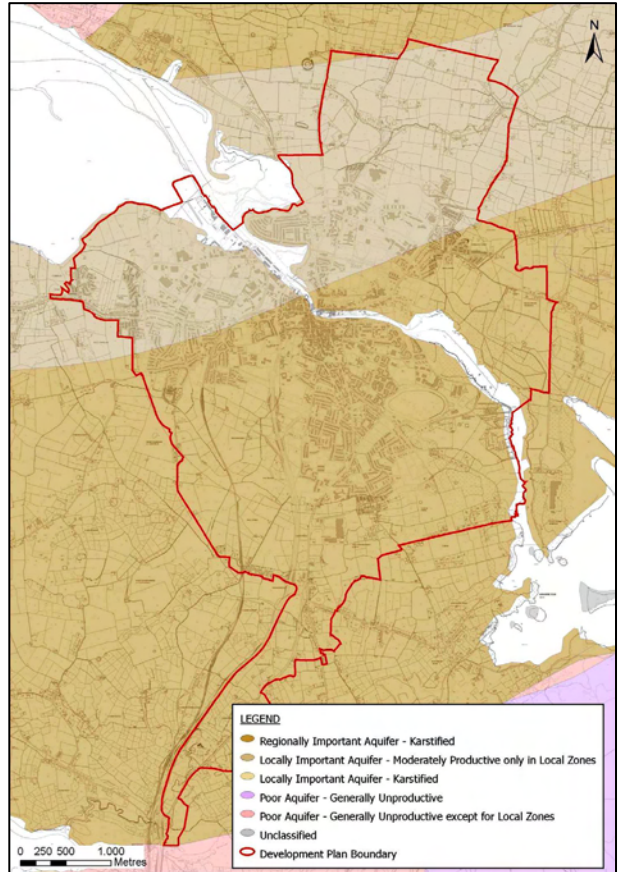


Figure 3.16 Aquifer Productivity

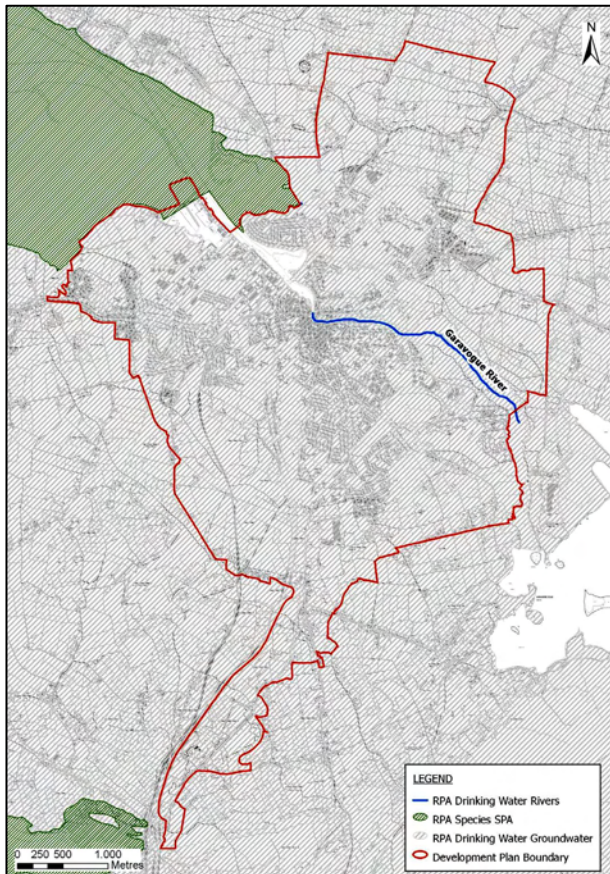


Figure 3.17 WFD RPAs

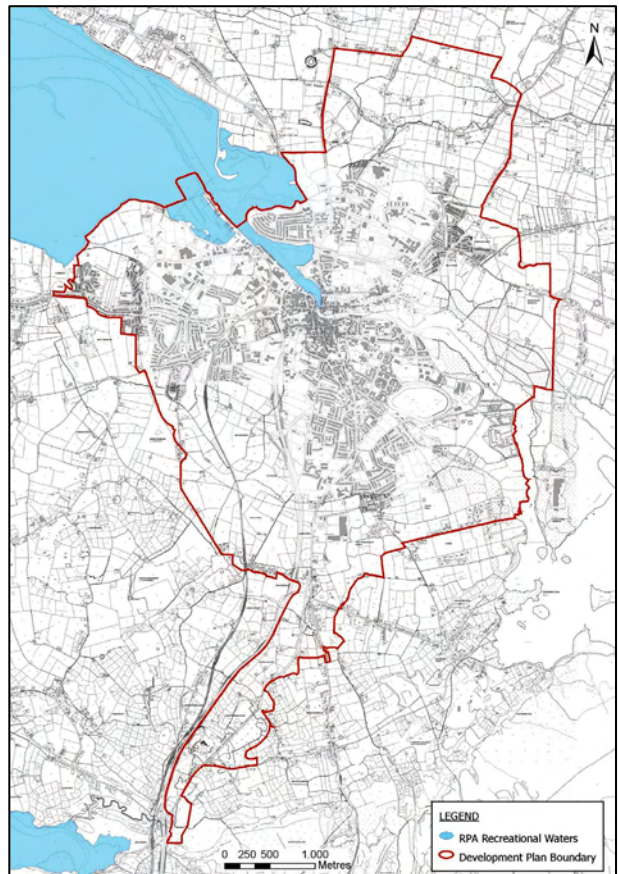


Figure 3.18 WFD RPAs-Recreational Waters

3.5 Air and Climatic Factors

3.5.1 Introduction

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 Towns inhabitants.

The EU Directives include details regarding how ambient air quality should be monitored, assessed and managed. 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: Other cities and large towns comprising Galway, Limerick, Waterford, Clonmel, Kilkenny, Sligo, 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.

Current air quality in Zone C is "good". The index is calculated based on the latest available measurements of PM10, sulphur dioxide, nitrogen dioxide and ozone in Zone C.

3.5.2 Air Quality Monitoring

Air Quality Monitoring was carried out from 21/01/2003 to 02/10/2003 at the car park in front of the Regional Hospital overlooking Sligo Town. Monitoring was done by a mobile unit containing continuous monitors for sulphur dioxide, nitrogen oxides, carbon monoxide and benzene. Continuous samples were also taken for particulates (PM10) and lead.

The nearest monitoring station to Sligo is in Castlebar. PM10 is measured at this site by the EPA. The PM10 limit of 50 ug m⁻³ is deemed breached if more than 35 exceedances have occurred. In Castlebar, there have been 9 exceedances in the first six months of 2008, up from 8 for the year 2007.

