

SEA ENVIRONMENTAL REPORT - APPENDIX II

NON-TECHNICAL SUMMARY

FOR THE

DRAFT TUAM LOCAL AREA PLAN 2018-2024

for: Galway County Council

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Table of Contents

Section 1	Introduction and Terms of Reference.....	1
Section 2	The Draft Plan	2
Section 3	The Environmental Baseline	4
3.1	Introduction.....	4
3.2	Likely Evolution of the Environment in the Absence of the Plan	4
3.3	Biodiversity and Flora and Fauna	4
3.4	Population and Human Health	6
3.5	Soil	6
3.6	Water.....	8
3.7	Air and Climatic Factors	13
3.8	Material Assets.....	13
3.9	Cultural Heritage	14
3.10	Landscape	15
3.11	Appropriate Assessment.....	18
3.12	Strategic Flood Risk Assessment	18
3.13	Strategic Environmental Objectives	18
Section 4	Summary of Description and Evaluation of Alternatives.....	20
4.1	Introduction.....	20
4.2	Alternative 1: Even Development	20
4.3	Alternative 2: Sporadic Development.....	20
4.4	Alternative 3: Haphazard Development	20
4.5	Summary of Assessment of Alternatives	24
4.6	The Selected Alternative for the Draft Plan	27
Section 5	Summary of Effects arising from Draft Plan	29
Section 6	Mitigation and Monitoring Measures	32
6.1	Mitigation	32
6.2	Monitoring	32

Section 1 Introduction and Terms of Reference

This is the Non-Technical Summary of the Strategic Environmental Assessment (SEA) Environmental Report for the Draft Tuam Local Area Plan 2018-2024. The purpose of the Environmental Report is to comply with SEA legislation and provide a clear understanding of the likely environmental consequences of decisions regarding the adoption and implementation of the Draft Plan.

What is an SEA?

SEA is a systematic process of predicting and evaluating the likely environmental effects of implementing a proposed plan, or other strategic action, in order to ensure that these effects are appropriately addressed at the earliest appropriate stage of decision-making on a par with economic, social and other considerations.

Why is it needed?

The SEA has been carried out in order to comply with the provisions of the SEA Regulations as amended and in order to contribute towards environmental management and sustainable development. The output of the process is an Environmental Report which should be read in conjunction with Draft Plan.

How does it work?

Relevant aspects of the current state of the environment are assembled and presented to the team who prepared the Draft Plan. This helped them to devise Draft Plan in a way in which helps to protect whatever is sensitive in the environment. To decide how best to make a Draft Plan that helps to protect the environment as much as possible, the Council examined different alternatives for the Draft Plan. This helped to highlight where conflicts could occur and facilitated the development of mitigation measures which will help to avoid/reduce adverse environmental effects.

What is included in the Environmental Report which accompanies Draft Plan?

The Environmental Report contains the following information:

- A description of the relevant aspects of the current state of the environment;
- A description and assessment of alternatives;
- An assessment of Draft Plan provisions; and,
- Mitigation measures which set out to aid compliance with important environmental protection legislation - e.g. the Water Framework Directive, the Habitats Directive - and which will help to avoid/reduce the adverse environmental effects of implementing the Draft Plan.

What happens at the end of the process?

On finalisation of the Draft Plan, an SEA Statement will be prepared and made available. The SEA Statement will include information on how environmental considerations have been integrated into the Draft Plan and why the preferred alternative was chosen for the Draft Plan.

Section 2 The Draft Plan

The Draft Tuam Local Area Plan is a land use plan provides the overall strategy for the development of Tuam over the period 2018-2024. The Plan seeks to have a positive impact on Tuam ensuring that it develops in a sustainable manner and complements the implementation of the current Galway County Development Plan 2015-2021 (as varied).

The Strategic Vision of the Plan is:

'To promote Tuam as a thriving vibrant market town, providing a focus for future residential, economic & social development in a sustainable manner, encouraging new development and capitalising on the town's unique historic identity and character, as well as its accessibility, thereby realising Tuam's potential as well as supporting the surrounding rural hinterland.'

This strategic vision is informed by the following guiding principles that will enable the overall vision to be achieved:

- Realising the town's potential as the 'Hub Town' as set out in the Galway County Development Plan and attracting the population target established in the Core Strategy up to 2021 and beyond.
- The growth of Tuam for the life of the plan should focus on establishing new sustainable communities adopting a sequential approach to the zoning of residential lands extending outwards from the centre of the Town in line with the Guidelines for Planning Authorities - Sustainable Residential Development in Urban Areas (Cities, Towns & Villages) (2009).
- Ensuring that there are a range of facilities, amenities and supporting services including educational, recreational, religious, social, community and civic requirements for children, youths, adults and the elderly, to serve a growing community, which promote an inclusive and cohesive local community.
- Maintaining a strong and vibrant town centre which attracts new businesses and provides appropriate retailing and service functions to serve the needs of the Town and its surrounding hinterland, in addition to offering a pleasant and attractive environment for shopping, business, recreation and living.
- Capitalising on the compact urban form of Tuam town centre by encouraging greater connectivity for new development which promotes and encourages walking and cycling ensuring that principles of sustainable transportation along with practical design measures become central to the development of new neighbourhoods.
- Promoting sustainable development which minimises negative impacts on the environment and helps to mitigate against the likely effects of Climate Change on present and future generations. Including the promotion of low-carbon technologies, building and water efficiency as well as the use of renewable technologies and sustainable forms of water and wastewater drainage.
- Integration of high quality design into all future development within the Tuam LAP area, promoting innovative, green technologies throughout the plan area which make a positive contribution to the environment.
- Ensuring all new development within the Architectural Conservation Area, reinforces local distinctiveness and creates a sense of place while protecting, conserving and enhancing the historic character of Tuam.
- Encouraging development which is sensitively integrated into the existing landscape which demonstrates an understanding of the intrinsic qualities of the landscape setting and, where possible, promote opportunities to protect and enhance landscape characteristics, features and biodiversity.

The Draft Plan is structured as follows:

- Section 1 'Introduction';
- Section 2 'Strategic Vision and Development Strategy'
- Section 3 'Development Policies, Objectives and Guidelines'; and

- Section 4 ‘Local Area Plan Maps’

In addition, the Draft Plan sits within a hierarchy of strategic actions such as plans and programmes, including the following:

- EU Green Infrastructure Strategy
- UN Kyoto Protocol (2ND Kyoto Period), the Second European Climate Change Programme (ECCP II), Paris climate conference (COP21) 2015
- EU 2020 climate and energy package
- Habitats Directive (92/43/EEC)
- Birds Directive (2009/147/EC)
- European Union Biodiversity Strategy to 2020
- The Clean Air for Europe Directive (2008/50/EC)
- Fourth Daughter Directive (2004/107/EC)
- Noise Directive 2002/49/EC
- Floods Directive (2007/60/EC)
- Water Framework Directive (2000/60/EC)
- Groundwater Directive (2006/118/EC)
- Drinking Water Directive (98/83/EC)
- Urban Waste Water Treatment Directive (91/271/EEC)
- Environmental Liability Directive (2004/35/EC)
- SEA Directive (2001/42/EC)
- EIA Directive (2011/92/EU as amended by 2014/52/EU)
- Infrastructure and Capital Investment 2012-16: Medium Term Exchequer Framework
- Smarter Travel Initiative 2012-2016
- Smarter Travel – A Sustainable Transport Future – A New Transport Policy For Ireland 2009-2020 (2009)
- Ireland’s First National Cycle Policy Framework (2009)
- Scoping Study for a National Cycle Network (NCN)
- Strategic Framework for Integrated Land use and Transport (SFILT) – Department of Transport, Tourism and Sport
- National Climate Change Strategy 2007 – 2012 (2007)
- Climate Action and Low Carbon Development Act 2015
- National Climate Change Policy Position
- Delivering a Sustainable Energy Future for Ireland – The Energy Policy Framework 2007 – 2020 (2007)
- The National Climate Change Adaptation Framework
- National Renewable Energy Action Plan
- National Energy Efficiency Action Plan for Ireland 2007-2020 (2007)
- Sustainable Development – A Strategy for Ireland (1997)
- Wildlife Act of 1976 and Wildlife (Amendment) Act, 2000
- Actions for Biodiversity 2011-2016 Ireland’s National Biodiversity Plan, 2011 (Draft National Biodiversity Action Plan 2017 - 2021)
- The Planning System and Flood Risk Management – Guidelines for Planning Authorities (2009)
- European Communities (Water Policy) Regulations of 2003 (SI 722 of 2003)
- European Communities (Water Policy) Regulations of 2003 (SI 350 of 2014)
- European Communities Environmental Objectives (Surface waters) Regulations of 2009 (SI 272 of 2009)
- European Communities Environmental Objectives (Groundwater) Regulations of 2010 (SI 9 of 2010)
- Water Pollution Acts 1977 to 1990
- European Communities (Urban Waste Water Treatment) Regulations 2001 (S.I. No. 254/2001)
- Water Services Act 2007, Water Services (Amendment) Act 2012, Water Services Act 2013
- Irish Water’s Water Services Strategic Plan 2015 and associated Proposed Capital Investment Plan 2014-2016
- National Spatial Strategy 2002-2020 (2002) to be replaced by the upcoming National Planning Framework
- Grid25 Implementation Programme
- National Landscape Strategy 2015
- National Rural Development Programme 2014-2020
- National Forestry Programme 2014-2020
- National Peatlands Strategy (finalised)
- National Hazardous Waste Management Plan (EPA) 2014-2020
- River Basin Management Plans and associated Programmes of Measures; River Basin Management Plans - including the Western River Basin Management Plan - are currently being replaced by a National Plan
- Regional Spatial Economic Strategy (to commence in 2018 and will be adopted over lifetime of the Plan)
- Draft Freshwater Pearl Mussel Sub-Basin Management Plans
- Management Plans for European Sites
- Outputs from the Western Catchment Flood Risk Assessment and Management Programme
- Connacht-Ulster Regional Waste Management Plan
- County Development Plans including the Galway County Development Plan 2015-2021 (as varied)
- Proposed Variation No. 2 (a) to the Galway County Development Plan 2015-2021
- Proposed Variation No. 2 (b) to the Galway County Development Plan 2015-2021
- Local Area Plans (including those for Athenry, Clifden, Craughwell, Gort, Loughrea, Maigh Cuilinn, Oranmore, Oughterard, Portumna and Tuam)
- Local Economic and Community Plan for County Galway
- Groundwater Protection Scheme for County Galway
- Galway County Heritage & Biodiversity Plan 2017-2022

Section 3 The Environmental Baseline

3.1 Introduction

Reflecting the specifications in the SEA Directive, the relevant aspects of the current state of the environment for the following environmental components are summarised in this section: biodiversity and flora and fauna, population and human health, soil, water, air and climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors.

3.2 Likely Evolution of the Environment in the Absence of the Plan

The Draft Plan has been prepared to further contribute towards the framework for proper planning and sustainable development that is already provided for by the County Development Plan 2015-2021 as amended. The current Tuam Plan that was adopted in 2011 is due to expire in January 2018.

If the 2011 Plan was allowed to expire and not be replaced by the new 2018 Plan, this would result in a deterioration of the town's planning and environmental protection framework. Although higher-level environmental protection objectives – such as those of the 2015-2021 County Development Plan and various EU Directives and transposing Irish Regulations – would still apply, the deterioration of this framework would mean that new development would be less coordinated and controlled. Such development would have the potential to result in an increase in the occurrence of adverse effects on all environmental components, especially those arising cumulatively.

3.3 Biodiversity and Flora and Fauna

There are various highly sensitive and designated areas within and close to the Tuam Plan area on account of the species and habitats which they contain. The closest European Sites is the Lough Corrib SAC (Site code: 000297) which is adjacent to the Plan area. European Sites, Natural Heritage Areas, Proposed Natural Heritage Areas and Water Management Units within 15 km buffer of the Tuam Plan area are mapped on Figure 3.1.

Lough Corrib SAC includes 15 habitats which are listed on Annex I of the E.U. Habitats Directive, six of which are priority habitats, and nine species which are listed on Annex II. A number of rivers are included within the SAC as they are important for Atlantic Salmon.

There are none Natural Heritage Areas (NHAs) or Proposed Natural Heritage Areas (pNHA) located within the Tuam Plan area, however there are a number of NHAs and pNHAs near the Plan area, as shown on Figure 3.1.

Previous changes in land uses arising from human development have resulted in a loss of biodiversity and flora and fauna however legislative objectives governing biodiversity and fauna were not identified as being conflicted with.

The Draft Plan and the existing County Development Plan includes robust measures to facilitate contributions towards the protection and management of biodiversity and flora and fauna.

