

Comhairle Chontae na Gaillimhe
Galway County Council



**Strategic Environmental
Assessment
Environmental Report of
Draft Oranmore
Local Area Plan 2012 – 2018
FINAL REPORT**
Updated November 2012

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This report has been prepared by Minogue and Associates with all reasonable skill, care and diligence. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

This report is prepared for Galway County Council and we accept no responsibility to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

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1 Chapter One: Environmental Report

1.1 Introduction

Galway County Council is currently preparing a Local Area Plan (LAP) for Oranmore 2012-2018. This Local Area Plan (LAP) is a land use plan and overall strategy for the development of Oranmore over the period 2012-2018. The successful implementation of the Plan will have a positive impact on Oranmore ensuring that it develops in a sustainable manner, and will also complement the implementation of the Galway County Development Plan 2009-2015. The Oranmore LAP was adopted on 24th September 2012 by Galway County Council and this is the Final SEA ER. It is accompanied by the SEA Statement and a Natura Impact Report. New text in the Final SEA ER is shown in **green, bold and italic font**, and is accompanied by a footnote when additional text was inserted following the consultation processes.

1.2 Strategic Environmental Assessment (SEA) and this Environmental Report

SEA is a key process that promotes sustainable development and highlights significant environmental issues within the planning regime. The purpose of SEA is to formally and systematically evaluate the likely significant effects of implementing a plan or programme, in this instance the Draft LAP. SEA is an iterative process and has informed and influenced the preparation of the Draft LAP for Oranmore.

This Environmental Report forms part of the SEA on the Draft LAP. The purpose of this Environmental Report is to identify, describe, and evaluate the likely significant effects on the environment of implementing the proposed Draft LAP and should be read in conjunction with the Draft LAP itself.

This Environmental Report is not the SEA, rather it documents the SEA process and is the key consultation document in the SEA process and facilitates interested parties to comment on the environmental issues associated with the Draft LAP.

Schedule 2B of S.I. 436 of 2004 details the information to be contained in an Environmental Report. The following section lists the information required and details where this information is contained in this Environmental Report.

(a) an outline of the contents and main objectives of the plan and relationship with other relevant plans; Chapter One Introduction and Chapter Two Methodology outlines contents and main objectives; Chapter Three details the relationship with other relevant plans.

(b) the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan; Chapter Four Baseline Environment provides this information.

(c) the environmental characteristics of areas likely to be significantly affected; Chapter Four Baseline Environment provides this information.

(d) any existing environmental problems which are relevant to the plan including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to the Birds Directive or Habitats Directive; Chapter Four Baseline Environment provides this information.

(e) the environmental protection objectives, established at international, European Union or national level, which are relevant to the plan and the way those objectives and any environmental considerations have been taken into account during its preparation; Chapter Five: SEA Objectives provides this information.

(f) the likely significant effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors; Chapter Seven, Significant Effects on the Environment provides this information.

(g) the measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan; Chapter Eight, Mitigation Measures provides this information.

(h) an outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information; Chapter Six, Alternatives Considered provides this information and difficulties encountered are listed at the end of Chapter Four, Baseline Environment.

(i) a description of the measures envisaged concerning monitoring of the significant environmental effects of implementation of the plan; Chapter Nine, Monitoring provides this information.

(j) a non-technical summary of the information provided under the above headings. This is provided in a separate document to this Environmental Report but is also available.

1.3 Oranmore LAP Area

Oranmore is located 7km east of Galway City centre, at the inner shoreline of Galway Bay. The centre of the town is located at the junction of two roads, Main Street and the Old Dublin Road, which meet at a T-Junction. The town offers significant employment opportunities and has a viable commercial core. Together with its coastal setting, its proximity to Galway City, its relative convenience to the Dublin Motorway Route, and the Limerick & Sligo national routes, the area has become an attractive and desirable place to live.

The landscape, topography and natural features of the area have influenced the pattern and form of development of the town over the years. The lower lying areas throughout the town, which provide natural drainage systems and areas of environmental and ecological significance have generally remained undeveloped, while new residential development has predominantly taken place in the southern area of the town. The new Oranmore Railway Station, in the townland of Garraun to the northwest of the town, is due to be operational by 2012. This will contribute to the town's transport infrastructure and will provide a significant opportunity to focus future development around integrated land use and public transport, while at the same time providing an important potential link to the southern reach of the Ardaun area, an area identified for longer term future strategic growth for both the Galway county and city areas.

As the pace of development has been significant in recent years, the population of the Oranmore has risen rapidly. According to the 2006 Census, the population of the town was 3,513, a 107% increase from the 2002 Census figure.

Oranmore has been identified as a key town within the Core Strategy of the current Galway County Development Plan and a Galway Metropolitan Area Satellite town and in this regard, it is important that anticipated growth is plan led, so that Oranmore can enhance its vibrancy and grow in a sustainable manner

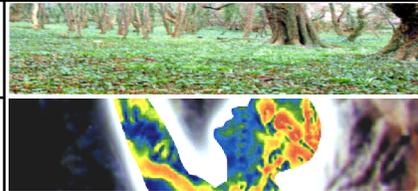
Figure 1a shows the geographical location of Oranmore and presents the functional area of the town, water resources and transport routes.



DATE: 12/3/2012	SCALE: 1:200,000
REF:	SIZE: A4
DRAWN: MFC	APPROVED: RM

FIGURE 1a: LOCATION

Galway County Council Oranmore Local Area Plan SEA



minogue & associates
 Tuamgraney, County Clare
 T: 061 640667

ERA-MAPTEC
 40 Lwr. O'Connell St.
 Dublin 1 www.era.ie

1.4 Background to LAP of Oranmore.

This draft LAP has been prepared by Galway County Council (GCC) to provide a statutory framework for the future growth, development and improvement of Oranmore that is consistent with the policies and objectives contained in *the Galway County Development Plan (GCDP) 2009-2015* including its *Core Strategy/Settlement Strategy* and which addresses the needs and requirements of the local community, service providers and other stakeholders. The purpose of the Local Area Plan is to guide future development within the town of Oranmore, in a sustainable and equitable manner and to inform members of the public, the local community, stakeholders, developers and the Planning Authority regarding policies and objectives for the development of the town, including provisions in relation to land use management, community facilities and amenities, transport and infrastructure, urban design, heritage and the environment.

The Plan period is 6 years, from date of adoption by the Council, unless the timeframe is extended by resolution in accordance with Section 12 (d) to (f) of the Planning and Development (Amendment) Act 2010. The Plan area for Oranmore is comprised of the town and its immediate environs. The Plan area is considered to provide an appropriate development envelope for the anticipated growth of Oranmore for the Plan period.

The preparation of the Local Area Plan has also included a public consultation process, which involved the publication of a Background Issues Paper to obtain the views of the local community and other stakeholders and the issues raised during this process have been addressed, as appropriate, within this Local Area Plan.

The SEA and Habitats Directive Assessment (HDA) have informed the LAP through an ongoing iterative process that incorporated environmental considerations and sensitivities throughout the strategy development. The SEA and HDA is being undertaken in line with the Planning and Development (Strategic Environmental Assessment) Regulations 2004 to 2011 (as amended) and the European Union (Natural Habitats) Regulations of 1999 to 2011 (SI 233/1998, SI 378/2005, SI 477 of 2011). In addition the Strategic Flood Risk Assessment (SFRA) carried out for County Galway has further informed the LAP and been assessed through the SEA and HDA process.

Figure 1b shows the landuse zonings from the current Oranmore LAP 2006 – 2012.

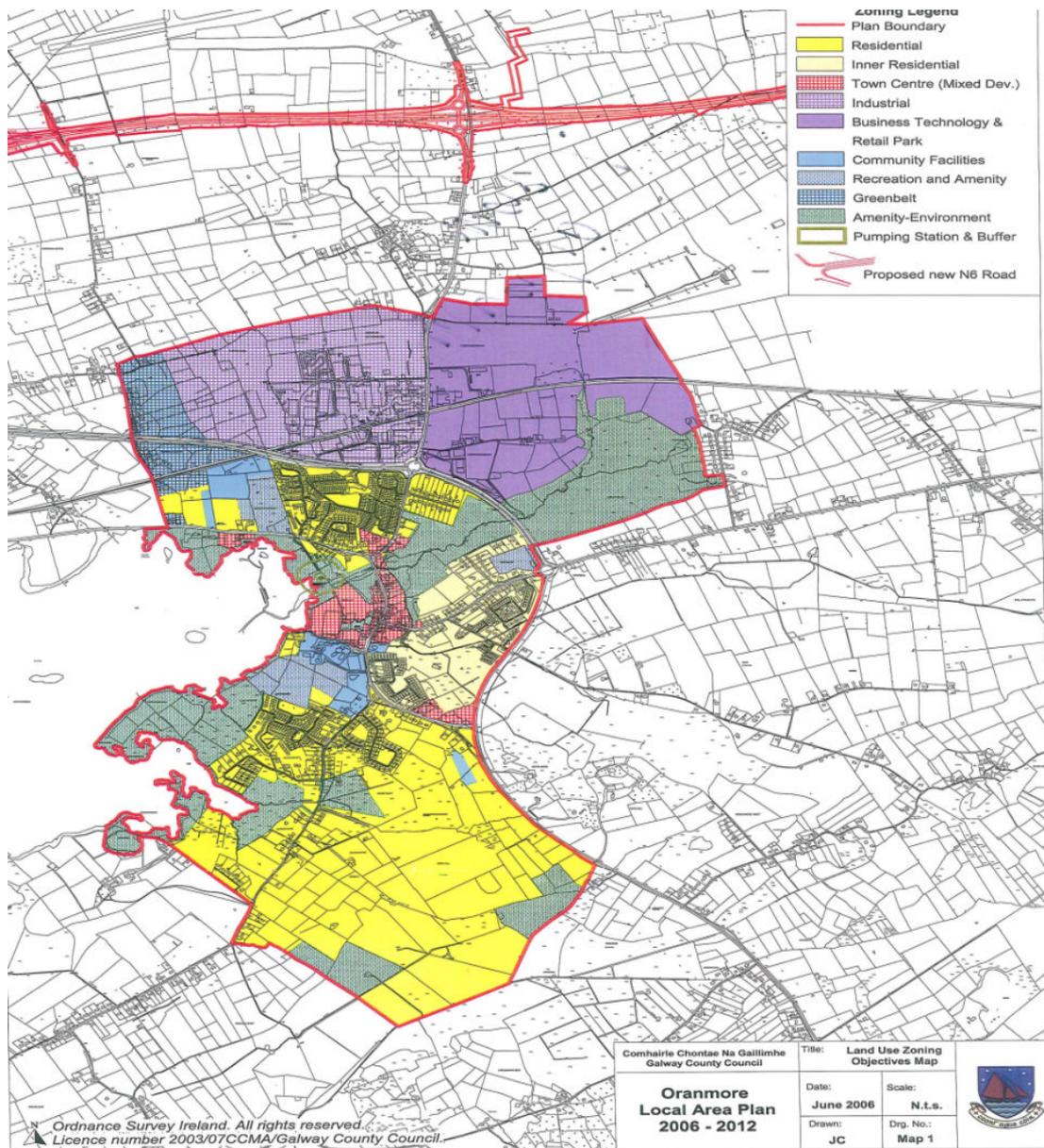


Figure 1b: Landuse zonings in Oranmore LAP 2006-2012

1.5 Structure of draft Oranmore LAP

The draft LAP is structured around a range of policies and supporting objectives that aim to promote the sustainable development of Oranmore over the plan period. It is underpinned by the following vision.

“To promote Oranmore as a sustainable, self-sufficient and vibrant town, which maintains its unique, attractive character, capitalises on its accessibility strengths - in particular rail, while offering a pleasant environment for a growing community, for living, shopping, business, recreation and tourism, balanced against the need to safeguard and enhance the environmental sensitivities of the area, for present and future generations to come”.

Thereafter, a range of policies and objectives are provided under the following headings:

- Development Strategy
- Land Use Management

- Residential Development
- Social and Community Development
- Economic Development
- Transportation Infrastructure
- Utilities and Environmental Infrastructure
- Urban Design and Landscape
- Built Heritage and Cultural Heritage
- Natural Heritage and Biodiversity

A land use zoning map, a strategic objectives map, supporting environmental maps, and a land use matrix provide additional detail to the above policies and objectives.

1.6 Structure of this Environmental Report

The remainder of this Environmental Report is structured as follows:

Chapter Two:	Methodology
Chapter Three:	Relationship to other policies and plans
Chapter Four:	Environmental Baseline
Chapter Five:	Environmental Protection Objectives
Chapter Six:	Alternatives Considered
Chapter Seven:	Likely Significant Effects on the Environment
Chapter Eight:	Mitigation Measures
Chapter Nine:	Monitoring
Glossary of Terms	
Annex A:	Detailed Evaluation of Draft Policies and Land use Zonings
Annex B:	EPA SEA Process Checklist
Annex C:	SEA Screening Reports of Material Alterations

2 Chapter Two: Methodology

2.1 Introduction

The methodology used to carry out the SEA of the LAP reflects the requirements of the SEA regulations and available guidance on undertaking an SEA in Ireland, including:

- SEA Methodologies for Plans and Programmes in Ireland – Synthesis Report Environmental Protection Agency (EPA), 2003;
- Implementation of SEA Directive (2001/42/EC) Assessment of the Effects of Certain Plans and Programmes on the Environment – Guidelines for Regional Authorities and Planning Authorities- published by the Department of the Environment, Heritage and Local Government, 2004;
- Planning and Development (Strategic Environmental Assessment) Regulations 2004 (SI 436 and SI 435 of 2004);
- Planning and Development (Strategic Environmental Assessment)(Amendment) Regulations 2011 (S.I. No. 201 of 2011);
- Planning and Development (Environmental Assessment of Certain Plans and Programmes) (S.I No 200 of 2011);
- SEA Process Checklist Consultation Draft 2008, EPA 2008; and
- Circular Letter PSSP 6/2011 Further Transposition of EU Directive 2001/42/EC on Strategic Environmental Assessment.

This chapter presents the methodology in more detail.

2.2 Screening for SEA

The SEA Directive is implemented through the above regulations. The SEA Regulations introduced in 2011 have lowered the population thresholds whereby SEA becomes mandatory for LAP. Article 14 (b) of the Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011 (SI No. 201 of 2011), state that SEA is mandatory for Local Area Plans where a population or target population is over 5,000; where the area covered by the plan is greater than 50 square kilometres, or where the local area plan is being prepared for a town and its wider environs. According to the 2006 Census, the population of the town was 3,513, a 107% increase from the 2002 Census figure. The preliminary Census 2011 data shows that the Oranmore Electoral District is 4,321 persons, an increase of 22.7% between 2006 and 2011. In addition, the County Core Strategy indicates that Oranmore has been assigned a population target of 1,130 persons for 2015 which results in a requirement for 32.6ha of zoned residential land; this would increase the population to over 5000 persons, therefore the draft Oranmore LAP 2012 – 2018 is required to undergo a full SEA.

2.3 Consultation

Pre-Draft Consultation with External Stakeholders

A Background Issues Paper was prepared in May 2011 with the aim to promote discussion and consultation on issues affecting the sustainable development of Oranmore. A notice was published on 30th May 2011 providing information on the preparation of the LAP and

requesting submissions until 1st July 2011. The following table provides information on submissions received over this time period.

Table 2a: Pre draft submissions on Oranmore LAP.

Submission	Environmental Issue	Addressed in SEA
Martin Forde	Highlights wheelchair safety issues in a number of specific locations around Oranmore and the resulting impact of wheelchair users being forced onto the road with accompanying risk to safety	Population and human health will consider this issue and policies/objectives of draft LAP will also be assessed
Patrick Fitzmaurice, Oranmore	Request that wetlands on a known flood plain at Carrowmoneash and Moneyduff previously zoned residential be designated as a natural floodplain for biodiversity	Biodiversity, Water Quality and Material Assets – flood risk
Mark Keaveney, Oranmore	Highlights traffic problems from Maree Road to Oranmore Village and proposes a one way system with filter lane	Traffic will be assessed under material assets and air quality if appropriate
NRA, St Martin's House Waterloo Road, Dublin 4	Have regard to provisions of Spatial Planning and National Roads (Draft) Guidelines Also reference to Retail Planning Guidelines and Sustainable Rural Housing Guidelines LAP should recognise the importance of N17 and M6 links Reference to 08/2875 decision by An Board Pleanala and consideration of same when drafting LAP for Oranmore Careful consideration to zoning close to national road network Seek to minimise local trip generation (in cars) by encouraging integrated development Recommends traffic and transport assessments be carried out for individual planning applications but this is not a substitute for overall transport assessment of areas where consideration is being given to land use and transportation Traffic and Transport Assessment and Road Safety Audits recommended for planning applications Noise Regulations (S.I. 140 of 2006) Signage policy	Material Assets – transport and in combination impacts
Irish Rural Housing/One Off Ireland Campaign	Detailed submission providing information on environmental impacts associated with urban generated one off rural housing. The purpose of the submission is to bring attention to the issues associated with the proliferation of urban-generated one-off rural housing. LAPs are essential components of the settlement planning hierarchy and have a key role to play in regulating development outside of their immediate settlement boundaries.	Housing policies and environmental impacts will be assessed through SEA and HDA process
Coffey Construction Ltd	Coffey Construction Ltd's lands in townland of Oranmore are zoned residential. A number of reasons are cited for rezoning commercial to facilitate the development of a petrol station	Land use zonings will be assessed through SEA and HDA process.
Coffey Construction Ltd	Submission relates to lands at Rockland owned by Coffey Construction Ltd, that are currently zoned agricultural or not zoned as outside town boundary. Request to consider	Land use zonings will be assessed through SEA and

Submission	Environmental Issue	Addressed in SEA
	zoning for Business Technology or Retail for a number of reasons cited	HDA process.
Coffey Construction Ltd	Request to consider lands owned by Coffey Construction in town centre for change of zoning from current town centre with a small amount of residential to town centre commercial zoning in full. This submission is accompanied by a development appraisal report of same lands from 2007	This zoning will be assessed through the SEA and HDA process.
Dublin Airport Authority (No Comments)	No comments at this time	n/a
The West Regional Authority, 1st Floor, Woodquay Court, Woodquay, Galway	Regional Planning Guidelines identify Oranmore as Key Town. Alignment of Core Strategy and Regional Planning guidelines Population target for Oranmore and residential zonings – current oversupply and note West Regional Authority submission on Core Strategy to focus on Ardaun/Garaun rather than Oranmore/Garraun DoECLG Circular PSSP6/2010 prioritizing/phasing of residential lands and consideration of alternative objectives Consider existing vacant housing units and live planning permissions – availability of services such as water, wastewater, pedestrian, cycling and transport access Oranmore has rail access. East Galway Drainage Scheme will increase wastewater capacity and Oranmore currently has sufficient water supply. SEA and AA should examine likely impact of implementing the LAP on the Natura 2000 network and other environmental receptors	Policies will be referenced in Chapter Three of SEA ER Zoning of lands will be assessed through SEA and HDA process SEA and HDA will assess the likely impacts of implementing the LAP
Mrs P Kilraine c/o McCarthy Kelville O'Sullivan Ltd	Request to consider change of zoning of parcel of land in town centre from community to town centre/commercial	Zonings to be assessed through SEA and HDA process
Pat and Liam Malone c/o McCarthy Kelville O'Sullivan Ltd	Submission regarding lands owned by Malones north of Oranhill area. Highlights zoning requirements and population targets in CDP to 2015 and longer period of LAP requires that larger area of land likely to be required to accommodate population requirements. Requests consideration be given to retaining current zoning of residential for these lands Submission also comments on residential densities, special development levies, Requests that Objective RA2 be removed from subject lands at Oranhill.	Zonings will be assessed through SEA and HDA process.
James and John Cannon c/o McCarthy Kelville O'Sullivan Ltd	Submission regarding lands owned by Cannons located at the north of Oranhill and to the immediate south of existing residential development at Coill Clocha. Request that subject lands remain zoned for residential purposes. Submission also comments on residential densities and special development levies	Zonings will be assessed through SEA and HDA process.
Yvonne Nolan, DAU, Dept of Arts, Heritage	Requirements of EU Habitats Directive Information given on the following sites, and request that objectives and policies be developed to support same.	All of the points raised will be addressed in the