3.5.3 Flooding

The EPA's 'Climate Change: Scenarios and Impacts for Ireland' (2003) report identifies where vulnerability to climate change exists in Ireland and what adjustments are likely in the operation of environmental systems in response to such changes.

Within the Plan boundary there are six areas which are recorded as having flood events.

In September 2008, the DEHLG published, for public consultation, new draft Planning Guidelines on the Planning System and Flood Risk Management which are aimed at ensuring a more consistent, rigorous and systematic approach to fully incorporate flood risk assessment and management into the planning system.

Regard to these Guidelines has been had when drawing up the mitigation measures included in Section 9 of the Environmental Report.

3.5.4 Important Issues to be Considered

Monitored air quality in Zone C meets current standards - despite the occurrence of traffic congestion and recent development. It is noted however that *traffic hotspots* within Sligo are likely to have elevated levels of air pollution and noise due to traffic congestion. Traffic hotspots are located along the main road routes - especially at intersections - and provide for a harsh sensory environment which may impact upon human health. Traffic hotspots in low lying areas that have retaining high buildings are likely to provide for harsher sensory environments with regard to air pollution and noise levels.

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.

The increase in winter runoff indicated for many parts of the West, especially under the EPAs Climate Change scenario for the period 2061–2090, is likely to have significant implications.

Changes in sea level and/or changes in the occurrence of severe rainfall events as a result of climate change would be likely to increase the occurrence and magnitude of flooding events.

3.6 Material Assets

3.6.1 Waste Water

3.6.1.1 Relevant Legislation

The Urban Waste Water Treatment Directive (91/271/EEC) (amended by Directive 98/15/EEC) 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. Such treatment is essential in order to meet the requirements of the Water Framework Directive (see Section 3.5 in Environmental Report).

3.6.1.2 Current and Provision of Waste Water Treatment Infrastructure

Waste water arising from the Sligo and Environs Plan area is collected by the waste water collection network and pumped to the Town's recently completed waste water treatment plant at Finisklin. Treated wastewater from the plant is discharged in to the Garavogue Estuary/Sligo Harbour.

Current waste water demand for the Plan area stands at 35,000 PE (Population Equivalent)³. The catchment of the WWTP is the entire Plan area and beyond. The WWTP will be taking effluent from Rosses Point in the coming years. The plant was built with PE capacity of 50,000 and is expandable to a PE of 80,000.

In addition to the new wastewater treatment plant, further upgrading of the wastewater drainage infrastructure is on-going to ensure adequate service to all areas.

Figure 3.19 maps the WWTP at Finisklin and its outfall point into the Garavogue Estuary/Sligo Harbour.

³ 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.

3.6.2 Drinking Water

3.6.2.1 Current Water Supply Infrastructure

There are two main sources of water supplying the Sligo and Environs area namely, a gravity supply from Kilsellagh located to the north of the Town and a pumped supply from Lough Gill to an ozone water treatment plant at Cairns Hill and a plant at Foxes Den.

The Kilsellagh source consists of an impounding reservoir and water treatment works comprising micro-straining, chlorination and fluoridation. Storage was provided via an open topped reservoir at Farranacardy on the pipeline route from the Kilsellagh source to Sligo Town. This source will be upgraded under stage two of the Sligo and Environs Water Supply Scheme.

The Lough Gill source was developed to provide increased capacity and serve the outlying rural areas and the high level areas of Sligo that could not be served by the Kilsellagh gravity supply. Treatment is by prechlorination, microstraining, ozonisation, post chlorination and fluoridation.

The Cairns Hill plant is currently operating at 1.5 times its design demand. As a consequence it no longer consistently produces treated water in compliance with EU drinking water directives. The refurbishment of Cairns Hill was completed in 2002. The plant has a design capacity of 5,450 cubic metres per day.

The provision of the additional plant at Foxes Den allows Sligo County Council the opportunity to refurbish the plant at Kilsellagh, ensuring that the supply meets the required standards. Foxes Den was constructed in 2001, with a design capacity of 11,000 m³/day.

3.6.3 Waste Management

The Plan area is covered by a waste collection service and a kerbside dry recycling collection service. Waste collected by permitted refuse collection companies is transported to two neighbouring landfills – Ballaghadreen Landfill, Co. Roscommon and Rathroeen Landfill, Ballina, Co. Mayo. Sligo County Council provides a household hazardous waste collection service, which also serves the Sligo Borough area. There are eight recycling bring-banks, which accept glass and cans for recycling. A composting facility was recently opened at Ballysadare.

3.6.4 Vehicular Circulation

Sligo is the largest transportation node in the North-West. It is connected to Dublin (via Carrick-on-Shannon) by the National Primary Road N4. Other national primary and secondary roads connect Sligo with Belfast (via Enniskillen), Derry and Letterkenny (via Donegal Town), Galway, Ballina, and other urban centres.

The Sligo Local Authorities are working with the Department of the Environment, Heritage and Local Government, the Department of Transport and the National Roads Authority to develop a transport infrastructure. The newly opened Sligo Inner Relief Road has resulted in major benefits to motorists, and will also facilitate the pedestrianisation of Town Centre streets.

3.6.5 Important Issues to be Considered

While most of the Sligo and Environs Plan area is serviced or serviceable by wastewater drainage infrastructure, certain areas of the Environs 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.

The Councils' ability to meet their commitments under the Water Framework Directive could be compromised. The Garavogue Estuary and Sligo Harbour, to which treated waste water is discharged, are both *at significant risk of failing* to achieve the WFD's objectives of good status by 2015. The commissioning of the waste water treatment plant at Finisklin will help to alleviate pollution pressures on the Estuary and the Bay.

The EPA identified⁴ the Kilsellagh supply and the Lough Gill supply on a remedial action list as two of 339 public water supplies - representing 36% of public drinking water supplies - that require detailed profiling to ensure that the supply is providing clean and wholesome drinking water.

3.7 Cultural Heritage

3.7.1 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.

3.7.1.1 Record of Monuments and Places

The area covered by the Sligo and Environs Development Plan is rich in archaeological interest, containing traces of social activity dating from 7000 B.C, including significant remains from the pre-Christian period. The most significant element among these is Sligo Town itself and the megalithic cemetery at Carrowmore. Entries to the sites and monuments record are mapped on Figure 3.20.

There are almost 300 recorded monuments within the Plan area. Associated with each Recorded Monument is a Zone of Archaeological Potential (ZAP) which in some cases may be quite extensive. Its associated ZAP indicates where archaeology is known to be present.

3.7.2 Architectural heritage

3.7.2.1 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. Entries to the National Inventory of Built Heritage are mapped on Figure 3.21.