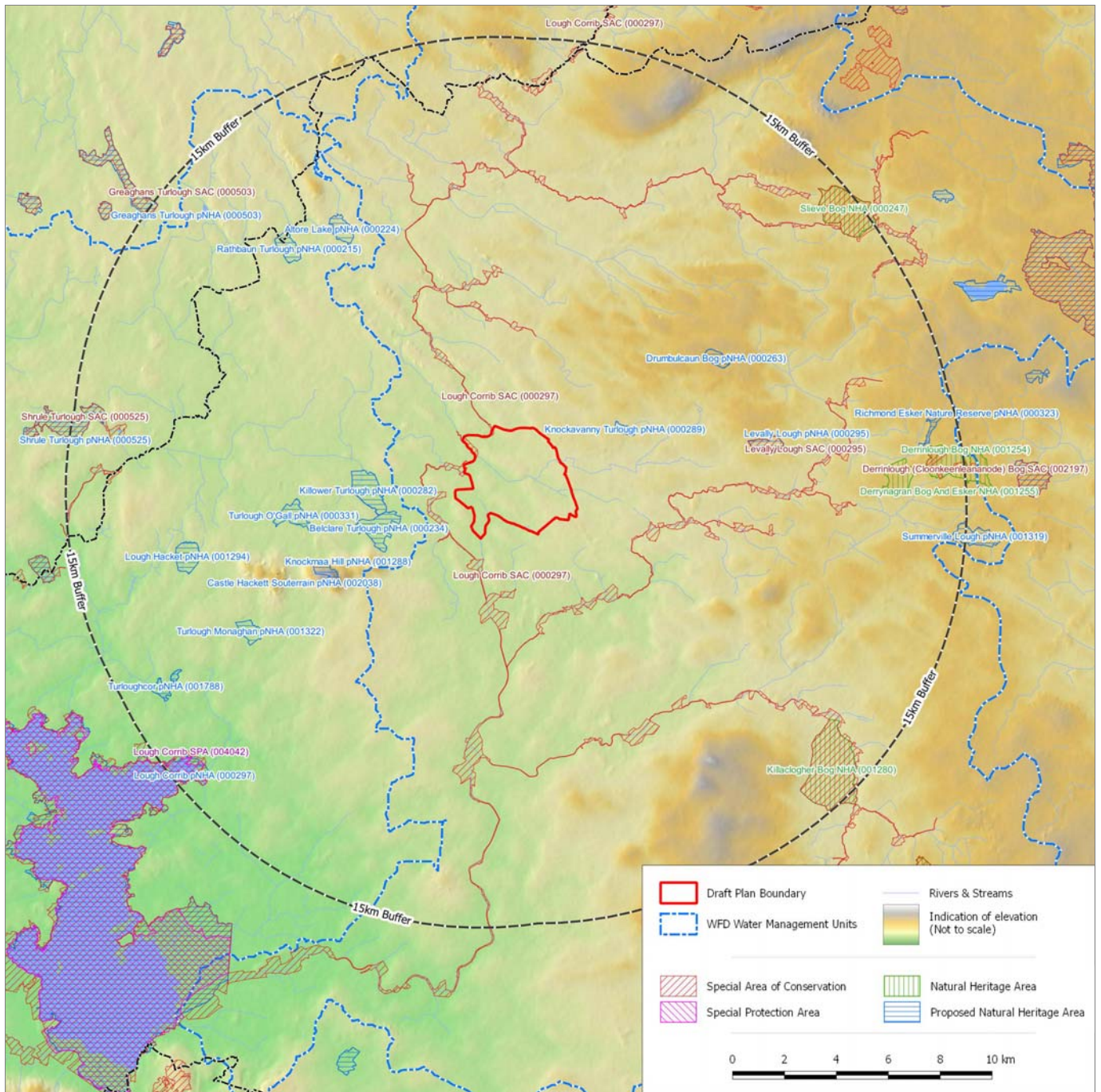


Figure 3.1 European Sites, Natural Heritage Areas, Proposed Natural Heritage Areas and Water Management Units within 15 km buffer of Tuam

3.4 Population and Human Health

The impact of implementing the Draft Plan on population and human health is influenced by the impacts which the Draft Plan will have upon environmental vectors. Environmental vectors are 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. Population and human health has the potential to interact with issues including the following:

- Developmental and recreational pressure on habitats and landscapes;
- Increase in demand for waste water treatment at the municipal level;
- Increase in demand for water supply water quality (see Section 1.1); and
- Flood risk (in flood sensitive areas) (see Section 1.1).

The population of Tuam has risen steadily in recent years. According to the 2016 Census, the population of the town and its environs was approximately 8,767 persons, an increase of 525 persons from the 2011 Census figure. The current LAP provides for a population allocation of 2,080 persons for Tuam over the Plan period, which equates to approximately 866 new houses. This population allocation aligns with the Settlement and Core Strategies for County Galway, as set out in the Galway County Development Plan, 2015-2021, and will remain unchanged in the new Plan.

Tuam has been identified as the County's only Hub Town in the Core Strategy of the County Development Plan, having a role to interact & complement the gateway of Galway City and drive development in rural north-east Galway.

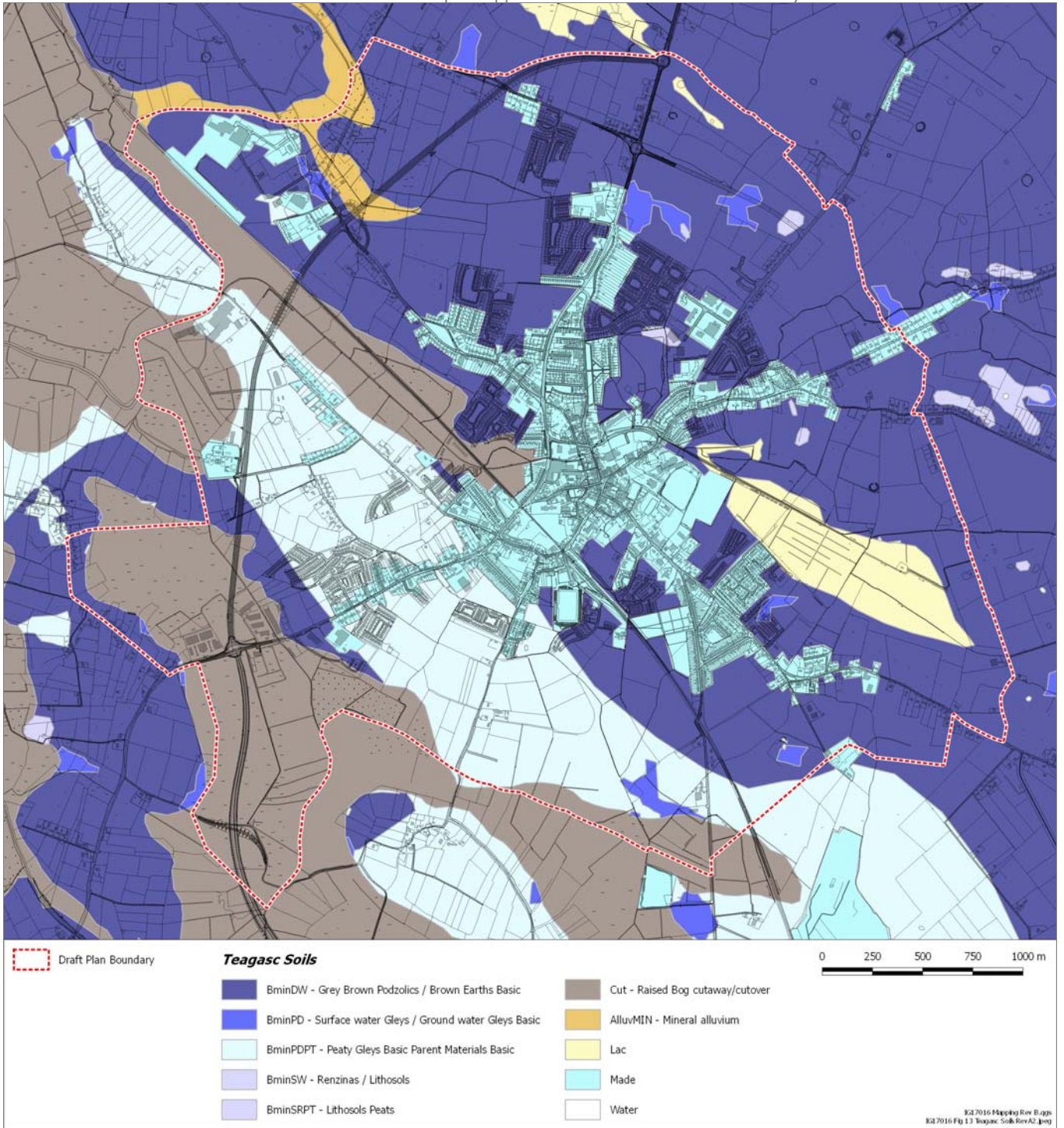
Emission limits for discharges to air, soil and water are set with regards to internationally recognised exposure limit values. These are generally set to be many times the safe exposure limit - in order to provide protection. In the event that a plan or programme began to have adverse health effects on surrounding populations it is likely that it would have been identified as being in breach of such emission standards at a very early stage - and long before the manifestation of any adverse health effects in the population.

3.5 Soil

Peat soils are often indicative of areas that are the most sensitive to development due ecological sensitivities and impeded drainage issues. Parts of the southwest of Tuam is underlain by peat soils, while parts of the north and northeast of the Town has better quality agricultural land due to well drained fertile brown earths and alluvial soils located within the area (as shown on Figure 3.2).

The greatest health risk from radiation in Ireland is caused by radon. The presence of radon gas, a naturally occurring radioactive gas that originates from the decay of uranium in rocks and soils, occurs across the country. Exposure to radon for long periods or at high concentrations can lead to lung cancer. It is estimated that up to 20% of homes in the Plan area are above the Reference Level. These levels are relatively normal in comparison to those experienced elsewhere within the country.

No contaminated lands within Tuam have been identified however, as is the case with other urban and semi-urban areas across the country, there is potential for contamination at sites within Tuam, especially where land uses occurred in the past in the absence of environmental protection legislation.



3.6 Water

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*. 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*.

The Water Framework Directive is implemented at River Basin Districts (RBD) level. An RBD is an area of land that is drained by a large river or number of rivers and the adjacent estuarine/coastal areas. Tuam Plan area is located in the Western River Basin District (WRBD), which includes parts of Clare, Galway, Galway City, Leitrim, Mayo, Roscommon and Sligo.

Surface water at and around Tuam is channelled by a number of rivers and streams. The River Clare flows south westwards from the Ballygaddy Bridge to the Corrib and is located to the north west of the Plan boundary. The River Nanny and the Grange River are both tributaries of the River Clare. The River Nanny flows through the town and joins the Clare River to the North West of the Plan Boundary. The River Clare has been assigned *good status* and the River Nanny *moderate status*. Local water quality status for the Plan area is shown on Figure 3.3.

For groundwater bodies, the approach to classification is different from that for surface water. For each body of groundwater, both the chemical status and the quantitative must be determined. Both have to be classed as either *good* or *poor*. The WFD sets out a series of criteria that must be met for a body to be classed as good chemical and quantitative status. The WFD status (2010-2015) of all groundwater underlying the Tuam Plan area and is identified as being of *good status*, meeting the objectives of the WFD.

The Geological Survey of Ireland (GSI) rates the rocks, or aquifers, that contain groundwater according to both their vulnerability to pollution and their productivity. An aquifer of regional importance lies under the area bounded by the Tuam Plan area. The vulnerability of this aquifer ranges from medium in the town centre to high and extreme in the north east. Areas to the northwest, south and south east of the River Nanny range from medium to low vulnerability (see Figure 3.4). The aquifer underlying Tuam is classified as regionally important aquifer (karstified bedrock).

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. Entries to the RPAs relevant to Tuam include:

- The water bodies within and surrounding the Tuam Plan area supporting Special Areas of Conservation (SACs); and
- Groundwater for drinking water underlying the Tuam Plan area.

The most significant source of flood risk within the Plan area is from fluvial (from rivers/streams) however there are other sources of flooding present including those from pluvial (from rainwater) and surface drainage systems.

Flooding is an environmental phenomenon which, as well have causing economic and social impacts, could in certain circumstances pose a risk to human health. The existence of flood risk within Tuam has been detailed in the Strategic Flood Risk Assessment (SFRA) that has been undertaken alongside and informed the Draft Plan. The SFRA has facilitated the integration of flood risk management considerations into both the land use zoning and written provisions contained within the Plan.