Submission	Environmental Issue	Addressed in SEA
<p>and the Gaeltacht, Newtown Rd Wexford</p>	<p>The Natura 2000 sites, Galway Bay Complex cSAC (site code 000268), Inner Galway Bay SPA (site code 004031) and Creganna Marsh SPA (site code 004142). Proposed Natural Heritage Areas (pNHAs) which, in this case, are superseded by other nature conservation designations. [<i>Note that Creganna Marsh is included as an NHA in the NPWS GIS datasets in error; it should be a pNHA.</i>] Importance of ecological networks and key habitats and species Annex I and Annex II species and habitats. Annex IV species and breeding sites Stepping stones and ecological corridors New LAP will require AA screening and screening will suffice only if there are no risks of having significant effects on Natura 2000 sites Likely impacts on Natura 2000 sites and 15km screening distance is recommended</p> <p>Some issues of concern in the existing plan area are land use zonings for development in Natura 2000 sites, surface water issues and flood risk management, groundwater issues and hydrogeology, and cumulative loss and encroachment of wetlands. Disturbance and habitat encroachment are an issue for the Birds Directive Annex I species, Greenland White-fronted Geese, in Creganna Marsh SPA. Information on plan level mitigation Recommended that HDA is presented as a completed report not a draft. NIS or Screening report should conclude with clear statement SEA ER Biodiversity, flora and fauna should be undertaken by/in conjunction with qualified ecologist and integrated with AA Scope of SEA should include: All sites with nature conservation designations Available information on habitats and habitat indicator mapping Available information on rare and protected species and their habitats All watercourse, surface water bodies and associated wetlands including floodplains and flood risk areas Other sites of high biodiversity value Local biodiversity areas Ecological networks. Corridors and stepping stones</p> <p>Generally no lands should be targeted for development without basic information on ecological sensitivities of lands in question including a habitat map Environmental Protection Objectives should integrate with other directives such as Habitats Directive, Birds Directive, National Biodiversity Plan etc. Strategic Environmental Objectives should be included for all nature conservation sites, protected species, stepping stones and ecological corridors</p>	<p>SEA ER, particularly in the biodiversity and water resources sections.</p> <p>AA screening/ NIS will address issues raised in relation to the process and data given.</p> <p>SEA and HDA processes will be integrated</p>
<p>Enda Thompson</p>	<p>Submissions relates to recommendations for cycling and</p>	<p>SEA and HDA</p>

Submission	Environmental Issue	Addressed in SEA
Oranmore	walking routes including: Provision of cycling /walking along 'coast' road to link with Galway City Village to Rinville Park Complete tarring from Rinville Sailing Club to Rinville Point Provision of walk from Tesco s/c to Oranisland on phased basis	process will assess any proposed provision of cycling and walking routes and promotion of same.
Gaelscoil de hIde, c/o O Higgins Consulting Engineers	Currently operating in rented accommodation and school is identified as being of high priority to provide a new school. Lands have been earmarked but are zoned recreational and amenity currently. Request that zoning be amended to community in order to facilitate construction of school.	Zonings will be assessed through SEA and HDA process.
M Finn c/o OPC Planning	Recommend to extend town boundary. In addition, 2 land parcels referenced. One on edge of town, request that be considered for community facilities. Second parcel is also requested to be considered for community facilities	Zonings will be assessed through SEA and HDA process.
Donegan, Dooley c/o OPC Planning	Lands at Oranbeg currently outside town boundary. Consider that lands lend themselves to a variety of zonings in particular light industry and request consideration be given to same.	Zonings will be assessed through SEA and HDA process.
Oranmore Community Development Association	Information provided in population, housing and community facilities. Urgent need for proper social, cultural and youth centre to include medical centre also Enhanced facilities at Rinville Park also proposed Coastal walks, cycle paths, park and ride and shuttle bus for new train station Wind or water renewable energy should be considered	Zonings will be assessed through SEA and HDA process. Other issues may be considered in LAP preparation and assessed through SEA and HDA process
Emer Colleran An Taisce	Submission relates to the following: Core strategy and population trends, recommendation that unfinished estates be targeted before new estates be constructed Large number of unoccupied houses New estates should not be constructed off the Maree Road Existing retail units should be occupied before considering new retail outlets Serious congestion at Maree Road Hazard at entrance/exit from Oranisland Estate Proposed road from Oranhill to roundabout on Limerick Road should be developed as soon as possible to relieve peak pressure Long term capacity of Mutton Island Wastewater treatment and suggest second modern wastewater treatment facility be reconsidered to serve extended Eastern suburbs of Galway and existing towns and villages such as Oranmore etc. Septic tanks be serviced and maintained, this is of particular importance due to underlying limestone and karst aquifer. Does not agree with practice of zoning residential in designated Natura 2000 sites and areas should be considered for dezoning. Important to recognise the role of dezoned land in Natura	Noted, many of the issues raised will be considered during LAP preparation and assessed from SEA and HDA perspective.

Submission	Environmental Issue	Addressed in SEA
	2000 sites as a buffer area; cites Moneyduff residential development bordering salt marsh and potential impacts on same Highlights visual impact of unfinished developments and Oranmore Castle Protective hoardings on Oranmore River also identified as unsightly. Consideration should be given to raised pedestrian walkway on Castle side of River. Address empty houses/units in town centre Community facilities required and focus on eastern part of town. Comprehensive school bus service should be considered Flood risk and assessment Signage should be addressed in particular proliferation of vans etc parked in green fields outside town, negates against image promoted by tourism bodies.	
Furey's Lands c/o Associated Design Ltd	Request to amend current zonings of recreation to community and residential zonings on lands known as Fureys Lands.	Zonings will be assessed through SEA and HDA process
Department of Education & Skills Portlaoise Road, Tullamore Co Offaly	Information provided on calculating primary and post primary provision in an area Reference to site suitability and guidelines on same Existing schools should be capable of catering for increase in pupil numbers Primary school site will be required for Gaelscoil of 1.14ha. Scoil Mhuire also has application with the Department for additional accommodation.. Scoil Naomh Mhuire also has application for additional accommodation. Calasanctius College also has application for additional accommodation.	Zonings will be assessed through SEA and HDA process and educational provision described in Population and human health section of SEA.

2.4 SEA Scoping and Consultation

Following the SEA screening process, a scoping exercise was undertaken by Minogue and Associates. This established the scope and extent of the Environmental Report and facilitated consultation with the designated statutory consultees. One submission was received on the scope of the SEA, this was received from the Environmental Protection Agency (EPA), a statutory consultee and the environmental issues raised through this scoping process are presented below in *Table 2b*.

In addition to the written scoping responses, a meeting was held with NPWS on 16th January 2012 to discuss the scope and extent of the SEA and HDA for Oranmore. This meeting has informed the scope and issues of concern in relation to Oranmore LAP.

2.4.1 Environmental Issues raised during the scoping process

The table below presents the key environmental issues arising from the Scoping Process. It also shows where and how this issue has been addressed in the draft LAP, the SEA ER and/or the HDA. The EPA made the only submission within the stated timeframe.

Table 2b: Environmental Issues raised during the scoping process

Consultee	Issues raised	Response
EPA	The inclusion of potential alternatives at the scoping stage is acknowledged. It should be ensured that each alternative is reasonable and realistic and that the requirements of the Western Regional Planning Guidelines and the Galway County Development Plan are adhered to.	Noted, further information on the consideration of alternatives is given in Chapter Six of this SEA ER
	The exact boundary of the proposed LAP should be confirmed. This is of particular relevance in the context of the proposed new development area at Garraun.	Accepted and boundary will be confirmed
	It is noted that recurring flood events have occurred within the Plan area. It should be ensured that a preliminary flood risk assessment is carried out in accordance with the Flood Risk Management Guidelines 2009 (OPW/DoEHLG). Zoning and development of lands within the Plan area should take into account the risk of flooding. Where undeveloped lands are currently zoned in areas at risk of flooding, consideration should be given to rezoning/dezoning to remove flood risk for future developed lands.	Accepted, strategic flood risk assessments are informing the LAP and will be discussed under Material Assets, Chapter Four.
	You are referred to the Shannon CFRAMS, which is currently undergoing SEA. The findings of the Shannon CFRAMS should be incorporated into future versions of the Plan when finalised. In addition, you are referred to the Western River Basin Management Plan and associated Programme of Measures, which should also be incorporated into the Plan.	Accepted, and these plans and measures are included and influence this SEA ER. Western District CFRAMS at SEA Scoping stage currently.
	Consideration should also be given to including policies/objectives in the Plan, promoting the development of green infrastructure and SUDS measures. In this context, your attention is brought to the recent European Environment Agency guidance on Green Infrastructure which can be found at http://www.eea.europa.eu/publications/green-infrastructure-and-territorial-cohesion	Accepted, this will be considered as part of the SEA process. The draft LAP provides policy guidance on SUDS measures (Policy UI1)
	The Pollution Reduction Programmes and associated Characterisation Reports for the adjacent designated Shellfish Waters at Clarinbridge/Kinvarra Bay, Bay at Aughinish and Ballyvaughan/Poul-na-clough Bay should be taken into account in the policies and objectives of the Plan.	Accepted, these are referenced and taken into account in Chapter Four Baseline and Chapter Five Environmental Protection Objectives
	It should be ensured that the adjacent SACs, SPAs and pNHAs are protected, including in particular Galway Bay Complex SAC/pNHA, Inner Galway Bay SPA, and Cregganna Marsh SPA/pNHA. The potential for cumulative/in-combination effects on Natura 2000 sites within the zone of influence of the Plan should be assessed.	The Natura Impact Assessment is assessing impacts on Natura 2000 sites; the SEA is assessing both Natura 2000 sites and other designated sites and protected species in the Biodiversity Section of Chapter Four and supporting chapters including Assessment of effects and Mitigation Measures
	The potential for cumulative/in –combination effects resulting from this Plan and other relevant on-going Plans and Programmes within and adjacent to the	This will be assessed in particular in Chapter Seven

Consultee	Issues raised	Response
	Plan area should also be assessed	
	It should be ensured that adequate and appropriate drinking water and waste water treatment infrastructure and capacity are in place prior to any further development within the Plan area.	Noted and accepted
	<p>Your attention is brought to the new SEA Regulations, which should be referenced and integrated into the Plan and SEA process. Two amending SEA Regulations were signed into Irish law on 3rd May 2011, amending the original SEA Regulations: European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011, (S.I. No. 200 of 2011), amending the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. No. 435 of 2004), and Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011, (S.I. No. 201 of 2011), amending the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (S.I. No. 436 of 2004).</p> <p>You are also referred to the recent DoECLG Circular (PSSP 6/2011) issued on the 26th July 2011 to each County/City Manager, Director of Services and Town Clerk in relation to 'Further Transposition of the EU Directive 2001/42/EC on Strategic Environmental Assessment (SEA)' which should also be referred to and integrated into the Plan.</p> <p>European Communities (Birds and Natural Habitats) Regulations 2011</p> <p>You are also referred to the requirements of the recent European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), which should be taken into account in implementing the Plan. These Regulations consolidate the European Communities (Natural Habitats) Regulations 1997 to 2005 and the European Communities (Birds and Natural Habitats) (Control of Recreational Activities) Regulations 2010, as well as addressing transposition failures identified in the CJEU judgements.</p> <p>Communities (Natural Habitats) Regulations 1997 to 2005 and the European Communities (Birds and Natural Habitats) (Control of Recreational Activities) Regulations 2010, as well as addressing transposition failures</p>	Noted and included in Chapter Three

2.5 Baseline Data

Baseline data is essential to establish the current state of the environment and helps to identify, evaluate, and monitor the effects of a plan. Baseline data was collected from current sources for each environmental parameter identified in the SEA Regulations. A Geographic Information System (GIS) was established to map environmental opportunities and constraints associated with this study.

These are detailed below:

2.5.1 Environmental Issues collated and analysed using GIS.

Biodiversity, Flora and Fauna: All current natural heritage designations provided under European and National legislation were incorporated into the GIS. These include Candidate Special Areas of Conservation (cSAC), Special Protection Areas (SPA), and Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs).

The following additional habitat data from Galway County Council was also inputted to the GIS:

- National Parks and Nature Reserves
- Limestone Pavement in County Galway, based on available GIS data
- Ecological Network in County Galway, as identified in GCDP 2009-2015
- IPCC database on non-designated peatland habitats (source: Irish Peatland Conservation Council)

A HDA is being carried out in tandem with this SEA to address potential impacts on Natura 2000 sites (cSACs and SPAs).

Water (surface, ground, estuarine): River water quality data, drinking water (surface, groundwater abstraction points and public drinking water remedial lists) in and within a 15km catchment of the functional area of Oranmore were mapped. Any other Natura 2000 water related sites within 15km of the functional area of Oranmore were mapped.

Groundwater vulnerability within 5km of the LAP boundary and River Catchment data were mapped using data from the EPA. Water Framework Directive Protected Areas were also mapped. EPA data on bathing water, and estuarine and coastal water quality in addition to shellfish waters were also integrated to the GIS.

Soil and Geology: Bedrock geology and drift /quaternary geology data was incorporated into the GIS. Proposed Geological NHAs were mapped for sites within and 5km from the LAP boundary.

Landscape: Landscape policies and designations in the County Galway Development Plan 2009 to 2015 were incorporated into the GIS. These include landscape designations and classifications such as special or unique landscapes. In addition, the County Galway Landscape Character Assessment was integrated to the GIS. Where pertinent, neighbouring counties designations such as scenic routes, or areas of primary amenity were also integrated, this data covered the counties of Clare, Offaly, Mayo, Roscommon and Offaly (up to a 50km buffer from Galway County boundaries). In this instance, designations from Galway City and County Clare lie within this buffer.

Cultural Heritage (architectural and archaeological heritage): All sites in the recorded sites and monument record were mapped, and all sites within the LAP boundary were mapped. The Architectural Conservation Areas within Oranmore was plotted, as were all protected structures from the current County Galway Development Plan 2009- 2015 were mapped.

Population: Preliminary data from the 2011 Census was accessed but not mapped.

Human health: No direct information was mapped for human health.

Air: Any sites with Integrated Pollution Prevention and Control licenses were mapped within the area. The air quality zones relevant for 5km around the LAP boundary were also mapped.

Climatic factors: No climatic data was mapped.

Material assets: Key transport routes were mapped. Wastewater treatment plants and flood risk zones were mapped. Further information on flood risk is provided in the following section.

Environmental Sensitivity Mapping:

Preliminary modelling was undertaken of key datasets and environmental resources in Oranmore to help identify potential cumulative impacts with reference to areas identified as potentially more sensitive to development activities. This modelling although basic has helped to identify areas of the town that demonstrate greater overall environmental sensitivity.

2.6 Flood Risk Assessment

The Planning System and Flood Risk Management Guidelines (DoEHLG 2009) provide a methodology to incorporate flood risk identification and management into land use strategies. It also requires the alignment and integration of flood risk into the SEA process. The core objectives of the Guidelines are to:

- Avoid inappropriate development in areas at risk of flooding;
- Avoid new developments increasing flood risk elsewhere, including that which may arise from surface water run-off;
- Ensure effective management of residual risks for development permitted in floodplains;
- Avoid unnecessary restriction of national, regional or local economic and social growth;
- Improve the understanding of flood risk among relevant stakeholders; and
- Ensure that the requirements of EU and national law in relation to the natural environment and nature conservation are complied with at all stages of flood risk management.

Potential flood issues in the plan area are an important consideration in the preparation of the new Local Area Plan, particularly in zoning lands for various uses and as such the new Local Area Plan has been guided by the Strategic Flood Risk Assessment (SFRA) for County Galway. Further information on the SFRA and results on Oranmore are provided in Chapter Four, Baseline Environment, and assessed in Chapter 7 Assessment of Effects.

2.7 Fieldwork

The consultants and area planners undertook a walkover of the functional area of Oranmore on 11th January 2012. The purpose of this fieldwork was to assess the existing habitats and environmental sensitivities within the plan area and gain an understanding of the development activities that have taken place in the plan area (and environs) during the preceding plan period. Land zoned close to Natura 2000 sites were also investigated more carefully during a follow up survey on 16th January 2012 and particular attention was paid to the area around Garraun where the new railway station is to be constructed.

2.8 Planning Search and Review

In order to gain more detailed information on the environmental resources and sensitivities of the plan area, Galway County Council undertook a planning review of development proposals in the town over the past 13 years. The focus of the planning search was in the area known as Oranhill in the south of the town, and close to Creganna Marsh SPA. This area was the subject of intensive development proposals since 1999. The purpose of this was to ascertain baseline information that was prepared as part of large planning applications and in one instance to gain information from a hydrogeological study that An

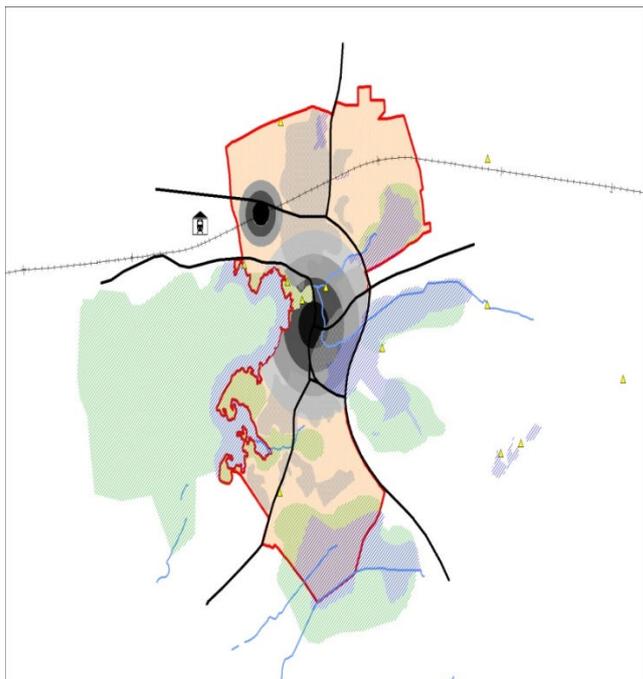
Bord Pleanála commissioned. This assisted in enhancing the analysis of environmental baseline.

Where relevant, other proposed large developments which were accompanied by an Environmental Impact Statement / Natura Impact Statement were also researched. Where data has come from such applications, the planning file reference is provided in a footnote.

2.9 Consideration of Alternatives

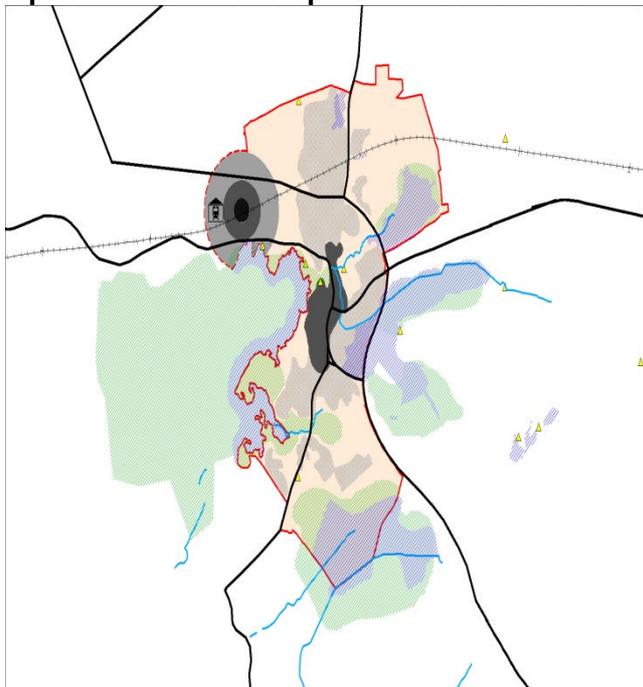
A number of alternative scenarios were considered in preparing the Oranmore LAP and these are briefly discussed below. *Chapter Six, Consideration of Alternatives* presents this information in more detail. Please note the maps below are indicative and are for presentation purposes only.