3.7.2.2 Record of Protected Structures

The Record of Protected Structures (RPS) included in the current Development Plan is legislated for under Section 51 of the Planning and Development Act 2000. The Sligo and Environs Plan area has an important built heritage with circa 360 structures listed for protection on the Record of Protected Structures. Entries to the Record of Protected Structures for the Plan area and its surrounds can be seen on Figure 3.22.

3.7.2.3 Architectural Conservation Areas

An ACA is a place, area or group of structures or townscape which is of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest or value, or contributes to the appreciation of protected structures, whose character it is an objective to preserve in a development plan. The ACA designation requires that planning permission must be obtained before significant works can be carried out to the exterior of a structure in the ACA which might alter the character of the structure or the ACA.

A total of five Architectural Conservation Areas are proposed for Sligo:

1. Market Cross ACA
2. Courthouse ACA
3. Cathedral ACA
4. Wolfe Tone Street ACA
5. O'Connell Street ACA

⁴ EPA (2007) The Provision and Quality of Drinking Water in Ireland: A Report for the Years 2006-2007 Wexford: Environmental Protection Agency

3.7.3 Important Issues to be Considered

Archaeology can be previously unknown but can be damaged through development causing ground disturbance. Development which involves material alteration or additions to protected structures can detract from the special character of the structure and its setting, and have 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.

Encouraging and facilitating the accommodation of growth on brownfield sites will contribute to mitigating a number of the adverse impacts associated with greenfield development, however, brownfield development has the potential to significantly adversely impact upon cultural heritage - both archaeological and architectural - if mitigation measures are not put in place. The cumulative accommodation of large scale development in Sligo and Environs has the potential to cumulatively impact upon cultural heritage as well as the settlement patterns of the Plan.