Zones of elevated fluvial flood risk that were identified by the SFRA are shown on Figure 3.5. There are three types or levels of flood zones defined for the purposes of the Flood Guidelines (there is no coastal risk at Tuam):

- Flood Zone A – where the probability of flooding from rivers and the sea is highest (greater than 1% or 1 in 100 for river flooding or 0.5% or 1 in 200 for coastal flooding);
- Flood Zone B – where the probability of flooding from rivers and the sea is moderate (between 0.1% or 1 in 1000 and 1% or 1 in 100 for river flooding and between 0.1% or 1 in 1000 year and 0.5% or 1 in 200 for coastal flooding); and
- Flood Zone C – where the probability of flooding from rivers and the sea is low (less than 0.1% or 1 in 1000 for both river and coastal flooding). Flood Zone C covers all other areas that are not in zones A or B.

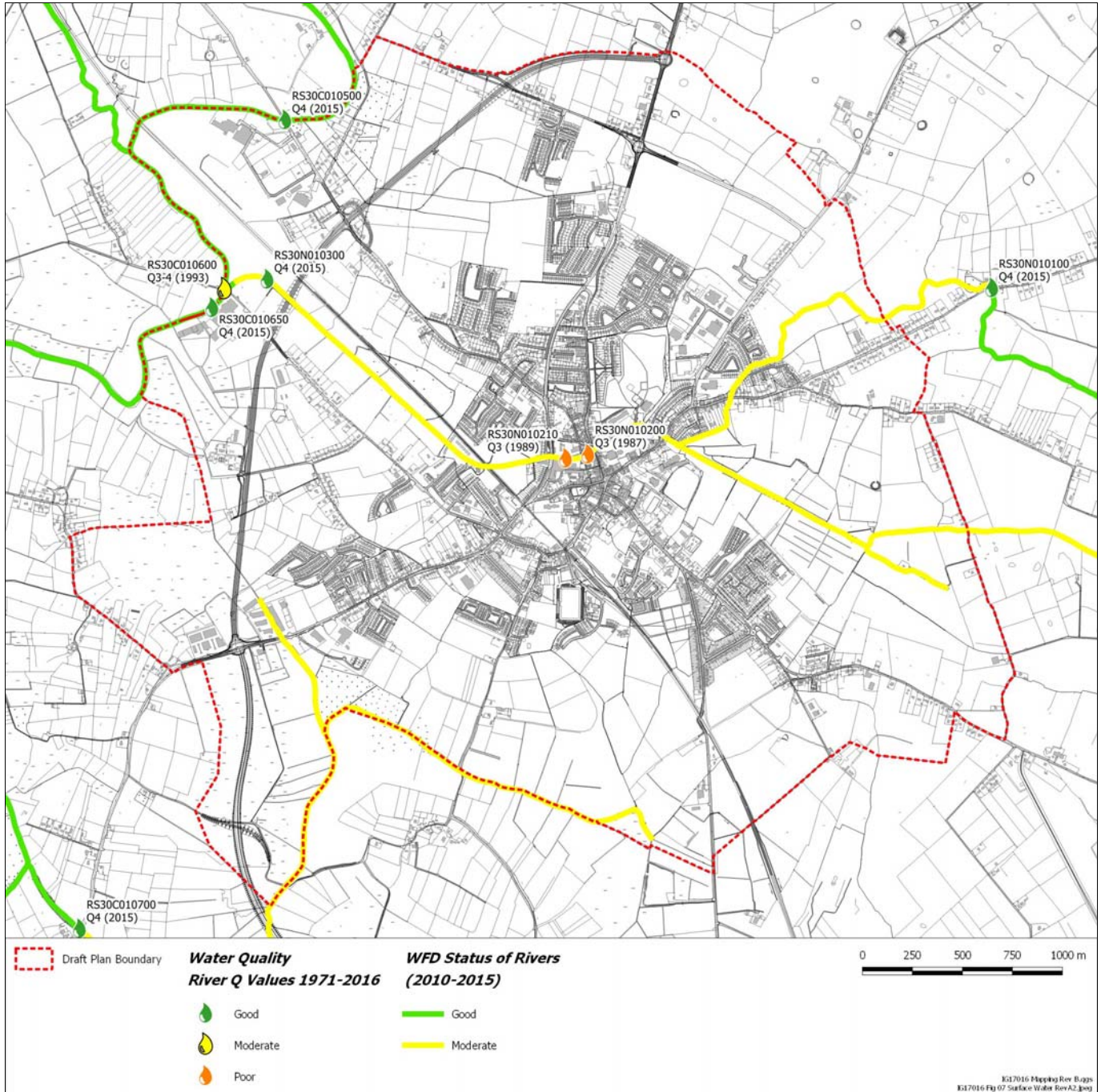


Figure 3.3 Available information on Water Quality Status (2010-2015) for Surface Water Bodies

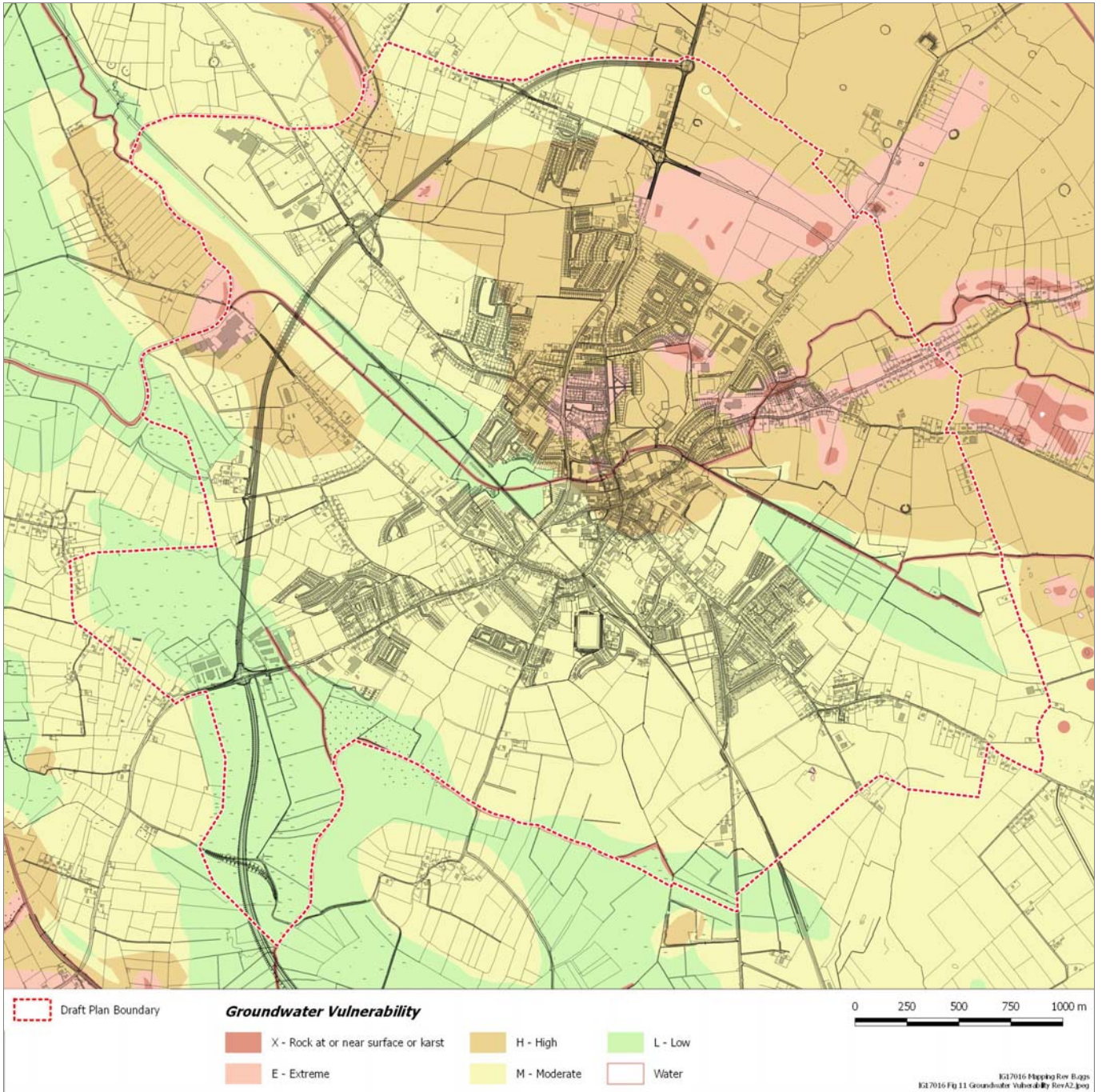


Figure 3.4 Groundwater Vulnerability

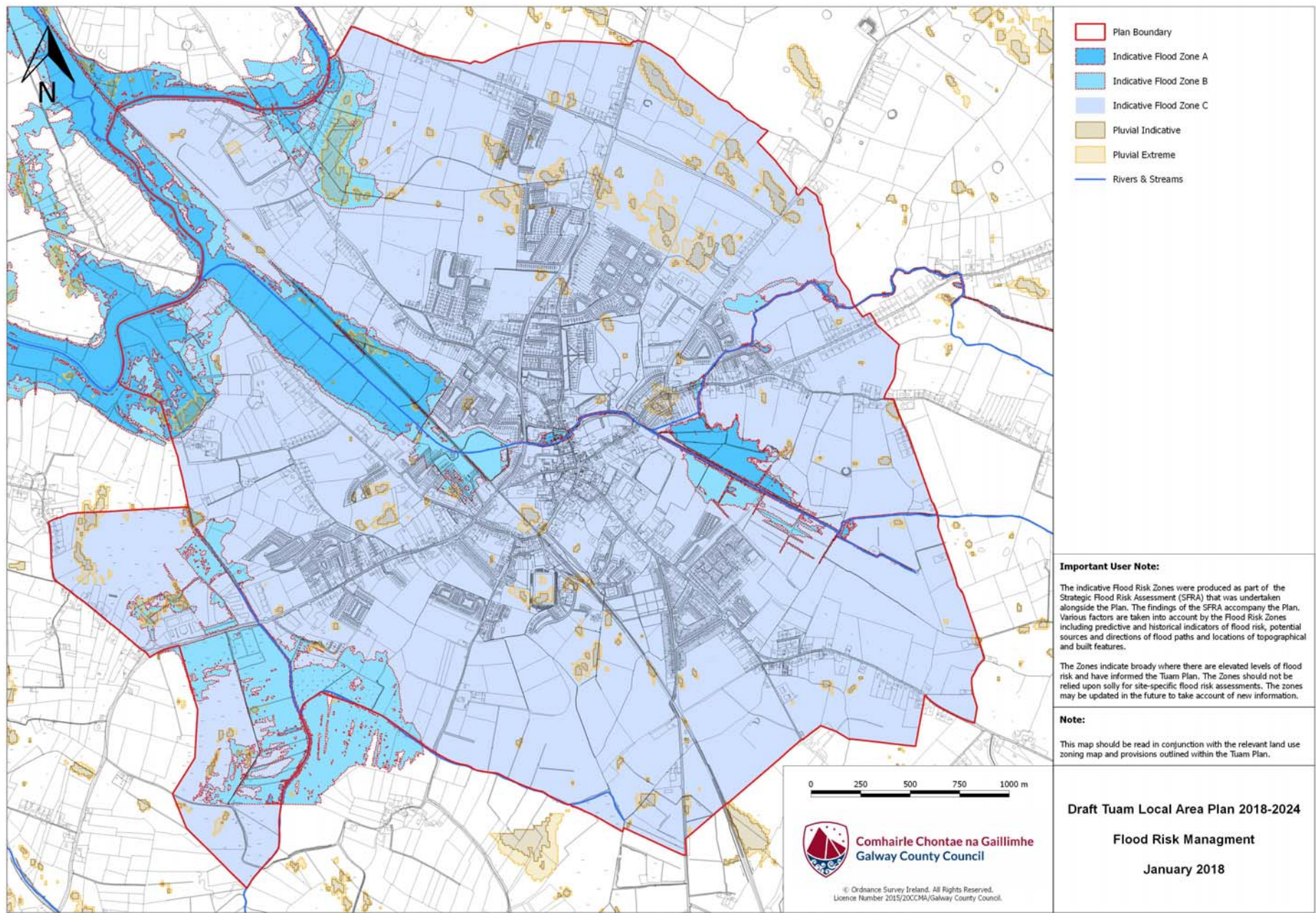


Figure 3.5 Flood Zones Map

3.7 Air and Climatic Factors

The key issue involving the assessment of the effects of implementing the Draft Plan on climatic factors relates to greenhouse gas emissions arising from transport. Interactions are also present with flooding and these are covered in greater detail in the Strategic Flood Risk Assessment that also accompanies the Draft Plan.