Option 1: Local Area Plan informed solely by environmental assessments



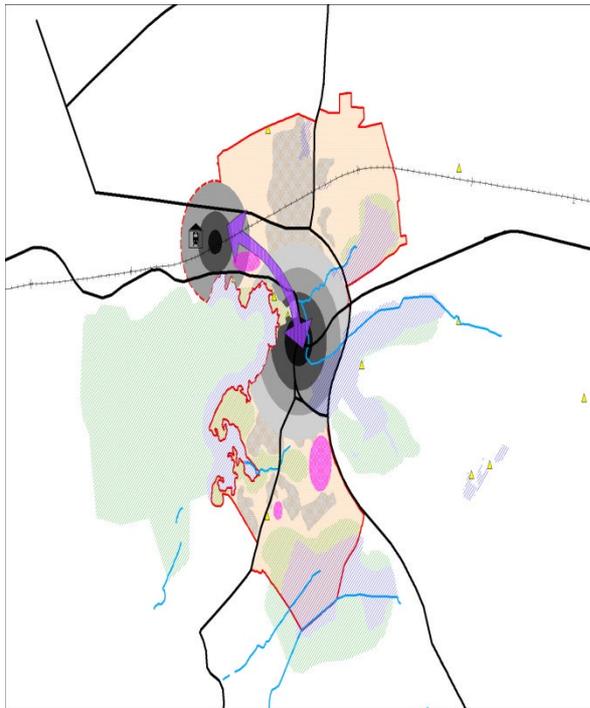
Informed solely by the statutory environmental assessments required for Local Area Plans, including a Habitats Directive Assessment, Strategic Environmental Assessment and flood risk considerations, this option would likely direct future development away from areas of low lying land and lands with ecological sensitivity. In implementing the Core Strategy of the County Development Plan and ensuring the provision of the required level of zoned lands for future residential use, future growth would be directed towards the development and consolidation of appropriate sites from the town centre outwards, with the likely focus for new residential neighbourhoods on lands towards the north and northwest of Oranmore. This option would exclude consideration of the planned railway station at Garraun further northwest of Oranmore and the potential contribution it can make to the future sustainable development of the town.

Option 2. New Development Area at Garraun



This option proposes a new development area around the rail station at Garraun, capitalising on the potential of new public transport infrastructure and the availability of lands for anticipated population growth in Oranmore, as outlined in the Core Strategy. It also progresses the Regional Planning Guidelines objective of future expansion of the Garraun area. This approach recognises the area as a prime development quarter in terms of integrating land use and public transportation and directs all new development to this area. However, given its strategic importance, a detailed master plan would be necessary to guide development to ensure that it does not progress in an ad hoc and piecemeal manner. Focussing on the growth of a new quarter could have the potential to shift the focus away from the established town of Oranmore, which would compromise the sustainable development of the overall area. Developing a detailed master plan for a new development quarter would be beyond the scope of the Local Area Plan process and therefore this option is not considered the most suitable approach to be pursued, at this time

Option 3. Consolidation of the Town Centre and Surrounding Areas with a Future Strategic Development Area, Informed by Environmental Assessments



Informed also by environmental assessments, this option focuses primarily on the established town of Oranmore, seeking to consolidate the existing town centre and emerging commercial centres and examining the residential provision to meet the requirements of the Core Strategy. Town centre consolidation is achievable through promoting appropriate densities at the right location and supporting the redevelopment of brownfield, derelict and back land sites within the urban core. Development within the remainder of the town is encouraged in a sequential manner, in order to maximise return on investment in services and to ensure the availability of optimal, residential lands to accommodate anticipated growth. Refinement and amendments to existing zonings are required to align with the Core Strategy.

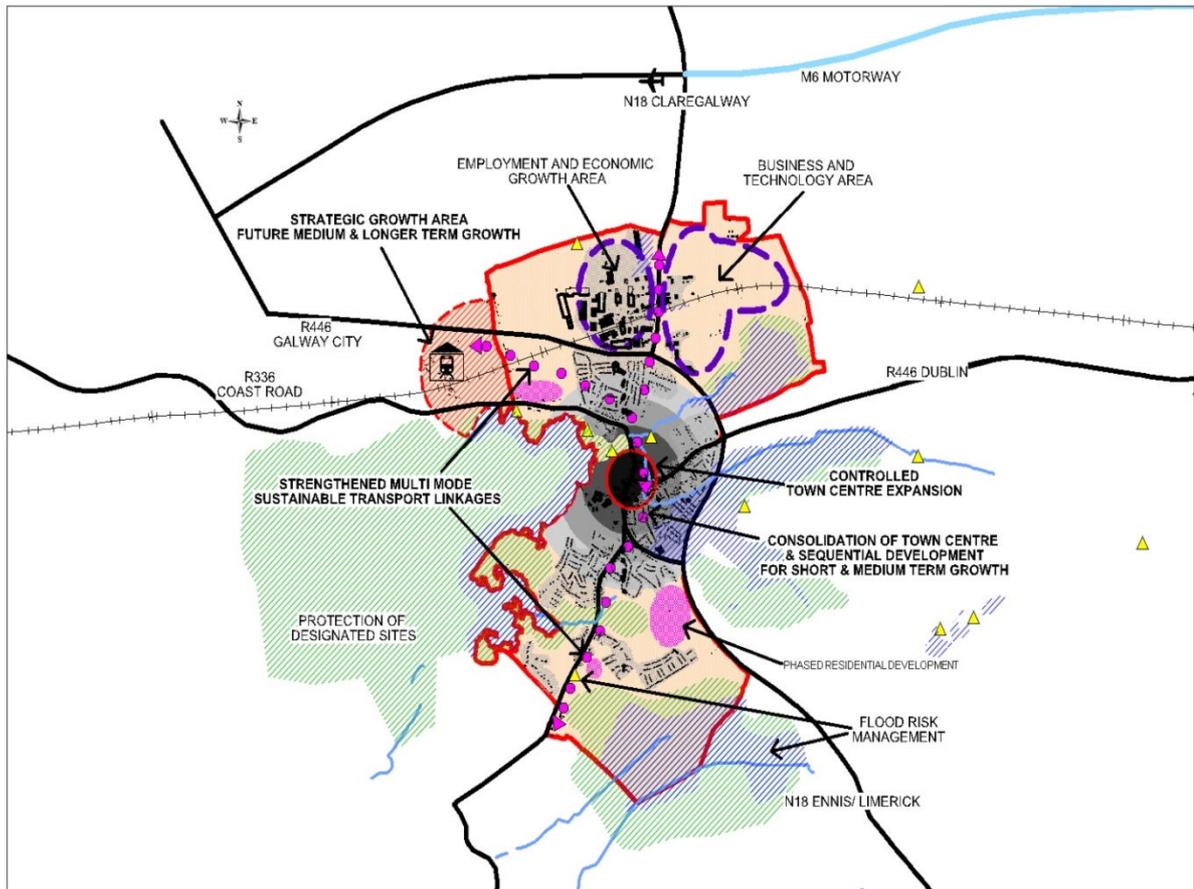
This option also takes cognisance of the planned railway station at Garraun. It protects the associated surrounding lands through identifying a Strategic Reserve Area subject to future master planning, so as to ensure that the opportunities associated with the development of same are planned in a sustainable and coordinated manner. In the interim, strong sustainable transportation connections between the railway station, the town centre and remainder of the town are key in establishing important connectivity between the areas, ensuring they are linked and complement each other. This approach appears to be the most sustainable and practical for the long term development of the town.

2.9.1 Preferred Development Option

Option 3 is considered the preferred Development Option. It supports the consolidation of the town centre to accommodate future growth, it promotes the sequential development of the remainder of the urban core including the development of vacant and under-utilised sites in the town centre, ensuring that serviced lands close to the centre and public transport options are the primary focus for development in the short to medium term. Simultaneously, it maximises the potential of the imminent rail station at Garraun, through promoting the development of strong sustainable transport linkages between the train station and the established town of Oranmore and provides the basis for an integrated transportation hub in this area. This preferred development strategy option also protects lands surrounding the rail station, so that future development associated with same can take place in a planned and timely manner, while at the same time building on the existing strengths of Oranmore town, providing for the more immediate development needs.

This preferred Development Strategy Option is informed by the statutorily required environmental assessments; it aligns with and aims to deliver on the Core Strategy requirements set out for Oranmore in the County Development Plan. It also supports the

objectives of the Regional Planning Guidelines to provide for the sustainable, dynamic development of key towns and the Galway Metropolitan Area, to a level that can deliver the conditions for critical mass and drive overall regional development. The figure below provides an indicative presentation of the preferred strategy.



2.10 Environmental Assessment of the Oranmore Local Area Plan

The likely significant effects on the environment are described in this Environmental Report and measures are identified to avoid, reduce or mitigate any significant effects of the Strategy. A framework of objectives has been developed to assess the potential impacts of the policies/objectives proposed in the LAP. The results of this process are summarised in a table called an Evaluation Matrix. This matrix sets out the environmental objectives, with indicators and columns for undertaking the appraisal of potential impacts on each parameter listed in the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (SI 436 and S.I 435 of 2004) (as amended). The potential effects within the assessment were categorized, as per the Guidelines, into the following broad environmental impacts:

- _ Positive impact
- _ Indirectly positive impact
- _ Neutral impact
- _ Negative impact

- _ Indirectly negative impact
- _ Uncertain nature of impact.

In addition, the temporal aspect of each impact is considered under the following:

- Short term effects
- Medium term effects
- Long term effects
- Permanent effects
- Temporary effects
- Secondary effects
- Cumulative effects
- Synergistic effects
- Positive effects
- Negative effects

The Impact table is accompanied by more detailed and explanatory text that discusses the level of significance, temporal and type of impacts identified. This is presented in *Chapter Seven, Likely Significant Environmental Effects of the LAP*. A detailed assessment of individual objectives, policies and landuse zonings is presented in *Annex A*.

2.11 Technical Difficulties Encountered

A considerable amount of data was utilised in preparing this Environmental Report. However, there are a number of areas where data is not available and therefore recommendations arise to find out this type of information at project level. Key technical difficulties encountered include:

- Additional habitat information for certain parts of County Galway are not yet available, all other available ecological data has been incorporated
- Information on certain bird movements
- Corine landcover information - the 2006 dataset was used.
- Detailed information on health problems and issues in the county is not available.
- It is acknowledged that the timing of the fieldwork in January does not represent the most appropriate season to undertake vegetation surveys etc.

3 Chapter Three: Relationships to Key Plans, Policies and Programmes.

3.1 Introduction

The Draft Oranmore LAP is situated within a hierarchy of International, National, regional, and county level policy guidelines. In addition, there is an overarching legislative framework which provides the statutory basis for designations and objectives. This chapter of the Environmental Report reviews the consistency of the Draft LAP within this policy and regulatory framework.

International Context

Table 3a below sets out the main plans, policies, programmes and directives identified in an International context and gives a brief summary of their main objectives.

Table 3a: International Policy and Regulatory Context

EU LEVEL	
Directive/ Plan/ Programme	Summary of Objectives
EU Sixth Environmental Action Programme (1998)	<p>The Environment Action Programme takes a broad look at the challenges of environmental policy and provides a strategic framework for the Commission's environmental policy up to 2012. It identifies four environmental areas for priority actions:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Climate Change <input type="checkbox"/> Nature and Biodiversity <input type="checkbox"/> Environment and Health and Quality of Life <input type="checkbox"/> Natural Resources and Waste <p>It calls for the development of Seven Thematic Strategies relevant to the various environmental areas. These strategies constitute the framework for action at EU level in each of the concerned priorities. It also establishes strategic approaches to meet the environmental goals and sets objectives and priority actions on international issues.</p>
Kyoto Protocol	<p>This international agreement is linked to the United Nations Framework Convention on Climate Change and sets binding targets of 37 industrialized countries and the European Community. The National Climate Change Strategy sets out how Ireland is participating in this process.</p>
Directive 2009/28/EC (Energy)	<p>On the promotion of use of energy from renewable sources established the basis for the achievement of the EU's 20% renewable energy target by 2020. Under the terms of the Directive, each member state is set a binding renewable energy target across heat, transport and electricity sectors. Ireland's overall target is to achieve 20% of energy from renewable sources by 2020.</p>
Biodiversity	
European Biodiversity Strategy (1998)	<p>The strategy aims to anticipate, prevent and attack the causes of significant reduction or loss of biodiversity at the source.</p>
UN Convention of Biological Diversity 1992 ratified 1996	<p>Objectives of this Convention were to conserve biological species, genetic resources, habitats and ecosystems; to ensure the sustainable use of biological materials; and to guarantee the fair and equitable sharing of benefits derived from genetic resources.</p>
Convention on Wetlands of International Importance (Ramsar Convention 1971)	<p>An intergovernmental treaty, which provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. Each Member State must recognise and preserve internationally important wetlands. Ireland has designated 45 wetlands for inclusion in the Ramsar List of Wetlands of International Importance, the majority of which are owned by the State.</p>
EU Habitats Directive 92/43/EEC	<p>A scheme of protection of particular animals and plant species, as well as a selection of habitat. It provides for a network of protected sites known as Natura 2000. Specific protections for the sites, will limit the extent and nature of development, which may have a detrimental effect on the flora or fauna identified therein. Protects over 1000 animals and plant species and over 200 'habitat types' which are of European importance.</p> <p>It is transposed into Irish law by The European Communities</p>

	(Natural Habitats) Regulations, 1997 (S.I. 94 of 1997) and as updated thereafter.
EU Birds Directive (2009/147/EC) (codified version of Directive)	This amended the Birds Directive (79/409/EEC). It provides a common framework for the conservation of naturally occurring species of wild birds and their habitats throughout the EU as listed under the Directive's Annex 1. The most suitable areas for these species are classified as Special Protection Areas (SPA). Ireland is obliged to "take appropriate steps to avoid pollution or deterioration of habitats or any disturbances affecting the birds".
EU Freshwater Fish Directive 1978	The aim of the Directive is to protect fish life from pollution discharge into waters and lays out water sampling and monitoring procedures and definitions. The EU Freshwater Fish Directive (78/659/EEC) was ratified by Ireland with S.I. 293 of 1988, and aims to protect those fresh water bodies identified by Member States as waters suitable for sustaining fish populations. The Directive will be repealed in 2013 by the EU Water Framework Directive.
UN Convention of Biological Diversity 1992	The purpose of this Convention is to conserve biological species, genetic resources, habitats and ecosystems, to ensure the sustainable use of biological materials, and to guarantee a sustainable sharing of benefits derived from genetic resources. In April 2002, the Parties to the Convention committed themselves to achieve, by 2010, a significant reduction of the current rate of biodiversity loss at global, regional and national levels.
OSPAR Convention 1992	To encourage international cooperation to protect the marine environment of the North-East Atlantic. It is required to take steps to prevent and eliminate marine pollution and to protect the maritime area, thereby safeguarding human health and conserving marine ecosystems. Where practicable, damaged marine areas are to be restored. Both the precautionary principle and polluter pays principle are to apply. All possible steps are to be taken to prevent and eliminate pollution from land-based sources, with joint assessments of the quality of the marine environment being undertaken by party states.
Water	
E.U. Water Framework Directive 2000 Council Directive 2000/60/EC was adopted in 2000	Aimed at improving the water environment, requiring member governments to take a holistic approach to managing their waters. Member states must aim to achieve good status in all waters by 2015 and must ensure that status does not deteriorate in any waters.
Floods Directive 2007/60/EC	The EU Floods Directive on the assessment and management of flood risks entered into force on November 2007. This Directive now requires Member States to assess if all water courses and coast lines are at risk from flooding, to map the flood extent and assets and humans at risk in these areas and to take adequate and coordinated measures to reduce this flood risk. This Directive also reinforces the rights of the public to access this information and to have a say in the planning process.
Groundwater Directive 80/68/EEC	Developed in response to Article 17 of the Water Framework Directive. It requires Member States to apply a system of investigation and authorization to waste disposal and other activities in order to ensure that groundwater is not polluted by dangerous substances.
Surface Water Directive 75/440/EEC	The Directive aims to protect public health by ensuring that surface water abstracted for use as drinking water reaches certain quality standards before it is supplied to the public. The Directive lays down nonbinding 'guide' values and binding 'imperative' values and requires Member States to monitor the quality of surface waters from which drinking water is abstracted

	and to take measures to ensure that it complies with the minimum quality standards. This Directive has been integrated into the proposed Water Framework Directive.
Quality of Drinking Water Directive (98/83/EC)	The objective is to protect the health of the consumers of the EU and to make sure the water is wholesome and clean. It sets quality standards for drinking water quality at tap. Obliges Member States to monitor drinking water quality and provide consumer with adequate and up-to-date information on their drinking water quality.
Integrated Pollution Prevention and Control (IPPC) Licensing	A system of Integrated Pollution Prevention and Control (IPPC) licensing came into effect in Ireland on 12th July 2004. The primary aims of IPPC licensing are to prevent or reduce emissions to air, water and land, to reduce waste and to use energy efficiently. The IPPC system replaces Integrated Pollution Control (IPC) as the licensing regime applicable to certain industrial activities in Ireland.
Bathing Water Directive (76/160/EEC) S.I. 155 of 1992, S.I. 230 of 1996	Directive 76/160/EEC concerns the quality of bathing water, with the exception of water intended for therapeutic purposes and water used in swimming pools. It lays down the minimum quality criteria to be met for bathing waters.
Natural and Cultural Heritage	
UNESCO Convention concerning the Protection of the World Cultural and Natural Heritage	This covers not only monuments, groups of buildings and sites which have outstanding universal value but also natural sites of major importance. Parties are required to identify these locations and to ensure that they are protected and conserved for future generations.
European Convention on the Protection of the Archaeological Heritage, 1992 (Revised) (the 'Valletta Convention')	Ratified by Ireland in 1997 and as such we are legally bound by it. The aim of the Convention is to 'protect the archaeological heritage as a source of the European collective memory and as an instrument for historical and scientific study'. It requires that appropriate consideration be given to archaeological issues at all stages of the planning and development process.
Granada Convention for the Protection of the Architectural Heritage of Europe 1985	This was ratified by Ireland in 1985 and establishes common principles and strategy, which have informed Part IV of the 2000 Planning and Development Act 2000-2004.
Landscape	
European Landscape Convention 2000	Ratified by Ireland in 2002, it requires a commitment to introducing policies to effect landscape protection and management. The underlying purpose of the Convention is to encourage public authorities to adopt policies and measures at local, regional, national and international level to protect and manage landscapes throughout Europe. It requires the landscape dimension to feature in a country's spatial planning and environmental policies and for landscape quality objectives to be developed.
Material Assets	
EU Directive 2002/49/EC(the noise directive transposed into Environmental Noise regulations 2006 S.I. 140)	The directive requires that action is taken under each member state with a view to preventing or reducing environmental noise where necessary and particularly where exposure levels can induce harmful effects on human health and to preserve environmental acoustic quality where it is identified as being of good quality.
Urban Wastewater Treatment Directive (91/271/EEC)	Aimed at protecting the environment from the adverse effects of urban wastewater discharges and discharges from certain industrial sectors. The Directive is transposed into Irish law mainly by the Urban Waste Water Treatment Regulations 2001 (S.I. No. 254 of 2001).
The Waste Framework Directive 75/442/EEC (and amending legislation) 15th July	This Directive outlines the overall structure for an effective waste management regime within the EU. It mandates that EU States publish waste management plans. It requires system of permits and

1975	registrations to be put in place to minimise all waste management infrastructure, as well as setting down the basic requirements that need to be satisfied for these statutory authorisations to be issued. EU Urban Waste Water Treatment Directive (91/271/EEC) 1991 and Landfill Directive relate to this.
Landfill Directive (1999/31/EC)	Besides setting EU-wide standards for landfill design and operation, the Council Directive on Landfill mandates a series of targets to cause a substantial reduction of the land filling of biodegradable municipal waste by EU countries. Using the amount of waste landfilled by each EU state in 1995 as a baseline, it requires that biodegradable waste passing to landfill sites is reduced progressively to 35% of the 1995 level over a period of some 15 years. A national strategy is required to be published by each EU Member State on how this is to be achieved.
COMAH (Seveso II) Directive – European Communities (Control of Major Accident Hazards involving Dangerous Substances) Regulations, 2000.	The Seveso II Directive, sometimes referred to as COMAH, stipulates certain requirements for storage of relatively large quantities of substances classified as dangerous.
EU Major Accident (Seveso II) Directive (96/82/EC) 1996	This Directive aims to prevent major-accident hazards involving dangerous substances. Hazardous sites are identified that may pose a threat and development should be limited in the vicinity of such sites. The control of establishments for the purposes of reducing the risk, or limiting the consequences, of a major accident is a mandatory objective of a Development Plan.
Dangerous Substances Directive 76/464/EEC (S.I. 258 of 1998, S.I. 12 of 2001)	Dangerous Substances Directive 76/464/EEC creates a legislative framework for dealing with water pollution caused by an extensive list of dangerous substances. Member States are required to adopt pollution-reduction programmes that involve binding water quality objectives and a system of authorisations for discharges.
SEA	
Protocol on Strategic Environmental Assessment (SEA)	It develops from the ESPOO Convention by requiring Parties to evaluate the environmental and health related consequences of their official draft plans and programmes using Strategic Environmental Assessment (SEA). It was signed by Ireland in 2003.
SEA – Directive 2001/42/EC Assessment of the effects of certain plans and programmes on the Environment.	This Directive requires plan-makers to carry out an assessment of the likely significant environmental effects of implementing a plan or programme before it is adopted. There are two statutory instruments which transposed the SEA Directive into Irish Law: -European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004, S.I. No. 435 of 2004 (as amended by S.I. No 200 of 2011) - Planning and Development (Strategic Environmental Assessment) Regulations 2004, S.I. No. 436 of 2004 (as amended by S.I. No. 201 of 2011)
EIA	
ESPOO Convention	The Convention on Environmental Impact Assessment in an international Trans boundary Context is also known as ESPOO (EIA) Convention. It requires Parties/ states to put in place appropriate and effective measures to prevent, reduce and control significant adverse trans boundary environmental impacts from proposed industrial and other activities. Systems is to ensure that specified projects which may cause significant adverse trans boundary impacts are subject to environmental impact assessment (EIA) prior to any formal approval being granted on their commencement.
Environmental Impact Assessment Directive	It requires Member States to carry out environmental impact assessments (EIA) on certain public and private projects, where it is

85/337/EEC (as amended by Directive 97/11/EC)	believed that the projects are likely to have a significant impact on the environment.
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National Context

The policies and proposals contained in the Draft LAP are further influenced by the objectives of relevant National policies, plans and guidelines. **Table 3b** identifies these at National level and gives a brief summary of their main objectives.