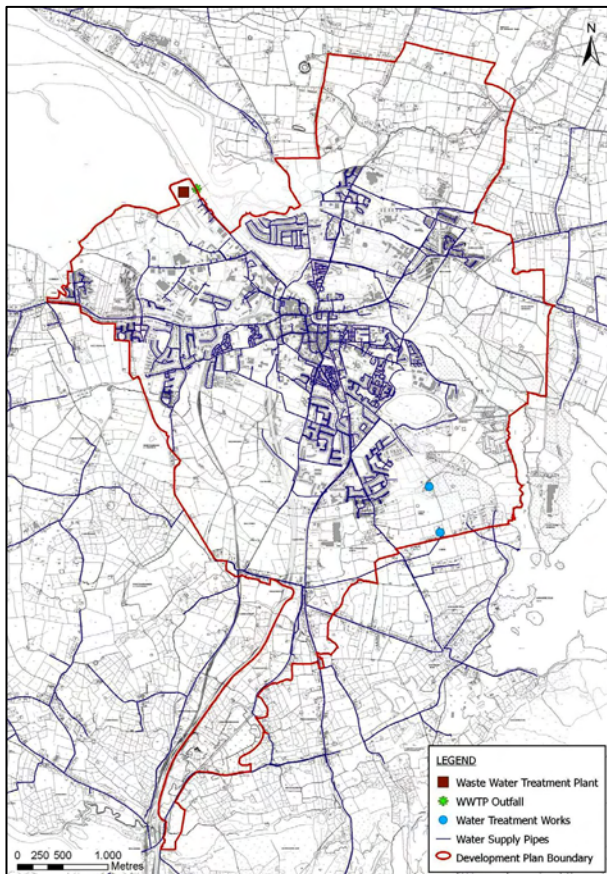


Figure 3.19 Sewage Network

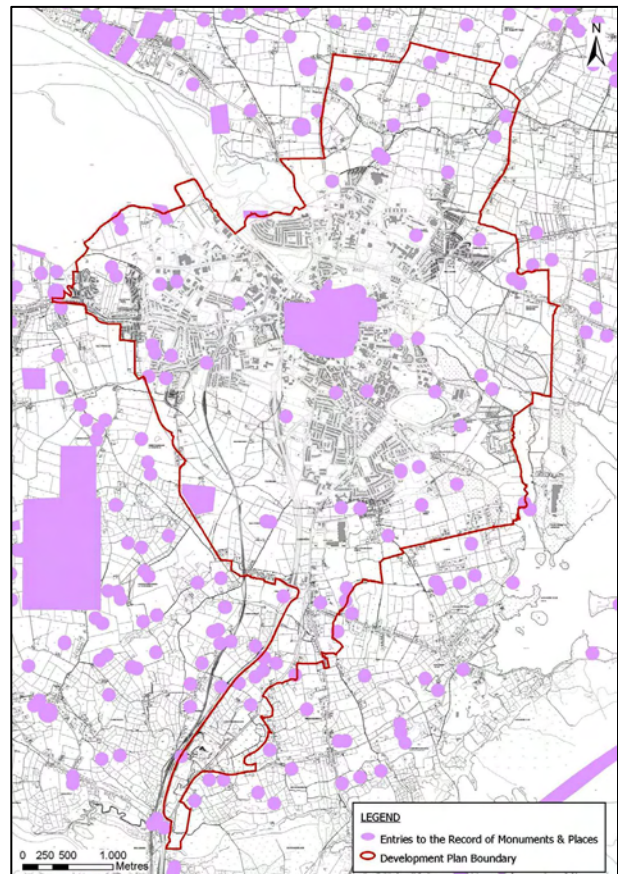


Figure 3.20 Record of Monuments and Places

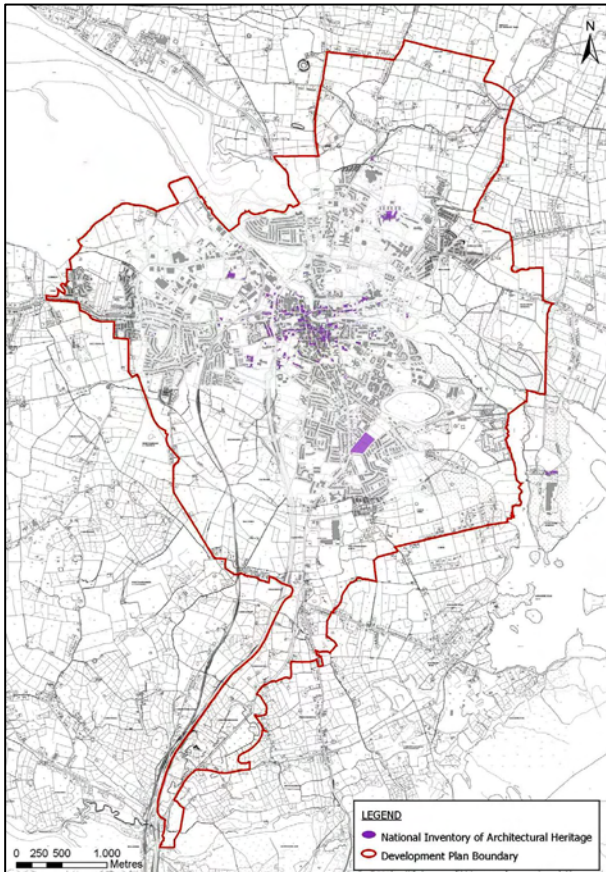


Figure 3.21 NIAH

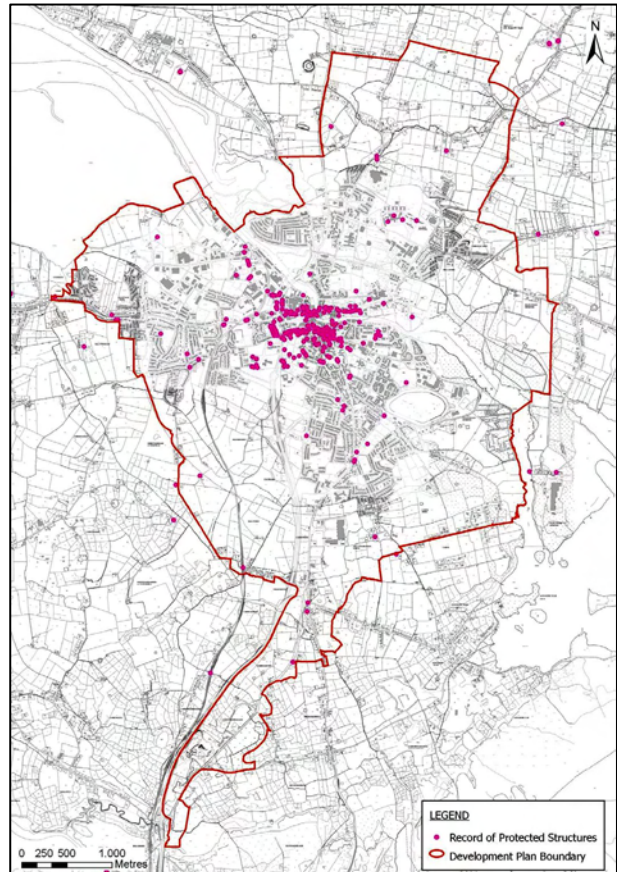


Figure 3.22 Record of Protected Structures

3.8 Landscape

3.8.1 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, and; human values which are a result of historical, cultural, religious and other understandings and interactions with landform and land cover.

CAAS, on behalf of Sligo County Council, prepared a Scenic Evaluation Study for the County in 1997. The objective of the report was to map the areas of County Sligo according to their capacity to absorb new development without disproportionately changing the distinctiveness and character of the overall landscape. This resulted in a Development Control Policy Map, which formed part of the current Sligo County Development Plan 2005-2011. The Scenic Evaluation Study classifies lands into Normal Rural Landscapes, Sensitive Rural Landscapes, Visually Vulnerable Areas and Scenic Routes.

Figure 3.23 maps these classifications for the Plan area. The unclassified areas on the map comprise "Normal Rural Landscapes" with Sligo's urban area classified as "Robust".

3.8.2 Important Issues to be Considered

A problem with regard to the environmental component of landscape is the cumulative visual impact which occurs as a result of 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. This is especially problematic in the sensitive parts of the landscape including the visually prominent, elevated parts of the Sligo hinterland and areas along the coastline.

3.9 Overlay Mapping of Environmental Sensitivities

In order to identify where most sensitivities within and adjacent to the Plan area occur, a number of the environmental sensitivities described above were weighted and mapped overlapping each other.

Environmental sensitivities are indicated by colours which range from extreme vulnerability (red) to high vulnerability (orange) to moderate vulnerability (yellow) and 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. This is particularly the case where the cumulative development of small-scale projects, such as rural housing, gradually causes a slow deterioration of a resource, such as water quality.

Figure 3.24 provides an overlay of environmental sensitivities in and adjacent to Sligo and Environs

Generally, the north and south of the Plan area are of low vulnerability. The central area is mainly of moderate vulnerability. Lough Gill, the Garavogue River and its estuary are classified as highly or extremely vulnerable.