The Draft Plan contributes towards improvements in sustainable mobility, thereby facilitating reductions in and limiting increases of greenhouse gas emissions. Such emissions would occur otherwise with higher levels of motorised transport and associated traffic. This is particularly relevant through the accommodation of new development, including consolidation, within Draft Plan. Land-use planning contributes to what number and what extent of journeys occur. By addressing journey time through land use planning and providing more sustainable modes and levels of mobility, noise and other emissions to air and energy use can be minimised. Furthermore, by concentrating populations, greenfield development – and its associated impacts – can be minimised and the cost of service provision can be reduced.

The EPA 2017 publication *Ireland's Greenhouse Gas Emission Projections 2016-2035* provides an assessment of Ireland's progress towards achieving its emission reduction targets set down under the EU Effort Sharing Decision (Decision No 406/2009/EC) for the years 2013-2020 and a longer term assessment based on current projections. The first National Mitigation Plan 2017, prepared by the Department of Communications, Climate Action and Environment, represents an initial step to set Ireland on a pathway to achieve the level of decarbonisation required.

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.

National Ambient Air Quality Network and measures the levels of a number of atmospheric pollutants at locations across the country. The current air quality at the monitoring sites closest to the Plan area is identified by the EPA as being *good*¹.

3.8 Material Assets

Since January 2014, Irish Water is the State body responsible for the delivery, integration and implementation of strategic water and waste water projects and infrastructural improvements. Galway County Council no longer has a direct role in this area, however the Council works with Irish Water to help to ensure that the land use plans and water services investment plans align. The upgrading of infrastructure will contribute towards compliance with the Water Framework Directive, EU Urban Waste Water Treatment Directive and Drinking Water Regulations and will help to protect human health and maintain the quality of surface and ground waters.

The EPA's 2017 report *'Urban Waste Water Treatment in 2016'* identified that:

- Waste water treatment at 50 of Ireland's 185 large urban areas did not meet relevant standards and improvements are needed at 148 urban areas;
- Raw sewage is released into the environment from 44 urban areas; and
- Significant capital investment to upgrade deficient waste water treatment systems is required to comply with EU standards, improve water quality, and prevent pollution of rivers, lakes and bathing water and to protect shellfish and pearl mussel habitats.

Based on the EPA's assessment of monitoring information provided by Irish Water and the enforcement activities carried out by the EPA, this report identifies urban areas with the most important environmental issues that must be addressed. There are 14 urban areas in County Galway listed currently as priority areas, where improvements are required to resolve urgent environmental issues.

¹ 10/01/2018 (<http://www.epa.ie/air/quality/>)

Tuam benefits from a public waste water treatment system, which was designed to cater for a population equivalent of 3,000 with provision for future expansion to 6,000 population equivalent. The final treated effluent discharges to Clare River/Stream, which in turn discharges to Lough Corrib, approximately 5km downstream. Some developments at the outer areas of the town remain connected to individual septic tanks or proprietary waste water treatment systems.

The existing Waste Water Treatment Plant (WWTP) is not listed in the current EPA *Urban Waste Water Treatment in 2016 Report*² and has adequate capacity. Works are currently being planned under Capital Programmes to provide additional treatment capacity³ at WWTP in Tuam.

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

The EPA publishes their results in annual reports which are supported by Remedial Action Lists (RALs). The RAL identifies water supplies which are not in compliance with the Regulations mentioned above. Tuam receives its water supply from the Tuam Regional Water Supply Scheme which is abstracted from Lough Corrib at Luimnagh. The drinking water facility for Tuam is not listed on the current RAL (Q3 of 2017) and has adequate capacity.⁴

For the purposes of waste management planning, Ireland is now divided into three regions: Southern, Eastern-Midlands and Connacht-Ulster. Waste management plans for the three regions came into force in 2015. Galway is subject to the Connacht Ulster Waste Management Plan 2015-2021.

3.9 Cultural Heritage

Archaeology is the study of past societies through the material remains left by those societies and the evidence of their environment. Archaeological sites and monuments vary greatly in form and date; examples include earthworks of different types and periods, (e.g. early historic ringforts and prehistoric burial mounds), megalithic tombs from the Prehistoric period, medieval buildings, urban archaeological deposits and underwater features. Archaeological heritage is protected under the National Monuments Acts (1930-2004), Natural Cultural Institutions Act 1997 and the Planning Acts. A recorded monument is a monument included in the list and marked on the map which comprises the RMP set out county by county under Section 12 of the National Monuments (Amendment) Act, 1994 by the Archaeological Survey of Ireland. The definition includes Zones of Archaeological Potential in towns and all other monuments of archaeological interest which have so far been identified by the Government. There are 55 various entries RMP within and around Tuam providing evidence of early settlement including High Cross (National Monument in State Care). There are also 21 sites and monuments within the Zone of Archaeological Potential (as shown on Figure 3.6).

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.

Part IV of the Planning and Development Act requires every development plan to include a Record of Protected Structures (RPS). A 'protected structure' is a structure or a specific feature of the structure as may be specified that a Planning Authority considers to be of special interest from an architectural, historical, archaeological, artistic, cultural, scientific, social or technical point of view. There are 50 RPS entries within and around Tuam (see Figure 3.7).

² EPA, 2017; this report provides a summary of urban waste water treatment in 2016 and identifies the most important environmental issues that must be addressed.

³ Indicative Infrastructure Capacity for Core Strategy Settlements, Feb. 2017, Galway County Council

⁴ 24 Indicative Infrastructure Capacity for Core Strategy Settlements, Feb. 2017, Galway County Council

In accordance with Section 81 of the Planning and Development Act, Development Plans are required to include an objective to preserve the character of a place, area, group of structures or townscape, taking account of building lines and heights, that:

- a) is of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest or value, or
- b) contributes to the appreciation of protected structures,

if the Planning Authority is of the opinion that its inclusion is necessary for the preservation of the character of the place, area, group of structures or townscape concerned and any such place, area, group of structures or townscape shall be known as an "Architectural Conservation Area" (ACA). There is currently one ACA within Tuam: Tuam Town Centre ACA (see Figure 3.7).

3.10 Landscape

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; landcover, 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 landcover.

The Landscape Character Assessment for County Galway (2003) identifies Landscape Character Areas, classifies landscapes in Galway according to their sensitivity (their ability to accommodate change or intervention without suffering unacceptable effects to character and values) and values and identifies focal points/views.

The following five sensitivity classes were established by the Landscape Character Assessment:

- Class 1 – Low sensitivity;
- Class 2 – Moderate sensitivity;
- Class 3 – High sensitivity;
- Class 4 – Special; and,
- Class 5 – Unique

The most sensitive landscapes are 'Class 5 - Unique', 'Class 4 - Special' and 'Class 3 - High sensitivity' while landscapes of lesser sensitivity are 'Class 2 - Moderate sensitivity' and 'Class 1 - Low sensitivity'. The sensitivity of a landscape to development and therefore to change will vary according to its character and to the importance which is attached to any combination of landscape values. Tuam and its environs are located predominately within Landscape Sensitivity Class One – Low Sensitivity. There is, however, still a need to protect the visual and natural amenity of Tuam, its setting, townscape and its historic context and traditions. There are two views afforded protection by the County Development Plan, Protected View No. 25 - Tuam - High Cross and Protected View No. 26 - Knockmoy Abbey southeast of Tuam.