Table 3b: National Regulatory and Policy Context

National Level	
Plan/ Programme/ Guidelines	Summary of Objectives
Sustainable Development	
Sustainable Development: A Strategy for Ireland (1997)	This Strategy minimises the need for good spatial planning and the inclusion of sustainability goals in urban and built environment policies.
Making Ireland Sustainable: Sustainable Development 2002	This reviews progress in Ireland since the Earth Summit in Rio. It outlines priorities for sustainable development action over the following decade.
Health Impact Assessment Guidance, Institute of Public Health, 2009	Seeks to inform and enhance the decision making process in favour of health and health equity. It provides a detailed methodology for completing HIA on plans, programmes or policies, in order to minimise positive health impacts and minimise potential negative impacts of a proposal.
Spatial Development	
National Spatial Strategy 2002-2020	A 20-year national planning framework to achieve more balanced social, economic and physical development across Ireland. The strategic guidance document is based in concentrating development to key areas across the country. The NSS supports economic growth and diversification across the west, including economies based on sustainable use of natural resources such as scenic landscapes for tourism, fisheries and marine based aquaculture, forestry and renewable energy.
National Development Plan (NDP) (2007-2013)	A €184 million infrastructure investment plan to build a prosperous country for Ireland's population. The funding is to provide for economic and social infrastructure, employment and human resources, productive sector as well as the peace programme.
The Planning and Development Act 2000 (as amended)	Under the Planning Acts, each Local Authority has a responsibility to determine policy in its area through the making of a Development Plan and for applying that policy, through planning control, in deciding on planning applications and enforcing planning.
Development Management Guidelines (DoEHLG)	These guidelines are of relevance to all types of planning applications, as well as applicants and their advisers, on the operation of the planning process. They are also intended to promote best practices within planning authorities.
Sustainable Residential Development in Urban Areas (Cities, Towns & Villages) Guidelines for Planning Authorities, 2009	These statutory guidelines assist in delivering quality residential development. The objective is to produce high quality sustainable developments:
Climate Change and Energy	

National Climate Change Strategy 2007 -2012	The purpose is to limit growth in greenhouse gas emissions. This strategy sets out how to achieve the targets from the Kyoto Protocol and identify areas where further research and development is needed to meet our 2020 commitment. Measures include increasing renewable energy production and using energy more efficiently.
Delivering a sustainable energy future for Ireland – the Energy Policy Framework 2007 -2020	This sets out energy policy for Ireland and states the commitment to increasing renewable energy
Building Ireland’s Smart Economy	Sets out the strategic approach to building a smart economy including renewable energy production
National Renewable Energy Action Plan 2010	This sets out measures on how Ireland will meet the 20% renewable energy target for 2020
Wind Energy Development Guidelines - Guidelines for Planning Authorities (DoEHLG, 2006)	The guidelines intend to ensure a consistency of approach throughout the country in the identification of suitable locations for wind energy development and the treatment of planning applications for wind energy developments. There are no wind energy locations identified in Oranmore LAP
The Planning System and Flood Risk Management Guidelines, OPW, 2009	Aims to integrate flood risk management into the planning process
Noise	
Noise Regulations 1994	These regulations, relating to the 1992 EPA Act, simplify and strengthen the procedures for dealing with noise nuisance, and give Local Authorities power to take action when they consider that it is necessary to do so in order to prevent or limit noise.
Air Quality	
Air Pollution Act 1987	This Act defines air pollution and enables Local Authorities to require measures to be taken to prevent or limit pollution
Air Quality Standards Regulations 2011 (S.I. No. 180/2011)	These Regulations transpose the Directive on ambient air quality and cleaner air for Europe (CAFE) into Irish law. They introduce a limit value to PM2.5 in addition to the existing limit values for PM10, nitrogen dioxide and oxides of nitrogen, sulphur dioxide, lead, ozone, carbon monoxide and benzene.
Transport & Communications	
Guidelines on Telecommunication Antennas and Support Structures, 1996	The Guidelines are intended to assist planning authorities in balancing the need for the comprehensive national provision of telecommunications services against local environmental and public health-related concerns.
NRA Spatial Planning and National Roads Guidelines, 2011	The aim of Guidelines is to ensure that roads planning and policy, and development planning and development management processes are appropriately and effectively aligned, in order to guide development to the most suitable locations to maximise the investment in the national roads network, while also in overall terms encouraging a shift towards more sustainable forms of travel and transport.
Waste	
Changing Our Ways (1998)	Sets out a national policy framework for the adoption and implementation by local authorities of their waste management plans. It reiterates the targets for the progressive reduction of the use of landfill for biodegradable municipal waste which are set down in the EU Landfill Directive, but adds further national targets such as for the reclamation of construction and demolition waste.

National Strategy for Biodegradable Waste, 2006	An aim is to set out how the three progressive landfill diversion targets of the Directive are to have effect. It states that a major increase in recycling and biological treatment capacity is necessary in order to facilitate the EU requirement for the diversion of biodegradable municipal waste away from landfill.
Biodiversity	
National Biodiversity Plan (2002)	It aims to secure the conservation, including where possible the enhancement and sustainable use, of biological diversity in Ireland and to contribute to conservation and sustainable use of biodiversity globally. Ireland is committed to meeting the EU target to halt the loss of biodiversity by 2010.
National Heritage Plan (2002)	The National Heritage Plan 2002 sets out a vision for the management of the National Heritage and its aim is to “ <i>ensure the protection of our Heritage and to promote its enjoyment by all</i> ”. A key objective of the National Heritage Plan is to promote the role that local communities play in protecting and enhancing Local Heritage. This is achieved through the preparation and adoption of Local Heritage Plans by the Local Authority.
Biodiversity Action Plan, EPA, 2010	The EPA’s Biodiversity Action Plan presents an explicit action plan for the implementation of its role in the protection of biodiversity. The Plan covers a range of activities in the areas of monitoring, research, assessment and reporting, environmental regulation, climate change and management and communications. The Plan outlines a wide range of significant actions, which will be undertaken by the EPA in relation to the protection of Ireland’s biodiversity.
Second National Biodiversity Plan 2011 Actions for Biodiversity 2011-2016	This recently launched plan has been developed in line with the EU and International Biodiversity strategies and policies. The measures Ireland will take are presented as 102 actions under a series of 7 Strategic Objectives. Some of the actions within the plan are continuing elements of existing work and many are requirements under existing EU Directives. The objectives cover the conservation of biodiversity in the wider countryside and in the marine environment, both within and outside protected areas; the mainstreaming of biodiversity across the decision making process in the State; the strengthening of the knowledge base on biodiversity; increasing public awareness and participation; and Ireland’s contribution to international biodiversity issues, including North South co-ordination on issues of common interest.
European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011)	These Regulations consolidate the European Communities (Natural Habitats) Regulations 1997 to 2005 and the European Communities (Birds and Natural Habitats) (Control of Recreational Activities) Regulations 2010, as well as addressing transposition failures identified in the European Court of Justice judgements.
Water	
Water Services Act 2007	Focuses on management of water ‘in the pipe’ as opposed to river water quality etc
Local Government (Water Pollution) Acts, 1977 and 1990	This Act and associated regulations set out quality standards for Phosphorus in surface waters, particularly rivers and lakes and makes other provisions for the protection of watercourses.
Water Quality (Dangerous Substances) Regulations 2001.	These Regulations give effect to the Dangerous Substances Directive 76/464/EC and the Water Framework Directive 2000/60/EC. They prescribe water quality standards and aim to ensure that, in relation to a substance present, where the existing condition of a water body does not meet a specific standard there shall be no further reduction in the condition of the water body.

<i>Environmental Objectives (Surface Waters) Regulations 2009' 2009 (S.I. No 272 of 2009)¹</i>	<i>Recently introduced surface water legislation that provides quality objectives for surface water.</i>
<i>Water Quality in Ireland 2007-2009' (EPA, 2011)</i>	<i>The latest report on water quality in Ireland by the EPA has found evidence of improvements in water quality in Ireland, though continued actions across a range of sectors are needed if Ireland is to achieve its European water quality obligations.</i>
<i>EU's Common Implementation Strategy for the Water Framework Directive (2000/60/EC) – Guidance Document No. 20, in particular Section 3.5 Key Issues for Article 4.7.</i>	<i>Under the Water Framework Directive, a Common Implementation Strategy (CIS) was developed in order to address the challenges in a co-operative and coordinated way and a series of guidance documents have been produced addressing a range of topics. Guidance Document No. 20 was not available at the WFD website or the Europa.website.</i>
<i>EC (Good Agricultural Practice for the Protection of Waters) Regulations 2010.</i>	<i>Agricultural regulations that implement Ireland's National Action Programme on the Nitrates Directive.</i>
Water Services Investment Programme 2007-2014	As part of the programme the Council has identified the resources needed to upgrade the City's existing water main infrastructure to ensure issues such as leakage and reduced pressure are addressed as a priority.
The Planning System and Flood Risk Management Guidelines 2009	These guidelines are aimed at ensuring a more consistent, rigorous and systematic approach to fully incorporate flood risk assessment and management into the planning system.
Western River Basin District Management Plan and Shannon International River Basin District	Sets out assessment and measures to ensure compliance with Water Framework Directive by 2015. County Galway includes two areas, West, which is west of Lough Corrib and Shannon which is in the east of the County.
Cultural Heritage	
Architectural Heritage Protection 2004-Guideines for Planning Authorities	These guidelines provide relevant guidance in the context of Part IV of the Planning and Development Act 2000.
Framework and Principles for the protection of the archaeological heritage 1999	Sets out archaeological policies and principles that should be applied by all bodies when undertaking or authorizing development.
Landscape	
Landscape and Landscape Assessment Guidelines 2000	A Landscape Character Assessment allows for a proactive approach to landscape management. It aids the development management process as it gives indicators of development types which would be suited to certain locations using certain design criteria and consequently the character of the landscape remains intact.
Issues Paper – National Landscape Strategy Draft	This issues paper was put on public display in 2011 and aims to raise awareness and discussion on the requirements for landscape management under the European Landscape Convention.
Strategic Environmental Assessment and Habitats Directive Assessment	
Strategic Environmental Assessment Regulations 2004-2011² as amended.	The objective of the SEA is to provide for a high level of protection of the environment and to promote sustainable development by contributing to the integration of environmental

¹ These references were included following a submission from the EPA

² EC (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011, (S.I. No. 200 of 2011), amending the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. No. 435 of 2004), and Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011, (S.I. No. 201 of 2011), amending the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (S.I. No. 436 of 2004).

	considerations into the preparation and adoption of specified Plans and Programmes. The requirements for SEA in Ireland are set out in the national Regulations stated.
DoECLG Circular (PSSP 6/2011) 26th July 2011 'Further Transposition of the EU Directive 2001/42/EC on Strategic Environmental Assessment (SEA).	Directs local government in relation to 'Further Transposition of the EU Directive 2001/42/EC on Strategic Environmental Assessment (SEA)'. Provides additional guidance and direction in relation to SEA and highlights key elements of recent regulations.
Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities 2009	These guidelines give advice relating to the implementation of Article 6 of the EU Habitats Directive in relation to plans and projects.
DoECLG Circular NPW1/10, PSSP 2/10 Appropriate Assessment under Article 6 of the Habitats Directive	Guidance for planning authorities on undertaking appropriate assessment under article 6 of the EU Habitats Directive.

Regional Context

The policies and proposals contained in the Draft LAP are further influenced by the objectives of relevant regional policies, plans and guidelines. *Table 3c* identifies and gives a brief summary of their main objectives.

Table 3c Regional Plans and Programmes

Regional Planning	
Regional Planning Guidelines for the West Region 2010 - 2022	These guidelines set out a framework for the long term strategic development of counties Galway, Mayo and Roscommon. These guidelines set out the strategic vision, economic development, settlement strategy, infrastructure, environment and amenity, social infrastructure and community development for the West Region.
Western River Basin District Management Plan 2009 -2015 & associated programme of measures.	This aims to protect all waters within the district and improve waters and achieve sustainable water use. Water management unit action plans are developed for smaller geographical areas within this river basin district.
Western CFRAM³s	<i>Catchment Flood Risk Assessment and Management (CFRAM) Studies and their product – Flood Risk Management Plans (FRMPs) – are at the core of the national policy for flood risk management and the strategy for its implementation. The study commenced in 2011 and is undergoing SEA at the moment.</i>
Replacement Waste Management Plan for the Connaught Region 2006-2011	A regional approach to integrated waste management based on the waste hierarchy established by the EU Framework Directive on Waste. Targets to be achieved by 2013 relate to 48% recycling, 33% energy recovery and 19% residual waste disposal. It covers Galway City, Counties Galway, Leitrim, Mayo, Roscommon and Sligo
County Galway Development Plan 2009-2015	This six year plan guides the development and core strategy for County Galway over a six year period. It includes the recent variation on the Core Strategy, a wind energy strategy and policies and objectives for economic development and tourism, housing provision, infrastructure (roads and transportation), infrastructure (water, waste, energy and communications), cultural , social and community development, heritage, landscape and environmental management, agriculture, mariculture and silviculture, development management

³ This was inserted following a submission by the EPA.

	standards and guidelines.
Galway County Development Board Strategy 2012	A Strategy for Economic, Social and Cultural Development "Working Together Shaping Our Future" 2002- 2012. This Strategy includes eight strategic themes. The County Strategy was reviewed in 2009. Five Strategic Priorities with 45 Priority Actions were agreed for 2009-2012.
County Galway Heritage Plan 2009 - 2014	A five year plan setting out objectives and actions for a wide range of heritage themes including biodiversity, landscape, archaeology,
County Galway Biodiversity Action Plan 2008-2013	Established vision, aims, objectives and actions to enhance and support biodiversity in the County.
Development Plans for Neighbouring Local Authorities	
The following plans set out the development and core strategy for the respective functional areas over a six year period:	
<ul style="list-style-type: none"> • Galway City Development Plan 2011-2017 • Mayo County Council 2008 -2014 • Roscommon County Council 2008 - 2014 • Clare County Council 2011- 2017 • Offaly County Council 2009 - 2015 • North Tipperary County Council 2010-2016 • Ballinasloe Development Plan 2009 -2015 	
There are also numerous Local Area Plans for areas within the County.	

4 Chapter Four Environmental Baseline

4.1 Introduction

This chapter describes the principal environmental parameters that are of relevance to both the functional area of Oranmore and its environs.. This SEA of the draft Oranmore LAP includes a description of the relevant aspects of the current state of the environment, the existing environmental problems, environmental characteristics of the areas likely to be significantly affected, and the likely evolution without implementation of the LAP. This section aims to describe the environmental context within which the LAP will operate and the constraints and targets that this context imposes on the LAP. Finally, any significant gaps in the baseline data are identified and alternative data sources identified. The purpose of this section is to provide enough environmental baseline data to:

1. Support the identification of environmental problems;
2. Support the process of assessing the environmental effects;
3. Provide a baseline against which future monitoring data can be compared.

The following sections provide information on the environmental parameters below:

- Biodiversity – Flora and Fauna;
- Water – surface, ground, estuarine, coastal, shellfish
- Soil and Geology
- Population and Human Health
- Landscape
- Cultural Heritage – archaeology and architectural resources
- Air Quality and Climatic factors
- Material Assets including transport, flooding, waste, noise, waste water and water services.
- Interrelationship between these parameters

Whilst all environmental parameters are described, certain parameters are identified as being of greater significance and may be subject to greater impacts associated with the implementation of the Oranmore LAP. In addition, certain parameters and key elements of same were identified in predraft and scoping submissions of meriting particular scrutiny; therefore the focus on this chapter reflects these comments.

In particular the following areas⁴ are described in some detail:

1. Protection of Biodiversity
2. Water Quality and Management
3. Flood risk
4. Transport Infrastructure

4.1.2 Defining the descriptive areas and zones of influence

Through the assessment of zoning, policy and objectives the Draft LAP will aim to support the sustainable development of Oranmore over a six year period. Therefore, the baseline data is principally focused on the functional area of Oranmore and its immediate environs. However, a zone of influence of the draft LAP depends on the environmental parameter described and are detailed within each relevant section. For example, water quality impacts could extend beyond the town boundary for some distance, whilst visual impacts may be identified for areas beyond the County Boundaries; conversely impacts on individual archaeological sites may be site specific.

⁴ Please see Table 2a and 2b for further information on these environmental parameters and identification of consultee who proposed same.

Information, where relevant, is included from neighboring counties including Galway City, Roscommon, Offaly, Clare, North Tipperary and Mayo. Considering the location of Oranmore, it is considered that the neighbouring counties/administrative areas most likely to be impacted are Galway City and County Clare; however information will be included subject to the parameter under discussion. The boundary area of Oranmore as covered by the draft LAP is 708.6 Ha.

4.2 Biodiversity, Flora and Fauna.

County Galway supports a range of designated and undesignated habitats and species. Oranmore is located on the county Galway coastline, and part of the plan area lies within two Natura 2000 sites, the large Galway Bay Complex (SAC code 000268; this is also a designated SPA Inner Galway Bay site code: 4031) and Creganna Marsh SPA (site number 004142). Consultation with the Department of Arts, Heritage and the Gaeltacht has advised on the scope of the SEA to include the following;

- All sites with nature conservation designations
- Available information on habitats and habitat indicator mapping
- Ecological networks. Corridors and stepping stones
- Available information on rare and protected species and their habitats
- All watercourse, surface water bodies and associated wetlands including floodplains and flood risk areas
- Other sites of high biodiversity value
- Local biodiversity areas

This forms the structure of this section.