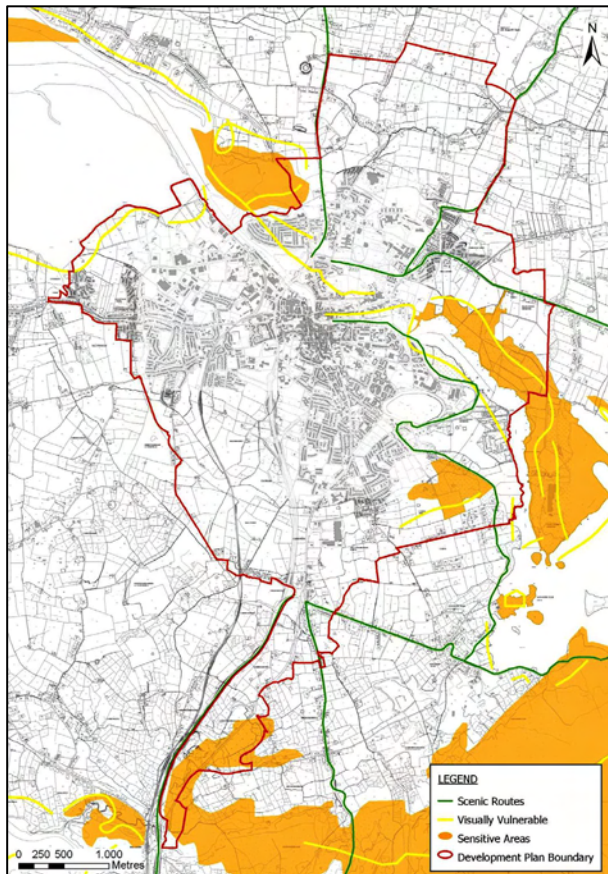


Figure 3.23 Landscape Sensitivities

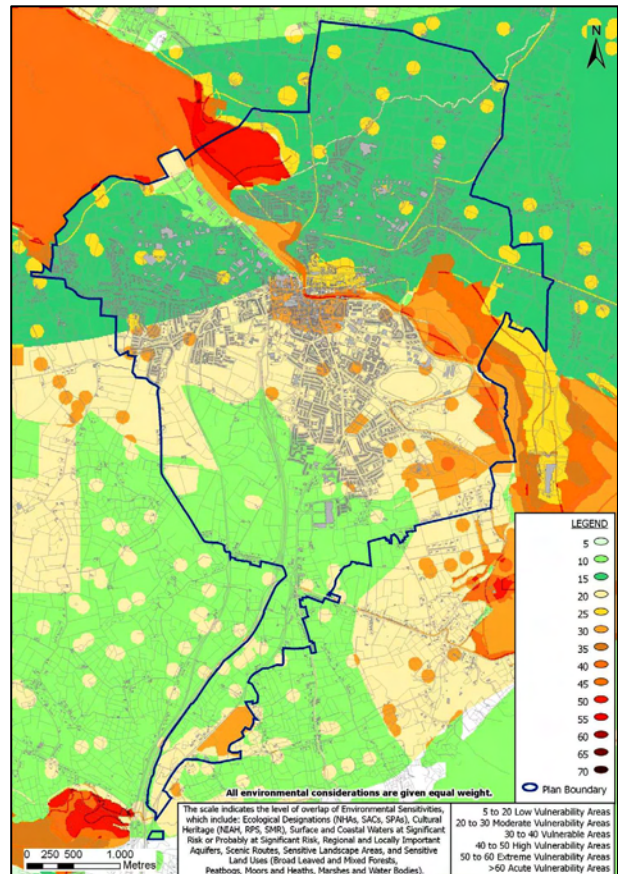


Figure 3.24 Overlay of Sensitivities

Section 4 Alternative Plan Scenarios

4.1 Introduction

One of the critical roles of the SEA is to facilitate an evaluation of the likely environmental consequences of a range of alternative strategies for accommodating future development in Sligo and its Environs. Each of the scenarios is shown on Figure 4.1 to 4.3. These figures identify the differences between each of the scenarios.

The environmental consequences of three scenarios for the Plan were evaluated. This evaluation sought to understand whether each alternative was likely to improve, conflict with or have a neutral interaction with the environment. Scenarios are evaluated in a succinct and focused way for both planning and environmental impacts against both the existing environment (see Section 3) and the Strategic Environmental Objectives (see Section 2.3). A summary of the evaluation provided in the Environmental Report is provided in Section 4.3 of this report.

Difficulties encountered which were overcome during the evaluation related to the lack of a centralised environmental baseline data system as well as lack of data with regard to the status of certain waters and sea level rise.

4.2 Summary Description of the Scenarios

4.2.1 Alternative Scenario 1: *Doughnut City*

Scenario 1 (see Figure 4.1) is based upon development occurring in a doughnut-shaped pattern, adjoining the existing development limit on its outside. Already zoned lands that surround the existing built-up area of Sligo Town would remain largely undeveloped under this scenario. The availability of newer, more affordable residential development in a rural setting - which seems to be preferred by many Sligo Town and County residents - would lead to the hollowing-out of the Town. The scenario is strongly informed by the land zoning requests received in submissions made at the pre-draft stage of the Sligo and Environs Development Plan review process. These submissions, coming mainly from landowners, request residential

and/or mixed-use zoning. The summary of environmental effects of implementing this scenario - which is led by market demand - (see Section 4.3) provides a broad summary of the likely evolution of the environment without implementation of the Plan.

4.2.2 Alternative Scenario 2: *Horseshoe City*

The practical experience of planners in Sligo Local Authorities indicates that, if development were not controlled, there would be a preference for low-density residential development outside Sligo and Environs. This is particularly the case for areas located to the west and north-west of the Town along the Strandhill Road and Rosses Point Road (including Ballincar), where a notable amount of ribbon development has occurred. The demand for housing in these areas is based on the convenient location between the Town and the seaside settlements of Strandhill and Rosses Point. It appears that views of Sligo Bay, Knocknarea, Benbulbin, and also the attraction of living close to the water and not far from town make these locations highly desirable in residential terms. The Horseshoe City scenario (see Figure 4.2) is based on the intensification of existing uses and further development along the regional roads around Sligo Bay.

4.2.3 Alternative Scenario 3 *Compact City*

Scenario 3 (see Figure 4.3) is based upon achieving a balance between the consolidation / regeneration of the existing built-up area and the planned expansion of the City into the Environs. The scenario identifies five areas:

- Two areas - Sligo Docklands and Cranmore-Cleveragh - would be subject to comprehensive consolidation / regeneration.
- Teesan-Lisnalgurg (the "North Fringe" area) and the south-western quadrant at Caltragh-Carrowroe are identified for the planned expansion of the City.
- To the east of the City, the Hazelwood-Ballinode area, for which a Local Area Plan is already in place, would be

subject to a combination of consolidation (at Ballinode) and planned expansion to the east.