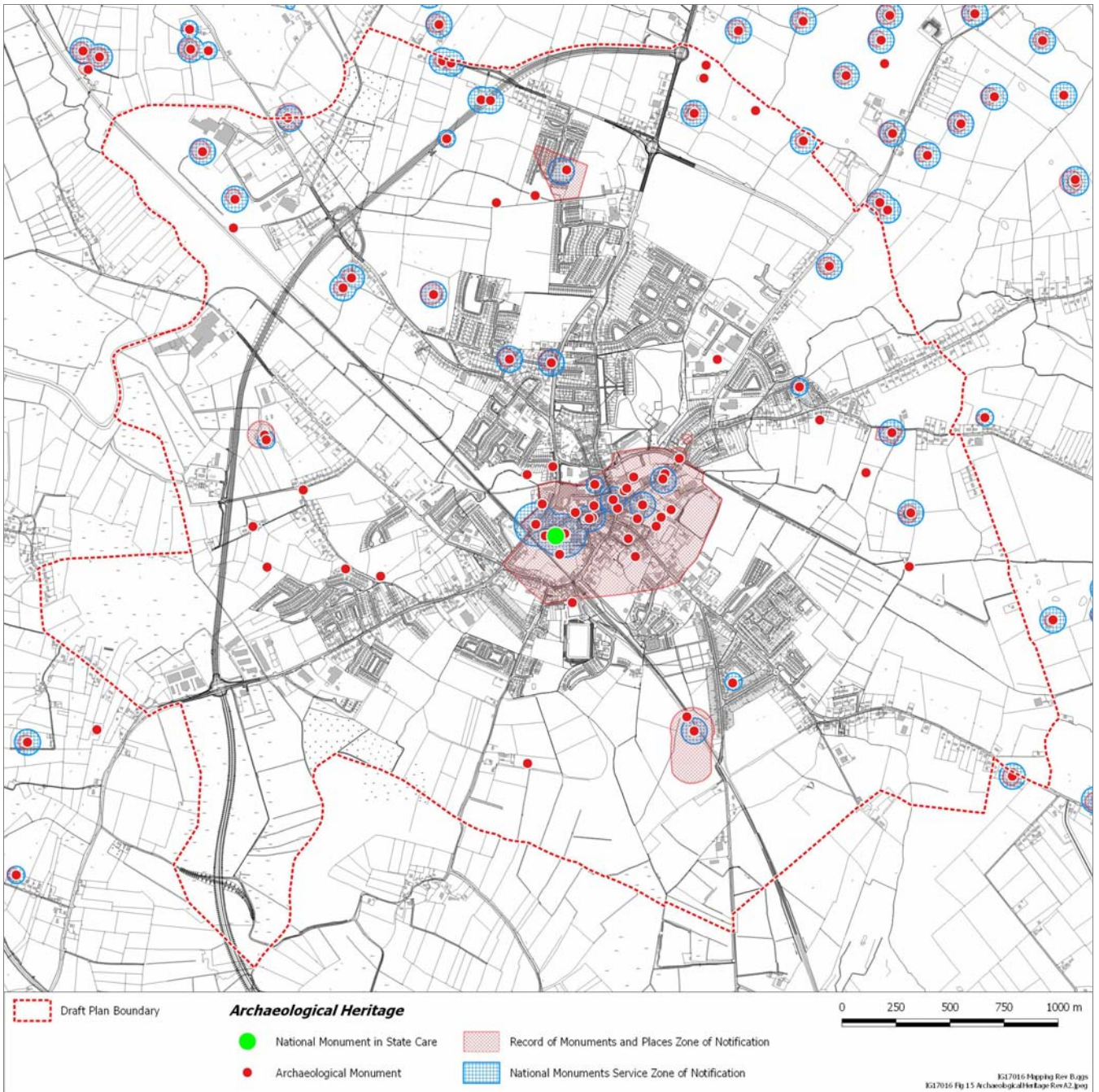


Figure 3.6 Archaeological Designations

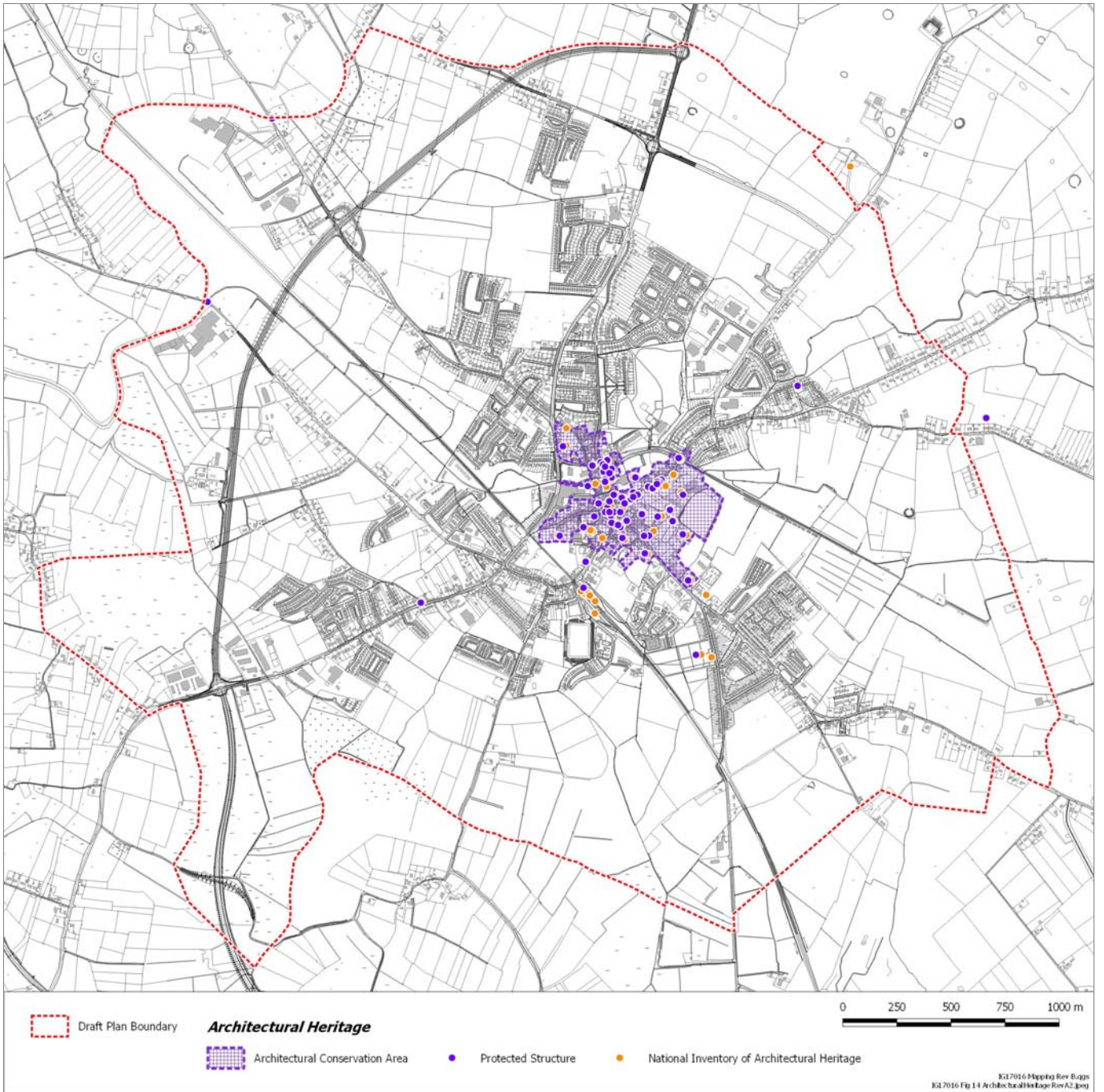


Figure 3.7 Architectural Designations

3.11 Appropriate Assessment

A Stage 2 Appropriate Assessment (AA) is being undertaken alongside the preparation of the Draft Plan.

The requirement for AA is provided under the EU Habitats Directive (Directive 1992/43/EEC).

The preparation of the Draft Plan, SEA and AA has taken place concurrently and the findings of the AA have informed both the Draft Plan and the SEA. All recommendations made by the AA were integrated into the Draft Plan.

3.12 Strategic Flood Risk Assessment

A Strategic Flood Risk Assessment (SFRA) has been undertaken alongside the preparation of the Draft Plan. The requirement for SFRA is provided under 'The Planning System and Flood Risk Management Guidelines for Planning Authorities' (DEHLG and OPW, 2009).

The preparation of the Draft Plan, SEA and SFRA has taken place concurrently and the findings of the SFRA have informed both the Draft Plan and the SEA. The SFRA has facilitated the integration of flood risk management considerations into the Draft Plan.

3.13 Strategic Environmental Objectives

Strategic Environmental Objectives (SEOs) are methodological measures developed from policies which generally govern environmental protection objectives established at international, Community or Member State level e.g. the environmental protection objectives of various European Directives which have been transposed into Irish law and which are required to be implemented. SEOs used in the assessment are as follows:

Table 3.1 Strategic Environmental Objectives

Environmental Component	SEO Code	SEO
Biodiversity, Flora and Fauna	B1	To ensure compliance with the Habitats and Birds Directives with regard to the protection of European Sites and Annexed habitats and species ⁵
	B2	To ensure compliance with Article 10 of the Habitats Directive with regard to the management of features of the landscape which - by virtue of their linear and continuous structure or their function act as stepping stones (designated or not) - are of major importance for wild fauna and flora and essential for the migration, dispersal and genetic exchange of wild species
	B3	To avoid significant impacts on relevant habitats, species, environmental features or other sustaining resources in designated sites including Wildlife Sites ⁶ and to ensure compliance with the Wildlife Acts 1976-2010 with regard to the protection of species listed on Schedule 5 of the principal Act
	B4	To sustain existing sustainable rural management practices - and the communities who support them - to ensure the continuation of long established managed landscapes and the flora and fauna that they contain
Population and Human Health	PHH1	To protect populations and human health from exposure to incompatible landuses
Soil	S1	To avoid damage to the hydrogeological and ecological function of the soil resource
Water	W1	To maintain and improve, where possible, the quality and status of surface waters
	W2	To prevent pollution and contamination of ground water
	W3	To comply as appropriate with the provisions of the Planning System and Flood Risk Management: Guidelines for Planning Authorities (DEHLG and OPW, 2009)
Material Assets	M1	To serve new development with adequate and appropriate waste water treatment
	M2	To serve new development with adequate drinking water that is both wholesome and clean
	M3	To reduce waste volumes, minimise waste to landfill and increase recycling and reuse
Air and Climatic Factors	C1	To reduce travel related emissions to air and to encourage modal change from car to more sustainable forms of transport
Cultural Heritage	CH1	To protect archaeological heritage including entries to the Record of Monuments and Places and/or their context
	CH2	To protect architectural heritage including entries to the Record of Protected Structures and Architectural Conservation Areas and their context
Landscape	L1	To avoid significant adverse impacts on the landscape - especially with regard to the County's landscapes which are most valuable and most sensitive to change and protected focal points and views.

⁵ 'Annexed habitats and species' refer to those listed under Annex I, II & IV of the EU Habitats Directive and Annex I of the EU Birds Directive.

⁶ The Planning and Development Act 2000 as amended defines a 'wildlife site'.

Section 4 Summary of Description and Evaluation of Alternatives

4.1 Introduction

As per the requirements of the SEA Directive, this SEA considers reasonable alternatives, which are capable of being implemented for the Draft Plan, taking into account the objectives and the geographical scope of the Plan. Available alternatives are limited by the scope of the Draft Plan. Galway County Council in preparing the Draft Plan developed three alternatives for Tuam as follows:

4.2 Alternative 1: Even Development

- Tuam to reach population allocation, resulting in balanced orderly development and implementation of the core strategy as contained in Chapter 2 of the Galway County Development Plan 2015-2021.
- The infrastructure required to be in place to achieve the growth targets is already in place or planned.
- Residential Development to take place on R1 lands in the lifetime of the Plan, unless a comprehensive justification is provided for alternative residential lands.
- Community development facilities to be developed in tandem with economic and residential growth.
- Town Centre developments would be developed in a planned and coordinated manner focused within the town centre.
- Industry would occur in the periphery close to existing infrastructure.
- Opportunity sites identified with clear design and proposed uses identified.
- Open Space and Recreational Lands would be preserved.

4.3 Alternative 2: Sporadic Development

- Tuam to reach population allocation, resulting in balanced orderly development and implementation of the core strategy as contained in Chapter 2 of the Galway County Development Plan 2015-2021.
- Additional infrastructure would be required to accommodate sporadic development, more than would be required for Alternative 1 'Even Development'.
- Residential Development to take place on R1 and R2 lands in the lifetime of the Plan, unless a evidence based justification is provided for alternative residential lands.
- Industry would occur at locations including those close to residential development.
- Creation of neighbourhood centres throughout the Plan area and associated dispersal of Town Centre, commercial development and local services.
- Town centre development would be sporadic and uncoordinated around the Town centre zonings.
- Opportunity sites are identified but no clear guidance on the design parameters or uses identified.

4.4 Alternative 3: Haphazard Development

- Tuam to reach population allocation, resulting in balanced orderly development and implementation of the core strategy as contained in Chapter 2 of the Galway County Development Plan 2015-2021.
- Additional infrastructure would be required to accommodate sporadic development, more than would be required for Alternative 1 'Even Development' or Alternative 2 'Sporadic

Development', development would have to be serviced by private waste water treatment systems which would have to be properly maintained.

- Residential development would occur on a piecemeal and haphazard basis.
- Town centre development would be permitted on a number of different zonings and not concentrated in the Town centre.
- No opportunity sites identified-laissez faire attitude in relation to development.
- Each application would be considered on its own merits and no land use zoning is provided for. This policy is applied to all lands within the Plan area – therefore there is no map for this alternative.