4.2.1 Natura 2000 Sites

Reflecting the diversity of habitats and species present within the County, there are a significant number of sites designated at International, National and county level. The Habitats Directive Assessment assesses in more detail potential impacts of this draft LAP on Natura 2000 sites (Special Areas of Conservation and Special Protection Areas under the EU Habitats Directive). The following table identifies Natura 2000 sites within 5km and 15km of the draft LAP functional area. This is also shown in Figure 4.a

Table 4a: Natura 2000 sites within 5km and 15km of Oranmore.

SACs within Oranmore boundary	Summary
Galway Bay Complex (SAC code: 000268)	This large coastal site is of immense conservation importance, with many habitats listed on Annex I of the EU Habitats Directive, four of which have priority status (lagoon, <i>Cladium</i> fen, turlough and orchid-rich calcareous grassland). The examples of shallow bays, reefs, lagoons and salt marshes are amongst the best in the country. The site supports an important Common Seal colony and a breeding Otter population, both species that are listed on Annex II of the EU Habitats Directive, and six regular Annex I EU Birds Directive species. The site also has four Red Data Book plant species, plus a host of rare or scarce marine and lagoonal animal and plant species. Oranmore is located on the coast and part of the town boundary lies within this site.
SACs within 15km	
000297 Lough Corrib	Lough Corrib is situated to the north of Galway city and is the second largest lake in Ireland with an area of approximately 18,240 ha (the entire site is 20,556 ha). The lake can be divided into two parts: a relatively shallow basin, underlain by Carboniferous limestone, in the south and a larger, deeper basin, underlain

	<p>by more acidic granite, schists, shales and sandstones, to the north. The surrounding lands are mostly pastoral farmland, to the south and east, and bog and heath, to the west and north. Rivers, mainly to the east of the site are included within the cSAC as they are important for Atlantic Salmon. These rivers include the Clare, Grange, Abbert, Sinking, Dalgan and Black to the east, as well as the Cong, Bealanabrack, Failmore, Cornamona, Drimneen and Owenriff to the west. In addition to the rivers and lake basin, adjoining areas of conservation interest, including raised bog, woodland, grassland and limestone pavement, have been incorporated into the site.</p> <p>This site is of major conservation importance and includes 14 habitats listed on Annex I of the E.U. Habitats Directive. Six of these are priority habitats - petrifying springs, <i>Cladium</i> fen, active raised bog, limestone pavement, bog woodland and orchid-rich calcareous grassland. The other annexed habitats present include hard water lakes, lowland oligotrophic lakes, floating river vegetation, alkaline fens, degraded raised bogs, Rhynchosporion vegetation, <i>Molinia</i> meadows and old Oak woodlands. Species present on the site that are listed on Annex II of this Directive are Sea Lamprey, Brook Lamprey, Atlantic Salmon, White-clawed Crayfish, Freshwater Pearl Mussel, Otter, Lesser Horseshoe Bat, Slender Naiad and the moss <i>Drepanocladus vernicosus</i>. Lough Corrib is also designated a SPA.</p> <p>This site is located approximately 5km to the north west of Oranmore</p>
000322 Rahasane Turlough	<p>This site is located to the southeast of Oranmore approximately 7km from the town boundary. Rahasane Turlough is of major ecological significance as one of only two large turloughs which still function naturally. It is the most important turlough for birdlife in the country. It also supports two rare species listed in The Irish Red Data Book. Fen Violet (<i>Viola persicifolia</i>), and Northern Yellow-cress (<i>Rorippa islandica</i>), which is listed in The Irish Red Data Book.</p> <p>Turloughs are a rare habitat type and are given priority status under Annex I of the European Habitats Directive. Both Rahassane Turlough and Cregganna Marsh are associated as birds move between the two sites.</p>
000242 Castletaylor Complex	<p>Castletaylor Complex. This site is situated approximately 9 km south-east of Oranmore and lies in a gently undulating limestone topography. Although relatively small in area, the site contains a diverse range of habitats, including five EU Habitats Directive Annex I habitats - turloughs, limestone pavement, orchid-rich calcareous grassland, alpine heath and juniper scrub. The first three of these are listed as priority habitats under the Directive.</p>
000606 Lough Fingall Complex	<p>This site is situated immediately south-east of Ballindeereen and within 2-3 km of Galway Bay. It is within the stretch of flat low-lying bare limestones known as the Ardrahan limestones, which extend from the foot of the Burren hills northwards towards Craughwell. The site comprises a complex of habitats, the dominant being turloughs and limestone pavement, both of which are priority Annex I habitats on the EU Habitats Directive. The turloughs are oligotrophic (nutrient-poor) and calcareous in character. Their catchments areas are relatively small and water tends to remain in them for considerable periods of time. The surface waters usually occupy distinct separate basins in most years but during extreme floods these can be linked together as one large expanse of open water. Taken together these turloughs represent one of the largest expanses of oligotrophic turlough vegetation in the country. Ballinderreen turlough occupies a flat limestone pavement basin and supports extensive areas of Black Bog-rush (<i>Schoenus nigricans</i>) and Sedge (<i>Carex</i> spp.) fen vegetation. Marl ponds occur in the lower lying parts, with Shoreweed (<i>Littorella uniflora</i>), Bulbous Rush (<i>Juncus bulbosus</i>), Manystalked Spike-rush (<i>Eleocharis multicaulis</i>), Alternate Water-milfoil (<i>Myriophyllum alternifolium</i>) and a little Horned Pondweed (<i>Zannichellia palustris</i>) and Stonewort (<i>Chara hispida</i> var. <i>major</i>). Rare plants found at this turlough include Fen Violet (<i>Viola persicifolia</i>), a Red Data Book species, Water Germander (<i>Teucrium scordium</i>) and Marsh Fern (<i>Thelypteris palustris</i>). A smaller area to the south-east of Ballinderreen,</p>

	<p>Frenchpark turlough, contains a Black Bog-rush/Purple Moor-grass (<i>Molinia caerulea</i>) stand with patches of Saw Sedge (<i>Cladium mariscus</i>) within it. Cuildooish turlough is of linear shape with a high central section. It has level limestone pavement forming its eastern side and is alligned and lies parallel with Lough Fingall, which is effectively also a turlough.</p> <p>There is much Buckthorn (<i>Rhamnus catharticus</i>) scrub here and at the northern end of the main lake. Carraghadoo turlough has a shallow basin without standing water in summer and with less peat. Creeping Willow (<i>Salix repens</i>) and Common Sedge (<i>Carex nigra</i>) are the main species here. The shores of Tullaghnafrankagh Lough flood during winter and have a similar if slightly more eutrophic (nutrient-rich) vegetation. Alder Buckthorn (<i>Frangula alnus</i>), a Red Data Book species, grows on sloping limestone pavement close to the limit of winter flooding in several places. This site is located approximately 4.5 km to the south of Oranmore.</p>
0002244 Ardrahan Grassland	<p>This site lies immediately west and north of Ardrahan in south Co. Galway. It is dominated by a large flat limestone area with a mosaic of calcareous habitats including limestone pavement, alpine heath, Juniper scrub and species rich dry grasslands. In contrast, the south west of the site consists of a small marl lake and adjoining fens and marshes with Juniper heath frequent on the higher ground. Soils associated with limestone pavement are generally thin rendzina, deeper pockets are more mineral rich and support limestone grassland and scrub in places.</p> <p>The site contains a good example of limestone pavement, a priority habitat listed on Annex I of the EU Habitats Directive, a small though excellent example of the Annex I habitat alpine heath, along with one other Annex I habitat, Juniper scrub. Of particular note is the abundance of Bearberry (<i>Arctostaphylos uva-ursi</i>) and Juniper (<i>Juniperus communis</i>) in association with a typical Burren flora including such species as Mountain Aven (<i>Dryas octopetala</i>), Spring Gentian (<i>Gentiana verna</i>) and various orchid species including Fly Orchid (<i>Ophrys insectifera</i>). The southern and western part of the area is of significant interest due to the low intensity of management in the area. This site is located approximately 8km to the south east of Oranmore.</p>
001285 Kiltiernan Turlough	<p>Kiltiernan Turlough is a simple, linear depression running south-westwards from the main Galway-Limerick road. It has a flattish basin which lies approximately 2 m below road level and includes about eight further depressions which are joined in times of high water. The site includes a low ridge on the south-eastern side. Towards the west the topography becomes flatter and the basin breaks into separate hollows. The site comprises a relatively dry turlough with a limited, though regular, flood in winter. The vegetation is predominantly of species-poor grassland dominated by White Clover (<i>Trifolium repens</i>), Silverweed (<i>Potentilla anserina</i>) and Creeping Bent (<i>Agrostis stolonifera</i>), with some areas of species-rich grassland found in the western half. Beside the road, the rocky outcrops support limestone grassland with narrow fringes of scrub along each side. The scrub is predominantly of Blackthorn (<i>Prunus spinosa</i>), but some Buckthorn (<i>Rhamnus catharticus</i>) and Alder Buckthorn (<i>Frangula alnus</i>), a rare Red Data Book species, also occur. This site is located approximately 8km to the south east of the town.</p>
SPAs within town boundary	Summary
004142 Cregganna Marsh	<p>Cregganna Marsh is situated partly within the town boundary and in the southern part of Oranmore. The predominant habitats on the site are lowland wet grassland and improved grassland, but areas of limestone pavement and other exposed rock, Hazel (<i>Corylus avellana</i>) scrub, freshwater marsh, drainage ditches and dry grassland are also represented. The site is of major conservation importance as a feeding site for a nationally important flock of Greenland White-fronted Geese. The birds using this site form part of the Rahasane flock (5 year mean of winter maximum, 1995/96 to 1999/00 of 166 individuals). Greenland White-fronted Goose is a species that is listed on Annex</p>

	I of the EU Birds Directive. This site is associated with Rahassane Turlough further east.
004031 Inner Galway Bay	Galway Bay is one of the most important ornithological sites in the western region. It supports an excellent diversity of wintering wetland birds, with divers, grebes, cormorants, dabbling duck, sea duck and waders all well represented. There are internationally important wintering populations of Great Northern Diver (83) and Brent Goose (676), and nationally important populations of an additional sixteen species, i.e. Black-throated Diver (25), Cormorant (266), Mute Swan (150), Wigeon (1,157), Teal (690), Shoveler (88), Red-breasted Merganser (249), Ringed Plover (335), Golden Plover (2,030), Lapwing (3,969), Dunlin (2,149), Bar-tailed Godwit (447), Curlew (697), Redshank (505), Greenshank (20) and Turnstone (182) – all figures are average peaks for the 5 seasons 1995/96-1999/00. Of note is that the populations of Red-breasted Merganser and Ringed Plover represent 6.7% and 3.3% of the respective national totals. Black-throated Diver is a scarce species in Ireland and the Galway Bay population is the most regular in the country. Other species which occur in notable numbers include Little Grebe (35), Grey Heron (102), Longtailed Duck (19) and Scaup (40). The bay is an important wintering site for gulls, especially Black-headed Gull (1,815), Common Gull (1,011) and Herring Gull (216). In addition, the following species also use the site: Red-throated Diver (13), Great Crested Grebe (16), Mallard (200), Shelduck (139), Common Scoter (79), Oystercatcher (575), Grey Plover (60), Black-tailed Godwit (45) and Great Blackbacked Gull (124). The site provides both feeding and roost sites for most of the species, though some birds also commute to areas outside of the site. Oranmore is located on the coast and adjoins the Galway Bay Complex. Parts of the town boundary lie within the SPA.
SPAs within 15km	Summary
004089 Lough Rahasane Turlough	Rahasane, is designated both SAC and SPA and is considered to be the most important turlough in the country for wintering waterfowl. It is a traditional site for Greenland White-fronted Goose, and supports a population of national importance (218 individuals) - all figures are average peaks for the period 1995/96-1999/00. It also has nationally important populations of Whooper Swan (141), Wigeon (3,630), Pintail (21), Golden Plover (6,626), Lapwing (2,220) and Black-tailed Godwit (435). The Shoveler population (29) is very close to the threshold for national importance. The site has the largest inland population of Dunlin (864) in the country, and also supports Mute Swan (76), Teal (367), Tufted Duck (32), Curlew (197), Redshank (149), Mallard (124), Black-headed Gull (280) and Grey Heron (31). As at all turlough sites, numbers of birds present can vary considerably owing to fluctuations in water levels. The site has long been known as an important waterfowl site and has been monitored annually in recent years.

The Galway Bay Complex SAC, the Inner Galway Bay SPA (to be referred to as the Galway Bay Natura 2000 Sites) and Cregganna Marsh represent the Natura 2000 sites that can be directly influenced or impacted by the Oranmore LAP. Photo 1 below shows the Oranhill area in the southern part of the plan with an area of grassland looking over towards the Cregganna Marsh SPA. Photo 2 shows Galway Bay SAC with views north towards the townland of Garraun.



Photo 1: Oranhill looking towards Creganna Marsh SPA



Photo 2: Views north across Galway Bay SAC towards Garraun

4.2.2 OSPAR and Ramsar

Under the OSPAR Convention to Protect the Marine Environment of the North East Atlantic, Ireland committed to establishing marine protected areas to protect biodiversity (i.e. OSPAR

MPAs). No legislation is currently in place in Ireland to legally underpin protected areas established to fulfil commitments under International conventions. Therefore, since the creation of OSPAR MPAs would not afford any legal protection to the relevant areas on their own, Ireland (like other OSPAR contracting Parties) established a number of its SACs as OSPAR MPAs for marine habitats. Galway Bay through its designation as a SAC, is considered to be an OSPAR site also.

Ramsar sites are designated and protected under the Convention of Wetlands of International

Importance, especially as Water Fowl Habitat, established at Ramsar in 1971 and ratified by Ireland in 1984. Inner Galway Bay is also a designated Ramsar site and covers an area of 11,905ha. As described above in Table 4a, this is a very significant and extensive site. It provides important marine habitat and the richest seaweed flora on the Irish coast (more than 500 species).

4.2.3 Natural Heritage Areas (NHAs)

The basic National designation for wildlife is the Natural Heritage Area (NHA). This is an area considered important for the habitats present or which holds species of plants and animals whose habitat needs protection. NHAs within the county represent a significant biodiversity resource and again, the range of habitats and species found in these sites vary considerably. Table 4b below describes the NHAs and proposed NHAs located within 5km and 15km of Oranmore. Figure 4b shows NHAs designations and proposed NHAs, there are no nature reserves within a 5km buffer of Oranmore. Please note that these synopses are based in many cases on old survey data and may not accurately reflect the status of the site at the current time (source: NPWS).

In addition, there is an area in the townland of Moneyduff, adjacent to the SAC Cregganna Marsh, that was formerly proposed for NHA designation. Based on the information available from the NPWS, the lands in question were surveyed by ecologists in late August 2006 on behalf of NPWS. The survey confirmed the presence of species-rich calcareous grassland and dry heath habitats with outcropping limestone and some Juniper but with scrub and bracken encroaching in places. Species listed include *Briza media*, *Campanula rotundifolia*, *Rosa pimpinellifolia*, *Lotus corniculatus*, *Centaurea nigra*, *Galium verum*, *Potentilla erecta*, *Leucanthemum vulgare*, *Polygala serpyllifolia*, *Carex flacca* and *Fragaria vesca*. Frequent ant hills and *Thymus praecox* were also noted, indicating the unimproved/undisturbed nature of this grassland. This suggests a mosaic of possible Annex I habitats occurs in this area. Recent aerial photos suggest little has changed although scrub may have been cleared. Although not designated, it remains an area of high ecological value.

Table 4b: Natural Heritage Areas and Proposed Natural Heritage Areas within 5km and 15km of Oranmore.

NHAs within 5km		
Site Code	Site Name	Summary
000253	Cregganna Marsh	Designated NHA. Located partly within Oranmore
pNHAs within 5Km		
Site Code	Site Name	Summary
00268	Galway Bay Complex	Also designated a Natura 2000 site and is described in Table 4a above.
NHAs within 15Km		
Site Code	Site Name	Summary
002364	Moycullen Bog	Moycullen Bogs NHA is an extensive area of lowland blanket

		<p>bog in an area of high landscape beauty. The site supports a diversity of habitats including large areas of intact blanket bog, wet heath, dry heath, alkaline fen and revegetating cutaway. The main habitat on the site is blanket bog, usually dominated by Purple Moor-grass (<i>Molinia caerulea</i>), Cross-leaved Heath (<i>Erica tetralix</i>) and Ling Heather (<i>Calluna vulgaris</i>). Other species present include Common Cotton-grass (<i>Eriophorum angustifolium</i>), Hare's-tail Cottongrass (<i>Eriophorum vaginatum</i>), Bog Asphodel (<i>Narthecium ossifragum</i>), Black-bog Rush (<i>Schoenus nigricans</i>), Tormentil (<i>Potentilla erecta</i>), Heath Milkwort (<i>Polygala serpyllifolia</i>), Deergass (<i>Scirpus cespitosus</i>), Carnation Sedge (<i>Carex panicea</i>) and Bog-myrtle (<i>Myrica gale</i>). Bog mosses present include <i>Sphagnum papillosum</i>, <i>S. imbricatum</i> and <i>S. capillifolium</i> with mosses <i>Hypnum cupressiforme</i>, <i>Racomitrium lanuginosum</i> and <i>Leucobryum glaucum</i> and the liverwort <i>Odontoschisma sphagnii</i>. The lichen <i>Cladonia portentosa</i> also occurs.</p> <p>Extensive pool systems are found at Laughill. These are interspersed with lawns of White Beak-sedge (<i>Rhynchospora alba</i>), Bog Asphodel, mosses (<i>Campylopus atrovirens</i> and <i>C. introflexus</i>), Lousewort (<i>Pedicularis sylvatica</i>) and hummocks of the moss <i>Racomitrium lanuginosum</i>. The site supports Irish Red Data Book species Red Grouse and several additional notable species of fauna including Irish Hare, Common Frog, Snipe, Curlew, Fox, Kestrel and Lapwing.</p> <p>Peat cutting (both mechanical and hand) is the dominant land use at present, while grazing pressure by donkey, cattle and ponies is low but locally damaging. Sheep appear to be absent.</p>
pNHAs within 15Km		
Site Code	Site Name	Summary
000606	Lough Fingall Complex	Designated pNHA. This site is located close to Castletaylor and Kiltiernan Turlough to the southwest of Oranmore, and is also designated a SAC.
000252	Coole-Garryland Complex	Designated pNHA. This site is located within approximately 14.9 km of Oranmore
000228	Ballycuirke Lough	Designated pNHA. This site is located within approximately 13.9 km of Oranmore
001926	East Burren Complex	Designated pNHA. This site is located within approximately 13.6 km of Oranmore
00268	Galway Bay	Also designated a Natura 2000 site and is described in Table 4a above. Located approximately 12km of Oranmore
000322	Rahasanne Turlough	Located approximately 8km southeast of Oranmore. This is an important turlough and habitat for overwintering birds. It is also designated a SPA and a description is provided in the previous table.
000242	Castletaylor Complex	Designated pNHA. This site is located within approximately 9km of Oranmore
001285	Kiltiernan Turlough	This site is also designated a SAC. A description is provided in the preceding table. It is located approximately 9km south of Oranmore
000297	Lough Corrib	Designated pNHA. This site is located within approximately 7km of Oranmore
000287	Kiltullagh Turlough	Designated pNHA. This site is located approximately 3km to the north of Oranmore and neighbours the Lough Lurgeen Bog/Glenamaddy Turlough NHA, and is possibly itself a turlough.
		The three lakes together provide a good habitat for waterfowl.

		<p>At Kiltullagh counts (from 1984/85 – 86/87) for waterfowl are – Mute Swan (20), Whooper Swan (12), Wigeon (346), Teal (59), Mallard (196), Tufted Duck (152), Ringed Plover (6), Golden Plover (303), Lapwing (86) and Curlew (59). Golden Plover and Whooper Swan are species listed in Annex I of E.U. Birds Directive. With its close association with the Lough Lurgeen Bog/Glenamaddy Turlough NHA, and its importance for waterfowl, this site is of scientific importance and should be preserved. Threats are from drainage and eutrophication from farming practices. It is likely that there is very species-rich grassland on eskers running down into the turlough.</p>
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4.2.4 Habitats, Habitat Indicator Mapping and Ecological Networks.