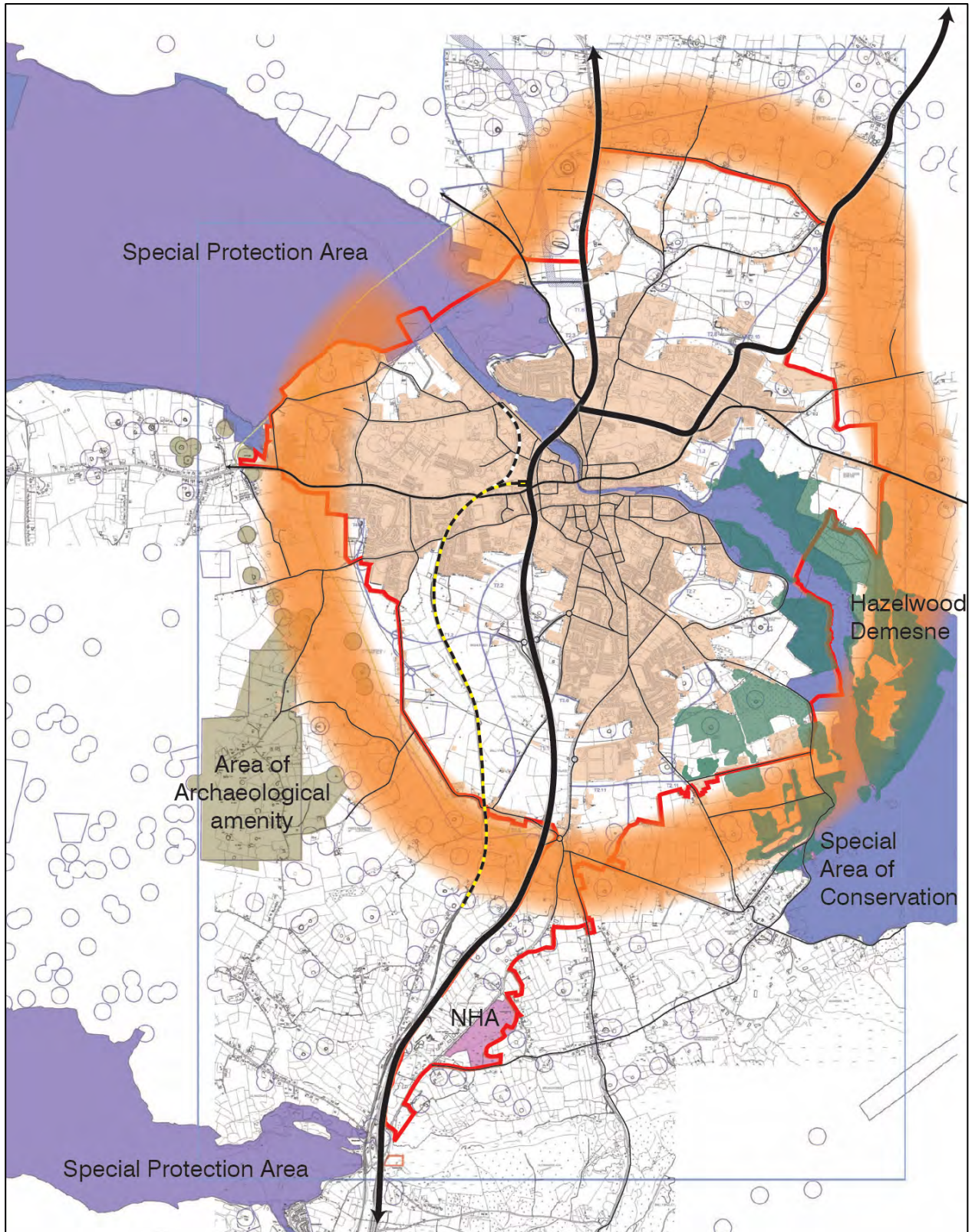


Figure 4.1 Alternative Scenario 1: Doughnut City

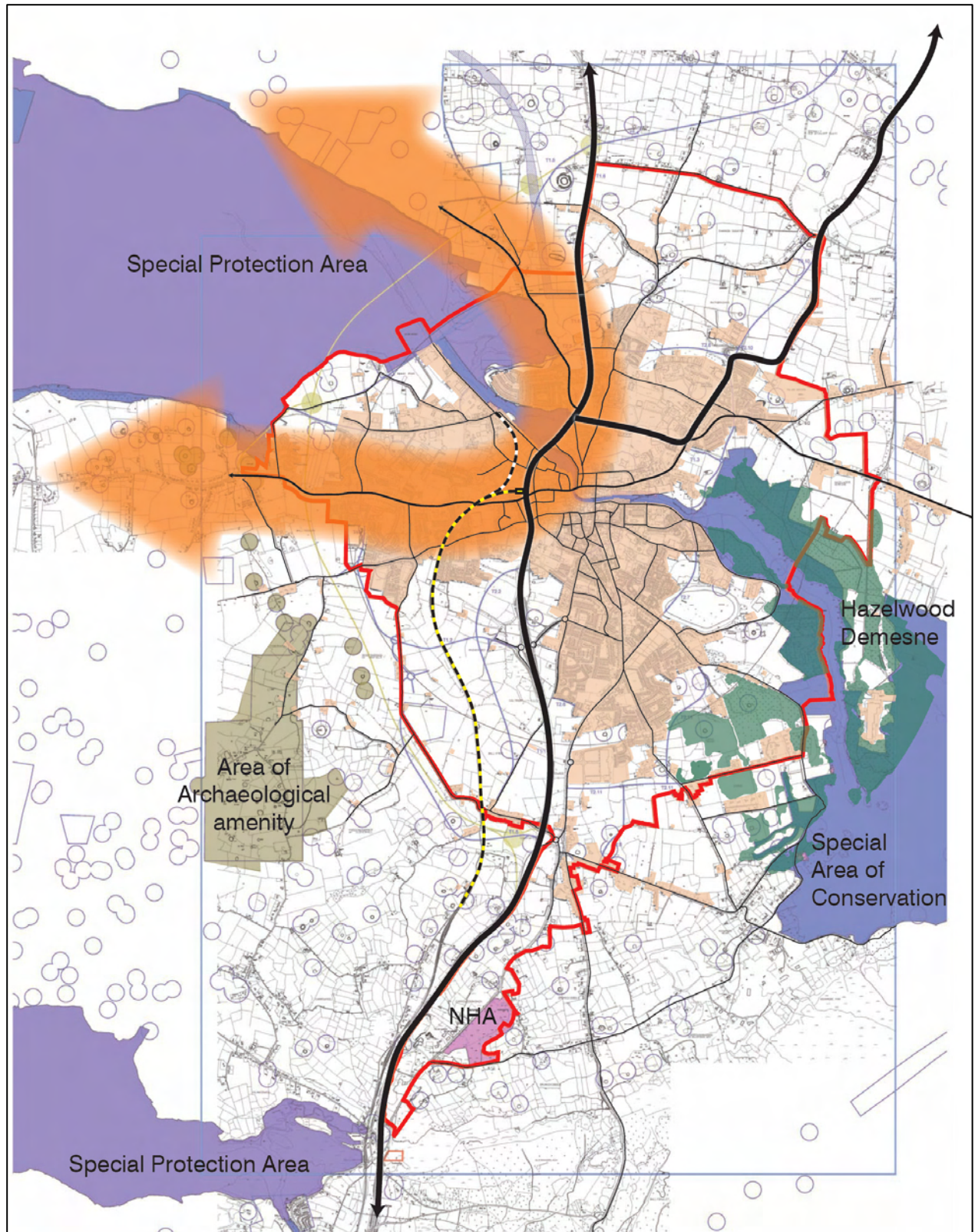


Figure 4.2 Alternative Scenario 2: Horseshoe City

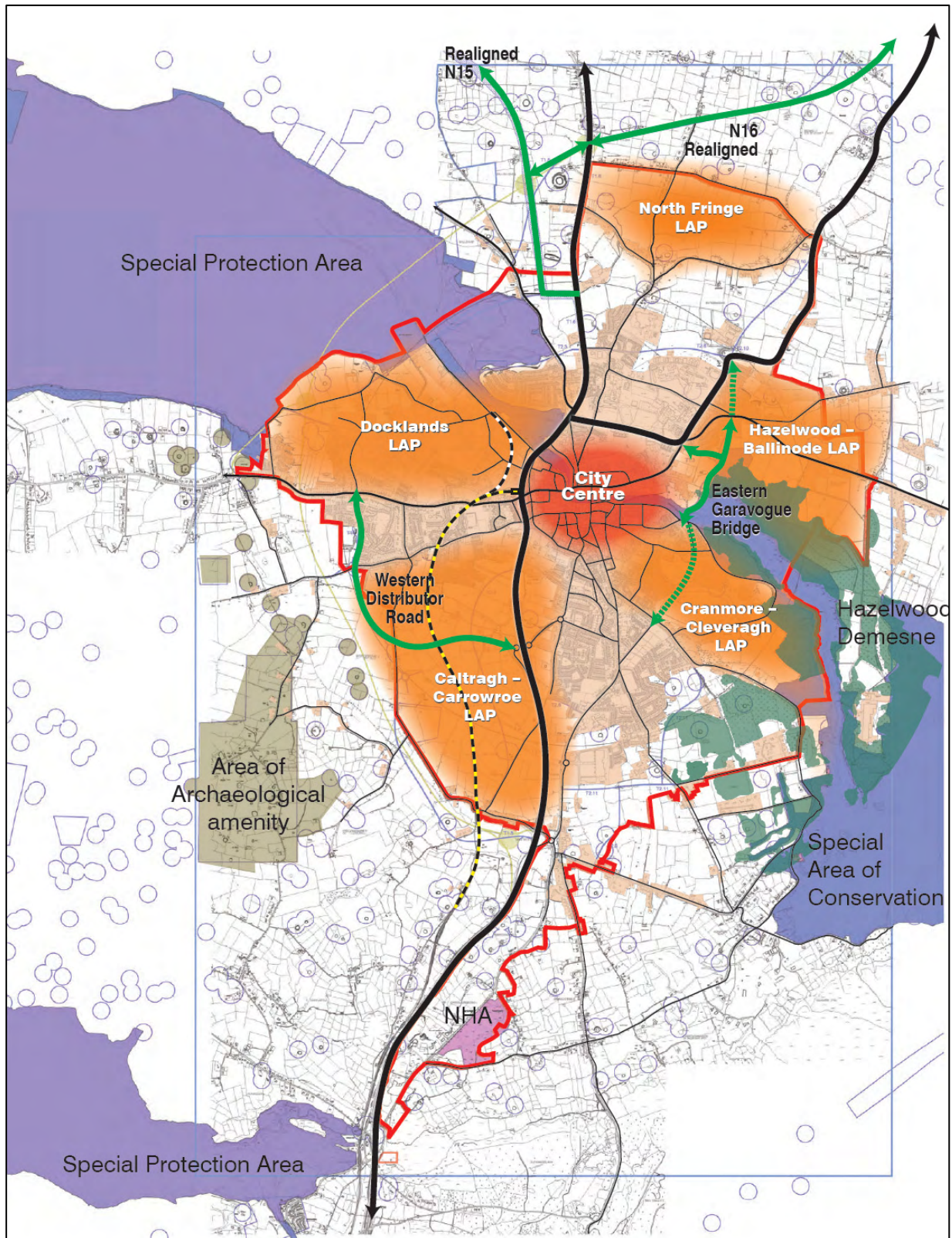


Figure 4.3 Alternative Scenario 3: Compact City

4.3 Summary of the Evaluation of Environmental Effects of the Alternative Scenarios

Alternative Scenario	Likely to Improve status of SEOs	Probable Conflict with status of SEOs - unlikely to be mitigated	Potential Conflict with status of SEOs - would be mitigated
Alternative Scenario 1 <i>Doughnut City</i>	<ul style="list-style-type: none"> • Architectural Heritage - short term by reducing development in the town centre 	<ul style="list-style-type: none"> • Ecological Connectivity and Non- Designated Ecology - due to greenfield development • Brownfield development - not maximised • Flooding - because of extent of greenfield development • The Landscape - due to impacts in identified landscape sensitivity areas to the east and south of the town • Archaeological Heritage - due to infringements upon monuments and obstruction of visibility between monuments and between monuments and Knocknarea and Carrowmore • Waste Water Treatment, Water Quality & Human Health - due to development on unserviced lands. • Greenhouse Gas Emissions & Car dependency - low densities over wider areas of land would result in public transport being unviable • Architectural Heritage - long term due to lack of regeneration and resultant urban decay 	<ul style="list-style-type: none"> • Designated Ecology - potential impacts arising from transport development would have to be mitigated
Alternative Scenario 2 <i>Horseshoe City</i>	<ul style="list-style-type: none"> • Architectural Heritage - short term by reducing development in the town centre 	<ul style="list-style-type: none"> • Designed Ecology and Ecological Connectivity - because of extent of development which would be provided along lands adjacent to Cummeen Strand/Drumcliff Bay SPA, SAC and pNHA • Brownfield development - not maximised • The Landscape - providing for significant additional ribbon development along lands adjacent to the Bay • Greenhouse Gas Emissions & Car dependency- low densities would result in public transport being unviable • Architectural Heritage - long term due to lack of regeneration and resultant urban decay • Flooding - because of extent of greenfield development adjacent to the Bay 	<ul style="list-style-type: none"> • Designated Ecology - potential impacts arising from transport development would have to be mitigated • Waste Water Treatment, Water Quality & Human Health - <i>generally</i> infrastructure exists or is proposed to be provided to serve the area under this scenario • Archaeological Heritage - arising from individual projects • Human health - this scenario would enable greenfield development to occur in designated safety zones thereby hindering the protection of flight paths