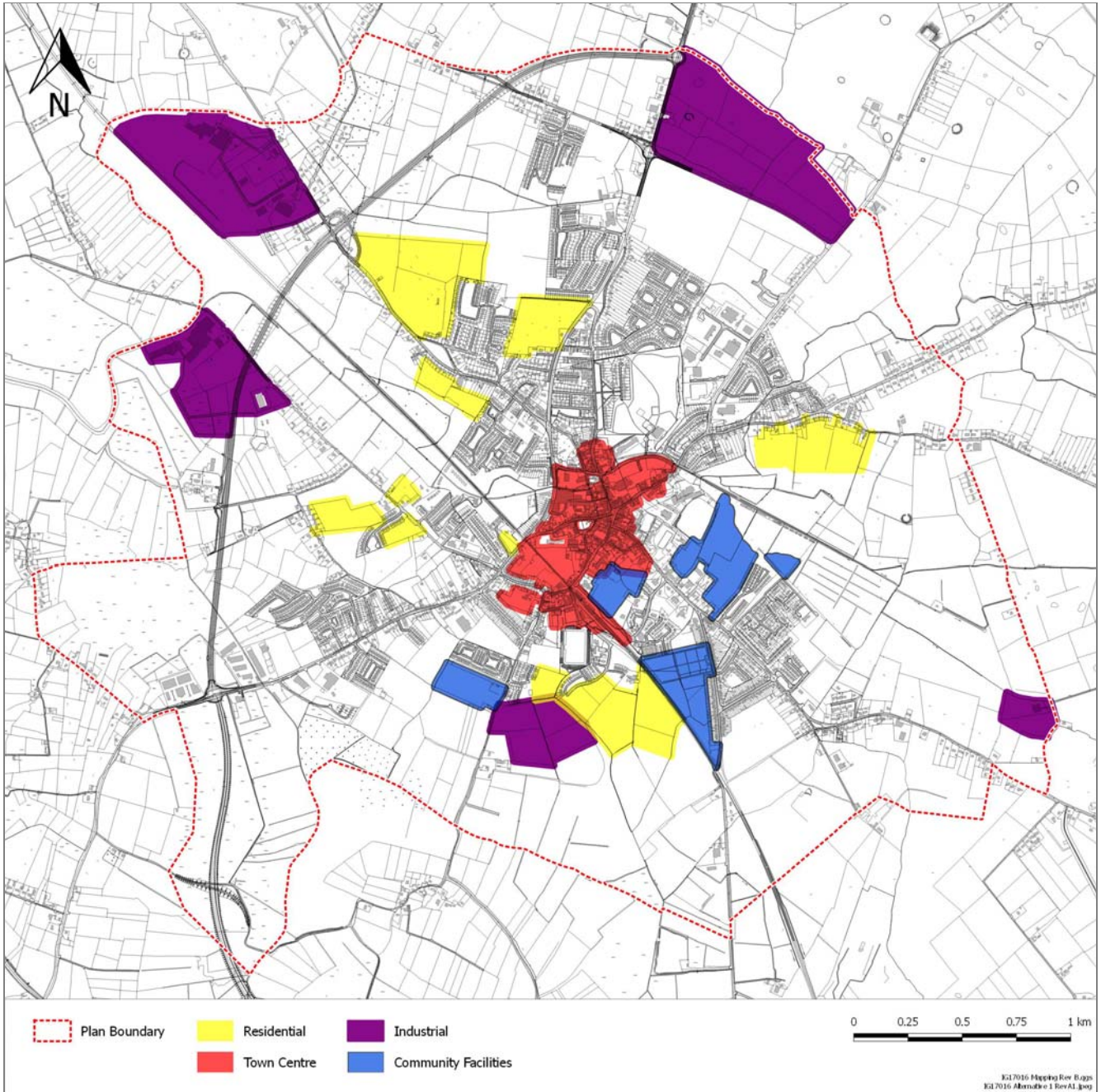


Figure 4.1 Tuam Alternative 1: Even Development

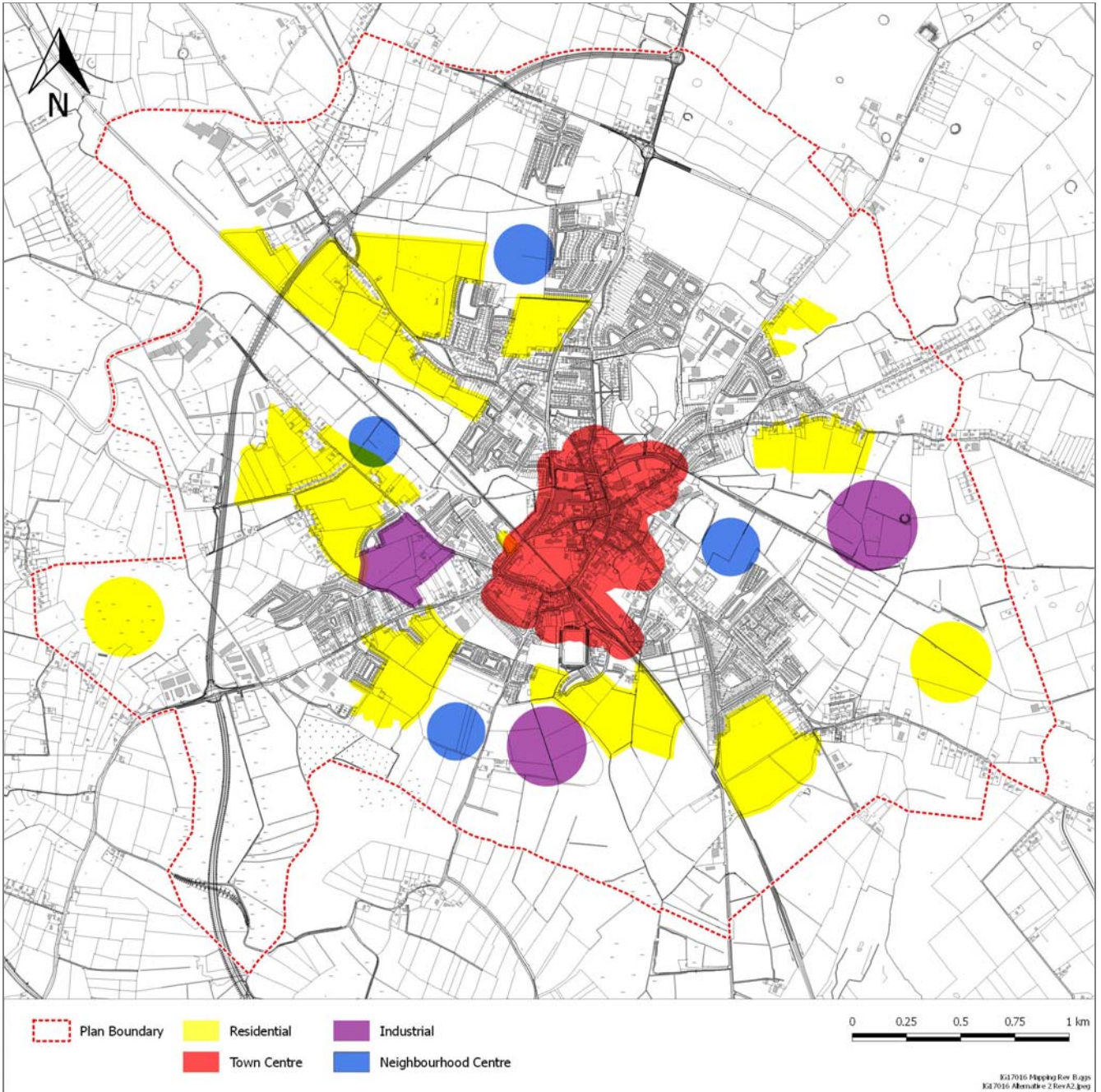


Figure 4.2 Tuam Alternative 2: Sporadic Development

4.5 Summary of Assessment of Alternatives

Significant Positive Effects Common to all Alternatives

By providing for development within the existing development boundary and facilitating the use of existing utilities and brownfield sites, all alternatives would be likely to contribute towards a reduced need to develop more sensitive, undeveloped areas elsewhere in the wider Tuam area that are further from the town and less well serviced. This would be likely to result in significant positive environmental effects on environmental components as indicated on Table 4.1.

Table 4.1 Significant Positive Effects common to all Alternatives

Environmental Component	Significant Positive Effect, likely to occur
Biodiversity and Flora and Fauna	<ul style="list-style-type: none"> • Contributes towards protection of ecology (including designated sites, ecological connectivity, habitats) – due to increased utilisation of lands within the existing development boundary and use of existing utilities and brownfield sites. • Contributes towards protection of ecology with respect to the provision of water services. • Contributes towards protection of ecology as a result of contributing towards the protection of environmental vectors, including air and water. • Sustains existing sustainable rural management practices - and the communities who support them - to ensure the continuation of long established managed landscapes and the flora and fauna that they contain
Population and Human Health	<ul style="list-style-type: none"> • Contributes towards protection of human health with respect to the provision of water services and the provision of transport infrastructure integrated with land use planning – and associated interactions with sustainable mobility, emissions and energy usage. • Contributes towards protection of human health as a result of contributing towards the protection of environmental vectors, including air and water.
Soil	<ul style="list-style-type: none"> • Contributes towards protection of soil – due to increased utilisation of lands within the existing development boundary and use of existing utilities and brownfield sites. • Contributes towards protection of soil with respect to the provision of water services.
Water	<ul style="list-style-type: none"> • Contributes towards protection and management of ground and surface waters due to facilitating development within an established and serviced settlement centre.
Material Assets	<ul style="list-style-type: none"> • Allows for use of planned infrastructure including water services infrastructure and transport infrastructure. • Makes use of existing water services and drainage infrastructure.
Air and Climatic Factors	<ul style="list-style-type: none"> • Facilitates contribution towards a shift from car to more sustainable and non-motorised transport modes. • Facilitates contribution towards reducing congestion and associated adverse effects on air quality. • Facilitates contribution towards reductions in travel related greenhouse gas and other emissions to air.
Cultural Heritage	<ul style="list-style-type: none"> • Contributes towards protection of cultural heritage in wider region by facilitating development within an existing settlement.
Landscape	<ul style="list-style-type: none"> • Contributes towards protection of wider landscape by facilitating development within an existing settlement.

Although significant positive environmental effects would occur under each of the alternatives, the extent to which they would occur varies across each of the alternatives and this is addressed under the evaluation of each of the alternatives below.

Potentially Significant Adverse Effects Common to all Alternatives

All of the alternatives provide for development of Tuam. Such development would have the potential to conflict with environmental components – to different degrees. Potentially significant adverse environmental effects arising from this conflict are common to all alternatives and are described on Table 4.2. For the Draft Plan, these effects will be mitigated by both provisions integrated into the Draft Plan and existing provisions already in force through the County Development Plan.

Although potentially significant adverse environmental effects would occur under each of the alternatives, the extent to which they would occur varies across each of the alternatives and this is addressed under the evaluation of each of the alternatives below.

Table 4.2 Potentially Significant Adverse Environmental Effects, if unmitigated, common to all alternatives

Environmental Component	Potentially Significant Adverse Environmental Effects, if unmitigated
Biodiversity and Flora and Fauna	<ul style="list-style-type: none"> ○ Arising from both construction and operation of development and associated infrastructure: <ul style="list-style-type: none"> ○ Loss of/damage to biodiversity in designated sites (including European Sites and Wildlife Sites) and Annexed habitats and species, listed species, ecological connectivity and non-designated habitats; and disturbance to biodiversity and flora and fauna; ○ Habitat loss, fragmentation and deterioration, including patch size and edge effects; and ○ Disturbance (e.g. due to noise and lighting along transport corridors) and displacement of protected species.
Population and Human Health	<ul style="list-style-type: none"> ○ Potential interactions if effects upon environmental vectors such as water and air are not mitigated.
Soil	<ul style="list-style-type: none"> ○ Damage to the hydrogeological and ecological function of the soil resource.
Water	<ul style="list-style-type: none"> ○ Adverse impacts upon the status of water bodies arising from changes in quality, flow and/or morphology. ○ Increase in the risk of flooding.
Material Assets	<ul style="list-style-type: none"> ○ Failure to provide adequate and appropriate waste water treatment (water services infrastructure and capacity is needed to ensure the mitigation of potential conflicts). ○ Failure to comply with drinking water regulations and serve new development with adequate drinking water that is both wholesome and clean (water services infrastructure and capacity is needed to ensure the mitigation of potential conflicts). ○ Increases in waste levels.
Air and Climatic Factors	<ul style="list-style-type: none"> ○ Emissions to air including greenhouse gas emissions and other emissions.
Cultural Heritage	<ul style="list-style-type: none"> ○ Potential effects on protected and unknown archaeology and protected architecture arising from construction and operation activities.
Landscape	<ul style="list-style-type: none"> ○ Occurrence of adverse visual impacts and conflicts with the appropriate protection of designations relating to the landscape, especially with regard to landscapes which are most valuable and most sensitive to change and protected focal points and views.

Evaluation Against SEOs

By:

- Concentrating Residential development across a sufficient number of sites, close to the Town Centre;
- Providing for Town Centre developments in a planned and coordinated manner, focused within the town centre;
- Using existing or planned infrastructure;
- Providing for Industrial development in the periphery, close to existing infrastructure;
- Identifying opportunity sites with clear design and proposed uses identified; and
- Preserving Open Space and Recreational Lands

Alternative 1 ‘Even Development’ would result in the greatest degree of significant positive effects (see Table 4.1) and least degree of potential conflicts (see Table 4.2).

By:

- Concentrating Residential development across a larger number of sites than in comparison to Alternative 1, including some sites that are further away from the existing Town Centre;
- Creating neighbourhood centres throughout the Plan area and associated dispersal of Town Centre, commercial development and local services;
- Providing for Town Centre developments in a sporadic and uncoordinated manner around town centre/Neighbourhood Centre zonings;
- Using existing, planned and additional infrastructure;
- Providing for Industrial development at locations including close to Residential lands; and
- Identifying opportunity sites but with no clear guidance on the design parameters or uses identified

Alternative 2 ‘Sporadic Development’ would result in a relatively moderate degree of significant positive effects (see Table 4.1) and a relatively moderate degree of potential conflicts (see Table 4.2). In comparison to Alternative 2, development would be spread out over a greater number of sites, some not currently serviced and some Residential sites further from the settlement centre.

Additional infrastructure would be required to accommodate sporadic development, more than would be required for Alternative 1 'Even Development' and there would be higher conflicts between existing and proposed uses.

By:

- Not identifying opportunity sites;
- Following a 'laissez faire' approach in relation to development, with each application considered on its own merits and no land use zoning would be provided for;
- Necessitating development to be serviced by private waste water treatment systems which would have to be properly maintained.

Alternative 3 'Haphazard Development' would result in the least degree of significant positive effects (see Table 4.1) and greatest degree of potential conflicts (see Table 4.2). Development would be spread out over the entire area associated with the settlement. Although requirements – including those relating to environmental protection/management and sustainable development – would have to be complied with, the potential for cumulative adverse effects would be significantly higher with this alternative.

All of the alternatives would help to sustain existing sustainable rural management practices - and the communities who support them - to ensure the continuation of long established managed landscapes and the flora and fauna that they contain.

Table 4.3 identifies an assessment of alternatives against the Strategic Environmental Objectives (SEOs) detailed under Table 3.1.

Table 4.3 Assessment of Alternatives against Strategic Environmental Objectives

Alternative	Likely to Improve status of SEOs			Potential Conflict with status of SEOs - likely to be mitigated			Probable Conflict with status of SEOs- unlikely to be fully mitigated
	to the Greatest degree	to a Moderate degree	to a Lesser degree	to a Lesser degree	to a Moderate degree	to a Greater degree	
Alternative 1: Even Development	B1 B2 B3 PHH1 S1 W1 W2 W3 M1 M2 M3 C1 CH1 CH2 L1	B4		B1 B2 B3 PHH1 S1 W1 W2 W3 M1 M2 M3 C1 CH1 CH2 L1	B4		
Alternative 2: Sporadic Development		B1 B2 B3 B4 PHH1 S1 W1 W2 W3 M1 M2 M3 C1 CH1 CH2 L1			B1 B2 B3 B4 PHH1 S1 W1 W2 W3 M1 M2 M3 C1 CH1 CH2 L1		
Alternative 3: Haphazard Development		B4	B1 B2 B3 PHH1 S1 W1 W2 W3 M1 M2 M3 C1 CH1 CH2 L1		B4	B1 B2 B3 PHH1 S1 W1 W2 W3 M1 M2 M3 C1 CH1 CH2 L1	

4.6 The Selected Alternative for the Draft Plan

The Selected Alternative for the Draft Plan that emerged from the planning/SEA process is Alternative 1: Even Development.

This alternative has been selected and developed by the Planning Team and placed on public display by the Council having regard to both:

1. The environmental effects which were identified by the SEA and are detailed above; and
2. Planning - including social and economic - effects that also were considered by the Council.