Figure 4c shows the Corine land use classification for Oranmore and environs. As this shows, the principal land use in the area surrounding the town is pasture, with areas of agricultural land and semi natural and natural vegetation.

The various habitats in the County form part of an “ecological network” that facilitates the movement of species between areas and ensures the effective functioning and survival of the diverse range of habitats and species in the County. Ecological networks provide a spatial, network-based approach to the conservation of biodiversity, which differs from the site-based approach of environmental designations, by using ‘corridors’ or ‘stepping stones’ that support species migration, dispersal and daily movements between the ‘core areas’ and thereby contribute to a more integrated and functional ecological system. Ecological networks are supported at EU level through the *European Spatial Development Perspective* and *Natura 2000* and underpin the *Pan-European Biological and Landscape Diversity Strategy* (PEBLDS), which has been ratified by Ireland. Research has been carried out into a National Ecological Network for Ireland as part of the preparation of the *National Spatial Strategy 2002-2020* in a report entitled the *Preliminary Study of the Needs Associated with a National Ecological Network 2001*. This study proposes the classification of open space areas according to their ecological functioning or ‘naturalness’ ranging from Class 1 (predominantly natural areas of high biodiversity) to Class 5 (low biodiversity areas such as continuous urban fabric). These classifications have been used to identify the major elements of an ecological network for the County.

Figure 4d shows the ecological network classification for Oranmore and environs. As this map shows all the area is predominantly classified as either class 3 or 4. This classification is based on the Corine 2000 land data and class three refers to transitional woodland scrub and class 4 as complex cultivation pattern. In terms of ecological significance, 1 ranks the highest and 5 (continuous urban fabric) as the lowest value. The area identified as class 1, straddling the town boundary in the north east, corresponds to the natural and seminatural vegetation from Corine. The area classified as class 2 is the wetland areas around the southern boundary of the town. Ensuring ecological connectivity around and between these kind of habitats is an important consideration in landuse planning. Class 5 is present in the industrial area north of the R446 and N18.

More generally, for an area surrounded by rural hinterland such as Oranmore, the pasture, hedgerows, water features and coastal habitats all offer ecological connectivity. Hedgerows are a familiar landscape feature, as well as providing food and shelter for insects, birds and other animals, hedgerows also act as important corridors. Typically, older, denser hedges support a greater abundance and diversity of wildlife.

As traditional species-rich grasslands decline, grassy roadside verges and other marginal grasslands act as important habitats and ecological networks for many species of wild flowers and the invertebrates they support. Because of a management regime which is generally of

low-intensity, many grassy verges growing along roads contain a great variety of wild flowers. In addition, man made structures such as stone walls, bridges and buildings can also be very important for wildlife and provide feeding, hibernating and roosting sites for many species of invertebrates, birds and bats. A diversity of mosses, lichens and other plants are often found on old stone built structures.

4.2.4 Watercourses, surface water bodies and associated wetlands including floodplains and flood risk areas

Oranmore supports a complex hydrogeological system with tidal water, rivers, springs and wetlands present within and adjoining the plan area and therefore careful consideration is required on any impacts on hydrology and water quality.

The Water Framework Directive Website identifies the surface water body status for the area around Oranmore as 'good' in ecological terms. The Frenchfort River is also classified as good in ecological terms. Figure 4e presents the data from the River Basin Management Plan 2009 -2015 and shows river subcatchment water quality. This shows the majority of the town is designated as 'good', whilst a pocket in the southern part of the boundary is identified as poor.

The management objective is to restore the surface water quality to 'good' by 2021 and it is currently classified as 1a 'At risk' (for not meeting the 2015 Water Framework Directive Objective of Good Status Water Quality). The associated report identifies both point and diffuse source pollutants to the water course, principally around insufficient wastewater treatment infrastructure, Section 4s (licenses to discharge sewage/effluent) and point sources such as nutrient input from agricultural sources. Figure 4f shows Freshwater Natura 2000 sites within 5km and 15km buffer of Oranmore.

4.2.5 Lakes, Wetlands and Floodplains

Lough Corrib is the closest lake to the plan area with a 'Moderate' surface water ecological status (WFD). It is an objective of the River Basin Management Plan for the Western RBD to restore Lough Corrib to a favourable conservation status by 2015. It can be noted that Lough Corrib is also a designated SAC (Code: 000297)

Wetlands are present around Oranmore. Creganna Marsh (SPA and pNHA) and Carrowmoneash Fen represent important wetlands within the area. The latter was subject to illegal dumping in the 1990s and was proposed for development for residential houses. A hydrological report commissioned by ABP highlights the association with flood plains, sealing of soils and impacts on floodplains.

In addition, areas of alkaline and calcareous fen are present adjoining residential zonings in Oranhill and Moneyduff; the latter a priority habitat of the Galway Bay Complex SAC and the Creganna Marsh SPA. Land in this area are situated on elevated terrain that overlooks the Creganna Marsh SPA. Four distinct areas of alkaline fen occurs inland from the coast within or immediately adjacent to the Plan area. The fen habitats are situated in the townland of Moneyduff, Rocklands/Moneymore East, Rinn and Frenchfort. Both common seals and otters are known to occur in Oranmore Bay. Common seal haul out sites occur within inner Oranmore Bay. The EPA report Water Quality in Ireland 2007 – 2009 (2010) classed the Inner Galway Bay, which includes Oranmore Bay, as unpolluted. An assessment of dissolved oxygen concentrations in estuarine and coastal waters around Ireland in 2009 (O'Boyle et al, 2009) found slightly elevated BOD levels (4 -6 mg/l O₂ in Inner Galway Bay).

A survey undertaken in 2007 for the BIOCHANGE project noted the unfavourable condition of the alkaline fen habitat at Frenchfort in the Galway Bay Complex SAC. This alkaline fen habitat is dominated by Schoenus fen and Cladium and Phragmites swamp on mineral soils.

Hoverfly (*Diptera, Syrphidae*) and snail-killing (*Diptera, Sciomyzidae*) invertebrate data collected during the BIOCHANGE surveys were analysed to assess the status of the fen habitat. These invertebrate groups are indicators of ecological status within fen habitats and the results of this analysis suggested that the alkaline fen at Frenchfort was not functioning as a wetland site for these invertebrate indicator groups. The alkaline fen at Frenchfort is fed by two springs at its eastern end: Loughannawillin and the Fishpond Spring. The status of these springs were considered to be favourable however the presence of drains within the wetland is resulting in the drying out of the wetland site.

Turloughs are of international significance and Rahassane Turlough, located approximately 8km south east of Oranmore is the most important turlough nationally for wintering wildfowl populations and nesting waders in summer. It supports a number of plants listed on the Irish Red Data book, and is one of few turlough systems remaining in the country to function naturally. It is hydrologically connected to the Dunkellin River which traverses the turloughs. In addition, use of Creganna Marsh as an occasional feeding ground for Greenland White-fronted Geese has been established for some time (see Rutledge and Ogilvie, 1979, Fox et al. 1994). However, the main feeding area for the populations associated with Creganna Marsh is at Rahassane Turlough to the southeast. Therefore impacts to Creganna Marsh may affect Rahassane Turlough bird populations. In addition, such turloughs are particularly sensitive to eutrophication.

Further information on flood plains and flood risk (coastal, pluvial, fluvial and groundwater) within and near the plan area is provided in the Material Assets Section of this chapter.

4.2.6 Key Biodiversity, Flora and Fauna Problems.

Oranmore contains a number of internationally important habitats, several of which occur close to or within the town boundary.

The management and continued functioning of these ecological systems present a considerable challenge. Maintaining good water quality is of paramount importance as both surface, groundwater (which feeds the fens and wetlands), and coastal water can all be impacted by inappropriate development or landuse zonings. Pollution due to excessive nutrients causes a decrease in fish populations (such as Salmon species which are particularly sensitive). Effluents enters water bodies from point and diffuse pollution sources such as storm outflows, sewage discharges, engineering works, forestry, agriculture and industrial discharges. This results in eutrophication (overenrichment) and habitat destruction. Certain habitats such as turloughs and marshes are especially sensitive to eutrophication.

Pressures associated with increased housing and human presence in areas close to designated sites such as Creganna Marsh may be manifested in a variety of ways through direct disturbance of qualifying habitats (eg. trampling in fen areas) and species (eg disturbance of grazing Greenland White-fronted Geese of the Creganna Marsh SPA) or indirectly by interfering with groundwater, springs and surface watercourses.

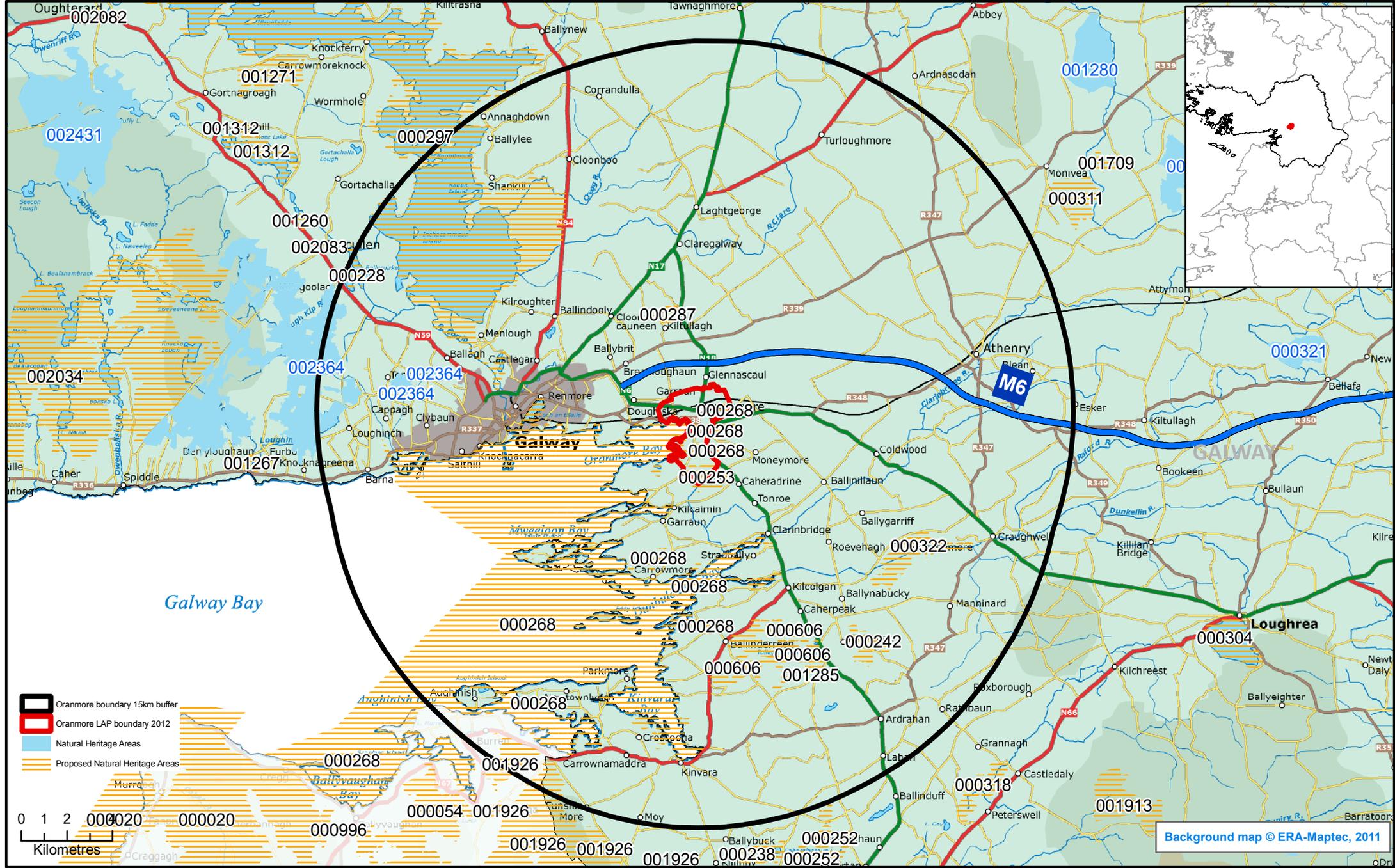
Other pressures include loss of habitat through development on greenfield sites and localised adverse impacts on ecological networks through loss or damage to linear features such as hedgerows, riparian vegetation or stone walls. Habitat fragmentation can also arise due to infrastructural developments including road projects. Recreational pressure may arise with associated disturbance to certain species.

4.2.7 Evolution of biodiversity, flora and fauna in the absence of the LAP

In the absence of a LAP there would be no framework directing developments to appropriate locations in and around Oranmore and planning applications would be assessed on an

individual site specific basis with flora and fauna, habitats and ecological connectivity protected under a number of higher level policies and objectives. Development proposals would be assessed in a piecemeal manner and cumulative impacts in particular would not be captured adequately.

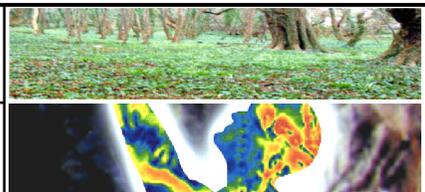
Areas designated as being of natural environmental significance (Natura 2000 network, NHAs, pNHAs, Ramsar etc) and undesignated areas of significant habits and species in the plan area and within a zone of influence of the plan area merits close scrutiny and strategic planning of land uses in order to avoid increasing pressures on this resource.



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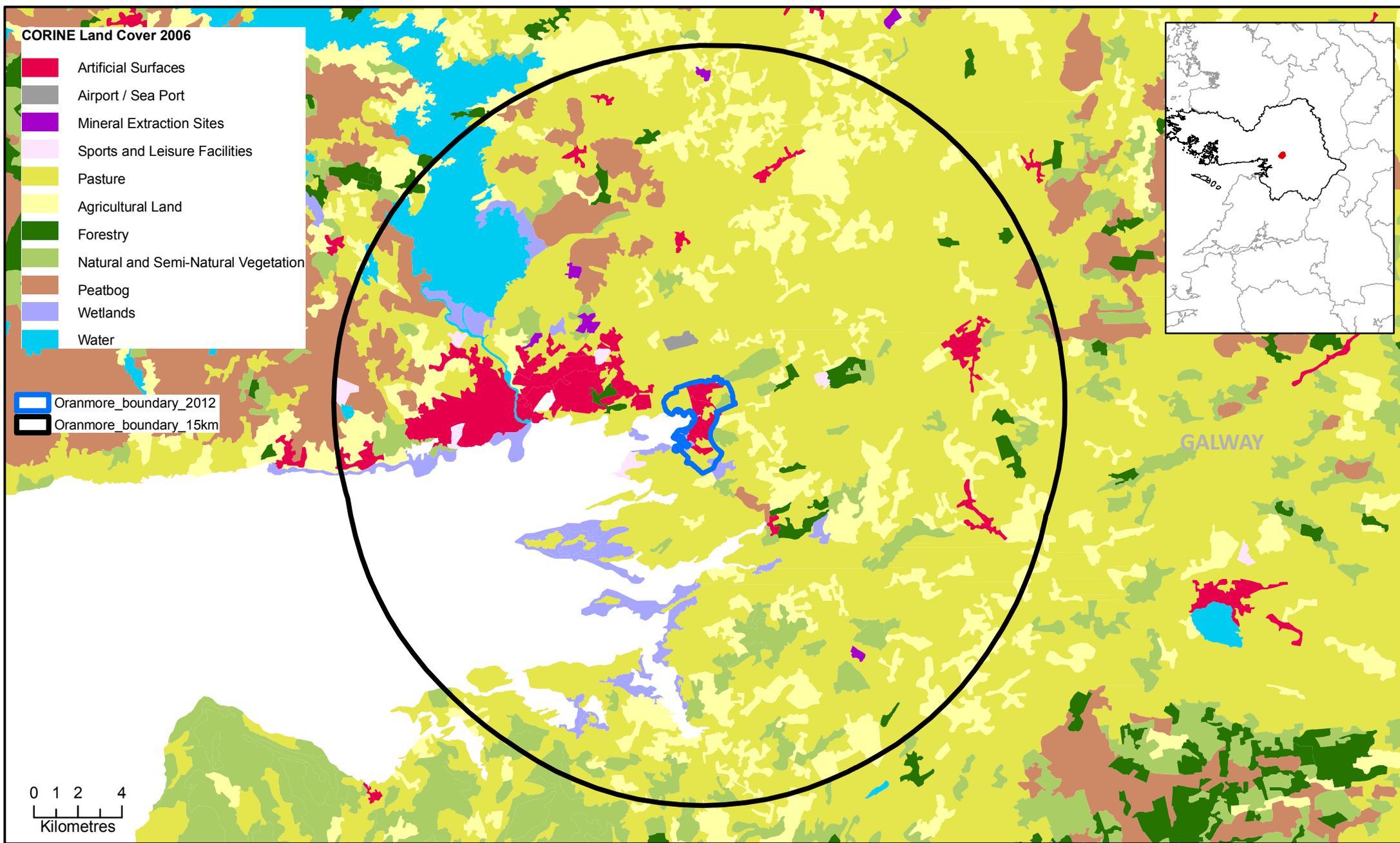
FIGURE 4b: NHAs AND PROPOSED NHAs

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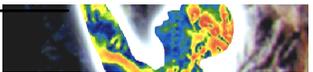
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FIGURE 4c: CORINE LANDUSE

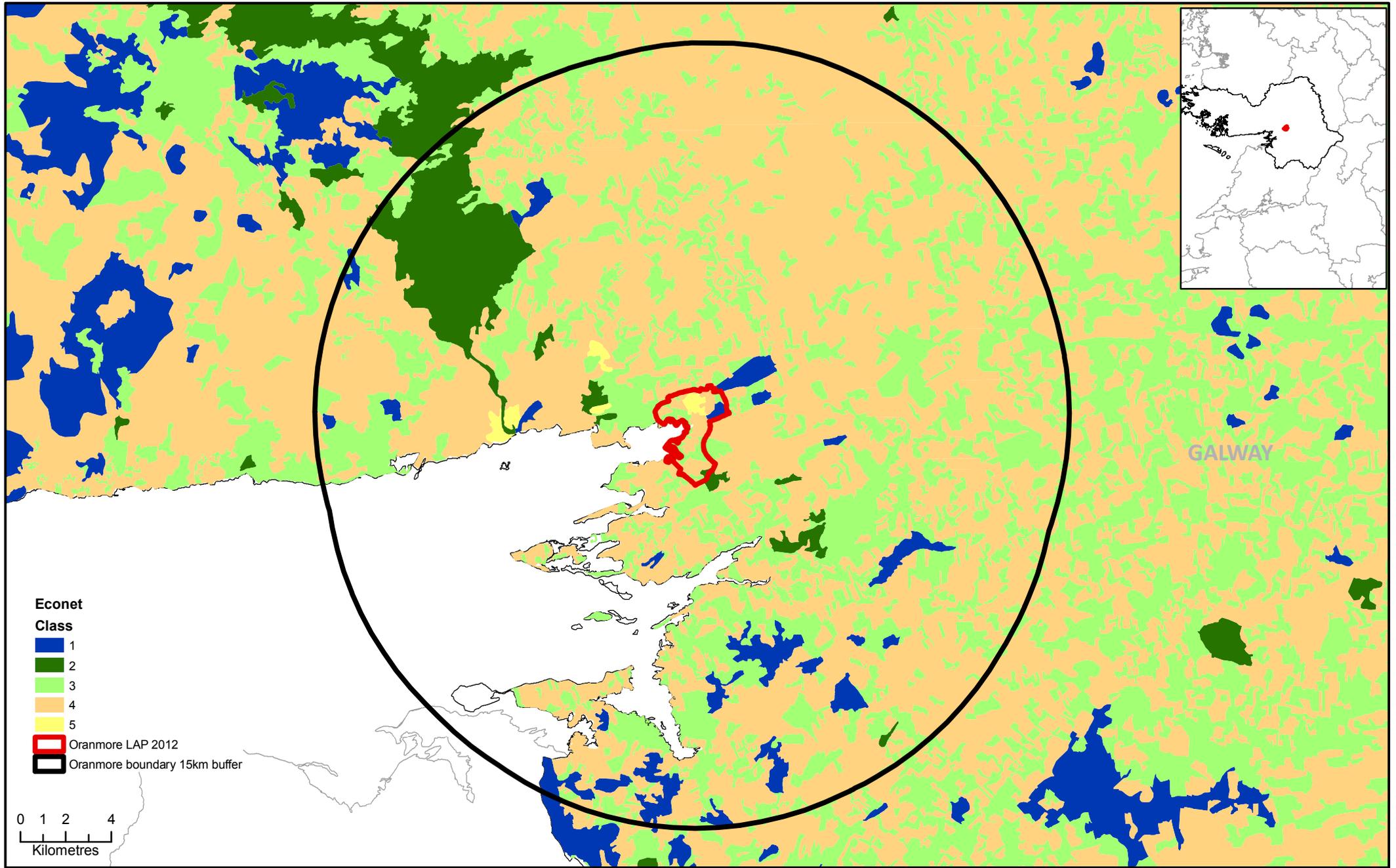
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FIGURE 4d: ECOLOGICAL NETWORK