Alternative Scenario	Likely to Improve status of SEOs	Probable Conflict with status of SEOs - unlikely to be mitigated	Potential Conflict with status of SEOs - would be mitigated
Alternative Scenario 3 <i>Compact City</i>	<ul style="list-style-type: none"> • Architectural Heritage - long term protection arising from regeneration of certain areas and encouragement of brownfield development • Brownfield development - this scenario provides for regeneration and consideration • Greenhouse Gas Emissions & Car dependency - a compact Town and Environs would help to minimise increases in emissions and make public transport more economically viable • Ecological Connectivity and Non- Designated Ecology - outside of the existing development envelope • Provision of appropriate levels of waste water treatment - due to compact nature of development 		<ul style="list-style-type: none"> • Designated Ecology - due to projects involved in and contaminants potentially arising from regeneration of the docklands • Designated Ecology - potential impacts arising from transport development would have to be mitigated • Human Health - due to: contaminants potentially arising from regeneration of the docklands; and, potential odours and dust. • The Landscape - due to projects involved in the regeneration of the docklands & Hazelwood/Ballinode • Water Quality - due to contaminants potentially arising from regeneration of the docklands • Archaeological Heritage • Architectural Heritage - arising from brownfield developments / regeneration projects within the Town and Environs • Ecological Connectivity and Non-Designated Ecology - arising from projects within the existing development envelope • Flooding - as a result of greenfield development

4.4 Conclusion

Having regard to the evaluation summarised above and elaborated on in the Environmental Report, the alternative scenario with the least number and extent of potential environmental effects is Alternative Scenario 3 *Compact City*.

4.5 The Development Plan

Scenario 3 *Compact City* was chosen to be developed for the Draft Development Plan by the plan-making team having regard to both the environmental effects which were identified by the Strategic Environmental Assessment and planning - including social and economic - effects.