The land use zoning map for the town that evolved from the selection of Alternative 1 'Even Development' is provided at Figure 4.3.

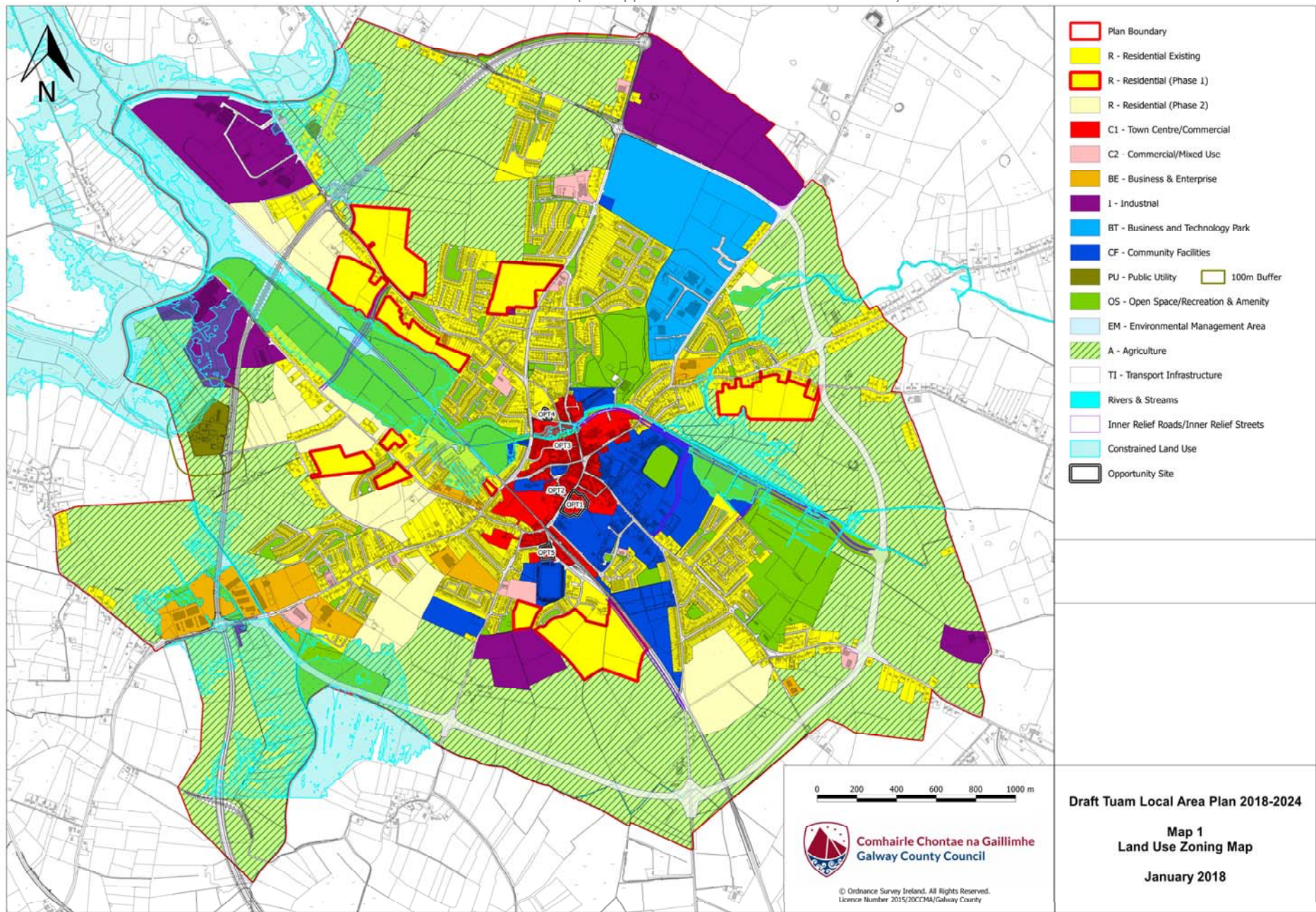


Figure 4.3 Land Use Zoning Map for Tuam

Section 5 Summary of Effects arising from Draft Plan

Galway County Council have integrated all recommendations arising from the SEA, AA and SFRA processes into the Draft Plan (see Section 6).

By providing for development within the existing development boundary and facilitating the use of existing utilities and brownfield sites, the Draft Plan would be likely to contribute towards a reduced need to develop more sensitive, undeveloped areas elsewhere in the Tuam area that are further from the town and less well serviced.

Table 5.1 provides a detailed overall evaluation of the environmental effects arising from the Draft Plan. The effects encompass all in-combination/cumulative effects arising from implementation of the Draft Plan. The potentially significant adverse environmental effects (if unmitigated) arising from implementation of the Draft Plan are detailed as are residual effects, taking into account mitigation through both provisions integrated into the Draft Plan and existing provisions already in force through the County Development Plan – see Section 6.

Environmental impacts which occur will be determined by the nature and extent of multiple or individual projects and site specific environmental factors. Strategic Environmental Objective (SEO) codes taken from Table 3.1.

Table 5.1 Overall Evaluation – Effects arising from the Draft Plan

Environmental Component	Significant Positive Effect, likely to occur	Potentially Significant Adverse Environmental Effects, if unmitigated	Residual Adverse Effects	Relevant SEO Codes
Biodiversity and Flora and Fauna	<ul style="list-style-type: none"> • Contributes towards protection of ecology (including designated sites, ecological connectivity, habitats) – due to increased utilisation of lands within the existing development boundary and use of existing utilities and brownfield sites. • Contributes towards protection of ecology with respect to the provision of water services. • Contributes towards protection of ecology as a result of contributing towards the protection of environmental vectors, including air and water. • Sustains existing sustainable rural management practices - and the communities who support them - to ensure the continuation of long established managed landscapes and the flora and fauna that they contain. 	<p>Arising from both construction and operation of development and associated infrastructure:</p> <ul style="list-style-type: none"> • Loss of/damage to biodiversity in designated sites (including European Sites and Wildlife Sites) and Annexed habitats and species, listed species, ecological connectivity and non-designated habitats; and disturbance to biodiversity and flora and fauna; • Habitat loss, fragmentation and deterioration, including patch size and edge effects; and • Disturbance (e.g. due to noise and lighting along transport corridors) and displacement of protected species. 	<ul style="list-style-type: none"> • Loss of an extent of non-protected habitats and species arising from the replacement of semi-natural land covers with artificial surfaces. • Losses or damage to ecology (these would be in compliance with relevant legislation). 	B1 B2 B3 B4
Population and Human Health	<ul style="list-style-type: none"> • Contributes towards protection of human health with respect to the provision of water services and the provision of transport infrastructure integrated with land use planning – and associated interactions with sustainable mobility, emissions and energy usage. • Contributes towards protection of human health as a result of contributing towards the protection of environmental vectors, including air and water. 	<ul style="list-style-type: none"> • Potential interactions if effects upon environmental vectors such as water and air are not mitigated. 	<ul style="list-style-type: none"> • Potential interactions with residual effects on environmental vectors. This has been mitigated by provisions which have been integrated into the Plan, including those relating to sustainable mobility and infrastructural provision. 	PHH1
Soil	<ul style="list-style-type: none"> • Contributes towards protection of soil – due to increased utilisation of lands within the existing development boundary and use of existing utilities and brownfield sites. • Contributes towards protection of soil with respect to the provision of water services. 	<ul style="list-style-type: none"> • Damage to the hydrogeological and ecological function of the soil resource. 	<ul style="list-style-type: none"> • Loss of an extent of soil function arising from the replacement of semi-natural land covers with artificial surfaces. 	S1
Water	<ul style="list-style-type: none"> • Contributes towards protection and management of ground and surface waters due to facilitating development within an established and serviced settlement centre. 	<ul style="list-style-type: none"> • Adverse impacts upon the status of water bodies arising from changes in quality, flow and/or morphology. • Increase in the risk of flooding. 	<ul style="list-style-type: none"> • Increased loadings as a result of development to be in compliance with River Basin Management Plan. • Flood related risks remain due to uncertainty with regard to extreme weather events. 	W1 W2 W3

SEA Environmental Report Appendix II – Non-Technical Summary

Environmental Component	Significant Positive Effect, likely to occur	Potential Effect, if unmitigated	Residual Adverse Effects	Relevant SEO Codes
Material Assets	<ul style="list-style-type: none"> Allows for use of planned infrastructure including water services infrastructure and transport infrastructure. Makes use of existing water services and drainage infrastructure. 	<ul style="list-style-type: none"> Failure to provide adequate and appropriate waste water treatment (water services infrastructure and capacity is needed to ensure the mitigation of potential conflicts). Failure to comply with drinking water regulations and serve new development with adequate drinking water that is both wholesome and clean (water services infrastructure and capacity is needed to ensure the mitigation of potential conflicts). Increases in waste levels. 	<ul style="list-style-type: none"> Residual wastes to be disposed of in line with higher level waste management policies. 	M1 M2
Air and Climatic Factors	<ul style="list-style-type: none"> Facilitates contribution towards a shift from car to more sustainable and non-motorised transport modes. Facilitates contribution towards reducing congestion and associated adverse effects on air quality. Facilitates contribution towards reductions in travel related greenhouse gas and other emissions to air. 	<ul style="list-style-type: none"> Emissions to air including greenhouse gas emissions and other emissions. Climate adaptation interactions. 	<ul style="list-style-type: none"> An extent of travel related greenhouse gas and other emissions to air. This has been mitigated by provisions which have been integrated into the Plan, including those relating to sustainable mobility. 	C1
Cultural Heritage	<ul style="list-style-type: none"> Contributes towards protection of cultural heritage in wider region by facilitating development within an existing settlement. 	<ul style="list-style-type: none"> Potential effects on protected and unknown archaeology and protected architecture arising from construction and operation activities. 	<ul style="list-style-type: none"> Potential alteration to the context and setting of architectural heritage however these will occur in compliance with legislation. Potential alteration to the context and setting of archaeological heritage however this will occur in compliance with legislation. Potential loss of unknown archaeology however this loss will be mitigated by measures integrated into the Plan. 	CH1 CH2
Landscape	<ul style="list-style-type: none"> Contributes towards protection of wider landscape by facilitating development within an existing settlement. 	<ul style="list-style-type: none"> Occurrence of adverse visual impacts and conflicts with the appropriate protection of designations relating to the landscape, especially with regard to landscapes which are most valuable and most sensitive to change and protected focal points and views. 	<ul style="list-style-type: none"> The Plan contributes towards the protection of landscape designations. Landscapes will change overtime as a result of natural changes in vegetation cover combined with new developments. 	L1

Section 6 Mitigation and Monitoring Measures

6.1 Mitigation

Mitigation measures are measures envisaged to prevent, reduce and, as fully as possible, offset any significant adverse impacts on the environment of implementing the Draft Tuam Local Area Plan.

Various environmental sensitivities and issues have been communicated to the Council through the various SEA, AA and SFRA processes undertaken for the Plan. By integrating all related recommendations into the Draft Local Area Plan, the Council have ensured that both the beneficial environmental effects of implementing the Plan have been and will be maximised and that potential adverse effects have been and will be avoided, reduced or offset.

A summary of individual SEA and AA provisions into the text of the Draft Plan is provided at Table 6.1.

6.2 Monitoring

The SEA Directive requires that the significant environmental effects of the implementation of plans and programmes are monitored. This section details the measures which will be used in order to monitor the likely significant effects of implementing the Plan. Monitoring enables, at an early stage, the identification of unforeseen adverse effects and the undertaking of appropriate remedial action.

The Environmental Report identifies indicators - which allow quantitative measures of trends and progress in the environment over time. Measurements for indicators generally come from existing monitoring sources or from an internal monitoring of the environmental effects of grants of permission in the Council.

Monitoring is an ongoing process and the Programme allows for flexibility and the further refinement of indicators and targets. The Monitoring Programme may also be updated to deal with specific environmental issues - including unforeseen effects - as they arise. Such issues may be identified by the Council or identified to the Council by other agencies.

A stand-alone Monitoring Report on the significant environmental effects of implementing the Local Area Plan will be prepared within three years of adopting the Local Area Plan. This report will address the indicators that are set out on Table 6.1.