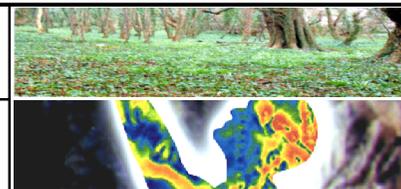
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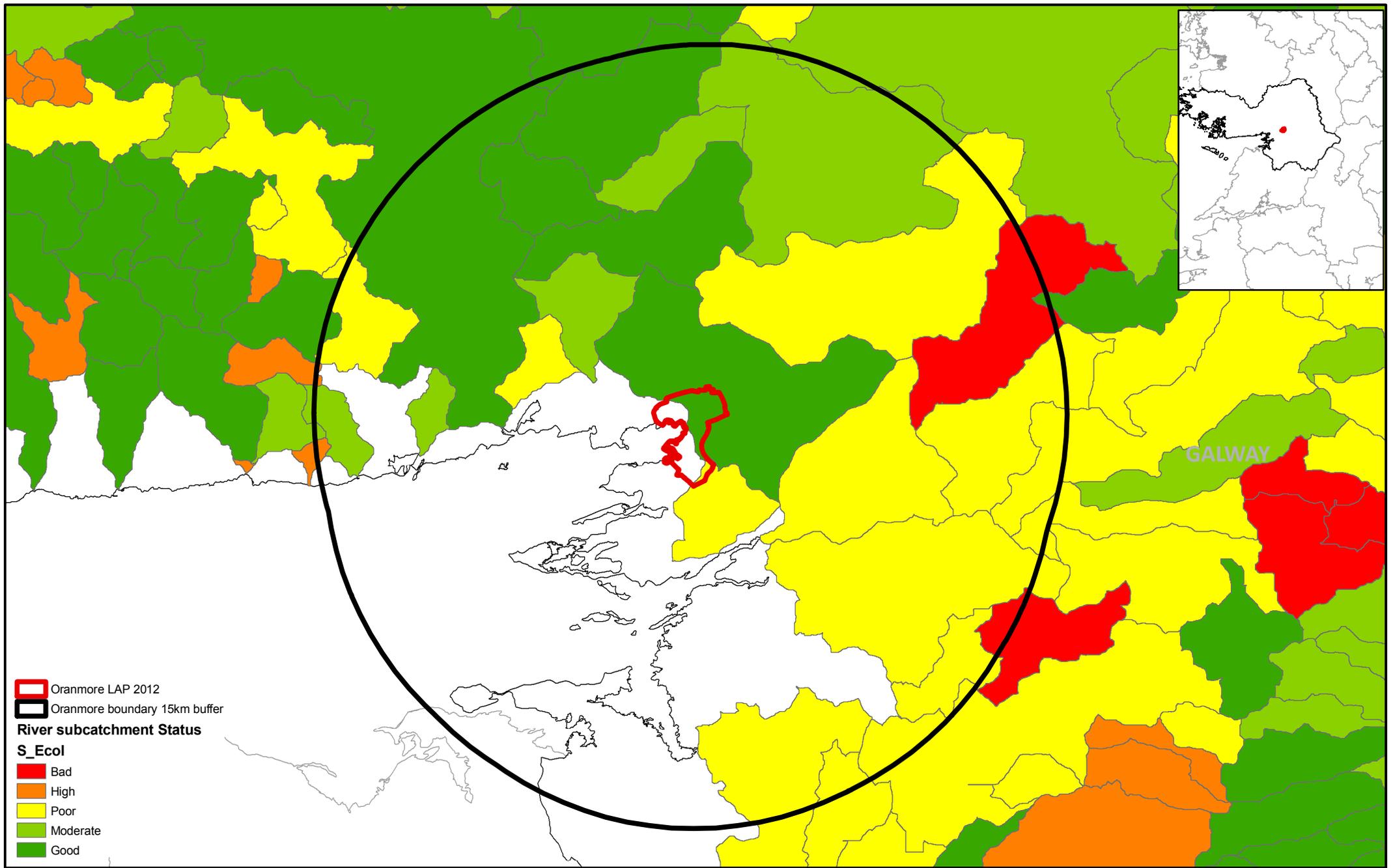


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FIGURE 4e: RIVER SUB-CATCHMENTS WATER QUALITY

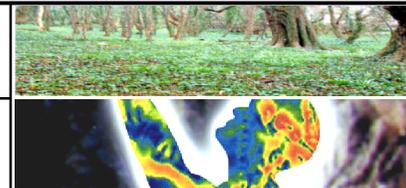
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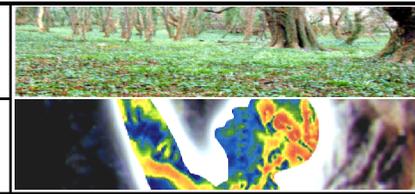
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FIGURE 4f: FRESHWATER HABITATS

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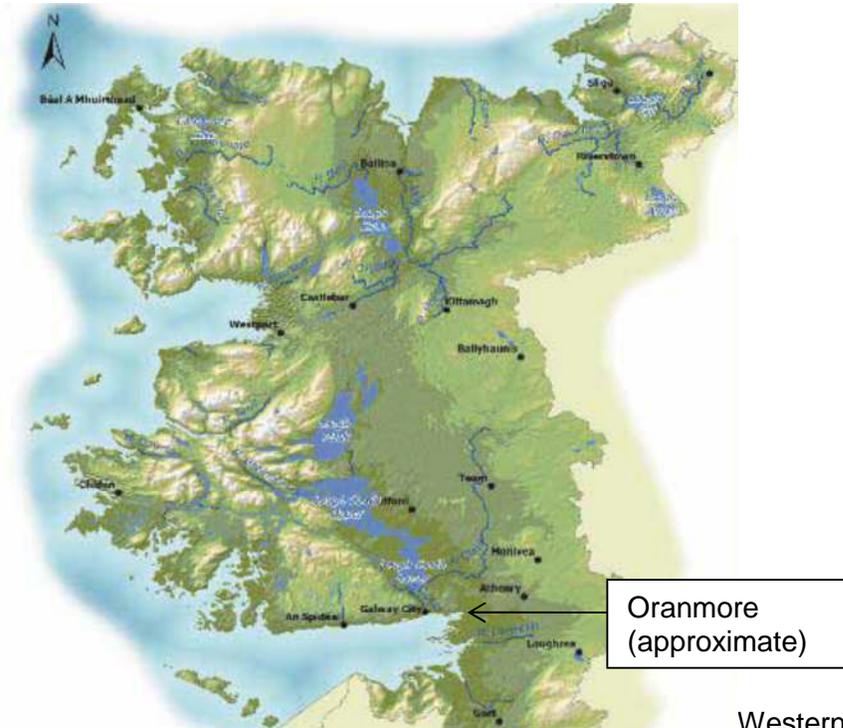
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4.3 Water Resources

As the previous section demonstrates, water quality has a clear interaction and impact with other key environmental parameters and its protection and enhancement is of particular importance. In the instance of Oranmore, surface water quality overall is classified as good and the ongoing maintenance and enhancement of this status is an integral element of the LAP. However, groundwater within the plan area is classified as poor.

4.3.1 Water Framework Directive and Flood Directive.

The Water Framework Directive (WFD) is a key initiative aimed at improving water quality throughout the EU. It applies to rivers, lakes, groundwater, and coastal waters. The Directive requires an integrated approach to managing water quality on a river basin basis; with the aim of maintaining and improving water quality. The Directive requires that management plans be prepared on a river basin basis and specifies a structured approach to developing those plans. It requires that a programme of measures for improving water quality be brought into effect by 2012 at the latest. River Basin Management Plans are to be prepared and renewed in six year cycles and the first plans cover the period to 2015. River Basin Management Plans were finalised for each of the 7 river basin districts in July 2010. These plans are a blueprint for the protection and improvement of waters in the period to 2015 and beyond. They cover approximately 800 groundwater bodies and 5,000 surface water bodies (canals, rivers, lakes, transitional and coastal waters). The plans set out the current status of our waters, the objectives to be achieved by 2015, and the programme of measures to be implemented in order to achieve those objectives. County Galway is located entirely within the Western River Basin District and the following image shows the scale and extent of this district.



Western River Basin District¹

The Western District is wholly within the Irish Republic. It is bordered to the Northwest by the North

¹ Source: Western River Basin District Draft River Basin Management Plan 2008

Western International River Basin District, to the east and south by the Shannon International River Basin District and to the north and west by the Atlantic ocean. The basin area includes practically all of Mayo and Sligo, the Galway Urban District area, significant portions of Galway and Leitrim counties and smaller portions of Roscommon and County Clare. It also includes offshore islands such as the Aran Islands and Inishboffin. The basin area extends over some 12,193 km² with some 2,700 km of coastline and an extensive off shore area. Large areas of the district have been designated as Special Areas of Conservation (SAC) under the European Union (Natural Habitats) Regulations, 1997 and Natural Heritage Areas (NHA), designated under the Wildlife (Amendment) Act 2000. Special attention must be paid to the needs of these areas where species are dependent on the water habitat resulting in receptor water bodies being designated as more sensitive to pressures.

The basin is dominated in the eastern part (where Oranmore is located), east of the great western lakes, principally by well drained karst limestone overlain by grassland generally used for agricultural purposes. This area stores large quantities of groundwater which both feeds into the lake systems and also provides a significant source of drinking water to the region. The western part of the basin is dominated by wet peatland and forestry.

Floods Directive

The EU Directive on the assessment and management of flood risk (the 'Floods Directive' [2007/60/EC]) requires Member States to prepare flood maps for areas of potentially significant flood risk, and to develop flood risk management plans (FRMPs) setting out measures aimed at achieving objectives to manage the risk in these areas. In Ireland, these requirements (transposed into national law through S.I. No. 122 of 2010) are being implemented through the Catchment-based Flood Risk Assessment and Management (CFRAM) Studies. The outputs from the CFRAM Studies will be catchment-based flood risk management plans (CFRMPs) and associated flood maps. The CFRMPs will be valid for the period 2015- 2021 and will be reviewed on a six-yearly basis.

The Directive requires that the PFRA, flood maps and flood risk management plans are prepared in cooperation and coordination with neighbouring states in cross-border river basins, and with the implementation of the Water Framework Directive. The Directive also requires that the PFRA and flood maps are published, and that public and stakeholder consultation and engagement is undertaken in the preparation of the flood risk management plans.

In line with government policy on flood risk management, as adopted in 2004, the OPW is in the process of implementing a Catchment-based Flood Risk Assessment and Management (CFRAM) Study programme as a means of addressing the flooding risk over the long-term in Ireland.

The CFRAM studies have been subject to SEA Screening and a determination that this will be subject to full SEA. A SEA screening report has been produced for CFRAMs and this has highlighted probable potential issues relating to a range of parameters. The CFRMPs will aim to manage flood risk in the study areas in a manner that is compatible with the continued protection of existing habitats and will support the objectives of the WFD with regard to Good Ecological Status/Potential (GES/GEP) of the water bodies within the study area.

In essence, both the WFD and Floods Directive support integrated water management, on a river basin district approach. Clearly there is a strong relationship between flood risk management and meeting and promoting good functioning water systems. The complex relationship between land use and water quality, and the interaction between coastal, surface,

groundwater systems and water quality and flood risk is at the core of integrating the WFD and Floods Directive in land use strategies. Further information on flood risk management is provided in the Material Assets Section of this chapter and impacts and mitigation measures related to same are discussed in Chapters Seven and Eight of this ER.

4.3.2 Surface Waters

Oranmore is located predominantly within the Clarin Kilcolgan Water Management Unit Action Plan (WMU) and within the Western River Basin District. A small area of the LAP around Garraun is located within the Corrib Water Management Unit. The Frenchfort River (WFD Code: IE-WE-29-132) which runs through Oranmore has a classification of 'good'. The overall objective for Frenchfort is to protect it. However, it can be noted that the most recent EPA status classification on rivers in the larger WMU indicates that only 8% of all river channel length is classed as 'good' with no river lengths at 'high' status. Some 7% of river length is classed as 'moderate' with 66% 'poor' and 19% at 'bad' status. The water body unit for Oranmore indicates that this catchment is considered to be at risk from agricultural pollution in the WMU Action Plan. The sources identified as giving the river 'at risk' status are diffuse sources, overall unsewered and overall unsewered phosphorous.. Photo 3 shows the Frenchfort River from the N18.



Photo 3: Frenchfort River from N18

In terms of drinking (potable) water, supplies for Oranmore are currently taken from the Tuam Regional Water Supply Scheme and are considered sufficient. Further information on same is given in Section 4.9 Material Assets.

4.3.3 Groundwater

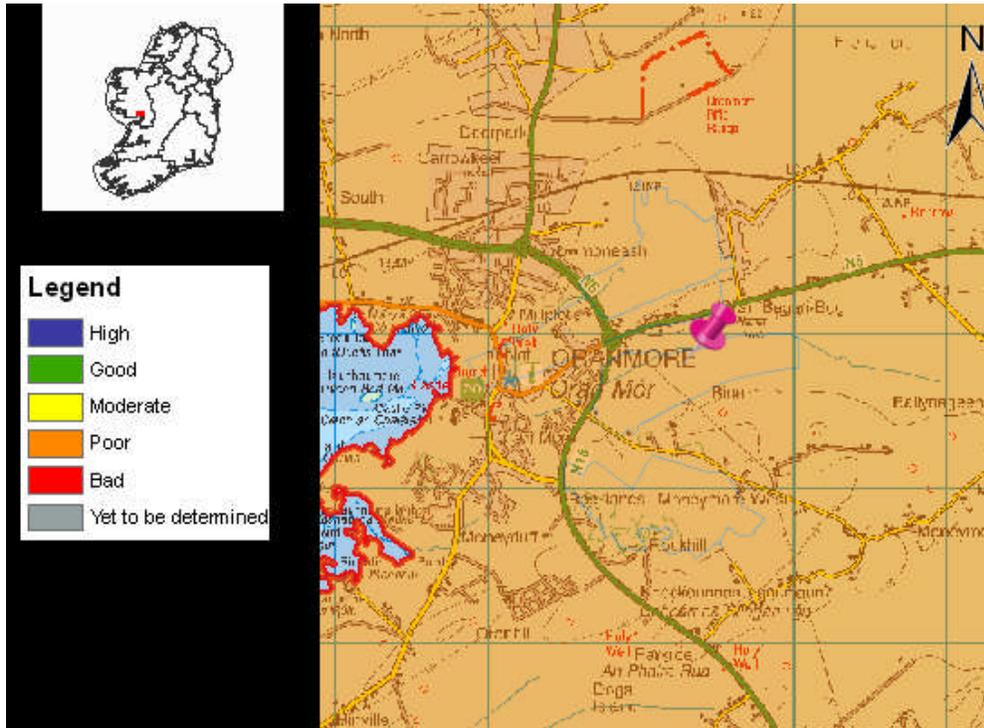
Groundwater is a further significant resource and refers to water stored underground in saturated rock, sand, gravel, and soil. Surface and groundwater functions are closely related and form part of the hydrological cycle. The protection of groundwater from land uses is a critical consideration and groundwater vulnerability is becoming an important management tool. The entire island of Ireland has been designated as a Protected Area for Groundwater under the WFD. Groundwater is important as a drinking water supply as well as the supply to surface waters across the Region. Aquifers are exposed in our surface lakes and rivers. Most groundwater originates from the surface but it permeates through the ground to supply (or 'recharge') wells or boreholes. Groundwater is exposed to higher concentrations of pollutants that are retained in the layers of rock and soil (Todd, 1980). The exposure to pollutants lasts much longer as groundwater moves at a slower pace through the aquifer. The quality of our drinking water supply, fisheries and terrestrial based habitats is intrinsically linked with groundwater quality. The Geological Survey of Ireland (GSI) aquifer categories are based on their vulnerability to pollution, i.e. the ease at which it can enter the subsurface layers. Aquifers of 'high or extreme vulnerability' are more sensitive to pollution. Groundwater that readily and quickly receives water (and contaminants) from the land surface is considered to be more vulnerable than groundwater that receives water (and contaminants) more slowly and in lower quantities. The classification of extreme or high vulnerability means that the groundwater in these areas is very vulnerable to contamination due to hydrogeological and soil factors.

Figure 4h shows groundwater vulnerability zones and the current surface and groundwater abstraction sites within Oranmore and a 5km buffer from the town's functional area. In addition to ecological functions, surface water and groundwater continues to be a significant resource for residential and agricultural uses notably abstraction. Two such groundwater abstraction sites are identified within the 5km buffer for Oranmore but not within the plan area.

In County Galway, the most productive 'regionally important aquifers' and those most 'vulnerable' to pollution are situated beneath much of the area to the east of Lough Corrib, areas surrounding Lough Corrib and the Aran Islands. As Figure 4h shows, Oranmore is located over an area of 'high' to 'extreme' groundwater vulnerability. Moderate areas are also located within the plan area, frequently associated with karst or rock outcrops.

The WFD (see Figure below) identifies much of the groundwater in and to the east, south and north of Oranmore as being of poor status.

Figure 4h(i) Groundwater status



Correspondingly, in terms of being at risk of failing to achieve the 2015 Good Status required under the WFD, the same areas are identified as being 'probably at risk of not achieving good status'. This is shown in Figure 4i below.

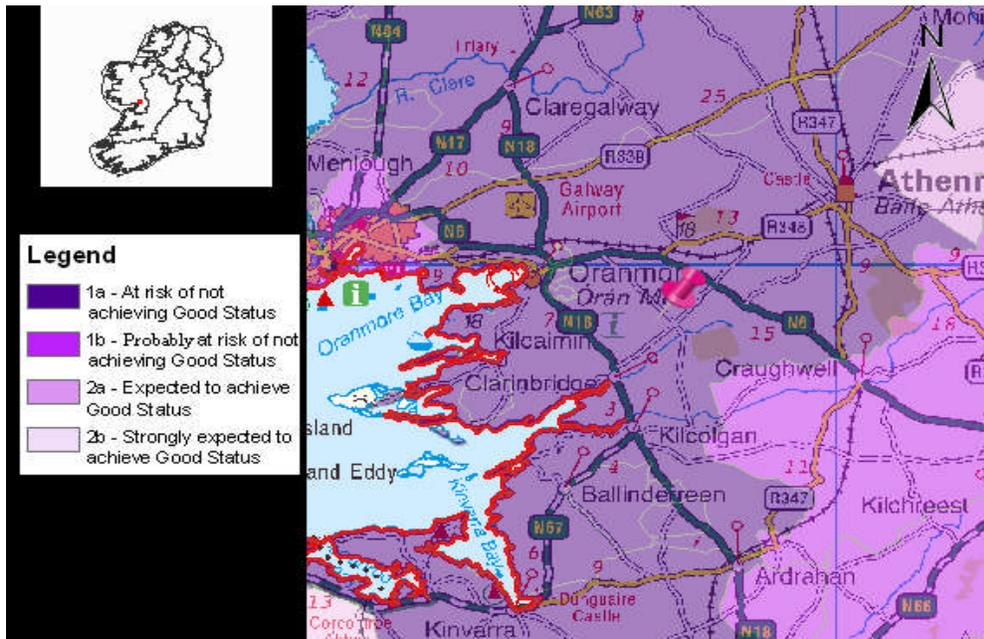


Figure 4i: Risk Status

4.3.4 Estuarine

Oranmore Bay is located within the Western RBD Transitional and Coastal Waters Action Programme. In the action programme, the 2005 risk assessment found that Inner Galway Bay is identified as being 'at risk' or 'probably at risk', with nutrient input presenting the identified threat.