The likely significant environmental effects⁵ of implementing Scenario 3 summarised above and elaborated on in the Environmental Report fully reflect the likely significant effects of implementing the Development Plan including the land use zoning included in the Plan (see Figure 4.4). The environmental effects of implementing the policies and objectives required to achieve Scenario 3 are presented in Section 8 in the Environmental Report.

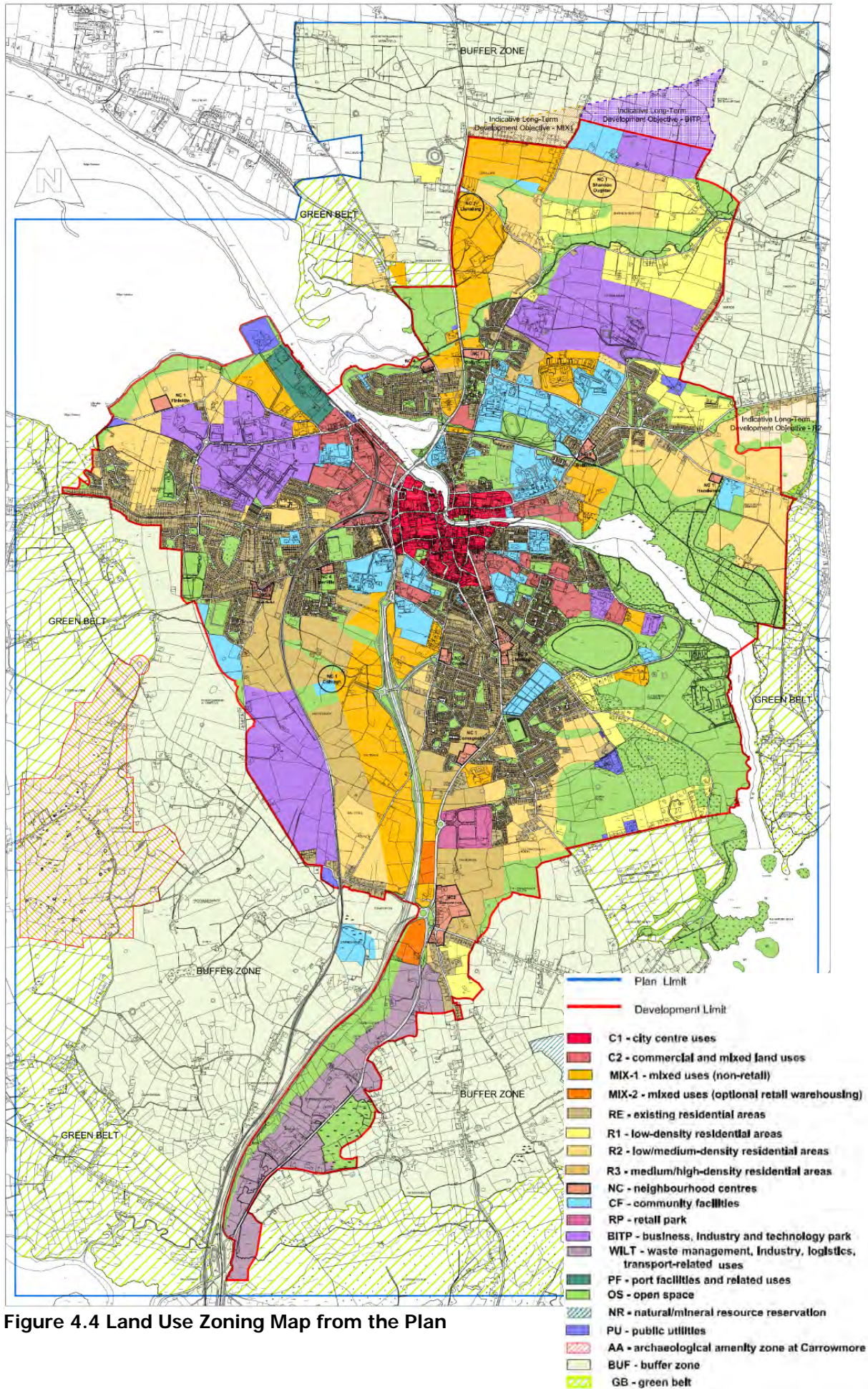
With the integration of appropriate mitigation measures (including those summarised in Section 5 of this report) potential adverse environmental effects which could arise as a result of implementing this scenario would be likely to be avoided, reduced or offset.

It is noted that 16 Amendments to the Zoning Map which was placed on public display as part of the Draft Plan were adopted as part of the Plan.

10 of these amendments would not be likely to result in potential conflicts with the status of the environment.

6 of the amendments would be likely to potentially cumulatively conflict with the status of the environment however these conflicts would be likely to be mitigated by measures which have been integrated into the Plan, including those summarised in Section 5 of this report.

⁵ Including secondary, cumulative, synergistic, short, medium and long-term permanent and temporary, positive and negative effects.



Section 5 Mitigation and Monitoring Measures

5.1 Mitigation

5.1.1 Introduction

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.

5.1.2 Mitigation through Consideration of Alternatives

A range of potential alternative scenarios for the Plan were identified at an early stage in the process and evaluated for their likely significant environmental effects. The environmental baseline and the Strategic Environmental Objectives were used in order to predict and evaluate the environmental effects of implementing the alternatives. Communication of the findings of this evaluation helped the Plan-making team to make an informed choice as to which alternative was to be put before the Elected Members as the proposed draft Plan. Communication of this evaluation to the Elected Members through this report and the Environmental Report helped them to make an informed choice with regard to the making of the Plan.

5.1.3 Individual Mitigation Measures integrated into the Plan

A number of individual mitigation measures were integrated into the Plan as individual policies or objectives. The mitigation measures were also considered during the preparation of the land use zoning contained in the Plan. Mitigation measures were integrated for the following topics: Biodiversity and Flora and Fauna; Surface and Ground Water Protection; Waste Water; Drinking Water; Flooding and Climatic Factors; Soil and Contamination; Cultural Heritage; Landscape; and, Waste Management

5.2 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 likely significant environmental effects of implementing 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 Plan is achieving its environmental objectives and targets - measures which the Plan can help work towards - whether these need to be re-examined and whether the proposed mitigation measures are being implemented.

The Environmental Report identifies indicators - which allow quantitative measures of trends and progress in the environment over time. Measurements for indicators should come from existing monitoring sources and no new monitoring should be required to take place. A preliminary monitoring evaluation report on the effects of implementing the Plan will be prepared within two years of the making of the Plan. The Councils are 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. Monitoring is proposed under the following headings: biodiversity and flora and fauna, population and human health, soil, water, air and climatic factors, material assets, cultural heritage and the landscape.