Table 6.1 Summary of Mitigation Measures and Indicators for Monitoring

Environmental Component	Mitigation Measures, including:	Selected Indicator(s)
All	Measures from the Draft Local Area Plan <ul style="list-style-type: none"> • Objective LU 12 - Galway County Development Plan 2009-2015 (as varied)⁷ • Objective NH 13 - Construction Environmental Management Plan Objective TI 4 – Road Schemes/Road Improvements	All
Biodiversity, Flora and Fauna	Measures from the Draft Local Area Plan <ul style="list-style-type: none"> • Objective DS 3 – European Sites Network and Habitats Directive Assessment • Objective CF 9 – Amenity Network • Objective ED 6 – Tourism Development • Objective UD 4 – Green Network and Landscaping • Policy NH 1 – Natural Heritage, Landscape and Environment • Objective NH 1 – European Sites • Objective NH 2 – Protected Habitats and Species • Objective NH 3 – Natural Heritage Areas and Proposed Natural Heritage Areas • Objective NH 4 – Impact Assessments • Objective NH 5 – Biodiversity & Ecological Networks • Objective NH 6 – Water Resources • Objective NH 7 – Wetlands, Springs, Rivers and Streams • Objective NH 8 – Riparian Zones • Objective NH 9 – Trees and Hedgerows • Objective NH 10 – Geological and Geo-morphological Systems • Objective NH 11 – Control of Invasive and Alien Species • Objective NH 12 – Consultation with Environmental Authorities • DM Guideline NH 1 – Control of Invasive Species & Bio-Security Measures • Objective NH 13 - Construction Environmental Management Plan Measures from the Galway County Development Plan as varied <ul style="list-style-type: none"> • Policies NHB 1, NHB 2, NHB 3, NHB 5, NHB 6 and NHB 7 • Objectives DS 6, DS 9, EQ1, EQ 4, ICT 1, NHB 1, NHB 2, NHB 4, NHB 5, NHB 6, NHB 7, NHB 11, NHB 13, AFF 6 and DS10 Also see various measures providing for populations in rural and supporting areas.	B1: Conservation status of habitats and species as assessed under Article 17 of the Habitats Directive B2: Percentage loss of functional connectivity without remediation resulting from development provided for by the Plan B3i: Number of significant impacts on relevant habitats, species, environmental features or other sustaining resources in designated sites including Wildlife Sites resulting from development provided for by the Plan B3ii: Number of significant impacts on the protection of species listed on Schedule 5 of the Wildlife Act 1976 B4: Population involved in land management
Population and Human Health	Measures from the Draft Local Area Plan <ul style="list-style-type: none"> • Objective TI 7 – Noise Measures from the Galway County Development Plan as varied <ul style="list-style-type: none"> • Policy CC 8 • Objectives TI 12 and EQ 2 Also see measures related to soil, water quality, flooding, waste water treatment and drinking water supply and quality.	PHH1: Occurrence (any) of a spatially concentrated deterioration in human health arising from environmental factors resulting from development provided for by the Plan as identified by the Health Service Executive and Environmental Protection Agency

⁷ Objective LU 12 - Galway County Development Plan 2009-2015 (as varied):

The provisions of the Galway County Development Plan 2009-2015 (as varied), including the measures contributing towards environmental protection and sustainability (some of these measures are repeated in Section 9 of the SEA Environmental Report that accompanies this Plan) shall be complied with by any future development.

Environmental Component	Mitigation Measures, including:	Selected Indicator(s)
Soil	<p>Measures from the Galway County Development Plan as varied</p> <ul style="list-style-type: none"> • Objective NHB12 Soil/Ground Water Protection • Objective NH 10 – Geological and Geo-morphological Systems <p>Also see measures related to water quality and waste water treatment.</p>	S1: Soil extent and hydraulic connectivity
Water	<p>Measures from the Draft Local Area Plan</p> <ul style="list-style-type: none"> • Objective NH 6 – Water Resources • Objective NH 7 – Wetlands, Springs, Rivers and Streams • Objective NH 8 – Riparian Zones • Objective DS 7 – Flood Risk Management and Assessment • Objective DS 8 – Climate Change & Adaptation • Objective LU 8 – Constrained Land Use Zone (CL) • Objective LU 9 – Flood Risk Areas and Land Use Zones (Refer to Map 1, 2 and Map 5) • Policy FL 1 – Flood Risk Management • Objective FL 1 – Flood Risk Management and Assessment • Objective FL 2 – Flood Zones and Appropriate Land Uses • Objective FL 3 – Structural and Non-Structural Risk Management Measures in Flood Vulnerable Zones • Objective FL 4 – Flood Risk Assessment for Planning Applications and CFRAMS • Objective FL 5 – Strategic Flood Risk Assessment and Flood Risk Assessments • Objective FL 6 – Environmental Impact Assessment/Statement (EIA/EIS) & Flood Risk Assessment • Objective FL 7 – Pluvial and Groundwater Flood Risk • Objective FL 8 – New and Emerging Data • Objective FL 9 – Water Bodies and Watercourses • Objective FL 10 – Arterial Drainage Scheme • Objective FL 11 – Improvement &/Or Restoration of Natural Flood Risk Management Functions • DM Guideline FL 1 – Flood Zones and Appropriate Land Uses • DM Guideline FL 2 – Structural and Non-Structural Risk Management Measures in Flood Vulnerable Zones • DM Guideline WQ 1 – Water Bodies and Watercourses <p>Measures from the Galway County Development Plan as varied</p> <ul style="list-style-type: none"> • Policies NHB 4, FL 1, FL 2, FL 3, FL 4 and FL 5 • Objectives NHB 3, NHB12, NHB 14, EQ1, AFF 5, AFF 6, AFF9, CS 4, WS 1, WS 2, WS 7, WS 9, WS 11, WW 1, WW 7, FL 1, FL 2, FL 3, FL 4, FL 5, FL 6, DS 7, DS 8, DS 9 and RA 1 • DM Standard 27: Surface Water Drainage & Flooding 	<p>W1i: Classification of Overall Status (comprised of ecological and chemical status) under the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (SI No. 272 of 2009)</p> <p>W1ii: Mandatory and Guide values as set by the EU Bathing Water Directive and transposing Bathing Water Quality Regulations (SI No. 79 of 2008)</p> <p>W2: Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC</p> <p>W3: Number of incompatible developments granted permission on lands which pose - or are likely to pose in the future - a significant flood risk</p>
Material Assets	<p>Measures from the Draft Local Area Plan</p> <ul style="list-style-type: none"> • Policy UI 1 – Water Supply, Wastewater and Combined Drainage Infrastructure • Policy UI 2 – Irish Water’s Water Services Strategic Plan • Objective UI 1 – Irish Water & Water and Wastewater Projects • Objective UI 2 – Water Supply & Water Conservation • Objective UI 3 – Wastewater Disposal • Objective UI 4 – Connections to the Public Sewer & Public Water Mains • Objective UI 5 – Surface Water Drainage and Sustainable Drainage Systems • Objective UI 6 – Wastewater Treatment Plant Buffer • Policy WM 1 – Waste Management • Policy WM 2 – Waste Management Plan • Objective WM 1 – Waste Prevention, Reduction & Recycling • Objective WM 2 – Bring Bank Facility 	<p>M1: Number of new developments granted permission which can be adequately and appropriately served with waste water treatment over the lifetime of the Plan</p> <p>M2: Number of non-compliances with the 48 parameters identified in the European Communities (Drinking Water) Regulations (No. 2) 2007 which present a potential danger to human health as a result of implementing the Plan</p> <p>M3i: Total collected and brought household waste</p>

Environmental Component	Mitigation Measures, including:	Selected Indicator(s)
	<p>Measures from the Galway County Development Plan as varied</p> <ul style="list-style-type: none"> • Policies WS 1 WS 2 WS 3 WS 4 WS 5 WS 6 WW 1 WM1 WM2 Objectives WS 1, WS 2, WS 3, WS 4, WS 5, WS 6, WS 7, WS 8, WS 9, WS 10, WS 11, WS 12, WS 13, WS 14, WS 15, WW 1, WW 2, WW 3, WW 4, WW 5, WW 6, WW 7, WW 8, WW 10, WM 1, WM 2, WM 3, WM 4, WM 5, WM 6, CS 4, RHO 5 and EDT 5 	M3ii: Packaging recovered (t) by self-complying packagers
Air and Climatic Factors	<p>Measures from the Draft Local Area Plan</p> <ul style="list-style-type: none"> • Objective DS 8 – Climate Change & Adaptation • Objective CF 9 – Amenity Network • Policy ST 1 – Sustainable Transport, Walking and Cycling • Objective ST 1 – Integrated Land Use and Transport • Objective ST 2 – Sustainable Transportation • Objective ST 3 – Walking • Objective ST 4 – Cycling • Objective ST 5 – Bicycle Parking • Objective ST 6 – Walking & Cycling Strategy • Objective ST 7 – Pedestrian Crossings • Objective ST 8 – Amenity Walking/Cycling Network • Objective ST 9 – Mobility Management Plans • Objective ST 10 – Charging Points for Electric Vehicles • Objective ST 11 – Bus Facilities & Services • Objective TI 7 – Noise • Objective TI 10 – Preparation of a Revised Traffic Management Plan • Objective TI 14 – Junction Upgrade • Objective TI 14 – New Developments & Connection to the Town Footpath & Lighting Network • Objective TI 15 – Footpath, Public Lighting, Cycle Provision & Traffic Calming • Policy ENV 1 – Climate Change Policy • Objective ENV 1 – Climate Change & The National Climate Change Adaptation Framework • Objective ENV 2 – Climate Change & Green Infrastructure • Objective ENV 3 – Air Quality • Objective ENV 4 – Air Purification • DM Guideline EC 1 – Energy Statements • Objective UD 4 – Green Network and Landscaping <p>Measures from the Galway County Development Plan as varied</p> <ul style="list-style-type: none"> • Strategic Aims 6, 7 and 11 • Policies CC 1, CC2, CC3, CC4, CC5, CC6, CC 7, TI 1, TI 2, TI 3 and TI 4 • Objectives DS 1, DS 2, DS 3, DS 8, CS 3, CS 5, TI 1, TI 2, TI 3, TI 4, TI 16, TI 17, TI 18, TI 19, TI 20, TI 21, DS 8, CC1, CC 2, CC3, CC 4 and CC5 	C1: Percentage of population travelling to work, school or college by public transport or non-mechanical means

Environmental Component	Mitigation Measures, including:	Selected Indicator(s)
Cultural Heritage	<p>Measures from the Draft Local Area Plan</p> <ul style="list-style-type: none"> • Objective ED 6 – Tourism Development • Objective ED 7 – Visual Quality Working Environments • DM Guideline ED2 – Design and Access Statements • Objective UD 6 – Design and Access Statements • DM Guideline UD1 Design and Access Statements • Policy HC 1 – Built Heritage • Policy HC 2 – Cultural Heritage • Objective HC 1 – Architectural Heritage and Protected Structures • Objective HC 2 – Protected Structures • Objective HC 3 – Architectural Conservation Areas • Objective HC 4 – Development Relating to Protected Structures and ACAs • Objective HC 6 – Demolition • Objective HC 7 – Architectural Conservation Area Appraisal and Management Plan • Objective HC 8 – Vernacular Architecture & Structures of Local Interest • Objective HC 9 – Archaeological Heritage • Objective HC 10 – Archaeological Landscapes • Objective HC 11 – Monuments and Places • Objective HC 12 – Archaeological Assessment • Objective HC 13 – Underwater Archaeological Sites <p>Measures from the Galway County Development Plan as varied</p> <ul style="list-style-type: none"> • Policies AH 1, AH 2, ARC 1, ARC 2, ARC 3, ARC 4 and ARC 5 • Objectives AH 1, AH 2, AH 3, AH 4, AH 5, AH 6, AH 7, AH 8, AH 9, AH 10, AH 11, ARC 1, ARC 2, ARC 3, ARC 4, ARC 5, ARC 6 and ARC 7 	<p>CH1: Percentage of 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) – protected from adverse effects resulting from development which is granted permission under the Plan</p> <p>CH2: Percentage of entries to the Record of Protected Structures and Architectural Conservation Areas and their context protected from adverse effects resulting from development which is granted permission under the Plan</p>
Landscape	<p>Measures from the Draft Local Area Plan</p> <ul style="list-style-type: none"> • Objective ED 7 – Visual Quality Working Environments • DM Guideline ED2 – Design and Access Statements • Policy UD1 – Urban Design and Landscape • Objective UD 1 – High Quality, Contextually Sensitive Design • Objective UD 4 – Green Network and Landscaping • Objective UD 6 – Design and Access Statements • Objective UD 7 – Landscape Character, Values, Sensitivity and Views/Prospects • DM Guideline UD1 Design and Access Statements • Policy NH 1 – Natural Heritage, Landscape and Environment <p>Measures from the Galway County Development Plan as varied</p> <ul style="list-style-type: none"> • Policy LCM 1 • Objectives LCM 1, LCM 2, LCM 3, FPV 1 and WH 1 	<p>L1: Number of complaints received from statutory consultees regarding avoidable impacts on the landscape - especially with regard to landscapes which are most valuable and most sensitive to change and protected focal points and views - resulting from development which is granted permission under the Plan</p>