A number of areas are already designated as Shellfish Waters in County Galway. This means the European Communities (Quality of Shellfish Waters) Regulations 2006 gives legal protection to a number of shellfish water areas and places an onus on public authorities in Ireland to ensure that the water quality in those areas is protected. The Shellfish Waters Directive is designed to put in place concrete measures to protect waters, including shellfish waters, against pollution and to safeguard certain shellfish populations from various harmful consequences, resulting from the discharge of pollutant substances into the sea. The Directive applies to the aquatic habitat of bivalve and gastropod molluscs only; it does not include crustaceans such as lobsters, crabs and crayfish. Inner Galway Bay supports licensed aquaculture, producing rope mussel and oyster. Designated Shellfish Waters include Kinvara/Clarinbridge and Kilkieran Bay.

4.3.5 Coastal

EPA data from 2009 identifies 11 bathing water areas in County Galway, of which 10 are located along the coast. 9 of these are identified as compliant with EU Guide and Mandatory Values and are of 'Good' quality. Tra na Forbacha on the southern Galway coast is identified as having 'Sufficient' quality, compliant with EU Mandatory values only. Clifden on the western coast is identified as 'poor' water quality – non compliant with EU Mandatory values. A further two bathing waters are located in Galway City, at Salthill and Silverstrand. There are no bathing water areas directly within the plan area.

4.3.6 Key Environmental Problems for Water

The principal environmental problems associated with water in the Oranmore area and environs are those associated diffuse sources largely associated with agricultural activities and septic tanks or un-sewered properties. Phosphorus contributes to the pressures on groundwater and nutrient sensitive turloughs. Nitrates are not a significant concern to groundwater bodies in County Galway, however phosphorus which is dependent on soil type, subsoil type, aquifer type and aquifer vulnerability (i.e. how much phosphorus that the soil can absorb before it becomes saturated and excess is washed away etc.) is an issue of concern. Interference in hydrological processes through infilling and draining of wetlands and fens is also another area of concern.

The SEA Environmental Report of the WRBD Management Plan identifies the following environmental pressures on surface and groundwater quality:

- **Wastewater and Industrial Discharges**

Inadequately treated effluents and spills or leakage from sewerage networks can lead to unacceptable levels of pollutants in receiving waters. These pollutants can damage water quality and downstream uses (for example bathing waters, shellfish waters or waters supporting sensitive species). In the Western District, estimates indicate that municipal and industrial discharges produce over 16% of the yearly phosphorus load and 3.5% of the nitrogen load. There have been cases of rivers and coastal areas (such as Galway City) that have been seriously polluted by this type of discharge and in response facility improvements are being put in place in many urban areas.

- **Landfills, Mines, Quarries and Contaminated Sites**

Waste disposal sites (including old un-lined landfills), quarries, mines, gasworks sites and industrial lands produce lesser discharges to waters than wastewater plants and industries; however, subsurface residues or waste may continue to threaten groundwater and surface waters.

Two main water quality problems relating to agriculture have been identified; these are enrichment of water by nutrients (phosphorus and nitrogen) and organic pollution from animal slurry/manure and silage effluent. A third, pesticides, is covered under dangerous substances. Agriculture is the principal land use activity in the eastern part of the Western District, with 67% of land used for this purpose. Estimates of nutrient input into waters in the Western District indicate that agriculture produces over 45% of the yearly phosphorus load and 80% of the nitrogen load but this is spread in a diffuse manner over the entire basin.

- **Wastewater from Unsewered Properties**

In rural areas many houses and businesses are not connected to public systems that collect, treat and dispose of wastewater, and they rely mainly on on-site systems (conventional septic tanks or proprietary systems) via soil percolation areas, which if not designed, installed or operated properly can result in water pollution. Two of the four counties with the highest percentage of one-off housing in Ireland are in the WRBD; Galway (52%) and Roscommon (43%). In addition, the ever increasing number of holiday homes being constructed in the coastal counties (Galway, Mayo, Sligo and Clare) and their associated septic tanks pose a potential problem to the District's waters. As many properties are spread over wide areas, provision of public sewerage systems, especially ahead of new development, is very difficult and often very costly.

- **Discharge of Dangerous Substances**

Some dangerous substances can be toxic to aquatic plants and animals. They can persist in waters and sediments, and slowly build up in the bodies of aquatic organisms, poisoning them and causing problems higher up the food chain or interfering with natural breeding processes.

- **Physical Modifications**

Physical modifications can impact waterways by directly affecting habitats, or by indirectly changing natural processes through altering plant and animal communities, by reducing their variety or numbers. Land drainage, overgrazing, de-forestation and cattle access can have an indirect effect, changing how much and how fast water drains off the land, resulting in an increased risk of property flooding. There have been a number of large-scale schemes in the Western District involving physical modifications. Stretches of the drained river systems need to be dredged from time to time removing silt build-up to reduce flooding risk and ensure that the system is navigable. In addition, widespread development on the floodplains in the basin and in particular the potential effects on water quality and flooding behaviour as a result of the physical modifications to flood plains are of concern. Localised drainage by landowners can also lead to local flood problems.

- **Climate Change**

The impact of climate change is difficult to predict, however there is the potential for heavier winter rainstorms to cause more flash flooding, resulting in an increase in diffuse pollution loads from soil runoff and increasing demand for flood controls. Summer droughts are considered likely and recent reports have indicated that the effects of climate change in Ireland will have

serious consequences for water resources, resulting in a potential 40% reduction in drinking water supplies. Also, temperature changes may give invasive alien species a competitive advantage.

- **Local Issues**

Excessive nutrients in natural waters can lead to the growth of algae and weeds. This enrichment of water is called eutrophication and it is recognised as a major threat to the quality of Irish waters. Algal blooms and weeds can disrupt the normal functioning of an ecosystem, causing a variety of problems. They reduce the value of the affected waters for fishing, swimming and boating and can also interfere with the treatment of drinking water.

- **Alien Species**

Three particular species of concern in the RBD are the Zebra Mussel (*Dreissena polymorpha*), Japanese knotweed (*Fallopia japonica*) and Curly Leaf Pondweed (*Lagarosiphon*).

- **Insufficient water and wastewater treatment** (see also section on Population and human health)

Finally, flooding can have a negative impact on water quality through soil erosion, pollutants entering the water system, damage to riparian zones and impacts on water dependent habitats and species amongst others. The Floods Directive and identification of flood risk zones (Zones A, B and C) within Oranmore has informed the draft LAP and has been assessed through the SEA and HDA process. The avoidance of developments in known flood plains and flood risk areas reduces the overall exposure to damage from flooding and the accompanying negative impacts on water quality, biodiversity, human health and other material assets. Further information on this is given in the Material Assets section of this chapter, and discussed in more detail in Chapter Seven of this ER

4.3.7 Evolution of water in the absence of the LAP

If development was to occur without being accompanied by the appropriate waste water infrastructure then it is likely that a number of water bodies would fail to meet WFD commitments in the short or medium term. Also, the extent and severity of adverse impacts with regard to biodiversity and flora and fauna, groundwater and human health as a result of poor water quality would be likely to increase.

In the absence of the LAP, the integration of the Strategic Flood Risk Assessment for County Galway 2012 and land use zonings would not occur and incompatible development may occur on flood risk areas, again with permanent and profound negative impacts on biodiversity, water, material assets, population and human health.

4.4 Soil and Geology

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. Soils in any area are the result of the interaction of various factors, such as parent material, climate, vegetation and human action.

Although the EU has produced a Thematic Strategy for Soil Protection, the proposed Framework Directive for Soils has not been established in law and hence not transposed into national legislation yet. Article 5 of the proposed Directive states that, *'for the purposes of preserving the various functions of soil; sealing, the development of artificial surfaces on top of soil resources, should be limited.'*

The proposed Directive suggests that this may be achieved through rehabilitating brownfield sites, thus reducing the depletion of greenfield sites. The proposed Directive also states soil should be used in a sustainable manner which preserves its capacity to deliver ecological, economic and social services, while maintaining its functions so that future generations can meet their needs.

Figure 4j shows the soil map for the Oranmore LAP area including a 15km buffer. The principal soil types indicated include:

- Deep well drained mineral
- Made/Built Land
- Peat
- Poorly drained mineral soil with peaty topsoil
- Reed Swamp/Marsh
- Shallow well drained mineral
- Marine/estuarine sediment

4.4.1 Bedrock Geology

The basic rock formation of County Galway varies between the eastern and western half of the County. The bedrock geology of the County to the east of Lough Corrib consists of mainly limestone which was laid in the carboniferous period, around 280 to 345 million years ago. The Irish Geological Heritage (IGH) Programme (Geological Survey of Ireland (GSI) and the National Parks and Wildlife Service (NPWS)) aims to identify, document, protect and conserve geological heritage in Ireland, promoting its value with the landowners and the public. These sites are still being assessed, however some may be proposed for designation as Natural Heritage Areas. Whilst none are located within the immediate area of Oranmore, there are 3 geological heritage sites within a 15km buffer of Oranmore. These have been identified for their geological characteristics including;

- Lower Carboniferous;
- Galway Black Marble, Brachiopod Fossils; and
- Asbian carbonate mound.

4.4.2 Key Environmental Problems for Soil and Geology

Soil erosion can occur with construction activities, agricultural activities and forestry operations, extractive industries, forestry practices, industrial and commercial and road projects and other major infrastructural projects. Surface soil erosion (loose soil) impacts on water quality and fishery resources; similarly development on peat bogs can result in landslides. Developments can potentially distort the natural drainage of an area. Pollution and contamination of soil can occur if not serviced by appropriate waste water infrastructure and excess nutrients on land from agricultural activities (where soil becomes saturated) results in run-off to surface water, eutrophication and poor quality drinking water supplies.

The EPA² has identified the main pressures on soil resources nationally to be:

- intensive agriculture and organic waste disposal
- Forestry
- Industry
- Peat extraction and
- Urbanisation and infrastructure development.

Such activities can contribute to soil degradation including loss of organic matter, declining soil fertility, loss of soil stability, soil compaction, contamination, loss of biodiversity and loss of soil to buildings and infrastructure. Because of the complex interrelationship between water, air and soil, declining soil quality can contribute to negative or declining water or air quality and function.

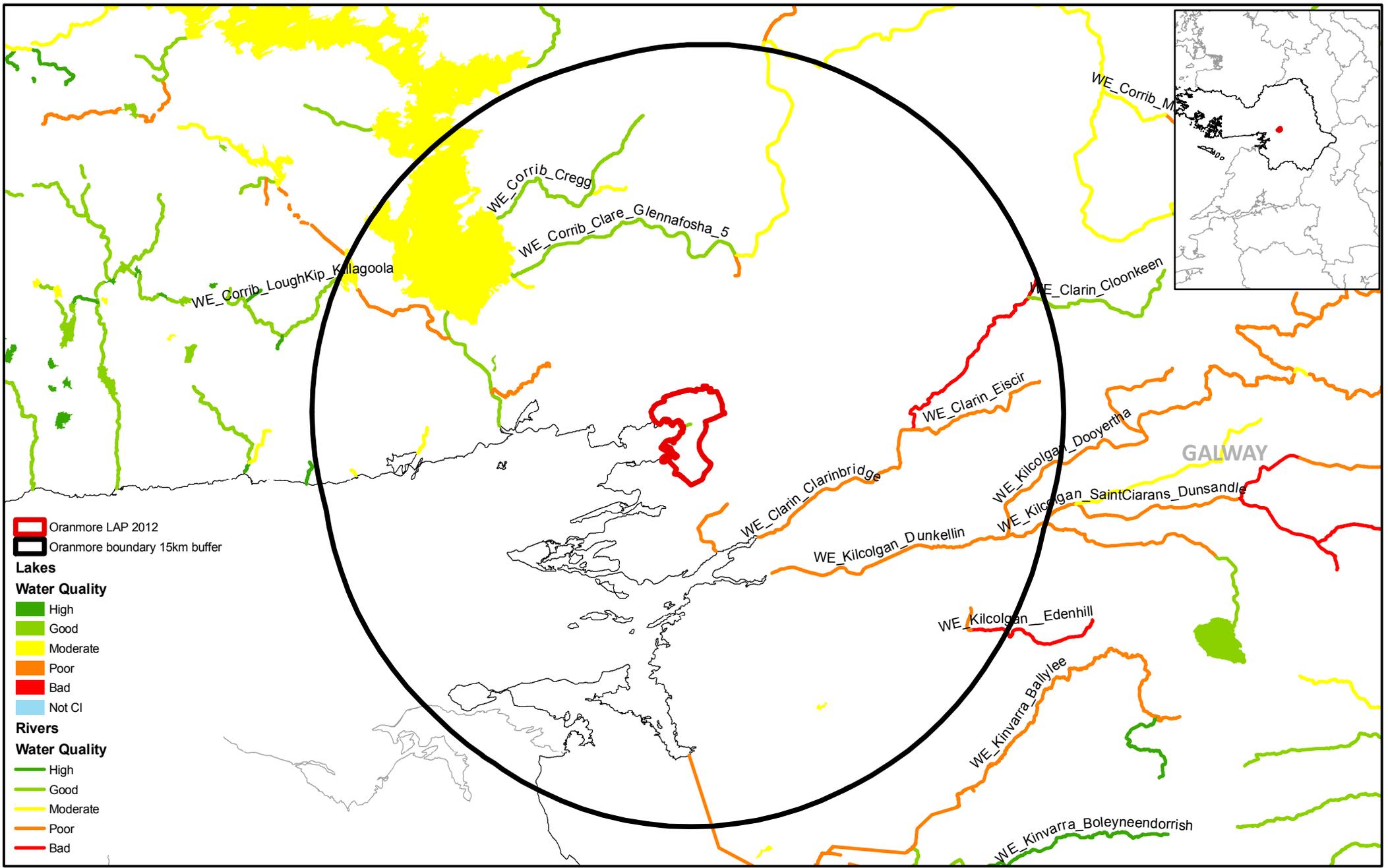
Extraction of sand, gravel or rock in an area ultimately leads to the total removal of a resource within a given area and can lead to localised environmental problems.

The identification of geological NHAs and County sites of interest will assist in the development of appropriate management regimes for these sites, either through avoidance or mitigation measures.

4.4.3 Evolution of soil and geology in the absence of the LAP

The currently proposed Soil Directive suggests encouraging the rehabilitation of brownfield sites, thus reducing the depletion of greenfield sites. However, in the absence of a LAP there would be no framework for the direction of growth towards brownfield sites in Oranmore, where such direction is appropriate. As a result greenfield development would be likely to occur on an increased basis and would result in the building upon and thereby sealing off of the non-renewable subsoil and soil resources. In the absence of policies regarding water management and land use objectives, adequate protection would not be given to groundwater protection and associated impacts on soil quality.

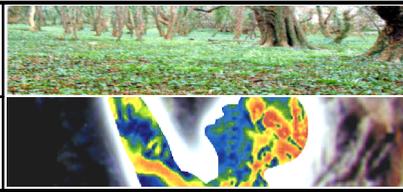
² EPA discussion document "Towards setting environmental quality objectives for soil: developing a soil protection strategy, 2002.



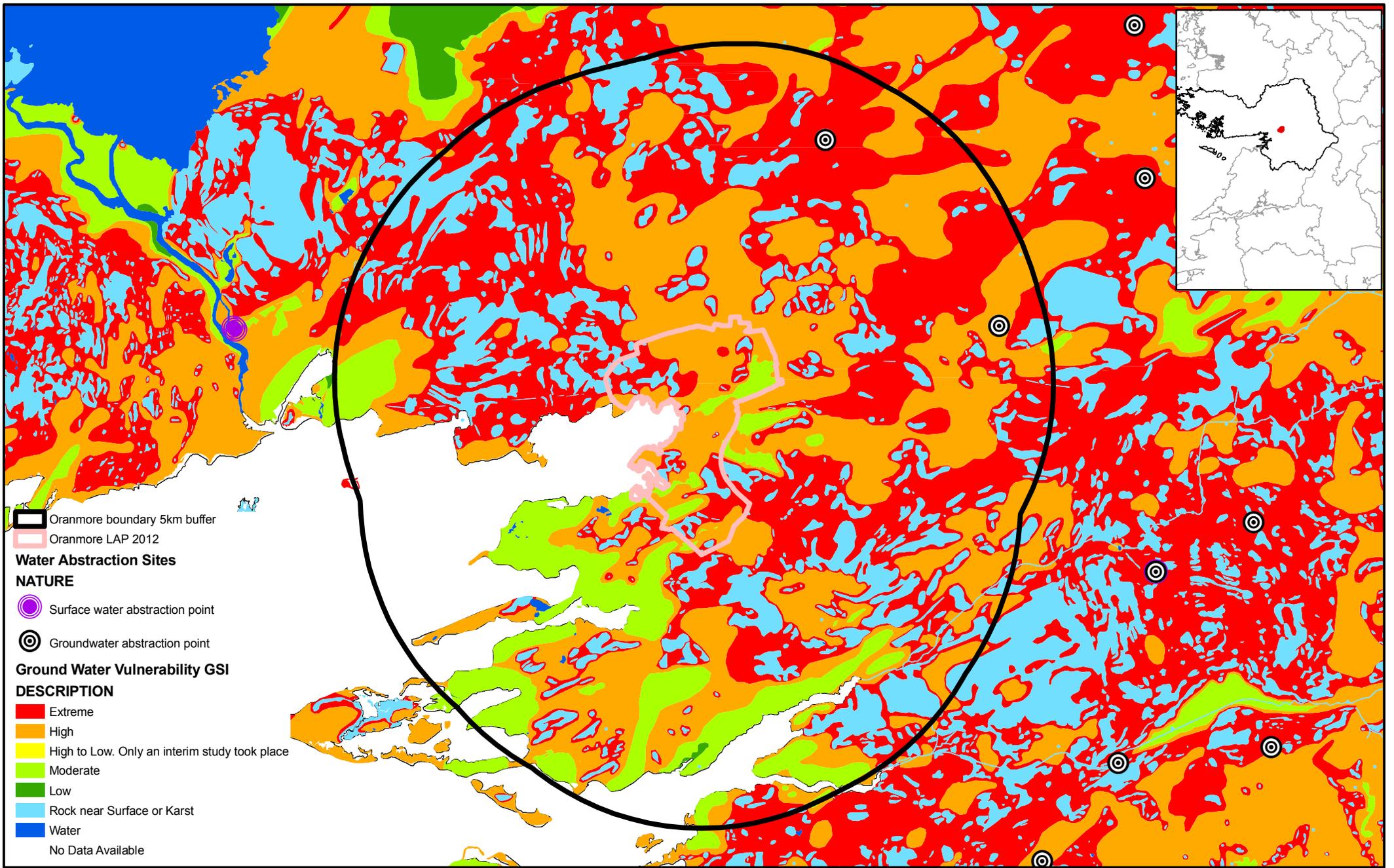
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FIGURE 4g: WATER QUALITY

Galway County Council Oranmore Local Area Plan SEA



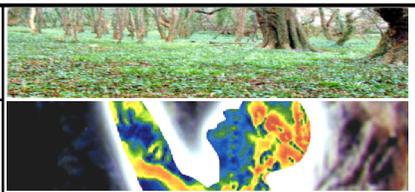
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FIGURE 4h: GROUNDWATER VULNERABILITY (GSI)

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